3.7 ENERGY

This section discusses existing energy conditions within the Oyster Point Marina Park (Marina) and describes applicable regulations pertaining to energy. The assessment of adverse effects and mitigation measures of the project related to energy are also described.

The 2003 WTA PEIR for the expansion of ferry service in the Bay Area evaluated environmental impacts related to energy. As this is a project-level analysis that tiers from and incorporates the 2003 WTA PEIR, this section evaluates the site-specific environmental impacts related to energy.

No comment letters related to energy were received in response to the December 17, 2004, Notice of Preparation (NOP) circulated for the project. The NOP and a summary of issues raised during the Public Scoping process are included in Appendix A of this EIR/EA.

3.7.1 ENVIRONMENTAL SETTING

Energy Supply and Demand

Electrical Power

Currently, at Oyster Point Marina Park (Marina), tenants pay for the electricity delivered to each berth, with an average cost of $40 per month for live-aboard vessels.

Table 3.7-1 provides a comprehensive overview of the sources of all of the electrical energy that is consumed in California; breakdowns are provided with respect to both the "fuel" type and the place of origin.

As shown in Table 3.7-1, a considerable percentage of the electrical power that is used in California is imported, approximately 23 percent. Actually, the practice of the California Energy Commission is to classify certain coal-fired plants that are located outside of California but controlled by California as "in-state," so that the percent of electricity used in California that is imported is even somewhat higher than 23 percent.

Also shown in Table 3.7-1 is the predominance of natural gas as the source of electrical energy. With regard to the production of electrical energy, natural gas is the primary 'swing' fuel: natural-gas-fired electricity plants are called upon to make up for dips in supply or peaks in demand. Other sectors of the economy consume natural gas, such as the residential (space heating, cooking, and heating domestic hot water), industrial, mining, and commercial sectors, but electricity generation is now the primary use of natural gas in California. Around 2000, the use of natural gas for electricity production began to clearly outstrip residential use.

Figure 3.7-1 presents projections of future supply and demand conditions for electricity in California.

Table 3.7-1 2002 Gross System Electrical Power (GSP) (gigawatt-hours)					
Fuel Type	*In-State*	*Imported from across State Lines in Northwest California*	*Imported from across State Lines in Southwest California*	*GSP*	*GSP%*
Coal	27,618	5,283	21,852	54,483	20.0
Large Hydro	26,937	19,304	1,959	48,200	17.7
Natural Gas	90,898	1,717	6,685	99,480	36.5
Nuclear	34,353	882	5,267	40,502	14.9
Renewables					
Biomass	7,140			7,140	2.6
Geothermal	13,946			13,946	5.1
Small Hydro	4,382			4,382	1.6
Solar	864			864	0.3
Wind	3,546			3,546	1.3
Subtotal Renewables	*29,879*			*29,879*	*11.0*
Totals	*209,685*	*27,186*	*35,673*	*272,544*	*100*

SOURCE: California Energy Commission 2003c

A "gigawatt" is a billion watts.

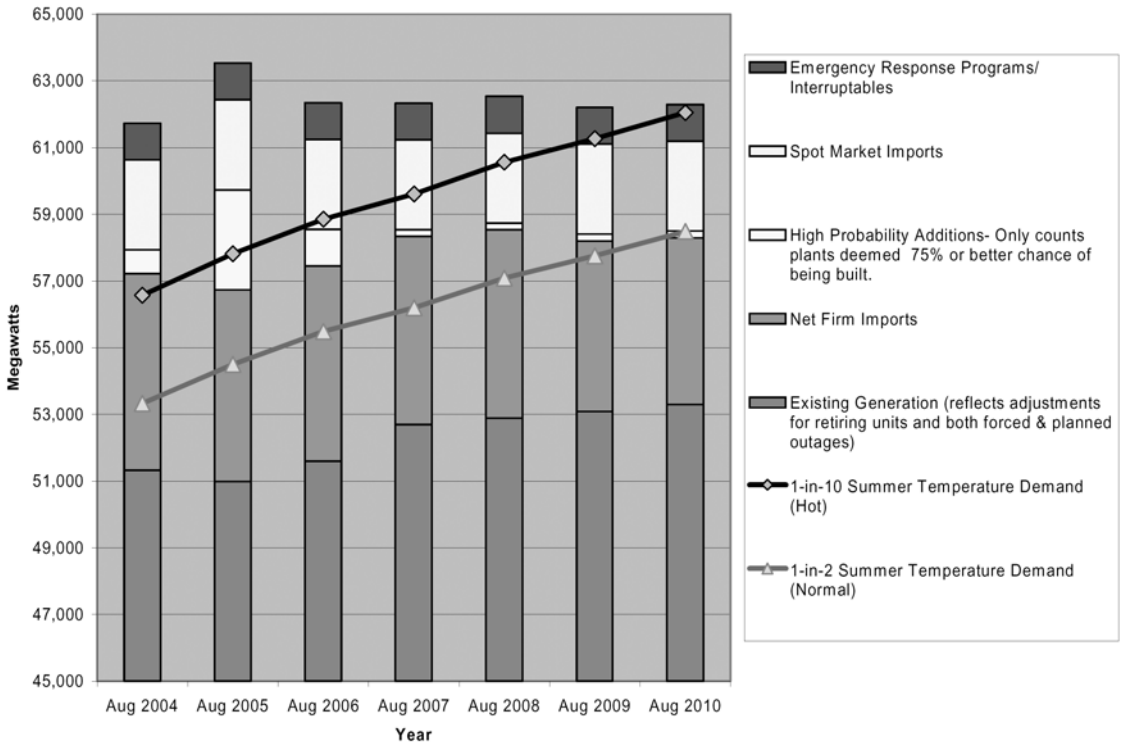

Figure 3.7-1 Electricity Supply Demand Balance for 2004–2010

SOURCE: California Energy Commission 2003a

The vertical bars of the figure represent supply, and the very top of a given bar represents the maximum available supply that is projected for the given year. The two curves that traverse the bars represent increasing demand. The upper (with diamond-shaped markers) represents peak electricity demand such as is exceeded only on one out of ten summer days.

The dark rectangular areas at the very tops of the vertical bars of this chart represent the portion of the 'supply' that is produced by emergency response programs and interruptions. This refers to conservation efforts and to interruptions of service to selected users that would be undertaken in response to a projected shortfall, so that it does not represent actual supply as much as averted or unmet demand.

The projections of Figure 3.7-1 are that the hottest of summer days will begin triggering emergency response programs and service interruptions in about the year 2009, unless in the meantime other supplies are developed or demand is reduced. Electricity usage in Alameda, San Francisco, San Mateo, and Santa Clara Counties is approximately 14 percent of the statewide total.

Transportation Fuel

There have been experimental and pilot projects to make a form of oil out of such feedstocks as coal, municipal waste, or salvaged tires. Diesel engines can be run on a liquid fuel that is derived from vegetable oil. Some battery-powered vehicles are in use, and there are pilot programs that involve powering fleet vehicles with either natural gas or liquefied petroleum gas. Furthermore, with encouragement from both the government of California and the federal government, automakers are developing hydrogen-gas powered automobiles that would utilize fuel cells.

However, it is overwhelmingly the case that the fuels of transportation in California are presently the three liquids (jet fuel, gasoline, and diesel fuel) and that they are all derived from petroleum. Furthermore, it will be a decade or more before alternative fuel use amounts to a substantial share of transportation fuel usage.

The ferries would be 149-passenger vessels with a maximum power output of 2,900 horsepower 2,163 kW. The ferries would use diesel engine with selective catalytic reduction (SCR) and a particulate trap (PT), running on diesel fuel and using mechanical-drive propulsion.

Currently, four shuttles are available from the Caltrain station and five shuttles are accessible from the BART station. As discussed in Section 3.8 (Transportation and Circulation), these existing shuttles may provide service at the project. If not, up to 3 to 4 full-size transit buses or 6 to 7 minibuses would be needed to provide service. These buses would be fueled by diesel.

Table 3.7-2 shows that, opposite to the circumstances of electricity production, transportation energy involves a single source from which multiple end products are produced.

Table 3.7-2 California Petroleum Use, 2000		
Fuel Type	*Percent*	*Thousands of Barrels per Day*
Gasoline	61.1	933
Jet Fuel	18.4	282
Distillate*	12.5	191
Residual	7.3	112
Other	0.7	11
Totals	*100.0*	*1,529*

SOURCE: California Energy Commission 2003b

* Primary Diesel

In California's refineries, other products are derived from petroleum, such as asphalt, but the bulk of the production is of transportation fuels. California also imports some transportation fuels and fuel blend stocks, but it is California refineries that principally meet California's demand for transportation fuels. The demand of California refineries for crude oil, the petroleum, is in turn met by in-state production (48 percent), Alaskan production (22 percent), and foreign production (30 percent).

Figure 3.7-2 shows the existing and projected shortfall of the California production of gasoline and diesel fuel. The balance, which must be made up by imports, is projected to grow continuously. Gasoline usage for Alameda, San Francisco, San Mateo, and Santa Clara Counties is about 13 percent of statewide usage, whereas diesel fuel usage is about 8 percent of the statewide total.

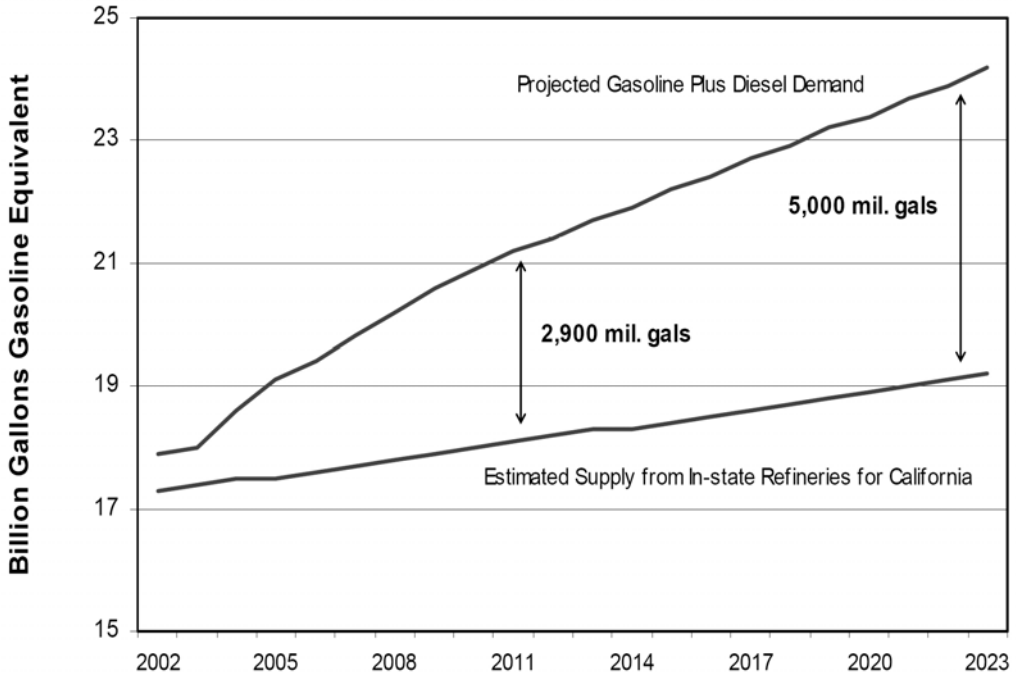

Figure 3.7-2 Projected Gasoline and Diesel Transportation Demand Versus Supply

3.7.2 REGULATORY FRAMEWORK

Federal Regulations

Corporate Average Fuel Economy

Corporate Average Fuel Economy (CAFE) standards are federal regulations set to reduce energy consumed by on-road motor vehicles. They specify minimum fuel consumption efficiency standards for new automobiles sold in the United States. The current standard for passenger cars is 27.5 miles per gallon (mpg). The 1998 standard for light trucks was 20.7 mpg (Competitive Enterprise Institute 1996). In April 2002, the National Highway Traffic Safety Administration, part of the U.S. Department of Transportation, issued a final rule for CAFE standards for model-year 2004 light trucks that codified the 20.7 mpg standard; this level is now in effect.

SAFETEA-LU

On August 10, President Bush signed the *Safe, Accountable, Flexible, Efficient Transportation Equity Act—a Legacy for Users* (SAFETEA-LU) into law. The $286.4 billion new law reauthorizes federal surface transportation programs through 2009. The new law comes after twelve temporary extensions of the previous authorization, TEA-21, which officially expired on September 30, 2003. SAFETEA-LU essentially maintains the programmatic structure and funding balance established in 1991's ISTEA and continued in TEA-21. The new law extends the five current so-called core programs and adds a new core program. The six programs are interstate maintenance (IM), national highway system (NHS), surface transportation program (STP), bridge and bridge maintenance, congestion mitigation and air quality (CMAQ), and the new highway safety improvement program (HSIP). The law provides an approximate 80:20 ratio of highway to transit spending, a level similar to TEA-21.

State Regulations

California Assembly Bill IX

On February 1, 2001, Governor Gray Davis signed into law Assembly Bill IX, which authorized the California Department of Water Resources to purchase electricity under long-term contracts and resell it to Southern California Edison (SCE) and Pacific Gas and Electric (PG&E), which, as a result of financial constraints, were unable to enter into long-term power contracts with power generators. Assembly Bill IX is significant because it made the State government an active participant in the California power industry.

3.7.3 IMPACTS AND MITIGATION MEASURES

Methodology

The methods used to evaluate the potential effects from operation (direct energy effects) of the project are described below. The effects that the project would have on regional energy supply (the combination of energy derived from petroleum fuels and electrical energy) were assessed.

Environmental Criteria

Based on environmental criteria developed by the WTA, and in accordance with the requirements of CEQA and NEPA and all applicable state and federal environmental laws, the project would have an adverse effect on the environment if it would do any of the following:

- Lead to a substantial increase in overall energy consumption by:
  - Placing a substantial demand on regional energy supply or require substantial additional capacity, or
  - Significantly increasing peak and base period electricity demand
- Lead to a wasteful, inefficient, and unnecessary usage of energy

Impacts and Mitigation Measures Incorporated from 2003 WTA PEIR

The 2003 WTA PEIR (URS, 2003) included many impacts and mitigation measures that are either addressed in this document or are not applicable to this project. A table of impacts and mitigation measures from the PEIR is included as Appendix H of this document and includes a column showing how the PEIR impacts and MMs are applied to this project (i.e., *IR*—Incorporated by Reference, *AD*—Addressed in EIR, and *NA*—Not Applicable). For energy resources, the PEIR impacts are either not applicable to this EIR/EA or already addressed in this EIR/EA as noted in Appendix H.

Impacts and Mitigation

Threshold:	Would implementation of the project place substantial demand on regional energy supply?

Impact 3.7-1a **Implementation of the project could place increased demand on regional energy supply.**

In order to understand the consumption of ferry travel in comparison to automobile and bus travel, the 2003 WTA PEIR created a consumption chart for the WTA which shows that all ferry expansions could increase energy consumption. Compared to current consumption, the Proposed Program expansion would result in an increase in total daily energy consumption and energy consumption per passenger mile traveled (PMT) for all transit modes in the Bay Area. This increase is summarized in Table 3.7-3 below.

Table 3.7-3 Project Energy Consumption				
	Total Energy Consumption all Transit Modes (Btu)	*Percent Increase in Energy over No Project Alternative*	*Energy/PMT (Btu/PMT)*	*Percent Increase in Energy/PMT over No Project Alternative*
Project	1,205,158,328,459	0.09	4,360	0.41
No Project	1,204,064,104,267	NA	4,342	NA

SOURCE: San Francisco Bay Area Water Transit Authority. 2003 WTA PEIR. www.watertransit.org. September 13, 2005.

Automobile usage primarily determines the totals for energy consumption and energy consumption per PMT values. For the analysis above, automobiles are predicted to use approximately 92 percent of the total energy consumed by the transportation sector in 2025, and 75 percent of the total PMT. Ferries would consume between 0.22 percent and 0.05 percent of the total energy consumed by the transportation sector and between 0.15 percent and 0.09 percent of the total PMT for the project and the current consumption, respectively. Although there is an increase in energy use, it is not a substantial increase regionally, as shown above.

Additional passengers using the planned service routes can increase passenger miles traveled without requiring additional vessels, which would increase the passenger mile traveled measure of efficiency discussed in this impact. As routes and service are implemented, the WTA will make adjustments in service that will have the effect of improving the efficiency of the system, both from energy consumption and cost effectiveness criteria.

The Proposed Program expansion would result in a 0.41 percent increase over the current situation (No Project) in energy consumption per passenger mile traveled for all transit modes in the Bay Area. While this is on a larger scale than the project considered here, proportionately the consumption comparison is accurate.

Impact 3.7-1b Implementation of the project would not significantly increase peak and base period electricity demand.

As described above, the proposed program expansion would result in a 0.41 percent increase over the current situation (No Project) in energy consumption per passenger mile traveled for all transit modes in the Bay Area. Again, this is on a much larger scale as it is for the entire WTA program expansion; however, proportionately the consumption comparison is accurate. Like the program expansion, the South San Francisco Project will be utilized to provide transportation during peak hours. So, the 0.41 percent increase in energy consumption would be primarily applied during the peak hours when operation is highest. This increase would not significantly increase electricity demand and is therefore considered to have a minimal effect.

CEQA Conclusion: The impact on regional energy supply caused by the proposed project is considered less than significant. No mitigation would be required.

Threshold	Would implementation of the project lead to a wasteful, inefficient, and unnecessary usage of energy?

Impact 3.7-2 **Implementation of the project would not lead to a wasteful, inefficient, and unnecessary usage of energy. Both the ferry boats and their support system of buses would burn clean fuels and displace gasoline consumption based on their passenger load.**

The project includes the use of 149-passenger vessels with a maximum power output of 2,900 horsepower 2,163 kW. These vessels are considered relatively clean energy consumers because they emit very low levels of pollutants and consume efficient amounts of fuel.

The buses providing access to the ferry terminal would use less gasoline compared to their patron's use because the patrons substitute this mass-transit for their own personal automobile use. The diesel fuel used to power the buses serving the ferry terminal could come from petroleum that would have otherwise gone to produce the gasoline used for private automobiles. This means that any new demand for diesel fuel that would be brought about by these buses would not directly or substantially draw upon vital energy resources.

The two main energy consumers involved with the project, the ferries and their support buses, would not only burn relatively clean fuels but also will use displaced petroleum to support their own consumption.

CEQA Conclusion: The impact on wasteful, inefficient, and unnecessary usage of energy caused by the proposed project is considered less than significant. No mitigation would be required.

3.7.4 REFERENCES

California Energy Commission. 2001. Silicon Valley Electricity Consumption. http://www.energy.ca.gov/electricity/silicon_valley_consumption.html, accessed March 8, 2004.

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Caltrans. 2003. California Motor Vehicle Stock, Travel and Fuel Forecast, November. These fuel use estimates are actually year 2005 projections. Another Caltrans study that reported 2001 gasoline usage sets the gasoline usage in the four counties at 16 percent of the statewide total.

URS. 2003. *Final Program Environmental Impact Report—Expansion of Ferry Transit Service in the San Francisco Bay Area*, June.