6. ALTERNATIVES TO THE PROPOSED PROJECT

6.1 INTRODUCTION

An EIR prepared pursuant to CEQA and the State CEQA Guidelines must describe and comparatively evaluate a range of alternatives to the proposed project (see Section 15126.6 of the CEQA Guidelines). The lead agency, in this instance the CPUC, is given substantial latitude in determining the range of "reasonable" alternatives under the general guidance that alternatives must be "feasible" and "shall be selected and described in a manner to foster meaningful public participation and informed decision making." The analysis of the environmental effects of the alternatives is intended to be less detailed than the analysis of the proposed project, and to be primarily comparative.

The project, an auction of the hydroelectric facilities and subsequent divestiture, has been proposed in response to Assembly Bill 1890, which requires that the market value of all non-nuclear electrical generating facilities be determined. An auction, however, is not the only method of determining market valuation. California Public Utilities Code Section 367(a) allows that the market value can be determined by appraisal, sale or other divestiture. Thus, the analysis of alternatives in this EIR examines methods of valuation other than the auction. In addition, the auction as proposed by Pacific Gas and Electric Company is not the only method by which an auction of the assets could occur. Therefore, the alternatives analysis considers a variety of structures for the auction (e.g., different ways of bundling the facilities for sale). The CPUC could select to market value different assets included in the project in different manners, using the information provided in this EIR.

This EIR addresses not only the auction and divestiture of the hydroelectric facilities, but how future owner(s) could be expected to operate those facilities and manage, develop or dispose of the Project Lands. Therefore, the alternatives described herein also address how alternative methods of valuation would affect the future operation of the hydroelectric facilities and the management, development and/or disposition of the Project Lands.

The auction proposed by Pacific Gas and Electric Company combines the hydroelectric facilities into five regional, and 20 smaller bundles. This could result in anywhere between one and 20 future owner(s) of the hydroelectric facilities. The new owner(s) may have varying objectives for purchasing the hydroelectric facilities, related to power production or water supply. This EIR utilized a set of conservative assumptions (described in Chapter 3, Approach to the Environmental Analysis) related to hydrologic operations to develop two scenarios: (1) PowerMax, where the new owner(s) would maximize power production from the hydroelectric facilities; and (2) WaterMax, where the new owner(s) would maximize water supply delivery by modifying reservoir operations. These two operational scenarios were the subject of hydrologic modeling, which also considered

future operations under the No Project Alternative (analyzed in this Chapter), in which the auction and divestiture of the hydroelectric assets would not occur, as well as the Proposed Settlement Alternative (analyzed in this chapter).

Additional conservative assumptions were also developed related to potential future changes in management of the lands, including timber harvest practices, agriculture activities (primarily in terms of grazing), and mining operations. In addition, assumptions were developed about the future development potential of the Project Lands. The environmental effects associated with new owner(s) managing or developing land consistent with these assumptions were explored in Chapter 4.

Because of the many possible permutations of the project, and to avoid confusion throughout this large document, certain potential manifestations of the project are analyzed in this chapter as alternatives. As a result of the assumptions set forth in Chapter 3 and carried out in the analyses in Chapter 4, a wide range of possible outcomes of the proposed auction have been evaluated, including purchase of assets by entities seeking to maximize power generation or purchase of assets by entities desiring to maximize water supply, with purchasers of either character buying and operating one or more of the 20 smaller bundles. That analysis reflects a wide range of potential outcomes of the project as proposed. Nevertheless, this chapter describes additional scenarios, some of which are also potential outcomes of the project. For instance, this chapter addresses purchase of all of the facilities for sale by a single owner. This could be a result of the auction as proposed, or the CPUC could order that the assets be auctioned in a single bundle. As another example, this chapter discusses (in a general manner) decommissioning of hydroelectric plants. It is conceivable that a plant may be decommissioned as a result of the auction, for instance if no bids are received and Pacific Gas and Electric Company seeks to decommission the facility or if an organization purchases a facility with the intention of decommissioning it.

Although CEQA only requires consideration of a reasonable range of alternatives, owing to the complexity of the project, the number of future ownership scenarios, the variety of valuation methods, and the range of operational motivations, as well as land management and development assumptions, this section considers a broad range of alternatives. The range of alternatives explored through both the project analysis in Chapter 4 and in this chapter covers a variety of permutations concerning the numerous elements of the project, including method of valuation, entity owning the assets, and the treatment of land and assumptions concerning its use. However, it is not intended merely that the project or any of the alternatives evaluated in this chapter would need to be adopted wholesale by the CPUC in its action. Rather, in order to provide the CPUC with substantial flexibility in its consideration of Pacific Gas and Electric Company's application, the information in this EIR provides the CPUC with a broad range of choices as to how to treat any particular aspect or component of the project. While the CPUC could approve the project as proposed, or could adopt an alternative as specified in this chapter, this EIR provides sufficient information on the environmental impacts stemming from the various components of the project and alternatives such

that the CPUC could elect to "mix and match" among elements of the project and alternatives to create a package for approval that more closely meets the CPUC's objectives.

6.2 PROJECT BACKGROUND

Per AB 1890, as part of the restructuring of California's electrical industry, the CPUC must determine the market value of all of Pacific Gas and Electric Company's non-nuclear generating assets by the end of 2001. The facilities, lands and water rights included in the auction of hydroelectric generation assets are described in Chapter 2, Project Description. For the purposes of this EIR, the "project" consists of auction of the assets, the transfer of ownership, and the possibility that ownership change would result in changed operation of Pacific Gas and Electric Company's hydroelectric generation facilities (and related assets, including the associated Watershed Lands) by the new owner, or multiple owner(s), which would probably not be regulated by the CPUC.

6.3 PROJECT OBJECTIVES

In September 1996, California's electric industry restructuring legislation, Assembly Bill 1890 (AB 1890), was signed into law. AB 1890 supported the establishment of a competitive generation industry separate from electric power transmission and distribution operations. As part of AB 1890's transition to generation competition, Public Utilities Code Section 367 requires that Pacific Gas and Electric Company's generation assets be valued for the purpose of calculating the stranded costs associated with the assets. Sale is one method of measuring the market value of generation assets. Public Utilities Code Section 367 requires the CPUC to determine the market value of all of Pacific Gas and Electric Company's non-nuclear generating assets by the end of year 2001. Net value in excess of the book value of the assets is to be credited to ratepayers, while any net value less than the book value may be collected from the ratepayers, through what are generally referred to as Competition Transition Charges (CTC). The CPUC has recently determined the market value of Pacific Gas and Electric Company's fossil-fuel and geothermal generating facilities through competitive auctions that resulted in transferring the facilities to the highest bidders in those auctions.

Pacific Gas and Electric Company proposes to use a similar auction process to market value its hydroelectric generating facilities and related assets, and to transfer ownership to the highest bidder(s). Pacific Gas and Electric Company is not required by the new law or Commission decisions to divest its hydroelectric generation assets. While valuation methods other than a price-only auction, such as appraisal, could be employed to comply with Public Utilities Code Section 367, Pacific Gas and Electric Company's proposal relies on a price-only auction. Other methods of valuing the Company's hydroelectric assets are also being considered by the CPUC, and are discussed in this EIR's analysis of alternatives.

Under CEQA, the alternatives to the project should be feasible and attain most of the basic objectives of the project while avoiding or substantially lessening any of the significant effects of the project. It is useful at this time to reiterate the objectives of the project. Pacific Gas and Electric Company's objectives are narrower in scope than the Commission's, though some of its objectives are coincident with the Commission's objectives.

The Commission's objective in this proceeding is to follow its statutory mandate to balance a number of factors to protect the broad public interest. The Commission must ensure the safe, reliable, and environmentally sensitive provision of reasonably priced energy services, pursuant to the Public Utilities Code and CEQA. For this project, that means the Commission must:

- Ensure the facilities are operated safely, in accordance with existing permits and licenses, and in accordance with Public Utilities Code Section 363;
- Avoid the potential for the exercise of undue market power by the new owners of the facilities;
- Maintain system reliability;
- Assign a market value to the generating assets by the end of 2001 through appraisal, sale, or other divestiture, as required by Public Utilities Code Section 367(b), pursuant to which Pacific Gas and Electric Company filed its application;
- Ensure the valuation placed on the generation facilities and Project Lands reflects their true market value; and
- Protect environmental resources affected by the change in ownership in the hydroelectric generation assets and Project Lands.

Pacific Gas and Electric Company's objectives with respect to the proposed sales, as identified in the PEA (PEA, Volume 2, p. 2-2), are as follows:

- Provide a measure of the market value of the hydroelectric assets by December 31, 2001, as required by AB 1890;
- Preserve asset values by requiring a "price-only" final bid that will result in the assets going to the bidders that place the highest economic value on the assets;
- Further AB 1890's goal of separating monopoly utility transmission functions from generation functions;
- Ensure that system reliability is maintained by requiring facilities essential to reliability to continue to operate under "must-run" contracts with the Independent System Operator (ISO), and requiring certain units that have historically maintained distribution reliability to operate under "islanding agreements";
- Ensure that the facilities continue to operate in accordance with existing contractual obligations, particularly water supply and delivery commitments;
- Ensure that the hydroelectric facilities continue to operate safely and reliably under conditions established by FERC and other applicable laws and regulations;
- Ensure that the facilities continue to operated by trained, experienced personnel during the two-year operations and maintenance period;

- Ensure that soil and groundwater contamination, and any eventual decommissioning activities, will be addressed as required by law; and
- Ensure continued knowledgeable and responsible stewardship of natural resources.

6.4 ALTERNATIVES SCREENING METHODOLOGY

This section describes the methodology used to develop, screen and select potential alternatives. Because of the nature of the project, there are a wide variety of alternatives that could be considered, including various scenarios for valuation of the hydroelectric facilities, ownership of those facilities and the Project Lands, operation of the facilities, and management and/or development of the lands. Analysis of every possible alternative or option or combination of options would overburden the EIR with an unnecessary amount of detail that would be redundant and complex, and would as a result fail to provide meaningful information for the CPUC to consider in its review of the project.

To develop the alternatives that are analyzed herein, an extensive list of potential alternatives was prepared, which included alternatives suggested in the public scoping process and in testimony before the CPUC on the proposed application. Each potential alternative was evaluated to determine whether it would: (1) feasibly attain most of the basic objectives of the project; (2) have the potential to avoid or substantially lessen any of the significant effects of the project; and (3) likely be considered feasible.

The alternatives screening process consisted of five steps:

1. Identify potential alternatives.
2. Condense the list of potential alternatives by combining duplicates and grouping similar alternatives.
3. Evaluate each potential alternative to determine whether it would attain most of the project objectives. If it was determined that the alternative would not attain most of the project objectives, it was eliminated from further consideration.
4. Evaluate the remaining alternatives to determine whether they would reduce or avoid any of the potentially significant impacts of the project. If it was determined that an alternative would not reduce or avoid any of the potentially significant impacts (for instance if the impacts would be similar to the project), it was eliminated from further consideration. At the time of the alternatives screening, the potentially significant impacts of the project were considered to include: land use; hydrology; fisheries and aquatic biology; terrestrial biology; recreation; cultural resources; agriculture; public services; transportation; noise; air quality; aesthetics; and geology.
5. Evaluate the remaining alternatives to determine whether they would be feasible, based upon various factors, including applicability under CEQA, economic viability, availability of infrastructure, consistency with plans or regulatory limitations, and jurisdictional authority. If it was determined that an alternative was not feasible, it was eliminated from further consideration.

The alternatives to the project which passed all five steps of the screening process are listed in the following section. The potential alternatives that were considered in the screening process but are not further analyzed in this EIR are listed in Section 6.17.

6.5 ALTERNATIVES TO THE PROJECT

Alternatives to the project that could potentially meet most of the project objectives and avoid or substantially lessen any of the significant effects of the project are analyzed in this EIR as part of the environmental review of the project. The analysis of each alternative provides a comparison of the potential impacts of the alternative in relation to the project, as well as a determination of the level significance of the alternative's impacts. The following alternatives are evaluated in this EIR:

1. No Project A: Pacific Gas and Electric Company Regulated,
2. No Project B: Pacific Gas and Electric Company Unregulated,
3. Proposed Pacific Gas and Electric Company Settlement,
4. Proposed Settlement (Regulated),
5. Bundled by River Basin,
6. Individual Bundles,
7. Bundle Watershed Lands for Conservation,
8. Decommissioning of Selected Facilities, and
9. Environmental Composite Alternative.

It should be noted that this EIR includes two versions of the No Project Alternative. No Project A assumes that: (1) no action would occur; (2) the value of the hydroelectric assets would occur via means other than an auction; (3) Pacific Gas and Electric Company would continue to own and operate the hydroelectric assets; and (4) the hydroelectric assets would continue to be regulated by the CPUC under a Cost-of-Service ratemaking structure. No Project B assumes that: (1) valuation of the hydroelectric assets would occur via means other than an auction; (2) Pacific Gas and Electric Company would continue to own and operate the hydroelectric assets; and (3) regulation of the hydroelectric assets by the CPUC would cease. The difference between these two versions of the No Project Alternative is that one assumes that the hydroelectric assets would continue to be regulated by the CPUC following market valuation of the assets, and the other assumes that the assets would become unregulated at that juncture. Pacific Gas and Electric Company has taken the position that, upon valuation of the assets, regulation by the CPUC would cease even if Pacific Gas and Electric Company were to retain ownership of the assets. The CPUC has not considered, and does not endorse, this position. However, in recognition of the fact that this issue is yet unresolved and in order to conservatively provide information on the impacts associated with either outcome concerning continued regulation of the assets, this EIR addresses both potential versions of the No Project alternative. This approach was suggested by the California Resources Agency in its June 1, 2000 letter to the CPUC in response to the Notice of Preparation for this EIR.

In addition to the alternatives listed above, several other alternatives are examined in a "focused" manner. These are alternatives that: (1) are similar to the project or to one of the alternatives listed above; (2) whose environmental impacts are projected to be similar to the project or to one of the alternatives listed above; or (3) that are a component of one of the alternatives listed above. These alternatives are thus analyzed in less detail, but with sufficient specificity to be adequately covered by the analysis in this EIR. The "focused" alternatives are:

1. Single Owner (not Pacific Gas and Electric Company),
2 Bundles minus a single FERC Facility,
3. Partial/Interim Retention of Selected Facilities,
4. Environmental Enhancement,
5. Alternative Valuation,
6 Interim State Ownership, and
7. Alternate (Regulated) Ratemaking.

6.6 DEFINITION OF THE ALTERNATIVES TO THE PROJECT

The project includes various components (including the proposed valuation method, bundling of assets, number of potential owners, ratemaking scenarios) about which a variety of conservative assumptions (related to operational strategy, land management options/development potential, and the fate of existing non-binding informal agreements) have been made. To assist the reader in understanding the ways in which the alternatives differ from the project, the following information is provided to explain the components and assumptions that are used to define the alternatives.

Each of the alternatives (and focused alternatives) can be defined in terms of seven components or assumptions: valuation method; bundling of assets; ownership; ratemaking structure (or absence of); hydroelectric operations; management and/or development of lands; and non-binding agreements. [Note: various existing regulatory requirements and contractual arrangements also govern the operation of the hydroelectric facilities and management of the lands. It is assumed that Pacific Gas and Electric Company would continue to be bound by those requirements and agreements, or those requirements and agreements would be transferred to the future owner(s).] Each of these components and assumptions is described below.

6.6.1 VALUATION METHOD

Determination of the market value of the hydroelectric facilities is required, and could be achieved through appraisal, sale, or other divestiture. Potential options for valuation of the hydroelectric facilities are presented below.

6.6.1.1 Appraisal

Pacific Gas and Electric Company has indicated that the hydroelectric assets have a book value of $1.6 billion, with a depreciated value (under the transition period) of $1.059 billion. The CPUC could determine the market value of the hydroelectric facilities via an independent appraisal (by a commercial firm or firms).

6.6.1.2 Negotiated Sale

Pacific Gas and Electric Company could enter into direct negotiations with one or more entities to establish a price for the sale of the hydroelectric facilities and Project Lands.

6.6.1.3 Price-Only Auction

As per the project, the market value of the hydroelectric facilities and Project Lands could be determined by a price-only auction.

6.6.1.4 Conditioned Auction

The CPUC could elect to proceed with a conditioned auction. The conditions of the auction could include environmental restrictions, limitations on the number of bundles that could be purchased by any one entity, or giving bidding preference to governmental agencies and/or non-profit entities.

6.6.2 BUNDLING OF HYDROELECTRIC FACILITIES (AND PROJECT LANDS)

Pacific Gas and Electric Company has proposed that the individual reservoirs, powerhouses, diversion structures, canals, tunnels, and related components be combined into groupings termed "bundles" for the purposes of the proposed auction. The facilities could remain as a single integrated system, or could be divided into different groupings, as presented below.

6.6.2.1 Entire System

The hydroelectric facilities and Project Lands could remain as a single integrated system (which implies a single entity would own and operate the facilities and lands).

6.6.2.2 Five or 20 Bundles

Pacific Gas and Electric Company has proposed that the assets be available for auction in one of two basic configurations: five regional bundles which generally conform to the management organization that Pacific Gas and Electric Company currently uses, and 20 bundles that generally represent individual FERC licenses or physically related groups of licenses. While Pacific Gas and Electric Company has proposed that bidders be allowed to bid on any of the five regional bundles or any of the component 20 smaller bundles, the CPUC could direct that the assets be sold in either the five regional bundles or, instead, the 20 smaller bundles.

6.6.2.3 Sixteen Bundles

The hydroelectric assets could be bundled so that all of Pacific Gas and Electric Company's hydroelectric facilities (and Project Lands) on a particular river system are combined into a single bundle, which would result in a total of 16 bundles.

6.6.2.4 Individual Projects (29 Bundles)

The hydroelectric assets could be bundled so that all structures and equipment that comprise an individual FERC-licensed hydroelectric facility are combined in individual bundles. With 26 FERC licensed facilities and three non-FERC licensed facilities, this would result in a total of 29 bundles. Each bundle would include the most proximate Watershed Lands.

6.6.3 OWNERSHIP

The valuation of the hydroelectric facilities and Project Lands, by one of the methods noted above, could result in no change in ownership, or transfer of the facilities and lands to a new owner, or several owner(s), as presented below.

6.6.3.1 Pacific Gas and Electric Company

Pacific Gas and Electric Company currently owns the hydroelectric facilities and Project Lands, and could continue to own and operate the facilities and manage the lands, or transfer the assets to a subsidiary of Pacific Gas and Electric Corporation.

6.6.3.2 Single Owner (not Pacific Gas and Electric Company)

A single owner that is not Pacific Gas and Electric Company or affiliated with Pacific Gas and Electric Company could become the future owner and operator of all of the hydroelectric facilities and Project Lands.

6.6.3.3 State of California

The State of California could become the owner and operator of some or all of the hydroelectric facilities and Project Lands, at least for some interim period.

6.6.3.4 Multiple Owners

The proposed bundling and auction of the assets could result in one, five, or 20 or more owner(s) of the hydroelectric facilities and Project Lands.

6.6.4 ELECTRICAL RATEMAKING

Under AB 1890, the CPUC is required to establish the market value of Pacific Gas and Electric Company's hydroelectric generation assets. AB 1890 does not necessarily require the assets to be divested to unregulated entities. To make a fully informed and reasoned decision under Public Utilities Code Section 851, the CPUC has the duty under CEQA to consider whether an alternative that includes continued regulation of the hydroelectric facilities would have the potential to reduce or avoid potentially significant effects. Therefore, in addition to the end of ratemaking for the hydroelectric facilities, this analysis also considers continued regulation.

6.6.4.1 Cost-of-Service Regulation

At this time, the CPUC regulates the cost of electricity from the hydroelectric facilities through traditional cost-of-service ratemaking. This involves identification by the utility of the individual cost components related to the generation of electricity and maintenance of the assets, and specific action by the CPUC to approve the inclusion of each cost element into the ratepayer base. This

determines the revenues that Pacific Gas and Electric Company receives for ownership and operation of the hydroelectric facilities.

6.6.4.2 Performance-Based Ratemaking (Regulated)

For some instances, the electricity rates are currently regulated under performance-based ratemaking (however, none of Pacific Gas and Electric Company's hydroelectric facilities are currently regulated under this structure). In 1994, the CPUC established objectives for performance-based ratemaking: (1) to provide greater incentives than exists under traditional cost-of-service regulation for utilities to reduce rates; (2) to provide a more rational system of incentives for utility management to take reasonable risks and control costs for both the long and short run; (3) to pressure utility companies to operate effectively in the increasingly competitive energy industry, including greater flexibility for management to take risks combined with a greater assignment of the consequences of those risks to the utility company; and (4) to reduce the administrative cost of regulation. Performance-based ratemaking involves a more flexible definition of costs: once those costs have been established, the utility has an incentive to reduce costs (generally with ninety percent of any cost reductions being returned to ratepayers, and ten percent to the utility). Changes in those approved costs may be adjusted downward as a result of administrative review (which may include an audit) that does not require a specific action by the full commission.

In addition to performance-based standards to reduce costs of the generation of electricity, performance-based ratemaking may also include standards related to management of assets, such as the associated lands.

6.6.4.3 Performance-Based Ratemaking (Unregulated)

As discussed below, Pacific Gas and Electric Company has filed a motion (jointly with other parties) with the CPUC regarding a proposed settlement of disposition and operation of the hydroelectric facilities. As part of that proposed settlement, generation of electricity by the hydroelectric facilities would no longer be regulated, however electrical rates would be governed by a market power agreement and a revenue sharing agreement that provide for cost recovery mechanisms and partial ratepayer return if beneficial market conditions provide increased revenues. For the purposes of this analysis, this method is termed "performance-based ratemaking (unregulated)."

6.6.4.4 Unregulated Ratemaking

In accord with market deregulation, the cost of electricity for most generation sources would be determined by supply and demand, and thus costs could rise if demand exceeds supply, or could decrease if supply exceeds the demand. As the CPUC would not be involved in determining the future cost, the generation of electricity would be unregulated for those sources of electricity.

6.6.5 OPERATION OF HYDROELECTRIC FACILITIES

The hydroelectric facilities could be operated in ways that are different from the operations that have occurred over the past quarter century. The baseline, current conditions and two operational scenarios were described in Chapter 3. A fourth scenario, the No Project A, is described here in Chapter 6 and in Appendix C. Additional information regarding the operation of the hydroelectric facilities related to the potential for the future owner(s) to exercise market power is provided in Section 6.14.

6.6.5.1 Baseline

As discussed in Chapter 3 (Approach to the Environmental Analysis), in order to effectively and accurately describe the environmental baseline in the context of variable climate patterns, this EIR used 24 years of historical data (1975-1998) for both the amount of rainfall and stream flow. However, because market conditions have varied over the past two years since the restructuring of the electricity marketplace, the environmental baseline for operation of the hydroelectric facilities must be considered within the context of the restructured energy market. Thus, the baseline condition refers to the operation of the facilities under the current restructured electrical market over the 24 years of data used for hydrologic modeling.

6.6.5.2 PowerMax Scenario

The project could result in the purchase of hydroelectric assets by owner(s) with the intent to manage the assets in order to maximize power production, especially during periods of peak demand. This scenario was described in Chapter 3.

6.6.5.3 WaterMax Scenario

If a water supply agency purchased hydroelectric assets, it could manage the assets (e.g., modify reservoir operations) to maximize water supply deliverability. This is described in Chapter 3.

6.6.5.4 No Project A Conditions

Under the No Project A Alternative, future operations of the hydroelectric facilities would reflect baseline conditions, as modified by changes anticipated as a result of the continued restructuring of the electrical market. In general, peaking power production could be increased, which could result in changes in stream flow patterns and modification of reservoir levels. This could include less water being released from reservoirs in the spring and early summer, faster increases in daily water flows (i.e., faster ramping rates) on days when energy demand is greatest, and larger disparities in daily water releases during summer and early fall in responses to energy demand (e.g., hot versus cooler days).

6.6.5.5 Increased Stream Flows in Bypass Reaches

Operation of the hydroelectric facilities could be impacted if the current and/or future owner(s) agreed to increase stream water flows in bypass reaches to improve water quality, aquatic habitat, or recreational opportunities. This could limit the ability of the owner(s) to either achieve either the PowerMax or WaterMax Scenarios.

6.6.6 MANAGEMENT OF LANDS

The current or future owner(s) of the lands could elect to modify management of the lands, or to develop the lands (or resell the lands to other parties that would likely develop the lands).

6.6.6.1 Baseline Conditions

The future owner(s) could manage the lands consistent with current conditions, which includes some informal recreational (e.g., hiking) and developed facilities (e.g., campgrounds), timber harvest activities (which currently cover approximately 24,000 acres of the Project Lands), agricultural activities (primarily grazing, on approximately 20,430 of the 88,000 acres Watershed Lands), and mining operations (which includes diatomaceous earth in the Shasta Regional Bundle and sand and gravel in the Drum-Spaulding Regional Bundle).

6.6.6.2 Conservation Easements

The future owner(s) could establish conservation easements on the lands, and these easements could take various forms: preservation of the lands as open space (with no timber harvest, grazing or mining permitted); preservation of the lands in their current condition (which could permit continued timber harvest, grazing and mining); or with some limited development allowed (e.g., residential development such as vacation homes). For the purposes of this analysis, it is assumed that conservation easements would preclude future development but generally preserve existing recreation, timber harvest, agriculture activities and mining, and preclude expansion, or more intensive forms, of those activities. Thus, for the most part, conservation easements are assumed to preserve existing conditions, and preclude future development.

6.6.6.3 Restoration of Natural Conditions

The future owner(s) could seek to restore the land to natural conditions, and eliminate timber harvest, agricultural, mining activities, restrict public access and thereby eliminate recreational opportunities.

6.6.6.4 More Intensive Management

The future owner(s) may elect to increase revenue production from the lands, which could result in increased timber harvest, agricultural activities, and mining operations. For the purpose of this analysis, increased intensity of land management refers to increases in timber harvest, grazing, and

mining (as separate from the potential for land development), as discussed in Chapter 3 for the PowerMax and WaterMax Scenarios.

6.6.6.5 Development of Lands

To maximize the financial return from the lands, the future owner(s) could develop lands at particular locations, depending on the suitability of (and the demand for) such development. This could include residential, resort, recreational, commercial or industrial uses, as discussed in Chapter 3 for the PowerMax and WaterMax Scenarios.

6.6.7 NON-BINDING AGREEMENTS

Pacific Gas and Electric Company currently has numerous non-binding, or informal, agreements with agencies and individuals. These agreements relate to operation of facilities, maintenance of reservoir levels, provision of recreational opportunities, public access to Project Lands, collection and dissemination of hydrometeorological data (e.g., depth of snow packs), protection of cultural resources, and low-intensity management of lands. Future owner(s) may elect to continue some or all of these agreements, or may elect to discontinue these non-binding agreements:

6.6.7.1 Generally Continue Non-Binding Agreements

Over time, Pacific Gas and Electric Company has entered into various informal agreements and practices. Because many of the non-binding agreements may have environmental benefits (i.e., increased stream flows in bypass reaches, public access to recreational resources), the future owner(s) may elect to continue to operate the facilities and manage the lands in general accord with the current agreements. Although some changes in the implementation of non-binding agreements and practices have been documented since the initiation of the "restructured" energy market in 1998, the non-binding practices could, however, generally continue.

6.6.7.2 Discontinuation of Non-Binding Agreements

In its application to the CPUC, Pacific Gas and Electric Company has stated that non-binding agreements would not be passed on as a requirement for new owner(s) of the hydroelectric assets. In general, the non-binding agreements and operating practices could therefore be discontinued.

6.6.8 CONTRACTUAL OBLIGATIONS AND AGREEMENTS

Pacific Gas and Electric Company has various legal, contractual, or regulatory obligations, such as Power Purchase Agreements, consumptive water agreements, Qualified Facility agreements, responsibility for soil or groundwater contamination at certain locations, and requirements to share certain operating facilities. In addition, various permit conditions or operating agreements with environmental agencies affect operation of the hydroelectric facilities or management of the Project Lands. Pacific Gas and Electric Company has also entered into agreements, licenses, permits, or other obligations related to current activities on Project Lands, such as Timber Harvest Plans, road

maintenance activities, leases for agricultural and grazing activities, and mining operations. See Appendix D for a list of such binding agreements. In addition, the licenses issued by the FERC contain conditions on the operation, maintenance, and potential future decommissioning of the hydroelectric facilities.

For all alternatives, it is assumed that these various contracts, legal requirements, and obligations would either: (1) remain with Pacific Gas and Electric Company; (2) be transferred to the future owner(s) of the hydroelectric facilities and Project Lands (if such transfer occurs); or (3) would remain with Pacific Gas and Electric Company (e.g., power purchase agreements), and Pacific Gas and Electric Company would enter into new contractual arrangements with the new owner(s) to assure that it can meet the contractual obligations. Thus, for all alternatives, it is assumed that all binding contracts, legal requirements, and regulatory obligations would continue in effect, regardless of the valuation method, ownership, or future ratemaking structure.

6.7 DESCRIPTION OF ALTERNATIVES TO THE PROJECT

For each alternative to the project, a brief description of the alternative is provided, followed by a table that illustrates the components and assumptions that comprise that alternative.

6.7.1 ALTERNATIVE 1—NO PROJECT (A) PACIFIC GAS AND ELECTRIC COMPANY REGULATED

The CEQA Guidelines (Section 15126[e]) require that a No Project Alternative and its impacts be evaluated. The No Project Alternative shall ". . . discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." (Section 15126.6[e][2])

Under this alternative, the proposed project, auction of hydroelectric facilities followed by subsequent divestiture, would not occur. Pacific Gas and Electric Company would continue to own and operate the hydroelectric facilities and manage the Project Lands and would continue to be regulated by the CPUC under the current cost-of-service ratemaking structure (see Table 6-1).

Operation of the hydroelectric facilities would continue to be reviewed by the CPUC to assure that the hydroelectric assets are operated and managed by Pacific Gas and Electric Company in the public interest. It is assumed that the electricity generated by the hydroelectric facilities would be bid in the Power Exchange in a manner that would minimize power costs to ratepayers in the context of environmentally responsible operation of the hydroelectric facilities.

Because Pacific Gas and Electric Company generation would continue to be regulated, it is assumed the Company would continue to observe all of its present voluntary, non-binding agreements and management practices, as well as interim agreements made in anticipation of FERC relicensing. Therefore, operation of the hydroelectric facilities would be largely unchanged from the baseline.

It is also assumed that Pacific Gas and Electric Company's recent land management practices would generally continue into the future with no substantive changes in land use, timber harvest, agricultural or grazing practices, or mining activities compared to current conditions.

6.7.2 ALTERNATIVE 2—NO PROJECT (B) PACIFIC GAS AND ELECTRIC COMPANY UNREGULATED

Under this alternative, auction of the hydroelectric facilities and Project Lands would not occur. An alternative method of valuation of the hydroelectric facilities and associated assets would occur (e.g., independent or administrative appraisal). It is assumed that Pacific Gas and Electric Company would continue to own and operate the facilities, but the generation of electricity by the hydroelectric facilities would no longer be regulated by the CPUC. See Table 6-2.

If an unregulated component of Pacific Gas and Electric Company owned and operated hydroelectric facilities, and if the Company or Pacific Gas and Electric Corporation (or a corporate affiliate) continued to own and operate the 2,160 MW Diablo Canyon Nuclear Generating Station and the (under construction) 1,079 MW Los Palomas combined-cycle plant, then it is assumed that Pacific Gas and Electric Corporation would optimize profits from its entire electrical generation portfolio. This could provide an incentive to exert market power, and thereby influence market prices for electricity. Market power could be exercised in several different ways: (1) shift generation of certain hydroelectric facilities away from the peak load hours; (2) reduce generation during the "shoulder peak" hours; or (3) withhold hydroelectric generating capacity from the ancillary services market. Use of these strategies would influence the operation of the hydroelectric facilities, which could result in changes in stream flows, ramping rates, and reservoir levels. However, the number of hours in any given day in which market power can be exercised is limited and will vary with hydrologic conditions (e.g., availability of water) and summer weather conditions (which influence demand). Further, as additional generation sources are constructed (by other entities in response to current and projected future demand), the ability to utilize the hydroelectric facilities to exercise market power would decline. (The potential for market power to be exercised under this and other alternatives is discussed in Section 6.8.)

6.7.3 ALTERNATIVE 3—PROPOSED PACIFIC GAS AND ELECTRIC COMPANY SETTLEMENT

On August 9, 2000, Pacific Gas and Electric Company and other parties jointly filed a motion with the CPUC seeking approval of a proposed settlement agreement between Pacific Gas and Electric Company, The Utility Reform Network, the Agricultural Energy Consumers Association, the Coalition of California Utility Employees, the Tuolumne Utilities District, the Sonoma County Water Agency, and the California Retailers Association, related to valuation and disposition of the hydroelectric assets. If approved by the CPUC as an alternative to the project, then the terms of the proposed settlement would govern the disposition and subsequent operation of the hydroelectric facilities, related facilities, Project Lands, and certain contractual agreements.

Table 6-1 Alternative 1: No Project (A) Pacific Gas and Electric Company Regulated

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric facilities followed by subsequent divestiture, would not occur. It is assumed that the market value would be determined via an administrative or independent appraisal.
Appraisal	X	
Negotiated Sale		
Auction		
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands are assumed to remain as a single coordinated system, without any fragmentation of ownership.
Single System	X	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that Pacific Gas and Electric Company would continue to own and operate the facilities and manage all Watershed Lands.
Pacific Gas and Electric	X	
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners		
Electrical Ratemaking		Operation of the hydroelectric facilities (and Project Lands) is assumed to continue to be regulated by the CPUC under the current cost-of-service ratemaking structure.
Cost-of-Service (Regulated)	X	
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated		
Operation of Hydroelectric Facilities		It is assumed that operation of the hydroelectric facilities would reflect the modeled "No project" conditions, which represents the baseline modified by changes anticipated as a result of the continued restructuring of the electrical market.
Baseline		
Future No Project (A)	X	
PowerMax Scenario		
WaterMax Scenario		
Increased Stream Flows		
Management of Lands		Current land management practices are assumed to generally continue, resulting in no substantive changes in land use, timber harvest, agricultural or grazing practices, or mining activities compared to current conditions. Preservation of recreational uses is also assumed.
Current Conditions	X	
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management		
Development of Project Lands		
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would generally continue.
Generally Continue	X	
Discontinued		

Table 6-2 Alternative 2: No Project (B) Pacific Gas and Electric Company Unregulated

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric facilities followed by subsequent divestiture, would not occur. It is assumed that determination of market value would occur via an alternative method, such as an appraisal.
Appraisal	X	
Negotiated Sale		
Auction		
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands are assumed to remain as a single coordinated system, without any fragmentation of ownership.
Single System	X	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that Pacific Gas and Electric Company would continue to own and operate the facilities and manage all Project Lands.
Pacific Gas and Electric	X	
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners		
Electrical Ratemaking		Is it assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed that the hydroelectric facilities would be operated to maximize power production, especially at periods of peak electrical demand.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario		
Increased Stream Flows		
Management of Lands		Intensity of land management practices is generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur (at the same levels as assumed for the proposed project).
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

Under the proposed settlement alternative, auction of the hydroelectric facilities and Project Lands would not occur. Instead, the hydroelectric facilities would be market valued at $2.8 billion, and would be transferred to an unregulated subsidiary of Pacific Gas and Electric Corporation, termed "PG&E CalHydro." Generation of electricity by the hydroelectric facilities would no longer be regulated by the CPUC; however, electrical rates would be governed by a market power agreement

and a revenue sharing agreement that provide for cost recovery mechanisms and partial ratepayer return if beneficial market conditions provide increased revenues from the facilities over the next 35 years. The market power agreement, between Pacific Gas and Electric Corporation and the California Independent System Operator (ISO), would require that 95 percent of the available generation capacity of the hydroelectric facilities (as defined by PG&E CalHydro) would be committed to the ancillary services or energy markets (as directed by the ISO), which would be subject to the bid caps established by the ISO (which placed a ceiling on the purchase price of electricity). Power purchase agreements for irrigation districts would continue to be held by Pacific Gas and Electric Corporation, with any potential cost benefits of these contracts credited to ratepayers. With the imposition of the market power agreements, it is assumed that operation of the hydroelectric facilities would generally be the same as the No Project A.

The Market Surveillance Committee (MSC) of the ISO recently cautioned the Commission that the agreement is inadequate, however, to mitigate increased risks of market power that could be associated with the Proposed Settlement[1]. Our screening-level analysis of market power (described in Appendix C, Section 6.3) also suggests that the Proposed Settlement could lead to enhanced risk of market power being exercised. Our modeling of the Proposed Settlement does not evaluate this risk, however, which would need to be mitigated through other means.

The settlement could also result in the transfer of some or all FERC-licensed lands and Watershed Lands to public agencies and/or conservation organizations. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing and mining activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest, grazing and mining, as well as organized recreation. It is assumed that development of the lands would be prohibited, under either ownership concept. (Note: Pacific Gas and Electric Company has filed an application with the CPUC that proposes to transfer the land area known as the McArthur Swamp and other lands in the Pit River Bundle to the California Waterfowl Association, which was described in Chapter 3. Under the terms of the proposed agreement, existing grazing activities would be permitted to continue.) See Table 6-11. All Project Lands (including those within the FERC license boundaries) that are not transferred to public agencies mining or other current uses of lands that are permitted under existing leases and licenses granted to other parties by Pacific Gas and Electric Corporation would continue, until those leases or licenses expire, at which time it is assumed such activities would cease. All lands would then be protected for conservation purposes in perpetuity; therefore, it is assumed that no future development of the lands would

1 "An analysis of the June 2000 Price Spikes in the California ISO's Energy and Ancillary Services Markets," Frank A. Wolak, Robert Nordhaus, and Carl Shapiro, Members of the Market Surveillance Committee (MSC) of the California Independent System Operator (ISO), September 6, 2000.

occur. It is assumed that all existing non-binding agreements would no longer be in effect. See Table 6-4.

An environmental improvement fund (of $70 million) would be established to: purchase water that would be used to supplement stream flow (per the illustrative examples in Table 6-3); mitigate impacts of hydroelectric facilities on natural resources and other beneficial uses, including recreation; manage Watershed Lands; and decommission selected facilities. The fund would be managed by a governing board, with members from Pacific Gas and Electric Corporation, the State Department of Water Resources, the California Department of Fish and Game, agriculture (selected from organizations that are parties to the agreement), and five environmental organizations (that may be party to the agreement, or would be selected by the other members of the committee). The board would determine funding priorities and allocate available funds

Pacific Gas and Electric Company employees currently represented by the International Brotherhood of Electrical Workers would be transferred to PG&E CalHydro and entitled to the current labor agreements. Pacific Gas and Electric Company would separately allocate pension benefits for those employees.

Three new agreements would be implemented as part of the settlement agreement: (1) between Pacific Gas and Electric Corporation and Sonoma County Water Agency, to assure continued delivery of water from the Potter Valley facility, and provide the Sonoma County Water Agency the first right of refusal to purchase the Potter Valley facility; (2) between Pacific Gas and Electric Corporation and the Tuolumne Utilities District, to clarify and solidify current informal agreements with respect to operation of the Stanislaus-Spring Gap and Phoenix hydroelectric facilities and the reservoir levels in the Strawberry (also known as Pinecrest) and Lyons Reservoirs; and (3) between Pacific Gas and Electric Corporation and the Yuba County Water Agency, to assure that operations of the Narrows facility and Narrows #2 powerhouse are operated as a single, two-unit powerhouse and to clarify other operational and revenue arrangements. An additional Memorandum of Understanding would also be implemented between Pacific Gas and Electric Corporation and Nevada Irrigation District (NID) and Placer County Water Agency (PCWA) to: (1) assure continued delivery of water to NID and PCWA; (2) provide for assumption of Pacific Gas and Electric Corporation's consumptive water rights (on the South Yuba-Bear River) by NID; (3) give NID and PCWA first right of refusal to purchase the South Yuba Bear River facility (FERC License No. 2310), if Pacific Gas and Electric Corporation elects to surrender the FERC license (or not pursue relicensing); and (4) give PWCA the first right of refusal to purchase the Yuba-Bear facility (FERC License No. 2266, currently owned by NID, and not part of the proposed divestiture project), if Pacific Gas and Electric Corporation and NID do not reach an agreement for Pacific Gas and Electric Corporation to purchase the Yuba-Bear facility.

Table 6-3 Illustrative Increased Instream Flows Alternative 3 (Proposed Settlement)

River Basin/Regional Bundle	Average Minimum Flow (Cubic Feet/Second)			
Facility or Stream Segment	Current	Proposed	Difference	Change
McCloud-Pit				
Pit River No. 1	0	121	121	n/a
Hat Creek	5	38	33	650%
Pit River below Pit 5 diversion	120	250	130	108%
Pit River below Pit 4 diversion	150	200	50	33%
Pit River below Lake Britton	150	200	50	33%
McCloud River below dam	46	125	79	173%
Iron Canyon River below dam	3	5	2	67%
Cow/Battle Creek				
NF Cow Creek below Kilarc	2	6	4	175%
SF Cow Creek below diversion	4	19	15	436%
De Sabla Region				
Butte Creek below Butte Head	14	19	5	36%
Butte Creek below Centerville	34	40	6	17%
WB Feather at Hendricks dam	13	16	3	23%
Lime Saddle	0	5	5	n/a
Coal Canyon	0	5	5	n/a
Feather River				
UNF Feather below Almanor	35	92	57	162%
Butt Creek below Butt Valley dam	0	2	2	n/a
UNF Feather below Belden dam	87	167	80	92%
NF Feather River below Poe	50	150	100	200%
Others				
Bear River below Spaulding	5	10	5	100%
Bear River below Drum	7	20	13	178%
MF Stanislaus R. below Sand Bar	38	53	15	40%
San Joaquin R. below Kerckhoff	23	40	18	78%
NF King R. below Balch diversion	4	15	11	300%
Kern R. below Kern Canyon diver.	22	44	22	100%

Source: Pacific Gas and Electric Company, August, 2000

Note: This table summarizes most, but not all, of the illustrative flow increases included as part of the settlement agreement. (Other stream segments were included, but lack specific increases, as the flows are assumed to be variable.) Actual flow increases that may result under this alternative would be determined by the governing board of the environmental improvement fund, subject to the availability of funds and water.

Table 6-4 Alternative 3: Pacific Gas and Electric Company Proposed Settlement

Component/Assumption		Description
Valuation Method		Under this alternative, the market value would be established at $2.8 billion.
Appraisal	X	
Negotiated Sale		
Auction		
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands are assumed to remain as a single coordinated system, without any fragmentation of ownership.
Single System	X	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles		
Ownership		PG&E Cal Hydro, an unregulated subsidiary of Pacific Gas and Electric Corp., would own and operate the facilities.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)	X	
State of California		
Multiple Owners		
Electrical Ratemaking		Operation of the hydroelectric facilities (and Project Lands) is assumed to be no longer subject to regulation by the CPUC, but would be governed by a composite formula that limits the maximum cost of electricity for 95 percent of the generating capacity of the facilities (as defined by PG&E Cal Hydro if the market power mitigation agreement is effective).
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)	X	
Unregulated		
Operation of Hydroelectric Facilities		The hydroelectric facilities would be operated generally consistent with the PowerMax Scenario, as modified by increased stream flows.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario		
Increased Stream Flows	X	
Management of Lands		It is assumed that this Alternative would result in baseline conditions being maintained on some lands, although the intensity of land management would generally be reduced on most lands. Conservation easements may or may not eliminate certain uses, such as timber harvest or agriculture. If Project Lands are donated to public agencies and/or conservation organizations, the preservation of recreation uses could occur, along with conservation of some lands for open space. It is assumed no future development of the lands would occur.
Baseline Conditions	X	
Conservation Easements	X	
Restoration of Natural Conditions	X	
More Intensive Management		
Development of Project Lands		
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

6.7.4 ALTERNATIVE 4—PROPOSED SETTLEMENT (REGULATED)

Under the proposed settlement agreement, (Alternative 3), the hydroelectric facilities and associated lands would be transferred to an unregulated subsidiary of Pacific Gas and Electric Corporation. Electrical generation would be governed by performance-based ratemaking, under a contract with the CPUC, and therefore the generation of electricity, under the proposed settlement, would no longer be regulated. Under Alternative 4, the components and assumptions would be generally the same for Alternative 3 (see Table 6-4), with the exception that the hydroelectric facilities would remain owned by Pacific Gas and Electric Company. The generation of electricity would be governed by a performance-based ratemaking structure, which would continue to be regulated by the CPUC, and (because of the continued regulation by the CPUC), it is assumed that all existing non-binding agreements would continue to be in effect. All other aspects, including increased stream flows and establishment of conservation easements, and/or transfer of the lands to government agencies or environmental/conservation organizations, would be the same as the proposed Settlement Agreement, as described for Alternative 3 (see Table 6-5) [2].

6.7.5 ALTERNATIVE 5—PROJECTS BUNDLED BY RIVER BASIN

Instead of the five regional and 20 smaller bundles defined by Pacific Gas and Electric Company, under this alternative, hydroelectric assets would be bundled so that all hydroelectric facilities on a river system are combined into a single bundle, which would result in a total of sixteen bundles (that would also include the most proximate Watershed Lands). For this alternative, it is assumed that the facilities would be combined into a "river bundle," as illustrated in Table 6-6, which could increase operational coordination of the hydroelectric facilities on the river system (see Table 6-7). It is assumed that all aspects of operation and land management would be the same as the project.

Each owner would own only one bundle and no other generation facilities. The owners would not be able to exert market power to influence market prices and would be "price takers" maximizing revenue by selling power and ancillary services into the high priced period of the market to the extent feasible[3]. The 16-bundle alternative differs from the 20-bundle grouping proposed for the project as follows:

- Shasta Watershed Region: Pacific Gas and Electric Company Bundle 1 (Hat Creek 1 & 2 Project) would be combined with Bundle 2, (Pit 1, Pit 3, 4 &5, and McCloud-Pit Projects) to be a single bundle.
- DeSabla Watershed Region: Pacific Gas and Electric Company Bundles 5 (Hamilton Branch), 6 (Upper NFFR, Rock Creek Cresta, and Poe Projects), and 7 (Bucks Creek Project) would be a single bundle.
- Kings Crane – Helms Watershed Region: Pacific Gas and Electric Company Bundle 16 (Crane Valley Project) would be merged with Bundle 17 (Kerckhoff 1 & 2) to be a single bundle.

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2 It is assumed that the CPUC would be able to reduce the risk of market power being exercised in this alternative due to the continuing economic incentives for Pacific Gas and Electric Company to keep wholesale electricity prices low (due to its position as a Utility Distribution Company [UDC]).

3 To the extent that multiple bundles are owned by a single party, concerns about market power would apply as described above and in Appendix C, Section 6.3

Table 6-5 Alternative 4: Proposed Settlement (Regulated)

Component/Assumption		Description
Valuation Method		Under this alternative, the market value would be established at $2.8 billion, which is the current "book value" of the assets.
Appraisal	X	
Negotiated Sale		
Auction		
Conditional Auction		
Bundling of Facilities and Lands		The hydroelectric facilities and Project Lands are assumed to remain as a single coordinated system, without any fragmentation of ownership.
Single System	X	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that Pacific Gas and Electric Company would continue to own and operate the facilities.
Pacific Gas and Electric Company	X	
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners		
Electrical Ratemaking		Operation of the hydroelectric facilities would continue to be regulated by the CPUC, as performance-based ratemaking (regulated).
Cost-of-Service (Regulated)		
Performance-Based (Regulated)	X	
Performance-Based (Unregulated)		
Unregulated		
Operation of Hydroelectric Facilities		The hydroelectric facilities would be operated generally consistent with the PowerMax Scenario, as modified by increased stream flows.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario		
Increased Stream Flows	X	
Management of Lands		It is assumed that this alternative would result in baseline conditions being maintained on some lands, although the intensity of land management would generally be reduced on most lands. Conservation easements may or may not eliminate certain uses, such as timber harvest or agriculture. If Project Lands are donated to public agencies and/or conservation organizations, the preservation of recreation uses could occur, along with conservation of some lands for open space. It is assumed no future development of the lands would occur.
Baseline Conditions	X	
Conservation Easements	X	
Restoration of Natural Conditions	X	
More Intensive Management		
Development of Project Lands		
Informal Agreements		It is assumed that because of the continued regulation by the CPUC, existing non-binding agreements and operating practices would generally be continued.
Generally Continue	X	
Discontinued		

Table 6-6 Potential Bundling of Hydroelectric Facilities by River Basin

Bundle	FERC Licence	River Basin
Shasta Region		
1. Hat Creek	2661	1. Pit River Basin
2. Pit River	2687	
	0233	
	2106	
3. Kilarc – Cow Creek	0606	2. Cow Creek Basin
4. Battle Creek	1121	3. Battle Creek Basin
DeSabla Region		
5. Hamilton Branch	None	4. Feather River Basin
6. Feather River	2105	
	1962	
	2107	
7. Bucks Creek	0619	
8. Butte Creek	0803	5. Butte Creek Basin
	None (Lime Saddle)	
	None (Coal Canyon)	
Drum-Spaulding Region		
9. North Yuba	1403	6. Yuba River Basin
10. Potter Valley	0077	7. Eel River Basin
11. S. Yuba – Bear	2310	8. Yuba/Bear/American River Basin
12. Chili Bar	2155	9. S.F. American River Basin
Motherlode Region		
13. Mokelumne	0137	10. Mokelumne River Basin
14. Stanislaus	2130	11. Stanislaus River Basin
	1061	
15. Merced	2467	12. Merced River Basin
Kings Crane –Helms Region		
16. Crane Valley	1354	13. San Joaquin River Basin
17. Kerckhoff	0096	
18. Kings River	2735	14. Kings River Basin
	1988	
	0175	
19. Tule River	1333	15. Tule River Basin
20. Kern Canyon	0178	16. Kern River Basin

Table 6-7 Alternative 5: Bundled by River Basin (16 Bundles)

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric facilities followed by subsequent divestiture, is assumed to occur.
Appraisal		
Negotiated Sale		
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands would be separated into 16 bundles.
Single System		
Five or 20 Bundles		
Bundled by River Basin	X	
Individual Bundles		
Ownership		It is assumed that since sixteen separate bundles would be offered for sale, multiple future owner(s) would operate the facilities and control the Project Lands.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed that the hydroelectric facilities would be operated consistent with the PowerMax or WaterMax operating scenarios. The proposed bundling could improve operational coordination on three river systems.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows		
Management of Lands		Similar to the project, intensity of land management practices is generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

6.7.6 ALTERNATIVE 6—INDIVIDUAL BUNDLES

Instead of the five regional and 20 smaller bundles defined by Pacific Gas and Electric Company, under this alternative, individual hydroelectric facilities (and proximate lands) covered by each of

the 26 FERC licenses would be a separate bundle. Each of the three hydroelectric facilities that are not subject to FERC regulation would also be separate bundles, resulting in a total of 29 bundles. Because individual hydroelectric facilities would be available for sale, it is assumed that this would increase the potential that local agencies, including water supply agencies, could purchase individual facilities. This could increase the potential that some hydroelectric assets would be managed to maximize water production (see Table 6-8). It is assumed that all aspects of operation and land management would be the same as the project.

As discussed in Chapter 3, based on comments in scoping testimony and other sources, several potential purchasers of individual facilities have been identified, as shown in Table 6-9.

This alternative would require new inter-project operating agreements on the Pit River (Pacific Gas and Electric Company Bundle 2), the Feather River (Pacific Gas and Electric Company Bundles 6, 7 and 8), and the NF Kings River (Pacific Gas and Electric Company Bundle 18). For the larger projects on the Pit, NF Feather, and NF Kings rivers, effective participation in the ancillary market would require agreements would that go beyond just requiring operating cooperation for efficient use of the water resources. To efficiently market ancillary services, business alliances that would be virtual partnerships would be needed for the plant groups identified by Pacific Gas and Electric Company as Bundles 2, 6, and 18. For example, the Poe Project could be operated as a run-of-river facility with no operating agreements. In that case, Poe would likely be able to market only energy as it would have no control over the level or timing of generation. However, with operational coordination and business alliances with the upstream owners, ancillary services could be optimally marketed as a unified system including Poe with the upstream plants to maximize the economic benefits for all the owners and perhaps the ratepayers as well.

The small unlicensed Lime Saddle and Coal Canyon projects included by Pacific Gas and Electric Company in Bundle 8 would require a complex operating agreement between the two projects to ensure fulfillment of the existing water contracts because Coal Canyon is 100 percent dependent on Lime Saddle for water.

6.7.7 ALTERNATIVE 7—BUNDLE WATERSHED LANDS FOR CONSERVATION

Under this alternative, all Watershed Lands (outside the FERC license boundaries) would be removed from the bundles and combined into one or more bundle(s) for sale and/or transfer to a government agency, or environmental/conservation organization(s). All hydroelectric facilities would continue to be bundled per the five regional bundles and 20 smaller bundles defined by Pacific Gas and Electric Company.

Table 6-8 Alternative 6: Individual Projects (29 Bundles)

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric facilities followed by subsequent divestiture, is assumed to occur.
Appraisal		
Negotiated Sale		
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands would be separated into 29 (individual project) bundles.
Single System		
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles	X	
Ownership		It is assumed that since 29 separate bundles would be offered for sale, multiple owner(s) would operate the facilities. It is assumed this could increase the potential that local agencies would purchase individual projects.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed that some of the hydroelectric facilities would be operated consistent with either the PowerMax or WaterMax Scenarios.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows		
Management of Lands		Similar to the project, intensity of land management practices is generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

Table 6-9 Bundles Most Likely to be Purchased and Operated for Water Supply Purposes

Bundle(s)	River System	Previously Identified Potential Purchaser
#1Hat Creek #2 Pit River	Pit River	Private water company, Westlands Water District, or Central Valley Project (CVP) Contractors
#5 Hamilton Branch #6 Feather River #7 Buck's Creek	North Fork Feather River	State Water Contractors
#11 South Yuba/Bear River	Drum-Spaulding (Yuba, Bear, American Rivers)	Placer County Water Agency Nevada Irrigation District
#13 Mokelumne River	Mokelumne River	Upper Mokelumne River Watershed Authority Joint Powers Agency (established in June 2000 by EBMUD and Amador, Calaveras, and Alpine Counties for this purpose)
#14 Stanislaus River	Stanislaus River	Tuolumne Utilities District
#16 Crane Valley	San Joaquin River	Friant Water Users Association, or U.S. Bureau of Reclamation
#18 Kings River	Kings River	Kings River Water Association

Note: Does not include systems that are currently managed for water supply purposes, including Potter Valley, Butte Creek, Merced Falls, Tule River, and Kern Canyon. These systems could also be purchased by water utilities and purveyors for water system purposes.

Source: M Cubed, 2000

Under this alternative, the separation of the Watershed Lands from the lands within the FERC boundaries would require subdivision of the lands, or redesignation of lot lines for those properties contiguous to FERC License Areas. Easements on these lands may be needed to assure that the future owner(s) of the hydroelectric facilities have access to the components of the hydroelectric system (e.g., canals, tunnels, or other structures). The estimated acreage of the Watershed Lands associated with each bundle is shown in Table 6-10.

6.7.8 ALTERNATIVE 8—DECOMMISSIONING OF SELECTED FACILITIES

For the purposes of the decommissioning alternative, it is assumed that the hydroelectric facilities would be offered for sale as 29 individual bundles (similar to Alternative 6), which may increase the potential that future owner(s) would purchase an individual facility for the express purposes of decommissioning, or that certain facilities may receive no bids (or bids that are rejected by Pacific Gas and Electric Company).

The CPUC lacks the direct authority to order decommissioning of any hydroelectric facility that holds a license from the Federal Energy Regulatory Commission (FERC) without approval of such decommissioning by FERC. Presumably, the CPUC could direct that FERC approval be sought for decommissioning one or more facilities. In addition, decommissioning of selected facilities could be a potential outcome of the project. For some hydroelectric facilities, the auction process may result in the purchase by conservation or other organizations with the express intent of decommissioning the facility. Some facilities may receive no bids, or may receive bids that are rejected by Pacific Gas and Electric Company (i.e., if the bid is less than the book value of the

Table 6-10 Watershed Lands Available for Conservation

Region	Bundle	Watershed Lands (Acres)
Shasta		
Hat Creek	1	2,672
Pit River	2	27,199
Kilarc-Cow Creek	3	2,490
Battle Creek	4	6,078
Subtotal		*38,439*
DeSabla		
Hamilton Branch	5	6,799
Feather River	6	9,690
Bucks Creek	7	804
Butte Creek	8	3,419
Subtotal		*20,712*
Drum-Spaulding		
North Yuba River	9	41
Potter Valley	10	5,097
South Yuba-Bear River	11	15,022
Chili Bar	12	32
Subtotal		*20,192*
Motherlode		
Mokelumne River	13	4,990
Stanislaus River	14	1,407
Merced River	15	1
Subtotal		*6,398*
Kings Crane-Helms		
Crane Valley	16	740
Kerckhoff	17	73
Kings River	18	597
Tule River	19	35
Kern Canyon	20	612
Subtotal		*2,057*
Total		**87,798**

Source: Pacific Gas & Electric Company, Aspen Environmental Group, and EIP Associates, 2000

Table 6-11 Alternative 7: Bundle Lands for Conservation

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric facilities would occur. It is assumed that transfer of Watershed Lands would occur via negotiation with specific land management agencies or conservation organizations.
Appraisal		
Negotiated Sale	X	
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		It is assumed the hydroelectric facilities would be sold in five regional, or 20 smaller bundles. The lands are assumed to be combined in up to 20 bundles, or in whatever configuration is appropriate.
Single System		
Five or 20 Bundles	X	
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that as hydroelectric facilities would be auctioned in five regional, or 20 smaller bundles, multiple entities would own the facilities. It is also assumed that multiple agencies or organizations would own the Watershed Lands.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed that most hydroelectric facilities would be operated consistent with the PowerMax Scenario, especially during periods of peak demand. Some facilities could be operated per the WaterMax Scenario.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows		
Management of Lands		It is assumed that some of the lands would be managed for multiple objectives, which would preserve most existing uses. Some lands would be restored to natural conditions.
Baseline Conditions	X	
Conservation Easements	X	
Restoration of Natural Conditions	X	
More Intensive Management		
Development of Project Lands		
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

hydroelectric facility). It is assumed that those facilities may currently be only marginally economic, or could have future conditions imposed through the FERC relicensing process (e.g., environmental mitigation) that may increase operating costs, which could cause the facilities to

become uneconomical. Such facilities could become candidates for future decommissioning, either by action of the facility's owner to surrender the FERC license or abandon the facility, or by direct order of the FERC as part of a future relicensing process.

In 1994, the FERC issued a "Policy Statement on Decommissioning at Relicensing" that outlines the FERC's authority to order decommissioning of hydroelectric facilities. In 1997, for the first time, the FERC exercised this authority and denied the relicense application for the Edwards Dam on the Kennebec River in Maine, instead ordering that the facility be decommissioned. Although the license holder initially objected to the order, following a comprehensive settlement that included the license holder, removal of the dam occurred in 1999.

In an appeal of another recent FERC licensing decision, the authority of the FERC to order decommissioning of a hydropower dam has been challenged. A recent appeal to the U.S. Court of Appeals (for the District of Columbia circuit)[4] included a claim that a new license with conditions that renders a facility uneconomic constitutes a de facto decommissioning, and that the FERC has no authority to order decommissioning of a facility, either indirectly or directly. Although the authority of the FERC to order decommissioning has been questioned, the FERC decision has not been overturned. Thus, given current policies and case law, this EIR assumes that FERC could specifically require that a FERC-licensed hydroelectric facility be decommissioned.

Decommissioning would therefore involve review and action by the FERC. While there are no specific FERC criteria for decommissioning, criteria that the FERC might use during relicensing to consider the environmental effects of a hydroelectric facility (based on similar criteria developed by the Low Impact Hydropower Institute[5] for its certification process) include, but are not limited to: (1) adequacy of river flows for fish, wildlife and water quality, including seasonal flow fluctuations where appropriate; (2) compliance with State and federal water quality standards; (3) effective fish passage for anadromous fish, and protection of fish from entrainment; (4) adequacy of measures to protect, mitigate and enhance fish and wildlife habitat in the watershed lands; (5) adequacy of measures to ensure that the facility does not negatively impact State or federal rare, threatened, or endangered species; (6) adequacy of measures to ensure cultural resource protection; (7) access to the water and accommodation of recreational activities; (8) structural adequacy of a dam to withstand a seismic event; and (9) whether a resource agency has recommended that a dam associated with the hydroelectric facility be removed.

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4 City of Tacoma, Skokomish Tribe, Save the Lakes Coalition, American Rivers et al, WA Depts. of F&W & Ecology, U.S. Depts. of Commerce, Interior & EPA vs. FERC; U.S. Court of Appeals for the District of Columbia, 99-1143; Skokomish Tribe, WA Depts. of F&W & Ecology vs. FERC; U.S. Court of Appeals for DC, 00-1001; U.S. Depts. Of Commerce, Interior & EPA vs. FERC; U.S. Court of Appeals for DC, 00-1040

5 Low Impact Hydropower Institute's program for certification of low-impact hydroelectric facilities (http://www.lowimpacthydro.org/criteria.html).

It is worth noting that for the FERC, decommissioning of a hydroelectric facility specifically means that the generation of electricity ceases (e.g., the turbine is no longer operated). In some instances, the FERC has made a determination that the benefits of a dam (e.g., water supply and recreational opportunities) warrant preservation of the structure, which has resulted in the issuance of a "non-power" license that leaves the diversion structures in place. Therefore, removal of components of the generating facility (e.g., diversion dams, conveyance canals and pipes, powerhouse structures, turbines) may not be a specific result of what the FERC considers decommissioning. However, as evidenced by the comments received during the scoping process, commentators have used the term "decommissioning" generally as a surrogate for removal of the facilities and restoration of natural conditions. Thus, for the purposes of this alternative, it is assumed that decommissioning means removal of dams, diversion structures, and other elements that restrict or alter the flow of water, and the restoration of natural channel conditions, to the extent feasible.

Because it is not possible to predict the outcome of the auction process (e.g., whether no bids may be received on individual bundles or individual facilities), the potential future actions of the FERC, or the decisions of future owner(s) to surrender a FERC license or abandon a facility, it is not possible to identify which specific hydroelectric facilities may be decommissioned.

Due to the ongoing variability in the electrical market due to restructuring, recent increases in the cost of fossil fuels, and forecasts for additional increases in those costs (in particular for natural gas), using a current cost-benefit analysis of hydroelectric facilities as an indicator of the future economic viability of specific hydroelectric facilities would be speculative. Identification of future environmental conditions or operating constraints that the FERC may impose on individual hydroelectric facilities through the relicensing process (or the reconsideration of license conditions) would also be speculative. Identification of which facilities may have environmental consequences that may outweigh their power-production or economic benefits also would be speculative. For example, the consumptive water deliveries made possible by the hydroelectric facilities have an economic value (e.g., the net value of agricultural products), and also serve key public purposes. Any examination of the economic viability of particular hydroelectric facilities would need to factor in such non-power production economic values. Thus, any identification of which of the 29 hydroelectric facilities (that are included in the proposed divestiture) may become candidates for future decommissioning would be remote and speculative for the purposes of this EIR, and is not required by CEQA (Guidelines Section 15145).

Nonetheless, comments received during the scoping process have identified some facilities that might be considered as potential candidates for decommissioning. In addition, Friends of the River (FOR) has developed a list[6] of dams in California that FOR suggests are candidates for removal, and that list includes several hydroelectric facilities that are part of the project. (Note the inclusion of the following facilities does not imply that the CPUC has a position on whether any facilities,

6 http://www.friendsoftheriver.org/riversreborn/main3.html

including those identified in the scoping comments or by FOR, warrant consideration for decommissioning.)

6.7.8.1 Potter Valley (Scott and Cape Horn Dams)

Scott Dam forms Pillsbury Reservoir on the main stem of the Eel River. The water from this reservoir flows a short way down the Eel and then is diverted to Potter Valley by the Cape Horn Dam (also known as the Van Arsdale Dam) through a nine-megawatt power plant. Eel River water not used to irrigate crops in Potter Valley eventually flows into the Russian River, where it is diverted by a variety of users along the way. The reduced flows in the Eel river system have contributed to declining populations of anadramous fish. Pillsbury Reservoir has had its storage capacity reduced due to sediment inflow. Seismic safety and structural issues have been raised about the Scott Dam and the Cape Horn/Van Arsdale diversion dam. Although the FERC license does not expire until 2022, the license conditions are currently under review, which may result in the imposition of additional conditions or operating constraints. However, it is worth noting that as part of the most recent relicensing process, the FERC did not order decommissioning of any of the facilities. In addition, the recent Final Environmental Impact Statement[7] on a proposal to decrease diversions from the Eel River acknowledges the benefits of consumptive water deliveries to the Russian River.

6.7.8.2 Kilarc/Cow Creek (Kilarc and Cow Creek Dams)

A small tributary of the Sacramento River near Redding, Cow Creek currently supports small runs of threatened spring-run chinook salmon and steelhead, which have suffered from low instream flows due to diversions for irrigation and a hydroelectric facility. The FERC license for the project expires in 2007.

6.7.8.3 Battle Creek (Eagle Canyon, Wildcat, Coleman, and South Fork Dams)

Federal and State agencies comprising the CALFED Bay-Delta Program have signed a $50 million agreement with Pacific Gas and Electric Company that may lead to removal of up to five small dams on Battle Creek, which now impede salmon and steelhead migration. An environmental analysis (in accord with the National Environmental Policy Act) is currently in preparation to address the potential effects of the removal. Three other diversion structures, which are related to the hydroelectric facility, would have fish ladders installed to allow fish migration.

6.7.8.4 Butte Creek (Centerville Dam)

The ability of Butte Creek's salmon and steelhead to migrate upstream may be impeded by the Centerville Dam, which has no fish ladder. Three small dams downstream were recently

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7 Federal Energy Regulatory Commission, *Final Environmental Impact Statement, Proposed Changes in the Minimum Flow Requirement at the Potter Valley Project*, May 2000.

decommissioned with assistance from the U.S. Department of the Interior. The U.S. Fish and Wildlife Service has considered the removal of the Centerville facility, which could expand habitat available to endangered salmon and steelhead. However, existing natural barriers upstream and downstream of Centerville Dam may have prevented historical fish migration, and further scientific studies may be needed to determine the feasibility of providing salmon and steelhead additional access to Butte Creek. The FERC license expires in 2009.

As discussed above, this alternative is similar to Alternative 6 (Individual Bundles), with the exception that decommissioning of selected facilities could be an outcome of the proposed auction (see Table 6-12).

6.7.9 ALTERNATIVE 9—ENVIRONMENTAL COMPOSITE ALTERNATE

This alternative would consist of a combination of various environmentally-beneficial components of several alternatives and specific mitigation concepts to reduce or avoid significant impacts and, in some cases, would improve environmental conditions as compared to the baseline. These are assumed to include: (1) bundling of Watershed Lands for conservation purposes; (2) supplemental stream flows (assumed to be similar to those suggested for Alternative 3, Proposed Settlement) to mitigate impacts of hydroelectric facilities on natural resources and other beneficial uses, including recreation, and watershed management; and (3) preservation of all existing non-binding agreements, including maintenance of existing recreational facilities and uses, and maintenance of reservoir levels and stream flows on certain rivers. All other components of this alternative would be the same as the project. (See Table 6-13).

6.8 SUMMARY OF OPERATIONAL AND ECONOMIC ANALYSIS RESULTS

The operational and economic analysis was conducted on a 24-year history of hydrological conditions in the Pacific Gas and Electric Company hydropower system. The analysis focused on first defining the baseline condition in 2000, and then developing ownership scenarios on potential ranges of operations in 2005.

6.8.1 HYDROPOWER GENERATION AND POWERHOUSE FLOWS

Figure 6-1 compares the expected annual generation under Alternative 3 (Proposed Settlement) against Alternative 1 (No Project A) and the Baseline. Annual generation averages about two percent less under the Proposed Settlement compared to the Baseline and No Project A cases. This is consistent with the expected generation losses from the increased minimum flows.

Figure 6-2 compares the monthly pattern of generation. Virtually no difference exists between Alternative 3 and the Baseline. Figures 6-3 and 6-4 confirm this notion, showing that the largest difference with the Baseline is in July, which amounts to 1.5 percent less under the Proposed Settlement.

Table 6-12 Alternative 8: Decommissioning of Selected Facilities*

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action (auction of hydroelectric facilities followed by subsequent divestiture) is assumed to occur.
Appraisal		
Negotiated Sale		
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands would be separated into 29 bundles, to increase the likelihood that individual facilities would be purchased and could be decommissioned.
Single System		
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles	X	
Ownership		It is assumed that since 29 separate bundles would be offered for sale, multiple owner(s) would operate the facilities. It is assumed that no auction bids may be received for those individual projects that could be subject to decommissioning.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed some of the hydroelectric facilities would be operated consistent with either the PowerMax or WaterMax Scenarios. Decommissioning could increase or decrease instream flows, depending on the season.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows	?	
Management of Lands		Intensity of land management practices is generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

*This table assumes that the facilities would be sold as individual bundles, and that only some of the facilities may be decommissioned, but that operation of the majority of the facilities would be operated consistent with the project.

Table 6-13 Alternative 9: Environmental Composite

Component/Assumption		Description
Valuation Method		Under this alternative, auction of hydroelectric facilities would occur, but with imposition of environmental conditions. Transfer of lands is assumed to occur via negotiation with land management agencies or conservation organizations.
Appraisal		
Negotiated Sale	X	
Auction		
Conditional Auction	X	
Bundling of Facilities & Lands		It is assumed the hydroelectric facilities would be sold in five regional or 20 smaller bundles. The lands are assumed to be bundled into up to 20 bundles.
Single System		
Five or 20 Bundles	X	
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that as the hydroelectric facilities would be auctioned in five regional, or 20 smaller bundles, multiple owner(s) would operate the facilities. It is also assumed that multiple agencies or organizations would control the Watershed Lands.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed some of the hydroelectric facilities would be operated consistent with either the PowerMax or WaterMax Scenarios, as modified by mandated flow increases.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows	X	
Management of Lands		Land management practices would depend on the future owner(s) of the Watershed Lands. It is assumed that some lands would be acquired by public agencies, which would preserve recreation uses, but end all other uses. Conservation organizations are assumed to conserve lands for open space only, which could preclude organized recreational facilities or uses.
Baseline Conditions		
Conservation Easements	X	
Restoration of Natural Conditions	X	
More Intensive Management		
Development of Project Lands		
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be continued, subject to limitations that may be imposed by increased stream flows (e.g., due to impacts on reservoir levels).
Generally Continue	X	
Discontinued		

6.8.2 RESERVOIR LEVELS

Figures 6-5 to 6-11 show the reservoir storage levels for the six basins modeled for seasonal storage scheduling. In each river basin, the Proposed Settlement storage levels are close or identical to

Figure 6-1
Annual Hydropower Generation
Bounding Cases vs. No Project/Baseline for 1975-1998

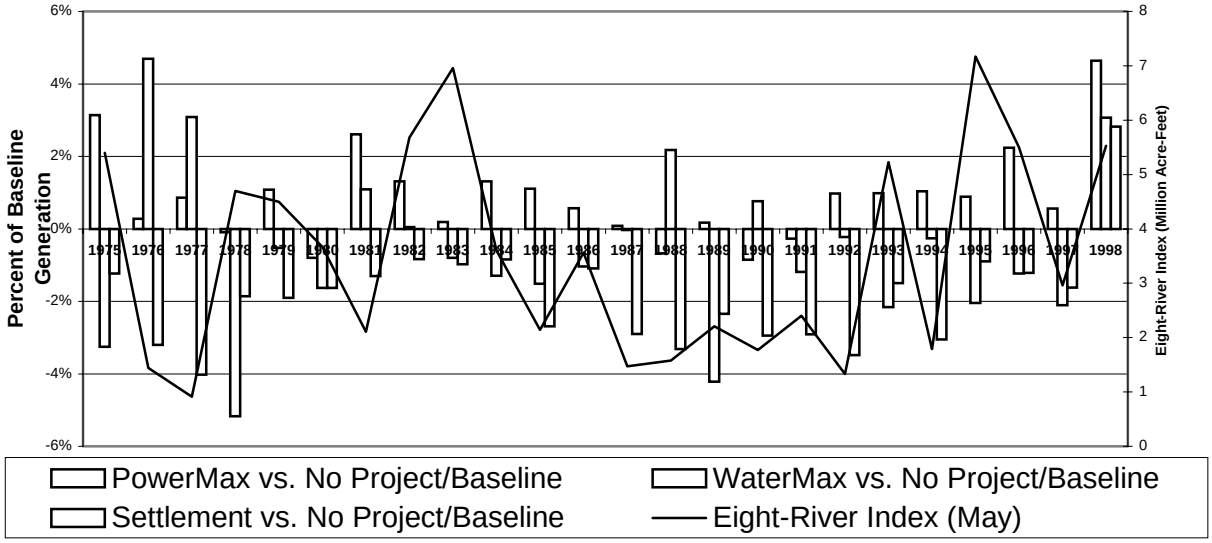


Figure 6-2
Average Monthly Hydropower Flows
1975-1998 Hydrologic Years

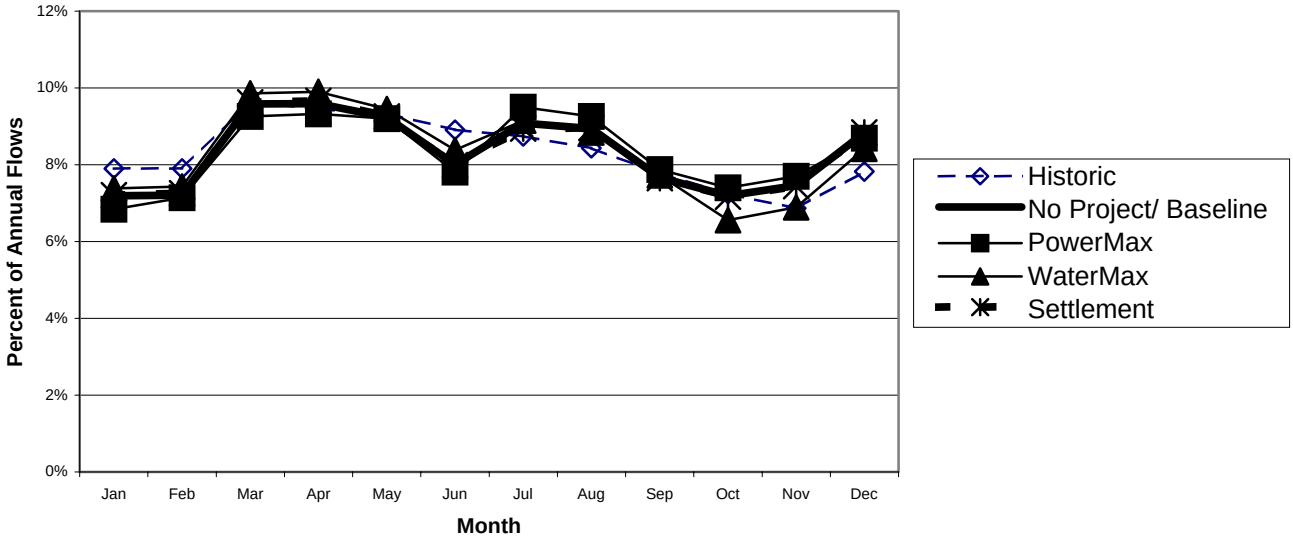


Figure 6-3
Monthly Powerhouse Flows vs. Historic Pattern
Average over 1975-1998 Hydrologic Years

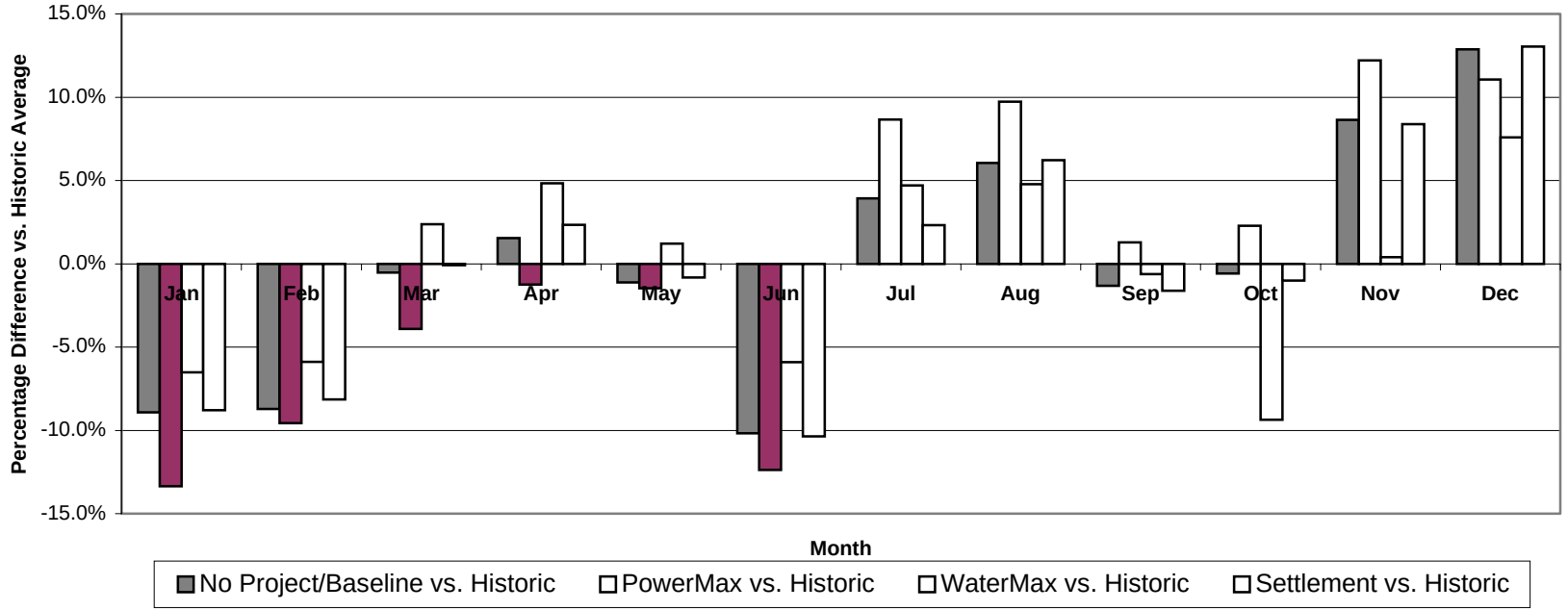


Figure 6-4
Monthly Powerhouse Flows vs. No Project/Baseline Case
Average for 1975-1998 Hydrologic Years

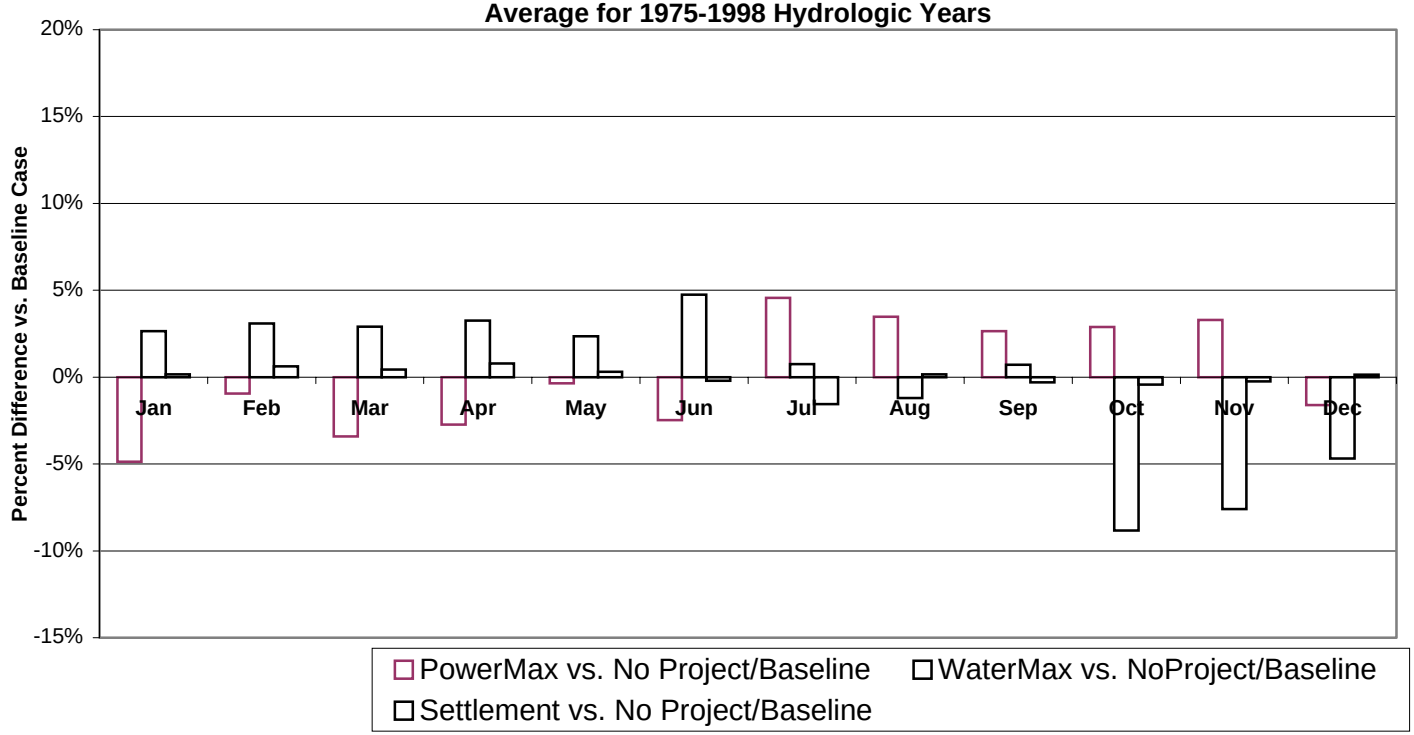


Figure 6-5 Total Pacific Gas and Electric Company Pit McCloud System Storage

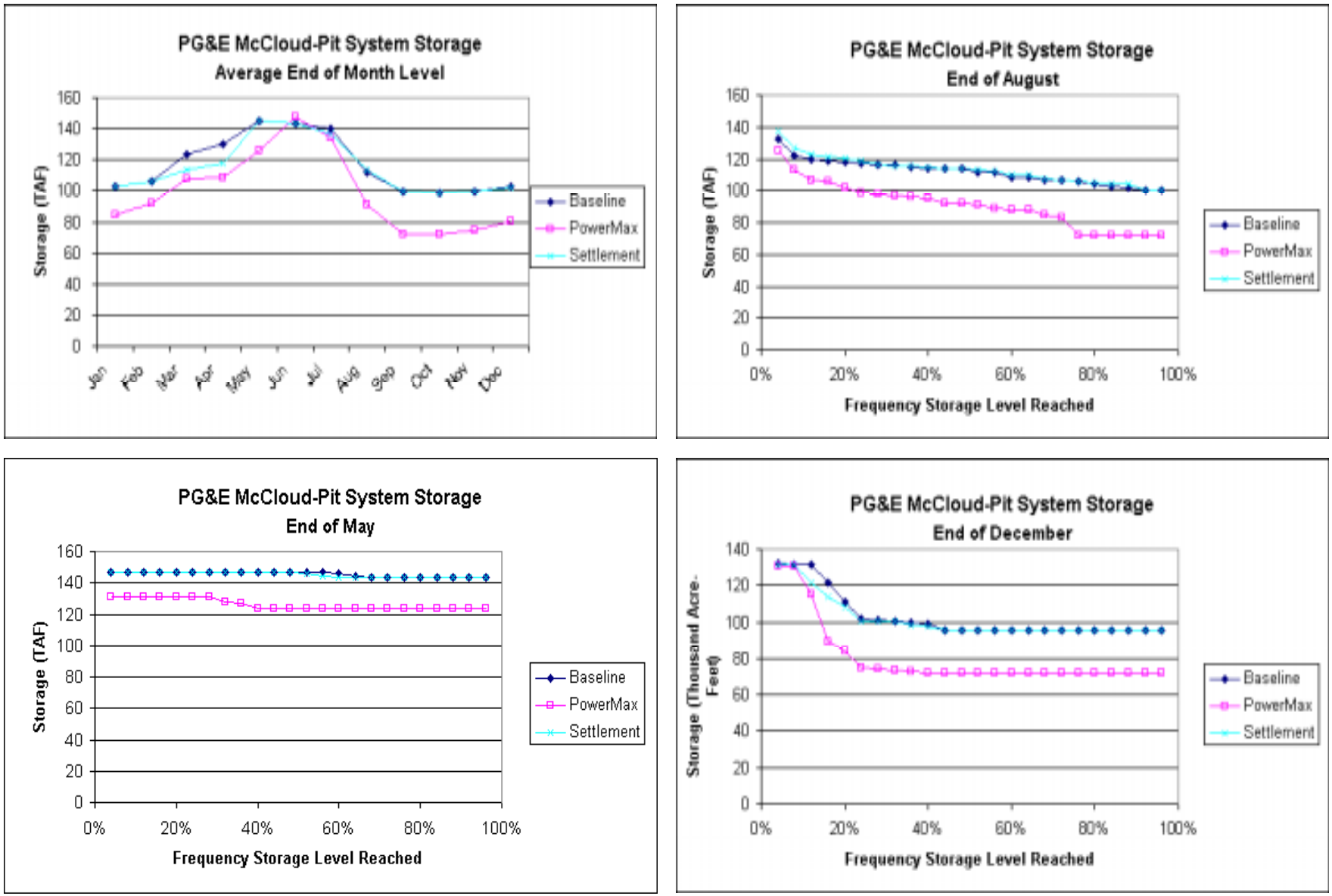
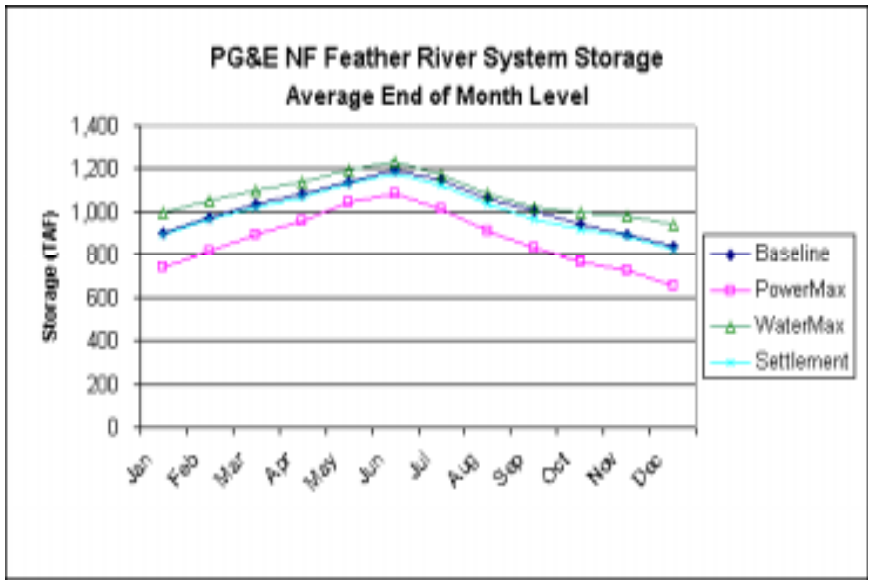
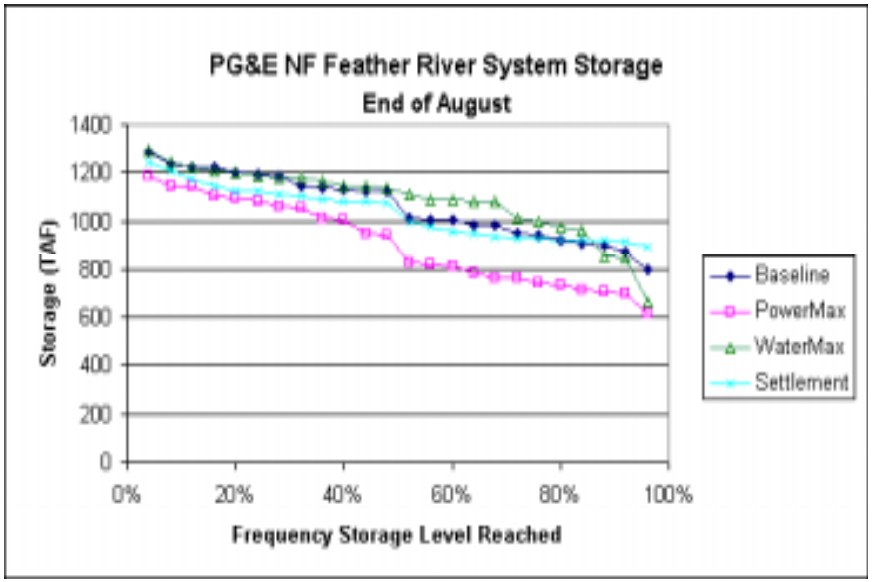
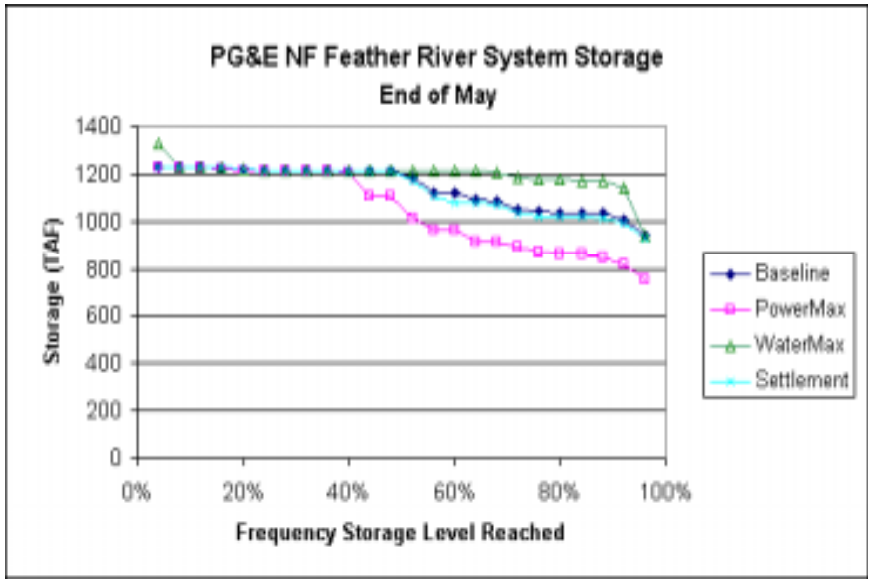


Figure 6-6 Total Pacific Gas and Electric Company NF Feather River System Storage







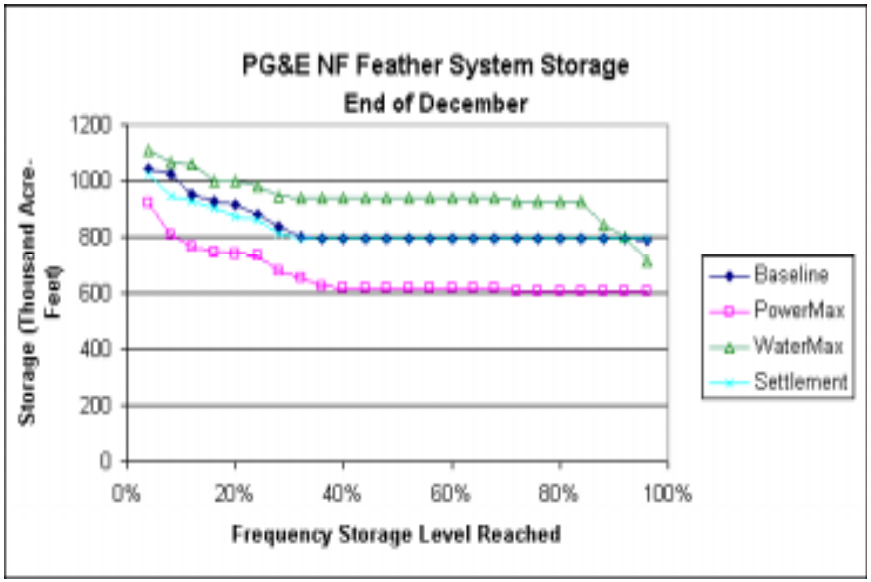


Figure 6-7 Total Pacific Gas and Electric Co. Drum Spaulding System Storage

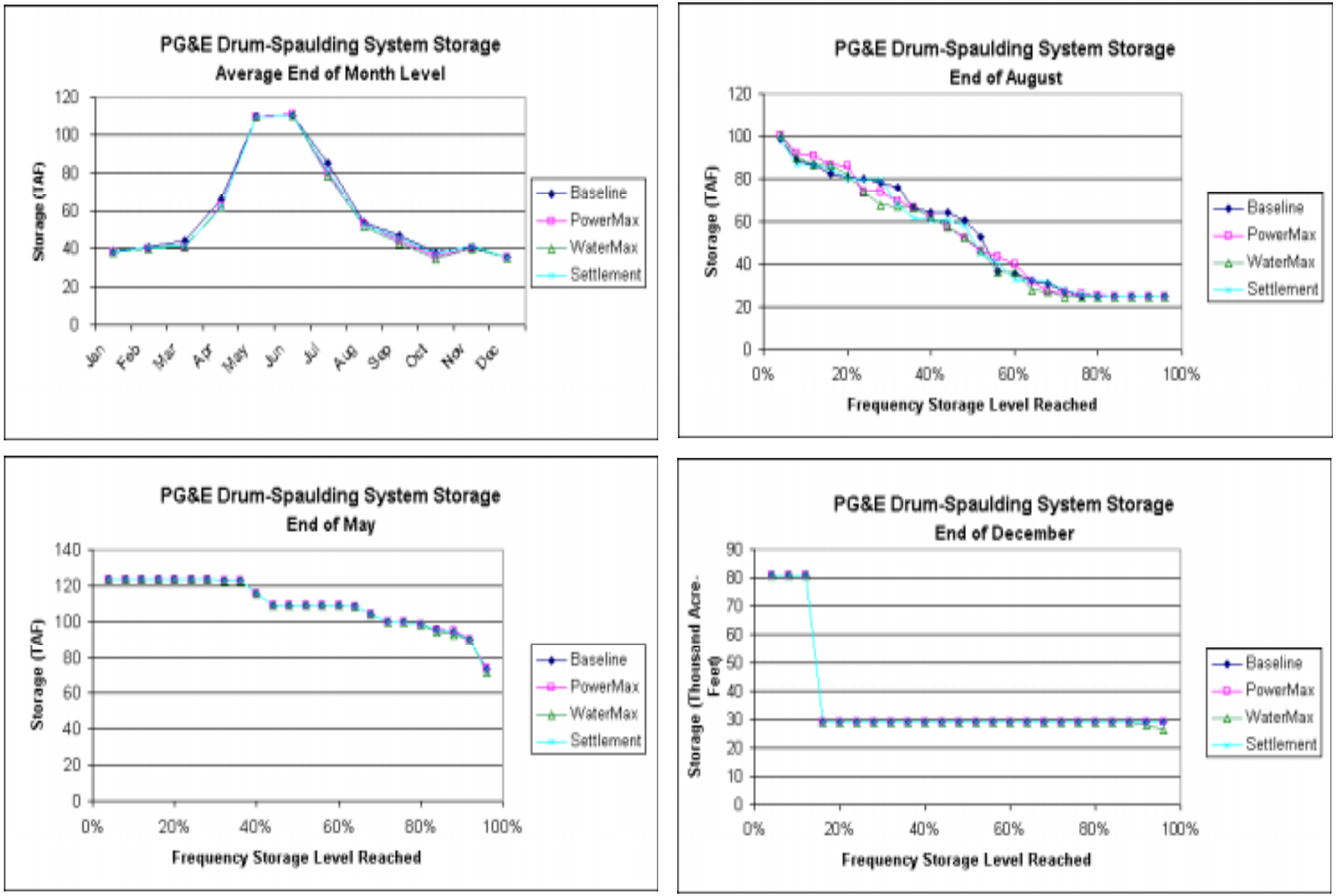
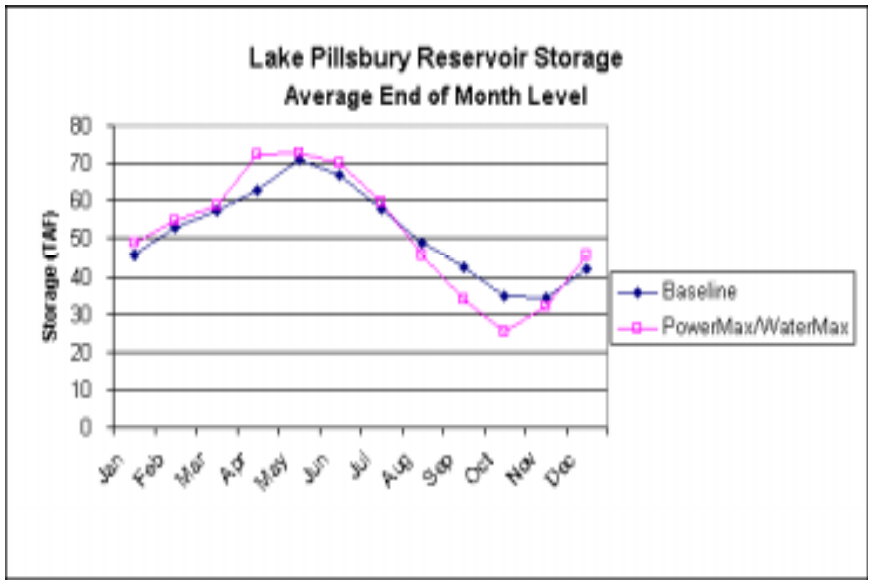
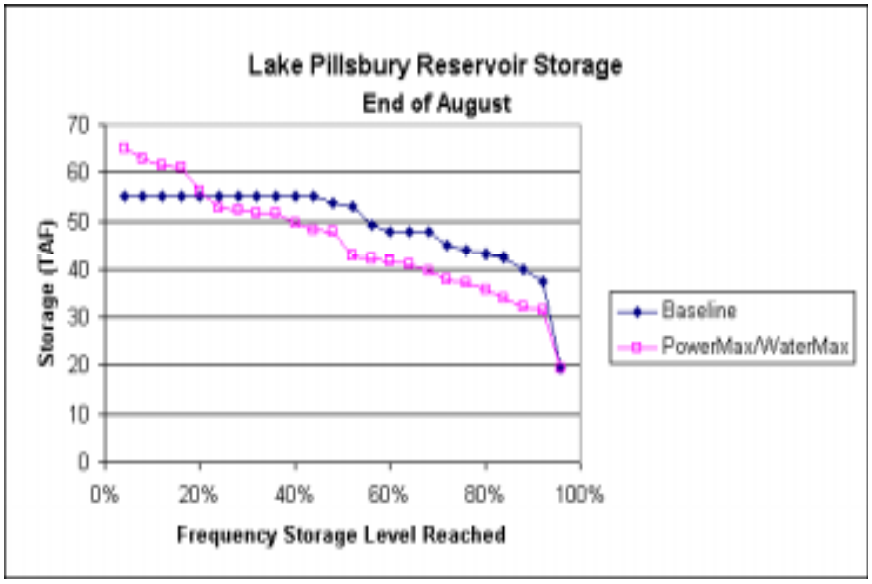
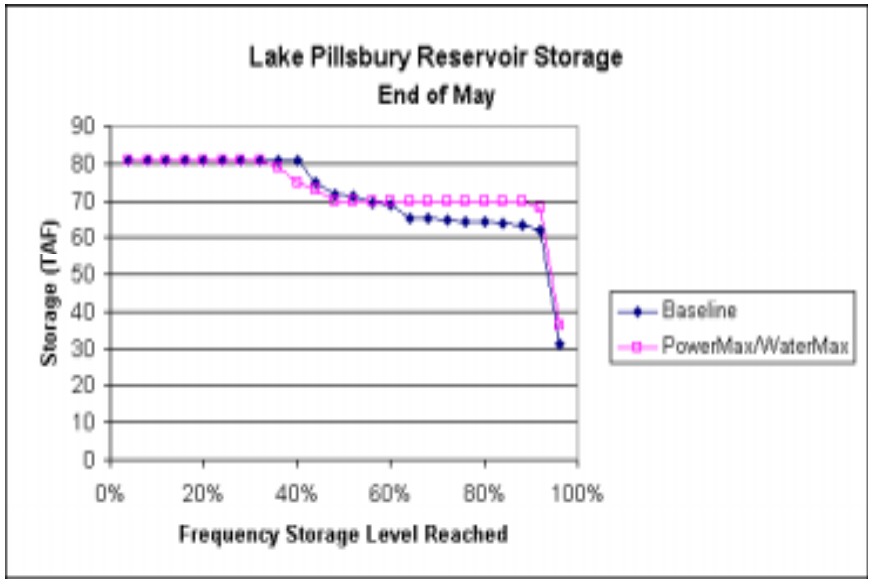


Figure 6-8 Total Lake Pillsbury Reservoir Storage







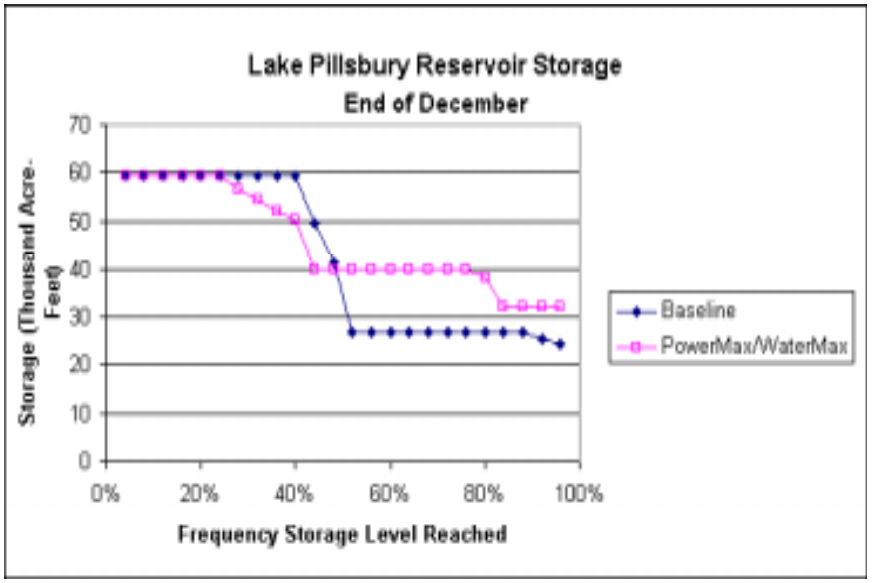
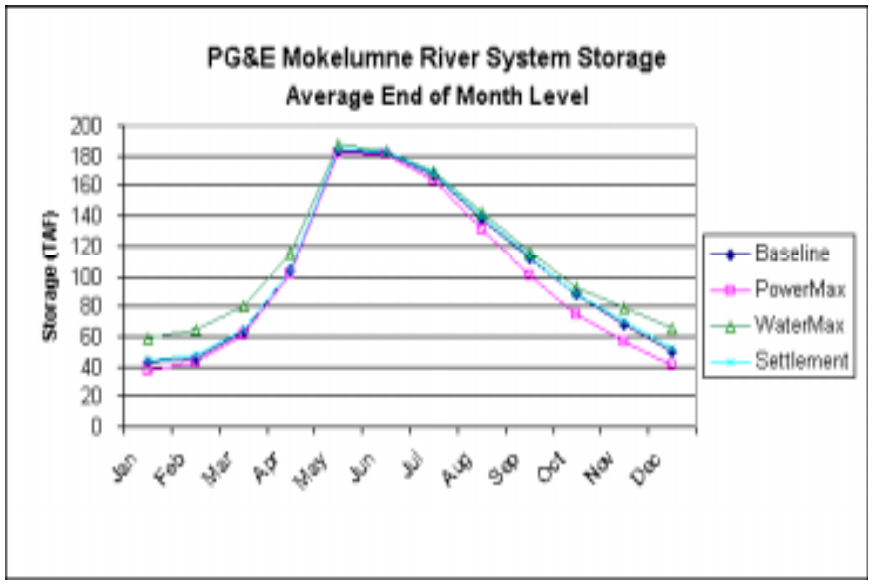
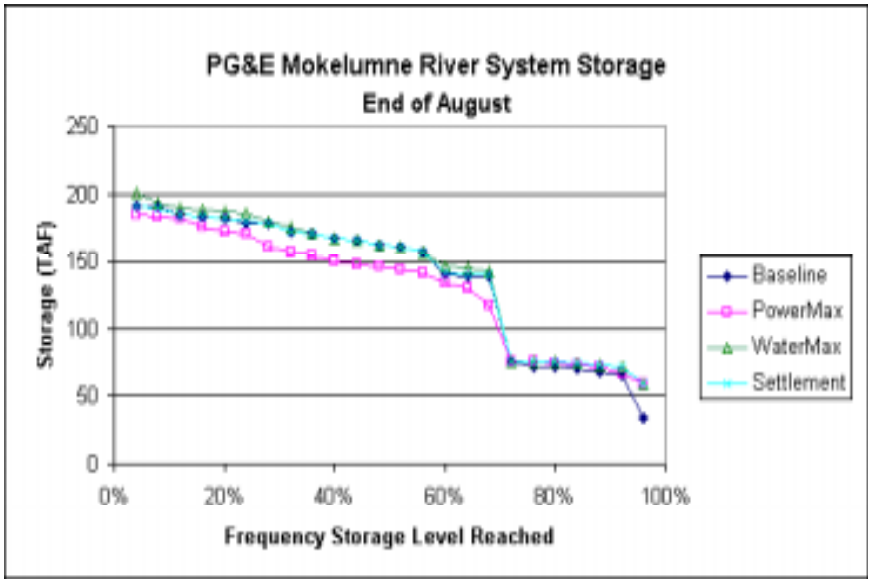
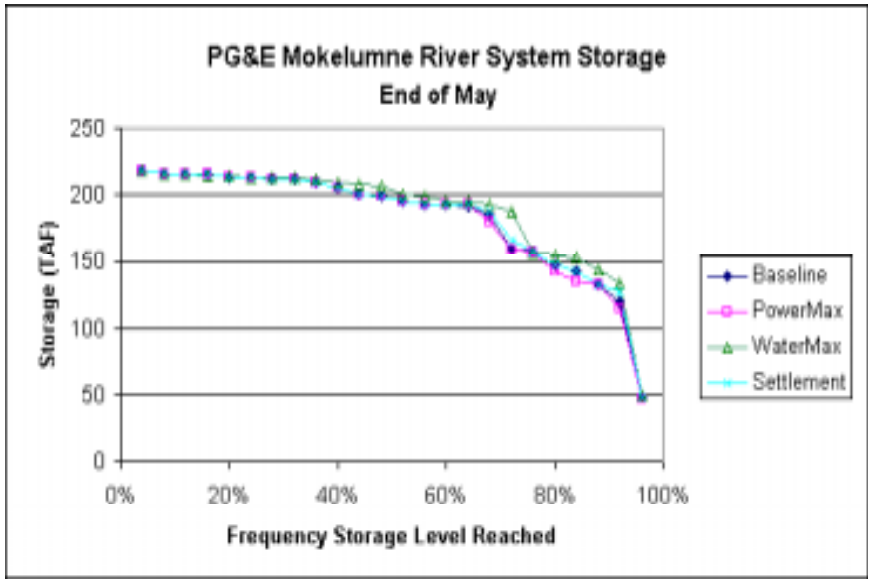


Figure 6-9 Total Pacific Gas and Electric Company Mokelumne River System Storage







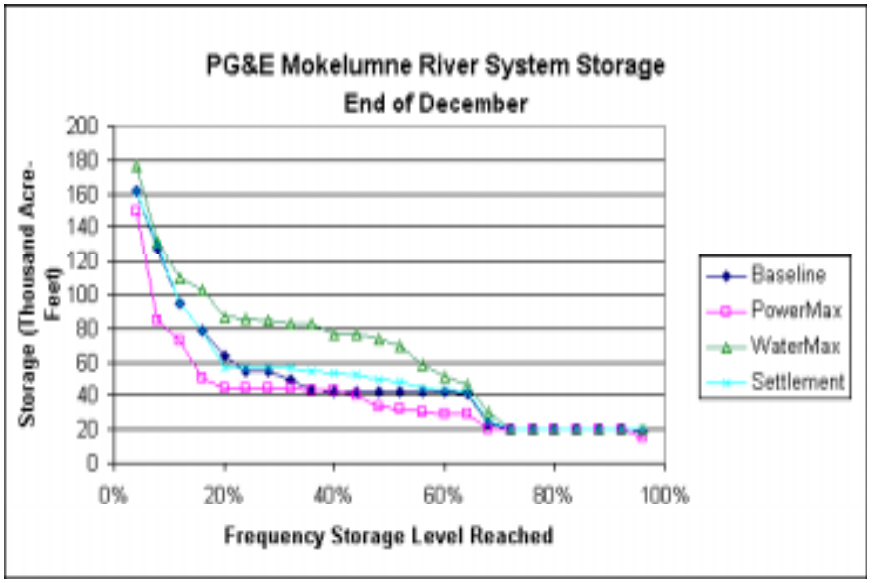
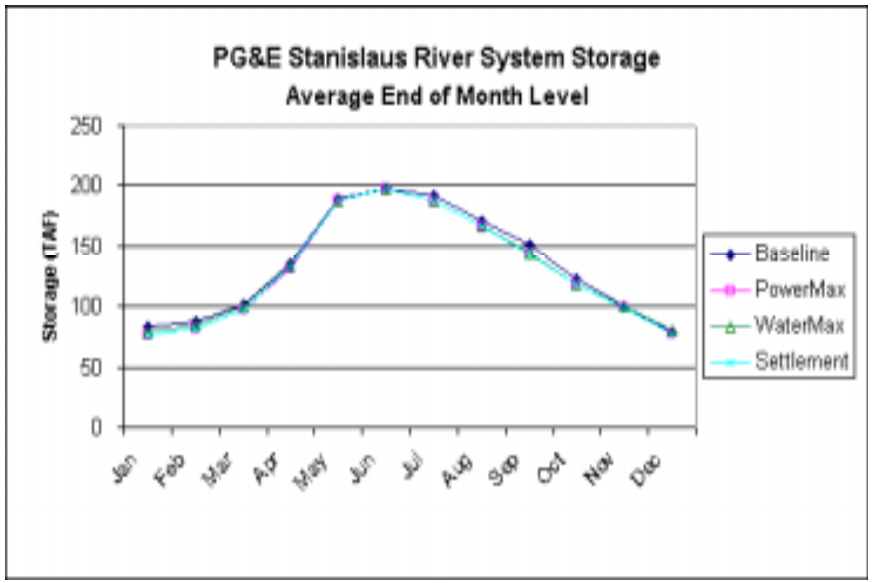
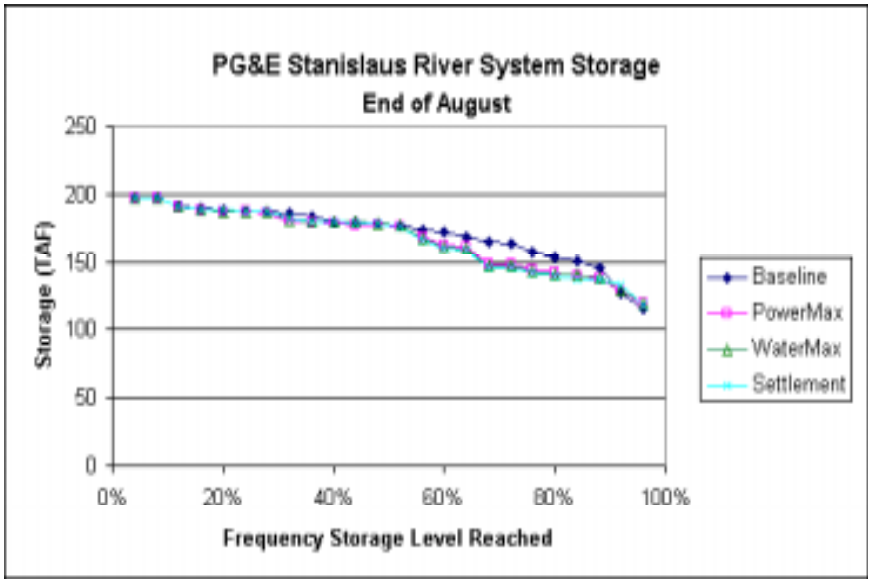
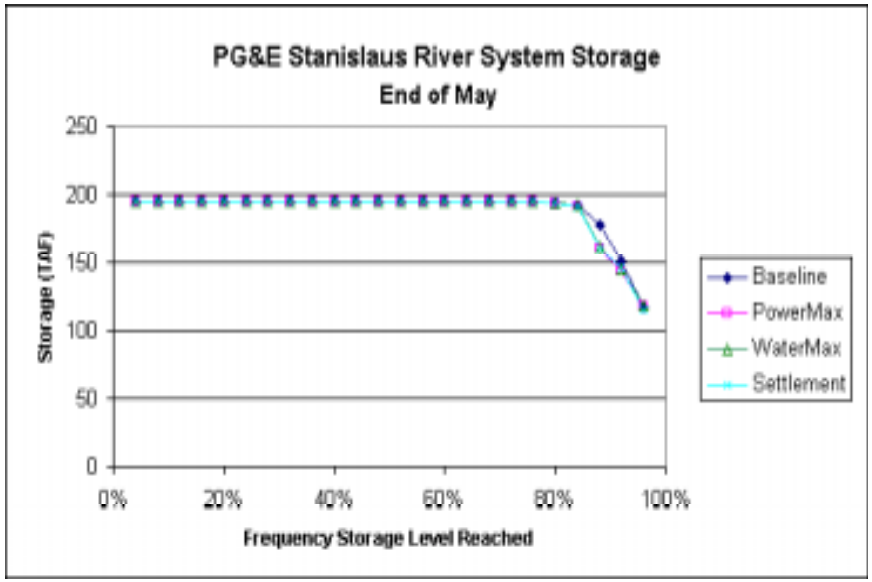


Figure 6-10 Total Pacific Gas and Electric Company Stanislaus River System Storage







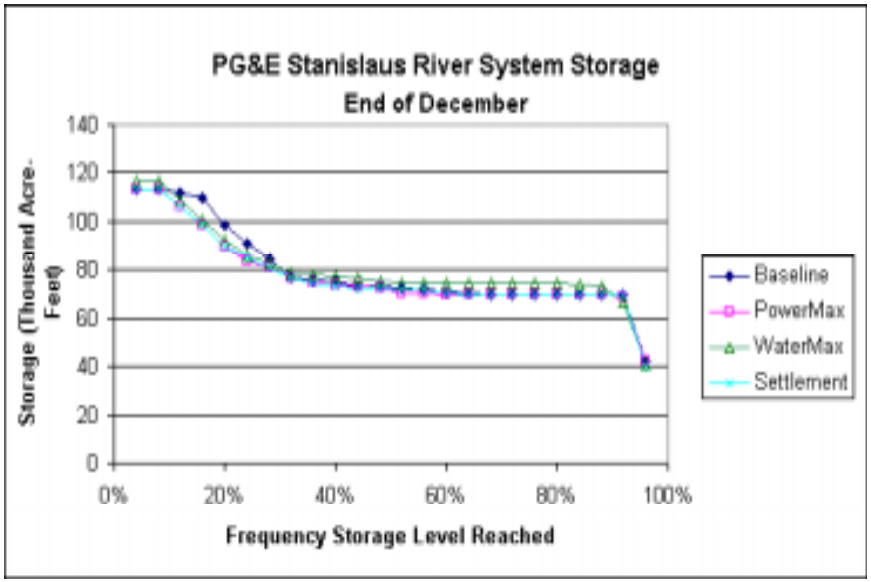
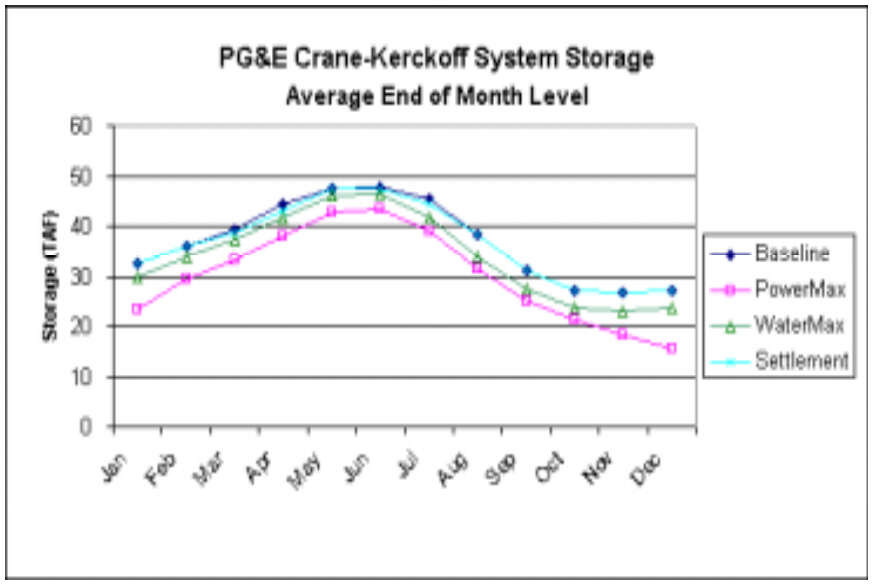
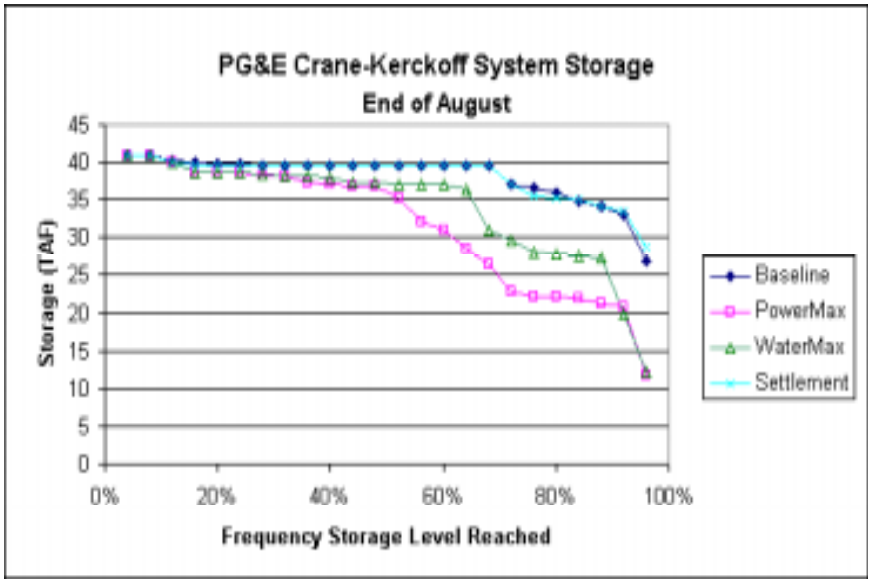
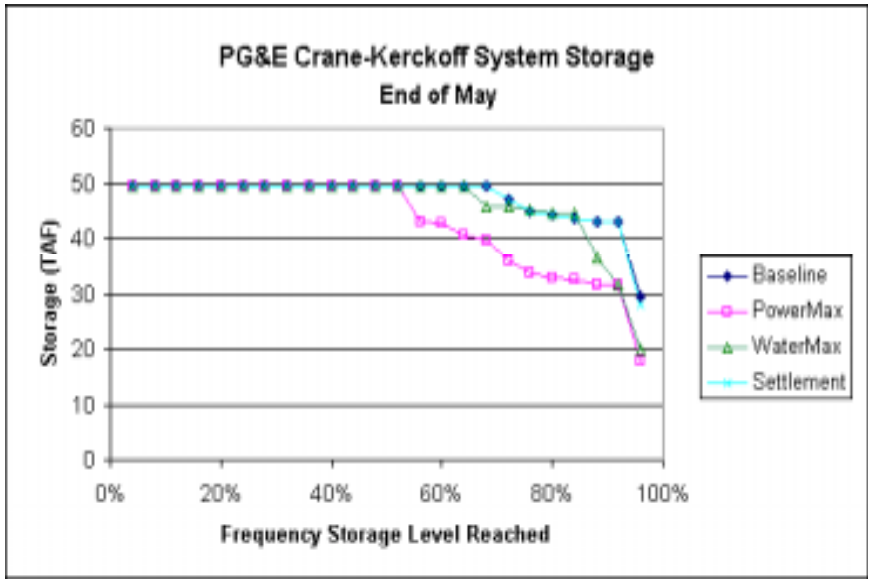
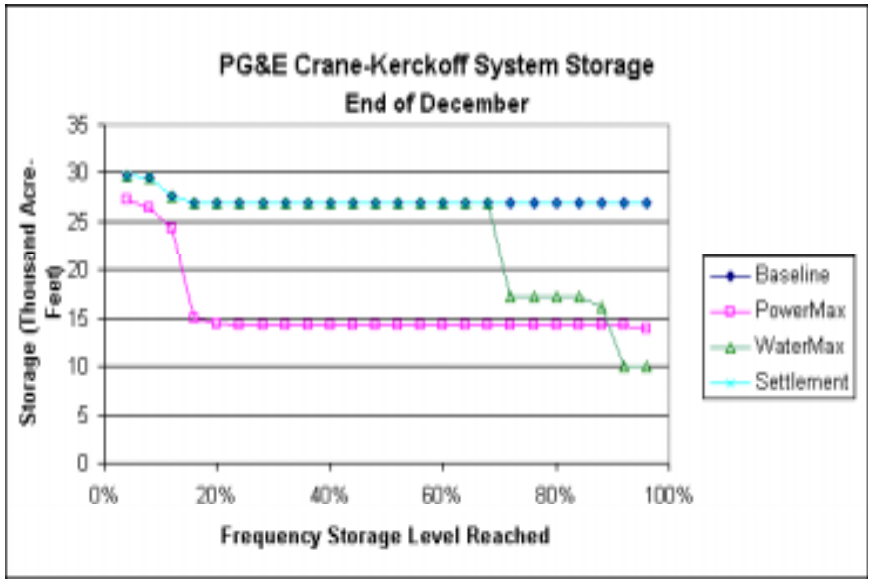


Figure 6-11 Total Pacific Gas and Electric Company Crane-Kerckhoff System Storage









those for the Baseline. Where there may be a discernible difference, (e.g., Feather and Mokelumne Rivers), the modeled storage for the Proposed Settlement tends to be lower in wet years and higher in dry years, although that is not universally true.

Note that all of the analyses summarized in these figures reflect an assumption that market power could not be exercised under the Proposed Settlement. Different patterns of generation and reservoir storage levels could result if market power concerns are not adequately mitigated.

6.8.3 THERMAL POWER PLANT EMISSIONS

Table 6-35, which is included in the Proposed Settlement Alternative (See Section 6.12.3.14), compares emissions from thermal power plants under Alternative 3 (Proposed Settlement) against Alternative 1 (No Project A) and the Baseline.

6.9 DESCRIPTION OF FOCUSED ALTERNATIVES

6.9.1 FOCUSED ALTERNATIVE 1—SINGLE OWNER (NOT PACIFIC GAS AND ELECTRIC COMPANY)

Under this focused alternative, auction of the hydroelectric facilities and Project Lands would occur, however, it is assumed that all of the facilities and lands would be purchased by a single owner that is not Pacific Gas and Electric Company, and that the operation of the hydroelectric facilities would not be regulated by the CPUC. To the extent that the entity that purchases all of the hydroelectric facilities also owns thermal generating facilities, that entity could exercise market power, and therefore this alternative would be the same as the No Project B Alternative (Pacific Gas and Electric Company Unregulated). If the entity that purchases all of the hydroelectric facilities does not own any thermal generating facilities, then this alternative would generally be the same as the project. (See Table 6-14)

6.9.2 FOCUSED ALTERNATIVE 2—REGIONAL BUNDLES MINUS A SINGLE INDIVIDUAL BUNDLE

This focused alternative responds to comments received during the scoping process, and would remove individual bundles from the five regional bundles. As a result, the five regional bundles would be modified as follows:

- Shasta Regional Bundle without the Pit River Bundle (#2, as requested by the Pit River Indian Tribe);
- De Sabla Regional Bundle without the Hamilton Branch Bundle (#6, as requested by Plumas County);
- Drum-Spaulding Regional Bundle without the Potter Valley Bundle (#10, as requested the cities of Sonoma, Cotati, Rohnert, and Cloverdale, the Valley of the Moon Water District, the Mendocino County Inland Water and Power Commission, and the Sonoma County Water Agency); and
- Motherlode Regional Bundle without the Mokelumne Bundle (#13, as requested by the East Bay Municipal Utility District) and the Merced Falls Bundle (#15, as requested by the Merced Irrigation District).

The facilities or bundles removed from five regional bundles would be offered for sale individually (see Table 6-15).

Table 6-14 Focused Alternative 1: Single Owner (not Pacific Gas and Electric Company)

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric facilities would occur.
Appraisal		
Negotiated Sale		
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands could be bundled for sale in five regional or 20 smaller bundles, with the result being that a single bidder successfully purchases the entire system. Alternatively, the CPUC could order that the assets be sold as a single system.
Single System	X	
Five or 20 Bundles	X	
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that a single owner would purchase all of the facilities and Project Lands.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)	X	
State of California		
Multiple Owners		
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed that the hydroelectric facilities would generally be operated consistent with the PowerMax Scenario, especially at periods of peak electrical demand.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario		
Increased Stream Flows		
Management of Lands		Similar to the project, intensity of land management practices are generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

Table 6-15 Focused Alternative 2: Individual Bundles Removed from Regional Bundles

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric facilities followed by subsequent divestiture, is assumed to occur.
Appraisal		
Negotiated Sale		
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands would be bundled for sale in five regional or 20 smaller bundles, except for individual facilities or bundles, which may be offered for sale as individual bundles.
Single System		
Five or 20 Bundles	X	
Bundled by River Basin		
Individual Bundles	X	
Ownership		The hydroelectric facilities would be auctioned in the five regional bundles (minus several individual bundles) or 20 bundles; therefore, multiple owner(s) would result. It is assumed that individual projects could be purchased by local agencies.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed that most of the hydroelectric facilities would be operated per the PowerMax Scenario, while the individual projects would be most likely to be operated per the WaterMax Scenario.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows		
Management of Lands		Similar to the project, intensity of land management practices is generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

6.9.3 FOCUSED ALTERNATIVE 3—PARTIAL/INTERIM RETENTION BY PACIFIC GAS AND ELECTRIC COMPANY OF SELECTED FACILITIES

This focused alternative would involve retention by Pacific Gas and Electric Company of all FERC hydroelectric facilities that: (1) are currently in FERC relicensing; (2) will begin the process of FERC relicensing in the next five years; or (3) currently have license conditions under review by FERC. Under this focused alternative, 12 of the 26 FERC-licensed facilities would be removed from the five regional bundles, as shown in the following table. Following completion of the licensing process (which would require environmental review under the National Environmental Policy Act) or the review of license conditions, the facilities would subsequently be divested. This focused alternative would split the hydroelectric facilities into two groups: those that would be retained by Pacific Gas and Electric Company until relicensing (or review of license conditions) is complete; and the remainder, which would be auctioned and divested at this time. For those hydroelectric facilities that are retained in the interim by Pacific Gas and Electric Company, the components and assumptions would generally be the same as the No Project A Alternative. The other 17 hydroelectric projects would be auctioned and divested, and those facilities would be sold as individual project bundles. For those hydroelectric facilities that would be sold via auction, the components and assumptions would be the same as Alternative 6 (Individual Bundles). For those projects that are retained initially, it is assumed that as conditions of relicensing, the FERC would require that instream flows be increased as environmental mitigation, which could result in a decrease in power generation in the future.

The projects that would be auctioned off initially, and those that would be retained in the interim (and then auctioned, as individual project bundles, after completion of the FERC process) are listed in Table 6-16. See also Table 6-17.

6.9.4 FOCUSED ALTERNATIVE 4—ENVIRONMENTAL ENHANCEMENT

Under this focused alternative, auction of the hydroelectric facilities would occur, but these sales would be conditioned on the implementation of additional measures above and beyond those included in Alternative 9, Environmental Composite, with the intent to mitigate prior environmental damage that may have resulted from the installation of some of the hydroelectric facilities.

Consistent with Alternative 9, this focused alternative would include: (1) bundling of Watershed Lands for conservation purposes; (2) supplemental stream flows in bypass reaches to mitigate impacts of hydroelectric facilities on natural resources and other beneficial uses, including recreation, and watershed management; and (3) preservation of existing non-binding agreements, including those related to maintenance of recreational facilities and uses, and maintenance of reservoir levels and instream flows. In addition, this focused alternative would include: (1) installation of fish ladders or similar facilities where appropriate to preserve or restore anadromous fish populations (which it is assumed would not require additional releases of water beyond the stream flow increases already noted above); and (2) decommissioning of selected

Table 6-16 Projects Auctioned or Retained in the Interim

Bundle	FERC License #	
	Auctioned/Divested	Retained in Interim
Shasta Region		
1. Hat Creek		2661
2. Pit River		2687
		0233
	2106	
3. Kilarc – Cow Creek	0606	
4. Battle Creek	1121	
DeSabla Region		
5. Hamilton Branch	No license	
6. Feather River		2105
		1962
		2107
7. Bucks Creek	0619	
8. Butte Creek	0803	
	No license (Lime Creek)	
	No license (Coal Canyon)	
Drum-Spaulding Region		
9. North Yuba	1403	
10. Potter Valley		0077
11. S. Yuba – Bear	2310	
12. Chili Bar	2155	
Motherlode Region		
13. Mokelumne		0137
14. Stanislaus		2130
	1061	
15. Merced	2467	
Kings Crane –Helms Region		
16. Crane Valley		1354
17. Kerckhoff	0096	
18. Kings River	2735	
		1988
	0175	
19. Tule River	1333	
20. Kern Canyon		0178

Table 6-17 Focused Alternative 3: Partial/Interim Retention of Selected Facilities

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed auction would not occur, and it is assumed the value would be determined by an administrative appraisal. Following relicensing, the facilities and lands would be auctioned, with various environmental conditions.
Appraisal	A	
Negotiated Sale		
Auction	B	
Conditional Auction		
Bundling of Facilities and Lands		It is assumed that the retained facilities would, in the interim, remain as part of the current system, then subsequently auctioned as individual facilities. The facilities that are auctioned initially would be sold as individual bundles.
Single System	A	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles	B	
Ownership		It is assumed that the Pacific Gas and Electric Company would own the facilities in the interim, followed by the subsequent sale to multiple owner(s). The individual bundles auctioned initially would likely be sold to multiple owner(s).
Pacific Gas and Electric Company	A	
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	B	
Electrical Ratemaking		Those facilities retained in the interim would continue to be regulated by the CPUC under cost-of-service ratemaking. Following auction of the facilities, it is assumed that operation of the hydroelectric facilities would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)	A	
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	B	
Operation of Hydroelectric Facilities		In the interim, it is assumed that the retained facilities would be operated consistent with the "No project" conditions. Future owner(s) could either operate the facilities per the PowerMax or WaterMax Scenarios. Facilities retained in the interim are assumed to have new license conditions imposed by the FERC that would likely include increased stream flows.
Baseline		
No Project (A)	A	
PowerMax Scenario	B	
WaterMax Scenario	B	
Increased Stream Flows	A	
Management of Lands		For facilities retained in the interim, it is assumed land management would be the same as baseline conditions. For facilities that are auctioned, it is assumed that intensity of land management practices would increase, resulting in increased timber harvest, agricultural or grazing, and mining compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions	A	
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	B	
Development of Project Lands	B	
Informal Agreements		For the facilities retained in the interim, informal agreements are assumed to be continued. For facilities that are auctioned, it is assumed the practices would be discontinued.
Generally Continue	A	
Discontinued	B	

Notes: A = facilities retained by Pacific Gas and Electric Company in the interim B = facilities that are auctioned

facilities, wherein the CPUC would conduct an appropriate process to identify which facilities may have environmental consequences that may outweigh their power-production or economic benefits. It is assumed that only those facilities without substantial water storage capacity would be considered for decommissioning, because of the water supply and flooding mitigation benefits that can result from a reservoir. Those facilities identified by the CPUC as candidates for decommissioning would be removed from the five regional, and 20 smaller bundles, and Pacific Gas and Electric Company would be required to initiate decommissioning proceedings with the FERC. See Table 6-18.

6.9.5 FOCUSED ALTERNATIVE 5—ALTERNATIVE VALUATION

Under AB 1890, the market value of the hydroelectric facilities can be determined by appraisal, sale or other divestiture. In testimony filed at the CPUC and before the administrative law judge assigned to Pacific Gas and Electric Company's application, three main methods of valuation of the hydroelectric facilities have been discussed: appraisal, negotiated sale, and auction. Four of the alternatives to the project (No Projects A and B; Alternative 3--Proposed Settlement; and Alternative 4--Proposed Settlement [Regulated]) would involve valuation of the facilities via an administrative or independent appraisal. The project and Alternatives 5 (Projects Bundled by River Basin), 6 (Individual Bundles), and 8 (Decommissioning of Selected Facilities) would involve a price-only auction. Alternative 9 (Environmental Composite) would likely involve an auction with sale conditions that implement certain environmental protections or other conditions. Alternative 7 (Bundle Watershed Lands for Conservation) would involve the negotiated sale of the lands and the auction of the hydroelectric facilities. Thus, with the exception of a negotiated sale of the hydroelectric facilities, the project and the other alternatives cover various permutation of the appraisal and auction valuation methods.

Therefore, this focused alternative consists of the negotiated sale of some or all of the hydroelectric facilities. The CPUC would identify which facility, or facilities, should be eliminated from the proposed auction, and identify the appropriate party or parties that likely are interested in the purchase of specific facilities. It is assumed that the CPUC would likely include local and/or water agencies as interested parties, such as those identified during the scoping process for this EIR (listed in Table 6-9). It should also be noted that in conjunction with the proposed Settlement Agreement (described above as Alternative 3), Pacific Gas and Electric Company has proposed, under certain conditions, to give the Placer County Water Agency, the Nevada Irrigation District, the Yuba County Water Agency, the Sonoma County Water Agency, and the Tuolumne Utilities District the exclusive first right to negotiate the purchase of specific hydroelectric facilities.

Pacific Gas and Electric Company would enter into negotiations with the identified party or parties to reach a negotiated sale price. For those facilities where no interested parties are identified, or where negotiations are unsuccessful, an auction would be conducted, as per the project. To facilitate the purchase of individual hydroelectric facilities, the assets would be aggregated into the 29 individual bundles (see Table 6-19).

Table 6-18 Focused Alternative 4: Environmental Enhancement

Component/Assumption		Description
Valuation Method		Under this alternative, a conditional auction of hydroelectric facilities would occur. It is assumed that transfer of Watershed Lands would occur via negotiation with specific land management agencies or conservation organizations.
Appraisal		
Negotiated Sale	X	
Auction		
Conditional Auction	X	
Bundling of Facilities & Lands		The hydroelectric facilities would be combined into five regional and 20 smaller bundles; however, individual facilities that would be subject to decommissioning would be removed from the bundles.
Single System		
Five or 20 Bundles	X	
Bundled by River Basin		
Individual Bundles	X	
Ownership		It is assumed that since up to 20 (or more) bundles would be offered for sale, multiple owner(s) would operate the facilities. It is also assumed that multiple agencies or organizations would control the Watershed Lands.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed some of the hydroelectric facilities would be operated per the PowerMax or WaterMax Scenarios. Decommissioning of the selected facilities could increase or decrease in-stream flows depending on the season.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows	X	
Management of Lands		Land management practices would depend on the future owner(s) of the Watershed Lands. It is assumed that some lands would be acquired by public agencies, which would preserve recreation uses, but end all other uses. Conservation organizations are assumed to conserve lands for open space only, which could preclude organized recreational facilities or uses.
Baseline Conditions	X	
Conservation Easements	X	
Restoration of Natural Conditions	X	
More Intensive Management		
Development of Project Lands		
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be continued, subject to limitations that may be imposed by increased stream flows (e.g., which might impact reservoir levels).
Generally Continue	X	
Discontinued		

Table 6-19 Focused Alternative 5: Alternative Valuation - Negotiated Sale of Selected Facilities

Component/Assumption		Description
Valuation Method		It is assumed that transfer of the hydroelectric facilities and Project Lands would occur via negotiation with specific agencies. Auction of some hydroelectric facilities (and lands) could also occur.
Appraisal		
Negotiated Sale	X	
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands are assumed to be separated into 29 (individual project) bundles.
Single System		
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles	X	
Ownership		It is assumed that since 29 separate bundles would be offered for sale, multiple owner(s) would result. It is assumed this could increase the potential that local agencies would purchase individual projects.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		It is assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		It is assumed that hydroelectric facilities sold via negotiation may be operated per the WaterMax Scenario. Those sold via auction are assumed to be operated per the PowerMax Scenario.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows		
Management of Lands		Intensity of land management practices is generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

6.9.6 FOCUSED ALTERNATIVE 6—INTERIM STATE OWNERSHIP

In the last legislative session, legislation was introduced as AB 1956 (also known as the "Keeley Bill") which would have given the State of California right of first refusal to acquire any or all of all hydroelectric assets and Project Lands for a period of up to six years, followed by subsequent divestiture. Although the bill was subsequently amended to a considerable degree and ultimately did not come to a vote by the entire Assembly, this focused alternative reflects the original intent of the Keeley Bill. It is not the intent of this EIR to suggest, by inclusion of this focused alternative, that the CPUC has any specific position on the AB 1956 as originally proposed or subsequently amended. Rather, in response to comments received during the EIR scoping process, this focused alternative is included herein to consider the potential for interim State ownership to reduce or avoid potentially significant impacts.

For the purposes of this EIR, is it assumed that the State would exercise the option to acquire all of the hydroelectric assets for the interim period. Therefore, determination of market value would occur via an alternative method, such as an administrative or independent appraisal of the hydroelectric assets. Is it assumed that regulation of the hydroelectric assets by the CPUC no longer would occur.

During the period of time that the State owns the assets and lands, is assumed that the State, or a special-purpose authority created by the State, would: (1) transfer the lands to appropriate government agencies and/or conservation organizations, or impose conservation easements on Project Lands to preserve existing recreational uses and preclude future development of the lands; (2) provide for supplemental stream flows to lessen impacts of hydroelectric assets on natural resources and other beneficial uses, including recreation, and watershed management; (3) formalize existing non-binding agreements related to maintenance of reservoir levels, public access to Project Lands and other activities and practices that are deemed in the public interest; and (4) preserve the telecommunications system installed by Pacific Gas and Electric Company as an integrated system to preserve existing functionality (see Table 6-20).

Following the interim period of State ownership, any remaining hydroelectric assets would then be sold via auction and divested. However, it is assumed that additional conditions and operating constraints imposed by the State of California for environmental purposes would be conditions of the subsequent sales.

It is also possible that the State would choose to acquire only some of the bundles for the interim period, and it is assumed those would be facilities that: a) are currently in FERC relicensing; b) will undergo FERC relicensing in the next five years; or c) currently have license conditions under review. Under that scenario, this Alternative would be similar to Focused Alternative 3, Interim Retention.

Table 6-20 Focused Alternative 6: Interim State Ownership

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed auction would not occur, and it is assumed the value would be determined by an administrative appraisal. Following State ownership, the remaining assets would be auctioned, with various environmental conditions.
Appraisal	C	
Negotiated Sale		
Auction		
Conditional Auction	D	
Bundling of Facilities & Lands		It is assumed that the State would maintain the assets in the interim as part of an integrated system, then subsequently auction individual projects.
Single System	C	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles	D	
Ownership		It is assumed that the State would own the assets in the interim, followed by the subsequent sell to multiple owner(s). This could increase the potential that local agencies could purchase the facilities.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California	C	
Multiple Owners	D	
Electrical Ratemaking		It is assumed that operation and management of the hydroelectric assets would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydroelectric Facilities		In the interim, it is assumed that the assets would be operated consistent with the No Project (A) Alternative, modified by increased stream flows. Future owner(s) could either operate the facilities per the PowerMax or WaterMax Scenarios, subject to increased stream flows (and any other conditions that may be imposed by the State).
Baseline		
No Project (A)	C	
PowerMax Scenario	D	
WaterMax Scenario	D	
Increased Stream Flows	C	
Management of Lands		In the interim, it is assumed that land management practices would be equivalent to or less intensive than baseline conditions. For the long term, it is assumed that some lands would be acquired by public agencies, which would preserve recreation uses, but end all other uses. Conservation organizations are assumed to conserve lands for open space only.
Baseline Conditions		
Conservation Easements	C/D	
Restoration of Natural Conditions	D	
More Intensive Management		
Development of Project Lands		
Informal Agreements		It is assumed that some informal agreements and operating practices would be continued, as mandated by the State. Others may be discontinued.
Generally Continue	X	
Discontinued	X	

Notes C = interim retention by the State D = conditions following subsequent auctions

6.9.7 FOCUSED ALTERNATIVE 7—ALTERNATE RATEMAKING (REGULATED)

Under this alternative, the proposed auction of the hydroelectric facilities and Project Lands would not occur. An alternative method of valuation of the hydroelectric facilities and associated assets would occur (e.g., independent or administrative appraisal). It is assumed that Pacific Gas and Electric Company would continue to own and operate the hydroelectric facilities in the future, but would be regulated by the CPUC under performance-based ratemaking, instead of the current cost-of-service ratemaking (see Table 6-21).

For the purposes of this alternative, it is assumed that if a performance-based ratemaking structure were adopted by the CPUC, it would only relate to operation of the hydroelectric facilities, and would not include standards for management of the lands. It is assumed that the existing non-binding informal agreements would continue in effect. Therefore, under this alternative, it is assumed the Pacific Gas and Electric Company could elect to increase revenues from the lands, which would result in increased intensity of land management (e.g., expansion of timber harvest). Some development of the Project Lands could also occur, which might include residential, resort, recreational, commercial and, in some cases, industrial uses.

6.10 COMPARISON OF ALTERNATIVES

In order to compare the alternatives and focused alternatives, the components and assumptions for the environmental setting and the project are presented in Tables 6-22 and 6-23. Table 6-24 compares the environmental setting, the project, and all of the alternatives and focused alternatives. Tables 6-25 to 6-27 provide selected comparisons of the baseline, the project, the alternatives, and the focused alternatives. The intent of these comparisons is to assist the reader in understanding the similarities of the components and assumptions that define the alternatives. The groupings used in the comparison tables show which alternatives most closely resemble the baseline, the project, or another alternative.

Table 6-25 compares the baseline to Alternative 1 (No Project A), which have essentially the same assumptions, except operation of the hydroelectric facilities. For the purposes of hydroelectric operations, baseline conditions refers to the operation of the facilities under the current deregulated electrical market, given the 25 years of data used for hydrologic modeling. The No Project (A) scenario for hydroelectric operations reflects baseline conditions, as modified by changes anticipated as a result of the continued restructuring of the electrical market. In general, peaking power production could be increased, which could result in changes in instream flow patterns and modification of reservoir levels.

As shown in Table 6-26, the project, Alternative 2 (No Project B), Alternative 5 (Bundled by River Basin) and Alternative 6 (Individual Bundles) have similar assumptions for ratemaking, operation of the hydroelectric facilities, management of the Project Lands, and non-binding agreements. The

Table 6-21 Focused Alternative 7: Alternate Ratemaking (Performance-Based Regulated)

Component/Assumption		Description
Valuation Method		Under this alternative, the proposed action, auction of hydroelectric assets followed by subsequent divestiture, would not occur. It is assumed that determination of market value would occur via an alternative method, such as an appraisal.
Appraisal	X	
Negotiated Sale		
Auction		
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands are assumed to remain as a single coordinated system, without any fragmentation of ownership.
Single System	X	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that Pacific Gas and Electric Company would continue to own and operate the assets.
Pacific Gas and Electric Company	X	
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners		
Electrical Ratemaking		It is assumed operation and management of the hydroelectric facilities and management of the Project Lands would be regulated by the CPUC under a performance-based ratemaking structure.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)	X	
Performance-Based (Unregulated)		
Unregulated		
Operation of Hydroelectric Facilities		It is assumed that the hydroelectric facilities would be operated per the PowerMax Scenario, especially at periods of peak electrical demand.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario		
Increased Stream Flows		
Management of Lands		Intensity of land management practices is generally assumed to increase, resulting in increased timber harvest, grazing, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would continue.
Generally Continue		
Discontinued	X	

Table 6-22 Baseline (or Environmental Setting)

Component/Assumption		Description
Valuation Method – not applicable		The hydroelectric facilities and Project Lands currently have a book value of $1.6 billion.
Appraisal		
Negotiated Sale		
Auction		
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands are part of a single coordinated system.
Single System	X	
Five or 20 Bundles		
Bundled by River Basin		
Individual Bundles		
Ownership		Pacific Gas and Electric Company currently owns and operate the facilities and manages the Project Lands.
Pacific Gas and Electric Company	X	
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners		
Electrical Ratemaking		Operation of the hydroelectric facilities (and Project Lands) is currently regulated by the CPUC under a cost-of-service ratemaking structure.
Cost-of-Service (Regulated)	X	
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated		
Operation of Hydroelectric Facilities		Baseline conditions refers to the operation of the facilities under the current deregulated electrical market given the variation of precipitation from 1974 to 1998 (which was used as input for hydrologic modeling).
Baseline	X	
No Project (A)		
PowerMax Scenario		
WaterMax Scenario		
Increased Stream Flows		
Management of Lands		Current land management practices include timber harvest, agricultural or grazing practices, and mining activities. Public uses include recreation at some locations. Except for the hydroelectric (and recreation) facilities, the lands are generally undeveloped.
Baseline Conditions	X	
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management		
Development of Project Lands		
Informal Agreements		A variety of non-binding informal agreements and operating practices influence operation of the facilities and management of the lands.
Generally Continue	X	
Discontinued		

Table 6-23 Proposed Project

Component/Assumption		Description
Valuation Method		The project proposed auction of hydroelectric facilities followed by subsequent divestiture.
Appraisal		
Negotiated Sale		
Auction	X	
Conditional Auction		
Bundling of Facilities & Lands		The hydroelectric facilities and Project Lands are proposed to be bundled for sale in five regional or 20 smaller bundles.
Single System		
Five or 20 Bundles	X	
Bundled by River Basin		
Individual Bundles		
Ownership		It is assumed that as hydroelectric facilities would be auctioned in five regional, or 20 smaller bundles, multiple entities would own the facilities.
Pacific Gas and Electric Company		
Single Owner (not Pacific Gas and Electric Company)		
State of California		
Multiple Owners	X	
Electrical Ratemaking		Is it assumed that operation of the hydroelectric facilities (and Project Lands) would no longer be subject to regulation by the CPUC.
Cost-of-Service (Regulated)		
Performance-Based (Regulated)		
Performance-Based (Unregulated)		
Unregulated	X	
Operation of Hydro Facilities		It is assumed that the hydroelectric facilities would be operated per the PowerMax Scenario, especially at periods of peak electrical demand. If individual bundles are purchased, they could be operated per the WaterMax Scenario.
Baseline		
No Project (A)		
PowerMax Scenario	X	
WaterMax Scenario	X	
Increased Stream Flows		
Management of Lands		Intensity of land management practices are generally assumed to increase, resulting in increased timber harvest, agricultural or grazing practices, and mining activities compared to baseline conditions. Development of some lands is also assumed to occur.
Baseline Conditions		
Conservation Easements		
Restoration of Natural Conditions		
More Intensive Management	X	
Development of Project Lands	X	
Informal Agreements		It is assumed that existing non-binding informal agreements and operating practices would be discontinued.
Generally Continue		
Discontinued	X	

Table 6-24 Comparison of the Proposed Project and Alternatives

	Baseline	Project	Alternatives									Focused						
			1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7
Valuation Method																		
Appraisal			X	X	X	X								A			C	X
Negotiated Sale									X		X				X	X		
Auction		X					X	X	X	X		X	X	B		X		
Conditional Auction											X				X		D	
Bundling of Facilities & Lands																		
Single System	X		X	X	X	X						X		A			C	X
Five or 20 Bundles		X							X		X	X	X		X			
Bundled by River Basin							X											
Individual Bundles								X		X			X	B	X	X	D	
Ownership																		
Pacific Gas and Electric Company	X		X	X	X	X								A				X
Single Owner												X						
State of California																	C	
Multiple Owners		X					X	X	X	X	X		X	B	X	X	D	
Electrical Ratemaking																		
Cost-of-Service Regulation	X		X											A				
Performance Based (Regulated)						X												X
Performance Based (Unreg.)					X													
Unregulated		X		X			X	X	X	X	X	X	X	B	X	X	X	
Operation of Hydroelectric Facilities																		
Baseline	X																	
No Project (A)			X											A			C	
PowerMax Scenario		X		X	X	X	X	X	X	X	X	X	X	B	X	X	D	X
WaterMax Scenario		X					X	X	X	X	X		X	B	X	X	D	
Increased Stream Flows					X	X				?	X			A	X		C	
Management of Lands																		
Baseline Conditions	X		X		X	X			X					A	X		C	
Conservation Easements					X	X					X				X		C/D	
Restoration of Natural Conditions					X	X			X		X				X		D	
More Intensive Management		X		X			X	X		X		X	X	B		X		X
Development of Project Lands		X		X			X	X		X		X	X	B		X		X
Informal Agreements																		
Generally Continue	X		X			X					X			A	X		X	X
Discontinued		X		X	X		X	X	X	X		X	X	B		X		X

Notes: A= for facilities retained by Pacific Gas and Electric Company in the interim B=for facilities sold via auction
C= for facilities held by the State in the interim D=following auction of facilities

Table 6-25 Comparison of Baseline to Alternative 1 (No Project A)

	Baseline Conditions	No Project (A)	Remarks
Valuation Method			
Appraisal	n/a	X	The market value would be determined by appraisal.
Negotiated Sale			
Auction			
Conditional Auction			
Bundling of Facilities & Lands			
Single System	X	X	The facilities and lands would remain part of a single system.
Five or 20 Bundles			
Bundled by River Basin			
Individual Bundles			
Ownership			
Pacific Gas and Electric Company	X	X	Pacific Gas and Electric Company would continue to own the facilities and Project Lands.
Single Owner (not Pacific Gas and Electric Company)			
State of California			
Multiple Owners			
Electrical Ratemaking			
Cost-of-Service (Regulated)	X	X	It is assumed that the ratemaking structure would not result in any direct physical effects.
Performance-Based (Regulated)			
Performance-Based (Unregulated)			
Unregulated			
Operation of Hydroelectric Facilities			
Baseline	X		Compared to the 2000 baseline, conditions would change to reflect market restructuring by 2005 even without the project.
No Project (A)		X	
PowerMax Scenario			
WaterMax Scenario			
Increased Streamflows			
Management of Lands			
Baseline Conditions	X	X	Baseline conditions would continue, including existing recreational uses.
Conservation Easements			
Restoration of Natural Conditions			
More Intensive Management			
Development of Project Lands			
Informal Agreements			
Generally Continue	X	X	Non-binding agreements would generally continue.
Discontinued			

Table 6-26 Comparison of the Proposed Project to Alternatives 2 (No Project B), 5 (Bundled by Watershed) and 6 (Individual Bundles)

	Proposed Project	Alt. 2 No Proj. B	Alt. 5	Alt. 6	Remarks
Valuation Method					
Appraisal		X			With one exception, an auction would be conducted to determine the value of the assets. The valuation method may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of the lands.
Negotiated Sale					
Auction	X		X	X	
Conditional Auction					
Bundling of Facilities & Lands					
Single System		X			The manner in which the assets are bundled, would vary considerably, which may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of the lands.
Five or 20 Bundles	X				
Bundled by River			X		
Individual Bundles				X	
Ownership					
Pacific Gas and Electric Company		X			Ownership may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of the lands.
Single Owner (not Pacific Gas and Electric Company)					
State of California					
Multiple Owners	X		X	X	
Electrical Ratemaking					
Cost-of-Service (Regulated)					All of these scenarios assume no regulation by the CPUC.
Performance-Based (Regulated)					
Performance-Based (Unregulated)					
Unregulated	X	X	X	X	
Operation of Hydroelectric Facilities					
Baseline					The range of operational scenarios is consistent with those of the project.
No Project (A)					
PowerMax Scenario	X	X	X	X	
WaterMax Scenario	X			X	
Increased Streamflows					
Management of Lands					
Baseline Conditions					It is assumed that increased revenues from lands would be pursued for these scenarios, leading to more intensive land management and development.
Conservation Easements					
Restoration of Natural Conditions					
More Intensive Management	X	X	X	X	
Development of Project Lands	X	X	X	X	
Informal Agreements					
Generally Continue					Informal agreements are assumed to be discontinued.
Discontinued	X	X	X	X	

Table 6-27 Comparison of the Proposed Project to Focused Alternatives 1 (Single Owner), 2 (Bundles Minus Facilities), 5 (Alternative Valuation), and 7 (Alternate Ratemaking)

	Project	F Alt 1	F Alt 2	F Alt 5	F Alt 7	Remarks
Valuation Method						
Appraisal					X	Except for Focused Alternative 5, these alternatives would involve valuation via auction. The valuation method may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of lands.
Negotiated Sale				X		
Auction	X	X	X	X		
Conditional Auction						
Bundling of Facilities & Lands						
Single System					X	The manner in which the assets are bundled would vary among the alternatives. This may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of lands.
Five or 20 Bundles	X	X	X			
Bundles by River Basin						
Individual Bundles			X	X		
Ownership						
Pacific Gas and Electric Company					X	Ownership may or may not result in different operational motivations.
Single Owner (not Pacific Gas and Electric Company)						
State of California						
Multiple Owners	X	X	X	X		
Electrical Ratemaking						
Cost-of-Service (Regulated)						Most of these scenarios assume no regulation by the CPUC, except for Focused Alternative 7.
Performance-Based (Regulated)					X	
Performance-Based (Unregulated)						
Unregulated	X	X	X	X		
Operation of Hydroelectric Facilities						
Baseline						The range of operational scenarios is consistent with those of the project.
No Project (A)						
PowerMax Scenario	X	X	X	X	X	
WaterMax Scenario	X		X	X		
Increased Streamflows						
Management of Lands						
Baseline Conditions						It is assumed that increased revenues from lands would be pursued for all these alternatives, leading to more intensive land management and development.
Conservation Easements						
Restoration of Natural Conditions						
More Intensive Management	X	X	X	X	X	
Development of Project Lands	X	X	X	X	X	
Informal Agreements						
Generally Continue						Informal agreements would be discontinued for all scenarios.
Discontinued	X	X	X	X	X	

assumptions are different for valuation method (appraisal versus auction), bundling (one system versus sixteen bundles, instead of five regional or 20 smaller bundles), and ownership (Pacific Gas and Electric Company versus multiple owner(s)). Under Alternative 2 (No Project B), an administrative or independent appraisal would determine the potential market value of the hydroelectric facilities and related assets. For Alternatives 5 and 6 (Bundled by River Basin or Individual Bundles), an auction would determine the value of the assets as a result of the sale. For Alternative 2, the hydroelectric facilities would remain part of a single integrated system. For Alternative 5, the facilities would be grouped into sixteen bundles, which would combine facilities located on a single river, or river system. Alternative 6 would allow purchase of individual hydroelectric facilities, which would result in 29 bundles. If the hydroelectric facilities remain as a single system, that implies a single owner, which would be Pacific Gas and Electric Company (under Alternative 2). If the system is auctioned off in bundles (per Alternatives 5 or 6), then multiple owner(s) could result.

As shown in Table 6-27, the project, Focused Alternative 1 (Single Owner, Not Pacific Gas and Electric Company), Focused Alternative 2 (Bundles without Individual projects) and Focused Alternative 5 (Alternative Valuation) have similar assumptions related to ratemaking, operation of the hydroelectric facilities, management of the Project Lands, and non-binding agreements. The assumptions are different for bundling (the entire system, versus 29 [or more] individual bundles), and hydroelectric operations (PowerMax or WaterMax Scenarios). For Focused Alternative 1, all of the hydroelectric facilities would be purchased by a single owner, which is not Pacific Gas and Electric Company. For Focused Alternatives 2 and 5, individual hydroelectric facilities would be auctioned separately, resulting in 29 bundles, which would likely result in multiple owner(s), some of which may be a local entity (such as a water agency) that may modify operation of the facilities to maximize water production. Since maximization of water production is one of the scenarios used to describe the potential outcomes of the project (as relates to operation of the hydroelectric facilities), the range of outcomes for operation of the hydroelectric facilities (for these focused alternatives) is the same as the project.

As shown in Table 28, Alternative 3 (Proposed Settlement), Alternative 7 (Lands Bundled for Conservation) and Focused Alternative 6 (Environmental Enhancement) are comprised of similar assumptions for ratemaking, hydroelectric operations, management of the Project Lands, and non-binding agreements. The assumptions are different for bundling, ownership and hydroelectric operations. For Alternative 3, the hydroelectric facilities and lands would remain as a single system. Alternative 7 would result in the hydroelectric facilities being bundled separately from the Watershed Lands. Focused Alternative 6 would have bundles comprised of individual hydroelectric facilities.

As shown in Table 6-29, Focused Alternative 3 (Interim Retention) has two parts: those projects which are retained by Pacific Gas and Electric Company (which is essentially the same as baseline conditions); and those projects that are auctioned, which is essentially the same as the project.

Table 6-28 Comparison of Alternatives 3 and 4 (Proposed Settlement), 7 (Land Conservation), 9 (Environmental Composite) and Focused Alternative 4 (Environmental Enhancement)

	Alt 3	Alt 4	Alt. 7	Alt. 9	F Alt 4	Remarks
	Settlement					
	Unreg.	Reg.				
Valuation Method						
Appraisal	X	X				The valuation methods would vary considerably among the alternatives. However, the valuation method may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of lands.
Negotiated Sale			X	X	X	
Auction			X			
Conditional Auction				X	X	
Bundling of Facilities & Lands						
Single System	X	X				The manner in which the assets are bundled would vary among the alternatives. This may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of lands.
Five or 20 Bundles			X	X		
Bundles by River Basin						
Individual Bundles					X	
Ownership						
Pacific Gas and Electric Company	X	X				Variation in ownership may or may not result in different operational motivations.
Single Owner (not Pacific Gas and Electric)						
State of California						
Multiple Owners			X	X	X	
Electrical Ratemaking						
Cost-of-Service (Regulated)						All but one of the alternatives assume no CPUC regulation.
Performance-Based (Regulated)		X				
Performance-Based (Unregulated)	X					
Unregulated			X	X	X	
Operation of Hydroelectric Facilities						
Baseline						The range of operational scenarios is generally consistent with the project, except that all include increased stream flows.
No Project (A)						
PowerMax Scenario	X	X	X	X	X	
WaterMax Scenario			X	X	X	
Increased Streamflows	X	X		X	X	
Management of Lands						
Baseline Conditions	X	X				Conservation easements may result in continuation of baseline conditions or reduce management intensity for Alternatives 3 and 4, but it is assumed the other Alternatives would preserve recreational uses and conserve some lands for open space.
Conservation Easements	X	X				
Restoration of Natural Conditions	X	X	X	X	X	
More Intensive Management						
Development of Project Lands						
Informal Agreements						
Generally Continue		X	X	X	X	Informal agreements would generally be continued for Alternatives 4, 7 and 9 and for Focused Alternative 4.
Discontinued	X		X			

Table 6-29 Comparison of Focused Alternative 3 (Interim Retention) to Baseline and the Project

	F. Alt. 3 (Interim [A])	Baseline	F. Alt. 3 (Auction [B])	Project	Remarks
Valuation Method					
Appraisal	X	X			The valuation of assets would occur by either appraisal or auction. The valuation method may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of lands.
Negotiated Sale					
Auction			X	X	
Conditional Auction					
Bundling of Facilities & Lands					
Single System	X	X			The valuation of assets would occur by either appraisal or auction. The valuation method may or may not result in different operational motivations, which are reflected (below) in operation of the hydroelectric facilities and management of lands.
Five or 20 Bundles				X	
Bundled by River Basin					
Individual Bundles			X		
Ownership					
Pacific Gas and Electric Company	X	X			For the interim, ownership would not change. For facilities that are auctioned, multiple owners are assumed to result, which is the same as the project.
Single Owner (not Pacific Gas and Electric)					
State of California					
Multiple Owners			X	X	
Electrical Ratemaking					
Cost-of-Service (Regulated)	X	X			For the interim, regulation would continue. Following auction, regulation would cease, consistent with the project.
Performance-Based (Regulated)					
Performance-Based (Unregulated)					
Unregulated			X	X	
Operation of Hydroelectric Facilities					
Baseline		X			Interim operations would reflect the future No Project condition. Following auction, the facilities are assumed to be operated to maximize power or water production, same as the project.
No Project (A)	X				
PowerMax Scenario			X	X	
WaterMax Scenario			X	X	
Increased Streamflows					
Management of Lands					
Baseline Conditions	X	X			For the interim, baseline conditions, including recreation, are assumed to continue. Following auction, land manage-ment would be more intensive, same as the project.
Conservation Easements					
Restoration of Natural Conditions					
More Intensive Management			X	X	
Development of Project Lands			X	X	
Informal Agreements					
Generally Continue	X	X			Interim same as current. Auction same as project.
Discontinued			X	X	

As shown in Table 6-30, Focused Alternative 6 (Interim State Ownership) has two parts: the hydroelectric facilities are owned by the State in the interim (which is generally the same as Alternative 3, Proposed Settlement); and the subsequent divestiture of the hydroelectric facilities (which is generally the same as Alternative 9, Environmental Composite).

6.11 RELATIONSHIP OF ALTERNATIVE ASSUMPTIONS TO POTENTIAL IMPACTS

The various combinations of elements (such as valuation or bundling) and assumptions (such as operation of the hydroelectric facilities, or management of lands) that were described above in Section 6.6 can be used to consider the relationship between each element and assumption and the potential environmental effects that may result from those assumptions, and therefore the alternatives that incorporate those assumptions.

6.11.1 VALUATION

The method used to determine the market value of the hydroelectric facilities and Project Lands would not directly result in physical environmental effects. For example, if the CPUC administratively determined the value of the hydroelectric assets, or if a commercial firm conducted an appraisal, those specific activities would have no direct physical effects. However, it is recognized that the resulting value assigned to the facilities may have an effect on operational motivation of the future owners (which is discussed below.)

6.11.2 BUNDLING OF ASSETS

The specific activities involved in determining how the assets are combined into different bundles, and the size of those bundles, would not directly result in any physical effects. However, it is recognized that the size (and location) of bundles may affect which companies, agencies, or organizations elect to submit a bid on the bundles, which could affect the eventual number of owner(s) (discussed below) and types of owners, which could affect operation of the hydroelectric facilities (discussed below).

6.11.3 OWNERSHIP

The specific actions involved in the transfer of ownership from Pacific Gas and Electric Company are unlikely to directly result in physical effects (e.g., the transfer of title). However, it is assumed that the future owner(s) may elect to operate the facilities and manage the lands in ways that may be different from the current practices of the Pacific Gas and Electric Company (discussed below). Thus, transfer of ownership may result in various physical effects, which are described in this EIR.

6.11.4 RATEMAKING

Continuation of the existing cost-of-service ratemaking structure implies little or no change from existing conditions, and therefore is likely to result in the fewest modifications in the operation of hydroelectric facilities and management of the lands, and the continuation of existing non-

Table 6-30 Comparison of Focused Alternative 6 (Interim State Ownership [and Future Divestiture]) to Alternative 3 (Settlement) and Alternative 9 (Environmental Composite)

	F.A. 6 (Interim)	Alt 3	F.A. 6 (Future)	Alt. 9	Remarks
Valuation Method					
Appraisal	X				Each of these alternatives reflects a potential combination of valuation methods for different facilities within the hydroelectric system. The manner in which such valuation methods could affect operations is described below.
Negotiated Sale		X		X	
Auction		X			
Conditional Auction			X	X	
Bundling of Facilities & Lands					
Single System	X				The manner in which the assets are bundled would vary among the alternatives. This may or may not result in different operational motivations, which are reflected (below) in operation of the hydro-electric facilities and management of lands.
Five or 20 Bundles				X	
Bundled by River Basin					
Individual Project Bundle		X	X		
Ownership					
Pacific Gas and Electric Company					Even with interim State ownership, it is assumed multiple owner(s) would eventually own the facilities.
Single Owner (not Pacific Gas and Electric)					
State of California	X				
Multiple Owners		X	X	X	
Electrical Ratemaking					
Cost-of-Service (Regulated)					All of these alternatives assume no CPUC regulation.
Performance-Based (Regulated)					
Performance-Based (Unregulated)					
Unregulated	X	X	X	X	
Operation of Hydroelectric Facilities					
Baseline					State ownership may reduce interim changes, but ultimate operations would be the same for all scenarios.
No Project (A)	X				
PowerMax Scenario		X	X	X	
WaterMax Scenario		X	X	X	
Increased Streamflows	X	X	X	X	
Management of Lands					
Baseline Conditions	X	X			Interim State ownership is assumed to result in eventual preservation of public uses (such as recreation) and conservation of lands for open space.
Conservation Easements	X	X	X		
Restoration of Natural Conditions	X	X	X	X	
More Intensive Management					
Development of Project Lands					
Informal Agreements					
Generally Continue	X		X	X	It is assumed State ownership would preserve most non-binding or informal agreements.
Discontinued		X			

binding agreements. It is assumed that the end of CPUC regulation for the hydroelectric facilities and Project Lands would result in changes in the operation of the facilities and management of the lands, and the discontinuation of most, if not all, non-binding agreements.

Performance-based ratemaking encourages the reduction of costs, and is governed by an implementing agreement, which spells out the conditions to which the owner of generation assets would operate the facilities and manage the related assets (such as any associated lands). If stringent performance standards are included in the implementation agreement, then performance-based ratemaking could result in minimal changes in operation of the hydroelectric facilities and management of the lands, and continuation of the existing non-binding agreements. If few performance standards are included in the implementation agreement, then performance-based ratemaking could result in substantial changes in the operation of the hydroelectric facilities and management of the lands, and the discontinuation of existing non-binding agreements. The degree to which management of the lands meets performance standards, or the non-binding agreements are continued may be impacted by the continuation, or discontinuation, of regulation by the CPUC. Because cost reductions are encouraged under performance-based ratemaking, if regulation is not continued, the owner of the hydroelectric facilities (and associated lands) may reduce costs associated with the management of the lands and continuation of the non-binding agreements. This could lead to a reduced level of stewardship of the lands, or lead to declines in the adherence to the non-binding agreements. Because continued regulation by the CPUC may involve occasional review of the costs associated with land management and the continuation of non-binding agreements, stewardship of the lands may be better assured. The potential environmental effects of changes in the operation of the hydroelectric facilities, management of the lands, and continuation of informal agreements is discussed below.

6.11.5 OPERATION OF HYDROELECTRIC FACILITIES

The hydroelectric facilities could be operated in ways that were characterized in Chapter 3 (Approach to the Environmental Analysis) by the baseline conditions and two operational scenarios. Another operational scenario, the No Project A, is described in this Chapter and in Appendix C. Because electrical market conditions have varied since restructuring of the marketplace, the environmental baseline for operation of the hydroelectric facilities is based on operation of the facilities under the current deregulated electrical market, given the 24 years of data used for hydrologic modeling. If no action were to occur, future operations of the hydroelectric facilities would reflect the continued operational changes anticipated to result from the ongoing restructuring of the electrical market, most notably related to increased peak power production. This may result in different stream flow patterns and modification of reservoir levels. The two project operational scenarios (PowerMax and WaterMax) established a range of future operational scenarios, from which the impacts of the project were estimated (in Chapter 4). In addition, the Market Power Analysis (see Appendix C, Section 6.3) analyzed another operational scenario which deviates from the PowerMax and WaterMax Scenarios. Alternatives 3 and 4 introduce increased stream flows as

a factor that affects operation of the facilities. Changes in the operation of the hydroelectric facilities could have environmental effects for several environmental topics, as shown in Table 6-31.

6.11.6 MANAGEMENT OF LANDS

Pacific Gas and Electric Company has generally used low-intensity management practices on the Project Lands, with informal recreation, timber harvest, grazing and some limited mining uses. Development has primarily been related to support functions for the hydroelectric facilities (e.g., switching centers or employee housing) and to provide recreational facilities, such as campgrounds.

Future owners could manage the lands consistent with current conditions, or use less intensive land management practices, which would reduce timber harvest, agricultural, and mining activities. This might include conservation easements that could generally preserve existing management practices, including recreation and timber harvest, but would prohibit future development. The future owners could elect to conserve and restore the lands for open space purposes, which it is assumed would end all existing organized uses of the land, including recreation, timber harvest, grazing, and mining. It is assumed that less intensive management, conservation easements, and conservation of land for open space would all improve the condition of the land, which therefore could be considered beneficial impacts.

However, the new owner(s) may be motivated to maximize revenue from the Project Lands, and therefore to exercise more intensive management, which could result in increased timber harvest, agricultural activities, and mining operations. Development of the Project Lands could also result, which may include residential, resort, recreational, commercial and, in some cases, industrial uses.

Increased management intensity (e.g., timber harvest) or development of the lands could have a variety of environmental effects for several environmental topics, as shown in Table 6-32.

6.11.7 NON-BINDING AGREEMENTS

Pacific Gas and Electric Company currently has numerous non-binding agreements with existing agencies and individuals. These non-binding agreements include maintenance of recreational facilities, public access to Project Lands, maintenance of reservoir levels (e.g., from Memorial Day to Labor Day) or stream flows (at levels higher than required by FERC license conditions), collection and dissemination of data (e.g., depth of snow packs), protection of cultural resources, maintenance of roadways, and other environmental management and stewardship programs. In its application, Pacific Gas and Electric Company has stated that non-binding agreements would not be passed on as a requirement for new owners of the hydroelectric assets. For the majority of the alternatives, it is assumed that the non-binding agreements would be discontinued.

Table 6-31 Potential Environmental Effects from Changed Hydroelectric Operations

Environmental Topic	Potential Environmental Effects
Hydrology and Water Quality	Changes in stream flow patterns and reservoir levels could affect stream hydrology and water quality.
Fisheries and Aquatic Biology	Changes in hydrologic conditions and degradation of water quality could impact fisheries and aquatic biology.
Recreation	Changes in stream flow patterns and reservoir levels could reduce recreational opportunities or the condition of existing opportunities.
Cultural Resources	Changes in stream flow patters and reservoir levels could affect cultural resources, either directly (e.g. erosion) or indirectly (e.g., exposure, which results in disturbance by humans).
Agriculture	Changes in the availability of water (that could result if new owner(s) sold water rights to new parties), could impact the viability of existing agricultural activities. Changes in the operation of the hydroelectric facilities could degrade water quality, which could impact agricultural uses of the water.
Aesthetics	Changes in stream flow patters and reservoir levels could degrade visual character and visual quality of existing view resources (e.g., views of lakes and streams).

The discontinuation of non-binding agreements could have effects for several environmental topics, as shown in Table 6-33.

6.11.8 CONCLUSION

The value of the hydroelectric assets and the way the assets are combined into bundles could influence who acquires the assets and associated lands. The nature of the future owners, the cost of acquiring the facilities (and lands), and the conditions that may be imposed by the CPUC on the divestiture could affect how the facilities are operated, the lands are managed, and whether the non-binding agreements or management practices are continued. The majority of the potential environmental impacts of the project are associated with changes in operation of the hydroelectric facilities and the management and/or development of the Project Lands. Therefore, many of the potential environmental effects of the alternatives and focused alternatives are also determined by potential changes to hydroelectric operations and the management and/or development of the Project Lands, which are derived from the assumptions used to define each alternative. Therefore, the alternatives and focused alternatives can be grouped together based upon the similarity of the assumptions used to define each alternative.

As discussed above, the majority of the impacts of the project (and therefore the alternatives) are derived from the assumptions that relate to three issues: hydroelectric operations, management of the lands; and status of the non-binding agreements. Based on the assumptions for those three issues, the alternatives can be grouped as shown in Table 6-34.

Table 6-32 Potential Environmental Effects from Land Management and Development

Environmental Topic	Potential Environmental Effects
Land Use	Development of Project Lands could result in substantial incompatibility between existing and future land uses.
Agriculture	Development of Project Lands could result in loss of agriculture or grazing lands.
Forestry	Expansion of, or changes to, existing timber harvest activities could affect timber resources. Development of Project Lands could result in loss of forestlands.
Terrestrial Biology	More intensive land management could result in disturbance of lands and removal of habitat which could adversely impact rare, endangered or threatened species.
Recreation	Increased timber harvest, grazing or mining may reduce recreational opportunities or cause the condition of existing opportunities to deteriorate. Development of Project Lands could reduce public access to lands, or eliminate existing recreational opportunities or uses.
Cultural Resources	Ground disturbance related to increased timber harvest, grazing or mining could adversely impact cultural resources. Development of Project Lands could result in the disturbance or loss of cultural resources.
Population, Employment and Housing	Development of Project Lands could increase area population, increase the supply of housing, and create short-term construction-related jobs.
Public Services and Utilities	Development of Project Lands could increase demand for public services and utilities.
Transportation	Increased timber harvest or mining could result in increased traffic. Development of Project Lands could increase area population and lead to increases in traffic.
Noise	Increased timber harvest or mining could result in increases in ambient noise levels. Development of Project Lands could result in increases in area population and traffic, which would increase ambient noise levels.
Air Quality	Increased timber or mining could result in increased criteria pollutant emissions. Development of Project Lands, and resultant increase in traffic, could result in increased criteria pollutant emissions.
Aesthetics	More intensive timber harvest, agriculture, or mining could degrade visual character and quality. Development of Project Lands could degrade visual character and quality.
Geology, Soils, and Minerals	Development of the Project Lands could expose more people and structures to seismic forces, increase potential for erosion and limit access to mineral resources.

Table 6-33 Potential Environmental Effects from Discontinuation of Non-Binding Agreements

Environmental Topic	Potential Environmental Effects
Hydrology and Water Quality	Cessation of the collection and dissemination of data could impair development of stream flow and flood flow forecasts. Termination of agreements to maintain reservoir levels and stream flows at higher levels than required by FERC license conditions could adversely impact water quality.
Fisheries and Aquatic Biology	Termination of agreements to maintain reservoir levels and stream flows at higher levels than required by FERC license conditions could adversely impact aquatic habitats.
Terrestrial Biology	Termination of agreements to maintain reservoir levels and stream flows at higher levels than required by FERC license conditions could adversely impact riparian and lacustrine vegetation communities.
Recreation	Termination of agreements to maintain recreational facilities or access to the facilities or Project Lands could adversely impact land-based recreational opportunities. Termination of agreements to maintain reservoir levels and stream flows at higher levels than required by FERC license conditions could adversely impact water-based recreation opportunities.
Cultural Resources	Cessation of access to lands by Native Americans could adversely impact traditional cultural and religious practices. Termination of agreements to maintain reservoir levels and stream flows at higher levels than required by FERC license conditions could adversely impact cultural resources.

Some of the impacts of the project result from operation of the hydroelectric facilities, which for the project are based on the two operational scenarios (PowerMax or WaterMax) used for the purposes of hydrologic modeling, which describe possible outcomes of the project. Some of the alternatives include an assumption that stream flows would be increased, which could limit the ability of future owner(s) of the hydroelectric facilities to modify operations of the hydroelectric facilities to achieve either scenario, which could reduce the impacts associated with hydroelectric operations. Therefore, alternatives that include increased stream flows could decrease or avoid some, of the significant impacts of the project.

Other impacts of the project relate to the potential for changes in land management (e.g., increased timber harvest, grazing or mining), which could include development of the lands. Therefore, alternatives that preclude future development, and preserve the current conditions of the lands (by avoiding increases in timber harvest, etc.), would avoid impacts related to changes in land management or use.

Some impacts related to hydroelectric operations and condition of the lands are related to changes in the existing non-binding agreements. Alternatives that include continuation of these agreements could avoid impacts that would result from discontinuation of such agreements.

Table 6-34 Comparison of Alternative Assumptions

Alternative	Assumptions Related to Land Management						Assumptions Related to Hydroelectric Operations			
	Restoration of Natural Conditions	Conservation Easements	Non-Binding Agreements	Baseline Conditions	More Intensive Management	Development of Lands	PowerMax or WaterMax	Increased Stream Flows	Non-Binding Agreements	Future No Project
Alt. 1: No Project A			X	X					X	X
F. Alt. 4: Environmental Enhance.	X	X	X					X	X	
Alt. 9: Environmental Composite	X	X	X					X	X	
F. Alt. 6: Interim State Ownership Facilities Retained			C	C				C	C	C
After Auction	D	D	D				D	D	D	
Alt. 4: Settlement Regulated		X	X	X			X	X	X	
Alt: 3: Proposed Settlement		X		X			X	X		
Alt. 7: Bundle Lands for Conservation	X	X					X			
F. Alt. 3: Interim Retention: Facilities Retained			A	A						A
Facilities Auctioned					B	B	B	B		
Alt. 8: Decommissioning					X	X	X			
Project					X	X	X			
Alt. 2: No Project B					X	X	X			
Alt. 5: Bundled by River Basin					X	X	X			
Alt. 6: Individual Bundles					X	X	X			
F. Alt. 1: Single Owner					X	X	X			
F. Alt. 2: Bundles Minus Facilities					X	X	X			
F. Alt. 5: Alternative Valuation					X	X	X			
F. Alt. 7: Alt. Regulated Ratemaking					X	X	X			

Notes: A = facilities retained in the interim by Pacific Gas and Electric Company
B = facilities that are initially auctioned
C = facilities retained in the interim by the State
D = facilities that are auctioned after interim State ownership

Alternative 1 (No Project A) includes assumptions that would result in no changes, and would preserve the baseline setting. Focused Alternative 4 (Environmental Enhancement) would preclude future development of the Project Lands and improve the condition of the lands (by eliminating timber harvest, grazing and mining), increase stream flows, preserve existing public uses on the lands (such as recreation), and preserve most, if not all, existing non-binding informal agreements. As a result, this alternative would avoid most of the impacts of the project and improve the condition of the lands.

Alternative 9 (Environmental Composite), Focused Alternative 6 (Interim State Ownership), and Alternative 4 (Proposed Settlement, Regulated) would preclude future development of the Project Lands and reduce the intensity of land management (by curtailing, or in some instances eliminating, timber harvest, grazing and mining), increase stream flows, preserve existing public uses on the lands (such as recreation), and preserve most, if not all, existing non-binding agreements. As a result, these alternatives would avoid many of the impacts of the project, and would either preserve the existing condition of the lands, or could result in improvement of the condition of the lands at some locations.

Alternative 3 (Proposed Settlement, Unregulated) would preclude future development of the Project Lands and reduce the intensity of land management (by curtailing, or in some instances eliminating, timber harvest, grazing and mining) and would increase stream flows. This alternative could avoid many of the impacts of the project if market power concerns are addressed adequately. Otherwise, there could be significant impacts on air quality and electric system supply and/or reliability.

Alternative 7 (Bundle Lands for Conservation) would reduce intensity of land management (e.g., timber harvest, grazing, or mining) and preclude development of the Watershed Lands, which would avoid impacts related to land use development.

Focused Alternative 3 (Interim Retention) involves the auction of some of the facilities, while the others would be retained by Pacific Gas and Electric Company (until FERC relicensing is complete). For those facilities that are retained, impacts would be deferred until those facilities are auctioned. For those facilities that are auctioned initially, the impacts would be the same as the project.

Several of the alternatives have assumptions that are consistent with the project, and therefore could have impacts that are generally similar to the project:

- Alternative 2 (No Project B);
- Alternative 5 (Bundled by River Basin);
- Alternative 6 (Individual Bundles);
- Focused Alternative 1 (Single Owner, not Pacific Gas and Electric Company);
- Focused Alternative 2 (Bundles minus a Single Facility);
- Focused Alternative 5 (Alternative Valuation); and
- Focused Alternative 7 (Performance-Based Ratemaking, Regulated).

Because the impacts of Alternative 8 (Decommissioning) would depend on the specific projects that are decommissioned, the impacts cannot be identified with any reliability.

6.12 ANALYSIS OF ENVIRONMENTAL EFFECTS OF ALTERNATIVES TO THE PROJECT

This section provides an evaluation of the potential environmental effects of each alternative and focused alternative in relation to the project. Following this section, the impacts of the alternatives are compared (in Section 6.15) in tables that also provide an indication of whether each specific impact of the alternatives would be greater than, less than, or equal to the project impact.

6.12.1 NO PROJECT (A): PACIFIC GAS AND ELECTRIC COMPANY REGULATED

Under this alternative, the proposed action, auction of hydroelectric facilities followed by subsequent divestiture, would not occur. Pacific Gas and Electric Company would continue to own and operate the hydroelectric facilities and manage the Project Lands and would continue to be regulated by the CPUC under the current cost-of-service ratemaking structure. Continuation of the existing cost-of-service ratemaking structure generally implies no change, and therefore few, if any, modifications in the management of the lands would occur, and existing non-binding agreements would continue to be followed.

Note that in general, the environmental setting for each environmental topic reflects current conditions, for all topics except operation of the hydroelectric facilities. For that topic, the baseline used in hydrologic modeling reflects the current deregulated electrical market, as informed by hydrologic conditions over 24 years of data. If no action were to occur, future operations of the hydroelectric facilities would reflect the baseline conditions, which may be modified by changes anticipated as a result of the continued restructuring of the electrical market.

Because of the assumptions noted above, this alternative would generally result in no impact, and thus future conditions under this alternative would essentially be the same as the baseline conditions. Baseline conditions are described in Chapter 3 and in more detail in the environmental setting section for each environmental topic in Chapter 4; therefore, no additional discussion or analysis is needed or warranted.

6.12.2 NO PROJECT (B): PACIFIC GAS AND ELECTRIC COMPANY UNREGULATED

Under this alternative, auction of the hydroelectric facilities and lands would not occur. An alternative method of valuation of the hydroelectric facilities and associated assets would be used to determine market value (e.g., independent or administrative appraisal). It is assumed that Pacific Gas and Electric Company would continue to own and operate the facilities, but the generation of electricity by the hydroelectric facilities would no longer be regulated by the CPUC. It is assumed that the end of regulation for the hydroelectric facilities and Project Lands would result in a change

in operation of the facilities, management of the lands, and the discontinuation of most, if not all, non-binding agreements.

Future operation of the hydroelectric facilities would likely reflect the PowerMax Scenario, and the possibility that market power could be exercised as described in Appendix C, Section 6.3. Management intensity of the lands would likely increase, reflected by increased timber harvest, grazing, and mining activities. As described for the project, development activities could also occur on Project Lands. Because future operation of the hydroelectric facilities would be similar to the PowerMax Scenario, and because intensity of land management could increase (and include future development), the impacts of this alternative would generally be the same as for the project, which is described in detail in the analysis of project impacts section for each environmental topic in Chapter 4. Therefore, no additional discussion or analysis of the impacts of this alternative is necessary.

If, and only if, the legal theory espoused by Pacific Gas and Electric Company (that the market valuation of Pacific Gas and Electric Company's hydroelectric facilities would have the result of creating an unregulated status for those facilities without any further action from the CPUC) were to prove true, the significant impacts of this alternative would be unmitigated and, thus, remain significant and unavoidable. Otherwise, however, the CPUC could impose all of the mitigation measures identified for the project prior to the hydroelectric facilities becoming unregulated. In that case, the impacts of this alternative would be identical to the project. There is no explicit language in the Public Utilities Code that supports Pacific Gas and Electric Company's theory, and it has not been endorsed by the CPUC.

6.12.3 Proposed Pacific Gas and Electric Company Settlement Agreement

Under this alternative, the terms of the proposed settlement agreement would govern the disposition and subsequent operation of the hydroelectric facilities, related facilities, lands, and certain contractual agreements. The hydroelectric facilities would be market valued at $2.8 billion, and would be transferred to an unregulated subsidiary of Pacific Gas and Electric Corporation. Generation of electricity would no longer be regulated by the CPUC; however, electrical rates would be governed by a market power agreement and a revenue sharing agreement. All Project Lands are assumed to be protected by conservation easements and/or transferred to public agencies or conservation organizations. Stream flows on selected bypass stream reaches would be increased.

6.12.3.1 Land Use

The proposed settlement agreement could result in: (1) continued ownership of the lands by Pacific Gas and Electric Company and the establishment of conservation easements on all Project Lands; (2) the transfer of the lands to public agencies or conservation organizations; or (3) some combination of the two options. It is assumed that if Pacific Gas and Electric Company retains the lands, conservation easements would be established on all lands, which would generally preserve

existing uses (but not permit expansion of timber harvest, grazing or mining), and would preclude all future development of the lands.

The settlement could also result in the transfer of some or all Project Lands to public agencies and/or conservation organizations. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing and mining activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest, grazing and mining, as well as organized recreation. It is assumed that development of the lands would be prohibited, under either ownership concept.

Because no expansion of existing uses (e.g., timber harvest, grazing or mining) or development of the lands would occur with either conservation easements or transfer of the lands to public agencies or conservation organizations, land use incompatibility impacts would not occur under this alternative.

6.12.3.2 Forestry

The proposed settlement agreement would result either in the establishment of conservation easements on Project Lands and/or the transfer of the lands to public agencies and/or conservation organizations. It is assumed that conservation easements would permit continued timber harvest, but under specific conditions that would limit the amount of timber volume harvested and the number of acres harvested. Because existing timber harvest activities could still occur under this alternative, and would likely be similar to the baseline conditions, impacts related to the reduction in forest inventories and decrease in productive timberlands would be less than significant.

It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of timber harvest (except as prudent for fire prevention purposes). Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest activities. Although this could result in the reduction of existing timber harvest activities (on some portion of the approximately 24,000 acres of the 88,000 acres of Watershed Lands), this reduction in the forest inventory, given regional forest inventories, would be less than significant. Since no expansion of timber harvest would occur, and since timber harvest could be curtailed, the impact of this alternative on regional reforestation efforts would be less than significant.

6.12.3.3 Hydrology and Water Quality

Changes in reservoir operations could increase the amount of water stored in reservoirs, which could increase flooding potential. Although increased stream flows in selected streams (as illustrated in Table 6-3) could reduce the amount of water stored in individual reservoirs, the

flooding potential, due to changes in reservoir operations, would remain significant. This impact could be reduced to a less-than-significant level with the implementation of Mitigation Measure 3-1. Changes in hydroelectric operations could change maximum stream flows, which would modify sediment transport and result in significant impacts to stream channel geomorphology, which could be reduced to less than significant with the implementation of Mitigation Measure 3-2. Because of the potential benefits from cloud seeding (e.g., an increase runoff volume and an concomitant increase in the generation of electricity), it is assumed that Pacific Gas and Electric Company would continue cloud seeding activities in the Motherlode and DeSabla Regions; therefore, impacts related to discontinuation of the cloud seeding program would not occur under this alternative.

It is assumed that additional water in selected stream segments would improve the quality of the water in those streams, and therefore this alternative could reduce or avoid the adverse impacts to water quality related to changes in hydroelectric operations for those stream segments that receive the increased flows. However, since not all streams, or stream segments would receive additional water, significant impacts related to degradation in water quality (due to decreased stream volume resulting from changes in hydroelectric operations) would still occur on some streams. This impact could be reduced to less than significant with implementation of Mitigation Measure 3-5. Changes in reservoir operations could also result in significant water quality impacts within the reservoir (e.g., from increased turbidity); however, this impact could be reduced to a less-than-significant level with incorporation of Mitigation Measure 3-6.

Because it is assumed the existing non-binding agreements would be discontinued, this alternative would result in significant impacts to stream volume and flood flow forecasts, because the collection of dissemination of data (e.g., depth of snow packs) is assumed to end. This impact could be reduced to a less-than-significant level with inclusion of Mitigation Measure 3-4.

Because no increase in timber harvest, agricultural, or mining, and no development of the lands would occur under this alternative, impacts related to development of increased timber harvest, agricultural, or mining activities would not occur.

6.12.3.4 Fisheries and Aquatic Biology

Changes in hydroelectric operations could reduce stream volumes and degrade water quality. Under this alternative, stream flows would be increased on selected stream segments, which could improve water quality and benefit fisheries and aquatic biology, and reduce impacts to fisheries and aquatic biology. However, since not all streams, or stream segments would receive additional water, significant impacts to fisheries and aquatic biology would still occur on some streams. This significant impact would be unavoidable.

To some extent, increases in stream flows may limit the degree to which reservoir operations could be modified, and therefore reduce or avoid significant water impacts to fisheries and aquatic biology related to changes in reservoir operations (e.g., increased turbidity due to fluctuations in

reservoir water levels). However, since not all reservoirs could be impacted by increased stream flows, significant impacts could still result at some reservoirs. This impact could be reduced to a less-than-significant level with incorporation of Mitigation Measures 4-2(a) through (h).

6.12.3.5 Terrestrial Biology

The proposed settlement agreement would result either in the establishment of conservation easements on all Project Lands and/or the transfer of the lands to public agencies and/or conservation organizations. It is assumed that if Pacific Gas and Electric Company retains the lands, conservation easements would be established on all Project Lands, which would preclude future development of the lands but permit continued timber harvest, grazing and mining; but expansion of such activities would not occur.

It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing and mining activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest, grazing and mining, as well as organized recreation. It is assumed that development of the lands would be prohibited, under either ownership concept.

Because it is assumed that conservation easements and/or transfer of the lands to public agencies or conservation organizations would not involve any expansion of timber harvest, grazing or mining, and would preclude development of the lands, impacts on terrestrial biological resources that would result from development of the lands or increased timber harvest, grazing or mining would be avoided. To the extent that the condition of the lands were improved (by restoration of natural conditions), impacts to wildlife, plant species, migration corridors, and plant communities could be neutral or beneficial at some locations.

Changes in hydroelectric operations could result in significant impacts to riparian and lacustrine vegetation communities. Because this alternative would include increased stream flows, impacts on some streams could be less than significant at some locations. However, since not all streams would receive additional water, this impact would be significant, but could be reduced to a less-than-significant level with implementation of Mitigation Measures 5-1(a) and 5-2(a).

6.12.3.6 Recreation

Under this alternative, the proposed settlement agreement would result in either the continued ownership of the Project Lands by Pacific Gas and Electric Company (and the establishment of conservation easements on the lands), or the transfer of the lands to public agencies and/or conservation organizations.

Changes in hydroelectric operations and discontinuation of voluntary agreements (by Pacific Gas and Electric Company) could result in significant impacts due to loss of water-based recreational

opportunities. To the extent that agencies or organizations manage the lands for multiple objectives, this could preserve existing recreational facilities and uses, then no impact would occur. For lands that may be restored to natural conditions, this could restrict access to those lands, which could reduce access to water-based recreational facilities. Increases in stream flows could result in potential benefits to recreational boating and fishing, along those stream reaches that receive additional waters. However, not all streams or stream segments would receive additional water. In addition, increases in stream flows may result in early drawdown on some reservoirs, especially in dry years. Lower reservoir levels could result in significant impacts to lake-based recreational activities, such as fishing and boating. Overall, this alternative would result in significant impacts to water-based recreation, which could be reduced to a less-than-significant level with implementation of components of Mitigation Measure 6-1.

For the lands retained by Pacific Gas and Electric Company, as it is assumed that since existing non-binding agreements would be discontinued, some existing land-based recreational facilities and opportunities would be lost. For those lands transferred to agencies or organizations and that are managed for multiple objectives, it is assumed that existing recreational opportunities and uses, such as boat ramps or campgrounds, would be preserved. If lands are restored to natural conditions, this would likely end organized recreation uses or facilities. (It is assumed that such lands typically would be located in remote areas, and would generally not have existing organized recreational uses or facilities.) As some land-based recreational opportunities could be lost, this alternative would result in significant impacts to land-based recreation. This impact could be reduced to a less-than-significant level with incorporation of components of Mitigation Measure 6-2.

6.12.3.7 Cultural Resources

The proposed settlement agreement would result either in the establishment of conservation easements on all Project Lands and/or the transfer of all lands to public agencies and/or conservation organizations. It is assumed that either scenario would result in no additional timber harvest, grazing or mining, nor any development of the lands. Therefore, impacts stemming from land development would not occur.

For lands that are retained by Pacific Gas and Electric Company, to the extent that informal agreements, such as protection of cultural resources or Native American access to cultural sites, are discontinued, then significant impacts would result. These impacts could be reduced to a less-than-significant level with the implementation of Mitigation Measure 7-1a.

For lands that are transferred to public agencies, it is assumed that the agencies would generally protect cultural resources and preserve Native American access to those resources, and therefore no impacts would result. For lands that are to be restored to natural conditions, it is assumed that access to cultural sites could be restricted, a significant impact that could be reduced to a less-than-significant level with implementation of the Mitigation Measures 7-2b and 7-2c.

Changes in reservoir operations could result in fluctuations in reservoir water levels, which could expose cultural resources located within reservoir boundaries (e.g., currently under water) or along shorelines, to increased exposure, disturbance or erosion. As this alternative assumes that existing non-binding agreements, including management practices related to protection of cultural resources, are discontinued, significant impacts would result from the changes in reservoir operations. Increases in stream flows may limit, to some extent, the ability to modify reservoir operations. However, mandated flow releases could result in early drawdown on some reservoirs, particularly in dry years. This could expose cultural resources to additional disturbance or erosion, which would be a significant impact. This impact could be reduced to a less-than-significant level with the incorporation of a mitigation measure that would require Pacific Gas and Electric Company to continue to adhere to existing practices codified in Cultural Resource Management Plans and/or Heritage Resource Management Plans, and Mitigation Measure 7-3b, which requires development of Cultural Resource Management Plans and/or Heritage Resource Management Plans for those bundles that currently do not have such plans.

6.12.3.8 Agriculture

The proposed settlement agreement would result in the establishment of conservation easements on all Project Lands and/or the transfer of the lands to public agencies and/or conservation organizations. It is assumed that conservation easements would permit continued agricultural activities, such as grazing, but expansion of agricultural activities would not occur. Thus, under this ownership scenario, impacts related to the loss of grazing lands, and increased pressure on other grazing lands, would not occur.

The settlement could also result in the transfer of some or all FERC-licensed lands and Watershed Lands to public agencies and/or conservation organizations, which would preclude development of the lands. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end grazing on those lands. This could result in the reduction of existing grazing (on some portion of the approximately 20,430 of the 88,000 acres Watershed Lands), however, given regional grazing opportunities, this potential reduction would be less than significant.

Because certain water contracts may not be renewed under this alternative (as well as the project), loss of consumptive water could occur at some locations. However, in key locations, such as the Potter Valley and Placer County, the water purveyors that currently are recipients of consumptive water would have the first right to purchase the hydroelectric facilities (and the associated water rights), or otherwise would have their water agreements preserved. Because it is assumed these consumptive water deliveries would be continued under this alternative, this impact would be less than significant.

Changes in hydroelectric operations, increased stream flows, and termination of some consumptive water agreements could result in changes in the timing and availability of water, which could impact agricultural productivity for downstream users, however this impact would be less than significant.

6.12.3.9 Hazards and Hazardous Materials

Future modifications of hydroelectric facilities could expose construction workers or the public to contaminated soil or groundwater, however with adherence to applicable regulations, this impact would be less than significant. Because no development of the Project Lands would occur under this alternative, significant impacts related to exposure to substances that may be present in the lands (or groundwater) would not occur.

Changes in operation of the hydroelectric facilities could result in changes in the use, storage, and transport of hazardous substances. It is assumed that Pacific Gas and Electric Company would continue to adhere to applicable regulations related to the use of such substances, therefore this impact would be less than significant.

Changes in operation of the hydroelectric facilities could increase risks to workers and the public if the facilities are operated or maintained improperly. It is assumed that Pacific Gas and Electric Company would continue to adhere to existing FERC requirements, and the Company's current operating procedures and maintenance practices, and adhere to applicable regulations related to worker safety. In addition, because of potential liability, it is assumed that Pacific Gas and Electric Company would continue to adhere to existing agreements and operating procedures related to mitigation of flood potential, therefore these impacts would be less than significant.

6.12.3.10 Population, Employment, and Housing

Because either conservation easements or transfer of the lands to public agencies and/or conservation organizations would preclude future development of the Project Lands, impacts related to development of the lands, including population increases and the creation of a need for additional housing, would not occur.

6.12.3.11 Public Services and Utilities

Under this alternative, stream flows would be increased in some stream segments, which typically would involve release of water via outlet structures that do not result in the generation of power. Thus, an increase in stream flows would typically result in a decrease in the generation of electricity. It is assumed that the reduction in generating capacity would occur during shoulder peak periods, and therefore the peak generation capacity of the system would not be affected. Instead, the overall total amount of electricity generated by the facilities would be reduced, which would reduce the overall supply of electricity in the State. Because of the ongoing supply limitations, it is assumed that other electrical generation sources would increase operations to

replace the electricity that would not be generated by hydroelectric facilities. Based upon a review of the illustrative flows (included in Table 6-3), it is estimated that the total electricity generated by the hydroelectric facilities would be reduced on average from approximately 11,832 GWh to 11,452 GWh, a reduction of 380 GWh, or approximately three percent. In addition, changes in hydroelectric operations could shift the timing of electrical generation, which could result in other electrical generation facilities increasing operations to generate additional electricity at those times when the hydroelectric facilities are not operating. Some of these facilities may be powered by fossil fuels, which would result in increased consumption of those fuels and reduced energy supplies. As hydroelectric power represents only approximately 5 percent of the total electricity generation in the State of California, and as the increased stream flow would only result in an approximately three percent loss of the total electricity generated by the hydroelectric facilities, the overall loss of energy supplies would not be a substantial amount in relation to total energy consumption, and therefore this impact would be less than significant. These conclusions would not apply if market power is not adequately mitigated. In that case, there would be significant impacts on electrical supply and/or reliability.

Under this alternative, the water purveyors that currently are recipients of consumptive water under agreements with finite terms (Sonoma County Water Agency, Placer County Water Agency and the Nevada Irrigation District) would have the first right to purchase the hydroelectric facilities (and the associated water rights) or would otherwise have their water agreements preserved. Because it is assumed these consumptive water deliveries would be continued under this alternative, the impact of this alternative on consumptive water would be less than significant.

Because conservation easements or transfer of the lands to public agencies and/or conservation organizations would both preclude future development of the Project Lands, no impacts related to development, including increased demand for energy or public services, would occur. Because the hydroelectric assets would continue to be owned by Pacific Gas and Electric Company, impacts related to potential fragmentation of the telecommunication system (installed by Pacific Gas and Electric Company) would not occur.

6.12.3.12 Transportation

Under this alternative, the proposed settlement agreement would result in either the establishment of conservation easements on all Project Lands, and/or transfer of the lands to public agencies and/or conservation organizations. It is assumed that both conservation easements or transfer of the lands to public agencies or conservation organizations would not result in any expansion of timber harvest, grazing or mining, nor any development of the lands. Potential transportation impacts resulting from increased management (e.g., additional truck traffic) or development of the Project Lands would not occur under this alternative.

For lands that are retained by Pacific Gas and Electric Company, to the extent that non-binding agreements, including access rights across Project Lands, are discontinued, then significant impacts

would result from the loss of access. For lands that are transferred to public agencies, it is assumed that the agencies would generally preserve access rights. For lands transferred to conservation organizations, it is assumed that access rights could be restricted, however since it is also assumed that lands transferred to conservation organizations would generally be in remote locations, significant impacts are not expected to occur. Overall impacts to access opportunities under this alternative would be significant, which could be reduced to a less-than-significant level with the implementation of Mitigation Measure 12-2.

6.12.3.13 Noise

Potential changes to the operation of the hydroelectric facilities could result in noise impacts; however, those operational changes may be limited by the increased stream flows at some locations (because increased stream flows could reduce the amount of water available to generate electricity) that would occur under this alternative. Potential changes in ambient noise levels in the vicinity of hydroelectric facilities due to operational changes would be less than significant.

Because conservation easements and/or transfer of the lands to public agencies or conservation organizations would both preclude expansion of timber harvest, grazing, or mining activities, and development of the lands, noise impacts related to increased management or development of the lands would not occur.

6.12.3.14 Air Quality

The proposed settlement agreement would result in either the establishment of conservation easements on all Project Lands, and/or transfer of the lands to public agencies and/or conservation organizations. It is assumed that both conservation easements or transfer of the lands to public agencies or conservation organizations would not result in any expansion of timber harvest, grazing or mining, nor any development of the lands. Potential impacts resulting from increased management activities or development of the lands would not occur under this alternative.

Table 6-35 shows results from the SERASYM™ model for the Settlement and No Project (A) Alternatives. The same methodologies were used as described in the PowerMax and WaterMax Scenarios in the project (Air Quality, Section 4.14). The comparison presented in Table 6-35 includes the natural variability in the water years modeled for all of the cases. This comparison shows that the year 2005 alternative scenarios (Settlement Alternative and No Project (A) Alternative) are, considering modeling error, within the same range of pollutant emission values, and are predicted to have emissions that are significantly lower than the statewide baseline for all pollutants except SO_2. The minor increase in SO_2 emissions is correlated to increases in fuel that would be necessary to meet the projected statewide increases in electrical demand in 2005. As with the analysis in Section 4.14, without market power considerations, there would be a less-than-significant impact.

Table 6-35 SERASYM™ Modeled California Thermal Power Plant Emissions (using water years 1975-1998)

Pollutant	Condition	Project Case Power Plant Emissions (t/yr)					Emission Change (t/yr)					
		Baseline (2000)	PowerMax (2005)	WaterMax (2005)	Settlement (2005)	No Project (2005)	PowerMax (-) Baseline	WaterMax (-) Baseline	PowerMax (-) Settlement	PowerMax (-) No Project	WaterMax (-) Settlement	WaterMax (-) No Project
VOC	Maximum	24,831	22,976	22,980	22,986	22,995	-1,545	-1,547	1	-9	17	4
	Minimum	24,256	22,711	22,709	22,712	22,720	-1,856	-1,852	-15	-32	-6	-31
	Average	24,537	22,820	22,827	22,827	22,841	-1,718	-1,710	-7	-21	1	-13
CO	Maximum	47,107	31,572	31,585	31,630	31,698	-13,090	-13,105	18	-34	104	-8
	Minimum	43,250	30,160	30,145	30,160	30,210	-15,534	-15,522	-85	-228	-55	-213
	Average	45,189	30,683	30,726	30,716	30,819	-14,506	-14,463	-33	-136	10	-93
NOx	Maximum	102,535	91,375	91,360	91,395	91,420	-9,028	-9,044	10	-24	51	16
	Minimum	99,513	90,485	90,469	90,491	90,520	-11,160	-11,174	-52	-124	-35	-125
	Average	100,940	90,828	90,844	90,847	90,903	-10,112	-10,096	-19	-75	-3	-59
PM10	Maximum	6,696	6,669	6,339	6,346	6,347	-205	-202	-3	1	10	6
	Minimum	6,323	6,118	6,121	6,122	6,127	-357	-357	-10	-22	-7	-17
	Average	6,509	6,222	6,228	6,228	6,233	-287	-281	-6	-11	0	-6
SOx	Maximum	6,017	6,309	6,310	6,313	6,318	302	307	4	4	5	4
	Minimum	5,879	6,166	6,166	6,164	6,178	279	282	-7	-11	-4	-11
	Average	5,944	6,234	6,236	6,236	6,241	290	292	-2	-7	0	-5

The market power cases were presented in Section 4.14 (see table 4.14-23) and show the potential for significant emission increases for the Proposed Settlement and No Project alternatives if not mitigated.

6.12.3.15 Aesthetics

The proposed settlement agreement would result in either the establishment of conservation easements on all Project Lands, and/or transfer of the lands to public agencies and/or conservation organizations. It is assumed that both conservation easements or transfer of the lands to public agencies or conservation organizations would not result in any expansion of timber harvest, grazing or mining, nor any development of the lands. Potential impacts resulting from increased management activities (e.g., expanded timber harvest) or development of the lands would not occur under this alternative.

Changes in reservoir operations could result in significant aesthetic impacts, due to the fluctuations in reservoir levels. Increases in stream flows would require releasing water from reservoirs, which may result in early drawdown on some reservoirs, which could degrade the visual quality and character of those reservoirs by exposing shorelines and increasing the distance between the water and the surrounding vegetated areas. Therefore, the impact of this alternative on aesthetics would be significant, but would be mitigated to a less-than-significant level with the incorporation of the mitigation measures identified in Section 4.15 (related to maintenance of reservoir levels for recreation between Memorial Day and Labor Day).

6.12.3.16 Geology, Soils, and Minerals

Under this alternative, the proposed settlement agreement would result in either the establishment of conservation easements on all Project Lands, and/or transfer of the lands to public agencies and/or conservation organizations. It is assumed that conservation easements would permit continued timber harvest, grazing and mining, although it is assumed that expansion of these activities would not occur. It is assumed that public agencies would generally cease timber harvest, grazing and mining activities. Conservation organizations would likely restore the lands to natural conditions, which would end all timber harvest, grazing and mining. Development of the lands would be prohibited, under either ownership concept. Therefore, impacts to geology and soils related to increased intensity of land management (e.g., timber harvest or mining) or development of the lands would not occur.

It is assumed that establishment of conservation easements or transfer of lands to either public agencies or conservation organizations would preclude future mining, and this would limit the potential availability of known mineral resources (which have been identified in Bundles 1 and 2 in the Shasta Regional Bundle, in Bundles 11 and 12 in the Drum Regional Bundle, and in Bundle 13 in the Motherlode Regional Bundle). The potential loss of availability of known mineral resources is considered a significant impact. No feasible mitigation measures have been identified to reduce

this impact to a less-than-significant level; therefore, this impact would be significant and unavoidable for this alternative.

Changes in hydroelectric operations or maintenance practices could exacerbate erosion or mitigation of other geologic hazard. Because protection of the hydroelectric assets and reduction of potential liabilities would be in the company's interests, it is assumed that Pacific Gas and Electric Company would continue to adhere to various existing operating and maintenance procedures related to erosion control measures and mitigation of other geologic hazards. Therefore, potential impacts related to management of geologic hazards would not occur under this alternative.

6.12.4 PROPOSED SETTLEMENT (REGULATED)

Under the proposed settlement agreement, described above, the hydroelectric facilities and associated lands would be transferred to an unregulated subsidiary of Pacific Gas and Electric Corporation. Electrical generation would be governed by performance-based ratemaking, under a contract with the CPUC, and therefore the generation of electricity, under the proposed settlement, would no longer be regulated. Under this alternative, the components and assumptions would be generally the same as Alternative 3, except that the hydroelectric facilities would remain with Pacific Gas and Electric Company, the generation of electricity would be governed by a performance-based ratemaking structure, which would continue to be regulated by the CPUC, and all existing non-binding agreements would continue in effect. It is assumed that continued regulation would ensure adequate market power mitigation. All other aspects, including increased stream flows (in selected stream segments) and establishment of conservation easements, and/or transfer of the lands to government agencies or environmental/conservation organizations, would be the same as Alternative 3.

The use of regulated performance-based ratemaking (instead of unregulated, as per Alternative 3, Proposed Settlement) may have policy implications that may be of note to the CPUC. In addition, under unregulated performance-based ratemaking, the utility may have an incentive to reduce costs, which could impact long-term environmental stewardship (in the event that the lands were retained by Pacific Gas and Electric Company). Under regulated performance-based ratemaking, the CPUC would have the ability to review costs associated with the management of the lands, and the environmental stewardship of those lands. Because of the continued regulation of the hydroelectric facilities, it is assumed that the CPUC would seek to codify, as conditions of the performance-based ratemaking agreement, most, if not all, existing non-binding agreements, including those that relate to maintenance of recreational facilities, public access to Project Lands, maintenance of reservoir levels (e.g., from Memorial Day to Labor Day) or stream flows (at levels higher than required by FERC license conditions), collection and dissemination of data (e.g., depth of snow packs), protection of cultural resources, maintenance of roadways, and other environmental management and stewardship programs.

All impacts for this alternative would be the same as those for Alternative 3, except for several environmental topics that would be affected by the preservation of the existing non-binding agreements, as discussed below.

6.12.4.1 Hydrology and Water Quality

Because it is assumed that the existing non-binding agreements concerning the collection and dissemination of data (e.g., depth of snow packs) would continue, this alternative would result no impacts to stream volume or flood flow forecasts.

It is assumed that additional water in selected stream segments (as illustrated in Table 6-3) would improve the quality of the water in those streams, and therefore this alternative would reduce or avoid the adverse impacts to water quality (related to decreased stream flows resulting from changes in hydroelectric operations) for those stream segments that receive the increased flows. Maintenance of stream flows in accord with existing non-binding agreements would reduce these impacts. However, since not all streams or stream segments would receive additional water (or have stream flows maintained under existing agreements), significant impacts related to degradation in water quality would still occur on some streams. This impact could be reduced to a less-than-significant level with implementation of the applicable mitigation measure. Changes in reservoir operations could also result in significant water quality impacts to the water within the reservoir (e.g., from increased turbidity). This impact would be reduced or avoided in those reservoirs where water levels are maintained per existing non-binding agreements. However, not all reservoirs are covered by existing agreements; therefore, this impact would still be considered significant for some reservoirs. This impact could be reduced to a less-than-significant level with incorporation of the mitigation measures identified in Section 4.3.

Because no increase in timber harvest, agricultural, or mining, and no development of the lands would occur under this alternative, impacts related to development of increased timber harvest, agricultural, or mining activities would not occur.

6.12.4.2 Fisheries and Aquatic Biology

Changes in hydroelectric operations could reduce stream volumes and degrade water quality. Under this alternative, stream flows would be increased on selected stream segments, which could improve water quality and benefit fisheries and aquatic biology, and reduce the significant impacts (to fisheries and aquatic biology) to less-than-significant impacts. However, since not all streams, or stream segments would receive additional water, significant impacts to fisheries and aquatic biology would still occur on some streams. Preservation of existing non-binding agreements could limit changes in operations for some stream segments (e.g., where existing agreements specify stream flows), and reduce water quality impacts for those streams or reservoirs where flow or water levels would be maintained. A significant impact would result for those streams that would not have flows maintained (per existing agreements) or have flows increased (per the proposed

increases in stream flows included in Table 6-3); however, this impact could be reduced to a less-than-significant level with implementation of the applicable mitigation measures.

6.12.4.3 Recreation

Preservation of non-binding agreements would generally result in the continuation of existing land-based recreational facilities and uses. Because conservation organizations could restore the lands to natural conditions, that could end organized recreational uses or facilities. (However, it is assumed that lands acquired by conservation organizations typically would be located in remote areas, and would generally not have existing organized recreational uses or facilities.) The impacts related to loss of land-based recreational opportunities would be less than significant.

It is assumed that public agencies would preserve existing water-based recreational facilities and opportunities. Increase in stream flows would result in additional water in selected stream segments, which could benefit fisheries and recreation (such as recreational boating and fishing) along those stream reaches that receive the additional flows. However, increases in stream flows may require releasing water from reservoirs, which could result in early drawdown on some reservoirs. The early drawdown could have adverse impacts on lake-based recreational activities, such as fishing and boating, particularly in dry years. However, preservation of existing non-binding agreements would maintain reservoir water levels at some locations. Overall, the impact of this alternative on water-based recreation would be less than significant.

Because most existing recreational opportunities would be preserved, impacts to local economies from reductions in recreational opportunities would be less than significant.

6.12.4.4 Cultural Resources

The proposed settlement agreement would result either in the establishment of conservation easements on all Project Lands and/or the transfer of all lands to public agencies and/or conservation organizations. It is assumed that either scenario would result in no additional timber harvest, grazing or mining, nor any development of the lands. Therefore, impacts stemming from land development would not occur. For lands that are retained by Pacific Gas and Electric Company, non-binding and informal agreements, such as those pertaining to protection of cultural resources or Native American access to cultural sites, would be continued. Therefore, no impacts to these areas of concern would result. For lands that are transferred to public agencies, it is assumed that the agencies would generally protect cultural resources and preserve Native American access to those resources, and thus no impacts would result. For lands that are restored to natural conditions, it is assumed that Native American access to cultural resource sites could be restricted, a significant impact that could be reduced to a less-than-significant level with implementation of Mitigation Measures 7-2b and 7-2c. Overall, due to the continuation of non-binding agreements, this alternative would be better in this regard than the settlement proposal in an unregulated manner (Alternative 3).

Changes in reservoir operations could result in fluctuations in reservoir water levels, which could expose cultural resources located within reservoir boundaries (e.g., currently under water) or along shorelines to increased exposure, disturbance or erosion, which would be a significant impact. Increases in stream flows may limit, to some extent, the ability to modify reservoir operations. However, mandated flow releases could result in early drawdown on some reservoirs, particularly in dry years. This could expose cultural resources to disturbance or erosion, which could result in adverse impacts. Maintenance of existing non-binding agreements would maintain reservoir levels at some locations, however fluctuation of reservoir water levels could still occur, which would be considered a significant impact. This impact could be reduced to a less-than-significant level with the incorporation of the identified mitigation measures.

6.12.4.5 Agriculture

Changes in hydroelectric operations and increased stream flows could result in changes in the timing and availability of water, which could impact agricultural productivity for downstream users. Maintenance of existing non-binding agreements may limit some changes in the timing and availability of water delivery (as agreements to maintain reservoir water levels may assure late season water deliveries). A mitigation measure to reduce this impact has been identified, which would reduce this impact below the level of significance.

Because certain water contracts may not be renewed under this alternative (as well as the project), loss of consumptive water could occur at some locations. However, in key locations, such as the Potter Valley and Placer County, the water purveyors that currently are recipients of consumptive water would have the first right to purchase the hydroelectric facilities (and the associated water rights), or otherwise would have their water agreements preserved. Because it is assumed these consumptive water deliveries would be continued under this alternative, this impact would be less than significant.

6.12.4.6 Aesthetics

Under this alternative, stream flows would be increased on a variety of stream segments and it is assumed that the increase in stream flows would increase both the average and minimum flow in those streams. This would result in additional water in certain stream segments, which could enhance the visual quality of those stream reaches, particularly in late summer or fall, when current flows are typically low. This would result in no adverse impact. However, increases in stream flows would require releasing water from reservoirs, which could result in early drawdown on some reservoirs. The early drawdown could degrade the visual quality and character of those reservoirs by exposing shorelines and increasing the distance between the water and the surrounding vegetated areas. Maintenance of existing non-binding agreements would include maintenance of reservoir water levels (e.g., at a certain level until Labor Day) or stream flows (e.g., for recreational boating). This would reduce these significant impacts to a less-than-significant level.

6.12.5 PROJECTS BUNDLED BY RIVER BASIN

Instead of the five regional, and 20 smaller bundles defined by Pacific Gas and Electric Company, under this alternative, hydroelectric facilities would be bundled so that all hydroelectric facilities on a river system would be combined into a single bundle, which would result in a total of 16 bundles (that would also include the most proximate Watershed Lands). All other aspects of this alternative would essentially be the same as the project. Operation of the hydroelectric facilities could change, most likely as described for the PowerMax and WaterMax Scenarios. The future owner(s) may intend to increase revenues from the lands, which could result in increased intensity of land management (e.g. expansion of timber harvest) and/or development of the Project Lands, which might include residential, resort, recreational, and commercial uses.

The impacts of this alternative would be the same as for the project; except that the combination of bundles located on a river basin could improve operational coordination between the hydroelectric facilities on three river systems, including the Feather River, Hat Creek/Pit River, and the west fork of Willow Creek/San Joaquin River. (As discussed in Chapter 3, if hydroelectric operations on those river systems are not coordinated, that could result in water being spilled, as the downstream plants may not have the capacity to handle the water being released upstream, and the potential to generate electricity from the spilled water would be lost.)

Under this alternative, it is assumed that the purchaser of a river basin bundle would engage in coordinated operation of the hydroelectric facilities, thereby minimizing the potential for unplanned spills. However, because changes in hydroelectric operations would still result in modification of reservoir levels, the increased potential for flooding (if reservoir levels are held at higher levels) would remain significant. This impact could be reduced to a less-than-significant level with the implementation of the mitigation measure identified for the project.

For agriculture, the potential reduction of unplanned spills of water would have potential benefits as relates to the timing of water supplies (as unplanned spills would most likely occur in the spring or early summer, when water demand is generally low). The potential reduction of unplanned spills of water would reduce significant effects to agricultural productivity; however, overall impacts would remain significant. Implementation of the identified mitigation measures would reduce impacts to agricultural productivity to less-than-significant levels.

The reduction in unplanned spills would also minimize the lost potential for electrical power generation on those river systems where operational coordination would be assured. The potential energy impacts would remain the same as those of the project. All other impacts of this alternative would be the same as the project.

6.12.6 INDIVIDUAL BUNDLES

Instead of the five regional and 20 smaller bundles defined by Pacific Gas and Electric Company, under this alternative, individual hydroelectric facilities (and proximate lands) covered by each of

the 26 FERC licenses would be a separate bundle. Each of the three hydroelectric facilities that are not subject to FERC regulation would also be separate bundle, resulting in a total of 29 bundles. Because individual hydroelectric facilities would be available for sale, it is assumed that this would increase the potential that local agencies, including water supply agencies, could purchase individual facilities.

Similar to the project, this alternative would involve the sale of the hydroelectric facilities and associated lands to future owner(s) who may operate the facilities consistent with the PowerMax Scenario or WaterMax Scenario (e.g., if purchased by local agencies or water purveyors). It is assumed the future owner(s) may increase the intensity of land management (e.g., expansion of timber harvest) and/or develop the Project Lands, which might include residential, resort, recreational, and commercial uses. Because future operation of the hydroelectric facilities would be similar to one of the modeling scenarios used to describe the project, and because intensity of land management could increase and include future development, the impacts of this alternative would essentially be the same as the project, except as relates to the potential for decreased coordination of hydroelectric operations.

As discussed in Chapter 3, if hydroelectric operations on individual river systems are not coordinated, that could result in water being spilled, as the downstream plants may not have the capacity to handle the water being released upstream, and the potential to generate electricity from the spilled water would be lost. Under this alternative, because each hydroelectric facility would be a separate bundle, the potential for uncoordinated operations on individual river systems would increase.

Because changes in hydroelectric operations would result in modification of reservoir levels, the potential for increased flooding would be significant. The increased potential for unplanned spills of water would increase the significant flooding impacts. This impact could be reduced to a less-than-significant level with the implementation of the mitigation measure identified for the project.

The potential increase of unplanned spills of water would exacerbate significant impacts related to the timing of water supplies (as unplanned spills would most likely occur in the spring or early summer, when water demand is relatively low). However, implementation of the identified mitigation measures would reduce impacts to agricultural productivity to a less-than-significant level.

The increase in unplanned spills would also increase the potential for lost electrical power generation. This would increase the potential energy impacts resulting from increased operation of fossil fuel powered generation sources to replace decreased hydroelectric generation. However, this impact would remain the same as for the project. All other impacts of this alternative would be the same as the project.

6.12.7 BUNDLE WATERSHED LANDS FOR CONSERVATION

Under this alternative, all Watershed Lands (outside the FERC license boundaries) would be removed from the five regional and 20 smaller bundles, and combined into a single bundle (or bundles) for sale and/or transfer to a government agency, or environmental/conservation organization(s). All hydroelectric facilities would continue to be bundled per the five regional bundles and 20 smaller bundles defined by Pacific Gas and Electric Company. The future operation of the hydroelectric facilities under this alternative would be the same as the project.

This alternative assumes that no increased land development, timber harvest or mineral extraction would occur on the Watershed Lands. Historically, there has been some development on the lands within the FERC license boundaries, which, under this alternative, would be transferred to new owners of the hydroelectric facilities. However, such development has been relatively limited. Much of the FERC Licensed Lands are located in strips along water features and, separated from the Contiguous Watershed Lands, would have substantially diminished development potential. Therefore, this analysis assumes that any limited development that may still occur on the FERC Licensed Lands in the future would be so minimal as to not generate significant environmental impacts.

6.12.7.1 Land Use

Under this alternative, all Watershed Lands would be bundled separately for transfer to public agencies and/or conservation organizations. It is assumed that in general, public agencies would manage the lands for multiple objectives, which would preserve existing recreational opportunities and uses, such as boat ramps or campgrounds, but would generally cease other activities, such as timber harvest (except as prudent for fire prevention purposes), grazing and mining. For those lands that are to be restored to natural conditions, timber harvest, grazing, mining, as well as organized recreation would cease. Development of the lands would be prohibited, under either ownership concept.

Because no expansion of existing uses (e.g., timber harvest or mining) or development of the lands would occur with either conservation easements or transfer of the lands to public agencies or conservation organizations, no land use incompatibility impacts would occur under this alternative.

6.12.7.2 Forestry

It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of timber harvest (except as prudent for fire prevention purposes). Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest. Although this could result in the reduction of existing timber harvest activities (on some portion of the approximately 24,000 acres of the 88,000 acres of Watershed Lands), this reduction in the forest inventory, given

regional forest inventories, would be less-than-significant. Since no expansion of timber harvest would occur, and since timber harvest could be curtailed, the impact of this alternative on regional reforestation efforts would be less-than-significant.

6.12.7.3 Hydrology and Water Quality

Because transfer of the Watershed Lands to public agencies or conservation organizations would not affect operation of the hydroelectric facilities, the hydrology and water quality impacts of this alternative would be the same as the project. Changes in hydroelectric operations would result in significant impacts due to increased flooding potential, changes in stream channel morphology (due to changes in sediment transport), degradation of water quality in streams (due to reduced flows), and degradation of water quality in reservoirs (due to changed operation of reservoirs). Discontinuation of existing non-binding agreements would also result in significant impacts due to the cessation of cloud seeding and the collection and dissemination of data related to snow packs and stream flows. All significant hydrology and water quality impacts could be reduced to a less-than-significant level with implementation of mitigation measures identified in Section 4.3.

Because no increase in timber harvest, agricultural, or mining, and no development of the lands would occur under this alternative, impacts related to development or increased timber harvest, agricultural, or mining activities would not occur.

6.12.7.4 Fisheries and Aquatic Biology

Because changes in hydroelectric operations would occur, which could (1) reduce stream flow volumes and degrade water quality in streams, and (2) modify reservoir levels and degrade water quality in reservoirs, impacts to fisheries and aquatic biology would be the same as the proposed project. The impact to stream flow volume would be significant and unavoidable.

6.12.7.5 Terrestrial Biology

Under this Alternative, all Watershed Lands would be transferred to public agencies and/or conservation organizations, which would preclude development of the lands. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing and mining activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest, grazing and mining, as well as organized recreation.

Because it is assumed that conservation easements and/or transfer of the lands to public agencies or conservation organizations would not involve any expansion of timber harvest, grazing or mining, and would preclude development of the lands, impacts on terrestrial biological resources that would result from development of the lands or increased timber harvest, grazing or mining would be avoided. To the extent that the condition of the lands was improved (by the reduction or cessation

of mining, grazing, and timber harvest and restoration of natural conditions), impacts to wildlife, plant species, migration corridors, and plant communities could be neutral or beneficial at some locations.

Changes in hydroelectric operations could result in significant impacts to riparian and lacustrine vegetation communities, which would be a significant impact that could be reduced to a less-than-significant level with implementation of Mitigation Measures 5-1a and 5-2a.

6.12.7.6 Recreation

Under this alternative, all Watershed Lands would be transferred to public agencies and/or conservation organizations. For those lands transferred to agencies or organizations and that are managed for multiple objectives, it is assumed that existing recreational opportunities and uses, such as boat ramps or campgrounds, would be preserved. If lands are restored to natural conditions, this would likely end organized recreation uses or facilities. (It is assumed that such lands typically would be located in remote areas, and would not have existing organized recreational uses or facilities.) As some land-based recreational opportunities could be lost, this alternative would result in significant impacts to land-based recreation. This impact could be reduced to a less-than-significant level with incorporation of components of Mitigation Measure 6-2.

Because changes in the operation of the hydroelectric facilities could impact both stream and reservoir water levels, the impact of this alternative on water-based recreation would be significant. With implementation of the Mitigation Measures 6-1a through 6-1pp, the impact could be reduced to a less-than-significant level.

Because significant impacts to water-based recreational opportunities could occur at selected locations, the local economies that are dependent on water-based recreation would be significantly impacted by the loss of those recreational users. This significant impact could be mitigated to a less-than-significant level with the implementation of Mitigation Measures 6-3a and 6-3b.

6.12.7.7 Cultural Resources

Under this alternative, all Watershed Lands would be transferred to public agencies and/or conservation organizations. Under either ownership scenario, development of the lands would not occur; therefore, impacts related to disturbance of lands from development would not occur.

For lands that are transferred to public agencies, it is assumed that the agencies would generally protect cultural resources and preserve access to those resources, and therefore no impacts would result. For lands that are to be restored to natural conditions, it is assumed that access to cultural sites could be restricted, a significant impact that could be reduced to a less-than-significant level with implementation of the Mitigation Measures 7-2b and 7-2c.

Changes in reservoir operations could result in fluctuations in reservoir water levels, which could expose cultural resources located within reservoir boundaries (e.g., currently under water) or along shorelines, to increased exposure, disturbance or erosion. This significant impact could be reduced to a less-than-significant level with the incorporation of Mitigation Measures 7-3a and 7-3b.

6.12.7.8 Agriculture

Under this alternative, all Watershed Lands would be transferred to public agencies and/or conservation organizations, which would preclude development of the lands. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end grazing on those lands. This could result in the reduction of existing grazing (on some portion of the approximately 20,430 of the 88,000 acres Watershed Lands), however, given regional grazing opportunities, this potential reduction would be less than significant.

Changes in hydroelectric operations, increased stream flows, and termination of existing consumptive water agreements could result in changes in the timing and availability of water, which could result in significant impacts to agricultural productivity. This impact could be reduced to a less-than-significant level with the incorporation of Mitigation Measures 8-2 and 8-3.

6.12.7.9 Hazards and Hazardous Materials

Future modifications of hydroelectric facilities could expose construction workers or the public to contaminated soil or groundwater; however, implementation of proposed mitigation measures and adherence to applicable regulations would avoid significant impacts. Because no development of the Watershed Lands would occur under this alternative, impacts related to exposure of substances that may be present in the lands would not occur.

Changes in operation of the hydroelectric facilities could result in changes in the use, storage, and transport of hazardous substances but this impact would be less-than-significant. This significant impact could be reduced to a less-than-significant level with implementation of Mitigation Measures 9-3a and 9-3b. Changes in operation of the hydroelectric facilities could increase risks to workers and the public if the facilities are operated or maintained improperly. This significant impact could be reduced to a less-than-significant level with implementation of Mitigation Measures 9-4a and 9-4b. Changes in the operating practices and maintenance of the facilities could result in significant public safety or hazard impacts, which could be mitigated to a less-than-significant level by incorporation of Mitigation Measures 9-5a and 9-5b.

6.12.7.10 Population, Employment, and Housing

Because transfer of the lands to public agencies and/or conservation organizations would preclude future development of the Watershed Lands, impacts related to development of the lands, including population increases and the creation of a need for additional housing, would not occur.

6.12.7.11 Public Services and Utilities

Because transfer of the lands to public agencies and/or conservation organizations would preclude future development of the Project Lands, impacts related to development, including increased demand for energy or public services would not occur.

The potential fragmentation of the telecommunication system (installed by Pacific Gas and Electric Company) would be a less-than-significant impact, assuming implementation of cooperative agreements to preserve functionality of the system.

Changes in hydroelectric operations could shift the timing of electrical generation. This could increase consumption of fossil fuels, which would be a less than significant impact on energy supplies, unless market power were exerted. If market power were exerted, the reliability impact would be significant, but could be mitigated as identified for the project. Termination of certain water contracts would result in significant impacts to consumptive water, which could be reduced to a less-than-significant level with the incorporation of Mitigation Measure 11-3.

6.12.7.12 Transportation

Watershed Lands would be transferred to public agencies and/or conservation organizations. Because no increase in the intensity of land management (e.g., expansion of timber harvest) or development of the lands would occur, transportation impacts resulting from increased management or development would not occur.

For lands that are transferred to public agencies, it is assumed that the agencies would generally preserve access rights. For lands transferred to conservation organizations, it is assumed that access could be restricted; however, since it is also assumed that lands transferred to conservation organizations would generally be in remote locations, significant impacts are not expected to occur. Therefore, this impact would be less than significant.

6.12.7.13 Noise

Because transfer of the lands to public agencies and/or conservation organizations would preclude future development of the Watershed Lands, impacts related to development of the lands, including noise-related effects from increased development and population, would not occur.

Potential changes to the operation of the hydroelectric facilities would result in changes in ambient noise levels in the vicinity of hydroelectric facilities, however, this impact would be less than significant.

6.12.7.14 Air Quality

Watershed Lands would be transferred to public agencies and/or conservation organizations. Because no increase in the intensity of land management (e.g., expansion of timber harvest) or development of the lands would occur, air quality impacts resulting from management or development of the Watershed Lands would not occur.

Changes in hydroelectric operations could shift the timing of electrical generation, although the total amount of electricity generated is not anticipated to change under likely operations of PowerMax or WaterMax Scenarios. Therefore, impacts to air quality (from changed operation of fossil fuel powered generation facilities) would be less than significant.

6.12.7.15 Aesthetics

Because all Watershed Lands would be transferred to public agencies and/or conservation organizations, no increase in the intensity of land management or no development of the lands would occur. Therefore, aesthetic impacts resulting from increased management or development of the lands would not occur.

Changes in reservoir operations could result in significant aesthetic impacts, due to the fluctuations in reservoir levels. This impact would be mitigated to a less-than-significant level with incorporation of the mitigation measures identified in Section 4.15 (related to maintenance of reservoir levels for recreation between Memorial Day and Labor Day).

6.12.7.16 Geology, Soils, and Minerals

Because all Watershed Lands would be transferred to public agencies and/or conservation organizations, no increase in the intensity of land management (e.g., expansion of mining) or development of the lands would occur. Therefore, no geology impacts resulting from increased management or development of the lands would occur.

It is assumed that transfer of lands to either public agencies or conservation organizations would preclude future mining, and this would limit the potential availability of known mineral resources (which have been identified in Bundles 1 and 2 in the Shasta Regional Bundle, in Bundles 11 and 12 in the Drum Regional Bundle, and in Bundle 13 in the Motherlode Regional Bundle). The potential loss of availability of known mineral resources is considered a significant impact. No feasible mitigation measures have been identified to reduce this impact to a less-than-significant level; therefore, this impact would be significant and unavoidable for this alternative.

Changes in hydroelectric operations could exacerbate erosion, which could result in significant impacts, would be reduced to a less-than-significant level with incorporation of the relevant mitigation measure. Changes in operating and maintenance procedures related to erosion control measures and other geologic hazards could result from a change in the ownership of the hydroelectric facilities. These significant impacts could be reduced to a less-than-significant level with implementation of the Mitigation Measures 16-3, 16-7a, and 16-7b.

6.12.8 DECOMMISSIONING OF SELECTED FACILITIES

For this alternative, each individual hydroelectric facility (and the proximate lands) would be a separate bundle, resulting in a total of 29 bundles. Because individual hydroelectric facilities would be available for sale, it is assumed that this would increase the potential that environmental or other organizations could purchase facilities with the intent to decommission the facility, or that no bids may be received on individual facilities. It is also assumed that as a result of action by the future owner(s) or the FERC, other facilities could also be decommissioned.

For those projects that are not decommissioned, this alternative would involve the sale of the hydroelectric facilities and associated lands to future owner(s) who would operate the facilities consistent with the scenarios modeled for the project. The future owner(s) could increase the intensity of land management (e.g. expand timber harvest) and/or develop the Project Lands, including with residential, resort, recreational, and commercial uses. Because operation of the hydroelectric facilities would change, and because intensity of land management could increase, or the lands could be developed, the impacts of this alternative for those projects that are not decommissioned would be the same as the project.

For those facilities that may be decommissioned, it is assumed that decommissioning would result in removal of the dam and related structures and the end of hydroelectric operations at those facilities. Since the specific facility, or facilities, that may be decommissioned is unknown, it is not possible to estimate the precise impacts that may result from the removal of a dam, powerhouse, and related structures. In some instances, removal of a small diversion structure may result in few adverse effects, and could result in beneficial impacts (e.g., removal of a barrier to fish migration). In other instances, removal of a dam could result in a removal of a reservoir, which could have adverse or significant impacts (e.g., loss of flood mitigation potential, loss of consumptive water storage, and loss of reservoir-based recreational opportunities). To fully and conservatively explore the range of possible effects, the following discussion relates to the potential impacts of removal of facilities that would include the loss of a reservoir.

6.12.8.1 Land Use

Decommissioning of selected facilities could directly affect land use of those areas occupied by facilities that would be removed (e.g., dams, powerhouses, and appurtenant structures), those areas that are currently covered by water (because the existing dam created a reservoir), or those areas

dependent on the reservoir (e.g., recreational uses or resorts). Land use at those locations occupied by the facilities or reservoirs would change as the facilities and structures are removed, or the water is drained. In general, it is assumed that the lands (which may be located in canyons or on steep slopes) would generally revert to natural conditions, to the extent feasible. Because it is not possible to predict which facilities may be removed, and what adjacent land uses could be adversely impacted if a reservoir was removed, the impact of this alternative on land use is unknown. For those facilities that are not decommissioned, the impacts to land use would be similar to that of the project.

6.12.8.2 Forestry

Removal of dams, powerhouses and related structures and the potential elimination of reservoirs would not directly affect forest resources. Therefore, forestry impacts would be the same as for the project.

6.12.8.3 Hydrology and Water Quality

Removal of dams and related structures would restore natural flow conditions to those streams or rivers where the dam was removed. This could increase the flooding potential on those streams where the dams or diversion structures were removed, which would be a significant unavoidable impact as no mitigation, short of the installation of other diversion or impoundment structure(s) would replicate the flood mitigation potential of the facilities being removed. Because it is unknown which facilities could be removed, and whether those facilities would have a reservoir with substantial storage capacity, it is not possible to determine whether decommissioning could result in significant flooding impacts, and whether those impacts could be mitigated, or would remain significant and unavoidable. Therefore, the impact of decommissioning on flooding potential is unknown.

Removal of a dam could result in increases in maximum stream flows (because loss of a reservoir would eliminate the flood mitigation potential of the dam) which could result in changes in sediment transport, resulting in significant impacts to stream channel morphology. However, since it is unknown which facilities would be decommissioned, and whether it would include removal of a reservoir, the impact of decommissioning on stream channel morphology is unknown.

It is assumed that if a dam were removed, the owner would have little incentive to continue cloud seeding operations (in the Motherlode and DeSabla regions), which would result in significant impacts due to reduced stream flows and consumptive water supplies. Discontinuation of cooperative gauging programs would result in significant impacts to stream and flood forecasts, which could be reduced to a less-than-significant level with implementation of the applicable mitigation measure. However, it is considered unlikely that the future owner(s) of a decommissioned facility would continue to collect data related to snow packs or stream flows, so this impact could remain significant and unavoidable for those streams where facilities are removed.

Removal of a dam or diversion structure would restore natural hydrologic conditions in the stream segment below the dam, which could improve conditions along those stream segments, and improve water quality in some instances. However, seasonal variation in stream flows could result in increased flows during spring and early summer, and decreased flows in late summer and fall (as the elimination of a reservoir would eliminate the potential to hold water and release it late in the season). The reduced late-season flows could result in a degradation of water quality, especially during dry years, which would be a significant impact. In addition, removal of dams or diversion structures could result in the release of sediments (currently impounded behind the dam or structure) into the stream channel. Some of these sediments may contain contaminants (e.g., mercury in the sediments in Lake Pillsbury), which could result in significant impacts to water quality if released. Mitigation, in the form of remediation which might require excavation and disposal of the contaminated soil, could reduce these impacts to a less-than-significant level. Because it is unknown which facilities could be removed, and whether those facilities would have a reservoir with substantial storage capacity, it is not possible to determine whether decommissioning could result in significant impacts, or what specific type of remediation would be required if contamination exists. Therefore, the impact of decommissioning on water quality in streams is unknown.

Elimination of a reservoir would mean that impacts to reservoir water quality from changes in hydroelectric operations would not occur. For those reservoirs that are not removed as a result of decommissioning, significant impacts to hydrology and water quality would result in the same manner as with the project (e.g., flooding, changes in stream channel, morphology, and inconsistent with Basin Plans). Such impacts could be mitigated to a less-than-significant level with the incorporation of the mitigation measures identified in Section 4.3.

6.12.8.4 Fisheries and Aquatic Biology

Removal of a dam or diversion structure would restore natural conditions in the stream segment below the structure, which could improve hydrologic conditions along those stream segments, and improve water quality in some instances. However, seasonal variation in stream flows would likely result in increased flows during spring and early summer, and decreased flows in late summer and fall (for those stream reaches below reservoirs, where existing water storage can be used to supplement late-season stream flows). This could result in a degradation of water quality, especially during dry years, which could result in significant impacts to some fish species and aquatic biology. However, removal of the dams and related structures would eliminate existing barriers to fish migration, which would be a beneficial impact, in particular to anadromous salmonids. Since decommissioning could result in both significant impacts and beneficial impacts, and since it is unknown which facilities could be removed, and which stream segments could be impacted, the impact of decommissioning on stream-based fisheries and aquatic biology is unknown.

Removal of reservoirs would eliminate the habitat of lake-dwelling fish and other aquatic species, which would result in significant impacts to those species. Effective mitigation of that impact would either imply preservation of the reservoir pool, or provision of suitable replacement habitat (e.g., relocate reservoir-based fish to another reservoir). With provision of suitable replacement habitat, impacts could be reduced to a less-than-significant level. For those facilities where the reservoir is not removed, changes in stream flows and reservoir operation could result in significant impacts to fisheries and aquatic biology, which would be reduced to a less-than-significant level with incorporation of the mitigation measures identified in Section 4.4, except for the Narrows Project (Bundle 9) and the Potter Valley Project (Bundle 10), where significant and unavoidable impacts would result to fisheries resources in the streams and rivers associated with them.

6.12.8.5 Terrestrial Biology

Restoration of natural flow conditions may be beneficial to terrestrial species along streams, but could have adverse effects on species that are dependent on reservoir pools as a water source. Impacts associated with assets not decommissioned would be the same as the project.

6.12.8.6 Recreation

Restoration of natural flow conditions may be beneficial to recreational boating on streams or rivers during spring and early summer. To the extent that reservoirs are removed, the ability to release stored water later in the season would be eliminated, so that stream flows could be reduced in the late season, which could reduce recreational opportunities on those stream segments in late season. Removal of reservoirs would result in a loss of recreational opportunities on those reservoirs. Because of the potential for loss of water-based recreational opportunities, the impact of this alternative could be significant. Decommissioning of facilities could also impact land-based recreational opportunities that are water-related, such as shoreline camping and picnicking. The loss of recreational opportunities could also result in adverse impacts on local economies that are dependent on recreational visitors. However, since it is unknown which facilities may be decommissioned, and whether those facilities may include a reservoir that provides water-based or water-related recreational opportunities, the impact of decommissioning on water-based recreation opportunities is unknown. As to the reservoirs left in place, impacts on water-based recreation would be significant, but mitigation measures identified for the project would reduce the impact to a less-than-significant level. The same is true for land-based recreation.

6.12.8.7 Cultural Resources

Decommissioning of selected facilities would not impact management or development of the Project Lands, nor affect access to land-based cultural resources. Thus, impacts concerning the effects of land development on cultural resources and restriction of Native American access would be identical to the project, significant but mitigable.

Restoration of natural flow conditions could affect streamside cultural resources because of higher flows during spring and early summer. In addition, the elimination of dams and other diversion structures would eliminate the existing flood control capabilities of those structures, which could result in higher flood flows, and those higher flows could have significant impacts on cultural resources located along streams. Removal of reservoirs would expose cultural resources located within the boundaries of reservoirs (e.g., currently under water), which could subject those resources to disturbance, which would be a significant impact. Measures to protect or preserve any resources that would be exposed by the elimination of the reservoir could reduce this impact to less than significant. For those reservoirs that would not be affected by decommissioning, changes in reservoir operations could result in significant impacts to cultural resources (located within, or along the shore of, a reservoir) from changes in water level. This impact could be reduced to a less-than-significant level with incorporation of the mitigation measures identified in Section 4.7.

6.12.8.8 Agriculture

Decommissioning would not directly affect grazing opportunities. Removal of a dam would eliminate the stored water in a reservoir, and therefore result in significant changes in the timing and availability of consumptive water (as the loss of storage capabilities would eliminate the ability to store and release water on demand). The loss of water delivery capability would result in significant impacts to agricultural productivity. Effective mitigation of these significant impacts would involve provision of alternate means to store water, or identification of alternate sources of water that could be delivered at the same location and at the same time (as current conditions). Because of the limited availability of alternative sources of water, these impacts to downstream agricultural uses could remain significant and unavoidable. However, since it is unknown which facilities may be decommissioned, and whether those facilities may include a reservoir that supplies water to agricultural uses, the impact of decommissioning on agriculture is unknown. As to facilities not decommissioned, the impact would be identical to those of the project.

6.12.8.9 Hazards and Hazardous Materials

Removal of dams, powerhouses and other structures could expose construction workers or the public to substances that may be present in the facilities, soils or groundwater at the facilities. However, based on adherence to the mitigation measures in Section 4.9, this impact would be less than significant. Decommissioning would not result in changes in land management or development, nor affect use or hazardous substances at the facilities that are not decommissioned. Decommissioning would not result in any impacts related to operational changes of those hydroelectric facilities, as the facilities would be removed. Decommissioning would not result in any impacts related to changes in operating procedures or management of lands. As to facilities not decommissioned, the impact would be identical to those of the project.

6.12.8.10 Population, Employment and Housing

Removal of dams and related structures would not directly result in changes in population, employment or housing. The impacts would thus be the same as for the project.

6.12.8.11 Public Services

Removal of powerhouse structures and reservoirs would eliminate the electrical generation at that facility. Given the ongoing electrical supply limitations, it is assumed that other electrical generation sources would increase operations to replace the electricity that would not be generated by the hydroelectric facilities that are removed. To the extent that fossil fuel based generation facilities would increase output to replace the lost electricity, then energy supplies could be impacted. Since the specific facilities that may be removed as a result of this alternative is unknown, and the generation capacity of the facilities varies, it is not possible to estimate the generation capacity that would be lost by removal of the facilities. Thus, the impact of decommissioning on energy supplies is unknown. For those facilities that would not be decommissioned, impacts on reliability would be the same as for the project.

Decommissioning would have impacts similar to those of the project concerning management of the lands, or land development potential, although removal of reservoirs could reduce the desirability of development at some locations (e.g., lots adjacent to, or near a reservoir). Decommissioning would affect in ways similar to the project, potential fragmentation of the telecommunication system (installed by Pacific Gas and Electric Company), or the demand for new telecommunications services. Therefore, public services impacts stemming from these changes would be the same as for the project.

Loss of reservoirs would eliminate the potential to store water. As a result, the timing and delivery of water to downstream users would be changed, and in some instances, consumptive water deliveries could be reduced or terminated. The reduction or loss of consumptive water (because storage of water would no longer be possible) would be a significant impact. Effective mitigation of this impact would involve provision of alternate sources of water that could be delivered at the same location and at the same time (as current conditions). Because of the limited availability of alternative sources of water, these impacts could be significant and unavoidable. However, since it is unknown which facilities may be decommissioned, and whether those facilities may include a reservoir that provides consumptive water, the impact of decommissioning on consumptive water supply is unknown. As to the facilities not decommissioned, the impacts would be the same as for the project.

6.12.8.12 Transportation

Removal of dams and related structures would not directly result in changes in population, and therefore would result in impacts to traffic or transportation, or changes in transportation access

that are similar to the project. Therefore, the impact on transportation would be the same as for the project, resulting from changes in land management and land use development.

6.12.8.13 Noise

Removal of dams and related structures would result in short-term adverse noise impacts. Long-term impacts from removal of the structures would be beneficial, as removal of the powerhouse and turbines may reduce ambient noise levels; therefore, no adverse noise impact would occur. Noise impacts identified for the project, however, would still occur.

6.12.8.14 Air Quality

Removal of hydroelectric facilities would eliminate the electrical generation capacity at those facilities. The reduction in the generation of electricity by the individual hydroelectric facilities would reduce the overall supply of electricity in the State. Because of the ongoing supply limitations, it is assumed that other electrical generation sources would increase operations to replace the electricity that would not be generated by the removed hydroelectric facilities. Since the specific facilities that may be decommissioned cannot be predicted, it is not possible to reliably estimate the overall potential reduction in electricity that would occur. To the extent that fossil-fuel based generation facilities would increase output to replace the lost electricity, then the criteria emissions from those facilities would also increase. Since it is not currently known which facilities may increase output to replace the lost generation capacity or what amount of generation capacity would be lost, the potential increase in criteria pollutant emissions cannot be reliably estimated. Therefore, the impact of decommissioning on air quality is unknown. Air quality impacts for these facilities that would not be decommissioned, but would be auctioned, would be identical to the project.

6.12.8.15 Aesthetics

Removal of dams and related structures, and the restoration of natural conditions (to the extent feasible) would change the visual character and quality of those locations, which could be beneficial, owing to the removal of manmade structures and their replacement with mostly natural features. However, the removal of reservoirs would result in the loss of lake views and the visual character and quality of those resources. This could be an adverse impact. As the specific facilities that would be removed cannot be predicted, and as the extent to which "natural" conditions can be restored is unknown, it is not possible to determine whether removal of structures (e.g., dams, diversions, powerhouses, etc.) would overall result in beneficial impacts. Since it is not known which reservoirs and lakes would be removed as a result, it is not possible to predict whether the loss of those visual resources would be adverse. Therefore, the impact of this alternative is unknown. As to areas where reservoirs were not removed, the impacts would be the same as for the project.

6.12.8.16 Geology, Soils, and Minerals

Removal of dams and related structures would not directly affect geology or seismicity, however, removal of the dams could expose soil surfaces to erosion (e.g., the locations which are currently occupied by the facilities, or that are currently underwater), and this potential increase could be significant. Development of an erosion control plan, and adherence to appropriate construction techniques, would reduce this impact to less than significant. Decommissioning would have similar impacts to those of the project concerning intensity of land management, or development of the lands, so impacts related to such activities would be the same as for the project.

6.12.9 ENVIRONMENTAL COMPOSITE ALTERNATE

This alternative would include: (1) bundling of Watershed Lands for conservation; (2) supplemental stream flows; and (3) preservation of all existing non-binding agreements, including those related to recreation and maintenance of reservoir levels and stream flows.

6.12.9.1 Land Use

Under this Alternative, all Watershed Lands would be bundled separately for transfer to public agencies and/or conservation organizations. It is assumed that in general, public agencies would manage the lands for multiple objectives, which would preserve existing recreational opportunities and uses, such as boat ramps or campgrounds, but would generally cease other activities, such as timber harvest (except as prudent for fire prevention purposes), grazing and mining. For those lands that are to be restored to natural conditions, timber harvest, grazing, mining, as well as organized recreation would cease. Development of the lands would be prohibited, under either ownership concept.

Because no expansion of existing uses (e.g., timber harvest or mining) or development of the lands would occur with either conservation easements or transfer of the lands to public agencies or conservation organizations, no land use incompatibility impacts would occur under this alternative.

6.12.9.2 Forestry

Under this Alternative, Watershed Lands would be transferred to public agencies and/or conservation organizations. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of timber harvest (except as prudent for fire prevention purposes). Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest. Although this could result in the reduction of existing timber harvest activities (on some portion of the approximately 24,000 acres of the 88,000 acres of Watershed Lands), this reduction in the forest inventory, given regional forest inventories, would be less than significant. Since no expansion of

timber harvest would occur, and since timber harvest could be curtailed, the impact of this alternative on regional reforestation efforts would be less than significant.

6.12.9.3 Hydrology and Water Quality

Changes in reservoir operations could increase the amount of water stored in reservoirs, which could increase flooding potential. Although increased stream flows in selected streams (as illustrated in Table 6-3) could reduce the amount of water stored in individual reservoirs, the flooding potential, due to changes in reservoir operations, would remain significant. This impact could be reduced to a less-than-significant level with the implementation of Mitigation Measure 3-1. Changes in hydroelectric operations could either increase or decrease maximum stream flows, which would modify sediment transport and result in significant impacts to stream channel geomorphology, which could be reduced to less than significant with the implementation of Mitigation Measure 3-2.

Because it is assumed that the existing non-binding agreements would be continued, this alternative would result in no impacts to stream volume or flood flow forecasts, because the collection and dissemination of data (e.g., depth of snow packs) would continue. Discontinuation of cloud seeding activities in the Motherlode and DeSabla regions would result in significant impacts due to the reduction in runoff, which could be reduced to a less-than-significant level with implementation of the appropriate mitigation measure.

It is assumed that additional water in selected stream segments would improve the quality of the water in those streams, and therefore this alternative would reduce or avoid the adverse impacts to water quality (related to decreased stream flows resulting from changes in hydroelectric operations) for those stream segments that receive the increased flows. However, since not all streams or stream segments would receive additional water or have stream flows maintained under existing agreements, significant impacts related to degradation in water quality would still occur on some streams. This impact could be reduced to less than significant with implementation of Mitigation Measure 3-5. Changes in reservoir operations could also result in significant water quality impacts to the water within the reservoir (e.g., from increased turbidity). This impact would be reduced or avoided in those reservoirs where water levels are maintained per existing non-binding agreements. However, not all reservoirs are covered by existing agreements; therefore, this impact would be considered significant for some reservoirs. This impact could be reduced to a less-than-significant level with incorporation of Mitigation Measure 3-6.

Because no increase in timber harvest, agricultural, or mining, and no development of the lands would occur under this alternative, impacts related to development of increased timber harvest, agricultural, or mining activities would not occur.

6.12.9.4 Fisheries and Aquatic Biology

Changes in hydroelectric operations could reduce stream volumes and degrade water quality. Under this alternative, stream flows would be increased on selected stream segments, which could improve water quality and benefit fisheries and aquatic biology, and reduce impacts to fisheries and aquatic biology. However, since not all streams or stream segments would receive additional water, significant impacts to fisheries and aquatic biology would still occur on some streams. Preservation of existing non-binding agreements could also limit changes in operations for some stream segments (e.g., where existing agreements specify stream flows), and reduce water quality impacts for those streams or reservoirs where flow or water levels would be maintained. A significant impact would result for those streams that would not have flows maintained (per existing agreements) or have flows increased (per the proposed increases in stream flows included in Table 6-3). Even with implementation of the mitigation measures identified in Section 4.4, this impact is significant and unavoidable.

Increases in stream flows and preservation of existing non-binding agreements may limit, to some extent, the degree to which reservoir operations could be modified, and therefore reduce significant impacts to fisheries and aquatic biology related to changes in reservoir operations (e.g., increased turbidity due to fluctuations in reservoir water levels). However, since not all reservoirs would be impacted by increased stream flows, significant impacts could still result at some reservoirs. This impact could be reduced to a less-than-significant level with incorporation of the mitigation measures identified in Section 4.4 and continuation of non-binding agreements regarding reservoir levels.

6.12.9.5 Terrestrial Biology

Under this Alternative, all Watershed Lands would be transferred to public agencies and/or conservation organizations, which would preclude development of the lands. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing and mining activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end timber harvest, grazing and mining, as well as organized recreation.

Because it is assumed that conservation easements and/or transfer of the lands to public agencies or conservation organizations would not involve any expansion of timber harvest, grazing or mining, and would preclude development of the lands, impacts on terrestrial biological resources that would result from development of the lands or increased timber harvest, grazing or mining would be avoided. To the extent that the condition of the lands was improved (by the reduction or cessation of mining, grazing, and timber harvest and restoration of natural conditions), impacts to wildlife, plant species, migration corridors, and plant communities could be neutral or beneficial at some locations.

Changes in hydroelectric operations could result in significant impacts to riparian and lacustrine vegetation communities, however, because this alternative would include increased stream flows and preservation of existing non-binding informal agreements, impacts on some streams could be less than significant at some locations. However, since not all streams would receive additional water, this impact would be considered significant, but could be reduced to a less-than-significant level with implementation of Mitigation Measures 5-1a and 5-2a.

6.12.9.6 Recreation

Under this alternative, all Watershed Lands would be transferred to public agencies and/or conservation organizations, and all existing non-binding agreements related to recreation would be continued. It is assumed that public agencies would manage the lands for multiple objectives and would preserve existing recreational opportunities and uses, such as boat ramps or campgrounds. Restoration of lands to natural conditions would likely end organized recreational uses or facilities. (It is assumed that such lands would be located in remote areas, and would typically not have existing organized recreational uses or facilities.) Under either ownership scenario, no development of the lands or increased intensity of management (e.g., expansion of timber harvest) would occur. Thus, under this alternative, transfer of the lands and preservation of informal agreement would generally result in the continuation of existing recreational facilities and uses. Therefore, the impacts related to loss of land-based recreational opportunities would be less than significant.

It is assumed that public agencies would preserve existing water-based recreational facilities and opportunities. Increase in stream flows would result in additional water in selected stream segments, which could benefit fisheries and recreation (such as recreational boating and fishing) along those stream reaches that receive the additional flows. However, increases in stream flows may require releasing water from reservoirs, which could result in early drawdown on some reservoirs. The early drawdown could have adverse impacts on lake-based recreational activities, such as fishing and boating, particularly in dry years. However, preservation of existing non-binding agreements would maintain reservoir water levels at some locations. Overall, the impact of this alternative on water-based recreation would be less than significant.

Because most existing recreational opportunities would be preserved, impacts to local economies from reductions in recreational opportunities would be less than significant.

6.12.9.7 Cultural Resources

Transfer of all Watershed Lands to public agencies and/or conservation organizations would not result in any increase in existing uses (e.g., timber harvest or mining) or development of the lands. Therefore, impacts related to potential disturbance or loss of cultural resources would not occur. For lands that are to be restored to natural conditions, it is assumed that access to cultural sites could be restricted, except for those covered by non-binding agreements which would be continued

under this alternative. This significant impact could be reduced to a less-than-significant level with implementation of the Mitigation Measures 7-2b and 7-2c.

Changes in reservoir operations could result in fluctuations in reservoir water levels, which could expose cultural resources located within reservoir boundaries (e.g., currently under water) or along shorelines to increased exposure, disturbance or erosion. Increases in stream flows may limit, to some extent, the ability to modify reservoir operations. However, mandated flow releases could result in early drawdown on some reservoirs, particularly in dry years. This could expose cultural resources to additional disturbance or erosion, which would be a significant impact. As this alternative assumes that existing non-binding informal agreements, including management practices related to protection of cultural resources, would be continued, impacts related to changes in reservoir operations would be less than significant, for those reservoirs that are covered by existing Cultural Resource Management Plans and/or Heritage Resource Management Plans developed by Pacific Gas and Electric Company. However, since not all bundles are covered by such existing plans, significant impacts could result in those bundles. This potential impact could be reduced to a less-than-significant level with the incorporation of Mitigation Measure 7-3b, which requires development of Cultural Resource Management Plans and/or Heritage Resource Management Plans for those bundles which currently do not have such plans.

6.12.9.8 Agriculture

Under this alternative, all Watershed Lands would be transferred to public agencies and/or conservation organizations, which would preclude development of the lands. It is assumed that in general, public agencies would manage the lands to achieve multiple objectives, which would generally preserve existing uses, but could result in the reduction or elimination, in some instances, of grazing activities. Some of the lands could be transferred to agencies or organizations for the express purpose of restoring the lands to natural conditions, which would end grazing on those lands. This could result in the reduction of existing grazing (on some portion of the approximately 20,430 of the 88,000 acres Watershed Lands), however, given regional grazing opportunities, this potential reduction would be less than significant.

Changes in hydroelectric operations, increased stream flows, and termination of existing consumptive water agreements could result in changes in the timing and availability of water. Maintenance of existing non-binding agreements may limit some changes in the timing and availability of water delivery (as agreements to maintain reservoir water levels may assure late season water deliveries). However, since not all consumptive water deliveries are subject to non-binding agreements, significant impacts to agricultural productivity could result. This impact would be reduced to a less-than-significant level with the incorporation of Mitigation Measures 8-2 and 8-3.

6.12.9.9 Hazards and Hazardous Materials

Future modifications of hydroelectric facilities could expose construction workers or the public to contaminated soil or groundwater; however, with adherence to applicable regulations, this impact would be less than significant. Because development of the Project Lands would not occur under this alternative, impacts related to exposure to substances that may be present in the lands (or groundwater) would not occur.

Changes in operation of the hydroelectric facilities could result in changes in the use, storage, and transport of hazardous substances, but this impact would not be significant. Changes in operation of the hydroelectric facilities could increase risks to workers and the public if the facilities are operated or maintained improperly. This significant impact could be reduced to a less-than-significant level with implementation of Mitigation Measures 9-4a and 9-4b. Changes in the operating practices and maintenance of the facilities could result in significant public safety or hazard impacts, which could be mitigated to a less-than-significant level by incorporation of Mitigation Measures 9-5a and 9-5b.

6.12.9.10 Population, Employment, and Housing

Because transfer of the lands to public agencies and/or conservation organizations would preclude future development of the Watershed Lands, impacts related to development of the lands, including population increases and the creation of a need for additional housing, would not occur.

6.12.9.11 Public Services and Utilities

Under this alternative, stream flows would be increased in some stream segments, which typically would involve release of water via outlet structures that do not result in the generation of power. Thus an increase in stream flows would typically result in a decrease in the generation of electricity. It is assumed that the reduction in generating capacity would occur during shoulder peak periods, and therefore the peak generation capacity of the system would not be affected. Instead, the overall total amount of electricity generated by the facilities would be reduced, which would reduce the overall supply of electricity in the State. Because of the ongoing supply limitations, it is assumed that other electrical generation sources would increase operations to replace the electricity that would not be generated by hydroelectric facilities. Based upon a review of the illustrative flows (included in Table 6-3), it is estimated that the total electricity generated by the hydroelectric facilities would be reduced from approximately 11,832 GWh to 11,452 GWh, a reduction of 380 GWh, or approximately three percent. In addition, changes in hydroelectric operations could shift the timing of electrical generation, which could result in other electrical generation facilities increasing operations to generate additional electricity at those times when the hydroelectric facilities are not operating. Some of these facilities may be powered by fossil fuels, which would result in increased consumption of those fuels and reduce energy supplies. As hydroelectric power represents only approximately five percent of the total electricity generation in the State of California, and as the increased stream flow would only result in an approximately

three percent loss of the total electricity generated by the hydroelectric facilities, the overall loss of energy supplies (to make up for the loss of hydroelectric generation) would not be a substantial amount in relation to total energy consumption, and therefore this impact would be less than significant. However, if market power were exerted by new hydroelectric facility owners, the reliability impact could be significant, but could be mitigated to a less-than-significant level with the mitigation measure identified for the project.

Because either transfer of the lands to public agencies and/or conservation organizations would preclude future development of the Watershed Lands, public service impacts related to development of the lands would not occur.

Termination of certain water contracts would result in significant impacts to consumptive water; however, these impacts could be reduced to a less-than-significant level with the incorporation of Mitigation Measure 11-3.

The potential fragmentation of the telecommunication system (installed by Pacific Gas and Electric Company) would result in less-than-significant impacts, assuming implementation of cooperative agreements to preserve functionality of the system.

6.12.9.12 Transportation

Transfer of all Watershed Lands to public agencies and/or conservation organizations would result in no increase in existing uses (e.g., timber harvest or mining) or any development of the lands. Therefore, impacts related to increased management or development of the lands would not occur.

6.12.9.13 Noise

Potential changes to the operation of the hydroelectric facilities could result in noise impacts, however, those operational changes may be limited by the increased stream flows, and maintenance of existing non-binding agreements at some locations. Potential changes in ambient noise levels in the vicinity of hydroelectric facilities due to operational changes would be less than significant.

Because transfer of the lands to public agencies or conservation organizations would preclude expansion of timber harvest, grazing, or mining activities, and development of the lands, noise impacts related to increased management or development of the lands would not occur.

6.12.9.14 Air Quality

Because transfer of the lands to public agencies or conservation organizations would preclude expansion of timber harvest, grazing, or mining activities, and development of the lands, air impacts related to increased management or development of the lands would not occur.

Under this alternative, increases in stream flows would involve release of additional water from storage structures, typically via outlet structures that do not result in the generation of power.

Therefore, an increase in stream flows would result in a decrease in the generation of electricity, for those facilities where stream flows would be increased. Because of the ongoing short supply, it is assumed that other electrical generation sources would be operated to replace the electricity that would be lost due to the increased water flows. To the extent that fossil-fuel based generation facilities would increase output to replace the lost electricity, then the criteria emissions from those facilities would also increase. However, the increase in emissions would not be significant (as shown in Table 6-35, unless the owner exercised market power, (air quality effects described in Section 4.14). Therefore, the alternative would not result in a significant and unavoidable air quality impact.

6.12.9.15 Aesthetics

Transfer of the Watershed Lands to public agencies and/or conservation organizations would result in no increase in the intensity of land management or development of the lands. Therefore, none of the aesthetic impacts related to management or development of the lands would occur.

Under this alternative, stream flows would be increased on a variety of stream segments and it is assumed that the increase in stream flows would increase both the average and minimum flow in those streams. This would result in additional water in the stream segments, which could enhance the visual quality of those stream reaches, particularly in late summer or fall, when current flows are typically low. This would result in no adverse impact. However, increases in stream flows would require releasing water from reservoirs, which would result in early drawdown on some reservoirs. The early drawdown could degrade the visual quality and character of those reservoirs, by exposing shorelines, and increasing the distance between the water and the surrounding vegetated areas. Maintenance of existing non-binding agreements would include maintenance of reservoir water levels (e.g., at a certain level until Labor Day) or stream flows (e.g., for recreational boating). This would reduce the significant impacts to a less-than-significant level.

6.12.9.16 Geology, Soils and Minerals

Transfer of all Watershed Lands to public agencies and/or conservation organizations would result in no increase in the intensity of land management (e.g., expansion of mining) or development of the lands. Therefore, impacts related to increased management or development of the lands would not occur.

It is assumed that transfer of lands to either public agencies or conservation organizations would preclude future mining, and this would limit the potential availability of known mineral resources (which have been identified in Bundles 1 and 2 in the Shasta Regional Bundle, in Bundles 11 and 12 in the Drum Regional Bundle, and in Bundle 13 in the Motherlode Regional Bundle). The potential loss of availability of known mineral resources is considered a significant impact. No feasible mitigation measures have been identified to reduce this impact to a less-than-significant level; therefore, this impact would be significant and unavoidable for this alternative.

Changes in hydroelectric operations could exacerbate erosion, which could result in significant impacts, which would be reduced to a less-than-significant level with incorporation of the relevant mitigation measure. Changes in operating and maintenance procedures related to erosion control measures and other geologic hazards could result from a change in the ownership of the hydroelectric facilities. These significant impacts could be reduced to a less-than-significant level with implementation of the Mitigation Measures 16-3, 16-7a and 16-7b.

6.13 ANALYSIS OF FOCUSED ALTERNATIVES

The analysis of focused alternatives concentrates only on how each alternative would differ from the project, or an alternative to the project.

6.13.1 SINGLE OWNER (NOT PACIFIC GAS AND ELECTRIC COMPANY)

Similar to the project, this focused alternative would involve the sale of the hydroelectric facilities and associated lands in the five regional or 20 smaller bundles. However, for this alternative, it is assumed that the entire system would be purchased by a single owner that is not Pacific Gas and Electric Company. It is assumed that the future owner would generally operate the facilities consistent with the PowerMax Scenario. It is assumed the future owner would also seek to increase revenues from the lands, which would result in increased intensity of land management (e.g., expansion of timber harvest) and/or development of the Project Lands. Because future operation of the hydroelectric facilities would likely be consistent with the PowerMax Scenario, and because the intensity of land management could increase, and could include development of the lands, the impacts of this alternative would essentially be the same as the project, which is described in detail in the analysis of project impacts for each environmental topic in Chapter 4. It is likely that purchase of the entire hydroelectric system by a single entity could raise issues related to market power and other regulatory matters; however, it is assumed that the WaterMax Scenario established the maximum operational changes that could occur as a result of the project. Therefore, the physical environmental effects of this alternative would be the same as the project, and no additional discussion or analysis of the impacts of this alternative is necessary.

6.13.2 BUNDLES MINUS A SINGLE HYDROELECTRIC FACILITY

This focused alternative would essentially be the same as the project, because most of the facilities would be sold in combinations (of five regional, and 20 smaller bundles), except for specific facilities or individual bundles. To the extent that the individual facilities would be purchased by local entities, such as water agencies, then those entities may operate those facilities to maximize water production, consistent with the WaterMax Scenario. To the extent that removal of individual facilities decreases the potential for operational coordination on a river system, that could result in water being spilled, as the downstream plants may not have the capacity to handle the water being released upstream, and the potential to generate electricity from the spilled water would be lost. In

that event, the impacts of this focused alternative would be similar to those of Alternative 6 (Individual Facilities) for those river systems where uncoordinated operations may occur.

Under this alternative, it is assumed that the future owner(s) would be motivated to increase revenues from the Project Lands, which would result in increased intensity of land management, and possibly development of the Project Lands. As a result, the potential range of impacts of this alternative as relates to management and/or development of the Project Lands would also be consistent with the proposed project. In this regard, the impacts of this alternative would be the same as the proposed project, which is described in detail in the analysis of project impacts for each environmental topic in Chapter 4; therefore, no additional analysis is necessary.

6.13.3 PARTIAL/INTERIM RETENTION OF SELECTED FACILITIES

This focused alternative would involve two scenarios: (1) the interim retention of twelve hydroelectric facilities (that are currently in the midst of the FERC relicensing process, or will undergo relicensing within the next five years) by Pacific Gas and Electric Company and continued regulation by the CPUC; and (2) the auction of the other seventeen hydroelectric facilities (as individual bundles) and the end of regulation by the CPUC for those facilities. Interim retention of selected facilities would essentially mirror the No Project conditions since the facilities would continue to be owned and operated by Pacific Gas and Electric Company. Therefore, for those facilities that would be retained in the interim, this alternative would defer all potential impacts, until such time as those facilities are auctioned.

For those facilities that are not retained, they would be auctioned as per the project. However, since 12 facilities would be removed from the 20 bundles, it is assumed the remaining facilities would be auctioned individually as separate bundles. Because individual hydroelectric facilities would be auctioned as a separate bundle (as per Alternative 6; Individual Bundles), this could increase the potential that the facilities on a single river system would be operated in an uncoordinated fashion. This could result in water being spilled, as the downstream plants may not have the capacity to handle the water being released upstream, and the potential to generate electricity from the spilled water would be lost. The impacts for the hydroelectric facilities that would be auctioned initially would be the same as for Alternative 6 (Individual Bundles), which was described above. For the lands associated with the hydroelectric facilities, the intensity of land management could increase and could include development of the lands, and the impacts related to changes in land use would be the same as the proposed project.

For those projects that are retained in the interim, as conditions of FERC relicensing, increases in stream flows could be mandated to mitigate current environmental conditions. In general, relicensing in recent years has resulted in a decrease in electrical generation, typically as a result of increased stream flows (as the mandated water releases are not used to generate electricity, but instead are released through a bypass facility). To the extent that stream flows mandated by the FERC would be consistent with the illustrative stream flows for Alternative 3 (Pacific Gas and

Electric Company Proposed Settlement), then the long-term impacts related to operation of the hydroelectric facilities (that would be retained in the interim) would be similar to Alternative 3. As a condition of FERC relicensing, environmental analysis would be required in compliance with the National Environmental Policy Act, which could result in various environmental conditions being imposed as part of the relicensing process. Since it is not possible to predict which environmental conditions may be imposed as a result of future relicensing actions by the FERC, it would be remote and speculative to predict the impacts of the future auction of hydroelectric facilities that are retained in the interim until the FERC relicensing process is completed.

It is assumed that under this alternative, effects that could result from hydroelectric facility owners exerting market power (public services, reliability, and air quality) could occur as to the facilities that would be auctioned.

6.13.4 ENVIRONMENTAL ENHANCEMENT

This focused alternative would include the same elements as Alternative 9 (Environmental Composite): (1) bundling of Watershed Lands for conservation; (2) supplemental stream flows; (3) preservation of all existing non-binding agreements, including those related recreational, reservoir levels and stream flows; and (4) preservation of the telecommunication system installed by Pacific Gas and Electric Company as a single integrated system to preserve the existing functionality of the system. To increase the potential for decommissioning of individual facilities, the hydroelectric assets would be combined into 29 individual project bundles.

This focused alternative would also include: (1) installation of fish ladders or similar facilities where appropriate to preserve or restore anadromous fish populations, which it is assumed would not require additional releases of water beyond the stream flow increases noted above; and (2) decommissioning of selected facilities, wherein the CPUC would conduct an appropriate process to identify which facilities may have environmental consequences that may outweigh their power-production or economic benefits. As decommissioning and removal of hydroelectric facilities can result in a wide range of impacts (as discussed in Section 6.7.8 above), it is assumed that for this alternative, the CPUC would generally limit consideration of decommissioning to those facilities that do not have substantial water storage capacity, as the loss of reservoirs can result in various significant effects (related to flooding potential, lost electrical generation, etc.).

The impacts of this focused alternative would generally be the same as Alternative 9, Environmental Composite, except that it would also include fish ladders or similar bypass structures that would benefit anadromous fish populations, by reducing existing barriers to fish migration that could result in beneficial impacts to fisheries and aquatic biology.

This focused alternative could also result in the decommissioning of selected facilities, which was discussed as Alternative 8. Refer to the impact discussion for Alternative 8 for a discussion of the potential effects of decommissioning of selected facilities. However, as it is unknown which

facility, or facilities, may be subject to decommissioning, it is not possible to predict which environmental topics may be affected by removal of individual diversion structures, dams, or related facilities.

Because this alternative assumes that timber harvest, grazing and mining activities could cease, the condition of the Watershed Lands would improve. This could result in several beneficial impacts: recreation (condition of land-based recreational opportunities could improve); cultural resources (existing sources of disturbance and loss of cultural resources, such as timber harvest and mining, would cease); noise (existing sources of noise would be eliminated); aesthetics (existing sources of visual character degradation would cease); and geology (erosion or mass wasting from timber harvest and mining activities would cease).

6.13.5 ALTERNATIVE VALUATION

This focused alternative consists of the negotiated sale of some or all of the hydroelectric facilities. It is assumed that this alternative could result in the purchase of some of the facilities by local and/or water agencies, and in that event, those facilities could be operated consistent with the WaterMax Scenario. Otherwise, the hydroelectric facilities may be operated consistent with the PowerMax Scenario. Since both scenarios were analyzed potential outcomes of the project, the potential range of impacts of this alternative as relates to operation of the hydroelectric facilities would be the same as the proposed project. Under this alternative, it is assumed that the future owner(s) would be motivated to increase revenues from the Project Lands, which would result in increased intensity of land management and/or development of the Project Lands. As a result, the potential range of impacts of this alternative as relates to management and/or development of the Project Lands would also be consistent with the proposed project. Therefore, the impacts of this alternative would be the same as the proposed project, which is described in detail in the analysis of project impacts for each environmental topic in Chapter 4; therefore, no additional analysis or discussion is necessary.

6.13.6 INTERIM STATE OWNERSHIP

This focused alternative would involve two scenarios: the interim retention of facilities by the State of California, and the subsequent sale of the facilities. During the interim retention of the facilities, it is assumed the State would: (1) transfer the Watershed Lands to appropriate government agencies and/or conservation organizations, or impose conservation easements that would preserve existing recreational uses and preclude future development of the lands; (2) provide for supplemental stream flows (generally consistent with the illustrative flows in Table 6-3); and (3) codify existing non-binding agreements related to maintenance of reservoir levels, public access to Watershed Lands, collection and dissemination of data (e.g., snow packs) and other activities and practices that are deemed in the public interest.

As a result of these actions, in the interim, the management of the lands could be generally consistent with baseline conditions (with continued timber, grazing or mining), or would be reduced compared to baseline conditions (with reduction of timber harvest, grazing and mining). During the interim, the operation of the hydroelectric facilities would reflect the No Project A alternative conditions, assuming the State would operate the facilities in a manner that responds to the restructured electrical market. To the extent that stream flows are increased, then operations of the hydroelectric facilities would be similar to that of Alternative 9 (Environmental Composite).

For the long-term, because the State would either impose conservation easements on the lands or transfer the lands to public agencies, or conservation agencies, the impacts of this alternative would generally be similar to the impacts that would result from Alternative 9 (Environmental Composite).

6.13.7 PERFORMANCE-BASED (REGULATED) RATEMAKING

Under this alternative, Pacific Gas and Electric Company would continue to own and operate the hydroelectric facilities, but would be regulated by the CPUC under performance-based ratemaking. For the purposes of this alternative, it is assumed that the performance-based ratemaking structure would only relate to operation of the hydroelectric facilities, and would not include standards for management of the lands. Therefore, under this alternative, it is assumed the Pacific Gas and Electric Company could elect to increase revenues from the lands, which would result in increased intensity of land management (e.g., expansion of timber harvest). Some development of the Project Lands could also occur, which might include residential, resort, recreational and commercial uses.

It is assumed that operation of the hydroelectric facilities would be would be consistent with the PowerMax Scenario; therefore, the impacts of this alternative from operation of the hydroelectric facilities would be the same as the proposed project. In addition, because intensity of land management could increase, and could include development of the lands, the impacts of this alternative from changes in land use would also be the same as the proposed project. Therefore, the impacts of the performance-based regulated ratemaking (given the above assumptions) would be the same as the proposed project.

6.14 POTENTIAL FOR THE ALTERNATIVES TO RESULT IN MARKET POWER

6.14.1 MARKET POWER POTENTIAL

Market power is the ability to influence market prices solely through the operational decisions of a single owner. An analysis of market power was prepared and is included in Appendix C to this EIR. This sensitivity analysis tested the amount of hydroelectric generation assets that a new owner would have to own (either alone or in combination with varying amounts of thermal generating capacity) for the new owner to have the capability to affect market prices. The potential environmental effects of such market power exercise are explored in Section 4.14, Air Quality, of this EIR. The market power analysis indicates that strategies to exercise market power probably

would not have a negative effect on stream flows. The market power analysis in Appendix C, and the analysis of its environmental impacts, provide information that can be used in the decision-making process for the project to ensure that new owners of hydroelectric facilities do not have the requisite portfolio of generation assets to readily and detrimentally influence energy market prices.

Market power can be exerted in several different ways. The owner could shift certain hydroelectric facilities' generation away from the peak load hours, generating less than would be optimal under fully competitive conditions. The desired effect is to raise the price proportionately more than the reduction in generation from the owner's portfolio. A subtle form which could be difficult to detect would involve reducing generation during the "shoulder peak" hours when loads and prices are at intermediate levels, but prices still can be substantially influenced by changes in available generation resources. Hydrogeneration during hours when less than peak capacity would be used can be shifted to lower load periods through several less detectable means. These include:

1. Increasing off peak generation or fish flow releases to reduce the available amount of energy during the shoulder peak hours;
2. Using restricted ramping rates to extend the period over which output increases and decreases must occur; and
3. Maintaining higher reservoir levels and limiting reservoir fluctuations through the summer high-load period.

All of these actions can be "hidden" through various agreements, some of which can become enforceable against any ISO action by inclusion in FERC license requirements. The first two actions can lead to higher instream flows with reduced hourly and daily fluctuations. The second can benefit reservoir and stream-related recreation. The owner also could do the same with its thermal generation units. A form of this strategy was performed effectively in the English power market[8]. A third approach would be to withhold hydroelectric generating capacity from the ancillary services market, which could drive up prices in both the ancillary services and energy markets due to the linkage between the two. Withholding capacity would bring more higher-priced alternative generation sources on line and elevate the market-clearing price paid to the single owner's thermal generation facility (or facilities).

Nevertheless, at least two caveats must be recognized. First, the number of hours in which market power can be exercised is limited and will vary with hydrological conditions and summer weather conditions. Second, after sufficient new electrical generation sources have come on line, the ability to exercise market power would decline (so long as the rate of capacity additions exceeds the rate of load growth).

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8 Catherine D. Wolfram, "Strategic Bidding in a Mult-Unit Auction: An Empirical Analysis of Bids to Supply Electricity in England and Wales" (paper presented at the Electricity Industry Restructuring: Second Annual Research Conference, Berkeley, California, March 14 1997).

It is assumed that an unregulated owner of the hydroelectric facilities would not observe the non-binding agreements that restrict the operations, but instead would operate in a manner that maximizes power generation revenues, consistent with the PowerMax Scenario.

6.14.2 HYDROLOGICAL AND UTILITY SYSTEM MODELING

To support the analysis contained in this EIR, hydrological and utility system modeling was performed to identify the reasonably foreseeable changes in hydropower operations that might occur with the divestiture of the Pacific Gas and Electric Company hydropower facilities. The modeling considered changes in hydropower operations that would be driven by the differing management incentives associated with changes in ownership, including exercise of market power. The modeling, described in greater detail in Appendix C, examined three different strategies for exercising market power: (1) withholding hydroelectric generation from the energy market, (2) withholding thermal generation from the energy market, and (3) withholding hydroelectric capacity from the ancillary services market.

The results indicate that under a range of conditions, a single owner with a portfolio of thermal plants in California could use those resources differently than might be the case in a competitive market to enhance portfolio profits through manipulation of market prices. In general, realistically achievable (in the real world) amounts of hydroelectric and/or thermal plant ownership can confer an ability to exercise market power. The potential for profitably exercising market power appears to vary greatly over different hydrologic conditions, seasons and individual hours, and other circumstances that combine and interact. The projected ability to exercise market power by driving up market prices also strongly depends on what amount of new generator market entry is assumed or expected for the future. The dependence of the ability to exercise market power on these variables suggests that in the real world it might be challenging to anticipate the occurrence and duration of conditions conducive to exercising market power. Since efforts to profitably exercise market power would affect the patterns of utilizing hydroelectric and thermal power plants, they could have environmental consequences. These consequences may be realized in significant changes in late summer reservoir levels beyond those projected under the PowerMax Scenario, increases in air emissions from thermal power plants used to replace withdrawn hydropower capacity, and reduced electrical system supply and/or reliability.

The modeling indicates that market power could also be exercised under the following alternatives if a hydroelectric plant owner also owned sufficient thermal power plant generating capacity:

- Alternative 2 (No Project B - Pacific Gas and Electric Company Unregulated)
- Alternative 3 (Proposed Settlement, Unregulated)
- Alternative 5 (Projects Bundled by River Basin)
- Alternative 6 (Individual Bundles)

6.14.3 ALTERNATIVE 1 (NO PROJECT A: PACIFIC GAS AND ELECTRIC COMPANY REGULATED)

For this alternative, market value of the hydroelectric assets is established, but Pacific Gas and Electric Company does not divest the assets. Operation of the hydroelectric facilities would continue to be reviewed by the CPUC to assure that the hydroelectric assets are operated and managed by Pacific Gas and Electric Company in the public interest. It is assumed that the electricity generated by the hydroelectric facilities would be bid in the Power Exchange in a manner that would minimize power costs to ratepayers in the context of environmentally responsible operation of the hydroelectric facilities.

Because Pacific Gas and Electric Company generation would continue to be regulated, it is assumed the Company would continue to observe all of its present voluntary, non-binding agreements and management practices, as well as interim agreements made in anticipation of FERC relicensing. Therefore operation of the hydroelectric facilities would be largely unchanged from the baseline.

If, however, regulators conclude that abiding by the non-binding agreements is costing ratepayers significant sums, they could order Pacific Gas and Electric Company to operate the hydroelectric facilities more aggressively. For example, if regulators concluded that a non-binding agreement to maintain a particular reservoir level benefits few but costs ratepayers millions, they could order Pacific Gas and Electric Company to break the non-binding agreement. Regulators might be motivated to do so if natural gas prices reached unprecedented heights or if generation capacity became extremely valuable.

6.14.4 ALTERNATIVE 2 (NO PROJECT B: PACIFIC GAS AND ELECTRIC COMPANY UNREGULATED)

If Pacific Gas and Electric Company or an unregulated affiliate, owned and operated hydroelectric facilities, and Pacific Gas and Electric Corporation also continued to own and operate the 2,160 MW Diablo Canyon Nuclear Generating Station and the (under construction) 1,079 MW Los Palomas combined-cycle plant, then it is assumed that Pacific Gas and Electric Corporation would have an opportunity to exert market power, and thereby influence market prices to its benefit.

If an unregulated affiliate of Pacific Gas and Electric Company owned and operated hydroelectric facilities (or another single owner acquires the entire hydropower system), and also owns significant amounts of thermal generation in Northern California,[9] then all future revenues for these

9 The scenario discussed here includes one in which Pacific Gas and Electric Corporation could be able to dispose of the hydropower assets however it wishes once the assets are market valued, under the interpretation of PUC Section 377 argued by Pacific Gas and Electric Company in this proceeding. PG&E could transfer these assets to an unregulated affiliate, such as Pacific Gas and Electric National Energy Generation (NEG). The assets would be used to maximize the profits of the parent company, Pacific Gas and Electric Corporation. Pacific Gas and Electric Corporation affiliates currently own and operate the 2,160 MW Diablo Canyon Nuclear Generating Station and are constructing the 1,079 MW Los Palomas combined-cycle plant. Other current owners of thermal generation that could fall into this category include Southern Energy, Duke Energy, and Calpine.

generation assets would come entirely from the market at the end of the transition period. Thus, this single owner would be trying to optimally recover its costs and profits from its entire generation portfolio in Northern California. It now would have an incentive to influence market prices to its benefit.

Due to the complexity of this type of analysis, modeling was limited in comparison to the basic cases analyzed and discussed in Chapter 3. The analysis was restricted in two ways. First, only four yearly sets of hydrologic conditions were considered, based on historic water conditions in "hydro years" 1976 (dry), 1977 (critically dry), 1979 (average), and 1998 (very wet), rather than the full 24 years from 1975 to 1998. These years capture the range of conditions and allow an assessment of the potential range of impacts. Second, the intermonth scheduling for the PowerMax Scenario was used as the basis of the analysis, rather than developing a new schedule. The complexity of developing the appropriate economic signals on this time scale for a profit-maximizing portfolio owner versus a least-cost portfolio manager or competitive market outcome made implementing the intermonthly scheduling difficult. However, this modeling would only emphasize the findings from the smaller-scale modeling done here. Finally, this analysis did not analyze how the Helms pumped storage facility could be used to exercise market power.

The modeling, described in greater detail in Appendix C, examined three different strategies for exercising market power: (1) withholding hydro generation from the energy market, (2) withholding thermal generation from the energy market, and (3) withholding hydro capacity from the ancillary services market.

Strategy (1) was modeled in a simple manner that emphasized the potential impacts. The hydroelectric power plants within the six basins with significant seasonal storage were baseloaded at a constant output, as shown in Figure 6-12. This is not to say that a single owner would necessarily operate these plants in this manner, but rather it is representative of the potential gains from coordinated portfolio operation.

The results indicate that under a range of conditions, a single owner with a portfolio of thermal plants in California could use those resources differently than might be the case in a competitive market to enhance portfolio profits through manipulation of market prices. In general, realistically achievable (in the real world) amounts of hydroelectric and/or thermal plant ownership can confer an ability to exercise market power. The potential for profitably exercising market power appears to vary greatly over different hydrologic conditions, seasons and individual hours, and other circumstances that combine and interact. The projected ability to exercise market power by driving up market prices also strongly depends on what amount of new generator market entry is assumed or expected for the future. The dependence of the ability to exercise market power on these variables suggests that in the real world it might be challenging to anticipate the occurrence and duration of conditions conducive to exercising market power. Since efforts to profitably exercise market power would affect the patterns of utilizing hydroelectric and thermal power plants,

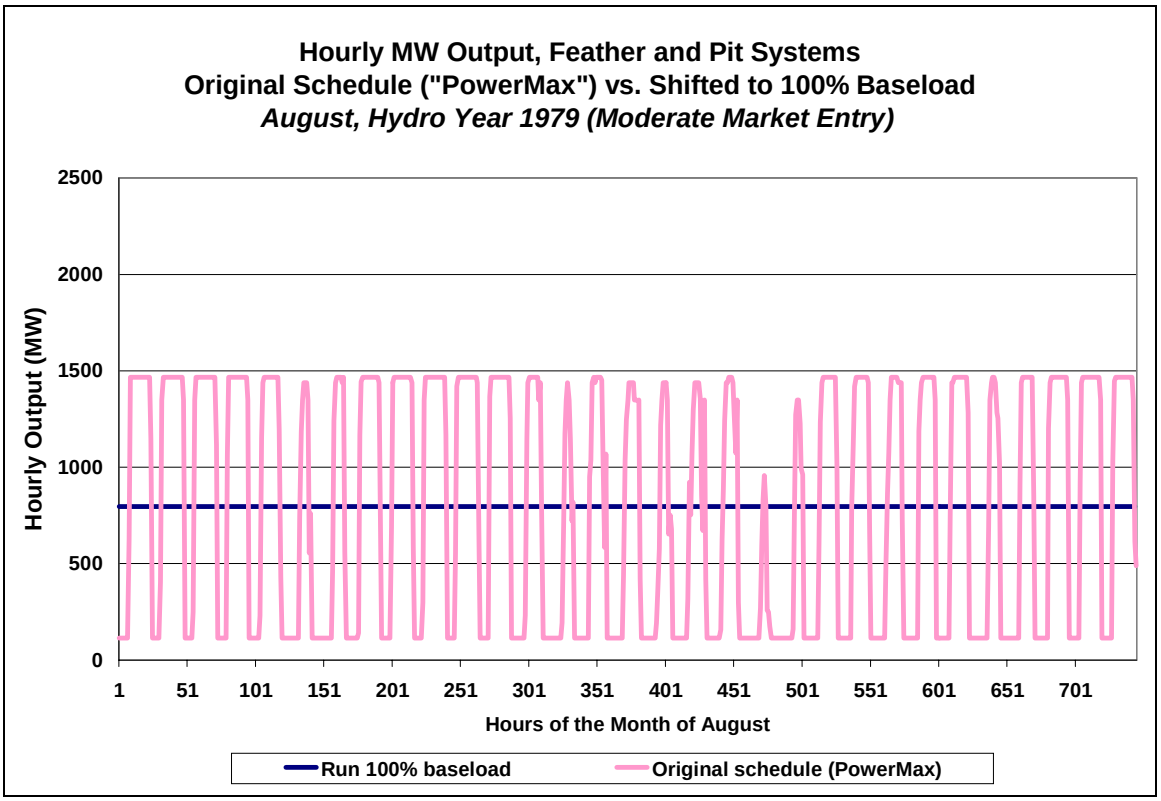

Figure 6-12 Example Hourly Output Comparing PowerMax and Single Owner Cases

they could have environmental consequences. These consequences may be realized in significant changes in late summer reservoir levels beyond those projected under the PowerMax Scenario, increases in air emissions from thermal power plants used to replace withdrawn hydropower capacity, and reduced electrical system supply and/or reliability.

Table 6-36 shows for which months under selected hydrological conditions the baseloaded hydro strategy could be profitable within certain ranges of joint thermal plant ownership. The two market entry scenarios shown for 2005 are (1) "Proposed," which includes about 11,000 MW of power plants under construction, approved, or in application for siting at the California Energy Commission, and (2) "Moderate" which defers about 5,600 MW that would otherwise be coming on-line in 2005 under the "Proposed" Scenario[10]. The ability to exercise market power in this manner is just as dependent on the level of power plant development as the hydrological conditions. Nevertheless, market power can be exerted under this range of hydrological conditions given a sufficient portfolio and a lower level of generation additions.

10 This analysis is described in greater detail in Appendix C, Section 6.3.

Table 6-36 Conditions Under Which Ownership of Realistic Amounts of Thermal Capacity Made Month-Long "Baseload" Hydro Shifting Pay Off

Hydro Year and Market Entry Scenario	Hydro Portfolio (1)	Months in which the "Breakeven" On-Peak Thermal Capacity is in the Following MW Ranges	
		<1500 MW	<4000 MW
1976, Proposed	1		May
	2		March, May
	4		January, March, May
	6		March, May
1976, Moderate	1		
	2		
	4		
	6		
1977, Proposed	1		
	2		
	4	August	August
	6	August	August
1977, Moderate	1		July, August
	2		July, August
	4		July, August
	6		July, August
1979, Proposed	1		March
	2		March
	4		March, April
	6		March, April
1979, Moderate	1	August	May, August
	2	August	August
	4	August	August
	6	August	August
1998, Proposed	1		
	2		
	4		April
	6		April
1998, Moderate	1		June
	2		June
	4		June
	6		June

Note: (1) Hydro portfolios: 1 = Feather, 2 = Feather + Pit, 4 = #2 plus Crane/Kerckhoff and Mokelumne, 6 = #4 plus S. Yuba and Stanislaus. (Portfolios 3 and 5 produced intermediate results.)

Strategy (2) involves the withholding of thermal generation to increase the market-clearing price (MCP). This could pay off if the owner has sufficient generation still in the market, including hydrogeneration, to benefit from the increased MCP. The strategy pays of if this remaining generation obtains an income increase outweighing the income decrease directly resulting from withholding generation. A wide range of amounts and types of thermal capacity could be considered as candidates for such generation withholding, over a wide range of conditions. Gas-fired cycling units that run mostly during peak and shoulder peak hours at narrow profit margins may be the best candidates. This initial investigation simulated the impact of a substantial amount of gas-fired capacity being held off-line for an entire month at a time, accounting for about 2,200 MW overall. Such a screening test helps to identify conditions under which a withholding strategy is especially promising. Actual withholding strategies would likely be more refined to increase chances for success, such as by focusing on a narrower set of hours or withholding only a portion of a plant's output. The EIR preparers, therefore, also analyzed a more targeted strategy, where a larger thermal owner withheld from one percent to ten percent of its thermal generating capacity

during critical periods to exercise market power. These more limited strategies had limited impacts on air quality, but could significantly reduce electrical system supply and/or reliability.

Strategy (3) was modeled by withholding all hydroelectric generation capacity from the ancillary services (A/S) regulation market in order to induce higher prices in both the energy and A/S markets. This withholding should increase the market price for regulation services, thus increasing the opportunity price for regulation, which in turn is reflected in increased energy bids (and prices). These higher energy and A/S prices will enable other units owned by the same supplier to recoup and even surpass the revenues lost due to the hydroelectric generation portfolio not participating in the regulation market.

The analysis focused on the month of August 2005, with 1979 (average) hydroelectric generation conditions with proposed generator market entry. The analysis assumes that a single owner controls the bidding strategy for a hydroelectric generation portfolio consisting of the Feather River system, and compares two cases—this portfolio's participation versus non-participation in the ancillary service market for regulation. The analysis showed that for the first half of the month, a portfolio owner with less than 5,000 MW would find this strategy profitable.

Whether this strategy has a potential environmental impact is an empirical question, however. The strategy assumes that the withheld hydro capacity is bid into the PX energy market instead, so that the hydroelectric generation units will operate to follow daily load nevertheless. The question is whether operating to meet regulation or other A/S demands is significantly different from meeting energy loads.

Figure 6-13 compares the powerhouse flows on the North Fork Feather River for the most profitable day in the series analyzed. The patterns appear to be quite similar, with participation in the A/S regulation market leading to ramping up about one hour earlier, and more hour-to-hour variation in output. The actual difference is probably overemphasized by the "coarser" detail required in modeling a complex power system versus real operations.

The preceding cases illustrate opportunities for exercising market power that may exist through strategic utilization of the interaction of the multi-commodity markets for energy and ancillary services. If these opportunities are indeed highest during off-peak days, while hydro dispatch shifting described earlier provides additional market power opportunities especially during peak load conditions, there may be an attractive set of profitable, integrated market power strategies combining the two approaches. While the A/S market strategy alone produced a small change in the simulated pattern of hydroelectric generation, the combined strategy could have a larger impact.

6.14.5 Alternative 3 (Proposed Settlement Agreement)

Pacific Gas and Electric Company jointly submitted a "Settlement Agreement for Valuation and Disposition of Hydroelectric Assets" with several parties in the proceeding on August 9, 2000.

The proposed agreement calls for transferring the hydroelectric generation-related assets to a new Pacific Gas and Electric Corporation affiliate, CalHydro, for a 40-year term. The generation assets would be operated under a performance-base rate (PBR) mechanism that shares any profits or losses beyond the specified capital recovery amount 90 percent to ratepayers and ten percent to shareholders for the first 35 years. Pacific Gas and Electric Company may sell the assets to an unaffiliated entity after ten years. A target level on capital additions and operating expenditures is set initially and then adjusted to reflect actual practices. CalHydro will sign a "market-power mitigation" agreement with the ISO similar to that formulated last year[11].

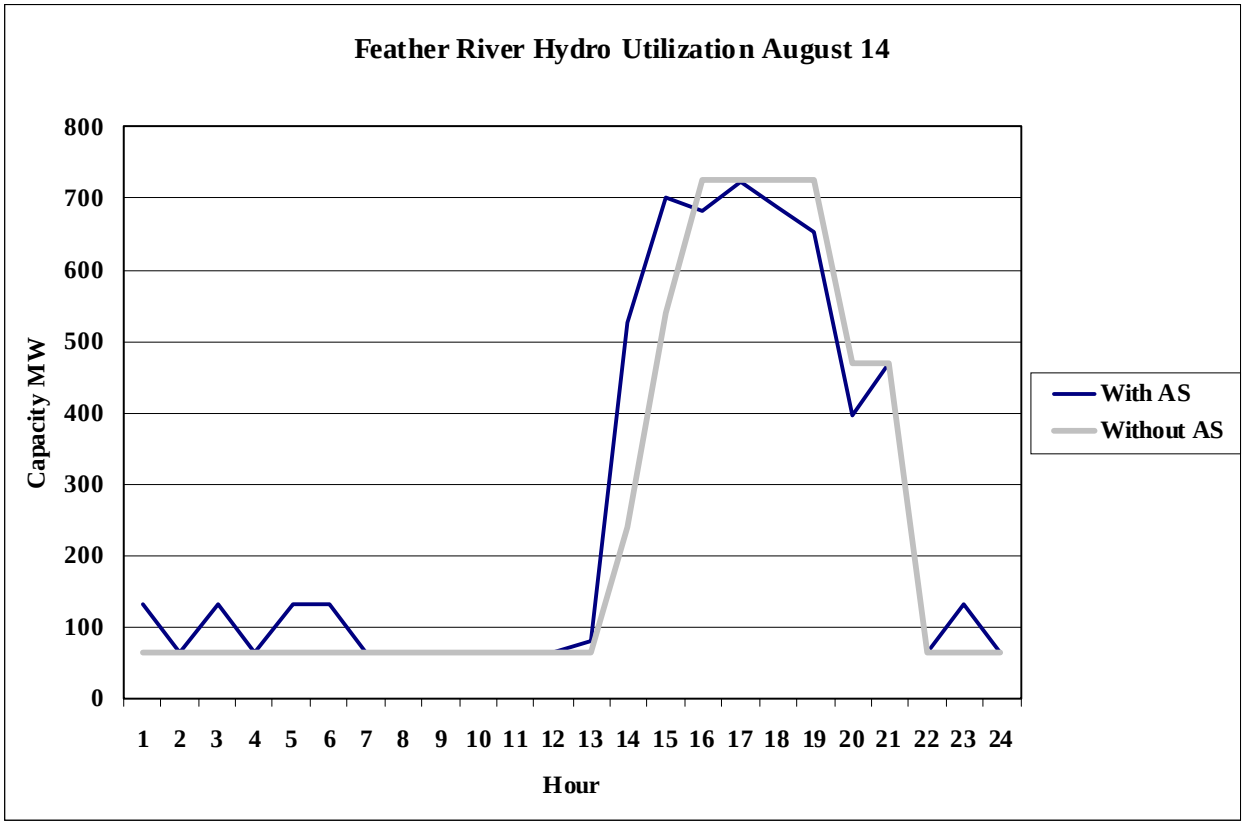

Figure 6-13 Comparison of NF Feather River Hydro Output with and without Participation in the Ancillary Services Regulation Market.

11 The Market Surveillance Committee (MSC) of the ISO has cautioned the Commission that the agreement is inadequate to mitigate market power concerns, however, so we have examined two scenarios for the Proposed Settlement: one without market power, and one with market power. See`An analysis of the June 2000 price Spikes in the California ISO's Energy and Ancillary Services Markets,' Frank A. Wolak, Robert Nordhaus, Carl Shapiro, members of the Market Surveillance Committee (MSC) of the California Independent System Operator, September 6, 2000.

From the perspective of conducting the environmental analysis, two key aspects are addressed. First, water supply arrangements and many non-binding agreements are explicitly continued. This is consistent with the assumptions in the No Project Case discussed previously. Second, the agreement calls for establishing a $70 million fund to purchase "bridging" flows at specific power plants. These are substantially increased minimum flows that continue until the expected relicensing date for those facilities. CalHydro would be compensated for the lost power generation revenues using a specified methodology.

Performance-based ratemaking attempts to achieve pricing and cost recovery that mimics a competitive market while achieving the broader public policy goals of the Commission under its statutory and Constitutional mandates. In the absence of opportunities to increase revenues through the exercise of market power, we expect CalHydro to operate similarly to the regulated utility described in the No Project alternative. The possible exception to this is if the market-power mitigation agreement is not sufficiently binding, and CalHydro can operate the hydro assets to increase the profitability of Pacific Gas and Electric Corporation's other generating assets. Due to concerns about the adequacy of the 'market power mitigation' agreement with the ISO, however, this alternative could result in changes in operations consistent with the results of the initial Market Power Analysis described in Appendix C, Section 6.3.

The EIR assumes that all of the minimum flows can be purchased simply because there are no criteria for selecting which flows would be purchased if the funds are not sufficient. For this reason, this analysis probably overestimates the environmental benefits of this alternative. Without clear guidance on which stream flows would receive the highest priorities, a more extensive analysis that uses the proposed valuation methodology is meaningless in assessing environmental impacts.

6.14.6 Alternative 5 (Bundled by River Basin)

For this alternative case, it is assumed that each owner would own only one bundle and no other generation facilities. The owners would not be able to exert market power to influence market prices and would be "price takers" maximizing revenue by selling power and ancillary services into the high priced period of the market to the extent feasible. However to the extent that multiple bundles are owned by a single party, concerns about market power would apply as described above and in Appendix C, Section 6.3. The 16-bundle alternative differs from the 20-bundle grouping proposed for the project as follows:

- Shasta Watershed Region: Pacific Gas and Electric Company Bundle 1 (Hat Creek 1 and 2 Project) would be combined with Bundle 2, (Pit 1, Pit 3,4 and 5, and McCloud-Pit Projects) to be a single bundle.
- DeSabla Watershed Region: Pacific Gas and Electric Company Bundles 5 (Hamilton Branch), 6 (Upper NFFR, Rock Creek Cresta, and Poe Projects), and 7 (Bucks Creek Project) would be a single bundle.

- Kings Crane – Helms Watershed Region: Pacific Gas and Electric Company Bundle 16 (Crane Valley Project) would be merged with Bundle 17 (Kerckhoff 1 and 2) to be a single bundle.

- The effects on hydroelectric operations of changing from 16 river basin bundle owners wherein each owns all the Pacific Gas and Electric Company facilities on a single river system to 20 new owners wherein each owns one of the 20 bundles as proposed by Pacific Gas and Electric Company in their Application would be small[12]. All owners in this situation are assumed to be price takers[13]. A new operating agreement would be needed only on the North Fork Feather River between the Bucks Creek Project, Bundle 7, and Bundle 6 consisting of the Upper North Fork, Rock Creek-Cresta, and Poe projects.

6.14.7 Alternative 6 (Individual Bundles)

The effects on hydroelectric operations of separating the hydroelectric facilities into 29 individual bundles, could be substantial[14]. The alternative for 29 bundles would require new inter-project operating agreements on the Pit River (Pacific Gas and Electric Company Bundle 2), the Feather River (Pacific Gas and Electric Company Bundles 6, 7 and 8), and the NF Kings River (Pacific Gas and Electric Company Bundle 18). For these cases each owner would own only one license bundle or unlicensed plant and no other generation facilities. The owners would not be able to exert market power to influence market prices and would be "price takers" maximizing revenue by selling power and ancillary services into the high priced period of the market to the extent feasible. However, to the extent that multiple bundles are owned by a single party, concerns about market power would apply as described above and in Appendix C, Section 6.3.

For the larger projects on the Pit, NF Feather and NF Kings rivers, effective participation in the ancillary market would require agreements that go beyond just requiring operating cooperation for efficient use of the water resources. To efficiently market ancillary services, business alliances that would be virtual partnerships would be needed for the plant groups identified by Pacific Gas and Electric Company as Bundles 2, 6, and 18. For example, the Poe Project could be operated as a run-of-river facility with no operating agreements. In that case, Poe would likely be able to market only energy as it would have no control over the level or timing of generation. However, with operational coordination and business alliances with the upstream owners, ancillary services could be optimally marketed as a unified system including Poe with the upstream plants to maximize the economic benefits for all the owners and perhaps the ratepayers as well. For Pacific Gas and Electric Company Bundles 2, 6, and 18, the whole is definitely worth more than the sum of its parts.

The small unlicensed Lime Saddle and Coal Canyon projects included by Pacific Gas and Electric Company in Bundle 8 would require a complex operating agreement between the two projects to

12 The analysis of this bundling alternative is discussed in detail in Appendix C, Section 7.

13 There should be no difference between five or 16 owners to the extent that owners of any one administrative watershed unit also would be price takers who cannot influence overall market prices significantly.

14 The analysis of this bundling alternative is discussed in detail in Appendix C, Section 7.

ensure fulfillment of the existing water contracts. Coal Canyon is 100 percent dependent on Lime Saddle for water. There is no apparent benefit to be gained by dividing this small system into its two components. However, there is no operational need for them to remain bundled with the licensed DeSabla-Centerville Project as proposed by Pacific Gas and Electric Company. To minimize potential conflicts and adverse impacts, Lime Saddle and Coal Canyon should be considered as one package.

6.15 COMPARISON OF IMPACTS OF THE ALTERNATIVES

Based on the narrative discussion provided in Sections 6.12 and 6.13, the impacts of the alternatives and focused alternatives can be compared. Table 6-37 provides a comparison of the post-mitigation project impacts with those of each of the alternatives to the project, assuming that feasible mitigation measures would be implemented for each alternative. Table 6-38 provides a comparison table for the focused alternatives.

The following symbols are used in the tables:

S/U = Significant and unavoidable;
S/M = Significant, but may be reduced to less than significant with inclusion of mitigation measures;
L/S = Less than significant;
L/S/M = Less than significant, but supplemental mitigation has been suggested;
0 = No impact would occur;
B/N = Impact would be beneficial or neutral; and
UNK = Unknown level of impact.

The impacts of many of the alternatives are generally similar to those of the project. However, in some instances, because of the assumptions used to define the alternative, no impact would result. For example, changes in land management or development (for the project) could result in significant impacts to cultural resources. If no change in land management or development would occur (for the alternative), then no impacts to cultural resources would result. For some of the alternatives, it is assumed that a change in ownership would improve the condition of the lands (e.g., by ending existing timber harvest, grazing and mining activities), which could result in a beneficial or neutral impact to cultural resources (because existing activities could result in disturbance to cultural resources, and under the alternative, the potential for disturbance would be eliminated). For some of the alternatives, the impacts vary, depending on a variety of factors (e.g., conservation easements or transfer of the lands to a public agency), such that the conclusions may differ, depending on the assumptions. In those instances, if one assumption may lead to a significant impact, even if the other assumptions are deemed less than significant, as a conservative assumption, the summary table includes a significant impact.

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
1. Land Use	**Impact 1-1:** New uses on Project Lands could be substantially incompatible with existing and planned adjacent uses.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	UNK	O
2. Forestry	**Impact 2-1:** The project could result in a reduction in regional forest inventories.	Less than Significant	Less than Significant	0	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (E)	L/S (L)	L/S (E)	L/S (L)
	Impact 2-2: The project may result in a decrease in productive timber lands.	Less than Significant	Less than Significant	0	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (E)	L/S (L)	L/S (E)	L/S (L)
3. Hydrology and Water Quality	**Impact 3-1:** The project could increase flood risk as a result of decreases in available reservoir storage due to changes in operations.	Significant	Less than Significant	0	S/M (E)	S/M (L)	S/M (L)	S/M (L)	S/M (G)	S/M (E)	UNK	S/M (L)
	Impact 3-2: The project could alter geomorphology and reduce channel stability as a result of changes in high flows.	Significant	Less than Significant	0	S/M (E)	S/M (L)	L/S (L)	S/M (E)	S/M (E)	S/M (E)	UNK	S/M (L)
	Impact 3-3: The project could alter stream flows as a result of changes to the current program of cloud seeding.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	S/M (E)	S/U (G)	S/M (E)
	Impact 3-4: The project could impair the development of long term and short term stream flow volume forecasts and flood flow forecasts as a result of the elimination or substantial reduction in the quantity or quality of cooperative gauging programs (including snow courses, and stream flow, lake level, and precipitation gauging).	Significant	Less than Significant	0	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/U (G)	O

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 3-5: The project could reduce instream flows in bypass reaches to less than baseline flows, which could result in a significant impact on water quality, inconsistent with the Basin Plan.	Significant	Less than Significant	0	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	UNK	S/M (L)
	Impact 3-6: Project changes in reservoir operations and management could result in a significant impact on water quality inconsistent with the Basin Plan.	Significant	Less than Significant	0	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	S/M (L)	S/M (L)
	Impact 3-7: Project changes in timber harvest practices or extent could result in a significant impact on water quality inconsistent with the Basin Plan.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 3-8: Construction activities associated with development of Project Lands would involve earthmoving activities that could affect receiving water quality through increased sedimentation.	Less than Significant	Less than Significant	0	L/S (E)	0	0	L/S (E)	L/S (E)	0	L/S (E)	O
	Impact 3-9: The project could result in land development that could affect water quality through increases in urban pollutants in stormwater runoff and septic system use.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 3-10: The project could result in changes in reservoir sediment management practices, which could result in a significant impact on water quality, inconsistent with the Basin Plan.	Significant	Less than Significant	0	S/M (E)	S/M (E)	0	S/M (E)	S/M (E)	S/M (E)	UNK	O

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
4. Fisheries and Aquatic Biology	**Impact 4.1:** Instream flow reductions within natural channels as a result of a new owner(s) operation of PG&E Company's hydroelectric facility assets could adversely affect fishery and aquatic resources, especially special status species, through habitat or water quality degradation.	Significant	Significant	0	S/U (E)	S/U (L)	S/U (L)	S/U (E)	S/U (E)	S/U (E)	UNK	S/U (L)
	Impact 4.2: Changes in the timing, magnitude, duration and frequency of reservoir levels as a result of new owner operation of Pacific Gas & Electric Company's hydroelectric facility assets could adversely affect fishery and aquatic resources, especially special-status species, through habitat or water quality degradation.	Significant	Less than Significant	0	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (L)
5. Terrestrial Biology	**Impact 5-1:** The project may result in adverse effects to wildlife and plant species listed and proposed for listing under the Federal Endangered Species Act and/or the California Endangered Species Act.	Significant	Less than Significant	0	S/M (E)	B/N	B/N	S/M (E)	S/M (E)	B/N	S/M (E)	B/N
	Impact 5-2: The project may result in adverse effects to non-listed special status wildlife and plant species (i.e., species of concern, BLM, and USFS sensitive) and associated habitats.	Significant	Less than Significant	0	S/M (E)	B/N	B/N	S/M (E)	S/M (E)	B/N	S/M (E)	B/N
	Impact 5-3: The project could result in habitat degradation as measured by potential habitat fragmentation and disruption to migration corridors.	Significant	Less than Significant	0	S/M (E)	B/N	B/N	S/M (E)	S/M (E)	B/N	S/M (E)	B/N

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 5-4: The project may result in adverse effects to sensitive native plant communities, including wetlands and riparian corridors.	Significant	Less than Significant	0	S/M (E)	B/N	B/N	S/M (E)	S/M (E)	B/N	S/M (E)	B/N
	Impact 5-5: Changes in hydroelectric operations could result in adverse effects to non-fisheries biotic resources including riparian and lacustrine vegetation communities.	Significant	Less than Significant	0	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	S/M (L)	S/M (L)
6. Recreation	**Impact 6-1:** The project would substantially diminish existing water-based recreational opportunities or the condition of water-based recreational facilities.	Significant	Less than Significant	0	S/M (E)	S/M (L)	L/S (L)	S/M (E)	S/M (E)	S/M (L)	UNK	L/S (L)
	Impact 6-2: The project would substantially diminish existing land-based recreational opportunities or the condition of land-based recreational facilities.	Significant	Less than Significant	0	S/M (E)	S/M (L)	L/S (L)	S/M (E)	S/M (E)	S/M (L)	S/M (E)	L/S (L)
	Impact 6-3: The project would cause reduced use of affected recreation areas, resulting in substantial adverse local economic effects.	Significant	Less than Significant	0	S/M (E)	S/M (L)	L/S (L)	S/M (E)	S/M (E)	S/M (L)	UNK	L/S (L)
7. Cultural Resources	**Impact 7-1**: The project could result in the damage or destruction of known and/or unknown cultural resources.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 7-2: The project could result in constraints on Native American access to culturally or historically significant lands or landforms.	Significant	Less than Significant	0	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (E)	S/M (L)	S/M (E)	L/S (L)

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 7-3: Changes in hydroelectric operations and reservoir management could result in damage or destruction of cultural resources.	Significant	Less than Significant	0	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (L)
8. Agriculture	**Impact 8-1:** Loss of grazing opportunities on Project Lands could result in increased local grazing pressure on remaining leases.	Less than Significant	Less than Significant	0	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (E)	L/S (L)	L/S (E)	L/S (L)
	Impact 8-2: Non-renewal of a water delivery agreement after its expiration date may affect agricultural productivity.	Significant	Less than Significant	0	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	UNK	S/M (L)
	Impact 8-3: The project could result in changes in timing and availability of water which could impact downstream agricultural productivity.	Significant	Less than Significant	0	S/M (E)	S/M (G)	S/M (G)	S/M (E)	S/M (G)	S/M (E)	S/U (G)	S/M (E)
9. Hazards & Hazardous Materials	**Impact 9-1:** The project could involve construction modifications to hydroelectric facilities that could expose the public or workers to contaminated soil and/or groundwater or hazardous building materials.	Significant	Less than Significant	0	S/M (L)	L/S (L)	L/S (L)	S/M (E)	S/M (E)	S/M (E)	L/S (G)	S/U (E)
	Impact 9-2: The project could result in land development that could expose the public or workers to contaminated soil and/or groundwater.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 9-3: The project would not substantially increase the transport, storage, or use of hazardous materials at hydroelectric facilities and new land that could be developed.	Less than Significant	Less than Significant	0	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (E)	L/S (L)	L/S (E)	L/S (L)

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 9-4: The project could increase risks to workers and the public should reservoir levels, water releases, and/or facility maintenance be managed improperly.	Significant	Less than Significant	0	S/M (E)	L/S (L)	L/S (L)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)
	Impact 9-5: The project could increase risks to public safety from fire hazards should operating practices or land management change.	Significant	Less than Significant	0	S/M (E)	L/S (L)	L/S (L)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)
10. Population, Employment, and Housing	**Impact 10-1:** Development of Project Lands would induce population growth.	Less than Significant	Less than Significant	0	L/S (E)	0	0	L/S (E)	L/S (E)	0	L/S (E)	O
11. Public Services and Utilities	**Impact 11-1**: The Project could reduce the supply and/or reliability of electricity generated by hydroelectric power. **PowerMax / WaterMax**	Less than Significant	Less than Significant	0	L/S (E)	L/S (G)	L/S (G)	L/S (L)	L/S (G)	L/S (E)	UNK	L/S (G)
	Impact 11-1: With Market Power	Significant	Less than Significant	0	S/M (G)	S/M (G)	S/M (G)	S/M (E)	S/M (E)	S/M (E)	0	S/M (G)
	Impact 11-2: The project could significantly increase electricity demand should development occur on Project Lands.	Less than Significant	Less than Significant	0	L/S (E)	0	0	L/S (E)	L/S (E)	0	L/S (E)	O
	Impact 11-3: The project could result in the loss of consumptive water to existing users.	Significant	Less than Significant	0	S/M (E)	L/S (L)	L/S (L)	S/M (E)	S/M (E)	S/M (E)	UNK	S/M (E)
	Impact 11-4: The project could increase water demand through land use intensification.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 11-5: The project could result in substantial adverse impacts on local public services and utilities providers.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 11-6: The project could result in reduced telecommunications capacity among the hydroelectric power facilities between facilities and the ISO, and with public health and safety officials in the event of an emergency. In addition, it could result in the construction of redundant telecommunications facilities.	Significant	Less than Significant	0	0	0	0	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (E)
12. Transportation	**Impact 12-1**: The project could cause increased vehicular trips resulting from change in land uses and/or new employment opportunities.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 12-2: The project could restrict access across Project Lands, resulting in the potential disruption of existing travel patterns.	Significant	Less than Significant	0	S/M (E)	S/M (L)	L/S (L)	S/M (E)	S/M (E)	L/S (L)	S/M (E)	L/S (L)
13. Noise	**Impact 13-1:** Change in operations of the hydroelectric powerhouses would not result in substantial increases in dBA levels above the existing ambient noise conditions.	Less than Significant	Less than Significant	0	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (E)	L/S (E)	L/S (L)	L/S (L)
	Impact 13-2: Potential land use changes associated with the Watershed Lands would contribute substantial noise levels above the existing ambient noise conditions.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
14. Air Quality	**Impact 14-1:** Changes in hydroelectric operations could affect operations at other power plants. **PowerMax / WaterMax**	Less than Significant	Less than Significant	0	L/S (E)	L/S (E)	L/S (E)	L/S (E)	L/S (E)	L/S (E)	UNK	L/S (E)
	Impact 14-1: With Market Power	Significant	Less than Significant	0	S/M (E)	S/U (G)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	0	S/M (E)

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 14-2: The project land development could contribute substantial emissions to the local air basin, which could cause the degradation of the local air quality conditions or would contribute to a new or existing violation of the National or State Ambient Air Quality Standards.	Significant	Significant	0	S/U (G)	0	0	S/U (E)	S/U (E)	0	S/U (E)	O
15. Aesthetics	**Impact 15-1:** The project could substantially degrade visual character due to intensification of land development.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 15-2: The project could degrade visual character due to operational changes in reservoir levels, resulting in substantial drawdown of reservoirs during the peak recreational season (Memorial Day to Labor Day)	Significant	Less than Significant	0	S/M (E)	S/M (L)	L/S	S/M (E)	S/M (E)	S/M (E)	UNK	L/S (L)
16. Geology, Soils and Minerals	**Impact 16-1:** The project could result in land development that could be subject to surface fault rupture.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 16-2: The project could result in land development that could increase the number of people and amount of property exposed to hazards associated with strong ground shaking on active faults.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 16-3: The project could result in land development that could result in increased soil erosion or mass wasting during construction or occupancy.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 16-4: The project could result in timber harvesting operations that could result in increased soil erosion or mass wasting.	Less than Significant	Less than Significant	0	L/S (E)	0	0	L/S (E)	L/S (E)	0	L/S (E)	O
	Impact 16-5: The project could result in mining operations that could result in increased soil erosion or mass wasting.	Less than Significant	Less than Significant	0	L/S (E)	0	0	L/S (E)	L/S (E)	0	L/S (E)	O
	Impact 16-6: The project could result in land development on or within soils in which shrink-swell (expansion) potential, slope, or shallow depth to rock could damage structures and/or create unstable rock or soil conditions.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 16-7: The project could result in a change in hydrological operations that could affect existing informal erosion control plans, which could result in new or exacerbated erosion problems.	Significant	Less than Significant	0	S/M (E)	L/S (L)	L/S (L)	S/M (E)	S/M (E)	S/M (E)	S/M (E)	S/M (L)
	Impact 16-8: The project could result in development that could limit availability of mineral resources classified as MRZ-2 by the State Geologist or important mineral lands recognized in local land use planning, or the project could cause changes in land use or hydrologic operations which could result in termination of existing mining lease agreements, which would reduce availability of mineral resources.	Significant	Less than Significant	0	S/M (E)	S/U (G)	S/U (G)	S/M (E)	S/M (E)	S/U (L)	S/M (E)	S/U (G)

Table 6-37 Comparison of the Impacts of the Alternatives

Resource	Impact Statement	Project Impact		Alt. 1	Alt. 2*	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8**	Alt. 9
		Before Mitigation	After Mitigation									
	Impact 16-9: The project could result in land development in areas where significant mineral resources may exist but have not yet been identified, causing the loss of availability of these mineral resources.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	0	S/M (E)	O
	Impact 16-10: The project could result in a change in hydrological operations and maintenance practices, which could result in new or exacerbated erosion or slope instability problems.	Significant	Less than Significant	0	S/M (E)	0	0	S/M (E)	S/M (E)	S/M (E)	S/M (G)	S/M (L)

Key to Symbols:

S/U = Significant and unavoidable

S/M = Significant, but may be reduced to less than significant with inclusion of mitigation measures

L/S = Less than significant

L/S/M = Less than significant, but supplemental mitigation has been suggested

0 = No impact would occur

B/N = Impact would be beneficial or neutral

UNK = Unknown level of impact

(G) = Impact would be greater (or less favorable) than the project

(L) = Impact would be less (or more favorable) than the project

(E) = Impact would be equal (or similar) to the project

* If, and only if, the legal theory espoused by Pacific Gas and Electric Company (that the market valuation of Pacific Gas and Electric Company's hydroelectric facilities would have the result of creating an unregulated status for those facilities without any further action from the CPUC) were to prove true, the significant impacts of this alternative would be unmitigated and, thus remain significant and unavoidable.

** This column indicates impact for facilities that would be decommissioned. The remaining hydroelectric plants would have impacts similar to the project.

Table 6-38 Comparison of the Impacts of the Focused Alternatives

Resource	Impact Statement	Project Impacts		F Alt 1	F Alt 2	F Alt 3	F Alt 4	F Alt 5	F Alt 6	F Alt 7
		Before Mitigation	After Mitigation							
1. Land Use	**Impact 1-1:** New uses on Project Lands could be substantially incompatible with existing and planned adjacent uses.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
2. Forestry	**Impact 2-1** The project could result in a reduction in regional forest inventories.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (L)	L/S (E)
	Impact 2-2 The project may result in a decrease in productive timber lands.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (L)	L/S (E)
3. Hydrology and Water Quality	**Impact 3-1:** The Project could increase flood risk as a result of decreases in available reservoir storage due to changes in operations.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
	Impact 3-2: The project could alter geomorphology and reduce channel stability as a result of changes in high flows.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)
	Impact 3-3: The project could alter stream flows as a result of changes to the current program of cloud seeding.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	S/M (E)
	Impact 3-4: The project could impair the development of long term and short term stream flow volume forecasts and flood flow forecasts as a result of the elimination or substantial reduction in the quantity or quality of cooperative gauging programs (including snow courses, and stream flow, lake level, and precipitation gauging).	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 3-5: The project could reduce instream flows in bypass reaches to less than baseline flows, which could result in a significant impact on water quality, inconsistent with the Basin Plan.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
	Impact 3-6: Project changes in reservoir operations and management could result in a significant impact on water quality inconsistent with the Basin Plan.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
	Impact 3-7: Project changes in timber harvest practices or extent could result in a significant impact on water quality inconsistent with the Basin Plan.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)

Table 6-38 Comparison of the Impacts of the Focused Alternatives

Resource	Impact Statement	Project Impacts		F Alt 1	F Alt 2	F Alt 3	F Alt 4	F Alt 5	F Alt 6	F Alt 7
		Before Mitigation	After Mitigation							
	Impact 3-8: Construction activities associated with development of Project Lands would involve earthmoving activities that could affect receiving water quality through increased sedimentation.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	0	L/S (E)	0	L/S (E)
	Impact 3-9: The project could result in land development that could affect water quality through increases in urban pollutants in stormwater runoff and septic system use.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 3-10: The project could result in changes in reservoir sediment management practices, which could result in a significant impact on water quality, inconsistent with the Basin Plan.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
4. Fisheries and Aquatic Biology	**Impact 4-1:** Instream flow reductions within natural channels as a result of a new owner(s) operation of PG&E Company's hydroelectric facility assets could adversely affect fishery and aquatic resources, especially special status species, through habitat or water quality degradation.	Significant	Significant	S/U (E)	S/ U (E)	S/M (L)	S/M (L)	S/ U (E)	S/M (L)	S/ U (E)
	Impact 4-2: Changes in the timing, magnitude, duration and frequency of reservoir levels as a result of new owner operation of Pacific Gas & Electric Company's hydroelectric facility assets could adversely affect fishery and aquatic resources, especially special-status species, through habitat or water quality degradation.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
5. Terrestrial Biology	**Impact 5-1:** The project may result in adverse effects to wildlife and plant species listed and proposed for listing under the Federal Endangered Species Act and/or the California Endangered Species Act.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	B/N	S/M (E)	B/N	S/M (E)
	Impact 5-2: The project may result in adverse effects to non-listed special status wildlife and plant species (i.e., species of concern, BLM, and USFS sensitive) and associated habitats.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	B/N	S/M (E)	B/N	S/M (E)
	Impact 5-3: The project could result in habitat degradation as measured by potential habitat fragmentation and disruption to migration corridors.	Significant	Less then Significant	S/M (E)	S/M (E)	S/M (L)	B/N	S/M (E)	B/N	S/M (E)

Table 6-38 Comparison of the Impacts of the Focused Alternatives

Resource	Impact Statement	Project Impacts		F Alt 1	F Alt 2	F Alt 3	F Alt 4	F Alt 5	F Alt 6	F Alt 7
		Before Mitigation	After Mitigation							
	Impact 5-4: The project may result in adverse effects to sensitive native plant communities, including wetlands and riparian corridors.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	B/N	S/M (E)	0	S/M (E)
	Impact 5-5: Changes in hydroelectric operations could result in adverse effects to non-fisheries biotic resources including riparian and lacustrine vegetation communities.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
6. Recreation	**Impact 6-1:** The project would substantially diminish existing water-based recreation opportunities or the condition of water-based recreational facilities.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)
	Impact 6-2: The project would substantially diminish existing land-based recreational opportunities or the condition of land-based recreational facilities.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	B/N	S/M (E)	0	S/M (E)
	Impact 6-3: The project would cause reduced use of affected recreation areas, resulting in substantial adverse local economic effects.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)
7. Cultural Resources	**Impact 7-1:** The project could result in the damage or destruction of known and/or unknown cultural resources.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	B/N	S/M (E)	0	S/M (E)
	Impact 7-2: The project could result in constraints on Native American access to culturally or historically significant lands or landforms.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)
	Impact 7-3: Changes in hydroelectric operations and reservoir management could result in damage or destruction of cultural resources.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
8. Agriculture	**Impact 8-1:** Loss of grazing opportunities on Project Lands could result in increased local grazing pressure on remaining leases.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (L)	L/S (E)
	Impact 8-2: Non-renewal of a water delivery agreement after its expiration date may affect agricultural productivity.	Significant	Less than Significant	S/M (E)	S/M (E)	S/U (L)	L/S (L)	S/M (E)	S/M (L)	S/M (E)
	Impact 8-3: The project could result in changes in timing and availability of water which could impact downstream agricultural productivity.	Significant	Less than Significant	S/M (E)	S/M (E)	L/S (L)	L/S (L)	L/S (E)	L/S (E)	L/S (E)
9. Hazards & Hazardous Materials	**Impact 9-1:** The project could involve construction modifications to hydroelectric facilities that could expose the public or workers to contaminated soil and/or groundwater or hazardous building materials.	Significant	Less than Significant	S/M (E)	S/M (E)	L/S (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)

Table 6-38 Comparison of the Impacts of the Focused Alternatives

Resource	Impact Statement	Project Impacts		F Alt 1	F Alt 2	F Alt 3	F Alt 4	F Alt 5	F Alt 6	F Alt 7
		Before Mitigation	After Mitigation							
	Impact 9-2: The project could result in land development that could expose the public or workers to contaminated soil and/or groundwater.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 9-3: The project would not substantially increase the transport, storage, or use of hazardous materials at hydroelectric facilities and new land that could be developed.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (L)	L/S (E)
	Impact 9-4: The project could increase risks to workers and the public should reservoir levels, water releases, and/or facility maintenance be managed improperly.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	S/M (E)
	Impact 9-5: The project could increase risks to public safety from fire hazards should operating practices or land management change.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (E)	S/M (E)	S/M (E)	S/M (E)
10. Population, Employment, and Housing	**Impact 10-1:** Development of Project Lands would induce population growth.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	0	L/S (E)	0	L/S (E)
11. Public Services and Utilities	**Impact 11-1**: The project could reduce the supply and/or reliability of electricity generated by hydroelectric power. **PowerMax / WaterMax**	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	L/S (G)	L/S (E)	L/S (G)	L/S (E)
	Impact 11-1: With Market Power	Significant	Less than Significant	S/M (G)	S/M (E)	S/M (L)	S/M (G)	S/M (E)	S/M (E)	S/M (E)
	Impact 11-2: The project could significantly increase electricity demand should development occur on Project Lands.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	0	L/S (E)	0	L/S (E)
	Impact 11-3: The project could result in the loss of consumptive water to existing users.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)
	Impact 11-4: The project could increase water demand through land use intensification.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 11-5: Implementation of the project could result in substantial adverse impacts on local public services and utilities providers.	Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	0	L/S (E)	0	L/S (E)

Table 6-38 Comparison of the Impacts of the Focused Alternatives

Resource	Impact Statement	Project Impacts		F Alt 1	F Alt 2	F Alt 3	F Alt 4	F Alt 5	F Alt 6	F Alt 7
		Before Mitigation	After Mitigation							
	Impact 11-6: The project could result in reduced telecommunications capacity among the hydroelectric power facilities between facilities and the ISO, and with public health and safety officials in the event of an emergency. In addition, it could result in the construction of redundant telecommunications facilities.	Significant	Less than Significant	L/S/M (E)	L/S/M (E)	L/S/M (L)	0	L/S/M (E)	0	L/S/M (E)
12. Transportation	**Impact 12-1:** The project could cause increased vehicular trips resulting from change in land uses and/or new employment opportunities.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 12-2: The project could restrict access across Project Lands resulting in the potential disruption of existing travel patterns.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)
13. Noise	**Impact 13-1:** Change in operations of the hydroelectric powerhouses would not result in substantial increases in dBA levels above the existing ambient noise conditions.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	L/S (L)	L/S (E)	L/S (L)	L/S (E)
	Impact 13-2: Potential land use changes associated with the Watershed Lands would contribute substantial noise levels above the existing ambient noise conditions.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	B/N	S/M (E)	0	S/M (E)
14. Air Quality	**Impact 14-1:** Changes in hydroelectric operations could affect operations at other power plants. **PowerMax / WaterMax**	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (E)	UNK	L/S (E)	L/S (E)	L/S (E)
	Impact 14-1: With Market Power	Significant	Less than Significant	S/M (G)	S/M (E)	S/M (L)	S/U (G)	S/M (E)	S/U (G)	S/M (E)
	Impact 14-2: The project land development could contribute substantial emissions to the local air basin, which could cause the degradation of the local air quality conditions or would contribute to a new or existing violation of the National or State Ambient Air Quality Standards.	Significant	Significant	S/U (E)	S/U (E)	S/U (L)	0	S/U (E)	0	S/U (E)
15. Aesthetics	**Impact 15-1:** The project could degrade visual character due to intensification of land development.	Significant	Less than Significant	S/U (E)	S/U (E)	S/U (L)	B/N	S/U (E)	0	S/U (E)
	Impact 15-2: The project could degrade visual character due to operational changes in reservoir levels, resulting in substantial drawdown of reservoirs during the peak recreational season (Memorial Day to Labor Day)	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)

Table 6-38 Comparison of the Impacts of the Focused Alternatives

Resource	Impact Statement	Project Impacts		F Alt 1	F Alt 2	F Alt 3	F Alt 4	F Alt 5	F Alt 6	F Alt 7
		Before Mitigation	After Mitigation							
16. Geology, Soils and Minerals	**Impact 16-1:** The project could result in land development that could be subject to surface fault rupture.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 16-2: The project could result in land development that could increase the number of people and amount of property exposed to hazards associated with strong ground shaking on active faults.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 16-3: The project could result in land development that could result in increased soil erosion or mass wasting during construction or occupancy.	Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	0	L/S (E)	0	L/S (E)
	Impact 16-4: The project could result in timber harvesting operations that could result in increased soil erosion or mass wasting.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	B/N	L/S (E)	0	L/S (E)
	Impact 16-5: The project could result in mining operations that could result in increased soil erosion or mass wasting.	Less than Significant	Less than Significant	L/S (E)	L/S (E)	L/S (L)	B/N	L/S (E)	0	L/S (E)
	Impact 16-6: The project could result in land development on or within soils in which shrink-swell (expansion) potential, slope, or shallow depth to rock could damage structures and/or create unstable rock or soil conditions.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)
	Impact 16-7: The project could result in a change in hydrological operations that could affect existing informal erosion control plans, which could result in new or exacerbated erosion problems.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	L/S (L)	S/M (E)	L/S (L)	S/M (E)
	Impact 16-8: The project could result in development that could limit availability of mineral resources classified as MRZ-2 by the State Geologist or important mineral lands recognized in local land use planning, or the project could cause changes in land use or hydrologic operations which could result in termination of existing mining lease agreements, which would reduce availability of mineral resources.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/U (G)	S/M (E)	S/U (G)	S/M (E)
	Impact 16-9: The project could result in land development in areas where significant mineral resources may exist but have not yet been identified, causing the loss of availability of these mineral resources.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	0	S/M (E)	0	S/M (E)

Table 6-38 Comparison of the Impacts of the Focused Alternatives

Resource	Impact Statement	Project Impacts		F Alt 1	F Alt 2	F Alt 3	F Alt 4	F Alt 5	F Alt 6	F Alt 7
		Before Mitigation	After Mitigation							
	Impact 16-10: The project could result in a change in hydrological operations and maintenance practices, which could result in new or exacerbated erosion or slope instability problems.	Significant	Less than Significant	S/M (E)	S/M (E)	S/M (L)	S/M (L)	S/M (E)	S/M (L)	S/M (E)

Key to Symbols:

S/U = Significant and unavoidable

S/M = Significant, but may be reduced to less than significant with inclusion of mitigation measures

L/S = Less than significant

L/S/M = Less than significant, but supplemental mitigation has been suggested

0 = No impact would occur

B/N = Impact would be beneficial or neutral

UNK = Unknown level of impact

(G) = Impact would be greater (or less favorable) than the project

(L) = Impact would be less (or more favorable) than the project

(E) = Impact would be equal (or similar) to the project

In addition to the symbols noted above, each impact conclusion is also annotated to denote how the impact of the alternative would compare to the alternative of the project:

(G) = Impact would be greater (or less favorable) than the proposed project;
(E) = Impact would be equal (or similar) to the proposed project; and
(L) = Impact would be less (or more favorable) than the proposed project.

6.16 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. CEQA Guidelines Section 15126.6(e)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives. The following discussion compares the project to the alternatives to determine which of the alternatives would be the environmentally superior alternative.

As depicted in the tables in Section 6.10, and as discussed in Section 6.11, the impacts of the alternatives are derived from the assumptions used to define those alternatives. Based upon a comparison of the assumptions, some grouping of alternatives was presented, as appropriate. Based on the analysis presented in Section 6.12 (for the alternatives) and Section 6.13 (for the focused alternatives), and the comparative tables presented in Section 6.14, the alternative, or alternatives, that would be environmentally superior to the project can be identified.

The project would result in two significant and unavoidable impacts, and 47 significant impacts, which can be mitigated to a less-than-significant level with the implementation of the mitigation measures identified in this EIR. The project would result in no beneficial (or neutral) impacts.

The EIR ranks alternatives according to how many of the auction's impacts the alternative would avoid, or reduce to a level of insignificance, or simply reduce by a certain amount. It is important to note that the ranking indicates how the alternatives compare to the auction, as CEQA requires. Thus, the analysis credits an alternative with achieving an improvement even when it produces a significant impact that requires mitigation, so long as the severity of that impact is less than the severity of the auction's impacts. However, this method of counting an alternative's improvements is not an effective measure for comparing alternatives with the environmentally superior No Project (A) alternative, which completely avoids all the auction's impacts.

Alternative 1 (No project A). This alternative would avoid all of the impacts of the project, and would result in the baseline conditions being maintained, but it would not result in any beneficial impacts as would some other alternatives. This alternative would be environmentally superior to the project:

Focused Alternative 4 (Environmental Enhancement). This alternative would avoid one of the significant and unavoidable impacts of the proposed project. This alternative would also avoid or

reduce 30 of the 49 significant impacts of the project, result in ten beneficial or neutral impacts, and avoid or reduce eight less-than-significant impacts of the project. This alternative would preclude development of the Watershed Lands, improve the condition of the lands (by eliminating timber harvest, grazing and mining), increase flows in selected streams, and preserve many, if not all, of the existing non-binding informal agreements (related to maintenance of reservoir levels and recreational facilities, public access to Project Lands, continued collection and dissemination of data (e.g., depth of snow packs), protection of cultural resources, maintenance of roadways, and other environmental management and stewardship programs). This alternative would also mitigate some of the existing effects from the presence of hydroelectric facilities, by installation of fish ladders and decommissioning of selected facilities. This alternative would be environmentally superior to the project.

Focused Alternative 6 (Interim State Ownership). This alternative would avoid one of the significant and unavoidable impacts of the proposed project. This alternative would also avoid or reduce 38 of the significant impacts of the project, result in three beneficial or neutral impacts, and avoid or reduce ten less-than-significant impacts of the project. This alternative would preclude development of the Watershed Lands, improve the condition of some of the lands (by reducing or curtailing timber harvest, grazing and mining), increase flows in selected streams, and preserve many, if not all, of the existing non-binding agreements. This alternative would be environmentally superior to the project:

Alternative 4 (Proposed Settlement, Regulated). This alternative would avoid one of the significant and unavoidable impacts of the project. This alternative would also avoid or reduce 38 of the significant impacts of the project, result in four beneficial or neutral impacts, and avoid or reduce ten less-than-significant impacts of the project. This alternative would result in the establishment of conservation easements on the Project Lands (which would preclude development) or transfer some or all of the lands to public agencies or conservation organizations (which could improve the condition of those lands). In addition, flows would be increased in selected streams, and existing non-binding agreements would be preserved. This alternative would be environmentally superior to the project:

Alternative 9 (Environmental Composite). This alternative would avoid one of the significant and unavoidable impacts of the proposed project. This alternative would also avoid or reduce 34 of the significant impacts of the project, result in four beneficial or neutral impacts, and avoid or reduce ten less-than-significant impacts of the project. This alternative would preclude development of the Watershed Lands, improve the condition of the lands (by eliminating timber harvest, grazing and mining), increase flows in selected streams, and preserve many, if not all, of the existing non-binding agreements. This alternative would be environmentally superior to the project:

Alternative 3 (Proposed Settlement, Unregulated). This alternative would avoid one of the significant and unavoidable impacts of the project. This alternative would also reduce or avoid 37

of the significant impacts of the project, result in 4 beneficial or neutral impacts, and avoid or reduce ten less-than-significant impacts of the project. This alternative would result in the establishment of conservation easements on the Project Lands (which would preclude development) or transfer some or all of the lands to public agencies or conservation organizations (which could improve the condition of those lands). In addition, flows would be increased in selected streams. Unless market power concerns are adequately mitigated, however, this alternative could affect electrical system supply and/or reliability and air quality. This alternative would be environmentally superior to the project.

Alternative 7 (Bundle Lands for Conservation). This alternative would avoid a significant and unavoidable impact of the project. It would also avoid or reduce 22 of the significant impacts of the project, result in four beneficial or neutral impacts, and avoid or reduce nine less-than-significant impacts of the project. This alternative would preclude development of the Watershed Lands, improve the condition of the lands (by eliminating timber harvest, grazing and mining), and would be environmentally superior to the project:

Focused Alternative 3 (Interim Retention). This alternative would reduce the intensity of all but one of the impacts of project, because Pacific Gas and Electric Company would retain some of the facilities (until the FERC relicensing process is complete). For those facilities that are retained in the interim, the impacts of the project would be deferred, if not reduced or eliminated. (In addition, subsequent action by the FERC could reduce the intensity of future impacts for those facilities.) Facilities that would be initially auctioned would result in impacts that are essentially the same as the project. Since significant impacts would be deferred, and possibly reduced for 12 of the 29 individual hydroelectric facilities, the following alternative would also be environmentally superior to the project:

Alternative 5 (Bundle by River Basin). This alternative would reduce, but not avoid, one of the significant impacts of the project. This alternative would combine hydroelectric facilities that are on the same river system into a single bundle, which would improve the potential for coordinated operation of the facilities, which could reduce unplanned spills of water and the loss of electrical generation that could result. All other impacts would be the same as the project; however, this alternative would be environmentally superior to the project:

The other alternatives would have impacts that are generally the same as the project, or that could be greater than the project. The following alternatives would have impacts that are generally the same as the project:

- Alternative 2 (No Project B);
- Focused Alternative 1 (Single Owner, not Pacific Gas and Electric Company);
- Focused Alternative 2 (Bundles minus a Single Facility);
- Focused Alternative 5 (Alternative Valuation); and
- Focused Alternative 7 (Performance-Based Ratemaking, Regulated).

Alternative 6 (Individual Bundles). This alternative would result in each hydroelectric facility being a separate bundle. Because several river systems have more than one facility, if each facility was separately owned, this could increase the potential for uncoordinated operation of the facilities. This could result in an increased potential for unplanned spills of water and lost electrical production. Therefore, this alternative would result in impacts that are greater than the project:

Alternative 8 (Decommissioning of Selected Facilities). This alternative would, for the most part, result in impacts that are similar to the project, except for selected facilities that would be decommissioned. As indicated in Section 6.12.8, decommissioning of individual facilities could reduce or avoid some impacts of the project, and in some instances, repair existing environmental conditions that are a result of the presence of the hydroelectric facilities. However, although the removal of hydroelectric facilities, including diversion structures such as dams, could result in some beneficial impacts (e.g., restoration of anadramous fish habitat), it would also result in other significant impacts, such as increased potential for flooding and loss of recreational opportunities (e.g., due to removal of a reservoir). Because it is not known which, if any, specific facilities may be decommissioned in the future, it would be remote and speculative to reach a conclusion of whether this alternative would be environmentally superior to the project, or would result in overall impacts that are greater than the project:

In summary, nine of the 16 alternatives (and focused alternatives) would be environmentally superior to the project.

6.17 ALTERNATIVES SUGGESTED IN SCOPING COMMENTS

As described above in Section 6.4, an extensive list of potential alternatives was prepared, which included alternatives suggested in the public scoping process, and in testimony before the CPUC on the proposed application. (Note: all written comments received during the scoping process, and all testimony before the CPUC on the proposed application, are available for review during normal business hours at the CPUC, 505 Van Ness Avenue, San Francisco, California.) Each potential alternative was evaluated to determinate whether it would: (1) feasibly attain most of the basic objectives of the project; (2) have the potential to avoid or substantially lessen any of the significant effects of the project; and (3) likely be considered feasible.

6.17.1 SUGGESTED ALTERNATIVES THAT ARE ANALYZED IN THIS EIR

Some of the alternatives suggested in the scoping comments were included as alternatives, or focused alternatives. 0ther comments suggested alternatives that were similar to the alternatives or focused alternatives, or were implied by one or more of the alternatives or focused alternatives include:

- A no project alternative that assumes continued ownership by Pacific Gas and Electric Company and continued regulation by the CPUC, and a no project alternative that assumes Pacific Gas and Electric Company would continue to own the assets, but that regulation by the CPUC would cease[15].

  – Alternatives 1 and 2: (No Projects A and B)

- Acquisition of the Potter Valley project by an entity that will preserve water supply benefits in the Russian River[16].
- 0peration of hydroelectric facilities by local entities[17].
- Acquisition of project 0137 by the East Bay Municipal Utility District (EBMUD) or a Joint Powers Authority between EBMUD and other Mokelumne watershed interests[18].

  – Alternative 6 (Individual Bundles) would provide that each of the 29 hydroelectric facilities would be available as a separate bundle, which could increase the potential that a local entity could purchase one of the facilities.

- Decommissioning of environmentally inefficient facilities[19].
- Full decommissioning (and removal) of the Potter Valley project[20].

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15 Secretary for Resources Mary D. Nichols, The Resources Agency of California, *Letter to Bruce Kaneshiro,* June 1, 2000. Cheryl White Mason, O'Melveny & Myers (on behalf of Pacific Gas and Electric Company), *Letter to Bruce Kaneshiro,* June 1, 2000.

16 Town Manager Paul V. Berlant, Windsor, California, *Letter to Bruce Kaneshiro*, May 24, 2000. Mayor Lawrence Barnett, Sonoma, California, *Letter to Bruce Kaneshiro*, May 24, 2000. City Manager Dale Shaddox, Cotati, California, *Letter to Bruce Kaneshiro*, May 25, 2000. City Manager Joseph D. Netter, Rohnert, California, *Letter to Bruce Kaneshiro*, May 31, 2000. City Manager Robert Perrault, Cloverdale, California, *Letter to Bruce Kaneshiro*, May 25, 2000. General Manager Arthur Bolli, Valley of the Moon Water District, *Letter to Bruce Kaneshiro*, May 17, 2000. Antonio Rossmann & Roger B. Moore (on behalf of Mendocino County Inland Water and Power Commission), *Letter to Bruce Kaneshiro*, June 01, 2000. General Manager/Chief Engineer Randy D. Poole, Sonoma County Water Agency, *Letter to Bruce Kaneshiro*, May 31, 2000.

17 Electric Utility Director James C. Feider, Redding Electric Utility, *Letter to Bruce Kaneshiro,* May 15, 2000. Tharen and Catherine H. Hodges, *Public Scoping Meeting Comment Card*, June 1, 2000. Jean Crist, *Public Scoping Meeting Comment Card,* May 9, 2000. David Ross, *Public Scoping Meeting Comment Card,* May 15, 2000. General Manager David E. Bird, Thermalito Irrigation District, *Letter to Bruce Kaneshiro,* May 24, 2000. General Manager Ed Steffani, North San Joaquin Water Conservation District, *Letter to Bruce Kaneshiro,* May 30, 2000.

18 Senior Environmental Compliance Specialist Eileen M. Fanelli, East Bay Municipal Utility District, *Letter to Bruce Kaneshiro*, dated May 31, 2000.

19 Secretary for Resources Mary D. Nichols, The Resources Agency of California, *Letter to Bruce Kaneshiro,* June 1, 2000.

20 Stephen V. Quesenberry (for Round Valley Indian Tribes), *Letter to Bruce Kaneshiro,* May 31, 2000. Chief Margaret Pennington, Redwood Chapter Sierra Club, *Letter to Bruce Kaneshiro,* June 01, 2000. Stephan C. Volker, Brecher & Volker LLP, *Letter to Bruce Kaneshiro*, June 01, 2000. Amela Netzow, *Letter to Bruce Kaneshiro*, May 25 2000. Barbara Sapy (sic), *handwritten comment at public scoping meeting*, May 26, 2000. L. Stanton Clark, *Public Scoping Meeting Comment Card*, May 15, 2000. Ernie Degraff, *Letter to Bruce Kaneshiro*, May 18, 2000. John Mallony (sic), *Public Scoping Meeting Comment Card*, May 15, 2000. Dona Blakely *Public Scoping Meeting Comment Card*, May 15, 2000 David and Susan Hagemann, *Letter to CPUC*, May 15, 2000. Susan M. O'Connell, *Letter to Bruce Kaneshiro,* May 31 2000. John M. Rane (sic), *Public Scoping Meeting Comment Card*, May 15, 2000

- Partial decommissioning and removal of the Potter Valley project[21].
- Decommissioning (and removal) of facilities that may pose a seismic safety risk, such as the Scott Dam on the Eel River[22].
- Removal of dams from the Eel River and diversion of water by other means[23].
- Impacts of replacing water supply in the Russian River valley in the event of decommissioning and removal of the Potter Valley project[24].
- Permanent closure of the Spring Gap facility and permanent ban of all water diversions out of the South Fork of the Stanislaus River[25].
- Mechanisms to regulate streamflow in the event of dam removal[26].
- Decommissioning of Merced Falls[27].

  – Alternative 8 (Decommissioning of Selected Facilities) addresses the potential that selected facilities would be decommissioned.

- Require installation of fish ladders at all facilities that impede fish passage[28].
- Remove selected facilities and repair prior "harm" to public trust resources[29].
- Alternative with performance-based environmental objectives to maintain environmental quality and enhancements of degraded systems[30].
- A conditional auction for environmental improvements[31].

Larry Edwards, *Public Scoping Meeting Comment Card*, May 16, 2000 Walt Giacomini. *Letter to the CPUC*, May 15 2000. Virginia Graziani, *Public Scoping Meeting Comment Card*, May 15, 2000 Rosemarye Valentine, *Public Scoping Meeting Comment Card*, May 24, 2000 Anne Hubbard, *Comment Card, Public Scoping Meeting*, May 15, 2000. General Manager Arthur Bolli, Valley of the Moon Water District, *Letter to Bruce Kaneshiro*, May 17, 2000. Antonio Rossman & Roger B. Moore (on behalf of Mendocino County Inland Water and Power Commission), *Letter to Bruce Kaneshiro*, June 1, 2000. General Manager/Chief Engineer Randy D. Poole, Sonoma county Water Agency, *Letter to Bruce Kaneshiro*, May 31, 2000. General Manager Chris DeGabriele, North Marin Water District, *Letter to Bruce Kaneshiro*, May 31, 2000.

21 Stephen V. Quesenberry (for Round Valley Indian Tribes), *Letter to Bruce Kaneshiro*, May 31, 2000. Walter Cook, *Letter to Bruce Kaneshiro*, June 01, 2000.

22 Stephan C. Volker, Brecher & Volker LLP, *Letter to Bruce Kaneshiro*, June 01, 2000.

23 Dennis O'Brien, *Letter to the CPUC*, May 29, 2000.

24 John Olaf Nelson, *Letter to Bruce Kaneshiro*, May 30, 2000. General Manager/Chief Engineer Randy D. Poole, Sonoma County Water Agency, *Letter to Bruce Kaneshiro*, May 31, 2000.

25 Tuolumne County Farm Bureau, *Letter to Bruce Kaneshiro*, May 22, 2000.

26 Ray E. Manley and Joann Moore, *Letter to Bruce Kaneshiro*, May 31, 2000.

27 Ann L. Trowbridge (on behalf of Merced Irrigation District), *Letter to Bruce Kaneshiro*, May 31, 2000

28 Director Robert C. Hight, State of California, The Resources Agency, *Letter to Bruce Kaneshiro*, dated May 31, 2000

29 Robert J. Baiocchi, California Sportfishing Protection Alliance, *Letter to Bruce Kaneshiro*, May 15, 2000

30 Secretary for Resources Mary D. Nichols, The Resources Agency of California, *Letter to Bruce Kaneshiro*, June 1, 2000.

- Focused Alternative 4 (Environmental Enhancement) would address some existing environmental conditions that may be a result of the presence of the hydroelectric facilities and related structures.

- Transfer via negotiated sale, rather than auction[32].
- Separate valuation process for those facilities where the public interest is not served by auction to the highest bidder[33].
- Segregate selected projects with multiple beneficial uses from the auction process[34].
- Alternative valuation methods that place a premium on the public's interest in these facilities[35].

  - Focused Alternative 5 (Alternative Valuation) would result in valuation of the facilities via negotiation.

- An alternative that avoids all impacts to wetlands and riparian lands[36].

  - Alternative 1 (No Project A) would not result in the changes in hydroelectric operations, and therefore would avoid impacts to wetlands and riparian lands could result from changes in stream flows and reservoir water levels. (However, as discussed in Chapter 3, some changes in operations have already occurred since the advent of the restructuring of the electrical market.)

- Using an appraisal strategy to establish the value of the facilities and lands[37].

  - Alternatives 1 (No Project A) and 2 (No Project B) could result in appraisal of the facilities and lands, although some other means of valuation may also be selected by the Commission.

- Establishing conservation easements for lands or transfer of lands to public agencies[38].

  - Alternatives 3 (Proposed Settlement), 4 (Proposed Settlement, Regulated), 7 (Bundle Lands for Conservation), and 9 (Environmental Composite) and Focused Alternatives 4 (Environmental Enhancement) and 6 (Interim State 0wnership) all would likely result either conservation easements on the Watershed Lands or transfer of those lands to public agencies or conservation organizations.

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31 Director Rusty Areias, California Department of Parks and Recreation, *Letter to Bruce Kaneshiro*, May 30, 2000. Stephen M. Wald, California Hydropower Reform Coalition, Environmental Defense, Center for Energy Efficiency and Renewable Technologies, *Letter to Bruce Kaneshiro*, June 1, 2000.

32 Secretary for Resources Mary D. Nichols, The Resources Agency of California, *Letter to Bruce Kaneshiro*, June 1, 2000. Regional Forester Bradley E. Powell, United States Department of Agriculture, Forest Service, Pacific Southwest Region, *Letter to Bruce Kaneshiro*, dated May 30, 2000

33 Eileen M. Fanelli, Senior Environmental Compliance Specialist, East Bay Municipal Utility District, *Letter to Bruce Kaneshiro*, May 31, 2000.

34 Electric Utility Director James C. Feider, Redding Electric Utility, *Letter to Bruce Kaneshiro*, May 15, 2000.

35 Eileen M. Fanelli, Senior Environmental Compliance Specialist, East Bay Municipal Utility District, *Letter to Bruce Kaneshiro*, May 31, 2000.

36 Acting Field Supervisor Dale Pierce, United States Department of the Interior, Fish and Wildlife Service, *Letter to Bruce Kaneshiro*, May 31, 2000

37 Regional Forester Bradley Powell, United States Department of Agriculture, Forest Service, Pacific Southwest Region, *Letter to Bruce Kaneshiro*, May 30, 2000.

38 Regional Forester Bradley Powell, United States Department of Agriculture, Forest Service, Pacific Southwest Region, *Letter to Bruce Kaneshiro*, May 30, 2000.

- State ownership of all projects[39].

  - Focused Alternative 5 (Interim State 0wnership) would provide for interim ownership of all projects by the State of California.

6.17.2 0THER SUGGESTED ALTERNATIVES THAT ARE NOT ANALYZED IN THIS EIR

Some comments suggested alternatives that combine concepts from more than one alternative or focused alternative; however, the specific suggestion in the comment is not included as an individual alternative in this EIR.

- Promote diversification of ownership, and incentives to public entity bidders[40].

  - Alternative 6 (Individual Bundles) would promote diversification of ownership and Alternative 5 (Alternative Valuation) would require Pacific Gas and Electric Company to negotiate with entities identified by the CPUC, which would likely include local agencies.

- A "hybrid alternative" that mixes the various ownership scenarios with different paths for different sets of assets[41].

  - Alternative 7 (Bundle Lands for Conservation), Alternative 9 (Environmental Composite), and Focused Alternative 4 (Environmental Enhancement) would all separately bundle the lands from the hydroelectric facilities.

- Establish a Public Interest Trust Fund to increase stream flows and enhance recreational opportunities and affected natural resources[42].

  - Alternatives 3, 4 and 9, and Focused Alternatives 4 and 6 would all include increased stream flows. Alternatives 4 and 9, and Focused Alternatives 4 and 6 would preserve existing recreational opportunities. Focused Alternative 4 (Environmental Enhancement) would provide for enhancement of affected natural resources.

- 0perate the facilities so as to accomplish multiple public objectives, including flexible low-cost energy, recreational opportunities, wilderness preservation, sustainable timber supply and local economic opportunities[43].

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39 Stephen V. Quesenberry (for Round Valley Indian Tribes), *Letter to Bruce Kaneshiro*, May 31, 2000. Executive Director Tim McKay, The Northcoast Environmental Center, *Letter to Bruce Kaneshiro*, June 01, 2000. Walter Cook, *Letter to Bruce Kaneshiro*, June 01, 2000. Doug Schwilk, *Public Scoping Meeting Comment Card*, May 16, 2000.

40 Director Tom Hunter, Plumas County Public Works, *Letter to Bruce Kaneshiro*, dated May 26, 2000

41 Stephen M. Wald, California Hydropower Reform Coalition, Environmental Defense, Center for Energy Efficiency and Renewable Technologies, *Letter to Bruce Kaneshiro*, June 1, 2000

42 Independent Energy Producers, *Proposed Settlement Agreement*, June 9, 2000

43 Electric Utility Director James C. Feider, Redding Electric Utility, *Letter to Bruce Kaneshiro*, May 15, 2000

- Alternative 9 (Environmental Composite), and Focused Alternative 4 (Environmental Enhancement) would encourage operation of the facilities for multiple objectives.

- A combined alternative where some assets may be retained, some may be sold at auction, some may be transferred to new owner(s) via a non-auction process and some purchased by the State[44].

  - Focused Alternative 3 (Interim Retention) would provide for retention of selected facilities in the interim, several alternatives would involve the sale of facilities via auction, and Focused Alternative 5 would involve the negotiated sale of the facilities.

- Sale of all land assets greater than 20 acres to public agencies, combined with sale of all land assets less than 2 acres as individual bundles[45].

  - Alternatives 7 and 9, and Focused Alternatives 4 and 6 would result in the transfer of the Watershed Lands to either public agencies or conservation organizations. Alternatives 3 and 4 could result either the establishment of conservation easements on all Project Lands, or the transfer of the lands to public agencies or conservation organizations. 0nly one bundle contains a land area of less than two acres.

Based upon the results of the screening process described in Section 6.4, other potential alternatives were considered, but are not analyzed in this EIR because they would not attain most of the project objectives, would not reduce or avoid significant effects, or are not considered feasible.

- Temporary or interim ownership by local agencies (instead of the State)[46].

The project objectives include the intent to protect the reliability of the hydroelectric system and maximize the value of the assets. It is considered unlikely that up to 20 local entities (one for each of the 20 bundles) could be identified that could both preserve the reliability of the system, and maximize the value of the facilities, even if the facilities were owned by local entities for some interim period.

- Complete decommissioning and removal of all facilities[47].

The project objectives include the intent to protect the reliability of the hydroelectric system and maximize the value of the assets. Decommissioning and removal of all of the facilities would conflict with both of those objectives.

- Bundle water rights separately[48].

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44 Director Rusty Areias, California Department of Parks and Recreation, *Letter to Bruce Kaneshiro*, May 30, 2000.

45 Rich Coakley, *Letter to Bruce Kaneshiro*, May 25, 2000.

46 Director Tom Hunter, Plumas County Public Works, *Letter to Bruce Kaneshiro*, May 26, 2000.

47 Stephen V. Quesenberry (for Round Valley Indian Tribes) *Letter to Bruce Kaneshiro*, May 31, 2000. Chief Michael Falkenstein, Environmental Section, Division of Water Rights, State Water Resources Control Board, *Letter to Bruce Kaneshiro*, May 31, 2000.

In some instance, water rights are part of the FERC license for individual facilities. In some instances, Pacific Gas and Electric Company holds water rights. Third parties hold additional water rights. Although this EIR makes certain assumptions related to the potential for Pacific Gas and Electric Company to elect not to renew certain water agreements, and the environmental effects of the loss of consumptive water is addressed herein, transfer of water rights is not part of the application submitted by Pacific Gas and Electric Company (that is the subject of this EIR).

- Separately auction PG&E lands to determine their value[49].

The potential environmental effects of the project primarily result from either changes in land use or changes in hydroelectric operation. 0f the 39 significant impacts of the project, 21 are related to changes in land management (e.g., increased timber harvest) or development of the lands. Auctioning the lands separately is unlikely to reduce or avoid the significant impacts that could result from future changes in land use or development of the lands.

- Unbundle individual facilities that are within a single FERC license[50].

The CPUC does not have the authority to remove facilities from the licenses issued by the Federal Energy Regulatory Commission.

- Release lands to the Bureau of Land Management with a stipend to manage the lands[51].

The Project Lands are currently owned by Pacific Gas and Electric Company, and are proposed to be included in the proposed auction and transfer. Several of the alternatives include the potential for transfer of the lands to public agencies, of which the Bureau of Land Management could be among the recipients of lands. However, there is currently no identified fund source to provide a stipend to support management of the lands.

- Restoration of historical salmon spawning and tributary fishing habitat[52].
- Restoration of the Feather River to 1940 baseline habitat quality[53].

Although Focused Alternative 4 would include some measures to mitigate current environmental conditions that may result from the presence of the hydroelectric facilities, restoration of

48 Dennis O'Brien, *Public Scoping Meeting Comment Card,* May 29, 2000.

49 Jerry Wright, *Public Scoping Meeting Comment Card*, May 15, 2000.

50 Water Resources Manager Richard A. Denton, Contra Costa Water District, *Letter to Bruce Kaneshiro,* June 01, 2000.

51 Acting Deputy State Director of Natural Resources David Mcllany, United States Department of the Interior, *Letter to Bruce Kaneshiro,* May 31, 2000.

52 W. Warner Clark, *Letter for Public Affairs Management*, May 15, 2000. General Manager/Chief Engineer Randy D. Poole, Sonoma County Water Agency, *Letter to Bruce Kaneshiro,* May 31, 2000.

53 Ron Davis, *Public Scoping Meeting Comment Card*, June 1, 2000.

anadromous fish habitat would involve the removal of many, if not all, of the hydroelectric facilities, or those facilities on the Feather River. This would be inconsistent with the project objectives.

6.18 REFERENCE

Pacific Gas and Electric Company, et al, Motion of Pacific Gas and Electric Company, the Utility Reform Network, the Agricultural Energy Consumers Association, the Coalition of California Utility Employees, the Tuolumne Utilities District, the Sonoma County Water Agency, and the California Retailers Association for Approval of Settlement, August 9, 2000

American Rivers, Hydropower Reform Coalition, Policy of Hydropower Dam Decommissioning in the FERC Relicensing Process, December, 1999

The National Hydropower Association, Relicensing Hydroelectric Power projects, A Handbook for People Involved in Relicensing Hydropower projects, March 19, 1989

CALFED Bay-Delta Restoration Program, Restoring the Environment, Investing in the Future, 1999 Annual Report, November, 1999