

Introduction

On May 18, 2004, the Board of Supervisors adopted a motion directing the Budget Analyst to perform a management audit of the Public Utilities Commission (Motion No. M04-57). As explained below, this report is the result of the second phase of a four-phase management audit. Our first phase management audit report on the Clean Water Enterprise was issued on September 27, 2004.

Purpose and Scope

The purpose of this management audit is to evaluate the economy, efficiency, and effectiveness of the Public Utilities Commission's programs, activities, and functions, and the Public Utilities Commission's compliance with applicable State and Federal laws, local ordinances, and City policies and procedures. This management audit is conducted in four phases:

- The *Phase I Management Audit of the Public Utilities Commission – Clean Water Enterprise Fund* report was submitted to the Board of Supervisors on September 27, 2004.
- Phase II, which is the subject of this report, is a review of the Hetch Hetchy Enterprise's programs, activities and functions.
- Phase III is a review of the Water Enterprise Fund's programs, activities, and functions, including water supply, treatment, and distribution for regional and City customers.
- Phase IV is a review of the programs, activities, and functions of the Public Utilities Commission as a whole, including the Water System Capital Improvement Program, administrative functions, and enterprise functions, such as asset management, that affect all three enterprise funds.

This Phase II report reviews the Hetch Hetchy Enterprise in terms of:

- Business planning and risk management processes.
- Implementation of analytical software.
- Maintenance and operations functions.
- Personnel management.
- The billing and collection of retail electricity accounts.
- Streetlight management.

- The Power Policy Division’s output and organization.

Audit Methodology

The management audit was conducted in accordance with *Governmental Auditing Standards, 2003 Revision*, issued by the Comptroller General of the United States, U.S. General Accounting Office. The management audit staff presented a draft report to the Public Utilities Commission General Manager on November 10, 2004. The management audit staff held an exit conference with the General Manager and key members of the Public Utilities Commission’s management staff on November 18, 2004, to discuss the draft report. After careful consideration of the additional information provided after submission of the draft report and at the exit conference, the management audit staff prepared a final report. The Public Utilities Commission has provided a written response to the Budget Analyst’s Phase II Hetch Hetchy Enterprise management audit report, which is appended to this report.

Overview of the Hetch Hetchy Enterprise

The Hetch Hetchy Enterprise owns and operates major water storage reservoirs, four hydroelectric power generating plants, and water and electric transmission systems to deliver water and power to the San Francisco Bay Area. The Hetch Hetchy reservoir system provides drinking water for the residents of San Francisco and for suburban customers. The Hetch Hetchy’s hydroelectric power generating plants provide electricity to the City’s municipal load customers, including the Port and the Airport, to the Modesto and Turlock Irrigation Districts, and to retail customers including the Airport tenants and Norris Industries, a Federal munitions factory in Riverbank, California.

The City of San Francisco has a “water first” policy. In September of 2002 the State Legislature adopted Assembly Bill 1823, which specified that the City shall assign higher priority to the delivery of water from the Hetch Hetchy Project to the Bay Area than to the generation of electric power. In November of 2002, the City added a provision to the Charter, consistent with Assembly Bill 1823, that the Public Utilities Commission would “operate hydroelectric generation facilities in a manner that causes no reasonably anticipated adverse impacts on water service and habitat”.

The 1913 Raker Act

The 1913 Federal Raker Act granted the City of San Francisco rights-of-way for public lands in the Yosemite National Park and the Stanislaus National Forest to construct dams and reservoirs and other infrastructure to provide drinking water and hydroelectric power to San Francisco. The City built the O’Shaughnessy Dam along the Tuolumne River in Yosemite National Park’s Hetch Hetchy Valley, creating the Hetch Hetchy Reservoir. The Raker Act required the production of hydroelectric power as a by-product of the Hetch Hetchy Reservoir system, and ensured that the Modesto and Turlock Irrigation Districts, which had prior Tuolumne River water rights, would continue to receive water

through bypass flow requirements and limited rights to hydroelectric power from the Hetch Hetchy water system.

The Raker Act establishes bypass flow requirements on the City's use of the Hetch Hetchy Reservoir system to divert and store water in order to meet the Districts senior water rights. Under the Raker Act:

- Either 2,350 cubic-feet-per-second or natural flow, whichever is less, as calculated below La Grange Dam must be bypassed to the Modesto and Turlock Irrigation Districts at any time; and
- Either 4,000 cubic-feet-per-second or natural flow, whichever is less, as calculated below La Grange Dam must be bypassed to the Modesto and Turlock Irrigation Districts for 60 days in each year starting on April 15.

The Raker Act also establishes requirements for the City's use of the Hetch Hetchy Reservoir system's hydroelectric power. Under the Raker Act:

- Hydroelectric power from the Hetch Hetchy Reservoir system is to be used to meet the City's municipal and commercial needs and certain qualified loads of the Modesto and Turlock Irrigation Districts.
- Hydroelectric power in excess of that needed for the City's municipal needs must be offered to the Modesto and Turlock Irrigation Districts at cost for certain qualified loads, which include agricultural pumping and municipal loads.
- Once these requirements have been met, excess hydroelectric power can then be sold to other municipalities and public agencies, including the Modesto and Turlock Irrigation Districts, for resale or directly to retail end users, but cannot be sold to private corporations for resale.

The Hetch Hetchy Enterprise Reservoir System

The City constructed the O'Shaughnessy Dam and Eleanor Dam, which created the Hetch Hetchy Reservoir and Lake Eleanor reservoir in the Yosemite National Park, and the Cherry Dam, which created the Cherry Lake reservoir in the Stanislaus National Forest. Water from the Hetch Hetchy Reservoir flows through the Canyon Power Tunnel to the Kirkwood Powerhouse, generating hydroelectric power. From the Kirkwood Power House, water then flows through the Mountain Tunnel downstream to the Moccasin Powerhouse, further generating hydroelectric power, and to the Moccasin Reservoir. Upon leaving the Moccasin Reservoir, the water flows through the Foothill Tunnel toward San Francisco, to be used as drinking water for San Francisco residents and the suburban customers.

Water from Lake Eleanor can be diverted into Cherry Lake. Water from Cherry Lake flows into the Cherry Power Tunnel. The Holm Powerhouse generates hydroelectric power from water flowing through the Cherry Power Tunnel. From the Holm

Powerhouse, the water is released into the lower Tuolumne River to flow into the New Don Pedro Reservoir. The New Don Pedro Reservoir is the primary water storage facility for Modesto and Turlock Irrigation Districts, and the water from the New Don Pedro Reservoir is used primarily for irrigation.

During the development of the New Don Pedro Reservoir, which was completed in 1971, the City of San Francisco entered into agreements with the Modesto and Turlock Irrigation Districts to specify their respective responsibilities for the New Don Pedro Reservoir. These agreements allocate to San Francisco approximately 570,000 acre-feet to 740,000 acre-feet of New Don Pedro Reservoir water storage space, which serves as a “water bank” to meet San Francisco’s obligations to the Modesto and Turlock Irrigation Districts. San Francisco receives a water bank credit when inflows to the New Don Pedro Reservoir from the Hetch Hetchy Reservoir system exceed the Modesto and Turlock Irrigation Districts’ water entitlement from San Francisco. San Francisco receives a water bank debit if the Hetch Hetchy Reservoir system diverts water from the New Don Pedro Reservoir that would otherwise be part of the Modesto and Turlock Irrigation Districts’ water entitlement.

The Hetch Hetchy Enterprise Hydroelectric Power Generation

The Hetch Hetchy Enterprise generates hydroelectric power as a by-product of the Hetch Hetchy Reservoir system. As water flows from the Hetch Hetchy and Cherry Lake reservoirs, hydroelectric power is generated in the Holm, Kirkwood, and Moccasin Powerhouses. The Hetch Hetchy Enterprise hydroelectric powerhouses can generate on average approximately 1.6 billion kilowatt hours of electricity each year with a peak capacity of 410 megawatts. Under the Raker Act, the Hetch Hetchy Enterprise generates electricity to meet San Francisco’s own municipal needs and must offer to sell when available a portion of the electricity at cost to the Modesto and Turlock Irrigation Districts to meet their municipal and agricultural pumping needs. Once San Francisco’s municipal needs and obligations to Modesto and Turlock Irrigation Districts are met, excess electricity generated by the Hetch Hetchy Enterprise’s power houses can be sold to end users for their use, or to other public agencies, such as the Districts, for resale.

The Hetch Hetchy Enterprise also owns transmission lines to transmit electricity generated by the Hetch Hetchy Enterprise hydroelectric power houses to power facilities in Newark and Tracy, where the Pacific Gas and Electric Company’s system transmits the hydroelectric power into San Francisco.

The City’s 1987 Interconnection Agreement with Pacific Gas and Electric Company

The Pacific Gas and Electric Company provides certain electricity services to the City under the 1987 Interconnection Agreement, including transmission and distribution (or “wheeling”) of electricity generated by the Hetch Hetchy Enterprise hydroelectric power houses within the Pacific Gas and Electric Company’s service territory, and scheduling of the electricity onto the State’s electricity grid.

The Public Utilities Commission's \$16 Million Dispute with the Pacific Gas and Electric Company over Charges Imposed by the California Independent System Operator

Under the 1987 Interconnection Agreement, the Pacific Gas and Electric Company schedules hydroelectric power generated by the Hetch Hetchy Enterprise onto the State's electricity grid. As a result of the 1998 deregulation of the electricity market, the California Independent System Operator was created to manage the State's electricity grid, resulting in the establishment of new fees and tariffs for scheduling, transmitting and distributing electricity across the electricity grid. Although the 1987 Interconnection Agreement has insulated the Public Utilities Commission and the Hetch Hetchy Enterprise from some of the California Independent System Operator's tariffs and charges, the Public Utilities Commission is currently in a dispute before the Federal Energy Regulatory Commission, in which the Pacific Gas and Electric Company has claimed \$16 million in California Independent System Operator charges incurred on behalf of the Public Utilities Commission between April 1998 and December 2003. The Public Utilities Commission is currently litigating this dispute at the Federal Energy Regulatory Commission.

The Public Utilities Commission's \$28 Million Dispute with the Pacific Gas and Electric Company over Charges for Surplus Electricity and Other Charges

The 1987 Interconnection Agreement provides for a "deferred delivery account" in which the Public Utilities Commission can deposit surplus electricity generated by the Hetch Hetchy Enterprise hydroelectric power houses. The deferred delivery account is comprised of three sub-accounts, segregating the surplus electricity by the time periods in which the electricity was deposited into the account. The Public Utilities Commission can withdraw electricity from the sub-account to meet electricity needs corresponding to the time period in which the electricity was generated and deposited into the account. Withdrawals from the deferred delivery account can only be used for sales to municipal customers and the Modesto and Turlock Irrigation Districts.

The Pacific Gas and Electric Company has asserted that the Public Utilities Commission owes an additional \$28 million for services under the Interconnection Agreement from July 2000 through December 2003. The Public Utilities Commission has already paid approximately \$47 million to the Pacific Gas and Electric Company for services during this same time period. A large portion of the claim is related to the Pacific Gas and Electric Company's treatment of the deferred delivery account, discussed above. In the dispute, the Pacific Gas and Electric Company has claimed that the Public Utilities Commission must pay charges for the additional system capacity that is required to deliver the deferred electricity. As part of this dispute, the Hetch Hetchy Enterprise's Retail Services Section is reviewing three years of retail meter data¹ provided by the Pacific Gas and Electric Company to determine if the meter readings were correct. The Pacific Gas and Electric Company has attempted to litigate this dispute in its bankruptcy

¹ The Pacific Gas and Electric Company owns most of the retail electricity meters that serve San Francisco's municipal customers. The Pacific Gas and Electric Company reads these meters and provides meter reading files to the Hetch Hetchy Enterprise's Retail Services Section monthly for billing the Hetch Hetchy Enterprise's retail customers.

case and also to force arbitration of the dispute. The Public Utilities Commission is currently in negotiations with the Pacific Gas and Electric Company to resolve this dispute.

Long-term Power Agreements with the Modesto and Turlock Irrigation Districts

In April of 1988, the Hetch Hetchy Enterprise entered into separate long-term power sales agreements with the Modesto and Turlock Irrigation Districts, which were due to expire in 2015. These agreements required that the Hetch Hetchy Enterprise provide firm power to the Districts, either generated by the Hetch Hetchy Enterprise or purchased, equal to 260 megawatts (the Hetch Hetchy Project's "dependable capacity"), less the amount required to meet the City's municipal demand. These agreements also required the Hetch Hetchy Enterprise to offer surplus Hetch Hetchy power to the Districts at wholesale rates when available. The rates for two types of firm power and surplus power were set in the agreements.

Prior to the 1998 electricity market deregulation, the Hetch Hetchy Enterprise purchased electricity from the Pacific Gas and Electric Company to meet its obligation to provide firm power to the Modesto and Turlock Irrigation Districts if the Hetch Hetchy Enterprise could not generate sufficient hydroelectric power. However, after the 1998 electricity market deregulation, purchasing electricity on the electricity market became more expensive, and the Public Utilities Commission invoked a provision of the agreements with the Districts, which allowed the Public Utilities Commission to amend the agreements as a result of regulatory or governmental changes that affected the terms of the agreements, and, failing amendment, to terminate. The Districts disputed whether the City had validly invoked this provision.

The Public Utilities Commission has recently settled litigation with the Modesto and Turlock Irrigation Districts regarding whether the City validly invoked its right to renegotiate and/or terminate these agreements. Under the settlement agreement with the Modesto Irrigation District, which is effective from January 1, 2003 through December 31, 2007, and which was approved by the Board of Supervisors on February 11, 2003 (File 03-0118), the long-term power sales agreement between the Modesto Irrigation District and the Public Utilities Commission expires in 2007 rather than 2015, as under the prior agreement. Further, after December 31, 2004, the Hetch Hetchy Enterprise is only obligated to provide sufficient electricity to meet the Modesto Irrigation District's municipal and agricultural pumping needs but is not required to provide firm energy for Modesto Irrigation District's other retail electricity needs.

The Public Utilities Commission has entered into a short-term agreement with the Turlock Irrigation District, pending final litigation settlement, effective from July 1, 2004 through December 31, 2004, which established (a) the firm energy to be delivered by the Hetch Hetchy Enterprise to the Turlock Irrigation District for the period from July 1, 2004 through December 31, 2004, and (b) the procedures for determining the price of firm energy deliveries in excess of the hydroelectric power generated by the Hetch Hetchy Enterprise. The final settlement agreement with the Turlock Irrigation District was approved by the Board of Supervisors on December 7, and, if approved by the

Mayor, will be turned into an amended and restated long term power sales agreement within 60 days. In the event the Public Utilities Commission or Turlock Irrigation District fails to approve the final contract, the City shall be reimbursed for any energy purchased for the Turlock Irrigation District.

Calpine Agreement

During the energy crisis of 2001, the Public Utilities Commission entered into a fixed price, forward contract to purchase 2.19 million megawatt hours of electricity from a third party provider, Calpine Corporation. The long-term power purchase agreement between the Public Utilities Commission and the Calpine Corporation provided scheduled future electricity deliveries over a five-year period from July 1, 2001 through June 30, 2006. Under that long-term power purchase agreement, the Public Utilities Commission was obligated to purchase a minimum amount of electricity from the Calpine Corporation even if the electricity were not required for operations. The Hetch Hetchy Enterprise could resell the surplus electricity purchased from the Calpine Corporation on the market. Shortly after the Public Utilities Commission entered into the five-year power purchase agreement, the market price of electricity fell significantly below the amount specified in the agreement.

In March of 2003, the Hetch Hetchy Enterprise entered into an amended long-term power purchase agreement with the Calpine Corporation to mitigate the Hetch Hetchy Enterprise's losses under the long-term power purchase agreement. The amendment to the long-term power purchase agreement with the Calpine Corporation (i) reduced the price of electricity from \$75.25 per kilowatt hour to \$69 per kilowatt hour, and (ii) reduced the megawatts that Hetch Hetchy Enterprise is required to purchase from the Calpine Corporation under the long-term purchase agreement.

For the five-year term of the power purchase agreement between the Calpine Corporation and the Public Utilities Commission, the Hetch Hetchy Enterprise will pay an estimated \$64.5 million more for electricity purchased under the long-term power purchase agreement with Calpine Corporation than the Hetch Hetchy Enterprise would have paid if the electricity had been purchased at prevailing market prices. The Hetch Hetchy Enterprise paid \$52.6 million more for electricity between July of 2001 and June of 2004 and will pay an estimated \$13.9 million more for electricity between July of 2004 and June of 2006 under the long-term power purchase agreement with the Calpine Corporation than under prevailing market prices.

As shown in Table 1, under the power purchase agreement with the Calpine Corporation, the Hetch Hetchy Enterprise paid an average of \$5.8 million per quarter more than the Enterprise would have paid for electricity purchased at prevailing market prices. Under the amended power purchase agreement from April of 2003 through June of 2004, the Hetch Hetchy Enterprise paid an average of \$2.4 million per quarter more than the Enterprise would have paid for electricity purchased at prevailing market prices.

Table 1
The Hetch Hetchy Enterprise's Excess Costs for Power Purchases
under the Original and Amended Power Purchase Agreements with
Calpine Corporation Compared to Prevailing Market Prices
July 2001 through June 2004

	The Hetch Hetchy Enterprise's Costs of Power Purchases Under the Agreement with Calpine Corporation	The Prevailing Market Price of Power Purchases	The Hetch Hetchy Enterprise's Excess Costs for Power Purchases under the Agreement with Calpine Corporation
<u>Original Agreement with Calpine Corporation</u>			
July through September, 2001	\$12,696,000	\$4,311,268	(\$8,384,732)
October through December, 2001	12,696,000	2,914,648	(9,781,352)
January through March, 2002	8,127,000	2,967,872	(5,159,128)
April through June, 2002	8,217,300	3,092,544	(5,124,756)
July through September, 2002	8,307,600	3,237,544	(5,070,056)
October through December, 2002	8,311,363	4,112,086	(4,199,277)
January through March, 2003	<u>7,635,313</u>	<u>4,912,097</u>	<u>(2,723,216)</u>
Total under Original Agreement with Calpine Corporation	\$65,990,576	\$25,548,059	(\$40,442,517)
Average loss per quarter			(\$5,777,502)
<u>Amended Agreement with Calpine Corporation</u>			
April through June, 2003	\$4,520,880	\$2,462,674	(\$2,058,206)
July through September, 2003	8,042,640	6,565,568	(1,477,072)
October through December, 2003	10,403,820	5,700,821	(4,702,999)
January through March, 2004	5,961,600	3,966,710	(1,994,890)
April through June, 2004	<u>4,520,880</u>	<u>2,571,214</u>	<u>(1,949,666)</u>
Total under Amended Agreement with Calpine Corporation	\$33,449,820	\$21,266,987	(\$12,182,833)
Average loss per quarter			(\$2,436,567)
Total	\$99,440,396	\$46,815,046	(\$52,625,350)

Source: Public Utilities Commission Hetch Hetchy Enterprise

Organization of the Hetch Hetchy Enterprise within the Public Utilities Commission

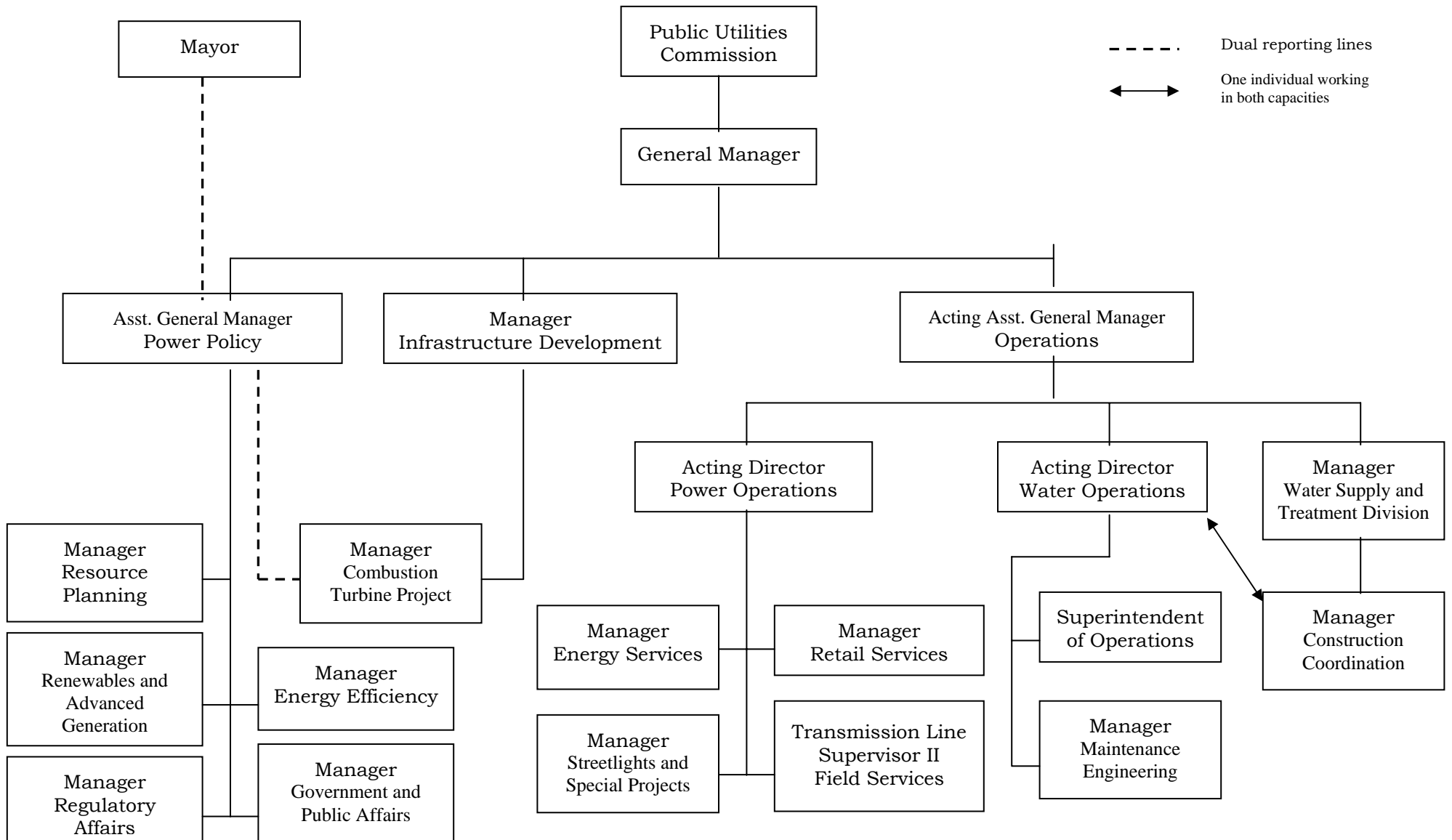
Exhibit I below shows the Hetch Hetchy Enterprise's organizational structure under the previous General Manager. Management accountabilities were confused by having:

- The Assistant General Manager, Power Policy reporting directly to the Mayor, while being part of the Department's Executive Leadership Team.
- The Manager, Combustion Turbine Project assigned to the Power Policy Division while reporting to the Manager, Infrastructure Development.

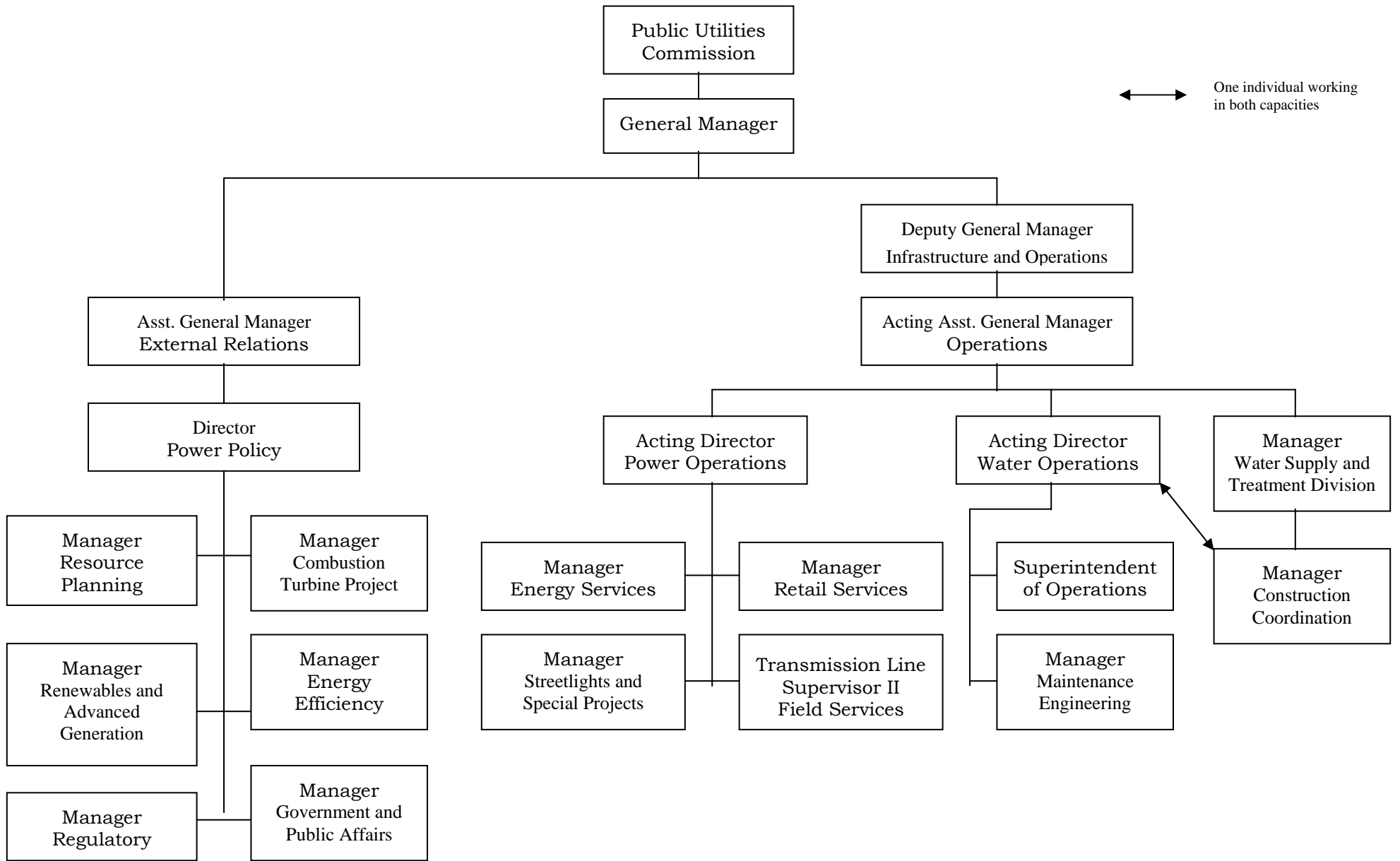
Exhibit II below shows the Hetch Hetchy Enterprise's new organizational structure under the current General Manager who took office on August 23, 2004. Management accountabilities have changed in that:

- There is a new management layer, comprising the Assistant General Manager, External Relations, who is responsible for the Power Policy Division, and the Deputy General Manager, Infrastructure and Operations, who manages the Assistant General Manager, Operations.
- The new Director of Power Policy position, which replaced the Assistant General Manager, Power Policy position, is responsible for all Power Policy Division functions, including the Combustion Turbine Project. This new position does not have a dual reporting line direct to the Mayor.

**EXHIBIT I: HETCH HETCHY ENTERPRISE ORGANIZATION
UNDER PREVIOUS GENERAL MANAGER**



**EXHIBIT II: HETCH HETCHY ENTERPRISE ORGANIZATION
UNDER NEW GENERAL MANAGER**



↔ One individual working in both capacities

Hetch Hetchy Enterprise Fund Revenues and Expenditures

Between FY 1999-2000 and FY 2003-2004, the Hetch Hetchy Enterprise Fund's operating revenues increased by approximately \$16 million, or 13.9 percent, from \$114.6 million in FY 1999-2000 to \$130.6 million in FY 2003-2004. As noted in Table 1, in FY 2003-2004, revenues of \$106,365,591 comprised 81.4 percent of total Hetch Hetchy revenues of \$130,610,868. Operating expenditures increased by \$34.0 million, or 54.5 percent, from \$62.5 million in FY 1999-2000 to \$96.5 million in FY 2003-2004. As noted in Table 2, increases in operating expenditures have resulted largely from increases in purchased power costs.

Table 2
Actual Hetch Hetchy Enterprise Fund Revenues and Expenditures
FY 1999-2000 through FY 2003-2004

	FY 1999- 2000	FY 2000- 2001	FY 2001- 2002	FY 2002- 2003	FY 2003- 2004
REVENUES					
Total Electrical Revenue	\$90,547,220	\$102,106,280	\$105,812,522	\$112,864,743	\$106,365,591
Water Transfer	19,037,000	19,037,000	19,037,000	19,037,000	19,037,000
Interest Income	2,705,994	3,117,306	1,522,414	1,282,354	1,041,981
Other Misc. Income	2,335,083	513,310	2,576,729	2,141,079	4,166,296
Total Other Revenue	<u>24,078,077</u>	<u>22,667,616</u>	<u>23,136,143</u>	<u>22,460,433</u>	<u>24,245,277</u>
TOTAL REVENUES	\$114,625,297	\$124,773,896	\$128,948,665	\$135,325,176	\$130,610,868
EXPENSES					
- Power Purchases	\$19,982,063	\$43,759,732	\$54,260,642	\$32,561,682	\$33,959,994
- Transmission Fees	<u>10,485,456</u>	<u>10,666,163</u>	<u>11,027,102</u>	<u>10,503,023</u>	<u>17,734,101</u>
Purchase of Power	\$30,467,519	\$54,425,895	\$65,287,744	\$43,064,705	\$51,694,095
Salaries and Fringe	11,799,408	13,262,510	15,472,706	18,407,771	18,672,642
COWCAP	407,695	371,993	332,718	573,388	468,020
Non-Personal Services	9,624,758	9,287,832	11,631,748	12,403,379	12,369,642
Materials and Supplies	1,395,984	1,270,146	1,355,214	1,626,461	1,317,989
Equipment	535,245	468,801	624,250	618,127	320,992
SFPUC Bureaus	7,147,209	6,337,670	5,983,157	7,660,840	8,533,553
Services of Other Depts.	1,115,118	2,493,439	3,056,992	3,206,086	3,144,300
Total Other Expenses	<u>32,025,417</u>	<u>33,492,391</u>	<u>38,456,785</u>	<u>44,496,052</u>	<u>44,827,138</u>
TOTAL EXPENSES	\$62,492,936	\$87,918,286	\$103,744,529	\$87,560,757	\$96,521,233
NET INCOME	\$52,132,361	\$36,855,610	\$25,204,136	\$47,764,419	\$34,089,635

Source: Public Utilities Commission Financial Services

As noted in Table 1, Hetch Hetchy Enterprise net income in FY 1999-2000 was \$52.1 million and in FY 2000-2001 was \$36.8 million. In FY 1999-2000, the City transferred \$39.85 million from the Hetch Hetchy Enterprise Fund to the General Fund and in FY 2000-2001, the City transferred \$29.85 million from the Hetch Hetchy Enterprise Fund to the General Fund. In November of 2002, the San Francisco voters passed Proposition E, which restricted the City's ability to transfer funds from the Hetch Hetchy Enterprise to the General Fund. As noted in Table 3, after the adoption of Proposition E, monies appropriated annually for Hetch Hetchy Enterprise capital repairs and improvements increased significantly.

Table 3

**Annual Appropriation of Hetch Hetchy Net Income
FY 1999-2000 through FY 2003-2004**

	FY 1999-2000	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004
Operating transfer out	\$39,850,000	\$29,850,000	\$0	\$0	\$0
Capital appropriation	<u>18,200,000</u>	<u>19,160,000</u>	<u>38,155,000</u>	<u>40,827,000</u>	<u>38,904,432</u>
	\$58,050,000	\$49,010,000	\$38,155,000	\$40,827,000	\$38,904,432

Source: Annual Appropriation Ordinance

The Hetch Hetchy Enterprise Fund's fund balance has made up the difference in the years in which the capital appropriation, as shown in Table 3, exceeded actual net income, as shown in Table 2.

The Impact of the Water First Policy on the Hetch Hetchy Enterprise's Operation

The Hetch Hetchy Enterprise's primary mission is to deliver water to the residents of San Francisco, and the Public Utilities Commission's suburban customers. The 1913 Raker Act granted San Francisco rights to the Tuolumne River watershed to develop and transport water to San Francisco and other municipal customers and districts. The Raker Act also grants the right to construct hydroelectric power generating facilities. For many years, the Public Utilities Commission has operated under a water first policy. Not until 2002, after the adoption of Assembly Bill 1823, did the City include the water first policy into the City Charter after the voters' approval of Proposition E.

In this management audit, we found that, although Public Utilities Commission staff agree that providing high quality water supply in sufficient quantity is the primary task

under the water first policy, the Public Utilities Commission lacks clear guidelines on how to apply the water first policy in day to day operations. As discussed in Section 2 of the management audit report, the Hetch Hetchy Enterprise has an inherent conflict in the management decision-making process to release water and generate power. Although the Public Utilities Commission's primary responsibility is to provide high quality drinking water to its customers, more than 80 percent of the Hetch Hetchy Enterprise's revenues come from the generation of hydroelectric power, equal to \$106 million in FY 2003-2004, and these revenues pay not only for the Hetch Hetchy Enterprise's operating and capital costs, but also for the City's and Public Utilities Commission's policy objectives, including providing free electricity to the Asian and Fine Arts Museums and reduced-price electricity to the Moscone Center and Candlestick Park, and providing funding for alternative power projects and for the Power Policy Division's personnel and operating budget.

In July of 2004 the Board of Supervisors adopted a resolution (File No. 04-0837), establishing a policy to set the annual appropriation for General Fund departments at levels sufficient to compensate the Hetch Hetchy Enterprise for electricity services provided to the City's General Fund departments. The Public Utilities Commission adopted a resolution in August of 2004, that provides free electricity to the Asian Art Museum retroactively to FY 2003-2004 and in FY 2004-2005, and to the Fine Arts Museums in FY 2004-2005; and reduced-price electricity to the Moscone Center retroactively to FY 2003-2004 and in FY 2004-2005, and to Candlestick Park in FY 2004-2005.

Problems in Organizational Structure

The Hetch Hetchy Enterprise's organizational structure impairs the Enterprise's ability to make clear operational decisions to balance water supply and hydroelectric power generation. Until 2001, the Hetch Hetchy Enterprise was under the management of a general manager, who reported to the Public Utilities General Manager. Since 2001, the Hetch Hetchy Enterprise has been jointly managed by two acting directors, the Water Operations Director and the Power Operations Director. Therefore, the Public Utilities Commission has not given a single permanently appointed director the authority to determine the release of water to generate hydroelectric power. Although the water first policy is clearly stated in the Charter, the actual day to day decisions to manage water supplies and generate hydroelectric power require knowledge of the Hetch Hetchy system, skill in measuring water supply requirements against hydroelectric power generation requirements, and decision-making authority.

Further, under the current organizational structure, no single director is responsible for the Hetch Hetchy Enterprise Fund's budget. Currently, the Power Operations Director oversees the annual Hetch Hetchy Enterprise Fund's budget. One effect of this assignment is the implicit pressure on the Power Operations Director to maximize revenues from generating Hetchy Hetchy hydroelectric power and to reduce expenditures for power purchases from other sources.

Because changes to the Hetch Hetchy Enterprise's structural organization could impact the Water Enterprise and other areas of the Public Utilities Commission, the Budget Analyst will evaluate and make recommendations on the Hetch Hetchy Enterprise's organizational structure in Phase III and Phase IV of the management audit.

Hetch Hetchy Enterprise Accomplishments

The management audit team invited the Public Utilities Commission to submit written statements on the Hetch Hetchy Enterprise's accomplishments that it perceives have occurred in recent years. The Public Utilities Commission has provided the following list of accomplishments for the Hetch Hetchy Enterprise.

- The Hetch Hetchy Enterprise has initiated a project to replace its electricity generation metering system, to be completed by January 31, 2005, which will improve the quality and timeliness of data used by the Pacific Gas and Electric Company and the California Independent System Operator for billing and settlement purposes.
- The Hetch Hetchy Enterprise successfully negotiated an energy exchange of Calpine Corporation electricity with Arizona power providers and Sempra, a California based power provider, during the Priest Bypass Project, resulting in \$973,000 in savings.
- Energy Services staff provided research and support to the City Attorney's Office in various litigation and contract negotiation matters, including (i) providing support for the litigation with the Turlock Irrigation District, (ii) providing support for the litigation with the Pacific Gas and Electric Company regarding scheduling coordinator services under the 1987 Pacific Gas and Electric Company Interconnection Agreement, (iii) truing up Pacific Gas and Electric Company meter data from July of 2000 through December of 2003, (iv) providing expert witness testimony before the Federal Energy Regulatory Commission on the Pacific Gas and Electric Company's Scheduling Coordinator Services Tariff Filing and Existing Transmission Contract Cost of Service Rate Filing, and (v) responding, in joint efforts with the City Attorney's Office, to the Pacific Gas and Electric Company's challenge to arbitrate the dispute over the provision of electric service to the municipal load at the Ferry Building.²
- Energy Services staff worked to incorporate changes to the agreements with Modesto and Turlock Irrigation Districts and the 1987 Pacific Gas and Electric Company Interconnection Agreement into the analytical software used for modeling hydroelectric power generation and scheduling electricity on the State's electricity grid. Energy Services staff are working to (a) upgrade or implement other software tools, and (b) implement the data warehouse and software to assist in forecasting and profiling municipal electricity loads.

² The City prevailed in the State Superior Court.

- The Hetch Hetchy Enterprise has facilitated approximately 50 electric service connections to the Pacific Gas and Electric Company's distribution system for City municipal customers (for example, the DeYoung Museum, Laguna Honda Hospital, and the San Francisco Unified School District).
- In conjunction with the California Independent System Operator, the Public Utilities Commission has developed an *Action Plan* to close the Hunters Point and Potrero Power Plants. This is the first time that a series of specific, achievable steps have been detailed.
- The Power Policy Division has entered into strategic partnerships with large City departments, such as the Department of Public Health, Recreation and Park Department, the Port of San Francisco, and MUNI, to employ energy efficiency and demand reduction measures to reduce the City's reliance on fossil fuels. In addition, the Power Policy Division has provided energy audit and design assistance for smaller energy efficiency projects, such as City-owned parking garages, the Department of Public Works' Bureau of Building Repair, and the West Portal branch library.
- The Power Policy Division has also greatly expanded the City's use of solar energy through large-scale solar installation projects such as the Moscone Center Energy Project, the Southeast Water Pollution Control Plan Solar Installation, and the *San Francisco Electricity Resource Plan*. The Moscone Center Energy Project received the Environmental Protection Agency and U.S. Department of Energy Clean Power Award for 2004. The Power Policy Division is also working to install solar panels on six schools within the San Francisco Unified School District.
- In 2003, the Power Policy Division selected and purchased 2,000 energy efficient refrigerators on behalf of the San Francisco Housing Authority, oversaw their installation, and funded and project-managed a complete recycling of the old refrigerators.
- The Project Operations Division successfully completed several projects and programs. The Hetch Hetchy Project shutdown, required for construction of the new Priest Bypass Pipeline from November 2003 to January 2004, enabled completion of several important projects, including (a) replacement of all existing air valves at O'Shaughnessy Dam, (b) installation of the new 96 inch Butterfly Valve at Canyon Portal, (c) repair of the Red Mountain Bar Slide Gate, which is a critical component to the reliable delivery of water to the City, and (d) return of the system to service within the established timeline.
- The Project Operations Division developed an ongoing vegetation management program to reduce fire hazards and enhance the watershed environment.
- The Hetch Hetchy Enterprise staff located at the Moccasin Powerhouse facilities responded quickly and safely to save cottages and minimize damage to the water

tanks during the Early Intake Fire in August of 2004, which burned 1,600 acres in the Tuolumne River Canyon. The Hetch Hetchy Enterprise staff restored water service to Early Intake and power to the Early Intake, Cherry Valley, O'Shaughnessy Dam, Camp Mather, and Evergreen Lodge facilities almost immediately.

- The Hetch Hetchy Enterprise has a low injury rate. In 2004, through November, there were 11 recordable injuries. Also in the past year, total miles driven by Hetch Hetchy Enterprise employees exceed 867,000 miles, yet there was only one vehicle accident which caused more than \$500 damage.
- In partnership with the National Park Service in Yosemite, the Hetch Hetchy Enterprise has developed a Watershed Protection Program and a Security Program.
- The Hetch Hetchy Enterprise's Valley Division has devoted a significant amount of time and effort in support of the inspections and repair work on the San Joaquin Pipelines. Maintenance of these pipelines is key to the assets management program and the reliable delivery of water.

Acknowledgements

We would like to thank the management and staff of the Public Utilities Commission for their cooperation during Phase II of this management audit. We hope the findings contained in this report provide a useful tool for the new General Manager and her staff as they work to improve the operations of the Hetch Hetchy Enterprise.