Management Audit

of the

Public Utilities Commission –

Hetch Hetchy Enterprise Fund

Prepared for the

Board of Supervisors
of the City & County of San Francisco

by the

San Francisco Budget Analyst

December 21, 2004

CITY AND COUNTY OF SAN FRANCISCO

BOARD OF SUPERVISORS

BUDGET ANALYST

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December 21, 2004

Honorable Chris Daly, Chair of the Finance and Audits Committee
And Members of the Board of Supervisors
City and County of San Francisco
Room 244, City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

Dear Supervisor Daly and Members of the Board of Supervisors:

The Budget Analyst is pleased to submit this *Phase II Management Audit of the Public Utilities Commission, Hetch Hetchy Enterprise Fund.* On May 18, 2004, the Board of Supervisors adopted a motion directing the Budget Analyst to conduct a management audit of the San Francisco Public Utilities Commission, pursuant to its powers of inquiry defined in Charter Section 16.114 (Motion No. M04-57). The purpose of the management audit has been to (i) 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; and (ii) assess the appropriateness of established goals and objectives, strategies and plans to accomplish such goals and objectives, the degree to which such goals and objectives are being accomplished, and the appropriateness of controls established to provide reasonable assurance that such goals and objectives will be accomplished. The scope of the management audit includes all of the Public Utilities Commission's programs, activities, and functions.

The results of the management audit are being presented 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 will be 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 will be 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.

This management audit has been conducted in accordance with *Government Auditing Standards, 2003 Revision,* issued by the Comptroller General of the United States, U.S. General Accounting Office. As part of the management audit, the Budget Analyst interviewed the senior management and other Public Utilities Commission staff and representatives from other City and County departments. Additionally, the management audit staff reviewed various State statutes and local codes; examined various documents, reports and work products prepared by the Public Utilities Commission; reviewed the Hetch Hetchy Enterprise Fund's audited financial statements and reports prepared by various consultants; obtained and analyzed various data and financial reports; and evaluated the effectiveness of the various tools used by Public Utilities Commission management to oversee the activities of the Hetch Hetchy Enterprise program.

This management audit report of the Hetch Hetchy Enterprise program includes nine findings and 39 related recommendations prepared by the Budget Analyst, that encompass major areas of the Hetch Hetchy Enterprise's operations. A list of the management audit recommendations are shown in the Attachment to this transmittal letter. Implementation of the Budget Analyst's recommendations would result in estimated one-time revenue increases of approximately $125,000 from improved collection of retail electricity accounts and annual expenditure decreases of approximately $185,000 from reorganization of maintenance positions to eliminate unnecessary payment of supervisory pay differentials and deletion of one Power Policy Division

position in the Power Policy Unit. Additionally, implementation of the Budget Analyst's recommendations would reduce the risk of revenue loss or unnecessary expenditures from:

(i) Failure to implement software tools necessary for efficient forecasting of water and electricity resources and scheduling electricity on the State's electricity grid, for which $600,000 in costs have already been incurred.

(ii) Inefficient implementation of the San Francisco Electric Reliability Project, which could result in the City not receiving the full benefit of the $13,266,667 in State settlement proceeds from the Williams Energy Company for this project.

(iii) Inadequate business planning, including failing to undertake full analysis of the costs and benefits related to energy efficiency and alternative energy initiatives, and to alternative proposals for scheduling coordinator services. For example, each energy efficiency and alternative energy proposal needs to fully take into account any foregone revenues for the Hetch Hetchy Enterprise and realistic operational capacity projections.

(iv) Failure to implement risk management protocols to determine optimal levels of hydroelectric power generation under the water first policy, which would result in an estimated $1,000,000 in revenues for every one percent increase in hydroelectric power generation.

The following sections summarize our findings and recommendations.

Section 1: The Public Utilities Commission's Failure to Develop a Hetch Hetchy Enterprise Business Plan

Hetch Hetchy Enterprise management has not developed effective business planning processes or performance measurement systems. As a result, the Department has been less able to effectively advise the Mayor, the Board of Supervisors, and the Public Utilities Commission on its resource needs, appropriate retail power rates, the reasonableness of General Fund departmental rate discounts, and the costs and benefits of alternative energy use strategies. In addition, without a business plan, the Hetch Hetchy Enterprise has been slow to respond to changes in the deregulated energy market since 1998 and remains unable to obtain a credit rating for borrowing related to the voter approved Energy Efficiency and Renewable Energy Revenue Bonds.

Recognizing these concerns, the Board of Supervisors has previously requested and the Public Utilities Commission has repeatedly directed Department management to prepare a Hetch Hetchy Enterprise business plan. Despite these repeated directives, the establishment of an in-house planning group of senior managers and the expenditure of $57,071 on consultant contracts, the Department has not yet produced such a plan.

The Department's inability to produce a business plan can be attributed to frequent changes in project leadership; management's inability to resolve certain conflicts between the Power Policy, Power Operations, and Water Operations Divisions; and the lack of a coherent strategic vision with defined business goals. Efforts to produce a business plan have been suspended while Department management works with stakeholders to assess the planning process and determine power policy direction.

The General Manager should make the development of a Hetch Hetchy Enterprise business plan an early priority of her administration. To ensure timely completion, the Board of Supervisors should reserve 75 percent of FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a business plan to the Board of Supervisors.

Section 2: Water Resource and Power Generating Risk

The Public Utilities Commission's primary responsibility is to provide water of high quality and sufficient quantity to its customers, and not to generate hydroelectric power. However, 80 percent of the Hetch Hetchy Enterprise's revenues come from the generation of hydroelectric power, equal to $106 million in FY 2003-2004. Because the Public Utilities Commission has not established an effective risk management program that provides the tools necessary to balance water storage and supply requirements against hydroelectricity generating obligations to its customers, the Hetch Hetchy Enterprise risks serious financial consequences, particularly in years when inflows to the Hetch Hetchy reservoir system are at median or below median levels.

For example, the Hetch Hetchy Enterprise did not generate sufficient electricity to meet its obligations to customers over the past three years, when there were below median water flows. As a result, the Department was required to spend nearly $50 million on purchased power in order to meet base electricity obligations to its customers. In 2003 alone, the Hetch Hetchy Enterprise purchased an estimated $12.7 million in power to supplement the hydroelectric power that it generated to meet its base obligations to customers and to allow certain capital improvements.

By establishing a comprehensive risk management program, the Public Utilities Commission would be better able to plan for hydroelectric power needs during low water years and during the construction of capital projects, thereby reducing its dependence on purchased power. At a minimum, such plan should (i) define the risk criteria that are inherent when making decisions to release water and generate hydroelectricity, (ii) determine risk thresholds that the Public Utilities Commission is willing to tolerate when releasing water to generate hydroelectricity, and (iii) provide policy direction and procedures to ensure that decisions to release water and generate hydroelectricity are within the Public Utilities Commission's risk parameters.

Section 3: Analytical Software Implementation

In the last four years, the Hetch Hetchy Enterprise has spent over $600,000 on the purchase and implementation of Vista and Aces analytical software and on the Data Mart data warehouse, and has committed significant staff and consultant resources on software implementation. However, to date the software programs have not been successfully implemented and there is considerable uncertainty regarding the timeline and additional cost to fully implement short range and long range planning, and water release and electricity scheduling tools.

Delayed implementation of the Hetch Hetchy Enterprise's Data Mart, which will compile wholesale and retail electricity meter reading and billing data from different sources, hinders the Hetch Hetchy Enterprise's ability to accurately reconcile electricity bills with the Pacific Gas and Electric Company's electricity meter data. Further, these delays increase the risk of an adverse settlement in the $28 million dispute with the Pacific Gas and Electric Company, in which the Hetch Hetchy Enterprise has challenged PG&E meter data from 2000 through 2003 to determine whether meter usage and payments to PG&E had been correctly computed.

Costly delays in Hetch Hetchy's efforts to implement software solutions for its most pressing analytical needs will likely continue unless clear responsibility is assigned to senior managers, implementation timelines are established, and key milestone accomplishments are monitored by the Assistant General Manager of Operations. Without successful implementation of these critical software tools, management will be less able to manage core utility functions or avoid many risks that are inherent to utility enterprises.

Section 4. Maintenance and Materials Management

The Superintendent of Operations has various oversight responsibilities that impair his ability to effectively manage maintenance activities within the Project Operations Section. This impairment manifests itself in a lack of comprehensive policies and procedures, the absence of comprehensive performance measurement and reporting tools, and weak maintenance planning and scheduling processes. In addition, the Section has not established strong systems for materials management or for the control of tools and equipment.

The Hetch Hetchy Enterprise should evaluate its maintenance organization to develop a new organizational structure that incorporates efficient supervisory assignments and minimizes supervisory pay differentials. The Budget Analyst found that the Project Operations Maintenance Section assigned staff in a manner that resulted in supervisory differential pay for the section's staff. Three Water and Power Maintenance Supervisor I positions have each been assigned to manage three Operating Engineer, Universal positions, which are higher paid positions, resulting in the payment of supervisory pay differentials to each of the Water and Power Maintenance Supervisor I positions, equal to approximately $16,000 to $17,000 in increased pay annually per position. The Hetch Hetchy Enterprise could save approximately $48,000 to $51,000 annually in salary costs for the three Water and Power Maintenance

Supervisor I positions currently receiving supervisory pay differentials by reorganizing the maintenance work crews.

Section 5: Hetch Hetchy Enterprise Personnel and Administration

The Hetch Hetchy Enterprise has not established effective administrative, personnel management or asset security policies or procedures. General personnel policies and procedures related to employee conduct, work hours, job performance and health and safety are absent; and, no policies or procedures have been developed to provide management direction on emergency medical coverage, housing assignment or official travel for employees assigned to the remote Moccasin Powerhouse.

In addition, annual employee performance evaluations are inconsistently conducted. For example, the Maintenance Engineering Division conducted only one of 14 required evaluations in FY 2002-03 and FY 2003-04. Further, the Department does not comply with employee "Entrance and Exit" policies that are designed to safeguard City assets. Out of 63 temporary and permanent employees who left Hetch Hetchy employment between July 2002 and September 2004, only eight equipment and tool control forms were collected and reviewed by Human Resources Division personnel.

Hetch Hetchy Enterprise management should immediately develop water and power operations policies and procedures for the Hetch Hetchy Enterprise as a whole and for Moccasin operations specifically. In addition, during FY 2004-05, management should develop and comply with procedures to ensure that annual employee performance evaluations are conducted within all divisions. Further, management should strictly adhere to Entrance and Exit policies that are designed to safeguard City assets.

Section 6: Billing and Collection of Electricity Accounts

At the time of this report, tenants who occupy municipal buildings had past due electricity account balances of approximately $125,000 out of $607,000 in monthly billings, which equates to a 20.6 percent delinquency rate. More than 11 percent of Port tenant account balances were 90 days past due. For example, one Port tenant, who opened an account in March of 2002, had an average account balance of $20,852 in 2002, $46,036 in 2003, and $48,992 in 2004. This high delinquent rate and the rate of growth in delinquent balances results in part because the Public Utilities Commission has not established adequate policies or procedures for collecting this subcategory of electric accounts.

The Public Utilities Commission should develop more rigorous policies and procedures for enforcing collection of delinquent accounts. Specifically, penalty fees should be established for retail accounts that are 30 days or more past due and policies should be adopted for discontinuing service on retail electricity accounts when they become 90 days past due. In addition, regular reports should be developed and routinely provided to the Hetch Hetchy Enterprise Retail Services Manager to ensure more timely collections.

Development of rigorous collection policies and procedures, including establishing penalty fees for past due retail electricity accounts, could result in an estimated minimum of $125,000 in one-time electricity revenues if all accounts were current.

Section 7: Streetlight Management

Since streetlight management is not a core Public Utilities Commission function, the Streetlight Management Program has not been given a high priority. There is a significant capital improvement backlog, particularly with regard to energy efficiency initiatives. For example, the high voltage series loop lighting systems on certain major roads, including Van Ness Avenue and Lombard Street, are outdated, using non-energy efficient systems with very expensive parts. Previous efforts to retrofit the Van Ness Avenue streetlights in a joint project with MUNI were discontinued and the funds were reallocated following the 1989 earthquake. Further, there is no substantial proactive repair and replacement program currently underway. There is no comprehensive streetlight capital improvement plan, no Streetlight Management Program business plan, no development of alternative funding sources, no comprehensive assessment inventory of the City's streetlights, and no plan to eliminate the backlog of streetlight outages, which are estimated to be approximately 10 percent of the Public Utilities Commission's 22,000 street lights, or 2,200 streetlight outages at any one time.

Responsibilities for streetlight planning, design, construction, and maintenance are split between the Public Utilities Commission and the Department of Public Works. The Department of Public Works is also responsible for right of way projects, which can damage underground utilities, thereby directly impacting streetlight functionality and program costs.

Other cities place streetlight management programs in their major public works departments. By transferring the Streetlight Management Program from the Public Utilities Commission to the Department of Public Works or the Municipal Transportation Agency, the City could capitalize on organizational efficiencies that would (a) enhance right of way and traffic management services and coordination of capital improvement projects, (b) improve the ability to leverage alternative streetlight funding, and (c) allow the City to more aggressively pursue streetlight energy efficiency initiatives. The proposed transfer of responsibilities would be cost neutral, while simultaneously producing expanded revenue and cost reduction opportunities for the Streetlight Management Program.

Section 8: The Power Policy Division's Output

The San Francisco Electric Reliability Project has not met its project milestones or deliverables. The San Francisco Electric Reliability Project consists of the construction of two new electricity generating facilities at proposed sites on City-owned land at 25th and Illinois Street and at the Airport to house and operate four turbine generators that the City received as part of a settlement agreement negotiated by the State of California with the Williams Energy Company related to electricity price gouging and market manipulation beginning in June of 2000. Expediting this project's implementation would ensure that the unexpended balance of the $13,266,667 in State

settlement proceeds, which the City is to receive as part of the settlement agreement with the Williams Energy Company to site and develop the electricity generating facilities, is used for maximum benefit. The City has not yet taken possession of the four turbines to be received under the settlement agreement. Each month that the four turbines have to be stored costs the City $44,022 in storage, preventive maintenance and warranty extension costs, or $528,260 annually, which could be used for other project purposes. On December 15, 2004, the Finance and Audits Committee approved the $2,666,667 supplemental appropriation of the settlement amount of $13,266,667 (with a $1 reserve) to pay for: (a) a portion of the engineering and environmental studies costs for developing electricity generating facilities for three of the four gas turbine generators on City-owned land at 25th and Illinois Streets, and (b) the State Department of Water Resources and the California Power Authority for their expenses related to management of the San Francisco Electric Reliability Project, (c) the Pacific Gas and Electric Company's fees for electrical facility studies and an initial installment on the generator special facilities agreement, which will fund initial engineering and estimating work required to identify the facilities needed to connect the new City turbine generators to the Pacific Gas and Electric Company's transmission system, and (d) storage costs for the four gas turbine generators.

The projected benefits of the various energy efficiency and alternative energy initiatives being implemented by the Power Policy Division do not consider foregone revenues for the Hetch Hetchy Enterprise, operational capacity shortfalls, or ongoing operating and maintenance costs. Going forward, cost benefit analyses for such initiatives should include these factors so that the projects' maximum income is recovered.

The Electricity Resource Plan (December of 2002) is the City's mandated resources plan and the template for the Power Policy Division's work program. However, the Department has not met the Board of Supervisors' requirements to (a) submit an annual report on its progress towards implementing the plan's goals, and (b) evaluate and update the plan annually. These actions would ensure that this mandated resources plan remains a live document guiding the work of the Power Policy Division within the policy parameters approved by the Board of Supervisors.

Section 9: The Power Policy Division's Organizational Structure

The new General Manager has assigned the Power Policy Division to the Assistant General Manager, External Relations position established on October 15, 2004. The Budget Analyst considers this a workable option which could usefully promote (a) more transparent decision-making in a unit which has, at times, operated unilaterally, and (b) closer ties with the Planning Bureau. However, there are disadvantages. This organizational structure reinforces the current separation between policy and operations, and further removes the Power Policy Division from the Hetch Hetchy Enterprise's management structure and its daily management decision-making. These disadvantages could be managed through (a) a close working relationship between the Assistant General Manager, External Relations and the Assistant General Manager, Operations, within the context of a strategically oriented executive management team, and (b) the development of a Hetch Hetchy Enterprise business plan.

Compared to the Planning Bureau's ratio of 1.00 full-time equivalent (FTE) administrative support staff member for every 7.75 FTE other Planning Bureau employees, the Power Policy Division has the generous ratio of 1.00 FTE administrative support staff member for every 4.43 FTE other Power Policy Division employees. The elimination of an unjustified 1.00 FTE Classification 5643 Manager, Resource Planning and Administration position in the Power Policy Division would save up to $134,568 annually, while still providing 1.00 FTE administrative support staff member for every 6.20 FTE other Power Policy Division employees.

Department's Response

The Public Utilities Commission General Manager's written response is attached to this management audit report beginning on page 105. The Public Utilities Commission's written response agrees with 31, or approximately 79.5 percent, of our 39 recommendations, and is actively considering six recommendations. The Public Utilities Commission disagrees with two of our 39 recommendations.

In the written response under the heading "SFPUC Overall Comments", the Public Utilities Commission's General Manager states that "Regarding the Calpine energy services contract, the Budget Analyst fails to note that the losses posited in the Introduction are presented without showing the corresponding and offsetting third-party sales, which reduced actual losses to $11,848,855, rather than the $52,625,350 shown in Table 1." The Budget Analyst notes that if the Hetch Hetchy Enterprise were purchasing power at market prices, instead of the prices set under the Calpine agreement, offsetting revenues from third-party sales would result in net revenues to Hetch Hetchy instead of losses. The Budget Analyst notes that we have consistently used this approach to power price comparisons in prior reports to the Board of Supervisors concerning the Calpine agreement without objection from the PUC.

The General Manager also comments that the Budget Analyst has previously reported to the Board of Supervisors that the May of 2001 decision to enter into the Calpine agreement by the by the Public Utilities Commission and the Board of Supervisors was reasonable and prudent at that time based on the extraordinary wholesale electric market volatility and wholesale prices during the first four months of 2001. The Budget Analyst has not contradicted this statement, or any prior reports concerning the Calpine agreement in this management audit report. We have provided this information as a historical context that has obvious impacts on Hetch Hetchy operations and finances now and in the future, and have included no recommendations concerning the Calpine agreement.

As noted above, the General Manager has disagreed with two of our 39 recommendations. The General Manager has disagreed with Recommendation 1.3, which recommends that the Board of Supervisors should reserve all FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a Hetch Hetchy Enterprise business plan to the Board of Supervisors. According to the General Manager's written response, "While the 2005-06 capital budget is not yet finalized, it will include funding for the San Francisco Electric

Reliability Project, for ongoing San Joaquin Pipeline repairs, Hetch Hetchy roads rebuilding, the Mayor's Energy Conservation Account and solar energy projects. Reserving all these funds could jeopardize progress on some of the projects, as well as the department's ability to meet its water and power delivery obligations."

The Budget Analyst has recommended reserving the Hetch Hetchy Enterprise's FY 2004-2005 capital budget to provide assurances to the Board of Supervisors that the Department will prepare and present a business plan, as previously directed by the Board of Supervisors. Although the General Manager, in her written response, has expressed concern that reserving all capital funds could jeopardize progress on some of the capital projects, the Budget Analyst notes that at least two of the projects, the San Joaquin Pipeline repairs and the Hetch Hetchy Enterprise's roads rebuilding projects, have significant available funds for capital projects. The Board of Supervisors has appropriated $3,559,000 for Hetch Hetchy Enterprises roads rebuilding between FY 1997-1998 and FY 2004-2005, of which $1,762,334 were available funds as of August 31, 2004, or approximately 49.5 percent of the total appropriation. Further, the Board of Supervisors appropriated $27,080,000 for the San Joaquin Pipeline repairs between FY 1997-1998 and FY 2004-2005, of which $7,124,167 were available funds as of August 31, 2004, or approximately 26.3 percent of the total appropriation. In November of 2004, at the request of the Public Utilities Commission, the Board of Supervisors approved a resolution (File 04-1430) authorizing the transfer of $4,448,000 in unexpended San Joaquin Pipeline repair funds for emergency fire repairs at the Hetch Hetchy Enterprise's Early Intake compound, still resulting in a remaining available balance of $2,676,167 for San Joaquin Pipeline repairs ($7,124,167 less $4,448,000).

In consideration of the General Manager's concern, stated in her written response to this report, that reserving all of the FY 2004-2005 capital funds could jeopardize progress on some of the Hetch Hetchy Enterprise's capital projects, the Budget Analyst has revised Recommendation 1.3 to recommend that, instead of reserving 100 percent, "Reserve 75 percent of FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a Hetch Hetchy Enterprise business plan to the Board of Supervisors."

The General Manager has also disagreed with Recommendation 2.4 to re-evaluate and expand the risk management functions of the existing Manager, Streetlights and Special Projects, position upon the proposed transfer of the Streetlight Management Program to the Department of Public Works. Although the General Manager states that, "While we are in strong agreement that our risk management functions should be strengthened and that some redeployment of staff time will help achieve this goal, we disagree that transferring the Streetlight Management Program is necessary to improve risk management". In fact, the Budget Analyst has not stated that the transfer of the Streetlight Management Program is necessary to improve risk management as a basis for Recommendation 2.4. On the contrary, the Budget Analyst has found that the Streetlight Management Program should be transferred to the Department of Public Works, depending on successful negotiations concerning the transfer of resources, as specifically stated in Section 7 (see pages 77 through 79 of this report). As a result, the existing Manager, Streetlights and Special Projects position would no longer have responsibility for managing the

Public Utilities Commission's Streetlight Management Program, and therefore, would be able to expand the position's existing risk management functions.

We would like to thank the General Manager of the Public Utilities Commission, her staff, and the various representatives from other City departments whom we contacted, for their cooperation and assistance throughout this management audit.

Respectfully submitted,

Harvey M. Rose
Budget Analyst

Cc: President Gonzalez
Supervisor Alioto-Pier
Supervisor Ammiano
Supervisor Dufty
Supervisor Elsbernd
Supervisor Ma
Supervisor Maxwell
Supervisor McGoldrick
Supervisor Peskin
Supervisor Sandoval
Mayor Newsom
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Erin McGrath
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Ted Lakey

1. The Public Utilities Commission's Failure to Develop a Hetch Hetchy Enterprise Business Plan

The Public Utilities Commission General Manager should:

1.1 Make the finalization of a Hetch Hetchy Enterprise business plan an early priority of her administration.

1.2 Develop an ongoing Hetch Hetchy Enterprise business planning process which incorporates cost-of-service rate review and performance measurement processes.

The Board of Supervisors should:

1.3 Reserve 75 percent of FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a Hetch Hetchy Enterprise business plan to the Board of Supervisors.

2. Water Resource and Power Generating Risk

The Public Utilities Commission General Manager should:

2.1 Establish an effective risk management process that includes leadership by executive-level staff.

2.2 Consider the R.W. Beck risk assessment in defining the scope and membership of the risk management committee.

2.3 Establish the responsibility of the Risk Management Committee to include evaluating the financial impact of power purchases and sales and power initiatives and presenting the evaluation to the Public Utilities Commission when the Commission is considering policy initiatives.

2.4 Re-evaluate the functions of the existing Manager, Streetlights and Special Projects position upon transfer of the Streetlight Management Program to the Department of Public Works, as recommended in Section 7, including evaluating, defining and expanding the risk management functions of this position and specifying how the risk management functions of this position will promote and support the Public Utilities Commission's risk management process. To ensure segregation of risk management functions from the operating decisions of the Public Utilities Commission, this position should be reassigned from the Hetch Hetchy Enterprise Department to the Business Services Division.

2.5 Designate one existing executive level manager with authority and expertise in managing water supply and power generation to be responsible for making coordinated operating decisions regarding water supply and power generation.

3. Analytical Software Implementation

The Assistant General Manager, Operations, should:

3.1 Assign responsibility for overseeing implementation of the software packages to appropriate senior level managers, including setting firm timelines and deliverables, and reporting back to the Assistant General Manager, Operations on a regular basis.

The Director of Information Technology Services and the Hetch Hetchy Enterprise Director of Power Operations should:

3.2 Jointly prepare and enforce timelines for implementing the Hetch Hetchy Enterprise data mart, including regularly reviewing the data mart implementation to ensure that the timelines are met and reporting to the Assistant General Manager, Operations.

4. Maintenance and Materials Management

The Public Utilities Commission General Manager should:

4.1 Submit a Project Operations Maintenance Section organizational chart and supporting materials to the Board of Supervisors Finance and Audits Committee following a review of that organization's structure and allocation of positions.

The Acting Director of Water Operations should:

4.2 In conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Maintenance Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005**.**

4.3 In conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Materials Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

4.4 Ensure that the Project Operations Maintenance Section incorporates automated planning and scheduling processes into its everyday maintenance activities, including forming a Planning and Scheduling Group with the talent and management support required to accomplish the job.

4.5 Ensure that the Project Operations Maintenance Section initiates maintenance reporting on a continuing, periodic basis. The *Management by Objectives Report* produced by the Water Pollution Control Division is a useful model.

4.6 Use MAXIMO reports when deciding on resource allocations.

4.7 Ensure that all tools and equipment are inventoried annually.

4.8 Ensure that the items in the storage yard adjacent to the shops area are brought under inventory control or disposed of.

4.9 Review the Project Operations Maintenance Section's organizational structure in order to improve its economy and efficiency.

5. Hetch Hetchy Enterprise Personnel and Administration

The Acting Director of Water Operations should:

5.1 Establish a timeline to develop an Administrative Policies and Procedures Manual for Moccasin to include all current Department and Division policies and procedures, and report to the Assistant General Manager, Operations, on the status of the Administrative Policies and Procedures Manual prior to June 30, 2005.

The Acting Director of Water Operations and the Acting Director of Power Operations should:

5.2 Require all Hetch Hetchy Enterprise managers and supervisors to complete performance evaluations for all staff annually.

5.3 Include completion of staff performance evaluations annually as a goal and objective in the Hetch Hetchy Enterprise managers' and supervisors' performance evaluations.

5.4 Establish procedures for and monitor compliance with the Department's Entrance and Exit Policy, including ensuring the correct use of forms and forwarding the forms to the Human Resource Service Bureau when required, and ensure full compliance with the Employer Pull Notice Program.

6. Billing and Collection of Electricity Accounts

The Public Utilities Commission should:

6.1 Establish penalty fees for retail electricity customer accounts that are 30 days or more past due.

The Director of Customer Services in coordination with the Hetch Hetchy Retail Services Manager should:

6.2 Develop written policies and procedures for collecting retail electricity customer accounts, including procedures for terminating electricity service to retail electricity accounts that are 90 days past due.

6.3 Routinely provide aged account receivables reports to the Hetch Hetchy Enterprise Retail Services Manager.

The Hetch Hetchy Enterprise and the Port should:

6.4 Develop joint protocols to ensure timely collection of Port electricity customer accounts, including written procedures for terminating electricity service to retail electricity accounts that are 90 days past due.

7. Streetlight Management

The Public Utilities Commission General Manager should:

7.1 Authorize staff to negotiate with the Department of Public Works over the specific Streetlight Management Program resources to be transferred from the Public Utilities Commission to the Department of Public Works to ensure that the program is adequately resourced.

7.2 Promote leveraging of alternative funds for streetlights while continuing Hetch Hetchy Enterprise funding of streetlights to ensure that there is no impact on the General Fund.

7.3 Negotiate a memorandum of understanding between the Public Utilities Commission and the Department of Public Works. In order to contain the cost of Hetch Hetchy Enterprise Fund revenue transfers, this memorandum of understanding should cap the Hetch Hetchy Enterprise's funding for the Streetlight Management Program by setting (a) a dollar amount per streetlight with an inflation adjustment formula for future years, and (b) energy efficiency goals.

8. The Power Policy Division's Output

The Public Utilities Commission General Manager should:

8.1 Ensure that the Power Policy Division's work program sets goals for new energy efficiency and alternative energy initiatives in terms of public policy, return on capital investment, and recovery of development costs funded by the Hetch Hetchy Enterprise Fund.

8.2 Ensure that all cost benefit analyses for new energy efficiency and alternative energy initiatives fully take into account foregone revenues for the Hetch Hetchy Enterprise and realistic operational capacity projections.

8.3 Include in the Power Policy, Water Operations, and Power Operations Divisions' work programs a comprehensive energy efficiency project for the Hetch Hetchy water supply and power generation system.

8.4 Develop a process, in collaboration with the Department of Environment, to evaluate, update, and revise the goals of the *Electricity Resource Plan*.

8.5 Submit each year to the Board of Supervisors, in collaboration with the Department of Environment, a joint annual report on progress against the annually updated and revised *The Electricity Resource Plan*.

The Board of Supervisors should:

8.6 If negotiations to obtain control of a site for a new power plant are not successfully concluded by January 31, 2005, require the General Managers of the Public Utilities Commission, the Port, and MUNI, with appropriate support from the Real Estate Division of the Department of Administrative Services, the City Planning Department, the Department of Environment, the Department of Public Health, and the City Attorney's Office, to (a) submit a bi-weekly report to the Board of Supervisors and the Mayor on the status of the site negotiations until a site is successfully secured, and (b) attend a public hearing before a Board of Supervisors committee to outline the interagency activities which are taking place to secure a site.

8.7 Require the Public Utilities Commission General Manager to (a) submit a monthly report to the Board of Supervisors on progress against all of the San Francisco Electric Reliability Project's other project milestones, and (b) attend periodic public hearings before a Board of Supervisors committee to report on progress.

9. The Power Policy Division's Organizational Structure

The Public Utilities Commission General Manager should:

9.1 Incorporate into the position descriptions and performance evaluations for the Assistant General Manager, External Relations and the Assistant General Manager, Operations a requirement to work closely with each other to manage the policy/operations split between the Power Policy Division and the Water Operations and Power Operations Divisions.

9.2 Eliminate the 1.00 FTE Classification 5643 Manager, Resource Planning and Administration position.

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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.

<u>The City's 1987 Interconnection Agreement with Pacific Gas and Electric Company</u>

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 data[1] 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
Original Agreement with Calpine Corporation			
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	7,635,313	4,912,097	(2,723,216)
Total under Original Agreement with Calpine Corporation	$65,990,576	$25,548,059	($40,442,517)
Average loss per quarter			($5,777,502)
Amended Agreement with Calpine Corporation			
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	4,520,880	2,571,214	(1,949,666)
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

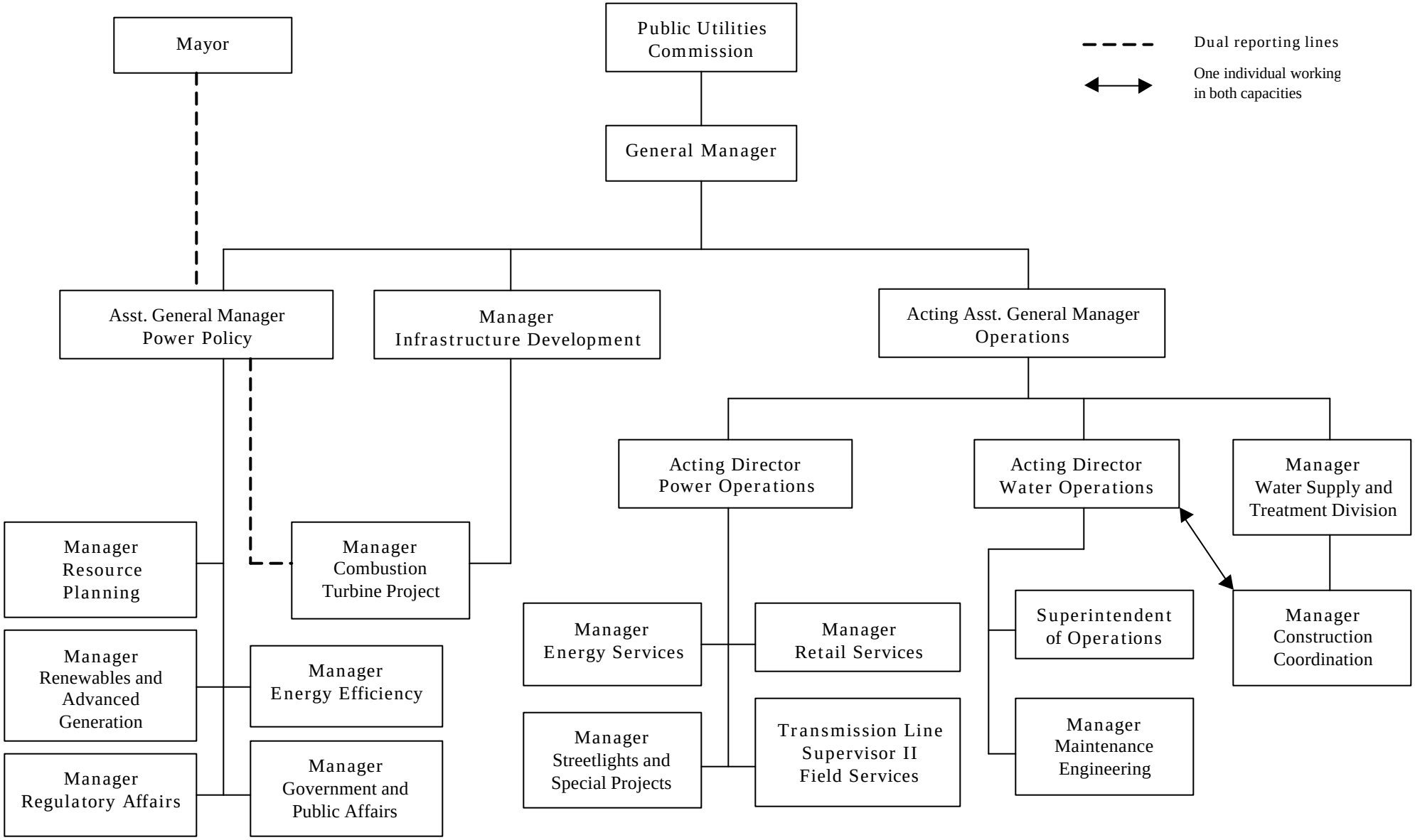
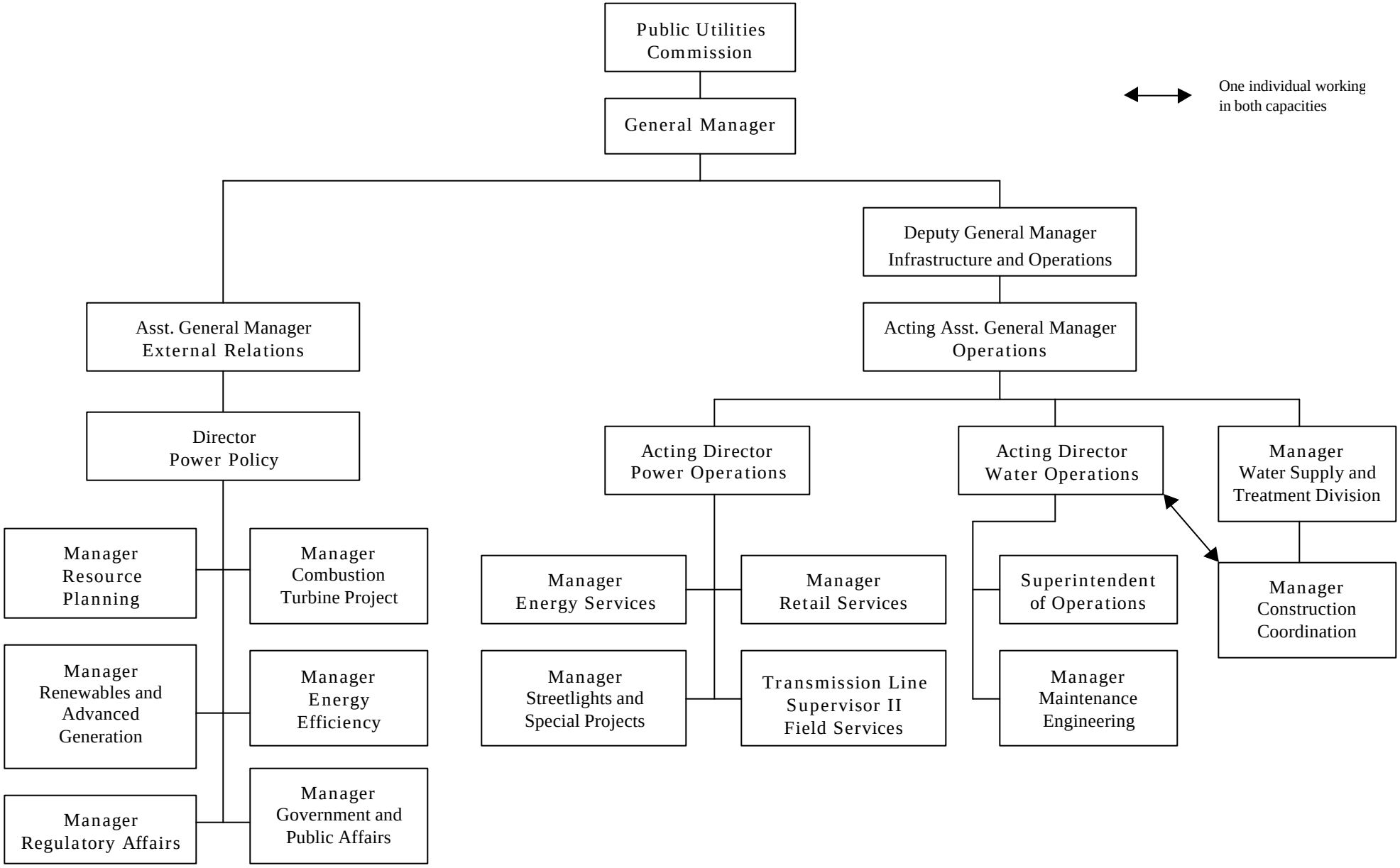


EXHIBIT II: HETCH HETCHY ENTERPRISE ORGANIZATION UNDER NEW GENERAL MANAGER



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	24,078,077	22,667,616	23,136,143	22,460,433	24,245,277
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	10,485,456	10,666,163	11,027,102	10,503,023	17,734,101
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	32,025,417	33,492,391	38,456,785	44,496,052	44,827,138
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	18,200,000	19,160,000	38,155,000	40,827,000	38,904,432
	$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.

1. The Public Utilities Commission's Failure to Develop a Hetch Hetchy Enterprise Business Plan

- **Hetch Hetchy Enterprise management has not developed effective business planning processes or performance measurement systems. As a result, the Department has been less able to effectively advise the Mayor, the Board of Supervisors, and the Public Utilities Commission on its resource needs, appropriate retail power rates, the reasonableness of General Fund departmental rate discounts, and the costs and benefits of alternative energy use strategies. In addition, without a business plan, the Hetch Hetchy Enterprise has been slow to respond to changes in the deregulated energy market since 1998 and remains unable to obtain a credit rating for borrowing related to the voter approved Energy Efficiency and Renewable Energy Revenue Bonds.**

- **Recognizing these concerns, the Board of Supervisors has previously requested and the Public Utilities Commission has repeatedly directed Department management to prepare a Hetch Hetchy Enterprise business plan. Despite these repeated directives, the establishment of an in-house planning group of senior managers, and the expenditure of $57,071 on consultant contracts, the Department has not yet produced such a plan.**

- **The Department's inability to produce a business plan can be attributed to frequent changes in project leadership; management's inability to resolve certain conflicts between the Power Policy, Power Operations, and Water Operations Divisions; and the lack of a coherent strategic vision with defined business goals. Efforts to produce a business plan have been suspended while Department management works with stakeholders to assess the planning process and determine power policy direction.**

- **The General Manager should make the development of a Hetch Hetchy Enterprise business plan an early priority of her administration. To ensure timely completion, the Board of Supervisors should reserve 75 percent of FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a business plan to the Board of Supervisors.**

- **By successfully completing and maintaining a business plan, the Hetch Hetchy Enterprise will have established a long-term financial strategy and statement of credit worthiness. In addition, risks associated with operating a utility that generates $126 million in annual revenues will be minimized.**

Lack of a Hetch Hetchy Enterprise Business Plan

There is no current Hetch Hetchy Enterprise business plan that sets out the Hetch Hetchy Enterprise's management, operational, marketing, and financial goals, objectives, and performance measures, and specific business initiatives. This represents a significant risk for the Hetch Hetchy Enterprise, which generates approximately $126 million annually in revenues, because:

- The Hetch Hetchy Enterprise lacks a clearly defined operating policy, a clear business vision for the future, and a forum for deciding on major policy and planning options.
- Hetch Hetchy Enterprise staff members' roles, responsibilities, and accountabilities are unclear.
- There is no organizational performance measurement framework.
- Since the Hetch Hetchy Enterprise does not control the application of its rates and which City organizations receive subsidized power, and since it lacks a business plan, the Hetch Hetchy Enterprise cannot responsibly seek a credit rating from the credit rating agencies.
- Significant net revenues are at risk given the volatile nature of the electricity market.
- There is no business planning context for funding capital programs, funding energy efficiency and alternative energy initiatives, or determining the optimal personnel resources and organizational structure.
- There are delays in making business-critical decisions.

Previous Board of Supervisors and Public Utilities Commission Direction to Prepare a Hetch Hetchy Enterprise Business Plan

The lack of a Hetch Hetchy Enterprise business plan is despite:

- The Board of Supervisors' request, through the Generation Solar Ordinance, that a Hetch Hetchy Enterprise business plan be developed for the purpose of obtaining a credit rating so that the Department could issue Energy Efficiency and Renewable Energy Revenue Bonds for additional energy efficiency and alternative energy projects, as authorized by the voters in 2001.[1] Since the Hetch Hetchy Enterprise has

[1] In September of 2003, the Board of Supervisors enacted an ordinance regarding implementation of Proposition B, the Energy Efficiency and Renewable Energy Revenue Bonds, which empowers the City to raise $100 million in revenue bonds to support energy efficiency and renewable energy facilities. That ordinance recognizes that the Hetch Hetchy Enterprise cannot issue revenue bonds until independent credit rating agencies have rated the Hetch Hetchy Enterprise, and that such a rating cannot be obtained until a long-range Hetch Hetchy Enterprise business plan has been developed, along with detailed plans for the use of the revenue bonds and the collection of revenues.

no borrowing history, it lacks a credit rating. Without a credit rating, it is unable to issue revenue bonds.

- Repeated requests from the Public Utilities Commission. According to the official minutes of the February 5, 2004 Public Utilities Commission meeting, Commissioner Ann Moller Caen "asked why there was not a business plan, noting the Finance Office asked for one 1.5 years ago," and then "stated she had sat on the Commission for seven years and remembered asking for a [Hetch Hetchy Enterprise] business plan for at least five of those years." According to the official minutes of the February 10, 2004 Public Utilities Commission meeting, in response to Commissioner Adam Werbach's comment that a business plan was needed for the entire Hetch Hetchy Enterprise, "President [E. Dennis] Normandy commented this was why the Commission had been pushing for the last couple of years for a reorganization of the SFPUC that would allow for business plans for the entire organization and individual entities. … [Further, he emphasized] the priority of doing the business plan." According to the official minutes of the February 12, 2004 Public Utilities Commission meeting, in response to the former General Manager's argument that a Hetch Hetchy business plan could only be considered within the context of strategic business planning for the Department as a whole, and that a Request for Proposals for a strategic planning process was being developed, President Normandy "interjected and stated the Commission, on several occasions over the past few years, had defined where the agency was to go and how it was to go."

- Recommendations made on May 17, 2001 by Mr. D. Randall Abe, a risk management consultant hired by the Department to prepare an initial Hetch Hetchy Enterprise risk assessment. Mr. Abe, who drew upon earlier concerns raised by KPMG in its FY 1999-2000 audit of the Hetch Hetchy Enterprise, advised that clarification of the Hetch Hetchy Enterprise's business strategy by the Board of Supervisors and the Public Utilities Commission "will help define departmental interdependencies and improve coordination between water operations, maintenance and repair, finance and the City Attorney's office." Mr. Abe further advised that, due to competing goals and priorities within the Hetch Hetchy Enterprise, "it is essential that the Board and the Commission articulate [their] operating policies and give clear direction as to operational priorities and long-term business strategy, vision and objectives."

- The primacy given to water supply over power supply in (a) the Department's filings on the Modesto and Turlock Irrigation District contract disputes, (b) the Department's filings to the Federal Energy Regulatory Commission on the Don Pedro Dam, (c) the "water first" policy statement in State legislation Assembly Bill 1823, and (d) the Proposition E language approved by the voters in 2002.

Reasons for the Lack of a Hetch Hetchy Enterprise Business Plan

There are a number of reasons why there is no Hetch Hetchy Enterprise business plan:

- The Department lacks an overarching strategic plan, with clear financial, infrastructural, social, and environmental objectives and performance measures set by the Public Utilities Commission. As a result, the Department lacks a strategic framework for the organization as a whole within which the Hetch Hetchy Enterprise can develop a more detailed and integrated regional water and power business plan that acknowledges the restrictions imposed by the Raker Act[2] and the 1987 Pacific Gas and Electric Company Interconnection Agreement.[3] For example, the Department has not articulated, in clear operational terms, its water first policy. Consequently, the Hetch Hetchy Enterprise operates within a context of unresolved issues related to water resource management, coordination between water resource management and power generation, and the scope and nature of new power initiatives. This suggests that executive management has not been proactive in bringing overarching policy questions before the Public Utilities Commission with recommendations.

- There has been no business plan developed for the Hetch Hetchy Enterprise Department since the FY 1998-99 *Hetch Hetchy Power Operations Strategic Business Plan*. Further, whereas the Department is conducting a Clean Water Master Planning process to ensure a comprehensive analysis of its entire clean water system so that the Department, utilizing extensive public consultation, can definitively determine what is and what is not possible, the Hetch Hetchy Enterprise is not holding itself to a similar master planning standard for either its water services or its power services.

- The dearth of executive management guidance is exacerbated by the fact that the Department's Risk Management Committee and Risk Oversight Committee are non-functional. These committees should be providing guidance to executive management on clear decision-making parameters for the Hetch Hetchy Enterprise.

- No one manager under the Assistant General Manager, Operations position is responsible for managing the Hetch Hetchy Enterprise or its budget. Organizational conflict between water goals and power goals is inherent in the current management structure, given the bifurcation of water and power responsibilities between the

[2] The Raker Act of 1913 specifies how and to whom the Public Utilities Commission must distribute Hetch Hetchy water and the power generated from the Hetch Hetchy system.

[3] The 1987 Pacific Gas and Electric Company Interconnection Agreement between that company and the Department complies with the Raker Act. This agreement expires in 2015 and it requires the Pacific Gas and Electric Company to provide electrical transmission, distribution, and scheduling coordination services to the Department. There are currently a number of disputes between the Pacific Gas and Electric Company and the Department over various provisions in this interconnection agreement.

Acting Director of Water Operations and the Acting Director of Power Operations positions.

- There are unresolved conflicts between the Power Policy Division and the Water Operations and Power Operations Divisions within the Hetch Hetchy Enterprise which means that there is no collective prioritization of business goals. As noted by Red Oak Consulting's *Revised Draft Interim Performance Assessment Phase I: Hetch Hetchy Water and Power* (June 11, 2004), "It is not clear when Power Policy should coordinate activities, or obtain consent or approval from other parts of the [Hetch Hetchy Enterprise] when decisions are made that impact the enterprise. This lack of clarity can also negatively impact the organization's support of Power Policy as it endeavors to implement its mission. … In some instances, Power Policy project implement is viewed as at cross-purposes with other [Hetch Hetchy Enterprise] functions."

Ramifications of the Lack of a Hetch Hetchy Enterprise Business Plan

Business plans are a fundamental management tool for enterprises and are a utility industry best practice. There are a number of serious negative ramifications arising from the lack of a Hetch Hetchy Enterprise business plan:

- The Department does not have a clearly defined operating policy because its water first policy is interpreted in a variety of ways by different staff. This has resulted in unresolved tensions between often competing priorities such as (a) water storage, supply, conservation, and contractual obligations under the Raker Act versus power production and contractual obligations under the long-term power supply agreements with the Modesto and Turlock Irrigation Districts, (b) short-term revenue benefits versus long-term asset management, (c) ongoing water supply and power generation needs versus the timely scheduling of maintenance, repair, replacement, and upgrade work, and (d) investments in hydroelectric power infrastructure repair, replacement, and enhancements versus investments in energy efficiency and alternative energy initiatives. By working through a business planning process, the Hetch Hetchy Enterprise would be able to establish priorities if potential activities are in conflict or would exceed the available resources.

- The Department does not have a clear business vision for the future of the Hetch Hetchy Enterprise. A business plan would clarify the Hetch Hetchy Enterprise's role in the California power market, given Raker Act constraints, and the management and organizational structure necessary to support that role.

- There has not been a forum in which to make informed decisions about the merits of major policy and planning options. For example, should the Department develop alternative sources of water to permit greater generation of hydroelectric power from the Hetch Hetchy system? Should the Department partner with the Modesto and Turlock Irrigation Districts by investing in the construction of new power plants those districts are currently considering? Should the Department develop more

transmission lines? How should the organization be structured if it becomes a community choice aggregator and assumes a greater power retail role? How should the 1987 Pacific Gas and Electric Company Interconnection Agreement be renegotiated within a deregulated power market, particularly if the Department becomes a community choice aggregator?

- There are unclear roles, responsibilities, and accountabilities for the Public Utilities Commission, Department managers, and Department staff. For example, strategic and operational policy-making is delegated to staff level personnel without the benefit of a decision-making framework approved by executive management. The current Assistant General Manager, Operations position, which has been filled on an acting basis for some years, has an overly broad responsibility for all of the Department's business lines (water, clean water, and power) and, therefore, has had insufficient capacity to focus on major Hetch Hetchy Enterprise policy matters. The cumulative risk of these factors is that business planning and risk management decisions are made by middle level staff on an ad hoc, reactive basis, rather than by executive management staff from a strategic perspective.

- There is no organizational performance measurement framework for the Hetch Hetchy Enterprise to measure its performance in terms of financial, infrastructural, social, and environmental goals. The Hetch Hetchy Enterprise's current objectives and performance standards, as outlined in the FY 2004-2005 budget, are general, non-measurable, and statements of intent. They need to be stated in terms of accomplishment of business plan goals. Similarly, individual staff performance is not measured in the context of a business plan's goals, objectives, and performance measures.

- Without a long-term business plan, the Hetch Hetchy Enterprise is difficult to present to the credit rating agencies as a credit worthy enterprise. Without a business plan, there is a risk that the Hetch Hetchy Enterprise Fund could be over-subscribed given the volatility of the power market, fluctuations in the economy, deferred capital improvements, and the growing number of energy efficiency and alternative energy projects. The Department does not conduct periodic cost of service studies to establish a cost-of-service rate structure, which covers all of the Hetch Hetchy Enterprise's expenses. Since the Hetch Hetchy Enterprise does not control the application of its rates and which City organizations receive subsidized power, and since it lacks a business plan, the Hetch Hetchy Enterprise cannot responsibly seek a credit rating from the credit rating agencies. A business planning process would (a) determine the water and power rates necessary to support the Hetch Hetchy Enterprise's operations and capital program, and (b) provide a framework for determining how certain customers, such as General Fund departments, should be subsidized.

- Significant revenues are at risk given the volatile nature of the electricity market. For example, as discussed in the Introduction, the Hetchy Hetchy Enterprise estimates that total losses under the Department's long-term power purchase agreement with

the Calpine Corporation, which represents the difference between the cost of power purchases under the long-term power purchase agreement and the market price for electricity, will be approximately $64.5 million.

- There is no business planning context for the Hetch Hetchy Enterprise's capital repair, replacement, and upgrade programs so that individual projects can be prioritized in terms of both (a) the long-term sustainability needs of the entire system's physical infrastructure, and (b) the business justification for each project. Since FY 2000-2001, the Hetch Hetchy Enterprise has operated a ten-year repair and replacement program, which prioritizes capital projects. However, capital projects previously approved on the basis of forecast revenues have to be defunded in the event of emergencies, new priorities, and/or shortfalls in actual revenues.

- There is no business planning context for the Hetch Hetchy Enterprise's funding of (a) energy efficiency and alternative energy initiatives, particularly in terms of how such initiatives will impact the Hetch Hetchy Enterprise's revenues, and (b) subsidized power for certain public sector agencies. Further, if the City chooses to become a community choice aggregator,[4] it will be entering into a new business activity, which might involve Hetch Hetchy Enterprise-generated hydroelectric power.

- There is no business planning context for determining the optimal personnel resources and organizational structure of the Hetch Hetchy Enterprise.

- There are delays in making business-critical decisions. A significant example of this is described in detail below in terms of the Department's inadequate response to changes in the deregulated electricity market.

- The Hetch Hetchy Enterprise does not incorporate formal business planning, including cost-of-service rate review and performance measurement processes, into its ongoing business processes.

The Department's Inadequate Response to Changes in the Deregulated Electricity Market

The Public Utilities Commission's response to the changing electricity market resulting from the 1998 deregulation has been slow. The Hetch Hetchy Enterprise has not adequately planned for changes to the 1987 Pacific Gas and Electric Company Interconnection Agreement.

The Hetch Hetchy Enterprise schedules electricity on the State electricity grid, managed by the California Independent System Operator. Electricity schedules are balanced to match the amount of electricity provided with the amount of electricity that is required.

[4] Community choice aggregation would allow the City to procure electricity from a portfolio of power providers on behalf of citizens currently served by the Pacific Gas and Electric Company.

Therefore, when electricity is scheduled, all electricity resources, whether Hetch Hetchy Enterprise hydroelectric power or power purchased through either the long-term power purchase agreement with Calpine or the spot market, must equal the minimum electricity demand (or load) from municipal customers and the Modesto and Turlock Irrigation Districts.

Under the 1987 Pacific Gas and Electric Company Interconnection Agreement, which extends until 2015, the Pacific Gas and Electric Company provides electricity transmission, distribution, and scheduling coordinator services. Therefore, the Pacific Gas and Electric Company serves as the scheduling coordinator for the Hetch Hetchy Enterprise. The Hetch Hetchy Enterprise submits balanced electricity schedules to the Pacific Gas and Electric Company, and the Pacific Gas and Electric Company submits the schedule to the Independent System Operator.

After the 1998 deregulation of the California electricity market and the establishment of the California Independent System Operator, the regulatory environment, rules and protocols began to change, and the Pacific Gas and Electric Company turned over control of its transmission facilities to the California Independent System Operator. The Federal Energy Regulatory Commission has regulatory oversight over electricity transmission. Using a consultant hired by the City Attorney's Office, the Public Utilities Commission participated in Federal Energy Regulatory Commission hearings pertaining to issues that would affect the Public Utilities Commission.

In April of 1998, the California Independent System Operator established its tariff, which was approved by the Federal Energy Regulatory Commission and provides the terms and conditions, including charges, of scheduling electricity on the State's electricity grid. The Federal Energy Regulatory Commission grandparented existing contracts, such as the 1987 Pacific Gas and Electric Company Interconnection Agreement, with the assumption that these contracts would be revised under the deregulated market. The Public Utilities Commission has not proactively initiated such revisions. While some current provisions benefit the City, and therefore could arguably be in the City's interests to maintain for as long as possible, the consequence of not looking ahead to potential contract changes is having such changes forced upon the City. In such cases, the Public Utilities Commission runs the risk of having to make decisions without adequate planning.

The Independent System Operator's tariff represented new costs to the Pacific Gas and Electric Company, which the Pacific Gas and Electric Company is attempting to pass through to the Public Utilities Commission. The Pacific Gas and Electric Company filed a "cost of service" application with the Federal Energy Regulatory Commission in 1999, claiming that the Pacific Gas and Electric Company had incurred California Independent System Operator scheduling coordinator charges on behalf of the Public Utilities Commission that were not part of the 1987 Pacific Gas and Electric Company Interconnection Agreement. The Pacific Gas and Electric Company is claiming that the Public Utilities Commission owes $16 million for past California Independent System Operator scheduling coordinator charges from April of 1998 through December of 2003.

The Public Utilities Commission has responded to the cost of service filing and is currently litigating this matter at the Federal Energy Regulatory Commission.

During the past year, the Pacific Gas and Electric Company has indicated its interest in terminating its role as scheduling coordinator for the City. The Hetch Hetchy Enterprise has only recently begun planning for alternative scheduling coordinator services. The Hetch Hetchy Enterprise requested the City Attorney to engage two consultants, one in January of 2004 and the other in June of 2004, to evaluate the Public Utilities Commission's alternatives for scheduling coordinator services, as well as for other services under the 1987 Pacific Gas and Electric Company Interconnection Agreement. The evaluation is expected to take approximately six months, with a final report expected by April of 2005.

The Hetch Hetchy Enterprise has been slow in responding to the changes in the electricity market resulting from the 1998 deregulation. The 1987 Pacific Gas and Electric Company Interconnection Agreement was negotiated in a very different regulatory and market environment from the post-1998 deregulated energy market. According to Hetch Hetchy Enterprise staff, since the 1998 deregulation, the Federal Energy Regulatory Commission's decisions have suggested that changes would be needed to the 1987 Pacific Gas and Electric Company Interconnection Agreement. In 2002, the Hetch Hetchy Enterprise engaged two consultants:

- ICF Resources Inc., which was, contracted to evaluate options for providing scheduling coordinator services and to cost those options. According to Hetch Hetchy Enterprise staff, the options evaluation was inadequate and the costing analysis was not useful, with the result that the ICF Resources Inc. report was not used by the Department, despite that contract's $90,000 cost.

- ECCO Consulting which was contracted to (a) validate and reconcile the California Independent System Operator's scheduling coordinator charges that the Pacific Gas and Electric Company sought to allocate to the Department, (b) develop a tool for the Department to minimize its cost exposure resulting from scheduling changes in the hour-ahead and day-ahead markets, and (c) determine the steps required for the City to become a certified schedule coordinator. ECCO Consulting issued its preliminary report in August of 2002 but was unable to complete the data validation and reconciliation and tool development because the Pacific Gas and Electric Company never provided all the required data. Subsequently, the Pacific Gas and Electric Company changed its schedule coordinator model and the California Independent System Operator changed certain charges.

The Department did not enter into any further consultancy projects to plan for its future schedule coordinator services between 2002 and the January of 2004 consultant engaged by the City Attorney. During that period, while Hetch Hetchy Enterprise staff concentrated on responding to various Federal Energy Regulatory Commission proceedings, Public Utilities Commission executive managers assigned few resources for proactive planning for changes in the electricity market and regulatory environment.

Current Status

In January of 2004, in response to the Public Utilities Commission's concern about the Department's lack of progress in preparing a Hetch Hetchy Enterprise business plan, the Policy Planning Division contracted with ICF Consulting, which is part of ICF Resources Inc., the consultant which prepared the inadequate scheduling coordinator report,[5] at a not-to-exceed cost of $55,336[6] to:

- Review the criteria used by bond rating agencies to determine whether an organization can be given a credit rating. ICF Consulting submitted an eight page preliminary draft on March 22, 2004.

- Prepare case studies of other municipal and not-for-profit organizations involved in similar enterprises, which could provide insights into how Hetch Hetchy Power Operations could be structured. ICF Consulting submitted a five page initial review of municipal energy service organizations on April 16, 2004.

- Develop the outline of a business plan, which would configure the Hetch Hetchy Power Operations as a credit rated organization. ICF Consulting did not prepare such an outline.

Then on March 31, 2004 the Assistant General Manager, Power Policy contracted with Ms. Jeanne Clinton, a seconded subcontractor to ICF Consulting, at a not-to-exceed cost of $63,245[7] to:

[5] The Department has a three-year, as-needed contract with ICF Consulting (CS 692-D). ICF Consulting is one of the five as-needed consultants for the Hetch Hetchy Enterprise selected in 2002 through a competitive process. The total projected budget for these as-needed contracts is $6 million, with actual budget funding determined on a task by task basis. The four other selected contractors were Navigant (which subsequently withdrew following unresolved negotiations over charge rates), Brown Vince Associates, Newcombe Anderson Associates (now known as MCorp), and AEPC. The funding which would have gone to Navigant, and Navigant's subcontractors, were reassigned to ICF Consulting. During FY 2003-2004 and FY 2004-2005, ICF Consulting has received 25 task orders for a total of $1,422,772, of which $481,284 has been expended to date. These 25 task orders cover a range of consulting projects, including projects for unrelated firms selected by Department staff and contracted through ICF Consulting as seconded subcontractors. For example, the City has contracted with ICF Consulting under Contract CS 692-D for a subcontractor, the Mountford Group, Inc., to work on the Hetch Hetchy data mart software project. This ongoing project has yet to result in a useable product. To date, the Mountford Group, Inc. has received $128,247 for its work on the data mart software project.

[6] To date, under Contract CS 692-D, the Department has paid ICF Consulting $29,000 of the not-to-exceed cost of $55,336 despite non-delivery of any final product required by the contract. This task order is currently suspended.

[7] To date, under Contract CS 692-D, the Department has paid Ms. Clinton, a seconded subcontractor under the ICF Consulting contract, $28,071 of the not-to-exceed cost of $63,245 despite non-delivery of any final product required by the contract. Given the delays in the Hetch Hetchy Enterprise business planning process, Ms. Clinton is no longer available to complete the project.

- Manage Public Utilities Commission staff's writing of a Hetch Hetchy Enterprise business plan so that such a plan is ready for the Department's FY 2005-2006 budget requests.

- Facilitate resolution of outstanding business issues, which must be addressed in the plan.

- Identify and evaluate the funding and financing options on public buildings, and recommend an approach for the Department.

- Assist Operations staff to develop a five-year capital improvement plan for the Hetch Hetchy system, to be included in the Hetch Hetchy Enterprise business plan.

Shortly afterwards, the former General Manager transferred responsibility for the Hetch Hetchy Enterprise business plan from the Assistant General Manager, Power Policy to the Director of Financial Services. The Director of Financial Services established a project group comprising the Assistant General Manager, Power Policy, the Acting Director of Power Operations, the Acting Director of Water Operations, the Manager of the Planning Bureau, and the Director of Financial Planning, with support from Ms. Clinton. Work was begun on analyzing six business cases, based on (a) how green the Hetch Hetchy Enterprise's power resources should be, and (b) how broad a customer base the Hetch Hetchy Enterprise could have.

The Hetch Hetchy Enterprise business planning process is currently on hold while the new General Manager, the new Assistant General Manager, Business Services, and the new Director of Power Policy work with key stakeholders to assess the process' current status and to determine policy direction on key power policy issues.

Conclusions

By not developing a Hetch Hetchy Enterprise business plan, the Department has failed to meet requests from the Board of Supervisors and directives from the Public Utilities Commission, and to implement recommendations from its own consultants.

Failure to develop a Hetch Hetchy Enterprise business plan is a result of (a) the Department's lack of an overarching strategic plan, (b) the dearth of executive management guidance, (c) the non-functioning of the Department's Risk Management Committee and the Risk Oversight Committee, (d) no one manager below the over-extended Assistant General Manager, Operations position being responsible for managing the Hetch Hetchy Enterprise or its budget, and (e) the unresolved conflicts between the Water Operations, Power Operations, and Power Policy Divisions.

Business plans are a fundamental management tool for enterprises and are a utility industry best practice. There are serious negative ramifications arising from the lack of a Hetch Hetchy Enterprise business plan. The Hetch Hetchy Enterprise, which generates approximately $126 million annually in revenues, lacks a clearly defined operating

policy, a clear business vision for the future, and a forum for deciding on major policy and planning options. Roles, responsibilities, and accountabilities are unclear. There is no organizational performance measurement framework. There is no business planning context for funding capital programs, funding energy efficiency and alternative energy initiatives, or determining the optimal personnel resources and organizational structure. There are delays in making business-critical decisions.

Without a long-term business plan, the Hetch Hetchy Enterprise is difficult to present to the credit rating agencies as a credit worthy enterprise. Without a business plan, there is a risk that the Hetch Hetchy Enterprise Fund could be over-subscribed given the volatility of the power market, fluctuations in the economy, deferred capital improvements, and the growing number of energy efficiency and alternative energy projects. The Department does not conduct periodic cost of service studies to establish a cost-of-service rate structure, which covers all of the Hetch Hetchy Enterprise's expenses. Since the Hetch Hetchy Enterprise does not control the application of its rates and which City organizations receive subsidized power, and since it lacks a business plan, the Hetch Hetchy Enterprise cannot responsibly seek a credit rating from the credit agencies. A business planning process would (a) determine the water and power rates necessary to support the Hetch Hetchy Enterprise's operations and capital program, and (b) provide a framework for determining how certain customers, such as General Fund departments, should be subsidized.

Significant net revenues are at risk given the volatile nature of the electricity market. For example, the Hetchy Hetchy Enterprise estimates that total losses under the Department's long-term power purchase agreement with the Calpine Corporation, which represents the difference between the cost of power purchases under the long-term power purchase agreement and the market price for electricity, will be approximately $64.5 million.

Recommendations

The Public Utilities Commission General Manager should:

1.1 Make the finalization of a Hetch Hetchy Enterprise business plan an early priority of her administration.

1.2 Develop an ongoing Hetch Hetchy Enterprise business planning process which incorporates cost-of-service rate review and performance measurement processes.

The Board of Supervisors should:

1.3 Reserve 75 percent of FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a Hetch Hetchy Enterprise business plan to the Board of Supervisors.

Costs and Benefits

While the Department may need consultant assistance to finalize its Hetch Hetchy Enterprise business plan, the primary input should be from Department staff expert in water and power operations. Despite the Department's pervasive reliance on consultants, it is time for the Department to own its own strategic planning processes and results.

A Hetch Hetchy Enterprise business plan would allow the Department to address all of the deficiencies listed in the report above in the section "Ramification of the Lack of a Hetch Hetchy Enterprise Business Plan." In particular, undertaking a business planning process, and developing an ongoing Hetch Hetchy Enterprise business planning process, would allow the Department to work out how to:

- Develop an integrated, long-term financing strategy which avoids over-subscribing the Hetch Hetchy Enterprise Fund and which establishes a cost-of-service rate structure sufficient to support the Hetch Hetchy Enterprise's operations and capital program.

- Obtain the credit rating for the Hetch Hetchy Enterprise necessary to issue Energy Efficiency and Renewable Energy Revenue Bonds, as authorized by voters in 2001.

- Minimize revenue risks for the Hetch Hetchy Enterprise, which generates approximately $126 million annually in revenues.

- Incorporate formal business planning, including cost-of-service rate review and performance measurement processes, into the Hetch Hetchy Enterprise's ongoing business processes.

Reserving all FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a business plan to the Board of Supervisors would ensure completion of the Hetch Hetchy Enterprise business plan before July 1, 2005.

2. Water Resource and Power Generating Risk

- **The Public Utilities Commission's primary responsibility is to provide water of high quality and sufficient quantity to its customers. However, 80 percent of the Hetch Hetchy Enterprise's revenues come from the generation of hydroelectric power, equal to $106 million in FY 2003-2004. Because the Public Utilities Commission has not established an effective risk management program that provides the tools necessary to balance water storage and supply requirements against hydroelectricity generating obligations to its customers, the Hetch Hetchy Enterprise risks serious financial consequences, particularly in years when inflows to the Hetch Hetchy reservoir system are at median or below median levels.**

- **For example, the Hetch Hetchy Enterprise did not generate sufficient electricity to meet its obligations to customers over the past three years, when there were below median water flows. As a result, the Department was required to spend nearly $50 million on purchased power in order to meet base electricity obligations to its customers. In 2003 alone, the Hetch Hetchy Enterprise purchased an estimated $12.7 million in power to supplement the hydroelectric power that it generated to meet its base obligations to customers and to allow certain capital improvements.**

- **By establishing a comprehensive risk management program, the Public Utilities Commission would be better able to plan for hydroelectric power needs during low water years and during the construction of capital projects, thereby reducing its dependence on purchased power. At a minimum, such plan should (i) define the risk criteria that are inherent when making decisions to release water and generate hydroelectricity, (ii) determine risk thresholds that the Public Utilities Commission is willing to tolerate when releasing water to generate hydroelectricity, and (iii) provide policy direction and procedures to ensure that decisions to release water and generate hydroelectricity are within the Public Utilities Commission's risk parameters.**

Managing Risk in a Water First Environment

The Hetch Hetchy Enterprise manages water storage and supply for the Hetch Hetchy reservoir system, and generates hydroelectric power from the flow of water from the reservoirs downstream. The Hetch Hetchy Enterprise functions within the City's water first policy, which was formally established in the City's Charter in 2002, upon San Francisco voters' approval of Proposition E, and after the State Legislature's adoption of Assembly Bill 1823, specifying that the City shall assign higher priority to the delivery of water to the Bay Area than to the generation of electric power.

Since the 1913 Raker Act, the primary responsibility of the Hetch Hetchy Enterprise has been delivery of water to San Francisco residents and suburban customers. Generating hydroelectric power for San Francisco municipal customers, including the Port and Airport tenants, for the Modesto and Turlock Irrigation Districts, and for Norris Industries, a Federal munitions factory in Riverbank, California, is a byproduct of water supply and downstream flow.

The 1998 deregulation of the California electricity market created a new operating environment for the Hetch Hetchy Enterprise. The Hetch Hetchy Enterprise has had to reconsider or renegotiate its agreements with the Pacific Gas and Electric Company and the Modesto and Turlock Irrigation Districts, resulting from the 1998 deregulation, as discussed in the Introduction to this management audit report.

In 2001, the Hetch Hetchy Enterprise entered into a long-term power purchase agreement with Calpine Corporation, which provided scheduled future electricity deliveries over a five-year period from July 1, 2001 through June 30, 2006. Under the long-term power purchase agreement, the Hetch Hetchy Enterprise 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. As discussed in the Introduction to this management audit report, the Public Utilities Commission renegotiated the long-term power purchase agreement with the Calpine Corporation, although the Hetch Hetchy Enterprise is still obligated to purchase power under the agreement at above market rates. As discussed in the Introduction, the expected loss to the Hetch Hetchy Enterprise, as measured by the difference between the price of power purchased under the Calpine agreement and the market price of electricity, from March of 2003, when the long-term power purchase agreement was re-negotiated, through June of 2006, when the long-term power purchase agreement expires, is approximately $26.1 million.

The Public Utilities Commission's Efforts to Establish a Risk Management Committee

In response to the new challenges facing the Hetch Hetchy Enterprise in the deregulated electricity market and the experience of the long-term power purchase agreement with Calpine Corporation, the Public Utilities Commission established a risk management process to assess risks to the Hetch Hetchy Enterprise and to recommend policies to the Public Utilities Commission's executive level managers.

The Public Utilities Commission's Risk Management Committee began meeting in January of 2002 to discuss the risks associated with generating hydroelectric power and purchasing energy to meet firm power obligations for the City's municipal load, long-term power sales agreements with Modesto and Turlock Irrigation Districts, and retail customers, including the Airport tenants and Norris Industries. The Risk Management Committee consisted of representatives from the Public Utilities Commission

Administration's Financial Services Division and from the Hetch Hetchy Enterprise's Water and Power Operations and Power Policy Divisions. According to the January 30, 2002 agenda, the initial tasks for the Risk Management Committee included:

(a) Developing initial risk management policies and guidelines.

(b) Selecting a contractor to serve as a risk management consultant.

(c) Discussion of legal issues regarding the Turlock Irrigation District and Modesto Irrigation District agreements, and re-negotiation of the Public Utilities Commission's long-term contract with Calpine to purchase electricity.

(d) Discussion of the Public Utilities Commission's energy projects.

According to staff members participating in the Risk Management Committee, the role of the committee was to look at the Hetch Hetchy Enterprise's energy practices, including looking at San Francisco municipal customers' and Modesto and Turlock Irrigation Districts' electricity requirements, the supply of water to retail and wholesale customers, and capital expenditures for the Hetch Hetchy Enterprise, including alternative power proposals presented by the Power Policy Division.

The Risk Management Committee was intended to review, discuss, and evaluate hydroelectric and alternative power proposals, and adopted "Interim Risk Management Guidelines and Policies" in 2002. Under these guidelines, the Risk Management Committee was responsible for reviewing all major power purchases and sales, and hydroelectric and alternative power capital projects with a value greater than $250,000. The Risk Management Committee was intended to set criteria for reviewing and evaluating these purchases, sales, and projects.

Once the Risk Management Committee reviewed proposals for power purchases, sales, and projects, the Risk Oversight Committee, consisting of executive level managers within the Public Utilities Commission, would set policy and recommend proposals to the General Manager and the Public Utilities Commission.

Foundation of the Risk Management Committee

Prior Consultant Reports on Establishing Risk Management Process

Prior to the establishment of the Risk Management Committee in 2002, the Public Utilities Commission received two prior reports that recommended strengthening the risk management of generating and purchasing electricity.

FY 1999-2000 Audit Comments

According to the FY 1999-2000 Hetch Hetchy Enterprise financial audit by the independent financial auditor, KPMG, LLC, the 1998 deregulation of the electric industry created a substantially changed market for electricity. In the audit report, KPMG, LLC stated that the Public Utilities Commission would be increasing electricity trading and scheduling activities in order to generate incremental electricity revenues and reduce the overall costs of electricity. The audit report recommended that the Public Utilities Commission document formal policies, procedures and controls for electricity generation, trading, and scheduling activities. Among other things, the audit recommended that the Public Utilities Commission:

- Ensure that it has programs to manage credit risk.
- Establish operational controls.
- Ensure appropriate risk reporting.
- Establish and measures key performance indicators.
- Ensure that market controls are in place, including periodic third-party validation of the Public Utilities Commission's principal pricing and valuation methodology.

In response to the FY 1999-2000 audit report, the Public Utilities Commission stated that it was undertaking new initiatives, including:

- Forming a Risk Oversight Committee and Risk Management Committee comprised of managers from the Public Utilities Commission, the City Attorney's Office, the Controller's Office, and the Mayor's Office.
- Selecting an outside consultant to serve as a risk management advisor, including conducting risk management assessments.
- Reviewing the Public Utilities Commission's financial service functions to ensure internal controls, segregation of duties, and financial reporting.

Energy Risk Management Consultant's Assessment

The Public Utilities Commission selected an outside contractor, D. Randall Abe, to conduct an independent risk assessment. D. Randall Abe submitted his initial assessment and recommendations to the Public Utilities Commission in May of 2001. The consultant's report made several recommendations regarding the Public Utilities Commission's operating philosophy, delegation of authority, and business practices, including recommendations that the Public Utilities Commission should:

- Develop "risk metrics" to quantify and report its overall portfolio risk, including the risk of price volatility in the deregulated electricity market.

- Develop information systems and analytical tools to assist in operations and risk management.

- Develop an independent financial risk management function, separate from operational management, with independent reporting to the executive management team, the Commission, and the Board of Supervisors.

Selection of a Risk Management Consultant

In January of 2002, the Public Utilities Commission adopted a resolution recognizing the need for a Public Utilities Commission-wide risk management framework and directives, and authorizing the issuance of a Request for Proposals to select a risk management consultant to assist in the development of a Public Utilities Commission-wide risk management framework, including an entity-wide financial risk assessment, development of appropriate risk management policies and procedures, and the implementation of a risk management structure. The Public Utilities Commission Financial Services Division did not issue the Request for Proposal for risk management services for the Hetch Hetchy Enterprise until May of 2002. Proposals were due in mid-July and the contract was to be awarded in August of 2002. Because twelve firms responded to the initial Request for Proposal, the Public Utilities Commission Financial Services Division invited four candidates to oral interviews and selected the top candidate, R.W. Beck, on September 13, 2002.

Upon completion of negotiations with R.W. Beck, Financial Services Division staff presented the contract to the Public Utilities Commission for approval in January of 2003, one year after the initial resolution authorizing selection of a risk management consultant. The letter formally awarding the contract to R.W. Beck was mailed in May of 2003.

Delays in Implementing the Risk Management Assessment

The contract with R.W. Beck expected five tasks to be achieved over a one-year period, beginning in May of 2003 and completed in May of 2004. The five tasks were:

- Task 1: Enterprise risk assessment.

- Task 2: Development of risk management policies and procedures.

- Task 3: Development of a risk management strategy,

- Task 4: Specification of risk metrics and quantitative tools.

- Task 5: Implementation support.

The final report for Task 1, the enterprise-wide risk assessment of the Hetch Hetchy Enterprise, was not submitted to the Public Utilities Commission until April of 2004, after an internal management review of the draft report. The Public Utilities Commission approved a contract amendment in April of 2004, combining task orders and extending the timeline for completing the risk assessment, developing policies and procedures, and implementing a risk management program through April of 2005.

The Public Utilities Commission's Failure to Fully Implement the Risk Management Program

On January 8, 2002 the Public Utilities Commission adopted their risk management policy statement to "institutionalize risk management as a San Francisco Public Utilities Commission management tool and functional activity …" In this resolution, the Public Utilities Commission specified its overarching risk management goals to include:

- Establishing an institutional business culture that exemplifies best practices in water, sewer and power utilities' risk management.

- Providing a risk management infrastructure replete with appropriate policies, procedures, and systems to facilitate Commission and management decision making, control, and spending.

- Developing and implementing an effective, streamlined ability to enter into appropriate and approved transactions of various terms swiftly and with confidence.

- Implementing practical internal controls with clearly defined segregation of duties, and delegations of authority that are commensurate with accountability and capability.

In a report to the Public Utilities Commission in January of 2002, Financial Services Division staff stated that the initial focus of the risk management program would be:

- Developing and implementing an enterprise-wide risk management framework to establish risk management as a management tool and functional activity.

- Implementing financial and energy risk management protocols for the Hetch Hetchy Enterprise to address the risks inherent in the California electric and gas utility business environment.

- Fully implementing the Owner Controlled Insurance Program to manage the Public Utilities Commission's construction insurance coverage requirements and mitigate ongoing construction and engineering related risk exposures.

In its June 24, 2002 minutes, the Risk Management Committee agreed to delay discussion of risk management issues for the Water and Clean Water Enterprises until completion of the Request for Proposals process to select the risk management consultant. Upon selection of the consultant, the Risk Management Committee would

then decide on its scope of review for the Water and Clean Water Enterprises. Responsibility for implementation of the Owner Controlled Insurance Program was allocated to the Infrastructure Division and was not part of the Risk Management Committee process.

The Risk Management Committee defined its basic functions and duties to include review of the Hetch Hetchy Enterprise's water supply and electricity generation capabilities, regulatory developments, and water supply and electricity generation policies. The Risk Management Committee also intended to review all power purchases and sales, and hydroelectric and alternative power projects with values greater than $250,000.

The Risk Oversight Committee was to be made up of executive level managers for Planning, Operations, Power Policy, and Business Services Divisions, and was intended to establish policies to balance water supply and hydroelectric power generation and to evaluate and recommend major power purchases and sales and power projects.

The Public Utilities Commission responded to the independent financial auditor's 2000 recommendations to document formal policies, procedures and controls for hydroelectric power generation, trading, and scheduling activities, stating that the Public Utilities Commission was forming a Risk Management Committee and Risk Oversight Committee to mitigate risk exposures from the deregulation of the electricity industry. Although the Risk Management Committee was intended to evaluate power sales and purchases and proposals for hydroelectric and alternative power projects, and the Risk Oversight Committee was intended to be the executive level body to set policy and recommend contracts and proposals to the Public Utilities Commission, the Risk Oversight Committee met only four times.

The Risk Management Committee continued to meet during 2003 and the first eight months of 2004, but without the commitment and direction from executive level management through the Risk Oversight Committee, the Risk Management Committee ceased to meet in August of 2004.

Inadequate Management of Inherent Risks in Balancing Water and Power Operations

The May of 2001 risk assessment, conducted by D. Randall Abe, stated that although the Hetch Hetchy Enterprise's historical operating philosophy has been "water first", the policy remained unwritten. 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 to the Bay Area than to the generation of electric power. Further, Assembly Bill 1823 required that the City make its plans of operation of the Hetch Hetchy system available to the public upon request. In November of 2002, the San Francisco voters approved Proposition E and the City added a provision to the Charter 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".

Water Supply and Power Generation Decision Making Process

Through the risk management program, the Public Utilities Commission should have developed formal protocols and procedures to determine the balance of water supply and hydroelectric power generation. The risk management program should have (i) defined the risk inherent in decisions to release water and generate hydroelectricity, (ii) established the level of risk that the Public Utilities Commission was willing to tolerate in releasing water to generate hydroelectricity, and (iii) developed policies and procedures to ensure that decisions to release water and generate hydroelectricity were within the Public Utilities Commission's risk parameters.

Because the Public Utilities Commission failed to fully implement the risk management program, including establishing clear risk management policies and protocols and providing executive level leadership, decisions to release water to generate hydroelectricity have fallen to mid-level staff. Day to day operating decisions to release water to generate hydroelectric power are based on mid-level staff members' tolerance for risk rather than on Public Utilities Commission's defined policies.

Operating Rules Based on Computer Models

In 1997, an outside consultant prepared a draft report, which the Public Utilities Commission never made final, entitled *Baseline Water Demands and System Operations; Hetch Hetchy Water and Power Project and Bay Area Water Supply Facilities*. According to this report, the Hetch Hetchy Enterprise is operated to conserve water from the Tuolumne River watershed for municipal consumption. Additional uses of Hetch Hetchy water include generating hydroelectric power, providing flows for fisheries and wild and scenic corridors, and providing flows for recreation.

Operating the Hetch Hetchy Enterprise, including determining the timing and amount of water release from the three reservoirs in Yosemite National Park and the Stanislaus National Forest, downstream through the power plants, is based on a combination of formal and informal rules. The Hetch Hetchy operation needs to meet three obligations: (i) maintain sufficient water supply in the Hetch Hetchy system reservoirs to meet water demand of wholesale and retail customers in the San Francisco Bay Area; (ii) meet Hetch Hetchy's water obligations to the Turlock and Modesto Irrigation Districts; and (iii) meet instream flow release requirements below Hetch Hetchy Project dams. The Hetch Hetchy Enterprise has few formal operating rules. The Raker Act sets flow bypass requirements for Modesto and Turlock Irrigation Districts, while the Fourth Agreement with the Modesto and Turlock Irrigation Districts establishes a water bank account in New Don Pedro Reservoir. Instream flow release requirements for Hetch Hetchy dams are set in a series of right-of-way stipulations between the City and the Department of Interior that were negotiated between 1950 and 1987. A 1995 memorandum from the Hetch Hetchy General Manager specifies water levels at the Hetch Hetchy, Lake Eleanor, and Cherry Lake reservoirs at various dates to ensure sufficient capacity for winter rainfall.

The Hetch Hetchy Enterprise's operating plans are based on computer models that simulate system operations, incorporating numerous assumptions that are intended to represent actual operating conditions. The current operating model is intended to define water levels that can be sustained during a defined drought sequence. The Hetch Hetchy Reservoir levels dropped significantly during the six-year drought from 1987 through 1992. The Hetch Hetchy Enterprise's "defined drought sequence" is based on the 1987 through 1992 drought, which was one of the more severe drought sequences in Hetch Hetchy history. The defined drought sequence extends the six-year duration of the 1987 through 1992 drought by two years, which represent the severe drought of 1976-1977, to achieve an eight-year drought sequence.

Decision-making process

The Water Operations Analyst in the Water Enterprise's Water Supply and Treatment Division coordinates decisions to release water from the reservoirs, downstream through the power houses, with the Manager of the Energy Services Section at the Hetch Hetchy Enterprise's Moccasin Power House. Operating the reservoirs and making decisions to release water are based upon several factors, including:

- Ensuring that the reservoirs are full on July 1 of each year, when the annual snow melt and run-off is complete in most years.
- Ensuring that the reservoirs have capacity to hold additional water resulting from storms.
- Holding water in the reservoirs early in the year, until the approximate quantity of snow pack and water content for the year is known.
- Once the approximate quantity of snow is known, controlling releases of water from the reservoirs to maximize efficiency and revenues and reduce downstream risks.
- Preserving water quality.

The quantitative analysis for releasing water from the reservoirs is based on the monthly operating summary spreadsheet, which includes data on the cumulative rainfall, the amount of snow, cumulative inflows into the reservoirs, and climate. Projections of reservoir inflows and the availability of water in the reservoirs to be released downstream, through the powerhouses, are routinely updated, based on changes in the data.

Risks of Insufficient and Excess Water Supply

Since the drought years of 1987 through 1992, the Public Utilities Commission has been able to meet its water requirements for its San Francisco and suburban customers. However, in addition to the risk of insufficient water supply, the Hetch Hetchy system faces the risk of holding too much water in the reservoirs to accommodate new inflow. The system loses use of the water that overflows, or "spills" from the reservoirs when inflow to the reservoirs exceeds capacity.

Over the past ten years, the Hetch Hetchy system typically loses some water through spills during the period from April to August when snow is melting and inflows to the reservoirs are at their highest point. As shown in Table 2.1, in 1995 through 1999 the inflow of water to the reservoirs during the April to August period exceeded the median year inflow, resulting in high reservoir levels and water spills. In 2000 through 2003, the average April to August inflow to the reservoirs was equal to or less than median year inflow, although some spills still resulted. Some spills occurred in May and June of relatively dry years due to increased snow melt run-off during those years. Although the system operators try to ensure that the reservoirs have capacity to hold additional water resulting from storms or increased run-off, unpredictable or extraordinary weather events can result in spills. Generally, the goal is to minimize water spills through controlled release of water from the reservoirs.

Table 2.1

Estimated Amount of Acre Feet of Water Spills from the Hetch Hetchy System Reservoirs, April through August

1994 through 2003

0	Index [1]	April	May	June	July	August	Total
1994	0.53	0	0	0	0	0	0
1995	1.88	1,706	158,453	143,022	299,187	24,401	626,769
1996	1.25	750	153,457	113,806	10,342	0	278,355
1997	1.22	633	144,754	101,814	0	0	247,201
1998	1.67	1,041	1,930	214,505	185,111	0	402,587
1999	1.13	385	85,501	100,691	5,159	0	191,736
2000	1.01	1,083	43,055	65,921	0	0	110,059
2001	0.61	0	0	0	0	0	0
2002	0.85	0	1,303	13,981	0	0	15,284
2003	0.97	0	38,829	187,444	0	0	176,273

Source: Public Utilities Commission

[1] The index is based on a median water year, in which the April through August inflow to the Hetch Hetchy system reservoirs equals 588,000 acre feet.

Available Electricity Supply

The Hetch Hetchy Enterprise provides electricity to the City's municipal load customers, which include City facilities, the Port, the Airport, and San Francisco Unified School District and Community College District facilities, to the Modesto and Turlock Irrigation Districts, and to Airport tenants and Norris Industries, a Federal munitions factory in Riverbank, California. Hydroelectricity is generated by the flow of water from the three Hetch Hetchy system reservoirs, Lake Eleanor, Cherry Lake, and Hetch Hetchy, through the four powerhouses, Holm, Kirkwood, Moccasin, and Moccasin Low Head. In addition to generating hydroelectricity, the Hetch Hetchy Enterprise purchases electricity through its long-term power purchase agreement with Calpine Corporation and on the wholesale electricity market.

Electricity that is to be used by the City's municipal customers, Modesto and Turlock Irrigation Districts, and Norris Industries each day is scheduled on the State's electricity grid. The amount of electricity resources, including hydroelectric power generated by the Hetch Hetchy Enterprise and purchased power, that are scheduled on the electricity grid must equal the amount of electricity that is required by the City's municipal customers, Modesto and Turlock Irrigation Districts, and Norris Industries. Because electricity cannot be stored, the Hetch Hetchy Enterprise must purchase electricity if it is not able to generate a sufficient amount of hydroelectric power to meet its obligations at any given time. Conversely, if the Hetch Hetchy Enterprise generates more hydroelectric power or has more power purchases under the long-term power purchase agreement with the Calpine Corporation than is required to meet its obligations, the surplus electricity must be offered to Modesto and Turlock Irrigation Districts if it comes from Hetch Hetchy, or it can be sold on the market if it comes from contract purchases or if hydroelectric power is refused by Modesto and Turlock Irrigation Districts.

Insufficient Hydroelectric Power Generation to Meet the Hetch Hetchy Enterprise's Obligation to its Customers

Over the past seven years, the amount of electricity generated by the Hetch Hetchy Enterprise as a percentage of its total electricity resources has decreased. As shown in Table 2.2, the total gigawatt hours of electricity generated by the Hetch Hetchy Enterprise, which includes banked electricity, decreased from 2,321 gigawatts in 1997 to 1,596 gigawatts in 2003, a decrease of 725 gigawatts or 31.25 percent.

Between 1997 and 2003, the Hetch Hetchy Enterprise's obligation to the City's municipal customers, the Modesto and Turlock Irrigation Districts, and Norris Industries increased by 109 gigawatts annually, or approximately 6.3 percent. Inflows to the Hetch Hetchy Reservoir system from precipitation and snow pack run-off were greater than average in 1997 through 1999.

As shown in Table 2.2, in the past three years, the Hetch Hetchy Enterprise has not generated sufficient electricity to meet its obligations to its municipal and Airport

customers, Norris Industries, and the Modesto and Turlock Irrigation District. The Hetch Hetchy reservoir system had median inflows in May through August of 2000, but due to the energy crisis, the Hetch Hetchy Enterprise generated 2,120 gigawatts of electricity, exceeding the seven-year average of 1,907 gigawatts.

In 2001, May through August inflows to the Hetch Hetchy reservoir system were 67 percent of median inflows, resulting in below average electricity generation of 1,443 gigawatts, which met only 85 percent of the Hetch Hetchy Enterprise's obligation to its customers, requiring the Hetch Hetchy Enterprise to purchase additional electricity to meet its obligation. In 2002, although May through August inflows to the Hetch Hetchy Enterprise's reservoir system were 85 percent of median inflows, the Hetch Hetchy Enterprise met 97 percent of its obligation to its customers. However, in 2003, in which May through August inflows to the Hetch Hetchy Enterprise were 97 percent of median inflows, the Hetch Hetchy Enterprise generated only 1,596 gigawatts of electricity, or only 87 percent of its obligation to its customers. The estimated cost to the Hetch Hetchy Enterprise for power purchases to meet its obligation to its customers in 2003 is approximately $12,684,863 and for the three-year period from 2001 through 2003 was approximately $49.5 million.

Although weather patterns and water supply are the main determinants of hydroelectric power generation, within given levels of inflows to the reservoirs, system operators can determine how much water to release to generate hydroelectric power. The Hetch Hetchy Enterprise has not generated sufficient electricity to meet its obligations to its customers over the past three years, and lacks an effective risk management program to ensure optimal hydroelectric power generation, especially in years with average and above average reservoir inflows.

Further, without an effective risk management program, the Public Utilities Commission has no process to plan for the risks to the Hetch Hetchy Enterprise's ability to generate hydroelectric power during the construction of the Public Utilities Commission's Water System Capital Improvement Program projects. For example, in 2003 the Hetch Hetchy Enterprise shut down the Moccasin Power House for 85 days due to capital improvements to the Priest Reservoir bypass, contributing to below average hydroelectric power generation in a water year in which water inflows were 97 percent of median inflow, insufficient hydroelectric power generation to meet its obligations to its customers, and estimated purchased power costs of $12.7 million to meet its obligations to its customers.[1]

[1] As noted below, the Hetch Hetchy Enterprise saved an estimated $973,000 by swapping electricity with Arizona power companies and Sempra, a California-based power company, during the shut down of the Moccasin Power House to make capital improvements to the Priest Reservoir bypass.

Table 2.2

Hetch Hetchy Enterprise Electricity Generation in Annual Gigawatts Compared to Electricity Obligations in Annual Gigawatts to the City Departments, the Airport Tenants, Modesto and Turlock Irrigation Districts, and Norris Company[2]

Gigawatts Generated in 1997 through 2003

	1997	1998	1999	2000	2001	2002	2003
Electricity Resources							
Hetch Hetchy System Generation	2,321	2,156	1,955	2,120	1,443	1,755	1,596
Electricity Purchases	263	259	374	277	458	456	488
Total Electricity Resources	2,584	2,415	2,329	2,397	1,901	2,211	2,083
Generation as a Percentage of Electricity Resource	90%	89%	84%	88%	76%	79%	77%
Electricity Obligations							
Municipal customers	752	833	838	846	847	832	849
Airport Tenants	201	200	201	205	145	141	149
Norris Industries	4	5	5	6	8	9	9
Modesto Irrigation District	509	530	536	687	512	540	548
Turlock Irrigation District	267	265	266	338	255	295	288
Subtotal, Electricity Obligations	1,733	1,833	1,847	2,082	1,767	1,817	1,842
Surplus Sales to Districts	72	12	43	53	81	203	98
Surplus Sales to Market	652	478	263	128	45	93	40
Surplus to PG&E Bank	127	92	176	134	8	98	103
Total Obligation [1]	2,584	2,415	2,329	2,396	1,902	2,211	2,083
Generation as a Percentage of Electricity Obligations [2]	134%	118%	106%	102%	82%	97%	87%
Power Purchases to Meet Obligations (in Gigawatts)	0	0	0	0	324	62	246
Estimated Cost of Power Purchases to Meet Obligations [3]	$0	$0	$0	$0	$32,857,825	$3,943,419	$12,684,863

Source: Public Utilities Commission

[1] Differences between total electricity resources and total electricity obligation are due to rounding.

[2] These electricity obligations are to Municipal customers, the Airport, Norris Industries, and the Modesto and Turlock Irrigation Districts.

[3] Costs are based on FY 2001-2002 through FY 2003-2004 actual power purchase expenditures.

[2] The Hetch Hetchy Enterprise hydroelectric power generation, shown as the number of gigawatts generated annually, includes electricity that is banked with the Pacific Gas and Electric Company for credit during periods of surplus hydroelectric or purchased power that is scheduled on the State grid, and electricity generated by the Southeast Water Pollution Control Treatment Plant cogeneration facility.

Risks Inherent in the Decision Making Process

The Hetch Hetchy Enterprise has an inherent conflict in the 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. Also, the Hetch Hetchy Enterprise began providing free electricity for streetlights in FY 2002-2003.

The Impact of the Public Utilities Commission's Obligations and Policies on Hetch Hetchy Electricity Generation and Revenues

The Hetch Hetchy Enterprise is responsible for providing electricity to the City's municipal customers, and to the Turlock and Modesto Irrigation Districts. The water first policy implies that decisions to release water are based upon water supply and quality criteria, and production of electricity is a by-product of water release decisions based on supply and quality. If the Hetch Hetchy Enterprise does not generate sufficient hydroelectric power to meet its electricity load obligations to the City's municipal customers and the Turlock and Modesto Irrigation Districts, the Hetch Hetchy Enterprise must meet its electricity load obligations through power purchases under the long-term power purchase agreement with Calpine Corporation or on the wholesale electricity market at a higher cost than hydroelectric power generated by Hetch Hetchy. The obligations to provide firm power to Turlock Irrigation District terminates in December 2005 under the proposed settlement, and the obligation to provide firm power to Modesto Irrigation District terminates in December 2007 under the amended and restated long-term power sales agreement.

Further, the Public Utilities Commission is considering providing retail electricity to non-municipal customers who are currently served by the Pacific Gas and Electric Company. Hydroelectric power generated by the Hetch Hetchy Enterprise might be one source of electricity for the retail electricity portfolio.

The Impact of the Water System Capital Improvement Program on the Hetch Hetchy Water Supply and Power Generation

The implementation of the Water System Capital Improvement Program, which will remove portions of the Hetch Hetchy system from operation for periods of time during construction, will pose added risks to the Hetch Hetchy system's water supply and power generation. In FY 2003-2004, the Hetch Hetchy hydroelectric power generation system was inoperable for two months during capital improvements to the Priest Reservoir. During that time the Hetch Hetchy Enterprise entered into an electricity swap with

Arizona power companies and Sempra, a California-based company, with estimated savings of $973,000 compared to purchasing electricity on the market. Operating decisions to balance water supply and hydroelectric power generation, as well as policy decisions impacting the Hetch Hetchy Enterprise's hydroelectric power generation and revenues, will need to consider the impact of the Water System Capital Improvement Program.

Necessary Changes to the Risk Management Process

Establishing an Effective Risk Management Process

The Public Utilities Commission General Manager should establish an effective risk management process that includes executive-level staff and develops protocols to determine optimal levels of hydroelectric power generation within the water first policy. Even small variations in hydroelectric power generation can have large impacts on the Hetch Hetchy Enterprise's revenues and expenditures. Based on FY 2003-2004 hydroelectricity revenues and power purchase expenditures, a one percent increase in hydroelectricity generation could increase revenues by approximately $1.0 million.

The April of 2004 risk assessment by R.W. Beck identified several areas of Hetch Hetchy Enterprise risk, including:

- Uncertainty about water supply and power generation.
- Volatile electricity market prices.
- Operational risk resulting from lack of clarity of policies, processes and procedures for managing seasonal and short-term water and electricity resources and for evaluating power projects.
- City and State policies and regulations impacting water supply and electricity generation decisions or electricity revenues.
- Conflicting priorities within the Public Utilities Commission, including the lack of a Hetch Hetchy Enterprise business plan.
- Potential costs resulting from disputes regarding the terms of the 1987 Interconnection Agreement between the Public Utilities Commission and the Pacific Gas and Electric Company.

Under the current task plan for the ongoing risk management evaluation which has a revised due date of April of 2005, R. W. Beck will evaluate risk management strategies, draft risk management policies, and develop an integrated risk control operating procedures manual. The ongoing risk management evaluation will also include recommending risk management measures, and developing methods to address weather-related risks and water-power interplay. In establishing a new risk management

committee, the General Manager should consider the R.W. Beck risk assessment in defining the scope and membership of the risk management committee.

The risk management committee should continue to be responsible for evaluating the financial impact of power purchases and sales, and hydroelectric and alternative power initiatives, and should present the evaluation to the Public Utilities Commission when the Commission is considering policy initiatives.

In Section 7 of this report, the management audit has recommended transfer of responsibility for the Streetlight Management Program from the Public Utilities Commission to either the Department of Public Works. Currently, the Manager, Streetlights and Special Projects position is responsible not only for the Streetlight Management Program but also for Hetch Hetchy Enterprise risk management functions. Upon transfer of the Streetlight Management Program out of the Public Utilities Commission, the Public Utilities Commission will need to re-evaluate the functions of the existing Manager, Streetlights and Special Projects position. Specifically, the Public Utilities Commission should evaluate, define, and expand the risk management functions of this position and specify how the risk management functions of this position will promote and support the Public Utilities Commission's risk management process. To ensure segregation of risk management functions from the operating decisions of the Public Utilities Commission, this position should be reassigned from the Hetch Hetchy Enterprise Department to the Business Services Division.

Designating Responsibility for Water Supply and Power Generation Decisions

Currently, operating decisions regarding water supply and hydroelectric power generation are made collaboratively by the Manager of the Energy Services Section and the Water Operations Analyst in the Water Supply and Treatment Division. When disagreements arise on the timing or amount of water to be released, decisions are referred to the Acting Director of Power Operations and the Acting Director of Water Operations. Public Utilities Commission staff report that the decision-making process has worked relatively well over the past year. However, the successful collaboration depends more on the collaboration of the individuals rather than established protocols or organizational process.

The Hetch Hetchy Enterprise lacks the necessary analytical tools to model water supply decisions and electricity load schedules. The Public Utilities Commission's delay in implementing these analytical tools is discussed in Section 3 of this report. Successful implementation of these analytical tools will aid in making operating decisions regarding water supply and power generation.

Currently, the Hetch Hetchy Enterprise is co-managed by two directors, one with responsibility for water operations and the other with responsibility for power operations. Both of these managers are in acting positions. The General Manager should designate one existing executive level manager with authority and expertise in managing water supply and power generation to be responsible for making coordinated operating decisions regarding water supply and power generation.

Conclusions

The Public Utilities Commission faces significant risks in balancing water supply and hydroelectricity generation, including releasing too much water and risking insufficient water supply or conversely failing to release sufficient water and "spilling" excess water, thus losing the water for both water supply and hydroelectricity generation. The Public Utilities Commission has failed to implement a risk management program to define these risks and the Public Utilities Commission's tolerance for risk. In the absence of clear risk management policies and protocols and leadership from executive level managers, decisions to release water to generate hydroelectricity have devolved to mid-level staff. Day to day operating decisions to release water to generate hydroelectric power are based on mid-level staff members' tolerance for risk rather than on Public Utilities Commission's defined policies. Consequently, the Public Utilities Commission has failed to ensure that hydroelectricity revenues are optimal within the water first policy.

Recommendations

The Public Utilities Commission General Manager should:

2.1 Establish an effective risk management process that includes leadership by executive-level staff.

2.2 Consider the R.W. Beck risk assessment in defining the scope and membership of the risk management committee.

2.3 Establish the responsibility of the Risk Management Committee to include evaluating the financial impact of power purchases and sales and power initiatives and presenting the evaluation to the Public Utilities Commission when the Commission is considering policy initiatives.

2.4 Re-evaluate the functions of the existing Manager, Streetlights and Special Projects position upon transfer of the Streetlight Management Program to the Department of Public Works, as recommended in Section 7, including evaluating, defining and expanding the risk management functions of this position and specifying how the risk management functions of this position will promote and support the Public Utilities Commission's risk management process. To ensure segregation of risk management functions from the operating decisions of the Public Utilities Commission, this position should be reassigned from the Hetch Hetchy Enterprise Department to the Business Services Division.

2.5 Designate one existing executive level manager with authority and expertise in managing water supply and power generation to be responsible for making coordinated operating decisions regarding water supply and power generation.

Costs and Benefits

The purpose of the risk management function is to identify and mitigate the financial and operating risks inherent in the Hetch Hetchy Enterprise Department's balancing of water supply and power generation. By defining the Public Utilities Commission's risks in balancing water supply and hydroelectric power generation, establishing the level of risk that the Public Utilities Commission will tolerate, and developing risk management protocols, the Public Utilities Commission can better determine the optimal level of hydroelectric power generation within given levels of reservoir inflows. Even small variations in hydroelectric power generation can have large impacts on the Hetch Hetchy Enterprise's revenues and expenditures. Based on FY 2003-2004 hydroelectricity revenues and power purchase expenditures, a one percent increase in hydroelectricity generation could increase revenues by approximately $1.0 million.

3. Analytical Software Implementation

- **In the last four years, the Hetch Hetchy Enterprise has spent over $600,000 on the purchase and implementation of Vista and Aces analytical software and on the Data Mart data warehouse, and has committed significant staff and consultant resources on software implementation. However, to date the software programs have not been successfully implemented and there is considerable uncertainty regarding the timeline and additional cost to fully implement short range and long range planning, and water release and electricity scheduling tools.**

- **Delayed implementation of the Hetch Hetchy Enterprise's Data Mart, which will compile wholesale and retail electricity meter reading and billing data from different sources, hinders the Hetch Hetchy Enterprise's ability to accurately reconcile electricity bills with the Pacific Gas and Electric Company's electricity meter data. Further, these delays increase the risk of an adverse settlement in the $28 million dispute with the Pacific Gas and Electric Company, in which the Hetch Hetchy Enterprise has challenged PG&E meter data from 2000 through 2003 to determine whether meter usage and payments to PG&E had been correctly computed.**

- **Costly delays in Hetch Hetchy's efforts to implement software solutions for its most pressing analytical needs will likely continue unless clear responsibility is assigned to senior managers, implementation timelines are established, and key milestone accomplishments are monitored by the Assistant General Manager of Operations. Without successful implementation of these critical software tools, management will be less able to manage core utility functions or avoid many risks that are inherent to utility enterprises.**

The Need for Analytical Tools to Manage the Hetch Hetchy Enterprise

The Hetch Hetchy Enterprise operations require analytical software for long range and short range planning and for daily operations. For the past four years, the Hetch Hetchy Enterprise has been implementing new software tools but the process has been slow and the Hetch Hetchy Enterprise continues to lack the necessary software for planning and for daily operations.

Delays in Implementing Long Range Planning Tools

The Hetch Hetchy Enterprise needs analytical software for modeling the water system and long range planning of the water supply. In the 1990s, the Hetch Hetchy Enterprise, through an outside consultant, developed the Hetch Hetchy Simulation Model, which simulated the Hetch Hetchy system, including the Tuolumne River flow under various hydrologic and weather conditions. The Hetch Hetchy Enterprise also used the Local Simulation Model for long range planning of the local Bay Area water system. In 2000, the Hetch Hetchy Enterprise Water Resources Manager prepared an evaluation of the existing analytical software, including the Hetch Hetchy and Local Simulation Models, and recommended new and upgraded software to replace the existing tools.

The evaluation, entitled *HHWP Operations Planning: Modeling and Operations Support System Upgrade*, recommended implementation of Oasis, which was a generalized modeling software for water resource systems, to replace the Hetch Hetchy and Local Simulation Models. Because the Hetch Hetchy and Local Simulation Models were not readily usable by Hetch Hetchy Enterprise staff, the Hetch Hetchy Enterprise did not continue to use these models, although Oasis, which had been recommended as an alternative, was not implemented.

In 2002 the Hetch Hetchy Enterprise and Water Supply and Treatment Division staff implemented a more formal process to evaluate and select software for hydrologic modeling and long range planning. A committee was formed, consisting of representatives from the Public Utilities Commission Planning Bureau, the Financial Services and Information Technology Divisions, the Hetch Hetchy Enterprise, and Water Supply and Treatment Division. The committee developed criteria and a plan for reviewing and selecting new software. In June of 2003, the committee recommended to the Public Utilities Commission's Information Technology Advisory Committee that the Hetch Hetchy Enterprise and the Water Supply and Treatment Division jointly purchase a new planning model, called "Mike Basin". The purchase order for Mike Basin was finally approved in June of 2004, after a year-long process of evaluating Mike Basin. Mike Basin is being implemented in two phases. Phase one will model the Hetch Hetchy upcountry water system. Staff training on the software application for phase one has been scheduled for December of 2004. Phase two will develop a system-wide model of the total water system and is expected to be completed in the summer of 2005.

Resource Optimization and Electric Schedule Formatting Tools

The 2000 Hetch Hetchy Enterprise Operations Planning evaluation recommended implementation of two software products for scheduling electricity on the State's electricity grid:

- Vista is a software package that models the hydroelectric system, including inflows to the reservoirs, electricity loads, contracts, and other system constraints. The Vista system is intended to support optimal scheduling of water release and hydroelectric generation.

- Aces is a tool to schedule electricity with the California Independent System Operation, who manages the State's electricity grid.

The Hetch Hetchy Enterprise purchased Vista and Aces in June of 2001. Neither Vista nor Aces has been fully implemented, although the Hetch Hetchy Enterprise has spent $486,185 on these software packages to date. Most of the basic planning and scheduling modules in the Vista software package have been completed although some modeling issues remain outstanding. According to Hetch Hetchy Enterprise staff, when the contract to purchase Vista was approved in 2001, neither Hetch Hetchy Enterprise nor Vista staff were aware of many of the difficulties in adapting specific requirements of the Hetch Hetchy system to the Vista model, indicating that the Vista model had not been fully evaluated prior to its purchase.

Also, according to Hetch Hetchy Enterprise staff, although implementation of Aces, which formats electricity schedules to be provided to the Pacific Gas and Electric Company to schedule on the State's electricity grid, was adequately implemented in 2001, changes to the Public Utilities Commission's agreements with the Modesto and Turlock Irrigation Districts have required changes to the Aces software.

Integration of Vista and Aces has also been difficult. Hetch Hetchy Enterprise staff have worked out an interim procedure to communicate schedule information from Aces to Vista and back, although the interim procedure has been complicated due to the different treatment of Daylight Savings Time by the two software systems. Currently, outside consultants have been engaged to develop a communication procedure between Aces and Vista but the communication procedure has not yet been produced.

In the fall of 2003, a protocol for scheduling with Aces and Vista was developed with plans to train staff. Because of the complexity of the protocol, the Hetch Hetchy Enterprise staff chose not to implement the protocol. Rather, in the fall of 2004, the Hetch Hetchy Enterprise staff is proposing an alternative protocol, in which the Vista software will produce an initial, optimized pre-schedule for scheduling electricity on the State's grid but another tool, similar to an updated form of a Lotus spreadsheet, will be used to produce adjusted pre-schedules and real time schedules. During this process, the Hetch Hetchy Enterprise staff have continued to use legacy Lotus spreadsheets for scheduling.

Implementing Timelines and Accountability for Going Forward

The initial process of selecting new software for long range planning and scheduling has contributed to the delays in implementing the software. An individual manager, with skill in computer modeling, evaluated and recommended the long range planning and scheduling software packages with minimal participation from other Public Utilities Commission staff. The Information Technology Services Business Applications Development Manager stated that he was uncomfortable with the selection of Vista, which had been the recommendation of one individual, but signed the purchase order, acknowledging the Information Technology Services Division could support the software application.

Although the Hetch Hetchy Enterprise and Information Technology Services Division staff began implementing the scheduling software, Vista and Aces, based upon the 2000 Hetch Hetchy Enterprise Operations Planning evaluation, Information Technology Services Division staff initiated a new process for selecting new long range planning software to model the Hetch Hetchy system. An interdepartmental committee was established in 2002 that included staff within the Public Utilities Commission who would use the long range planning model. The committee conducted a needs assessment, researched possible software products, interviewed other utilities, interviewed and evaluated vendors, and called independent users of the software products. The committee process was lengthy, however, and one year passed between the identification of the long range planning software, Mike Basin, in June of 2003 and the purchase order in June of 2004. The Public Utilities Commission staff anticipates completion of the first phase of implementing the Mike Basin software in December of 2004 and the second phase in the summer of 2005.

The process of selecting and implementing the scheduling software packages, Vista and Aces, has been problematic. The software selection was outside of an inclusive evaluation and recommendation process. The initial implementation of Aces was on schedule but changes in the Public Utilities Commission agreements with the Modesto and Turlock Irrigation Districts required remodeling of the Aces software that has not yet been completed. Implementation of Vista has been problematic from the beginning. According to the Hetch Hetchy staff, initial problems in the Vista software were resolved but contributed to delays in implementation. However, Vista software has also not been well structured for the specific needs to the Hetch Hetchy Enterprise system, including modeling of reservoir spills, maintaining required fish flows downstream from the O'Shaughnessy Dam, and other specific issues.

Hetch Hetchy Enterprise staff with day to day responsibility for implementing the Vista and Aces software packages have also been assigned to other high priority tasks. Two consultants have been hired to assist in implementation of the Vista and Aces software packages but have not worked full time on implementation. Hetch Hetchy Enterprise staff anticipate that the consultants will be able to dedicate more time to software implementation in the future.

Going forward, firm timelines and management accountability need to be established to ensure timely implementation of the Mike Basin, Vista, and Aces software. The Assistant General Manager, Operations, should assign responsibility for overseeing implementation of the software packages to appropriate senior level managers, including setting firm timelines and deliverables, and reporting back to the Assistant General Manager, Operations on a regular basis.

Delays in Implementing the Data Mart

The Public Utilities Commission Information Technology Services Division has been implementing a Public Utilities Commission-wide data warehouse that will combine data from the disparate information systems within the organization into a shared database. As part of the Public Utilities Commission data warehouse, the Hetch Hetchy Enterprise

is developing a data mart to compile wholesale and retail electricity meter reading and billing data from different sources.

The Pacific Gas and Electric Company provides Hetch Hetchy Enterprise customer electric meter read data to the Hetch Hetchy Enterprise and bills monthly for electricity and related services provided by the Pacific Gas and Electric Company. The Hetch Hetchy Enterprise staff review the Pacific Gas and Electric Company meter data to verify that customer usage and demand charges are correct. Currently, the Hetch Hetchy Enterprise staff verify Pacific Gas and Electric Company wholesale bills against the Hetch Hetchy Enterprise's available data but the base data is not comprehensive, and identifying discrepancies in the Pacific Gas and Electric Company bills has been time consuming.

Verification of Pacific Gas and Electric Company bills is especially significant in light of the Public Utilities Commission's $28 million dispute with the Pacific Gas and Electric Company for charges under the Interconnection Agreement between July of 2000 and December of 2003. In response to the dispute, the Hetch Hetchy Enterprise's Retail Services Section is reviewing three years of invoices and retail meter data[1] provided by the Pacific Gas and Electric Company in order to validate and correct the data. The validated retail data is then reconciled with the wholesale data to determine what actual payments to the Pacific Gas and Electric Company should have been. During this three-year period, the Hetch Hetchy Enterprise reviewed and corrected the meter read data for billing purposes but reconciliation of the wholesale bill was not routinely performed. According to Retail Services staff, the Hetch Hetchy Enterprise will validate and correct the Pacific Gas and Electric Company's meter data monthly going forward. However, until the data mart is implemented, the necessary billing data will not be compiled in one place, increasing the time required to validate the data and the chance for errors.

The Hetch Hetchy Enterprise data mart would hold all historical meter data, facilitating the Hetch Hetchy Enterprise's procedures for validating the Pacific Gas and Electric Company's meter data and tying the data into the Pacific Gas and Electric Company's billings.

The Hetch Hetchy Enterprise has a task order to implement the data mart with a consultant, ICF Resources, Inc., who was selected by Information Technology Services Division. The goals of the data mart implementation include:

- Creating an automated retail and wholesale bill reconciliation process.

- Improving the quality of data used for forecasting municipal electricity loads by applying processes developed for wholesale bill reconciliation to an historical database.

[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.

- Integrating the data warehouse with the Public Utilities Commissions' other systems.

Full implementation of the Hetch Hetchy Enterprise data mart was to have been completed by September 30, 2004. However, none of the three tasks under the data mart task order have yet been completed, although the Hetch Hetchy Enterprise has spent $128,247 to date. According to Hetch Hetchy Enterprise staff, the consultant has made some progress in loading the Pacific Gas and Electricity meter data, which was part of the first task to create an automated retail and wholesale bill reconciliation process, which was due for completion by August 30, 2004. According to the Information Technology Services Division, the delay in completing the first task to create an automated retail and wholesale bill reconciliation process has been interrupted by the Customer Services Division's process of upgrading the electricity billing system, Utility Star. Completion of the second and third tasks under the task order depends upon substantial completion of the first task.

Responsibility for ensuring implementation of the Hetch Hetchy Enterprise data mart has not been clearly assigned. The task order with the consultant was signed by the Hetch Hetchy Enterprise Acting Director for Power Operations but the Hetch Hetchy Enterprise staff have not been actively managing the consultant. The Director of Information Technology Services and the Hetch Hetchy Enterprise Director for Power Operations should prepare a joint timeline for implementing the Hetch Hetchy Enterprise data mart and regularly review the data mart implementation to ensure that the timelines are met.

Conclusions

The Hetch Hetchy Enterprise, which is responsible for forecasting water supply requirements and balancing water supply and the production of hydroelectric power, lacks the necessary analytical software to perform its core functions. Currently, much of the Hetch Hetchy Enterprise's long range and daily planning are performed on legacy Lotus spreadsheets. Although the Hetch Hetchy Enterprise has purchased analytical software for planning and daily operations, the Hetch Hetchy Enterprise has failed to dedicate the necessary resources to the software implementation. The process of implementing the analytical software has dragged on for four years and is not yet complete. The Assistant General Manager, Operations, should assign management responsibility and accountability to the appropriate senior managers to ensure adequate and timely implementation of the necessary analytical software.

Recommendations

The Assistant General Manager, Operations, should:

3.1 Assign responsibility for overseeing implementation of the software packages to appropriate senior level managers, including setting firm timelines and deliverables, and reporting back to the Assistant General Manager, Operations on a regular basis.

The Director of Information Technology Services and the Hetch Hetchy Enterprise Director of Power Operations should:

3.2 Jointly prepare and enforce timelines for implementing the Hetch Hetchy Enterprise data mart, including regularly reviewing the data mart implementation to ensure that the timelines are met and reporting to the Assistant General Manager, Operations.

Costs and Benefits

The proposed recommendations can be implemented within the Public Utilities Commission's existing resources. Assigning management accountability, dedicating necessary resources, and rigorously enforcing implementation timelines would aid the Hetch Hetchy Enterprise in implementing the necessary analytical software to conduct its core business, resulting in increased efficiency and reduced risk in hydroelectric power production. The Hetch Hetchy Enterprise has already spent $614,432, including $486,185 for Vista and Aces and $128,247 for the data mart, which will be wasted costs without full implementation of these software tools. Further, the Hetch Hetchy Enterprise is reviewing Pacific Gas and Electric Company meter data from 2000 through 2003 to determine what were correct meter usage and payments to the Pacific Gas and Electric Company as part of the $28 million dispute with the Pacific Gas and Electric Company. Implementing the data mart, which will compile wholesale and retail electricity meter reading and billing data from different sources, will facilitate accurate reconciliation of electricity bills with the Pacific Gas and Electric Company's electricity meter data.

4. Maintenance and Materials Management

- **The Superintendent of Operations has various oversight responsibilities that impair his ability to effectively manage maintenance activities within the Project Operations Section. This impairment manifests itself in a lack of comprehensive policies and procedures, the absence of comprehensive performance measurement and reporting tools, and weak maintenance planning and scheduling processes. In addition, the Section has not established strong systems for materials management or for the control of tools and equipment.**

- **The Hetch Hetchy Enterprise should evaluate its maintenance organization to develop a new organizational structure that incorporates efficient supervisory assignments and minimizes supervisory pay differentials. The Budget Analyst found that the Project Operations Maintenance Section assigned staff in a manner that resulted in supervisory differential pay for the section's staff. Three Water and Power Maintenance Supervisor I positions have each been assigned to manage three Operating Engineer, Universal positions, which are higher paid positions, resulting in the payment of supervisory pay differentials to each of the Water and Power Maintenance Supervisor I positions, equal to approximately $16,000 to $17,000 in increased pay annually per position. The Hetch Hetchy Enterprise could save approximately $48,000 to $51,000 annually in salary costs for the three Water and Power Maintenance Supervisor I positions currently receiving supervisory pay differentials by reorganizing the maintenance work crews.**

Project Operations Maintenance Section's Management

The Hetch Hetchy Enterprise's Project Operations Maintenance Section, the term used in this report for the three Project Operations maintenance organizations as a consolidated entity, has been in existence in one form or another since at least the 1930s. The Project Operations Maintenance Section is responsible for maintenance and operations of the Hetch Hetchy reservoir and hydroelectric power generation systems, including the water and hydroelectric power transmission systems.

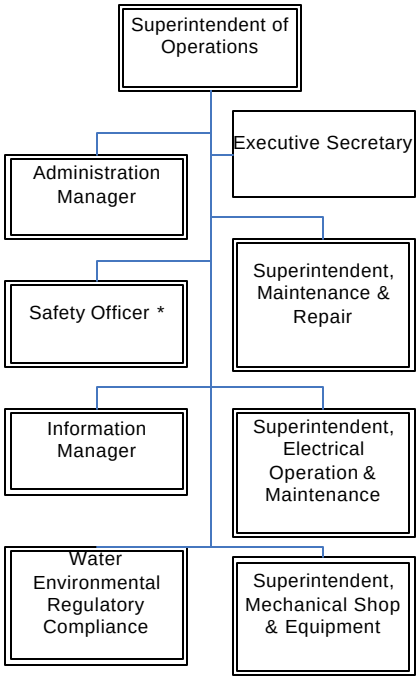
Project Operations Maintenance Section's Organization

The Project Operations Maintenance Section consists of administrative and maintenance management functions as shown in the organizational chart in Exhibit 4.1 below. The Project Operations Maintenance Section is managed by the Superintendent of Operations. The Superintendent of Operations' direct reports include an Administration Manager, an

Information Manager, a Water Environmental Regulatory Compliance Officer, and three Superintendents responsible for maintenance and operations.

Exhibit 4.1

Project Operations Maintenance Section Organizational Chart



* Reports to the Public Utilities Commission's Bureau of Environmental Regulation and Management

The combined responsibility of the three maintenance units in the Project Operations Maintenance Section is to provide reliable water and power deliveries to the City and County of San Francisco and the City's customers by effectively maintaining the water and power storage and delivery systems, including the following system components: watersheds, reservoirs, dams, penstocks,[1] tunnels, pipelines, valve houses, powerhouses and power generators, switchyards, distribution systems, transmission systems, electronic monitoring and control systems, and various support facilities.

Maintenance Management Policies and Procedures

The maintenance function is the subject of keen interest in industry and government, and there are profound changes taking place in maintenance and reliability management. Much of the discussion is taking place as part of the development of an "asset management" approach, a topic that the Budget Analyst is reviewing and evaluating and

[1] A "penstock" is a conduit that transports an accelerated flow of water to **a** facility such as a hydroelectric plant.

will report on later in the course of this management audit. In many organizations, the maintenance function has not been regarded as a core activity and has been relegated to an inferior status compared to other organizational functions. That situation is changing, as equipment reliability has become a critical metric in assessing an organization's performance or level of service.

The Project Operations Maintenance Section does not have a consolidated policies and procedures manual to assist in controlling maintenance operations. A policies and procedures manual would serve to standardize such maintenance functions as setting maintenance priorities, controlling tools and equipment, recording maintenance time, providing an overview of MAXIMO,[2] and providing means of increasing "wrench time."[3] Examples of additional topics appropriate for inclusion in policies and procedures manuals are shown below in Table 4.1.

Table 4.1

Maintenance Management Policies and Procedures Manual Example Contents

• Work Order Procedures	• Preventive Maintenance
• Backlog Tracking	• Warranty Tracking
• Daily Work Schedule	• Failure Analysis
• Weekly Maintenance Plan	• Contractor Control
• Job Card Procedure	• Job Control
• Work Assignment Monitoring	• Procedure and Form Revision
• Mechanical Inspection	• Management Reporting

Source: Water Pollution Control Division's *Maintenance Management Policies and Procedures Manual*

The Project Operations Maintenance Section's maintenance operations are unique in the City, and the facilities, machinery, and apparatus for conveying water and power to the City are unlike those of other City departments. Many of the facilities, machines, and devices are very old and, although still reliable, outdated in functionality, construction, and/or fabrication.

[2] MAXIMO is the Computerized Maintenance Management Software System used throughout the Public Utilities Commission.

[3] Productivity is frequently measured by "wrench time" which is defined as the amount or percentage of time that a craftsperson is actually using his or her tools to perform maintenance work. Wrench time is a measure of the craftsperson's productivity, and is impacted by a variety of factors, such as the amount of time spent waiting for parts, traveling to and from the job site for tools or materials, or waiting for equipment to be made available for maintenance.

The workforce of the Project Operations Maintenance Section is aging and many long-term staff will retire in the next few years, as discussed in Section 5 of this report. Without well-defined written policies and procedures, much of the skill and knowledge of these long-term staff in operating and maintaining the Hetch Hetchy Enterprise's unique water and power systems will not be effectively passed to younger maintenance staff. The knowledge and skill of the long-term staff should be recorded in a detailed set of policies and procedures manuals prior to the departure of the organization's knowledge base.

Policies and procedures serve multiple functions, including the following:

- A self-regulating control standard for performing work.
- An efficiency and effectiveness tool incorporating best practices or lessons learned.
- A training tool for newly assigned personnel.

The absence of an up-to-date maintenance policies and procedures manual is a serious deficiency that should be corrected on a priority basis. The policies and procedures manual should be a dynamic document, continually incorporating updated information. The Project Operations Maintenance Section can use appropriate sections of other departments' policies and procedures manuals as starting points in the development of their own. However approached, a good policies and procedures manual is a guidance, control, and training tool that the Project Operations Maintenance Section needs to develop on a priority basis.

The Hetch Hetchy Enterprise has worked without written policies and procedures for many years. Although the Superintendent of Operations has assigned responsibility for developing written policies and procedures to the Information Manager, the Projects Operations Section has not developed a clear work plan or timeframe for development of the written policies and procedures manual. The Acting Director, Water Operations, in conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Maintenance Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

Maintenance Planning and Scheduling

In addition to the lack of documented procedures, the Hetch Hetchy Enterprise's Project Operations Maintenance Section does not have adequate procedures for planning and scheduling maintenance work. Maintenance planning and scheduling is a vitally important aspect of maintenance effectiveness and efficiency. Effective maintenance operations can be planned and scheduled in a manual mode, as currently described in the Water Pollution Control Division's *Maintenance Management Policies and Procedures Manual*, or, as is the practice in many organizations, using a computerized maintenance management software system. Although the MAXIMO Computerized Maintenance Management Software system is standard among all of the Public Utilities Commission's

enterprise departments, the enterprise departments have not implemented the MAXIMO system uniformly. The Hetch Hetchy Enterprise has not implemented the MAXIMO system to the same extent as the Clean Water Enterprise's Water Pollution and Control Division.

The Project Operations Maintenance Section currently uses the MAXIMO Computerized Maintenance Management Software system for material tracking, cost tracking, and purchasing. However, the Project Operations Maintenance Section uses the MAXIMO Computerized Maintenance Management Software system minimally for planning and not at all for scheduling maintenance operations, although this function is one of the major benefits of a computerized maintenance management software system.

Project Operations Maintenance is authorized two Classification 7262 Maintenance Planner positions in the FY 2004-2005 Annual Salary Ordinance. However, only one of the maintenance planners is working full time in that classification. The second maintenance planner actually serves as the Maintenance Manager of a maintenance section with 24 total staff, managing carpenter and painter craftsmen, gardeners, and the Moccasin Office Water and Power Maintenance crew, in addition to performing a small amount of maintenance planner tasks.

In contrast to the Project Operations Maintenance Section's minimal planning and scheduling function, the Clean Water Enterprise's Water Pollution Control Division's Planning Section has ten planner positions, including the Planning/Scheduling Supervisor, which are fully engaged in the management of the Water Pollution Control Division's maintenance operations. Further, the planner assigned to each trade is a skilled journeyman in that trade. For example, the Electrical Planner is an Electrical Journeyman and the Instrumentation and Control Planner is an Instrumentation and Control Journeyman. The Water Pollution Control Division's Maintenance Section is authorized 140 positions. The Hetch Hetchy Enterprise's Project Operations Maintenance Section is authorized 133 positions, including 25 Power Generation Technician positions.

Need for Improved Planning and Scheduling of Maintenance Projects

As previously stated, wrench time is a critical determinant of maintenance productivity and, therefore, of a maintenance organization's effectiveness. Maintenance industry literature cites productivity rates, as measured by wrench time, of approximately 25 percent to 35 percent as typical for maintenance organizations performing maintenance operations similar to those of the Project Operations Maintenance Section. Significant productivity improvement can be expected through implementation of a computerized maintenance management software system including adequate planning and scheduling processes. For example, given the distances from the Project Operations Maintenance Section's shops to some of the facilities requiring maintenance, one-way travel times of up to one and one-half hours, and longer during winter months, are required to reach the work sites. Under such conditions, failure to bring a critical tool or replacement part can drastically affect a day's productivity. Maintenance planning and scheduling can greatly reduce such occurrences.

The Project Operations Maintenance Section:

- Does not set or track productivity measures such as wrench time.
- Does not use the scheduling module in MAXIMO, which reportedly has deficiencies that are being fixed by the vendor.
- Only uses the MAXIMO planning module on a very limited basis.

In order to reduce the percentage of non-productive time in its maintenance activities and improve its overall maintenance performance, the Project Operations Maintenance Section should thoroughly integrate planning and scheduling into its maintenance operations, including using MAXIMO to the extent of that system's capabilities.

Maintenance Management Performance Measurement and Reporting

The Project Operations Maintenance Section has inadequate maintenance management reporting. Reporting is a basic and essential component of professional management. Comparison of actual performance to planned accomplishment is absolutely necessary to an effective and efficient operation. Planning and controlling is a dynamic process: learning gained from actual experience should be incorporated into updated standards and to new plans. Accurate reporting is required by (a) maintenance managers in order to improve their operations, and (b) executive management in order to assess the performance of maintenance management and to coordinate the activities or operations and support functions with the maintenance function.

Although the Project Operations Maintenance Section collects data on time charged to work order, it does not enter reliable estimated times into the MAXIMO system. As a consequence, the Project Operations Maintenance Section is unable to measure productivity (actual hours of work performed compared to estimated hours of work to be performed). Further, in order to determine compliance (all hours compared to planned hours), all outstanding work and performance measures must be entered into MAXIMO, but the Project Operations Maintenance Section does not enter all performance measures.

When requested to produce maintenance reports on data collected in MAXIMO, the Project Operations Maintenance Section staff are readily able to comply on subjects such as preventive maintenance, maintenance backlogs, or unscheduled work performed. However, unlike the Clean Water Enterprise's Water Pollution Control Division, which reports its maintenance performance quarterly for the months ending in March, June, September, and December by publishing a *Management by Objectives Report*, the Hetch Hetchy Enterprise's Project Operations Maintenance Section does not produce such a report. The *Management by Objectives Report* produced by the Water Pollution Control Division uses efficiency and effectiveness ratios and other metrics that show the performance of most of the maintenance crews and related disciplines assigned to the its Maintenance Division. The primary metrics developed are shown below:

Table 4.2

Management by Objective Report Characteristics

Report Section Name	Type Measure	Numerator	Denominator
Productivity	Efficiency	Estimated Hours Required to Complete the Job	Actual Hours Expended to Complete the Job
Compliance	Effectiveness	Hours of Priority 1 Work Planned	Hours of All Work Performed
Backlog	Combination Efficiency and Effectiveness	Work Planned, In Progress, and Awaiting Completion	None

Source: Budget Analyst' Analysis of *Management by Objectives Report*

The *Management by Objectives Report* is a useful management tool. The Project Operations Maintenance Section should produce its own *Management by Objectives Report*, and, as the Budget Analyst recommended in the Water Pollution Control Division audit report, add to the usefulness of the report by setting standards for each of the management by objectives measures, adjusted for seasonal variations.

Using MAXIMO Data to Justify and Analyze Resource Requests

A *Backlog Report* generated by the Project Operations Maintenance Section from data in MAXIMO and dated November 4, 2004, shows a total of 32,245 estimated labor hours for work orders approved in MAXIMO. The data include all of the Project Operations Maintenance Section's trades and support personnel assigned to work orders in MAXIMO. The 32,245 labor hours equal approximately 19.5 full time equivalent (FTE) positions, using a factor of 1,650 annual work hours available per FTE, after deducting time for leave.

To be useful for planning maintenance operations and for allocating resources, the Project Operations Maintenance Section should analyze the workload for each maintenance shop individually (for example, the mechanical shop or the plumbers shop). Also, the Project Operations Maintenance Section should determine the nature of the tasks for each work order, since some tasks listed are purely administrative. For example, the carpenter foreman's task of "Estimate, Plan, Order Materials, Schedule, Administrate and Inspect Jobs" is allocated 2,080 hours for the fiscal year, although these tasks are administrative support rather than direct maintenance work. Further, the Project Operations Maintenance Section should establish time estimating procedures in order for reports to reflect accurate and useful time estimates for each of the work orders. Instructions must be clear as to whether time estimates for each of the work orders should exclude travel or other non-productive time.

The MAXIMO Computerized Maintenance Management Software system has extensive data collection and reporting capabilities, including backlog, planned work, and maintenance history data. Given these capabilities, the Project Operations Maintenance

System's requests for maintenance resources should be accompanied by backlog, planned work, and maintenance history data.

The Public Utilities Commission is currently undertaking implementation of a department-wide asset management program, which includes identifying all assets, including historical costs, maintenance history, and projected future costs and lifespan. In conjunction with the asset management program implementation, the Project Operations Maintenance Section should develop accurate workload data, such as preventive maintenance work required by each asset.

Control of Tools and Equipment

The Project Operations Maintenance Section does not have adequate inventory records of tools and equipment for all areas. Tools and equipment of a specified value should be inventoried, informally tracked, and re-inventoried on an annual basis. The tools and equipment maintained in the Moccasin main tool room and the machine shop were inventoried in September of 2004, which is also the date of the most recent vehicle inventory. The stationary generators were inventoried in October of 2004. The air pressure and liquid propane tanks were inspected in May and June of 2004. However, Project Operations Maintenance did not have inventory records for tools and equipment assigned to the electrical shop, the electronic technician shop, or to the electrical line crews. In explanation for this deficiency, the Superintendent, Electrical Operations and Maintenance, has stated that although new tools and equipment are added to the asset listings of his maintenance section, annual inventories have not been conducted.

Although Project Operations Maintenance does not have a maintenance procedures requiring that tools be marked for inventory control purposes, prescribed best practices mandates such a procedure. Many but not all of the tools that we inspected were appropriately marked. The Superintendent of Operations should require that all Project Operations Maintenance Section tools be appropriately marked.

The Project Operations Maintenance Section's Materials Management

The mission of the Project Operations Maintenance Section's Materials Management staff members is to provide required materials at the correct location, at an economical cost, and in a timely manner. Their three functions are:

- Procurement: the function of procurement is to procure materials, equipment, and spare parts at an economical price and in a timely manner.

- Inventory Control: the function of inventory control is to ensure that the storeroom is stocked with critical items and items whose usage warrants stocking.

- Storeroom Operation: the function of the storeroom is to receive, store, issue or deliver material to users in the most efficient means available.

Although the Materials Management staff members provide services for all three of the Project Operations Maintenance Section's Superintendents, the Materials Management staff members report to the Superintendent, Mechanical Shops and Equipment. The Materials Management function has four permanent positions and one as-needed clerk, as follows:

- Classification 1938 Stores and Equipment Assistant Supervisor (this position has been temporarily exchanged to a Classification 1936 Senior Storekeeper).
- Classification 1931 Senior Parts Storekeeper.
- Classification 1929 Parts Storekeeper.
- Classification 1934 Storekeeper (vacant).
- Classification 1426 Senior Clerk Typist.

Lack of a Materials Management Policies and Procedures Manual

The Materials Management staff members do not have documented polices and procedures, a significant deficiency. The Project Operations Materials Section plans to develop a materials management policies and procedures manual.

Examples of topics covered in materials management policies and procedures manuals are as follows:

Table 4.3

Materials Management Policies and Procedures Manual Example Contents

• Policy and Functions of Materials Management	• Authorization to Withdraw Materials from the Warehouse
• New Stock Requests	• Receiving
• Warehouse Issues and Credits	• Bin Locations
• Warehouse Scheduled Deliveries	• Low Value Items (Free Stock)
• Back Orders and Stock Reservations	• Repaired Components (Stock)
• Inventory Stratification	• Cost of Ordering and Cost of Carrying
• Active Inventory	• Inactive Inventory
• Technical Review	• Cycle Inventory
• Purchase Requisitions	• Management Reporting

Source: Water Pollution Control Division's *Maintenance Management Policies and Procedures Manual*

The Acting Director, Water Operations, in conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Materials Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

Storeroom Operations

The Project Operations storeroom is clean and well organized. The auditor tested bin locations for item and number correspondence with inventory records and noted no discrepancies. Adjacent to the area containing the storeroom, shops, and other maintenance facilities is a storage yard containing poles and various fittings, scrap metal, and miscellaneous items that are not in inventory. Many of the items are very large and do not appear to be in danger of being stolen. However, the yard items are the property of the City and County of San Francisco and they should be brought under control or disposed of. The Budget Analyst recommends that selected staff members of the Hetch Hetchy Enterprise's Maintenance Engineering and Project Operations Maintenance Sections determine the usefulness of the items in the yard, bring items selected for retention under inventory control, and that surplus items be reported as such or otherwise disposed of.

Concerning inventory turnover, which provides information on how much the storeroom is used, calculations based on the Materials Management inventory value of $255,129, and issuances from inventory of $363,489, yield an inventory turnover rate of 1.42, which compares favorably with inventory turnover rates that we have observed in other departments. An inventory turnover rate of 1.42 means that 8.4 months are needed to completely turn over the value of the inventory maintained by Materials Management staff members for the period reviewed.

Table 4.4

Issuances from Inventory

Month	Issued Amount
Jul - Sep 2003	$73,759
Oct –Dec 2003	93,829
Jan - Mar 2004	87,656
Apr - Jun 2004	108,336
Total	**$363,489**

Source: Project Operations Materials Management Office

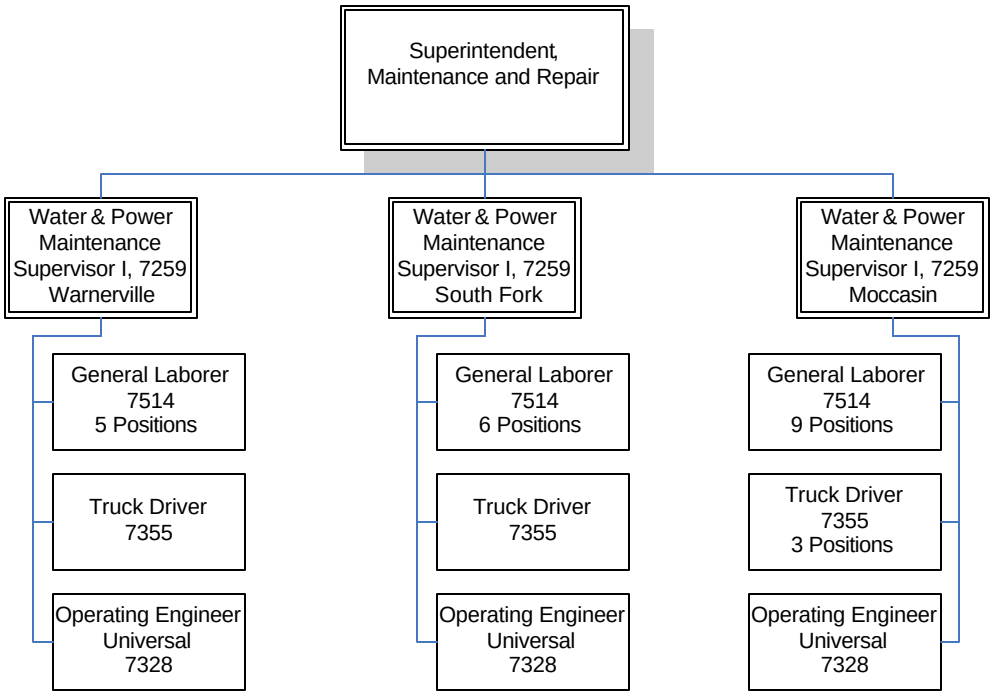
Organizing Project Operations Maintenance to Reduce Unnecessary Supervisory Pay Differentials

The Project Operations Maintenance Section has assigned classifications to work crews in a manner that causes supervisory pay differentials. Supervisory differential pay is an additional payment to an employee who has supervisory responsibility for another employee, but in the absence of such additional pay (the "differential") the subordinate would be paid more than the supervisor. During FY 2003-2004, the Project Operations Maintenance Section had a total of eight employees who received a supervisory pay differential at some point during the fiscal year. Further, the Manager, Maintenance Engineering, also received a supervisory pay differential throughout FY 2003-2004. Of the nine employees assigned to Moccasin who received a supervisory pay differential at some point during FY 2003-2004, at no time during the fiscal year were there less than six employees receiving the supervisory pay differential.

Shown below in Exhibit 4.2 is the organizational structure of the three Water and Power Systems Maintenance crews. The crews are assigned to Warnerville, Moccasin, and South Fork and are responsible for maintenance and repair of roads and right-of-ways, and support of pipeline, dam, powerhouse, and support facility maintenance.

Exhibit 4.2

Organizational Chart of Water and Power Systems Maintenance Crews



The salary range for the Classification 7259 Water and Power Maintenance Supervisor I position is $2,120 to $2,577 per pay period, or $55,332 to $67,260, annually. The single-step salary for the Classification 7328 Operating Engineer, Universal position is $2,764 per pay period, or $72,140, annually. According to the Project Operations Administration Section, two of the three Classification 7259 Water and Power Maintenance Supervisor I incumbents would be receiving Step 2 compensation and one incumbent would be receiving Step 1 compensation. Since the three incumbents are receiving approximately 5 percent more in Supervisory Differential Pay than the Classification 7328 Operating Engineer, Universal incumbents are paid, the Classification 7259 Water & Power Maintenance Supervisor I incumbents are each receiving approximately $16,000 to $17,000 annually more than they would without the Supervisory Differential Pay.

By contrast, a November of 2000 Project Operations Maintenance Section organizational chart shows the Classification 7328 Operating Engineer, Universal positions all reporting to just one Classification 7259 Water & Power Maintenance Supervisor I position.

In response to a query about the extent of supervisory pay differential payments, the Budget Analyst was informed that the Public Utilities Commission's Human Resource Services Division is conducting a review of the Project Operation Maintenance Section's use of supervisory pay differentials, acting assignment pay, and as-needed pay. The Project Operations Maintenance Section should evaluate its maintenance organizations, including the development of a new organizational structure that incorporates efficient supervisory assignments that require no or a minimum of supervisory pay differentials. The Public Utilities Commission should submit the proposed Project Operations Maintenance Section organization, including an analysis of cost savings resulting from reduced application of supervisory pay differentials, for review by the Board of Supervisors, prior to completion of Phase IV of the ongoing management audit.

Conclusions

The Project Operations Maintenance Section is responsible for maintenance and operation of the Hetch Hetchy Enterprise's reservoirs and hydroelectric power generation systems. The Project Operations Maintenance Section lacks written policies and procedures for maintenance and materials management. Many of the Project Operations Maintenance Section's staff are long-term employees approaching retirement, and the failure to record the Project Operations Maintenance Section's operating and maintenance procedures could impair the Hetch Hetchy Enterprise's efficient operation and maintenance of its systems once long-term staff have retired. The Superintendent of Operations has assigned the Information Manager responsibility for overseeing the development of maintenance and materials management policies and procedures, but as of the writing of this audit report, the Budget Analyst has not been provided with a schedule for developing the policies and procedures manuals.

The Hetch Hetchy Enterprise should adopt practices to better manage the Project Operations Maintenance Section's maintenance and materials management functions. The written policies and procedures for maintenance management should include (a) the setting of maintenance priorities, (b) procedures to control tools and equipment inventories, (c) recording maintenance time, (d) efficient use of the MAXIMO Computerized Maintenance Management System capabilities, and (e) increasing "wrench time" or productive use of maintenance staff time. The Hetch Hetchy Enterprise should also adopt management by objectives, similar to those used by the Clean Water Enterprise, including setting standards for each of the objectives, adjusted for seasonal variations. The Hetch Hetchy Enterprise should produce regular management by objectives reports to improve the performance of maintenance functions.

The Hetch Hetchy Enterprise does not efficiently use the MAXIMO Computerized Maintenance Management System's capabilities. For example, the Project Operations Maintenance Section uses MAXIMO minimally for planning maintenance work and not at all for scheduling. The MAXIMO Computerized Maintenance Management Software system has extensive data collection and reporting capabilities, including backlog, planned work, and maintenance history data. Given the data collection and reporting

capabilities of MAXIMO, maintenance resource requests should be accompanied by backlog, planned work, and maintenance history data.

The Hetch Hetchy Enterprise should evaluate and reorganize its maintenance organization, to develop a new organizational structure that incorporates reasonable spans of control and efficient supervisory assignments that require a minimum of supervisory pay differentials. The management audit found that the Project Operations Maintenance Section assigned staff in a manner that resulted in supervisory differential pay for the section's staff. The Department should submit the proposed Project Operations Maintenance Section organization, including an analysis of cost savings resulting from reduced application of supervisory pay differentials, for review by the Board of Supervisors, prior to completion of Phase IV of the ongoing management audit.

Recommendations

The Public Utilities Commission General Manager should:

4.1 Submit a Project Operations Maintenance Section organizational chart and supporting materials to the Board of Supervisors Finance and Audits Committee following a review of that organization's structure and allocation of positions.

The Acting Director of Water Operations should:

4.2 In conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Maintenance Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005**.**

4.3 In conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Materials Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

4.4 Ensure that the Project Operations Maintenance Section incorporates automated planning and scheduling processes into its everyday maintenance activities, including forming a Planning and Scheduling Group with the talent and management support required to accomplish the job.

4.5 Ensure that the Project Operations Maintenance Section initiates maintenance reporting on a continuing, periodic basis. The *Management by Objectives Report* produced by the Water Pollution Control Division is a useful model.

4.6 Use MAXIMO reports when deciding on resource allocations.

4.7 Ensure that all tools and equipment are inventoried annually.

4.8 Ensure that the items in the storage yard adjacent to the shops area are brought under inventory control or disposed of.

4.9 Review the Project Operations Maintenance Section's organizational structure in order to improve its economy and efficiency.

Costs and Benefits

The Budget Analyst's recommendations can be accomplished with existing staff. Implementation of the Budget Analyst's recommendations would provide reasonable assurance that the Project Operations Section is performing its maintenance functions in an efficient and timely manner.

Three Water and Power Maintenance Supervisor I positions have each been assigned to manage three Operating Engineer, Universal positions, which are higher paid positions, resulting in the payment of supervisory pay differentials to each of the Water and Power Maintenance Supervisor I positions, equal to approximately $16,000 to $17,000 in increased pay annually per position. The Hetch Hetchy Enterprise could save approximately $48,000 to $51,000 annually in salary costs for the three Water and Power Maintenance Supervisor I positions currently receiving supervisory pay differentials by reorganizing the maintenance work crews.

5. Hetch Hetchy Enterprise Personnel and Administration

- **The Hetch Hetchy Enterprise has not established effective administrative, personnel management or asset security policies or procedures. General personnel policies and procedures related to employee conduct, work hours, job performance and health and safety are absent; and, no policies or procedures have been developed to provide management direction on emergency medical coverage, housing assignment or official travel for employees assigned to the remote Moccasin Powerhouse.**

- **In addition, annual employee performance evaluations are inconsistently conducted. For example, the Maintenance Engineering Division conducted only one of 14 required evaluations in FY 2002-03 and FY 2003-04. Further, the Department does not comply with employee "Entrance and Exit" policies that are designed to safeguard City assets. Out of 63 temporary and permanent employees who left Hetch Hetchy employment between July 2002 and September 2004, only eight equipment and tool control forms were collected and reviewed by Human Resources Division personnel.**

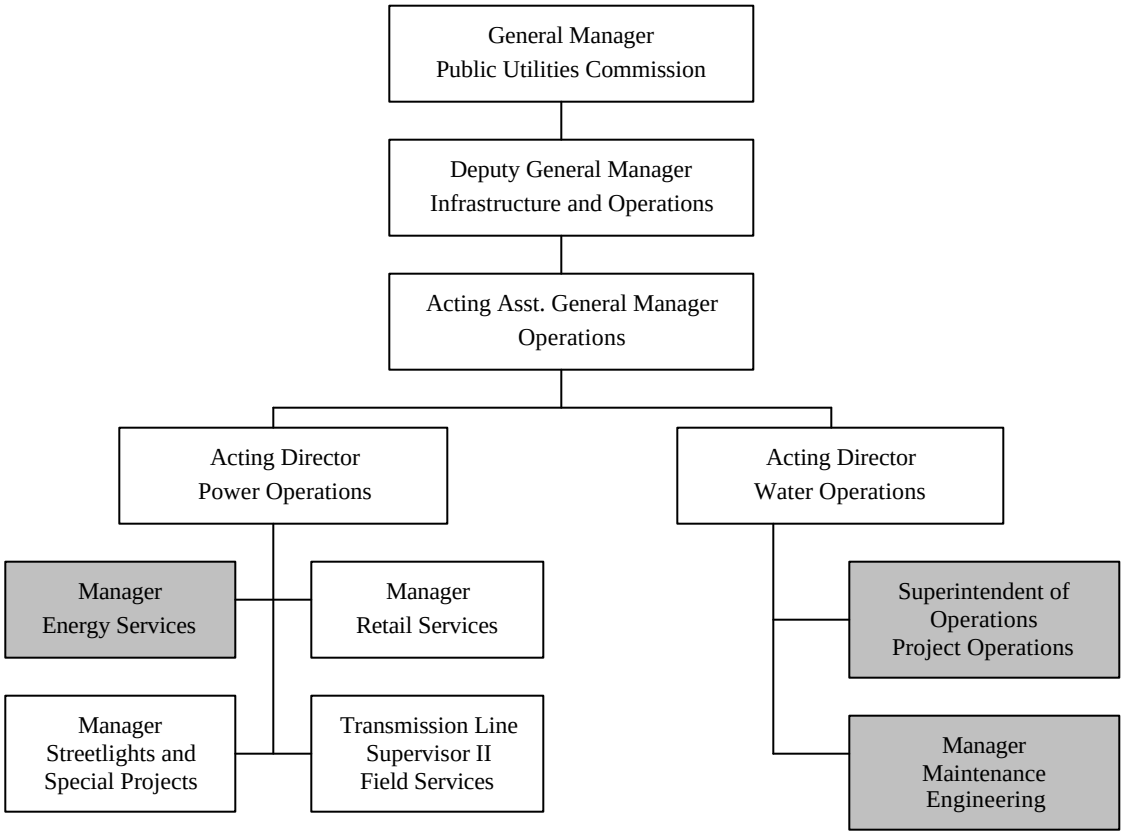
- **Hetch Hetchy Enterprise management should immediately develop general and location specific policies and procedures for both water and power operations. In addition, during FY 2004-05, management should develop and comply with procedures to ensure that annual employee performance evaluations are conducted within all divisions. Further, management should strictly adhere to Entrance and Exit policies that are designed to safeguard City assets**

Hetch Hetchy Organization

The administration of the Hetch Hetchy Enterprise is divided between two Acting Directors, one each for Power Operations and for Water Operations, as shown in Exhibit 5.1 below.

Exhibit 5.1

Hetch Hetchy Organizational Structure and Reporting Lines



Note: Shaded elements are located at Moccasin Powerhouse and maintenance facilities in Tuolumne County.

The Acting Director of Power Operations, is stationed at the Public Utilities Commission headquarters building at 1155 Market Street in San Francisco, and is responsible for the power planning and services elements shown on the organizational chart. The Energy Services Section, which is located at the Hetch Hetchy facility at Moccasin Powerhouse and maintenance facilities in Tuolumne County, approximately 135 miles east of San Francisco, is responsible for scheduling water delivery and electrical power generation throughout the Hetch Hetchy system. The Retail Services and Streetlights and Special Projects Sections perform their functions out of the Public Utilities Commission headquarters building. The San Francisco Field Services Section, which is authorized 16 positions and which operates out of Treasure Island and a streetlight yard located at 639 Bryant Street, is responsible for the following functions:

- Maintaining and repairing approximately 22,000 streetlights in the City. The remaining streetlights are owned and maintained by the Pacific Gas and Electric Company (approximately 20,000), the Recreation and Park Department

(approximately 400), MUNI (approximately 40), the Presidio Trust (approximately 800), and Caltrans (unknown).

- Maintaining electrical substations and power lines that provide power to the City's municipal load.

The Acting Director of Water Operations, who also serves as the Manager, Construction Coordination within the Water Supply and Treatment Division, operates out of the Water Supply and Treatment Division's Millbrae facility. Reporting to the Acting Director of Water Operations is the Superintendent of Operations, Project Operations Section, who is responsible for managing, operating, and maintaining the water storage, water conveyance and hydroelectric generation facilities and high voltage transmissions systems of the Hetch Hetchy Enterprise, and the Manager, Maintenance Engineering Section, who is responsible for fault analyses, data analyses, and maintenance engineering. The Project Operations Section, which is authorized at total of 151 fulltime equivalent (FTE) positions in the FY 2004-2005 budget, is by far the largest organizational element within the Hetch Hetchy Enterprise.

Administrative Policy and Procedures Manual

The Hetch Hetchy Enterprise does not have its own administrative Policy and Procedures Manual, but rather relies on Public Utilities Commission policies and procedures, which have not been codified into a single, cohesive document. The Project Operations Section, which as previously stated is approximately 135 miles east of San Francisco, does not have its own administrative Policies and Procedures Manual which should cover such issues as general employment policies, employee conduct, work hours and authorized absences, job performance, and health and safety. Also, topics unique to Moccasin because of its location, such as medical coverage, Moccasin housing assignment procedures, and official travel to the City, should be covered. A comprehensive set of administrative policies and procedures is an important element of administrative control. The Hetch Hetchy Enterprise in general and the Project Operations Section in particular should develop an Administrative Policies and Procedures Manual on a priority basis.

Moccasin's Superintendent of Operations, who manages the Project Operations Section, has tasked the Classification 5148 Water Operations Analyst, who functions as the Information Manager, with overseeing the development of policies and procedures, including administrative, maintenance management, and materials management policies and procedures for Project Operations. In addition to the importance of such policies and procedures due to Moccasin's remote location, the site's workforce is an aging one that will lose much institutional knowledge in the not-too-distant future. That knowledge should be captured by a good set of policies and procedures manual prior to the departure of Moccasin's knowledge base.

Concerning development of procedures at Moccasin, the Budget Analyst inquired about a schedule for developing the various procedures manuals being overseen by the Information Manager, and was informed that no such schedule exists. Since obtaining a

commitment to a schedule from a manager responsible for accomplishing an objective is a basic management practice and an effective control mechanism, the Budget Analyst recommends that the Acting Director of Water Operations, in conjunction with the Superintendent of Operations and the Information Manager, to establish a timeline to develop an Administrative Policies and Procedures Manual, and report on the status of the manual development to the Assistant General Manager, Operations, prior to June 30, 2005.

Hetch Hetchy Enterprise Personnel Administration

Both Power Operations and Water Operations have administration and finance sections. The Power Operations Division in San Francisco has five finance and administration staff that report directly to the Acting Director of Power Operations, and the Water Operations Division at Moccasin has five finance and administration staff, including a Classification 1823 Senior Administrative Analyst, who functions as the Administration Manager. The Budget Analyst selected five administrative processes to evaluate the Hetch Hetchy Enterprise's compliance with the City's and the Public Utilities Commission's (the Department) administrative regulations:

- Performance Evaluations.
- The Entrance and Exit Policy.
- Discipline.
- Equal Employment Opportunity Complaints.
- Driver License Controls at Moccasin.

Performance Evaluations

The purpose of performance appraisals is to ensure that employees understand their job functions and are evaluated fairly. City and Department policy requires that employees be evaluated once every year.

According to information provided by the Department's Human Resource Services Bureau, the total number of personnel evaluations completed for Hetch Hetchy Enterprise personnel for FY 2002-2003 and FY 2003-2004 were 161 and 221, respectively, although the number of permanent authorized positions varied only slightly between the two fiscal years.

The Budget Analyst's review of performance evaluations for both the Power Operations Division and the Water Operations Division at Moccasin revealed that with the exception of the Maintenance Engineering Section at Moccasin, performance evaluations were completed as prescribed for FY 2003-2004. For FY 2002-2003, four of 31 Power Operations Division employees did not receive a performance evaluation.

Of the approximately 40 personnel files that we reviewed of employees assigned to Moccasin, seven were assigned to the Maintenance Engineering Section. Of the seven files reviewed, one employee had a completed performance evaluation for FY 2003-2004, but not for FY 2002-2003. None of the remaining six employees assigned to the Maintenance Engineering Section had a performance evaluation completed for either FY 2002-2003 or 2003-2004. Clearly, compliance with Department and City policy on completing performance evaluations annually, for each employee, has not been a priority in the Maintenance Engineering Section.

By ensuring that each employee is provided with an annual performance evaluation, management would be complying with an important City and Department regulation and, combined with appropriate management actions, would also demonstrate to employees that professional development and employee performance are high priorities.

The Entrance and Exit Policy

The Human Resource Services Bureau has prescribed the Department's Entrance and Exit Policy through a procedure for Unit Processing of Employee Equipment and Access (the "Procedure"). The Procedure describes the process for documenting the issuance of equipment, tools, access codes and related items to employees. The process is designed to track such issuances throughout the tenure of an employee's employment with the Department and to ensure that upon departure, each employee follows the proper procedure for turning in each item that has been assigned.

The Human Resource Services Bureau initiates an Equipment Processing Form for each new employee as a part of the Department's initial processing. Thereafter, the Equipment Processing Form should follow the employee to his or her first job assignment, and any subsequent changes in assignment, and should be updated as equipment and other items are issued and turned in.

Whenever equipment is assigned or access is provided, the employee's supervisor is responsible for indicating such on the Equipment Processing Form and updating the form as needed. The supervisor is to maintain the form in a confidential location because it contains confidential personal information. When an employee changes positions, is reassigned from one Department division or bureau to another, or separates from employment, the supervisor is required to initial on the Equipment Processing Form that each item has been returned. When all items are appropriately returned, the supervisor should sign and initial in the space indicated and transmit the form to the Departmental Personnel Liaison within the division or bureau.

The Procedure requires that the Departmental Personnel Liaison review the form to ensure that it was completed correctly and that the Department Personnel Liaison conduct an "exit" interview by noting responses to questions listed on an Exit Interview Form. The Departmental Personnel Liaison is then required to sign both forms and forward them to the Human Resource Services Bureau.

In order to test whether the Equipment Processing Forms and the Exit Interview Forms are being completed and retained as required by policy, the Budget Analyst obtained listings of Hetch Hetchy employees who had separated from the Department during FY 2002-2003 and FY 2003-2004. A total of 24 permanent employees had separated from employment since July 1, 2002 and a total of 39 as-needed employees had separated since that date. However, only eight Equipment Processing Forms and Exit Interview Forms had been forwarded by the Hetch Hetchy Enterprise to the Human Resource Services Bureau during calendar years 2002 and 2003, and to date, no such forms have been forwarded during calendar year 2004.

Based on the foregoing, the Budget Analyst concludes that the Hetch Hetchy Enterprise's compliance with the Department's Entrance and Exit Policy is clearly inadequate and that an important control for maintain adequate safekeeping of Hetch Hetchy assets is not being enforced.

Driver License Controls at Moccasin

Moccasin is enrolled in the State driver license Employer Pull Notice Program. An employer enrolled in the Employer Pull Notice Program is assigned a requester code. The requester code is added to an employee's driver license record. When an employee's driver license is updated to record an action/activity, a check is made electronically to determine if a pull notice is on file. If the action/activity is one that is specified to be reported under the Employer Pull Notice Program, a driver record is generated and mailed to the employer.

The Employer Pull Notice Program allows an organization to monitor driver license records of employees who drive on the organization's behalf. This monitoring accomplishes the following:

- Improves public safety.
- Determines if each driver has a valid driver license.
- Reveals problem drivers or driving behavior.

The Budget Analyst tested the Employer Pull Notice Program to determine whether all employees are enrolled, based on comparing the Employer Pull Notice Program listing maintained by Moccasin's Auto Shop with the listing of employees maintained by Moccasin personnel.

In the entire listing, we found only one employee on the personnel listing out of approximately 200 employees who was not on the Employer Pull Notice Program listing. Further, we found two instances of employees' names in the Employer Pull Notice Program who are no longer employees at Moccasin. According to the manager in charge of the Employer Pull Notice Program for Moccasin, the employee whose name was not

on the Employer Pull Notice Program listing was no long employed by the Project Operations Section. The Budget Analyst verified that information with the Project Operations Section's Personnel Office.

With the exception of these minor discrepancies, the Employer Pull Notice Program at Moccasin appears to be working fine. As an indicator, for all of calendar year 2004, there has been only one recordable accident with a Moccasin vehicle estimated to exceed $500 in repair costs, and that accident was rated non-preventable by the Accident Review Committee. According to vehicle records maintained by the Auto Shop, Moccasin vehicles have recorded a total of 867,949 miles driven in calendar year 2004, through November 10, 2004.

Conclusions

The Hetch Hetchy Enterprise is divided into two divisions and is geographically split between the City of San Francisco and the Moccasin Powerhouse and maintenance facilities in Tuolumne County. Accordingly, administrative and personnel functions should be supported by written policies and procedures, and such policies and procedures should be fully implemented and monitored by Hetch Hetchy Enterprise management.

Recommendations

The Acting Director of Water Operations should:

5.1 Establish a timeline to develop an Administrative Policies and Procedures Manual for Moccasin to include all current Department and Division policies and procedures, and report to the Assistant General Manager, Operations, on the status of the Administrative Policies and Procedures Manual prior to June 30, 2005.

The Acting Director of Water Operations and the Acting Director of Power Operations should:

5.2 Require all Hetch Hetchy Enterprise managers and supervisors to complete performance evaluations for all staff annually.

5.3 Include completion of staff performance evaluations annually as a goal and objective in the Hetch Hetchy Enterprise managers' and supervisors' performance evaluations.

5.4 Establish procedures for and monitor compliance with the Department's Entrance and Exit Policy, including ensuring the correct use of forms and forwarding the forms to the Human Resource Service Bureau when required, and ensure full compliance with the Employer Pull Notice Program.

Costs and Benefits

The Budget Analyst's recommendations can be accomplished with existing staff in-house. The benefits of the recommendations would include a more efficient Hetch Hetchy Enterprise operation, with increased internal controls and personnel better supported by management and the administrative staff.

6. Billing and Collection of Electricity Accounts

- **At the time of this report, tenants who occupy municipal buildings had past due electricity account balances of approximately $125,000 out of $607,000 in monthly billings, which equates to a 20.6 percent delinquency rate. More than 11 percent of Port tenant account balances were 90 days past due. For example, one Port tenant, who opened an account in March of 2002, had an average account balance of $20,852 in 2002, $46,036 in 2003, and $48,992 in 2004. This high delinquent rate and the rate of growth in delinquent balances suggests that the Public Utilities Commission has not established adequate policies or procedures for collecting this subcategory of electric accounts.**

- **The Public Utilities Commission should develop more rigorous policies and procedures for enforcing collection of delinquent accounts. Specifically, penalty fees should be established for retail accounts that are 30 days or more past due and policies should be adopted for discontinuing service on retail electricity accounts when they become 90 days past due. In addition, regular reports should be developed and routinely provided to the Hetch Hetchy Enterprise Retail Services Manager to ensure more timely collections.**

Billing and Collection of Electricity Accounts

The Public Utilities Customer Services Division staff bill all municipal retail accounts for electricity. Municipal retail accounts include:

- San Francisco Unified School District and Community College District facilities.
- City General Fund departments.
- City Enterprise departments.
- City parking garages.
- Port tenants.
- Airport tenants.

The San Francisco Unified School District, Community College District, and City General Fund departments pay $0.0375 per kilowatt hour for electricity. City Enterprise departments, the City parking garages, and the Port and Airport tenants pay retail market rates, that are comparable to the Pacific Gas and Electric Company's retail tariff rates as approved by the California Public Utilities Commission, which equal on average $0.14 per kilowatt hour as of September 14, 2004.

In August of 2004, the Public Utilities Commission adopted a resolution, modifying electricity rates for the Moscone Center, Candlestick Park, the Asian Art Museum, and the Fine Arts Museums. Under this resolution, the Moscone Center would be charged the General Fund electricity rate of $0.0375 per kilowatt hour rather than the average retail market rate of $0.14 per kilowatt hour, in FY 2004-2005 and retroactive to FY 2003-2004. Candlestick Park would be charged the General Fund electricity rate rather than the retail market rate in FY 2004-2005. The Asian Art Museum would be provided electricity free of charge, in FY 2004-2005 and retroactive to FY 2003-2004 and the Fine Arts Museums would be provided electricity free of charge in FY 2004-2005.

Billing Retail Customers for Electricity

The Pacific Gas and Electric Company, which owns most of the electricity meters for the Hetch Hetchy's municipal retail accounts, provides meter read data monthly to the Hetch Hetchy Enterprise Retail Services Section and the Customer Services Division. Retail Services and Customer Services staff review the Pacific Gas and Electric Company meter data and then import the data to the Utility Star system, which produces the monthly electricity bills. The Customer Services staff maintain electricity billing rates in the Utility Star system, and are responsible for generating electricity bills.

The Customer Services Division assumed responsibility for retail electricity accounts billing and collections on behalf of the Hetch Hetchy Enterprise in 2000. The Customer Services Division acquired the standard Utility Star software in 2002 and is in the process of upgrading the standard Utility Star software to the "platinum" version. According to Customer Services staff, although the Public Utilities Commission has a small number of electricity accounts, the electricity rate structure is complex, and the platinum version of the Utility Star software will be better able to handle the complexity.

Most retail customers are on Pacific Gas and Electric Company meters, including most City departments. The Customer Services Division bills these retail customer accounts directly. The Airport has a master meter, and the Customer Services Division sends only one bill to the Airport. The Airport is responsible for Airport tenants' electricity use.

The Port facilities are on meters installed by either the Pacific Gas and Electric Company or the Port. Most Port tenants are responsible for paying the electricity bill, and the Customer Services Division bills these tenants directly, whether on Pacific Gas and Electric Company meters or on Port-installed meters. In other instances, the Port is responsible for the electricity bill, whether the facility is occupied by the Port or by a Port tenant, and the Customer Services Division bills the Port directly for these accounts.

A few retail customers, such as Pier One, the 5th and Mission Streets parking garage, and the Moscone Center skating rink, are on an automated meter reading system installed by the Hetch Hetchy Enterprise.

The Customer Services Division has approximately 2,095 retail electricity customer accounts, which are billed monthly. Total monthly billings equal approximately $6.2 million. Most retail electricity accounts are for public agencies, including the San

Francisco Unified School District, the San Francisco Housing Authority, and City General Fund and Enterprise Fund departments. The Customer Services Division bills the Airport for Airport tenants' electricity use, but bills Port tenants, Moscone Center tenants, and the parking garages directly. The total monthly billing for Port tenants, Moscone Center tenants, and the parking garages are approximately $600,000.[1]

Collecting Retail Customer Accounts

The Financial Services Accounting Section is responsible for collecting electricity bill payments for most City departments. Beginning in June of 2004, City departments receive electricity bills monthly rather than quarterly. The departments receive a monthly master report, and the Financial Services Accounting Section processes the City departments' electricity bill payments as work orders.

The Customer Services Division staff send a master bill to the Port for all retail electricity accounts for which the Port is responsible, and the Financial Services Accounting Section processes the Port's payment as a work order, in the same manner as other City departments.

The Customer Services Division staff bills Port tenants directly who are responsible for their own electricity accounts. The Customer Services Division staff post the Port tenants' electricity account payments in the billing system and forward the posting report and the customer's check to the cashier. The cashier encodes and deposits the check, and sends deposit documentation to the Financial Services Accounting Section. The Accounting Section is responsible for balancing the customer account with the payment.

The Customer Services Division does not have written policies and procedures for collecting electricity account payments. If the payments are past due, the Customer Services Division staff follow procedures similar to the procedures for collecting past due water bills. For past due accounts, a reminder notice is sent with the second bill. If the account is still past due after the second month, a more strongly worded reminder notice is sent with the third bill.

The Customer Services Division does not have a policy to terminate service for delinquent accounts. After the third month without a payment, a letter is sent to the Port and to the Hetch Hetchy Enterprise Retail Services Section. The Hetch Hetchy Enterprise Retail Services Section is then responsible for working with the Port to receive payment.

According to the October 22, 2004 Customer Services billing records, Moscone Center tenants and parking garage customer accounts were current. However, approximately 11.3 percent of all Port electricity customer accounts are 90 days past due or more, as shown in Table 6.1.

[1] According to the October 22, 2004 "Aged Accounts Receivable Detail by Utility" report, provided by Customer Services, total monthly billings for Moscone Center and Port tenants and parking garages were $607,013.

Table 6.1

Status of Port Electricity Customer Accounts, as of October 22, 2004

	Total Amount of Bills					Percent of All
Type of Account	**Current Month**	**30 Days Past Due**	**60 Days Past Due**	**90 Days Past Due**	**Total of All Bills**	**Bills That Are 90 Days Past Due**
Port accounts	$117,341	$53	$0	$0	$117,394	0.0%
Port tenant accounts	484,749	39,538	15,565	68,629	608,481	11.3%
Total	$602,090	$39,591	$15,565	$68,629	$608,534	11.3%

Source: Public Utilities Commission Customer Services Division

Many of the Port electricity customers with accounts that are past due for 90 days or more make partial payments when they receive the second or third past due notice. As noted in Table 6.2, the average outstanding balance increased in 2004 compared to 2003 for six of the seven largest outstanding accounts.

Table 6.2

Average Outstanding Electricity Account Balance for Port Electricity Customers with Account Balances 90 Days Past Due

2003 and 2004

Average Outstanding Balance	Tenant 1	Tenant 2	Tenant 3	Tenant 4	Tenant 5	Tenant 6	Tenant 7
2004	$48,992	$11,461	$7,845	$5,945	$2,815	$2,230	$731
2003	46,036	8,753	6,096	3,108	3,233	1,623	121
Increase in Average Outstanding Balance in 2004	$2,956	$2,707	$1,749	$2,837	($418)	$607	$610

Source: Public Utilities Commission Retail Services Division

The average outstanding balance for Port electricity customers with past due accounts for 90 days or more continues to grow. One Port tenant, who opened an account in March of 2002, had an average account balance of $20,852 in 2002, $46,036 in 2003, and $48,992 in 2004, indicating that despite partial periodic payments, the tenant was increasingly in arrears in paying the electricity bill.

The Public Utilities Commission needs to establish a rigorous policy to collect outstanding payments from tenants with past due electricity accounts. The Customer Services Division needs to develop written policies and procedures for collecting retail electricity accounts. The policies and procedures should include routine reporting on aged accounts receivables to the Hetch Hetchy Retail Services Division.

The Public Utilities Commission needs to adopt penalty fees for retail electricity accounts that are 30 days past due or more. Collection procedures for these penalty fees should be included in the Customer Services Division written policies and procedures.

Additionally, the Public Utilities Commission Retail Services Section should work with the Port to develop written procedures for terminating electricity service to retail electricity accounts that are past due.

Conclusions

The Public Utilities Commission should establish more rigorous policies to collect past due retail electricity accounts, including establishing penalty fees and procedures for terminating service for retail electricity customers with past-due accounts.

Recommendations

The Public Utilities Commission should:

6.1 Establish penalty fees for retail electricity customer accounts that are 30 days or more past due.

The Director of Customer Services in coordination with the Hetch Hetchy Retail Services Manager should:

6.2 Develop written policies and procedures for collecting retail electricity customer accounts, including procedures for terminating electricity service to retail electricity accounts that are 90 days past due.

6.3 Routinely provide aged account receivables reports to the Hetch Hetchy Enterprise Retail Services Manager.

The Hetch Hetchy Enterprise and the Port should:

6.4 Develop joint protocols to ensure timely collection of Port electricity customer accounts, including written procedures for terminating electricity service to retail electricity accounts that are 90 days past due.

Costs and Benefits

Development of rigorous collection policies and procedures, including establishing penalty fees for past due retail electricity accounts, could result in an estimated minimum of $125,000 in one-time electricity revenues if all accounts were current.

7. Streetlight Management

- **Since streetlight management is not a core Public Utilities Commission function, the Streetlight Management Program has not been given a high priority. There is a significant capital improvement backlog, particularly with regard to energy efficiency initiatives. There is no comprehensive streetlight capital improvement plan, no Streetlight Management Program business plan, no development of alternative funding sources, no comprehensive assessment inventory of the City's streetlights, and no plan to eliminate the backlog of streetlight outages.**

- **Responsibilities for streetlight planning, design, construction, and maintenance are split between the Public Utilities Commission and the Department of Public Works. The Department of Public Works is also responsible for right of way projects that can damage underground utilities, thereby directly impacting streetlight functionality and program costs.**

- **Other cities place streetlight management programs in their major public works departments. By transferring the Streetlight Management Program from the Public Utilities Commission to the Department of Public Works or the Municipal Transportation Agency, the City could capitalize on organizational efficiencies that would (a) enhance right of way and traffic management services and coordination of capital improvement projects, (b) improve the ability to leverage alternative streetlight funding, and (c) allow the City to more aggressively pursue streetlight energy efficiency initiatives. The proposed transfer of responsibilities would be cost neutral, while simultaneously producing expanded revenue and cost reduction opportunities for the Streetlight Management Program.**

The Streetlight Management Program

The Public Utilities Commission's Streetlight Management Program undertakes streetlight planning and design reviews in conjunction with the Department of Public Works, maintains and operates the City's approximately 22,000 streetlights, responds to public complaints about streetlights, and coordinates with the Pacific Gas and Electric Company which owns approximately 20,000 streetlights in the City.[1] The Hetch Hetchy Enterprise provides power for all 42,000 streetlights and funds their maintenance.

In order to fulfil these functions, the Manager, Streetlights and Special Projects reports to the Acting Director of Power Operations and directly manages 4.00 full-time equivalent

[1] These Pacific Gas and Electric Company streetlights are being progressively replaced by the undergrounding program funded in part by the ratepayers of the Pacific Gas and Electric Company.

(FTE) staff.[2] These staff are supported by a further 6.00 FTE field staff managed by the Classification 7285 Transmission Line Supervisor II who also reports to the Acting Director of Power.[3] In addition, off-budget, as-needed positions equivalent to 3.00 full-time equivalents (FTE) are funded by fees paid by developers, claims paid by insurance companies, and prior capital project appropriations.

Prior to 1997, Streetlight Management Program maintenance had been contracted out to a third party before management responsibility for the program was transferred to the Department of Telecommunications and Information Services under a work order from the Hetch Hetchy Enterprise Fund. The Public Utilities Commission subsequently assumed full management and maintenance responsibility, with support from the Department of Public Works (as discussed below) and the Department of Telecommunications and Information Services (through an annual $20,000 work order to conduct automated random night checks for outages). No third party contractors are involved in City streetlight maintenance and operations.

Until it became fully subsidized by the Hetch Hetchy Enterprise Fund for the first time in FY 2002-2003, as shown in Table 7.1 below, the Streetlight Management Program was budgeted under the Public Utilities Commission's Bureau of Light, Heat, and Power which was funded by the General Fund. Between FY 2000-2001 and FY 2004-2005, the Streetlight Management Program's budget has decreased, and between FY 2000-2001 and FY 2003-2004, the program's annual actual expenditures have also decreased. Despite this, the Department under-expended its Streetlight Management Program budgets in both FY 2002-2003 and FY 2003-2004. Such under-expenditures may be accounted for if the Department (a) does not include off-budget recoveries in the budget, or (b) recovered more than anticipated.

[2] These 4.00 FTE positions comprise (a) a 1.00 FTE Classification 5366 Engineering Associate II, (b) 2.00 FTE Classification 5352 Electrical Engineering Assistants, and (c) a 1.00 FTE Classification 5601 Utility Analyst.

[3] These 6.00 FTE positions comprise (a) a 1.00 FTE Classification 6252 Line Inspector, (b) 2.00 FTE Classification 7338 Electrical Line Workers, (c) 2.00 FTE Classification 7432 Electrical Line Helpers, and (d) a 1.00 FTE Classification 7345 Electrician.

Table 7.1

Streetlight Management Program: Budget Versus Actual Expenditures FY 2000-2001 Through FY 2004-2005

Fiscal Year	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004	FY 2004-2005
General Fund $ (Original Budget)	$3,337,389	$2,687,024	$0	$0	$0
Hetch Hetchy $ (Original Budget)	$0	$0	$3,051,128	$2,257,421	$2,180,268
Total Original Budget	**$3,337,389**	**$2,687,024**	**$3,051,128**	**$2,257,421**	**$2,180,268**
Less Actual Expenditures	($3,867,857)	($2,692,384)	($2,072,627)	($2,210,902)	
Under/(Over)-Expenditures	**($530,468)**	**($5,360)**	**$978,501**	**$46,519**	

Source: Public Utilities Commission Financial Services

Issues

The Public Utilities Commission's continuing management of streetlights presents the following challenges:

- Streetlights are the only hydroelectric-powered municipal facilities in the City's surface level right-of-way, which the Public Utilities Commission owns, maintains, and operates. In all other cases, the responsible municipal entity itself owns, maintains, and operates its facilities and purchases the hydroelectric power from the Hetch Hetchy Enterprise (for example, the Municipal Transportation Agency is responsible for traffic signals and MUNI power lines). The provision of streetlights is not a core Public Utilities Commission function.

- The Public Utilities Commission has not yet adopted a comprehensive streetlight capital improvement plan. The Acting Director of Power Operations advised that she has drafted various capital improvement plans for the replacement of incandescent series loop streetlight systems along Van Ness Avenue and in the Richmond and Sunset Districts but these have not been approved by the Public Utilities Commission for inclusion in the Department's budget submissions due to their significant cost and competing capital requirements within the Department. There is a significant capital improvement backlog. For example, the high voltage series loop lighting systems on

certain major roads, including Van Ness Avenue and Lombard Street, are antiquated, non-energy efficient systems with very expensive parts. Previous efforts to retrofit the Van Ness Avenue streetlights in a joint project with MUNI were discontinued and the funds were reallocated following the 1989 earthquake. There is no substantial proactive repair and replacement program currently underway. The current Manager, Streetlights and Special Projects has commenced the development of a new Capital Improvement Program to install and/or repair existing streetlights, remove graffiti, and enhance the Streetlight Management Program.

- The Public Utilities Commission has not developed a Streetlight Management Program business plan. There has been no development of alternative funding sources (for example, property owner assessment,[4] State Gas Tax funds eligible for streetlighting, transportation funding for roadway initiatives, and/or increased third party funding of streetlight repairs). Further, the City's investment in its Streetlight Management Program has not been counted toward local match requirements in Department of Public Works and Municipal Transportation Agency roadway projects utilizing State and Federal grant funds.

- There is no comprehensive assessment inventory of the City's streetlights and their condition. The current Manager, Streetlights and Special Projects has commenced the development of such an assessment inventory.

- Due to the public and political interest in neighborhood streetlighting, the limited resources among City departments responsible for the right-of-way, and the lack of an overarching capital improvement program plan to provide a decision-making framework, streetlight management has the potential to consume a disproportionate amount of the Acting Director of Power Operations' time.

- Streetlight management consumes a portion of the Manager, Streetlights and Special Projects' time which could be more effectively focused on risk management issues (that position's primary responsibility).

- Little benefit is derived from Public Utilities Commission oversight. Occasionally the Public Utilities Commission has adopted resolutions about specific streetlighting programs (for example, a 1997 resolution permitting white lights, a 1999 resolution approving metal halide lighting in Mission Bay, and a 2003 resolution approving induction lighting on Octavia Boulevard). This is in line with the San Francisco

[4] Los Angeles County has assessed property owners for streetlights since 1929. Its streetlighting program has approximately one staff member for every 1,000 streetlights and a full-time night crew, and has started installing a SCADA system which automatically monitors streetlight sensors every six seconds to identify streetlight outages. By contrast, the San Francisco system has approximately one staff member for every 1,692 streetlights, no night crew, and no automatic monitoring of streetlight outages (although it is currently researching the available monitoring systems and funding options).

Administrative Code, which makes streetlight specifications subject to the review and approval of the Public Utilities Commission.[5]

- Currently, the Department of Public Works' landscape architects and its Bureau of Engineering's Electrical Engineering Section prepare the technical specifications and the available street furniture options, and provide technical support. They choose the lighting systems for large developments such as the Embarcadero and the Third Street Light Rail. The Department of Public Works or its contractors construct the new streetlights, for which the Public Utilities Commission assumes responsibility for maintenance, after the warranty period expires. Yet, according to the Acting Director of Power Operations, the Department of Public Work's design, technical, and construction decisions are often not well communicated and appear not to fully consider the Public Utilities Commission's maintenance and other operational requirements. For example, the Public Utilities Commission is currently refusing to assume responsibility for lighting systems which have outstanding safety and reliability issues.

- According to the Acting Director of Power, there has also been inadequate communication with the Hetch Hetchy Enterprise from the Department of Public Works and its contractors over relocating streetlights and conduits during sidewalk alterations and street tree planting. The lack of adequate notice to the Public Utilities Commission increases the likelihood of damage to underground utilities during construction. To counteract this problem, the Public Utilities Commission is reprioritizing staffing resources to improve "underground service alerts," the advanced marking of underground utilities to avoid damage during construction and to protect the City from repair cost liability if damage occurs during construction.

- Due the number of Streetlight Management Program staff available and the 925 miles of roadway within the City, the Department relies on streetlight malfunction notices from the public. Based on some recent random night checks for streetlight outages, there could be an approximately 10 percent unreported outage rate. This would represent approximately 2,200 outages at any one time. The Manager, Streetlights and Special Projects advises that, at the current levels of operation (repairing between 300 and 600 malfunctioning streetlights per month), this would take approximately four to seven months to correct this number of non-functioning streetlights. That repair time estimate does not consider (a) the current repair workload, and (b) the time to perform the additional night checks to identify the outages. The Manager, Streetlights and Special Projects estimates that the night checks could amount to 12 weeks of work for an employee.

[5] "The Public Utilities Commission shall determine the intensity of illumination, number and spacing of lighting facilities and other details necessary to secure satisfactory street lighting." (Ord. No. 9046 (1939), Sec. 14)

Responsible Department in the Future

While the City's streetlights are currently managed by the Public Utilities Commission, they could be managed by the Department of Public Works or the Municipal Transportation Agency. Within the context of the issues listed above, the following discussion considers the respective advantages of each department providing streetlight management services.

Advantages of Streetlight Management as a Public Utilities Commission Function

1. The Public Utilities Commission provides Hetch Hetchy power to the City-owned streetlights. Having streetlights under direct Public Utilities Commission management maximizes the department's expenditure control over the Hetch Hetchy Enterprise Fund. Even if streetlight management transfers to the Department of Public Works or the Municipal Transportation Agency, the Public Utilities Commission would continue to fund streetlight installation, maintenance, and operating costs (to the degree that there are no alternative funding sources). To help contain the cost of Hetch Hetchy Enterprise Fund revenue transfers, the Public Utilities Commission could enter into a memorandum of understanding with the Department of Public Works or the Municipal Transportation Agency which sets (a) a dollar amount per streetlight with an inflation adjustment formula for future years, and (b) energy efficiency goals for the Streetlight Management Program. For example, such a memorandum of understanding could set a 20 percent energy reduction goal over five years irrespective of any increase in the number of streetlights during that period.

2. In addition to the 10.00 FTE staff dedicated to the Streetlight Management Program, the Hetch Hetchy Enterprise uses its other Field Services Section staff to support the Streetlight Management Program when such additional staff are needed and available. For example, by performing work for developers, insurance companies, and capital projects, there has been sufficient funding available to hire off-budget and as-needed staff who have also been able to assist with streetlight work. If the streetlight management function is transferred to another department, that department may also use funds from fees paid by developers, claims paid by insurance companies, and prior capital project appropriations to reallocate additional staffing resources to cover the Streetlight Management Program.

3. The Public Utilities Commission directly contracts with the Pacific Gas and Electric Company, the other major owner of streetlights in the City. Pacific Gas and Electric Company wheels Hetch Hetchy power, maintains its own streetlights at a cost to the Hetch Hetchy Enterprise Fund, and uses Hetch Hetchy power for its own streetlights. Even if streetlight management transfers to the Department of Public Works or the Municipal Transportation Agency, the Public Utilities Commission would continue to manage the City's Pacific Gas and Electric Company contract.

4. The Public Utilities Commission has a shared cost arrangement with Caltrans for certain streets (for example, Lombard Street leading up to the Golden Gate Bridge). This is sometimes a 50/50 deal, with Caltrans performing maintenance under reimbursement by the Public Utilities Commission.

5. The Public Utilities Commission coordinates with the Pacific Gas and Electric Company for connection permitting and would continue to be so, even if streetlight management transfers elsewhere because the Hetch Hetchy Enterprise Fund needs to control the number of connections.

6. The Public Utilities Commission's oversight is another avenue for public input into streetlight management. However, as noted above, the Public Utilities Commission has provided little policy oversight.

Advantages of Streetlight Management as a Department of Public Works Function

1. The Department of Public Works takes the lead on repaving projects receiving Federal or State funds. The Department of Public Works can incorporate streetlighting into its transportation funding proposals for roadway initiatives, thereby leveraging non-Hetch Hetchy Enterprise Fund funding sources for new streetlights. Further, the Department of Public Works, in conjunction with its client, the Municipal Transportation Agency, can use the City's investment in the Streetlight Management Program as part of the City's local match requirements for grant-funded repaving projects.

2. The Department of Public Works is responsible for the right-of-way. Street lights are an integral component of the right-of-way given (a) their role to provide safe streets for vehicles and pedestrians, and (b) their presence as street furniture. The Department of Public Works is responsible for:

    - The policy framework governing right-of-way planning. This could include a streetlight capital improvement plan and a comprehensive streetlight assessment inventory.

    - Most other street furniture and related engineering work, except for traffic and pedestrian-related features which is the responsibility of the Municipal Transportation Agency.

    - Lighting in walkways, stairways, parking lots, tunnels, pedestrian bridges, and bike lanes.

    - An existing workforce with the necessary lighting skills and experience which could be supplemented by the 10.00 FTE Public Utilities Commission streetlight maintenance and operations staff.

3. At the present time, the Department of Public Works designs all undergrounding projects under a memorandum of understanding with the Public Utilities

Commission. The Department of Public Works' Bureau of Street Mapping's Street Coordination Center already coordinates all elements of the undergrounding projects executed by the Public Utilities Commission and the Pacific Gas and Electric Company. Making the Department of Public Works responsible for streetlight maintenance would ensure that streetlights and conduits are sufficiently considered during the planning for undergrounding work.

4. It would also be appropriate for the Department of Public Works to log all streetlight-related information in its Geographic Information System. This would improve "underground service alerts" to avoid damage during third party construction work to protect the City's infrastructure from repair cost liability if damage occurs during construction. Further, this would avoid the Public Utilities Commission outsourcing the data entry for real time mapping of the streetlight system through a Geographic Information System, as is currently contemplated by the Manager, Streetlights and Special Projects.

5. Transferring streetlight management to the Department of Public Works would ensure that streetlight design, purchase, construction, maintenance, operations, and storage are the responsibility of one department. As noted above, while the Department of Public Works' landscape architects and its Bureau of Engineering's Electrical Engineering Section prepare the technical specifications and the available street furniture options, and provide technical support, the department's design, technical, and construction decisions have often not fully taken into account the Public Utilities Commission's maintenance and other operational issues, according to the Acting Director of Power Operations. Such issues could be avoided if the Department of Public Works (and its contractors) resolved the issues internally.

6. Since 1991, the Department of Public Works has been responsible for graffiti abatement on all street furniture, irrespective of which City department is responsible for individual pieces of street furniture. The Public Utilities Commission has a standing work order with the Department of Public Works for streetlight painting to address graffiti ($20,000 per year).

7. The Department of Public Works' nighttime street cleaners could report streetlight outages.

8. The Department of Public Works frequently attends neighborhood community meetings and learns about neighborhoods' streetlighting concerns. Transferring streetlight management responsibility to the Department of Public Works would allow the department to exercise greater control over lighting solutions. For example, on streets where City trees obscure the streetlights, the Department of Public Works currently controls the trees only, through its Bureau of Urban Forestry, yet the City's trees are just one part of the problem.

9. No new manager position in the Department of Public Works' Bureau of Street and Sewer Repair would be required to manage streetlights.

10. It is common for jurisdictions' Departments of Public Works to manage their streetlight programs. For example, Los Angeles County's streetlight program is managed by its Department of Public Works.

Advantages of Streetlight Management as a Municipal Transportation Agency Function

1. The Municipal Transportation Agency is responsible for all aspects of the roadway connected with traffic and pedestrians, including design, sizing, and placement of medians, sidewalks, traffic and pedestrian signage, and traffic signals. However, for new signals, the Municipal Transportation Agency goes through the Department of Public Works' Bureau of Engineering for electrical engineering and final design.

2. Streetlights and traffic lights share conduits, sidewalk property, and poles (most streetlight poles which hang over the roadway at intersections also hold traffic signals), and use similar maintenance and repair equipment. If a streetlight pole is knocked down and it has a traffic signal on it, the Public Utilities Commission will install the replacement arm and luminaire while the Municipal Transportation Agency will perform the rest of the work. The Municipal Transportation Agency is also fully responsible for approximately 40 streetlights in its Municipal Railway system.

3. The Municipal Transportation Agency takes the lead on transportation improvement projects receiving Federal or State funds. The Municipal Transportation Agency can incorporate streetlighting into its transportation funding proposals for roadway initiatives, thereby leveraging non-Hetch Hetchy Enterprise Fund funding sources for new streetlights. Further, the Municipal Transportation Agency, in conjunction with its contractor, the Department of Public Works, can use the City's investment in the Streetlight Management Program as part of the City's local match requirements for grant-funded transportation improvement projects.

4. The coordination of large projects would be improved. For example, the current overhaul of traffic lights along Lombard Street could be coordinated with a concurrent review of that street's lighting as part of the Mayor's initiative to landscape the medians of the City's major arterial routes. The Municipal Transportation Agency could facilitate the use, during large projects, of standardized streetlight parts.

5. A new manager position in the Municipal Transportation Agency's Department of Parking and Traffic (Field Operations Bureau) would be required to manage the Streetlight Management Program.

6. Traffic engineers manage some cities' streetlighting programs. However, in cities where traffic engineers are responsible for both traffic and street lights, those traffic engineers are usually part of the Department of Public Works.

Comparison of the Three Agencies

Based on the above analysis, transferring management responsibility for the City's streetlights from the Public Utilities Commission to the Department of Public Works or the Municipal Transportation Agency, and transferring the 10.00 FTE staff assigned to the Streetlight Management Program to the Department of Public Works' Bureau of Street and Sewer Repair or to the Municipal Transportation Agency's Department of Parking and Traffic, would achieve the following:

- The transfer of a non-core Public Utilities Commission function to a more appropriate City organization. Streetlights would no longer be the only hydroelectric-powered municipal facilities in the City's right-of-way which the Public Utilities Commission owns, maintains, and operates. The proposed transfer would reduce the pressure on the Acting Director of Power Operations' time and allow the Manager, Streetlights and Special Projects to focus on risk management issues.

- Potential leveraging of alternative funds for streetlighting.

- In terms of the Department of Public Works, transfer of the Streetlight Management Program would achieve (a) coherent right-of-way planning, (b) better management of the undergrounding program's impact on streetlights, (c) better coordination of streetlight design, purchase, construction, maintenance, operations, and storage, (d) congruence with the Department of Public Works' responsibility for graffiti abatement, and (e) more comprehensive solutions to neighborhoods' streetlight concerns.

- In terms of the Municipal Transportation Agency, transfer of the Streetlight Management Program would achieve (a) coherent traffic and pedestrian planning, (b) better coordination of streetlight pole repair, and (c) better coordination of large traffic and street light projects.

On balance, the Budget Analyst recommends that the Public Utilities Commission transfers the Streetlight Management Program to the Department of Public Works because such a transfer would achieve the most benefits.

Conclusions

Streetlight management is not a core function of the Public Utilities Commission. Little benefit is derived from Public Utilities Commission oversight.

There is no comprehensive streetlight capital improvement plan, no substantial proactive repair and replacement program currently underway, no Streetlight Management Program business plan, and no comprehensive assessment inventory of the City's streetlights and their condition. There has been no development of alternative funding sources and the City's investment in its Streetlight Management Program has not been counted toward

local match requirements in Department of Public Works and Municipal Transportation Agency roadway projects utilizing State and Federal grant funds.

There are strong arguments to be made for transferring the Streetlight Management Program to either the Department of Public Works or to the Municipal Transportation Agency. On balance, however, transfer to the Department of Public Works would achieve the most benefits.

Recommendations

The Public Utilities Commission General Manager should:

7.1 Authorize staff to negotiate with the Department of Public Works over the specific Streetlight Management Program resources to be transferred from the Public Utilities Commission to the Department of Public Works to ensure that the program is adequately resourced.

7.2 Promote leveraging of alternative funds for streetlights while continuing Hetch Hetchy Enterprise funding of streetlights to ensure that there is no impact on the General Fund.

7.3 Negotiate a memorandum of understanding between the Public Utilities Commission and the Department of Public Works. In order to contain the cost of Hetch Hetchy Enterprise Fund revenue transfers, this memorandum of understanding should cap the Hetch Hetchy Enterprise's funding for the Streetlight Management Program by setting (a) a dollar amount per streetlight with an inflation adjustment formula for future years, and (b) energy efficiency goals.

Costs and Benefits

Assuming that the Public Utilities Commission's Manager, Streetlights and Special Projects is reassigned to work full-time on the Department's risk management issues, transfer of the responsibility for streetlight management from the Public Utilities Commission to the Department of Public Works would be cost neutral because (a) there is no change in the 10.00 FTE maintenance and operations positions being transferred, and (b) the Hetch Hetchy Enterprise would continue to fund costs up to the current level and provide power to the City's streetlights.

To the degree that the Department of Public Works is able to find alternative funding sources for streetlights, particularly from Federal and State grant funding for roadway and transportation improvement initiatives, there could be a savings to the Hetch Hetchy Enterprise Fund at the current level of streetlight service. Alternatively, any new funding sources could fund service enhancements.

In order to contain the cost of Hetch Hetchy Enterprise Fund revenue transfers, a memorandum of understanding between the Public Utilities Commission and the

Department of Public Works should cap the Hetch Hetchy Enterprise's funding for the Streetlight Management Program by setting (a) a dollar amount per streetlight with an inflation adjustment formula for future years, and (b) energy efficiency goals.

Energy efficiency enhancements, such as the replacement of the high voltage series loop lighting systems on certain major roads, would have the following impacts:

- Hydroelectric power not required for the City's streetlights could instead be sold on the market thereby increasing Hetch Hetchy Enterprise revenues.
- Energy efficient equipment would reduce maintenance and operating costs over time.
- Technologically updated and more reliable streetlight equipment would enhance vehicular and pedestrian safety.

8. The Power Policy Division's Output

- **The San Francisco Electric Reliability Project has not met its project milestones or deliverables. Expediting this project's implementation would ensure that the unexpended balance of the $13,266,667 in Williams Energy Company settlement agreement proceeds is used for maximum benefit. Each month less that the four turbines have to be stored is $32,000, plus preventative maintenance and warranty extension costs, which could be used for other project purposes.**

- **The projected benefits of the various energy efficiency and alternative energy initiatives being implemented by the Power Policy Division do not consider foregone revenues for the Hetch Hetchy Enterprise, operational capacity shortfalls, or ongoing operating and maintenance costs. Going forward, cost benefit analyses for such initiatives should include these factors so that the projects' maximum income is recovered.**

- ***The Electricity Resource Plan* (December of 2002) is the City's mandated resources plan and the template for the Power Policy Division's work program. However, the Department has not met the Board of Supervisors' requirements to (a) submit an annual report on its progress towards implementing the plan's goals, and (b) evaluate and update the plan annually. These actions would ensure that this mandated resources plan remains a live document guiding the work of the Power Policy Division within the policy parameters approved by the Board of Supervisors.**

Role and Functions

The Power Policy Division was created in June of 2001 to develop energy efficiency and alternative energy initiatives and advise on risks in the wholesale electricity market. Since its establishment, the Power Policy Division has worked on:

- Developing energy efficiency and alternative energy plans and initiatives. In FY 2000-2001, the Mayor had established the Mayor's Energy Conservation Account with $15 million of unappropriated Hetch Hetchy Enterprise Fund accounts. The Power Policy Division has developed initiatives that are eligible for funding from the Mayor's Energy Conservation Account and from other Federal, State, and local sources. The Power Policy Division has contributed to the development of a more diversified power supply portfolio for the City by concentrating on energy conservation, renewable energy sources, distributed generation, and improved power generation and transmission (through the San Francisco Electrical Reliability Project, which has not yet been implemented for the reasons outlined below). The specific projects that have been completed, or are in progress, are listed in Table 8.2 below.

In addition, there are demonstration projects whose primary purpose is public education.

- Developing community choice aggregation policy which would allow the City to procure electricity from a portfolio of power providers on behalf of citizens currently served by the Pacific Gas and Electric Company. By early 2005, the Board of Supervisors will require a Draft Community Choice Aggregation Implementation Plan and a draft Request for Proposals to select an electric service provider to implement the Final Community Choice Aggregation Implementation Plan.

- Developing energy legislation. For example, the Power Policy Division initiated Assembly Bill 594 that allows the City to participate in net metering and to develop larger solar projects.

- Developing energy policies and plans. For example, the Power Policy Division, in conjunction with the Department of Environment, wrote a ten-year Electricity Resource Plan on the development of new power generation, transmission, and demand-side management resources for the City.

- Developing a Hetch Hetchy Water and Power Business Plan. This project, which has not resulted in a business plan, is discussed in detail in Section 1.

- Renegotiating the 1987 power sales agreements with the Modesto and Turlock Irrigation Districts, which were originally due to, expire in 2015. Following renegotiations in 2004, the long-term power sales agreement with the Modesto Irrigation District now ceases in 2007, thereby reducing by eight years the need to purchase power in volatile wholesale markets to make fixed price sales to the Modesto Irrigation District. The City is currently working towards resolution with the Turlock Irrigation District.

- Renegotiating the 2001 five-year power sales contract with Calpine Energy Services. This was restructured in 2003, reducing the contract by $26,281,000 and reshaping the seasonal delivery of electricity to better match the Department's needs.

As shown in Table 8.1 below, between July 1, 2001 and June 30, 2005, the Hetch Hetchy Enterprise Fund is projected to invest $8,317,582 in Power Policy Division personnel and operating costs.

Table 8.1

The Hetch Hetchy Enterprise Fund Investment in the Power Policy Division FY 2001-2002 through FY 2004-2005

Fiscal Year	Actual Power Policy Personnel and Operating Expenditure of Hetch Hetchy Enterprise Funds
FY 2001-2002	$393,128
FY 2002-2003	1,679,005
FY 2003-2004	2,534,626
FY 2004-2005	3,710,823[1]
Total:	**$8,317,582**

Source: Public Utilities Commission Financial Services

Actual Energy Savings for the City

As a result of the Hetch Hetchy Enterprise Fund's projected investment of $8,317,582 in personnel and operating costs through June 30, 2005, the Power Policy Division has utilized State buy-down, grant, enterprise department, and private company funding for the projects listed in Table 8.2 below which, by June 30, 2005, will generate cumulative projected energy savings for the City in the amount of $6,408,815, according to Power Policy Division staff. The Power Policy Division does not project that these projects will create any new revenues.

[1] The FY 2004-2005 figure is budget only. As of September 30, 2004 (25 percent of the year elapsed), Power Policy had only expended $361,429 or approximately 9.7 percent of the $3,710,283 budgeted. A further $1,004,665 is encumbered.

Table 8.2

Completed Power Policy Projects Generating Energy Savings for the City through June 30, 2005

Project/Location	Project Start Date	Project Completion Date	Gross Cost	Estimated Annual Energy Savings to the City	Cumulative Projected Energy Savings to the City by June 30, 2005
Power Policy Projects Completed					
PUC Southeast Water Pollution Control Plant: co-generation plant	Sept 2000	Aug 2002	$3,065,260	$1,050,000	$2,975,000
DPW Bureau of Building Repair: lighting retrofit	Mar 2001	June 2004	$50,347	$4,940	$4,940
San Francisco General Hospital: lighting system retrofit	July 2001	Jan 2003	$1,258,000	$176,625	$250,219
Moscone Convention Center: solar power and energy efficiency	Sept 2001	Oct 2003	$7,978,612	$402,724	$671,207
City-wide LED traffic signals	Jan 2002	Dec 2003	$2,935,000	$1,208,248	$1,812,372
REC: Golden Gate Park energy efficiency	Feb 2002	June 2003	$76,415	$8,625	$17,250
West Portal Library: lighting project	Apr 2002	Dec 2003	$22,000	$193	$289
San Francisco Housing Authority: refrigerator energy efficiency	July 2002	Aug 2003	$1,062,038	$92,100	$168,850
Moscone Convention Center: West Expansion energy efficiency	June 2003	Apr 2004	$7,000,000	$419,621	$489,558
Subtotal:			**$23,447,672**	**$3,363,076**	**$6,389,685**
Power Policy Projects Currently Underway					
17 DPH health clinics: lighting and controls energy efficiency	Jan 2002	June 2005	$1,059,018	$112,500	$0
7 City-owned garages: energy efficiency	Apr 2004	Dec 2004	$176,832	$38,259	$19,130
PUC Southeast Water Pollution Control Plant: solar power and energy efficiency	Oct 2004	Aug 2005	$3,500,000	$137,522	$0
Subtotal:			**$4,735,850**	**$288,281**	**$19,130**
TOTAL:			**$28,183,522**	**$3,651,357**	**$6,408,815**

Source: Power Policy Division

Table 8.2 indicates that the Power Policy Division's projects are generating a worthwhile payback in that:

- A full year's estimated annual energy savings, in the amount of $3,651,357, represents a 12.96 percent annual return on the projects' cumulative capital investment cost of $28,183,522.[2]

- Projecting the cumulative estimated annual energy savings for projects completed by June 30, 2005 indicates that the Power Policy Division will be responsible for total energy savings of an estimated $6,408,815 by June 30, 2005.[3] This represents approximately 77.1 percent of the Hetch Hetchy Enterprise Fund's projected $8,317,582 investment in Power Policy Division personnel and operating costs by June 30,2005.

- The Power Policy Division further estimates that the projects listed in Table 8.2 have the potential to reduce the City's peak energy demand by an estimated 6,119 kilowatts. The Power Policy Division has not estimated the value of that benefit.

However, the Budget Analyst notes that the projected benefits do not factor in the following:

- Foregone revenues for the Hetch Hetchy Enterprise. Energy efficiency and alternative energy initiatives free up hydroelectric power, which must be sold, to the Modesto and Turlock Irrigation Districts at a lower rate than the Hetch Hetchy Enterprise would otherwise have charged on the open market.[4]

- Less than optimal performance. The Budget Analyst notes that the estimated savings contained in Table 8.2 are, in most cases, based on investment-grade audits and engineering calculations, following the engineering methodology used by the Pacific Gas and Electric Company and accepted by the California Public Utilities Commission, rather than on metering or other monitoring and verification methods. In the case of solar electricity projects at the Moscone Convention Center and the Southeast Water Pollution Control Plant, the energy savings are based upon guaranteed performance figures where the design-build contractor will pay liquidated damages for any performance shortfall during the first five years. However, in some cases, the estimated savings are not met and are not eligible for compensation. For example, the Southeast Water Pollution Control Plant's co-generation plant, which is metered, has had significantly fluctuating capacity and availability over the past two

[2] This full rate of return will not be achieved until after August of 2005, when the last project is due to be completed.

[3] This amount is calculated by pro-rating the annual estimated energy savings by the number of complete months each project will have operated by June 30, 2005.

[4] Department staff advise that the most recent comprehensive analysis of the net value of energy savings to the Hetch Hetchy Enterprise was conducted by Hansen, McQuat & Associates in 1988. The Rocky Mountain Institute undertook a partial review in its December of 2003 *An Energy Resource Investment Strategy*.

years which has meant that the project has not achieved its estimated energy savings. Department staff advise that recent improvements paid for by the co-generation plant's construction contractor are projected to increase operational capacity to approximately 70 - 80 percent, as originally estimated.

- The ongoing operating and maintenance costs for all of the projects listed in Table 8.2.

The Budget Analyst recognizes that the Power Policy Division performs work such as developing policy and legislation and implementing public education initiatives, which do not generate direct energy savings for the City. However, for those projects which do generate energy savings or new revenues, it is important that the Power Policy Division, as it seeks to further diversify its energy efficiency and alternative energy initiatives, carefully assess each new project, taking into account foregone Hetch Hetchy Enterprise revenues and realistic operational capacity projections. In addition to meeting public policy goals, each new initiative also needs to provide an adequate rate of return for its capital investors and to cover its development costs funded by the Hetch Hetchy Enterprise Fund.

Power Policy Division staff advise that, in order to ensure that future energy efficiency and alternative energy initiatives are financially viable, such initiatives should not be developed one at a time. Rather, the Department would need to develop a balanced, diversified portfolio of energy efficiency and alternative energy initiatives in conjunction with the Hetch Hetchy Enterprise's existing hydroelectric power generation. For example, it might be possible to use hydroelectric power generation to (a) support the more intermittent power generated by wind power initiatives, and (b) electrolize water to create oxygen and hydrogen for sale. This will require a detailed planning approach, which takes into account the financial interrelationships between bundles of energy efficiency and alternative energy initiatives.

None of the energy efficiency initiatives to date relate to the Hetch Hetchy water and power system itself. Staff indicated that a proposed energy efficiency project at Moccasin was not successfully implemented due to non-collaboration between the Power Policy Division and the Water Operations and Power Operations Divisions, and funding reprioritization. A system of Hetch Hetchy's size and complexity inevitably has energy efficiency opportunities which would benefit from the Power Policy Division and the Water and Power Operations Divisions working collaboratively.

Monitoring Progress Against the Electricity Resource Plan

After its purchase of the Potrero Power Plant from the Pacific Gas and Electric Company in 1999, Mirant Potrero, LLC proposed expanding the Potrero Power Plant by adding a new 540 megawatt power plant (Unit No. 7) which is more than twice the size of the existing power plant. There was strong community resistance to that proposal and the Board of Supervisors enacted the *Human Health and Environmental Protections for New Electric Generation Ordinance* in May of 2001, which required the Public Utilities Commission, and the Department of Environment to develop an energy resource plan.

After 16 months of input from the public, consultants, and City officials, *The Electricity Resource Plan: Choosing San Francisco's Energy Future* was the result. This plan was endorsed by the Public Utilities Commission, and revised and approved by the Board of Supervisors as the City's mandated resources plan in December of 2002. Department staff characterize this plan as the template for the Power Policy Division's work program since then, particularly as there is no other integrated plan or directive providing a framework for power policy.

The Electricity Resource Plan makes a total of 42 recommendations related to:

- The development of a clean, reliable electricity portfolio (30 recommendations, of which five have specific energy efficiency, generation, or transmission goals).
- Environmental justice (five recommendations).
- Implementation and review (seven recommendations).

In terms of a formal process to monitor progress against *The Electricity Resource Plan* and implementation of the 42 recommendations, Department staff advise that the Department and the Department of Environment participated in a 2004 public hearing convened by the Board of Supervisors Rules Committee. That has been the extent of the Department's formal monitoring against *The Electricity Resource Plan*. This is despite the Board of Supervisors' approval of Recommendation 3.B.7 of *The Electricity Resource Plan*, which states that the Department of Environment and the Public Utilities Commission:

> "… should provide periodic updates on any developments in the regulatory or electricity industry that bear on this plan and should submit a joint annual report to the Board of Supervisors on achievements and challenges of the energy program. The Plan itself should be evaluated and updated annually."

In effect, the Department has failed to comply with its own recommendation.

Delayed Implementation of the San Francisco Electric Reliability Project

The San Francisco Electric Reliability Project consists of the siting, development, construction, and operation of four turbine generators in a new power plant and associated infrastructure. This project results from the City's participation in the settlement agreement negotiated by the State of California with Williams Energy Company related to price gouging and market manipulation which caused price spikes in the wholesale electricity market and shortages of electricity beginning in June of 2000. The State's December of 2002 settlement agreement with Williams Energy Company included restructured long-term gas and electric contracts, a cash settlement, a litigation fund to continue the prosecution of other generators, and the transfer of six natural gas fired General Electric LM 6000 combustion turbine generators. Each turbine purchased by Williams Energy Company in 2001 at a cost of $15 million is capable of generating 48

megawatts of electricity, or sufficient electricity for 8,000 single-family residences. Such turbines are intended to supply electric power for 30–40 percent of the annual hours that a traditional power plant would operate. The turbines have an estimated life of 20 years. Under the settlement agreement, the City received four of the six turbines and $13,266,667[5] to fund the siting and development of electricity generating facilities to house them.

San Francisco Electric Reliability Project Goals

When the City accepted the four turbines in December of 2002, the City intended to:

- Secure a site for the four turbines by December 31, 2003. Under the original settlement agreement, if the City could not meet that date, the California Consumer Power and Conservation Financing Authority could exercise an option to take over title to the four turbines for siting elsewhere, reimbursing the City just $2.5 million for each turbine, or approximately 16.7 percent of their 2002 value of $15 million each. [6] The City would no longer have control over how the electricity generated by the turbines would be used. Although the December 31, 2003 deadline has not been met, for the reasons outlined below, the State has chosen not to exercise its option at this time.

- Construct a proposed power plant using revenue bond funding, certificates of participation, or some other form of public financing. The new 192 megawatt power plant would be operated and maintained by a qualified power plant operator.

- Reduce reliance on inefficient, unreliable, and excessively polluting electric generation at the Hunters Point and Potrero Power Plants by using the new, more efficient, environmentally friendly, and operationally flexible turbines, thereby improving air quality. The Board of Supervisors has approved an agreement with the Pacific Gas and Electric Company (File No. 98-1256) requiring the Hunters Point Power Plant's closure when the California Independent System Operator, the State agency which operates the State's electric transmission grid, determines that it is no longer needed for local electric reliability. This agreement will not be ratified by the

[5] To date, the City has received the first two of seven installments, for a total of $5,333,334. However, the Board of Supervisors has not yet appropriated the January 1, 2004 payment of $2,666,667. While Williams Energy Company has restructured to avoid bankruptcy, there is a risk that they will not meet all of their settlement obligations particularly as its last three settlement agreement payments in years 2008 through 2010 are not secured by a letter of credit. Delays in implementing the San Francisco Electric Reliability Project may increase the City's risk of not receiving the full settlement monies. While the City is eligible to receive surplus funds from the other recipient of the Williams Energy Company settlement agreement (the King's River Project), and such surplus funds are currently estimated at $2,300,000, such surplus funds are also not secured by a letter of credit. If Williams Energy Company defaults on any of their latter payments, the City would have to either cover those development costs itself or fund them through some form of public financing.

[6] The California Consumer Power and Conservation Financing Authority no longer exists. Therefore, some combination of State entities would be responsible for taking back title to the four turbines in the event that the State needed to do so.

California Independent System Operator until either specified transmission system improvements are in place, or the four new combustion turbines are operable.

- Work on energy efficiency programs and distributed power initiatives, in conjunction with transmission line projects, to increase reliability for both the City, which has among the worst electrical system reliability in California, and the regional electric system. Multiple smaller turbines would provide greater redundancy, thereby increasing overall system reliability.

- Comply with the *Electricity Resource Plan* which includes the development of environmentally friendly in-City electricity generation and the closure of aging in-City power plants.

Power Purchase Agreement

To facilitate the siting and funding of the four turbines, on December 9, 2002 the Board of Supervisors authorized the Public Utilities Commission General Manager to execute, by December 31, 2002, a ten year Power Purchase Agreement between the Public Utilities Commission and the California Department of Water Resources to enhance the City's electricity reliability in emergencies (Resolution No. 0830-02). Under the Power Purchase Agreement:

- The City would sell the capacity to generate electric power using the four turbines to the California Department of Water Resources for the first ten years of operation.

- The California Department of Water Resources would provide all the revenues required to construct and operate the proposed power plant over a ten-year period. The City would receive the capacity payment regardless of whether the plant is operated in any given month so long as the plant is available for operation.

- The City has a high level of certainty that it will recover the cost of developing the power plant. Under the Power Purchase Agreement, the City is entitled to all of its reasonable development costs from the $13,266,667 in settlement agreement proceeds whether or not the City ultimately decides to go forward with the project. If the City proceeds with the project, the development costs will be rolled into the financing and the City will recover them unless the Department of Water Resources objects to the overall level of costs (see below). If the City does not proceed with the project, and the turbines are sold, the City is entitled to profits from the sale to cover excess costs. The high level of certainty associated with this type of payment structure would improve the terms under which the City finances construction of the proposed power plant. Department staff advise that most of the financial risks to the City under the Power Purchase Agreement can be passed through to the contracted power plant operator using common industry practices.

- After ten years, the Department of Water Resources' right to the energy produced by the proposed power plant would cease and the City would be free to sell power on the open market or to continue operating the turbines under a future must-run contract, if

they are still required for reliability purposes. Therefore, the City receives the economic benefit of the proposed power plant's power output after the first ten years. It is difficult to define the economic value of that power because there is no firm contract after the first ten years and forward price curves ten years in the future are speculative.

Based on information provided to the Budget Analyst by the Department and the City Attorney's Office, there are certain risks related to cost recovery under the Power Purchase Agreement:

- If the City spends more than the $13,266,667 in settlement agreement proceeds and does not proceed with the project, there could be insufficient money from the sale of the turbines to cover the City's costs in excess of the $13,266,667 in settlement agreement proceeds.

- Costs not deemed "reasonable" for the purposes of reimbursement by the California Department of Water Resources would be the City's responsibility and the City would be unable to recover the related debt service costs.

- The expenses associated with schedule delays, cost overruns, and/or insufficient capitalized interest during construction would be non-reimbursable.

- The City cannot insure against the full risk associated with not meeting the Power Purchase Agreement standards with regard to (a) the percentage of time the proposed power plant is available for use ("plant availability"), and (b) the efficiency with which fossil fuel is converted to electricity ("heat rate"). The City can only partially offset this risk by purchasing insurance and equipment warranties, and ensuring that its operations and maintenance agreement places certain operations risks with the qualified power plant operator selected to operate the proposed power plant.

<u>San Francisco Electric Reliability Project Implementation</u>

Implementation of the San Francisco Electric Reliability Project requires the following steps:

1. Identify appropriate candidate sites, and select the preferred site.

2. Obtain control of the preferred site through long-term lease or purchase, subject to Board of Supervisors approval. Under a November 14, 2003 extension to the Power Purchase Agreement, this was to be achieved by May 1, 2004. The City, however, did not meet this project milestone. The California Department of Water Resources has further extended this project milestone date.[7]

[7] In a May 6, 2004 letter, the California Department of Water Resources advised the City that it was not taking any action on the site control milestone at that time, but that it reserves all rights while the State monitors the City's progress in locating an alternative site.

3. Obtain California Energy Commission determination that the City's Application for Certification is "data adequate" by December of 2003. The Department was unable to obtain control of a site for a new power plant in time. Under a November 14, 2003 extension to the Power Purchase Agreement, the project milestone related to the California Energy Commission' determination of data adequacy was delayed until May 1, 2004. Although the Department met this delayed milestone, the Application for Certification that the Department submitted was in anticipation of obtaining a property owned by Mirant Potrero, LLC[8] at 23rd and Illinois Streets through purchase or eminent domain condemnation. However, due to Mirant Potrero, LLC's bankruptcy, neither option eventuated. The Application for Certification proposed an alternate four-acre site at 25th and Illinois Streets partially owned by the Port and partially owned by MUNI, currently leased to the Western Pacific Railway Company, which remains a live option. The Department currently anticipates that it will reach agreement on the lease or purchase of that site with the Port and MUNI by mid-January of 2005.

4. Finalize the specific terms of the Power Purchase Agreement with the Department of Water Resources to finalize the project financing.

5. Issue a Request for Proposals for an engineering, procurement, and construction contractor, select the preferred contractor, and execute the contract, subject to Board of Supervisors approval. The Request for Proposals is now due to be issued on February 21, 2005.

6. Obtain the necessary Federal, State, and local regulatory approvals related to air, water, and land impacts.

7. Complete gas and electrical interconnection studies.

8. Construct the proposed power plant.

9. Select a qualified power plant operator and execute an operations and maintenance contract with that operator, subject to Board of Supervisors approval.

10. Start up and test the proposed power plant prior to commencing commercial operation. The California Energy Commission expects the proposed power plant to be in service by Spring of 2006. This now appears unlikely as the Department itself does not project taking delivery of the four turbines until February of 2007.

The Power Policy Division receives support from two major consultants, as well as numerous subconsultants. The Department awarded a $1,257,216 contract to PB Power for (a) engineering services and site work necessary to support project licensing and environmental review, (b) procurement specifications for design-build specifications,[9] (c)

[8] Mirant Potrero, LLC is an out-of-state merchant energy company, which purchased the Potrero power plant from the Pacific Gas and Electric Company in 1999.

[9] This project will be the first design-build contract into which the City has entered. The cost is estimated to be $200 million.

a construction management plan, and (d) procurement specifications for a ten-year operations and maintenance contract. The Department also awarded a $2,201,177 contract to CH2M Hill for assistance with the California Energy Commission permitting process for the Potrero site and the California Environmental Quality Act permitting process for the Airport site.

Obstacles to Implementation

The San Francisco Electric Reliability Project is a difficult, controversial initiative which is not fully within the Department's control. The Department cites a number of obstacles:

- The project is attempting to solve area electric reliability problems for the City as well as for the whole peninsula. For example, during periods of peak demand, the City can only import 60 percent of the power required to meet its needs over the existing transmission lines. If the City was not trying to improve the City's grid reliability, the four turbines could be sited at the Airport. This, however, would not address the transmission line bottlenecks at the City's boundary line. Instead, the turbines have to be sited in the City at the end of the radial transmission line arm, to feed generation back down the peninsula's radial transmission line arm. For this reason, the California Independent System Operator has mandated in-City power generation.

- The City has not built power plants for 27 years and is not set up to expedite the development of a proposed power plant. Further, the California Department of Water Resources has not defined what "reasonable" mitigation for a proposed power plant would be. This represents a major unknown financial risk for the City.

- The proposed power plant requires at least four acres of undeveloped, industrially zoned land away from residential areas, and close to the necessary natural gas and electric transmission infrastructure.

- The Department has a poor relationship with certain communities. For example, the Southeast community resists the development of any more major public utility facilities south of Islais Creek given its concerns about the Hunters Point Power Plant and the Southeast Water Pollution Control Plant both sited in its community. The Department has consumed a lot of time to develop a rapport with the Southeast communities' key decision-makers on San Francisco Electric Reliability Project issues.

- The Department did not work sufficiently closely with the Departments of City Planning, Public Health, and Environment which have better grassroots outreach networks to understand the Southeast communities' concerns, garner better public participation, and develop the necessary level of trust.

- The Potrero community has a poor relationship with Mirant Potrero, LLC which, as the owner of the Potrero Power Plant, is the largest Potrero landowner. Mirant

Potrero, LLC was the only Potrero landowner to respond quickly to the City's interest in its property. The Potrero community did not support such a sale without elimination of the proposed new Potrero Power Plant No. 7 and the construction of one plant downtown as a symbolic gesture. The high costs of developing a downtown power plant would have required the City to underwrite a guaranteed return on investment to make the downtown plant economically viable. Department staff advise that this could potentially have exposed the City to several million dollars in liabilities. Despite offering to pay up to $14.2 million for the property purchase and demolition costs of a 4.5 acre site owned by Mirant Potrero, LLC which had only been appraised at $5.88 million,[10] the City's attempt to purchase the Mirant Potrero, LLC property was undermined by (a) Mirant Potrero, LLC's bankruptcy, which also complicated the use of eminent domain condemnation, and (b) a very acrimonious price gouging lawsuit between the State and Mirant Potrero, LLC. As a result, the Department has an Application for Certification for a site it cannot use. (However, as noted above, the Application for Certification proposed an alternate site partially owned by the Port and partially owned by MUNI, currently leased to the Western Pacific Railway Company, which remains a live option.)

- The Port and the Real Estate Division of the Department of Administrative Services did not assist. The Port Commission resisted the use of Port land near Pier 80, arguing that this property had recently been placed in the State land trust assigned for maritime use. Since the first ten years of power generation were already allocated elsewhere under the Power Purchase Agreement, the proposed power plant could not provide free power to the Port in an attempt to qualify as a maritime use. The Dogpatch community opposed the use of Pier 70, the only other identified site on Port land. However, the Port's Central Waterfront Plan does not preclude future industrial uses. Despite the Port Commission's resistance, the Department is currently considering Port land because it is the only quick property option left given Mirant Potrero, LLC's bankruptcy. The City Attorney's Office advises that, on further review, it appears that this project could be consistent with, and enhance, State land trust purposes.

- Privately owned land adjacent to the Port was either too close to residential developments or landowners refused to sell due to concerns about contaminated landfill which the City could force them to clean up.

To address interdepartmental obstacles, the Department has established an Interdepartmental Working Group with representatives from the Mayor's Office, the

[10] The $14.2 million cost included (a) the purchase of the 4.5 acre parcel and demolition of the existing buildings on that property, (b) Mirant Potrero, LLC's suspension of its California Energy Commission Application for Certification for its proposed Potrero Power Plant No. 7, (c) closure of Mirant Potrero, LLC's Potrero Power Plant Nos. 4, 5, and 6 when they are no longer needed for reliability, and (d) granting the City first right of refusal to purchase Mirant Potrero, LLC's remaining 27 acre Potrero Power Plant site in the City. The Budget Analyst notes that this amount did not include any offset for $1,979,241 in delinquent 2000 and 2003 property taxes owed by Mirant Potrero, LLC to the City or Mirant Potrero, LLC's assessment appeal on the subject property.

Board of Supervisors, the City Attorney's Office, the Department of Environment, and the Department of Public Health.

Issues Arising from Delayed Implementation

The Department's failure to implement the original vision has resulted in a number of issues:

- There has been significant mayoral dissatisfaction with the progress made. Due to this dissatisfaction and departmental personnel changes, during the two-year life of the San Francisco Electric Reliability Project to date, management responsibility has been transferred from (a) the Assistant General Manager, Power Policy, to (b) the Infrastructure Development Program Manager, in conjunction with the Mayor's Office of Economic and Workforce Development, to (c) the Director of Wastewater Planning, and now, under the new General Manager, back to (d) the new Director of Power Policy position.

- Due to the failure to site all four turbines within the City, the Department now anticipates that one turbine will be located on a 2.03 acre site at San Francisco International Airport. The Department has entered into a 30-year memorandum of understanding with the Airport for development of the site and sale of emergency back-up electric power.[11] While siting a turbine at the Airport provides back-up power to the Airport, it does not address the transmission bottleneck into the City due to insufficient import capacity in the underground cables at the City boundary line. In-city generation is the most reliable way of dealing with the peninsula's transmission system weaknesses. Nevertheless, the California Independent System Operator has agreed to permit the closure of (a) the Hunters Point Power Plant, if certain transmission line connections which will improve electricity transmission capacity between the City and the peninsula are completed, as well as (b) the largest portion of the Potrero Power Plant, if three of the four turbines are sited within the City and the fourth turbine is sited at the Airport. The California Independent System Operator will permit the closure of the remaining peaking plants at the Potrero Power Plant if certain additional smaller transmission line connection improvements are made. The Planning Department has begun its environmental review of the Airport project. The environmental permit for the Airport site is likely to take the form of a negative declaration.

- The four turbines, originally worth $15 million each, are currently valued at between $9 million and $10 million each, and are being stored in a Houston, Texas warehouse at a monthly storage cost of $32,000 which protects their manufacturer's warranty,

[11] After construction, the Department would pay the Airport $159,210 in rent for the first year, adjustable annually by the Consumer Price Index. The Airport would pay the Department for the power actually provided to the Airport in an amount equal to the Department's actual costs of operating the turbine. The Department's costs in the first ten years related to repair, maintenance, utilities, scavenger services, damages, and losses would be reimbursable from the revenues paid by the California Department of Water Resources under the Power Purchase Agreement. The Airport Memorandum of Understanding is silent on what will happen after the first ten years.

insures them against loss, and guarantees the necessary four acres of high security storage with sufficient equipment to move them as required. By February of 2007, such storage and insurance, in addition to preventative maintenance and warranty extensions, will have consumed $1,967,985 or approximately 14.83 percent of the $13,266,667 in settlement agreement proceeds. Further, if the City does not go forward with the project or fails to do so in a timely manner, the State could take back title to the four turbines for siting elsewhere, reimbursing the City just $2.5 million for each turbine, or approximately 16.7 percent of their 2002 value of $15 million each.

- As at June 30, 2004, Department and other City staff had already incurred direct labor costs of an estimated $1,850,000 on the San Francisco Electric Reliability Project, with an additional $1,496,000 to be incurred during the project's development phase. Currently, these costs are not being reimbursed from the settlement agreement proceeds in order to preserve funds for other expenditures, but they should be reimbursable by the California Department of Water Resources under the Power Purchase Agreement. The Department anticipates exceeding the settlement agreement proceeds significantly. Costs in excess of the settlement agreement proceeds are reimbursable under the Power Purchase Agreement so long as the total project costs are deemed reasonable by the California Department of Water Resources.

Conclusions

Since its inception in June of 2001, the Power Policy Division has performed important power policy, planning, project implementation, and power purchase contract renegotiation work. It is actively working to diversify the City's portfolio of energy efficiency and alternative energy initiatives. The Power Policy Division has responded to Board of Supervisors directives by implementing a number of worthwhile energy efficiency and alternative energy initiatives. However, as the Power Policy Division seeks to further diversify its energy efficiency and alternative energy initiatives, it needs to carefully assess each new project, taking into account foregone Hetch Hetchy Enterprise revenues and realistic operational capacity projections.

In terms of monitoring implementation of *The Electricity Resource Plan's* recommendations, the Department, in collaboration with the Department of Environment, does not meet the requirements of the Board of Supervisors to (a) submit a joint annual report to the Board of Supervisors, and (b) evaluate and update the plan annually.

The San Francisco Electric Reliability Project has not met its project milestones or deliverables. In two years, this project has been the responsibility of four different managers, has received insufficient support from other City departments, and has expended significant amounts of the $13,266,667 in settlement agreement proceeds.

Recommendations

The Public Utilities Commission General Manager should:

8.1 Ensure that the Power Policy Division's work program sets goals for new energy efficiency and alternative energy initiatives in terms of public policy, return on capital investment, and recovery of development costs funded by the Hetch Hetchy Enterprise Fund.

8.2 Ensure that all cost benefit analyses for new energy efficiency and alternative energy initiatives fully take into account foregone revenues for the Hetch Hetchy Enterprise and realistic operational capacity projections.

8.3 Include in the Power Policy, Water Operations, and Power Operations Divisions' work programs a comprehensive energy efficiency project for the Hetch Hetchy water supply and power generation system.

8.4 Develop a process, in collaboration with the Department of Environment, to evaluate, update, and revise the goals of the *Electricity Resource Plan*.

8.5 Submit each year to the Board of Supervisors, in collaboration with the Department of Environment, a joint annual report on progress against the annually updated and revised *The Electricity Resource Plan*.

The Board of Supervisors should:

8.6 If negotiations to obtain control of a site for a new power plant are not successfully concluded by January 31, 2005, require the General Managers of the Public Utilities Commission, the Port, and MUNI, with appropriate support from the Real Estate Division of the Department of Administrative Services, the City Planning Department, the Department of Environment, the Department of Public Health, and the City Attorney's Office, to (a) submit a bi-weekly report to the Board of Supervisors and the Mayor on the status of the site negotiations until a site is successfully secured, and (b) attend a public hearing before a Board of Supervisors committee to outline the interagency activities which are taking place to secure a site.

8.7 Require the Public Utilities Commission General Manager to (a) submit a monthly report to the Board of Supervisors on progress against all of the San Francisco Electric Reliability Project's other project milestones, and (b) attend periodic public hearings before a Board of Supervisors committee to report on progress.

Costs and Benefits

There are no new costs associated with the above recommendations because no additional staff are required to implement them.

The Hetch Hetchy Enterprise Fund would be protected if the development costs it funds for new energy efficiency and alternative energy initiatives are fully recovered. Therefore, it is important that the cost benefit analyses for each energy efficiency and alternative energy initiative fully take into account any foregone revenues for the Hetch Hetchy Enterprise and realistic operational capacity projections.

The Department wants to develop a balanced, diversified portfolio of energy efficiency and alternative energy initiatives in conjunction with the Hetch Hetchy Enterprise's existing hydroelectric power generation. Therefore, developing a detailed planning approach which takes into account the financial interrelationships between bundles of energy efficiency and alternative energy initiatives will assist the Department to more accurately forecast the combined costs and benefits of such initiatives.

Developing an effective energy efficiency initiative for the Hetch Hetchy water and power system itself could increase Hetch Hetchy Enterprise revenues.

Annual evaluation and updating of *The Electricity Resource Plan* would ensure that this mandated resources plan remains a live document guiding the work of the Power Policy Division within the policy parameters approved by the Board of Supervisors.

Expediting the implementation of the San Francisco Reliability Project would ensure that the unexpended balance of the $13,266,667 in settlement agreement proceeds is used for maximum benefit in terms of improving (a) the reliability of the local and regional electricity system, and (b) the City's air quality. Each month less that the four turbines have to be stored is $32,000, plus preventative maintenance and warranty extension costs, which could be used for other project purposes.

A comprehensive energy efficiency project for the Hetch Hetchy water supply and power generation system has the potential to achieve savings.

9. The Power Policy Division's Organizational Structure

- **The new General Manager has assigned the Power Policy Division to the Assistant General Manager, External Relations position established on October 15, 2004. The Budget Analyst considers this a workable option which could usefully promote (a) more transparent decision-making in a unit which has, at times, operated unilaterally, and (b) closer ties with the Planning Bureau. However, there are disadvantages. This organizational structure reinforces the current separation between policy and operations, and further removes the Power Policy Division from the Hetch Hetchy Enterprise's management structure and its daily management decision-making. These disadvantages could be managed through (a) a close working relationship between the Assistant General Manager, External Relations and the Assistant General Manager, Operations, within the context of a strategically oriented executive management team, and (b) the development of a Hetch Hetchy Enterprise business plan.**

- **Compared to the Planning Bureau's ratio of 1.00 full-time equivalent (FTE) administrative support staff member for every 7.75 FTE other Planning Bureau employees, the Power Policy Division has the generous ratio of 1.00 FTE administrative support staff member for every 4.43 FTE other Power Policy Division employees. The elimination of an unjustified 1.00 FTE Classification 5643 Manager, Resource Planning and Administration position in the Power Policy Division would save up to $134,568 annually, while still providing 1.00 FTE administrative support staff member for every 6.20 FTE other Power Policy Division employees.**

Organizational Location

On October 15, 2004, the new Public Utilities Commission General Manager announced an initial Department reorganization. This reorganization shifted the organizational location of the Power Policy Division. That division had previously reported to the Assistant General Manager, Power Policy position that was eliminated on November 12, 2004. Since its inception in June of 2001, that position had reported directly to the Mayor, bypassing the Public Utilities Commission General Manager. Now, the Power Policy Division is under the new Director of Power Policy position which was created on October 18, 2004 and which reports directly to the new Assistant General Manager, External Affairs position. The Assistant General Manager, External Affairs is also responsible for the Communications Division, Government Relations, and the Planning Bureau.

The remaining Hetch Hetchy Enterprise functions, namely Water Operations and Power Operations, will remain the responsibility of the Assistant General Manager, Operations position. [1]

The new Director of Power Policy is responsible for the San Francisco Electric Reliability Project, which had previously been transferred out of the Power Policy Division for the reasons outlined in Section 8.

Advantages and Disadvantages of the New Organizational Structure

Prior to the announcement of the Department restructuring, a number of management audit interviewees advocated better integrating the Power Policy Division into the Hetch Hetchy Enterprise. The new General Manager, however, has chosen to separate the Power Policy Division from the rest of Hetch Hetchy Enterprise operations and management. Locating the Power Policy Division under the new Assistant General Manager, External Relations position, rather than as part of the Hetch Hetchy Enterprise under the Assistant General Manager, Operations position, has the advantages and disadvantages listed in Table 9.1 below.

[1] Phase III of our management audit will investigate whether the Assistant General Manager, Operations position should remain as currently constituted.

Table 9.1

Advantages and Disadvantages of Locating the Power Policy Division Under the New Assistant General Manager, External Relations Position

Advantages	Disadvantages
Having the Power Policy Division report to the Assistant General Manager, External Relations while still being funded by the Hetch Hetchy Enterprise Fund will (a) make financial allocations to the Power Policy Division very explicit, (b) force clear reporting of Power Policy Division deliverables resulting from the expenditure of Hetch Hetchy Enterprise Fund monies, (c) force explicit discussion of competing policy priorities between the Assistant General Manager, External Relations and the Assistant General Manager, Operations, and (d) require a close working relationship between the Assistant General Manager, External Relations and the Assistant General Manager, Operations to avoid the risks inherent in splitting policy development from operations. The new reporting line should promote more transparent decision-making in a division, which has, at times, operated unilaterally because of the former direct reporting line from the Assistant General Manager, Power Policy to the Mayor.	Splitting policy development from operations, and having policy and operations staff report to different Assistant General Managers, is risky. This was demonstrated by the previous organizational structure, which had the Power Policy Division reporting to the Assistant General Manager, Power Policy while Hetch Hetchy Water Operations and Power Operations reported to the Assistant General Manager, Operations. This policy/operations split resulted in: • The Power Policy Division developing policy proposals which took insufficient account of their impact on (a) Hetch Hetchy Water and Power Operations, (b) deliverables' cost effectiveness, and (c) Hetch Hetchy Enterprise Fund revenues. For example, energy efficiency projects have the potential to reduce demand for Hetch Hetchy power and, therefore, reduce Hetch Hetchy Enterprise Fund revenues, which are, in turn, funding other Power Policy initiatives. • Water Operations' and Power Operations' refusal to work closely with the Power Policy Division to achieve energy efficiency savings within the Hetch Hetchy system itself. • Mutual reluctance to share information.

Advantages	Disadvantages
Promotes closer coordination between the Planning Bureau, which has a water system focus, and the Power Policy Division, which has a power system focus. This should facilitate (a) the long-delayed preparation of a Hetch Hetchy Enterprise business plan, and (b) the development of the Department's community choice aggregation role.	Resolving the policy, operations, programmatic, and risk management tensions between the Power Policy, Power Operations, and Water Operations Divisions will require negotiation between two Assistant General Managers. This would not be the case if these functions all reported to the same Assistant General Manager.
If the City becomes a Community Choice Aggregator, then the Department would begin providing retail electrical service to non-municipal customers, which is a new line of business. This is an inappropriate function for Power Operations due to potential conflicts of interest: the Hetch Hetchy system could potentially be one of the electric power providers available to the Community Choice Aggregator. If the Department chooses to become the Community Choice Aggregator itself, rather than transferring that function to a separate agency, having External Relations responsible for community choice aggregation would (a) create some level of segregation between Power Operations and the new retail function, (b) clearly identify conflicts of interest needing resolution at the executive management level, and (c) facilitate policy development during community choice aggregation implementation.[2]	Having the Power Policy Division report to the Assistant General Manager, External Relations further removes the Power Policy Division from the Hetch Hetchy Enterprise's management structure and its daily management decision-making.

[2] The Draft Community Choice Aggregation Implementation Plan, currently being developed by the Power Policy Division and its consultants, will examine the organizational structure and required staffing for the community choice aggregator, the regulatory framework within which it would operate, how the Department would obtain the necessary credit rating, whether and how to include Hetch Hetchy power into the community choice aggregation portfolio, and the implementation timeframe.

Advantages	Disadvantages
Recognizes the Power Policy Division's outward focus on energy matters as they affect the entire City, not just the Hetch Hetchy system and its clients.	This does not conform with the Public Utilities Commission's expressed desire for a Power Enterprise insofar as it separates policy development from such an enterprise.
There will be enhanced coordination of the roles, functions, and outputs of the Department's three Classification 9382 Government and Public Affairs Managers. Currently (a) one reports to the Classification 1340 Assistant to the General Manager – Public Relations, (b) one reports to the Director of Power Policy, and (c) one reports to the Director of Communications. Under the new organizational structure, all three ultimately report to the Assistant General Manager, External Affairs.	

The restructuring advantages listed in Table 9.1 above are significant, as are the disadvantages. On balance, the Budget Analyst considers that:

- Assigning the Power Policy Division to the new Assistant General Manager, External Relations position is a workable option which could usefully promote (a) more transparent decision-making in a unit which has, at times, operated unilaterally, and (b) closer ties with the Planning Bureau.

- The disadvantages could be managed through (a) a close working relationship between the Assistant General Manager, External Relations and the Assistant General Manager, Operations, within the context of a strategically oriented executive management team, and (b) the development of a Hetch Hetchy Enterprise business plan.

Rationalizing Administrative Support

The Power Policy Division currently has 3.50 FTE administrative support staff for 15.50 FTE other employees, which represents a ratio of 1.00 FTE administrative support staff for every 4.43 FTE other Power Policy Division employees. By contrast, the Planning Bureau, which is the closest comparison to the Power Policy Division, has 4.00 FTE administrative support staff in less senior classifications for 31.00 FTE other staff, a ratio of 1.00 FTE administrative support staff member for every 7.75 FTE other Planning Bureau employees. As shown in Table 9.2 below, the Planning Bureau's administrative support staff also cost less than the Power Policy Division's administrative support staff.

Table 9.2

Support Staff Comparison Between the Power Policy Division and the Planning Bureau

FTE	Class	Title	Bottom Step	Top Step	Top Step Salary Plus 24.9% Fringe Benefits
Power Policy Division					
1.00	5634	Water and Power Resources Manager (Manager, Resource Planning and Administration)	$88,636	$107,741	$134,568
1.50	5602	Utility Specialist	$98,619	$145,716	$182,000
1.00	1452	Executive Secretary II	$51,417	$62,510	$78,074
3.50			$238,672	$315,967	$394,642
Planning Bureau					
1.00	1823	Senior Administrative Analyst	$63,736	$77,491	$96,786
1.00	1844	Senior Management Assistant	$58,647	$71,305	$89,060
1.00	1450	Executive Secretary I	$47,111	$57,263	$71,522
1.00	1446	Secretary II	$43,274	$52,565	$65,654
4.00			$212,768	$258,624	$323,022

The number of Power Policy Division staff providing administrative support could be rationalized. The elimination of one administrative support staff member would reduce the ratio from 1.00 FTE administrative support staff for every 4.43 FTE other Power Policy Division employees to 1.00 FTE administrative support staff for every 6.20 FTE other Power Policy Division employees. This still compares favorably with the ratio of 1.00 FTE administrative support staff member for every 7.75 FTE other Planning Bureau employees.

The Manager, Resource Planning and Administration position is the most expensive of the Power Policy Division's administrative support positions. That position's current responsibilities are:

- Updating and conducting outreach on *The Electricity Resource Plan* (revised in December of 2002) and the Energy Resource Investment Strategy (published in December of 2003). As noted in Section 8, the Department has not complied with the Board of Supervisors' requirement that the Department report annually on progress against *The Electricity Resource Plan*, and that the plan be evaluated and updated annually. The Power Policy Division's four other Classification 5634 Water and Power Resources Managers and their staff are all already responsible for implementing and financing *The Electricity Resource Plan*, and they should be able to report on their progress and evaluate and update the plan annually.

- Developing a Power Enterprise business plan. This should be an integral part of the Hetch Hetchy Enterprise business planning process being managed by the Financial Services Bureau (see Section 1).

- Developing a community choice aggregation implementation plan. This is most appropriately the role of the Power Policy Division's Manager, Regulatory Affairs and his staff.

- Represent the Power Policy Division at public forums. This is most appropriately the role of the new Director of Power Policy.

- Managing the Resource Planning and Administration Group's staff. This group comprises 1.50 FTE Classification 5602 Utility Specialists. The pay scale for a full-time Utility Specialist ranges from $65,746 to $97,144, plus mandatory fringe benefits. The 1.00 FTE Utility Specialist works almost exclusively on administration for the Power Policy Division and is responsible for financial and budget analysis and contract administration. The 0.50 FTE Utility Specialist is responsible for the Power Policy Division's information technology needs. These staff are sufficiently senior to report either directly to the new Director of Power Policy, or to report through one of the Power Policy Division's other Classification 5634 Water and Power Resources Manager positions. Three of these management positions currently have only 1.00 or 1.50 FTE direct reports. Only the Manager, Energy Efficiency, who is responsible for actually implementing energy efficiency and renewable energy projects, already has a significant number of direct reports (6.00 FTEs).

Given that all of the Manager, Resource Planning and Administration's functions are, or should be, managed by other Power Policy Division staff or by the Financial Services Bureau, and given the excessive ratio of administrative support staff to other Power Policy Division employees, this position is not justified.

Conclusions

There are significant advantages and disadvantages associated with the Power Policy Division reporting to the Assistant General Manager, External Relations. After analyzing various factors, the Budget Analyst concludes that:

- Assigning the Power Policy Division to the Assistant General Manager, External Relations position established on October 15, 2004, is a workable option which could usefully promote (a) more transparent decision-making in a unit which has, at times, operated unilaterally, and (b) closer ties with the Planning Bureau.

- The disadvantages could be managed through (a) a close working relationship between the Assistant General Manager, External Relations and the Assistant General Manager, Operations, within the context of a strategically oriented executive management team, and (b) the development of a Hetch Hetchy Enterprise business plan.

The 1.00 FTE Classification 5643 Manager, Resource Planning and Administration position, which costs up to $134,568 annually, is not justified.

Recommendations

The Public Utilities Commission General Manager should:

9.1 Incorporate into the position descriptions and performance evaluations for the Assistant General Manager, External Relations and the Assistant General Manager, Operations a requirement to work closely with each other to manage the policy/operations split between the Power Policy Division and the Water Operations and Power Operations Divisions.

9.2 Eliminate the 1.00 FTE Classification 5643 Manager, Resource Planning and Administration position.

Costs and Benefits

Elimination of a 1.00 FTE Classification 5634 Water and Power Resources Manager position would save between $88,636 and $107,741, plus mandatory fringe benefits, for a total savings of up to $134,568 annually.

SAN FRANCISCO PUBLIC UTILITIES COMMISSION

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December 20, 2004

Mr. Harvey Rose
Board of Supervisors Budget Analyst Office
1390 Market Street Suite 1025
San Francisco, CA 94102

Dear Mr. Rose,

This is the San Francisco Public Utilities Commission's (SFPUC) response to your management audit of the Hetch Hetchy Enterprise concluded in December 2004. My staff and I have reviewed the Budget Analyst's recommendations. We have summarized our responses and have provided more specific responses on the pages that follow.

As you know, I am currently reorganizing the department and putting new management initiatives in place. I appreciate your assistance with this process.

Thank you for your analysis and recommendations. As we continue to reorganize, I expect that this and subsequent reports will provide useful guidance to the SFPUC.

Sincerely,

Susan Leal
General Manager

Introduction

SFPUC Overall Comments: Regarding the Calpine energy services contract, the Budget Analyst fails to note that the losses posited in the Introduction are presented without showing the corresponding and offsetting third-party sales, which reduced actual losses to $11,848,855, rather than the $52,625,350 shown in Table 1. It is important to place the Calpine contract in the appropriate historical context. The Calpine contract is a legacy of California's energy crisis, a point reflected in the Budget Analyst's February 21, 2002 report to the Board of Supervisors that said of the Calpine contract:

> "Based on the extraordinary wholesale electric market volatility and wholesale prices during the first four months of 2001…the decision to enter into the Calpine contract by the Public Utilities Commission and the Board of Supervisors in May of 2001 was reasonable and prudent at that time."

The Introduction also refers to the SFPUC's providing free or reduced rate electricity to several City departments. Please note that this action was taken at the direction of the Mayor's Office and is temporary.

1. The Hetch Hetchy Enterprise's Failure to Develop a Business Plan

SFPUC Overall Comments: The SFPUC remains committed to furthering utility best practices throughout the organization. Because the Hetch Hetchy Enterprise is a unique credit, we recognize the importance of providing strong assurances to the rating agencies as to the Enterprise's financial viability. Board of Supervisors Resolution #431-04 adopting the policy to fund City departments at rates that reflect the cost of services is a vital directive that supports our planning efforts.

Recommendations

The Public Utilities Commission General Manager should:

1.1 Make the finalization of a Hetch Hetchy Enterprise business plan an early priority of her administration.

SFPUC response: Agree.

1.2 Develop an ongoing Hetch Hetchy Enterprise business planning process which incorporates cost-of-service rate review and performance measurement processes.

SFPUC response: Agree; performance measurement is a routine part of the SFPUC's annual budget process.

The Board of Supervisors should:

1.3 Reserve all FY 2005-2006 capital project appropriations for the Hetch Hetchy Enterprise until the Department transmits a Hetch Hetchy Enterprise business plan to the Board of Supervisors.

SFPUC response: Disagree. While the 2005-06 capital budget is not yet finalized, it will include funding for the San Francisco Electric Reliability Project, for ongoing San Joaquin Pipeline repairs, Hetch Hetchy roads rebuilding, the Mayor's Energy Conservation Account and solar energy projects. Reserving all these funds could jeopardize progress on some of the projects, as well as the department's ability to meet its water and power delivery obligations.

2. Water Resource and Power Generating Risk

SFPUC Overall Comments: Because the Hetch Hetchy system provides both water and power, we constantly balance our allocation of resources within the context of the Water First policy and integrate this policy fully into our operations. The purpose of risk management is not revenue optimization; it seeks to eliminate significant downside risks. Risk management allows for careful and prudent operation of the water and power systems within all legal, regulatory and policy contexts.

It is important to note that the risk of purchases for MID and TID will diminish substantially in 2005 (when the obligation to purchase Class 3 energy for MID terminates), be further reduced in 2006 (when the obligation to provide firm Class 1 energy for TID terminates), and will disappear entirely in 2008 (when the obligation to provide firm Class 1 energy to MID terminates). At that point the risk of purchases will arise only from the SFPUC's firm obligations for municipal load and retail customers, primarily the Airport Tenants and Norris Industries. By 2008, Hetch Hetchy Water and Power will have effectively reduced its firm delivery requirements from 260 MW for the combined load of the City, MID, & TID, which can be financially challenging in low water years due to the volatile power market, down to the estimated 150 MW load for the City's customers—a level that is not difficult to achieve. The elimination of 110 MW of firm delivery obligation achieved by the contract renegotiations was a more effective and less expensive risk management strategy than hedging to ensure the availability of those 110 MW. (R W Beck concurs that eliminating a firm supply obligation that is below prevailing wholesale market prices generally produces better financial results than could be achieved through hedging under a formal risk management program.)

Recommendations

The Public Utilities Commission General Manager should:

2.1 Establish an effective risk management process that includes leadership by executive-level staff.

SFPUC response: Agree.

2.2 Consider the R.W. Beck risk assessment in defining the scope and membership of the risk management committee.

SFPUC response: Agree.

2.3 Establish the responsibility of the Risk Management Committee to include evaluating the financial impact of power purchases and sales and power initiatives and presenting the evaluation to the Public Utilities Commission when the Commission is considering policy initiatives.

SFPUC response: Agree.

2.4 Re-evaluate the functions of the existing Manager, Streetlights and Special Projects position upon transfer of the Streetlight Management Program to the Department of Public Works, as recommended in Section 7, including evaluating, defining and expanding the risk management functions of this position and specifying how the risk management functions of this position will promote and support the Public Utilities Commission's risk management process. To ensure segregation of risk management functions from the operating decisions of the Public Utilities Commission, this position should be reassigned from the Hetch Hetchy Enterprise Department to the Business Services Division.

SFPUC response: While we are in strong agreement that our risk management functions should be strengthened and that some redeployment of staff time will help achieve this goal, we disagree that transferring the Streetlight Management Program is necessary to improve risk management. We address a possible transfer of the Streetlight Management Program in our responses to Section 7 below.

2.5 Designate one existing executive-level manager with authority and expertise in managing water supply and power generation to be responsible for making coordinated operating decisions regarding water supply and power generation.

SFPUC response: The General Manager is currently reorganizing the agency and is discussing and reviewing the responsibilities of each division with SFPUC leadership. All recommendations, from both internal and external sources, will be taken into account.

3. Analytical Software Implementation

Recommendations

The Assistant General Manager, Operations, should:

3.1 Assign responsibility for overseeing implementation of the software packages to appropriate senior level managers, including setting firm timelines and deliverables, and reporting back to the Assistant General Manager, Operations on a regular basis.

SFPUC response: Agree.

The Director of Information Technology Services and the Hetch Hetchy Enterprise Director of Power Operations should:

3.2 Jointly prepare and enforce timelines for implementing the Hetch Hetchy Enterprise data mart, including regularly reviewing the data mart implementation to ensure that the timelines are met and reporting to the Assistant General Manager, Operations.

SFPUC response: Agree.

4. Maintenance and Materials Management

Recommendations

The General Manager should:

4.1 Submit a Project Operations Maintenance Section organizational chart and supporting materials to the Board of Supervisors Finance and Audits Committee following a review of that organization's structure and allocation of positions.

SFPUC response: Agree.

The Acting Director of Water Operations should:

4.2 In conjunction with the Superintendent of Operations and the Information Manager, establish a timeline for development of the Maintenance Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

SFPUC response: Agree.

4.3 In conjunction with the Superintendent of Operations and the Information Manager, establish a timeline for development of the Materials Management

Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

SFPUC response: Agree.

4.4 Ensure that the Project Operations Maintenance Section incorporates automated planning and scheduling processes into its everyday maintenance activities, including forming a Planning and Scheduling Group with the talent and management support required to accomplish the job.

SFPUC response: Agree; we will work toward implementation.

4.5 Ensure that the Project Operations Maintenance Section initiates maintenance reporting on a continuing, periodic basis. The *Management by Objectives Report* produced by the Water Pollution Control Division is a useful model.

SFPUC response: Agree.

4.6 Use MAXIMO reports when deciding on resource allocations.

SFPUC response: Agree.

4.7 Ensure that all tools and equipment are inventoried annually.

SFPUC response: Agree.

4.8 Ensure that the items in the storage yard adjacent to the shops area are brought under inventory control or disposed of.

SFPUC response: Agree.

4.9 Review the Project Operations Maintenance Section's organizational structure in order to improve its economy and efficiency.

SFPUC response: Agree. We are reviewing staffing and compensation issues among Hetch Hetchy Enterprise personnel and will include the organizational structure in that process.

5. Hetch Hetchy Enterprise Personnel and Administration

Recommendations

The Acting Director of Water Operations should:

5.1 Establish a timeline to develop an Administrative Policies and Procedures Manual for Moccasin to include all current Department and Division policies and procedures, as a priority and report to the Assistant General Manager, Operations, on the status of the Administrative Policies and Procedures Manual prior to June 30, 2005.

SFPUC response: Agree.

The Acting Director of Water Operations and the Acting Director of Power Operations should:

5.2 Require all Hetch Hetchy Enterprise managers and supervisors to complete performance evaluations for all staff annually.

SFPUC response: Agree; 100 percent compliance is a priority for the General Manager.

5.3 Include completion of staff performance evaluations annually as a goal and objective in the Hetch Hetchy Enterprise managers' and supervisors' performance evaluations.

SFPUC response: Agree.

5.4 Establish procedures for and monitor compliance with the Department's Entrance and Exit Policy, including ensuring the correct use of forms and forwarding the forms to the Human Resource Services Bureau when required, and ensure full compliance with the Employer Pull Notice Program.

SFPUC response: Agree.

6. Billing and Collection of Electricity Accounts

Recommendations

The Public Utilities Commission should:

6.1 Establish penalty fees for retail electricity customer accounts that are 30 days or more past due.

SFPUC response: Agree.

The Director of Customer Services should:

6.2 Develop written policies and procedures for collecting retail electricity customer accounts, including procedures for terminating electricity service to retail electricity accounts that are 90 days past due.

SFPUC response: Agree.

6.3 Routinely provide aged account receivables reports to the Hetch Hetchy Enterprise Retail Services Manager.

SFPUC response: Agree.

The Hetch Hetchy Enterprise and the Port should:

6.4 Develop joint protocols to ensure timely collection of Port electricity customer accounts, including written procedures for terminating electricity service to retail electricity accounts that are 90 days past due.

SFPUC response: Agree; Hetch Hetchy Enterprise Retail Service Section is currently working with the Port on an MOU that will include policies and procedures on collecting delinquent accounts as well as disconnection of service.

7. Streetlight Management

SFPUC Overall Comments: We will consider the Budget Analyst's proposal to transfer the Streetlight Management Program to another department. This is not a decision to be made lightly; rather, it is a complex policy matter that will involve consideration of many contractual issues that were not discussed in the audit report. As multiple entities are involved with streetlights within the City, we will take into account the network of roles and responsibilities involved with streetlight maintenance, as well as the financial interests of the SFPUC and the City.

Recommendations

The General Manager should:

7.1 Authorize staff to negotiate with the Department of Public Works over the specific Streetlight Management Program resources to be transferred from the Public Utilities Commission to the Department of Public Works to ensure that the program is adequately resourced.

SFPUC response: See above.

7.2 Promote leveraging of alternative funds for streetlights while continuing Hetch Hetchy Enterprise funding of streetlights to ensure that there is no impact on the General Fund.

SFPUC response: If we do not transfer the Streetlight Management Program to another department, we will seek alternative funds for streetlights to supplement Hetch Hetchy Enterprise's funding of the Program.

7.3 Negotiate a memorandum of understanding between the Public Utilities Commission and the Department of Public Works. This memorandum of understanding would set energy efficiency goals for the Streetlight Management Program in order to contain the cost of Hetch Hetchy Enterprise Fund revenue transfers.

SFPUC response: See above.

8. The Power Policy Division's Output

Recommendations

The Public Utilities Commission General Manager should:

8.1 Ensure that the Power Policy Division's work program sets goals for new energy efficiency and alternative energy initiatives in terms of public policy, return on capital investment, and recovery of development costs funded by the Hetch Hetchy Enterprise Fund.

SFPUC response: Agree.

8.2 Ensure that all cost benefit analyses for new energy efficiency and alternative energy initiatives fully take into account foregone revenues for the Hetch Hetchy Enterprise and realistic operational capacity projections.

SFPUC response: Agree.

8.3 Include in the Power Policy, Water Operations, and Power Operations Divisions' work programs a comprehensive energy efficiency project for the Hetch Hetchy water supply and power generation system.

SFPUC response: Agree.

8.4 Develop a process, in collaboration with the Department of Environment, to evaluate, update, and revise the goals of the *Electricity Resource Plan*.

SFPUC response: Agree.

8.5 Submit each year to the Board of Supervisors, in collaboration with the Department of Environment, a joint annual report on progress against the annually updated and revised *The Electricity Resource Plan*.

SFPUC response: Agree.

The Board of Supervisors should:

8.6 If negotiations to obtain control of a site for a new power plant are not successfully concluded by January 31, 2005, require the General Managers of the Public Utilities Commission, the Port, and MUNI, with appropriate support from the Real Estate Division of the Department of Administrative Services, the City Planning Department, the Department of Environment, the Department of Public Health, and the City Attorney's Office, to (a) submit a bi-weekly report to the Board of Supervisors and the Mayor on the status of the site negotiations until a site is successfully secured, and (b) attend a public hearing before a Board of Supervisors committee to outline the interagency activities which are taking place to secure a site.

SFPUC response: Agree.

8.7 Require the Public Utilities Commission General Manager to (a) submit a monthly report to the Board of Supervisors on progress against all of the San Francisco Electric Reliability Project's other project milestones, and (b) attend periodic public hearings before a Board of Supervisors committee to report on progress.

SFPUC response: The General Manager discussed the status of the project at the December 15 meeting of the Board of Supervisors Finance Committee and expects to keep the Board and the Mayor informed of all progress on this project.

9. The Power Policy Division's Organizational Structure

Recommendations

The General Manager should:

9.1 Incorporate into the position descriptions and performance evaluations for the Assistant General Manager, External Relations and the Assistant General Manager, Operations a requirement to work closely with each other to manage the policy/operations split between the Power Policy Division and the Water Operations and Power Operations Divisions.

SFPUC response: Agree.

9.2 Eliminate the 1.00 FTE Classification 5643 Manager, Resource Planning and Administration position.

SFPUC response: The General Manager is currently reorganizing the agency and is discussing and reviewing the responsibilities of each division with SFPUC leadership. All recommendations, from both internal and external sources, will be taken into account.