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February 3, 2009

Honorable Members of the City Council
of the City of Los Angeles
c/o City Clerk
Room 395, City Hall
Los Angeles, CA 90012

Department of Water & Power
Board of Water & Power Commissioners
111 North Hope Street
Los Angeles, CA 90012

Under City Charter Section 266 (a), the City Controller, Mayor and City Council shall jointly cause at least once in every five years, an Industrial, Economic, and Administrative (IEA) Survey of the Department of Water and Power (DWP) and shall select an independent qualified organization to conduct the IEA Survey.

The 2009 IEA Survey of DWP, administered by representatives from the Controller's and Mayor's Offices, and the Chief Legislative Analyst (CLA) representing the City Council, was prepared by PA Consulting Group at a cost of $803,154. The last IEA Survey of DWP was prepared in 2002 at a cost of $964,875.

DWP has over 8,500 employees who aim to provide low cost and reliable service to nearly 3.8 million customers. DWP has approximately 3,600 transmission lines, over 7,000 miles of water mains and 51 generating units.

The IEA Survey provides an extensive review and analysis of key components of DWP, as well as major challenges such as meeting Renewable Portfolio Standards and continuing to provide a reliable water supply while dependable resources diminish. The executive summary points out many of the key challenges DWP is facing and makes recommendation for changes.

Sincerely,

Laura N. Chick
Controller
City of Los Angeles

Antonio R. Villaraigosa
Mayor
City of Los Angeles

Eric Garcetti
President
Los Angeles City Council

AUDITS & GOVERNMENTAL EFFICIENCY

FEB 20 2009

PA Consulting Group

City of Los Angeles

Industrial, Economic, and Administrative Survey of the Los Angeles Department of Water and Power

February 1, 2009

PA Consulting Group is a leading management, systems and technology consulting firm. Operating worldwide in more than 35 countries, PA draws on the knowledge and experience of 3,000 people, whose skills extend from the initial generation of ideas, insights, solutions and new technology, all the way through to detailed implementation.

From the development of innovative strategies and solutions right through to their successful delivery, all of our work and support is based on deep sector insight and expertise. We work across the private and public sectors, with particular strengths in financial services, energy, life sciences and healthcare, government and public services, manufacturing, defense, and telecommunications. We help our clients to design optimum strategies for growth, deliver effective IT that improves business performance, mobilize human resources, deliver complex programs and major business transformations, and develop breakthrough products and processes through our unique applied technology capability.

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PA's independent, benefits-driven approach is founded on our strength in **innovation**, our **responsiveness** to our clients' needs, and our unyielding focus on **delivery**:

Innovation. Innovation comes in a variety of forms – in how customers' needs are identified and satisfied, in business models, in motivating and aligning staff, in the use of technology, and many more. PA has an unsurpassed track record in innovation, from developing pharmaceutical anti-counterfeiting measures and wireless technologies, to helping launch an innovative online bank, to development work that is helping alleviate poverty and boost the economies of developing countries.

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Delivery. At PA, delivering client value is ingrained in our culture. We focus on detailed *implementation*, with a renowned track record of delivering innovative solutions that achieve lasting change. At PA, we see projects right through to the finishing line – and beyond – delivering significant and measurable value to our clients.

PA: Innovation. Responsiveness. Delivery.

City of Los Angeles

Industrial, Economic, and Administrative Survey of the Los Angeles Department of Water and Power

February 1, 2009

Private and Confidential

Prepared for: Office of the Controller
Prepared by: PA Consulting Group

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Version: FINAL Strategic and Operational Assessment

EXECUTIVE SUMMARY

The Los Angeles Department of Water and Power (LADWP or Department) has for decades been recognized as one of the most unique and respected utilities in the United States. While there are larger water utilities and larger power utilities, there is no other combined municipal water and power utility of comparable size. The Department has over 8,500 employees who aim to provide low cost and reliable service to nearly 3.8 million customers. With 3,600 miles of transmission lines, over 7,000 miles of water mains, and 51 generating units, LADWP has a significant multi-commodity footprint in Southern California and the West.

In addition, LADWP has a long history of consistently strong financial performance and relatively low retail rates (exemplified by high credit ratings and few rate increases). The strong and stable revenue stream provided by the Department's customer base, combined with historically low-cost sources of power and water supply, has historically made the Department the envy of its regional peers. The Department has clearly played a central part in the growth and prosperity of the City of Los Angeles.

Over the years, the Department has met and overcome many challenges; however, the Department is now at an unprecedented point in its history, in which it must simultaneously confront a number of major challenges demanding urgent attention within an extremely short period of time to continue to conduct its day-to-day operations. These inter-related and complex challenges require urgent attention, prioritization and difficult decision-making. The impact of these decisions will affect the Department, the City, and the citizen/customer for decades to come. Prominent examples of key challenges include:

- "Repowering" the asset portfolio (and the transformation of all related functions) to meet increasingly aggressive Renewable Portfolio Standards (RPS)
- Continuing to provide a reliable water supply during a period in which the reliability of its existing major supplies are diminished, while attempting to offset growing demands through aggressive conservation and pursuing a major recycled water supply
- Selection and successful implementation of multiple mission-critical IT systems that are currently extremely outdated and adversely impact day-to-day operations
- Active management of various "human capital" challenges to build a more flexible and resilient workforce (including training, succession planning, and recruitment)
- Resolution of supply chain and procurement inefficiencies that directly affect the reliable delivery of low cost service to customers

Combined, these issues (if not properly resolved) could affect the financial resources of the City and Department's ability to serve its customers for decades to come. Successfully addressing any one of these challenges will require tenacity, resiliency, flexibility, rapid and accurate decision-making, and a significant, and still unknown, dedication of capital (time and financial). Taken together they represent an epic transformation of the Department. Unfortunately, the current governance and decision-making process is not adequate to successfully address these mission critical decisions nor are sufficient analytical tools in place to fully evaluate the merits of alternatives. For example, at a time when the fundamental nature of the Power System is changing, the Department lacks sophisticated modeling tools

required to fully evaluate the markets and resources of a system that will soon be far more dynamic, complex and integrated into competitive energy markets.

Additional results from our analysis suggest that improvement in a variety of areas is possible versus industry peers and leading practices. While multiple programs are underway that are directed toward enhancing the Department's operations, benchmarking reveals that performance in several key areas must continue to improve to compare favorably to peers or select metrics. To that end our analysis includes a large number of recommendations that we believe can move the Department forward to meet these challenges and improve performance in a number of key areas. Several of the more critical recommendations include:

- Create a far more rigorous and detailed Integrated Resource Plan for the Power System that more fully lays out the economics and system impacts of the Department's evolving Power System and which includes clear descriptions of how the Department intends to meet the load requirements of its customers while also meeting regulatory requirements
- Support and team with Metropolitan Water District (MWD) as it continues its leadership role in the development of the next generation of "The California Water Plan," using the City of Los Angeles' considerable statewide influence to drive the process toward a successful outcome
- Initiate a new annual customer survey, with maximum statistical credibility, reflecting the geography and cultural diversity of the service population, considering all classes of customers, and designed to provide the basis for future strategic planning, rate-making and budgeting
- Improve the readability and information provided in all Department bills
- Proactively identify "People, Process, Technology, and Governance" requirements related to potentially increased energy trading and commodity risk control requirements
- Revise management practices of the Energy Cost Adjustment Factor (ECAF) to avoid the possibility of rate shocks
- Assess the merits of a consolidated enterprise-wide risk management function, charged with independently measuring, managing, and reporting on the variety of risks that impact the achievement of Department-wide strategic objectives
- Develop a clear and well-defined IT system replacement roadmap, with schedules and estimated costs for replacing the aging applications portfolio
- Establish a single plan for budgeting, coordinating and communicating all Public Relations & Community Outreach activities

These recommendations, made in conjunction with programs that are already underway or planned for 2009 and beyond, can help increase the operational maturity of the Department. However, ensuring that recommendations are pursued – from program design to implementation – is absolutely critical. Evidence from the 2002 IEA Survey reflects a lack of accountability for implementation of recommendations that emerged from that report. In addition to fully vetting the various recommendations in the report, we believe a program management approach to implementation – including a quarterly update to the Joint Administrators and the Board on progress to-date – is imperative. Failure to act on the

recommendations included in the report will reduce the value of the 2008 Survey initiative, and slow progress to address strategic issues and enhance Department operations. This – combined with a culture that has not historically embraced cost management or complex and consolidated project prioritization – further increases the complexity of current and future challenges.

In addition to these specific recommendations, our analysis concludes that two major issues significantly impede the ability of the Department to effectively and efficiently conduct day-to-day operations as well as meet longer term objectives. Key issues for the Department include:

- Governance

  An organization's governance framework and associated business processes are an important determinant of the successful execution of any business or strategic plan. Clearly defining roles and responsibilities and limits of authority (that provide decision-making accountability to reasonable levels of the organization) are absolutely critical to facilitate efficient decision-making and enhance a culture of accountability.

  Unfortunately, the governance framework within which the Department operates does not facilitate efficient decision-making and clouds accountability for key decisions. The responsibility of (for instance) the Board of Commissioners (Board), while defined by City Charter, is so broad as to be open to a variety of interpretations. This leads to a cycle of "activist" and then less involved Boards, depending on the membership. In short, the proper relationship of the Board to the Department is not clear. Further, the influence of other key stakeholders – most importantly, the Mayor's office – to set policy direction requires an independent and rigorous analysis of proposed programs. The absence of such analysis (derived with significant independence), can lead to the apparent politicization of key decisions whereby the "go/no-go" decision around any initiative is influenced by highly qualitative factors, rather than rigorous analysis of cost and benefit. While it is a bold initiative, the Mayor's 2008 Water Plan is one example of this.

  In general terms, the complex relationship between the Department and various stakeholders is a fundamental issue that undermines clarity of policy leadership and decision-making authority and accountability. While active engagement of these stakeholders is critical to help the Department achieve its mission, the current governance framework puts achievement of long-term goals squarely at risk.

- Strategic Planning and Analysis

  Strategic planning naturally flows out of an organization with effective governance, beginning with the utility's long-range goals. It is an iterative process that results in goal modification after considering the efficacy of the actions that the goals require, their costs, sustainability, and long-term implications. The assessment of actions, which include capital investment, operational strategies, and results of the application of policies, should compare periodic analyses of the effectiveness of actions taken and adjustment of goals where appropriate.

  At present, the Department does not have a comprehensive and consolidated approach to strategic planning that directs project prioritization, capital allocation, and enterprise risk assessment. Further, the Department lacks the analytical rigor required to provide decision-makers and stakeholders appropriate insight into strategic alternatives and

potential impact analyses for various scenarios. While efforts are underway to implement such an overarching approach to strategic planning, sustained culture change that embraces consolidated project selection and capital allocation across the divisions (that is clearly mindful of estimated cost and benefit) is absolutely critical. Finally (and perhaps most importantly), the most critical aspects of strategic plans should "live" beyond the current leadership of the Department. This is a critical requirement of the process, given the history of the changing leadership at the executive level.

The sheer complexity and scale of many of the issues identified in the course of this survey and the short time frame required to address them is the most critical strategic issue for the Department: Stated simply, can the Department manage successfully through a transformation of epic proportion and position itself to achieve its Mission, Vision, Values, and Goals. The City of Los Angeles is fortunate to have a large and deep pool of talented and dedicated staff with the ability to marshal the required resources to provide high-quality, cost-effective services. However, the Mayor, the City Council, the Board, and the Department must be absolutely dedicated to developing, implementing, and solidifying a strategic planning process and increasing the analytical capabilities of DWP, while improving the Department's governance, with clear roles and responsibilities and reasonable limits of authority. These are essential components for successfully navigating through this extremely challenging environment.

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Appendices

1. INTRODUCTION AND APPROACH

Section 266 of the Los Angeles City Charter requires that the City Controller conduct an Industrial, Economic and Administrative Survey (Survey) of the property and business of each of the City's proprietary departments (Airport, Water and Power, and Harbor). The Survey (conducted jointly with the Mayor and City Council) must be conducted at least once every five years. The last Survey of the Los Angeles Department of Water and Power (LADWP, DWP, or Department) was completed in October 2002. In early 2008, PA Consulting Group (PA) and its subcontractors were retained to conduct the Survey.

The Survey has two primary sections:

1. Assessment of Strategic Issues:

- To evaluate the broad strategy framework within which the Department operates, the relevance of 2002 recommendations and progress to-date implementing those recommendations, and inventory and validate the policy issues to which the LADWP must be responsive

2. Assessment of Operational Issues:

- To assess progress to-date implementing the recommended improvement plans, evaluate water and power operations versus various benchmarks, and finally assess the relationships the Department has that affect operations

Information to complete the Survey was derived from two sources: 1) Interviews with Department staff and a variety of critical stakeholders, including representatives from the Board of Commissioners (Board), Mayor's Office, City Council, labor unions, the Department's largest customers, and Neighborhood Councils, and 2) Documents collected and reviewed from across the Department and related agencies and organizations. In total, we conducted over 90 interviews, and gathered and reviewed nearly 110 critical documents, which provided a comprehensive view into Department operations.

This report is comprised of the following chapters:

- The Current Environment: A broad description of the most significant strategic challenges facing the Department at-present
- Assessment of Strategic Issues: An assessment of the progress to-date implementing recommendations from the previous Survey, and a comprehensive evaluation of current strategic issues and the Department's ability to address them
- Assessment of Operational Issues: An evaluation of the relative performance of the Department in targeted areas as compared to peers, and list of recommendations for improvement
- Summary of Findings: A brief overview of findings from the Survey.

2. THE CURRENT ENVIRONMENT

The LADWP is the largest municipal utility in the country, with nearly 3.8 million power and water customers. As such, the Department is confronted with a significant number of challenges that must be addressed when both establishing and executing its strategic vision, as well as when conducting day-to-day business. Many of these challenges are common to municipal utilities – important examples include:

- Access to capital and credit markets has worsened significantly, and will likely continue to be constrained due to general economic conditions
- Rising capital expenditure requirements related to a large number of critical infrastructure projects
- Volatile natural gas and other critical input prices
- Increasing regulatory and political risk from a variety of stakeholders
- Ever-changing State and National energy policies, including California climate change legislation (SB 1368 and AB32).

However, many others are distinct to the Department given its current operations, institutional history, organizational culture, and relationship to key stakeholders, including:

- A transformation in the nature, complexity and characteristics of the Power System that require new systems, personnel and methods of operation
- Severely outdated Information Technology (IT) infrastructure across most areas of the Department
- Broad human capital challenges, exacerbated by cumbersome union and civil service rules and mandates
- Complex governance hierarchies and decision-making oversight, characterized by daunting approval and authorization protocols. (This includes a strained and less than optimum relationship between the Board and the Department's executive team)
- Significant problems with the current supply chain and procurement processes and technologies, impacting the most critical aspects of the Department
- Power and water reliability, quality, and supply challenges requiring innovative programs and swift action within a decision-making framework fraught with checks and balances.

Given this environment, the Department clearly faces a number of major challenges that require urgent attention in an extremely short time frame. On a macro basis, the response to these challenges will affect the Department, the City, and the citizen/customer for decades to come – the Department is clearly at a transformational point in its history.

Successfully addressing any one of these challenges requires resiliency, flexibility, rapid and accurate decision-making, and a significant dedication of capital (time and financial). Addressing them concurrently given the short time frames and magnitude of change required presents a significant challenge to management and the City.

In short, the scale of these issues and the short time frame required to address them creates the most critical macro strategic issue for the Department – how to manage successfully through a transformation of epic proportion and achieve the Department's Mission, Vision, Values, and Goals. These challenges and issues must be prioritized to most appropriately allocate scarce capital and also focus attention in the areas that will yield the greatest benefit for the Department (and similarly, in those areas where failure to act will have the greatest impact to achieving the Department's Mission, Vision, Values, and Goals).

A key finding of this Survey is the critical need for a robust strategic planning process that considers the transformational issues impacting the Department. To date the Department has not conducted regular or adequate strategic planning exercises and may require external support to ensure a productive and lasting result.

3. ASSESSMENT OF STRATEGIC ISSUES

The Assessment of Strategic Issues is comprised of two tasks:

1. Evaluate the relevance of 2002 recommendations and progress to-date implementing those recommendations (including the broad strategy framework adopted by the Department); and
2. Inventory and validate the strategic issues to which the LADWP must be responsive.

The remainder of this section provides a detailed account of the Department's response to the 2002 IEA Survey (2002 Survey) and record implementing identified recommendations, as well as the relative level of preparedness to meet current challenges.

3.1 2002 STRATEGIC ISSUE AND RECOMMENDATION REVIEW

3.1.1 Overview of 2002 Assessment

The 2002 Survey was comprised of two reports: The Strategic Assessment Report and the IEA Survey Final Report. The following is a brief overview of the approach used to derive results in each report.

a. ISSUE AREA REVIEW

In the initial phase of the 2002 Survey, current and future threats and opportunities facing both the Water and Power Systems were evaluated, after which the status of existing plans to address those issues were assessed.

In the case of the Water System, a ranking criteria consisting of three prioritization levels (A, B, and C Levels) was applied, with impact categories within each prioritization level relating to corporate objectives. For the Power System, identified issues were also associated with prioritization levels and impact categories to further refine the analysis.

Once the initial prioritization was determined, the list of strategic issues was related back to departments within the Water and Power Systems to assess with greater specificity the relevance of each issue (High, Moderate, or Low). An additional refinement of the original list of strategic issues was derived as a result of meetings with LADWP management. The following are the final strategic issues evaluated in the 2002 Survey:

1. Strategic Planning[1]
2. Adequacy of Water Resources
3. Water Quality
4. Installation & Maintenance of Water Infrastructure
5. Prudent Management of Assets

[1] Strategic Planning was reviewed as a separate item in the 2002 Survey. We have added it here to be complete, changing the total areas of assessment in the 2002 Survey from 8 to 9.

6. Power Services Financial Management & Control
7. Gas Procurement & Wholesale Trading
8. Business Information Systems
9. Workforce Planning, Training & Succession Planning

b. RECOMMENDATION REVIEW

Findings, conclusions and recommendations were derived from the refined strategic issues list for each System. Interviews, document collection, and benchmarking were used as the point of reference to develop the list of recommendations. Analysis included quantitative as well as business process management benchmarking versus leading or common practices adopted by peers to LADWP.

c. LADWP RESPONSE

Recommendations from the 2002 Survey addressed LADWP's organizational structure, staffing, business processes, and technologies (among others). Certain of the recommendations could be addressed in the normal course of business, while others would require dedicated attention over a longer period of time, with substantial executive leadership and support to ensure success.

To this end, clearly defining the responsibility within LADWP for findings and the process according to which recommendations would be rejected (and rationale) or accepted (and subsequent implementation) was necessary to ultimately derive value from the 2002 Survey. Unfortunately, responsibility for the 2002 Survey is unclear, resulting in a lack of definitive record-keeping as to how or why recommendations were or were not accepted. Therefore, a consolidated account of implementation progress versus those recommendations also does not exist.

Given these factors, we believe the last progress report specifically derived in relation to the 2002 Survey was written in January 2004, and provided to the Audit, Finance, and Risk Management Committee. The memo provides a high-level review of the most significant findings and recommendations, and actions taken at that time. Ownership of recommendations with a specific account of implementation progress subsequent to January 2004 is unclear.

Therefore, we assume that in most instances, efforts to address the recommendations were made in the "normal course of business" and not specifically as a result of the 2002 Survey per se. This is an important factor in the pace and record of change versus identified recommendations.

3.1.2 Evaluation of 2002 Assessment Results

a. APPROACH

The evaluation of 2002 recommendations is comprised of two tasks:

1. Evaluate the relevance of 2002 recommendations: The set of initial recommendations for organizational and operational improvement derived in 2002 were based on an

external and internal environmental scan. During the interim period, the strategic issues identified in 2002 (resulting in a set of specific recommendations) may have changed character or increased or decreased in relevance, thereby impacting the relevance of the recommendations.

We evaluated the original recommendations using two primary references. First (and principally), we referenced current LADWP Vision and Mission statements developed by the Office of the General Manager and referenced in a variety of other System strategic planning documents. These documents provide directional guidance as to the critical objectives of the Department, against which prior recommendations should be evaluated. The Vision, Mission and related Values and Goals for the Department are as follows:[2]

Vision:

- From the first one hundred years to the next, DWP is dedicated to providing Water for Life and Power to L.A.

Mission:

- As the largest municipal utility in the nation, DWP is responsible for providing reliable and low cost water and power, in a safe and environmentally responsible manner, to the residents and businesses of Los Angeles

Values:

- Excellence, accountability, trust and stewardship

Goals:

- Exercise fiscal responsibility
- Meet or exceed customer expectations for high quality tap water and reliable power
- Improve water and power system reliability
- Enhance environmental stewardship activities through conservation/reduction of water and energy usage and increased use of renewable water and energy resources
- Protect the interests of the City of Los Angeles and its citizens on water and energy issues
- Expand economic, education and outreach efforts
- Ensure the continuity of an effective and efficient workforce
- Protect the safety and security of DWP's employees, assets and resources.

Recommendations were ranked, based on their alignment with, and impact on, these goals.

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[2] From the presentation "Department of Water and Power, City of Los Angeles – General Manager's Office 2008/09 Fiscal Year Proposed Budget, June 19, 2008".

Second, to gain additional insight into corporate objectives, we referenced the current Department Continuity of Operations Plan (COOP), which provides a list of core Department objectives and informs the order in which critical services are brought back online after a worst case disruption to service.[3] Core objectives from this document include:

- Provide, maintain or restore power to the citizens of Los Angeles (distribution, transmission, generation)
- Provide, maintain or restore the supply of water to the citizens of Los Angeles (distribution, water supply, water quality)
- Provide communication services to other government agencies, the public, news media, employees, Board of Commissioners, executive management, and operating organizations with respect to LADWP
- Coordinate LADWP's response and recovery by maintaining effective interaction among internal organizations as well as with other city departments, and local, state, and federal emergency agencies
- Evaluate and recommend actions concerning networks, telephone, radio, mainframe, server, and applications for Water and Power Systems
- Provide information to customers and operating organizations regarding water and power services
- Purchase materials, supplies, services and equipment as necessary for LADWP
- Provide protection services to LADWP employees and assets
- Recognize and evaluate work practices and safety requirements to minimize risk of occupational injury or illness
- Provide finance and planning, budget, controller, and audit services for LADWP
- Minimize of eliminate environmental hazards and promote the conservation of water and power resources.

In general terms, these sources of information provide several high-priority Department themes, including: system reliability, water quality, environmental stewardship, public and employee health and safety, and workforce excellence.

Finally, in our independent role, we were charged with providing a general review of all of the recommendations, given our collective expertise in each of the key strategic issue areas. This reference provided a critical input into the overall assessment of 2002 Survey recommendations.

2. Assess progress implementing 2002 recommendations: Progress implementing the original recommendations was determined through document collection and review, and targeted interviews with Department staff across all Systems.

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[3] The Los Angeles Department of Water and Power, Continuity of Operations Plan. December 2005.

The following scoring methodology was applied to assess the recommendations in each of the Issue Areas identified above:

Highly Relevant	⇧	Critical to achieving strategic objectives
Moderately Relevant	⇦⇨	Less critical to achieving strategic objectives
Not Relevant	⇩	Not critical to achieving strategic objectives
Significant Progress	○	Implementation in normal course of business
Some Progress	◒	Focused effort to implement recommendation
Limited Progress	●	Significant effort to implement recommendation

Exhibit 1: Methodology for assessing Relevance and Implementation Progress of 2002 Recommendations

Specific scores for each recommendation will be considered in the Current Issue Assessment; 2002 recommendations that are "Highly Relevant" and for which only "Some" or "Limited Progress" has been made will be closely considered.

b. DETAILED EVALUATION OF 2002 RECOMMENDATIONS

1. Strategic Planning

Overview

Strategic planning is the systematic process by which an organization envisions its future and develops the vision, mission, goals, objectives, and action plans to achieve that future. The period defining strategic planning processes requires a longer term outlook (often 3-5 years), and a realistic assessment of the financial, human, infrastructure, and relationship resources required to implement the plan.

Effective strategic planning processes are characterized by several factors:

- A clear process to define the organization's vision and mission, and finally objectives, strategies and related action plans
- Assignment of accountabilities and responsibilities for execution of the plans
- Measurement and reporting of progress according to milestones and versus key measures
- Involvement of all critical stakeholders
- Development and implementation of protocols to ensure planning activities are reactive to a dynamic business environment.

In general, it is critical to develop planning processes and protocols that ensure strategic planning processes are not perfunctory exercises, but rather effectively link an organization's vision, mission, values and goals to actionable plans to achieve those objectives.

The following exhibit reflects the 2002 recommendations for Strategic Planning, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Strategic Planning	The General Manager (GM) should continue to emphasize strategic planning activities, and express his vision as and values to facilitate integration across groups	↑	▬
	The GM should build on culture change in support of strategic planning	↑	▬
	The GM should implement some of the organizational changes to improve the emphasis on and coordination of planning	↔	▬
	Examine the strategic planning process against the Preferred Practices Model and adopt process improvements	↔	●
	Integrate the Joint System into Water and Power strategic planning processes and develop coordinated strategic plans	↑	●
	Establish Joint System performance measurements and reporting that reflect their involvement in, and support of, Water and Power strategic initiatives	↑	●

Exhibit 2: 2002 recommendations for strategic planning

i. The General Manager (GM) should continue to emphasize strategic planning activities, and express his vision as and values to facilitate integration across groups

The GM has taken preliminary steps to document and formalize aspects of his vision, values, and strategic direction for the Department, specifically in the Vision, Mission, Values and Goals published as part of the Department's 2008/2009 proposed budget (referenced above). However, these have not been communicated in a formal manner across the organization or reviewed formally and authorized by the Board. In addition, a formal attempt to link these aspects of strategic direction directly to System-level strategic plans is not well developed; methods of formally integrating the strategic planning efforts of each System are at a low level of maturity. Strategic plans should cascade – from the corporate plan through each System – with clear linkages. At present, there is no codified process in place to conduct this type of planning, or measure the progress of strategic planning efforts in a consistent manner.

To this end, the Department is still characterized as operating in "silos", and significant progress is required to improve the record of integration across groups. The distinctive nature of the operations of the two Systems is often cited as a key factor related to these silos. However, greater integration and cooperation is critical for measuring overall Department performance versus objectives, and making informed decisions regarding competing (and very often, costly) initiatives. Greater integration can be facilitated through more standardized and formalized business processes around key planning activities. Given the strength of the silos that exist across the Department, the expectation of integration and cooperation must continue to be communicated by leadership and supported by other influential stakeholders (including the Board).

Relevance of 2002 Recommendation: Highly Relevant

Progress Versus 2002 Recommendation: Some Progress

ii. The GM should build on culture change in support of strategic planning

Effective culture change requires a clear definition of the desired "to-be" culture, identification of the business processes, organizational structures, incentive mechanisms, and other components that require modification to achieve the desired culture, and the method of driving toward the desired end state.

The Department's culture is still defined as one focused on tactics and "the next emergency" versus longer range planning. It is important to note that establishing a culture of strategic planning at LADWP (where long-term objectives are considered at multiple levels of the organization, marked by clear performance measurement practices) is challenging for a variety of reasons. Specifically, the institutionalization of strategic planning and related processes has been hindered by recurring loss and/or change of leadership and the role and impact of changing objectives handed down to the Department by the Mayor's office. However, steps should be taken to define the "to-be" culture that is desired vis-à-vis strategic planning, and continue to implement changes to facilitate movement toward that culture.

Building a stronger strategic planning culture will continue to be a longer-term objective achieved through consistent support across GM, Mayor, City Council and Board tenure. Strong strategic planning processes and protocols must be seen as a core component of standard operating practice; accountability for adhering to and continually improving existing processes and protocols toward the current "Best Practice" standard is an important element of successful culture change.

Relevance of 2002 Recommendation: Highly Relevant

Progress Versus 2002 Recommendation: Some Progress

iii. The GM should implement some of the organizational changes to improve the emphasis on and coordination of planning

Coordination is a key element of strategic planning for any organization. Active coordination helps identify areas where desired strategic outcomes can be achieved with greater efficiency, and where difficult choices among alternatives will need to be fully evaluated.

The Department does not have a centralized strategic planning function. Rather, strategic planning is achieved through processes that combine "top down" (vision and mission from the Office of the GM) and "bottom up" (Divisions offer strategic issues and execution guidance) approaches. As in other areas of the organization, business processes around strategic planning are at present ad hoc; there is no formalized strategic planning process for the Department. This results in little coordination of strategic objectives of all three Systems simultaneously, with clear understanding of the "**S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats" (SWOT) that characterize the Department at any point in time.

The formation of Major Initiative Teams (groups of senior Department leaders that regularly meet and work to resolve critical strategic issues) may facilitate more active consideration of strategic issues. However, as noted, the integration of strategic planning is of critical importance (this is particularly true, given the Department's distinct business lines and large shared services function). Major Initiatives Teams focus attention in single issue areas. Although members of Department leadership participate across these Teams, how the plans and decisions are integrated, carried out, and evaluated at the highest level is unclear.

As discussed above, effective strategic planning is defined by clear processes and protocols for evaluating and selecting alternatives, assigning responsibility for execution, assessing progress versus targets, and reporting progress to-date. Greater emphasis on defining the strategic planning process is necessary to derive improved coordination.

Finally, it is not necessary to increase the direct report structure of the GM (ITS and Organizational Development component of HR), as was recommended in 2002. Developing and ensuring adherence to strategic planning processes, while also fully incorporating ITS and HR in strategic planning, will help facilitate the change the Department desires.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

iv. Examine the strategic planning process against the Preferred Practices Model and adopt process improvements

Standard models of strategic planning that aim to integrate fragmented practices, standardize the development of SWOT analyses, assign accountabilities, link plans to budgets and timelines, and drive greater accountability and communication provide a valuable frame of reference and guideline for the Department. Of additional importance is the use of consistent and easily referenced sources of data, assumptions underlying the analyses, risk factors, and drivers of performance (among others); these are fundamental aspects of a single planning process.

As noted, at present few of the Department's practices and protocols resemble a well-coordinated strategic planning process. Efforts should be made to transition ad hoc, to more formalized and coordinated, processes. Creating one single strategic planning process across the Systems – with consistent and comparable analyses, enabling relevant comparisons – is critical for the Department. Better defined and communicated strategic planning processes with clear accountabilities will yield more effective and consistent strategic planning.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Limited Progress

v. Integrate the Joint System into Water and Power strategic planning processes and develop coordinated strategic plans

LADWP's Joint System serves a critical role in the successful execution of the Water and Power System's strategic plans. Critical aspects of the Joint System (including supply chain and Human Resources) directly impact the ability of the Water and Power Systems to achieved stated strategic objectives. Therefore, true coordination of strategic planning for LADWP requires integration of the Water, Power, and Joint Systems.

As noted, the Major Initiative Teams will continue to help facilitate this change. However, rectifying the "People, Process, and Technology" issues that impact several of the service organizations is a critical first step to increasing the confidence of the Water and Power Systems in the Joint Service organizations; organizational, business process, and technological challenges within the Joint System that impede the ability to achieve overall

Department objectives should be clearly understood, prioritized versus the objectives of the Water and Power Systems, and resolved.

In addition, steps must be taken to increase the service orientation of the Joint System to the Water and Power Systems. In many instances, the Joint System is perceived as an entity to be avoided as opposed to leveraged to complete critical tasks. This results in efforts to "work around" the Joint System, and the development of redundant capabilities in the Water and Power Systems. This is a change that will be affected through strong leadership – from the GM through his leadership ranks, across the Joint System, and from the AGM ranks through the Water and Power Systems.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

vi. Establish Joint System performance measurements and reporting that reflect their involvement in, and support of, Water and Power strategic initiatives

Performance measurement, reporting, and assessment are key aspects of on-going strategic planning and evaluation. Accountability for strategic plans is driven through the reporting of progress versus stated targets, goals, and objectives. To date, performance measurement has been the responsibility of each System, with little coordination across the three groups. Specifically, the Water and Power Systems have each developed Key Performance Indicators (KPI) programs, while the Performance Audit and Workforce Performance Group within the Department of Budget, Rates and Efficiency is responsible for a limited KPI pilot initiative. (Due to business process and technology limitations, the program is limited in scope and focus at present.) Finally, there is no single coordinated performance measurement effort for the Joint System group.

Coordinated measurement and reporting of key Joint System projects will help identify the key linkages between and potential risk to Water and Power System strategies and projects. This measurement and reporting effort is particularly critical, given the number of complex Joint System initiatives underway or required in the near future (particularly in the ITS organization). In general, strategic planning is not a one time event; progress versus objectives must be measured to enable effective decision-making and changes to existing plans. This is a key requirement for all three Systems, including the Joint System.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

2. Adequacy of Water Resources

Overview

Historically, the city of Los Angeles has received its water from five major sources: the Eastern Sierra Nevada watershed (via LA aqueduct), the Colorado River (via the Colorado River aqueduct) and the Sacramento-San Joaquin Delta (via the State Water Project/California aqueduct) which are purchased from the Metropolitan Water District of

Southern California (MWD), local groundwater and recycled water for industrial and irrigation purposes[4]. In recent years, four of those sources have been compromised resulting in shortages, which have prompted LADWP and City officials to look into alternative sources of water.

LADWP has made some progress in addressing the 2002 recommendations related to the adequacy of water resources. This is particularly true in providing greater supply security, supporting MWD, and seeking alternative supplies through an enhanced water conservation, wastewater recycling and restoration of the San Fernando groundwater basin. However, the 2002 recommendations regarding wastewater recycling do not reflect changed conditions and policies and therefore are no longer relevant. Also the recommendation regarding LADWP's excessive leakage or "unaccounted for" water does not appear to be consistent with LADWP's current performance when compared with other utilities.

With a growing population, such as Los Angeles', it is essential that LADWP and local officials focus on a plan that will provide sustainable and reliable sources of water for its residents in decades to come.

The following exhibit reflects the 2002 recommendations for Adequacy of Water Resources, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Adequacy of Water Resources	The city should consider implementing storage capabilities along the Los Angeles Aqueduct to compensate for reduced rights during droughts.	↑	⌓
	LADWP should use its influence with MWD to ensure that MWD's analysis of its future supplies realistically considers the likelihood that projects will actually be implemented.	↑	⌓
	The Department should seek alternative options to supplement existing City and MWD resources.	↑	○
	Once legal considerations between the City and San Diego as to preferential right have been resolved, the Department should formally clarify the City's need for substantial increases in MWD water during periods of drought and negotiate a right to needed levels.	↑	○
	The City needs to accept the limitations of recycled water and revise its plans for utilization of recycled water as a water source. The public misunderstandings, as well as ever increasing water quality considerations, mean the City cannot expect to achieve its planned East Valley project in the near future. It needs to re-think how best to utilize recycled water and/or find another source for 30 thousand AF of water or reduce growth until this issue is resolved.	↓	○
	Due to possible new quality mandates and their likely impact on underground water in urban areas, the Department should consider treating groundwater.	↑	⌓
	The Department should identify the source of the higher than expected unaccounted - for water percentage and reduce it.	⇐⇒	⌓
	As a short-term solution prior to consideration of treating all underground water, LADWP should upgrade pumping capacity as needed in areas with good water quality.	↑	⌓

Exhibit 3: 2002 recommendations for adequacy of water resources

[4] City of Los Angeles Water Supply Action Plan. Securing LA's Water Supply. May 2008

i. Consider implementing storage capabilities along the Los Angeles Aqueduct to compensate for reduced rights during droughts

As noted in the 2002 Survey, there are limited opportunities along the aqueduct for constructing surface storage which can be reasonably expected to be permitted. Although significant groundwater storage opportunities exist near the aqueduct in the Antelope Valley, it would require construction of new facilities, involving a lengthy permitting process and property acquisition.

The current approach is focused on obtaining an interconnection between the California and LA Aqueducts. An agreement was executed in 2004 between LADWP, the Department of Water Resources (DWR), the Metropolitan Water District (MWD), and Antelope Valley East Kern Water Agency (AVEK) authorizing this interconnection. The design which includes a pumping station is currently being reviewed by DWR. This interconnection would expand the opportunities for storage in the Central Valley and Antelope Valley using existing facilities and participation in already-developed water banks, such as Semi-Tropic.

While not directly responding to the 2002 recommendation, we believe this is a more prudent approach and will provide storage much more quickly than the alternative of constructing LADWP-owned facilities.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

ii. Ensure that MWD's analysis of future supplies realistically considers the likelihood that projects will actually be implemented

The Department is actively involved in MWD's efforts to update its Integrated Resource Plan (IRP) and is working with MWD on region-wide assessments of water demand, current water resource availability, and future opportunities for enhancing local water resources currently being made. These will assist in projecting LA's need for water from MWD. Over the past few years, LADWP teamed with other MWD member agencies to work effectively with MWD to maintain and enhance water supply reliability.

However, since this recommendation was made, a number of changes have occurred in the water supply arena for MWD. The most significant is the extended drought affecting both Colorado River and State Water Project (SWP) supplies. In addition, the recent Wanger decision limiting Delta exports to protect the Delta smelt has further impacted MWD's imported water supply.

LADWP is supporting MWD's strategy for dealing with the SWP issues. The short-term strategy is to influence Judge Wanger by providing him with information in December (2008), the timeframe DWR is expected to discuss with him the biological opinion on the Delta smelt and how DWR intends to respond to it.

DWR's strategy involves implementing barriers in the Old and New Rivers in the Delta to limit the number of smelt that are sucked into the SWP and Central Valley Project (CVP) pumps. DWR is pursuing this strategy through the Bay Delta Conservation Plan, and is currently

working through the California Environmental Quality Act (CEQA) process (current schedule calls for filing the Record of Decision (ROD[5]) the 3rd quarter of 2010) and staging the required material and equipment to construct the barriers. DWR's mid-term strategy involves hardening some of the Delta channels to minimize erosion problems when the pumps pull water through some of the smaller east delta channels. The long-term strategy is to build the Peripheral Canal.

The strategy proposed by MWD and endorsed by the Department will require considerable effort at the state level for it to be accomplished. The City of LA could use its statewide influence, in cooperation with MWD and its other member agencies, to move this strategy forward. The City of LA should use its influence at the state level to ensure the implementation of all facets of the strategy.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

iii. Seek alternative options to supplement existing City and MWD resources

The Mayor of Los Angeles and LADWP prepared a blueprint for creating future sustainable water resources. The plan was unveiled in May 2008 and is summarized in the report, *Securing L.A's Water Supply.* The cornerstone to this plan is an aggressive water conservation program part of a short-term overall conservation strategy and a significant expansion of the use of recycled water. These long-term strategies are aligned with the Water/Wastewater Integrated Resource Plan (IRP) approved by the LA City Council and the Mayor in November of 2007.

The plan is intended to meet all new water demand, approximately 100,000 af/yr, through 2030. While other alternatives are being pursued such as greater surface spreading of captured storm-water, groundwater remediation plus additional groundwater pumping, and perhaps seawater desalination, the great emphasis will be to implement the conservation/recycled water strategy. However, this strategy does not appear to have been developed from a strategic integrated analysis of the full range of options. Nor is it clear what the long-term costs of these programs will be and whether they are as cost-effective as other alternatives, including drought period transfers from farms through the SWP. The recycled part of its implementation has been held up pending resolution of the dispute over whether consultants or staff should conduct the technical work on the San Fernando Basin.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

iv. Once legal considerations between the City and San Diego's preferential rights have been resolved, the Department should formally clarify the City's need for

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[5] The ROD includes a comparative discussion of the project alternatives, a discussion of the factors considered in making the decision, a description of those mitigation measures which were adopted and an explanation of why mitigation measures were not adopted, as well as a monitoring and enforcement program for adopted mitigation measures.

substantial increases in MWD water during periods of drought and negotiate a right to needed levels

The San Diego County Water Authority filed a lawsuit in 2001 challenging how MWD determines the preferential rights of its member agencies to MWD's water supplies (Section 135 of the Metropolitan Water District Act). This lawsuit was resolved in 2004 when the California Supreme Court denied San Diego's appeal to hear the issue after the Appeals Court had ruled against San Diego. Despite the failure of the legal challenge, disputes still exist regarding the allocation of MWD'S water supply in times of shortage.

In recent years, LADWP has recognized that its preferential rights are insufficient in the long term to provide the projected amount needed from MWD during dry years. For this reason, the Department has supported a plan for allocating MWD supplies to its various member agencies that is approximately equal to its current preferential rights and is greater than its long-term preferential rights. This is a very important development; however one of MWD's member agencies, Central Basin MWD, filed a complaint against this plan in April 2008. Should Central Basin be successful in its complaint, requiring changes to the allocation plan, it appears that the impact to LA would not be significant for several years, allowing sufficient time for adjustments to be made to the allocation plan.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

v. The City needs to accept the limitations of recycled water and revise its plans for utilization of recycled water as a water source

As previously mentioned, LADWP has adopted an aggressive water conservation program and a significant expansion of the use of recycled water as stated in the Mayor's Plan *Securing LA's Water Supply.*

The City reasonably believes that there has been a recent change in public acceptance (Orange County) of the use of reclaimed wastewater for groundwater recharge in the San Fernando Basin and ultimate withdrawal for drinking water supplies. The increasing use of dual systems for delivery of non-potable water, and MWD funding, support a reliance on this reclaimed water program. The technical work to support this program appears to have a six-year schedule which would be inconsistent with the priority in the Mayor's Plan, *Securing L.A.'s Water Supply.*

In essence, there was considerable progress in regards to this recommendation, although the recommendation itself was rejected and is no longer relevant.

Relevance of 2002 Recommendations: Not Relevant

Progress Versus 2002 Recommendations: Significant Progress

vi. Due to possible new quality mandates and their likely impact on underground water in urban areas, the Department should consider treating groundwater

New water quality mandates are continually under consideration with regard to constituents that are likely to appear in groundwater. The proposed LADWP San Fernando Valley studies

will deal with this issue including LADWP's contribution from recharging reclaimed wastewater as well as treatment required for extraction considering the existence of presently known and possible future groundwater contaminants.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

vii. Identify the source of the higher than expected unaccounted - for water percentage and reduce it

The Department has made significant progress in regards to this recommendation, reducing unaccounted-for water from just over 10% to as little as 3.5%. It should be noted that some sources for unaccounted water provide limited opportunities for improvement. These include the range of accuracy of the thousands of meters in the system, fire flow (which is not metered) and reservoir evaporation and seepage. Some of these sources do not represent an actual loss of water, thus the amount of water available to be saved may be considerably less than suggested in the 2002 Survey.

Analysis of American Water Works Association (AWWA) data and industry practice indicate that LADWP's non-revenue water (or unaccounted water) at the time of the 2002 Survey did not exceed industry standards (<10%). In addition, the 2007 leakage range for water operations shown by the AWWA Qualserve program performance indicators is from 4.9 to 12.4% and the top quartile for leaks per 100 miles of distribution system is 21.7. LADWP's June 2007 "Water System Infrastructure Program Overview" reports that the water systems average yearly rate of leaks is 26 per 100 miles of pipe compared to 24 for the group of 10 utilities surveyed yearly. The trend line for leaks for hundred miles has been consistently below 25 per hundred miles since the period of the Northridge earthquake.

Given the age of the distribution mainlines, the leakage rate is lower than expected, yet a system leakage study might be beneficial to identify if there are any cost-effective opportunities for reducing the amount of unaccounted water.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Significant Progress

viii. Prior to consideration of treating all underground water, LADWP should upgrade pumping capacity as needed in areas with good water quality

The Department has made some progress against this recommendation. LADWP previously pursued adding pumping capacity by drilling new wells. This strategy initially worked, but the extent of contamination is no longer conducive for expanding capacity.

LADWP is in the process of installing a pilot wellhead facility at its Tujunga well. This could be expanded to other wells, however, an analysis of using wellhead treatment versus centralized treatment must be completed before a significant commitment is made to wellhead treatment. In the meantime, LADWP is evaluating pursuing wellhead treatment at selected locations where it is unlikely to be cost-effective to pump to a centralized treatment facility.

Upgrading the Department's pumping capacity in the San Fernando Basin depends upon a variety of factors including the disposition and fate of contaminants, the use of reclaimed wastewater, changing hydrology and stakeholder considerations. The Department has in motion a planning process that can design the appropriate groundwater recharge and extraction treatment to optimize compliance with present and future regulations. Technologies currently exist, although energy intensive and expensive, to respond to any future drinking water regulations.

The key department activity that should emanate from work now in the development phase will be a plan and strategy to optimize groundwater resources. Ideally, the results of this work would be integrated into the Department's overall strategic plan with options selected based on long-term cost optimization and sustainability.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

3. Water Quality

Overview

LADWP's Water Services Organization (WSO) mission is to provide customers with reliable, high quality, and competitively priced water services in a safe, and publicly and environmentally responsible manner. Similarly, the 2003-2008 WSO Business Plan named water quality as one of its priorities, "meet customer expectations for high quality tap water and exceed mandated water quality standards with a focus on public health benefits."

LADWP has made progress in addressing the 2002 water quality recommendations. Studies have been undertaken to analyze water quality goals, potential threats due to contaminants, and strategies related to compliance with the Safe Drinking Water Act. Large investments to achieve compliance are being made to reduce disinfection byproducts, and eliminate the threats from uncovered reservoirs. However, recommendations regarding comparative water quality and indexing water quality goal achievement have not been implemented and would not contribute significantly to long-term LADWP water quality improvements.

Water quality for LADWP is not only related to meeting the public health goals and state and federal water quality compliance, but also to the public perception of the water quality at the tap. LADWP should be committed to achieving its mission by maximizing the number of satisfied customers by targeted water quality improvements that enhance the aesthetics of drinking water (particularly control rusty water-corrosion products of both LADWP system and private plumbing), and the reduction of exposure to contaminants where significant reductions in risk can be achieved (e.g. reduction in disinfection byproducts to minimize their occurrence).

The following exhibit reflects the 2002 recommendations for Water Quality, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Water Quality	Establish goals for the maximum number of samples exceeding secondary standards. Measure results and provide a report on at least a quarterly basis to senior water quality management. Identify the reason for exceeding the standard and recommendations for improvement or compliance with the goal.	↓	●
	Continue, and enhance as necessary, the BWG-developed single-index measurement of water quality compared to a consistent set of other major cities and report results annually in the Annual Water Quality Report.	↓	○
	Work with elected officials to establish a formal Water Quality Goal for Los Angeles water, and establish, as appropriate, a contaminant level reduction program.	⇐⇒	◒
	Periodically benchmark water quality operations and issues against other large cities. Publish the general results in the Annual Water Quality Report to better inform the public as to how the water it drinks compares in quality to water in other metropolitan centers.	↑	◒
	Work with IT to develop a process to obtain automated and useful information that would allow water quality to continue the focused flushing program as needed. Develop a measurement process that compares complaints before and after the program to evaluate its effectiveness and report the results.	⇐⇒	◒
	Establish more formal goals and objectives for the WSCS regarding response and completion time for customer inspections. At a minimum, a goal should be set for the maximum number of days to inspect and a goal for the number of inspections completed same day or next day. This information, along with the number of phone calls received, should be reported to water quality management on a monthly basis.	↑	○
	Solicit expert advice and establish a customer committee to assist in making the Annual Report as useful and informative as possible. The committee should assist the Department in preparing all aspects of the Report from the mailing envelope used to the contents of the Report. The goal is to increase the visibility and readability of the Annual Report.	⇐⇒	◒
	Develop a more proactive process to communicate and educate the public and community leaders about the quality of their water and the work that LADWP is doing to improve quality.	↑	◒
	Establish and document a formal, well turn-on and turn-off policy.	⇐⇒	●
	Prepare a cost-benefit and legal and operational analysis, comparing the four alternatives presented in Finding 12 (POU devices, additional centralized treatment, home plumbing enhancements and system design changes, i.e. separate systems for tap and shower.)	⇐⇒	◒

Exhibit 4: 2002 recommendations for water quality

i. Establish goals for the maximum number of samples exceeding secondary standards. Measure results and provide a report on at least a quarterly basis to senior water quality management. Identify the reason for exceeding the standard and recommendations for improvement or compliance with the goal

No progress has been made on this recommendation, most likely because the Annual Water Quality Report of 2007 stated that none of the secondary standards were exceeded.

Further, since this recommendation was made, the California Department of Public Health has issued new secondary water standards. Title 22, Division 4, Chapter 15, Article 16,

Section 64449 has been amended to add a system for monitoring and compliance with secondary drinking water standards. Essentially, providing monitoring, an engineering report, complaint inventory, a customer survey, and the potential for a nine year waiver based on conditions listed in the regulation.

However, these non-health related standards involve aesthetics, including taste and odor and can have a major effect on consumer confidence. Noncompliance is frequently local, resulting from repair, maintenance, or storage problems. Other standards relate to conservative constituents that may or may not have an adverse effect on the consuming public or industries served. If LADWP's consumer water quality complaints, or public surveys indicate a secondary compliance problem in any particular area of the system, it would be appropriate to establish goals, monitoring frequency, and a program of corrective actions to achieve the City's water quality objectives in that area.

Relevance of 2002 Recommendations: Not Relevant

Progress Versus 2002 Recommendations: Limited Progress

ii. Continue, and enhance as necessary, the BWG-developed single-index measurement of water quality compared to a consistent set of other major cities and report results annually in the Annual Water Quality Report

DWP has not considered the single index measure of water quality. The recommended single index for measuring water quality improvements above reliable maximum contaminant levels (MCL) compliance toward achieving state and federal public health goals is of limited value. This indicator combined contaminants of widely varying health affect and different benefit/cost reduction options. Assuming other utilities could be persuaded to use it, the resulting comparisons would have limited value since the sources of water, water distribution, and public priorities are likely to vary widely. Moreover, a 2003 Department study indicated that LADWP is closer to achieving the maximum contaminant level goals (MCLG) than it is to the compliance levels.

To address the need for a strategy to achieve LADWP's drinking water public health goals, a report was prepared in July of 2007. The report concludes that "it is not entirely clear how much public health benefit would be realized by improving water quality of drinking water to PHG levels. What is clear is that every effort should be made to reduce risk in the most efficient manner possible".

The need for improved water quality reporting and a related strategy to enhance public understanding of water quality issues persists and LADWP would benefit from investing in a new and creative approach for this issue.

Relevance of 2002 Recommendations: Not Relevant

Progress Versus 2002 Recommendations: Significant Progress

iii. Work with elected officials to establish a formal Water Quality Goal for Los Angeles water, and establish, as appropriate, a contaminant level reduction program

LADWP's general goals are in its mission statements, though these are qualitative. Yet if measured against them, the Department has made some progress on this recommendation.

Although a new formal goal would not necessarily contribute to wise improvement, since compliance with regulatory requirements is essential, it must be achieved with a margin of safety. In addition, LADWP should be committed to achieving its mission by maximizing the number of satisfied customers. Any formal goal therefore would best be based on regional and system-wide surveys designed to reflect the problem areas of the City's service area. If the goal is to maximize customer satisfaction, interviews have indicated that investments in water quality improvements should be designed to improve the aesthetics of drinking water (particularly the delivery of rusty water-corrosion products of both DWP system and private plumbing), and the reduction of exposure to contaminants where significant reductions in risk can be reasonably achieved, for instance further reductions in disinfection byproducts to minimize their occurrence.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

iv. Water quality operations and issues should be benchmarked and published periodically against other large cities. Publish the general results in the Annual Water Quality Report to better inform the public as to how the water it drinks compares in quality to water in other metropolitan centers

While this recommendation appears to cover both public perception (subjective) and measured water quality (objective), they are two distinct issues that need to be separated.

First, a benchmarking study would be helpful for informing LADWP of how it compares to other large cities in terms of public perception, however publishing such comparative results in the Annual Water Quality Report would have limited value, and if distributed to the public, could be easily misinterpreted, leading customers to believe that LADWP does not meet its water quality standards.

Second, a comparison of LADWP's water quality conditions, needs, and improvements with other utilities has limited technical value. If one utility provides a harder water with higher levels of total dissolved solids, and another utility has a substantial portion of its supply directly from areas of snowmelt sources, a statistical comparison is interesting but of little value in prioritizing investment.

In essence, relative comparisons of drinking water quality between communities are of little value in assisting LADWP regarding future investments to improve its water quality. Practices with regard to assessing consumer attitudes, complaints, and further analysis of local conditions are appropriate. In other words, we believe the recommendation is highly relevant from the subjective, public perception point of view. It is not relevant from the objective, water quality comparison point of view.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some progress

v. Work with IT to develop a process to obtain automated and useful information that would allow water quality to continue the focused flushing program as needed. Develop a measurement process that compares complaints before and after the program to evaluate its effectiveness and report the results

Some progress has been made on this recommendation. Based on our interviews, while a non-targeted flushing program continues, the Department does not have a mechanism in place to track complaints versus the location of flushing. The system in place appears to be informal, and should be part of a useful database.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

vi. Establish more formal goals and objectives for the WSCS regarding response and completion time for customer inspections

The Department has made great progress on this recommendation. Its goal is to respond to all complaints within 24 hours.

Based on interviews and information provided by the Department, there are approximately fifty to sixty water quality complaints per month, resulting in ten to twelve inspections during the same period. Nearly all of them are related to interior plumbing which is not the responsibility of the Department.

Although this information is captured, there is no formal process to assess the results on a regular basis.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

vii. Solicit expert advice and establish a customer committee to assist in making the Annual Report as useful and informative as possible

The Department has not formed a customer committee and there have been no efforts to improve the usefulness of the Annual Water Quality Report.

LADWP has worked on many improvements, but the communication channels that it uses must be changed to help reduce negative water quality perceptions. The Annual Water Quality Report could benefit by professional review of other major city reports to develop a simpler, understandable version that is also balanced with regard to contaminants. New methods of communicating with customers via the Internet should be explored.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

viii. Develop a more proactive process to communicate and educate the public and community leaders about the quality of their water and the work that LADWP is doing to improve quality

LADWP has made some progress on this recommendation. In August 2007, the Department conducted a residential water customer satisfaction survey with a sample size of 257 customers and found that the quality rating had significantly improved from 2005.

LADWP has not pursued any additional ways to educate the public and community leaders other than the Annual Water Quality Report. In contrast, recently large utilities have implemented a formal annual survey to provide a range of public attitudes to aid in the improvement of service and in setting investment priorities. LADWP could benefit from a similar initiative.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

ix. Establish and document a formal, well turn-on and turn-off policy

The Department has shown no indication of pursuing a formal turn-on and turn-off policy and has not made any progress on this recommendation.

Currently, there is an informal procedure to ensure a high level of accountability for well turn on and turn off, yet there is no formal document or policy for restarting a well after it has been shut down as a result of water quality issues. The State water quality regulations provide ample policy direction on this topic and as such, the added value of a formal well turn-on and turn-off policy would be minimal. It is worth noting that a policy differs from a procedure

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Limited progress

x. Prepare a cost-benefit and legal and operational analysis, comparing the four alternatives presented in Finding 12[6].

The Department does not appear to have prepared a cost-benefit and legal operational analysis of the use of point of use (POU) devices, additional centralized treatment, home plumbing enhancements and system design changes.

Water quality at the tap, particularly in lower income multi-family units appears to be a continuing problem, and there are some options for local assistance with regard to water quality deterioration due to corroded private plumbing. However, an assumption of public responsibility for private plumbing conditions is not likely to be acceptable and it is not industry practice.

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[6] The alternative mentioned in this finding are as follows: POU devices, additional centralized treatment, home plumbing enhancements and system design changes, i.e. separate systems for tap and shower.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some progress

4. Installation & Maintenance of Water Infrastructure

Overview

The reliability of a service depends greatly on the state of its infrastructure. At the time of the previous study, all of the recommendations dealt with LADWP's capital program. There were no recommendations related to maintenance of water infrastructure. Although the capital program was still significant in 2002, the capital program has since grown to nearly $6 billion, and is likely to grow larger to accommodate several strategic initiatives such as expanding recycled water use. This means the capital program will grow to consume a larger portion of annual water system expenditures and will have an increasingly larger impact on rates.

All of the 2002 recommendations continue to be highly relevant, and the Department has made great strides in pursuing the four recommendations. With the growing rate impact of the capital program and its criticality in achieving many of the strategic goals of the Department and the City as a whole, the 2002 recommendations were timely and have laid a foundation for future initiatives to improve the execution of the capital program.

The following exhibit reflects the 2002 recommendations for Installation and Maintenance of Water Infrastructure, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Installation and Maintenance of Water Infrastructure	Main line replacement project costs collected and analyzed by the Division should include full project costs such as engineering design.	↑	○
	The project management system being developed within WETS should be more user friendly for managers by providing an exception reporting capability.	↑	○
	A time schedule should be established to determine if trunk line construction pilot projects built by Distribution crews could be implemented and sustained in a cost-effective manner.	↑	○
	Even though the in-house trunk line construction effort is a pilot project, time and cost performance targets should be established for each project prior to inception of construction and crew performance measured against those targets.	↑	○

Exhibit 5: 2002 recommendations for installation and maintenance of water infrastructure

i. Include full project costs such as engineering design in main line replacement project costs collected and analyzed by the Division

This has been implemented and includes not only direct costs such as staff time, but also overhead charges.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

ii. Enhance the project management system being developed within WETS to be more user friendly for managers by providing an exception reporting capability

Significant progress has been made in the development and use of the project management reporting system. Online access to information and reports is readily available. Reports for the quarterly management review meetings provide a good summary and status of each project, including cost and schedule variance against budgets and baseline schedules.

An exception report is available to managers and executives informally known as the "traffic light report," so named because of the use of green and red "lights" to signify whether a project is within or outside specified variance limits for the planned budget, schedule, and labor resource requirements. Every project in the report with a "red light" has a comment as to the reason for the variance.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

iii. Establish a timeline to determine if trunk line construction pilot projects led by distribution crews could be implemented and sustained in a cost-effective manner

Sufficient experience with the cost and schedule efficiency of in-house crews was obtained since this recommendation was made to draw conclusions and make recommendations in the continued use of in-house crews for trunk line construction.

Construction costs were estimated at two to three times the cost of private contractors selected through a competitive public bidding process. The reasons for this difference have not been thoroughly reviewed at this point. However, one reason for these high costs appears to be the difficulty crews have with obtaining the necessary equipment and materials in a timely manner from fleet and stores. This adds significant costs due to inefficiency and added time. Although other reasons are likely to contribute to the unacceptably high difference in cost between in-house and outside construction, the difficulty with stores and fleet precludes in-house crews from making any substantial progress toward more efficient operations.

Despite the high cost differential, top management and the commissioners decided to keep and expand the in-house trunk line construction program to a total of three crews. There were two primary reasons cited for this decision. First, having these crews in place will allow LADWP to respond more rapidly and effectively to emergencies requiring repairs to their trunk lines. Second, maintaining in-house expertise in the construction of trunk lines will enhance the ability for LADWP to retain critical expertise for what will be a long-term need for ongoing trunk line construction.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

iv. Establish time and cost performance targets for each trunk line construction project prior to inception and measure performance against those targets

The intention of this recommendation was to track time and cost for in-house crews constructing trunk lines. This information was to be used to determine if there should be a commitment to bolstering staffing to expand the trunk line construction program using in-house crews.

Time and cost for each trunk line construction project have been tracked since the trunk line construction crews were re-established. Performance targets for cost and schedule were established prior to start of construction as recommended.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

5. Prudent Management of Assets

Overview

Asset data is becoming more critical for making better asset management decisions, as utilities across the United States are experiencing aging infrastructure, increasing regulatory pressure and an aging workforce. While technology solutions for process efficiency, decision support, and data management are advancing, their use is dependant on the utilities ability to optimize those tools.

Upon analysis of the progress on the 2002 recommendations in the area of prudent management of assets, the Department has made moderate progress in most of the areas. Yet some key areas that were highly relevant then, which continue to be relevant at present have experienced limited progress and will be addressed in the current issue evaluation of this report. Those areas are: 1) the enhancement of the load forecasting capabilities and 2) providing workforce and analytical capabilities to address the volatility of the markets and the increasing regulatory demands that shape an IRP.

The following exhibit reflects the 2002 recommendations for Prudent Management of Assets, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Prudent Management of Assets	Enhance the Department's load forecasting capabilities to reflect the growing importance of this function to LADWP, as recommended by PwC in 2001.	↑	●
	Provide additional process information in the IRP report that supports the linkages between the analytical work performed and the conclusions and resource plans that are developed as a result of this work. This should include documentation clearly identifying the policy versus analytically driven inputs and the basis for IRP recommendations.	⇔	◒
	Provide system planning with appropriate manpower and analytical capabilities necessary to respond to increased requirements for more frequent IRP updates and evaluations involving numerous changes in assumptions, data and scenarios considered. This should include additional capabilities for evaluating the interplay between the market dynamics of supply and demand, and subsequent impacts on future net revenues.	↑	●
	Consider relocating the Integrated Resource Planning function out of Power Generation and place it in a neutral location that will not be influenced by the individuals responsible for building and/or operating power plants, thus eliminating the potential for a conflict of interest.	↓	○
	Develop a formal planning process and calendar that integrates and documents the tasks, responsibility assignments and due dates for all major inputs and putouts, tying together the Department's load forecasting, integrated resource planning, budgeting and risk management activities.	↑	◒
	Develop additional training programs for plant personnel.	⇔	○
	Increase emphasis on improving and maintaining in-basin generation reliability.	↑	○
	Establish an enhanced planning program for outage materials, parts and support contracts.	⇔	●
	Improve the ISS planning process to better define the work activities that are required, the resources necessary to complete the work and the time frame required to complete the work.	⇔	◒
	Re-evaluate the need for and timing of scheduled in basin plant re-powerings, in light of revised load forecasts.	⇔	◒
	Take steps to improve the credibility of the Department's Green Program. This includes formalizing the criteria for selecting programs and implementing improved management techniques to assure that program objectives are met.	↑	○
	LADWP should increase its emphasis on improving and maintaining T&D system reliability.	⇔	◒
	LADWP should develop a comprehensive T&D workforce planning program. The lack of appropriate workforce planning tools makes it difficult, if not impossible, to definitively determine whether LADWP's T&D organization is over-staffed or understaffed. A comprehensive workforce planning program will help to ensure that each group with the T&D organization is sized correctly in the future.	⇔	●
	The PT&DBU should institute a new project management process that incorporates the tools and positive aspects of its current process as well as certain enhancements.	⇔	◒

Exhibit 6: 2002 recommendations for prudent management of assets

i. Enhance the Department's load forecasting capabilities to reflect the growing importance of this function to LADWP, as recommended by PwC in 2001

The long-term load forecasting methodology involves an econometric energy based model that is not atypical for electric utilities. The short-term forecast (up to 18 months) is based on slightly different assumptions, but is trued up with the long-term model in the 18-month time frame.

There is still significant progress to be made here. Specifically, the models need to be upgraded to newer technologies and the modeling methodologies need to be enhanced to allow greater incorporation of the load impacts resulting from growing efforts in energy efficiency, demand side management, and changing load dynamics. In addition, the Department needs to promote greater staffing redundancy, as a single analyst remains responsible for all aspects of the long-term forecast.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

ii. Consider relocating the Integrated Resource Planning function out of Power Generation to eliminate the potential for a conflict of interest

This recommendation has been adequately addressed. Resource Planning, which resides in Power Systems but not Power Generation, is now responsible for developing the IRP. However, this was not a significant potential for conflict of interest since LADWP policy was to build and own its own generation and transmission infrastructure, with little indication of deviation from that policy.

Relevance of 2002 Recommendations: Not Relevant

Progress Versus 2002 Recommendations: Significant Progress

iii. Develop a formal planning process that integrates and documents all tasks, responsibility for assignments and due dates for all major inputs and outputs, tying together the Department's load forecasting, integrated resource planning, budgeting and risk management activities

Such a formalized planning process does not appear to exist. Typically, the IRP process would include all of this planning. The IRP is run according to a collaborative yet largely informal process. The IRP management team solicits input from most Department organizations individually, constructs the plan, and iterates as comments and revisions flow in.

The Department's original IRP was released in 2000, and another was not released until 2007. The process was initiated in both 2003 and 2005, but no formal IRP document was issued, as other priorities and the likely need for overhaul given pending RPS discussions derailed the process. It is likely that more frequent updates will be required in the future, given the rapidly changing electricity market environment, a challenge that will require more formalized planning processes.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

iv. Develop additional training programs for plant personnel

Safety and training were moved to their own organizational silo for a while, creating an overly bureaucratic situation where safety concerns and training needs were difficult to escalate in a timely manner. This function has moved back into Generation and the other line organizations, creating a more effective and focused approach. In Generation, individual plant managers now assume greater responsibility for safety and training. As an example of this, a new class of steam plant assistants (20-30 people) are hired each year and assigned a 2-3 year training program.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Significant Progress

v. Increase emphasis on improving and maintaining in-basin generation reliability

At the time of the 2002 Survey there was significant uncertainty as to how deregulation would impact the future of gas-fired generation in the basin. In addition, starting in 1996, all available funds were put towards retiring the Department's debt, not towards infrastructure upkeep or improvement. Maintenance efforts at the time were focused on short-term performance rather than preventative maintenance. While this impacted the fleet's reliability, DWP's generation capacity cushion at the time was generous enough to absorb the occasional plant outages.

With its aging fleet of plants, tightening reserve margins, and RPS-driven trend towards intermittent generation, DWP has been forced to emphasize unit availability. As a result, the philosophy has since changed, with the Department's focus shifting from reactive maintenance to more proactive programs. The focus of the current director and the strategic plan emphasizes improving availability and reducing forced outages, accomplished through increased inspections and a preventative maintenance philosophy. Effectiveness is monitored through tracking of capacity factors, availability, and forced outage rates.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

vi. Re-evaluate the need for and timing of scheduled in basin plant repowerings, in light of revised load forecasts

This should be part of any ongoing IRP process – load forecasts and projects should be routinely reviewed to determine need. Repowerings may also be driven by other concerns in addition to load forecasts, including unit flexibility and dispatchability.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

vii. Take steps to improve the credibility of the Department's Green Program. This includes formalizing the criteria for selecting programs and implementing improved management techniques to assure that program objectives are met

The credibility of the Green Program has been significantly enhanced in recent years, both internally and externally. The Energy Efficiency program has been more effectively managed, with investment decisions made according to more robust cost metrics (expressed in dollars per unit of energy saved).

Programs such as the low-income refrigerator exchange and small business direct install have proven to be cost-effective load reduction measures that also lower bills for DWP customers most in need of assistance. Progress has been closely monitored – the current program is now audited by a third party via site visits, phone calls, and other follow-up surveys.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

viii. Provide additional process information in the IRP report that supports the linkages between the analytical work performed and the conclusions and resource plans that are developed as a result of this work

The IRP as presented does not provide ample analysis or scenario consideration to support its decisions. While much of the appropriate analysis may have been performed – as part of the 5-yr Fuel and Purchased Power Budget, for example – the IRP as published provides only limited identification of sensitivities or risks. It provides a plan and appears to proceed under the assumption of that plan's feasibility, without sufficient discussion of the potential impacts stemming from significant issues or risks identified (e.g. transmission development risks which threaten the ability to meet RPS targets).

Greater analytical rigor will become increasingly essential as more renewable energy generation is added to the plan. Also, financial analysis regarding the potential impacts of ECAF on rates should be included with each IRP.

The IRP features some figures and text-based discussion that seemingly point to a coordinated approach, but we have not received any supporting process documents and schedule.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

ix. Provide system planning with appropriate workforce and analytical capabilities necessary to respond to increased requirements for more frequent IRP updates and evaluations involving numerous changes in assumptions, data and scenarios considered. This should include additional capabilities for evaluating the interplay between the market dynamics of supply and demand, and subsequent impacts on future net revenues

Resource Planning remains handicapped by its limited analytical capability. As discussed, since the original IRP was completed in 2000, just one additional IRP has been completed (2007). The Department's focus has changed significantly since the 2002 Survey. Aggressive RPS targets, the trend away from coal-fired generation, and the specter of greenhouse gas regulations together create an environment that demands more frequent IRP updates. Aborted IRP efforts, such as those initiated in 2003 and 2005, could undermine the Department's ability to most effectively address challenges related to RPS and other requirements in a rigorous manner.

Greater analysis surrounding RPS impacts, load characteristics changes, energy efficiency, transmission, fuel, and generation types will result in a significantly improved IRP process. More sensitivity analyses will be necessary to advance the development of the IRP, which will require the acquisition of new system technology and fostering of greater analytical capabilities of the staff. Enhancement of these systems and capabilities will enable the Department to complete more frequent analyses in a more timely fashion. They will also facilitate a more team-oriented approach to planning, with the ability to address all Department concerns and developments ultimately adding to the effectiveness of the plans adopted.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

x. Establish an enhanced planning program for outage materials, parts and support contracts

This recommendation is essential to reducing the planned outage times for generation units, transmission lines, and substations. This problem still exists and minimal progress has been made, due in large part to the ongoing issues with the procurement and supply chain process. Without significant improvement to the procurement process and the addition of a more effective material management system, this recommendation cannot be achieved.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Limited Progress

xi. LADWP should increase its emphasis on improving and maintaining T&D system reliability

The Power Reliability Program (PRP) is a significant first step in addressing LADWP's aging infrastructure to help improve overall system reliability. This program is primarily focused on failing lead cable, deteriorating poles, and overloaded pole top transformers. It also focuses on other aspects such as replacement of deteriorating vaults and other aging infrastructure such as power transformers.

This program will need to be reviewed annually to ensure it is achieving its reliability goals. While it is a good start, it might ultimately need to be enhanced or redirected. Other nascent programs, such as the recently introduced program to identify underperforming feeders using reliability metrics, will need to be leveraged and further developed. A more robust reliability program, coupled with an enhanced asset management program, would represent progress

in the improving effort to address the aging infrastructure and provide for the long-term reliability of the system.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

xii. LADWP should develop a comprehensive T&D workforce planning program. The lack of appropriate workforce planning tools makes it difficult, if not impossible, to definitively determine whether LADWP's T&D organization is over-staffed or understaffed. A comprehensive workforce planning program will help to ensure that each group with the T&D organization is sized correctly in the future

There does not appear to be any comprehensive tool or metric to determine if LADWP is appropriately staffed. There have been some assumptions made that are included in the budget forecast as to the number of linemen or other field workers required in order to accomplish existing or emerging work such as the PRP. However, until the Department expands its growing effort to evaluate decisions on a cost per unit effort, staffing needs and program effectiveness will be difficult to accurately quantify.

Significant aspects of workforce planning were not tasked to the Human Resource (HR) Department until very recently. An effective and efficient workforce planning strategy will enable DWP to understand staffing needs relative to major losses and future initiatives in a more proactive manner. How effectively HR will work closely with the Water and Power Systems to address workforce needs remains a question.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Limited Progress

xiii. Improve the ISS planning process to better define the work activities that are required, the resources necessary to complete the work and the time frame required to complete the work

Integrated Support Systems (ISS) is implementing Maximo, a new work management system, and has improved the Department's ability to plan work activities. However, issues within the procurement and material management departments continue to hamper the implementation of effective work planning and outage scheduling.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

xiv. The PT&DBU should institute a new project management process that incorporates the tools and positive aspects of its current process as well as certain enhancements

There does not seem to be one overarching project management/work scheduling process or software at LADWP – various project management tools are employed, with selection depending on the complexity of the job. WMIS is used to schedule routine line work, while

Maximo is employed for generation and substations. For moderately complex jobs, the project managers still rely on Microsoft Project. For large, complex, vendor design/build the project management software is left to the discretion of the contractor.

While this system appears to be performing adequately to date, further investment in systems infrastructure may be warranted. This need may soon become particularly acute given the projected near-term increase in transmission development, which may not be seamlessly integrated without more robust management tools.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

6. Power Services Financial Management and Control

Overview

A utility's financial success is in part tied to good monitoring and management of its financial activities. For that to take place, processes, procedures, analysis, and knowledgeable staff must be present.

After an assessment of the progress on the 2002 recommendations, LADWP showed average progress overall. One of recommendations that remained relevant to-date and showed limited progress was tied to succession planning and lack of training of additional personnel to handle the financial model used at the Department. Both succession planning and training will be subject for further review and potential recommendations to tackle that problem will be introduced in a latter part of this report.

The following exhibit reflects the 2002 recommendations for Power Services Financial Management and Control, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Power Services Financial Management and Control	Develop a succession plan for the analyst responsible for maintaining the financial model, so that in the absence of this employee, financial modeling tasks can be fulfilled in an effective and efficient manner by other Department personnel.		
	Ensure organizational key activities and initiatives are integrated with the budgets through the use of activity-based management or the existing functional item/job structures		
	Improve the effectiveness and consistency of the responsibility budgeting process.		
	The Department should take additional steps to ensure that resources are allocated in a proactive, consistent manner by employees, and information, gathered through variance reporting and analysis process, is utilized to control spending.		
	Corporate Purchasing Services should evaluate the frequency and nature of the use of EPOs, to identify instances in which EPOs are used for purposes other than true emergencies. Once the problem has been identified, potential solutions can be developed and implemented.		

Exhibit 7: 2002 recommendations for power services financial management and control

i. Develop a succession plan for the analyst responsible for maintaining the financial model, so that in the absence of this employee, financial modeling tasks can be fulfilled in an effective and efficient manner by other Department personnel

The status of this issue has not changed since the 2002 Survey. No redundancy appears to have been developed, as the same individual remains the only person capable of running all aspects of the model. The model currently remains excel-based and takes nearly a full day to run. In addition, several directors and managers from other organizations cited difficulty in communicating effectively with the Financial Services Organization (FSO).

This is still of great concern, given the critical importance of the model in day-to-day activities as well as the general desire internally to not only sustain but also enhance the Department's analytical abilities.

While progress to date has been limited, the Department's management is well aware of the risk and handicap associated with its reliance on a single analyst and an outdated model, and appears poised to take corrective action. DWP is currently exploring new software options (e.g. Utilities International) to replace the "home-built" model, which would diversify the Department's competency base and ultimately allow expedited completion of more robust scenario analyses. In addition, discussions regarding the communication gap cited by many are ongoing, and it appears likely that the long-term load forecasting analyst and the bulk of the financial modeling responsibilities will be moved to Resource Planning, Procurement & Development, where they can more be more appropriately leveraged to provide supporting analysis related to planning and development projects.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

ii. Ensure organizational key activities and initiatives are integrated with the budgets through the use of activity-based management or the existing functional item/job structures

The Department developed an activity-based costing/management (ABC/M) tool, but integrating this framework into their existing mainframe proved difficult. Due to the implementation complexity and cost relative to the value to be received, they have since moved away from ABC/M.

Instead, they are currently working on developing cost/units and other KPIs around deliverables. There is a small-scale pilot program currently under development in the budget department, focused largely on the energy efficiency program. There remains significant work to be done in this area, with system upgrades or replacements required to effectively provide the necessary information in a timely manner. However, successful development of a robust cost per unit evaluation process would be a major improvement. Many industry participants have moved in this direction, so the Department would benefit from continuing this effort.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

iii. Improve the effectiveness and consistency of the budgeting process

Significant progress has been made in this area. In 2001, Board review was limited, as were opportunities for public review. While the budget system itself could benefit from further upgrades, the Department has significantly refined its processes and general rigor.

The governance process in general has been upgraded significantly. Today, greater transparency and public review is promoted. Each organization develops its own budgets, which are then reviewed with justifications by Department management. The complete budget is then subject to rigorous Board review, a process that takes place over 5 days of publicly televised hearings.

Beginning in 2006 a very rigorous schedule, standardized reports, standardized data sources, and budget development and review processes were instituted. The budget team now trains appropriate personnel on the submission process, thus making the process more efficient and informative.

The budget development is determined according to a zero-based philosophy and all discretionary projects must be justified on a net present value (NPV) basis. A standard budget policy regarding budgeting for forced outages and costs associated with unplanned outages and other emergencies has been implemented. In addition, a budgeting, analysis, and variance reporting procedures manual has been developed.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

iv. Corporate Purchasing Services should evaluate the frequency and nature of the use of EPOs, to identify instances in which EPOs are used for purposes other than true emergencies. Once the problem has been identified, potential solutions can be developed and implemented

DWP has much room for improvement in its Supply Chain management. The process has been encumbered by paperwork demands, lack of resources, and suboptimal process automation. Backlogged orders, insufficient visibility into stock levels, and a lack of connection to the business planning process have resulted in an inability to acquire sufficient materials and services for the Department, leading to the relatively high reliance on EPOs.

Supply recognizes this is a significant problem and indicative of the problems within its organization to act in an efficient and timely manner. To tackle this challenge, the Department is implementing Maximo, a supply chain management platform that will enable more effective tracking of material requirements such as stock levels, ordering, bills of material/kits, and inventory reconciliation. In addition, DWP is plans to launch an 'e-procurement' solution in January 2009 that would address bidding, receipt, and supplier management.

While DWP appears poised to make progress in this area, the installment of KPIs for material availability, stock outs, and inventory churn would enhance the current developments being discussed.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Limited Progress

v. The Department should take additional steps to ensure that resources are allocated in a proactive, consistent manner by employees, and information, gathered through variance reporting and analysis process, is utilized to control spending

Variance reports are produced monthly, with significant budget category variations of greater than $250,000 requiring investigation as well as justification to both management and the Board. Additionally, there are performance reports and net income statements generated.

However, the focus is typically absolute variance from a dollars perspective, rather than from a dollars and work completed perspective, and thus fails to emphasize accomplishments made per dollar spent. System upgrades may be necessary to expedite the release of more timely monthly variance reports, which are currently not finalized until 6-8 weeks after month end, thus limiting their importance.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

7. Gas Procurement and Wholesale Trading

Overview

Utilities such as LADWP are required to procure and actively manage extremely large amounts of fuel (e.g., coal, natural gas, or fuel oil) and manage associated logistics (transportation and storage) to successfully conduct power operations. Although the strategic framework and authorizations within which these procurement and trading functions operate is often restricted, utilities with business strategies that focus on least cost procurement and high service reliability such as LADWP require an infrastructure with dedicated "People, Processes, Technologies, and Governance" to effectively manage operations.

Recommendations emerging from the 2002 Survey included aspects of procurement, trading, and commodity risk management. Our analysis suggests that the majority of recommendations made in 2002 remain highly relevant in 2008. Unfortunately, progress implementing changes against the recommendations has in many cases been limited. A number of still highly relevant recommendations form the basis of a strong risk management and commodity procurement function, including centralizing risk management functionality, developing a long-term gas procurement program and strategy, and enhancing the role of risk management in complex analytics (among others).

The following exhibit reflects the 2002 recommendations for Gas Procurement and Wholesale Trading, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Gas Procurement and Wholesale Trading	Create a Risk management unit that focuses solely on risk management and control for the entire Department. The Risk Management unit should not execute any operational risk management tactics, such as, physical or financial hedges, other than traditional insurance policies. Rather, the unit should operate as an independent check and balance to the various units within LADWP that do execute risk management tactics as part of their normal operations.	↑	▬
	Redevelop Power Supply Operations gas supply portfolio management capability in light of the decisions to retain generation capability and to expand the gas fired generating capacity. Capabilities should be appropriate for the tens of BCF of gas procured and hundreds of millions of dollars expended each year.	⇔	▬
	As Power Supply Operations rebuilds its gas supply portfolio management capability, centralize the responsibility for natural gas supply portfolio management, including both physical and financial hedging strategy and execution, in the Power Supply Operations organization. This places full responsibility and accountability for natural gas supply reliability and total cost in the organization responsible for generating electricity with the gas.	↑	▬
	Develop a comprehensive, long-term gas procurement strategy.	↑	●
	Continue to work with the Mayor, City Council and Controller offices to develop more gas procurement strategy options and capabilities. If the current proposed ordinance is passed, the expanded capabilities should be included in the Power Supply Operations gas procurement strategy (see Recommendation 3). After the gas procurement strategy is developed consistent with all ordinances and procurement regulations, it should be evaluation for its ability to achieve Power Supply Operations objectives. If it is inadequate to meet the needs or additional tools are needed to reduce risks or costs, then LADWP should work with the City to add the tools necessary to meet Power's goals at the lowest cost to the rate payers. For example, the City's generic purchasing terms and conditions may be limiting the number of competitors for the LADWP gas supply business unnecessarily. It may be possible to modify the terms and conditions for gas supply contracts in a way the meets the spirit of the city's requirements without excluding potential suppliers.	↑	▬
	Place priority on completing the Department's energy services risk management policies and procedures. Wholesale Marketing should complete the effort that they have been working for the past year as soon as is feasibly possible. These policies should be reviewed by the Risk Management Committee and the Risk manager and approved by the General Manager no later than the end of September 2002.	↑	○
	Enhance the Department's revenue management capabilities by expanding the domain of risk management activities to include load forecasting uncertainties and impacts of voluntary demand conservation and curtailment programs by making use of dynamic financial models linking cash flow with retail sales and budgeting for capital projects.	↑	▬
	To avoid the appearance of a conflict of interest, have a firm other than PwC conduct the gas procurement hedging program annual compliance audit. The consultant used to develop and review risk management policies and procedures should be different than the firm that audits LADWP's compliance with these procedures.	⇔	○

Exhibit 8: 2002 recommendations for gas procurement and wholesale trading

i. Create a Risk management unit that focuses solely on risk management and control for the entire Department

The risk management function, or Middle Office, does not execute energy commodity transactions (physical or financial); this is consistent with common Best Practice standards.

However, the Middle Office remains organized in a manner inconsistent with common Best Practice: the risk management function appears to reside in multiple parts of the organization. Specifically, aspects of the Middle Office reside in the CFO's organization, as well as the Wholesale Energy Resource Management Group.

Centralization of risk management and control is an important step toward increasing the maturity of the overall function within the Department. Centralization will facilitate coordination, efficient and accurate reporting, and strengthen checks and balances. In spite of the fact that little speculative trading occurs, the current structure violates common Best Practice standards (as noted by auditors recently and acknowledged by many DWP staff).

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

ii. Redevelop gas supply portfolio management capability in light of the decisions to retain generation capability and to expand the gas fired generating capacity

There has been some progress here. While LADWP scaled back its storage capacity from 2 BCF to 0.5 BCF, it compensated by purchasing its own natural gas reserves in 2005, providing gas supply at significantly below-market rates.

However, the analytical rigor associated with natural gas procurement does not appear to have been updated. The gas procurement group has shrunk from 8 people to 3 people, and while LADWP procures about 70 billion cubic feet (BCF) of natural gas annually, the procurement organization has very little analytical ability currently. Further, they do not follow the market closely and have not completed significant analysis of storage opportunities.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

iii. Centralize the responsibility for natural gas supply portfolio management, including both physical and financial hedging strategy and execution, in the Power Supply Operations organization

These responsibilities are not centralized at this time. Financial hedging takes place in FSO, while physical hedging still takes place in the Wholesale Energy Resource Management Group. In general, there appears to be very little communication between the individuals responsible for physical gas procurement, physical hedging, and FSO. However, there are preliminary discussions taking place that would relocate load forecasting and key financial modeling functions to the Resource Planning, Procurement, and Development organization, which would serve to address this need.

Varying forecasting rigor between the hedging and procurement functions has the potential to create hedge positions that are inconsistent with physical purchases. Before implementing appropriate hedges, FSO uses Prosym (a common industry production cost model) to identify gas needs and a price diffusion model to project prices with a 95% confidence level. It does not appear that the procurement team performs similarly robust analyses.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

iv. Develop a comprehensive, long-term gas procurement strategy

While progress has been made in certain areas, it does not appear that a comprehensive overarching long-term gas procurement strategy exists at this time. As noted storage opportunities (which could provide the Department additional supply flexibility) have not been fully evaluated, and the gas procurement team does not have the necessary technology to identify generation's needs or follow the markets.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

v. Place priority on completing the Department's energy services risk management policies and procedures

DWP appears to have completed its energy services risk management policies and procedures.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Significant Progress

vi. Continue to work with the Mayor, City Council and Controller offices to develop more gas procurement strategy options and capabilities

Increasing the number of "tools" that can be used in day-to-day gas procurement activities will continue to be important, as the Department changes the composition of its asset portfolio and is required to meet fluctuations in load with gas assets.

As noted, there does not appear to have been much progress made in the documentation of an overarching gas procurement strategy.

Board requirements tend to make the procurement process time-consuming, though recent governance changes have made the process somewhat less restrictive. Among other processes, deal approval requires GM review, environmental committee review, and at least one public hearing. As a result, approval can take more than 6 months. Standardized North American Energy Standards Board (NAESB) contracts were implemented to expedite deal completion while maintaining proper controls, but the standard terms have at times turned off potential counterparties. One improvement that has been made recently has been to give procurement the ability to send Master Service Amendments to the Board only to receive approval, thus accelerating the process in certain cases.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

vii. Enhance the Department's revenue management capabilities by expanding the domain of risk management activities to include load forecasting uncertainties and impacts of voluntary demand conservation and curtailment programs by making use of dynamic financial models linking cash flow with retail sales and budgeting for capital projects

Risk management activities have been upgraded to consider load forecasting uncertainties, but still do not accurately account for the impacts of energy efficiency progress or ongoing introduction of renewable energy generation. Before implementing appropriate hedges, FSO employs Prosym to identify gas needs and a price diffusion model to project prices with a 95% confidence level. However, load forecasting efforts remain deficient where energy efficiency and DSM impacts are concerned.

The financial model is bifurcated into debt service, labor/operations & maintenance, and fuel budget. There is some concern that the models are not "synched" appropriately, potentially creating a situation where a perceived ability to absorb a certain dollar impact on the gas budget side, for example, could be overwhelmed by shortfalls in other areas.

In general, as with all risk management functions, the Department would benefit from greater capabilities, depth of analyses, and an expanded suite of tools used to support risk management, load forecasting, and general resource planning.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

viii. To avoid the appearance of a conflict of interest, have a firm other than PwC conduct the gas procurement hedging program annual compliance audit

The general external audit is now conducted by Deloitte & Touche, so the aim of this recommendation has been fulfilled.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Significant Progress

8. Business Information Systems

Overview

Utility operations are characterized by a large number of software applications (or business information systems) and related business processes and data management protocols. In today's highly complex utility environment, access to highly accurate sources of data and the use of flexible analytical tools enables more rigorous long-term resource planning, facilitates better real-time decision-making and responsiveness to changes in supply and demand, and results in the submission of more timely and accurate analyses to a variety of key stakeholders (including regulatory authorities).

Software applications play a critical and central role in a variety of areas within any utility operation, including customer service, financial management, project management, inventory management, control center monitoring, energy trading and risk management, and geographic information management (to name a few). While successful utilities have closely integrated systems and associated processes and protocols, outdated business information systems can hinder aspects of the entire end-to-end utility business process – from meter-to-cash, procure-to-pay, hire-to-retire, customer service, to on-going assessments of resource adequacy, to supply delivery, and finally monetization of accounts receivable.

Importantly, no single software solution perfectly meets the desired specifications. Therefore, utility operations are characterized by a patchwork of off the shelf (OTS) and proprietary software solutions, data warehouses, and business processes. Managing this environment is extremely complicated, and is often characterized by manual data flow and business processes, poor internal control, and importantly, the dissemination of inaccurate information.

The following exhibit reflects the 2002 recommendations for Business Information Systems, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Business Information Systems	Revise the structure and process for managing business information system applications. Business units should be responsible for all business information systems	↓	●
	Redefine ITS as an information technology utility for the Department, responsible for information technology, as opposed to information systems support	⇔	◡
	The ESC should evolve into an information technology and systems forum that focuses on education and business unit coordination of systems issues	⇔	●
	Reassign the material management system responsibilities to the individual business units	↓	●

Exhibit 9: 2002 recommendations for business information systems

i. Revise the structure and process for managing business information system applications. Business units should be responsible for all business information systems

A range of options exists for the management of utility software applications – from centralization in a shared service organization, to decentralization into each business segment, to a hybrid whereby certain functions reside in the business (and whereby IT personnel provide service and reside in the business). In short, the structure and process for managing the primary enterprise-wide systems should remain with ITS to best optimize IT-related personnel, facilitate cross-training, career development, and workforce planning, enable better communication across IT efforts, and consolidate complex IT implementation project management efforts ·The Water and Power Systems should be evaluated on the execution of their core business; expanding that requirement to the management of IT systems would potentially dilute the appropriate business focus.

However, each System should take active involvement in the identification and execution of IT projects. Planning for major work effort (including development of the business case) should be a combined effort between the business and ITS. Prioritization should be based on a variety of factors, including current technology gaps versus business requirements, corporate mission, goals, and objectives, cost/benefit analyses, age of application, etc. On-going process improvement that is related to systems (including data flow management) is

the responsibility of process owners in each System, and should be enhanced in the "normal course of business".

Relevance of 2002 Recommendations: Not Relevant

Progress Versus 2002 Recommendations: Limited Progress

ii. Redefine ITS as an information technology utility for the Department, responsible for information technology, as opposed to information systems support

Utilizing activity-based management as a mechanism to "charge" each business for the use of ITS resources is a valid and reasonable approach. In general, service orientation from ITS to the Systems should increase and be formalized through the development of Service Level Agreements (SLA); SLAs are a fundamental aspect of any IT service organization, and set the guidelines for responsiveness and boundaries of responsibility. ·Further, vendor management (including all contracting with IT vendors) should be maintained in ITS, and developed as a core skill set of the group; leadership across the Department should strongly support this model, and transition relationships out of the business.

As noted above, there are flexible resourcing and organizational design alternatives around the provision of IT services For instance, ITS resources who provide application, business process, and data management support should report directly to ITS, but have a dotted line reporting to the business; a strong understanding of the business is a critical feature of enhanced service levels.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

iii. The ESC should evolve into an information technology and systems forum that focuses on education and business unit coordination of systems issues

In general, informational sessions on IT issues and additional outreach efforts are a positive method of creating an inventory of new or emerging IT service requirements, assessing the progress to-date of key IT programs, and generally enhancing communication between the business and ITS. Open forums and informal "brown bag" events provide transparency into progress reporting and changing priorities, which when combined with successful execution of IT strategies can inspire greater confidence in ITS.

According to interview notes collected to-date and organization charts dated July 2008, the Executive Strategy Committee (ESC) no longer exists within the Department. However, Executive Meetings (comprised of the GM, AGM, and direct reports) are conducted monthly; in addition, the Major Initiative Teams have been organized to address relevant strategic issues impacting the Department. While the Major Initiative Teams (comprised of leadership across the Department) offer a forum to discuss major issues, there does not appear to be an open forum as recommended in the 2002 Survey. We believe such forums can be extremely valuable tools to increase transparency into project management and progress-to-date on critical initiatives, and increase trust and confidence in ITS.

Finally, the responsibility for applications strategy should remain with ITS (working in close consultation with each System); the Board of Commissioners and any other relevant committee in the governance hierarchy should continue in its oversight and authorization role – specifically, approval of the overall IT strategy, as well as authorization of IT-related policies.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Limited Progress

iv. Reassign the material management system responsibilities to the individual business units

Material management was identified as a key focus area for IT in the 2002 Survey. At that time, the existing material management system was found to be ill-equipped to enable effective materials management across the Department. Given the distinctive needs across each System (and failed prior attempts at implementation of a materials management system), the recommendation for distinct applications in each System was made.

As above, elimination of redundant applications should be, and currently is, a core objective of the Department. (This objective is affirmed in the presentation, "LADWP: IT Strategic Agenda", in which redundant systems is cited as the leading cause of high IT costs.) In order to optimize all aspects of IT capital (time and financial), efforts are currently underway to standardize the material management application across the Systems. It is the hope of the Department that successful transition to a single application, in combination with revised data management and business processes and "ways of working", will prove less costly than distinct applications across the Water and Power systems.

Relevance of 2002 Recommendations: Not Relevant

Progress Versus 2002 Recommendations: Limited Progress

9. Workforce Planning, Training and Succession Planning

Overview

The success of an organization depends on several variables. One of those variables is a skilled and committed workforce. Hence, it is imperative for an organization targeting some level of success to address issues related to Human Capital including workforce planning, training and succession planning.

Workforce planning relates to practices that ensure an organization possesses the correct number of people with the skill sets needed to perform required duties. In the event of changes in job descriptions or the nature of the work being performed, it is important to train the workforce as new skills are needed or in general for career development. Succession planning relates to the processes that ensure the continuation of business as usual, should key personnel decide to leave their post or the organization in its entirety.

Our findings to-date indicated that a consolidated approach to workforce planning, training and succession planning is generally lacking at the Department.

The following exhibit reflects the 2002 recommendations for Workforce Planning, Training and Succession Planning, and current relevance and implementation progress to-date:

Focus Area	Recommendation	Relevance	Progress
Workforce Planning, Training and Succession Planning [Preliminary scores are based on interview results only. Documents have been requested to complete this analysis]	Develop the budgeting process and the position budgeting and control system to include a comprehensive workforce planning process		
	The Department should engineer each of the employee related human resources processes to reduce time necessary to complete tasks, including: recruiting, testing, interviewing and hiring; class changes and consolidations; new or changed position requisitions/justifications; personnel transfers; promotions; and position transfers. This will enhance the Department's capability to have the right number of the right employees in the right positions at the right times. There will be fewer vacancies in positions needed to serve the Department's customers		
	Develop mandatory management and supervisory training and development programs for each supervisory and management level		
	Establish a formal executive succession planning process that is consistent with civil service rules and labor agreements.		

Exhibit 10: 2002 recommendations for workforce planning, training and succession planning

i. Develop the budgeting process and the position budgeting and control system to include a comprehensive workforce planning process

Developing an effective and efficient workforce planning strategy allows a company to understand its staffing needs relative to major losses and future initiatives.

At LADWP, significant aspects of workforce planning were not tasked to the HR unit until very recently, thus there has been limited progress in regards to this recommendation. Knowledge Loss Risk Assessments and other common tools that would add insight onto workforce planning are not used at this time. Further, how effectively HR will work with the Water and Power systems to address workforce needs remains a question.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

ii. Engineer each of the employee related human resources processes to reduce time necessary to complete tasks, including: recruiting, testing, interviewing and hiring; class changes and consolidations; new or changed position requisitions/justifications; personnel transfers; promotions; and position transfers

There are indications that innovative efforts have emerged to curb lengthy and cumbersome HR processes such as hiring. For instance, HR has trained some of its staff to administer the civil service tests required to become part of the pool of eligible applicants for LADWP positions and recently held its first job fair in Los Angeles.

In addition, Human Resources-sponsored training on civil service and union rules are now offered on a recurring basis. While these efforts are steps in the right direction, it is also crucial that while making these changes, the HR department engages the Power and Water

systems to inform them of these efforts, thus modifying a negative image of ineffectiveness in hiring, testing, personnel transfers and other HR functions.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Some Progress

iii. Develop mandatory management and supervisory training and development programs for each supervisory and management level

Mandatory leadership and project management training is not, at present, an aspect of the overall training program as recommended in the previous survey. However, the HR unit has recently established the LEAD program and has made enhancements to the supervisory training program through the introduction of a Team Leader Series, comprised of five modules that will prepare individuals, as part of succession, to assume the role of supervisor.

In addition, the HR unit is currently working with outside consultants to introduce a new executive leadership program.

Relevance of 2002 Recommendations: Moderately Relevant

Progress Versus 2002 Recommendations: Some Progress

iv. Establish a formal executive succession planning process that is consistent with civil service rules and labor agreements

There is no formal executive succession planning process in place.

The water distribution unit under the Water System has introduced a succession planning initiative that includes the rotation of supervisors and superintendents to become familiar with the entire system, thus providing with a greater depth of expertise which would allow them to become suitable candidates for a promotion. We are not aware of such efforts in any other unit within the Water System or the Power System, therefore the number of critical positions "at risk" for leaving the organization with little or no succession planning is very high.

Although most executive positions are exempt positions, the Department continues to encourage "promotion from within," yet no process targeting the right mix of experience and skills for key executive positions is being developed. Such process would prove highly beneficial in this environment.

Relevance of 2002 Recommendations: Highly Relevant

Progress Versus 2002 Recommendations: Limited Progress

3.1.3 Concluding Thoughts

Recommendations from the 2002 Survey addressed the LADWP's organizational structure, staffing, business processes, and technologies (among others). Our findings suggest that seven of the 2002 recommendations remain "Highly Relevant" with "Limited Progress" made. This represents just over 10% of the total recommendations made. These most critical recommendations are in Strategic Planning (2), Prudent Management of Assets (2), Power

Services Financial Management & Control (1), Gas Procurement & Wholesale Trading (1), and Workforce Planning, Training & Succession Planning (1). The remainder of the recommendations breakdown as follows:

Relevance	Progress	Percentage	Total
Highly Relevant	Limited Progress	11%	52%
	Some Progress	24%	
	Significant Progress	17%	
Moderately Relevant	Limited Progress	10%	38%
	Some Progress	25%	
	Significant Progress	3%	
Not Relevant	Limited Progress	5%	10%
	Some Progress	0%	
	Significant Progress	5%	

Exhibit 11: Key characteristics of Relevance and Progress implementing 2002 recommendations

As reflected above, we found the majority of 2002 recommendations to be "Highly Relevant', with 90% to be "Highly" or "Moderately Relevant"; of that 90%, "Significant Progress" was only made for 20% of the most relevant recommendations.

To that end, clearly defining the responsibility within LADWP for 2002 findings and the process according to which recommendations were rejected or accepted is unclear, resulting in a lack of definitive record-keeping as to how or why recommendations were or were not accepted. As noted previously, we believe the last progress report specifically written in relation to the 2002 Survey was generated in January 2004, and provided to the Audit, Finance, and Risk Management Committee. The memo provides a high-level review of the most significant findings and recommendations, and actions taken at that time. However, ownership of recommendations with a specific account of implementation progress subsequent to January 2004 is unclear. Establishing clear accountability for the recommendations emerging from this Survey is a critical requirement.

3.2 CURRENT ISSUE ASSESSMENT

3.2.1 Approach to Issue Assessment

The second task of the Assessment of Strategic Issues is focused on conducting a comprehensive environmental scan (external and internal), and compiling an inventory of current strategic issues to which the Department must be responsive.

The remainder of this section provides a detailed inventory and review of the current issues facing the Department, and the organization's relative level of preparedness to meet said challenges.

3.2.2 Current Issue Inventory

The RFP identified certain issues that the City's stakeholders consider important, and that will have a significant impact on the future of Department operations. The current issue list included in the RFP focuses heavily on external issues. However, we believe that several internal issues impact the Department's ability to address threats and opportunities identified in an external, environmental scan.

Additions to the issues provided in the RFP were derived through interviews, evaluation and assessment of Department documents, and the collective experience of the consulting team working with similarly situated investor owned and municipal utilities. Section 3.2.3 provides the full inventory of current issues evaluated as an aspect of the 2008 Survey.

3.2.3 Detailed Current Issue Assessment

a. WATER RELATED ISSUES

Issue	Source
Sacramento-San Joaquin Delta Court Judgment	RFP
Sacramento-San Joaquin Delta Levy Reconstruction and Maintenance	RFP
Owens Valley Environmental Restoration	RFP
Increasing dependence on Metropolitan Water District (MWD)	RFP
San Fernando Ground Water Contamination	RFP
Water Conservation Efforts	RFP
Consumer Confidence in Water Quality	RFP
Capital Program	PA
Recycled Water & Comprehensive Water Planning	PA
Water Rates & Charges	PA
Water Quality	PA
Asset Management	PA

Exhibit 12: Current issues – water

i. Sacramento-San Joaquin Delta Court Judgment

Issue Overview

This item and the next cover issues that are intertwined. The levee and court decision issues are part of a broader concern for the reliability of future water supplies that are delivered to MWD via the State Water Project (SWP). Therefore, the response to both of the issues should be read together.

Plans, Strategies and Policies to Address Issue

Numerous laws have been adopted to protect environmental values including: the Endangered Species Act, the Clean Water Act, and in California, The Porter Cologne Act.

These laws have provided a basis for challenge to regulatory decisions on how much water to allocate to various uses in and around the Delta. The combined effect of these laws and regulatory decisions has been to give a priority to possible benefits to the fishery over the delivery of agricultural and urban water supplies.

Recent decisions in federal courts, which at the time of this writing are still pending will affect the reliability of supplies available to MWD. However, MWD has undertaken a variety of actions including staff support in 2008/2009 for a state program called the "Drought Water Bank" that would mitigate the significant impact of these decisions. This could increase the cost of water, as will LA's recent adoption of improved conservation and recycling as its next programs to increase water reliability. For the foreseeable future, LADWP will be heavily dependent upon the State Water Project and will support MWD in its effort to secure water supply reliability for the region.

ii. Sacramento-San Joaquin Delta Levy Reconstruction and Maintenance

Issue Overview

Delta levees are part of a broader concern for the reliability of future water supplies that are delivered to MWD via the SWP. As a result of a recent cooperative MWD/SWP Program, Delta levee security which is essential to Southern California's supply reliability has been enhanced. Materials have been stockpiled, contracts with repair contractors established, and procedures adopted. In the long run however, reliance on many miles of poorly constructed levees that surround sinking islands will prove increasingly risky and expensive.

Recently a joint study has recommended a reconsideration of an isolated transfer facility to deliver water around the Delta, in combination with some delta levee restoration, and the restoration of Delta islands to their natural wetlands habitat prior to the middle of the 19th century. The problem is twofold: 1) significant investments in agriculture on the Delta islands have resulted in commitments by the owners to maintain productivity in the face of continuing settlement and levity instability; and 2) continued delivery of drinking water supplies through the Delta degrades the quality, and as a result of court decisions, limits the quantity and timing of diversions for users in the Bay Area and Southern California.

Other water interests have a direct stake in the Delta. Most of the Bay Area's population gets its water supply, either from or through the Delta. East Bay Municipal Utility District (EBMUD) operates aqueducts that cross the southern Delta and which depend on the levees for their security and the Contra Costa water District maintains diversion facilities and an intake in the southern Delta. The Sacramento San Joaquin Delta levees were constructed in 1800s, and have been the subject of major investments in repair and rehabilitation over the years. The islands continually settle due to wind erosion and irrigation and some are now 30-40 feet now below sea level. In a natural state, the Delta was an ephemeral inland sea. Today, various interests are dedicated to preservation of the existing island structures and their new ecology, protection of the anadromous and local fishery, preservation of agricultural economy, improvement of drinking water quality and reliability, and a wide range of recreational and economic uses.

Plans, Strategies and Policies to Address Issue

The Department has been relying on MWD, with LADWP staff staying informed and advising to address Delta issues such as levy reliability.

When considered with uncertainties related to court decisions discussed in "i" above, the delta levee condition decreases the reliability of MWD's sources. The risk of failure of levees will continue even though reduced as a result of current activities. LADWP is said to be preparing itself through alternative supplies, storage, conservation, or a combination to mitigate emergency related outages. They could also potentially lead to a significant increase in the cost of water, and increasing the need for MWD and/or LADWP to purchase water or build new sources.

iii. Owens Valley Environmental Restoration

Issue Overview

The history of Los Angeles' water supply from the eastern slope of the Sierra is long, controversial, and complex. The traditional water supply delivered approximately 500,000 acre feet of water per year until about 1987. After that time, the supply has ranged from 100 to 400,000 acre feet per year. Subsequently, LADWP committed approximately 166,000 acre feet of water supplies for environmental enhancement in the Owens Valley and Mono basin regions.

Plans, Strategies and Policies to Address Issue

In 2006, LADWP made the first release of permanent water flows into the Lower Owens River in almost 100 years. With water now flowing year-round, the Lower Owens River Project (LORP) will create thousands of acres of habitat for fish and wildlife. Thus far, a considerable recovery of the environment has been reported.

A goal of the LORP, as identified in the 1997 Memorandum of Understanding among the parties, is "the establishment of a healthy, functioning Lower Owens River riverine-riparian ecosystem...for the benefit of biodiversity and threatened and endangered species, while providing for the continuation of sustainable uses including recreation, livestock grazing, agriculture and other activities." In the agreement, the parties recognized that conditions will be encountered in the management of the LORP that cannot be predicted, and agreed to cooperatively work in good faith to resolve those issues in the future.

Of the 42 mitigation projects identified in the 1991 EIR, 29 have been or are nearing completion, 10 are partially completed, and the remaining 3 are still in the planning stage. A $120 million contract was recently awarded for Phase 7 of the Owens Valley Dust Mitigation Project. LADWP continues to work with the interested parties to monitor the progress on the projects to be completed, as well as monitoring the mitigation measures which are already in place.

The estimates for 2008-09 hydrology indicate that water runoff from the watershed will be about 85% of normal. This is relatively higher than the state-wide drought water availability. LA plans to export less than 60% of their long-term average for exports, which is double the amount of last year, but still substantially below average. The variability of LA Aqueduct supplies are backed up by MWD, and reliability will be improved by the new interconnection to the State Water Project. Additional storage along the Aqueduct route is not being actively pursued.

LADWP continues to execute its responsibilities for the mitigation projects in the Owens Valley. While significant ecosystem improvements have been seen, there are still some

uncertainties regarding the remaining mitigation. Decisions remain to be made which will balance the cost of further mitigation measures with the amount of water that will need to be committed for the various options. The decisions should be made within the context of a broader strategic planning effort so that the full impacts of cost of the measures and the amount of water to be committed can be weighed against other financial needs and water supply options.

iv. Increasing Dependence on Metropolitan Water District (MWD)

Issue Overview

LADWP's dependence on MWD has substantially increased since the mid-1980s, shortly after the California Supreme Court's Mono Lake Decision in 1983, which required the City of LA to significantly reduce its Eastern Sierra diversions. Except for a four-year wet period in the late 1990s, LADWP has obtained about half of its water supply from MWD for the last 20 years, up from an average of 5-10% before the Mono Lake Decision.

Plans, Strategies and Policies to Address Issue

Mayor Villarraigosa's May 2008 plan, *Securing L.A.'s Water Supply*, proposes a diversification strategy which emphasizes demand-side management and development and expansion of local supplies. The plan proposes a number of programs to enhance conservation in both the short term and long term. Short-term programs include more aggressive enforcement of existing ordinances prohibiting certain kinds of wasteful water use, expanding the list of prohibited uses, implementing more extensive outreach efforts, and cooperating with other water agencies on regional conservation programs. The long-term programs include focusing on specific incentive programs, such as rebates for the installation of high-efficiency urinals, and permanent reductions in outdoor use through incentives to plant "California-friendly" landscaping and install smart sprinkler systems.

Elements of the mayor's plan will take longer to implement. These include greatly expanding the use of recycled water, through direct, non-potable uses and indirect potable reuse; enhanced storm water capture; accelerated cleanup of existing groundwater basins; and the expansion of groundwater storage. There are uncertainties as to whether some of these programs will be successful, how long it will take to implement them, and whether they will produce the quantities of water or storage expected.

While relying on MWD was a good and cost-effective strategy to meet such a large portion of demand as the full effects of the impacts to the Eastern Sierra water supply were realized, it is prudent to pursue a greater diversification of LA's water supply. The Department is doing so through the Mayor's Plan.

Demand-side management efforts can produce more immediate reductions in total demand and thereby contribute to counterbalancing new demand growth. For the short-term, five or ten years, these programs should control demand until the new supplies become available. However, LADWP should take into account the uncertainties associated with its supply development programs through a risk management program. This program would assess the risk of some of these supplies providing less than the anticipated quantities and quality of water, and identify strategies for securing alternative supplies.

v. San Fernando Ground Water Contamination

Issue Overview

San Fernando groundwater wells are threatened by contamination from municipal and industrial pollutants: dry cleaning, chemical processing, metal finishing and septic systems, to name a few. Cleaning up this groundwater basin represents a significant challenge, although these contaminants are the subject of past and projected remediation.

Plans, Strategies and Policies to Address Issue

Although some sections are relatively uncontaminated and provide current water supplies to the city, LADWP has begun an intensive planning process that will address appropriate treatment of wastewater for recharge and later extraction for treatment to provide drinking water, as well as appropriate remediation projects. This is a long-term project and cannot be expected to yield significant results for at least several years.

vi. Water Conservation Efforts

Issue Overview

The importance of water conservation and its place in LA's overall water supply picture was discussed above as part of the Mayor's plan unveiled earlier this year. However, some additional points need to be made as to the quality and efficacy of the current water conservation programs.

Plans, Strategies and Policies to Address Issue

The Department and its Public Affairs unit have made great efforts in the public outreach space. Among some of its initiatives in the past two years, LADWP improved its crisis communication capabilities, launched a real-time online communications system for communication with its stakeholders and the media, made efforts to promote water conservation and energy efficiency in line with the overall Department initiatives.

From the water issue perspective, there are major public information, participation, and outreach efforts required in such areas as: water conservation, water quality, rates and charges, and infrastructure planning. LADWP identified the September Water Supply Forum and the other significant efforts mentioned as part of their plan to address water conservation. These represent a good start to the programs that are necessary to achieve departmental goals. However, coordination and expansion of these efforts, incorporating a consistent, regularized and expanded customer survey database would facilitate many of the programmatic issues in this report.

vii. Consumer Confidence in Water Quality

Issue Overview

LADWP takes pride in maintaining and ensuring high-quality drinking water in the City of Los Angeles. In 2007, LADWP met or surpassed the state and federal drinking water standards. However, there is a need for improvement in water quality reporting and a related strategy to

enhance public understanding of water quality issues and the low level of public confidence in drinking water.

The Department has recently undertaken public outreach efforts that include water quality, but the principal vehicle used by LADWP and most utilities for water quality reporting is the Annual Water Quality Report, previously called "Consumer Confidence Report". The Department has completed numerous technical studies and is making major investments to meet standards and improve quality, but is in need of additional ways to educate the public and community leaders about water quality.

Plans, Strategies and Policies to Address Issue

LADWP's professional water quality staff of engineers and scientists provides a good foundation for needed improvements. While complying with all regulatory requirements, a new integrated approach that involves public outreach and new and creative technologies should be considered.

Most utilities have a quality standard formula in the drafting and mailing of the "Annual Water Quality Report" which has been the cornerstone of consumer confidence. While LADWP's report could be edited to make it more understandable to the average person, new technologies for communication particularly web-based interactive graphics offer an opportunity for the Department to overcome significant consumer displeasure with the aesthetic quality of its drinking water.

viii. Capital Program

Issue Overview

The current scope of the $6 billion capital program at LADWP is only ten years in length. With expenditures estimated at well over $600 million last year and many more new facilities that will need to be added to the capital program, (some of which may be added to the current ten-year program and the remainder trailing in the years beyond), there is a need for the size and scope of the capital program to be carefully evaluated as it will put significant upward pressure on water rates and charges.

Plans, Strategies and Policies to Address Issue

The capital program at LADWP is divided into four major categories of projects:

1) Water quality improvements - Water quality projects include efforts to improve open storage reservoirs, citywide conversion to chloramines, treatment for removing contaminants such as arsenic, and cement-mortar lining of pipelines.

2) Water resources - Water resources projects have to do with rehabilitation/replacement and expansion of groundwater infrastructure, groundwater treatment, expansion of recycled water capacity, rehabilitation of the Los Angeles Aqueduct, development of new supply sources, and environmental restoration activities in the Eastern Sierra.

3) Infrastructure - Includes work on trunk line rehabilitation and replacement, major system connections, mainline replacements, rehabilitation, replacement and new installation of services, meters and hydrants, upgrading and replacement of

distribution system pumping stations and regulating stations, and seismic stabilization and improvements to reservoirs.

4) Support functions - these functions cover construction of new and major repairs to existing buildings and structures, information technology and communications equipment, software systems and data gathering efforts (e.g., GIS data), major equipment, tools, and furnishings, and purchase, operation and maintenance of the fleet, including maintenance and fueling facilities.

Based on May 2008 cost estimates, the 10-year capital program cost is approximately $6 billion, with costs distributed among the four categories of projects as follows:

Category	Cost
Water Quality	$1.822 billion
Water Resources	$1.680 billion
Infrastructure	$1.623 billion
Support functions	$0.873 billion
Total	**$5.998 billion**

Exhibit 13: 10-year capital program focus and cost

The capital program represents more than half of the current WSO annual expenditures for the foreseeable future. This share of total WSO expenditures will greatly increase over the next several years as annual capital expenditures are projected to more than double from less than $300 million in FY 2007/8 to more than $600 million in FY 2001/12.

The WETS division is well-positioned to execute the capital program; however, the efficiency of the program is seriously impacted by a difficult and slow procurement process.

The size and scope of the capital program will put significant upward pressure on water rates and charges. This will lead to greater competition between the funding of the capital program, operations and maintenance, water purchases, conservation programs, and other initiatives within the scope of the WSO. Evaluation and prioritizing of new projects, the schedules for their implementation, as well as any examination of existing projects when changes occur to budget or schedule, should all be done in the context of a larger strategic planning effort.

ix. Recycled Water & Comprehensive Water Planning

Issue Overview

DWP participated in the preparation of "The Los Angeles IRP". This process recommended a significant expansion of the present wastewater recycling capacity at the Tillman Plant in San Fernando Valley. The product water, treated to a high degree, would be delivered through separate pipes to irrigation users where such deliveries are feasible and recharged into the San Fernando groundwater basin, providing water quality issues can be resolved. This has become one of the two features of the adopted water supply strategy for the future, the other being improved water conservation.

Plans, Strategies and Policies to Address Issue

The IRP became the foundation for meeting future water needs with recycled water that was evaluated in the 2005 Urban Water Management Plan (UWMP.) The Plan discusses costs and some options, and will be revised in 2010 to meet the state's five-year cycle for preparing such plans. The 2005 Plan is a comprehensive review of water options based on conditions at that time. Circumstances and policies have changed.

In reviewing the City's new strategy, integrated resources plans, urban water management plans, and water system infrastructure programs, there does not appear to be a comprehensive objective analysis (that includes analysis of long-term economics and impacts on rates and charges) of alternatives. While LADWP may have a sound basis for current strategies, an integrated economic, environmental, and social analysis of all options would provide a firmer foundation for long-term decision making.

The department is in the process of establishing a strategic planning function. This will assist in the creation of a long-term, organization-wide strategic plan. This plan can initially be a consolidation of the various individual plans throughout the organization. As these plans are consolidated, conflicts and gaps will be discovered and will need to be addressed.

As LADWP gears up to complete the 2010 UWMP, it has the opportunity to use the planning process to fill conceptual gaps in the information necessary to provide a strong foundation for future project decisions and investments. This would include a risk analysis of the probability of shortage with different supply conditions, and a "what if" analysis regarding the implementation of the conservation/reuse supplies that depend upon a number of unknown circumstances. Unfortunately, the technical work necessary to provide answers regarding the usability of the San Fernando Basin has yet to begin. The delay results from purchasing impediments are discussed elsewhere in this report.

The 2010 Plan could also address the comparative long-range economic cost of various options, and consider user acceptability, increases in energy costs, and changes in public policy. It also can be linked to city policies, priorities, and a long-range revenue/finance strategy that would drive rates.

x. Water Rates & Charges

Issue Overview

This issue has to do with both the process for setting rates and charges, and the structure of those rates and charges. The process for setting water rates and charges should be an integral part of strategic planning. There does not appear to be a single unit within the department that is responsible for organization-wide strategic planning. How rates and charges are structured should also flow from the strategic plan, where specific policy objectives are combined with long-term revenue and expenditure projections to create a revenue stream that supports the department's strategic directions..

Plans, Strategies and Policies to Address Issue

LADWP has in place the necessary staff to address the issue of rates and charges. However, initial impressions are that the process for rate-setting could be better. Models and procedures should link policy decisions for the future with the sequence of decisions

necessary to provide short and long-term funding. This should result in a process that identifies the rate implications of various decisions.

Decisions regarding how to achieve goals, which include investments in water supply, treatment, distribution and compliance, should result in a prediction of costs and rates for at least 10- and 20-year horizons. A department-wide strategic planning process should provide clear linkage between major, long-term decisions with cost impacts and the long-term projection of rates. The department is in the process of convening key individuals to prepare a strategic plan by consolidating many individual "strategic" documents; however, this is not the same as an ongoing strategic planning process for the entire organization.

Regarding rate setting, when considering the use of long-term debt, rates should be projected at least to the year in which the last debt obligation is paid off. Layering of debt issues for a long-term capital program will likely require debt to be periodically issued for the next 15-20 years. If a 30-year debt obligation is issued near the end of the capital program, this would mean that rates and charges should be projected for 50 years. The result is a "no surprises" schedule of future rate increases that are widely understood and accepted, higher credit ratings, and enhanced stakeholder confidence in LADWP's management capabilities.

Objections sometimes arise over the impossibility of projecting so far into the future; however, the purpose of the process is thoughtful decision-making through the consideration of alternatives and the eventual choosing of courses of action. The process supports confidence in issuing new debt obligations, and gives policymakers a clear understanding of the long-term financial decisions that will be necessary, when they approve or disapprove rate or capital proposals.

Regarding the current rate structure, it is important to note is that a Blue Ribbon Panel put a great deal of effort over 15 years ago into establishing the fundamental rate structure still in use today, working through two mayoral administrations. This effort involved substantial community feedback. It was an attempt to balance the needs for having a reliable revenue stream that promoted water conservation with the desires of a number of constituencies. The structure that was implemented included a number of innovations. Some of the rate features were implemented in direct response to customer outcries, including the variability of tier thresholds based on lot size and temperature zones.

While we recognize that industry practice for water rate structures has been evolving for the last 15-20 years, it is important to note that the rate structure at LADWP departs from current standard industry practice in at least three respects:

1) The rate schedule has no service charge - that is fixed costs associated with reading meters, accounting, water quality, and maintenance which are unrelated to the quantity of water used are recovered in proportion to the amount of water used.

2) LADWP has an inclining block rate structure - this type of structure has become more standard as an industry practice and is generally based on higher blocks designed to recover costs of future water supply. However, LADWP's schedule departs from standard practice by basing the step increase on the square footage of properties served and not on the gallons of water used. The objective of inclining block rates is twofold: to induce reduced water use and to provide a fairer recovery of the actual costs the utility encounters. However, it should be noted that analyses of the rate impact on actual use in various utilities has indicated that it is necessary to roughly

double the water rates to achieve a 10% reduction in water use. The current construction of LADWP's rate schedule makes it hard to determine its effectiveness in achieving water conservation.

3) LADWP does not charge connection charges - When new users connect to a water system in an area where there is significant growth, they impose capital burdens for the construction of facilities to develop new sources, provide treatment, and distribute the water to the new users. Until the 1960s, the standard practice in California was to require developers to pay for distribution facilities, and when they benefited others, there was a rebate program based on future revenues. About that time, rapidly growing utilities began departing from this practice by charging a connection charge. Such a charge is now standard practice in California and has been expanded by some utilities to include all incremental costs associated with the new service. Such connection charges can now exceed $20,000 per residential unit and average about $4,000 per unit according to a 2007 survey. A connection charge driven by LADWP's capital program would result in a significant reduction of water costs for existing users.

Key to the rate-setting process is good analysis that is accessible to stakeholders (meaning it is explained in a way that it can be clearly understood), and open review and feedback by stakeholders at each step. The outcomes are a thoughtful, long-term strategic plan, clear business plans for individual organizational units that are well understood and embraced by employees and stakeholders, higher customer satisfaction, and a greatly improved opinion of the entire organization.

xi. Water Quality

Issue Overview

LADWP is in full compliance with the MCL's specified in state and federal law. It has undertaken measures to limit arsenic to well below regulatory levels, in its Sierra water supply. However, consumer surveys have indicated considerable dissatisfaction (compared to consumers in other utilities) with the aesthetic quality of drinking water, and periodic water quality problems that affect the quality of water used in commercial processes.

LADWP is faced with at least four major water quality challenges: 1) compliance with the Safe Drinking Water Act Surface Water Treatment Rule, which requires that treated water reservoirs be covered or removed from operation, 2) compliance with new limitations on disinfection byproducts, 3) controlling contamination of the San Fernando Basin groundwater source, and 4) improving user confidence in an era of increasing fear of environmental contaminants.

These challenges are not unique to LADWP. Not only have major investments been made recently on items 1 and 2 above, but they will be required well into the future. The Department is working on problems caused by old corroding private pipes on customers' premises. This can result in corrosion caused particles and discoloration that may lead customers to believe that the water is not safe.

Plans, Strategies and Policies to Address Issue

LADWP's water quality staff, on occasion aided by consultants, has produced thorough analyses of drinking water issues that were raised in 2002, and has taken appropriate actions

in the face of water quality challenges related to open reservoirs and other degradation factors. Although included in the Capital Improvement Program (CIP), water quality improvement and compliance projects should be anticipated by inclusion in the more comprehensive planning processes identified elsewhere in this report. This may require staff augmentation and greater consideration of water quality factors in assigning priorities to future water supply projects.

In the past decade, there have been major advances in some of the basic water treatment processes. LADWP in the construction of the Los Angeles Aqueduct Filtration Plant, the first major ozone/carbon filtration plant in the United States in the 1980s, created a solid foundation for improved water quality. However, there been significant improvements in the efficiency of disinfection, design of carbon filtration, and new technologies involving low-pressure membranes that should be considered as LADWP finds itself treating ever larger quantities of water from MWD (supplies that come from the Sacramento-San Joaquin Delta and the Colorado River, and are stored in local reservoirs.) The result is that the plant is treating a different raw water quality, and the distribution system delivers different water qualities to different areas than it did historically, when the principal source was the Owens River.

While many utilities have become reactive to new regulations and delay investments for compliance (as LA is doing in connection with the Safe Drinking Water Act (SDA), Long Term Enhance Surface Water Treatment Rule (LTSWTR) , the most long-term cost-effective compliance is achieved by the use of advanced technology to anticipate future consumer and regulatory needs. This policy was followed by LA in the 1980s and should again be a principal driver in its investment priorities.

xii. Asset Management

Issue Overview

Often, Asset Management Programs (AMP) are misunderstood as dealing only with operations and maintenance responsibilities of a utility. When properly implemented, an AMP will affect all areas, including finance and administration, governance and decision-making, risk management, human capital, strategic planning, regulatory compliance, customer service, community outreach, facility planning and asset acquisition, as well as the typical operations and maintenance. When viewed in this way, a comprehensive AMP provides a powerful approach to identifying ways to improve efficient operations and enhance customer service.

Utilities, by their very nature, are asset-centric. The assets exist to provide service to a utility's customers. When a utility loses its focus on using its assets to deliver exceptional customer service, the inevitable consequence is a dissatisfied customer base and an increased cost of service resulting from an inefficient use of assets. These business drivers are noted for the purpose of focusing attention on the significant challenges that will require substantial changes within LADWP over the next four years. It is important to note that these six areas match well with the new key issues identified in this report for both the Water System and Internal/Global Issues. It is our intention to follow up on the excellent work done to date by the WSO on asset management.

Plans, Strategies and Policies to Address Issue

The WSO has recently made great progress in the development of its AMP. It acquired professional services to prepare a *Strategic and Business Evaluation and Process Analysis* which was received in July of this year. As a part of this same effort, an *Asset Management Plan* was also prepared and received in July.

LADWP's WSO is also a participant in an international benchmarking effort along with 40 other water service providers in the United States, Canada, the United Kingdom, Australia, New Zealand, Hong Kong, the United Arab Emirates, and the Sultanate of Oman. This benchmarking effort is jointly sponsored by the International Water Association and the Water Services Association of Australia. LADWP is the only California water utility participating, and deserves recognition for taking this step, as water utilities in the U.S. have lagged behind the international water community in the area of asset management, and have been reluctant to learn from their counterparts from other countries. Involvement in this benchmarking effort is a determined approach to implementing best asset management practices, no matter where they are observed.

The benchmarking study identified six top priority business drivers for the WSO:

- Regulation of operational compliance
- Asset acquisition and capital delivery
- Asset replacement/renewal of aging infrastructure
- Funding limitations and customer willingness to pay
- Demand growth/demand management
- Customer and stakeholder involvement & orientation

LADWP's WSO is in the middle of a thoughtful process to implement a comprehensive asset management program. Continuing support at the highest levels of the department will be needed for several years to reap the benefits of these efforts. Consideration should be given to broadening the plan to include all functions involved in the earliest planning efforts for new assets, as well as the process for retiring assets.

b. POWER RELATED ISSUES

Issue	Source
Compliance with Air Quality Standards	RFP
Power Rate Setting and Consumer Confidence	RFP
Sufficient Generating Capacity to Meet Demand and Renewable Portfolio Standards (RPS)	RFP
Impact of RPS on Baseload Generation, Transmission Systems, Capacity and Reliability	RFP
Energy Conservation and Policies	RFP
Improve Power System Reliability and Meet Reliability Goals	RFP

Issue	Source
Current and Projected Wholesale Trading Policies	RFP
Energy Cost Adjustment Factor (ECAF)	RFP
Fuel Procurement	PA
Commodity Risk Management	PA
Asset Management	PA
Generation Portfolio & Integrated Resource Plan (IRP)	PA

Exhibit 14: Current issues – power

i. Compliance with Air Quality Standards

Issue Overview

Compliance with air quality standards is a critical focus for any entity with significant generation resources, particularly one subjected to the level of public scrutiny experienced at LADWP. Air quality standards have historically been more heavily focused on command-and-control measurements, designed to mandate adoption of more effective emissions control devices at power plants. Existing cap-and-trade programs have often begun with free credit allocations and been characterized by overinvestment, together resulting in relatively low compliance costs such as those seen under the EPA's Acid Rain Program.

While SOx compliance has not posed a major hurdle in recent years, other developing programs – in particular the approaching commencement of AB 32 greenhouse gas regulations – will likely exact greater initial costs and generally necessitate greater organizational overhauls as market participants seek to more nimbly manage their strategic compliance options. An organization appropriately equipped to deal with evolving emissions regulations will possess the following:

- Strategic planning – Emerging programs are likely to have greater financial impacts on utilities, so proper consideration of likely impacts and compliance options will be critical. All operational decisions must incorporate environmental angles.
- Technological improvements – Utilities must be prepared to track emissions, submit reports, and store compliance records. In addition, enhancement of internal communication platforms will be critical: as program compliance costs rise, environmental affairs divisions may no longer operate independently of financial analysts and resource planners.
- Analytical capabilities – To effectively approach comprehensive cap-and-trade programs such as those projected to emerge in coming years, organizations must be equipped to project future needs, decide whether to abate or acquire credits, and determine when to buy and sell credits.

Plans, Strategies and Policies to Address Issue

In the late 1990's, LADWP experienced a high number of compliance violations. Internal communication and compliance tracking were inadequate. As a result, compliance reports were often incomplete or submitted late.

The Environmental Affairs division has begun to more efficiently confront the key issues it faces. The organization, which now reports its compliance records quarterly to the Board, has made positive strides in this area, and violations have fallen as a result. This compliance effort is ongoing, driven in large part by the General Manager's zero tolerance policy for environmental violations. Today, there is greater coordination between environmental affairs and plant managers, an internal websystem has been implemented, and an environmental compliance plan is in development.

Several adjustments have been made to address communications gaps between management and remote operations teams. First, the environmental affairs team has one staff member devoted to working with Power Systems and another devoted to the vehicle fleet. In addition, environmental compliance managers have been installed at each plant, facilitating enhanced communication between Environmental Affairs and prominent emissions sources.

Development of an environmental management websystem has also helped. While seemingly relatively insignificant from a capability perspective, the websystem enables greater automation, accuracy, and ultimately saving time for other project. Emissions and waste details as well as permits and emergency response plans can now be entered and accessed remotely, and the compliance filing process has been largely automated. This process used to require the time of 5 or 6 staff members, who have now been freed up to work on other projects.

Finally, Environmental Affairs has begun to design an environmental compliance plan, which will replace outdated plans such as those in the Green Book, which was developed more than 20 years ago. The new plan will focus on training, communication plans, emergency response, and all of the rules for handling hazardous waste, spills, etc. Everything will be tracked more carefully, and an internal audit team will focus on issues such as whether facilities have what they need. Any systemic problems found will be escalated to the appropriate level for corrective action. Once AGM and GM approval have been received, the plan will be circulated to plant managers and division heads.

While LADWP has effectively confronted key air quality compliance obligations in recent years, it will face greater challenges in the near future for which it is not yet prepared. Several key issues have been identified:

- Water systems are not very well integrated with the rest of the organization from an environmental compliance perspective. They are fairly insular and tend to handle their own issues separately (such as compliance National Ambient Air Quality Standards (NAAQS)).
- The department does not have extensive modeling tools to support major permitting. These projects may not occur frequently enough to warrant significant investment, but failure to invest will likely result in increased outsourcing in the future.
- New CARB regulations require that LADWP retrofit its existing diesel-burning vehicle fleet with particulate matter traps. The costs are not overwhelming – the Department has approximately 1,000 such trucks, and retrofitting costs only $10,000 per truck – but the retrofit process has moved more slowly than desired, slowed by many of same procurement issues seen elsewhere at LADWP. There is a shortage of qualified engineers capable of doing the work, and procurement times have been very slow. If this process does not accelerate, this could pose a major compliance risk.

- Another potential risk concerns the availability of RECLAIM Tradable Credits (RTCs), which will be needed for in-basin repowerings. There are currently lawsuits seeking to invalidate those bought from the priority reserve in 2000 (LADWP bought about $20 million worth in 2000). And while this is not likely to transpire, the general illiquidity of the market is making it difficult to acquire RTCs needed for repowerings, hence any tightening of regulations could threaten development plans.
- The Department has generally enjoyed credit surpluses with respect to its NOx and SOx compliance obligations. Given the Department's heavy reliance on coal and its lack of significant low-carbon baseload energy options such as hydroelectric and geothermal, CO2 compliance will be much more burdensome.
    - Under AB 32, DWP will have to inventory and report CO2 emissions to CARB starting in 2009. They have been doing this voluntarily since 2000, reporting annually to the California Climate Action Registry (CCAR), so there shouldn't be major issues getting up to speed on the reporting side.
    - However, while the Department is clearly tracking regulatory developments and has completed some analyses with respect to the likely impacts, little planning appears to have been done while the Department awaits the release of the final credit allocation scheme.
    - The pending launch of AB 32 demands that the Department develop its trading capabilities. This will require greater market research, risk assessment, and enhanced analytical tools (both from a systems and staff perspective).

ii. Power Rate Setting and Consumer Confidence

Issue Overview

Rate setting is amongst the most critical aspects of a utility's activities, from the perspective of both financial viability and consumer response. Under ideal conditions, costs would remain constant, development projects would proceed according to budget, and customer demand would be naturally aligned with generation capabilities. That is not the case: fuel prices fluctuate, development projects experience delays and cost-overruns, and energy demand does not naturally coincide with supply. To set rates effectively, a utility must:

- Manage its budget – Rates cannot be set appropriately without prudent financial and operational management. Keen insight into future costs and revenues is critical.
- Minimize the impact of fuel price volatility and development uncertainty – To do so, a utility may diversify its generation portfolio, mitigate its risk through a comprehensive hedging program, or share this risk with its customers through an energy cost adjustment factors (ECAF).
- Set rates to elicit a desired customer response – Time-of-use pricing is the most commonly cited example, but simply raising on-peak rates while lowering off-peak rates may shift demand enough to justify lower energy revenues through capital demand savings.

In so doing, a utility must also operate within the confines of any operational mandates imposed on it by regulators or other oversight body. Municipal utilities do not require approval

from the California Public Utility Council, but must instead seek approval from the Board, the City Council, and the Mayor. In structuring its rates, LADWP's financial goals require that it:

- Maintain a debt service coverage ratio of 2x or higher
- Maintain at least $150 million in cash to ensure ample liquidity
- Annually transfer 7% of prior year's total operating revenues to the City of Los Angeles.

LADWP's first core business goal from its latest budget is to "Mitigate the need for future water and power rate increases through prudent fiscal and resource management and administration of revenue and bond funds." LADWP's revenue requirements are determined according to a bottom-up methodology, so prudent management of the individual components of its budget is paramount. LADWP's revenue requirement, and thus rates requirement, is determined according to a relatively straightforward calculation based on projected revenue, less operating costs, less debt service, less transfer to city. If rates are designed correctly, this calculation should net to zero for all rate classes.

Plans, Strategies and Policies to Address Issue

LADWP has made significant strides in recent years towards improving its fiscal management. Noteworthy enhancements to its budgeting process include increased training, standardization of inputs, increased governance, and general promotion of public visibility. However, the Department will need to apply a similar focus to its financial forecasting, where the current level of scenario analysis is insufficient given the uncertainty facing California utilities.

While future systems upgrades are still needed, LADWP has made significant strides since 2006 in improving the overall budgeting process. The budget team has promoted standardization of data sources by training appropriate personnel on the submission process, thus making the process more efficient and informative. This procedural upgrade has enabled release of standardized reports to enhance internal visibility.

The internal governance process has also been upgraded significantly. Budget review processes and regular variance reporting have increased ownership from division heads. Each organization develops its own budgets: all new projects must be justified from an NPV perspective, and variances of greater than $250,000 must be explained.

Greater transparency and public review has also been promoted. The complete budget is now subject to rigorous Board review, a process that takes place over 5 days of publicly televised hearings.

However, the Department still appears relatively unprepared for potential impacts going forward. While the Energy Cost Adjustment Factor (ECAF) allows the Department a measure of security with respect to natural gas prices and renewable energy development costs, quarterly rate adjustment caps prevent the complete sharing of risks with customers. LADWP does not appear to have completed ample sensitivity analyses, thus limiting their ability to accurately determine revenue requirements going forward.

iii. Sufficient Generating Capacity to Meet Demand and Renewable Portfolio Standards (RPS)

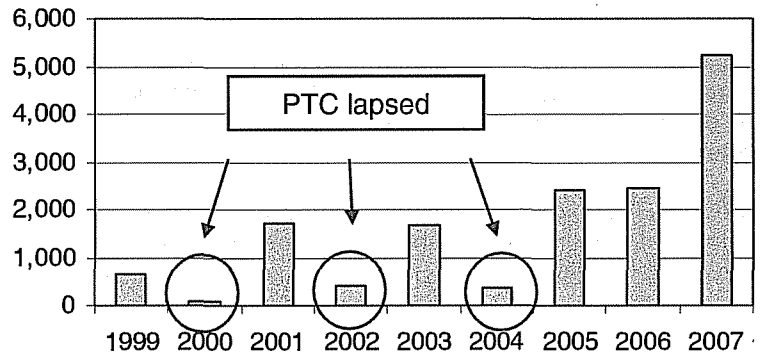
Issue Overview

In December 2005, the Board established an aggressive Renewable Portfolio Standard (RPS) requiring that 20% of energy sales come from eligible renewable energy sources by the end of 2010. A non-binding extension calls for an increase to 35% by 2020.

The proliferation of RPS poses a major challenge to load-serving entities across the country. The economics continue to pose a challenge, transaction costs associated renewable energy procurement are high, and the intermittency associated with wind and solar poses a threat to system reliability.

The economics in particular remain very tenuous. The future of the Production Tax Credit (PTC), a Federal subsidy providing $20/MWh to wind developers for the first 10 years of project operation, is uncertain. The PTC is set to expire at the end of 2008. It has done so three times previously – in 1999, 2001, and 2003 – and while it was retroactively extended each time, the uncertainty created the boom-bust cycle seen from 1999 through 2005 (See Exhibit 15). While the PTC may ultimately be extended, the industry is already showing signs that another lapse would suppress development.

U.S. Wind Additions by Year (MW)



Source: AWEA, PA Consulting Group

Exhibit 15: U.S. wind additions by year (MW)

The delayed renewal of the PTC will likely impact turbine manufacturer investment, likely exacerbating the current turbine supply shortage and leading to further project delays. In addition, declining development rates will increase buyer competition for available resources, further raising procurement costs.

For DWP, reaching its 2010 and 2020 goals will be challenging. In 2007, only 8% of the power sold to customers was generated by renewable resources. Planned renewable projects identified in the IRP would allow LADWP to reach ~40% by 2017, but significant

uncertainty surrounds many of the necessary transmission and generation development plans.

However, while there are a number of challenges to ramping up renewable energy procurement efforts at the rate prescribed by the Board, there are ways in which an organization can maximize its ability to meet its targets. To successfully manage renewable energy development and compete for resources in a buyers market, a utility will need to:

- Structure well-coordinated resource planning efforts – Integrating large quantities of intermittent renewables into a generation portfolio involves many challenges. Utilities must have robust integrated resource plans that focus on transmission needs, availability of ample and cost-effective firming technologies, and contingency plans in the event of project failure.
- Review projects carefully – Transaction costs tend to be particularly high in the renewable energy procurement process. RFP responses are rife with unrealistic proposals and undercapitalized counterparties, both of which act to raise project and delivery risk.
- Negotiate effectively and expeditiously – In California, the high RPS demand and shortage of promising accessible projects has created a sellers market. Utilities that cannot negotiate effectively and quickly risk overpaying or losing projects to competing buyers. The current procurement process makes this more difficult as there is little flexibility or ability to move rapidly.
- Build internal competency – Utilities will need to build their maintenance and grid integration abilities as well as their trading skills, particularly if they plan to own a significant portion of their resources.
- Plan for associated rate impacts – Renewable energy capital costs remain high, making the levelized cost of renewable energy high relative to fossil-fired resources. Short-term purchases could be even more expensive, should long-term options fail to get built in a timely matter.

In general, effective RPS procurement planning process will be streamlined, involve experienced staff and proper analysis, and will be closely integrated with all associated resource planning processes.

Plans, Strategies and Policies to Address Issue

LADWP management and staff are generally concerned with the rate at which they are required to acquire renewables and integrate them into their system. In spite of any concerns, they appear to be fully committed to meet RPS targets. Still, it appears the Department will have difficulty meeting its RPS targets, from both an execution and cost perspective. A variety of issues, in addition to the general obstacles presented by current market conditions, stand to pose problems as LADWP seeks to complete this operational transformation. Some of these issues can be corrected, such as the perceived lack of sensitivity and rate impact analyses, while others are more difficult to control, such as the overall cost and lack of operational experience.

LADWP's resource planning, on its face, does not appear to have been conducted in an adequately comprehensive manner to prepare the organization to smoothly enact an operational change of this scale and scope. The 2007 IRP is heavily focused on renewable

energy procurement, but does not introduce scenario analyses that speak to how the Department will confront major setbacks that could potentially be encountered. For example, what are the impacts and resulting contingency plans should an essential transmission line fail to get built? While such sensitivities may have been considered elsewhere, no associated documentation has been produced. In addition, the IRP does not address the resulting supply shortage after the Navajo contract rolls off in 2019.

The substantial cost of meeting RPS targets is well documented, but the impact on customers does not appear to have appropriately analyzed or communicated. Adding high-cost renewable generation, while divesting low-cost coal assets, will produce lasting environmental benefits. However, meeting renewable targets will also have a significant impact on rates. Other considerations in need of examination include the impact on ECAF and any adjustments needed, as well as the increased costs to be incurred should the projects delays necessitate short-term renewable energy procurement. Although much of the RPS procurement is being run through the South Coast Public Power Association, enabling off-balance sheet financing, there are still likely to be rate impacts through ECAF undercollection increases, if nothing else. RPS planning will not be complete until these impacts have been determined and communicated, at least internally.

Renewable energy procurement, at all utilities, has been plagued by high transaction costs and general difficulty in consummating agreements in a timely and cost-effective manner. The 2004 RFP sought 1,300 GWh of renewable energy per year, for instance, but when the 2007 IRP was released only two contracts had been completed, totaling 81 GWh annually. While additional progress has undoubtedly been made since, this indicates the general difficulty experienced in filling renewable energy needs, as well as the time required. DWP needs to ensure that its procurement and negotiating teams are well-trained and have the tools needed to expedite this process. It might also consider attaching a nominal fee to future RFP submissions, a tactic used by other load-serving entities to discourage underfunded or otherwise unrealistic bids.

Other factors limiting the Department's ability to complete agreements and negotiate effectively stem from more systemic issues that LADWP management is less able to control. The public nature of negotiations and the delays associated with the internal procurement process put the Department at a competitive disadvantage. The publication of past and current negotiations presents problems, as past negotiation details inform a counterparty's offers and counteroffers and also because certain counterparties are reluctant to enter into negotiations with the same level of public visibility.

Significant procurement approval delays also impact the Department's ability to consummate deals in today's sellers markets, where otherwise willing counterparties prefer to accept similar offers from competing utilities rather than waiting for the procurement process to take its course. While the public nature of negotiations may be unavoidable, an expedited and more flexible procurement process would level the playing field somewhat with the Department's competitors.

Finally, there is some question as to how prepared LADWP is to provide or develop the staff needed to operate its own renewable energy facilities. The ownership stipulations in LADWP's RPS policy do offer the greater control needed to protect system reliability, but also raises potential issues going forward. Civil service agreements prevent the hiring of experienced manager and director level talent, and the existing staff may be challenged from an operations and maintenance perspective, given the likely unfamiliarity with the

technologies being acquired. The Department has addressed this concern by outsourcing its training, arranging for certain staff to train through a General Electric program. However, it might be prudent to arrange civil service exemptions that permit the hiring of a limited number of experienced renewable energy personnel, who could then provide training and guidance to existing staff.

iv. Impact of RPS on Baseload Generation, Transmission Systems, Capacity and Reliability

Issue Overview

The widespread integration of renewable energy presents many operational challenges, over and above the aforementioned cost and procurement related considerations. Renewable energy developments tend to require relatively large construction footprints, and are often located in remote locations, far from existing load. Wind and solar energy, in particular, also present system integration challenges as a result of their intermittency. The wind does not blow consistently and is unpredictable, and the most affordable solar options are difficult to scale and do not provide energy when the sun is not shining. This intermittency creates an inability to regulate that requires more reliable quick start firming options, leads to forecast errors and hour-to-hour variation, and introduces engineering complexities to the transmission system.

To successfully integrate renewable energy into a power system, the following considerations should be addressed:

- Firming resources – Power system reliability demands that a system that includes intermittent resources also possess ample firming or shaping technologies, quick start generation options such as hydroelectric facilities, combustion turbines, or other spinning reserves that can be dispatch on short notice to meet load.
- Seasonal and diurnal generation patterns – In Southern California, minimum load generally occurs in the fall and spring. Wind energy production is typically anti-coincident with system load, while solar energy production tends to be coincident in that it follows load fairly closely.
- Locational diversity – The wind is always blowing somewhere. The greater a system's geographical diversity, both from a generation and transmission perspective, the less volatile the collective generation output from intermittent sources.
- Storage – In addition to firming needs, the ability to store energy production that occurs when demand is low (e.g. wind at night) helps leverage the maximum value of zero variable cost renewable options. The most cost-effective option generally pursued is pumped storage, but compressed air energy storage and hydrogen production are less frequently employed options.

LADWP expects to generate 55-60% of its 2010-2020 renewable energy through wind and solar, so the Department will need a robust planning process to protect the integrity and reliability of its system.

Plans, Strategies and Policies to Address Issue

In general, LADWP appears to have positioned itself well to adjust its generation and transmission systems to meet its RPS obligations without compromising grid reliability. The Department plans to continue developing its already significant pumped storage assets at Castaic, has indicated the need for state of the art forecasting tools for wind, and plans to use combustion turbines in future repowerings at Haynes and possibly Scattergood. However, while the IRP generally appears to introduce the right concepts, there is little indication that adequate analysis has been completed to support their findings and determine the impacts on other aspects of the resource plan.

As with energy efficiency opportunities, the effort to determine appropriate load shifting measures appears to have been completed fairly comprehensively. The Department's preliminary conclusion appears to be that direct load control is too expensive. While all parties are not in agreement (some would prefer greater investments in spinning reserves to load control), the Department generally appears to prefer other load shifting methods, efforts that will help alleviate the need for additional firming generation and will also allow greater leveraging of off-peak renewable generation. Examples include the investment in the district cooling plant which will transport chilled water down 1st Street through two 42" lines that will serve DWP, City Hall, and points in between. This will shift an estimated 25 MW of load. In addition, there's discussion of shifting 3,000 MW of load to time-of-use pricing.

From a conventional generation and transmission perspective, DWP is also proceeding with well-conceived plans. Repowering plans for Haynes units 5 and 6 call for combustion turbines, rather than combined cycles. DWP will sacrifice some operating efficiency relative to combined cycle generation, but installing combustion turbines will preserve greater operational flexibility. Transmission development proposals, should they proceed as planned, will provide access to greater resource diversity.

These generation and transmission plans each face very real threats, however, which could impact their ability to be completed and produce the desired reliability benefits. Repowering Haynes will require the purchase RTCs, which are the subject of ongoing lawsuits and may be difficult to find given market illiquidity. Transmission development in general tends to face significant opposition, and the future of Green Path North in particular seems very uncertain. These potential impacts are not discussed in the IRP, and it is thus unclear to what extent the Department has analyzed and developed contingency plans.

Grid integration costs do not appear to have been properly examined. The IRP cites studies that estimate the cost of integrating increasing amounts of renewable energy into existing power systems, but does not indicate that LADWP has taken a position on this. These impacts bear further examination, given LADWP's lofty goals.

In addition, the Department does not possess the baseload geothermal resources or firming hydroelectric options available to many of its fellow California load-serving entities. As a result, it must revamp its generation portfolio and transmission system to protect reliability as it ramps up its intermittent renewable energy percentages. While the Department clearly understands the key issues and has identified a potential course of action that would address the key issues associated with large-scale integration of renewables, the supporting analysis and contingency planning that will be needed eventually appears to be lacking at this juncture.

v. Energy Conservation and Policies

Issue Overview

LADWP's energy conservation program and policies have been created largely in response to Assembly Bill 2021 (AB 2021). AB 2021 was created to ensure that California meets the CEC goal of saving 30,000 GWh of electricity (10% of projected load) over 10 years through energy efficiency measures. Municipal utilities – which together account for 27% of California's load – were on page to reduce by less than 1,000 GWh, well below their 7,000 GWh share. AB 2021 was created to address this shortfall.

Among other stipulations, AB 2021 requires municipal utilities to:

- Identify all potentially achievable cost-effective electricity efficiency savings and to establish annual targets for energy efficiency savings and demand reduction over 10 years (by November 1, 2007, and every 3 years thereafter).
- To report those targets to the State Energy Resources Conservation and Development Commission within 60 days of the date of adoption.
- Report annually to its customers and to the State Energy Resources Conservation and Development Commission. The report shall contain:
    - The sources of funding for its investments in energy efficiency and demand reduction program investments
    - The methodologies and input assumptions used to determine cost-effectiveness
    - The results of an independent evaluation that measures and verifies the energy efficiency savings and reduction in energy demand achieved by its energy efficiency and demand reduction programs.

Plans, Strategies and Policies to Address Issue

The Department has made a lot of progress in furthering its energy efficiency (EE) agenda. LADWP's EE efforts have become a pilot program for the Department's cost per unit push, which is a simplified alternative to the previously recommended Activity Based Costing (ABC) model. Comprehensive analyses have been completed to determine the cost-effectiveness of all EE investments, with customer programs selected according to their overall savings and cost per unit of energy saved metrics.

The prior EE program didn't measure and track performance metrics very carefully, so the new program represents a huge improvement. For each EE program, LADWP estimates, among other metrics, annual and lifetime energy savings, LADWP cost in $/kWh, and annual budget. The Department will not undertake programs if the cost to LADWP is higher than $0.04/kWh These programs are pretty effective, given that they are essentially buying energy at 4 cents/kWh or less that would cost them more like $0.067/kWh to generate at current gas prices. The EE program focus is energy savings, not peak shaving nor direct load control.

LADWP has numerous projects in the pipeline, with the most successful five discussed below. Specifics have been sourced from an internal EE presentation. Together, these 5 programs account for 88% of the projected annual energy savings in the next five years.

- Low-income refrigerator exchange and small business direct install offer huge benefits to DWP and the customer's that need help most. Together, they account for more than half of the EE program budget. LADWP has signed up 11,000 small business customers.
    - They do both of these programs through Southern California Public Power Authority (SCPPA), which provides access to better prices.
- Custom Performance-Based Efficiency – this offers incentives for large projects that offer significant energy savings potentials (e.g. escalator motor control, which allows 35% energy savings per motor).
- Commercial Lighting Efficiency Offer
- CFL Programs – Very inexpensive and successful.

The Board has adopted a goal of saving 10% of energy sales in 10 years, equating to 2,491 GWh. However, at this time the EE program remains driven by cost effectiveness, not policy.

The Department has allocated approximately 50 budgeted staff positions and leverages independent vendors for installations and sales, with projected energy savings calculated using the E3 model. Progress reports are issued weekly, with presentations to the Board as requested, but no less than once per year.

LADWP's EE process represents a solid foundation on which to base growing efforts in other organizations of the Department. The early success of the EE program stems partially from the fact that there were significant low hanging fruit available for investment given past inattention, but also from the process, technology, and governance employed. Investment decisions are made according to cost per unit calculations, which are determined and reported using a model that produces standardized, easy to read outputs. Key performance indicators are reviewed at regular intervals to determine progress and areas in need of improvement. Other DWP undertakings, such as the Power Reliability Program, would benefit from the same level of rigor.

vi. Improve Power System Reliability and Meet Reliability Goals

Issue Overview

The primary goal of an electric utility and its workforce, in addressing their customers' needs, is "to keep the lights on." To meet this goal in a cost effective manner, a utility must manage its assets appropriately, prepare for major outage conditions, and ensure that the design and outage response is adequate for quick restoration. A utility must continuously monitor its system's health, a responsibility that entails reviewing equipment condition and performance, tracking the frequency and duration of outages, and generally implementing programs that seek to minimize degradation of power system performance.

LADWP is faced with an aging infrastructure that faced several exterior stressors in the last three years, leaving its customers frustrated with the resulting outages. El Nino storms in 2004/05 and extreme heat in 2006 both stressed system equipment and caused significant outages and failed equipment, and a major outage impacted downtown Los Angeles in 2005 due to suboptimal operations and design configuration. Because these outages were more significant than those experienced in prior years – impacting far more customers at one time

than past outages – customer tolerance for outages was far lower than under normal operating circumstances.

Reliability indicators at this time reflected a decline in the overall availability and reliability of the system, an issue that can largely be attributed to the following factors:

- Inspection and preventative maintenance programs had been curtailed
- Aging cable was not being replaced at an acceptable rate
- Pole replacement was behind schedule
- The Department did not have a transformer load management program to identify overloaded customer transformers
- System design needed to be reviewed to minimize the likelihood of major outages in the future
- The need for additional funding and workers to address the replacement of the failing assets and begin the preventative programs.

Plans, Strategies and Policies to Address Issue

As part of its effort to improve reliability and take a more proactive role in maintenance in general, the Department launched the Power Reliability Program (PRP). The program has been successful in its early years, but will ultimately need to evolve into a more robust asset management program to continue building on its initial success.

The major undertakings of the PRP are:

- Mitigation of problem circuits and stations, determined according to the types of outages incurred
- Preventative maintenance and capital improvements that take into account system load growth as well as the inspections and routine maintenance that must take place to identify problems before they occur
- Adoption of facility replacement cycles that are in alignment with the equipment's life cycle.

The PRP will address many of the Department's prior shortcomings, including inspection and maintenance, equipment replacement, and employee hiring and training. The program is expected to reduce the number and duration of service interruptions; during the first five years of the program, reliability indices SAIFI and SAIDI are expected to improve by 8.5% and 10.4%, respectively.

One major PRP undertaking that will have an immediate positive impact on reliability will be the replacement of deteriorated failing cables, with upgrades prioritized according to the number of failures in recent years. The program also includes inspection and maintenance funding, particularly for substations and improvements in the supporting maintenance software to ensure proactive repairs or replacements prior to failure.

The early years of the PRP has been successful, but once the worst performing assets have been addressed the Department would benefit from transitioning to a more comprehensive effort, with incorporation of more robust systems support and cost per unit metrics.

vii. Current and Projected Wholesale Trading Policies

Issue Overview

The goal of the Department relative to the Power System is to provide highly reliable and competitively priced electric service to customers, while remaining committed to environmental stewardship. In the course of executing tasks to meet these goals, the Department engages in limited wholesale trading – the purchase and sale of surplus energy, transmission and ancillary services. The Department does not engage in large scale speculative energy trading; rather, the Department is given authority to manage and optimize the overall energy portfolio in light of the current supply portfolio and fluctuating demand. Importantly, the character of, and need for, this activity will likely change as the character of the assets that comprise the portfolio changes – in general, as the mix and type of physical and contractual assets changes.

Plans, Strategies and Policies to Address Issue

The current authority to engage in limited purchase and sale of surplus energy, transmission and ancillary services is provided in Section 23.135 of the Los Angeles Administrative Code (LAAC). As with other load serving entities, there are limits on this activity imposed on the Department. Thematically, these limits are consistent with other utilities whose primary objective is to meet customer requirements. More specifically, active trading around assets is not consistent with the core mandate of the Department, and applies to either the purchase or sale of excess output or plant availability.

At present, the purchase and sale of surplus energy and related products is a secondary activity for the Department, with the primary activities being the production of energy (and procurement of fuels to generate energy). This will remain true under any new portfolio, comprised of a significantly larger number of renewable assets. However, the need to purchase a larger amount of energy will likely increase with a portfolio with a large percentage of renewables; with renewables, the Department will need greater flexibility in trading and more supply redundancy, with strategies to maximize the latent energy and capacity.

In general, the current authorization limits and business objectives of wholesale trading are consistent with the core strategies of the Department. Authorizations should be reviewed as the composition of the portfolio changes, and requirements to contract for additional products from the market increases with a portfolio focused more heavily in renewables. As noted elsewhere, the importance of accurate and more rapid planning and analysis will increase with a shift toward a more dynamic energy and fuel portfolio. The Department needs to bolster its analytical and technology infrastructure to meet these prospective requirements.

viii. Energy Cost Adjustment Factor (ECAF)

Issue Overview

An Energy Cost Adjustment Factor (ECAF), typically installed in response to uncontrollable volatility in a particular cost stream, allows a utility to share the associated risk with its

ratepayers. There are other alternatives available to allow mitigation of procurement risk, such as financial and physical hedging practices, but these other methods typically have a costs associated with them.

The LADWP ECAF was unfrozen in 2006 following an increase in gas prices that increased Department costs in a manner not proportionate to any increase in revenues over the same time period. ECAF allows cost recovery for the following expenses:

- Purchased power
- Fuel expenditures
- Annual debt service costs on new projects
- Off-balance sheet procurement through SCPPA – including renewable energy purchases, which are often completed off balance sheet through SCPPA to avoid further debt-based funding. These costs appear much like a purchase power agreement, even in the event that the project ownership is assumed.

ECAF has become a paramount concern because cost recovery is capped. Customer rates are permitted to increase by a maximum of 0.1 cent per kWh per quarter, or a total of 0.4 cents per kWh per year. ECAF undercollection is essentially carried as debt on the books until it can be recovered through rates. As a result, this undercollection hurts LADWP's ability to issue debt for projects and procurement and also threatens to impact the Department's credit rating and resulting cost of capital.

Undercollection projections are very sensitive to fluctuating gas prices. At the time of the 2008/09 budget, ECAF undercollection levels were projected to reach $940 million by 2012/13. The analysis was recently updated using 9/15/2008 prices, and that number had dropped to $531 million. The assumptions in the budget based on 35% renewables by 2020 show a declining need for gas in the outer years, spawning a sharp decline in ECAF undercollection levels.

Plans, Strategies and Policies to Address Issue

As with many Department functions, ECAF undercollection levels are determined as needed. However, the calculation process remains largely manual and time consuming, thus precluding more routine reporting. Improved reporting procedures and scenario analyses will likely be necessary going forward, as renewable energy procurement costs stand to elevate ECAF undercollection levels.

ECAF undercollection levels are not tracked routinely, nor are reports regularly generated. There are no routine meetings on the subject, though it is frequently discussed at monthly executive committee meetings. Projected 5-year undercollection calculations are updated as requested, which typically occurs following natural gas price spikes or troughs.

Greater sensitivity analyses are needed to determine the impact of the rapid introduction of costly renewables. Any increased undercollection levels may be offset by declining natural gas consumption. Or a sharp increase in natural gas prices might compromise the Department's critical credit rating. Or the Department might determine that it's better off decreasing its reliance on ECAF in favor of increased hedging. There's no way to determine

the answer to such questions without more robust, regular analysis and increased reporting frequency.

With renewable energy procurement expenses projected to grow rapidly in coming years, there's speculation that the department might need to seek an adjustment to the current ECAF adjustment caps. There's also some question as to whether the Department would be better served by relying more on hedging and less on ECAF. To answer such questions, the Department will need to complete robust analyses of possible scenarios, a process that would benefit from greater system automation and more regular reporting.

ix. Fuel Procurement

Issue Overview

Fuel procurement is of particular importance for a utility with as diverse a portfolio as LADWP's. Additionally, as LADWP continues to change the portfolio fuel mix toward a more flexible use of natural gas, the "People, Process, Technology, and Governance" around existing fuel procurement processes should be reevaluated. Utilities with the tools, processes, and personnel to optimize the fuel portfolio within existing risk limits and authorities are able to not only efficiently and effectively meet resource planning requirements but also extract additional value from the existing mix of assets. In this way, fuel procurement and related hedging activities typically represent a critical differentiating activity for successful utilities.

Plans, Strategies and Policies

The Department's fuel procurement function is a critical driver of overall Power System success. In general, the current fuel procurement functions are "fit for purpose", given the existing asset portfolio and strategies. However, fuel procurement (in particular, natural gas procurement activities) will need to be enhanced given future changes in the asset portfolio.

In an asset-based utility operation such as the Department's, close monitoring of physical fuel procurement and progress versus hedging targets are the primary indicators. To date, the Department's fuel management operations have been organized to handle generally static natural gas procurement and management requirements. However, looking forward, more dynamic and flexible use of natural gas will be required as one tool to meet fluctuating load, particularly with greater integration of renewable assets into the portfolio. Gas-fired generation assets will likely be used to meet discrete fluctuations in demand, requiring a more dynamic and flexible use of natural gas, generally.

This change in the role of natural gas will have analytical, organizational, and technological implications. Specifically, the Department would need to increase staffing, ensure consolidated transaction management, and closely evaluate fuel management strategies that could benefit the customer, as gas-fired generation is utilized to flexibly meet load requirements. The Department will likely need to actively assess the range of strategies that could be pursued to optimize the use of natural gas for the benefit of the customer. For instance, storage is often used by similarly situated utilities to actively manage gas requirements. Although not extensively used now by the Department due to cost considerations, storage can provide tremendous flexibility to energy portfolio managers aiming to meet incremental load requirements at least-cost.

Importantly, analytical tools to actively assess these opportunities do not exist in the Department; little analytical work is conducted to assess opportunities to optimize gas procurement opportunities in shorter time frames. Further, at present there is not a rigorous transaction management system into which all physical and financial fuel transactions are input for review and valuation. With the potential for a larger volume of gas transactions, such a system will become more critical. (See *Commodity Risk Management* below.) In general, the analytical and technological infrastructure of the fuel procurement function will need to be bolstered, if the use of natural gas assets increases.

Organizationally, the Department's current gas procurement function is thinly staffed, and not well prepared for additional and more dynamic workload that could accompany the changes in the generation portfolio. Further, succession planning for leadership of this functional area is not adequate, given the importance of the activity relative to likely future requirements. The staffing levels and overall resiliency of the functional group will need to improve as requirements increase. On a related point, the physical procurement and financial hedging groups and outputs are currently not integrated. Typically these functions work closely in the execution of their tasks. The prospective movement of the natural gas hedging function to the Power System is seen as an important step to increase knowledge sharing and efficiency of operations.

Finally, as elsewhere, the contracting process within which the fuel procurement operation must operate does not enable more flexible operations in response to market opportunities. The layers of governance required in this process are well-reported (See *Governance* below.) Delegations of authority contained in Section 10.5.3 of the Los Angeles Administrative Code outline the allowable tenor, duration, and price characteristics of both financial hedge and physical gas contracts. However, the requirement for Board and additional authorizations for contracts of incredibly small dollar amount significantly hamper the speed with which transactions can be executed. The general topics of governance, delegations of authority, and "ways of working" need to be addressed as an aspect of future operational improvement.

x. Commodity Risk Management

Issue Overview

Utility operations have been the focus of tremendous scrutiny for the last several years. Of particular interest to a variety of stakeholders is the character and quality of both strategic and day-to-day commodity risk management and control. While the character of market, credit, and operational risk factors continue to evolve (requiring consistent and active management), the standards against which utilities' risk management functions are judged are also changing.

A variety of organizations – from credit rating and regulatory agencies, to oversight groups – are changing the definition of leading practice in energy commodity risk management. Prominent examples include assessment criteria from Standard and Poor's, Moody's, and Fitch, as well as white papers from the Committee of Chief Risk Officers (CCRO). Areas of focus for these and other organizations that influence the definition of leading practice include the following:

Topic	Sub-Topic	Description
Measurement & Reporting	Methodology	Analytical techniques used to derive risk measures
	Frequency	Availability of up-to-date portfolio information
	Protocols	Processes to ensure model and report quality
	Content	Scope and depth of reports
Governance & Controls	Oversight	Level of involvement by senior management
	Policy / Process	Comprehensiveness, soundness, and clarity of policies and procedures
	Checks & Balances	Protocols to create and maintain the independence of risk management
	Limits / Violations	Appropriateness of methods to set and monitor trading limits
	Validation / Assessment	Involvement of risk management staff in assessing the propositions of commercial staff
	Staffing / Expertise	Appropriateness of the size and quality of the current risk management staff
Information Technology	Robustness	Ability to address most portfolio risks
	System Infrastructure	Extent to which standard components of risk management systems are in place
	Flexibility / Efficiency	Data accessibility and usefulness
	Business Continuity & Security	Emergency preparedness, data controls and system reliability
Capital Allocation	Capital Requirements	Processes to estimate and control capital needs as markets change, processes to allocate scarce capital to regions or transactions
	Strategic Deal Analysis	Processes for evaluating the values and risks of prospective large transactions that create capital commitments
	Performance Assessment	Metrics for evaluating commercial performance on a risk-adjusted basis

Exhibit 16: Areas of focus in risk management

Importantly, consideration of an organization's business model is a critical input to evaluating the most appropriate commodity risk management infrastructure; a large-scale trading operation within a large merchant energy company has a distinct set of requirements, versus a municipal utility such as LADWP. In this way, there is no "one size fits all" risk management solution. However, there are a large number of practices that collectively are accepted as core elements of standard practice for effective risk management. These include segregation of duties, regular risk and performance reporting, utilization of transaction management systems, and an appropriate governance hierarchy supporting risk management.

Plans, Strategies, & Policies

The Department's energy commodity procurement activities are governed principally through the following policies and procedures:

- Wholesale Energy Risk Management Policy
- Retail Natural Gas Risk Management Policy
- Wholesale Marketing Counterparty Evaluation (Credit) Policy
- Authorized Transactions and Transaction Control Guide

In general, these and other supporting documents contain protocols that help establish and define risk management and control in the Department and provide the "riverbanks" of allowable behaviors, given the Department and City's risk tolerance for activities in the energy commodity markets. Our review confirms that, in combination, these documents generally address the key themes of an effective commodity risk management function. However, a key focus area reported in the most recently completed Annual Assessment of Wholesale Energy & Natural Gas Activities report (fiscal year 2006) and affirmed through our analysis is a general lack of appropriate segregation of duties in the Department between "risk taking" (or front office) and risk management activities.

Organizationally, commodity risk control and management activities are conducted in two areas: Risk control and management for physical commodity transactions is conducted in the Market Analysis, Planning & Prescheduling function within the Wholesale Energy Resource Management Group, while risk management and control for financial hedging transactions is conducted within the Finance & Risk Control Division within the Office of the Chief Financial Officer (CFO). This bifurcation of responsibility violates a central tenet of risk management effectiveness and segregation of duties. While the personnel responsible for front office and middle office activities may in fact report to different managers within the Wholesale Energy Resource Management Group, the risk management function in this example resides and reports through the front office, a functional organization responsible for executing transactions and placing Department resources "at-risk".

Additional examples where segregation of duties has been blurred can be identified in other Department policy documents. For example, the Wholesale Energy Resource Management Guide on Ethics/Market Manipulation provides guidance as to the characteristics of, and protocols for identifying and reporting, market manipulation. However, the steps for identifying and reporting market manipulation do not include reporting to the Finance & Risk Control Division or any other independent group at any stage of the process. Specifically, guidance on the rules related to market manipulation, reporting of potential instances of manipulation, and the decision as to whether an investigation is required into any particular

event is the responsibility of representatives of the Wholesale Energy Resource Management Group – the Front Office.

Governance over risk management issues is provided through three groups: the Energy Services Executive Risk Policy Committee (ESERPC), the ESERPC Working Group, and the Risk Control Group. According to the ESERPC Directive Series dated September 11, 2007, the ESERPC and ESERPC Working Group meet once a month to formulate the meeting agenda and hold the primary committee meeting (respectively), at which various topics are considered for committee vote and/or evaluated for consideration. Monthly committee meetings of this nature, supported by reports described in the ESERPC Directive Series dated September 11, 2007, are a common practice.

Accurate and efficient transaction management, within an environment of strong internal controls, is a core element of risk management. Software plays a key role in the end-to-end transaction management process. From deal entry to risk and performance valuation, risk management practitioners require a consolidated view of the portfolio at any point in time, inclusive of all physical assets, physical contracts, and related financial hedges. Currently, a consolidated view of the portfolio through a centralized Energy Trading and Risk Management (ETRM) system does not exist. Information resides in disparate databases, characterized by a lack of automated processes and data management practices. The benefit of a centralized repository for all commodity transactions (and modeled assets) will help strengthen controls, and enable more flexible and efficient operations and consistent production of risk management reports, using approved analytics. Finally, through a more rigorous transaction capture and management application, focus can be given to truly enhance the maturity of the Department's independent commodity risk analytics and reporting capabilities, as discussed in the completed Annual Assessment of Wholesale Energy & Natural Gas Activities report (fiscal year 2006).

xi. Asset Management

Issue Overview

Asset management is defined as the systematic and coordinated activities and practices through which an organization optimally manages its physical assets, and their associated performance, risks and expenditures over their lifecycle following a set organizational strategic plan developed for the management of each asset within this framework. The strategy facilitates the management of the assets by:

- Managing limited resources in the most effective way to meet business objectives, focused on performance of the physical assets
- Investing in work that supports the strategic objectives of the company
- Using fact-based, performance driven decision-making to support spending decisions

Additionally, asset management includes:

- Determining the level of work and timeframe for particular assets consistent with the overall strategies,
- Finding the best course of action in term of the 5 R's (retire, replace, repair, refurbish, run-to–fail) for any given asset,

- Developing an optimized work plan with the appropriate balance of cost, performance, and risk,
- Developing and maintaining the appropriate planning, design, construction, operating, and maintenance standards consistent with the asset management and corporate strategies,
- Understanding the entire risk exposure profile and determining the best level of risk tolerance,
- Defining the best mix of resources to complete the work,
- Prioritizing the work according to existent resource constraints

LADWP implemented various practices related to asset management, including the PRP. In addition, LADWP adopted Maximo and WorkTracker as their data repositories and maintenance and work scheduler systems and are in the process of deploying these systems throughout the Department for both Water and Power.

LADWP is also planning to upgrade these systems into the latest version, using the work processes native to the software. These changes will entail significant modifications in work processes and methods that will have to be managed. In addition, LADWP is currently proposing to utilize many of the new features of this system, which will change it from a work management system to a system that provides material management and possibly even project management. It is not clear if WorkTracker will be used as the last transition is made.

However, at the time of this writing it is unclear whether LADWP had determined whether to retain their cyclic replacement approach based on the expected age and condition of it assets versus developing more optimal asset strategies that incorporate the 5-R's. The tools LADWP is putting in place will assist in managing the program but they should not be the driver of the strategic asset plans. Each company has different equipment, technology, risk tolerances, and finances that drive what the asset management model should be. We encourage LADWP to review these and determine where they should be to optimize their assets performance and cost. They could continue with the standard time based and cyclic preventative maintenance or replacement plans but they will not be optimizing their utilization of their resources (human and financial) and the performance of the assets.

xii. Generation Portfolio & Integrated Resources Plan (IRP)

Issue Overview

The generation portfolio constitutes an integral part of any integrated resource plan (IRP), but not the only component. Plans differ greatly in both format and scope – based largely on regulatory or other requirements – but should be developed to meet the utility's load serving responsibilities, corporate objectives, and legal requirements, as well as to evaluate the potential risks inherent in the prescribed plan.

A generation portfolio is the mix of generation sources available to serve a utility's load. Since the 1950's, large baseload units (nuclear, coal, and hydro), intermediate and peaking gas-fired facilities, and pumped storage hydro – all designed to run optimally at differing load patterns – have made up the bulk of LADWP's generation mix.

Recently, DWP has begun to develop more renewable energy generation, establishing the utility as a leader in the growth of renewable energy, but also introducing potential integration risks. The geothermal and biomass resources are able to perform much like the more conventional thermal plants, but the solar and wind resources being introduced represent a new breed of generation. They are intermittent resources, and are not necessarily available when demand is highest. The anti-coincident concerns are particularly high in the case of wind, which tends to run most in shoulder months and off-peak hours.

Certain non-generating options that reduce energy use or shift load to off-peak hours can also be considered to be part of a diverse generation portfolio. Options being pursued by DWP include energy efficiency, demand side management, and direct load control programs. Such programs have promising potential, but like renewable energy also introduce potentially unpredictable impacts.

Generally, a comprehensive IRP will consider such uncertainty, including various scenarios that consider the impacts of possible deviation from the prescribed generation mix or the transmission plan needed to support it. A plan should consider the feasibility, risks, and value impacts associated with potential adjustments to the generation mix, purchased power, and transmission plan. The plan should be re-developed annually, or at least reviewed for validity, feasibility, and financial impact.

Important IRP generation portfolio considerations include:

- Types of generation and their characteristics
- Availability and dispatch curves, as well as their characteristics
- Installed capital cost and fixed/variable operation and maintenance cost (including fuel costs, emissions cost, insurance, etc)
- Cost of purchased power needs
- Availability of direct load control and expected time response
- Spinning reserve requirements and availability
- Information pertaining to generation location and transmission congestion.

Other information required in the IRP:

- Detailed energy and peak load forecast for the period of study – generally 10 years for various growth scenarios, including impact of external energy efficiency regulations
- Transmission availability
- Constraints or policy both internal and external
- Environmental constraints or availability of trades for emissions
- Regulation and legal requirements
- Financing options and potential financial constraints
- System operations requirements (e.g. voltage control, VAR support).

The IRP serves two purposes; it assures the public that the utility has reviewed the future needs to serve them effectively and provides a financial requirement and roadmap for the utility to develop or procure the needed resources to serve their customers.

Plans, Strategies and Policies to Address Issue

DWP issued an IRP in 2000 and again in 2007. The 2007 IRP worked well in providing the proposed plan, but did not consider additional scenarios or financial impacts in most cases. The plan laid out the process needed to meet the RPS requirements through a specific generation and transmission plan but did not provide bandwidths or uncertainties around the elements of the plan, including the financial impact of the solution.

Today development of an IRP is somewhat more difficult than in the past due to many legislative and environmental requirements and the implementation of new types of generation resources that are somewhat unknown. Additionally many of these new resources require major transmission lines to be built for the near term projects. With the projects and the lines in environmentally sensitive areas, the permitting and construction timing is a high risk element within the plans. Even with multiple alternative routes the line approvals are lengthy and unpredictable as to outcome. Further unpredictability on financing options for PPAs, tax credits and other supporting, Aggressive RPS requirements are such that the certainty of the IRP delivery, as planned, is lower than in past years.

In order to consider uncertainty and expected values appropriately the various scenarios need to be documented, how the energy is planned to be dispatched and transmitted and the financial requirements need to come together into a cohesive document for review by management and the board. The additional spinning reserve requirements and the amount of additional generation beyond what has been planned in the past to ensure ability to serve the load needs to be identified. As more experience is gained with the generation patterns and availability and dispatchability of new units and the Green House Gas (GHG) aspects are better understood then more certainty will be achieved and less margins will be required.

Further regulation around Zero Net Energy (ZNE) homes and commercial buildings is now in the offing by the California Public Utilities Commission (CPUC) which could also impact municipals through legislation. The IRP needs to not only be looking very closely at the potential generation portfolios and how they work together but also new load shapes and load growth that will change the need for various types of units and their sizes. Since load growth is low in the area this will not make an significant initial impact, if the technology is cost effective it will become truly distributive and change the entire requirements for a generation portfolio stack.

Developers of the plans are aware of the issues inherent in the plan but have presented the plan that meets the requirements of the RPS and the policies of the department on generation ownership and coal generation. It has not been a practice in the past to provide scenarios, or financial impact of the plan in the published documents. Since 2000, two other IRPs were started but never finished, apparently due to uncertainty and higher priorities. Currently, internally DWP does not necessarily see the need for an annual update of the IRP and would want to defer until there is more certainty around various legislative requirements beyond 2010.

c. INTERNAL / GLOBAL ISSUES

Issue	Source
Strategic Planning	PA
Governance	PA
Human Capital	PA
Public Relations & Community Outreach	PA
IT Systems Infrastructure / Information Management	PA
Supply Chain & Procurement	PA
Health & Safety	PA
Customer Satisfaction	PA

Exhibit 17: Current issues – internal / global

i. Strategic Planning

Issue Overview

As noted in Section 3.1.2, strategic planning is the systematic process by which an organization envisions its future and develops the vision, mission, goals, objectives, and action plans to achieve that future. The purpose of strategic or long-range planning is to enable an organization to establish priorities and better serve the needs of its constituency. A strategic plan must be flexible and practical and yet serve as a guide to selecting and implementing programs, evaluating how these programs are performing versus clear targets, and provide guidance when adjustments are necessary.

Utilities face a large number of strategic planning challenges in today's complex market, regulatory, and political environment. Many of these challenges are common across the utility business segment in areas such as commodity supply and distribution, regulatory / legislative compliance, and workforce planning (among others). However, a number of complex challenges are distinct to municipal utilities, making strategic planning more important. Increased challenges relevant to municipal utilities include tougher and more limited power supply options, the cost of water infrastructure and quality projects, an increasingly competitive labor market, and ongoing uncertainties associated with environmental policies and renewable and green energy mandates.[7]

Further, increasing debt requirements arising from municipal infrastructure projects may result in higher fixed costs and leverage, the eventual impact of which would be directly related to the ability to pass the costs through to customers. For systems with a limited ability to pass these costs along to their customers, increasing debt requirements could result in reduced operating margins. These factors change the dynamic of strategic planning for municipal

[7] From Fitch Ratings, "U.S. Utilities, Power and Gas 2008 Outlook", December 2007.

utilities and DWP specifically, as opposed to Investor Owned Utility (IOU) peers, and therefore require an active, integrated, and well-defined strategic planning process.

The most effective strategic planning processes are those that combine clear protocols and calendars for strategy identification, implementation, and monitoring, as well as protocols to ensure adequate responsiveness and flexibility to changing market, regulatory and political dynamics. In general, key components of effective strategic planning include:

- Annual strategy meetings, focused on critical objectives (e.g., "where to play", "how to win"), with active discussion and debate on the interplay between commercial and risk management strategies, opportunities to enhance operations, and critical issues to be resolved (among others)
- Development of streamlined and focused strategy proposal documents, focusing on "sure things", "big bets", operating improvements, etc.
- Clear assessment criteria, including alignment with company objectives and themes, forecasted financial performance, and risk profile; completed SWOT analyses for all proposed strategies
- Development and implementation of performance indicators and measurement techniques for selected strategies, including evaluation parameters and reporting protocols
- Continual close interplay between business leadership (who propose and are responsible for strategies), and staff / key practitioners within the business who will execute the selected strategies
- Recurring update meetings, during which progress versus goals, objectives, and targets are assessed
- Specific protocols for socializing agreed strategies with key stakeholders as part of a broader annual strategic planning process.

In general, the most effective strategic planning processes are those that are defined by consistently applied, rigorous, and integrated protocols that establish the right strategic direction, while allowing decisions to be considered in the context of that direction in real time.

Plans, Strategies and Policies to Address Issue

As described in Section 3.1.2, the Department's current plans, policies, and protocols supporting strategic planning are at a relatively low level of maturity. Characteristics of effective strategic planning – including consistent processes for conducting environmental scans, assessing performance and risks of proposed strategies, and evaluating performance and risk levels versus targets and tolerances – are lacking. Importantly, the role of strategic planning to identify the target programs and performance indicators and thresholds, resulting in more specific resource planning and budgeting efforts, is not supported or well-understood in the Department.

At present, elements of strategic planning are included in a variety of documents, including System budgets, discrete business plans, and program trend analyses and progress reports. To this end, language around the vision and mission of the Department is not consistent, with clear alignment from System goals to Corporate goals. Importantly, a recognized set of Key

Performance Indicators (KPI) at the highest level of the Department into which each System would feed results have not been established. In short, without these and other steps described in this and Section 3.1.2, decisions around the most critical environmental issues on which to focus, and the best strategies to address current issues, and the best methods of assessing performance and "fine-tuning" programs will continue to lack discipline.

Initial steps are being taken to address strategic planning in the Department. First, Major Initiative Teams are a valuable addition to the overall planning framework and culture in the Department, and help link calendar-based planning efforts with the need to be nimble and responsive to a complex and changing environment. Second, the Department has initiated a process to establish a formal strategic planning group and a more formalized Corporate Strategic Plan (including supporting strategic plans from the Systems and Divisions). However, at present, much of the planning process is not integrated, with efforts to define planning being led by each System.

ii. Governance

Issue Overview

Governance in this context is defined broadly as the combination of processes, structures, relationships, and accountabilities that frame decision-making within the Department, and between the Department and key stakeholders. With regard to internal governance, the decision-making hierarchies, accountabilities, and separation of duties are critical aspects of Department operations; in relation to other critical stakeholders, a principal challenge of the Department is working in a closely integrated and effective manner with the Commission, the Mayor's Office, the City Council, and the various unions relevant to LADWP (among others). In general, issues of governance are one of the most critical factors impacting overall Department operations and the ability to achieve the Department's mission.

Plans, Strategies and Policies to Address Issue

The governance framework within which LADWP operates is complex and defined by a number of immediate stakeholders, including (among others):

- Office of the Mayor
- Board of Commissioners
- City Council
- Office of the Controller
- Office of the Chief Legislative Analyst
- Office of the City Administrative Officer
- Neighborhood Councils

The ordinances, charters, and other governance protocols that define the Department's relations with others are further codified in various delegation of authorities, many of which directly impact the ability of the Department to efficiently meet both day-to-day and longer-term objectives.

Many of the core day-to-day activities conducted by the Department require quick decision-making and action. Current and prominent examples include long-term contracting for renewables and fuel supply. Relatively rapid turnaround of these contracts is especially critical in illiquid, highly competitive, and "thinly traded" energy commodity markets. By definition, these contracts are extremely large in dollar amount, and therefore are subject to delegation of authority requirements that include multiple stakeholders, including the Board and City Council. Further, existing protocols require full disclosure of parameters for contracts that are still in negotiation. In combination, these measures place tremendous burden on efficient Department operations in areas where time is of the essence, and provide an advantage to competing counterparties. (This is particularly true in the case of renewables, where the number of truly viable opportunities is small and competition for projects is great.)

Meanwhile, strategic planning, including policy positions and goal-setting, is directly impacted by the relationship of the Department to other stakeholders. The blending of broad policy objectives with the realities of cost, feasibility, and risk factors that have to be managed by the Department is an on-going challenge. For instance, one of the Department's most critical roles is to provide comprehensive and detailed analysis of policy and program objectives as forwarded by the Mayor's office. The expertise of Department staff in utility operations must be called on to evaluate the feasibility and implications of desired programs; the Department cannot be passive "takers" or implementers of desired programs, for which a clear view of cost and benefit has not been derived. Our analysis suggests that this relationship between the Department and the Mayor's office needs to be restored and significantly strengthened. To be clear, given that the Mayor's office has appointment power over the leadership of the Department, in combination with the influence of organized labor, provides a challenging governance environment.

To this end the responsibility of each of the parties in this complex arrangement must be clear. While municipal utilities are generally confronted by the requirement to conduct active stakeholder management, various factors make the complexity of this requirement seemingly greater in the case of LADWP than for peers, including the sheer size of the Department, its role and responsibility in the City and region, and finally the importance and prominence of many of the current issues to which the Mayor and other parties are responsive (including renewables and others). When considered in conjunction with the layers of internal oversight and levels of authority (both formalized through Charter and those that change with each new Board), complex governance relationships adversely impact the ability for the Department to achieve its mission in an efficient manner. In general terms, this complexity is a fundamental issue that undermines clarity of policy leadership and decision-making authority and accountability. While active engagement of these stakeholders is critical to help the Department achieve its mission, the current governance framework puts achievement of long-term goals squarely at risk.

While the Department cannot rapidly alter the governance arrangement within which it works (fundamentally changing the charters, ordinances, and other aspects of governance that impact operations is a longer term endeavor), engaging in an active and on-going dialogue with the various parties that form the Department's governance framework is critical. Given the role of the City and related departments in a range of activities – from formulation of strategies and policies to due diligence around energy and water analysis – the oversight and potential "politicization" of Department activities is a feature of operations that must be considered. This dialogue should be informed by a prioritized list of governance

arrangements that most impact the Department, which would be derived in the course of the strategic planning effort

iii. Human Capital

Issue Overview

Human Capital refers to the set of skills and knowledge that people bring to their jobs to perform tasks and produce economic value for an organization. In our view, a successful organization requires a strategy and processes that deal with the various interrelated components that make up Human Capital. These include:

1) Recruitment practices – comprised of the right number of resources and the right competencies in an organization

2) Workforce management/Succession planning – filling positions with qualified internal/external candidates in advance of actual need by developing a workforce management plan to identify, attract, and retain talent. A formal process for succession planning is additionally important, as it does the job of monitoring the succession process, enabling an organization to ensure that the right people are moving into the right jobs at the right time and that gaps are being identified early on

3) Reward/Compensation structure, performance measures – performance management focuses on measuring and rewarding the right organizational and employee attributes to support the business priorities

4) Technical competencies/job descriptions – aligning recruitment and training to the organizational competency requirements

5) Knowledge management – development of career paths based on the identified competencies and link career development requirements to training for a widespread and solid knowledge base among the employees, thus avoiding knowledge silos

6) Training – tools that provide reliable data and enable responsiveness to stakeholder requests.

Plans, Strategies and Policies to Address Issue

The Department must comply with an examination process and a certification of the eligible list governed by the City Charter Article 10, section 1005-1010 and Civil Service rules 3-5 to hire new staff.

The Civil Service examination itself involves a written examination (multiple choice, essay and a minimum passing score), performance examination, assessment of training and experience and an interview. This process leads to an eligible list established by the General Manager of the Personnel Department and it is valid for six months.

The certification process involves the Department's request to fill vacant position(s) to the Personnel Department. In response, the City's Personnel Department provides the Department with a list of names (with the highest scores) from the eligible list. At that time, the Department follows its interview selection process, in accordance with the Administrative

Manual Section 20-41. The interview selection process at the Department involves the divisions, the EEO coordinator, and the Human Resources unit.

It is evident that the hiring process is complicated and time-consuming, hence the Department has engaged in some innovative approaches aimed to improve some of the ineffective processes in place. However those tasks are not part of a more comprehensive approach.

Although we understand the Department faces numerous rules that in many instances delay the recruitment efforts, its level of preparedness to address the various human capital components is low. We have identified the following re-occurring themes:

- As noted earlier, the Department's recruitment practices are lengthy and complex, partly because they involve outside agencies such as the Personnel Department. Efforts to streamline every process under which the Department has sole jurisdiction should be diligent and consistent, thus making them as efficient as possible
- LADWP faces significant workforce planning and succession planning deficiencies – The Department recently tasked its Human Resources Department with workforce planning and to our knowledge, there is no comprehensive strategy to tackle LADWP's aging workforce problem, identifying positions "at risk", a strategy to expedite the hiring of employees for those positions, a comprehensive knowledge transfer initiative, etc. In addition, succession planning efforts are at an infant stage at the Department.
- In general, we found a highly committed workforce at LADWP, however, the employees are well aware that their efforts and commitment will not be rewarded any differently than those that are less efficient and committed because there are no performance measures in place. It is worth noting that although the Department is currently negotiating with the Management Employees Association (MEA) to develop a formal and ongoing management performance review process (MPRP), it would only focus on the measurement and achievement of Customer Satisfaction in developing future budgets.
- In a world of ever changing technology, the Human Resources unit must ensure a continuous working relationship with the Power and Water Systems where the capabilities and job descriptions are in-line with the tools and competencies currently needed at the Department and in the near future to obtain the skills necessary.
- Hiring is further affected by priority given to internal applicants for promotion or transfer, and the assignment of work to LADWP staff rather than to retain consultants. Utility technologies and expertise are becoming increasingly sophisticated. If LADWP's priorities are to provide the best service at the lowest cost, transferees or promotees should be competitively qualified, and outside expertise retained to provide a knowledge base that can be transferred to the staff. A policy of "in-house" priority requires a heavy investment in training of all types.

An organization must position itself for future success. As part of this effort, an integrated approach to deal with human capital issues is critical; one that links to the organization's business plans and goals as well focuses on all aspects of talent management, knowledge retention, recruitment, performance measures, and training. There is vast room for improvement in this area at LADWP.

iv. Public Relations & Community Outreach

Issue Overview

Public Relations is the process through which an organization communicates with its stakeholders. This includes communications regarding products, services, operations, corporate values, among others. Because of its dynamic, Public Relations should be a strategic function implemented at the highest level of management utilizing various tools to reach well defined goals and objectives.

Community Outreach is a subset of Public Relations involving specific programs, projects or events to further enhance an organization's ability to meet its objectives. Generally, these activities are conducted to solicit support, shape public opinion, and/or request community participation (e.g., involving the community).

Public agencies often face similar challenges when trying to shape stakeholder perceptions, solicit interest, and create buy-in and support for various programs and policies. But, the success or failure of these activities is shaped by stakeholder expectation and the perceived level of outreach effort shown by the public agency.

LADWP faces some unique challenges as an organization. These unique challenges are outlined in the strategic planning assessment, and also directly affect the implementation of Public Relations and Community Outreach plans and strategies.

Key components of effective Public Relations and Community Outreach include:

- Development and implementation of a comprehensive Public Relations strategy
- Establishment of a clear and concise Public Relations and Community Outreach mission statement that includes goals and objectives
- Implementation of outreach activities with highly visible support from leadership and the highest level of management
- Provide training to employees, and establish well defined roles and responsibilities for reaching objectives
- Include Public Relations and Community Outreach as a key component of the Strategic Planning Process. Utilize outreach strategically to garner support, shape public opinion, and involve stakeholders in making difficult decisions
- Close coordination of outreach activities with internal departments, government officials, business organizations, and community groups
- Establish parameters/techniques to measure effectiveness of outreach efforts and define results
- Timely communication and dissemination of information is critical. Treat the public with honesty and integrity to develop trust
- Maximize the use of the internet, media, and events to market outreach efforts and successes, and encourage public feedback

Plans, Strategies, & Policies

According to its stakeholders, LADWP has increased its focus on Public Relations and Community Outreach in recent years. Various plans are in the works to increase the number of outreach events, modify and enhance various modes of communication with the public, and improve coordination and communication internally regarding outreach activities. Much of the implementation of these plans is dependent upon technological upgrades and additional staffing. Public Affair, Economic Development, Education and Outreach; Employee Services, Supply Chain Services and Customer Services all have plans for upgrading technology and hiring additional staff and/or filling vacant positions.

Strategic Planning

LADWP Managers and staff hold meetings to discuss different issues and various plans, as well as to coordinate Public Relations and Community Outreach activities. These meetings are mainly recent developments instituted by employees new to their positions. However, there is very limited, if any, high level regular strategic planning with relevant DWP staff as it relates to this function.

Outreach Plans

LADWP produces specific outreach plans to address various issues, programs, and major events. Outreach plans provide a guide for successful implementation and results. Plans may include:

- Summary and purpose of Plan
- Schedules to track progress and due dates
- Objectives
- Key messages
- Key audiences
- Strategies
- Collateral materials

Examples of recent Outreach Plans include:

- Water Quality Communications Plan
- Power Reliability and Water Quality Improvement Outreach Plan
- Low Income Discount Rate Customer Outreach Plan

Examples of recent Outreach Plans for Specific Projects include:

- Lower Owens River Project Water Release Ceremony (Public Affairs received an award for "Best in Show" from the Los Angeles Chapter of the Public Relations Society of America for this event)
- Barren Ridge-Castaic Transmission Project

- Green Path North

As mentioned above LADWP, through Public Affairs, produces Outreach Plans tailored to specific programs or events. These plans are well designed, planned and implemented by LADWP staff. However, without strategic planning, Outreach Plans may miss an opportunity to maximize successful results.

Stakeholder Relationships

As an indication of the increased outreach effort, Government and Neighborhood Relations facilitated over forty (40) meetings with community groups and Neighborhood Councils in the last eight (8) months, even with limited staffing. However, the characterization of LADWP stakeholder relationships runs the gamut from very good to poor. Stakeholders, who characterize their relationship with LADWP as poor, feel that there is no relationship, they are largely ignored, or they've been misled on important issues. Although these sentiments do not reflect the broader sentiment of NC about the Department, LADWP has the infrastructure in place to improve in this area, but it will require a change in management strategy for nurturing key stakeholder relationships.

Economic Opportunities

LADWP is involved in a wide range of economic opportunities including community development, employment, procurement, and contracting. Currently, the processes for these functions are not well defined as it relates to Public Relations and Community Outreach. Plans are being developed by the responsible departments to increase outreach. Technology in these departments is not adequate to enhance current programs, improve data collection, or reliably report the results of outreach efforts.

The Public Affairs department was severely neglected for several years prior to 2006. Department morale was low, staff unmotivated, and the public relations function lacked leadership and focus. Current Department management is providing much needed leadership for the staff and reinstituting several outreach efforts to improve media and key stakeholder relations. There are components of the function that still require attention. Without an over arching theme and strategic plan for reaching short-term and long-term public relation objectives, the effectiveness of most outreach activities are limited. In addition, there is no formal structure for gathering data and measuring results of Public Relations and Community Outreach activities to provide on-going reports to management and further the strategic planning process.

It is clear that LADWP has put more emphasis on public relations, but continues to struggle with the establishment of an infrastructure capable of handling all requirements of a municipal utility or city department of its size. The absence of clear goals and objectives for the function led to inadequate staffing levels, informal business processes, and the inability to leverage technology infrastructure to complete key tasks. Given these findings, efforts to further develop planning, coordination, and staffing of this function are needed.

v. IT Systems Infrastructure / Information Management

Issue Overview

More than anytime in the past, a utility's IT applications, infrastructure, data management, and services are critical determinants of success. Stated generally, the "tools and data" that support decision-making are inseparable from any utility's ability to adequately meet the demands of customers, suppliers, and other important stakeholders. To meet current and emerging requirements and challenges, utilities are investing in leading solutions in areas such as CIS, while consistently increasing their maturity in service management, data security, and other areas. Emerging technologies, such as advanced metering infrastructure and meter data management, will put more pressure on utilities to upgrade their existing applications and infrastructure to modern standards. Additionally, these emerging technologies will require utilities to experts in data management. For LADWP, the entire system landscape has been identified as a critical focus area, and a wide variety of initiatives have been identified and are "in the queue". The staging and successful execution of these system implementation efforts and associated business process change programs is one of the critical strategic focus areas of the Department at present.

Plans, Strategies and Policies to Address Issue

ITS presented its IT Strategic Plan to the Board of Commissioners in April 2008. ITS has started executing on parts of that plan that it can affect immediately: mostly internal IT processes and procedures that will provide a foundation for future programs. In particular, the adoption of industry standard (ITIL-Information Technology Infrastructure Library) processes in the service desk and provisioning areas will help rectify these processes. The initiative on data security, particularly when data are becoming increasingly important to LADWP, is a needed focus.

The IT Strategic Plan is necessarily broad because of the current state of the ITS systems. It addresses the aged applications and infrastructure that support the business-critical processes at LADWP, including:

- Procurement
- Customer Information System and Billing
- Work Management and Materials Management
- Graphical Information System/Electric Model
- ERP/Back Office

The plan also addresses IT operational areas such as disaster recovery and microwave transmission.

ITS will have many challenges in realizing this plan and it has begun to account for them. These challenges include:

- Aging IT workforce. The ITS workforce is competent in older technologies, such as mainframe and COBOL. They have deep knowledge about the existing applications, the interfaces between those applications and the business processes the applications

support. It is essential that this workforce remain as intact and engaged as possible as new applications are implemented.

- IT Workforce untrained in modern technologies. The current IT workforce has little experience with n-tiered architectures, languages and tools that will be needed to implement these applications. LADWP will most likely have to rely heavily on contractors to plan, manage and implement these applications
- Administrative processes hampering talent acquisition. LADWP's administrative processes are particularly onerous for hiring compared with other LA departments. The implementation of these applications will require experienced hires from outside LADWP.
- LADWP users unfamiliar with modern technologies. The implementation of these new applications must be treated as a change program for the users. They will be introduced to completely new technologies, methods and processes. There roles may change. This challenge may go beyond the users and to the union contracts under which they are working.
- Unraveling a complex application architecture. Because of the age of most of these applications, it is highly probable that the interface points between them are numerous and highly complex. It is also probable that many of the interfaces are not documented and that their "authors" are no longer at LADWP. These interfaces most likely contain a good deal of business process logic. As the applications are replaced overtime BIS will have to devote significant effort to understanding and re-engineering these interfaces for the new applications.

vi. Supply Chain & Procurement

Issue Overview

Supply Chain processes refer to the system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer. In the case of LADWP, the ultimate customers are the units within the Water and Power Systems.

Supply chain management, a term that was developed to express the need to integrate the key business processes, from end user through original suppliers is critical to fulfill customer demands through the most efficient use of resources. Various aspects of optimizing the supply chain include liaising with suppliers to eliminate bottlenecks, sourcing strategically to strike a balance between the lowest material cost of transportation, implementing "Just in Time" techniques to optimize flow, maintaining the right mix of location of stores and warehouses to serve the customers and using location/allocation, vehicle routing analysis, dynamic programming and traditional logistics optimization to maximize the efficiency of the distribution side.

Procurement refers to the acquisition of goods and/or services at the best possible total cost of ownership, in the right quantity and quality, at the right time, in the right place and from the right source for the direct benefit or use of corporations, or individuals, generally via a contract. An efficient procurement life cycle in modern businesses usually consists of seven steps:

- Information Gathering: If the potential customer does not already have an established relationship with sales/ marketing functions of suppliers of needed products and services (P/S), it is necessary to search for suppliers who can satisfy the requirements.
- Supplier Contact: When one or more suitable suppliers have been identified, Requests for Quotation (RFQ), Requests for Proposals (RFP), Requests for Information (RFI) or Requests for Tender (RFT) may be advertised, or direct contact may be made with the suppliers.
- Background Review: References for product/service quality are consulted, and any requirements for follow-up services including installation, maintenance, and warranty are investigated. Samples of the P/S being considered may be examined or trials undertaken.
- Negotiation: Negotiations are undertaken, and price, availability, and customization possibilities are established. Delivery schedules are negotiated, and a contract to acquire the P/S is completed.
- Fulfillment: Supplier preparation, shipment, delivery, and payment for the P/S are completed, based on contract terms. Installation and training may also be included.
- Consumption, Maintenance and Disposal: During this phase the company evaluates the performance of the P/S and any accompanying service support, as they are consumed.
- Renewal: When the P/S has been consumed and/or disposed of, the contract expires, or the product or service is to be re-ordered, company experience with the P/S is reviewed. If the P/S is to be re-ordered, the company determines whether to consider other suppliers or to continue with the same supplier.

Plans, Strategies and Policies to Address Issue

According to various interviews with key stakeholders, LADWP's supply chain & procurement processes are severely flawed. However, the Department has begun to take corrective actions. One of them actions involved contracting Scott Madden Management Consultants (Scott Madden) to perform a comprehensive assessment of the Department's Supply Chain Services (SCS). The findings revealed that SCS was struggling to meet its obligations due to:

- Large backlog of unprocessed requests
- Un-filed purchase requests that delay the arrival and use of material
- Identification of "root causes" behind the current backlog that included: higher than necessary transaction volumes, long, overly controlled, risk averse ever changing processes, confusing instructions and documentation, significantly lower authority levels than comparable companies, an absence of common automation support and insufficient staff to manage the current workload.

To-date, a program management office has been established to carry out the "First 90 days" of the Supply Chain Transformation Program and six project teams were identified to carry out the tasks. Scott Madden was also contracted to assist SCS with their recommended action plan.

Yet, the severity of the supply chain and procurement issues has prompted a response at LADWP, yet the commitment and rigor necessary to implement lasting changes remains to be seen. We believe the implementation of a program that addresses the issues identified in the

Scott Madden report and known to the many stakeholders the Department serves must be continuous, rigorous and have management support at every step of the implementation process. Further, it must be monitored closely to avoid further time and cost per "missed opportunity".

LADWP will not be able to achieve its most critical goals without reforming its supply chain and procurement practices. Every win during the implementation must be communicated to Department personnel and their stakeholders as a tool to restore confidence in the supply chain and procurement process, which for so long appears to have been neglected.

vii. Health & Safety

Issue Overview

Health and Safety is important to any organization, but is of critical importance at a utility, where high-risk occupations demand the highest quality programs possible. Key aspects of a successful health and safety program include committed oversight, comprehensive personnel training programs, robust emergency preparedness plans, and up-to-date systems that enable appropriate communication between remote facilities and management personnel. In the case of LADWP, all necessary facets appear to be in place, but its safety record in recent years has been less than exemplary. LADWP's program demands more executive attention in general, with particular attention paid to the training of first-line supervision, field coaching and management efforts, and appropriate examination and communication of past incidents to ensure the Department can prevent against reoccurrences.

Plans, Strategies and Policies to Address Issue

Upon the review of health and safety information and based on the Department's level of preparedness on this issue, this category became part of the Human Capital discussion in the Operational Assessment.

viii. Customer Service and Satisfaction

Issue Overview

Customer service is a series of activities designed to enhance the level of customer satisfaction, that is, the feeling that a product or service has met the customer's expectation. For LADWP, customer service and satisfaction is not solely related to the ratepayers, but also to its various stakeholders like the LADWP Commissioners, CAO, CLA, City Council and Mayor's Office.

Plans, Strategies and Policies to Address Issue

The Department has participated in many studies designed to assess customers' overall satisfaction with direct services, practices and operating policies. Their latest effort involves updating their customer satisfaction profile through a field survey that will be carried out by an outside research firm. In addition, LADWP continues to participate in annual benchmarking studies conducted to compare its performance in customer satisfaction with other utilities throughout the state, region and nation.

The Department also maintains a Customer Relations Management System to keep track of customer interaction. It holds the customer contact database and information regarding

customer energy and water savings and it is capable of communicating with the billing system. Future plans include linking the system to the website to provide some on-line customer services. The system can also generate various reports like consumption histories over a period of time.

A comparison of customer service and satisfaction practices of the Department versus their peers will be explored in the Operational Assessment. Due to the nature of specific issues related to customer service and satisfaction, this section will be split into customer satisfaction (water) and customer service (power), as their issues are system-specific.

Finally, in this context Customer Service and Satisfaction can also refer to the manner in which LADWP responds to the needs of its stakeholders across the various City groups, agencies, and departments, including the Mayor's Office and Board. According to various interviews, the Department is generally viewed unfavorably in terms of customer satisfaction by its stakeholders and peers at the City. The three main reasons are: the lack of responsiveness, the apparent lack of accountability LADWP employees face if requests are not met, and the lack of clarity and thoroughness of documents received from LADWP.

3.2.4 Current Issue Prioritization

As noted, the Department faces a large number of complex, inter-related challenges, any one of which will require significant capital (time and financial) to resolve. These challenges and issues must be prioritized to most appropriately allocate scarce capital and focus attention in the areas that will yield the greatest benefit for the Department (and similarly, in those areas where failure to act will have the greatest impact to achieving the Department's Mission, Vision, Values, and Goals).

The inventory of issues included in this analysis, while comprehensive, is far too large to enable appropriate focus (either from Department staff or of resources) on the most important issues. Given this, a prioritization of the current issues is required to provide directional guidance as to the focus of management and the dedication of scarce resources. (This prioritization should be treated as preliminary, and subject to further analysis and review.)

It is critical to note that many of the issues identified and reviewed as part of this Survey are closely interrelated. In this way, certain of the issues can be combined without losing any detail or nuance of any particular issue. The list of current issues (from the RFP and those added by PA) is provided below, with combined issues clearly identified. Issues are numbered and color coded to enable reference throughout the analysis:

Issue Area	Issue	Issue Number
Water System	Sacramento-San Joaquin Delta Court Judgment	1
	Sacramento-San Joaquin Delta Levy Reconstruction and Maintenance	2
	Owens Valley Environmental Restoration	3
	Increasing dependence on Metropolitan Water District (MWD)	4
	San Fernando Ground Water Contamination	5
	Water Conservation Efforts	6

Issue Area	Issue	Issue Number
	Consumer Confidence in Water Quality	7
	Capital Program	8
	Recycled Water & Comprehensive Water Planning	9
	Water Rates & Charges	10
	Water Quality	11
	Asset Management (Water)	12
Power System	Compliance with Air Quality Standards	13
	Power Rate Setting & Consumer Confidence	14
	System Resource Planning (including Renewable Portfolio Standards (RPS))[8]	15
	Energy Conservation & Policies	16
	Improve Power System Reliability & Meet Reliability Goals	17
	Current & Projected Wholesale Trading Policies	18
	Energy Cost Adjustment Factor (ECAF)	19
	Fuel Procurement	20
	Commodity Risk Management	21
	Asset Management (Power)	22
Internal / Global Issues	Strategic Planning	23
	Governance	24
	Human Capital	25
	Public Relations & Community Outreach	26
	IT Systems Infrastructure / Information Management	27
	Supply Chain & Procurement	28
	Health & Safety	29
	Customer Service & Satisfaction	30

Exhibit 18: Inventory of 2008 current issues

As with the 2002 Strategic Issue and Recommendation Review, the prioritization of current issues was based on an analysis that included an assessment of relative Impact of each

[8] This is a combination of the following: Sufficient Generating Capacity to Meet Demand & Renewable Portfolio Standards (RPS), Impact of RPS on Baseload Generation, Transmission Systems, Capacity & Reliability, and Generation Portfolio & Integrated Resource Plan (IRP).

issue on Department goals, and level of Preparedness to address the issue. These parameters are defined as follows:

Impact: The potential impact of failing to successfully focus Department energies and resources to address each current issue, relative to the Department's proposed Mission, Vision, Values, and Goals.

- The impact of each issue on the achievement of the stated goals of the Department was evaluated. Current issues were cross-referenced against each of the eight goals (plus three added by PA) to provide an initial indication of the relative impact of each current issue on the successful realization of Department goals.

Preparedness: An evaluation of the Department's ability to address each current issue. Specifically, the adequacy of current plans, strategies, and policies to resolve issues and challenges facing the Department.

- The relative level of preparation to address each issue was made. Preparedness was determined through an evaluation of all aspects of the Department's infrastructure required to address the issue at hand, including "People", "Process", "Technology", "Governance" and other related categories.

In addition, a critical and generally accepted "rule of thumb" related to strategic assessment and planning was also applied: Additional weight was given to those issues that the Department can principally affect. Stated differently, although the policies and protocols of various City departments impact the LADWP, they cannot be directly changed by the LADWP.

As discussed, each issue was assessed in relation to the Department's preliminary goals, which are included here:

- Exercise fiscal responsibility
- Meet or exceed customer expectations for high quality tap water and reliable power
- Improve water and power system reliability
- Enhance environmental stewardship activities through conservation/reduction of water and energy usage and increased use of renewable water and energy resources
- Protect the interests of the City of Los Angeles and its citizens on water and energy issues
- Expand economic, education and outreach efforts
- Ensure the continuity of an effective and efficient workforce
- Protect the safety and security of LADWP's employees, assets and resources.

Finally, as noted, we have added three additional goals that we believe are critical when considering the broad objectives of the Department:

- Secure low cost and reliable supplies of water and power, balancing other Department objectives
- Engage in highly efficient operations, marked by continuous operational improvement

- Provide exceptional customer satisfaction and service, to both ratepayers and stakeholders
- Given these current issues and goals, we applied a three step process to conduct the current issue prioritization:
- **Step One**: Identify Goals Impacted by Current Issues

Meaningful strategic assessment requires an understanding of the mission and goals of the organization in question. Only when considering an organization's mission and goals can an environmental scan be properly conducted and issues assessed. In Step One, current issues were simply cross-referenced against the 11 goals included in this Survey to understand the number of goals that could be impacted by failing to address each current issue. The following table reflects the results of this cross-referencing:

Department Goal	Focus Area																													
	Water												Power										Internal / Global							
	Sacramento-San Joaquin Delta Court Judgment	Sacramento-San Joaquin Delta Levy Reconstruction & Maintenance	Owens Valley Environmental Restoration	Increasing Dependence on Metropolitan Water District (MWD)	San Fernando Ground Water Contamination	Water Conservation Efforts	Consumer Confidence in Water Quality	Capital Program	Recycled Water & Comprehensive Water Planning	Water Rates & Charges	Water Quality	Asset Management (Water)	Compliance with Air Quality Standards	Power Rate Setting & Consumer Confidence	System Resource Planning (including Renewable Portfolio Standards (RPS))	Energy Conservation & Policies	Improve Power System Reliability & Meet Reliability Goals	Current & Projected Wholesale Trading Policies	Energy Cost Adjustment Factor (ECAF)	Fuel Procurement	Commodity Risk Management	Asset Management (Power)	Strategic Planning	Governance	Human Capital	Public Relations & Community Outreach	IT Systems Infrastructure / Information Management	Supply Chain & Procurement	Health & Safety	Customer Service & Satisfaction
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Goal One: Exercise fiscal responsibility								✓	✓	✓		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
Goal Two: Meet or exceed customer expectations for high quality tap water and reliable power	✓	✓	✓		✓		✓		✓	✓	✓	✓		✓	✓		✓	✓		✓		✓	✓			✓		✓		✓
Goal Three: Improve water and power system reliability								✓	✓	✓		✓		✓	✓		✓					✓	✓				✓	✓		
Goal Four: Enhance environmental stewardship activities...	✓	✓	✓		✓	✓							✓		✓	✓														
Goal Five: Protect the interests of the City of Los Angeles and its citizens on water and energy issues				✓						✓			✓	✓	✓		✓		✓				✓	✓		✓				✓
Goal Six: Expand economic, education and outreach efforts						✓	✓		✓	✓	✓			✓	✓	✓										✓				✓
Goal Seven: Ensure the continuity of an effective and efficient workforce																							✓		✓		✓	✓	✓	
Goal Eight: Protect the safety and security of DWP's employees, assets and resources								✓				✓										✓					✓	✓	✓	✓
Secure low cost and reliable supplies of water and power, balancing other Department objectives				✓		✓			✓					✓	✓	✓		✓	✓	✓	✓		✓	✓						
Engage in highly efficient operations, marked by continuous operational improvement												✓										✓		✓	✓		✓	✓		
Provide exceptional customer satisfaction and service, to both ratepayers and stakeholders							✓										✓							✓	✓	✓	✓	✓		✓
	2	2	2	2	2	3	3	3	5	5	2	5	2	6	7	4	4	3	3	3	2	5	6	5	4	4	6	7	2	5

Exhibit 19: Current issues versus goals

As noted, this simply provides a cross-reference and count of the number of current issues that impact Department goals; it does not provide an estimate of intensity of that impact, particularly on the longer term operations of the utility. This estimate was generated in Step Two below.

Step Two: Estimate the Impact of Current Issues on Goals

The impact of current issues was estimated given our insight into the details and complexity of the issues themselves and our understanding of the goals and objectives of the Department. Additional consideration was given to those issues that would be most likely to have a lasting impact on the Department over the next 3-5 years. Impact was scored as follows:

Impact	Impact Estimate
Low Impact	**1-3**
Marginal Impact	**4-5**
Moderate Impact	**6-7**
High Impact	**8-10**

Exhibit 20: Current issues versus goals

Step Three: Estimate the Preparedness of the Department to Address Current Issues

Next, an assessment of preparedness was made for each current issue, leveraging results from interviews, detailed review of Department documentation, and insights into the activities of other municipal and investor owned utilities. Preparedness was scored as follows:

Preparedness	Preparedness Estimate
Low Preparedness	**1-3**
Marginal Preparedness	**4-5**
Moderate Preparedness	**6-7**
High Preparedness	**8-10**

Exhibit 21: Current issues versus goals

The following table provides the impact and preparedness estimate for each of the current issues:

Issue Area	Issue	Issue Number	Impact Estimate	Preparedness Estimate
Water System	Sacramento-San Joaquin Delta Court Judgment	1	8	7
	Sacramento-San Joaquin Delta Levy Reconstruction & Maintenance	2	6	7
	Owens Valley Environmental Restoration	3	8	9
	Increasing dependence on Metropolitan Water District (MWD)	4	8	7
	San Fernando Ground Water Contamination	5	7	4
	Water Conservation Efforts	6	7	6
	Consumer Confidence in Water Quality	7	8	5
	Capital Program	8	6	8
	Recycled Water & Comprehensive Water Planning	9	8	4
	Water Rates & Charges	10	7	4
	Water Quality	11	8	7
	Asset Management (Water)	12	6	7
Power System	Compliance with Air Quality Standards	13	8	8
	Power Rate Setting & Consumer Confidence	14	7	4
	System Resource Planning (including Renewable Portfolio Standards (RPS))	15	8	5
	Energy Conservation & Policies	16	5	9
	Improve Power System Reliability & Meet Reliability Goals	17	6	6
	Current & Projected Wholesale Trading Policies	18	5	6
	Energy Cost Adjustment Factor (ECAF)	19	8	5
	Fuel Procurement	20	6	4
	Commodity Risk Management	21	7	6
	Asset Management (Power)	22	5	6
Internal / Global Issues	Strategic Planning	23	8	4
	Governance	24	9	4
	Human Capital	25	8	3
	Public Relations & Community Outreach	26	6	5
	IT Systems Infrastructure / Information Management	27	9	3
	Supply Chain & Procurement	28	9	4
	Health & Safety	29	6	7
	Customer Service & Satisfaction	30	6	7

Exhibit 22: Current issues versus goals

The following exhibit reflects a mapping of current issues against the impact and preparedness scores above:

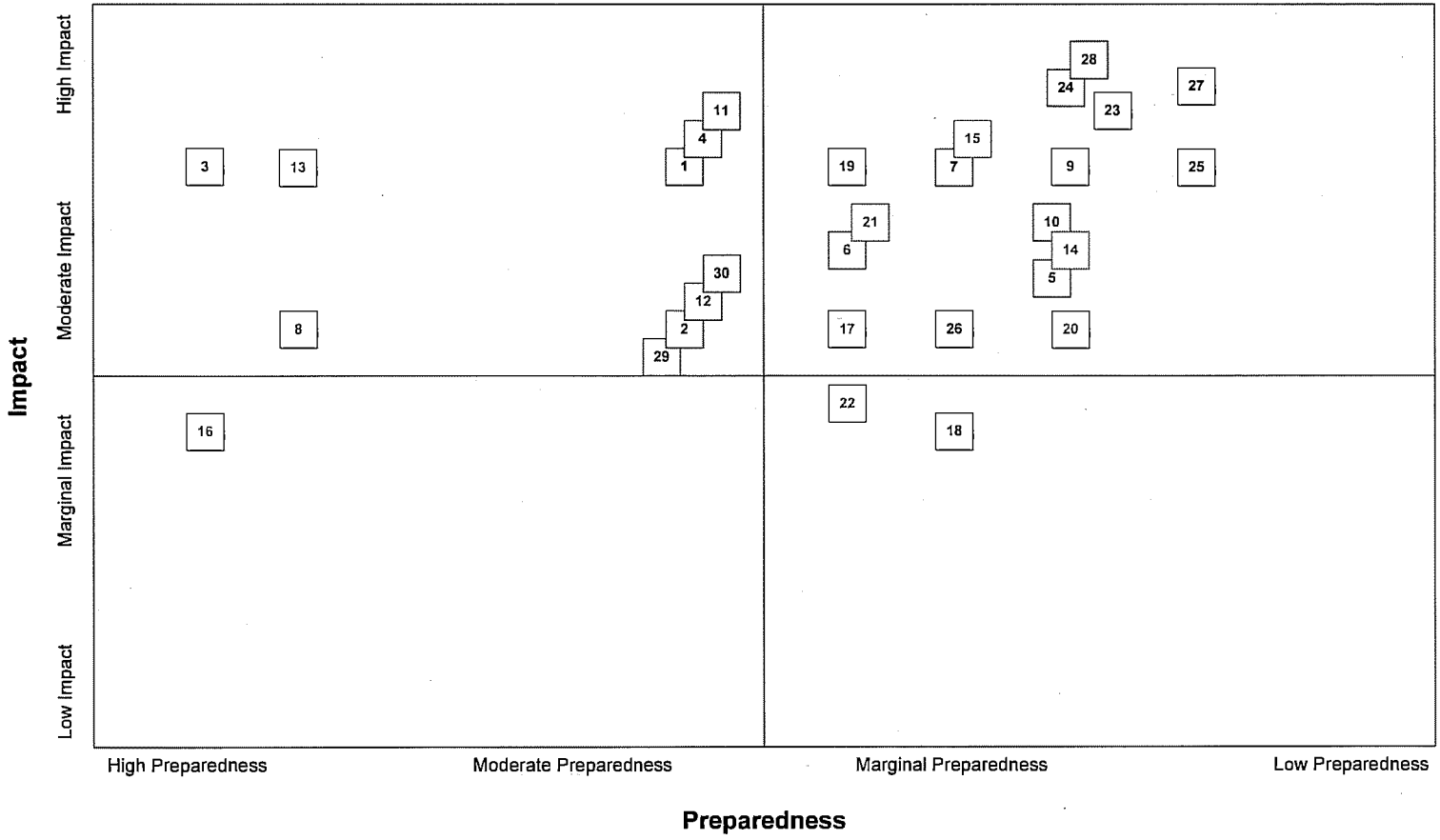


Exhibit 23: Current issues versus goals

The following table reflects an ordering of current issues:

Issue	Issue Number	Impact Estimate	Preparedness Estimate	Issue Score
IT Systems Infrastructure / Information Management	27	9	3	3.0
Human Capital	25	8	3	2.7
Governance	24	9	4	2.3
Supply Chain & Procurement	28	9	4	2.3
Recycled Water & Comprehensive Water Planning	9	8	4	2.0
Strategic Planning	23	8	4	2.0
San Fernando Ground Water Contamination	5	7	4	1.8
Water Rates & Charges	10	7	4	1.8
Power Rate Setting & Consumer Confidence	14	7	4	1.8
Consumer Confidence in Water Quality	7	8	5	1.6
System Resource Planning (including Renewable Portfolio Standards (RPS))	15	8	5	1.6
Energy Cost Adjustment Factor (ECAF)	19	8	5	1.6
Fuel Procurement	20	6	4	1.5
Commodity Risk Management	21	7	6	1.2
Water Conservation Efforts	6	7	6	1.2
Public Relations & Community Outreach	26	6	5	1.2
Sacramento-San Joaquin Delta Court Judgment	1	8	7	1.1
Increasing Dependence on Metropolitan Water District (MWD)	4	8	7	1.1
Water Quality	11	8	7	1.1
Compliance with Air Quality Standards	13	8	8	1.0
Improve Power System Reliability & Meet Reliability Goals	17	6	6	1.0
Sacramento-San Joaquin Delta Levy Reconstruction & Maintenance	2	6	7	0.9
Owens Valley Environmental Restoration	3	8	9	0.9
Asset Management (Water)	12	6	7	0.9
Health & Safety	29	6	7	0.9
Customer Service & Satisfaction	30	6	7	0.9
Capital Program	8	6	8	0.8
Current & Projected Wholesale Trading Policies	18	5	6	0.8
Asset Management (Power)	22	5	6	0.8
Energy Conservation & Policies	16	5	9	0.6

Exhibit 24: Current issues versus goals

This prioritization will guide aspects of the benchmarking effort in Phase II of the Survey, the Assessment of Operational Issues.

4. ASSESSMENT OF OPERATIONAL ISSUES

The Assessment of Operational Issues is comprised of two tasks:

1. Evaluate the operations of the Department versus industry benchmarks, best practices, and peer practices; and
2. Assess the relationships the Department has with critical stakeholders that affect operations.

The remainder of this section provides a synopsis of our approach to benchmarking and results from the benchmarking analysis (including the Department's relative maturity in certain critical issue / service areas), as well as insight into character and quality of relations between the Department and various key stakeholders.

4.1 INTRODUCTION TO BENCHMARKING

4.1.1 Definition and Role of Benchmarking

Benchmarking is the process of evaluating and measuring an organization's internal processes, and identifying, understanding, and adopting practices from other organizations (or accepted industry standards) considered to be best-in-class. Through the evaluation of its processes and practices, benchmarking assists a company to:

- Continually and systematically identify gaps relative to practices and standards of excellence
- Dedicate scarce capital (time and financial) to improve targeted services and processes, relative to business objectives
- Facilitate transformation to increasingly efficient and effective operations.

Importantly, benchmarking is not a one time event, but should be a continuous program and integrated into an organization's culture. Appropriately utilized, benchmarks provide an important indicator of performance and help identify ideas for improvement relative to known standards of excellence.

Relevant benchmarks and standards of best practice are determined from both industry specific and non-specific sources, depending on the activity or process being benchmarked. For instance, while measures of power asset operations reliability are necessarily specific to the electric power industry (e.g., SAIDI), other measures in areas such as human resources, customer service, and information technology are not industry dependent. In fact, guidance and experience from outside the company's core industry can be valuable, particularly when attempting to transform an existing process or activity through the introduction of new and innovative processes.

4.1.2 Types of Benchmarking

There are numerous forms of benchmarking analysis, each of which may be appropriate depending on the specific service or process being explored and how the benchmark will be used. Primary forms include:

Performance benchmarking

- Derives, ranks, and compares a calculated measure against the value from a peer panel or industry average to determine relative performance

Process benchmarking

- Compares business processes in key service areas, with comparisons made to leading performers in a peer panel or versus a recognized or required standard

Functional benchmarking

- Disaggregates a service or process into discrete steps or tasks for comparative purposes; conducted versus a peer panel or common, leading, or best practice standard

Financial benchmarking

- Evaluates financial performance utilizing standard financial measurements; conducted versus a peer panel or industry average to determine relative performance

Strategic benchmarking

- Compares strategic direction and objectives versus an extremely specific peer panel; determines potential modifications to strategic direction

Customer survey benchmarking

- Focuses on surveying customer attitudes and perceptions regarding the services provided by the utility

Engineering / Model Company benchmarking

- Combines engineering efficiency (e.g., physical network configuration) and economic efficiency (e.g., least-cost functions) to design an optimized model of the firm

A combination of these approaches is used to complete the benchmarking component of the Operational Assessment.

4.2 APPROACH TO BENCHMARKING

4.2.1 Benchmark Focus Areas

The 2008 Survey RFP proposed a list of services / processes to be benchmarked as an aspect of the Survey. In addition to this list, we actively considered the results of the Assessment of Strategic Issues (Current Issue prioritization) when evaluating the benchmarking focus areas.

a. REVIEW OF THE CURRENT ISSUE PRIORITIZATION

To review, the Assessment of Strategic Issues is comprised of two tasks: First, an evaluation of the relevance of 2002 recommendations and progress to-date implementing those recommendations (including the broad strategy framework adopted by the Department). Second, an inventory and validation of the strategic issues to which

the LADWP must be responsive. Current Issues identified in the Strategic Assessment were prioritized by two dimensions:

1. Estimate the Impact of Current Issues on Department Goals

   Estimated given our insight into the details and complexity of the issues and our understanding of the goals and objectives of the Department

   Additional consideration was given to issues that would have a lasting impact on the Department over the next 3-5 years

2. Estimate the Preparedness of the Department to Address Current Issues

   Derived by leveraging results from interviews, detailed review of Department documentation, and insights into the activities of other municipal and investor owned utilities

In combination, three sources of information were used to derive the benchmark focus areas: First, 2002 recommendation areas that were judged as either "Moderately" or "Highly" relevant, and for which only "Limited" or "Some" progress had been made in terms of implementation. Second, as discussed, benchmark focus areas from the 2008 Survey RFP were explicitly considered. Finally, the Current Issue prioritization emerging from the Strategic Assessment also contributed to the analysis. Each of these areas is linked explicitly to successful achievement of the Department's Vision, Mission, Values and Goals.

Referencing these sources, the following were identified as the benchmark focus areas for the Operational Assessment:

System	Benchmark Focus Area
Water	Water Quality
	Water Supply
	Asset Management (Water)
	Customer Satisfaction
	Finance (including Billing)
Power	Power System Reliability
	System Resource Planning (including Renewable Portfolio Standards (RPS))
	Asset Management (Power)
	Fuel Procurement
	Customer Service
	Commodity Risk Management
	Energy Cost Adjustment Factor (ECAF)
Internal / Global	Human Capital
	Strategic Planning
	Enterprise Risk Management

System	Benchmark Focus Area
	IT Systems Infrastructure / Information Management
	Public Relations & Community Outreach

Exhibit 25: Benchmark focus areas

These focus areas capture the remaining recommendation areas from the 2002 Survey, as well as the majority of proposed benchmark focus areas offered in the 2008 Survey RFP.

The following table reflects the types of benchmarks used to assess each benchmark focus area:

Benchmark Focus Area	Type of Benchmark					
	Performance	Process	Functional	Financial	Strategic	Customer Survey
Water Quality	X		X			X
Water Supply		X				
Asset Management (Water)	X	X	X		X	
Customer Satisfaction						X
Finance (including Billing)	X	X		X		X
Power System Reliability	X		X			
System Resource Planning		X			X	
Asset Management (Power)	X	X			X	
Fuel Procurement		X	X		X	
Customer Service	X					
Commodity Risk Management		X	X		X	
Energy Cost Adjustment Factor (ECAF)		X		X	X	
Human Capital	X	X	X			
Strategic Planning		X	X		X	
Enterprise Risk Management		X	X		X	
IT System Infrastructure / Information Management	X			X		
Public Relations & Community Outreach		X			X	

Exhibit 26: Type of benchmarks used

4.2.2 Benchmark Measures

Well-recognized benchmarks were selected in each of the benchmark focus areas, including both quantitative benchmarks as well as business management standards. Baseline standards and practices followed at the Department and identified during interviews and data gathering provided the context for the benchmarking evaluation. While a comprehensive process audit or evaluation was not conducted on any single service or activity performed in the Department, general insights were gathered into the protocols followed by the Department for a wide variety of services and activities.

4.2.3 Benchmark Scoring

A variety of sources was used to score benchmarks for the selected Water, Power and Internal / Global benchmark focus areas, including publicly available data, PA proprietary data sets, and a variety of additional survey results. In general, Performance benchmark data has been combined with Process benchmarks derived from extensive client interaction working with municipal and investor owned utilities, as well as direct experience in relevant benchmark areas to assess the Department in benchmark focus areas.

Finally, in addition to applying specific quantitative benchmarks and business management standards, we have conducted a high-level evaluation of the Department's relative maturity in certain of the benchmark focus areas using the Capability Maturity Model (CMM). The CMM is a process capability maturity model which aids in the definition and understanding of an organization's processes. Although it has its origins in the field of software development, the CMM is a generally applicable model to assist in understanding the process capability maturity of organizations in a variety of diverse areas. As noted we have applied this evaluation framework to benchmark focus areas where appropriate.

- In CMM, maturity levels are defined as a 5-Level process maturity continuum, where the uppermost (5^{th}) level is a notional ideal state where processes are systematically managed by a combination of process optimization and continuous process improvement. The maturity levels are defined as follows:
- Level 1 – Initial: Processes are undocumented, ad hoc and in a state of dynamic change, tending to be driven in an uncontrolled and reactive manner by users or events; success depends on individual heroic effort.
- Level 2 – Repeatable: Processes are repeatable, possibly with consistent results. Process discipline is unlikely to be rigorous, but where it exists it may help to ensure that existing processes are maintained during times of stress
- Level 3 – Defined: Processes are standardized, defined and documented and subject to some degree of improvement over time. Standard processes are in place (i.e., they are the "as-is" processes) and used to establish consistency of process performance across the organization.
- Level 4 – Managed: Processes include management and improvement metrics; management can identify ways to adjust and adapt the process without measurable losses of quality or deviations from specifications.
- Level 5 – Optimized: Processes are continually improved through both incremental and innovative changes/enhancements; integrated internal controls with real-time monitoring by management and continuous improvement.

The following scale is applied to the evaluation of certain benchmark focus areas:

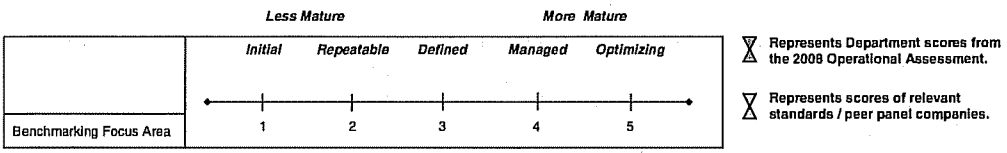


Exhibit 27: Capability maturity model evaluation

4.2.4 Peer Panel Selection

A number of criteria were considered to identify the most appropriate peer panel for the Operational Assessment. Obviously, benchmarking in certain of the focus areas required evaluation of water or power utilities specifically (e.g., water supply or power system reliability), while other focus areas enabled benchmarking against general industry leaders in areas such as human capital and information technology. One of the biggest misconceptions regarding benchmarking is the notion that only industry-specific companies should be included in a peer panel. However, relevant insights can be gathered when, in certain benchmark focus areas, recognized leaders are included across industry areas.

In those areas where industry-specific benchmarks were required in specific Process benchmark areas, companies were selected given a variety of criteria, including:

- Size of operations (customer count, miles of service territory)
- Region (NERC or US Census Bureau region)
- Business-type (municipal or investor owned utility)
- Multi-commodity (power, gas, coal, water)
- Load density (urban versus rural load features)

Rather than a quantitative decision rule or scoring protocol, these criteria were considered in a flexible manner to guide decision-making in relation to each benchmark focus area. In certain instances, peer panel averages comprised of multiple utility companies are used for specific benchmarks. Finally, for certain benchmarks, a broader peer panel was used to assess the Department. Specifically, Performance benchmarks from a diverse set of investor owned and municipal utility companies were utilized in certain of the benchmark focus areas. (See Appendix C for additional information regarding peer selection for specific benchmarking.)

4.2.5 Key Considerations

There are several important considerations relative to this and any benchmarking initiative. First, there is a critical distinction between a Key Performance Indicator (KPI) and a benchmark: A KPI defines and/or measures progress towards company goals, while a benchmark is an external standard or standards according to which an organization's performance or processes are measured, compared, or judged. An organization's KPIs are therefore linked directly to specific goals and business objectives, the inventory of "core" activities and processes that defines the organization, and the critical programs and

prioritized areas of the organization that require consistent reporting. The Operational Assessment is definitively focused on benchmarking; the Department should develop a set of accepted KPIs as part of any on-going strategic planning effort.

Importantly, success in this or any benchmarking effort is directly linked to the ability to gather comprehensive, accurate, and relevant data. This varies depending on the benchmark focus area and business area in question (Water, Power, or Internal / Global), as well as the business process culture, IT infrastructure, and general role of performance assessment and management within the organization. In general, we encountered limitations in the availability and quality of data in several of the benchmark areas selected for the Operational Assessment. These limitations are directly related to a variety of critical issues at the Department identified during the Strategic Assessment, including the antiquated software systems, a weak process management and performance improvement culture, and a lack of discipline around data management. Efforts to specify and implement benchmarking, KPI, and/or performance improvement programs have historically been led by the Water and Power Systems in isolation. Efforts are underway to design and implement a broad and well-coordinated KPI and performance improvement program, sponsored and overseen at the corporate-level. However, at present, this program is in the early stages of implementation.

Finally, the Department has taken steps to assess two key service areas of the organization – Supply Chain & Procurement and Business Continuity Management. To best focus the Operational Assessment and benchmarking effort, these areas have not been included in the detailed analysis below. The following is a synopsis of these service areas, a review of the progress made to-date to address issues in each of these areas, and recommendations for on-going improvement:

Supply Chain & Procurement:

As described in the Strategic Assessment section of this study, supply chain & procurement refers to the system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer. In the case of LADWP, the ultimate customers are the Water and Power Systems, as well as functional groups within the Joint Systems.

Interviews with critical stakeholders indicated LADWP's supply chain & procurement function as one of the biggest problems confronting LADWP. The process has been encumbered by paperwork demands, lack of resources, and suboptimal process automation. In response to these issues, the Department has initiated a transformation program aimed at understanding in greater detail the challenges faced by the Supply Chain function. This transformation is based on recommendations provided by a Scott Madden report of May 2008.

To-date, a program management office has been established to carry out tasks aimed at improving the functional group; Scott Madden was also contracted to assist with the recommended action plan. While LADWP appears poised to make progress in this area, we believe the implementation of a program that: 1) validates and prioritizes for resolution the issues identified in the Scott Madden report (prioritized given the potential impact of unresolved issues to the Department's Mission, Vision, Values, and Goals), 2) establishes a clear program plan for resolving high priority issues, and 3) establishing the performance management and reporting protocols to assess progress versus improvement objectives and guard against project is essential. Further, a discussion about the balancing of centralized

purchasing versus distributed purchasing for certain categories of purchasing and the subsequent implementation of its findings may prove highly beneficial.

We believe failing to successfully address the issues facing the supply chain function will further impact the ability of the Department to meet its long-term objectives, and also interrupt shorter term business effectiveness.

Asset Securitization & Business Continuity Management:

Catastrophic events over the last several years have increased the awareness of and interest in Business Continuity Management (BCM). BCM is the development of strategies, plans and actions to: 1) evaluate and rank the potential impact of sustained interruption of services or business processes, and 2) provide plans for alternative modes of operation and resumption of normal operation for prioritized services or business processes. The depth and breadth of BCM plans are an increasingly important aspect of rating agency and regulatory review of utility operations. Standard BCM requirements now address more than data recovery and extend into a broad range of topics, including approaches to business risk assessment and impact analysis, training and testing, and on-going plan maintenance and monitoring. BCM plans are commonly comprised of two areas:

- Business Recovery Plan: Specifies the method of restoring an organization's ability to supply its critical services and business processes to an agreed level
- Disaster Recovery Plan: Provides plans and actions to recover system applications & infrastructure, also in a prioritized or tiered manner (and linked to services and business processes)

In general, BCM is an ongoing, integrated process that:

- Identifies, in advance, the potential impacts of a wide variety of worst-case disruptions and determines what is a tolerable loss, relative to an organization's risk tolerance
- Delivers a capability to manage the disruption and protect the organization's reputation and brand
- Proactively improves an organization's resilience.

Similarly, ensuring that measures are in place to maintain the security of critical assets during the course of day-to-day operations is also critical. In the case of municipal utilities, a key area also includes interaction with City Emergency Planning efforts.

At present, LADWP does not have a comprehensive and integrated approach to BCM, founded on a rigorous Business Impact Analysis (BIA) that defines the time-phased, impact of the loss of functions and associated recovery objectives. In addition, Department business continuity plans are outdated, and not written at a "service" or process level with enough depth or clarity. Overall Department security measures should continue to be evaluated and improved in the normal course of business.

At the time of this writing, greater focus is being given to the issue of BCM within the Department. First, the Board (working closely with the Department) has recently authorized the role definition and hiring of a Director-level resource to lead a variety of Department-wide security and business continuity-related initiatives (including BCM planning, coordination with City Emergency Planning, and IT and physical security (among others)). Second, data and

application security has been identified as a priority in the Strategic Plan developed within BIS. These are important steps that will increase the level of maturity of BCM within the Department.

We recommend the following immediate action be taken in the area of BCM (and more broadly, IT and physical security):

- Immediately implement a revised Department-wide business continuity program, including:
  - A BIA, prioritizing the restoration program for critical services (given the Department's strategic plan)
  - A fully documented business continuity plan for a range of disruptions and strategies for restoring service to desired levels (including "hot" and "mirrored" site alternatives as appropriate)
  - Implementation of testing programs, including pre-scheduled and ad hoc tests
  - Development of training and compliance programs to evaluate the Department's adherence to internal program standards and external standards of excellence
- Conduct a comprehensive IT security assessment and improvement plan for all applications, leveraging the output from the Disaster Recovery Plan
- Conduct a comprehensive physical security assessment and improvement plan for all locations, leveraging the output from the BIA.

The following are detailed findings for the selected benchmark focus areas.

4.3 DETAILED BENCHMARK RESULTS

4.3.1 Water System

a. WATER QUALITY

i. Description

Basic water quality benchmarks address regulatory compliance requirements related to primary drinking water standards (Maximum Contaminant Levels or MCL's). Secondary standards which relate to aesthetic quality are also important to achieve customer aesthetic and economic satisfaction.

However, comparison of LADWP's water quality conditions, needs, and improvements with other utilities has limited technical value. If one utility provides a harder water with higher levels of total dissolved solids, and another utility has a substantial portion of its supply directly from areas of snowmelt sources, a statistical comparison is interesting but of little value in prioritizing investment. For instance, if one utility just achieves compliance with the level of disinfection by-products, and the comparison utility delivers half that concentration, it wouldn't necessarily be an indication that the utility with higher levels should achieve similar reductions. All comparisons depend on the circumstances and policies of each utility. Publishing such comparative results in the Annual Water Quality Report, as suggested in the

2002 Audit, would have limited value. However, LADWP could benefit by reviewing other major city reports and by the possible development of new methods of communicating with customers with particular considerations related to the internet.

ii. Benchmarks / Companies

Several surveys were used to compare LADWP against its peers. Among them were:

The AWWA 2007 QualServe Program, featuring 60 participating utilities of all sizes, yielded benchmarks 1 and 2, while benchmark 3 was developed from PA research:

1) Drinking water compliance rate: LADWP is in full compliance the basic health related standard, as are the other 60 utilities completing the 2007 survey.
2) Customer complaints: this benchmark includes water quality as well as other complaints. LADWP scored 12.5/1000 customers, compared to the bottom quartile of 60 AWWA utilities at 11.2/1000 customers, leaving room for substantial improvement.
3) Surface water treatment rule compliance: LADWP is in partial compliance, particularly with the requirement for the covering of drinking water reservoirs. While the vast majority of utilities comply, Portland is litigating this requirement, and Seattle and New York are on compliance schedules.

The 10-City Residential Benchmarking Survey by RKS (March 2008), an online study of 200 responses from each of the 10 cities. Key benchmarks from the survey are:

1) Lack of impurities and minerals: the average score was 40% claiming this water supply characteristic, while LADWP's score was 30%. It should be noted that Chicago is top at 62%, but Phoenix and San Diego are also below average due to the common Colorado River source.
2) Household tap water use for drinking: the average score was 63%, and LADWP's use was 54%; Chicago, Philadelphia and New York are 70-80% and Phoenix, San Diego, and San Antonio are 40-50%.
3) Water quality-drinking water safety score: the average score was 7.3 out of 10, and LADWP scored 6.5; LA is the lowest of 10, Chicago highest at 8.1, San Diego is 6.6, Phoenix is 6.8, and the Southern California average is 7.2.
4) Water quality-taste: the average score was 6.5 out of 10, and LADWP was 6.0, ranking 8th out of the 10 Cities; San Diego and Phoenix are lower at 5.1 and 4.8; Chicago is highest at 8.0.
5) Water quality-clarity and smell: The average scores for Southern California agencies were 7.8 and 7.6 respectively, while LADWP was 6.8 for each criteria.

The LADWP Residential Water Customer Satisfaction Survey (August 2007), RKS, telephone interviews of 257 residential customers indicated the following:

1) Water taste: LADWP improved from a 2005 value of 6.9 on a scale of 10, to 9.1 in 2007. (The 2005 California mean score was 6.6.)
2) Reasons for drinking bottled water: 72% of those surveyed listed equally safety and taste, while only 15% indicated convenience as a factor for purchase. This is

consistent with responses to the Gallup organization's Analysis and Findings of The Gallup Organizations Drinking Water Customer Satisfaction Survey (EPA, August 2003.)

iii. Analysis

In general, these indicators combine to suggest, that while LADWP has improved its water quality performance (and fully complies with regulatory requirements), it is believed by its customers (or at least the small number that were surveyed) to be lower than other California utilities and definitely lower than such cities as Chicago, New York and Philadelphia. Interestingly, Chicago draws water from Lake Michigan and treats it in a large but old facility; New York delivers high-quality water from the Delaware and Catskill watersheds which are unfiltered despite significant non-point source pollutants in the watersheds; and Philadelphia delivers water through older facilities from the Delaware River. This apparent contradiction can be explained in several ways:

- The California environmental/health ethic and advocacy created an overriding suspicion regarding any detectable contaminants in all media, regardless of the level of health risk
- Those utilities that rely heavily on water from the Colorado River deliver water with high dissolved mineral concentrations that create various user problems
- The high quality Owens Valley source has been reduced in favor of Colorado River and State Water Project waters. The latter are subject to degradation in raw water reservoirs, and en-route from northern California, and passing through the Sacramento San Joaquin Delta whose ecosystems generate organic materials that if not carefully managed, generate not only taste and odors but challenge the disinfection process
- Past practices with regard to corrosion control have left a legacy of corrosion products in some parts of the system.

LADWP's mission is summarized in the July 2007 Drinking Water Public Health Goals Report:

> *"Our mission is to provide our customers with reliable, high quality, and competitively priced water services in a safe, publicly, and environmentally responsible manner."*

This report was in response to earlier 2002 concerns about arsenic and trace contaminates in the LADWP water supply. The objective was to identify the costs and requirements to achieve the "MCL Goals" contained in state and federal regulations. LADWP has achieved significant reductions in arsenic and continues to be in compliance with regulatory standards. The costs of achieving these goals are extraordinary, and the report concludes with following:

> *"LADWP must carefully evaluate any additional actions beyond the planned capital programs for water quality. It is not entirely clear how much public health benefit would be realized by improving the quality of drinking water to PHG levels. What is clear is that every effort should be made to reduce risks in the most efficient manner possible."*

The various benchmarks and indicators above address the aesthetic qualities of the LADWP supply. These qualities also cause consumers to think that the water may be unsafe, when it actually meets and exceeds all standards.

Compliance with the surface water treatment rules requirement on reservoir covering has had a significant positive effect on the reduction of various aesthetic water quality factors. Controlling contaminants such as boron, and avoiding introduction of algae and other materials that may be created through the storage of treated drinking water, will go a long way toward improving the aesthetic quality of the product. With corrosion control treatment and elimination of unlined distribution piping further improvements will occur.

Implementing the 2002 Audit recommendation regarding point of use treatment, LADWP has studied various options to reduce the "at the tap" aesthetic impact of deteriorating private piping. It is not industry practice to accept any responsibility on the customer side of the meter. However, the water consuming customer cannot be expected to make a distinction between LADWP and the private piping owner when the water tastes, looks, or smells bad.

Various studies have indicated that 10 to 30% of consumers will read or look at the Annual Water Quality Report. New and creative methods to convey information and educate the public regarding water issues are vitally needed in the water industry generally. It is interesting to compare the first page of LADWP's report with that of Phoenix, Seattle, and East Bay Municipal Utility District (EBMUD). The following are some quotes from the first page of the each report:

- Phoenix: "Where does our water come from?" How does Phoenix produce superior drinking water?"
- EBMUD: "This report is our chance to tell you more about the water you use every day... making sure you get the best water quality possible."
- Seattle PUD: "What makes up water quality... how does Seattle get water this clean?... and watershed management-it's not just for engineers"
- LADWP "However the presence of contaminants does not necessarily indicate that water poses a health risk"

These are obviously selected quotes to emphasize a point. The Department's language is required by EPA and the other reports use it. However, the context and presentation are critically important. The three comparison utilities' reports are designed to provide an accurate picture of the utility's efforts to maintain high quality drinking water, and at the same time to attempt to educate the public about their water supply and other matters such as conservation.

The surveys identified above sample only a small portion of LADWP and benchmarked utilities customers. Replication of comparative results in the future is limited due to the small sample and the lack of agreed-upon protocols. While these surveys provide a general indication of comparative satisfaction of consumer needs, a wider range of information (see "Customer Satisfaction" below) is needed. This would include information on neighborhoods, and regions within the service area, and a statistically credible long-term database that would be used to measure performance on the full range of customer issues and needs over time.

In reviewing the range of benchmarks in this area, it is clear that there is substantial room for improvement in the public's perception of LADWP's water service. There were significant gaps and inconsistencies in the survey questions and responses as compared to large cities in the West. Although it has been recently improved, the Annual Water Quality Report provides an opportunity to for an enhanced public understanding of the basic issues,

particularly with regard to water quality and water conservation. The water function needs an integrated, farsighted approach to its communication with the public that is clearly linked to its quality, resources, planning, and business functions.

As part of the strategic planning process, a regular annual professional survey, divided into sub-regions, is needed to provide the foundation for future planning, priorities, and changes in public policy. Survey questions should help in the design of the Annual Water Quality Report (AWQR), provide guidance on capital investment priorities, identify service deficiencies, including responses to complaints, and needs for additional public information and activities. The AWQR and the regular utility water bill are the primary written communications to the customers. The survey can be used to redesign the water bill to provide meaningful information on the customer's water use and conservation activities.

Public information programs for the current drought conservation activities, particularly in cooperation with MWD, should be continued and supplemented with DWP activities on issues of critical concern to the City. Consistency between DWP's activities and those of its neighbors as well as MWD should be a continuing goal.

iv. Recommendations

- Develop an expedited schedule (as part of a LADWP long-term strategy and budget) for SDWA compliance with surface water treatment rule
- Develop a distribution water quality strategy to reflect varying source waters, and impacts of SDWA compliance
- Evaluate and implement as appropriate a technical assistance program for owners of private residential water systems that impact water quality including: evaluation of devices, in-system chemical treatment, and other techniques to reduce complaints that result from deteriorating private systems
- Institute a regular annual customer survey that is statistically reliable and comparable, reflects differences in the service areas, and incorporates reliability, water quality, cost, customer service, and public attitudes. A model starting point would be the program conducted by EBMUD, (March 2008 East Bay Municipal Utility District Residential Customer Opinion Survey 2008, prepared by EBMUD and EMC Research Inc.)
- Develop and implement a comprehensive public/consumer information program that satisfies the objectives of the current "Annual Water Quality Report", provides user friendly information and interaction via a creative website, and is linked with other ongoing activities to achieve water conservation and other DWP objectives. The Report should maximize access while at the same time complying with EPA's rules. This report should not be a stand-alone, but integrated with the annual customer survey, and other ongoing public outreach particularly related to conservation.

b. WATER SUPPLY

i. Description

Benchmarking LADWP's water supply against external performance is even more problematic than water quality. The best benchmarks are KPIs that measure internal progress toward a goal. Examples would be achievement of the California Conservation

Councils 14 Best Management Practices that are identified in the 2005 Urban Water Management Plan (being updated for 2010) or the progress in increasing the volume of water recycled for various non-potable uses.

LADWP's water demand was 650,000 acre feet in 2007, only 50,000 acre feet above the 1970 demand despite a population increase of over a million people. Most California urban utilities have similarly controlled the impact of growth through a variety of water conservation practices and reduction of unaccounted for water. LA's historical water supply, from the eastern Sierra has dropped from 63% to 34% of the City's water sources, requiring increased reliance on MWD. At the same time, MWD's allocation from the State Water Project has decreased dramatically due to a judicial interpretation of the Endangered Species Act resulting in the allocation of water for fisheries purposes.

Today's supply reliability is ensured by a combination of water storage, above and below ground, transfers of water during drought periods, and Colorado River and other supplies. Most utilities include a benchmark based on the frequency and magnitude of drought related demand reduction. California drought demand reduction targets range from 10 to 25%. The current drought, approaching its third year, could very well generate higher demand reduction amounts approaching the 50% experienced by some utilities in 1977.

In the Strategic Assessment, the subject of Recycled Water and Comprehensive Water Planning was ranked as the highest priority Water System issue. The composite reliability of the integrated use of sources of supply available to LADWP should be modeled. Probabilities of precipitation runoff for each of the sources, available storage, delivery capacity, and energy/cost variables could be designed into a model that would allow LADWP to choose the most effective long-term water supply strategies, make annual comparisons as circumstances change and adjust strategies accordingly.

ii. Benchmarks / Companies

Comparisons of a calculated reliability with other utilities are not as important as past performance of supply during times of drought. For instance, suppose an adjacent utility is imposing mandatory restrictions and financial penalties for exceeding prescribed limits of use, while another utility chooses not to impose similar limits and/or purchase additional supplies. Then, even though basic supply conditions might be similar, reliability becomes a matter of policy with regard to water rates, and controlling the impacts of reduced water use. California's urban water systems have become increasingly integrated through the major regional, state, and federal supply systems. As time goes on, it is likely that statewide demand management strategies will be increasingly standardized. Therefore the 2008 Survey focuses on assessments of public attitudes toward water use as a way to compare LADWP's performance and customer priorities with other utilities.

The 10-City Residential Benchmarking Survey by RKS Online Survey of 200 customers per city, March 2008, indicates the following:

- Providing a reliable supply of water: the average response was 85% favorable, while LADWP was 83%
- Encouraging water conservation: the average response was 54%, and LADWP was 41%, the best utility was Dallas at 64%

- Satisfaction with conservation programs: of those surveyed who participated in conservation programs, LADWP had a higher satisfaction level at 60% compared to an average of 52%
- Making use of recycled water: the average was 50% while at the time of the survey, LADWP was 36%, and note that San Antonio was a high of 62%

The LADWP Residential Water Customer Satisfaction Survey, (August 2007) by RKS, telephone interviews of 257 residential customers indicated:

- Support for additional water resources: This indicator showed a reduction from 2005 to 2007 from 62 to 44% for recycled water, and from 62 to 54% for desalination
- Support for additional "security" was 54%

iii. Analysis

A review of benchmarking and performance data on water supply of Seattle, EBMUD, Milwaukee, and the surveys identified above provides little guidance with regard to sources of water supply and reliability. Eastern and Midwestern utilities where droughts are rarely an issue, will receive reliability ratings based on the performance of the water pipeline distribution system and its frequency of outage. Southwestern utilities, while also depending upon delivery system reliability, are much more dependent on variable sources of supply particularly for surface water.

There is an increasing body of information on utility performance and public attitudes toward water conservation. Except for information on new technologies for desalination and recycling of wastewater, each utility is unique in its range of potential sources of supply, and how much customers are willing to pay for various sources. These judgments are generally expected to be made by policy authorities to achieve reliability in a publicly acceptable manner. It would be helpful to receive more information on the level and frequency of public acceptance of drought restrictions. Drought related use reduction goals featured in utility Urban Water Management Plans vary widely. Bay Area utilities generally range between 15 and 25% of pre-drought average use. However, the Livermore Valley's planning goal is 0% reduction by relying on local groundwater storage. The Los Angeles area has however consistently supported regional programs for use reduction during periods of shortage.

Past practices by all major utilities have resulted in high marks for "reliability" even though levels of restriction may have approached 50% particularly in extreme situations in the Southwest. These restrictions, such as in 1977 and 1991, while causing some economic impact particularly in landscape and car washing industries have been at least up until now acceptable to customers.

It should be noted that except for recycling and conservation, there is little information on public acceptability of the major alternate sources of supply for LADWP. These variables include: long-term expectations from Owens Valley, the Sacramento San Joaquin Delta fish priorities, drought related transfers to MWD (as are planned for 2009), and long-term transfers particularly in dry years, from low valued crops such as rice, cotton, and fodder crops. A wide range of criteria should be used to balance these options with reuse and desalination, with the ultimate benchmark being the average long-term acceptable drought shortage to the consumers of LADWP. This approach is discussed further in the recommendations section.

The current drought highlights the need for better statewide integration of supplies and the sharing of shortage between agricultural and urban users, and sharing within each class of users. The recent Colorado River Seven Basin State Agreement on allocation of water in times of shortage is an example of the kind of policy that California should adopt on a statewide basis. MWD in cooperation with DWR is planning 2009 acquisition of drought supplies by transferring Central Valley agricultural water entitlements. Since water systems starting with the Central Valley Project, and the State Water Project, are increasingly interconnected, it becomes more feasible to develop statewide equitable goals to share the shortage and develop a permanent system of future water transfer options, based on a fair market value approach.

Two water supply reliability efforts identified as high priority in this audit are: 1) assuring MWD supply reliability in the face of court decisions that limit diversions from the Delta, and 2) the stability of Delta levees. Both have been addressed in previous sections of this report. LADWP could benefit from knowing the changing impact on its supplies as a result of the MWD/SWP water transfer program, and improvements in Delta levee security such as those recently adopted, as well as South Delta channel improvements currently in the planning stages.

iv. Recommendations

LADWP should:

- Support MWD/DWR current efforts on water transfers, and Delta levee improvements and benchmark progress against new reliability goals
- Urge and team with MWD to take a leadership role in the development of a new generation of "The California Water Plan" that provides a blueprint for a state-wide drought shortage sharing policy, and a long-term drought period water transfer options program
- Develop a LADWP drought use reduction targets and performance as a percent of a standardized state-wide baseline of water use
- Use their California Conservation Councils Best Management Practices as benchmarks against other utilities achievements, through investments in standardized reporting
- Create a unit cost of water policy goal, together with acceptable rate increases to achieve policy objectives regarding source reliability, water quality and environmental protection.

c. ASSET MANAGEMENT (WATER)

i. Description

As discussed in the Strategic Assessment, utilities are asset-centric organizations. LADWP's assets exist to provide service to its customers. A comprehensive and robust asset management program will help LADWP to maintain a focus on how to provide maximum customer satisfaction at the lowest effective cost.

ii. Benchmarks / Companies

The following surveys/studies were used to benchmark LADWP:

- AWWA Qualserve Utility Survey (2007)
- IWA-WSAA 2008 Asset Management Process Benchmarking Project
- Within those studies, the following benchmarks were extracted:

The Renewal and Replacement Rate is a measure of the rate at which a utility is meeting its individual need for infrastructure renewal and replacement. The AWWA QualServe Utility Survey indicated the LADWP is near or below the bottom quartile of 47 respondents for R&R of water pipelines and water treatment and pumping facilities.

Performance Indicator	LADWP	Top Quartile	Median	Bottom Quartile
Water pipeline R&R	1.1%	6.4%	2.5%	1.3%
Water treatment facility and pumping R&R	2.1%	7.7%	3.2%	1.7%

Exhibit 28: Replacement and Renewal Rates

The Water System Distribution Integrity indicator measures the condition of the water distribution system as expressed by the total annual number of leaks and pipeline breaks per 100 miles of distribution piping. The AWWA QualServe Utility Survey indicated the LADWP is in the bottom quartile of the 52 responding water utilities.

Performance Indicator	LADWP	Top quartile	Median	Bottom quartile
Water Distribution System Integrity	71.5	21.7	34.3	56.1

Exhibit 29: Water System Distribution Integrity

Planned Maintenance Ratio (Hours and Cost) is a measure of how effectively a utility is investing in planned maintenance. It is a measure of the ratio of planned maintenance to planned plus corrective maintenance. The goal is to minimize corrective maintenance by minimizing asset failure. The AWWA QualServe Utility Survey indicated the LADWP is in the bottom quartile both in terms of hours and cost.

Performance Indicator	LADWP	Top quartile	Median	Bottom quartile
Planned maintenance ratio (hours)	21.5%	73.9%	61.6%	45.6%
Planned maintenance ratio (costs)	11.9%	75.5%	57.4%	47.4%

Exhibit 30: Planned Maintenance Ratios

iii. Analysis

LADWP staff are to be congratulated for participating in the IWA-WSAA project as one of 40 utilities providing water service in the US, Canada, Australia, New Zealand, Hong Kong, Oman, and UAE. The study stated that LADWP was generally above the median when compared to its North American peers, and generally near the median when compared to the entire group of utilities with respect to seven major asset management functions. Fifty processes, containing 250 sub-processes, within these seven functions where evaluated based on 600 measures.

The results of the AWWA QualServe Survey do not match the results in IWA-WSAA 2008 Asset Management Process Benchmarking Project. Although the two efforts are not directly comparable because they used different measures, the AWWA Survey indicates LADWP overall is doing far worse with respect to management of its water assets than the IWA-WSAA Project shows, which credits LADWP with operating near the median. Besides the fact that these studies are using different measures, the participants in each study are very different. It is beyond the scope of this study to identify the reasons for the discrepancy; LADWP staff should pursue this comparison analysis.

iv. Recommendations

LADWP should aggressively implement the recommended Improvement Initiative Roadmap of the IWA-WSAA study. The study identified the following key opportunities for improvement:

- Organizational asset management strategies
- Corporate asset management plan
- Asset management IT strategy
- Triple bottom line with costing
- Risk management
- Efficiency and effectiveness reviews and organizational performance
- Supply chain management
- Enhanced business case evaluations

d. CUSTOMER SATISFACTION

i. Description

There are a number of ways to compare LADWP's level of customer satisfaction with other utilities or groups of utilities. There are two major issues that affect customer satisfaction with the water service provided by LADWP. The first has been the cost of water (or perhaps the total bill including power), and water quality. While the Department is in compliance with the primary and secondary drinking water regulations, various factors combine to adversely affect public perceptions of drinking water quality. Some of these are based on aesthetic factors which depend upon both LADWP and the customers to remedy. Others reflect the current state of public environmental and health sensitivity. As the largest utility in the West, LADWP

has a unique opportunity to provide leadership in restoring public confidence in the quality of drinking water.

There are other measures of customer satisfaction that were included in two RKS studies: the Big-City Water Residential Benchmarking Survey (BC), of March 2008, 200 online inquiries for each city, and the August 2007 DWP Residential Water Customer Satisfaction Survey (DWPS), 257 telephone inquiries. The AWWA QualServe Performance Indicators (AWWA), 2007 Survey of 60 utilities, also has some interesting comparisons.

Inter-utility comparisons are of interest, but they only give a general indication of relative customer satisfaction. KPIs of greater interest are those measuring utility complaints by subject, region, and user type. If costs of satisfying the customer are regularly measured, then budgets can be formulated to maximize efficient improvement in service.

A variety of criteria are used in the external surveys reviewed, including ease of doing business, overall trust, getting one's money's worth, and working hard to keep prices low. The second category of determining customer satisfaction is the internal performance of the utility is measured from year to year in terms of the volume, magnitude, and response times to such customer problems as low-pressure, and outages, leaks, disruptions by utility operations, and other utility work that impacts the customer.

ii. Benchmarks / Companies

The current state-of-the-art internal assessment of customer satisfaction is a survey conducted annually by EBMUD. The work is done by EMC Research, Inc. of Oakland, and has been conducted since 2003. The survey of a 1,200 telephone contacts has a margin of error of $\pm$2.8% at the confidence level of 95%. It assesses the utility's credibility as well as customer-service characteristics. The population is divided into regions. Because of the consistent questions that are asked, the large population surveyed, and the commitment to annual data gathering, the survey becomes a management tool that aids in the development of policy on a variety of subjects including water conservation, wastewater reuse, drought measures, investments in improved customer service, and many other aspects of utility operations.

The LADWP Customer Satisfaction Survey found the following:

- In overall customer satisfaction LADWP remained constant at 7.4 out of 10, compared to a statewide customer satisfaction level of 7.75. This lower score was particularly influenced by customer impressions, customer contact, price assessment, bill amount, and water characteristics
- Customer contacts question in the DWPS yielded the following information: 48% of customers had contact with LADWP, and 19% had more than three contacts. On a scale of 10, the lowest rating in both 2007 and 2005 was the "time to speak with a customer service representative" (6.5-6.7 out of 10), the highest rating was for courtesy (8.0 to 8.4)
- The "Easy to do Business with LADWP" criteria dropped from 8.0 in 2005 to 7.8 in 2007
- The convenient access to CSR dropped from 7.9 to 7.5 on a scale of 10 for excellent
- The honest dealings with customers dropped from 7.6 to 7.2 from 2005 to 2007.

The Big-City Survey found the following:

- Quality of phone contact: the average of utility score was 7.0 out of 10, as was LADWP's. LADWP was good in personal contact, but below average on voicemail, and e-mail communications
- Overall trust: the average score was 51%, with DWP scoring 44%. Dallas, New York, Houston and Philadelphia were equal to LA
- Utility image characteristics: LADWP was below average with regard to concern for the environment, effective communication with customers, and level of community involvement. But essentially average in keeping the water system up to date, honest dealing with the customers, management performance, and keeping the supply safe from terror.

The AWWA Survey found the following:

- Technical quality complaints relating to all core services: the quartile range for all 60 utilities was 1.9 to 11.2 complaints per 1000 customer accounts for 2007. LADWP's indicator was 12.5. But in 2006 LADWP's performance on the syndicator was 2.0, which was above the top quartile of 2.1
- Customer-service complaints, primarily related to customer support: 2006 data showed a quartile range of 0.7 to 11.5 with LADWP registering 20.0. No data was available for 2007 so this high level could be the result of issues relating to consistency of reporting, which is a problem for all such benchmarking efforts
- Customer accounts per employee: the quartiles ranged in 2007 from 385 to 714 accounts per employee. LADWP indicated 718. It is unclear how accounts are allocated between water and power, and since LADWP is very much larger than other utilities in the survey, a higher number might be expected.

iii. Analysis

All of the benchmarks identified above can be subject to criticism for a variety of reasons ranging from the size of the sample to definition of the KPI. However, certain general observations can be made. In general LADWP is about average with regard to most of the criteria. Perhaps most significantly, the level of trust was lower. This is a very subjective term. It may reflect a California/regional cultural attitude toward government generally and utilities serving water in particular. Some utilities such as Santa Clara Valley Water District and EBMUD have higher trust ratings. The trust rating of a utility operated by a city with many controversial issues other than water might be generally lower. In any event, investments in surveys, better communications, and attempts to make automated customer service better may improve LA's level of trust in LADWP.

The populations surveyed are small compared to the number of customers in the first two surveys. The number of utilities participating in the AWWA survey is limited, and does not include other major utilities such as those in the Big City study. The use of online surveys defines a particular set of respondents, and the number of phone contacts in the LADWP Survey is small and not balanced. There were just over a hundred of those contacts that reported having contact with the Department on any matter. The international and national of water industry associations are developing new standards for benchmarking of all utility

functions. Until those criteria are adopted and have developed a track record, external comparisons will be of limited value.

While the surveys referenced are designed to assess water utilities, the joint water and power functions of LADWP may create conditions that make reasonable comparisons difficult. This is particularly true considering the level of staffing for joint services. In the 10 big cities survey power charges were not separated from water charges in determining the average bill.

iv. Recommendations

- LADWP should initiate a new annual customer survey. The survey should have maximum statistical credibility, reflect the geography and cultural diversity of the service population, consider all classes of customers, include water source and distributional characteristics, and be designed to provide the basis for future Strategic planning, rate-making and budgeting. Recommendations on the Annual Water Quality Report and are discussed in that section, and should be developed and updated based on survey results
- DWP should support improvements in multi-agency benchmarking studies so that comparisons on issues of importance to Los Angeles should be adopted
- New periodic surveys should also be considered in the following areas:
    - Large California utility performance in achieving customer support for best management practices for water conservation
    - With large southwestern utilities, particularly Phoenix, Las Vegas, EBMUD, and the City of San Diego, to assess water conservation, reuse, and customer practices which are unique to the region.

e. FINANCE

i. Description

For the purpose of this benchmarking discussion, Finance includes only the following items:

- Accurate and Understandable Bill
- Customer Service Cost per Account is a measure of organizational efficiency with respect to direct interactions with customers. A higher cost indicates either a less efficient organization, or one that has made a strategic commitment to spend more to increase overall customer satisfaction. Costs can vary by region because of differences in labor costs, so measures like this must be compared against regions with similar cost characteristics
- Operations and Maintenance Cost per Account is a measure of organizational efficiency. A higher cost indicates a less efficient organization. Similar to customer service, costs can vary by region
- Typical Monthly Residential Water Bill is an estimate of what the typical residential customer would pay for monthly water service, based on a specified level of water consumption

- Residential Connection Charge is the one-time cost paid by a developer to connect a new residence to the water delivery system, including paying for its fair share of the cost to build the utility's water supply and treatment facilities
- Budget development
- Long-term financial forecasting
- Rates and charges structure.

ii. Benchmarks / Companies

- Black & Veatch California Water Rate Survey (2006)
- Big City Water Residential Benchmarking Study (2008)
- AWWA Qualserve Utility Survey (2007)
- AWWA California-Nevada Section Water Rate Survey (2007)

iii. Analysis

When it comes to the customer's ease of understanding of their water bill, Los Angeles scored the lowest of the ten big cities surveyed in March 2008 Residential Benchmarking Study. LADWP has the most confusing rates and charges schedule we have seen. Further, the bill provides almost no explanation of how the total water charge is determined. A sample water bill for a customer using 18 hcf shows a charge of $53.57 for the period July 7 to September 4. There is no explanation of the different tiers, temperature zone charges, square footage schedule or any adjustments. After 15 minutes of effort, we gave up trying to figure out how the charged was determined. No residential customer should have to spend more than two minutes trying to understand their water bill.

The Operations and Maintenance Cost per Account measure indicates LADWP is in the lower quartile against the other respondents in the 2007 AWWA survey.

Performance Indicator	LADWP	Top quartile	Median	Bottom quartile
O&M cost per account	$443	$148	$258	$374

Exhibit 31: Operations and Maintenance Cost Per Account

The Customer Service Cost per Account measure indicates LADWP is in the lower quartile against the other respondents in the 2007 AWWA survey.

Performance Indicator	LADWP	Top quartile	Median	Bottom quartile
Customer service cost per account	$75.81	$19.33	$30.22	$50.69

Exhibit 32: Customer Service Cost Per Account

The average monthly water bill for a typical LADWP residential customer using 15 hcf was estimated at $27.72 in the 2006 Survey. This compares favorably with the average for all water utilities in Los Angeles County of $37.38 and an average for all the water utilities in the seven Southern California counties of $35.45. However, the complexity of the LADWP water rate structure makes it difficult to conduct a true comparison. The survey results are based on a hypothetical customer using 15 hcf at the lowest rate possible. The results are not a true average of all residential customers within a utility. Since LADWP has commodity rates that vary based on temperature zone, lot size, and season, with a variety of adjustment factors, the only way to benchmark against other agencies is to identify different types of "average" customers for all benchmarked agencies with similar characteristics and compute the annual charge to account for all rate adjustments and variations.

According to the 2006 California Water Charge Survey of over 450 water service providers, Los Angeles is one of only a handful of cities in the state that does not charge a fixed monthly water service charge. The next largest city not charging a fixed service charge is the City of Napa, with a population served of less than 2% that of Los Angeles. According to the AWWA 2007 survey, Los Angeles is also one of only three dozen publicly owned water utilities in California that do not charge a connection fee for the purpose of recovering part of the cost of major infrastructure needed to serve new demand. This can be seen by some as a subsidy for development.

LADWP forecasts rates five years into the future, which includes a ten-year capital plan. This is a far shorter rate forecasting period than other utilities use. San Diego County Water Authority (SDCWA) forecasts rates out to the year in which the last planned, long-term debt payment is made. This is done for the purpose of comparing alternatives for any cost-related issue, such as comparing different water supply projects. SDCWA also projects its capital costs out twenty or more years to make sure as many capital expenditures as possible are captured in the rate forecast.

The budget development process is thorough and methodical. However, there are no formal steps in the process linking budget development and decision-making to the long-term strategic plan.

The structure of rates and charges is disconnected from the cost of service. The structure appears to be set to accomplish a multitude of political goals rather than connecting the rates and charges to behaviors, and the cost of those behaviors (a "rate signal"), for the purpose of achieving long-term organizational goals and objectives. While it is believed by LADWP that the rate structure does indeed provide a clear rate signal, we believe they should consider again how clear the rate signal really is when it is so difficult to figure out how LADWP calculates a customer's water bill.

iv. Recommendations

The linkages between strategic objectives and the budget must be clearly stated. Ideally, all major budget decisions should be based on the strategic plan, and all strategic plan elements should have clear support in the budget. This should be done using the following general approach:

- Once a comprehensive strategic plan is in place (see the section on Strategic Planning), an annual review of the strategic plan should be completed in time for the annual budget process to incorporate into the budget proposal any changes in the goals and objectives.
- Each business unit should review its operating plan to assure it is aligned with the strategic plan and to make modifications to their operating plan to reflect changes in the operating environment as well as progress made on achieving business unit goals and objectives.
- Each business unit should develop budget proposals reflecting the updated operating plan, referencing how each budget item is linked to the operating plan.

Improve the readability and information provided with the water bill

- Bills must be clear and easy to read for the average consumer. Technical terms should be minimized to the extent possible. Layout and formatting should be such that consumers can obtain information applicable to them without difficulty.
- Bills must clearly indicate what consumers are being asked to pay for and how it is calculated, including all adjustment factors. The bill should also explain their particular rate schedule and why that schedule is applicable to them.
- Information regarding past water use should continue to be shown, such as use for each billing period through the same period in the previous year. Graphs showing use are a plus.
- A sample savings calculation should be included, informing the customer how much they could have saved for the last year if they had reduced their water use by 10% in each billing period.
- Provide internet-based bill review and payment options, giving options to go to a location where their water use can also be analyzed and estimates given for the cost savings potential of various levels of conservation.
- Tie financial modeling to the rate structure and the behaviors being encouraged through the water rate structure.
- Financial modeling should include assessments of the impact on existing and proposed initiatives on future rates and charges. The time horizon for financial modeling should extend to the year that the last required long-term debt issue is retired.

The water rate structure should incorporate a simpler menu of rates and charges to achieve the strategic goals and objectives of the department. Customer response to LADWP's price signal depends upon understanding the various rates and charges, which are complex. While we recommend that the current schedule be better explained, the complex list of ways that rates and tiers are adjusted make this a difficult task. Suggestions given below flow from the

premise that customers must be able to understand the basis for their water bill, and that price signals will be missed if customers find their bill too difficult to understand.

It has been more than 15 years since the Mayor's Blue Ribbon Panel did its work, and circumstances have significantly changed since then. The first step in revising the rate structure should be a thorough rate structure analysis. This analysis should form the basis for changes to the rate structure. We do not recommend the formation of another Blue Ribbon Panel at this time, but recommend that the effort be led by staff and consultants with rate-setting expertise who will seek ratepayer input, and provide recommendations to the Board of Commissioners on the range of options for changing the rate structure to one that it clearly supports the department's strategic objectives. However, because of the experiences of the department and the council during the last rate re-structuring, we recognize that a Blue Ribbon Panel may be needed to assist in making a recommendation for the final option to be recommended for council action.

While we recommend the rate analysis be done to build a solid foundation for the final selection, we also offer our suggestions for changes to the rate structure:

While we recommend the rate analysis be done to build a solid foundation for the final selection, we also offer our suggestions for changes to the rate structure:

- The difference between the First Tier and Second Tier commodity rate should be increased to send a stronger pricing signal.
- Consideration should be given to adding additional tiers to provide increasing incentives to reduce water use.
- A small fixed monthly service charge should be added to all commercial and residential water bills to recover a portion of the fixed operating costs for running the Water System. A lowered First Tier rate may assist in offsetting the cost impact of the fixed service charge. While it is true that having no fixed monthly service charge sends a stronger pricing signal to encourage conservation, the California Urban Water Conservation Council's Best Management Practice on Rates leaves room for some fixed monthly charge by stating the following:

    - Conservation pricing requires volumetric rate(s). While this BMP defines a minimum percentage of water sales revenue from volumetric rates, the goal of this BMP is to recover the maximum amount of water sales revenue from volumetric rates that is consistent with utility costs (which may include utility long-run marginal costs), financial stability, revenue sufficiency, and customer equity

    - In addition to volumetric rate(s), conservation pricing may also include one or more of the following other charges:

        1. Service connection charges designed to recover the separable costs of adding new customers to the water distribution system

        2. Monthly or bimonthly meter/service charges to recover costs unrelated to the volume of water delivered or new service connections and to ensure system revenue sufficiency

        3. Special rates and charges for temporary service, fire protection service, and other irregular services provided by the utility.

The BMP states that total annual revenue from volumetric pricing should be at least 2.33 times the total annual fixed customer meter/service charges

- One way to simplify the rate structure would be to eliminate the temperature zone and lot size pricing schedules. We commend the department for having implemented an early form of what has become known as a "water budget." However, this discourages conservation in the areas of the city where conservation needs to be more encouraged through a pricing signal. Larger lots and higher ambient temperatures do not necessarily create a need for more water use or a right to more water use at the lower tier rate. Rather, residents in these locations should be encouraged to institute even more conservation measures. We recognize that this may be a difficult step to take and that substantial opposition may come from customers who would be directly affected by such a change. A response to this may be a gradual reduction in the differences in the tier threshold for lot size and temperature zones. Consideration could also be given to revisiting the basis for the water budget used for the current pricing by basing water budgets on "California friendly" landscaping water use. Whatever decisions are made, it should be understood that changes are needed to this part of the rate structure, as the are affected are the same areas of the city in which some of the greatest opportunities for conservation exist
- The seasonal commodity rate differential should be eliminated to send a pricing signal that water conservation is as important in the low season as it is in the high season. If the purpose of the seasonal rate differential is to send a pricing signal to reduce peak system demand that can be accomplished by increasing the Second Tier rate and adding additional tiers. Since this rate adjustment is also a water-budget approach to pricing, the same comments in the previous item on temperature zones and lot sizes also applies
- The various "adjustments" (Water Procurement, Water Quality Improvement, Water Security, Owens Valley Regulatory, Seasonal Variation) should be eliminated and rolled into the regular tier rates. We appreciate the efforts of the department to provide more transparency in its rates by indicating the purpose for which these funds are being collected; however, the information would need to be clearly shown on the water bill for full transparency to be achieved. In the absence of the details being shown on the water bill, we suggest the rates just be eliminated and the base volumetric rates increased accordingly
- Tiers or rate blocks based on fixed usage thresholds are intrinsically easier to understand. We recommend LADWP consider fixing the usage thresholds for the rate tiers, calculate the charge based on usage, and then add charges or credits to this amount to come up with the final bill. This way the customer can better understand how their behaviors are affecting their final water bill, assuming that the bill itemizes all the credits and charges
- Consideration should be given to including a pumping charge for those areas served through pumping under normal conditions. This will send a pricing signal that water use in these areas has an additional cost
- A new connection or demand charge should be implemented for new commercial and residential meters. This charge should differ from the charge to set or reset a meter of the same size on an existing service, as is the current practice. Any meter that represents new demand or increasing demand (such as meter upsizing) should have a fee associated with it that pays for a fair portion of the following: new infrastructure required to meet the increased demand, initial, one-time costs for new water supplies (e.g., recycled

water) to meet the increased demand, new capital investments to increase water use efficiency (e.g., incentives for irrigation system retrofits) to offset the increased demand, rehabilitation or replacement of existing infrastructure that will serve the increased demand, and a buy-in cost to infrastructure already in place.

This Survey has not evaluated the pros and cons of the various changes that have been identified above. Our purpose is to evaluate the current structure and compare it to best industry practices. We believe the suggested changes are more likely than current practice to result in achieving the city's goals, particularly with respect to water conservation; however, a more rigorous analysis is needed.

The June 19, 2008, presentation of the FY 08-09 budget of the Rates and Contracts Section contains the following: "Continue study of the residential water rates to identify new approaches that will improve equity, encourage drought tolerant landscaping, strengthen water conservation incentives in general, and encourage the reduction of water consumption." We recommend the department hire a firm experienced in utility rate design to prepare an analysis of the current water rate structure and make recommendations for changes that will support the department's strategic objectives.

4.3.2 Power System

a. POWER SYSTEM RELIABILITY

i. Description

The importance of electric system reliability, restoration, and response has grown substantially in the past decade. System reliability is now a critical measure used by customers, senior management, the Board and the City Council to evaluate and compare reliability performance. While LADWP is not required to report system reliability indices to state regulators, the Department's customer satisfaction levels are in part dependent on system reliability, and relative reliability in relation to regional and national peers. One major outage event, if not handled effectively, can result in significant FERC or other investigations and a substantial drop in customer satisfaction.

Distribution Reliability Standards defined by Institute of Electrical and Electronics Engineers (IEEE) are commonly used to measure power system reliability, both in terms of the distribution system and the sources of power to that system. The North American Electric Reliability Corporation (NERC) in its Transmission Availability Data System (TADS) fillings has established transmission system standards; these standards are not applied here. Rather, some combination of the following three indices are the standards used to monitor and report the overall reliability of the Department distribution power system, including the impact of substations and the transmission system on customer reliability. These indices deal with both the duration and frequency of interruptions.

- SAIFI (system average interruption frequency index),
- SAIDI (system average interruption duration index), and
- CAIDI (customer average interruption duration index)

Usually only two of the three are used, with SAIFI and SAIDI being the most common. It should be noted that improvements in SAIFI and SAIDI typically result in the degradation to

CAIDI, due to the fact that CAIDI is the average duration of a customer's interruption while the other indices are the average of all customers.

ii. Benchmarks / Companies

PA used the peer panel from companies participating in PA's Polaris Benchmarking Program for the last five years to benchmark LADWP's performance. This panel's performance is representative of the larger Reliability One panel as to relative performance quartiles. It is worth noting that the Polaris and Reliability One panels include both municipal and IOU's across the United States.

iii. Analysis

LADWP's frequency of outages (SAIFI) is exceptionally good in comparison to the Polaris panel, representing a very solid first Quartile performance both including and excluding major events. However, data is mixed on LADWP's performance for SAIDI being on average second quartile with major events included but third quartile when normalized against major events are excluded from the outage data for LADWP and the utilities within the panel. In either case, the results suggest that once an outage occurs, the average duration (SAIDI) could be improved at least to second quartile excluding major events and possibly first quartile when not excluding major events. The overall CAIDI performance including and excluding major events indicates that there are overall performance improvements to be obtained in this area. Because the SAIFI number is such a solid 1st quartile, the focus for reliability improvement based on these indicators is improving response, reducing number of customers impacted, and reducing restore times. Exhibit 32 illustrates a snapshot of these figures when compared to PA's Polaris data base.

SAIFI

Including Major Events							Excluding Major Events					
	2003CY	2004CY	2005CY	2006CY	2007CY			2003CY	2004CY	2005CY	2006CY	2007CY
Polaris	LADWP	LADWP	LADWP	LADWP	LADWP		Polaris	LADWP	LADWP	LADWP	LADWP	LADWP
Q1	0.54	0.59		0.72	0.84		Q1	0.54	0.59	0.68	0.72	0.76
Q2			1.24				Q2					
Q3							Q3					
Q4							Q4					

SAIDI

Including Major Events							Excluding Major Events					
	2003CY	2004CY	2005CY	2006CY	2007CY			2003CY	2004CY	2005CY	2006CY	2007CY
Polaris	LADWP	LADWP	LADWP	LADWP	LADWP		Polaris	LADWP	LADWP	LADWP	LADWP	LADWP
Q1	108.93						Q1					
Q2		106.25	143.42	125.31			Q2	108.93				
Q3					152.27		Q3		106.25	119.13	125.31	113.52
Q4							Q4					

CAIDI												
Including Major Events							Excluding Major Events					
	2003CY	2004CY	2005CY	2006CY	2007CY			2003CY	2004CY	2005CY	2006CY	2007CY
Polaris	LADWP	LADWP	LADWP	LADWP	LADWP		Polaris	LADWP	LADWP	LADWP	LADWP	LADWP
Q1							Q1					
Q2			115.89				Q2					
Q3	200.69						Q3					
Q4		179.22		173.84	182.33		Q4	200.69	179.22	174.32	173.84	149.69

Exhibit 33: Reliability Benchmarks Compared to PA Consulting Polaris Proprietary Data Base

It is our understanding that LADWP has taken steps to improve response times that will result in duration times of outages that can improve SAIDI and CAIDI performance. These include: fine tuning the response levels for electric trouble, involving more divisions in the different levels, staffing up for storms, making an assessment regarding permanent vs. temp repairs. Further, the Department also performs assessments after major events in an effort to minimize their future impact, among other system enhancements.

We reviewed the Electric Power Research Institute's (EPRI) report on LADWP's reliability indices (October 2006), which found that the Department's reliability had deteriorated due to its aging infrastructure, a significant amount of deferred maintenance and deferred reliability enhancing work.[9] It is our understanding that LADWP engaged EPRI to conduct this review and that the Department refined its Power Reliability Program (PRP) to improve its reliability issues as a result of it. The major undertakings of the PRP are actions which for the most part will continue to improve SAIFI:

- Mitigation of problem circuits and stations, determined according to the types of outages incurred
- Preventative maintenance and capital improvements that take into account system load growth as well as the inspections and routine maintenance that must take place to identify problems before they occur
- Adoption of facility replacement cycles that are in alignment with the equipment's life cycle

iv. Recommendations

Based on the Department's SAIFI (Q1), SAIDI (Q3), and CAIDI (Q4), LADWP should focus on improving response and repair times to improve overall reliability. In the near term, efforts should be spent on reducing the average time of outages and tackling the causes that make outages so lengthy. This includes response times, restoration techniques, sectionalizing, as well as equipment availability. As SAIFI continues to improve, both SAIDI and CAIDI will actually increase. SAIDI, however, can be improved by eliminating outages as well as

[9] EPRI Power System Reliability Report of the Los Angeles Department of Water and Power. October 2006.

reducing their duration, such as, long duration cable outages as part of its cable replacement program as part of the PRP.

LADWP has instituted many practices that are best practice for outage restoration. However, the measurement of the effectiveness and improvements in these areas should be monitored to continue to reduce SAIDI and CAIDI. Root Cause Analysis assessments, such as those performed by the Department for heat and other storms should be repeated for other outages, not only for failure mode purposes, but also due to its impact on CAIDI and SAIDI. An overall analysis for systemic issues that may contribute to this performance such as shift staffing levels, crew availability and call out response would also prove useful.

While LADWP's PRP is expected to reduce the number and duration of service interruptions through the replacement of deteriorated failing cables and worst performing assets, the Department would benefit from transitioning to a more comprehensive effort that includes more robust systems and cost per unit metrics, part of a more sophisticated set of plans and strategies developed around its various assets.

The Department should also consider including all outages (planned and unplanned) and actual counts on the number of customers interrupted rather than the current assumption of 10 and 50 customers for small outages to be consistent with industry standards and to more accurately report the actual outage impact. LADWP should also consider reporting their outage statistics based on the most recent IEEE 1366 2.5 Beta standard as well as the major exclusion event method to enable comparison of its overall performance with a larger sample. While PA understands the differences between the Department and its neighbors, LADWP is encouraged to report in a consistent manner with their neighbors or at least somewhat consistently with CPUC regulations. IEEE standards would be the best method for measurement consistency. Although PA does concede that utilities have variances in their data collection and reporting methods, we recommending that LADWP calculate and compare their performance using widely used standards.

b. SYSTEM RESOURCE PLANNING (INCLUDING RENEWABLE PORTFOLIO STANDARDS (RPS))

i. Description

System Resource Planning enjoyed considerable popularity in the 1990's as a tool that could benefit a utility both in the short and long run. In the short run, it provides monitoring and evaluation and a way of determining what programs and resources are cost-effective. In the long run, system resource planning sets the course for a comprehensive plan, factoring in competitiveness with enough flexibility for adjustments according to market conditions. With wholesale energy prices currently much higher than in the past and ever more volatile, system resource planning has once again become essential for many utilities.

The development of an Integrated Resource Plan (IRP) forces the utility to place its resource planning into a document that, when rigorous, looks at all resource options and to develop a diversified resource portfolio that can help the utility to minimize its risks. As mentioned in the Strategic Assessment, the IRP serves two purposes: 1) it assures the public that the utility has reviewed the future needs to serve them effectively, and 2) provides a financial requirement and roadmap for the utility to develop or procure the needed resources to serve its customers.

Renewables are playing an increasing role in utilities' IRPs, as the number of renewable portfolio standards has increased dramatically in the last few years. Electric utilities throughout the nation are required to obtain a certain amount of electricity from renewables by a given date to meet their Renewable Portfolio Standards (RPS) goals. In the case of LADWP, that percentage amounts to twenty percent by 2010.

ii. Benchmarks/Companies

The premise of an IRP is to find out what is best for the customer and develop a plan given those results and the utility's budget constraints. A rigorous IRP would include an evaluation of all resource types including meeting RPS goals and at the same time analyzing the impact of those resources in the overall capital budget of utilities.

We reviewed system resource planning documents at the following utilities:

- PG&E
- Seattle City Light
- Pasadena Water & Power
- Sacramento Municipal Utility District (SMUD)
- Long Island Power Authority (LIPA)

iii. Analysis

In 2005, California Assembly Bill 380 (AB380) was passed and signed into law, adding Sections 380 and 9620 to the Public Utilities Code. These sections gave the California Energy Commission (CEC) a new responsibility to report every two years, as part of the Integrated Energy Policy Report (IEPR), on how local publicly owned electric utilities are planning for and procuring resources to meet the needs of their customers.

The intent of the AB380 was to ensure that each load-serving entity engages in prudent planning to serve its end-use loads. However, AB380 defined the term "Load-serving entity" specifically to not include any local publicly owned electric utility, as defined in Section 9604 of the Public Utilities Code.

As mentioned in the Strategic Assessment, LADWP issued an IRP in 2000 and again in 2007. The latest IRP did not consider sensitivity analyses or the financial impact of cases. In addition, the Department's plan set forth the process to meet the RPS requirements through a specific generation and transmission plan but did not consider any forced deviations from that plan (e.g., how will DWP meet its RPS if Green Path North is significantly delayed).

Our review found that at this time, the Department produces limited formal documentation in regards to its IRP, while its formal analysis is dependant on individual's experience, which would make it very difficult to repeat this process, should that individual leave the Department.

In terms of the preparation process, getting the public's input is important, yet not easy to accomplish. Seattle City Light, LIPA, and other utilities are keen to hold meetings and involve the people that are interested to know how the utility compiled its IRP. Seattle City Light gets input from an IRP Stakeholder Committee, which includes residential, commercial and

industrial customers, environmental organizations, independent power producers, other government organizations and the chamber of commerce. The committee, together with the Seattle City Council's Energy and Technology Committee directly represents consumer interests, and ultimately influences the study design and resource choices being evaluated.[10] In the case of LIPA, the following five step-process has been established (with results publicized): (1) Publish a draft outline of the Resource Plan contents, (2) Solicit public input on the draft outline, (3) Develop a Draft Resource Plan based on the outline and the public input received, (4) Hold public hearings on the Draft Resource Plan, and (5) Revise the plan based on the public hearings and new information that may become available after the preparation of the Draft and issue a Final Resource Plan for the consideration by the LIPA Board of Trustees. Pasadena Water & Power is currently part of a very public process to produce an IRP that includes the public's input. While LADWP does have a public review period, the plan presented to executive management, the public, and the board does not provide alternative options and the reasons for the chosen plan.

iv. Recommendations

Although not mandated to do so, we strongly believe that the Department would benefit from a formal and rigorous IRP to be developed every other year, in which the Department would provide rigorous and clear descriptions of how it will meet the load requirements of its customers (particularly given other requirements such as AB32). This plan should include:

- Scenarios: An evaluation of all resource types, including meeting RPS goals and include financial impact analysis of those resources in the overall capital budget of the Department
- Probabilistic modeling: Rigorous modeling (especially in terms of RPS) that would provide a more realistic view of the certainty of the plan and potential risks in meeting the plan

We believe the IRP should be updated during the off-years as a result of potential volatility, not only technically and financially but also in the regulatory, political and legislative environment. We would also recommend the Department to determine whether it possesses the expertise in-house to produce a rigorous IRP. If not, a third party should be called upon to produce the IRP, as it is the case in many other utilities.

In terms of communicating its process to the public, the Department should use this opportunity to connect with its customers, but also to hear their ideas on how to make the IRP, one that includes options, technologies, and strategies that are looked at from different perspectives. In addition to a rigorous public review with customer groups there should be an internal IRP and RPS review process with strict schedules and accountability at the management and then executive level. The review process should also include the board and final presentation to the City Council and Mayor.

Ongoing significant updates other than the formal annual update should be provided in the monthly management and the board to keep them informed as to potential issues and also progress against the plan.

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[10] Public Power, APPA. *The IRP is back.* November-December 2006. http://www.appanet.org/newsletters/ppmagazinedetailarchive.cfm?ItemNumber=17869

LADWP staff continue to aggressively pursue procurement activities that will enable them to reach their RPS targets within an economic environment that is generally fairly unfavorable, given the high cost of renewable resources, the uncertain future of Federal tax credits, and the recent contraction of U.S. credit markets. Improvement of internal processes could also improve the Department's potential.

As an example, we believe the evaluation of one recent initiative would have benefited from a series of more rigorous and comprehensive analyses, founded on various cost and risk scenarios – The Green Energy and Good Jobs for Los Angeles Act.

The Green Energy and Good Jobs for Los Angeles Act is a proposal outlining the installation of 400 MW of rooftop solar generating capacity by 2014. While the proposal would support LADWP's efforts to meet or exceed current renewable standards, its implementation carries significant costs and may pose substantial implementation challenges. The initial proposal taken to City council would benefit from more detailed planning, technology review and levelized cost review of alternate renewable sources.

PA was asked by the City to perform a high level and extremely rapid and preliminary analysis of this proposal by the Department. The review, because it was done in a very compressed time frame with little project specific documentation, must be considered only as a preliminary indication of potential issues – not a conclusive report. Far more detailed analysis and review is needed to fully evaluate the current project proposal. That said, the review indicates that the project may face significant challenges including:

- Costs – Given the intended focus on rooftop photovoltaic (PV) in the near-term, the minimum installation costs of the 400 MW plan assuming existing technology and pricing were projected to range from $2,8 billion to $3.6 billion. Without significant technology advances and yet unseen economies of scale it would be challenging at best for LADWP to be able to implement the plan for the current $1.5 billion low estimate LADWP has provided
- Comparative costs – Rooftop PV solar would be expected to have an average annual capacity factor of about 20 percent. This compares with about 33% for typical wind projects in California, and about 70% for a new gas-fired combined cycle power plant. Per kilowatt-hour of energy produced, over its life, solar PV is expected to cost more than two times the cost of concentrated solar generation and six times the cost of typical wind generation. The cost to install solar PV is expected to exceed $7,000/kW, which is ~3 times that of wind and ~1.5 times that of concentrated solar.
- Context – The 400 MW goal is equivalent to approximately 143 percent of the total installed capacity of grid-connected PV solar capacity in California today, and is equivalent to almost 85 percent of the current PV solar capacity installed in the entire U.S.
- Timing – Though solar costs are expected to fall if investment and manufacturing capacity in the US increases, manufacturing capacities will need several years to ramp up operations to enable expected cost decreases. The installation timing required by the proposal would force the City to compete for relatively scarce supplies, and would not allow the City to take advantage of anticipated solar cost reductions.
- Structure – Though the federal ITC was recently extended, the requirement that LADWP own the solar generating facilities could likely eliminate the financial benefits of the federal

tax credit, as LADWP is tax exempt. All else being equal, if a private sector entity could own such facilities, LADWP may be able to realize the benefits of the ITC.

- Implementation – LADWP is focused on several major projects and initiatives, including RPS compliance, significant capital projects (water system), and overhauling the IT infrastructure, each of which demands significant focus and financial management insight. It is unclear that LADWP's current strategic planning process and financial analyses are sufficient to appropriately plan and manage such a complex portfolio of projects.

Our rapid analysis suggested that additional rigorous analysis would be necessary to more fully assess the benefits and risks attendant to this proposal. More generally, more comprehensive resource planning efforts, greater analysis of cost impacts, allowances for negotiation privacy, and expedited procurement processes could all contribute to successful portfolio and resource planning efforts.

c. ASSET MANAGEMENT (POWER)

i. Description

Utilities around the country are faced with the need to improve system performance while maintaining or lowering costs. These objectives often emerge as being at odds, creating unique challenges for any utility. These challenges are addressed through active asset management, the systematic and coordinated set of activities and practices through which an organization optimally manages its physical assets, and their associated performance, risks, and expenditures over their lifecycle for the purpose of achieving its organizational strategic plan. Or more simply put, making the smartest decisions possible to achieve desired asset performance.

By managing assets well, we mean:

- Managing limited resources – both human, financial, and facilities - in the most effective way to meet business objectives, focused on performance rather than budget
- Investing in work that supports the strategic objectives of the company
- Using fact-based, performance driven decision-making to support all spending decisions.

Further, asset management entails:

- Determining the right work to be done on the right asset at the right time
- Finding the best course of action in term of the 5 R's (Retire, Replace, Repair, Refurbish, Run-to–fail) for any given asset
- Developing an optimized work plan with the appropriate balance of cost, performance, and risk
- Developing and maintaining the appropriate planning, design, construction, operating, and maintenance standards
- Understanding the entire risk exposure profile and determining the best level of risk tolerance
- Defining the best mix of resources to complete work

- Managing the regulatory environment.

ii. Benchmarks / Companies

While there is not a consistent or universally accepted asset management model that fits all types of companies and operating environments (including regulatory), companies have realized improved performance from an asset management business model by using a variety of global industry best practices that have proven to be an effective way of maximizing the benefits of an asset management organization regardless of the internal structure and external issues. Utilities have adopted many of the asset management techniques from other industries such as RCM and PAS 55 to improve their asset management of the electrical system from a fixed time based, end of life replacement process to more effective methods.

The industry best practice themes/questions shown in the diagram below were included in the questionnaire given to LADWP to compare their level of maturity related to the implementation of an asset management program. This was developed for use in measuring electric utilities maturity levels. It has been used in various benchmarking and assessments by PA. LADWP responded to both the asset management and reliability assessment survey.

Awareness	Development	Competence	Excellence	Enablers
1. Asset condition feedback during maintenance work (as found/as left) 2. Capital investments include related O&M costs 3. Formal corrective action planning process for performance variations 4. Formal process for KPI selection and target setting 5. Direct KPI alignment with strategic goals 6. Proactive and reactive (periodic/monthly and exception) performance reporting mechanisms 7. Use of asset criticality in investment decisions	1. Balanced scorecard for performance management (people, process, customer, financial) 2. Specific asset reliability and loading targets (i.e. SAIFI per circuit and load factor for substations) 3. KPI owners in place with action planning responsibility 4. Long term contractor and/or supplier agreements (3 – 5 years) 5. Service provider selection based on past performance with same and other companies 6. Rationalized service provider network (minimum number of suppliers) 7. Self-managed service providers	1. Use of CBM for optimum asset decisions (repair, rebuild, replace, retire, run-to-fail) 2. Asset data base (asset register) with physical, operational, and maintenance data linked to GIS 3. Life cycle planning (lowest cost of ownership) drives investment decisions 4. Variable contract pricing mechanisms based on work scope and volume 5. Integration of financial risk into asset decision making processes 6. Everyone understands their contribution to performance 7. Balance of time & counter based maintenance with condition based (CBM) 8. Performance based supplier contracts with defined bonus/penalty incentives 9. Resourcing constraints are included for different spending scenarios 10. Root cause analysis used to identify performance variations 11. Spending optimization process and supporting technology in place	1. Balanced Risk/Reward (50/50) contracting strategies 2. Service level agreements in place for field work (continuous cost improvement) 3. Health index and end of life modeling on critical assets 4. Open book contracting relationships 5. Separate performance management department 6. Long term resourcing strategies for optimal blend of internal and external work force	1. Use of performance trending to identify asset degradation in addition to physical inspection 2. Business Intelligence (BI) for performance monitoring 3. Outage Management System (OMS), outage consolidation and prediction, metric tracking (SAIDI, SAIFI) 4. Computerized Maintenance Management System (CMMS) data collection and work scheduling 5. Condition Based Maintenance (CBM) software for asset performance and condition assessment 6. Mobile Data Terminals (MDT) trouble response dispatching & data updates 7. Geospatial Information System (GIS) connectivity modeling, asset data tracking 8. Work Management System (WMS) crew routing and resource optimization

Exhibit 34: Asset Management Maturity Model

The implementation options were:

- Fully Implemented: The process, practice, or technology has been successfully tested and installed throughout the organization, is in common use as a standard operating procedure, has been accepted by all company departments and has demonstrated positive performance improvement results
- Partially Implemented: The process, practice, or technology has been successfully tested and installed in specific operating or geographic areas of the company (but not company wide) and is generally accepted as having the ability to produce performance improvement results

- Implementation Underway: The process, practice, or technology has been judged to be able to provide positive performance improvement results, has been approved by management from a financial investment perspective and has the support of operating personnel. (Could also include a small pilot project to demonstrate proof of concept or possible performance improvements.)
- Not Implemented: The process, practice, or technology is not in place at the present time

The five levels of maturity are organized according to overall industry averages:

- Awareness: these are best practices that are found in most organization and form the "basics" of a good asset management organization
- Development: these practices are less common, but indicate that a company has a good understanding of what asset management means in terms of the business model and supporting processes
- Competence: implementation of these practices indicates that a company is progressing (maturing) toward world class asset management and that there is a common understanding of core principles shared by all
- Excellence: these practices are found in most mature asset management organizations and have demonstrated their ability to improve asset performance
- Enablers: technology plays a key role in the asset management model and these enablers are those that have been found to fully support the asset management methodology and help drive continued performance improvement.

iii. Analysis

The previously mentioned EPRI report, provided an extensive review of the various assets and recommended a life cycle replacement program for LADWP based on critical items such as poles and cables. These recommendations helped to shape the PRP that has successfully replaced poles, overloaded transformers, and other aging system components. However, an effective asset management program provides more dimensions than age and life cycle replacement, although those may be the actual strategies for some assets.

As mentioned prior, the current asset management practices for LADWP were self assessed by the Department utilizing the previously discussed questionnaires for asset management, which included reliability figures. Appendix D contains the graphs displaying the level of implementation in the main areas discussed in the questionnaire, with those closer to the core being less matured.

The areas identified as needing improvement during the self-assessment (those that score 2 or lower in a 1-5 scale) according to each theme specified included:

- Transmission and Distribution Reliability
  - AMI outage notification
- Distribution SAIFI Improvement
  - Distribution automation for fault isolation (outages <5 min)

- Distribution SAIDI Improvement
  - o AMI outage notification
- Substation Asset Management
  - o MDT for field data collection and reporting
  - o Root cause analysis for major equipment failures
- T&D Overall Asset Management
  - o Root cause analysis used to identify performance variations
  - o Balanced scorecard for performance management
  - o SLA in place for field work
  - o Separate performance management department
  - o Asset condition feedback during maintenance work
- Transmission Asset Management
  - o Condition based maintenance (CBM) software for asset performance and condition assessment

Our analysis of the Department also found that the WMIIS process had been implemented in all power distribution (including meters) work and includes a mobile component used by the field personnel for reporting the work.

In addition, the Power System is said to be in the process of deploying a Power System asset management system that will expand the utilization of Maximo and enhance the capabilities of its mobile computing system. Further, upgrades that will result in increased capabilities and tighter integration into the working processes are underway.

The Department's Integrated Support Services Division of the Power System has developed a system for prioritizing work in terms of preventive and corrective maintenance and is in the process of developing a system for prioritizing the replacement of equipment based on health assessments and consequence of failure for all of Power System assets.

iv. Recommendations

LADWP must carry out the deployment of an asset management program that incorporates equipment-specific strategies and system upgrades based on criticality, performance, and other factors that may or may not be life cycle replacement strategies. Although we are aware of LADWP's use of WMIS system and various Maximo uses, LADWP's intended use of these to utilize these computer systems to track and record the maintenance, and generate the required maintenance work. However, prior to setting rules for each type of equipment to time based, conditioned based, or even risk based or run to failure, LADWP needs to review its overall strategic asset management direction, and determine strategic asset management

direction for the various equipment classes. An example of this type of strategy development is PAS -55.

The current plan is to transition to a cyclic replacement program, with preemptive replacements made according to expected equipment life, but the Department may need to go a step further eventually. There will be real value in incorporating equipment-specific strategies and system upgrades should ultimately be developed to aid in determining the best overall mix of alternatives and programs. Such a program would focus on system design, specific feeders, automation, and human factors such as respond and restore.

The Department should continue the efforts of the Integrated Support Services Division but a review of the strategic viewpoint for the equipment beyond health and consequence including all of the R's might prove helpful.

The current maintenance program development for circuit breakers is a step, part of a good asset management program that will need to be defined for the workers and become part of the standards. The actual prioritization of the development of these plans by equipment and voltage level must to be part of the overall strategic asset management plan.

Continued further development and utilization of the tools the department is acquiring should assist them in having a good asset management foundation to continue to develop.

d. FUEL PROCUREMENT

i. Description

Fuel procurement is a critical functional area in any asset-based utility operation. This is particularly true with a multi-fuel portfolio with specific hedging requirements, such as the Department's. In addition, the importance of the Department's fuel procurement and hedging program will increase given the likely role of gas-fired generation in meeting incremental load requirements with a renewable-focused portfolio and increased trading and optimization of gas inventory.

ii. Benchmarks / Companies

There are a series of generally accepted utility fuel procurement and hedging practices to meet generation requirements in a cost-effective and prudent manner. Focus areas of this assessment include:

Focus Areas	Leading Practice
Corporate Strategy	Corporate strategic objectives are clearly communicated throughout the company Strategies are actively monitored and may be altered based on perceived changes in market conditions. Any changes in strategic direction are approved at the executive management level
Market View	Best practice companies have a consistent, company-wide view of market fundamentals and price curves. The company-wide view of market conditions will be informed by forward curves but will be an *independent* view that accounts for:

Focus Areas	Leading Practice
	• Volatility • Cross commodity correlations • Regulatory factors
Functional Integration	Fuels Departments are functionally integrated with power plant operations, dispatch operations, environmental, finance and planning Decisions reflect optimal financial impact on the entire corporation, rather than each department's narrower purview
Department's Contribution to Corporate Goals	Fuel Departments have a clear understanding of the interaction between regulation, markets and corporate strategy in determining company's financial performance With this comprehensive understanding, department staff members make more informed decisions, through: • Risk policy awareness • Involvement of fuel group staff in business plan development • Frequent internal updates based on market updates, regulatory changes and corporate results. The focus remains on broader financial performance and risk factors, including staff orientation toward business and finance Fuel supply strategy is driven by the corporate view of market developments and understanding of how changes in markets interact with corporate strategy. Primary market factors considered are: • Commodity prices • Transportation infrastructure and related options • Environmental changes • Regulatory changes • Supply availability • Compliance responses by company's fleet and other generators • Emission regulations and impact on supply and transport availability.
Commercial Focus	Fuels Department, at all levels, is commercially focused – attuned to market developments and their effect on the company. Activities requiring consistent focus include: • Monitoring markets • Executing efficiently in markets • Understanding financial implications of market issues • Monitoring transportation and operation options Best practice companies evaluate the broader transportation environment to determine how operational modifications can improve financial performance

Focus Areas	Leading Practice
Training/Cross-Training	Staff members are cross trained to ensure business-critical functions can be performed by more than one individual, and to improve understanding of requirements and functions throughout the department. This practice ensures, for example, that procurement personnel understand transportation matters; logistics specialist are familiar with analysis of transportation contracts Methods to achieve effective cross training include: • Business process definition • Performance improvement focus • Knowledge management systems Department has a thorough orientation and integration process for new hires, ensuring each staff member has a clear understanding of their role, individual objectives, department objectives and corporate strategy Effective cross training supports business resiliency and stronger knowledge management that reduces risk of intellectual capital loss
Communication	Strong lines of communication exist within the department and its various functions, as well as outside the department. Market information is shared quickly and completely both within and outside the group to support consistent corporate view of markets, accomplished with daily calls Key communications include: • Use of technology platforms (e.g. Lotus Notes) rather than just word of mouth • Departmental strategy • Communication around quarterly firm-wide results and fuels department's contribution to those results • Comparison of actual results to actual strategy both on a department and corporation wide basis • Discussion of operational issues and events in the marketplace • Personnel stationed at the plants.
Analytical Tools and Decision-Making	Analytical tools incorporate transportation and logistics, plant O&M costs and reliability, emission limits and costs (*e.g.,* allowance price), etc. Tools support calculation of overall impact on corporate financial performance, with consideration of relevant risks Best practice companies have access to optimization tools that provide analysis as to how best to utilize "excess" fuel and manage the overall portfolio Decisions are consistently subjected to thorough analyses, using consistent data and assumptions and including all relevant factors. Management establishes clear deadlines for decisions and relies on analytical results in approving decisions.

Exhibit 35: Assessment criteria for fuel procurement

Leading practices evolve in relation to generation portfolio requirements; for the purpose of this analysis, benchmark utilities include:

- PG&E
- Southern California Edison (SCE)
- First Energy
- Oglethorpe Power

iii. Analysis

At present, the Department's fuel procurement function conducts required procurement activities. However, there are several distinctions between the Department and leading utility peers in the area of fuel procurement. Peers:

- Utilize more rigorous analytical techniques, combined with broad sources of supply and logistical optionality (including storage), to flexibly meet requirements while also optimizing sources of supply
- Have resilient staffing and business processes to prudently meet current and future strategic requirements
- Consolidate physical and financial transactions in a single ETRM solution, to form a consolidated view of the portfolio
- Produce a variety of risk and performance reports related to fuel procurement, hedging, and other issues

In general, we believe that the Department will need to increase the maturity of its fuel procurement function in the near term, as requirements around natural gas procurement increases.

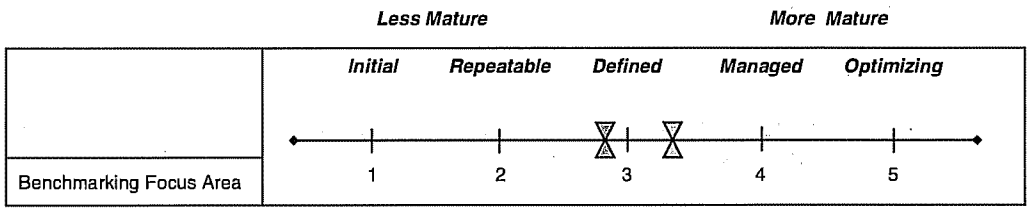

Exhibit 36: CMM score for fuel procurement

iv. Recommendations

In general, the current fuel management function at the Department is organized and equipped to meet current and past requirements. However, given the likely change in portfolio composition and future supply and management requirements, the Department

needs to begin a comprehensive evaluation to identify fuel procurement needs in all relevant areas. Specifically, the Department should evaluate fuel procurement strategies and potential areas for enhancing the functional group in the "as-is" – and importantly, the "to-be" – strategic environment, including:

- Proactively identify "People, Process, Technology, and Governance" requirements related to increased trading of natural gas to shape load requirements with a renewable-focused asset mix
- Evaluate a range of gas procurement options given the "as-is" portfolio of assets, and various new scenarios given a "to-be" portfolio of potential assets (e.g., storage, transportation, supply, etc.); this analysis should include benefits, costs, and risks
- Ensure that specific attention is dedicated to staffing and succession planning for primary procurement functions, including training and knowledge management
- Complete necessary organizational and system changes to definitively integrate physical procurement and hedging functions into one functional group
- Address potential changes required to procurement and risk management policies and procedures (including City Charters) given the prospective "to-be" environment.

e. CUSTOMER SERVICE

i. Description

Customer service is a series of activities designed to enhance the level of customer satisfaction; that is, the feeling that a product or service has met the customer's expectation. For the purpose of this analysis, customer service is related to the delivery of reliable, low cost power, the accuracy of bills, contact center response time, etc. Customer service is an increasingly important area of differentiation in utility operations generally, as well as specifically in relation to stakeholders such as neighborhood councils, large commercial and industrial accounts, etc.

ii. Benchmarks / Companies

A variety of areas are typically investigated as part of any performance benchmark program around customer service. Core areas include:

- Contact Center
- Meter reading
- Field service
- Billing
- Payment
- Credit & Collections
- Revenue Protection
- CS support

- Internet

Performance benchmarks form the basis of our evaluation of the Department's Customer Service Division (CSD). Specifically, we reference results from the 2007 Polaris benchmarking study, which is comprised of 29 companies across North America. The 2007 study includes data from 2006 and 2005 to reflect any improvement or degradation trend.

iii. Analysis

Qualitative analysis of the Department suggests a number of attributes that impact potential performance improvement, including:

Positive attributes:

- Large customer base provides opportunities to achieve economies of scale in various customer operations functions
- High customer density improves productivity in comparison to other companies

Challenging factors:

- Consistent measurement and management of employee performance
- Restrictive labor rules – any rules that limit ability to improve performance
- High labor input costs – associated with cost of living
- Regulatory impediments -- moratorium that prevents disconnects at certain times of the year
- Customer demographics – types of customers that affect costs
- The level/degree of technology investment required to truly transform the group.

	2006 Overall Quartile	2005 Overall Quartile
Overall	**Q4**	**Q4**
Contact Center	**Q4**	**Q4**
Meter Reading	Q3	Q3
Field Service	Q3	**Q4**
Billing	**Q4**	**Q4**
Payment	**Q4**	**Q4**
Credit & Collections	Q2	Q3
Revenue Protection	Q2	Q3
CS Support	**Q4**	Q1
Internet	Q2	**NA**

Exhibit 37: Performance benchmark scores for LADWP customer service

The Department's overall scorecard profile in relation to the peer panel was 4th Quartile. Additional specific information for core KPIs is provided below – note that the rigor and accuracy of benchmarking results for the Department in this assessment were impacted by missing data for a number of the functional areas:

Overall KPIs

4th Quartile, Total Points -3. (26. - .00)	Los Angeles Department of Water and Power, CA					Polaris Panel					
	2006 Quartile	2006	Change From 2005	2005 Quartile	2005	2006 1st Quartile	2006 Mean	2005 1st Quartile	2005 Mean	2006 Points	Report Page Number
Cost											
* Customer service expense (ex. P&B) per adjusted customer	Q3	$49.46		Q3	$54.11	$37.08	$45.19	$37.61	$47.49	26	5
* Customer service expense (ex. P&B, support) per adjusted customer	Q3	$44.65	⇧	Q4	$53.82	$32.39	$41.36	$34.16	$42.25	26	8
* Customer service expense (ex. P&B, uncollectibles) per adjusted customer	Q4	$44.64		Q4	$54.11	$27.43	$36.06	$29.24	$38.08	26	6
* Customer service expense (ex. P&B, uncollectibles, support) per adjusted customer	Q4	$38.23		Q4	$53.82	$25.05	$30.95	$24.88	$32.84	26	9
* Total contact center expense (ex. P&B) per adjusted customer	Q4	$12.42		Q4	$18.46	$6.81	$7.84	$6.77	$8.10	26	282
* Total meter reading expense (ex. P&B) per adjusted customer	Q3	$7.14	⇧	Q4	$9.57	$3.97	$5.68	$5.46	$7.88	26	572
* Total field service expense (ex. P&B) per adjusted customer	Q2	$5.68	⇧	Q4	$10.52	$2.54	$6.09	$2.50	$5.25	25	747
* Total billing expense (ex. P&B, facilities) per adjusted customer	Q4	$6.59	⇩	Q3	$5.51	$4.96	$5.77	$4.66	$5.93	26	914
* Total payment services expense (ex. P&B, facilities) per adjusted customer	Q2	$0.84	⇧	Q3	$1.28	$0.74	$1.23	$0.92	$1.48	26	1059
* Local office expense (ex. P&B) per adjusted customer	Q4	$3.76		Q4	$4.96	$0.56	$1.80	$0.21	$2.46	15	1124
* Total credit and collections expense (ex. P&B, facilities) per adjusted customer	Q2	$7.83	⇩	Q1	$2.84	$7.17	$13.30	$6.58	$13.72	26	1160
* Uncollectible expense per adjusted customer	Q3	$6.41				$4.60	$10.43	$4.20	$9.41	26	1166
* Total revenue protection expense (ex. P&B, facilities) per adjusted customer	Q2	$0.39	⇧	Q3	$0.67	$0.28	$0.52	$0.35	$0.62	23	1396
* Total customer service support process expense (ex. facilities) per adjusted customer	Q3	$5.27	⇩	Q1	$0.30	$3.06	$6.16	$3.28	$5.46	26	39
Service Levels											
* % of calls answered by CSR's within 30 seconds						75%	68%	76%	69%	17	384
* % of calls abandoned excluding major events	Q4	7.2%				3.0%	5.1%	3.1%	7.5%	26	402
* Overall meter reading inaccuracy	Q2	0.039%		Q2	0.043%	0.030%	0.299%	0.014%	0.301%	15	596
Safety											
* OSHA lost time incident rate - all customer service	Q4	3.50		Q4	4.30	0.86	1.45	0.28	0.97	14	197
* OSHA recordable incident rate - all customer service	Q4	8.80		Q4	9.50	1.49	3.81	1.95	3.57	19	203
Preventable vehicular accident rate per 1,000,000 miles - all customer service						3.05	6.23	4.35	6.18	5	228.5

Exhibit 38: Overall KPI scores for LADWP customer service

It is important to note that a variety of programs have been put in place to improve CS operations. Specifically, since January 2008, initiatives have been implemented that focus attention in three key areas (Resource Management, Process Improvement, and Technology Improvement), and in the following functional areas – Customer Contact Center (CCC), Revenue Management, Collections, & Service Orders, Meter Reading, Remittance Processing, Field Service, and Website Operations. The following is a synopsis of some of the most critical efforts in-progress:[11]

Resource Management:

Initiatives devised to increase efficiency and ensure adequate personnel levels

- Customer Contact Center (CCC)
  - Addressing attrition and personnel transfers through additional hiring; over-staffing the contact center in anticipation of personnel losses

[11] Note that statistics defining improvement was provided by the Department, and was not validated by PA.

- Freezing division-wide transfers from the CCC until it is fully staffed
- Creating contact center teams to identify methods to increase efficiency and improve morale
- Promoting a teamwork culture by utilizing other groups (Account Services Unit (ASU) and Revenue Management) to assist during peak call volume times
- Reducing overtime by overstaffing on Sundays (37 employees), proving less costly than having staff work overtime with double pay
- Actively monitoring individual CCC representatives' "not ready time" / reduced "not ready time" from 30% to 20%.

- Revenue Management, Collections, & Service Orders
  - Hiring 24 employees for the new Revenue Recovery Group to handle collection calls, thereby reducing collection interaction to the entire CCC
  - Increasing the efficiency of 16 collectors by focusing on the customers with the largest arrears and scheduling in a geographic-specific manner.
  - Backfilling 17 positions to address the work load and backlog issues such as the completion of service orders
  - Increasing automatic deposit refund levels to $150 from $50, thereby reducing the work load in the Commercial Accounts Management Unit (CAMU) and ASU.
- Meter Reading
  - Filling 40 open positions to ensure a full staff, thereby reducing meter reading inaccuracy and reducing associated customer calls

Process Improvement:

Work process review and institution of various process improvement measures

- Customer Contact Center (CCC)
  - Increasing first call resolution to increase customer satisfaction levels
- Remittance Processing
  - Reducing the occurrence of returned mail through detailed mail review during downtime and by contacting customers directly
  - Initiating steps to redesign the customer bill (the source of 20% of incoming calls)
- Field Service
  - Instituting quarterly brainstorming sessions with 400 field staff to improve ways to serve customers, coordinate work processes, and initiate operational improvements

Technology Improvements:

Moving forward with critical technology improvements

- Customer Contact Center (CCC)
  - Installing Voice Over Internet Protocol (VoIP) by February 2009 that will provide virtual call waiting, improved call routing and skill-based routing, increase the self service capabilities from 9% to an estimated 30%, and allow customers to report outages without a representative, among several additional features
  - Increasing the efficiency of call routing by having specific calls addressed by representatives with pertinent experience
  - Retaining external services to provide redundancy and handle 60,000 per hour inbound overflow calls and 100,000 per hour outbound calls
- Website
  - Developing self-service options (to be available in the first quarter of 2009), including Application for Service Turn On, Service On/Off, Service Transfer, Payment Extension, and High Bill Complaint
  - Providing residential customers with on-line payment capability; providing commercial customers with on-line payment capability by March 2009
  - Providing e-billing by January 2009, which will result in a sizeable cost savings due to reduced postage costs
- Metering
  - Installing 7,000 wireless meters on 5,000 different electric circuits by July 2009, with the ability to report real-time power outages
  - Installing 10,000 wireless meters by July 2009, with the ability to remotely turn on and off
- Customer Information System (CIS)
  - Initiating the three-year CIS Retrofit Project as of December 2008

In general, these results highlight the improvements already achieved and highlight the programs underway or planned to continue the record of improvement in 2009 and beyond. Additional programs implemented across CSD include cross-training initiatives and increased safety training. Additional indication of the improvement in 2008 is provided in the exhibits below:[12]

[12] Note that the data in these exhibits was provided by the Department, and was not verified by PA.

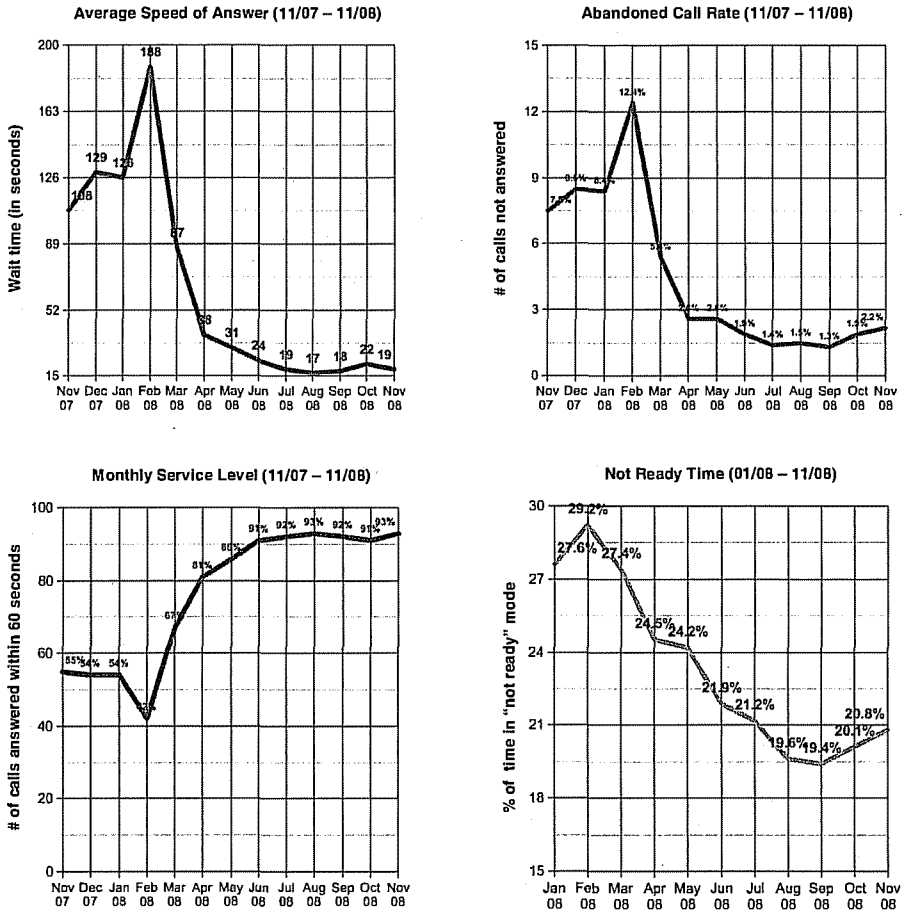

Exhibit 39: Measures of CSD performance improvement

Despite these improvements, many of the programs described above will require significant capital expenditure (e.g., CIS) as well as diligent project management to achieve the desired results. This is particularly true when considering the number and complexity of interrelated projects. Close management and oversight of the projects is therefore critical.

In addition, several of improvements cited above relate to increasing staff levels (including in the contact centers). However, results from the 2007 benchmarking suggest that CS cost is a key focus area for the Department. Specifically, results from 2007 suggest that while overall CS expenses decreased compared to 2005, expenses in 2006 remained above the mean for the panel. Specifically, Contact Center expenses show the most departure from the mean, while field service, payment and local office expenses are among those that improved the most between 2005 and 2006.

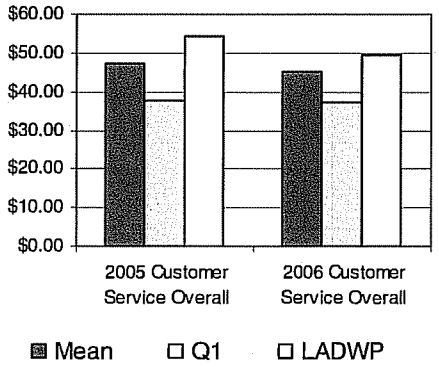

Exhibit 40: Overall Customer Service cost per adjusted customer

Note also the relatively high cost of Contact Center operations versus other key LADWP functions.

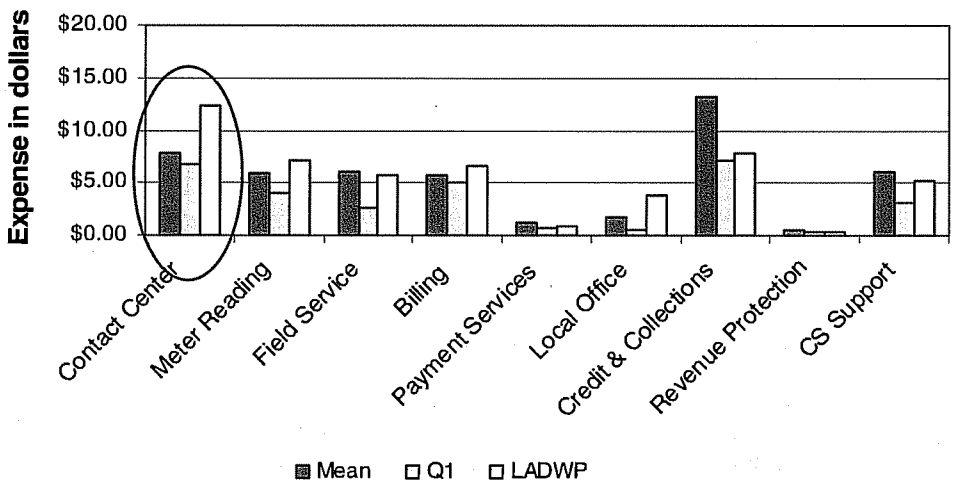

Exhibit 41: **2006 Customer Service Expense by Functional Area (cost per adjusted customer)**

Note that CS costs are above the mean for Q1 panel companies in all areas, and above the mean in four of nine service areas. Moving forward, CSD is committed to continuing with customer service improvements while managing costs. Specifically, CSD is planning to continue freeze the existing budget for the next four years and shift staff to areas of need to meet the workload demands. Additionally, Customer Service Centers that are in close proximity will be consolidated to reduce costs. As discussed above, steps will be taken to increase the usage of automated processes such as on-line payment, wireless meters, and e-billing to decrease costs. (Estimates suggest that a 20% increase in automated processes

can result in a 30% decrease in costs.) The ultimate goal of CSD is to seamlessly and cost-effectively serve customers through the Internet, telephone, e-mail, and face-to-face interactions.

iv. Recommendations

A detailed process audit, as well as a "refresh" of the 2007 Polaris benchmarking study, is necessary to determine progress to-date on these and other performance improvement plans. However, as noted above, evidence suggests that improvement is being made in certain areas of the CS organization versus 2006 performance. In recognition of CSD's customer service performance, LADWP was recently recognized with two 2008 Quality and Productivity Awards for the City of Los Angeles: The first was for the CCC ("Record Breaking Customer Contact Service Levels") that showcased the improvements in the percentage of calls answered in 60 seconds, and the second was an award for the Remittance Processing Center ("Check 21 Processing Method") that highlights the efficiency gains and cost-savings realized by automated imaging and processing of customers' payment checks.

f. COMMODITY RISK MANAGEMENT

i. Description

Risk management is a broad discipline that involves the selection and implementation of a risk control strategy given an organization's inventory of critical risks, business objectives, and risk tolerance, followed by the active monitoring and evaluation of the effectiveness of that strategy. While risk management is commonly associated with broad enterprise-wide sources of risk, or indemnification and other loss prevention strategies, for the purpose of this analysis "commodity risk management" is defined as activities and processes related to the measurement, management, and reporting of energy commodity procurement-related risks within the Department, including the control environment in which these activities occur.

In general, there are a variety of focus areas within the discipline of commodity risk management, including:

- Market Risk: The impact of price movements in energy commodities on financial performance
- Credit Risk: The risk of loss caused by a counterparty not fulfilling its obligations
- Operational Risk: Addresses both the risks associated with the producing, delivering, storing, etc. of physical energy products and the risks associated with failed internal processes, systems, people, etc.
- Business Risk: The risk surrounding the uncertainty in the business environment in which companies conduct operations.

These risk categories – often referred to as risk "buckets" – provide the framework for identifying, categorizing, and continually evaluating the impact of various sources of commodity risk that impact an organization's strategic objectives.

ii. Benchmarks / Companies

The discipline of commodity risk management has increased in sophistication over the last decade. Increasing commodity price volatility, the heightened challenge assessing the risk associated with new asset types and related derivative products, and the need to optimize portfolios of complex assets have in combination contributed to the increased importance of

risk management. In this environment, oversight organizations, credit rating agencies, and regulatory groups (among others) contribute to the evolving definition of leading or best practice energy commodity risk management standards. Meanwhile energy companies themselves are contributing to new standards through the continual development of enhanced analytics, risk and performance measurement and reporting methods, and capital allocation protocols.

For the purposes of this benchmarking, evolving standards from a variety of well-regarded organizations were considered, as were the practices of similarly situated municipal utilities and IOUs. Specific sources for best practice protocols used in this analysis include:

Source	Primary Reference	Overview
The Group of Thirty (G30)	Derivatives: Practices and Principles, Global Derivatives Study Group (1993)	Articulates 24 recommendations in four broad areas that serve as a foundation for risk management
Committee of Sponsoring Organizations of the Treadway Commission (COSO)	Internal Control – Integrated Framework (1992)	Provides principles-based guidance for designing and implementing effective internal controls
White Papers from the Committee of Chief Risk Officers (CCRO)	CCRO Organizational Independence and Governance Working Group: Governance and Controls White Paper (2002)	Offers guidance on the control infrastructure for physical and financial energy trading organizations in two primary areas: the business processes and the governance over them
Assessment criteria from Standard & Poor's, Moody's, and Fitch	Various position papers and evaluation criteria related to risk management	Consistent framework approaches to the evaluation of risk control practices across energy organizations in areas such as policy (business strategy, risk tolerance, disclosure practices), infrastructure (personnel, operations, technology) and methodology (risk metrics employed, testing and validation procedures)

Exhibit 42: Assessment criteria for commodity risk management

The positions of these organizations are relevant as it relates to prudent commodity procurement and risk management. However, for this analysis general recommendations have been oriented to the specific goals and objectives and risk tolerance of the Department as a municipal power organization. With this in mind, concepts of "prudent utility practices" are a key reference for the analysis, with specific focus on "practices, methods, and acts" that accomplish the desired result at the "lowest reasonable cost consistent with good business practices, reliability, safety, and expedition". In short, the general objectives of municipal utilities (including steps to eliminate or mitigate the impact of "surprises", keeping costs lower, and preserving high credit ratings) were explicitly considered.

While the protocols above form the main point of comparison for assessment, the practices and protocols of several peer companies were also referenced. Specific peer companies used in this analysis include both large municipal utilities as well as regional investor owned utilities:

- CPS Energy (CPS)
- Orlando Utilities Commission (OUC)
- Pacific Gas & Electric.

A complete profile of these companies is provided in Appendix C.

As described in section 3.2.3 b., the following represent core areas of any commodity risk management program:

- Measurement & Reporting: Methodologies and protocols utilized to assess and report risk
- Governance & Controls: Policies and processes, "checks and balances" and overall risk oversight
- Information Technology: The flexibility and strength of risk management and related systems
- Capital Allocation: Protocols around the evaluation of financial performance and allocation of capital to assets or hedging programs

These represent the primary areas of focus for our analysis. In addition to the current state of commodity risk management functionality at the Department, the assessment reviews current risk management capability and infrastructure in relation to potential future strategic commercial and asset management objectives and requirements.

Process and Functional benchmarks are principally used in this analysis, leveraging the position papers, recommendations, and business evaluation parameters listed above. A list of over 100 questions was derived from these sources around the focus areas identified above and relevant to the Department's operations; scores were given based on the presence or absence of the practice, approach or methodology in question, and its relative maturity. As noted, while a full process audit was not conducted as an aspect of the Operational Assessment, observations regarding the Department's commodity risk management program were formulated given results from the interview and data request process conducted during the Assessment of Strategic Issues.

iii. Analysis

Understanding the primary objective of the Department is a critical aspect of this analysis. It would be inappropriate to compare the Department to either a large merchant energy company with considerable proprietary trading, or a very small municipal utility with extremely limited commodity procurement requirements. Stated simply: This assessment was conducted understanding the Department's strategic and market position as a large public power utility with extremely limited risk tolerance, and a large scale commodity procurement and hedging requirement.

Given this, the following are observed maturity levels for the four focus areas identified above:

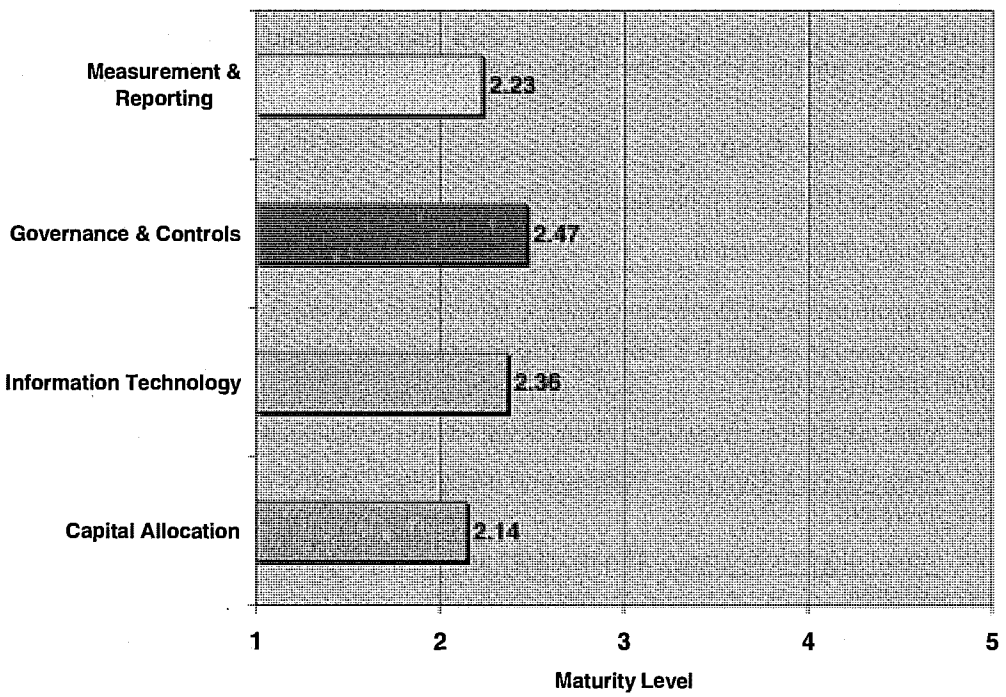

Exhibit 43: CMM scores for key risk management focus areas

In general, the Department's maturity levels are generally "Repeatable" and/or "Defined", with areas available for improvement to reach the "Managed" state. The following are specific scores for each focus area:

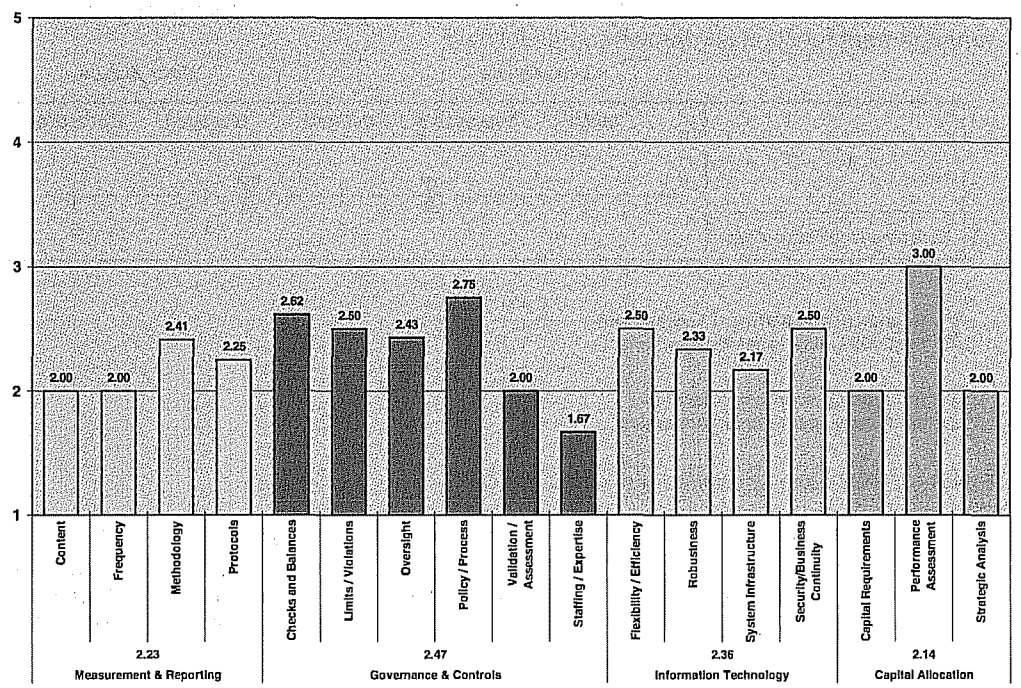

Exhibit 44: CMM scores for key risk management focus areas

- Measurement & Reporting: Risk management reporting is appropriately focused on hedge position information for forward time periods. However, at this time, common risk measurements for exposures are not generated or regularly reported. Such measurements should be a common aspect of Department risk reporting versus established limits, and supplemented by stress tests or scenario analyses.
- Governance & Controls: The governance framework of the Department is generally strong, due to policies established through city Charter. However, appropriate segregation of duties is lacking as reported in the Strategic Assessment. In addition, limit structures / notification protocols around commodity exposures should become a common aspect of the control infrastructure.
- Information Technology: The Department requires an integrated front-to-back office application as its primary transaction management system, in which all physical and financial obligations are managed and valued. A single application would increase process efficiency and automation, while also increasing risk and performance reporting capability. In general, commodity risk management will require dedicated IT assistance to maintain and improve operations as commercial operations change.
- Capital Allocation: Risk management functions are increasingly charged with independently evaluating capital requirements under various portfolio hedge scenarios, enabling the optimization of hedging decisions. A more definitive connection between risk tolerance and limits and collateral constraints is seen as a leading practice when forming and implementing hedging strategies.

In conclusion, the observed relative maturity of the Department's commodity risk management function is represented as follows:

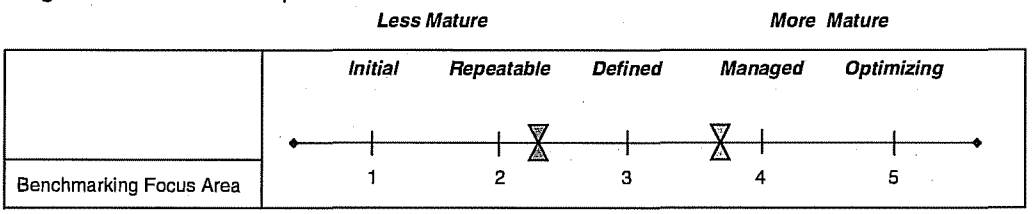

Exhibit 45: CMM score for commodity risk management

This maturity level is below that of relevant municipal and investor owned utility peers, which as a group are trending increasingly toward "Managed" processes around commodity risk management. (Importantly, over the last several years many utility commodity risk management organizations have continued to trend from "Managed" to "Optimizing" process maturity.)

iv. Recommendations

Effective commodity risk management is characterized by the integration of policies, protocols, tools and governance hierarchies that enable the realization of an organization's business strategy. The Department should continue to make strides in several areas, including risk analytics and reporting and documentation of business process, to continue to increase the group's maturity and institute a culture of continuous improvement. Further, the Department's processes, data management, and reporting capabilities would benefit from an infusion of enhanced technology. However, most critically, responsibility for commodity risk management at LADWP continues to reside in various areas of the organization. One of the most critical recommendations from the 2007 functional audit of the group – the elimination of the segregation of duties conflict identified above – has not been addressed.

The following are recommendations to increase the maturity of the Department's commodity risk management function:

- Immediately resolve all issues related to proper segregation of duties between the Risk Control and Wholesale Energy Resource Management groups
    - Ensure that responsibility for all transaction management and control activities resides in Risk Control, and not Wholesale Energy Resource Management
    - Make organizational design, job description, and line of reporting changes to affect required changes
- Conduct a systematic review of the "as-is" commodity risk management-related software and database applications and data management processes

- Identify software and data management requirements associated with "to-be" energy commodity procurement activities

- Capture all energy commodity transactions (physical and financial) in a single software application

  - Lead an ETRM software requirement and vendor assessment initiative, focusing specifically on current and future trading and risk management requirements

- Increase rigor of market and credit risk management analytics to account for exposures related to physical assets, contracts, and financial hedge positions

- Enhance reporting to include various risk related analyses, including cash flow risks and historically relevant stress tests around commodity procurement.

g. ENERGY COST ADJUSTMENT FACTOR (ECAF)

i. Description

LADWP's electric rates consist of a base rate and a fuel adjustment charge that is commonly referred to as the Energy Cost Adjustment Factor (ECAF). The ECAF is a pass-through charge that enables LADWP to recover fluctuating energy costs related to the following.

- Purchased power
- Fuel expenditures
- Annual debt service costs on new projects
- Off-balance sheet procurement through the Southern California Public Power Authority (SCPPA)

In anticipation of energy deregulation, LADWP froze the ECAF in 1998 at 1997 levels. At that time, other utilities in California continued to keep their fuel adjustment charge in place and passed on higher fuel costs to their customers. Further, in 1998, the California State Legislature established a Public Benefits Charge to fund Low-Income and Lifeline programs, as well as research and development, energy efficiency, and renewable energy. While other utilities increased their electric rates and passed this charge on to their customers, the LADWP absorbed this cost within its frozen rates. The cost of this State-mandated program is calculated at 2.8% of LADWP's power revenues, or approximately $70 million each year.[13] These examples confirm the Department's historical ability and willingness to closely manage rates (and specifically, the flow of collections from ECAF through rates) to reduce impact to customers.

However, recent rate actions through the unfreezing of the ECAF confirm that the Department must take measures to increase power system revenue. Therefore the ECAF – and specifically the manner in which it is managed and its likely role and impact going-forward – is a focus of this analysis.

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[13] Fact Sheet: LADWP Management's Proposed Electric Rate Action. Spring 2006.

ii. Benchmarks / Companies

We reviewed the equivalent of LADWP's Energy Cost Adjustment Factor (ECAF) practices at the following companies:

- CPS Energy
- Burbank Water & Power
- Anaheim Public Utilities
- Austin Energy
- Sacramento Municipal Utility District (SMUD)
- Pasadena Water & Power

Although there is no recovery mechanism best practice, there are certain elements of a cost recovery mechanism that should be integrated into the rate recovery process irrespective of the size and geographic location of the utility. Those elements include:

- Robust analytics: Including robust scenario planning around the Department's hedging regime, increased sophistication of gas price and other forecasts (and impact on various strategies.)
- Enhanced reporting: Including monthly and ad hoc reporting, assessing potential changes in ECAF
- Clear communication: Including regular meetings that enable a transparent process and reflect changes in the market, etc.
- Rate adjustment: A well-thought out rate adjustment structure that allows for sustainable and realistic under-collections

iii. Analysis

As noted, LADWP's ECAF was unfrozen in 2006 following an increase in gas prices that increased Department costs in a manner not proportionate to any increase in revenues over the same time period. However, the recovery mechanism could not exceed the rate stabilization target amount set by Board resolution, which capped the cost recovery to 0.4 cents per kWh per year, and prevented the complete sharing of risks with customers.

Our review of recovery mechanisms found considerable variation in the degree of complexity, the inclusion of a reserve fund, upward and downward limitations (bandwidth), and the determination of certain estimates and sensitivities. However, our review found that LADWP's ECAF process undermines the financial stability and desired rate continuity, as it does not appear to: 1) include sensitivity analyses, which limits their ability to accurately determine revenue requirements going forward, or 2) provide guidelines for action based on ECAF levels. Specifically, there does not appear to be rigorous decision-making criteria for when collections should be increased through rate increases and an unlocking of ECAF. This lack of a set of clear decision rules and governance around levels of ECAF collections and related rate increases creates the opportunity for potential rate shock if decisions are delayed.

iv. Recommendations

Upgrades to the budgeting process and internal ownership have provided a sound foundation to work from in addressing future revenue requirements. However, the Department does not currently appear to be adequately prepared to tackle the uncertainty associated with future changes to its cost structure. Renewable energy procurement obligations and the commencement of greenhouse gas regulations are likely to compound the challenge already posed by natural gas price volatility, and the power rate setting process will continue to be handicapped until greater efforts are made to ascertain and account for the range of possible impacts.

Under the current regime, the ECAF structure presents a considerable financial risk to the Department and the City of Los Angeles. Not only has the Department's ability to issue debt for projects and procurement has diminished, but the increase in costs related to RPS have the potential to increase the ECAF collections to levels that are unsustainable.

We recommend the Department engage in the following:

- Bolster analytics around the evaluation of prospective collections under the ECAF, including running detailed scenarios around gas price forecasts that are reliable and rigorous. This would also include an evaluation of optimal hedging strategies and the inclusion of realistic renewable and other strategic scenarios that impact ECAF
- Introduce a monthly (or more frequent) reporting process to all stakeholders (including LADWP Commissioners) to allow for discussions about the options and best course of action to flow costs through rates. This reporting process would also include up-to-date fuel price forecasts
- Review the amount of over and under collection gaps and the frequency of adjustment of the ECAF
- Introduce a "trigger" mechanism based on tiers of collections into ECAF, which would initiate rate increases so as to avoid rate shocks

4.3.3 Internal / Global

a. HUMAN CAPITAL

i. Description

As described in the Strategic Assessment, Human Capital refers to the set of skills and knowledge that people bring to their jobs to perform tasks and produce economic value for an organization. There are several interrelated components that make up Human Capital, these include: recruitment practices, workforce management and succession planning, reward/compensation measures and performance measures, technical competencies, knowledge management, and training.

ii. Benchmarks / Companies

Within the human capital space, there are certain rules of thumb in terms of benchmarking HR related practices among companies. Some of these are:

- HR to organization FTE ratio: Regardless of the industry, the ratio of HR staff should be more than 1:75 employees. As a rough rule of thumb, for blue collar industries such as a manufacturing is 1:250 while for white collar industries such as banking is 1:100
- Total HR costs to business revenue: The total cost of running HR functions compared to revenue in the fiscal year should be no more than 0.3%
- Access to HR services: Managers and supervisors should have easy access to HR services. A single phone number, an email address, a portal with single sign-on and a repository for all HR related interactions is best practice.
- Automation: Continually increasing automation is vital. Employees should be able to update their personal details, adjust their bank account details, request absences, view the value of their pension, etc. And at the click of a button, the HR staff should be able to establish the total employee account and consolidate all employee and financial data
- Education (number of hours of formal training per hours worked per FTE): Training is a critical part to develop any workforce. It allows for providing efficiencies through the staff learning new practices and new technologies that allows for efficiencies in the workplace
- Personnel (Absence and Termination rates): Capturing absence and termination rates allow a company to get an indication of the level of unhappiness of their workforce with the work or compensation, it can also indicate unsafe or unhealthy conditions, or that too few employees give satisfactory performance (due to unrealistic expectations or poor candidate screening)
- Recruitment (Acceptance rates): This is indicative of how successful a company is in its recruitment practices. This can be determined by: alignment of salary offers, benefits, job location, overall hiring process, and overall feeling of fitting within a company for the prospective employee. Dissatisfaction of any one of these factors can affect the acceptance rate bottom line. If the acceptance rate is low, it is worth investigating to determine the company's competitiveness in the job market

Unfortunately, most of these benchmarks are not available for this analysis, as this data is not captured on a regular basis, if at all.

iii. Analysis

The Department has taken action towards minimizing the negative impact of their present practices in terms of Human Capital. For instance, the recently completed Performance Audit-Review of Vacancy Management Practices identified several areas that need to be immediately addressed to improve hiring at the Department. We believe that the implementation of the findings and initiatives is crucial to the Department's continued improvement in this area. However, we are unaware of a project plan or set of tasks underway to implement and enforce the recommendations set forth in the audit.

In addition, there have been various initiatives such as the workforce development plan that aimed to address workforce analysis and the need for a labor supply and demand analysis, strategic development and workforce retention, and the streamlining of processes related to the allocation of positions (among others). However, in these and other areas we are unaware of action plans or recurring progress reports versus recommendations. We encourage the Department to continue creating new ways to target the pockets of

deficiencies that have been neglected over the years, as well as a dedication to closely managing these initiatives to achieve lasting results.

In general, our analysis identified several critical areas for improvement within the Human Capital functions that include:

- Workforce management and succession planning: To our knowledge, as aforementioned in the strategic assessment, there is one unit in the Water System involved in succession planning efforts, with no formal programs/initiatives in place that tackle these efforts in a consistent manner throughout the Department. And while we praise the Department's initiatives to engage in more successful and effective practices to hire critical personnel, we believe a more systematic and strategic program needs to be in place to tackle the various workforce management problems facing the Department (e.g., shortage of skilled labor, aging workforce) with specific processes to ensure their execution and measure their success over time.

    - Programs that increase the pipeline of prospective young employees to the Department such as Student Worker Program have been reintroduced. The success record attracting and retaining employees from these programs is, at the time of this writing, undetermined and should be evaluated in a broader scope.

- Training: While technical training is provided by each system and general business training is provided by HR, there are no efforts to keep records that measure cost, success, value-added in either system, which would help to determine the level of achievement of overall training efforts and future budgetary allotments.

  According to the December 2007 QualServe Water and Wastewater Utilities Benchmarking Survey, LADWP fell short in terms of the quantity of formal training that it provides to its water system employees, placing it in the bottom quartile of those that participated in the survey (LADWP/Bottom quartile = 12.1, while the median was 15.5 and the top quartile 23.9 hrs of training per FTE).

It is worth noting that the Department's ability to implement certain HR functional changes is dependant upon IT enhancements.

iv. Recommendations

Designing a framework of supporting services that facilitate the best management of staff, enable workforce planning and succession, provide relevant training opportunities that allow for workforce growth, among other key factors can prove challenging for any organization. In the case of LADWP, those challenges are maximized because of the size and complexity of the organization, civil service requirements, and other factors.

To achieve the desired level of satisfaction and support among staff, we recommend the following:

1. Expand programs that evaluate their HR-related functions, such as the aforementioned performance audit, as a cost-effective way to identify and/or validate existing problems.

2. Create enforcement and monitoring mechanisms to work with HR on the solutions identified, understanding the potential constraints related to civil service rules and other requirements.

3. Conduct a comprehensive workforce and succession planning study, which would become a critical aspect of the Department's Strategic Plan. (Equally important will be the monitoring and adherence to a realistic and aggressive project plan for the implementation of the feasible efforts identified.)

4. Begin compiling and evaluating technical training records that capture cost, success, and value-add or both the Water and Power Systems; these records would ultimately serve as roadmaps to decide the level of achievement of overall training efforts and future budgetary allotments of those trainings

5. Select and begin capturing data on several targeted HR-related metrics, such as: HR to FTE ratio, Revenue to FTE ratio, absence rates, acceptance rates and number of hours of training per FTE, to better monitor and assess the effectiveness of Department HR-related practices.

6. Substantially increase training opportunities to achieve benchmark parity, particularly in "futures technologies", including water quality science, IT applications for both water and power, and operations efficiency.

b. STRATEGIC PLANNING

i. Description

In today's environment, utilities face a large number of complex challenges that directly impact how strategies are established and executed. For power and water utilities, common challenges include commodity supply and price pressures (e.g., fuel and water) Federal regulatory compliance requirements (e.g., NERC Reliability Standards, EPA Water Quality Standards), general State and Federal regulatory uncertainty, and the aging workforce / technical skill gap issue (to name a few).

Importantly, a large number of challenges are distinct to LADWP and make the process of strategic planning particularly critical. Principal among these challenges include the consistent attrition of senior leadership (most specifically the GM), and the oversight of and relationship to a variety of stakeholders (including the Mayor's Office, other City departments, the City Council, the Board of Commissioners, and the various unions relevant to LADWP, among others). Further, mandated State legislative requirements (e.g., the California Global Warming Solutions Act (AB32)) and increasing demands from neighborhood councils around a variety of factors (including reliability, service quality, and rate increases) provide a uniquely challenging environment within which the Department must operate.

As defined in section 3.1.2 b above, strategic planning is the systematic process by which an organization envisions its future and develops the vision, mission, goals, objectives, and action plans to achieve that future. While capital budgets often focus on much longer term periods (particularly for utilities), a common period defining strategic planning processes is often 3-5 years. Within that timeframe, strategic objectives and a realistic assessment of the financial, human, infrastructure, and relationship resources required to implement the plan are assessed. Key components of effective strategic planning include:

- Annual strategy meetings, focused on critical objectives (e.g., "where to play", "how to win"), with active discussion and debate on the interplay between commercial and risk management strategies, opportunities to enhance operations, and critical issues to be resolved (among others)
- Development of streamlined and focused strategy proposal documents, focusing on "sure things", "big bets", operating improvements, etc.
- Clear assessment criteria, including alignment with company objectives and themes, forecasted financial performance, and risk profile; completed SWOT analyses for all proposed strategies
- Development and implementation of performance indicators and measurement techniques for selected strategies, including evaluation parameters and reporting protocols
- Continual close interplay between business leadership and staff / key practitioners within the business who will execute the selected strategies
- Recurring update meetings, during which progress versus goals, objectives, and targets are assessed
- Specific protocols for socializing agreed strategies with key stakeholders as part of a broader annual strategic planning process.

The following exhibit and related steps reflect a generalized approach to planning and executing a comprehensive business planning process:

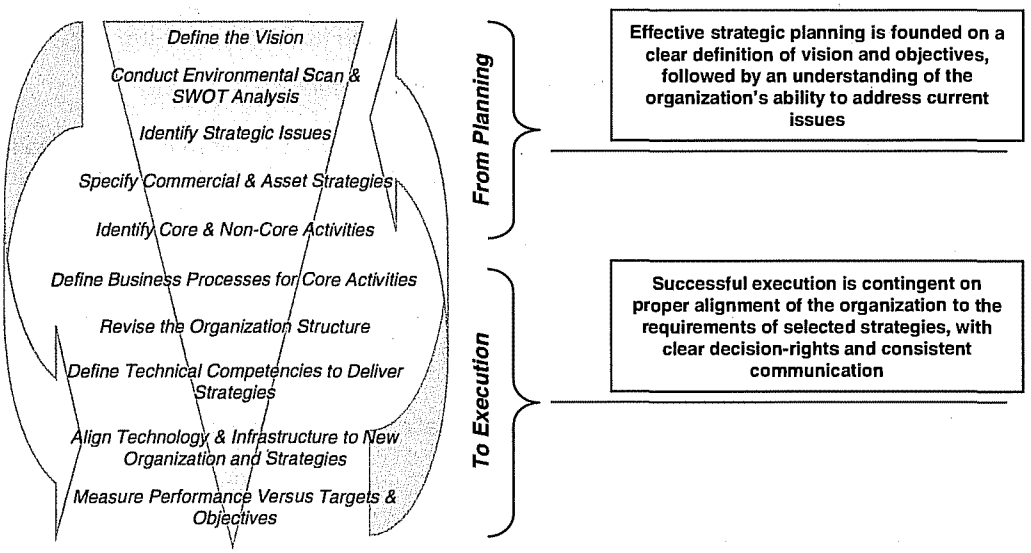

Exhibit 46: Stages of strategic planning process

- *Define* the Vision and Mission for the organization

- The overall Vision and Objectives for the Department, as well as comparable definitions for the Systems and functional groups that align with the Department objectives.

- *Conduct* an environmental scan and SWOT analysis
  - A comprehensive assessment of the market, regulatory, and competitive environment within which the Department operates, and a review of "**S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats" (SWOT) given the Vision and Mission of the Department.
- *Identify* and validate strategic issues
  - An assessment and confirmation of the issues facing the organization (in conjunction with the Visioning exercise) to ensure challenges to the Department are accounted for.
- *Specify* commercial, asset, organizational and other strategies
  - The Department's "readiness" to address agreed issues and meet financial reliability and other objectives through existing strategies and approaches should be evaluated.
- *Identify* Core and Non-Core activities
  - Identify and focus attention on those activities that enable achievement of core Department and functional group objectives; non-core activities should be further evaluated.
- *Define* and document business processes for Core activities
  - The definition and documentation of baseline business processes to help build a strong culture of process improvement and efficiency, and facilitate cross-training.
- *Revise* the organizational structure to best deliver strategies
  - Specifying the organizational structure to best deliver the desired strategies, to facilitate operational excellence, and meet workforce development and other human resource objectives.
- *Define* technical competencies to deliver strategies
  - Comparing the technical competencies required to deliver the selected strategies and objectives, versus the skill mix of the current staff, is a key element of workforce planning.
- *Align* technology and infrastructure to organization and strategies
  - Implementing new, and enhancing existing IT systems to help meet goals and objectives; also, continually improving the work environment, real estate portfolio, and other aspects of the Department's infrastructure.
- *Measure* performance versus targets and objectives
  - Development and implementation of Key Performance Indicators (KPI) that reflect Department goals and objectives, with executive dashboard and detailed reporting functionality.

While there is no single accepted process for how to conduct successful strategic planning, the objective is clear: Focus attention on the organization's mission and objectives; clarify the external and internal realities that face the organization; identify sources of risk and opportunity that impact the organization's survival and growth; allocate scarce capital (time and financial) to strategic priorities; and establish a protocol for performance assessment.

ii. Benchmarks / Companies

As discussed, there is no single "template" for strategic planning. However, there are broad standard benchmark areas that can be evaluated. These areas include:

- Process: The protocols according to which strategic planning is executed, including the derivation and evaluation of strategic alternatives, analyses included, and development and validation of inputs and outputs (among others)
- Documentation: The nature of the strategic planning document, including the types of supporting analyses and completeness of the final document
- Authorization: Approval protocols and governance hierarchy around the plan
- Reporting: Types of reports identifying progress-to-date versus targets and thresholds
- Review: Evaluation protocols around approved strategies, including protocols for modifying strategies

As noted, the approach outlined above offers the broad steps of an end-to-end strategic planning and implementation process. For each company, the timing and process of any strategic planning effort will differ depending on industry, environment in which the company operates, and the size and culture of the business. However, certain general objectives apply: the American Quality and Productivity Center's International Benchmarking Clearinghouse analyzed the strategic planning processes of 45 top companies, including Alcoa, Deere & Company, Frito-Lay, Shell International Petroleum Company, Whirlpool and Xerox Corporation. The following is a summary of many of the leading practices employed by the selected panel corporations:[14]

1. Stretch goals are identified that drive strategic and innovative thinking; set targets that required a shift from business as usual
2. Planning processes are evolving and flexible. A "continuous improvement" philosophy guides the planning-process design
3. Communication of the strategic plan is a formal and significant element of the process and it is viewed as a measure of quality planning
4. Planners emphasize action plans and strategic thinking. Planners expect strategic thinking to take place primarily at the business unit level
5. The planners' distinction between strategic planning and business planning is increasingly blurred. As the cycle time between strategic plans shortens, business planning is done within the context of a strong corporate vision or culture, even if a corporate strategy is not articulated

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[14] APQC, Strategic Planning: Final Report. Houston, TX: American Productivity & Quality Center,1996.

6. The role of strategic planning as a key element in the management system is explicitly recognized through strong links to other elements of the management system (e.g., strong human resources and organizational structures)
7. Documentation of strategic thinking is stressed

This framework is supplemented based on specific market factors, cultural issues, and internal challenges, and enhancements to the discipline of strategic planning are also consistently incorporated into a company's approach.

While the protocols above form the main point of comparison for assessment, the practices and protocols of several peer companies were also referenced. Specific peer companies used in this analysis include both large municipal utilities as well as regional investor owned utilities:

- CPS Energy (CPS)
- Austin Energy
- Pacific Gas & Electric

A complete profile of these companies is provided in Appendix C.

iii. Analysis

At present, the Department does not have a well-defined strategic planning process that integrates and evaluates the various goals and objectives of each System, and through which the cost and benefit of various critical programs can be evaluated and prioritized. Further, other areas that incorporate aspects of strategic planning (including integrated resource planning) are lacking in appropriate levels of rigor, given the strategic challenges and alternatives available to the Department. While the Department's budgeting process is a critical internal process, properly conceived, budgeting follows from strategic planning. In fact, the budgeting process is often confused for strategic planning among personnel within the Department.

A well-coordinated strategic planning process is required to best allocate scarce Department capital, and closely manage plans versus desired performance, risk, and other benchmarks. Preliminary efforts are underway to develop and implement a strategic planning process in the Department. As discussed above, the scope and scale of strategic issues faced by the Department require a clear method of identifying, prioritizing, and selecting strategic alternatives according to a clear assessment protocol and in-line with the Department's Mission, Vision, Values, and Goals.

A key finding of this Survey is the critical need for a robust strategic planning process that considers the transformational issues impacting the Department. To date the Department has not conducted regular or adequate strategic planning exercises and may require external support to ensure a productive and lasting result.

iv. Recommendations

The following are recommendations to increase the maturity of the Department's strategic planning process:

- Continue efforts to immediately develop and implement a rigorous strategic planning program, consolidating disparate efforts across the Water, Power, and Joint Systems
- Retain independent, external support to facilitate development of the strategic planning program
- Integrate financial planning analyses (including debt service and other key ratios) into strategic planning processes and consolidated capital program evaluation
- Integrate a comprehensive enterprise risk assessment into the strategic planning process, linking prioritized strategic objectives to an assessment of critical risks

c. ENTERPRISE RISK MANAGEMENT

i. Description

As defined above, risk management is a broad discipline that involves the selection and implementation of a risk control strategy, followed by the active monitoring and evaluation of the effectiveness of that strategy given an organization's inventory of critical risks, business objectives, and risk tolerance. Risk tolerance is the level of acceptable risk or exposure of an organization to various risk factors, identified through a process whereby the "inventory" of risks and associated probability and severity are identified and prioritized. Specific risk management strategies include transferring risks to another party, avoiding the identified risks, reducing the negative effect of the risks, and accepting some or all of the consequences of particular risks.

Enterprise Risk Management (ERM) is defined as a process, affected by the board of directors, management and other personnel, designed to: 1) identify potential events that may affect the ability of the organization to meet its strategic objectives, and 2) define processes to manage risks within an identified risk appetite. ERM creates value by enabling decision-makers to proactively address potential future events that undermine the achievement of strategic objectives, and respond in a manner that reduces the likelihood of downside outcomes while increasing the upside (however defined). Given these underlying principles, ERM is equally applicable to investor owned utilities, merchant energy companies, and public power entities.

Under the COSO framework, there are four ERM categories: 1) Strategic, 2) Operations, 3) Reporting, and 4) Compliance. Common ERM risk "buckets" for municipal and investor owned utility peers include:

- Governance
- Strategic
- Operational
- Financial
- Regulatory/Legislative
- Event/Hazard

These are generalized risk categories/areas: The specific areas of focus for any ERM program within an organization will depend greatly on the business objectives and risk

tolerance of that organization. In general, dedication to a consistent and integrated enterprise-wide approach to risk management is believed to enable a more accurate assessment of the risks in an organization's strategy, and help link risk appetite directly to financial plans and business objectives. It is important to note that ERM is a preferred end-state: Dedication to an ERM program requires continuous diligence and is akin to hitting a moving target.

ii. Benchmarks / Companies

In the energy sector, the number and character of risk factors continues to evolve, requiring consistent and active management. In this environment, the character and quality of risk management – in particular, the method of assessing the inventory and related probability of enterprise risks that could impact the successful achievement of an organization's strategic objectives – is of primary interest to a variety of stakeholders.

For the purposes of this benchmarking, the following specific sources for best practice protocols used in this analysis:

Source	Primary Reference	Overview
Assessment criteria from Standard & Poor's, Moody's, and Fitch	Various position papers and evaluation criteria related to risk management	Consistent framework approaches to the evaluation of risk control practices across energy organizations in areas such as policy (business strategy, risk tolerance, disclosure practices), infrastructure (personnel, operations, technology) and methodology (risk metrics employed, testing and validation procedures)
White Papers from the Committee of Chief Risk Officers (CCRO)	CCRO Organizational Independence and Governance Working Group: Governance and Controls White Paper (2002)	Offers guidance on the control infrastructure for physical and financial energy trading organizations in two primary areas: the business processes and the governance over them
Committee of Sponsoring Organizations of the Treadway Commission (COSO)	Enterprise Risk Management – Integrated Framework (2004)	Defines essential enterprise risk management (ERM) components, discusses key ERM principles and concepts, suggests a common ERM language, and provides clear direction and guidance for ERM

Exhibit 47: Stages of strategic planning process

In combination, these and related organizations are continuously working to codify the principles of ERM that are expected to be in place in energy and other organizations. However, the prominence of ERM in energy is gaining importance in large part due to the stated intent on the part of Standard & Poor's (S&P) to include an assessment of companies' ERM practices as a standard component of the credit rating process. S&P believes that a

company's ERM proficiency is a key indicator of its quality of management and, in turn, its creditworthiness.

The S&P approach to ERM assessment includes four major analytic components, regardless of the company or sector:

- Risk management culture and governance
  - Organizational structure
  - Risk management staff roles and accountability
  - Risk communication (internal and external)
- Risk controls
  - Risk identification, measurement, and monitoring
  - Risk limit application and enforcement (e.g., risk financing, risk offset)
  - Risk control processes – policies, infrastructure, methodology (PIM)
  - Sector- and firm-specific risk control criteria
- Emerging risk preparation
  - Environmental scanning, trending, stress testing, contingency planning and other pre-loss practices
  - Pre-loss expectation planning for negative events and post-loss performance
- Strategic risk management
  - Utilization of risk management and return on risk in corporate strategic decision making
  - Risk consideration within capital budgeting and allocation, product development
  - M&A, performance measurement and other business practices

S&P will apply a four-point scale to score a firm's ERM processes. The four scores range from "weak" to "excellent":

- *Weak*: Firms that are missing complete controls for one or more significant risks and have limited capabilities to identify, measure, and comprehensively manage risk exposures
- *Adequate*: Firms that exhibit conventional "silo-based" risk management processes, in which risks within its business functions are well-managed, but its risk responses are not well-coordinated across business units
- *Strong*: Firms that exhibit an enterprise-wide view of risks allowing for consistent identification, measurement and management of risks across business units within predetermined risk tolerances. These companies will also include risk and risk management discussions in their strategic business planning efforts

- *Excellent*: Firms that, in addition to those characteristics of strongly-rated companies, also exhibit risk/reward optimization behavior

Given the prominent role the S&P standard will play going-forward in rating actions, this standard is the primary method of evaluation for this analysis.

However, while the protocols above form the main point of comparison for assessment, the practices and protocols of several peer companies were also referenced. Specific peer companies used in this analysis include both large municipal utilities as well as regional investor owned utilities:

- CPS Energy (CPS)
- Xcel Energy
- Pacific Gas & Electric

A complete profile of these companies is provided in Appendix C.

iii. Analysis

At present, the Department has not adopted an enterprise-wide approach to risk management. The cornerstone of any ERM initiative – a comprehensive risk "scan", inventory, assessment, and prioritization versus either a Strategic Plan or budget – is not conducted. This activity is central to an on-going assessment of risk across an organization, which is critical to understanding the relationship between risk factors, and the development of increasingly effective and efficient methods or mitigating risk factors.

Further, the Department does not have an officer solely dedicated to the analysis of enterprise risks, such as a Chief Risk Officer (CRO) or equivalent position – a role that is commonplace in utility environments. The CRO is functionally independent from risk-taking functions (and therefore often reports directly to the Chief Executive Officer, with dotted line reporting to the Audit Committee of the Board). The CRO should be high enough in the corporate organizational structure to facilitate independent assessment of risk on an enterprise-wide basis. This includes assessment of risk taking activities managed by the Chief Financial Officer (CFO) (capital structure activities involving derivatives and other commitments and guarantees, marketable equity securities, investment decisions, etc.).[15] At present, the Department's risk management function reports through the Office of the CFO.

Additional governance is established through a corporate Risk Management Committee (RMC), charged with recurring assessments of enterprise risk levels and mitigation plans, violations of the risk management policies and procedures, and risk assessments related to prospective projects (among others). Typically, membership of the RMC includes, at a minimum, the CRO, CFO, and other senior management of the organization. The specific composition of the RMC is dependent on the type of utility business in question: As asset based companies, utilities may include Operations executives (or comparable positions) on the RMC.

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[15] From the Committee of Chief Risk Officers (CCRO), Organizational Independence and Governance Working Group, Volume 2 of 6: Governance and Controls. November 2002.

iv. Recommendations

PA recommends the Department assess the merits of a consolidated enterprise-wide risk management function, charged with independently measuring, managing, and reporting on the variety of risks that impact the achievement of strategic objectives. As noted, a core aspect of this function would be the determination of the Department's risk tolerance in a number of areas, and those sources of risk the Department would actively mitigate versus those tolerance levels. Properly designed, staffed, and equipped, this group would conduct day-to-day risk control activities and conduct more strategic activities, including project, investment, and transaction evaluation.

d. IT SYSTEMS INFRASTRUCTURE / INFORMATION MANAGEMENT

i. Description

IT Systems Infrastructure / Information Management comprises all business information systems in use in an organization. This includes all hardware and software enabling business processes: telecommunications, networks, radio communications, mainframes, servers, desktops, operating systems and applications systems. It also includes all the management processes that encompass systems, such as IT strategy, IT governance, IT portfolio management, IT program management office, IT service delivery (ITSD) and IT operations

ii. Benchmarks / Companies

Within the IT Systems, there are common benchmarks among utility companies:

- IT Strategy, architecture, governance policies & procedures
- IT Opex/Capex costs per customer/meter/user/line mile/service territory and as a % of total costs and revenue
- IT staff per IT costs/revenue/users and as % of total staff
- Applications costs as % of IT costs/total costs/revenue
- IT infrastructure costs as % of IT costs/total costs/revenue
- Age of applications and infrastructure

iii. Analysis

Strategic planning, through which IT needs are assessed and prioritized in relation to business objectives, is critical for any utility IT organization. This is particularly true given advancements in metering, customer service, and other technologies and business processes. However, planning is particularly critical given the urgent needs of the Department in various areas. While ITSD has completed a Strategic Planning exercise, additional work is required to further enhance existing plans. Specifically:

- The IT applications portfolio is out of date—to the point that, because of the aging workforce in ITSD, it has become a significant risk to the Department

- ITSD's enterprise architecture needs to be further defined through continued definition of an enterprise architecture. Such an architecture will enable systems replacement projects, reducing the cost and difficulty of addressing the age of the portfolio
- The ITSD budget has approximately $85 million dollars in the next 5 years for Enterprise IT projects, in addition to budgets within the operating systems. This amount will be refined as the key application stack is selected in the next 12-18 months. At present, specific project planning (including implementation time-frames) and budgets relating back to the plan are limited
- ITSD has developed a draft Governance Charter document – this is the result of discussions with the Chief Operating Officer (COO) as well as an update to the Strategic Agenda document. Efforts to solidify IT Governance within the Department (and specifically, the linkages between IT and business interests) should continue; business is an essential partner in making IT and IT governance effective. .

In general, we believe the Department's IT infrastructure requirements have absolutely reached critical levels. The Department's ability to achieve its strategic objectives is at-risk, given the overall condition of the IT infrastructure. Individual key projects including Advanced Metering Infrastructure (AMI) / Smart Grid and CIS are underway. The business case and supporting documentation for these efforts (in particular AMI) have been clearly documented by the Department.[16] However, the complexity of these and other IT-related projects will require extremely effective project management to avoid cost overrun and time-slippage. In general, these efforts are notoriously complex, and often lead to sub-optimal results. Importantly, the Department's executive leadership is appropriately focused on IT-related challenges (including a Chief Information Officer (CIO), who although relatively new to the position, is moving forward as rapidly as is prudent with IT initiatives).

Further, PA performed a performance benchmarking analysis of LADWP's IT area. This benchmarking analysis identified a number of high-level metrics from which to measure LADWP's IT costs, staffing levels and other areas relative to comparable utilities across the US. By comparing LADWP on a like-for-like basis with other US utilities, PA was able to understand LADWP's expenditure on IT costs – both O&M and Capital – and whether they were in-line or out-of-line with others deemed as appropriate comparables.

As a first step in performing the benchmarking analysis, various data points were established and documented so the analysis was transparent for all stakeholders involved. PA submitted a data request to LADWP in order to collect a number of data points and IT metrics to analyze. PA also conducted ad hoc research from LADWP's audited annual reports and its website in order to supplement this data request. In the interest of transparency, all data points used for the benchmarking analysis are included in the table below.

Data Point	Description	Source
8,552	Total LADWP employees (2008)	LADWP website
429	Total IT Department employees (2008)	LADWP data request

[16] Department of Water and Power, "Advanced Metering Infrastructure / Smart Grid Project", April 22, 2008.

Data Point	Description	Source
2,080,000	Total number of Water (680,000) and Power (1,400,000) service connections	LADWP website
$3,521,172,961	Combined revenue: Water and Power (year-ended June 30, 2008)	LADWP data request
$799,000,000	Total Capital Spend: Water and Power (year-ended June 30, 2008, $573m Power, $226m Water)	LADWP data request
$31,771,100	IT Capital spend (year-ended June 30, 2008)	LADWP data request
$79,922,200	IT O&M spend (year-ended June 30, 2008)	LADWP data request
$50,006,200	IT O&M costs (minus telecom/radio)	LADWP data request
$43,707,900	Total IT labor costs ($40,567,800 regular, $3,140,100 overtime)	LADWP data request
39.1%	IT labor costs as a percentage of total IT costs	PA calculation
8,552	Number of LADWP IT users (note: this is equal to the total number of employees and confirmed by LADWP)	LADWP data request
15,252	LADWP Help Desk tickets closed (Sep 2007 - Sep 2008)	PA calculation from LADWP data request

Exhibit 48: Data list for benchmarking

For the LADWP analysis, PA used benchmarking data from a panel of nine electric and gas utilities. The data was from 2005, as this was the most recent data available that went into detail regarding IT-specific cost metrics for utilities. In terms of performing the analysis, in most cases relative cost data (e.g., IT costs as a percentage of revenue) did not require any normalization. This was because relative costs are proportionally the same regardless of the year; escalating them for inflation would yield the same relative proportions. However, in the cases where there are nominal dollar amounts (e.g., IT costs in dollars per total LADWP employees), PA inflated the nominal dollar amounts using the consumer price index (CPI) in order to bring 2005 dollars to the present. Details surrounding the inflation rates used with this CPI data are included in the table below.

CPI inflation rate	Year
3.4%	2005
2.5%	2006
4.1%	2007

Exhibit 49: Inflation rates[17]

[17] US Bureau of Labor Statistics (www.bls.gov/CPI)

By inflating the 2005 data set with the inflation figures above, LADWP's 2008 metrics could be compared on an equal basis. Other than inflation, no other normalization factors were necessary for the dataset.

Benchmarking results

Within benchmarking circles, there is some debate regarding the proper denominators to use in order to draw useful insights from the data. For the case of LADWP, PA used a number of different denominators in order to achieve as robust an analysis as possible. The various metrics and their denominators included:

- IT costs as a percentage of revenue (Water and Power)
- IT costs in dollars per total LADWP employees (Water and Power)
- IT costs per user (Water and Power)
- IT O&M costs – less telecom/radio – per user
- IT costs per total LADWP service connections (Water and Power)
- IT labor as a percentage of total IT costs
- IT employees per 100,000 service connections (Water and Power)
- IT employees as a percentage of total LADWP employees
- Help desk tickets closed per total LADWP FTE.

By using a diverse set of denominators, PA is able to ensure that results are not distorted in any way in the event that there are isolated denominators that are outliers relative to the other denominators. By analyzing the entire list of diverse denominators, PA is able to cross-check the consistency of its analysis.

IT costs as a percentage of revenue (Water and Power)

In order to obtain a high-level view of IT expenditure at LADWP, PA first looked at IT costs as a percentage of revenue. The methodology for calculating this benchmark involved taking LADWP's IT O&M and IT Capital costs for the year ending June 30, 2008. These numbers were summed together to give an overall IT cost number. This number was then divided by LADWP's revenues for both its Power and Water operations for the same year ending June 30, 2008. This ratio did not require any normalization or adjustment in order to be compared to the benchmarking panel.

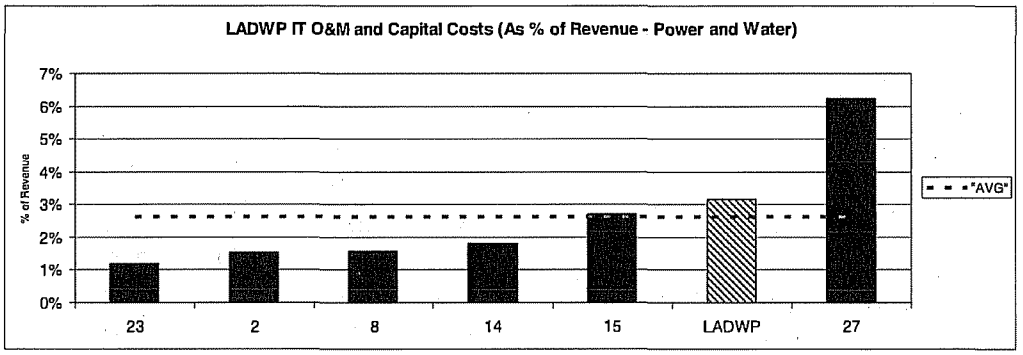

Exhibit 50: IT O&M and capital costs benchmark / as % of Revenue

As can be seen from the chart above, LADWP's results are the second to highest among the panel. They are also above the average. This indicates that a larger share of the utility's revenues are absorbed into IT costs relative to the majority of the panel utilities. There are a few possibilities for these relatively high IT costs. First, it is possible that LADWP had some large capital and/or IT upgrade projects that ballooned its IT cost base, whereas the others in the panel may not have. Another possibility is that LADWP simply has higher recurring IT costs compared with the other utilities. If this is indeed the case, another possibility is that the utility with the highest IT costs relative to revenue – in this case utility "27" – implemented a large capital project – for example advanced metering infrastructure (AMI) - during the year the data was compiled. If this was the case, LADWP's results could potentially be even the highest, assuming "27's" high IT costs were a one-off for that specific year. While neither of these possibilities is known for certain, they do raise interesting questions about LADWP's relative performance.

It should be noted that high IT costs are not necessarily a bad thing. Again, it is indeed possible that large capital projects were completed during the year-ending June 30, 2008. Or, another possibility is that LADWP's IT costs are indeed higher but the reason for this is that its IT performance and effectiveness are also better than those in the panel. Only further analysis can lend insight into the reasons for the higher IT costs as a portion of revenue.

IT O&M and Capital costs in dollars per total LADWP employees

In addition to the metrics above that look at IT costs in terms of revenue and overall costs, it is also important to look at IT costs relative to the number of full-time equivalent (FTE) employees at LADWP. For this analysis, the total number of LADWP employees used was 8,552. The IT O&M and IT Capital costs were summed and divided by the number of employees to derive the cost per employee. The data used was for the year-ended June 30, 2008. In order to normalize the PA benchmarking data, the inflation rate was used to bring 2005 dollars to 2008 dollars.

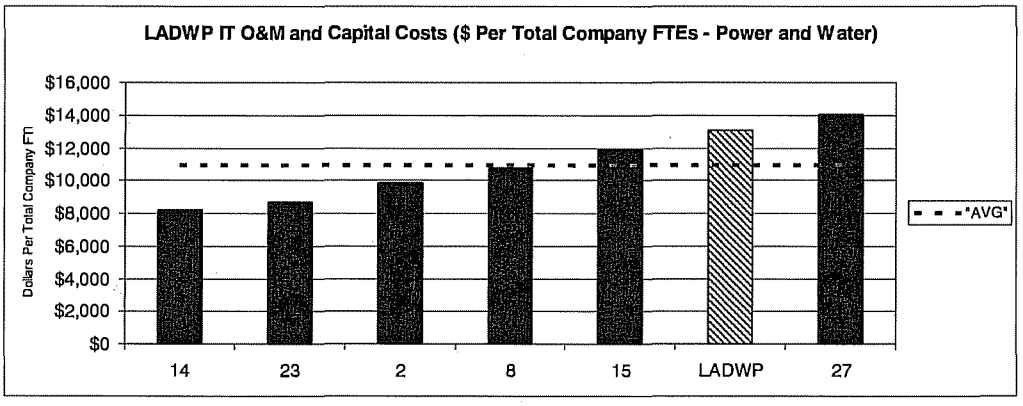

Exhibit 51: IT O&M and capital costs benchmark / per Company FTEs

As can be seen from the chart above, LADWP's costs per employee are above the average and the second to highest among the panel. Due to its higher costs, LADWP's results with this metric raise the same questions regarding whether or not its performance in the IT area justify the higher costs.

IT costs per user (Water and Power)

By looking at IT costs per user, it is possible to analyze the efficiency of the IT department in terms of the actual number of users they are serving. In some cases, the actual number of users can be significantly less than the number of overall employees and so it is important to separate out actual users from the larger employee base. In the case of LADWP, the IT department considers all employees as "users" so PA used the overall employee count for this metric. Some of the other utilities in the panel had fewer users than their total number of employees and therefore the results are slightly different from the metric above.

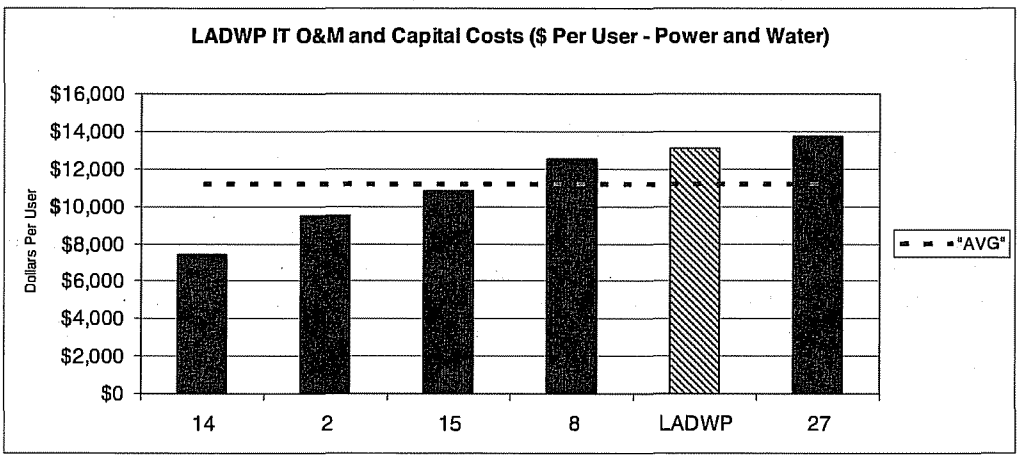

Exhibit 52: IT O&M and capital costs ($ per user)

As can be seen in the graph above, the results are largely the same as the metric looking at IT costs per LADWP employee, with only subtle differences among some of the comparable utilities' results.

IT O&M costs - less telecom/radio - per user

Another metric is one that looks at IT department O&M expenses, minus the O&M expenses committed to telecom and radio expenses, per user. Telecom and radio O&M expenses can be significant and by stripping them out of the equation it is possible to refine the benchmarking analysis to see if these particular costs are causing high overall costs.

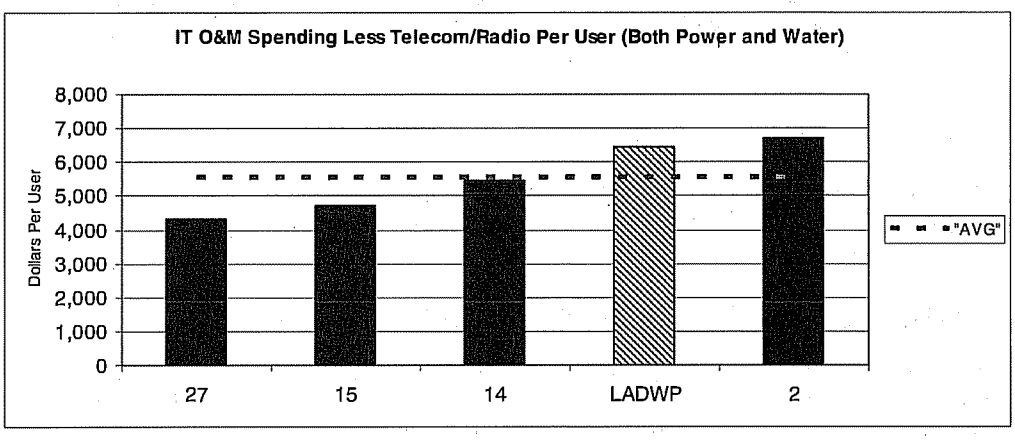

Exhibit 53: IT O&M spending less telecom / radio per user (power and water)

In the chart above, LADWP's relative position is very similar to those metrics that do include telecom and radio expenses. Therefore, these telecom and radio expenses do not seem to be an outlier that significantly alters LADWP's relative benchmark position among the panel.

IT labor costs as a percentage of total IT costs

The metrics above look at high-level cost figures but do not break them down into any further detail. They provide a top-down view showing that overall costs are towards the high-end, but they provide limited insight into why or where these costs may be high. The metric below – IT labor as a percentage of total expense – begins to drill-down into more detail in order to look at the labor component of IT costs. It begins to answer the question of whether or not overall IT costs are high due to a large labor component of the cost structure.

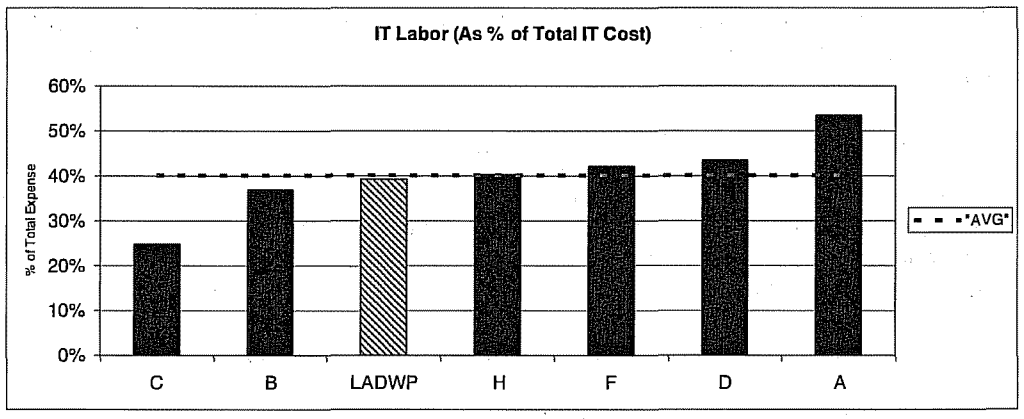

Exhibit 54: IT labor (as % of total IT cost)

Results in the chart above show that LADWP is just about at the average of the panel. This would indicate that LADWP's relative labor component of costs is no higher than most of its peer group in the panel.

IT employees per 100,000 service connections (Water and Power)

As with the metric above, this metric – IT employees per 100,000 service connections – also goes one step further in terms of granularity. This metric looks at specific IT staffing levels and whether or not they are high relative to a denominator of 100,000 service connections. Like the labor metric above, it helps assess whether the IT staffing numbers are high relative to the panel of peer utilities.

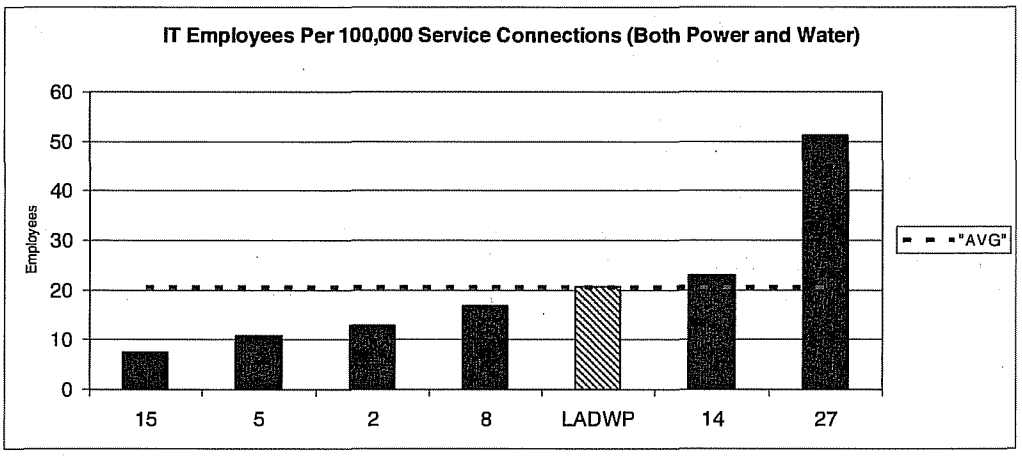

Exhibit 55: IT employees per 100,000 service connections (power and water)

As can be seen in the graph above, LADWP again is just about at the average of the peer panel. This suggests that LADWP's IT department staffing levels are not out-of-line with comparables in the industry, when looked at from a per service connection denominator.

IT employees as a percentage of total LADWP employees

Another metric that looks at the IT department's staffing levels is IT employees as a percentage of total LADWP employees. This is yet another denominator that helps to answer the same questions regarding the IT department's staffing levels.

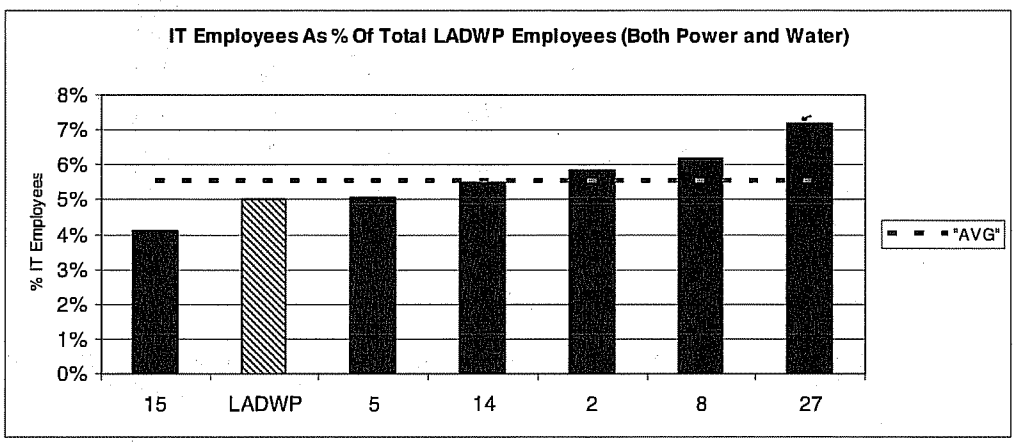

Exhibit 56: IT employees as % of total LADWP employees (power and water)

As can be seen from the chart above, LADWP is towards the low end of the percentage of IT staff relative to total staff. There are two possible interpretations to this result: The first is that the IT department is understaffed relative to its peer group in the panel. The other potential interpretation is that the rest of the LADWP is overstaffed relative to the peer group.

Average number of Help Desk tickets closed for each LADWP employee

Once costs and staffing levels of the IT department are analyzed, it is also insightful to delve into metrics that touch upon the activity of the department. In this case, one measure of the department's activity, or throughput, is the number of Help Desk tickets closed per total company full-time equivalent (FTE) employee. Among the panel of comparable utilities, the average number of Help Desk tickets closed per employee was over six.

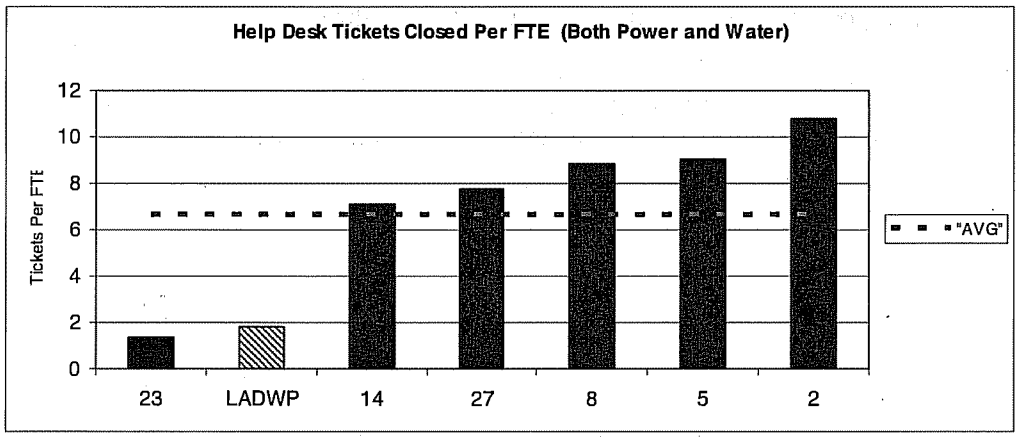

Exhibit 57: Help desk tickets closed per FTE (power and water)

LADWP recorded just under two Help Desk tickets closed for each employee over a one year period. This indicates that the IT department's activity or throughput is well below the majority of those in the panel.

Findings from LADWP IT performance benchmarking analysis

PA performed a robust IT benchmarking exercise that looked at LADWP's relative position from the perspective of a number of different denominators. This ensured that the findings were consistent and any possible one-off factors or potential outliers with individual denominators did not compromise the integrity of the analysis. By looking across all of the different denominators and metrics used in the IT benchmarking analysis, a common theme emerges of high IT costs at LADWP.

LADWP's high IT costs however are not met with a correspondingly high staffing component. Therefore, a tentative conclusion could be that staffing levels are in-line with comparable utilities. However, when taken one step further, it emerges that although staffing levels are in-line with comparables, the throughput of the IT department is well below comparables (e.g., number of help desk tickets closed per FTE). This would imply idle capacity within the department. More research and analysis needs to be conducted to determine exactly where costs are high and performance is below par.

iv. Recommendations

- ITSD must further establish an enterprise architecture and solidify its governance process. Implementing these fundamental aspects of IT will increase the probability of successfully addressing the aging portfolio issue.
    - LADWP has reported that a series of architectural decisions have been made over the last year to start narrowing the range of applications and tools in use within LADWP and to identify technologies upon which to focus the skill development of LADWP staff:
        - Selection of an Identity Management Platform
        - Selection and installation of the server platform for Oracle database consolidation

- Large scale migration of Windows servers to virtualized environments
- Achieving agreement to consolidate asset management for Water and Power on Maximo
- Implementing a new change management process consistent with ITIL practices
- Selection of the standard Enterprise Reporting Platform
- Selection of the standard Document Management Platform.

Selection of the Web publishing platform will be completed within the next 30 days.

- ITSD must develop a real roadmap, with schedules and estimated costs for replacing the aging applications portfolio. Unless this portfolio is modernized, the Department will be seriously hampered to meet specific strategic and performance improvement objectives.

e. PUBLIC RELATIONS & COMMUNITY OUTREACH

i. Description

Public Relations & Community Outreach encompasses the various processes utilized by an organization to communicate with key stakeholders. This function shapes the public's perception of how the organization operates and communicates with the communities it serves. Community Outreach is a powerful tool that allows management to engage the public at the neighborhood level through events, programs, initiatives, and projects that mutually benefit the organization and the community.

ii. Benchmarks / Companies

Local public agencies of various sizes and functions were considered for this part of the assessment. Among them were:

- Los Angeles Unified School District
- Los Angeles Community College District
- Metropolitan Water District
- Port of Long Beach

Within those organizations, several components of well developed Public Relations & Community Outreach Programs were evaluated. Some of these components included:

- Community Activities: For example at MWD, where there are three divisions that concentrate on community activities: business, conservation and community all of which are highly-coordinated. MWD also participates on events through sponsorships and uses them as a vehicle to providing information about their programs. The community's perception of MWD is positive, as a partner to the community
- Communication/Marketing Initiatives: For example, LAUSD is highly effective with its marketing/communication of specific issues, i.e. bonds that appear on ballots. These efforts usually entail an intense outreach and marketing campaign and while LADWP

issues differ, the public expects the Department to conduct these informational and marketing campaigns that allow for the easy transfer of information

- Economic Opportunity: The Port of Long Beach is a good example of an agency that markets its economic opportunities to small and minority-owned businesses effectively. Through Bidnet (a repository of small businesses), the port of Long Beach shares information for marketing purposes with other agencies. This information is searchable by a number of formats including business codes. LADWP is not part of this effort and it would be very beneficial for the Department to use this or a similar service as a way to market its business opportunities to small, minority and woman-owned businesses
- Monitoring of Results: Several of the institutions mentioned in this study put together an annual report of their outreach activities that entails the cost spent on these minority contracts, initiatives, outreach efforts, among others. These reports are then provided to the Board, who decides what policies and programs are worth repeating or extending according to their measured success.

iii. Analysis

The Public Relations & Community Outreach functions at the Department has suffered from neglect for several years and operated without leadership. Media Relations was handled primarily by facsimile and the Department did not keep track of media personnel while other public contact databases became obsolete.

Since a new Director of Public Affairs was brought onboard, more focus has been given to staffing and developing plans for long term direction. Although plans for hiring additional staff have been in the works for some time, the lack of work requirements that fit into current civil service classifications has delayed the hiring process considerably. Nevertheless, the Department now implements and/or coordinates a number of outreach initiatives on a regular basis. Among these are:

- Speakers Bureau: Speakers are recruited from Water, Power, and Joint Systems to present information to the public at various events.
- Program and Initiative Marketing: Public Relations promotes conservation, energy, water, rebate, and discount programs. This is accomplished through press releases, staff exhibits at events, advertising, and other methods.
- Web-based Notification Systems (Website Notice Registration: Residents or businesses can sign up to receive automatic notices and press releases, email blasts to targeted audiences, etc.)
- Crisis Communication: Stakeholders receive regular updates throughout a crisis situation

Education Partnership Programs are a long standing tradition with the Department. The Mayor, City Council, and LADWP have created the following programs to encourage community participation though early education:

- Cool Schools Tree Planting and Education Program
- LADWP Science Bowl
- Adopt-A-School
- Teacher Training and Lesson Distribution

- Elementary Electric Safety Program
- Power Plant I Field Trips
- Skill Craft Training
- Youth Services Academy
- Times in Education Program
- Los Angeles Infrastructure Academy

LADWP has also created partnerships with educational institutions to educate students, train teachers, and provide programs that encourage careers related to the delivery of water and power. These partnerships teach safety and conservation to students at an early age. However, the multitude of programs and initiatives seem to be implemented through different divisions without a centralized coordinating function that ensures strategic plans are met.

Finally, the Department has not always provided timely and complete information to the public on important issues, which has led to a certain level of distrust and guarded skepticism from the public. This skepticism has also caused the Department to struggle to build support for the transition to long term initiatives.

In terms of business and employment outreach, LADWP has engaged in several initiatives:

- The Department recently sponsored an employment fair and a business opportunity workshop in the Crenshaw district (August 23, 2008) that included other city departments and local agencies. It was estimated that over 4,000 residents participated in the job fair
- The Department also sponsored a professional services expo at LADWP headquarters (October 9, 2008) that drew 80 to 90 business representatives. The Event was well organized and provided participants with information regarding various aspects of doing business with LADWP: current opportunities, economic development programs, small business preference, and minority and woman business enterprise certification.

These outreach events are a product of more recent focus on providing opportunities to the community. It is our opinion that the new leadership's focus in this area has begun to make a difference. However, the internal monitoring of on-going progress, data collection, and reporting is underdeveloped. Current databases are not up-to-date with regard to actual business dollars awarded and/or jobs offered/accepted as a result of outreach efforts.

Collecting data does not seem to be institutionalized and the Department seems to rely on manually created ad-hoc reports from buyers and others to capture progress. Further, the reliability and accuracy of data regarding minority and woman owned business participation does not seem to be completely verifiable.

iv. Recommendations

- The Department should establish a strategic plan for budgeting, coordinating and communicating all Public Relations & Community Outreach activities. High level coordination is required due to the decentralized nature of the function

- Establish mechanisms to collect data and report results of the various programs and initiatives. The results should be analyzed and only successful programs and initiatives should be repeated in the future
- Further develop, enhance, and publicize employment and business opportunities
- Improve relations with customers and community groups such as senior citizens by clearly communicating future plans for operations, infrastructure, programs offered and spending
- Upgrade technology and increase staffing to meet future requirements
- Re-design website to emphasize most important programs and issues identified through strategic planning
- Develop a stakeholder report to illustrate Public Relations and Community Outreach successes (i.e. dollar amount of rebates per program, amount of conservation/efficiency savings, amount of discounts for low income residents and senior citizens, etc.).

In terms of the business and employment outreach, which aims to share economic opportunities with the community, the Department should act as a vehicle to strengthen the local economy through business and employment opportunities derived from revenue provided by the community by:

- Increasing the number of business outreach events and job fairs held annually
- Utilizing existing resources to advertise upcoming opportunities (i.e., MWD and other public agency websites)
- Developing technology and processes to reliably report minority/woman business enterprise participation and number of jobs offered to job fair/education partnership participants
- Implementing a formal plan to recruit and encourage local, small, minority, and woman businesses to participate in the procurement process (professional services, capital projects, and materials)
- Creating a diversity procedure and document outreach efforts and results for contracts under $150,000
- Establishing compliance program to monitor bid/proposal commitments to small, minority, and woman business subcontractors
- Including a prominent link for employment opportunities on the LADWP website.

4.3.4 Concluding Thoughts

Benchmarking provides a quantitative or qualitative evaluation and "ranking" of an organization's activities versus leading or accepted practice at a point in time. Assessing the Department in a variety of critical areas, and for given metrics and processes, has yielded a varied result: As expected, in some areas the Department is comparable to industry leaders, while in others more work is to be done (and in a few instances, the selected practice is entirely lacking). In general, the Department has a varied record depending on the measure or practice being evaluated. However, general themes from the benchmarking include:

- Responsibility for benchmarking as well as derivation and reporting of KPIs resides in pockets across the Department
- Data management practices are disparate, with no single, central data store for critical Department data
- There is no single executive reporting "dashboard" that incorporates historical and current measures, providing a glimpse into relative performance.

We recommend the continued development and full implementation of the Business Performance Management function within the Budget, Rates and Efficiency Division to address these issues. At present, this group is understaffed, does not have the necessary analytical resources, or the adequate support across the organization to fulfill its objectives.

Finally, organizations are constantly looking for ways to improve operations, with certain programs succeeding while others "miss the mark". The Department has initiated a large number of programs, aimed at increasing the efficiency, effectiveness, and resiliency of several key activity areas. Principal among these efforts are programs in IT and customer service, as well as early stage efforts underway in strategic planning. Our evaluation aimed to take into consideration these new or on-going programs; however, the success or failure of these programs is yet to be determined, and therefore are only mentioned in the interest of providing a comprehensive account of activities at the Department.

4.4 ASSESSMENT OF STAKEHOLDER RELATIONS

4.4.1 Stakeholder Groups

A variety of stakeholder groups directly impact the ability of the Department to meet its strategic objectives. These groups require significant attention from the Department, often from all levels of the organization. The following assessment investigates the relationship between the Department and several of the most critical stakeholder groups.

4.4.2 Approach to Assessment

The results of this assessment were derived from interviews with the stakeholders themselves, as well as relevant representatives from the Department.

a. BOARD OF COMMISSIONERS

i. Description

The Board of Commissioners (Board) has broad organizational and financial oversight responsibilities in relation to Department activities. Section 511 of the City Charter specifies the duties of the Board, and suggests the need for a close working relationship with the Department in a variety of key areas, including budget-setting and general governance – areas that will only grow in importance in relation to various strategic issues facing LADWP in the next 3-5 years

ii. Findings

At present, the relationship between several members of the Board and the Department (and specifically, the Office of the GM) is not conducive to effectively or efficiently resolving current or prospective challenges:

- Interaction between the Department and members of the Board is often contentious, and issues related to trust need to be addressed
- The proper role of the Board in relation to the Department is not agreed. The Board believes it has been charged by the Mayor to be "activist"; the Department believes the Board is unnecessarily intrusive
- The Board recognizes the gravity of the issues facing LADWP, and has reservations about the ability of the Department to address them in a timely and thorough manner. Further, certain Members of the Board believe that a corporate culture of business and process improvement is entirely lacking; the concern around process discipline also extends to a lack of consistent strategic planning
- Each party believes the other has adopted a pattern of behavior that undermines trust, cooperation, and effective decision-making (e.g., the Board, by pursuing inappropriate oversight; the Department, by being unresponsive to data and information requests, and creating barriers to open communication and perpetuating a lack of transparency)

b. LABOR UNIONS

i. Description

Labor Unions play an important role at LADWP. With approximately 94% of its workforce covered by union agreements, the Department depends on strong relationships with union leadership. Six unions currently represent the employees of LADWP:

1) The International Brotherhood of Electrical Workers (IBEW), Local 18[18]
2) The Service Employees Union, Local 721
3) The LADWP Dispatchers Association
4) The DWP Management Employees Association (MEA)
5) The Association of Confidential Employees
6) The Los Angeles/Orange counties Building and Construction Trades Council

These union are working under five (5) year agreements or negotiating agreements. Wages, benefits, built-in cost of living increases, and work classifications will have a major long-term impact on the cost of labor for the organization

[18] Despite our best efforts, we have been unable to interview Brian D'Arcy, the Business Manager of the International Brotherhood of Electrical Workers-Local 18.

ii. Findings

LADWP workforce is dominated by one labor union (IBEW) which represents the employees that provide the core services for the organization. The other five (unions) represent less than 10% of the workforce. As such, the Department inherently focuses most of its attention and resources on the needs of the IBEW, while the other unions do not play a meaningful role in discussions regarding future Department plans. Further, communication with these unions on important issues that aren't related to day-to-day employee problems is almost non-existent.

c. NEIGHBORHOOD COUNCILS

i. Description

Neighborhood Councils (NC) were created by an amendment to the Los Angeles City Charter in 1999. According the Department of Neighborhood Empowerment, the mission of the NCs is to "promote citizen participation in government and make government more responsive to local needs".

In April of 2005, the Board of Commissioners approved a Memorandum of Understanding (MOU) with the NCs to establish lines of communications and ensure that citizens have the opportunity to review and comment on policies and programs that impact their community. The MOU requires the Department to provide a liaison for each of the seven (7) planning district's and provide notification to the NCs regarding all matters it deems significant or matters deemed significant by the NC Oversight Committee.

ii. Findings

The Department seems to be understaffed in this area. Without additional staffing, LADWP will likely continue to be perceived by some neighborhood councils as unable or unwilling to meet certain mandates of its MOU, more specifically, section 1.3 of the MOU, which states that LADWP's liaisons are responsible for (1) attending and participating in board and committee meetings of NC regarding matters involving LADWP (2) receiving request for information, assistance or service from neighborhood councils in their districts, transmitting the requests to the appropriate person (s) within LADWP, attempting to provide responses to the NCs in a timely manner, and (3) processing requests for speakers or educational materials. This perception has led the leadership of certain NCs to believe that the Department is not serious about getting input from the community on important issues. This has resulted in a somewhat adversarial relationship between certain NCs (and in particular, the Oversight Committee) and the Department.

It is worth noting that PA attempted to get a more representative view of the NC feelings about the Department through a survey that went out to all neighborhood councils with valid email addresses. The response was minimal (less than 1%), which makes it difficult for us to present a different view other than that received from a few neighborhood councils.

d. CUSTOMER ACCOUNTS

i. Description

Customer Accounts are industrial, institutional, and business accounts serviced by LADWP, and make up 60% of LADWP's revenues. Depending on the size of the account, a single account representative may be assigned to that account to provide customer service. Smaller accounts are assigned to a group of account representatives that handle their needs. Customer Service representatives handle requests from these customers and/or help them find the appropriate unit or individual that can help them with their particular issue

ii. Findings

Premiere Accounts (largest customers) assigned to an account representative are generally satisfied with the level of service provided by LADWP. Smaller accounts indicate frustration over not having a single point of contact to help resolve billing and service issues. These accounts find the delivery and reliability of power provided by LADWP to be very good with few exceptions. The same is true for the water supply. However, some accounts have concerns regarding water quality that affect their business processes (i.e. water hardness, chemical deposit build up damaging equipment, algae blooms, etc.) Some Commercial Customers indicate frustration over the amount of time and effort it takes to get a project through the approval process. To address this issue, Customer Service has plans to establish a one-stop shop that will locate help for permits, technical issues, service scheduling, and related processes in one location

e. PARTICIPATION IN FEDERAL AND STATE LEGISLATIVE PROCESS

i. Description

Active and effective participation in Federal and State legislative processes (and more broadly, regulatory relations) is critical for all utilities in today's uncertain environment. Legislative affairs are particularly important in California given the focus on key issues such as mandated renewable programs, required capacity additions, and transmission upgrades and additions (among others)

ii. Findings

The Department's Regulatory & Legislative Affairs group has several core objectives: 1) specify the policy positions of the Department; 2) sponsor Federal and State legislation; 3) identify authors for legislation important to the Department; and 4) work with lobbyists to pass identified legislation

Several findings address the relative effectiveness and efficiency of conducting group activities. First, experience and relationships are a critical determinant of success in legislative affairs. At present, few staff have the appropriate contacts in the legislature or other agencies to drive the types of decisions that would benefit the Department. In addition, staff are taking on more special analysis projects, which leads to somewhat less time to execute core functions. Second, coordination is a key determinant of successful legislative affairs; efforts are underway to derive positions faster (working with the Divisions) and moving from policy positions to successful legislation

On this note, approval and "buy-in" from the Mayor, City Council and Office of the Chief Legislative Analyst (CLA) is required before a position can be communicated publicly. Due to the nature of the process, the Department cannot lobby and express its opinion without formal approval, which delays the legislative process. In a highly competitive and fast moving environment, the impact of this delay can be significant (in particular, vis-à-vis the State's IOUs). The combination of streamlining processes and increasing personal relations with various stakeholders is critical.

f. OTHER GOVERNMENTAL ENTITIES

i. Metropolitan Water District (MWD)

Description

MWD is LADWP's most important and essential water support service. As the reliability of LA's traditional water sources, Owens Valley and San Fernando Valley groundwater is increasingly challenged, MWD makes up the difference to assure water availability even in drought periods. As a special district, MWD can act rapidly on behalf of its member's interests and provides subsidies for local projects, technical support, assistance to such agencies as DWR that operates the State Water Project. MWD engages in regional integrated resources planning and associated policy making that affects rates and charges paid by the Department.

Findings

The importance of MWD's activities to the future of LADWP cannot be overstated. It is in LADWP's interest to actively support MWD, participate in its activities, and increase its advocacy particularly with regard to MWD's assurance of long term water supply reliability through water transfers and regional conservation practices. LADWP is in a position to influence MWD and that influence is directly proportional to the staff level efforts that are made in support of MWD. There appears to be a difference of opinion between the various responsible parties (MWD delegates, Commissioners, GM, and staff) on long-term water policy.

A clear, comprehensive, and cohesive set of policies and positions must be articulated and fully-supported at all levels of the City, and most especially LADWP. In this most critical drought in the State's modern history, solidarity of Southern California water users is essential. LA should team with MWD and its member agencies and use its enormous statewide influence to further the already stated policies regarding the SWP and other state water supply issues.

ii. Southern California Public Power Authority (SCPPA)

Description

The Southern California Public Power Authority (SCPPA) is a joint powers agency comprising eleven municipal utilities and one irrigation district. SCPPA's members consist of the municipal utilities of Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Los Angeles, Pasadena, Riverside, Vernon, and the Imperial Irrigation District. Together they deliver electricity to over two million customers in the southern California basin, spanning an area of 7,000 square miles, and with a total population that exceeds five million. Formed in 1980, SCPPA was created for the purpose of providing joint financing, construction and operation of transmission and generation projects.

Findings

LADWP is a critical member of SCPPA, providing "critical mass" for the organization's operations through its sheer size and influence. Meanwhile the Department receives benefits from its membership in SCPPA through the group's advantageous financing and access to potential involvement in various important projects. Finally, the Department receives benefit as a member, to the extent that potentially sensitive issues can be taken on by the organization.

In terms of operations, the Department's "large a varied bureaucracy" is cited as a challenge relative to gaining timely decisions on SCPPA initiatives. (The Department is seen as taking a longer time for decision-making, as compared to other member organizations.) This characteristic is seen as worsening, rather than improving. Further, the impact of changing agendas, objectives, and the lack of a consistent message from the Department is also seen as a challenge.

Over the years, it is believed that the decision-making autonomy of the Department vis-à-vis various stakeholders has deteriorated. Decision-making around power system planning obviously requires a long time horizon; it is believed that the Department has made fewer decisions with the necessary strategic time horizon than is appropriate for system planning, due in part to the agendas and interests of stakeholders outside the utility.

Finally, the Department's insistence on adhering to the asset "ownership model" has reduced the opportunity to pursue other contracting models (e.g., PPA) pursued by other members. This, combined with the decision-making delay and bureaucracy, is seen as an inhibitor

5. SUMMARY OF FINDINGS

This report provides a broad review of the strategic challenges facing the Department, and offers an operational assessment and benchmarking across a number of functional areas and activities. Results from the 2008 Survey suggest that the Department faces a tremendous number of complex challenges that will require leadership, consistent and rigorous program management, and significant financial resources to resolve. To this end, the Department requires a clear prioritization of the strategic issues it aims to address, a clear understanding of the costs and benefits and associated risk factors related to pursuing necessary initiatives.

The results from the operational assessment suggest that improvement in a variety of areas is possible versus industry peers and leading practices. The Department has kicked-off a variety of programs to increase the maturity of current operations; further, this report provides a series of recommendations that we believe will continue efforts to enhance operations. However, ensuring that recommendations are pursued – from program design to implementation – is absolutely critical. Evidence from the 2002 IEA Survey reflects a lack of accountability for implementation of recommendations that emerged from that report. In addition to fully vetting the various recommendations in the report, we believe a program management approach to implementation – including a quarterly update to the Joint Administrators and the Board on progress to-date – is imperative. Failure to act on the recommendations included in the report will reduce the value of the 2008 Survey initiative, and slow progress to address strategic issues and enhance Department operations.

Finally, successfully meeting the challenges the Department faces will demand efficient and effective (and often rapid) decision-making, an absolute dedication to program management, and clear and effective communication and teamwork with various stakeholders. Efforts should be made to continue pursuing innovative programs to enhance operations in areas such as recruitment, customer service, and many other areas. Importantly, governance hierarchies and decision-making authorities should be revisited to ensure flexibility in operations, while maintaining an environment of strong risk control and appropriate accountability. In short, the Department should work closely with key stakeholders to appropriately adjust the balance between oversight and control from various relevant stakeholders, and the need for an operating framework that enables experts at the Department to efficiently and effectively conduct their business. We believe the number and complexity of existing strategic challenges faced by the Department make the current "business as usual" operating framework infeasible.

APPENDIX A: LIST OF INTERVIEWS

Name of Interviewee	Interviewee Department and Title
Al Stephens	Supply Chain, CAO office
Al Stephens (2nd interview)	Supply Chain, CAO office
Albert Gastelum	Manager, Project Engineering Section
Ali Morabbi	Power Control and Business Systems
Ann Santilli	Asst. CFO and Controller
Aram Benyamin	AGM, Power System
Aram Benyamin (2nd interview)	AGM, Power System
Avery Neaman	Manager, Risk Management
Ben Truong	Budget, Rates & Efficiency
Bill Carnahan	SCPPA
Brad Packer	Power System
Bruce Moore	Manager, Air quality standards compliance
Cecilia Weldon	CAO
Cindy Montanez	Legislative and Regulatory Affairs
Cliff Eng	Assistant Director of Information Systems
Commissioner Knox	LADWP Commissioner
Commissioner Patsouras	LADWP Commissioner
Commissioner Alpert	LADWP Commissioner
Commissioner Hogan-Rowles	LADWP Commissioner
Commissioner Ramirez	LADWP Commissioner
David Hirano	Office of the City Administrative Officer
David Nahai	GM, LADWP
DeMarlo Sims	Labor Union - Assoc. of Confidential Employees
Don Sievertson	Labor Union - Dispatchers Association
Eileen Lau	Administrative Manager, Power System
Eric Tharp	Power Engineering Manager, Generation
Frank Christine	IT programs
Gary Wong	CAO, Operations Support
Glen Singley	Director of Water Engineering
Glen Singley (2nd interview)	Director of Water Engineering
Hal Lindsey	Corporate Safety, CAO office

Name of Interviewee	Interviewee Department and Title
Jaffar Bazzaz	Director, Production Modeling
James Tam	Director, Internal Audit, CFO office
James Yannotta	Asst. Director of Water Resources
Jeff Peltola	Director, Budget, Rates & Efficiency
Jeff Peltola (2nd interview)	Director, Budget, Rates & Efficiency
Jerald Pfefferman	Labor Union - Mgmt Employee Association
Jim Caldwell	Asst. GM Environmental Affairs
Jim Lim (for Jafar Bazzaz)	Production Modelling
Jim Lin (2nd Interview)	Production Modelling
Jim McDaniel	Chief Operating Officer, Water System
Joe Castruita	Water Distribution
Joe Ramallo	Director, Public Affairs
Joe Ramallo (2nd interview)	Director, Public Affairs
John Chen	Director, Customer Service, CAO office
John Chen (2nd interview)	Director, Customer Service
Julie Butcher	Labor Union - SEIU
Kathy Irish	Econ. Development and Outreach
Kecia Washington	Assoc. Director, Mayor's Office
Loretta Dotson	Administrative Manager, Water System
Marianne Anz	Manager, Performance Management Group
Mario Ignacio	Director, Finance & Risk Control
Mark Sedlacek	Environmental Compliance
Marty Adams	Director of Water Quality
Marvin Moon	Manager, Power System Engineering Services
Mathew Lampe	CIO
Michael Cockayne	Manager, Load Forecasting
Michele Nagin	CAO, Employee Services
Michele Nagin (2nd interview)	CAO, Employee Services
Mike Coia	Director, GS Manager, Integrated Support Services
Mike Webster	Electrical Service Manager, Power services
Mohammed Johar Beshir	Manager, Transmission plan, Engineering & Centers
Nancy Sutley	DM of Energy and Environment, Mayor's Office

Name of Interviewee	Interviewee Department and Title
Olivia Aceves-Vallelunga	CAO's Office
Pankaj Parekh	Director, Water Quality Compliance
Paula DiSano	Emergency Preparedness and Business Contiuity
Peter Huynh	Manager, Debt, Investment and Risk Control
Rafael Prieto	CLA's office
Raman Raj	COO
Randy Howard	Power Engineering Manager, Power Services
Richard Slawson	Labor Union - Building and Construction
Richard West	BRED Rates, Forecasting
Robert Pettinato	Mechanical Engineer, Natural Gas Supply
Robert Roth	CAO's office
Ronaldo Vasquez	CFO
Sam Siegel	Councilmember Eric Garcetti's office
Steve Malinoski	Director of Water Distribution
Susan Damron	Legislative and Regulatory Affairs
Susan Rowghani	Managing Water Utility Engineer
Therese Savery	Manager, SCPPA Accounting and Investments
Tom Erb	Director, Water Resources
William Creitz	CAO's office
William Engles	Manager, Coal Procurement
William Koenig	CAO's office
Winifred Yancy	Public Affairs Outreach

Exhibit 58: List of Interviews

APPENDIX B: LIST OF DOCUMENTS

Documents Collected
2007 Residential Water Customer Satisfaction Survey
2008 reports on current drought response strategies, including MWD shortage allocations and transfer purchases
Action Plan templates related to statements of goals and objectives
All workforce planning policies and procedures
Annual Report on Legislative Sponsorship Proposals
Any documentation related to the Power Revenue Fund and Water Revenue Fund
Attendance Improvement Plans
BM or PI projects conducted under IWA, AWWARF, or other cooperative programs-scope, status, results and/or reports
Budgets (consolidated and business unit)
Business continuity and emergency preparedness plans
CA State Dept of water resources projections of water availability and demand
CAL OSHA Reports
Capital Expenses IT (2003-2008)
Commodity Trading Strategy Documents and Protocols
Communication to stakeholders – form, frequency, and process
Current Project Plans related to system implementation projects
D&T Performance Audit and Evaluation of CH2M Hill Contract 10444
Deloitte Assessment of Retirement Plan 2006
Deloitte Assessment Report for LADWP Investments
Documentation related to the Management Performance Review Program (MPRP)
Documentation supporting the Management Performance Review Program (MPRP) (or related program)
Drinking Water public health goals report
DWP Manager's Source Book
Employee Satisfaction Surveys
Environmental Affairs Organizational Chart
EPRI report on Power System Reliability

Documents Collected
Financial and Operational objectives for the Power and Water System(s)
Financial Policies and Protocols related to the AGM-FSO
Five Year Fuel and Purchased Power Budget
Full listing and description of KPIs and related targets
Functional Business Processes related to F, M, B Office Operations
Greater LA Integrated Regional Water Management Plan Consolidated Report and any relevant updates
Hiring and promotion protocols
Inspection and maintenance compliance reports plus any other such reports for internal measurement
Internal water benchmarking or performance indicator studies, results and reports
IT Governance Charter
ITSD Draft Strategy
IT Labor Costs
Joint System Functional Organizational Chart
LADWP 10-year or approppriate Capital Improvement Projects Report
LADWP I Strategic Agenda
LADWP Risk Policies
LADWP Outage Data
LADWP Weekly Staffing Reports (Aug-Oct 08)
Latest Load forecasting diagnostic assessment by PwC
Latest Water Construction Manual
Leed Facility Design Selection - Aug 2008
List of exempt executive positions
Load Forecasting Reports
Management Performance Review Program Guidebook
Matrices reflecting the Key Result Areas (KRA) related to Strategic Planning Processes
Mayor's Water Plan: Securing LA's Water Supply
Mission and Vision Statements (Corporate and Business Unit)

Documents Collected
Most recent projections of population growth and current population by the State of CA Department of Finance
Most recent projections of the Southern CA Association of Governments (SCAG)
Most recent rate/revenue study
Operational Risk Management processes and policies
Organizational chart with detail to supervisor level, including staffing numbers (filled and vacant)
Performance Reports (and other communications) from business units to corporate
Power Bond Ordinance
Power System Functional Organizational Chart
Power System Integrated Resource Plan (IRP)
Program Management Plan for capital projects, including standards and guide books (e.g., project management guide, PMO standards)
Progress to-date implementing a Leadership Development Center
Progress to-date implementing practices and protocols recommended in MOU with the California Urban Water Conservation Council
Rate studies/ Comparative/Trajectory
Receiving Station and Distribution Station Load Forecast (2008-2017)
RCM or Asset Management program and plans
Reliability industry standard indices reports plus any internal goals or indices
Reports documenting progress to-date implementing Activity-Based Costing / Management
Reports on fleet performance, reliability and cost
Reports on T&D inventory
Reports prepared for the quarterly project review meetings
Reports reflecting progress to-date with generation repowering projects
Retirement Projection Report
Retirement Information 2000-2005
Revenue Requirement Study
Risk and Performance Reports
Risk Limits and Limits of Authority

Documents Collected
Risk Management and other Committee Meeting Minutes and Reports
Risk Management and other Committee Meeting Preparation Materials
Risk Management and/or other Committee Charters
RPS Presentation 2010-2020
Scott Madden & Associates, Procurement and Supply Chain Studies
Security Plug Reports
Spot check review of D&T Assessment of DWP's Retirement Plan - Investment Operations
Staffing levels by business unit
Status reports of current water quality improvement projects including chloramine conversion
Strategic Planning Documents (Power and Water Systems - Corporate and Business Unit); including SWOT analyses
Supervisory Certificate Information
Summary of water system seismic upgrade projects compiled and provided by LADWP
The FSO Administrative Manual
The PRP, including scope, schedule and expected results
Training information - optional and mandatory
Training budgets
Various Reports on Infrastructure Reliability Program (e.g., Asset Management Program)
Water Bond Ordinance
Water Distribution Succession Planning Doc
Water Quality Annual Report
Water Services Organization 2003-2008 Business Plan
Water System Functional Organizational Chart
Water System Urban Management Plan
Workload measurement and management reports

Exhibit 59: List of Interviews

APPENDIX C: PROFILE OF BENCHMARK COMPANIES

As mentioned in a prior section of this report, a combination of several approaches was used to complete the benchmark component of the operational assessment. In addition, a number of criteria were considered to identify the most appropriate peer panel for the Operational Assessment. In those areas where industry-specific benchmarks were required in specific Process benchmark areas, companies were selected given a variety of criteria, including:

- Size of operations (customer count, miles of service territory)
- Region (NERC or US Census Bureau region)
- Business-type (municipal or investor owned utility)
- Multi-commodity (power, gas, coal, water)
- Load density (urban versus rural load features)

Below is a table with information related to each criteria followed by a more detail description of each company.

	Utility	Region	Total Customers	Multi-commodity (Y/N)	Ownership Type	Coverage Area (Square Miles)
1	Austin Energy	ERCOT	388,000	N	Public	
2	Anaheim Public Utilities Dept.	West	110,000	N	Public	50
3	CPS Energy (TX)	West	685,000	Y	Public	
4	First Energy Corp.	Midwest	4,500,000	N	IOU	36,100
5	Long Island Power Authority	Northeast	1,100,000	N	IOU	1,377
6	Oglethorpe Power	Southeast	4,100,000	N	Cooperative	
7	Orlando Utilities Commission	Southeast	254,000	Y	Public	
8	Pasadena Water And Power	West	143,731	Y	Public	70,000
9	Pacific Gas & Electric	West	5,100,000	Y	IOU	
10	Sacramento Municipal Utility District	West	572,958	N	Public	900
11	Seattle City Light	West	375,869	N	Public	
12	Southern California Edison Company	West	4,674,231	N	IOU	50,000

Exhibit 60: Company information

- Austin Energy

Austin Energy is the nation's 9th largest community-owned electric utility serving 388,000 customers. Austin Energy provides service within the City of Austin, Travis County, and a small portion of Williamson County. Like LADWP, Austin Energy returns profits to the community annually. It is estimated that Austin Energy has provided $1.5 billion in profits to the community since 1976. Its portfolio includes nuclear, coal, natural gas, and renewable energy sources totalling over 2,600 megawatts (MW) of total generation.

- Anaheim Public Utilities Department

Anaheim Public Utilities is a municipal, not-for-profit, utility delivering water and electricity to 345,000 residents and 15,000 businesses in Anaheim. Its electric system has grown to support a customer base of more than 593,000 kW annual peak demand and using 2.6 billion kilowatt-hours a year.

- CPS Energy

CPS Energy is the nation's second largest municipally owned energy company providing both natural gas and electric service. Acquired by the City of San Antonio in 1942, CPS serves approximately 685,000 electric customers and almost 320,000 natural gas customers in and around the seventh-largest city in the nation. Its 1,566-square-mile service area includes Bexar County and portions of Atascosa, Bandera, Comal, Guadalupe, Medina, Wilson and Kendall Counties.

- First Energy Corporation

FirstEnergy Corp. is a diversified energy company headquartered in Akron, Ohio. Its subsidiaries and affiliates are involved in the generation, transmission and distribution of electricity, as well as energy management and other energy-related services. Its seven electric utility operating companies comprise the nation's fifth largest investor-owned electric system, serving 4.5 million customers within 36,100 square miles of Ohio, Pennsylvania and New Jersey; and its generation subsidiaries control more than 14,000 megawatts of capacity

- Long Island Power Authority

Long Island Power Authority is a non-profit municipal electric utility that offers electricity distribution services to residential and commercial customers. It also designs energy conservation programs and publishes brochures and population surveys, which provide information related to the energy sector. LIPA is based in Uniondale, New York.

- Oglethorpe Power

Created in 1974, Oglethorpe Power (OPC) is one of Georgia's largest privately owned corporations, with annual revenues more than $ 1 billion and assets in excess of $4.5 billion. As the nation's largest power supply cooperative in assets, annual sales and ultimate customers served, the primary goal at Oglethorpe is meeting Georgia's energy needs. Oglethorpe Power supplies power to the Georgia Electric Membership Corporations (EMCs) which serve more than three million Georgians living in approximately two-thirds of the state's land area. The Corporation has assets of more than $4.5 billion and annual revenues more than $1 billion.

- Orlando Utilities Commission

In 1922, the City of Orlando bought Orlando Water & Light Company, a privately held company in operation since 1901. Orlando's initial $1.55 million investment has grown into an electric and water utility with more than $2 billion in assets and annual operating revenues in excess of $673 million. Total electric sales have soared from 7 million kilowatt hours a year to more than 8.5 trillion kilowatt hours a year. Likewise, water sales have risen from less than 700,000 gallons a year to 31 billion gallons a year.

Over the past 85 years, OUC's customer base has grown from about 5,000 electric and water customers to more than 250,000, serving a population of more than 342,000

- Pasadena Water & Power

Pasadena Water and Power (PWP), originally called the Pasadena Municipal Light and Power Department, was initiated by City Ordinance in 1906. Over the years, PWP has

expanded its resources and capabilities. Today, PWP provides electricity to some 57,000 customers within Pasadena. We also deliver water to 37,000 households and businesses in Pasadena and adjacent communities in the San Gabriel Valley.

- Pacific Gas & electric (PG&E)

Pacific Gas and Electric Company (PG&E), incorporated in California in 1905, is one of the largest combination natural gas and electric utilities in the United States. Based in San Francisco, the company is a wholly-owned subsidiary of PG&E Corporation.

There are over 20,000 employees who carry out PG&E's primary business – the transmission and delivery of energy. The company provides natural gas and electric service to approximately 14 million people throughout a 70,000-square-mile service area in Northern and Central California. As the primary gas and electric service provider for Northern and Central California, PG&E's territory stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. PG&E provides electricity to over 4.9 million customers and gas to over 3.9 million customers.

- Sacramento Municipal Utility District (SMUD)

The Sacramento Municipal Utility District began providing electricity to customers on December 31, 1946. SMUD is now the nation's sixth largest community-owned electric utility in terms of customers served. It generates, transmits and distributes electric power to a 900-square-mile service area that includes Sacramento County and a small portion of Placer County. Its service area population amounts to 1.4 million, with approximately 589,599 total customers (522,228 residential, 67,361 commercial). SMUD possesses 2,161 employees, 471 Transmission lines (in circuit miles) and 9,784 distribution lines (in circuit miles).

- Seattle City Light

Seattle City Light was created by the citizens of Seattle in 1902. As a municipally-owned public power system, Seattle City Light is governed by elected Seattle officials and supported by customer revenues. Recognized as a national leader in energy efficiency and environmental stewardship, Seattle City Light provides low cost, reliable and environmentally responsible electric power to an average of 383,127 customers in Seattle and neighboring suburbs. It is the ninth largest public power system in the United States.

- Southern California Edison Company (SCE)

SCE provides power to more than 13 million people in 180 cities in 50,000 square miles of service area, encompassing 11 counties in central, coastal and Southern California. Its customer base includes Commercial industrial and nonprofit customers, including: 5,000 large businesses and 280,000 small businesses. Its infrastructure includes 16 utility interconnections, 4,990 transmission and distribution circuits, 425 transmission and distribution crews, more than 15,500 employees and more than a century of experience.

APPENDIX D: ACRONYMS

Acronym/Term	Meaning
AB	Assembly Bill
ABC/M	Activity-Based Costing/Management
AGM	Assistant General Manager at LADWP
AMP	Asset Management Program
AVEK	Antelope Valley East Kern Water Agency
AWQR	Annual Water Quality Report
AWWA	American Water Works Association
BCM	Business Continuity Management
Board of Commissioners	LADWP Board of Commissioners
CAIDI	Customer Average Interruption Duration Index
CAMU	Commercial Accounts Management Unit
CAO	Chief Administrative Officer
CCAR	California Climate Action Registry
CCC	Customer Contact Center
CCRO	Committee of Chief Risk Officers
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFO	Chief Financial Officer
CIO	Chief Information Officer
CIP	Capital Improvement Program
CIS	Customer Information System
City	City of Los Angeles
CLA	Chief Legislative Analyst
CMM	Capability Maturity Model
CMMS	Construction and Maintenance Management Systems
COOP	LADWP's Continuity of Operations Plan
CPUC	California Public Utilities Commission

Acronym/Term	Meaning
CRA	Colorado River Aqueduct
CSD	Customer Service Division
CVP	Central Valley Project
Delta	Sacramento-San Joaquin Delta
DSM	Demand Side Management
DSS	Decision Support System
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
EE	Energy Efficiency
ECAF	Energy Cost Adjustment Factor
EPA	Environmental Protection Agency
EPO	Emergency Purchase Orders
EPRI	Electric Power Research Institute
ERM	Enterprise Risk Management
ESC	Executive Steering Committees
ESERPC	Energy Services Executive Risk Policy Committee
ETRM	Energy Trading and Risk Management
FERC	Federal Energy Regulatory Commission
FIS	Financial Information Systems
FMS	Fleet Management System
FSO	Finance Services Organization
FTE	Full Time Employee
G&T	Generation and Transmission
GHG	Greenhouse Gas
GIS	Geographic Information System
GM	LADWP General Manager
GWh	Gigawatt hour
HRMS	Human Resources Management System

Acronym/Term	Meaning
IBEW	International Brotherhood of Electrical Workers
IEA	Industrial, Economic and Administrative
IEEE	Institute of Electrical and Electronics Engineers
IOU	Investor-Owned Utility
ISS	Integrated Support Systems
IRP	Integrated Resource Plan
IT	Information Technology
ITS	Information Technology Services
KPI	Key Performance Indicator
LAAC	Los Angeles Administrative Code
LADWP, DWP, Department	Los Angeles Department of Water and Power
LORP	Lower Owens River Project
LTSWTR	Long Term Enhance Surface Water Treatment Rule
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MEA	Management Employees Association
MOU	Memorandum of Understanding
MPRP	Management Performance Review Process
MW	Megawatt
MWD	Metropolitan Water District
MWh	Megawatt Hour
NAAQS	National Ambient Air Quality Standards
NAESB	North American Energy Standards Board
NC	Neighborhood Councils
NERC	North American Electric Reliability Corporation
O&M	Operation and Maintenance
OTS	Off The Shelf
PA	PA Consulting Group

Acronym/Term	Meaning
PHG	Public Health Goal
POU	Point of Use
PPA	Power Purchase Agreement
PPB	Parts per Billion
PRP	Power Reliability Program
P/S	Products and Services
PTC	Production Tax Credit
PT&DBU	Power Transmission & Distribution Business Unit
PV	Photovoltaic
PwC	Price Waterhouse Coopers
RPS	Renewable Portfolio Standards
RTC	Reclaim Tradable Credits
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCPPA	Southern California Public Power Authority
SCS	Supply Chain Services
SDA	Safe Drinking Act (Water)
SDCWA	San Diego County Water Authority
SLA	Service Level Agreements
SWP	State Water Project
T&D	Transmission and Distribution
UWMP	Urban Water Management Plan
WETS	Water Engineering and Technical Services
WMIS	Work Management Information System
WSCS	Water Sampling Customer Services
WSO	LADWP's Water Services Organization
ZNE	Zero Net Energy

Exhibit 61; Acronyms

APPENDIX E: ASSET MANAGEMENT CHARTS

The following charts represent the current level of operational maturity as self-assessed by the Department in areas related to the implementation of an asset management program. Each category on the chart maps back to a question area within the industry best practice themes questionnaire provided to LADWP. The questionnaire has been used by PA to measure electric utilities' maturity levels in terms of process, practice, or technology.

As specified in the body of this report, the measurement scale is from 1-5, with 5 being "Most Mature" or "fully implemented" and 1 being "not implemented." The outer layer of the spider chart corresponds to a 5 maturity level, and the core corresponds to 1. The blue line on each exhibit reflects the Department's score for that specific category; those areas with a score of 2 or lower (reflecting a point closer to the core of the diagram) are the areas identified as needing improvement.

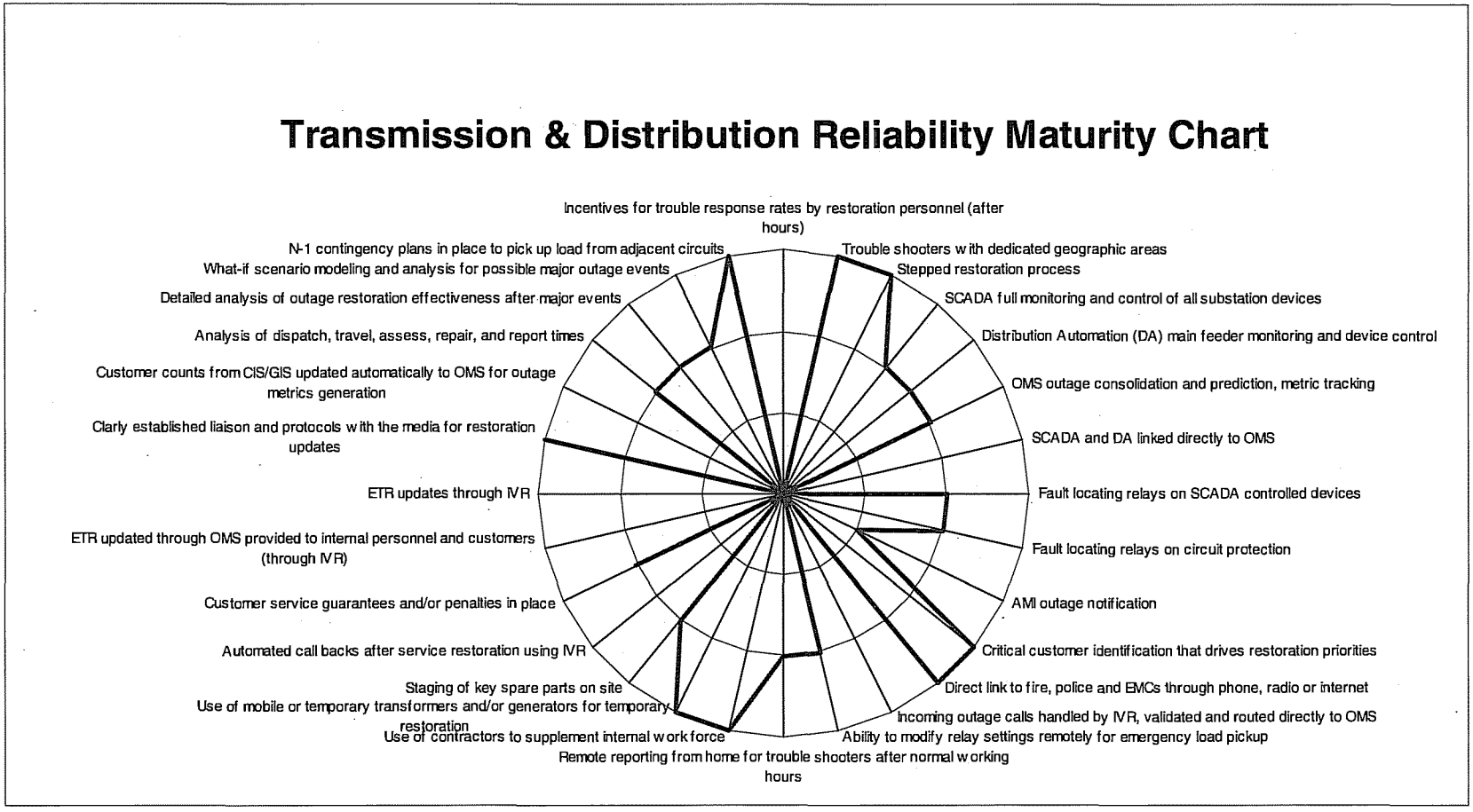

Exhibit 62: Transmission and Distribution Reliability Maturity Chart

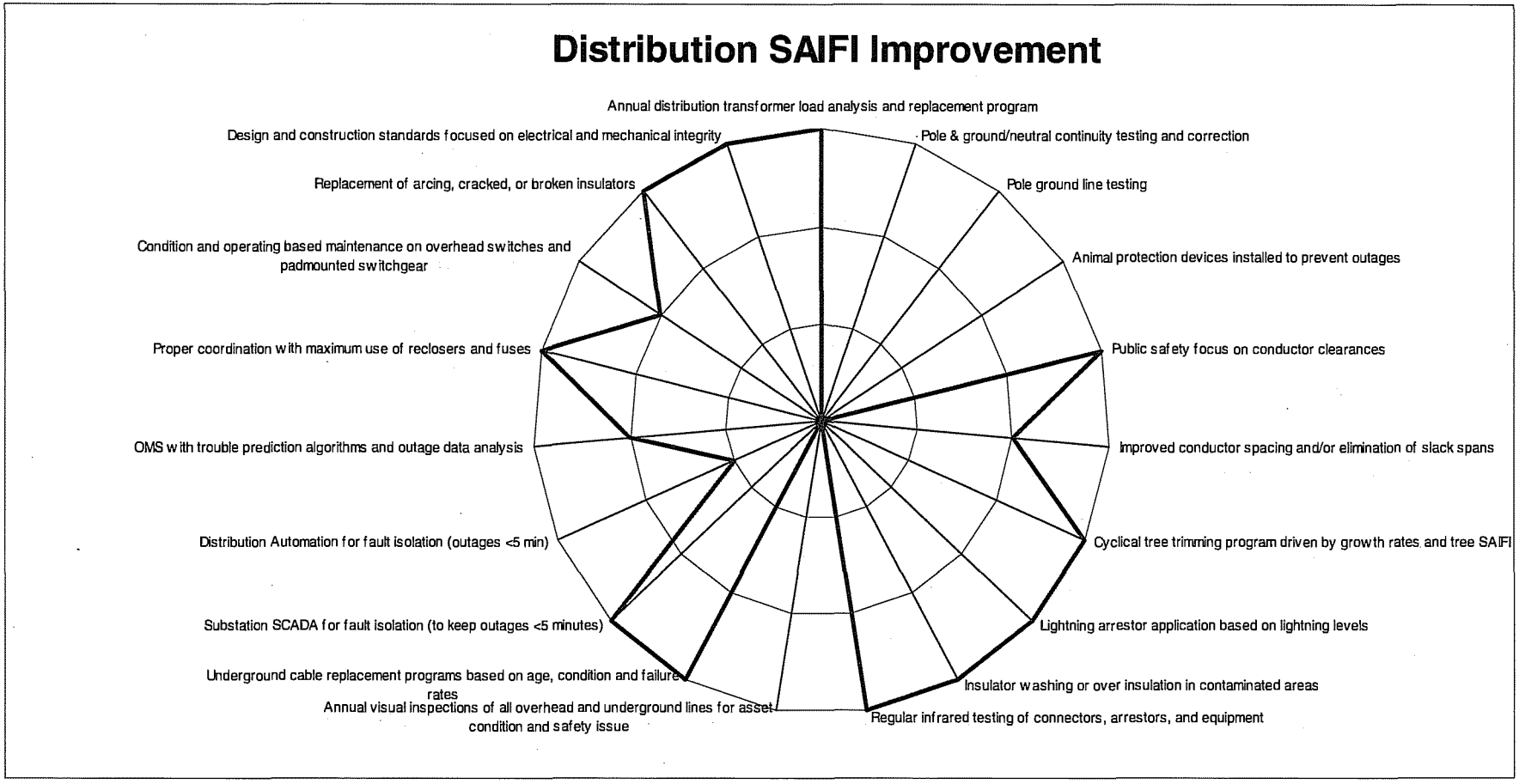

Exhibit 63: Distribution SAIFI Improvement

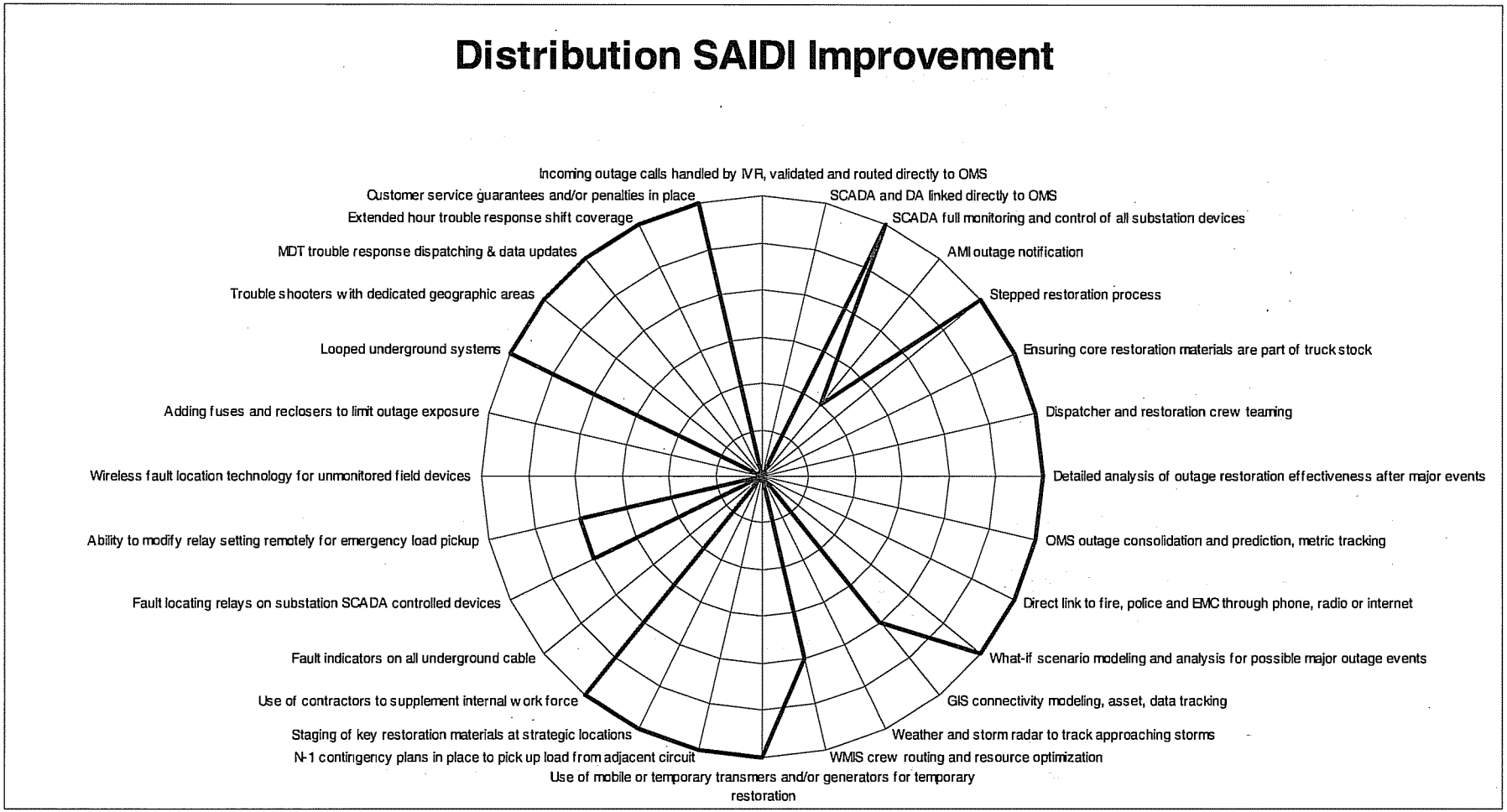

Exhibit 64: Distribution SAIDI Improvement

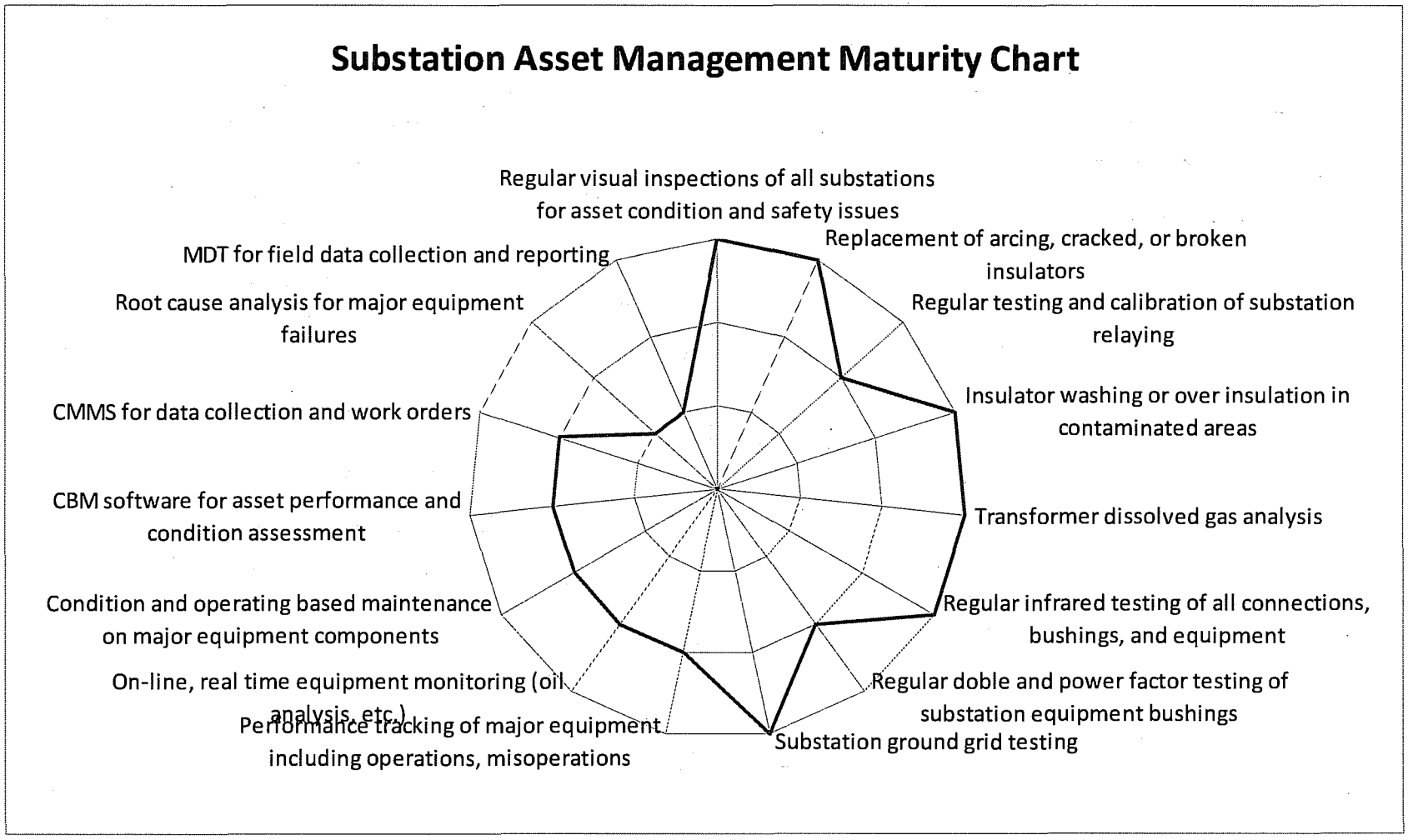

Exhibit 65: Substation Asset Management Maturity Chart

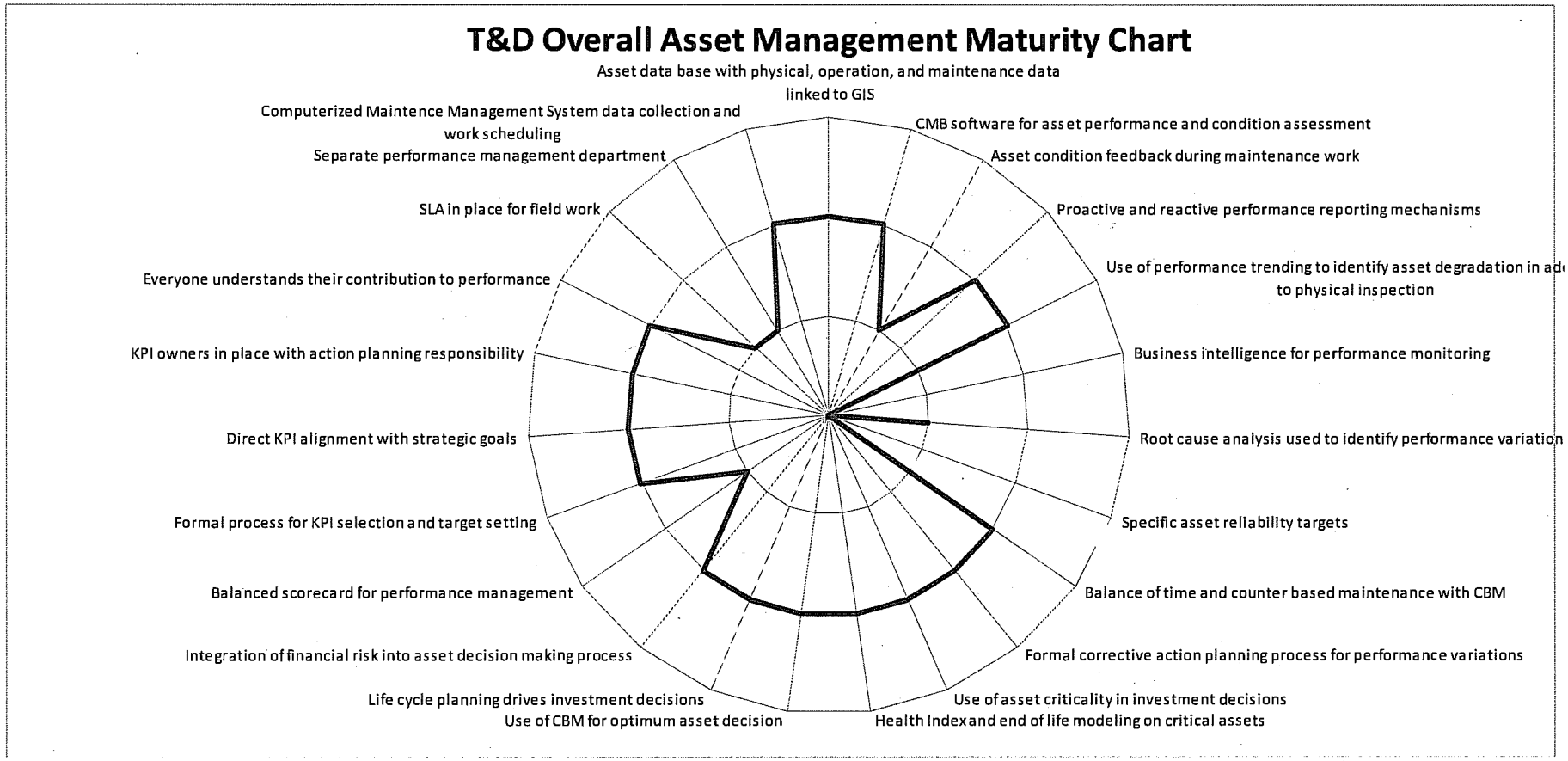

Exhibit 66: T&D Overall Asset Management Maturity Chart

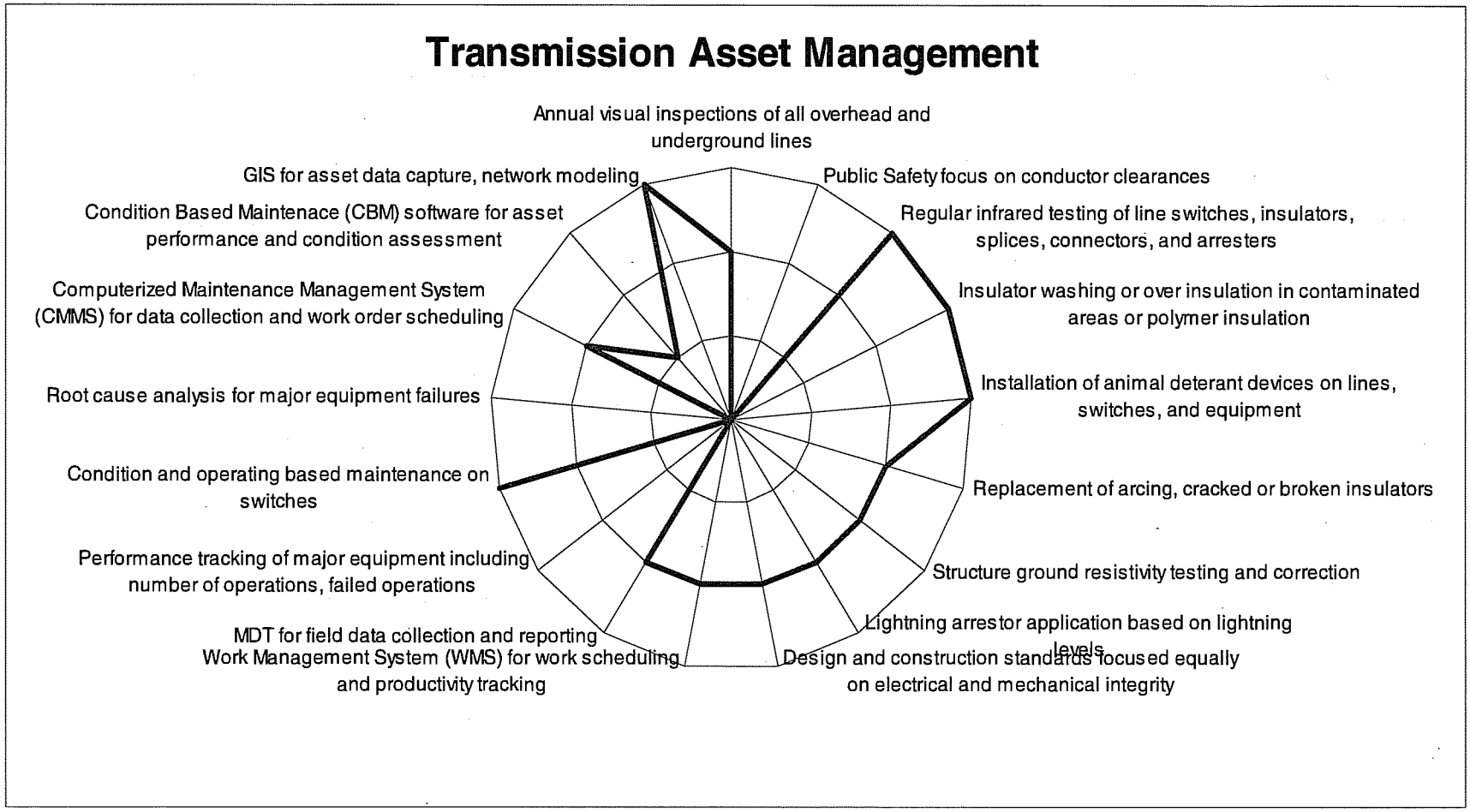

Exhibit 67: Transmission Asset Management

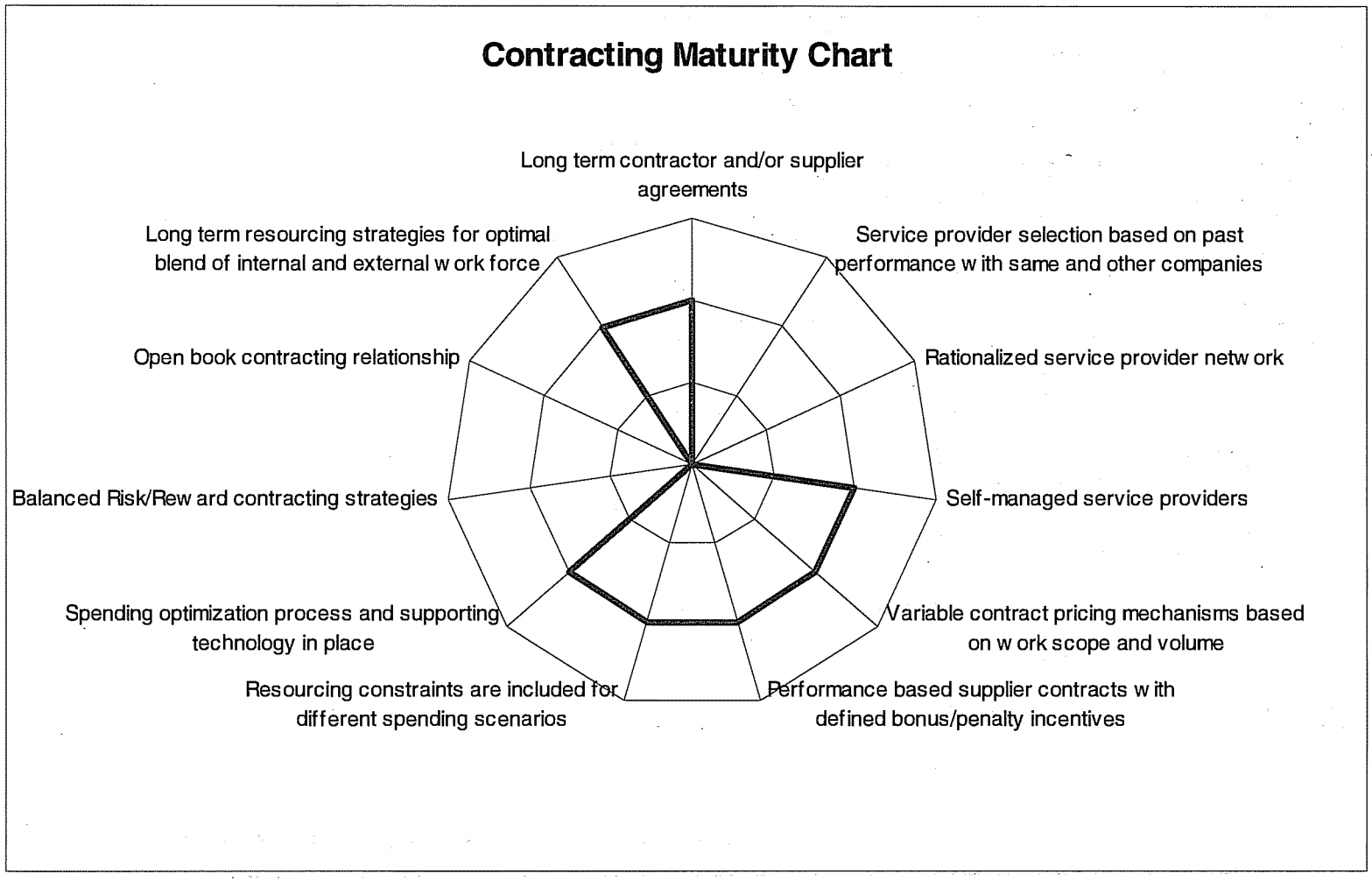

Exhibit 68: Contracting Maturity Chart

APPENDIX F: SUMMARY OF RECOMMENDATIONS

The following tables provide a summary view of the recommendations for each assessment area identified from the 2008 Survey.

F.1 POWER SYSTEM

Focus Area	Findings	Recommendation	Page
Power System Reliability	LADWP's frequency of outages (SAIFI) is exceptionally good in comparison to the Polaris panel. However, data is mixed on LADWP's performance for SAIDI being on average second quartile with major events included but third quartile when normalized against major events are excluded from the outage data for LADWP and the utilities within the panel. In either case, the results suggest that once an outage occurs, the average duration (SAIDI) could be improved at least to second quartile excluding major events and possibly first quartile when not excluding major events. The overall CAIDI performance including and excluding major events indicates that there are overall performance improvements to be obtained in this area.	1. Based on the Department's SAIFI (Q1), SAIDI (Q3), and CAIDI (Q4), LADWP should focus on improving response and repair times to improve overall reliability. In the near term, efforts should be spent on reducing the average time of outages and tackling the causes that make outages so lengthy. This includes response times, restoration techniques, sectionalizing, as well as equipment availability. As SAIFI continues to improve, both SAIDI and CAIDI will actually increase. SAIDI, however, can be improved by eliminating outages as well as reducing their duration, such as, long duration cable outages as part of its cable replacement program as part of the PRP.	4-130
		2. LADWP has instituted many practices that are best practice for outage restoration. However, the measurement of the effectiveness and improvements in these areas should be monitored to continue to reduce SAIDI and CAIDI. Root Cause Analysis assessments, such as those performed by the Department for heat and other storms should be repeated for other outages, not only for failure mode purposes, but also due to its impact on CAIDI and SAIDI. An overall analysis for systemic issues that may contribute to this performance such as shift staffing levels, crew availability and call out response would also prove useful.	
		3. While LADWP's PRP is expected to reduce the number and duration of service interruptions through the replacement of deteriorated failing cables and worst performing assets, the Department would benefit from transitioning to a more comprehensive effort that includes more robust systems and cost per unit metrics, part of a more sophisticated set of plans and strategies developed around its various assets.	
		4. The Department should also consider including all outages (planned and unplanned) and actual counts on the number of customers interrupted rather than the current assumption of 10 and 50 customers for small outages to be consistent with industry standards and to more accurately report the actual outage impact. LADWP should also consider reporting their outage statistics based on the most recent IEEE 1366 2.5 Beta standard as well as the major exclusion event method to enable comparison of its overall performance with a larger sample. While PA understands the differences between the Department and its neighbors, LADWP is encouraged to report in a consistent manner with their neighbors or at least somewhat consistently with CPUC regulations. IEEE standards would be the best method for measurement consistency. Although PA does concede that utilities have variances in their data collection and reporting methods, we recommending that LADWP calculate and compare their performance using widely used standards.	
System Resource Planning	Our review found that at this time, the Department produces limited formal documentation in regards to its IRP, while its formal analysis is dependant on individual's experience, which would make it very difficult to repeat this process, should that individual leave the Department.	1. Although not mandated to do so, we strongly believe that the Department would benefit from a formal and rigorous IRP to be developed every other year, in which the Department would provide rigorous and clear descriptions of how it will meet the load requirements of its customers (particularly given other requirements such as AB32). This plan should include:	4-133
		· Scenarios: An evaluation of all resource types, including meeting RPS goals and include financial impact analysis of those resources in the overall capital budget of the Department	
		· Probabilistic modeling: Rigorous modeling (especially in terms of RPS) that would provide a more realistic view of the certainty of the plan and potential risks in meeting the plan	

Focus Area	Findings	Recommendation	Page
		2. We believe the IRP should be updated during the off-years as a result of potential volatility, not only technically and financially but also in the regulatory, political and legislative environment. We would also recommend the Department to determine whether it possesses the expertise in-house to produce a rigorous IRP. If not, a third party should be called upon to produce the IRP, as it is the case in many other utilities.	
		3. In terms of communicating its process to the public, the Department should use this opportunity to connect with its customers, but also to hear their ideas on how to make the IRP, one that includes options, technologies, and strategies that are looked at from different perspectives. In addition to a rigorous public review with customer groups there should be an internal IRP and RPS review process with strict schedules and accountability at the management and then executive level. The review process should also include the board and final presentation to the City Council and Mayor.	
		4. Ongoing significant updates other than the formal annual update should be provided in the monthly management and the board to keep them informed as to potential issues and also progress against the plan.	
	LADWP staff continue to aggressively pursue procurement activities that will enable them to reach their RPS targets within an economic environment that is generally fairly unfavorable, given the high cost of renewable resources, the uncertain future of Federal tax credits, and the recent contraction of U.S. credit markets. Improvement of internal processes could also improve the Department's potential.	As an example, we believe the evaluation of one recent initiative would have benefited from a series of more rigorous and comprehensive analyses, founded on various cost and risk scenarios – The Green Energy and Good Jobs for Los Angeles Act.	
Asset Management	Current asset management practices for LADWP were self assessed by the Department utilizing PA's Polaris questionnaires for asset management, which included reliability figures. Based on those responses, PA recommended a series of measures.	1. LADWP must carry out the deployment of an asset management program that incorporates equipment-specific strategies and system upgrades based on criticality, performance, and other factors that may or may not be life cycle replacement strategies. Although we are aware of LADWP's use of WMIS system and various Maximo uses, LADWP's intended use of these to utilize these computer systems to track and record the maintenance, and generate the required maintenance work. However, prior to setting rules for each type of equipment to time based, conditioned based, or even risk based or run to failure, LADWP needs to review its overall strategic asset management direction, and determine strategic asset management direction for the various equipment classes. An example of this type of strategy development is PAS -55.	4-138
		2. The current plan is to transition to a cyclic replacement program, with preemptive replacements made according to expected equipment life, but the Department may need to go a step further eventually. There will be real value in incorporating equipment-specific strategies and system upgrades should ultimately be developed to aid in determining the best overall mix of alternatives and programs. Such a program would focus on system design, specific feeders, automation, and human factors such as respond and restore.	
		3. The Department should continue the efforts of the Integrated Support Services Division but a review of the strategic viewpoint for the equipment beyond health and consequence including all of the R's might prove helpful.	
		4. The current maintenance program development for circuit breakers is a step, part of a good asset management program that will need to be defined for the workers and become part of the standards. The actual prioritization of the development of these plans by equipment and voltage level must to be part of the overall strategic asset management plan.	
		5. Continued further development and utilization of the tools the department is acquiring should assist them in having a good asset management foundation to continue to develop.	

Focus Area	Findings	Recommendation	Page
Fuel Procurement	In general, the current fuel management function at the Department is organized and equipped to meet current and past requirements. However, given the likely change in portfolio composition and future supply and management requirements, the Department needs to begin a comprehensive evaluation to identify fuel procurement needs in all relevant areas. Specifically, the Department should evaluate fuel procurement strategies and potential areas for enhancing the functional group in the "as-is" – and importantly, the "to-be" – strategic environment.	1. Proactively identify "People, Process, Technology, and Governance" requirements related to increased trading of natural gas to shape load requirements with a renewable-focused asset mix	4-143
		2. Evaluate a range of gas procurement options given the "as-is" portfolio of assets, and various new scenarios given a "to-be" portfolio of potential assets (e.g., storage, transportation, supply, etc.); this analysis should include benefits, costs, and risks	
		3. Ensure that specific attention is dedicated to staffing and succession planning for primary procurement functions, including training and knowledge management	
		4. Complete necessary organizational and system changes to definitively integrate physical procurement and hedging functions into one functional group	
		5. Address potential changes required to procurement and risk management policies and procedures (including City Charters) given the prospective "to-be" environment.	
Customer Service	A detailed process audit, as well as a "refresh" of the 2007 Polaris benchmarking study is necessary to determine progress to-date on these and other performance improvement plans. However, as noted above, evidence suggests that improvement is being made in certain areas of the CS organization versus 2006 performance. In recognition of CSD's customer service performance, LADWP was recently recognized with two 2008 Quality and Productivity Awards for the City of Los Angeles: The first was for the CCC ("Record Breaking Customer Contact Service Levels") that showcased the improvements in the percentage of calls answered in 60 seconds, and the second was an award for the Remittance Processing Center ("Check 21 Processing Method") that highlights the efficiency gains and cost-savings realized by automated imaging and processing of customers' payment checks.		4-150
Commodity Risk Management	The Department should continue to make strides in several areas, including risk analytics and reporting and documentation of business process, to continue to increase the group's maturity and institute a culture of continuous improvement. Further, the Department's processes, data management, and reporting capabilities would benefit from an infusion of enhanced technology. However, most critically, responsibility for commodity risk management at LADWP continues to reside in various areas of the organization. One of the most critical recommendations from the 2007 functional audit of the group – the elimination of the segregation of duties conflict identified above – has not been addressed.	The following are recommendations to increase the maturity of the Department's commodity risk management function:	4-155
		1. Immediately resolve all issues related to proper segregation of duties between the Risk Control and Wholesale Energy Resource Management groups	
		o Ensure that responsibility for all transaction management and control activities resides in Risk Control, and not Wholesale Energy Resource Management	
		o Make organizational design, job description, and line of reporting changes to affect required changes	
		2. Conduct a systematic review of the "as-is" commodity risk management-related software and database applications and data management processes	
		o Identify software and data management requirements associated with "to-be" energy commodity procurement activities	
		3. Capture all energy commodity transactions (physical and financial) in a single software application	

Focus Area	Findings	Recommendation	Page
		o Lead an ETRM software requirement and vendor assessment initiative, focusing specifically on current and future trading and risk management requirements	
		4. Increase rigor of market and credit risk management analytics to account for exposures related to physical assets, contracts, and financial hedge positions	
		5. Enhance reporting to include various risk related analyses, including cash flow risks and historically relevant stress tests around commodity procurement.	
Energy Cost Adjustment Factor (ECAF)	Upgrades to the budgeting process and internal ownership have provided a sound foundation to work from in addressing future revenue requirements. However, the Department does not currently appear to be adequately prepared to tackle the uncertainty associated with future changes to its cost structure. Renewable energy procurement obligations and the commencement of greenhouse gas regulations are likely to compound the challenge already posed by natural gas price volatility, and the power rate setting process will continue to be handicapped until greater efforts are made to ascertain and account for the range of possible impacts. Under the current regime, the ECAF structure presents a considerable financial risk to the Department and the City of Los Angeles. Not only has the Department's ability to issue debt for projects and procurement has diminished, but the increase in costs related to RPS have the potential to increase the ECAF collections to levels that are unsustainable.	1. Bolster analytics around the evaluation of prospective collections under the ECAF, including running detailed scenarios around gas price forecasts that are reliable and rigorous. This would also include an evaluation of optimal hedging strategies and the inclusion of realistic renewable and other strategic scenarios that impact ECAF	4-158
		2. Introduce a monthly (or more frequent) reporting process to all stakeholders (including LADWP Commissioners) to allow for discussions about the options and best course of action to flow costs through rates. This reporting process would also include up-to-date fuel price forecasts	
		3. Review the amount of over and under collection gaps and the frequency of adjustment of the ECAF	
		4. Introduce a "trigger" mechanism based on tiers of collections into ECAF, which would initiate rate increases so as to avoid rate shocks	

PA

F.2 WATER SYSTEM

Focus Area	Findings	Recommendation	Page
Water quality	In general, PA found that while LADWP has improved its water quality performance (and fully complies with regulatory requirements), it is believed by its customers (or at least the small number that were surveyed) to be lower than other California utilities and definitely lower than such cities as Chicago, New York and Philadelphia.	1. Develop an expedited schedule (as part of a LADWP long-term strategy and budget) for SDWA compliance with surface water treatment rule	4-114
		2. Develop a distribution water quality strategy to reflect varying source waters, and impacts of SDWA compliance	
		3. Evaluate and implement as appropriate a technical assistance program for owners of private residential water systems that impact water quality including: evaluation of devices, in-system chemical treatment, and other techniques to reduce complaints that result from deteriorating private systems	
		4. Institute a regular annual customer survey that is statistically reliable and comparable, reflects differences in the service areas, and incorporates reliability, water quality, cost, customer service, and public attitudes. A model starting point would be the program conducted by EBMUD, (March 2008 East Bay Municipal Utility District Residential Customer Opinion Survey 2008, prepared by EBMUD and EMC Research Inc.)	
		5. Develop and implement a comprehensive public/consumer information program that satisfies the objectives of the current "Annual Water Quality Report", provides user friendly information and interaction via a creative website, and is linked with other ongoing activities to achieve water conservation and other DWP objectives. The Report should maximize access while at the same time complying with EPA's rules. This report should not be a stand-alone, but integrated with the annual customer survey, and other ongoing public outreach particularly related to conservation.	
Water Supply	The current drought highlights the need for better statewide integration of supplies and the sharing of shortage between agricultural and urban users, and sharing within each class of users. LADWP could benefit from knowing the changing impact on its supplies as a result of the MWD/SWP water transfer program, and improvements in Delta levee security such as those recently adopted, as well as South Delta channel improvements currently in the planning stages	1. Support MWD/DWR current efforts on water transfers, and Delta levee improvements and benchmark progress against new reliability goals	4-117
		2. Urge and team with MWD to take a leadership role in the development of a new generation of "The California Water Plan" that provides a blueprint for a state-wide drought shortage sharing policy, and a long-term drought period water transfer options program	
		3. Develop a LADWP drought use reduction targets and performance as a percent of a standardized state-wide baseline of water use	
		4. Use their California Conservation Councils Best Management Practices as benchmarks against other utilities achievements, through investments in standardized reporting	
		5. Create a unit cost of water policy goal, together with acceptable rate increases to achieve policy objectives regarding source reliability, water quality and environmental protection.	
Asset Management	LADWP should aggressively implement the recommended Improvement Initiative Roadmap of the IWA-WSAA study. The study identified key opportunities for improvement, which are part of the recommendations section.	1. Organizational asset management strategies	4-119
		2. Corporate asset management plan	
		3. Asset management IT strategy	
		4. Triple bottom line with costing	

Focus Area	Findings	Recommendation	Page
		5. Risk management	
		6. Efficiency and effectiveness reviews and organizational performance	
		7. Supply chain management	
		8. Enhanced business case evaluations	
Customer Satisfaction	While the Department is in compliance with the primary and secondary drinking water regulations, various factors combine to adversely affect public perceptions of drinking water quality. Some of these are based on aesthetic factors which depend upon both LADWP and the customers to remedy. Others reflect the current state of public environmental and health sensitivity. As the largest utility in the West, LADWP has a unique opportunity to provide leadership in restoring public confidence in the quality of drinking water.	1. LADWP should initiate a new annual customer survey. The survey should have maximum statistical credibility, reflect the geography and cultural diversity of the service population, consider all classes of customers, include water source and distributional characteristics, and be designed to provide the basis for future Strategic planning, rate-making and budgeting. Recommendations on the Annual Water Quality Report and are discussed in that section, and should be developed and updated based on survey results	4-122
		2. LADWP should support improvements in multi-agency benchmarking studies so that comparisons on issues of importance to Los Angeles should be adopted	
		3. New periodic surveys should also be considered in the following areas: (1) Large California utility performance in achieving customer support for best management practices for water conservation; (2) With large southwestern utilities, particularly Phoenix, Las Vegas, EBMUD, and the City of San Diego, to assess water conservation, reuse, and customer practices which are unique to the region.	
Finance	PA found that the linkages between strategic objectives and the budget at LADWP were not clearly stated. Ideally, all major budget decisions should be based on the strategic plan, and all strategic plan elements should have clear support in the budget. This should be done using the a general approach that encompasses recommendations 1-3:	1. Once a comprehensive strategic plan is in place (see the section on Strategic Planning), an annual review of the strategic plan should be completed in time for the annual budget process to incorporate into the budget proposal any changes in the goals and objectives.	4-125
		2. Each business unit should review its operating plan to assure it is aligned with the strategic plan and to make modifications to their operating plan to reflect changes in the operating environment as well as progress made on achieving business unit goals and objectives.	
		3. Each business unit should develop budget proposals reflecting the updated operating plan, referencing how each budget item is linked to the operating plan.	
	The readability and information provided with the water bill was found to be complex and unclear.	4. Bills must be clear and easy to read for the average consumer. Technical terms should be minimized to the extent possible. Layout and formatting should be such that consumers can obtain information applicable to them without difficulty.	
		5. Bills must clearly indicate what consumers are being asked to pay for and how it is calculated, including all adjustment factors. The bill should also explain their particular rate schedule and why that schedule is applicable to them.	
		6. Information regarding past water use should continue to be shown, such as use for each billing period through the same period in the previous year. Graphs showing use are a plus.	
		7. A sample savings calculation should be included, informing the customer how much they could have saved for the last year if they had reduced their water use by 10% in each billing period.	

Focus Area	Findings	Recommendation	Page
		8. Provide internet-based bill review and payment options, giving options to go to a location where their water use can also be analyzed and estimates given for the cost savings potential of various levels of conservation.	
		9. Tie financial modeling to the rate structure and the behaviors being encouraged through the water rate structure.	
		10. Financial modeling should include assessments of the impact on existing and proposed initiatives on future rates and charges. The time horizon for financial modeling should extend to the year that the last required long-term debt issue is retired.	
	The water rate structure should incorporate a simpler menu of rates and charges to achieve the strategic goals and objectives of the department.	It has been more than 15 years since the Mayor's Blue Ribbon Panel did its work, and circumstances have significantly changed since then. The first step in revising the rate structure should be a thorough rate structure analysis. This analysis should form the basis for changes to the rate structure. We do not recommend the formation of another Blue Ribbon Panel at this time, but recommend that the effort be led by staff and consultants with rate-setting expertise who will seek ratepayer input, and provide recommendations to the Board of Commissioners on the range of options for changing the rate structure to one that it clearly supports the department's strategic objectives. However, because of the experiences of the department and the council during the last rate re-structuring, we recognize that a Blue Ribbon Panel may be needed to assist in making a recommendation for the final option to be recommended for council action.	
		While we recommend the rate analysis be done to build a solid foundation for the final selection, we also offer our suggestions for changes to the rate structure:	
		11. The difference between the First Tier and Second Tier commodity rate should be increased to send a stronger pricing signal.	
		12. Consideration should be given to adding additional tiers to provide increasing incentives to reduce water use.	
		13. A small fixed monthly service charge should be added to all commercial and residential water bills to recover a portion of the fixed operating costs for running the Water System. A lowered First Tier rate may assist in offsetting the cost impact of the fixed service charge. While it is true that having no fixed monthly service charge sends a stronger pricing signal to encourage conservation, the California Urban Water Conservation Council's Best Management Practice on Rates leaves room for some fixed monthly charge by stating the following:	
		o Conservation pricing requires volumetric rate(s). While this BMP defines a minimum percentage of water sales revenue from volumetric rates, the goal of this BMP is to recover the maximum amount of water sales revenue from volumetric rates that is consistent with utility costs (which may include utility long-run marginal costs), financial stability, revenue sufficiency, and customer equity	
		o In addition to volumetric rate(s), conservation pricing may also include one or more of the following other charges:	
		a. Service connection charges designed to recover the separable costs of adding new customers to the water distribution system	
		b. Monthly or bimonthly meter/service charges to recover costs unrelated to the volume of water delivered or new service connections and to ensure system revenue sufficiency	
		c. Special rates and charges for temporary service, fire protection service, and other irregular services provided by the utility.	

Focus Area	Findings	Recommendation	Page
		14. One way to simplify the rate structure would be to eliminate the temperature zone and lot size pricing schedules. We commend the department for having implemented an early form of what has become known as a "water budget." However, this discourages conservation in the areas of the city where conservation needs to be more encouraged through a pricing signal. Larger lots and higher ambient temperatures do not necessarily create a need for more water use or a right to more water use at the lower tier rate. Rather, residents in these locations should be encouraged to institute even more conservation measures. We recognize that this may be a difficult step to take and that substantial opposition may come from customers who would be directly affected by such a change. A response to this may be a gradual reduction in the differences in the tier threshold for lot size and temperature zones. Consideration could also be given to revisiting the basis for the water budget used for the current pricing by basing water budgets on "California friendly" landscaping water use.	
		15. The seasonal commodity rate differential should be eliminated to send a pricing signal that water conservation is as important in the low season as it is in the high season. If the purpose of the seasonal rate differential is to send a pricing signal to reduce peak system demand that can be accomplished by increasing the Second Tier rate and adding additional tiers. Since this rate adjustment is also a water-budget approach to pricing, the same comments in the previous item on temperature zones and lot sizes also applies	
		16. The various "adjustments" (Water Procurement, Water Quality Improvement, Water Security, Owens Valley Regulatory, Seasonal Variation) should be eliminated and rolled into the regular tier rates. We appreciate the efforts of the department to provide more transparency in its rates by indicating the purpose for which these funds are being collected; however, the information would need to be clearly shown on the water bill for full transparency to be achieved. In the absence of the details being shown on the water bill, we suggest the rates just be eliminated and the base volumetric rates increased accordingly	
		17. Tiers or rate blocks based on fixed usage thresholds are intrinsically easier to understand. We recommend LADWP consider fixing the usage thresholds for the rate tiers, calculate the charge based on usage, and then add charges or credits to this amount to come up with the final bill. This way the customer can better understand how their behaviors are affecting their final water bill, assuming that the bill itemizes all the credits and charges	
		18. Consideration should be given to including a pumping charge for those areas served through pumping under normal conditions. This will send a pricing signal that water use in these areas has an additional cost	
		20. A new connection or demand charge should be implemented for new commercial and residential meters. This charge should differ from the charge to set or reset a meter of the same size on an existing service, as is the current practice. Any meter that represents new demand or increasing demand (such as meter upsizing) should have a fee associated with it that pays for a fair portion of the following: new infrastructure required to meet the increased demand, initial, one-time costs for new water supplies (e.g., recycled water) to meet the increased demand, new capital investments to increase water use efficiency (e.g., incentives for irrigation system retrofits) to offset the increased demand, rehabilitation or replacement of existing infrastructure that will serve the increased demand, and a buy-in cost to infrastructure already in place.	
	This Survey has not evaluated the pros and cons of the various changes that have been identified above. Our purpose is to evaluate the current structure and compare it to best industry practices. We believe the suggested changes are more likely than current practice to result in achieving the city's goals, particularly with respect to water conservation; however, a more rigorous analysis is needed.	The June 19, 2008, presentation of the FY 08-09 budget of the Rates and Contracts Section contains the following: "Continue study of the residential water rates to identify new approaches that will improve equity, encourage drought tolerant landscaping, strengthen water conservation incentives in general, and encourage the reduction of water consumption." We recommend the department hire a firm experienced in utility rate design to prepare an analysis of the current water rate structure and make recommendations for changes that will support the department's strategic objectives.	

F.3 JOINT SYSTEM

Focus Area	Findings	Recommendations	Page
Human Capital	Designing a framework of supporting services that facilitate the best management of staff, enable workforce planning and succession, provide relevant training opportunities that allow for workforce growth, among other key factors can prove challenging for any organization. In the case of LADWP, those challenges are maximized because of the size and complexity of the organization, civil service requirements, and other factors.	To achieve the desired level of satisfaction and support among staff, we recommend the following:	4-161
		1. Expand programs that evaluate their HR-related functions, such as the aforementioned performance audit, as a cost-effective way to identify and/or validate existing problems.	
		2. Create enforcement and monitoring mechanisms to work with HR on the solutions identified, understanding the potential constraints related to civil service rules and other requirements.	
		3. Conduct a comprehensive workforce and succession planning study, which would become a critical aspect of the Department's Strategic Plan. (Equally important will be the monitoring and adherence to a realistic and aggressive project plan for the implementation of the feasible efforts identified.)	
		4. Begin compiling and evaluating technical training records that capture cost, success, and value-add or both the Water and Power Systems; these records would ultimately serve as roadmaps to decide the level of achievement of overall training efforts and future budgetary allotments of those trainings	
		5. Select and begin capturing data on several targeted HR-related metrics, such as: HR to FTE ratio, Revenue to FTE ratio, absence rates, acceptance rates and number of hours of training per FTE, to better monitor and assess the effectiveness of Department HR-related practices.	
		6. Substantially increase training opportunities to achieve benchmark parity, particularly in "futures technologies", including water quality science, IT applications for both water and power, and operations efficiency.	
Strategic Planning	At present, the Department does not have a comprehensive and consolidated approach to strategic planning that directs project prioritization, capital allocation, and enterprise risk assessment.	1. Continue efforts to immediately develop and implement a rigorous strategic planning program, consolidating disparate efforts across the Water, Power, and Joint Systems	4-165
		2. Retain independent, external support to facilitate development of the strategic planning program	
		3. Integrate financial planning analyses (including debt service and other key ratios) into strategic planning processes and consolidated capital program evaluation	
		4. Integrate a comprehensive enterprise risk assessment into the strategic planning process, linking prioritized strategic objectives to an assessment of critical risks	
Enterprise Risk Management	At present, the Department has not adopted an enterprise-wide approach to risk management. Further, the Department does not have an officer solely dedicated to the analysis of enterprise risks, such as a Chief Risk Officer (CRO) or equivalent position – a role that is commonplace in utility environments.	PA recommends the Department assess the merits of a consolidated enterprise-wide risk management function, charged with independently measuring, managing, and reporting on the variety of risks that impact the achievement of strategic objectives. As noted, a core aspect of this function would be the determination of the Department's risk tolerance in a number of areas, and those sources of risk the Department would actively mitigate versus those tolerance levels. Properly designed, staffed, and equipped, this group would conduct day-to-day risk control activities and conduct more strategic activities, including project, investment, and transaction evaluation.	4-170

Focus Area	Findings	Recommendations	Page
IT Information Infrastructure / Information Management	ITSD's enterprise architecture needs to be further defined through continued definition of an enterprise architecture. Such an architecture will enable systems replacement projects, reducing the cost and difficulty of addressing the age of the portfolio	1. ITSD must further establish an enterprise architecture and solidify its governance process. Implementing these fundamental aspects of IT will increase the probability of successfully addressing the aging portfolio issue.	4-179
	PA performed a benchmarking analysis to measure LADWP's IT costs, staffing levels and other areas relative to comparable utilities across the US. This analysis showed that LADWP's costs are high compared to its performance, yet PA believes more research and analysis is needed to determine exactly where costs are high and performance is below par.	2. ITSD must develop a real roadmap, with schedules and estimated costs for replacing the aging applications portfolio. Unless this portfolio is modernized, the Department will be seriously hampered to meet specific strategic and performance improvement objectives.	
Public Relations & Community Outreach	The Public Relations & Community Outreach functions at the Department have suffered from neglect for several years and operated without leadership. However, a new Director of Public Affairs now onboard has given more focus to staffing and developing plans for long term direction, yet there is significant room for improvement.	1. The Department should establish a strategic plan for budgeting, coordinating and communicating all Public Relations & Community Outreach activities. High level coordination is required due to the decentralized nature of the function	4-182
		2. Establish mechanisms to collect data and report results of the various programs and initiatives. The results should be analyzed and only successful programs and initiatives should be repeated in the future	
		3. Further develop, enhance, and publicize employment and business opportunities	
		4. Improve relations with customers and community groups such as senior citizens by clearly communicating future plans for operations, infrastructure, programs offered and spending	
		5. Upgrade technology and increase staffing to meet future requirements	
		6. Re-design website to emphasize most important programs and issues identified through strategic planning	
		7. Develop a stakeholder report to illustrate Public Relations and Community Outreach successes (i.e. dollar amount of rebates per program, amount of conservation/efficiency savings, amount of discounts for low income residents and senior citizens, etc.).	
	In terms of the business and employment outreach, which aims to share economic opportunities with the community, the Department should act as a vehicle to strengthen the local economy through business and employment opportunities derived from revenue provided by the community.	8. Increasing the number of business outreach events and job fairs held annually	
		9. Utilizing existing resources to advertise upcoming opportunities (i.e., MWD and other public agency websites)	
		10. Developing technology and processes to reliably report minority/woman business enterprise participation and number of jobs offered to job fair/education partnership participants	
		11. Implementing a formal plan to recruit and encourage local, small, minority, and woman businesses to participate in the procurement process (professional services, capital projects, and materials)	
		12. Creating a diversity procedure and document outreach efforts and results for contracts under $150,000	
		13. Establishing compliance program to monitor bid/proposal commitments to small, minority, and woman business subcontractors	

Focus Area	Findings	Recommendations	Page
		14. Including a prominent link for employment opportunities on the LADWP website.	

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