

# CHAPTER 5

---

## CUMULATIVE IMPACTS

### 5.1 INTRODUCTION

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

- (1) Either: (a) a list of “past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the agency,” or (b) a summary of projections contained in an adopted General Plan or related planning document which is designed to evaluate regional or areawide conditions.
- (2) A summary of expected environmental effects to be produced by these projects with specific reference to additional information on these other projects and where that information is available; and
- (3) A reasonable analysis of the cumulative impacts and reasonable options for mitigating or avoiding any significant, cumulative effects of a proposed project.

The cumulative impacts analysis in this Environmental Impact Report (EIR) uses a list-based approach for identifying cumulative projects. In addition to the project proposed by Pacific Gas and Electric Company (PG&E) and addressed in this document, this analysis addresses five categories of projects that are reasonably foreseeable and may impact the environment cumulatively with the PG&E project. They are 1) the divestiture of power plant assets by San Diego Gas and Electric Company (SDG&E) (Application No. 97-12-039); 2) reasonably foreseeable future power generating plants throughout California (including new generation to replace the Hunters Point Power Plant and serve the City of San Francisco); 3) transmission projects; 4) wastewater injection projects at the Geysers Power Plant; and 5) local projects that could occur in the communities in which each of the power plants reside and that are located either adjacent to the facility or within reasonable proximity.

Each of these categories of projects, and the individual cumulative projects within them, are described in Section 5.2 below. Following the description of these projects, the potential cumulative impacts of PG&E’s proposed divestiture plus these cumulative projects is analyzed using the same topical sections analyzed in Chapter 4 of this EIR for the project-specific impacts. The cumulative impacts are assumed to occur in, and are evaluated as of, the year 2005. Because environmental impacts associated with power plant operation are primarily local in nature, the cumulative impacts are addressed for each plant proposed to be sold.

The topic-by-topic cumulative impact analysis is conducted in a conservative manner. In order to avoid underestimating the localized effects of the proposed project together with cumulative projects, those foreseeable future projects that would be expected to decrease the likelihood that the plants proposed for divestiture will operate at higher levels in the future are described in Section 5.2, but are not carried forward into the detailed cumulative impacts analysis in Section 5.3. The exception to this premise is that all future projects deemed necessary to support demand for electricity by 2005 are carried forward in the analysis. Not only is this realistic, but it also enables statewide modeling of the electrical generation and distribution system to be done to determine the projected analytical maximum capacity factors at the plants to be divested as of 2005. Within the descriptions of the foreseeable projects, below, it is explained whether each project is carried forward into the subsequent analysis, and the basis of that determination.

## **5.2 PROJECTS WITH RELATED OR CUMULATIVE EFFECTS**

### **5.2.1 DIVESTITURE OF SAN DIEGO GAS AND ELECTRIC COMPANY GENERATION AND POWER CONTRACT ASSETS**

SDG&E's divestiture application (Application No. 97-12-039, filed December 19, 1998) seeks to sell two fossil-fueled power plants, Encina and South Bay, 19 Gas Combustion Turbines (GCTs), the 24th Street Marine Terminal, a 20 percent interest in the San Onofre Nuclear Generation Station (SONGS), the power supply contracts with Qualifying Facilities (QF) and long-term power supply agreements with Public Service Company of New Mexico and Portland General Electric Company. The fossil-fueled plants, GCTs and SONGS ownership interest represent 100 percent of the company's generation assets in the San Diego service area. These facilities consist of 2,354 megawatts of generating capacity.

The SDG&E divestiture application is currently undergoing environmental review by the California Public Utilities Commission (CPUC). Thus, that project's potential environmental impacts have not been fully analyzed. However, the analysis in SDG&E's Proponent's Environmental Assessment (PEA) suggests that the impacts would be similar to those found in the Mitigated Negative Declarations and Initial Studies for the PG&E and Southern California Edison (Edison) divestitures that were adopted by the CPUC in 1997. Those initial studies concluded that the new owners of the fossil-fueled plants would have a tendency to increase generation at the divested plants, but that the considerable uncertainty and countervailing factors that exist make it infeasible to accurately predict the particular plants at which operations would increase as a result of divestiture or the degree to which generation would increase at any particular plant (see Section 3, Approach to Environmental Analysis, Mitigated Negative Declaration and Initial Study, CPUC, Pacific Gas and Electric Company's Application No. 96-11-020, Proposal for Divestiture, August 25, 1997). This EIR also assumes that the new owners of the plants proposed to be sold by PG&E would tend to increase generation at the plants. It is thus likely that the CPUC will similarly determine that the proposed sales of SDG&E generation assets would tend to increase operation of those assets. The proposed divestiture of SDG&E's power supply contracts is not expected to result in environmental changes or impacts.

The cumulative availability under new owners of the SDG&E plants for sale and the PG&E power plants proposed to be sold is likely to inhibit generation at any particular divested power plant. In addition, the SDG&E plants are not in the same location or area(s) as the PG&E plants. The impacts associated with divestiture are primarily site specific and would not result in synergies or impacts on a cumulative basis. Therefore, cumulative impacts associated with SDG&E's divestiture application would not be cumulatively considerable with PG&E's proposed divestiture and, in any event, would be less than significant. Thus, SDG&E's proposed divestiture is not considered in the detailed cumulative impact analysis in Section 5.3.

## 5.2.2 FUTURE POWER PLANT DEVELOPMENT

### ***NEW GENERATION TO REPLACE THE HUNTERS POINT POWER PLANT AND MEET INCREASED ELECTRICITY DEMAND***

In its July 9, 1998 agreement with the City and County of San Francisco, PG&E agreed to cease using and decommission its Hunters Point Power Plant within San Francisco once replacement generation and/or transmission facilities are in place. The City and PG&E have agreed to "advocate the expeditious development of capacity (generation and/or transmission) to replace the Hunters Point Power Plant in order to ensure continued electric reliability in San Francisco in a manner which minimizes adverse community and environmental impacts." In light of this agreement, it appears reasonably foreseeable that, by 2005, generation and/or transmission facilities to serve the City of San Francisco will have been approved and constructed, and the Hunters Point Power Plant will no longer be operating.<sup>1</sup>

By 2005, demand for electricity within the City of San Francisco is expected to increase (this is known as "load growth"). Peak electricity demands in the City are expected to increase by roughly 10 megawatts (MW) per year between 1998 and 2005. The forecasted increase in demand is not a result of, or directly related to, divestiture; it is expected to occur whether or not PG&E's plants are sold. In order to satisfy this projected increase in demand and to maintain the system reliability criteria of the Bay Area Reliability Requirements and the San Francisco Operating Criteria (see Section 4.12.1), new generation and transmission facilities added to the San Francisco electrical system to replace the Hunters Point Power Plant would need to be of sufficient capacity to also meet load growth.

<sup>1</sup> Since permitting for new generation or transmission facilities normally takes about 2–3 years and construction of new facilities requires approximately 2 years, it is reasonable to forecast that such activities would be complete by 2005. In addition, since the closure of the Hunters Point Power Plant is contemplated by the agreement between PG&E and the City, it qualifies as a cumulative project under CEQA that must be considered in the cumulative impact analysis. It is possible, however, that the prerequisites to permanently closing the Hunters Point Power Plant will not occur precisely by 2005, in which case PG&E presumably would continue to operate the Hunters Point Power Plant at the minimum level necessary for reliability purposes until the conditions necessary for closure of the plant were satisfied. In that event, the Potrero Power Plant could operate at a higher level than is indicated for the 2005 Analytical Maximum scenario in Table 3.1 in Chapter 3, Approach to Environmental Analysis (note that the analytical maximum capacity factor for the Potrero Power Plant decreases from 1999 to 2005); should Potrero operate at a higher level than the 2005 Analytical Maximum scenario, no impacts would occur beyond those analyzed in Chapter 4. This cumulative impacts analysis is not dependent on the projects assumed within it having occurred by any particular year. In other words, if the Hunters Point Power Plant were to be replaced by 2007 rather than 2005 (for instance), this analysis would remain valid and applicable.

The precise manner in which the electricity needs currently satisfied by the Hunters Point Power Plant, in conjunction with the City of San Francisco's load growth, will be accommodated in the future is not known. Indeed, it would be speculative at this time to presume that any particular generation or transmission improvement(s) will ultimately be constructed. Such facility improvements will likely occur only following extensive system planning studies and with coordination among generating plant owners (including the new owner of the Potrero Power Plant), the City of San Francisco, PG&E (which will continue to own transmission lines, and to own and operate the Hunters Point Power Plant until it is replaced) and the Independent System Operator (ISO) (which is responsible for system reliability). A new electricity generating facility would require project-specific environmental review, and approval of a certification to construct from the California Energy Commission (CEC), as well as local building permits. Any new or upgraded transmission facilities would require project-specific environmental review, and approval from the CPUC. The exact size, mix and location of facilities that will ultimately be proposed and approved to replace the Hunters Point Power Plant is speculative. However, in order to portray and evaluate (in at least a generalized nature given the paucity of definitive data and plans) the maximum potential for change in the context of the cumulative impact analysis for this project, it is assumed for purposes of this EIR that new generation facilities would be constructed by 2005 to serve the City's electricity needs. This cumulative analysis assumes that the new facilities would consist of two new combined-cycle electric generating units sized at 240 MW each (totaling 480 MW). These units could comprise a wholly new power plant located somewhere on the San Francisco peninsula north of the Martin Substation in San Mateo County, including anywhere within the City and County of San Francisco. Alternatively, these units could be located on the same site as, or adjacent to, the Potrero Power Plant and could thus be considered an expansion of that plant.

As discussed below, this cumulative impact analysis also considers as a variant the construction of a new 240 MW generating plant (as opposed to 480 MW), in combination with a new transmission line into the City along the San Francisco Peninsula transmission corridor (see Section 5.3.3, Cumulative Effects Under Variant 1).

### ***PLANTS WITH APPROVED, PENDING OR EXPECTED APPLICATIONS***

Information provided by the CEC indicates one power plant with the necessary certification to construct pending final siting and issuance of local building permits. It is described below:

- The San Francisco Energy Facility is proposed to be built by the San Francisco Energy Company (a joint venture between AES Pacific, Inc. and Southern Natural Gas). It is intended to be a combined-cycle cogeneration plant capable of generating up to 240 MW. The facility would generate electricity and steam using natural gas or other process gas. San Francisco Energy Company has evaluated two sites in the Mission Bay/Potrero/Bayview-Hunters Point area of San Francisco. Final site plans and agreements have not been completed. There is no announced date for construction to commence, and the San Francisco Board of Supervisors issued a Resolution in 1996 opposing the siting of this power plant. However, San Francisco Energy Company is still attempting to locate a site where the proposed power plant could be built.

The EIR does not factor the San Francisco Energy Facility into the cumulative impacts analysis in Section 5.3.2. Instead, as discussed above, the cumulative analysis assumes that electricity demand and load growth within San Francisco would be satisfied by a new 480 MW power plant. If such a new plant were constructed, it does not appear that the San Francisco Energy Facility would be needed to meet demands in 2005. However, the construction of a new 240 MW power plant somewhere north of the Martin Substation (which could be at or near the Potrero Power Plant site) is examined, in conjunction with new transmission facilities, as a cumulative variant in Section 5.3.3. Such a new 240 MW power plant could be the proposed 240 MW San Francisco Energy Facility, or it could be an entirely new proposed 240 MW generating plant.

Information provided by the CEC lists seven other potential power plant siting cases in California. They are: Pittsburg District Energy Facility, Pittsburg, Contra Costa County (500 MW); Otay Mesa Power Plant, San Diego County (660-700 MW); High Desert Power Plant, Victorville, San Bernardino County (680-830 MW); Sutter Power, Yuba City, Sutter County (500 MW); Pioneer Power, Livingston, Merced County (113 MW); Sunlaw Cogeneration Partners I Power Plant, Vernon, Los Angeles County (800 MW); and La Paloma Generating Plant, McKittrick, Kern County (1,000 MW). These power plants are in the early stages of application development and review. On average, permitting takes from 2-3 years before construction may start. It is unknown at this time which of these power plants, if any, will ultimately be fully permitted and built. However, it is reasonably foreseeable that one or more will eventually be constructed. The following provides a brief description of each of these potential power plants (Hausler, 1998):

- The Pittsburg District Energy Facility (PDEF) is proposed by Pittsburg District Energy, LLC (a joint venture between the City of Pittsburg, Enron, and USS-Posco Industries). The power plant would include a combined-cycle combustion turbine generator with a nominal capacity of 500 MW. The plant would be located on a 12-acre site on East 3<sup>rd</sup> Street, west of the intersection of East 3<sup>rd</sup> Street and Columbia Street in the City of Pittsburg in Contra Costa County. The site is located on the northwest corner of the property owned by USS-Posco Industries. The project would require construction of ancillary facilities, including a new electric transmission line, natural gas pipeline, sewer line and a reclaimed water line. Reclaimed water for turbine cooling would be supplied by the Delta Diablo Wastewater Treatment Facility located in the City of Antioch. The combined-cycle unit would be fueled by natural gas. It is expected that 10 percent of the generating capacity of the plant would be dedicated to USS-Posco Industries, while the remaining 90 percent would go to the power grid for distribution. The AFC was filed on June 15, 1998. From that date, the CEC has one year to reject or approve the application. The project sponsor hopes to begin plant operations as early as January 1, 2001.
- The Otay Mesa Power Plant is proposed by US Generating, Inc., an unregulated affiliate of PG&E. The plant would be a merchant power plant with a generating range of 660 to 700 MW to be located in southern San Diego County near the California-Mexico border. The facility is proposed to be a four unit natural gas-fired peaking plant. The project proponent may convert the plant in the future to a combined-cycle plant and is planning the electric transmission line size and circuitry to be able to handle either peaking loads or a combined-cycle's more continuous operating profile. The project would require the construction of ancillary facilities, including 69 kilovolt (kV) and 230 kV electric

transmission lines, a natural gas pipeline, water and wastewater pipelines and access roads. US Generating, Inc. plans to file its AFC with the CEC in December of 1998.

- The High Desert Power Plant is proposed by Inland Energy and Constellation Power Development. It would be a natural gas-fired merchant power plant located on a 25-acre site on a portion of Southern California International Airport, formerly known as George Air Force Base, near Victorville in San Bernardino County. The project may be a peaking plant, or a baseload combined-cycle plant, or a combination of both. The project would require construction of ancillary facilities, including an electric transmission line, natural gas pipeline and water and wastewater pipelines. The AFC was initially filed on June 30, 1997. Staff recommendations to the CEC were heard on August 13, 1997 and the applicant was asked to submit additional information. Supplemental information was submitted over the next several months. The CEC accepted the AFC as complete on December 3, 1997. CEC licensing for the plant is currently in progress. If the project is approved, construction will begin in early 1999.
- Sutter Power is proposed by the Calpine Corporation. The facility would be a natural gas-fired merchant power plant located on a 10-12 acre site adjacent to Calpine's existing Greenleaf Unit No.1 cogeneration plant, approximately seven miles southwest of Yuba City in Sutter County. The project would require construction of ancillary facilities, including a new natural gas pipeline and a 230 kV transmission line. Potable water and cooling water would be provided by an on-site well system. The AFC was filed on December 15, 1997. On-going workshops are being held to discuss issues associated with the siting of the plant.
- Pioneer Power (also known as Livingston) is proposed by Bock Energy, the Merced Irrigation District, the Turlock Irrigation District, Foster Farms and General Electric (GE). It would be a combined-cycle plant adjacent to the Foster Farms processing plant in the City of Livingston in Merced County. The project would serve as a commercial size demonstration of the GE Kalina Cycle technology. The Kalina Cycle process uses a mixture of water and ammonia in the bottoming cycle to more efficiently convert gas turbine waste heat into electricity. The project would require up to nine miles of new or improved natural gas pipeline. The project applicant plans to file its AFC in the fall of 1998.
- The Sunlaw Cogeneration Partners I Power Plant is proposed by Sunlaw Cogeneration Partners I (SCPI). As reported by SCPI, the proposed plant would be a state-of-the-art highly efficient, low cost and ultra low emission environmental merchant power station located in the City of Vernon in Los Angeles County. The facility would be fueled by natural gas. The project applicant plans to file its AFC in the fall of 1998.
- The La Paloma Generating Plant is proposed by La Paloma Generating Company, LLC. The plant would be a natural gas-fired, combined-cycle facility located on a 24-acre site near McKittrick in Kern County, approximately 35 miles west of Bakersfield. The project would require construction of ancillary facilities, including a new natural gas pipeline, a new 230 kV transmission line, and a water supply pipeline. The project applicant plans to file its AFC during the summer of 1998.

A number of other merchant power plants are being considered for development in California, including four recently identified power plants in the Bay Area proposed by Calpine Corporation and a unit of Bechtel Group (Howe, 1988). No specific information is available for these plants, nor have formal application procedures been initiated with the CEC.

These potential future power plants, with the exception of the PDEF, are not expected to have cumulative impacts with the project. Based on the proximity of the PDEF to PG&E's Pittsburg and Contra Costa Power Plants, the plant could cause localized cumulative impacts in conjunction with the project. According to CEC forecasts, electricity demands are expected to increase throughout California in the future (California Energy Commission, 1998). In certain areas (e.g., San Diego and San Francisco), additional electrical capacity is needed to meet these future demands. The cumulative effect of new plants (if built) would likely inhibit the tendency of the new owners of divested plants to increase operations at individual plants because new plants would tend to increase electrical generation capacity in California. The new proposed plants would employ the latest in generating and pollution control technology and may be cleaner to operate so that they would have lower emissions. This would provide a potential positive net benefit to the environment, particularly with respect to air quality. Therefore, the cumulative impacts associated with future potential power plants and the project would not be cumulatively considerable and, in any event, would be less than significant. For these reasons, only the Otay Mesa Power Plant and the PDEF are carried forward into the plant-by-plant cumulative analysis below. The Otay Mesa Power Plant (or a plant of similar size) is assumed to be constructed by 2005 in order to satisfy a shortage in the San Diego area that is projected to exist by about 2002 due to load growth. The cumulative impacts associated with the PDEF are considered in Section 5.3.4.

### 5.2.3 CURRENT OR PENDING WRTA TRANSMISSION PROJECTS

The Planning Committee of the Western Regional Transmission Association (WRTA) has approved or is currently considering several planned transmission projects in PG&E's service territory. Following the Energy Policy Act of 1992, and directives by the Federal Energy Regulatory Commission (FERC), entities that own transmission facilities are required to open their transmission systems to other users, and are encouraged to work with other transmission owners to cooperatively plan and construct new transmission facilities. Under WRTA, the planning of new transmission projects that are deemed of interest to more than one transmission owner are eligible for funding from WRTA. PG&E has submitted several proposed transmission projects for consideration by WRTA's Planning Committee, both for projects that may be eligible for WRTA funding and for projects of interest to PG&E alone.

Currently, all of the transmission line projects under consideration by WRTA, or proposed as "conceptual" by PG&E, would merely add circuits or upgrade lines along existing right-of-ways. Planned transmission projects in PG&E's service territory include:

- The Los Banos-Gates 500 kV Project – a conceptual project recently proposed by PG&E that would upgrade the existing 500 kV circuit between the Los Banos and Gates substations (roughly, between the cities of Los Banos and Stratford in the San Joaquin Valley, a distance of approximately 80 miles), adding 1,000 to 2,000 MW of additional capacity on the circuit at a cost of \$100-200 million. (WRTA has yet to decide if this project is eligible for WRTA funding.)

- The Metcalf-Monte Vista 4th 230 kV circuit – a PG&E-funded project that would add an additional 230 kV circuit between the Monte Vista and Metcalf substations in Santa Clara County (approximately 22 miles) at a cost of \$7.47 million.
- The Chico 115 kV Reconductor Project – a PG&E-funded project that would replace existing 115 kV cables in Butte County (a distance of 22.7 miles) at a cost of \$38 million.
- The Vineyard Conversion Project – a PG&E-funded project that would install 6 miles of 230 kV underground circuits in Alameda County at a cost of \$30 million.
- The Sobrante-Standard Oil Reinforcement Project – a PG&E-funded project that would install a third circuit that would increase transmission capacity in Richmond at a cost of \$1.7 million.
- The San Jose Area 115 kV Relief Project – a PG&E-funded project that would convert an existing 115 kV line into San Jose to 230 kV service at a cost of \$30 million.
- The Geysers Area Relief Project – a PG&E-funded project that would install approximately 1 mile of 115 kV transmission line in the Geysers area at a cost of \$0.9 million.
- A Reinforcement Project For Local Industrial Customers – a PG&E-funded project that would construct a new 1.5 mile 115 kV double circuit transmission line in Kern County at a cost of \$2 million.
- The Gerawan Farms Project – a PG&E-funded project that would install a new 115 kV tap and 1.7 miles of new 115 kV transmission line in Fresno County at a cost of \$1.2 million.
- The San Mateo-Martin No. 3 Reinforcement Project – a PG&E-funded project that would reconductor the existing 115 kV transmission line between the San Mateo and Martin substations in San Mateo County (a distance of approximately 12 miles) at a cost of \$9 million.
- The Newark-Metcalf Reinforcement Project – a PG&E-funded project that would reconductor the existing 115 kV transmission line between the Newark and Metcalf substations in Santa Clara County (a distance of approximately 28 miles) at a cost of \$14 million.
- The San Mateo 230/115 kV Substation Upgrade – a PG&E-funded project that would replace two 230/115 kV transformers at the San Mateo Substation with new units at a cost of \$9 million. This project is currently under construction.
- The Eastshore 230/115 kV Substation Project – a PG&E-funded project that would install an entirely new 230/115 kV substation in Alameda County near the San Mateo Bridge at a cost of \$25 million.
- The Vaca-Dixon Substation Upgrade – a PG&E-funded project that would replace and existing 230/115 kV transformer with a new unit and add a second new unit at the Vaca substation at a cost of \$12.3 million.



PG&E is also planning to reconductor much of its 230 kV and 115 kV transmission systems, and reinforce many of its substations in other parts of Northern California in order to serve area load, provide voltage support and increase transfer capability. One of the largest of the projects under consideration includes a planned WRTA-funded project that would replace 60 miles of 230 kV line between the Cottonwood and Roseville substations in order to increase import capability to the Sacramento Area; costs estimates for this currently unsponsored project are not yet available.

None of these projects are expected to substantially affect the operation of the electric system in the greater San Francisco Bay Area, including the plants proposed for sale. However, since some new transmission projects may result in increased generation at the plants to be divested, all of these potential new transmission facilities are assumed in the modeling of plant operations and the cumulative analysis to be in place by 2005.

WRTA's Planning Committee is not aware of any proposal by PG&E to construct a new transmission circuit along a new right-of-way into San Francisco. In a letter to WRTA members and planning committee dated January 8, 1998, PG&E did solicit interest in funding a study to investigate various transmission options to replace Units 2 and 3 at the Hunters Point Power Plant (Lai, 1998). Now, of course, it appears that the entire Hunters Point Power Plant will be replaced by 2005. As mentioned above, this cumulative impacts analysis assumes that the Hunters Point Power Plant will be replaced by a new 480 MW power plant. However, it is also possible that the Hunters Point Power Plant could be replaced by a combination of generation and transmission facilities. Thus, Section 5.3.3 below examines cumulative effects associated with construction of a 240 MW power plant to serve San Francisco, together with a new 230 kV transmission line outside San Francisco (along the existing Peninsula corridor) to bring power up to the level required to meet the SFOC. The construction of such a transmission line in the future has been contemplated in a conceptual manner by PG&E (Lai, 1998). In order to meet the SFOC reliability criteria (see Section 4.12 for a discussion of system reliability), this cumulative variant would also require certain upgrades to the downtown San Francisco distribution network in order to reduce the "non-sheddable" load and maintain the SFOC.

#### 5.2.4 GEYSERS WASTEWATER INJECTION PROJECTS

The amount of steam available from the geothermal steam field that powers the Geysers Power Plant has been declining since 1987. The reduction in steam availability has caused the units at the plant to be run below historic capacity levels. Current operations are described in Chapter 2, Project Description. One of the most important determinants as to what level of electrical generation is possible from the Geysers Power Plant has to do with the steam field capacity. PG&E's installed nameplate capacity at the Geysers Power Plant is 1,200 MW, but recent production has dropped to about 700 MW. A primary limiting factor is the availability of water in the deep fractured hot rock formations which is needed to maintain field pressure to sustain production of steam production wells. This situation (as well as other factors) has led PG&E to shift its operations of the plant to a load-following mode. Mechanisms for recharging fluids into the steam field, including wastewater injection, are described in Chapter 2, Project Description. Regardless of who owns the plant, steam field capacity will continue to decline unless

substantially more injection water becomes available. One source of imported wastewater currently being injected into the steam field is the Southeast Geysers effluent pipeline. Two additional sources of imported water that are under consideration are: (1) a project that would provide an additional wastewater supply to the Southeast Geysers effluent pipeline; and (2) a new Santa Rosa effluent pipeline.

These two proposed wastewater injection projects are carried forward into the cumulative analysis in Section 5.3 and are summarized below.

### ***BASIN 2000 PROJECT***

The Southeast Geysers effluent pipeline (known as the Southeast Regional Wastewater Treatment Plant (SERWTP) Facilities Improvement Plan and Geysers Effluent Injection Project) began operation in the fall of 1997. A general description of this project is provided in Chapter 2, Project Description. The Lake County Sanitation District (LACOSAN), in conjunction with the Clear Lake Oaks County Water District, are now proposing to construct a second effluent pipeline from the Northwest Regional Wastewater Treatment Plant to connect into the SERWTP and supply additional wastewater to the existing Southeast Geysers effluent pipeline. This additional wastewater supply would displace raw lake water currently diverted from Clear Lake for use as make-up water, but would not increase the overall volume of wastewater pumped to the Southeast Geysers area. This additional project, called the Basin 2000 Project, is currently undergoing design and environmental review and, if approved, could be constructed and in operation by late 1999 or early 2000.

### ***SANTA ROSA WASTEWATER MODIFIED GEYSERS RECHARGE PROJECT***

A second project under development involves the importation of a new water supply to steam fields supplying PG&E units elsewhere in the field than just in the Southeast Geysers area. In response to the success of the Southeast Geysers effluent pipeline project, on April 20, 1998, Unocal-Thermal and the City of Santa Rosa entered into a contract to receive treated wastewater conveyed via pipeline to the Geysers for a period of 30 years. The project is called the Santa Rosa Wastewater Modified Geysers Recharge Project. This pipeline would convey up to 11 million gallons per day of treated wastewater to ten injection wells (converted from existing production wells) in the Geysers area. An EIR and Addendum were prepared for the project and certified in April 1998. National Environmental Policy Act (NEPA) review for this project is currently in progress. The City of Santa Rosa approved the issuance of bonds to fund the project construction and engineering design, and planning studies that continue on the project. The project, if implemented, could supply sufficient wastewater to generate up to a gross potential of 85 MW, from which 7.6 MW would be used for pumping (Hackley, 1998). The entire wastewater supply would be used for injection in Unocal-Thermal steam fields that supply steam to PG&E. If approved, operation of the pipeline is expected to begin in 2001.

The Santa Rosa Modified Geysers Recharge Project in combination with the existing Southeast Geysers effluent pipeline are expected to enhance the long-term economic viability of electrical

generation from the steam fields. It is expected that the importation of a large water supply could lead to construction of more injection wells by some steam field operators. However, there are no plans for new injection or production wells for the steam fields that supply the PG&E units. It is unlikely that either PG&E or a new owner would undertake any significant physical changes in power plant units since the installed capacity could accommodate the increased steam supply. As a result of these imported water supply and injection projects, the existing units could be operated at sustained power generation rates for 20 to 30 years.<sup>2</sup> The sustained steam supply would provide greater flexibility in operating the units, perhaps allowing some units to run as base load, and some to run in load following mode, or perhaps operation on a revolving system of these modes as related to the schedule of injection in the steam fields and the resultant steam production. These projects would decrease the need for low flow operation and early abandonment of units in the Geysers area. For the units currently owned by PG&E, this would mean an assumed sustained power generation of about 700 MW for 25 years.

PG&E is one of the key players in the Santa Rosa Wastewater Modified Geysers Recharge Project. However, it is assumed that if PG&E were to sell its units, the new owners would simply assume PG&E's role in the process. The potential increase in steam production and the extension of the water supply have no direct relationship to the identity of the owner of the power plants. Any owner, including PG&E, would desire an additional economical water supply to increase production and extend the useable life of the plants.

### 5.2.5 LOCAL CUMULATIVE PROJECTS

There is potential for the project, together with projects that are planned within the local community in which a particular power plant is located, to result in cumulative environmental impacts. The communities of concern are the Hunters Point, Bayview and Potrero neighborhoods in the City and County of San Francisco, the City of Antioch and adjacent unincorporated areas of Contra Costa County, the City of Pittsburg, the unincorporated areas of Cobb and Anderson Springs in Lake County, and unincorporated areas of Sonoma County. The cumulative projects listed in Table 5.1 below have been identified in part by the planning and community development departments of the communities and counties surrounding the power plants. The list shows current and proposed projects within an approximately 1-mile radius of the plants, or further where justified by substantial proposed projects.

The cumulative projects shown in Table 5.1 are assumed in the analyses in Section 5.3.2 below.

<sup>2</sup> The terms of the contract between the City of Santa Rosa and Unocal-Thermal stipulate that the wastewater would be delivered for a minimum of 20 years, after which Unocal-Thermal would have the right to continue to take the water for another ten years or provide two years' advance notice to terminate the contract (Hackley, 1998).

**TABLE 5.1  
CUMULATIVE PROJECTS**

Project Name	Description
<b>Potrero Power Plant</b>	
Muni Third Street Light Rail Project	The project would extend light rail transportation into the southeastern quadrant of the city by: (1) extending the J-Church light rail line from the Muni Metro Extension along Third Street and Bayshore Boulevard to a new southern terminal at the Caltrain Bayshore station; and (2) establishing an independent light rail line traveling from the Caltrain Bayshore station along Bayshore Boulevard and Third Street into a subway that traverses from the Downtown area to Chinatown.
Bayview-Hunters Point Redevelopment Area	The project includes housing, employment, industrial and commercial strategies for stimulating the redevelopment of the Bayview-Hunters Point area. The project includes a number of land use development projects focused on a number of subareas.
49ers Stadium / Candlestick Mall	The project would include the demolition of 3Com Park and development of a new stadium with seating for up to 75,000 persons at Candlestick Point. The project also includes development of a 1.4 million square foot destination retail and entertainment center on the property adjacent to the proposed stadium.
Hunters Point Naval Shipyard Redevelopment	The conversion and reuse of the Hunters Point Shipyard Property would include the development of: light industrial uses; research and development uses; mixed uses (e.g., artist studios, live/work, residential offices, and retail/commercial services); cultural and educational uses; residential uses, including mixed-income housing and multi-family development; open space for active and passive recreation, wetlands restoration and ancillary commercial uses; and maritime industrial development. This project would also include construction of a short-span bridge/causeway, known as the Fitch Street Bridge, from the Hunters Point Naval Shipyard to the proposed 49ers Stadium/Candlestick Mall.
Mission Bay	The project includes the adoption of two Redevelopment Plans and the establishment of two Redevelopment Areas to develop an urban mixed-use community consisting of residential, commercial, light industrial, educational, and open space uses, with supporting infrastructure, community facilities and other public improvements. The major project components are: 6,090 housing units; 1.5 million square feet of retail space; a major new University of California San Francisco site to include up to 2.7 million square feet of instructional, research, administrative and support space; about 5.6 million square feet of research and development/light manufacturing/office space surrounding the campus; a 500-room hotel; a police and fire station; a public school site; and about 47 acres of public parks. (Case No. 96.771E)
Executive Park	The project would include the development of 1.15 million square feet of office space; a 350-room hotel; 45,000 square feet of retail and restaurant space; and 600 residential units and associated parking.

**TABLE 5.1 (Continued)  
CUMULATIVE PROJECTS**

Project Name	Description
<b>Potrero Power Plant (cont.)</b>	
Construction and Building Materials Supply Center at Piers 90 and 92	The project would include the use of Piers 90 and 92 for marine and rail transport of construction and building materials. Operations would include a concrete recycling facility and two ready mix batch plants.
RMC Lonestar Pier 90 Lease	The project would include a 10-year lease at Pier 90. The proposed facilities would include a maritime bulk cargo terminal, a concrete ready-mix facility, a maintenance facility and associated truck parking.
Seaplane Tours	Establish non-waterborne commercial activity (Seaplane Tours). Extend authorization previously granted for six months in Case No. 94.151CE. (Case No. 95.004)
Pier 52 Boat Shop and Boat Ramp	Construct a 4,000-square foot commercial space with a 5,000-square foot deck on Pier 52 to be used for unspecified retail space related to recreational boating activities on the Bay. Project includes repairing the existing boat ramp. (Case No. 95.134)
2001 3 <sup>rd</sup> Street	Construct two, one-story 4,695-square foot warehouse buildings on two 4,995-square foot parcels. (Case No. 95.178)
610 Illinois Street	Construct 15 live/work units in a four-story structure with parking for 15 automobiles. (Case No. 95.304)
900-970 Pennsylvania Avenue	Construct 56,890-square foot warehouse, storage, and office building. (Case No. 95.420)
790 Pennsylvania Avenue Self-Storage	Add about 110 ocean-going cargo containers to about 20 existing containers on three M-1 zoned lots. Site will be used as a public storage facility. (Case No. 95.631)
2011 3 <sup>rd</sup> Street	Construct new 50-foot-high building with 12 live/work units in light industrial area. (Case No. 96.066)
1001-1061 25 <sup>th</sup> Street	Change the use of a large warehouse (now vacant) to a hall for special events. Occupancy load up to about 1,100. No external modifications to building. Includes variance. (Case No. 96.164)
Pacific Bell Ballpark	Construct Ballpark on Port/Caltrans property, with seating for 42,000-43,000 persons. This project includes the demolition of about 12 buildings. The ballpark structure would reach 130 feet in height. (Case No. 96.176)
1234 Indiana Street	Amend a previous authorization (Case No. 88.764C) by expanding an existing GROUP HOUSING activity (defined as Other Housing Sec. 216(a)) from 50 beds to 96 beds in an M-2 District without any exterior alterations and only minor, if any, interior work. (Case No. 96.186)

**TABLE 5.1 (Continued)  
CUMULATIVE PROJECTS**

<b>Project Name</b>	<b>Description</b>
<b>Potrero Power Plant (cont.)</b>	
2620 3 <sup>rd</sup> Street	Merge two lots, convert industrial building to live/work and add another building to property with additional live/work units. Total 9 units. (Case No. 96.205)
1234 Indiana Street	Amend a previous authorization (Case No. 88.764C) by expanding an existing GROUP HOUSING activity (defined as Other Housing Sec. 216(a)) from 50 beds to 96 beds in an M-2 District without any exterior alterations and only minor, if any, interior work. (Case No. 96.186)
2620 3 <sup>rd</sup> Street	Merge two lots, convert industrial building to live/work and add another building to property with additional live/work units. Total 9 units. (Case No. 96.205)
669 Pennsylvania Avenue	Merge three lots and subdivide six lots. (Case No. 96.712)
745 Tennessee Street	Build 12 live/work units in one building on three vacant lots. Height would be 50 feet. (Case No. 97.027)
Home Depot	Convert 120,500-square foot of waterfront warehouse on port property into a Home Depot retail store. Rest of warehouse is not part of project. Project includes demolition of a 12,800-square foot building. (Case No. 97.086)
Espirit Park & Edgehill Mt.	Amend the Recreation and Open Space Element of the General Plan to add a site to the category "Proposed Public Open Space, Acquire or Convert to Public Open Space" in Map 4, the Citywide Recreation and Open Space Plan. (Case No. 97.118)
701 Pennsylvania Ave	Construct building with 18 live/work units on vacant lots. (Case No. 97.411)
Kelly's/Mission Rock Resort	Demolition of shed to construct office. Enclose-1,000 square foot deck. No change in building footprint. Some other changes to exterior fencing for access. (Case No. 97.423)
Pier 98	Restore and augment existing wetlands. Add access road, 10 parking spaces, picnic area, and portable toilets. Total area is 25 acres. (Case No. 97.432)
1405 Indiana Street Live/work	Construct 18 live/work units and 18 parking spaces on vacant lot. 50 feet in height. (Case No. 97.506)
606 Pennsylvania Avenue	Demolition of structures on property and construct one building with 48 live/work units. (Case No. 97.527)
23 <sup>rd</sup> & Minnesota Street Live/work	Demolish existing buildings and construct three new buildings, each with 20 live/work units. (Case No. 97.528)

**TABLE 5.1 (Continued)  
CUMULATIVE PROJECTS**

<b>Project Name</b>	<b>Description</b>
<b>Pittsburg Power Plant</b>	
Americana	Construction of a 192-lot single family subdivision between N. Parkside Drive and Polaris Drive. 17 homes have been built. Developer has applied for permits to build remainder of homes.
Deep Water Marine Terminal	Construction of deep water marine terminal with eight storage domes for various materials.
Marina Walk	Construction of 120-lot single family subdivision south of Marina Boulevard, north of West 8 <sup>th</sup> Street, between Montezuma Street and Black Diamond Street in the City of Pittsburg.
Regency Meadows	Proposed manufactured housing development for 200 homes. Land has been graded, but no building permits have been requested.
Richmond Marine-Link Pipeline System	Rehabilitation and operation of existing 35-mile portion of PG&E-owned pipeline from Richmond to Pittsburg, as an alternative to deepening the Baldwin ship channel and for purpose of delivering petroleum to refineries, storage terminals, etc. in the east San Francisco Bay Area. PG&E would sell the pipeline to Wickland Pipelines LLC. The purpose of the project would be to deliver petroleum to refineries, storage terminals and other facilities in the eastern San Francisco Bay Area via marine vessels or by pipeline. A draft joint EIR/EIS has been prepared for this project but has not yet been certified.
<b>Contra Costa Power Plant</b>	
Arco Gas Station	Construction of an Arco mini mart and gas station on Main Street east of Neroly Road in the Oakley area.
Cowell Ranch	Retail and residential development in the southern portion of Brentwood, along the west side of Walnut Blvd. The proposed project involves construction of 5,226 single and multiple family units and 1.8 million square feet of retail space on a 4,300 acres of land.
Office Building	Construction of an office building on Vineyard Drive in the City of Antioch.
Self Storage	Construction of a self-storage facility with front retail. Located on Highway 4 – Live Oak/Oakley.
<b>Geysers Power Plant</b>	
Anderson Springs	A 70-acre parcel was recently sold, but no construction permits have been taken out with the County.
Socrates Mine Road	One single family home has been in construction for the past 12 months and is nearing completion.

## 5.3 POTENTIAL CUMULATIVE EFFECTS

This section reviews the potential cumulative effects of PG&E's proposed divestiture, the subject of this EIR, in combination with the reasonably foreseeable projects described above. Those projects discussed in Section 5.2 that are incorporated into the cumulative impact analysis below include: (1) replacement of the Hunters Point Power Plant with a new 480 MW generating facility; (2) plants with approved, pending or expected applications that are projected to be necessary to support demand (e.g., in San Diego) or that may have effects in combination with the plants proposed for sale (i.e., the PDEF in Pittsburg); (3) current or pending WRTA-transmission projects; (4) wastewater injection projects in the Geysers area; and (5) local cumulative projects. The cumulative impacts associated with the PDEF are considered separately in Section 5.3.4. A cumulative variant assuming a combination of new generation and transmission to replace the Hunters Point Power Plant is discussed separately in Section 5.3.3.

### 5.3.1 MODELING RESULTS

Sierra Energy and Risk Assessment, Inc. (SERA) performed SERASYM™ modeling to provide information about the possible operational changes that could occur with divestiture in conjunction with the above-described cumulative projects. (SERASYM™ modeling results were also used to provide the basis for analyzing project-specific impacts in Chapter 4, Environmental Setting, Impacts and Mitigations of this EIR.) Consistent with CEC demand forecasts (California Energy Commission, 1998), the SERASYM™ modeling results assume electricity demands will increase throughout California in the future, either with or without divestiture. The model also assumes that, in certain areas (e.g., San Diego and San Francisco), additional electrical capacity will be needed to meet these future demands.

Table 5.2 presents annual plant capacity factor estimates for each of the four plants being divested under various operational scenarios. The assumptions used for modeling the 1999 Baseline and Analytical Maximum scenarios are defined in Chapter 3, Approach to Environmental Analysis. The 1999 Baseline scenario assumes that PG&E would continue to own and operate the Potrero, Pittsburg, Contra Costa and Geysers Power Plants. The plants would continue to operate to meet San Francisco Operating Criteria (SFOC) and the Greater San Francisco Bay Area Operating Criteria (GSFBAOC) and local system support requirements. The 2005 Cumulative Analytical Maximum scenario is intended to capture the maximum possible change in operations and resultant environmental impacts that could occur from divestiture plus cumulative projects. (The Cumulative Analytical Maximum scenario does not account for the operation of the PDEF, a new 240 MW power plant (such as the SFEP) or a new transmission line into San Francisco. See discussion below.) The difference between the two values (i.e., between the Baseline scenario and the Cumulative Analytical Maximum scenario) represents the maximum possible change effected by the project at each plant (together with cumulative projects, including expected demand increases) between 1999 and 2005. Table 5.2 shows the change in annual capacity factors at each of the plants under these two scenarios. The actual cumulative impact of the project may in fact be less and may approach zero (i.e., no difference between the annual plant capacity factors with a new owner and those with PG&E). It is merely



**TABLE 5.2**  
**PROJECTED CUMULATIVE ANALYSIS POWER PLANT ANNUAL CAPACITY FACTORS <sup>a</sup>**

Plant	Unit	Type	Fuel	Net Capacity (MW) <sup>b</sup>	1999 Baseline (No Project)	1999 Analytical Maximum <sup>c</sup>	Cumulative Scenarios		
							2005 Cumulative Analytical Maximum <sup>d</sup>	2005 Cumulative Analytical Maximum-Variant 1 <sup>e</sup>	2005 Cumulative Analytical Maximum-Variant 2 <sup>f</sup>
Potrero	3	ST	NG	207	41	76	64	63	62
	4	CT	DF	52	3	3	9	10	8
	5	CT	DF	52	2	2	8	10	7
	6	CT	DF	52	1	1	7	8	6
	Annual Plant Capacity				363 <sup>g</sup>	25	44	40	40
New 480 MW S.F. Plant		CC	NG	480	NA	NA	91	NA	90
New 240 MW S.F. Plant		CC	NG	240	NA	NA	NA	91	NA
PDEF Plant		CC	NG	450	NA	NA	NA	NA	90
Contra Costa	6	ST	NG	340	32	71	70	71	70
	7	ST	NG	340	40	88	69	69	68
	Annual Plant Capacity				680 <sup>g</sup>	36	79	70	70
Pittsburg	1	ST	NG	163	23	43	45	45	retired
	2	ST	NG	163	23	69	70	72	retired
	3	ST	NG	163	33	76	retired	retired	retired
	4	ST	NG	163	28	66	retired	retired	retired
	5	ST	NG	325	39	80	60	60	59
	6	ST	NG	325	40	87	76	76	75
	7	ST	NG	682	27	58	71	73	71
Annual Plant Capacity				1984 <sup>g</sup>	31	68	56/67 <sup>h</sup>	57/68 <sup>h</sup>	46/69 <sup>h</sup>
Geysers	5	G	GS	39/39	68	58	82	83	80
	6	G	GS	39/39	68	58	81	83	79
	7	G	GS	38/37	72	65	85	86	83
	8	G	GS	38/37	72	64	86	86	83
	9	G	GS	32/32	54	47	73	75	71
	10	G	GS	32/32	54	47	73	74	70
	11	G	GS	56/56	46	36	94	95	95
	12	G	GS	39/39	76	65	85	85	83
	13	G	GS	73/69	95	94	95	95	95
	14	G	GS	61/61	81	70	87	89	86
	16	G	GS	73/69	94	94	94	95	94
17	G	GS	47/47	78	70	89	89	87	

**TABLE 5.2 (continued)**  
**PROJECTED CUMULATIVE ANALYSIS POWER PLANT ANNUAL CAPACITY FACTORS <sup>a</sup>**

Plant	Unit	Type	Fuel	Net Capacity (MW) <sup>b</sup>	1999 Baseline (No Project)	1999 Analytical Maximum <sup>c</sup>	Cumulative Scenarios		
							2005 Cumulative Analytical Maximum <sup>d</sup>	2005 Cumulative Analytical Maximum-Variant 1 <sup>e</sup>	2005 Cumulative Analytical Maximum-Variant 2 <sup>f</sup>
Geysers (cont.)	18	G	GS	58/62	82	73	88	89	86
	20	G	GS	44/46	78	67	86	87	84
	Annual Plant Capacity			669/665 <sup>g</sup>	75	68	87	88	86

NOTE: The capacity factors were derived using the SERASYM™ unit-specific, California-wide data set, which was processed by the SERASYM™ production cost model to forecast plant operations.

UNIT TYPES:	CT combustion turbine	FUELS:	NG natural gas with residual oil backup	NA = not applicable
	ST steam turbine		DF distillate fuel oil	
	G geothermal steam		GS geothermal steam	
	CC combined cycle			

- a Capacity factor is the ratio (expressed as a percentage) of operations of a unit or plant to the rated capacity of the unit or plant.
- b Although the net capacity of Unit 7 at the Pittsburg Power Plant is listed as 720 MW in PG&E's PEA, other sources (including the Master Must-Run Agreement between PG&E and the ISO and the Bay Area Reliability Dispatch Requirements) identify the unit's maximum net capacity as 682 MW. Based on this information, the SERASYM™ model results used in this EIR reflect the 682 MW factor.  
The net capacity factor of the Geysers Power Plant is actually 1,224 MW (see Table 2.1 in Section 2, Project Description). The net capacities shown here are the predicted capacities for the plant based on projected steam availability in 1999 and 2005, respectively.
- c In accordance with PG&E's July 9, 1998 agreement with the City and County of San Francisco, this scenario assumes that PG&E would continue to operate its Hunters Point Power Plant at the minimum level necessary to ensure continued electric reliability in San Francisco.
- d This scenario reflects the replacement of PG&E's Hunters Point Power Plant with a new 480 MW power plant in combination with divestiture and other cumulative projects. Section 5.3.2 discusses potential environmental impacts under this scenario.
- e This scenario reflects the replacement of PG&E's Hunters Point Power Plant with a new 240 MW power plant (as opposed to a 480 MW power plant) in conjunction with a new 230 kV transmission line into San Francisco in combination with divestiture and other cumulative projects. Section 5.3.3 discusses the potential environmental impacts under this scenario.
- f This scenario is the same as the 2005 Cumulative Analytical Maximum scenario, but also includes the retirement of Units 1 and 2 at the Pittsburg Power Plant and operation of the proposed Pittsburg District Energy Facility (PDEF) in Pittsburg. Section 5.3.4 discusses the potential environmental impacts under this scenario.
- g Net capacity for the entire plant.
- h The total net generating capacity of the Pittsburg Power Plant would decrease in the future due to the retirement of certain generating units. In order to meaningfully portray changes in generation, two annual plant capacity numbers are presented. The first number reflects the annual plant capacity factor based upon the current total net generating capacity of the plant (where all seven units are operational), which is 1,984 MW. The second number reflects the annual plant capacity based upon the combined net generating capacity of the units that are assumed to operate in 2005.

SOURCE: Sierra Energy and Risk Assessment, Inc., and ESA, 1998.

the possibility that operations could increase within this range of capacity factors that is evaluated in this chapter.

Based on a review of Table 5.2, the following conclusions can be made with respect to the change in annual plant capacity factors in 2005 under the Cumulative Analytical Maximum scenario relative to the 1999 Baseline scenario and relative to the 1999 Analytical Maximum scenario for divestiture alone:

- 1) In comparison to the 1999 Baseline, there would be a net increase in 2005 in the annual electricity generation (GWH) and plant capacity factors at each of the four plants being divested.
- 2) At the Potrero Power Plant, the annual plant capacity factor in 2005 would be roughly 1.6 times higher than the 1999 Baseline, but about 4 percent lower than the 1999 Analytical Maximum for divestiture alone.
- 3) At the Contra Costa Power Plant, the annual plant capacity factor in 2005 would be roughly 1.9 times higher than the 1999 Baseline, but about 9 percent lower than the 1999 Analytical Maximum for divestiture alone.
- 4) Based upon the current total generating capacity of the Pittsburg Power Plant (1,984 MW), the annual plant capacity factor in 2005 would be roughly 1.8 times higher than the 1999 Baseline, but about 12 percent lower than the 1999 Analytical Maximum for divestiture alone.<sup>3</sup>
- 5) At the Geysers Power Plant, the annual plant capacity factor in 2005 would be roughly 1.2 times higher than the 1999 Baseline and about 19 percent higher than the 1999 Analytical Maximum for divestiture alone.

In summary, Table 5.2 shows that the project, in conjunction with other cumulative projects, would reduce the operational levels at the Potrero, Contra Costa, and Pittsburg Power Plants from that of divestiture alone. This is because the assumed 480 MW facility would be efficient and would operate at a relatively high annual capacity factor (91 percent), thereby offsetting generation from the three fossil-fueled plants proposed for sale. Therefore, the project-specific impacts analyzed in Chapter 4 of this EIR would address the worst-case impacts that are related to operational levels at these plants. The increase in operational levels at the Geysers Power Plant would be greater than that of divestiture alone, which, unlike the fossil-fueled power plants, would be considered a beneficial impact since the Geysers Power Plant relies on renewable resources, and higher production levels diminish the potential for steam stacking.

Table 5.2 also shows that under the Variant 1 cumulative scenario, operation of a new 240 MW power plant in combination with a new 230 kV transmission line would not change the annual capacity factor of the Potrero and Contra Costa Power Plants from their 2005 Cumulative Analytical Maximum capacities and would increase the annual capacity factor of the Pittsburg

<sup>3</sup> Under the 2005 Cumulative Analytical Maximum scenario, the total net generating capacity of the Pittsburg Power Plant would decrease to 1,658 MW due to the retirement of Units 3 and 4. However, in order to meaningfully compare the 2005 Cumulative Analytical Maximum scenario to the 1999 Analytical Maximum scenario, the difference between the annual plant capacities is based upon the total existing generating capacity of the plant.

and Geysers Power Plant by 1 percent when compared to the 2005 Cumulative Analytical Maximum scenario. In addition, the annual plant capacity factor for the new 240 MW power plant would be the same as that of the 480 MW power plant. Either of these new plants would be expected to employ the latest in generating and pollution control technology and would likely have lower emissions than existing PG&E units. However, based on the larger generating capacity of the 480 MW power plant, it is expected that the localized impacts in the vicinity of the plant, and potentially in the Mission Bay/Potrero/Bayview-Hunters Point area, depending on its location, would be greater than if the 240 MW power plant were constructed and operated. The potential cumulative impacts related to the siting of a new 240 MW power plant and transmission line into San Francisco are discussed separately in Section 5.3.3.

When compared with the 2005 Cumulative Analytical Maximum scenario alone, Table 5.2 shows that inclusion of the PDEF (Variant 2) in the 2005 Cumulative Analytical Maximum scenario would drive down the annual plant capacity factors of the Potrero, Contra Costa and Geysers Power Plants. The 1 percent decrease in annual plant capacity factor at the Geysers Power Plant would not be expected to result in any environmental impacts. Table 5.2 also shows that inclusion of the PDEF would decrease the total net generating capacity of the Pittsburg Power Plant from 1,658 MW to 1,332 MW due to the retirement of Units 1 and 2. Therefore, a direct comparison of the annual plant capacities under these two scenarios would not be accurate. However, when compared to the 1999 Analytical Maximum scenario, Table 5.2 shows that the annual plant capacity factor at the Pittsburg Power Plant would be lower with the inclusion of the PDEF than under the 2005 Cumulative Analytical scenario alone. Therefore, the cumulative impacts (associated with operational levels) in the immediate vicinity of the plants being divested would be less with the PDEF than without the PDEF. To the extent that information is available, the potential cumulative impacts related to the siting of the PDEF in proximity to the Contra Costa and Pittsburg Power Plants are described separately under Section 5.3.4.

Because the local cumulative projects listed in Table 5.1 would not directly affect the amount and pattern of electricity generation at the plants being divested, the cumulative effects associated with these projects are not reflected in the modeling results presented in Table 5.2. The local cumulative effects of these projects, as well as of the change in operational levels represented by the 2005 Cumulative Analytical Maximum at the plants proposed for sale, are discussed in Section 5.3.2, below. The impacts associated with increased operational levels at the Geysers Power Plant focuses on minor increases in employment associated with increased operations. Any cumulative impacts related to the siting of new 480 MW generating facilities on the San Francisco Peninsula north of the Martin Substation are also identified in a general program level manner given the uncertain and speculative nature of the future possible project.

### 5.3.2 CUMULATIVE EFFECTS BY ENVIRONMENTAL TOPIC

Table 5.3 summarizes the cumulative impacts of the project, together with other projects, and is classified by each of the local communities in which the power plants are located. Where the cumulative scenario would have no impacts different in degree or nature from the project itself,

**TABLE 5.3**  
**CUMULATIVE IMPACTS CONSIDERING OTHER LOCAL PROJECTS<sup>a</sup>**

	Potrero	Contra Costa	Pittsburg	The Geysers
Land Use and Planning	NS	NS	NS	NS
Population and Housing	NS	Ø	Ø	NS
Geologic Problems	Ø	Ø	Ø	NS
Water	S/M	Ø	Ø	NS
Air Quality <sup>b</sup>	S/M	NS	NS	NS
Transportation and Circulation	NS	NS	NS	NS
Biological Resources	S/M	Ø	Ø	Ø
Energy and Mineral Resources	Ø	Ø	Ø	B
Hazards	Ø	Ø	Ø	Ø
Noise	S/M	Ø	Ø	NS
Public Services	NS	Ø	Ø	NS
Utilities and Services Systems	Ø	Ø	Ø	B
Aesthetics	S/M	Ø	Ø	Ø
Cultural Resources	NS	Ø	Ø	Ø
Recreation	NS	Ø	Ø	NS

<sup>a</sup> Significance levels identified in this table reflect the levels of significance after all mitigation measures are applied:

- B = Beneficial cumulative impact.
- S/UN = Cumulative impact is significant and unavoidable.
- NS = Cumulative impact is less than significant; no mitigation is warranted.
- NS(M) = Cumulative impact is less than significant; supplemental mitigation is identified.
- S/M = Potentially significant cumulative impact; impact may be reduced to less than significant by mitigation measures identified during future CEC environmental review and permitting.
- Ø = Cumulative impact would not occur.
- UKN = Unknown level of impact.

<sup>b</sup> Refer to Section 4.5, Air Quality, for a discussion of cumulative air quality impacts.

no impacts are identified (i.e., the project impacts, analyzed in Chapter 4, are not restated). The impacts evaluated in this analysis are those that are cumulatively considerable.

Where applicable, impacts associated with the cumulative increase in electricity generation in San Francisco and at the Geysers Power Plant, beyond that of divestiture alone, are identified. In the analyses below, potential impacts associated with the cumulative increase in electricity generation in San Francisco are discussed under the Potrero Power Plant heading.

## ***LAND USE***

### **Potrero Power Plant**

Construction of the new 480 MW power plant on the San Francisco peninsula north of the Martin Substation could conflict with current general plan land use designations and zoning regulations. For example, development of the new power plant on land not classified as Industrial in its General Plan or zoning designation could be inconsistent with local plans and policies. If the new power plant were located at or just north or south of the existing Potrero Power Plant, where land is currently zoned M-2, Heavy Industrial, and is designated for industrial land uses (see Figures 4.1-1 and 4.1-4 in Section 4.1, Land Use), it is expected that its development would not be inconsistent with local plans and policies. The development of the new 480 MW power plant would be subject to future environmental review and permitting, at which time any project-specific land use conflicts would be evaluated.

The projects listed in Table 5.1 are currently under consideration for approval by the City and County of San Francisco Department of City Planning and will be accepted or rejected based upon their individual compliance with local planning and zoning regulations and policies. The larger projects in Table 5.1 would increase commercial and residential activity in the Mission Bay/Potrero/Bayview-Hunters Point area. The continued existence of the Potrero Power Plant could be perceived as being incompatible with some of the proposed land uses associated with these projects. However, the potential for land use incompatibility has been or will be considered during the approval process for each of these projects to avoid placement of incompatible land uses in proximity to the plant. Therefore, divestiture in conjunction with other local projects would not result in significant cumulative impacts on land use and planning.

### **Contra Costa Power Plant**

The projects listed in Table 5.1 are currently under consideration for approval by either the Contra Costa County Community Development Department (for those projects located in unincorporated areas of the County) or the City of Antioch Planning Department and will be accepted or rejected based upon their individual compliance with local planning and zoning regulations and policies. The continued existence of the plant could be perceived as being incompatible with some of the proposed land uses associated with these projects. However, the potential for land use incompatibility has been or will be considered during the approval process for each of these projects to avoid placement of incompatible land uses in proximity to the plant. Therefore, divestiture in conjunction with other local projects would not result in significant cumulative impacts on land use and planning.

### **Pittsburg Power Plant**

The projects listed in Table 5.1 are currently under consideration for approval by either the Contra Costa County Community Development Department (for those projects located in unincorporated areas of the County) or the City of Pittsburg Planning Department and will be accepted or rejected based upon their individual compliance with local planning and zoning

regulations and policies. The continued existence of the plant could be perceived as being incompatible with some of the proposed land uses associated with these projects. However, the potential for land use incompatibility has been or will be considered during the approval process for each of these projects to avoid placement of incompatible land uses in proximity to the plant. Therefore, divestiture in conjunction with other local projects would not result in significant cumulative impacts on land use and planning.

### **Geysers Power Plant**

The Basin 2000 Project and the Santa Rosa Modified Geysers Recharge Project are under consideration by the Sonoma County Community Development Commission and will be accepted or rejected based upon their compliance with local planning and zoning regulations and policies. The Santa Rosa Modified Geysers Recharge Project is also subject to review and approval by the City of Santa Rosa. Any development on the recently sold 70-acre parcel (shown in Table 5.1) would also be subject to approval by the Sonoma County Community Development Commission. Combined, these projects would not result in significant cumulative impacts on land use and planning with the proposed project.

## ***POPULATION AND HOUSING***

### **Potrero Power Plant**

Cumulative development of a new 480 MW power plant could result in a minimal increase (likely less than 100 persons) in employment in the vicinity of the new plant and the City of San Francisco as a whole. The resultant increase in population and housing demand would not be substantial relative to existing population levels and housing demands in San Francisco. It is not expected that construction of a new 480 MW power plant and those projects listed in Table 5.1, together with the project, would displace any established community. However, based on the size and nature of some of the projects listed in Table 5.1, those projects could have their own significant effects on community growth and housing in the Mission Bay/Potrero/Bayview-Hunters Point area. A new 480 MW power plant would likely have only incremental effects on community growth and housing in San Francisco regardless of its location. The potential for project-specific population and housing impacts has been or will be considered during the environmental review and permitting process for each of these cumulative projects. The development of a new 480 MW power plant would provide additional energy resources to meet projected 2005 demands in San Francisco and would eliminate projected electricity supply deficiencies, but would not create any additional demands for electricity. Thus, it would be considered growth-accommodating rather than growth-inducing. The sale of the Potrero Power Plant would not result in any cumulatively considerable impacts with the local projects or a new plant since the project itself is not expected to have any meaningful incremental effect on population, or housing needs or supplies.

### **Contra Costa Power Plant**

Table 5.1 identifies many local projects in the vicinity of the plant that would have incremental effects on community growth and housing. However, the divestiture project would not result in any cumulatively considerable impacts with these projects since the project itself is not expected to have any meaningful incremental effect on population, or housing needs or supplies.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

Cumulative increases in operations at the Geysers Power Plant could result in a minimal increase in employment at the plant. The resultant increase in population and housing demand would not be substantial. The Socrates Mine Road home and Anderson Springs property sale, together with the project, would not displace any established community or be growth-inducing. Construction of the Santa Rosa Modified Geysers Recharge Project and the Basin 2000 Project could have an incremental effect on housing availability as construction work forces seek temporary housing. With respect to these two projects, the sustained power generation resulting from their implementation would not be expected to increase employment at the Geysers Power Plant, but rather would be expected to support the existing work force at the plant. As a result, no effective change in housing or population would be expected to occur.

## ***GEOLOGIC PROBLEMS***

### **Potrero Power Plant**

The project itself would not affect geologic conditions or hazards. The local projects, including a new 480 MW power plant, combined with the divestiture of the power plant would not have any synergistic or cumulative impact on geologic conditions.

### **Contra Costa Power Plant**

The project itself would not affect geologic conditions or hazards. The local projects, combined with the divestiture of the power plant would not have any synergistic or cumulative impact on geologic conditions.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

Because the project does not include injection of additional water supplies into the steam field, the project itself would not increase microseismicity or major seismicity in the Geysers area. Similarly, the Basin 2000 Project would not be expected to affect seismicity, since that project



would merely displace raw lake water from Clear Lake with wastewater and would not increase the overall volume of wastewater injected into the steam field. The Santa Rosa Modified Geysers Recharge Project, however, has the potential to increase seismic activity in the region. The Environmental Impact Report/Environmental Impact Study (EIR/EIS) prepared for that project determined that up to 14 microearthquakes per year could occur within a 10 km radius of each new well developed for wastewater injection purposes.<sup>4</sup> As described in Section 5.2.4, there are no plans for new injection wells for the steam fields that supply the PG&E units. The imported wastewater would be injected into 10 injection wells converted from existing production wells. Since the increase in microearthquakes identified in the EIR/EIS is expected to occur due to the introduction of fluids to the geothermal reservoir, the injection of wastewater into a converted production well would be expected to result in similar seismic effects as injection into a new well and, therefore, a total of up to 140 annual microearthquakes could occur from implementation of the Santa Rosa Modified Geysers Recharge Project. The increased microseismicity resulting from the implementation of this cumulative project would not be expected to pose a public safety hazard or contribute significantly to property damage. Together, the divestiture project and the proposed wastewater projects would not result in cumulatively considerable public safety hazards or property damage.

The Santa Rosa Modified Geysers Recharge Project EIR/EIS also concluded that the reinjection of wastewater is projected to increase the frequency of ground shaking at Intensity V on the Modified Mercalli scale by 38 percent, or from about six events per decade to about ten events per decade. Cumulative impacts with the existing Southeast Regional Wastewater Treatment Plant Facilities Improvement Plan and Geysers Effluent Injection Project were found to be nearly identical to the Santa Rosa project alone. Because of the small magnitude of the induced earthquakes, these impacts were determined to be less than significant (Parsons, 1996). Therefore, divestiture in conjunction with these other projects would not result in any cumulatively considerable geologic impacts.

## ***WATER***

### **Potrero Power Plant**

The project itself would not impact water supplies. A new 480 MW power plant in San Francisco would likely result in only incremental increases in employment levels in the vicinity of the plant. The resultant increase in potable water demands would likely not be significant and would not be expected to significantly affect existing water supplies. However, based on the size and nature of some of the local projects shown in Table 5.1, those projects would be expected to result in significant effects on water demands in the City that would likely result in significant impacts to potable water supplies in the Mission Bay/Potrero/Bayview-Hunters Point area. The potential for impacts to water supplies has been or will be considered during the environmental review and permitting process for each of these cumulative projects. Regardless, the divestiture project would not result in any cumulatively considerable impacts to water supplies in combination with these other projects.

<sup>4</sup> Microearthquakes are those with a magnitude of 3.0 or less and generally are rarely felt by the public.

Under divestiture, it was determined that there would be less than significant water quality impacts due to thermal discharges at the Potrero Power Plant as it would operate within the limits of its National Pollution Discharge Elimination System (NPDES) permit. If the new 480 MW generating facilities were located at or near the Potrero Power Plant and were considered to be an expansion of that plant, there would likely be an increase in the amount of water used at and discharged from that plant. The increase in the water used at and discharge from the plant could increase the potential for thermal discharge impacts to marine water quality. At another location in San Francisco, the new 480 MW power plant could pose similar impacts if the plant were to use waters from and discharge to the San Francisco Bay. Because no specific information is available on the location and the amounts of intake and discharge water associated with the new 480 MW power plant, this is considered to be a potentially significant cumulative impact on San Francisco Bay waters. However, the owner of the new power plant would be required to apply for either a revision to the existing NPDES permit (if the plant were considered to be an expansion of the Potrero Power Plant) or to obtain a new permit from the San Francisco Bay Regional Water Quality Control Board (SFRWQCB). In issuing the NPDES permit, which would establish effluent limitations for the proposed plant, the SFRWQCB would consider other discharges sources to the San Francisco Bay, including the Potrero Power Plant. Therefore, it is anticipated that the potentially significant cumulative impact on water resources could be mitigated to a less than significant level.

Since the local projects identified in Table 5.1 are not expected to result in marine water use or thermal discharges to the San Francisco Bay, there would be no cumulative impacts with respect to water discharge or marine water quality.

### **Contra Costa Power Plant**

The project itself would not impact water supplies. The local projects shown in Table 5.1 may result in significant effects on water demands in the vicinity of the plant that may result in significant impacts to potable water supplies in that area. Regardless, the divestiture project would not result in any cumulatively considerable impacts to water supplies in combination with these other projects. Therefore, there would be no significant cumulative effect with the project on water supply.

Under divestiture, it was determined that there were less than significant water quality impacts due to thermal discharges at the plant as it would operate within the limits of its NPDES permit. Since the local projects identified in Table 5.1 are not expected to result in marine water use or thermal discharges to the San Francisco Bay Delta, there would be no cumulative impacts with respect to water discharge or marine water quality.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### Geysers Power Plant

The project itself would not impact water supply. The cumulative increase in electricity generation and annual plant capacity factor would likely result in only incremental increases in employment levels. The resultant increase in potable water demands would be negligible and would not significantly affect existing water supplies. The local projects shown in Table 5.1 would not have a significant effect on water demands in the plant's vicinity and would not result in significant impacts to potable water supplies. Together, divestiture and the local projects would not result in any significant water supply impacts.

Cumulative increases in electricity generation would not be expected to affect water quality or quantity. Condensation from the generating units would continue to be reinjected into the steam field, and no off-site impacts would occur. The two wastewater injection projects in the Geysers area would not impact water resources in the area since the wastewater would be imported and injected into deep injection wells through an entirely enclosed system with no connection to groundwater sources. No lateral migration of the wastewater is expected to occur that could adversely affect water quality. Therefore, the divestiture project in combination with these wastewater injection projects would not result in any cumulatively considerable water quality impacts.

### AIR QUALITY

Section 4.5 of this EIR, Air Quality, discusses the potential for air quality impacts from divestiture alone and in combination with the same cumulative projects considered in detail in this section (including the 480 MW power plant) to affect regional criteria air pollutant emissions and the potential for inconsistency with regional air quality plans. With the exception of a temporary significant and unavoidable impact related to inconsistency with the '97 *Clean Air Plan* as to NO<sub>x</sub> (which will be avoided by 2003), no significant and unavoidable impacts were identified.

The air quality discussion here focuses on the potential for increases in local concentrations of criteria air pollutants and health risks associated with toxic air contaminants to occur if the new 480 MW power plant were located at or near the Potrero Power Plant. If the plant were located elsewhere in San Francisco, there would not be cumulative impacts related to emissions from the Potrero Power Plant. The addition of the new 480 MW power plant would likely result in a minimal increase in employment levels (less than 100 persons). The resultant increase in traffic and associated criteria air pollutant emissions would also be minimal. The local projects identified in Table 5.1 may result in significant increases in traffic in the vicinity of the plant that may result in significant increases in criteria air pollutant emissions. However, the mobile source emissions associated with the new 480 MW power plant in combination with other projects would not result in any cumulatively considerable emissions of criteria air pollutants. (See Impact 4.5-2 in Section 4.5, Air Quality, for a discussion of cumulative local concentrations of carbon monoxide in 2015.) Instead, the main issue of concern relates to the stationary source emissions associated with the power generation process at the new plant.

Emissions estimates have been made for various operational scenarios. Tables G-1, G-4 and G-6, in Attachment G of this EIR, show estimates of criteria air pollutant emissions under the 1999 Baseline, 1999 Analytical Maximum and 2005 Cumulative Analytical Maximum (which includes emissions from the 480 MW power plant) scenarios, respectively. A comparison of these tables shows that at a local level (which accounts for the Potrero Power Plant and the new 480 MW power plant), emissions of each criteria air pollutant, except NO<sub>x</sub>, would increase with the inclusion of the new 480 MW power plant in 2005 beyond that of the 1999 Baseline and 1999 Analytical Maximum scenarios. NO<sub>x</sub> emissions are shown to decrease relative to the 1999 Baseline and 1999 Analytical Maximum. The new 480 MW power plant may also increase concentrations of toxic air contaminants that could potentially increase overall health risks. Therefore, the new 480 MW power plant could result in potentially significant cumulative effects on local air quality. However, when further defined, the new 480 MW power plant would be subject to separate, project-specific environmental review and permitting by the CEC and other agencies with jurisdiction over the plant's operation, at which time the potential for these impacts to occur would be fully evaluated. For example, the owner of the new plant would be required to apply for a series of permits (i.e., a Permit to Construct, a Permit to Operate, and Title IV and V permits) from the Bay Area Air Quality Management District (BAAQMD) prior to construction and operation of the plant. Similarly, prior to operation, the new owner would be required to complete an AB 2588 health risk assessment. In issuing the permits for operation of the power plant, which would establish emission limits for the proposed plant, the BAAQMD may require design changes (e.g., stack height adjustments), stringent control measures and/or emissions offsets for pollutants of concern. Therefore, it is assumed that any significant impact on local concentrations of criteria air pollutants and toxic air contaminants associated with the new 480 MW power plant would be mitigated to a less than significant level. It is also assumed that, at a local level, the combined emissions from the Potrero Power Plant and the new 480 MW power plant would be minimal relative to ambient concentrations associated with mobile sources. In light of the low health risks associated with the operation of the Potrero Power Plant and the permitting process that would apply to the new power plant (as discussed above), any significant cumulative air quality impacts could be mitigated to a less than significant level.

## ***TRANSPORTATION AND CIRCULATION***

### **Potrero Power Plant**

The project itself would not impact traffic and circulation. The cumulative increase in electricity generation associated with a new 480 MW power plant in San Francisco would likely result in a minimal increase in employment levels (less than 100 persons). The resultant increase in traffic would be negligible in comparison to existing traffic volumes and the capacity on most roadways in San Francisco. Any potential traffic impacts associated with the new plant would be evaluated in the project-specific level environmental review for the plant once its location is determined. The local projects shown in Table 5.1 would likely result in significant increases in traffic in the Mission Bay/Potrero/Bayview-Hunters Point area that would likely result in significant impacts on local transportation and circulation. However, the divestiture project in combination with

these other projects would not result in any cumulatively considerable transportation and circulation impacts.

### **Contra Costa Power Plant**

The project itself would not impact traffic and circulation. The local projects shown in Table 5.1 may result in significant increases in traffic in the vicinity of the plant that may result in significant impacts on local transportation and circulation. However, the divestiture project in combination with these other projects would not result in any cumulatively considerable transportation and circulation impacts.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant above.

### **Geysers Power Plant**

The project itself would not impact traffic and circulation. The cumulative increase in electricity generation and annual plant capacity factor would result in only incremental increases in employment levels. The resultant increase in traffic would be negligible and would not significantly affect traffic volumes and the capacity on roadways providing access to the site. The local projects shown in Table 5.1 would not result in significant increases in traffic in the vicinity of the plant and would not result in significant impacts on local transportation and circulation. Together, divestiture and the local projects would not result in significant increases in traffic and, therefore, there would be no significant cumulative transportation and circulation impacts.

## ***BIOLOGICAL RESOURCES***

### **Potrero Power Plant**

Under divestiture, it was determined that there were less than significant impacts to species of concern and other aquatic organisms in the vicinity of the Potrero Power Plant, as the plant would operate within the limits of its NPDES permit. If the new 480 MW generating facilities were located at or near the Potrero Power Plant and were considered to be an expansion of that plant, there would likely be an increase in the amount of water used at and discharged from that plant. The increase in cooling water volumes and discharge temperatures could adversely affect species of concern and other aquatic organisms. At another location in San Francisco, the new 480 MW power plant could pose similar impacts if the plant were to use waters from and discharge to the San Francisco Bay. Therefore, this is considered a potentially significant cumulative impact on biological resources. However, the owner of the new power plant would be required to apply for either a revision to the existing NPDES permit (if the plant were considered to be an expansion of the Potrero Power Plant) or to obtain a new permit from the SFRWQCB. In issuing the NPDES permit, which would establish effluent limitations for the proposed plant, the SFRWQCB would consider other discharges sources to the San Francisco

Bay, including the Potrero Power Plant, and their resultant impacts on aquatic organisms. Therefore, it is anticipated that this potentially significant cumulative impact on biological resources could be mitigated to a less than significant level.

Since the local projects identified in Table 5.1 are not expected to result in marine water use or thermal discharges to the San Francisco Bay, those projects would not be expected to affect the aquatic organisms of concern in the San Francisco Bay that are affected by discharges from the Potrero Power Plant and the new 480 MW power plant, if located on the Bay. Therefore, there would be no significant cumulative impacts to aquatic organisms.

Depending on the location of a new 480 MW power plant, other species of concern could be adversely affected. If the new plant were located at or adjacent to the Potrero Power Plant, there is little potential to affect such species because of the developed nature of the area. The potential to adversely affect other species of concern would be considered during project-specific environmental review and permitting by the CEC. At that time, appropriate mitigation measures would be adopted to address identified biological impacts. Similarly, the local projects identified in Table 5.1 may result in significant impacts to species of concern in the Mission Bay/Potrero/Bayview-Hunters Point area. For these other cumulative projects, the potential to adversely affect other species of concern has been or will be considered during their environmental review and permitting process. Together, the divestiture project and these other projects would not result in any cumulatively considerable effects on other species of concern.

### **Contra Costa Power Plant**

Under divestiture, it was determined that there were less than significant impacts to species of concern and other aquatic organisms in the vicinity of the plant, as the plant would operate within the limits of its NPDES permit. The local projects identified in Table 5.1 may result in significant impacts to species of concern in the Bay-Delta. Since the local projects are not expected to result in marine water use or thermal discharges to the Bay-Delta, those projects would not be expected to affect the aquatic organisms of concern in the Bay-Delta that are affected by discharges from the plant. Therefore, there would be no significant cumulative impacts to biological resources.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant above.

### **Geysers Power Plant**

Under divestiture, it was determined that there were less than significant impacts to species of concern in the vicinity of the Geysers Power Plant. The local projects identified in Table 5.1 would not significantly affect species of concern in the area. Together, the project and other local projects would not significantly impact biological resources.

---

## ***ENERGY AND MINERAL RESOURCES***

### **Potrero Power Plant**

There are no cumulative impacts expected to occur from divestiture and the local projects as they would not substantially affect known mineral resources, nor increase the wasteful use of energy in combination.

### **Contra Costa Power Plant**

See discussion under Potrero Power Plant, above.

### **Pittsburg Power Plant**

See discussion under Potrero Power Plant, above.

### **Geysers Power Plant**

Sustained steam production at the Geysers Power Plant resulting from implementation of the Santa Rosa Wastewater Modified Geysers Recharge Project and the Basin 2000 Project would allow existing power plant operations and energy production to continue over a period of 20 to 30 years. This would have the substantial beneficial effect of displacing the need for using fossil fuels for equivalent power generation at fossil-fueled power plants and would be a beneficial cumulative effect.

## ***HAZARDS***

### **Potrero Power Plant**

It was determined that the project itself could advance the time at which existing hazards are remediated and therefore could advance a potential threat to worker safety or to public health should existing environmental contamination at the power plant be handled improperly. This was considered to be a significant impact of the project, which could be mitigated to a less than significant level by PG&E's preparation of a Risk Assessment that conforms with guidelines of the California Department of Toxic Substances Control (DTSC) and the local County Health Department.

With the exception of the impact noted above, the project was found to pose less than significant impacts to the environment with respect to risk of accidents or exposure of people to potential health hazards. Like many of the larger projects identified in Table 5.1, a new 480 MW power plant in San Francisco could result in significant impacts to public health and safety. However, there is no evidence suggesting that the project impacts working in concert with other projects would result in any cumulatively considerable impacts that would increase the risk of accidents or exposure of people to potential health hazards.

### **Contra Costa Power Plant**

It was determined that the project itself could advance the time at which existing hazards are remediated and therefore could advance a potential threat to worker safety or to public health should existing environmental contamination at the power plant be handled improperly. This was considered to be a significant impact of the project, which could be mitigated to a less than significant level by PG&E's preparation of a Risk Assessment that conforms with guidelines of the California Department of Toxic Substances Control (DTSC) and the local County Health Department.

With the exception of the impact noted above, the project was found to pose less than significant impacts to the environment with respect to risk of accidents or exposure of people to potential health hazards. There is no evidence suggesting that the project impacts working in concert with other projects would have any significant cumulative impacts regarding plant hazards or public health and safety.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

It was determined that the project itself could advance the time at which existing hazards are remediated and therefore could advance a potential threat to worker safety or to public health should existing environmental contamination at the power plant be handled improperly. This was considered to be a significant impact of the project, which could be mitigated to a less than significant level by PG&E's preparation of a Risk Assessment that conforms with guidelines of the California Department of Toxic Substances Control (DTSC) and the local County Health Department.

With the exception of the impact noted above, the project was found to pose less than significant impacts to the environment with respect to risk of accidents or exposure of people to potential health hazards. The projected increase in generation at the plant caused by divestiture in conjunction with other projects may affect the amounts of hazardous materials used, hazardous waste generated, or accident rates at the plant, even though there is not necessarily a direct correlation between increased generation and these factors. . However, there is no evidence suggesting that the project impacts working in concert with other projects (and resulting in increased generation at the plant) could have any significant cumulative impacts regarding plant hazards or public health and safety.

## ***NOISE***

### **Potrero Power Plant**

If the new 480 MW power plant were located at or near the Potrero plant site, and depending on the noise abatement equipment included in the plant, the project in combination with the new



plant could result in significant increases in noise levels at sensitive receptor locations near the Potrero Power Plant. At a location further from the Potrero Power Plant, the operation of the new 480 MW power plant may introduce a new noise source that would adversely affect sensitive receptors at another location. However, any significant increases in noise levels at such a location would be attributable to the new power plant and would not be the result of any combined increases in noise levels related to the project. Regardless of its location, the development of the new 480 MW power plant would be subject to future CEC environmental review and permitting, at which time the potential for noise impacts, including cumulative noise impacts, would be considered and mitigated as appropriate. Based on the possibility that the plant could be located at or adjacent to the Potrero Power Plant, this could be a potentially significant cumulative noise impact. Types of mitigation measures that may be considered appropriate as conditions of approval by the CEC include noise barriers and noise insulation. Such measures could reduce noise to an acceptable level.

The project and other local projects identified in Table 5.1 combined would account for some incremental increases in noise; however, the increases in noise levels are not expected to be cumulatively considerable.

### **Contra Costa Power Plant**

Local projects would account for some incremental increases in noise; however, these projects are located at a substantial distance from the Contra Costa Power Plant and an overlap of noise increases with noise from the plant is not expected.

### **Pittsburg Power Plant**

Local projects would account for some incremental increases in noise; however, these projects are located at a substantial distance from the Pittsburg Power Plant and an overlap of noise increases with noise from the plant is not expected.

### **Geysers Power Plant**

Alone, the project was found to pose no significant noise impacts even with the occasional “stacking” of units where pressure released creates a brief but substantial noise event. The project and local projects combined would not be expected to affect local noise levels in the Geysers area. Therefore, cumulative noise impacts are considered to be less than significant.

## ***PUBLIC SERVICES***

### **Potrero Power Plant**

The project itself would not impact public services. The cumulative increase in electricity generation associated with a new 480 MW power plant in San Francisco would likely result in a minimal increase in employment levels (less than 100 persons). The resultant increase in demand for public services would be minor in comparison to the existing demands for these services and, therefore, would not increase the need for new or altered fire protection services, police

protection services or new school facilities. The local projects shown in Table 5.1 would likely result in significant increases in employment and population levels in the Mission Bay/Potrero/Bayview-Hunters Point area that could result in significant impacts on public services. However, the divestiture project in combination with these other projects would not result in any cumulatively considerable effects on public services. Therefore, there would be no significant cumulative impacts on fire, police, school, or governmental services.

Depending on its location, a new 480 MW power plant could increase the value of the Potrero Power Plant. If a new plant were located at or adjacent to the existing Potrero Power Plant and was considered an expansion of the existing plant, the new plant would likely increase the value of the plant and would, therefore, increase the amount of property tax revenues collected from the plant owner and paid to the City and County of San Francisco. Similarly, if the plant were located at a different location, a new owner (or possible the same owner) would be required to pay property taxes and, therefore, would increase the property tax revenues paid to the City and County of San Francisco. Since many of the local projects identified in Table 5.1 are intended to revitalize the Mission Bay/Potrero/Bayview-Hunter Point area, their implementation would likely also increase property tax revenue collections. The increase in property tax revenues received from the local projects would likely provide the necessary funding for any additional public services needs resulting from their implementation.

### **Contra Costa Power Plant**

The project itself would not impact public services. The local projects shown in Table 5.1 may result in significant increases in employment and population levels in the vicinity of the plant that could result in significant impacts on public services. However, the divestiture project in combination with these other projects would not result in any cumulatively considerable effects on public services. Therefore, there would be no significant cumulative impact on fire, police, school, or governmental services.

Implementation of the local projects would likely increase property tax revenues collected by Contra Costa County. The increase in property tax revenues received from the local projects would likely provide the necessary funding for any additional public services needs resulting from their implementation.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

The project itself would not impact public services. The cumulative increase in electricity generation and annual plant capacity factor would likely result in only incremental increases in employment levels. The resultant increase in demand for public services would be negligible in comparison to the existing demands for these services and, therefore, would not increase the need for new or altered fire protection services, police protection services or new school facilities. The

local projects shown in Table 5.1 would have no effect on employment levels and would have a very minimal effect on population levels in the Geysers area. Similarly, their implementation would not significantly affect the property tax revenues collected by Lake and Sonoma counties. Together, divestiture and the local projects would, therefore, have a less than significant impact on public services.

## ***UTILITIES AND SERVICE SYSTEMS***

### **Potrero Power Plant**

The project itself would not impact utilities and service systems in San Francisco. The local projects shown in Table 5.1 and the new 480 MW power plant could result in significant impacts to electrical system reliability, power, local water supplies, wastewater disposal and treatment, solid waste disposal services, natural gas systems, and communication systems. However, the divestiture project in combination with these other projects would not result in cumulatively considerable impacts to utilities and service systems.

### **Contra Costa Power Plant**

The project itself would not impact utilities and service systems in Contra Costa County. The local projects shown in Table 5.1 could result in significant impacts to electrical system reliability, power, local water supplies, wastewater disposal and treatment, solid waste disposal services, natural gas systems, and communication systems. However, the divestiture project in combination with these other projects would not result in cumulatively considerable impacts to utilities and service systems.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

The project itself would not impact utilities and service systems in Lake County or Sonoma County. The local projects shown in Table 5.1 would not result in significant impacts to electrical system reliability, power, local water supplies, wastewater disposal and treatment, solid waste disposal services, natural gas systems, and communication systems. Therefore, the divestiture project in combination with these other projects would not result in cumulatively considerable impacts to utilities and service systems.

Additionally, sustained steam production at the Geysers Power Plant resulting from implementation of the Santa Rosa Wastewater Modified Geysers Recharge Project and the Basin 2000 Project would allow existing power plant operations and energy production to continue over a period of 20 to 30 years. This would have the substantial beneficial effect of displacing the need for using fossil fuels for equivalent power generation at fossil-fueled power plants and would be a beneficial cumulative effect.

## ***AESTHETICS***

### **Potrero Power Plant**

The project in combination with other local developments would not result in cumulatively considerable effects on local vistas, scenic highways or creation of additional light and glare. Therefore, with the exception of a new 480 MW power plant in San Francisco, there would be no significant cumulative aesthetic impacts as related to light and glare.

A new 480 MW power plant in San Francisco could affect views in the City. If the new plant were located at or adjacent to the Potrero Power Plant, the new facilities could affect views of San Francisco Bay from residences located west of the plant. Although information on the height of the future facilities is not available, it is possible that views of the new 480 MW generating facilities would be blocked by existing structures (e.g., Unit 3) at the Potrero Power Plant. If built at this location, the new facilities could result in a larger massing of structures at the site and could block views of the San Francisco Bay from the residences west of the plant. The industrial character of the site would not substantially change with the new facilities. The new facilities could introduce an additional source of reflected sunlight or glare to the plant site from windows, automobiles, and other reflective surfaces and could introduce a new source of nighttime lighting. Because substantial changes to light and glare conditions and obstructed views could occur at the plant site, this would be considered a potentially significant cumulative aesthetic impact. Development of the generating facilities would be subject to separate CEC permitting and environmental review. At that time, appropriate mitigation measures would be adopted to address identified aesthetic impacts. It is too speculative to make a determination as to the aesthetic significance of a new plant at another unidentified location in the City. However, if such a new plant were not constructed near the Potrero plant, construction of the new plant would not have cumulative effects with the project.

### **Contra Costa Power Plant**

The project in combination with local developments would not have a cumulatively considerable effect on local vistas, scenic highways or due to creation of additional light and glare. Therefore, there would be no significant cumulative impacts.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

See discussion under Contra Costa Power Plant, above.

## ***CULTURAL RESOURCES***

### **Potrero Power Plant**

The project's impacts on cultural resources would be mitigated. The local projects identified in Table 5.1 could result in significant impacts to paleontological, archaeological and historical resources. However, the divestiture project in combination with these other projects would not result in any cumulatively considerable effects on cultural resources. Each individual project would be required to mitigate its potential effects on cultural resources.

In the case of a new 480 MW power plant in San Francisco, any necessary excavation has some potential for disturbing or destroying buried or previously unrecorded archaeological resources that may exist. Therefore, there would be a potentially significant impact on cultural resources at the site of the new power plant (but not a cumulative effect with the divestiture project).

Development of a new power plant would be subject to separate CEC permitting and environmental review. At that time, appropriate mitigation measures would be adopted to address identified cultural resources impacts. A type of mitigation measure similar to Mitigation Measure 4.14-1 in Section 4.14, Cultural Resources, may be considered appropriate.

### **Contra Costa Power Plant**

The project's impacts on cultural resources would be mitigated. The local projects identified in Table 5.1 could result in significant impacts to paleontological, archaeological and historical resources. However, the project would have no meaningful incremental effect on cultural resources that would be cumulative with the local projects, whose effects would occur with or without divestiture. Therefore, there would be no cumulative impacts due to the combined projects.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

See discussion under Contra Costa Power Plant, above.

## ***RECREATION***

### **Potrero Power Plant**

The project itself would not result in recreational impacts. The cumulative increase in electricity generation in San Francisco associated with a new 480 MW power plant would likely result in a minimal increase in employment levels (less than 100 persons). The resultant minor increases in population could, in turn, increase demand for regional and neighborhood recreational facilities. However, the minor increase would not be considered significant. The local projects shown in Table 5.1 may result in significant increases in employment and population levels that may result

in significant recreational impacts. However, the divestiture project in combination with these other projects would not result in any cumulatively considerable effects on demand for recreational facilities. Therefore, there would be no significant cumulative increases in demand for neighborhood or regional parks or other recreational areas.

### **Contra Costa Power Plant**

The project itself would not result in recreational impacts. The local projects shown in Table 5.1 may result in significant increases in employment and population levels that may result in significant recreational impacts. However, the project would have no meaningful incremental effect on demand for recreational facilities that would be cumulative with the local projects, whose effects would occur with or without divestiture. Therefore, there would be no significant cumulative increases in demand for neighborhood or regional parks or other recreational areas.

### **Pittsburg Power Plant**

See discussion under Contra Costa Power Plant, above.

### **Geysers Power Plant**

The project itself would not result in recreational impacts. The cumulative increase in electrical generation at the Geysers Power Plant could result in a minor increase in the number of employees at the plant site beyond that of divestiture alone. The resultant small increases in population could, in turn, increase demand for regional and neighborhood recreational facilities. However, the minor increase would not be considered significant. The local projects shown in Table 5.1 would not significantly affect employment and population. Therefore, divestiture and local projects in combination would not result in significant cumulative increases in demand for neighborhood or regional parks or other recreational areas.

## **5.3.3 CUMULATIVE EFFECTS UNDER VARIANT 1**

As described in Section 5.3.1, this section of the analysis considers the cumulative impacts associated with the construction and operation of a new 240 MW power plant north of the Martin Substation in San Mateo County, and possibly within the City and County of San Francisco (as opposed to the 480 MW power plant considered in Section 5.3.2), in combination with a new 230 kV transmission line into the City along the San Francisco Peninsula transmission corridor, and upgrades to the distribution network in downtown San Francisco. Under this scenario, total generation within the City would be less than what is considered in Section 5.3.2. Like the 480 MW power plant evaluated in Section 5.3.2, the 240 MW power plant could be located anywhere north of the Martin Substation or could be located on the same site as, or adjacent to, the Potrero Power Plant and could thus be considered an expansion of that plant. Because, under this variant, the annual capacity factors would not change at the Potrero and Contra Costa Power Plants and would increase by only 1 percent at the Pittsburg and Geysers Power Plants (an amount not likely to result in any considerable environmental impacts) when compared to the Cumulative Analytical Maximum scenario considered in Section 5.3.2 (see Table 5.2), the

impact discussion in Section 5.3.2 related to these plants adequately addresses any impacts that could occur under this scenario.

The impact discussion in Section 5.3.2 related to the siting of a new 480 MW power plant in San Francisco would also apply to the 240 MW power plant. However, given the larger generating capacity of a 480 MW power plant, the magnitude of the impacts associated with the 240 MW power plant would be correspondingly lower. The potential levels of significance of the impacts, particularly at this stage given the dearth of information on location and design of any new plant, would be the same as for the 480 MW plant.

Construction of a new 230 kV transmission line into San Francisco could pose its own significant environmental impacts, even if that line were to follow an existing transmission corridor. Considerable planning and constraint studies would be required prior to the siting of such a line. Given the highly developed urban character of any area inside or outside of San Francisco through which such a transmission line would run, it is assumed that significant short-term environmental impacts would result from its construction. Short-term construction impacts could include air quality, noise, visual and transportation impacts. Operation of the line could increase the number of people exposed to electromagnetic fields (EMFs) from overhead transmission lines if they were sited adjacent to residential or other sensitive areas. There could also be long-term visual impacts depending on the size and location of the transmission towers. Furthermore, a new transmission line could be exposed to multiple types of geologic hazards along its corridor. In general, the greater the length of transmission corridor, the greater the likelihood of a failure of the transmission line in a major earthquake, particularly if the corridor were to cross active fault zones and particularly weak soils subject to liquefaction, lateral movements, landslides and other high risk environments. As no specific plans have been developed at this time, a determination of the significance of any impacts would be speculative; however, any such impacts would not be expected to combine in any cumulatively considerable manner with the project's effects. A new transmission line would require project-specific environmental review and approval from the CPUC.

#### 5.3.4 CUMULATIVE EFFECTS UNDER VARIANT 2

As described in Section 5.3.1, operation of the Pittsburg District Energy Facility (PDEF) in conjunction with divestiture and other cumulative projects would drive down the annual plant capacity factors at each of the plants being divested, when compared to the 2005 Cumulative Analytical Maximum scenario considered in Section 5.3.2. The reduction in generation at each of these plants would be caused in part by new generation at the PDEF. Based on the reduction in generation, any impacts that could occur in the immediate vicinity of the plants being divested would be lessened by the operation of the PDEF. However, construction and operation of the new plant would have its own localized impacts and could result in some regional impacts in combination with the plants being divested. The proposed location of the PDEF is roughly 1 mile east of the Pittsburg Power Plant and 5.5 miles west of the Contra Costa Power Plant. To the extent that information is available, this section considers the combined impacts of the proposed project and the new PDEF. When further defined, the PDEF project would be subject

to separate environmental review and permitting by the CEC and other agencies with jurisdiction over the plant's operations. The major environmental concerns related to the operation of the PDEF in conjunction with the Contra Costa and Pittsburg Power Plants are discussed briefly below.

Operation of the new plant could adversely affect water resources in the Bay-Delta. Based on the proximity of the plant to the Contra Costa and Pittsburg Power Plants, the new plant could increase the potential for thermal discharge impacts to marine water quality. This would be a potentially significant cumulative impact on water resources. However, the owner of the new plant would be required to apply for an NPDES permit from the SFRWQCB prior to operation of the plant. In issuing the NPDES permit, which would establish effluent limitations for the proposed plant, the SFRWQCB would consider all of the discharge sources in the Bay-Delta, including the Contra Costa and Pittsburg Power Plants. Therefore, it is anticipated that any significant cumulative impact on water resources with respect to the inclusion of the PDEF could be mitigated to a less than significant level.

In addition to protecting water resources, the NPDES permit would be designed to protect the aquatic resources of the Bay-Delta. As described in Section 4.7 of this EIR, Biological Resources, one of the primary biological issues associated with PG&E's Pittsburg and Contra Costa Power Plants is the entrainment and impingement of sensitive aquatic resources during cooling water intake. Currently, PG&E's Resource Management Program uses a system of preferential commitment and dispatch between the two plants depending on larval striped bass densities. The addition of a third power plant would increase the total amount of water intake structures in the area, thus increasing the potential for entrainment and impingement. Furthermore, the Pittsburg and Contra Costa Power Plants are proposed for sale to a single owner in order to maintain preferential dispatch. As the PDEF would likely have a different owner, the coordination of power plant operations depending on local striped bass densities would become problematic and unlikely. This would be a significant cumulative impact on biological resources unless mitigated through measures such as PDEF's construction of units similar to Pittsburg's Unit 7, which is equipped with a closed-cycle cooling water system.

The air quality discussion here focuses on the potential for cumulative impacts to occur related to the siting of the new PDEF in proximity to the Contra Costa and Pittsburg Power Plants. Generally speaking, operation of the new PDEF could adversely affect air quality in the San Francisco Bay Area at both a local and regional level. The addition of the new PDEF in Pittsburg would likely result in a minimal increase in employment levels (less than 100 persons). The resultant increase in traffic and associated criteria air pollutant emissions would also be minimal. The local projects identified in Table 5.1 may result in significant increases in traffic in the vicinity of the new PDEF that may result in significant increases in criteria air pollutant emissions. However, the mobile source emissions associated with the new PDEF in combination with other projects would not result in any cumulatively considerable emissions of criteria air pollutants. Instead, the main issue of concern relates to the stationary source emissions associated with the power generation process at the new plant.



Emissions estimates have been made for cumulative scenarios with and without the new PDEF. Tables G-6 and G-14, in Attachment G of this EIR, show estimates of criteria air pollutant emissions under the 2005 Cumulative Analytical Maximum scenario and the 2005 Variant 2 cumulative scenario, respectively. A comparison of these scenarios shows that at a regional level (which accounts for the sum of emissions from the four divested plants, the projected new 480 MW plant in San Francisco and the new PDEF), emissions of each criteria pollutant, except PM-10, would decrease with the inclusion of the new PDEF. PM-10 concentrations are shown to increase in 2005 by an estimated 20 tons per year regionally with the new PDEF. However, as a percentage of BAAQMD-projected Bay Area regional emissions in 2005, the change in power plant emissions of PM-10 over 1999 baseline conditions would be less than 1 percent and, therefore, would be considered a less than significant cumulative impact to regional air quality.

Operation of the new PDEF could adversely affect air quality at a local level. A comparison of Tables G-6 and G-14 also shows that at a local level (which accounts for the sum of emissions from the Contra Costa Power Plant, the Pittsburg Power Plant, and the new PDEF), emissions of PM-10 and sulfur oxides would increase with the inclusion of the new PDEF as compared to without it. Emissions of other criteria air pollutants (i.e., CO, ROG and NO<sub>x</sub>) would drop. The new PDEF may also increase concentrations of toxic air contaminants that could potentially increase overall health risks. Therefore, the new PDEF could result in potentially significant cumulative effects on local air quality. However, when further defined, the new PDEF would be subject to separate, project-specific environmental review and permitting by the CEC and other agencies with jurisdiction over the plant's operation, at which time the potential for these impacts to occur would be fully evaluated. For example, the owner of the new plant would be required to apply for a series of permits (i.e., a Permit to Construct, a Permit to Operate, and Title IV and V permits) from the BAAQMD prior to construction and operation of the plant. Similarly, prior to operation, the new owner would be required to complete a AB 2588 health risk assessment. In issuing the permits for operation of the power plant, which would establish emission limits for the proposed plant, the BAAQMD may require design changes (e.g., stack height adjustments), stringent control measures and/or emissions offsets for pollutants of concern. Therefore, it is assumed that any significant impact on local concentrations of criteria air pollutants and toxic air contaminants associated with the new PDEF would be mitigated to a less than significant level. It is also assumed that the combined emissions from the Pittsburg and Contra Costa Power Plants and the new PDEF would be minimal relative to ambient concentrations associated with mobile sources. In light of the low health risks associated with the operation of the Pittsburg and Contra Costa Power Plants and the permitting process that would apply to the new PDEF (as discussed above), any localized significant cumulative air quality impacts could be mitigated to a less than significant level.

As described in Section 4.5, Air Quality, emissions projections developed for the '97 *Clean Air Plan* correspond to Years 2000 and 2003. Since it is likely that, if approved, the new PDEF would be operational by 2003, a determination of its consistency with regional air quality plans is germane. First of all, since the PDEF plant would be a combined-cycle combustion turbine unit, the issues surrounding BAAQMD Regulation 9, Rule 11 (which applies to steam boilers) would not apply. Secondly, the new PDEF is estimated to result in a net decrease in NO<sub>x</sub>

emissions by displacing power generation (and associated NO<sub>x</sub> emissions) from older fossil-fueled units in the Bay Area (see Tables G-6 and G-14 in Attachment G). However, the new PDEF would not be expected to be operational (and provide this emissions reduction) during the period in which Bay Area power plant NO<sub>x</sub> emissions are estimated to be significantly higher than the corresponding emissions included in the '97 *Clean Air Plan*. Therefore, while the new PDEF would reduce Bay Area power plant NO<sub>x</sub> emissions over the long-term, it would not avoid Impact 4.5-5 (i.e., temporary, significant increase in power plant emissions over those anticipated in the '97 *Clean Air Plan*) as described in Section 4.5.

---

## REFERENCES – Cumulative Impacts

- California Energy Commission, *Staff Report: 1998 Base Energy Outlook*, Report No. P300-98-012, Draft, July 1998.
- Fesmire, V.R., Geothermal Resources Council, Transactions, "The Geysers Steam Field Decline Study," Volume 17, October 1993.
- Grande, M.G. and S.L. Eney, Geothermal Resources Council, Transactions, "Power Plant Operating Alternatives for Improving and Extending Reservoir Performance at The Geysers," Volume 13, October 1989.
- Hackley, Doug, Project Manager, Unocal Domestic Geothermal Division, telephone conversation, June 15, 1998.
- Haussler, Robert, Manager, Energy Facilities Siting Office, California Energy Commission, telephone and facsimile communication, July 1, 1998.
- Howe, Kenneth, "Deal May Give Area 4 Power Plants," San Francisco Chronicle, July 28, 1998.
- Lai, Peter, Manager, Transmission Planning, Pacific Gas and Electric Company, letter to WRTA Members, and Planning Committee and California ISO Grid Interested Parties, January 7, 1998.
- Parsons, *Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) for the Santa Rosa Subregional Long-Term Wastewater Project*, 1996.