FUNCTIONAL TOTAL COST STUDY
FINAL REPORT

AUGUST 27, 2020

Prepared for:
Office of Public Accountability / Ratepayer Advocate
Oliver Wyman was commissioned by the Office of Public Accountability / Ratepayer Advocate to complete a Functional Total Cost Study of the Los Angeles Department of Water and Power (LADWP). The primary audience for this report includes the City of Los Angeles, LADWP, and relevant stakeholders.

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Context for Phase 2 – LADWP’s benchmarking program
This study, jointly conducted by the OPA and LADWP, is the second of a three phase benchmarking process; begun in 2014, it will ultimately support the improvement of specific business processes

History of organizational level benchmarking at LADWP

Phase 1 - High level financial benchmarking
First of three phases of benchmarking focused on high level operating and capital expenditures - used FY12/13 data

2014/2015

Phase 2 – Joint Functional Total Cost Study
Second phase which is evaluating total labor cost and staffing for key functions as well as non-labor costs (e.g. 3rd party service). Jointly conducted by OPA and LADWP - used FY14/15 data and the Joint Compensation Study employee census

2016/2017

Joint Compensation Study
Total compensation benchmarking study that compared matched “jobs” at LADWP to those in industry surveys. Jointly conducted by OPA and LADWP

2017-2020

Phase 3 – Business process improvement
Final phase of benchmarking that will target specific business processes identified for improvement

Future

The phases of LADWP’s benchmarking program aim to “peel back the onion” in order to identify the areas with the greatest opportunities for improvement that will be addressed through new initiatives or incorporated into existing efforts

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Perspectives on the Benchmarking Program and Phase 2
OPA is jointly conducting this Functional Total Cost Study with LADWP to help make the utility even better

Perspectives of OPA
- OPA recommended that LADWP begin a benchmarking program as part of its role to provide public independent analysis of LADWP’s actions as they relate to water and electricity rates
- Working jointly with LADWP on this report ensured a higher quality control in making accurate and correct industry comparisons, and identifying opportunities for improvement
- A joint program also helps to build support of improvement efforts within LADWP and the City
- Jointly-conducted benchmarking and improvement efforts are fundamentally different from fiscal and performance audits of LADWP that may also occur (e.g., by the City Controller)

Perspectives of LADWP
- As one of the top-20 largest utilities in the US, LADWP constantly looks for ways to enhance its strategies, including supporting infrastructure investment, complying with regulatory mandates, and providing customer service
- LADWP also emphasizes cost control and fiscal discipline to maintain its financial metrics and preserve its low cost of borrowing
- LADWP also seeks to “provide the basics” to align with the City’s goals and sustainability objectives that support LA’s Green New Deal
- LADWP serves a unique geographic area using employees with deep local experience. Many have worked at the utility for most of their careers
Context for modernization and path forward addressed in this review
It may surprise some critics, but LADWP performs fairly well. Like all utilities, LADWP must continue to evolve in a rapidly changing environment

- These unique aspects (e.g., traffic congestion, growth history, stakeholder pressure) of the service territory will only continue to exert pressure on the Department
- Large complex utilities need (1) a strong and aligned utility management team, (2) a sufficient and skilled work force or resources, and (3) a robust IT infrastructure
- Increases in renewable generation together with its modernization effort will challenge LADWP to continue this performance
- LADWP must ensure that its capital spending program delivers the appropriate customer and operations impacts
- LADWP’s service environment, goals, and stakeholder needs will continue to place pressure on O&M expense levels and growth
- LADWP will need more staff to meet its goals. Ensuring adequate labor resources at a reasonable cost will drive LADWP’s future performance
Uniqueness of LADWP impacts service, operations, and costs
Managing, providing customer service, and operating LADWP is very complex

OPERATING IN LOS ANGELES

- **Growth**: LA has had a spectacular and unique growth path. Operating and investing to support such growth presents unique challenges for LADWP
- **Congestion**: LA is one of the most congested cities in the USA. LADWP must operate to provide service in this congested environment which, due to a number of factors, increases costs

RUNNING A LARGE POWER AND WATER UTILITY

- **Utility size**: LADWP is a big utility compared to investor-owned utilities (IOUs). LADWP sits in the middle in terms of size. Big utilities are complex to run requiring seasoned senior leadership, a skilled labor force, and significant IT capabilities
- **Union representation**: LADWP has far more union representation than other utilities or government sectors
- **Internal staff**: LADWP uses an internal labor driven business model, outlined in the City Charter provision, which is distinct from utility peers

MANAGING AND FULFILLING LADWP’S PUBLIC ROLE

- **Diversity**: LA represents a very diverse community. LADWP tailors its customer experience to reflect this diversity
- **Overseeing a municipal utility**: About 85% of larger cities do not have a municipal power utility. Among cities that have municipal power utilities, LADWP is 4 times as large. Defining a public role for and overseeing such a unique entity presents challenges for municipal government (e.g., Mayor, City Council, Board, Neighborhood Councils, etc.)
- **Stakeholder demands**: Having such a large presence, LADWP is challenged to prioritize and service demands from its many stakeholders

Aspects of LADWP’s uniqueness are presented on the following slides

1. As for 2019, LADWP is the 17th largest electric operating company in the US, by customer count. This refers to single service areas and not combination of multiple service areas (e.g. operating company is PECO and not compared to its parent company, Exelon)
Employees and net Property, Plant and Equipment (PP&E)
Although not as large as the biggest electric IOUs in the country, LADWP is significantly larger than many peer IOUs and most, if not all, POUs.

Utility peers, including utilities smaller than LADWP, typically have experienced workforces, robust recruiting and talent management programs, upgraded information technology, and improved business processes.

Source: Company 10K, Comprehensive Annual Financial Report, LADWP Monthly Staffing report June 2015, CA City Data, Oliver Wyman analysis
Los Angeles population and housing growth
LA has experienced by far the largest increase in population and housing units between 1950 and 2017 compared to comparable cities

Change in population and housing units in selected major cities
Changes are between 1950-2017

Commentary

- Rapid population and housing growth can profoundly impact energy and water infrastructure
- LADWP’s service territory and customer growth path has created a unique utility network which challenges both capital and operations and maintenance work
  - From a capital perspective, the unique growth pattern increases the demand on planning, design and construction resources for buildout and upgrades
  - LADWP’s network also presents operations and maintenance challenges due to the unique combination of size, growth, and customer density

Source: 1950 and 2010 Census and 2017 estimated population from US Census Bureau, Oliver Wyman analysis
Los Angeles community demographics
LADWP serves LA City Council and Neighborhood Council districts covering a diverse population

Median Household Income by council district
$ ('000), 2013

<table>
<thead>
<tr>
<th>Council district</th>
<th>Median Household Income</th>
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</thead>
<tbody>
<tr>
<td>District 11</td>
<td>83</td>
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<td>District 12</td>
<td>67</td>
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<td>District 3</td>
<td>66</td>
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<td>District 5</td>
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<td>District 4</td>
<td>59</td>
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<td>District 2</td>
<td>55</td>
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<td>District 7</td>
<td>54</td>
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<td>District 6</td>
<td>47</td>
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<td>District 15</td>
<td>44</td>
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<td>District 13</td>
<td>39</td>
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<td>District 1</td>
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<td>District 10</td>
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<td>District 8</td>
<td>31</td>
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<td>District 9</td>
<td>29</td>
</tr>
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</table>

Race percentage of total population by council district %, 2014

This diversity impacts operations, customer services needs, and business support requirements (e.g., language skills required and service center locations)

Source: American Community Survey, Beacon Report, Oliver Wyman analysis
© Oliver Wyman
Los Angeles congestion
Los Angeles has significantly more commuter congestion compared to other major metro areas

Average time spent in congestion per year for the top 20 worst US metro areas
Hours, 2016

LA’s well documented congestion issues drive the need for LADWP to have more field locations and service vehicles to provide responsive service.

The City has also imposed restrictions on work hours which are aimed at alleviating the impact of work on commute times. The compression of LADWP field working hours erodes daily productivity and results in higher costs as work is spread over more days to complete a given job than what could be accomplished using a typical 8-hour work day.

Source: INRIX
Los Angeles congestion – trend over time
Los Angeles continually has had the highest levels of congestion between 1990 and 2017; LA’s congestion has increased by 70% in that time and has increased its gap over the next most congested city.

Average time spent in congestion per year per auto commuter for largest US metro areas
Hours; 1990 - 2017

Over the same time period, LADWP staff have decreased 6% leaving fewer employees to do the required work in a more congested environment.

Source: Federal Highway Administration, Oliver Wyman analysis
Union representation
Another unique factor is LADWP’s higher union representation; one union represents most employees

Union representation of utility, by %
2018, key California electric utilities and other sectors

2018 union representation, %

- **LADWP**: ~92% of organization is represented by a single union
- **SMUD**
- **Average: 4 CA IOUs**
- **US local government**
- **All private utilities**

Source: LADWP, Official Statement for SMUD, 10-K filings for SCE, Sempra (SDG&E and SoCalGas), and PG&E, US Bureau of Labor Statistics; Oliver Wyman analysis
Power – LADWP Internal Labor and Non-labor cost

Power uses an internal-labor intensive model: relative to peers, on a percentage basis, LADWP uses far more internal labor than non-labor resources for both capital and O&M.

O&M expenses: Internal Labor, Non-labor
FY14/15, % labor/non-labor, all panel companies

<table>
<thead>
<tr>
<th></th>
<th>LADWP</th>
<th>POU - Median</th>
<th>IOU - Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>43%</td>
<td>33%</td>
<td>24%</td>
</tr>
<tr>
<td>Non-Labor cost</td>
<td>57%</td>
<td>67%</td>
<td>76%</td>
</tr>
</tbody>
</table>

Capital expenditures: Internal Labor, Non-labor
FY14/15, % labor/non-labor, all panel companies

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<thead>
<tr>
<th></th>
<th>LADWP</th>
<th>POU - Median</th>
<th>IOU - Median</th>
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</thead>
<tbody>
<tr>
<td>Labor</td>
<td>29%</td>
<td>17%</td>
<td>11%</td>
</tr>
<tr>
<td>Non-Labor cost</td>
<td>71%</td>
<td>83%</td>
<td>89%</td>
</tr>
</tbody>
</table>

All contract spend and other non-salaries and wages expense in “Non-labor” expense

Source: LADWP financial filings, FERC Form 1, CA POU public financial filings, Oliver Wyman analysis
Note: Excludes fuel and purchased power from O&M; includes Pension and Benefits (P&B), LADWP energy efficiency expense moved from Capital to O&M
Water – LADWP Internal Labor and Non-labor cost

Although not as pronounced as Power, the Water system also employs a more internal-labor intensive model relative to peers.

**O&M expenses: Internal Labor, Non-labor**

FY14/15, % labor/non-labor

<table>
<thead>
<tr>
<th></th>
<th>LADWP</th>
<th>POU - Median</th>
<th>IOU - Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>44%</td>
<td>32%</td>
<td>34%</td>
</tr>
<tr>
<td>Non-labor</td>
<td>56%</td>
<td>68%</td>
<td>66%</td>
</tr>
</tbody>
</table>

**Capital expenditures: Internal Labor, Non-labor**

FY14/15, % labor/non-labor

<table>
<thead>
<tr>
<th></th>
<th>LADWP</th>
<th>POU - Median</th>
<th>IOU - Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>20%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Non-labor</td>
<td>80%</td>
<td>87%</td>
<td></td>
</tr>
</tbody>
</table>

Source: LADWP financial filings, CA POU public financial filings, CA PUC annual financial filings, Oliver Wyman analysis

Note: Excludes purchased water from O&M; includes Pension and Benefits (P&B); LADWP water conservation expense moved from Capital to O&M
LADWP staffing (based on positions occupied)
LADWP staffing levels were significantly reduced in the late 1990s and today’s levels remain below 1990. Since that time, congestion in LADWP’s service area has significantly increased and LADWP has started large new programs including power and water infrastructure modernization

LADWP occupancy trend
1990, 2011-2019

Source: LADWP Budget brief, March 24,2020
Note: FY19/20 reflects occupancy as of January 31, 2020

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## Summary of total cost results
LADWP performs fairly well overall and in a number of functions. Like many utilities, cost benchmarking suggests areas where LADWP may wish to focus further attention.

### Summary results of all functions
Data from FY14/15

<table>
<thead>
<tr>
<th>Function</th>
<th>IOU Panel</th>
<th>Third-Party</th>
<th>POU Panel</th>
<th>LADWP Total Cost ($M)</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Power System</strong></td>
<td></td>
<td></td>
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<tr>
<td>Power (total O&amp;M) IOU excludes P&amp;B&lt;sup&gt;1&lt;/sup&gt;, POU includes</td>
<td>Q2</td>
<td>Q2</td>
<td>Q2</td>
<td>$185&lt;sup&gt;5,6&lt;/sup&gt;</td>
<td>5,779</td>
</tr>
<tr>
<td>Power (total capital)</td>
<td>Q1</td>
<td>Q1</td>
<td>Q1</td>
<td>$1,097&lt;sup&gt;5,6&lt;/sup&gt;</td>
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<td><strong>Total Water System</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td>Water (total O&amp;M) IOU excludes P&amp;B&lt;sup&gt;1&lt;/sup&gt;, POU includes</td>
<td>Q4</td>
<td>Q3</td>
<td>Q3</td>
<td>$309&lt;sup&gt;5,6&lt;/sup&gt;</td>
<td>2,661</td>
</tr>
<tr>
<td>Water (total capital)</td>
<td>Q1</td>
<td>Q1</td>
<td>Q1</td>
<td>$449&lt;sup&gt;5,6&lt;/sup&gt;</td>
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<tr>
<td><strong>Power Operations O&amp;M</strong></td>
<td></td>
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<tr>
<td>Electric Distribution</td>
<td>Q4</td>
<td>Q2</td>
<td>Q2</td>
<td>$217&lt;sup&gt;6&lt;/sup&gt;</td>
<td>1,897</td>
</tr>
<tr>
<td>Electric Transmission</td>
<td>Q3</td>
<td>Q3</td>
<td>Q3</td>
<td>$75&lt;sup&gt;6&lt;/sup&gt;</td>
<td>581</td>
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<td>Generation</td>
<td>Q2</td>
<td>Q1</td>
<td>Q1</td>
<td>$197&lt;sup&gt;6&lt;/sup&gt;</td>
<td>827</td>
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<td><strong>Water Operations O&amp;M</strong></td>
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<tr>
<td>Water Transmission &amp; Distribution</td>
<td>Q4</td>
<td>Q2</td>
<td>Q2</td>
<td>$94&lt;sup&gt;6&lt;/sup&gt;</td>
<td>1,434</td>
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<tr>
<td>All other Water Operations</td>
<td>Q4</td>
<td>Q1</td>
<td>Q1</td>
<td>$71&lt;sup&gt;6&lt;/sup&gt;</td>
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<td><strong>Customer Service O&amp;M</strong></td>
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<tr>
<td>Power</td>
<td>Q3</td>
<td>Q3</td>
<td>Q3</td>
<td>$22&lt;sup&gt;6&lt;/sup&gt;</td>
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<td>Water</td>
<td>Q4</td>
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<td>Q4</td>
<td>$9&lt;sup&gt;6&lt;/sup&gt;</td>
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<tr>
<td>Combined</td>
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<td>Q3</td>
<td>Q3</td>
<td>$31&lt;sup&gt;6&lt;/sup&gt;</td>
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<td><strong>Functions (3rd party benchmarks)</strong></td>
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<td>Human Resources</td>
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<td>Information Technology</td>
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<td>Purchasing &amp; Materials Management</td>
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<td>Fleet Services</td>
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<td>Facilities Management</td>
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<td>Security</td>
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<td>Finance, Accounting &amp; Planning</td>
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<td>Legal</td>
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<td>Executive Mgmt – Executives</td>
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<td><strong>Functions (POU benchmark only)</strong></td>
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<td>Electric Resource Planning &amp; Supply</td>
<td>Q1</td>
<td>Q4</td>
<td>Q4</td>
<td>$7</td>
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<td>Environmental</td>
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<td>76</td>
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<tr>
<td>Marketing/EE/Conservation Programs</td>
<td>Q2</td>
<td>Q4</td>
<td>Q4</td>
<td>$24</td>
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<tr>
<td>External Relations &amp; Communications</td>
<td>Q1</td>
<td>Q1</td>
<td>Q1</td>
<td>$23</td>
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<td>Rates and Regulatory Affairs</td>
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<td>Safety</td>
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Q1 is highest capital spend but viewed as beneficial since it is investment in the infrastructure.

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**Note:**
(1) P&B is acronym for Pension and Benefits
(2) Water total cost excludes aqueduct
(3) Third-party benchmark does not have quartiles and only above or below median
(4) Security is 5x median
(5) Costs for energy efficiency and water conservation have been moved from capital to O&M expense to align with industry standard
(6) Costs are those reported that align to financial regulatory requirements as determined by federal and state regulatory bodies
Summary of Performance: Staffing and total cost by executive
4th quartile total cost and staffing suggest areas for improvement; functions with underspending represent potential areas to deliver incremental impact

Summary of staffing quartile and total cost quartile by function
Size indicates total cost; total cost and staffing quartiles

Note: Relative position within quartile is for display only (e.g., Rates & Regulatory Affairs is not necessarily higher in Q1 for staffing than Executive Management); Water O&M is only Transmission and Distribution while Water capital includes all spend; Aqueduct is excluded from all cost (capital and O&M)
Summary of Functional Opportunities

A number of areas could warrant further effort where both the impact on LADWP may be higher and LADWP has the ability to change.

Relative Ability to Implement at LADWP

Higher

“Leave alone for now”
Finance & Accounting
External Relations & Communications
Legal
Rates & Regulatory Affairs

“Focus for near-term improvement”
Fleet
Environmental
Facilities Mgmt
Purchasing
Exec Mgmt

“Lower priority for now”

“Bigger opportunity but harder”

Current responsible Executives
- GM
- CAO
- AGMs Power
- AGM Water
- AGM Power (Const. & Maint.)
- AGM Ext & Reg. Affairs

Scale for bubbles:
Reflects total cost from Study
- $100M
- $50M

Note: For Customer Service bubble size, the costs include the combined amounts for LADWP that are comparable to those required in FERC and CPUC annual financial filings.

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Functional Total Cost Study
17 recommendations are presented across four topic areas

D. Monitor progress
4 recommendations to monitor modernization performance

C. Evolve management
4 recommendations to help evolve LADWP management capabilities

B. Enable modernization
5 recommendations to better enable the path to modernization through Human Resources, Information Technology, and Operations Support

A. Improve core utility
4 recommendations to improve core utility businesses of Power, Water, and Customer Service
Five recommendations for initial focus
Based on consensus of LADWP Executive Team and supported by OPA

Management Value Proposition*: Develop and implement a new value proposition for executives and all levels of management – address roles and responsibilities, career progression, total compensation (including base compensation, appropriate incentives, and benefits). Develop an equitable incentive system for management and staff

Management Alignment and Development: Evolve senior staff more to manage a complex and very large utility business. Encourage increased collaboration among executives to drive the modernization. Align Executive Team on priorities and necessary actions to modernize LADWP. Focus on shared goals among the senior leaders. Better develop LADWP’s managers by addressing leadership, roles and responsibilities, teaming across organization, and managing using metrics. Cascade development efforts to first line managers. Help all managers to drive necessary shifts in behaviors, culture, and work practices

Support of Current Three-Year ITS Program*: Provide guidance on staffing plans, hiring practices, job descriptions, and total compensation for IT professionals. Use this study’s conclusions on underspending and understaffing in IT to support the Three-Year ITS Roadmap

Key HR Processes: Review and redesign key HR processes including hiring, staffing, advancement and training employees; address internal LADWP issues as well as interfaces with City Personnel. Consider reprioritization of human resources spend to support necessary staffing; perform an organizational study of HR function to possibly consolidate functions

Power Distribution: Improve work planning and productivity, especially new business, replacement capital programs, outage response, and compliance and maintenance activities. Focus on people, including understaffed areas, organization, and processes. Determine key drivers of O&M cost in Power Distribution. Seek to understand and explain 4th quartile O&M expense position versus peers, but difficulty in completing planned work. Help support increasing staff levels or reallocating resources

Use the insight and capability of LADWP’s staff to design and put into practice improvement initiatives. Let the LADWP staff create the improvement and change

* Recommendations supporting ongoing initiatives at LADWP

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Phase 2 results: Five areas of initial focus
Significant potential impact exists in each area

1. POWER DISTRIBUTION
   • Overwhelmed with work: capital replacement, new business, outage response, O&M, & compliance
   • Continuing hiring, retention, & skill issues; process & organization issues, including understaffing
   • Field management struggle
   • 4th quartile distribution O&M expense
   • Significant increase in net staff most likely needed to effectively meet goals

2. KEY HR PROCESSES
   • Key function to enable internal-labor focused business model
   • Continuing issues on hiring, retention, skills, and gap filling
   • Process issues both internal to LADWP and with City
   • 4th quartile total functional cost
   • Function spread across 7 LADWP organizations
   • Small central HR function, which may need infusion of new skills for the future

3. SUPPORT ITS PLAN
   • LADWP lags technology adoption and use
   • Below median spending on IT
   • Below median staffing in key IT areas
   • Skills gaps in key IT areas

4. MGMT ALIGNMENT & DEVELOPMENT
   • Historic GM turnover
   • Somewhat siloed organization historically
   • Not enough effort to build and strengthen middle and lower level management

5. MGMT VALUE PROPOSITION
   • Only 1st quartile spending on leadership team
   • Unclear roles, responsibilities, & expectations of mid- and first line managers
   • Diminished incentives to become and develop as a manager
   • Below median total rewards for managers
   • Growing incentive reward structure among POU peers (~30% have some incentives)

OPPORTUNITY
• New business: peers have achieved up to 50% improvement in time to meet new service requests
• Up to 15% improvement (~20 minutes) in LADWP’s outage response to move to median
• O&M expense: investigate $40M gap to 3rd quartile O&M

• Improved HR processes and more effective HR organization
• Effective staffing of internal-labor focused business model
• O&M expense: investigate $5M gap to 3rd quartile total cost (excludes training)

• Building upon best practices to create a modern utility IT function
• Attracting and retaining new skilled IT staff
• 2nd quartile total cost; $60M gap to median
• Ensuring sound choices on possible 80% increase in spend on staff and services

• Taking advantage of opportunity with new GM and Executive Team
• Building a high functioning senior management team
• Reinvigorating middle and first line management
• Possible O&M savings of $500M+ over 10 years through better management

1) Values are based on FY14/15 actuals and comparisons
# Consolidated descriptions of all recommendations

<table>
<thead>
<tr>
<th>Initial Focus Areas</th>
<th>IMPROVE CORE UTILITY</th>
<th>EVOLVE MANAGEMENT</th>
<th>MONITOR PROGRESS</th>
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<tbody>
<tr>
<td>A</td>
<td><strong>Power Distribution</strong>: Develop improvement initiatives focused on work planning and productivity, especially new business, replacement capital programs, outage response, and compliance and maintenance activities. Determine key drivers of O&amp;M cost in Power Distribution</td>
<td>Management Alignment and Development: Evolve senior and middle management staff more to manage a complex and very large utility business</td>
<td><strong>Employee Engagement</strong>: Engage all employees of LADWP; listen to them and encourage them to contribute. Develop and launch a formal employee engagement and follow-up program</td>
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<td><strong>Water T&amp;D</strong>: Determine key drivers of O&amp;M cost in Water Transmission &amp; Distribution. Refresh planning/budget goals and assumptions</td>
<td><strong>Utility-level Metrics</strong>: Use a smaller set of executive-level Department-wide metrics (6 to 8) to manage LADWP</td>
<td><strong>Utility-wide Functional Benchmarking</strong>: Enhance the use of both (1) Department-wide and (2) functional-level benchmarking across LADWP</td>
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<td>B</td>
<td><strong>Customer Service</strong>: Address 4th quartile costs, especially with Water service, and customer experience improvement needs</td>
<td>(*<strong>) Mgmt. Value Proposition</strong>: Develop and implement a new value proposition for executives and all levels of management – address roles and responsibilities, career progression, and total compensation</td>
<td><strong>Periodic Utility-wide Studies</strong>: Conduct periodic comprehensive utility-wide performance and benchmarking reviews</td>
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<td><strong>Capital Spend</strong>: Ensure LADWP is getting “bang-for-the-buck” with capital spending in both the industry leading Power and Water modernization programs</td>
<td>(*<strong>) Labor-related Resources</strong>: Begin to address difficult questions on optimizing spending on internal labor and third-party resources</td>
<td><strong>Regulatory Accounts</strong>: Provide better industry standard financial information in the future</td>
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<tr>
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<td><strong>ENABLE MODERNIZATION</strong></td>
<td>(*<strong>) Key HR Processes</strong>: Review and redesign key HR processes including hiring, staffing, advancement and training employees; address internal LADWP issues as well as interface with City Personnel</td>
<td>Recommendations supporting ongoing initiatives at LADWP</td>
</tr>
<tr>
<td></td>
<td><strong>(*) Key HR Processes</strong>: Review and redesign key HR processes including hiring, staffing, advancement and training employees; address internal LADWP issues as well as interface with City Personnel</td>
<td><strong>Integrated Human Resources Plan</strong>: Hire and staff to meet LADWP’s goals. Develop a comprehensive, realistic, and utility-wide Integrated Human Resources Plan (IHRP) to support appropriate levels of increased hiring</td>
<td><strong>Support Current Three-Year ITS Program</strong>: Provide guidance on staffing plan, hiring practices, job descriptions, and total compensation for IT professionals</td>
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<td><strong>Understaffed Areas</strong>: Perform deep dive examining staffing issues in specific functions across the organization</td>
<td><strong>Understaffed Areas</strong>: Perform deep dive examining staffing issues in specific functions across the organization</td>
<td><strong>Operations Support Functions</strong>: Improve internal customer service and cost effectiveness. Immediate focus on effectiveness of Purchasing. Secondary focus on Fleet, Facilities, and Security due to service improvement potential and high cost</td>
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<tr>
<td></td>
<td><strong>Support Current Three-Year ITS Program</strong>: Provide guidance on staffing plan, hiring practices, job descriptions, and total compensation for IT professionals</td>
<td><strong>Support Current Three-Year ITS Program</strong>: Provide guidance on staffing plan, hiring practices, job descriptions, and total compensation for IT professionals</td>
<td>(***) indicates recommendation that requires close coordination with and participation of the City (e.g. City Council, Mayor, Personnel Dept.)</td>
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</tbody>
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© Oliver Wyman
Three overarching messages
Our review surfaced a number of common themes across LADWP

Acknowledge LADWP’s internal-labor focused business model

- LADWP follows a unique, internal-labor focused business model
- The preference to use internal labor driven by City Charter provisions [section 1022]
- Given this model, LADWP will need to hire more staff in most areas to achieve its goals
- The Department, including HR, has done a reasonable job of performing under this model
- Having end-to-end effective hiring & staffing processes and support is critical to this model
- LADWP’s hiring & staffing processes need improvement
- Technology improvements will help improve/boost productivity but will not be implemented soon enough to avoid inevitable staff increases

Address root causes, not symptoms or current crisis

- The need to address near-term immediate issues hampers LADWP’s ability to address important longer-term business issues and root causes
- Addressing root causes for end-to-end performance including hand-offs should allow better use of resources and make staffing requests more credible
- In many areas, LADWP struggles with completing required or planned work (e.g., capital, field and preventative O&M, IT projects, etc.). Staff ask to expedite hiring to fill vacant positions that will enable them to get the work done.
- Although overall controllable Power O&M cost for LADWP is near median, Water O&M and other functions fall in the 4th quartile vs. peers

Make modest future investments that may have huge impact

- Costs where LADWP can manage the most (e.g., labor, capital spending, O&M excluding fuel or purchased power/water) addressed in this review total about $3.4 billion annually
- Modest targeted investment in areas that have relatively low spend can provide foundation for LADWP to achieve its goals
- Modest investments in evolving senior as well as middle management, Human Resources, and Information Technology may provide large benefits to the organization by addressing root causes - especially when considering end-to-end and hand-offs to remove bottlenecks
Alignment with the City of Los Angeles

The recommendations focus on paving the way for LADWP to better implement a “back to basics strategy” for the modernization

- This report helps to establish urgency through transparency on LADWP’s future needs, especially the need for resources to sustain LADWP’s internal labor-driven business model to meet the City’s goals.
- The focus on rebuilding all levels of management will create a powerful coalition, enabled by the new General Manager and senior team, to guide LADWP’s modernization.
- Addressing issues in Power Distribution, Water, and Customer Service help to improve the basics of modernizing a utility to support infrastructure investment, comply with regulatory mandates, and improve customer service.
- Focusing on performance metrics, O&M expenses, labor costs, and expense growth reinforces LADWP’s emphasis on cost control and fiscal discipline.
- Focusing on improving basic Human Resources processes, building a modern employee value proposition for all levels of management, listening more to all LADWP staff, and making smart IT decisions contribute to removing key obstacles for enabling the modernization of LADWP.

The recommendations will help LADWP better align with the City’s goals.
LADWP’s next steps

By the end of Fiscal Year 2020/2021:

1. **Improve power distribution**: Focus on multiple priorities that require the same skilled employees but current approach cannot keep up with the competing work (new business, outage management, capital replacement/modernization, compliance/maintenance). Address the plans, people, and execution to modernize:
   - Work with key stakeholders to define overarching KPIs to bring forward actions previously deemed infeasible, including impediments related to working time restrictions, HR, IT, MOU, and funding processes
   - Identify areas where Personnel/CAO/CLA actions or agreement are needed to address progress.

2. **Further develop the human resources processes to support long-term goals**
   - Evaluate short-run LADWP internal initiatives for effectuating change to better support hiring and staffing.
   - Address potential missing utility expertise in specialty skills (e.g., IT)
   - Create partnership with City Personnel to address hiring challenges that are controlled by the civil service process

3. **Use the Functional Total Cost Study to support the ITS Program**: Use this Study to help guide ITS funding, opportunities, and modernization. Consider staffing plans, hiring practices, job descriptions, and total compensation for IT professionals. Use the Study’s conclusions on underspending and understaffing in IT to support ITS initiatives

4. **Continue to evolve management at LADWP**: Improve management alignment through development. Start with a program focused on LADWP’s senior team. Cascade development efforts to all levels of management at LADWP

5. **Improve the management value proposition at LADWP**: Develop and implement a new value proposition for executives and all levels of management – address roles and responsibilities, career progression, and compensation
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Section 2 | Methodology
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</table>
Phase 2 study methodology and results
We employed both top-down and bottom-up approaches to this analysis combined with extensive joint discussion with LADWP’s staff and OPA.

Data and Analysis Approach

**Top down:**
- Total cost data benchmarking for all LADWP functions based on third party sources; filings to FERC and state regulators; and POU financial reports

**Bottom up:**
- Staffing ratios based on panels of 24 IOUs and 26 POUs at the employee level encompassing over 90K comparative staff; account-level analysis in FERC, state, and municipal level financial reports

Discussion and Review

- Consideration of LADWP’s uniqueness:
  - Input and discussion by all LADWP divisions from over 90 LADWP staff, including 7 District Superintendents and executive management team; extensive joint discussion between LADWP and OPA

Conclusions and Recommendations

- Provides baseline data and information on LADWP’s staffing, labor costs, and total costs by function
- Highlights areas for LADWP to consider for new improvement initiatives or to incorporate into existing initiatives, including a deeper dive into identified areas for further evaluation
- Provides context for discussion and decision-making for future rate actions

Of 17 key recommendations outlined in this report, nearly half support ongoing initiatives underway at the Department.
Phase 2 study: Buildup from data to conclusions

A deliberate approach by first analyzing the results of functional and financial comparisons and then socializing the output with LADWP SMEs for feedback and context. The team then jointly developed conclusions and recommendations.

- Extensive review with LADWP Executive Team to finalize list of recommendations
  - Identified most impactful and important recommendations to support LADWP in achieving its goals as well as helping to succeed with its modernization

- Feedback sessions with more than 90 LADWP SMEs, including 7 District Superintendents
  - Department-wide as well as function specific conclusions and recommendations developed from data, SME feedback, and joint discussions
  - Output from staffing, financial analyses as well as SME feedback provided main inputs into function specific summaries or “snapshots”
  - Output from data provided basis of discussions for what works well and what can improve at LADWP; provide context to results of analyses
  - SMEs provided input on how they think processes/functions can be improved

- Development of snapshots for 20 functions
  - Data lays foundation for providing baseline of LADWP staffing and costs
  - Results used to inform areas of discussion with SMEs; provides baseline for future year comparison

- Functional staffing, labor cost, total cost benchmarking; financial benchmarking from regulatory (FERC/CPUC) filings

17 overall conclusions and recommendations

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Total costs analyzed in this review
This study focused on controllable O&M and capital costs, which exclude bond costs, and purchased fuel/power/water costs

Total spend within scope and excluded costs
FY14–15, $M

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<th>Excluded costs</th>
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Focus of this review

Cost per electric customer: $487
Cost per electric customer: $803
Cost per water customer: $455
Cost per water customer: $1,028

Includes expenses such as payments to other utilities of jointly owned assets, insurance, reimbursements to Water/Power, property taxes, etc.

Source: LADWP FY14-15 annual appropriations and receipts, LADWP FERC/CPUC-account data, Oliver Wyman analysis
Note: Pensions and Benefits is abbreviated as P&B
Headcount at LADWP: Distribution of functions across organizations

This study analyzed all LADWP internal labor resources, classifying LADWP staff by industry standard functions. Nearly all functions at LADWP are centralized under their principal organization.

Number of FTE by function and organization at LADWP
Oct 2014 – Sep 2015

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<td>1,073</td>
<td>214</td>
<td>1,193</td>
<td>773</td>
<td>1,706</td>
<td>55</td>
<td>17</td>
<td>1,728</td>
</tr>
</tbody>
</table>

Source: LADWP employee census; extensive discussion and review between LADWP SMEs and Oliver Wyman
Note: (1) Due to allocation across functions and rounding, individual rows may not sum to total
Section 3 | Recommendation roadmap
## Contents

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D. Monitor progress
4 recommendations to monitor modernization performance

C. Evolve management
4 recommendations to help evolve LADWP management capabilities

B. Enable modernization
5 recommendations to better enable the path to modernization through Human Resources, Information Technology, and Operations Support

A. Improve core utility
4 recommendations to improve core utility businesses of Power, Water and Customer Service

Functional Total Cost Study
17 recommendations are presented across four topic areas
A. Improve core utility
Recommendations are presented in four areas

1. **Power Distribution**: Improve work planning and productivity, especially new business, replacement capital programs, outage response, and compliance and maintenance activities. Focus on people, including understaffed areas, organization, and processes. Determine key drivers of O&M cost in Power Distribution. Seek to understand and explain 4th quartile O&M expense position versus peers, but difficulty in completing planned work. Help support increasing staff levels or reallocating resources.


3. **Customer Service***: Address 4th quartile costs, especially with Water, and customer experience improvement needs. Improve end-to-end customer service functions, processes and handoffs, including refocusing efforts and costs.

4. **Capital Spend***: Ensure LADWP is getting “bang-for-the-buck” with capital spending in both Power and Water industry-leading modernization program. Compare LADWP Power and Water spend to best practices, including spending priorities and cost.

* Recommendations supporting ongoing initiatives at LADWP
B. Enable modernization

Recommendations are presented in five areas

1. (HR) Key HR Processes: Review and redesign key HR processes including hiring, staffing, advancement and training employees; address internal LADWP issues as well as interface with City Personnel. Consider reprioritization of human resources spend to support necessary staffing; perform an organizational study of HR function to possibly consolidate function

2. (HR) Integrated Human Resources Plan: Given its internal labor driven business model, LADWP will need to hire and staff to meet its goals. Develop a comprehensive, realistic, and utility-wide Integrated Human Resources Plan (IHRP) to support appropriate levels of increased hiring; provide a fact-based hiring roadmap

3. (HR) Understaffed Areas*: Perform deep dive examining staffing issues in specific functions across the organization. Examine functions identified with lower staffing levels versus peers. Multiple strategic functions and sub-functions at LADWP may lack sufficient internal resources

4. (IT) Support of Current Three-Year ITS Program*: Provide guidance on staffing plan, hiring practices, job descriptions, and total compensation for IT professionals. Use this study’s conclusions on underspending and understaffing in IT to support the Three Year ITS Roadmap

5. Operations Support Functions: Improve internal customer service and cost effectiveness
   a. Immediate focus on effectiveness of Purchasing and Materials Management (long cycle time; high cost)*
   b. Secondary focus on Fleet, Facilities, and Security due to service improvement potential and high cost. Evolve from being service providers to being more effective managers of support resources to improve results and mitigate costs
   c. Investigate opportunities in Environment and Safety (cost, compliance and reportables)

* Recommendations supporting ongoing initiatives at LADWP
C. Evolve management

Recommendations are presented in four areas

1. Management Alignment and Development: Evolve senior staff more to manage a complex and very large utility business. Encourage increased collaboration among executives to drive the modernization. Align Executive Team on priorities and necessary actions to modernize LADWP. Focus on shared goals among the senior leaders. Better develop LADWP’s managers by addressing leadership, roles and responsibilities, teaming across organization, and managing using metrics. Cascade development efforts to first line managers. Help all managers to drive necessary shifts in behaviors, culture, and work practices.

2. Utility-Level Metrics: Use a smaller set of shared executive-level Department-wide metrics (6 to 8) to manage LADWP. Place greater emphasis on managing O&M expenses and focusing on labor costs.

3. Management Value Proposition*: Develop and implement a new value proposition for executives and all levels of management – address roles and responsibilities, career progression, total compensation (including base compensation, appropriate incentives, and benefits). Develop an equitable incentive system for management and staff.

4. Labor-Related Resources*: Begin to address difficult questions on optimizing spending on internal labor and third-party resources. Evolve to better manage resources addressing base pay, OT and 3rd party use in a more coordinated manner. Strive to mitigate cost increases, especially O&M.

* Recommendations supporting ongoing initiatives at LADWP
D. Monitor progress
Recommendations are presented in four areas

1. **Employee Engagement**: Engage all employees of LADWP; listen to them and encourage them to contribute. LADWP has deep expertise and committed staff. Implementing a formal employee engagement effort has proven successful at improving performance in both private and public sectors. Develop and launch a formal employee engagement and follow-up program.

2. **Utility-Wide Functional Benchmarking**: Enhance the use of both (1) Department-wide and (2) functional-level benchmarking across LADWP. The use of benchmarks by managers provides useful input to manage work and costs, even for unique businesses. If not already doing so, encourage all divisions within LADWP to incorporate third-party benchmarks.

3. **Periodic Utility-Wide Studies**: Conduct periodic comprehensive utility-wide performance and benchmarking reviews for LADWP management and the Board. Periodically update key parts of this study - the next iteration should have a greater focus on performance metrics.

4. **Regulatory Accounts**: Provide better industry-standard information in the future. For the most part, LADWP is not subject to CPUC or FERC regulations. However, common industry formats mandated by FERC and CPUC are often used for comparison purposes. As LADWP proceeds with its ERP efforts, consider including data in common industry formats such as FERC and CPUC chart of accounts.

* Recommendations supporting ongoing initiatives at LADWP

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Section 4 | Recommendation detail
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Appendix 165
A1. Improve core utility business: Power Distribution
Power Distribution merits a deeper review to improve performance and cost

A1. Power Distribution

LADWP Performance Conclusions

- Feedback, especially from Power field staff, suggests that staff resources and hiring are insufficient to complete planned capital, operations, maintenance, compliance, and inspection work
- Power Distribution O&M expenses fall in the 4th quartile compared to IOUs
- Previous LADWP benchmarking efforts have also shown Power Distribution O&M expenses falling in the 4th quartile
- Between 2013-2018, compared to similarly sized national and western IOUs, reliability as measured by SAIDI/SAIFI are better while CAIDI typically is worse. LADWP’s SAIDI/SAIFI is typically better than PG&E and SCE, although its CAIDI is worse. Staffing issues may contribute to poorer CAIDI
- LADWP’s uniqueness (e.g., City work restrictions) and practices (e.g., LADWP’s operating districts) tend to drive O&M expenses higher
- A number of end-to-end process (e.g., new business) need to be addressed because they are not working well internally or for customers

Considerations, Issues, and Practices

- Continued 4th quartile expense performance suggests opportunities for improvement and the need for a deeper internal review of Power Distribution efforts. The LADWP Executive Team supports addressing issues in Power Distribution
- 4th quartile O&M expense, coupled with feedback that work cannot be completed, suggest examination of the root causes of LADWP’s position (e.g., high total cost but cannot get the work done)
- Like most utilities, LADWP will be challenged to control the growth of future Power Distribution O&M expenses; the labor-intensive business model only makes the situation more challenging
- Work issues present numerous challenges for utilities, including work, process, organizational, and technology issues. Too often issues result in short planning horizons, “firefighting”, rework on customer issues and commitments, growing backlogs of compliance and inspection work, productivity losses, work schedule disruptions, and lack of clarity around roles. Deferral of work will only make future costs grow even more. High CAIDI typically reflects planning and outage response execution issues
- Realistically, more staff resources are needed within Power Distribution until technological tools are adopted in the future

Recommendations

- Operating and maintaining Power Distribution systems: LADWP should perform a deep dive on these operations to understand the drivers of performance. Focus to improve work planning and productivity, especially new business, replacement capital programs, outage response, and compliance and maintenance activities. Focus on people, including understaffed areas, organization, and processes. Determine drivers of O&M cost in Power Distribution. Seek to understand and explain 4th quartile O&M expense position versus peers but difficulty in completing work. Help support increasing staff levels or reallocating resources

Impact of Recommendations

- Improving critical process, people, and technology dimensions for Power Distribution function typically delivers 5-10% sustainable improvement in productivity or value, and potentially much higher depending on the circumstances. A review helps support increasing staff levels or reallocating resources
- LADWP has significant opportunities. When examining efforts at other utilities, there have been improvements in new business efficiency of up to 50% in time to meet new service requests. If LADWP improved outage response to median, CAIDI could see up to 15% reduction (~20 minutes). Lastly, investigating $40M gap to 3rd quartile O&M expense may uncover reallocation opportunities

1. Reliability comparisons determined using the IEEE standard and exclude Major Event Days (MED)
2. Values are based on FY14/15 actuals and comparisons
A2. Improve core utility business: Water Transmission & Distribution

Water Transmission & Distribution merits a more limited review to improve planning and ongoing work

### A2. Water Transmission & Distribution

**LADWP Performance Conclusions**

- Feedback suggests that staff resources and hiring present challenges to complete planned work, particularly capital. Water is stretched but has action plans to mitigate impacts
- Water Transmission & Distribution O&M expenses fall in the 4th quartile compared to IOUs and 2nd quartile compared to POUs
- Operational metrics, such as leak rate, are not as widely accepted to compare across utilities; LADWP does know its most troublesome areas within its water system (Western District) and is working to correct them but it will take time
- LADWP’s uniqueness (e.g., City work restrictions) and practices (e.g., LADWP’s operating districts) tend to drive O&M expenses higher

**Considerations, Issues, and Practices**

- Continued possible 4th quartile O&M expense performance suggests opportunities for improvement and the need for a deeper internal review of Water Transmission & Distribution efforts and planning assumptions
- Like most utilities, LADWP will be challenged to control the growth of future Water O&M expenses; the labor-intensive business model only makes the situation more challenging
- LADWP has not performed extensive modern “time and motion” studies within Water in over 2 decades; performing these can validate assumptions and improve work planning and budgeting for the increasing numbers of projects that Water will execute in the coming years
- Water has well developed and ongoing plans to add internal staff resources to meet its future needs

**Recommendations**

- **Operating and maintaining Water Transmission & Distribution system:** Determine key drivers of O&M cost in Water Transmission & Distribution. Seek to understand and explain 4th quartile O&M expense position versus IOU peers. Develop more current set of assumptions to drive future strategies and plans (conduct modern “time-and-motion” studies)

**Impact of Recommendations**

- A review and update of cost drivers, assumptions and practices can only help improve Water’s performance
- A review provides additional factual basis for supporting Water’s ongoing efforts to increase staff levels
## A3. Improve core utility business: Customer Service

**Customer service has faced challenges and is beginning the path forward**

### A3. Customer service

#### LADWP Performance Conclusions

- Customer Service is making improvements using an internal labor-intensive, high total cost model, across the meter-to-cash functions. Total costs are in the 4th quartile.
- Costs attributed or allocated to the Water business are especially high. Water service costs fall in the 4th quartile.
- LADWP believes it is making progress in improving the customer experience (e.g., through its Customer Journey Mapping initiatives). LADWP’s residential brand and customer engagement research suggests consistent performance over the last few years, but also indicates room for improvement. Research from the American Customer Service Index suggests LADWP has made progress versus peers among residential customers. Among business customers, LADWP performs much better. LADWP was named a trusted brand from 2016 to 2018 by Cogent. In 2018, LADWP was ranked as the top utility in the Western region by business customers in Cogent’s annual survey.
- LADWP staff feedback highlights positive strides forward in a challenging environment. Staff note the local service focus (e.g., customer service centers in each community) drives costs higher. Staff also suggest further improvement will require additional hiring as well as greater technology use.
- Marketing, included as a function within the broader Customer Service category, supports LADWP with numerous efficiency and conservation programs at a competitive total cost.
- Customer Service areas may need a more balanced effort to improve customer satisfaction (i.e., potentially reducing emphasis on call wait time and providing more focus on technology, end-to-end inter-operation system information sharing, and self-service capabilities which would support first contact resolution, lower wait times, and increased front line customer support).

#### Considerations, Issues, and Practices

- LADWP will need to address the total costs of customer service. 3rd and 4th quartile total cost performance typically triggers a deeper review focused on investment needs and/or process improvement efforts.
- High total costs plus mixed customer satisfaction suggests a deeper review is required. The Department may be meeting short-term targets (e.g., improving speed of call answer by adding staff) but missing opportunities to both improve service and manage costs by not focusing on root causes (e.g., improved bill presentment, increased brand focus, enable first contact resolution and positively impact the customer experience).
- Digital transformation of the customer experience will require some functions to be rebuilt and others redesigned.
- LADWP should look for possible improvement in non-labor areas in the interim-period (e.g., call volume reductions; revenue, billing, collections enhancements; bill redesign).
- Leading utilities deliver demonstrated improvement in the customer experience while simultaneously reducing costs.

#### Recommendations

- **Improving customer service:** LADWP should seek to improve end-to-end meter to cash functions, processes, systems, and handoffs, including results and cost. Address 4th quartile costs, especially with Water. Implement customer experience improvement needs. In the short-term, LADWP should take advantage of any “quicker wins” focused on non-labor measures to better service performance and to allow for future cost management.

#### Impact of Recommendations

- “Step change” improvement has occurred in utility customer service by taking an “end-to-end” approach.
- Advanced analytics applied smartly (e.g., quickly developed tools and solutions that can be applied now) have also been successfully implemented to identify and target “quick wins” with call/service volume, metering, billing, and collections issues and errors, especially with larger customers.
A4. Improve core utility business: Capital spend

LADWP is on the right path forward to replace and upgrade its aging power and water infrastructure to enable growth. Given the magnitude of the spend, LADWP must focus some effort on ensuring it delivers an appropriate “bang-for-the-buck” with its capital investment program.

### A4. Capital Spend

#### LADWP Performance Conclusions
- Compared to both IOU and POU peers, LADWP has one of the largest capital programs in the industry. LADWP invests, on a per customer basis, as much if not more than other utilities in power and water capital programs.
- Both Power and Water have initiatives underway to improve capital spend decision-making and asset management. Given the scale of the efforts, it is imperative that the Department ensures that capital spending is cost-effective and productive.
- LADWP tends to underspend its capital budgets in both the power and water businesses.
- Initiatives are just beginning to better understand and manage productivity (e.g., installation rates) and unit cost for capital-related projects, including measures in the Rates Metrics.
- Feedback from Power employees suggest a focus on investment but internal staff hiring is not sufficient to keep up with investment goals. Water staff believe significant hiring will be required to meet goals.

#### Considerations, Issues, and Practices
- Impact and value of capital spending can improve by ensuring that best practices are being leveraged effectively.
- Lowering unit costs are a major focus of many utilities. Lowering unit costs represents a significant challenge due to historic utility practices which commonly result in the opposite outcomes of increased capital cost and lower work productivity (e.g., challenges involving design standardization, lack of prioritization, project management and work coordination, budgeting, overhead allocations, supply chain/cost, and lack of work/financial information).
- Better processes and information, enabled by IT systems, help support improvement initiatives. Investment in simple tools for personnel to be more efficient are crucial to achieve goals even as hiring continues.

#### Recommendations
- **Capital spend optimization**: LADWP should ensure it incorporates best practices in its capital spending plan and execution. Ensure LADWP is getting “bang-for-the-buck” with capital spending in both Power’s and Water’s industry-leading modernization program. Compare LADWP Power and Water spend to best practices, including spending priorities and cost. The Department should perform a diagnostic to highlight focus areas which typically include cost driver analysis, risk assessment, capital project management, design, work management, and contractor usage.

#### Impact of Recommendations
- Implementing best practices for capital programs, especially investments that allow people to work smarter, not harder, at utilities has shown to produce lower unit costs, the ability to perform more capital work for the same budget, shorter project completion schedules, and improved adherence to customer commitments.
B1. Enable modernization: Human Resources

Providing talent for LADWP’s internal labor-focused business model may represent the most important strategic issue for LADWP; some areas require close coordination with the City

B1. Key Human Resources processes

LADWP Performance

Conclusions

- LADWP’s end-to-end hiring and retention processes are full of complexities along many stages and steps. For an internal labor-intensive business model, these processes represent critical issues to sustain and modernize LADWP
- Human Resource functions are scattered organizationally throughout LADWP. Additionally, the City performs critical functions for LADWP. Total costs of HR functions at LADWP are above median, but LADWP’s central HR staffing level is below median
- Numerous DDR descriptions (generally developed by the City) are outdated and do not accurately reflect the required skills and capabilities of a large, complex utility
- General staff feedback across LADWP suggests the central HR function supports the Systems to the best of its ability due to the barriers it faces (e.g., numerous MOUs, reliance on City Personnel, etc.). Internal customers of HR believe improving the function could represent the #1 priority to meet LADWP’s goals

Considerations,
Issues, and
Practices

- Most utilities have completed deep reviews of HR functions, and have often consolidated them to improve strategic HR capabilities, service, and cost
- Total HR costs are above median. LADWP may need to reprioritize HR spend in order to focus finite resources to improve performance and support the internal labor-driven business model
- Timing appears good to address processes to improve talent management as it is supported by the LADWP Executive Team, the Commissioners, aligns with the recommendations from the City’s Controller (2018 Hiring report) as well as efforts to improve and modernize the hiring process and job descriptions at the City’s Personnel Department
- LADWP should both focus on improving its internal HR processes (e.g., training non-HR staff as to hiring requirements) as well as working jointly to improve processes with City Personnel
- Hiring, staffing organizations, retaining, and transferring employees most likely represent the most critical processes for LADWP’s business model

Recommendations

- **Improving the hiring and staff movement processes:** LADWP will require significant incremental hiring to meet its business goals. LADWP should review and redesign key HR processes including hiring, staffing, advancement and training employees; address internal LADWP issues as well as interface with City Personnel. Consider reprioritization of human resources spend to support necessary staffing; perform an organizational study of HR function to possibly consolidate function

Impact of
Recommendations

- Well functioning talent and human resource processes are the lifeblood of higher performing service organizations, including leading utilities
- Focus can improve LADWP’s HR processes and create a more effective HR organization, thereby providing the staffing resources for the internal-labor focused business model
- Focus could help better allocate O&M expense: investigate $5M gap to 3rd quartile total cost¹ (excludes training staff cost)

¹. Values are based on FY14/15 actuals and comparisons
## B2. Integrated Human Resources Plan

**LADWP Performance Conclusions**

- More staff is needed across many functions at LADWP, net of retirements, to align the internal labor-intensive business model with goals. Planning for the future will be greatly enhanced by a comprehensive, realistic, and LADWP-wide Integrated Human Resources Plan (IHRP).
- Similar to other utilities, multiple functions at LADWP are in need of change. Modernization levers include increasing staffing, upgrading technology, and improving governance and management skills.

**Considerations, Issues, and Practices**

- Leading utilities are actively engaged in comprehensive workforce planning and workforce of the future reviews.
- This Functional Total Cost Study highlighted significant future staffing needs at LADWP, net of potential retirements, to meet future goals.

**Recommendations**

- **Hiring and staffing to meet goals**: Given its internal labor driven business model, LADWP will need to hire and staff to meet its goals. *Develop a comprehensive, realistic and utility-wide Integrated Human Resources Plan (IHRP) to support appropriate levels of increased hiring; provide a fact-based hiring roadmap.*

**Impact of Recommendations**

- Specifically at LADWP, a comprehensive IHRP will help shape future workforce planning, financial planning, and rates decision-making.

## B3. Understaffed areas

**LADWP Performance Conclusions**

- There are a number of areas that should be a priority in the hiring process to support modernization efforts, including the hiring of senior professionals.
- This Study identified staffing needs in specific functions and sub-functions (e.g. Corporate Safety, Power Distribution Line Crews, Water O&M personnel, IT, Rates, etc.).
- The Corporate HR organization appears understaffed, even though the overall HR function has high staffing levels.
- Recent initiatives (e.g., broader position budgeting, allowing the GM to better allocate new positions) are steps in the right direction.

**Considerations, Issues, and Practices**

- At LADWP, understaffing should be confirmed, prioritized, and then incorporated into plans.
- In technical areas where training and advancement heavily depend on learning from the experience of others, it is imperative to identify and ensure succession plans are in place years in advance.
- Areas of understaffing may be addressed by re-allocation of existing resources which may require some retraining of staff.

**Recommendations**

- **Staffing in specific-functions**: Perform deep dive examining staffing issues in specific functions across the organization. *Examine functions identified with lower staffing levels versus peers. Multiple strategic functions and sub-functions at LADWP may lack sufficient internal resources (we would expect LADWP to have above median staffing in many of these functions).*

**Impact of Recommendations**

- Appropriate staffing, especially in critical areas, leads to increased efficiency across the organization and can improve overall utility performance.
B4. Enable modernization: Information Technology
LADWP needs to build and develop significant IT capabilities

B4. Building Information Technology infrastructure

<table>
<thead>
<tr>
<th>LADWP Performance Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Information Technology represents a work in progress to better support the future goals of LADWP</td>
</tr>
<tr>
<td>• The IT function responds as well as can be expected to the needs of LADWP, especially when considering the antiquated nature of LADWP’s IT infrastructure</td>
</tr>
<tr>
<td>• IT total costs and core staffing are below median against utility peers. Given LADWP’s internal labor-focused model, expectations suggest much higher levels of staffing versus peers in these critical functions. Additional resources in key areas are most likely required to support evolving IT plans</td>
</tr>
<tr>
<td>• LADWP has reorganized its IT functions to enhance its technology and cyber security posture</td>
</tr>
<tr>
<td>• Discussion indicate that internal users believe IT tries hard to support the Department. Both users and IT staff believe that IT needs more resources to be effective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considerations, Issues, and Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>• LADWP rolled out its Three Year ITS Roadmap in June 2019 highlighting its mission, strategies, initiatives and projects, and intent to increase staffing by over 30% in the near-term</td>
</tr>
<tr>
<td>• LADWP is taking action, especially organizationally and with its new strategic plan. The Systems recognize that IT is working to support them but are limited by constraints of the aging infrastructure</td>
</tr>
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<table>
<thead>
<tr>
<th>Recommendations</th>
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<tbody>
<tr>
<td>• <strong>Build information technology infrastructure</strong>: LADWP must upgrade its IT infrastructure to underpin any modernization. The Department should use this benchmarking program to provide guidance on staffing plans, hiring practices, job descriptions, and rewards for IT professionals. Use this Study’s conclusions on underspending and understaffing in IT to support the Three Year ITS Roadmap</td>
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<tr>
<th>Impact of Recommendations</th>
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<tbody>
<tr>
<td>• Effective execution and implementation of LADWP’s IT strategy is crucial to achieving the Department’s goals; upgraded IT infrastructure helps with O&amp;M expense management</td>
</tr>
<tr>
<td>• Building upon best practices helps create a modern utility IT function; attracting and retaining new skilled IT staff is critical to LADWP’s success</td>
</tr>
<tr>
<td>• LADWP has 2nd quartile total IT cost with a $60M gap to median(^1). LADWP’s needs to ensure it makes sound choices on a planned 80% increase in spend on staff and services</td>
</tr>
</tbody>
</table>

\(^1\) Values are based on FY14/15 actuals and comparisons
### LADWP Performance Conclusions

- Operations Support functions (e.g., Facilities, Fleet, Purchasing, Safety, Security, and Environmental) are driven by the needs of the Power and Water Systems. Nearly all provide service at a relatively high total cost relative to utility peers.
- Operations Support functions currently operate more as service organizations whose expertise is not leveraged as much as it could be.
- Feedback from Operations Support staff indicate they believe they could be much more effective if given the chance (e.g., involved more upfront in project planning that needs their support; greater shared responsibility and decision making).
- Internal customers believe the service levels could improve, especially areas such as Fleet (e.g. getting the vehicles that internal customers need) and Procurement (e.g., reducing RFP time significantly from release to award which currently can be over a year).

### Considerations, Issues, and Practices

- In the future, LADWP will most likely need to transition Operations Support functions from “service providers” to “service managers” to balance service levels and cost.
- LADWP’s Operations Support areas could become more effective and efficient through the use of an improved operational decision making-process; service levels should be a focus as well to ensure meeting internal customer expectations.
- Most utilities have emphasized addressing periodically performance and cost issues with operations and shared services.
- Should LADWP’s future hiring accelerate, appropriate support will have to follow (e.g., appropriately more facilities, support personnel and vehicles).
- The new General Manager has pushed an improvement effort to reduce Procurement RFP time from issuance to contract execution; the goal is to reduce cycle time from the current 12+ months to less than 6 months but achieving this target is reliant on developing automation capabilities within the function that currently is not used.

### Recommendations

- **Managing Operations Support functions. Improve internal customer service and cost effectiveness:**
  - Immediate focus on effectiveness of Purchasing and Materials Management (long cycle time; high cost).
  - Secondary focus on Fleet, Facilities, and Security due to service improvement potential and high cost. Evolve from being service providers to being more effective managers of support resources to improve results and mitigate costs.
  - Investigate opportunities in Environment and Safety (cost, compliance, and reportables).
- **No overall recommendations are made concerning Shared Services functions (e.g., Finance, External Relations and Communications, Rates and Regulatory Affairs, and Legal); see sub-function staffing detail for sub-function staffing issues.**

### Impact of Recommendations

- Improvements in performance, better spending prioritization, and cost mitigation typically results from reviews of Operations Support functions.
- Invariably more “two-way give-and-take” occurs in relationships and decision-making when shifting to a service management model.
C1. Evolve Management: Management alignment and development
LADWP could improve capabilities to manage its very large and complex utility business

<table>
<thead>
<tr>
<th>C1. Management alignment and development</th>
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<tbody>
<tr>
<td><strong>LADWP Performance Conclusions</strong></td>
</tr>
<tr>
<td>• Executive Management tries to meet the needs of the Systems by providing leadership and guidance to achieve goals as well as manage stakeholder expectations and issues</td>
</tr>
<tr>
<td>• There is high turnover with the General Manager position at LADWP. Turnover at the top may also have ripple effects as the senior team is reshuffled. Management turnover impacts both short and long-term initiatives to modernize the utility</td>
</tr>
<tr>
<td>• LADWP historically has had a somewhat siloed organization</td>
</tr>
<tr>
<td>• There has not been enough effort recently to build and strengthen middle and lower level management</td>
</tr>
<tr>
<td>• Some of the required alignment to achieve LADWP’s goals among business strategy, people, and supporting infrastructure is visible now; other pieces are a “work in progress”</td>
</tr>
<tr>
<td>• There does not appear to be a comprehensive Department-wide development program for managers or executives to set the stage for the energy transition. Water has devoted time recently to its management development effort</td>
</tr>
<tr>
<td>• Like many utilities, LADWP is evolving. A near-term utility-wide management development effort focused on performance management using shared metric goals (common examples include OSHA reportables, controllable O&amp;M growth, RPS targets, financial or coverage ratios, etc.) could help improve focus, alignment and quicken modernization</td>
</tr>
<tr>
<td>• Many facets of LADWP will change as the power and water markets evolve. Modernization will occur at LADWP overall as well as for many of its specific functions. Any ERP initiative will require a business process transformation effort</td>
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<tr>
<th><strong>Considerations, Issues, and Practices</strong></th>
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<tbody>
<tr>
<td>• In order to successfully evolve into a digital, clean power supplying utility, LADWP will need to ensure it has the right managers at the right places (senior and lower levels) with the right skills and capabilities to lead those efforts</td>
</tr>
<tr>
<td>• Utilities are becoming more reliant on cross functional collaboration as they evolve and improve; closer teaming at the executive level may set an example for the rest of the organization to emulate</td>
</tr>
<tr>
<td>• LADWP has the opportunity to take advantage of a new GM and Executive Team to build a high functioning senior management team and reinvigorate its middle and first line management. LADWP’s Executives strongly believe that strengthening all levels of the management team is required for the utility’s success</td>
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<table>
<thead>
<tr>
<th><strong>Recommendations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Management Alignment and Development</strong>: Evolve senior staff more to manage a complex and very large utility business. Encourage increased collaboration among executives to drive the modernization. Align Executive Team on priorities and necessary actions to modernize LADWP. Focus on shared goals among the senior leaders. Better develop LADWP’s managers by addressing leadership, roles and responsibilities, teaming across organization, and managing using metrics. Cascade development efforts to first line managers. Help all managers to drive necessary shifts in behaviors, culture, and work practices</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Impact of Recommendations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Across industries, stronger management teams have developed superior organizations and staff plus delivered better customer, operating, and financial performance</td>
</tr>
<tr>
<td>• It is not unreasonable that LADWP could realize O&amp;M savings of $500M+ over 10 years through better management while executing its modernization program</td>
</tr>
</tbody>
</table>
C2. Evolve Management: Utility level metrics

Overall, LADWP has performed reasonably well. More focus should occur on a short list of shared metrics, including O&M and labor costs.

<table>
<thead>
<tr>
<th>LADWP Performance Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• LADWP collects and reports on numerous metrics (over 50 for Rate metrics alone) which increases complexity for use by the Executive Team to run the utility</td>
</tr>
<tr>
<td>• Senior managers use their own metrics in their portion of the business. Performance issues are brought up by individual managers: shared ownership from the beginning occurs less frequently than it should</td>
</tr>
<tr>
<td>• LADWP’s utility size and its operating environment (e.g., service territory, congestion, municipal structure, unionization, etc.) make it unique. These unique elements taken together provide some basis as to why LADWP has higher capital costs and O&amp;M expenses than other utilities</td>
</tr>
<tr>
<td>• LADWP has maintained competitive power and water rates and bills</td>
</tr>
<tr>
<td>• Similar to previous benchmarking efforts, LADWP has near median power O&amp;M expenses (excluding fuel and purchased power, and pensions &amp; benefits). Water O&amp;M expense levels (excluding purchased water and pensions &amp; benefits) are above median. LADWP has managed the growth of both power and water O&amp;M expenses well</td>
</tr>
<tr>
<td>• Currently, LADWP reports O&amp;M and capital spending on a monthly basis by categories based on rate, not management classifications (e.g., “pass-through” and “non-pass through” categories)</td>
</tr>
<tr>
<td>• LADWP employs a unique internal labor-driven business model to deliver capital work as well as operate and maintain the power and water systems. LADWP uses more internal labor than others</td>
</tr>
<tr>
<td>• Given LADWP’s internal labor-intensive business model, it is not surprising that its staffing levels are high compared to power and water IOU and POU peers. It also follows that LADWP’s total labor costs fall in the 4th quartile</td>
</tr>
<tr>
<td>• Labor metrics adopted during the latest full rate action represent a good start</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considerations, Issues, and Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Successful utilities have developed a short list (6-8 shared metrics) that are linked to the overall strategy and on which the Executive Team jointly manages to improve performance</td>
</tr>
<tr>
<td>• The challenge will be to continue making good tradeoff decisions between investment, operations and maintenance, customers service, and rates and bills during the transition to renewables and execution of major capital programs</td>
</tr>
<tr>
<td>• Leading utilities are targeting minimal or zero growth in controllable O&amp;M expenses. An upgraded IT infrastructure helps with O&amp;M expense mgmt.</td>
</tr>
<tr>
<td>• Providing enough internal labor to execute the capital plan while controlling labor-driven O&amp;M expense present future challenges given LADWP’s business model. Easier fixes (e.g., capitalize more costs while abiding by approved accounting standards) will appear less often in the future; harder choices most likely will need to be made</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Utility-Level Metrics:</strong> Use a smaller set of shared executive-level Department-wide metrics (6 to 8) to manage LADWP. Place greater emphasis on managing O&amp;M expenses and focusing on labor costs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact of Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Focusing collectively as a management team on a short-set of metrics, including controllable O&amp;M expenses, has proven invaluable to managing a large utility business effectively</td>
</tr>
<tr>
<td>• Focusing and reporting controllable O&amp;M expenses also had shown to improve the credibility of the management team that they know how to effectively run a utility business (e.g., credibility with bond rating agencies)</td>
</tr>
</tbody>
</table>
### C3. Evolve Management: Management value proposition

LADWP should focus greater effort on attracting, developing and retaining managers at all levels

#### C3. Management value proposition

| LADWP Performance Conclusions | • LADWP is the largest municipal utility in the country but their executives have lower base and total compensation than smaller peers (e.g., SMUD, CPS); LADWP also lacks a performance based value proposition for its executives to attract and retain talent  
• Compensation of managers is comparatively low relative to peers and there are also disincentives to become managers at LADWP (e.g., restricted OT use, different benefits between MOUs, etc.)  
• The Department lacks a clearly defined management development path for executives and lower/middle management; some areas of the LADWP have clear career paths but others do not  
• LADWP’s has only 1st quartile spending on the leadership team  
• Mid- and first-line managers have unclear roles, responsibilities, expectations, and career paths  
• As a utility, LADWP has diminished incentives to become and develop as a manager  
• LADWP has below median total rewards for manager classes |
| --- |

| Considerations, Issues, and Practices | • Addressing “people related issues” such as ensuring employees know they are valued, having salaries/benefits that reflect their position/stature within the organization, are critical in order to help evolve and improve LADWP  
• Nearly one-third of public utilities have some sort of performance based value proposition and that number will likely grow  
• In some instances, the “right” people are not making the transition to managers due to lack of respect at lower levels and total compensation related issues (higher cost of benefits, loss of OT) so to fill those roles less suited candidates are being selected  
• There is broad agreement within all levels of LADWP management and among the Commissioners that the management value proposition is a difficult but important topic to address |
| --- |

| Recommendations | • **Management Value Proposition**: LADWP should develop and implement a new value proposition for executives and all layers of management, which address roles and responsibilities, career progression, rewards (including base compensation, appropriate incentives, and benefits). Develop an equitable incentive system for management and staff |
| --- |

| Impact of Recommendations | • All industries aim to attract the best talent for leadership using a combination of incentives such as a strong culture, professional development and satisfaction, opportunities for advancement, and financial compensation  
• Creating an “LADWP Value Proposition” would allow the utility to offer a competitive total rewards package. LADWP would have an enhanced ability to attract, retain, and develop senior, mid-, and first line managers  
• Small increases in the value proposition may help significantly. For example, moving to “market” cash compensation for higher paid positions would require additional spending of ~$6M+ for ~500 staff (or 0.5% of all cash compensation at LADWP)¹ |
| --- |

---

¹ Values are based on FY14/15 actuals and comparisons
C4. Evolve Management: Labor-related resources
LADWP should focus more on optimizing the balance between internal labor and third-party resources. These will be challenging topics to address.

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<thead>
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<tbody>
<tr>
<td>• LADWP’s salaries at the lower end (e.g., employees making &lt;$100K), which represent the bulk of employees, are well above peers. This structure aligns with the City’s general equity goals</td>
<td>• Overtime eligibility and pay at LADWP are well above peers</td>
<td>• Considerable variation exists in the use of outside services by function. The City’s outsourcing strategy is defined and carried out by Charter provisions</td>
<td></td>
</tr>
<tr>
<td>Considerations, Issues, and Practices</td>
<td></td>
<td>• OT is often used for core ongoing work given staffing shortages (MOU conditions)</td>
<td></td>
</tr>
<tr>
<td>• LADWP does not proactively consider these issues – base salary, OT and outside services - together to manage total costs</td>
<td></td>
<td>• The latest agreements may only increase overtime costs</td>
<td></td>
</tr>
<tr>
<td>• Many utilities use managing base compensation, optimizing overtime, and employing third-party services as important levers to manage costs, especially O&amp;M...LADWP needs to work with stakeholders on addressing these issues, including the City and organized labor on labor and contracting issues</td>
<td></td>
<td>• Managing overtime is a key lever to control overall O&amp;M expenses</td>
<td></td>
</tr>
<tr>
<td>• Small steps in all of these areas may be beneficial to help manage labor costs going forward</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>• There are two sides to this issue. On one hand, LADWP pays above market to the majority of its employees, most of which fall at lower pay levels. On the other hand, LADWP’s policies provide greater pay equity in its compensation system than peers</td>
<td></td>
<td>• Other utilities have increased their use of outside services as a useful lever to manage performance, quality, and cost</td>
<td></td>
</tr>
<tr>
<td>Recommendations</td>
<td>• Managing base cash compensation: LADWP should at least analyze and discuss how changes to the base compensation system might help manage labor costs going forward</td>
<td>• Addressing overtime costs: Given LADWP’s internal labor-intensive business model, future management initiatives, training, and MOUs will most likely need to address the role of overtime in managing labor costs</td>
<td>• Considering the use of third-party services: LADWP follows an internal labor-intensive business model. LADWP should continue to take advantage of attractive opportunities to use third-party services in order to execute work that cannot be completed by internal resources</td>
</tr>
<tr>
<td>• As a collaborative management team, begin to address difficult questions on optimizing spending on internal labor and third-party resources. LADWP should address lower level pay, OT use, and third-party services together, striving to mitigate cost increases, especially O&amp;M</td>
<td></td>
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</tbody>
</table>

Impact of Recommendations
• Focus and even small changes to strategies and policies in these areas have proven successful at utilities to better manage costs
D1. Monitor progress: Employee engagement

LADWP should engage its employees more, by listening to them and encouraging them to contribute

<table>
<thead>
<tr>
<th>LADWP Performance Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• This Study strongly suggests that LADWP has a knowledgeable and dedicated workforce doing the best it can despite resource limitations. LADWP could benefit from launching a formal employee engagement effort to regularly solicit input from employees and gauge the morale of employees.</td>
</tr>
<tr>
<td>• Of the staff that we engaged on this study – most of whom are middle management - many thanked the team for reaching out and asking their thoughts and ideas on performance, labor costs, and total costs in their functional areas.</td>
</tr>
<tr>
<td>• There does not seem to be a consistent and Department-wide communications and engagement approach at LADWP. Some areas appear more proactive than others, with the view that engaging employees helps to maintain pride in the utility and morale.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considerations, Issues, and Practices</th>
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</thead>
<tbody>
<tr>
<td>• Leading private and public firms and organizations have embraced employee engagement as a key level to execute strategy and achieve goals. The results of such programs enable more targeted efforts (e.g., different approaches to line employees vs. middle management) to incentivize employees which can involve a variety of levers to more effectively motivate the workforce.</td>
</tr>
<tr>
<td>• Employees in both public and private organizations that are considered “great places to work” share a number of common beliefs about their work experiences. They (1) trust the organization is helping them reach their full potential, (2) believe they experience the organization’s values on a daily basis, (3) believe in their ability to contribute new ideas, and (4) positively view the effectiveness of their leaders. Organizations develop talent and human resource policies and programs to foster these beliefs. Employee surveys are often used as one element to better understand employee beliefs and engagement as well as identify issues and gaps.</td>
</tr>
<tr>
<td>• Companies ranked as the “best places to work” generally all have engagement efforts in place. Leading utilities have active engagement programs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Engaging employees</strong>: LADWP has a great opportunity to leverage the capabilities of its staff to drive performance and modernization. <strong>LADWP should better engage all employees of LADWP; listen to them and encourage them to contribute.</strong> LADWP has deep expertise and committed staff. Develop and launch a formal employee engagement survey and follow-up program.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact of Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Employee engagement has proven to be a strong performance lever both in the private and public sectors. Greater employee engagement has produced improvements in productivity, customer service, and safety as well as lower employee turnover and absenteeism.</td>
</tr>
</tbody>
</table>
D2-4. Monitor progress: Benchmarking and studies
LADWP should enhance its benchmarking efforts to surface and adopt best practices from others

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>• Benchmarking against peers does not permeate the organization</td>
<td>• LADWP does not conduct periodic internal reviews of its performance</td>
<td>• LADWP’s current financial system does not produce information that is easy to compare to peer utilities</td>
<td></td>
</tr>
<tr>
<td>• Common response from LADWP regarding peer comparison highlight how LADWP is different and unique from others and emphasize difficulty in using benchmarks</td>
<td>• Overall reviews are externally-driven (e.g., Industrial, Economic, and Administrative (IEA) Survey, Rates Metrics requested by the OPA, etc.)</td>
<td>• A great amount of effort and time went into preparing LADWP data which includes comparable costs (including labor and non-labor) for this and previous benchmarking studies like the one in 2015</td>
<td></td>
</tr>
<tr>
<td>• Functions such as Fleet and IT are in the minority who use 3rd party benchmarks to gauge performance relative to peers</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Considerations, Issues, and Practices</th>
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</thead>
<tbody>
<tr>
<td>• Leading investor-owned and municipal utilities have embraced benchmarking widely. There are numerous well respected organizations to participate with for benchmarking purposes</td>
</tr>
<tr>
<td>• Effective managers embrace benchmarking efforts as another information source to improve performance. The modest time and money is typically very well spent</td>
</tr>
<tr>
<td>• Leading utilities embed benchmarking into their ongoing activities at a functional level</td>
</tr>
<tr>
<td>• A number of utility management teams use these types of periodic internal reviews to better understand their performance and communicate to stakeholders</td>
</tr>
<tr>
<td>• Leading utilities often conduct reviews like this Functional Total Cost Study periodically (e.g., every 3-5 years or to support rate actions)</td>
</tr>
<tr>
<td>• Data that is easily and repeatably extracted from financial system over years without needing “someone who did it last time” is key to accurately tracking performance over time as well as comparing to peers</td>
</tr>
<tr>
<td>• Past and current benchmarking efforts have required LADWP to develop capital and O&amp;M data in common industry formats. Providing this type of data is not an easy process given LADWP’s old financial system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Utility-wide functional benchmarking: Enhance the use of both (1) Department-wide and (2) functional-level benchmarking across LADWP. The use of benchmarks by managers provides useful input to manage work and costs, even for unique businesses. If not already doing so, encourage all divisions within LADWP to incorporate third-party benchmarks</td>
</tr>
<tr>
<td>• Periodic Utility-Wide Performance Studies: Conduct periodic comprehensive utility-wide performance and benchmarking reviews, including Joint Compensation studies, for LADWP management and the Board. Periodically update key parts of this study; the next iteration should have a greater focus on performance metrics</td>
</tr>
<tr>
<td>• Regulatory Accounts: Provide better industry-standard information in the future. For the most part, LADWP is not subject to CPUC or FERC regulations. However, common industry formats mandated by FERC and CPUC are often used for comparison purposes. As LADWP proceeds with its ERP efforts, consider including data in common industry formats such as FERC and CPUC chart of accounts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact of Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Using benchmarks has consistently helped utilities identify opportunities for improvement and shape internal improvement efforts (e.g., such as those contemplated in the next phase of LADWP’s benchmarking program)</td>
</tr>
<tr>
<td>• Incorporating information based on industry-standard chart of accounts into the new financial systems design will benefit LADWP in conducting benchmarking against peers who are regulated by FERC and the CPUC</td>
</tr>
</tbody>
</table>
Section 5  Staffing and Productivity Highlights
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<td>4</td>
<td>Recommendation detail</td>
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<td>5.B</td>
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<td>Appendix</td>
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<td>165</td>
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</tbody>
</table>
Section 5.A | Total cost and performance
Electric rates
Overall LADWP has historically maintained competitive electric rates compared to California peers for both residential and system averages

Electric rates – residential average
FY15-FY19, California IOUs and POUs, cents per kWh

Electric rates – system average
FY15-FY19, California IOUs and POUs, cents per kWh

Source: 2019 LADWP Interim Rate Review
© Oliver Wyman
Water rates
Overall LADWP has historically maintained competitive water rates compared to California peers for both residential and system averages.

Water rates – residential average
FY15-FY19, California IOUs and POUs, $ per HCF

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Water rates – system average
FY15-FY19, California IOUs and POUs, $ per HCF

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>4</td>
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</tr>
<tr>
<td>2017</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

Source: 2019 LADWP Interim Rate Review
© Oliver Wyman
Average monthly bill
LADWP continues to deliver competitive power and water bills compared to California peers

Comparative residential monthly bill – Power
2018, $, California utilities (500 kWh)

<table>
<thead>
<tr>
<th>Utility</th>
<th>Monthly Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>LADWP</td>
<td>$86</td>
</tr>
<tr>
<td>SMUD</td>
<td>$71</td>
</tr>
<tr>
<td>Burbank</td>
<td>$83</td>
</tr>
<tr>
<td>Riverside</td>
<td>$84</td>
</tr>
<tr>
<td>SCE</td>
<td>$87</td>
</tr>
<tr>
<td>Anaheim</td>
<td>$87</td>
</tr>
<tr>
<td>PG&amp;E</td>
<td>$103</td>
</tr>
<tr>
<td>Glendale</td>
<td>$105</td>
</tr>
<tr>
<td>SDG&amp;E</td>
<td>$126</td>
</tr>
</tbody>
</table>

Comparative residential monthly bill – Water
2018, $, California utilities (10 HCF)

<table>
<thead>
<tr>
<th>Utility</th>
<th>Monthly Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>LADWP</td>
<td>$63</td>
</tr>
<tr>
<td>Greater LA (Cal Water)</td>
<td>$67</td>
</tr>
<tr>
<td>San Jose (SJC)</td>
<td>$71</td>
</tr>
<tr>
<td>San Diego</td>
<td>$77</td>
</tr>
<tr>
<td>San Francisco</td>
<td>$92</td>
</tr>
<tr>
<td>Santa Barbara</td>
<td>$133</td>
</tr>
<tr>
<td>Santa Monica</td>
<td>$39</td>
</tr>
<tr>
<td>Torrance</td>
<td>$40</td>
</tr>
<tr>
<td>Pasadena</td>
<td>$42</td>
</tr>
<tr>
<td>Long Beach</td>
<td>$44</td>
</tr>
<tr>
<td>Burbank</td>
<td>$46</td>
</tr>
<tr>
<td>Glendale</td>
<td>$51</td>
</tr>
<tr>
<td>Arcadia (GSW)</td>
<td>$54</td>
</tr>
<tr>
<td>Simi Valley (GSW)</td>
<td>$54</td>
</tr>
<tr>
<td>Culver City (GSW)</td>
<td>$56</td>
</tr>
<tr>
<td>East LA (Cal Water)</td>
<td>$56</td>
</tr>
<tr>
<td>EBMUD</td>
<td>$61</td>
</tr>
<tr>
<td>Beverly Hills</td>
<td>$63</td>
</tr>
</tbody>
</table>

Source: 2019 LADWP Interim Rate Review
Note: Comparative residential annualized power and water bills exclude tax. Power is based on 500 kWh per month and water is based on 10 HCF per month as of January 2018; Golden State Water (GSW), San Jose Water Corporation (SJC)
LADWP costs
Calculations used for LADWP’s capital and O&M metrics in the following slides are outlined below

**Power metric calculations**

\[ \text{Labor cost per customer} = \frac{\text{Labor spend}}{\text{Electric customers}} \]
\[ = \frac{\$472,366,936}{1,493,000} = \$316/\text{cust} \]
\[ \text{Non – labor cost per customer} = \frac{\text{Non – labor spend}}{\text{Electric customers}} \]
\[ = \frac{\$552,068,293}{1,493,000} = \$370/\text{cust} \]
\[ \text{Total cost per customer} = \frac{\text{Total spend}}{\text{Electric customers}} \]
\[ = \frac{\$1,024,435,228}{1,493,000} = \$686/\text{cust} \]

**O&M**
\[ \text{O&M Capital} \]
\[ = \frac{\$334,609,488}{1,493,000} = \$224/\text{cust} \]
\[ \text{O&M} \]
\[ = \frac{\$472,366,936}{1,493,000} = \$316/\text{cust} \]
\[ \text{Non – labor cost per customer} = \frac{\text{Non – labor spend}}{\text{Electric customers}} \]
\[ = \frac{\$552,068,293}{1,493,000} = \$370/\text{cust} \]
\[ \text{Total cost per customer} = \frac{\text{Total spend}}{\text{Electric customers}} \]
\[ = \frac{\$1,024,435,228}{1,493,000} = \$686/\text{cust} \]

**Water metric calculations**

\[ \text{Labor cost per customer} = \frac{\text{Labor spend}}{\text{Water customers}} \]
\[ = \frac{\$215,052,521}{676,000} = \$318/\text{cust} \]
\[ \text{Non – labor cost per customer} = \frac{\text{Non – labor spend}}{\text{Water customers}} \]
\[ = \frac{\$229,392,397}{676,000} = \$339/\text{cust} \]
\[ \text{Total cost per customer} = \frac{\text{Total spend}}{\text{Water customers}} \]
\[ = \frac{\$444,444,918}{676,000} = \$657/\text{cust} \]

**Capital**
\[ \text{Capital} \]
\[ = \frac{\$334,609,488}{1,493,000} = \$224/\text{cust} \]
\[ \text{O&M Capital} \]
\[ = \frac{\$334,609,488}{1,493,000} = \$224/\text{cust} \]
\[ \text{O&M} \]
\[ = \frac{\$215,052,521}{676,000} = \$318/\text{cust} \]
\[ \text{Non – labor cost per customer} = \frac{\text{Non – labor spend}}{\text{Water customers}} \]
\[ = \frac{\$229,392,397}{676,000} = \$339/\text{cust} \]
\[ \text{Total cost per customer} = \frac{\text{Total spend}}{\text{Water customers}} \]
\[ = \frac{\$444,444,918}{676,000} = \$657/\text{cust} \]

Source: LADWP FERC/CPUC-account data, Oliver Wyman analysis
Note: These values are as reported: Pension & Benefits (P&B) costs are included, Water includes Aqueduct costs, and energy efficiency and water conservations costs are in capital
Capital Spending – Power and Water

LADWP’s overall total capital costs are 1st quartile, indicating a very aggressive capital spending program

2015 Power Capital Spending
Total $ per electric customer, IOU panel

2015 Water Capital Spending
Total $ per water customer, IOU panel

Commentary

- In today’s utility industry, higher spending is thought of positively by investors to replace aging infrastructure. For IOUs, higher capital spending also builds rate base and earnings.
- Compared to IOUs, LADWP has 1st quartile capital spending in both Water and Power.
- Alternative definitions for LADWP are shown to provide “apples-to-apples” comparisons. LADWP’s spending levels are also shown excluding outlays for energy efficiency and water conservation which are typically expensed, not capitalized by IOU peers. LADWP’s water outlays also are shown excluding capital spending for the aqueduct which is a unique asset.
- POU results are similar: LADWP’s relative spending falls in the first quartile for power and water.

Source: LADWP FERC/CPUC-account data, FERC Form 1, CA PUC annual financial filings, Oliver Wyman analysis

Note: Includes Pension & Benefits (P&B) costs

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IOU Power Panel – Capital spending

Between ‘06 and ‘15, LADWP moved from below to above median for Power capital spend, growing at over double the IOU rate; more recent LADWP capital spend is lower

Capital spend per customer ($/customer)
2003–2016, Investor-Owned Utilities (IOU) panel - integrated and T&D-only utilities

<table>
<thead>
<tr>
<th>Compound Annual Growth Rate (CAGR)</th>
<th>'03–'15</th>
<th>'06–'15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median for IOUs</td>
<td>8.0%</td>
<td>4.2%</td>
</tr>
<tr>
<td>LADWP</td>
<td>4.6%</td>
<td>11.1%</td>
</tr>
<tr>
<td>LADWP less Energy Efficiency (EE)</td>
<td>3.8%</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

IOUs expense energy efficiency spend; they do not capitalize

Year used for study

Source: LADWP FERC/CPUC-account data, Financial Filings to State Controller, FERC Form 1, Oliver Wyman analysis

Note: LADWP is not included in the panel and their results are overlaid on the panel quartiles
IOU Water Panel – Capital spending

Since 2003, LADWP’s Water capital spending has significantly increased (7–8% annually) and is well above median; growth in LADWP’s spending is somewhat below median after accounting for aqueduct and water conservation but total spend is still the highest

Capital spend per customer ($/customer)
2003–2016, Investor-Owned Utilities (IOU) panel

<table>
<thead>
<tr>
<th>Compound Annual Growth Rate (CAGR)</th>
<th>’03–’15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median for IOUs</td>
<td>5.7%</td>
</tr>
<tr>
<td>LADWP</td>
<td>8.0%</td>
</tr>
<tr>
<td>LADWP less Water Conservation (WC) cost</td>
<td>7.4%</td>
</tr>
<tr>
<td>LADWP less WC less Aqueduct cost</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

IOUs expense water conservation spend; they do not capitalize

Source: LADWP FERC/CPUC-account data, Financial Filings to State Controller, CA PUC annual financial filings, Oliver Wyman analysis

Note: LADWP is not included in the panel and their results are overlaid on the panel quartiles; aqueduct costs include those for Owen’s Valley
Operations and Maintenance Excluding Pension & Benefits (P&B) – Power and Water

Power’s non-fuel/purchased power O&M levels adjusted for energy efficiency expenses are near median; Water’s O&M expense level excluding purchased water is higher than IOU peers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total $ per electric customer, IOU panel</td>
<td>Total $ per water customer, IOU panel</td>
<td>• Since pension and benefits expense is both somewhat uncontrollable and volatile, analysis often excludes P&amp;B expenses, when available for peers</td>
</tr>
<tr>
<td>Lowest</td>
<td>Lowest</td>
<td>• LADWP’s O&amp;M data is adjusted to include efficiency/conservation costs but exclude aqueduct expenses to have “apples-to-apples” comparison</td>
</tr>
<tr>
<td>$489 Q1</td>
<td>$327 Q1</td>
<td>• LADWP’s Power O&amp;M expenses are median compared to peer IOUs. LADWP’s median position is the same as the Phase 1 benchmarking study in 2015</td>
</tr>
<tr>
<td>$563 Q2</td>
<td>$368 Q2</td>
<td>• Versus Water IOUs, LADWP falls in the 4th quartile for O&amp;M expenses</td>
</tr>
<tr>
<td>$663 Q3</td>
<td>$397 Q3</td>
<td>• POU results are similar: LADWP’s O&amp;M expenses fall below median for power and 3rd quartile for water</td>
</tr>
<tr>
<td>Highest ($1,184) Q4</td>
<td>Highest ($456) Q4</td>
<td>MOVING EE FROM CAPITAL TO O&amp;M</td>
</tr>
</tbody>
</table>

LADWP = $487 LADWP = $455

MOVING WATER CONS. FROM CAPITAL TO O&M

Panel: 21 Panel: 9

Source: LADWP FERC/CPUC-account data, FERC Form 1, CA PUC annual financial filings, Oliver Wyman analysis

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Power Panel – Non-fuel/purchased power operations and maintenance expense
LADWP has managed Power O&M expense growth well (excluding Pension & Benefits). Its expenses have grown similarly to IOU peers

Non-fuel/purchased power O&M expense per customer – excluding Pension and Benefits ($/customer)
2003–2016, Investor-Owned Utilities (IOU) panel - integrated and T&D-only utilities

<table>
<thead>
<tr>
<th>Compound Annual Growth Rate (CAGR)</th>
<th>'04/'05/'06–'15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median for IOUs</td>
<td>3.3%</td>
</tr>
<tr>
<td>LADWP</td>
<td>1.8%</td>
</tr>
<tr>
<td>LADWP w/Energy Efficiency (EE) expense</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

IOUs expense energy efficiency spend; they do not capitalize

Source: LADWP FERC/CPUC-account data, Financial Filings to State Controller, LADWP annual appropriations and receipts, FERC Form 1, Oliver Wyman analysis
Note: LADWP is not included in the panel and their results are overlaid on the panel quartiles. LADWP O&M expense ($M) calculated using 2015 P&B assumptions.
Water Panel – Non-purchased water operations and maintenance expense
LADWP’s comparable growth in O&M expenses (excluding Pension & Benefits) is less than water IOU peers

Non-purchased water O&M expense per customer – excluding Pension and Benefits ($/customer)
2003–2016, Investor-Owned Utilities (IOU) panel

<table>
<thead>
<tr>
<th>Compound Annual Growth Rate (CAGR)</th>
<th>'04/'05/'06–'15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median for IOUs</td>
<td>3.3%</td>
</tr>
<tr>
<td>LADWP</td>
<td>2.6%</td>
</tr>
<tr>
<td>LADWP with Water Conservation (WC) expense</td>
<td>3.9%</td>
</tr>
<tr>
<td>LADWP with WC expense less Aqueduct expense</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

Source: LADWP FERC/CPUC-account data, Financial Filings to State Controller, LADWP annual appropriations and receipts, CA PUC annual financial filings, Oliver Wyman analysis
Note: LADWP is not included in the panel and their results are overlaid on the panel quartiles; the panel consists of 9 IOUs; aqueduct costs include those for Owen’s Valley; LADWP O&M expense ($M) calculated using 2015 P&B assumptions.
Historical and forecast employee-related costs
LADWP’s internal-labor expense has grown at over 4% per year since 2005; ensuring a sustainable labor intensive model will be increasingly challenging as those costs continue to rise.

Historical actual total employee-related costs
Power and Water

CAGR\(^2\) (Cash compensation + OT only)
4.6%

Fiscal Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash compensation (excl. OT)</th>
<th>OT</th>
<th>Retirement</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$597</td>
<td>$223</td>
<td>$91</td>
<td>$207</td>
</tr>
<tr>
<td>2006</td>
<td>$606</td>
<td>$233</td>
<td>$118</td>
<td>$247</td>
</tr>
<tr>
<td>2007</td>
<td>$643</td>
<td>$240</td>
<td>$150</td>
<td>$255</td>
</tr>
<tr>
<td>2008</td>
<td>$690</td>
<td>$250</td>
<td>$170</td>
<td>$348</td>
</tr>
<tr>
<td>2009</td>
<td>$779</td>
<td>$264</td>
<td>$175</td>
<td>$403</td>
</tr>
<tr>
<td>2010</td>
<td>$856</td>
<td>$1,375</td>
<td>$157</td>
<td>$446</td>
</tr>
<tr>
<td>2011</td>
<td>$845</td>
<td>$1,458</td>
<td>$146</td>
<td>$446</td>
</tr>
<tr>
<td>2012</td>
<td>$863</td>
<td>$1,614</td>
<td>$115</td>
<td>$446</td>
</tr>
<tr>
<td>2013</td>
<td>$872</td>
<td>$1,595</td>
<td>$143</td>
<td>$446</td>
</tr>
<tr>
<td>2014</td>
<td>$884</td>
<td>$1,643</td>
<td>$168</td>
<td>$446</td>
</tr>
<tr>
<td>2015</td>
<td>$913</td>
<td>$1,717</td>
<td>$198</td>
<td>$446</td>
</tr>
<tr>
<td>2016</td>
<td>$931</td>
<td>$1,847</td>
<td>$206</td>
<td>$446</td>
</tr>
<tr>
<td>2017</td>
<td>$963</td>
<td>$1,740</td>
<td>$223</td>
<td>$446</td>
</tr>
<tr>
<td>2018</td>
<td>$1,024</td>
<td>$2,030</td>
<td>$253</td>
<td>$446</td>
</tr>
</tbody>
</table>

1. Excludes the cost of daily exempts
2. CAGR = Compound Annual Growth Rate
Source: LADWP; Oliver Wyman analysis
Note: Years denote fiscal year end (e.g., 2009 ends June 2009)
Section 5.B Functional performance
Explanation of slides
This section includes various analyses that are relative to IOU and POU peers; the quartile results are explained below

Operating and Maintenance Expense, Staffing and Internal labor cost

Companies typically want to control O&M expenses and keep as low as possible; based on this, lowest spend is 1\textsuperscript{st} quartile while highest spend is 4\textsuperscript{th} quartile

Capital Expense

Capital expenses are investments to improve infrastructure and therefore higher spending is often viewed as preferential; based on this, lowest spend is 4\textsuperscript{th} quartile while highest spend is 1\textsuperscript{st} quartile
Summary of Performance: Staffing and total cost by executive

4th quartile total cost and staffing suggest areas for improvement; functions with underspending represent potential areas to deliver incremental impact.

Summary of staffing quartile and total cost quartile by function

Size indicates total cost; total cost and staffing quartiles

Note: Relative position within quartile is for display only (e.g., Rates & Regulatory Affairs is not necessarily higher in Q1 for staffing than Executive Management); Water O&M is only Transmission and Distribution while Water capital includes all spend; Aqueduct is excluded from all cost (capital and O&M).
Power Transmission and Distribution

Both Transmission and Distribution are investing to upgrade systems and infrastructure to prepare LADWP for the new smart grid environment.

Commentary
• Power Transmission and Distribution are both critical functions to provide reliability for LADWP’s customers and the future pathway to meet the City’s and California’s renewable goals.
• LADWP has mixed reliability results; while SAIFI is better than peers, its CAIDI is 4th quartile.
• LADWP has one of the most aggressive power capital programs in the industry. Compared to both IOUs and POU, LADWP spend is in the 1st quartile.
• Transmission and Distribution O&M expenses are high vs. IOUs and low vs. POU, in part reflecting uniqueness and scale of LADWP’s operations.
• LADWP generally uses internal resources for most work; staffing falls in the 4th quartile vs. IOUs for both functions.
• Both Transmission and Distribution will need more staff to meet LADWP’s future goals.
• Especially within Distribution, opportunities for improvement exist with staffing, organization, and end-to-end processes. Distribution is overwhelmed with work: replacement capital, new business, outage response, O&M, & compliance. The function faces continuing hiring, retention, and skill issues, including understaffing. Field management struggles.
• The systems and automation are mostly behind the industry. System enhancements will be crucial to ensuring reliability and managing costs.

Source: LADWP FERC/CPUC-account data, FERC Form 1, POU public financial filings, Oliver Wyman analysis
Note: (1) LADWP Power value after moving energy efficiency from capital to Customer Service O&M.
**Generation and Resource Planning**

Generation and Resource Planning are both crucial to LADWP to meet current and future resource needs and targets.

**Commentary**

- Generation and Resource Planning provide the necessary power to meet customer needs.
- These functions have helped LADWP provide competitive rates in southern California.
- Generation has produced good results with its resources. Resource Planning has been successful in keeping up with the plan to meet 2020 RPS and future targets.
- Generation and Resource Planning O&M expenses are both below median vs. IOUs and POUs.
- Both functions rely predominantly on in-house resources to carry out work. Generation staffing reflects capital programs using in-house resources. Resource Planning has below median but adequate staffing levels.
- The recent decision to cancel life extension plans for in-basin natural gas plants may require LADWP to develop a human resource plan for impacted staff.

**Power System Capital (Distribution, Transmission & Generation)**

$ per electric customer, IOU and POU Panels

<table>
<thead>
<tr>
<th>Q4</th>
<th>Q3</th>
<th>Q2</th>
<th>Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest</td>
<td>Lowest</td>
<td>Highest</td>
<td>Lowest</td>
</tr>
<tr>
<td>$651</td>
<td>$560</td>
<td>$50</td>
<td>$496</td>
</tr>
<tr>
<td>LADWP = $305</td>
<td>LADWP = $735</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cost**

- Power System Capital: $1,097M
- Generation O&M: $197M
- Resource Planning: $7M

Source: LADWP FERC/CPUC-account data, FERC Form 1, POU public financial filings, LADWP employee census, CA City Data, Oliver Wyman analysis

Note: (1) LADWP Power value is with moving energy efficiency from capital to Customer Service O&M. (2) Generation costs exclude purchased power and the cost of fuel.
Water

Water is meeting its aggressive infrastructure goals; moving forward, future plans will be challenged by LADWP’s internal-labor intensive model

Commentary
• Water is continuing to invest and build for the future
• The Water system’s comparative capital total cost is and has historically been near the highest among its peers, both IOUs and POUs
• Over the past 10 years, there has been aggressive investment in infrastructure by increasing annual pipe replacement by 8% per year and reducing leak rates by nearly 4% per year
• Water Operations O&M expenses are high, driven mostly by Transmission & Distribution, compared to large CA IOUs but below median relative to smaller POUs, in part reflecting uniqueness of LADWP’s water system
• Staffing levels in Water fall in the 4th quartile, reflecting the business model of generally using internal resources for work. However, Water leverages third-party resources to a greater extent that most other functions at LADWP to supplement its internal workforce
• In the longer term, LADWP will need to ensure it can hire skilled personnel not only to meet future goals but also to replace retiring staff; future hiring needs in Water are significant (e.g., >250 staff)
• Water has made strides at improving planning (e.g., action plans), work management and organization, employee development, and employee engagement

Water System Capital\(^1\)
\(\text{\$ per water customer, IOU and POU Panels}\)

<table>
<thead>
<tr>
<th></th>
<th>IOU Panel</th>
<th>POU Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4</td>
<td>$371</td>
<td>$373</td>
</tr>
<tr>
<td>Q3</td>
<td>$350</td>
<td>$202</td>
</tr>
<tr>
<td>Q2</td>
<td>$275</td>
<td>$153</td>
</tr>
<tr>
<td>Q1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\text{LADWP}^1 = \$665\)

Water Operations O&M expense\(^2\)
\(\text{\$ per water customer, IOU and POU Panels}\)

<table>
<thead>
<tr>
<th></th>
<th>IOU Panel</th>
<th>POU Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4</td>
<td>$188</td>
<td>$539</td>
</tr>
<tr>
<td>Q3</td>
<td>$147</td>
<td>$317</td>
</tr>
<tr>
<td>Q2</td>
<td>$125</td>
<td>$276</td>
</tr>
<tr>
<td>Q1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\text{LADWP} = \$245\)

Total Cost
Water System Capital: $449M
Water Operations O&M: $166M

Source: LADWP FERC/CPUC-account data, CA PUC annual financial filings, POU public financial filings, Oliver Wyman analysis
Note: (1) LADWP Water value after moving water conservation from capital to O&M and excluding aqueduct. (2) O&M includes operational areas only, and excludes Customer Service and A&G costs as well as purchased water costs and aqueduct.
Customer Service and Marketing

Customer Service has faced significant challenges but is making improvements using an internal-labor intensive model; Marketing is supporting LADWP with numerous efficiency and conservation programs at a competitive total cost.

Commentary

- Providing exemplary customer service is a key goal in LADWP’s 5-year plan.
- Customer Service has been a public focal point of LADWP since 2013 and has been working to meet its own as well as court mandated metrics; call answer times have improved dramatically.
- LADWP strives to be part of the local community and to be more accessible to the ratepayers, as evidenced by the investment in branch offices, which differs from most utilities.
- Total customer service costs are higher than peer IOUs, especially in Water which could be driven by allocation of Customer Service spend to Water instead of actual costs attributable to it.
  - POUs typically spend 30-60% more on Power Customer Service than Water where LADWP spends nearly the same (per customer).
- LADWP employs an internal-labor intensive business model for customer service; staffing falls in the 4th quartile.
- Possible new goals may require significant additional resources.
- Achieving better service will require further improvements in hiring, to address continuing needs at the entry level and to fill vacancies driven by internal transfers.
  - Additionally, improved resource management, process improvements, and use of automation to simplify tasks will be required to achieve LADWP’s goals.
- Marketing/Energy Efficiency/Water Conservation has been and will be a key part of meeting Power & Water goals as well as meeting renewable mandates. Internal staffing and labor costs are roughly at median compared to peers.

Source: LADWP employee census, CA City Data, LADWP FERC/CPUC-account data, FERC Form 1, CA PUC annual financial filings, Oliver Wyman proprietary database, Oliver Wyman analysis.

Note: New LADWP CIS system launched in September, 2013. (1) O&M excludes uncollectibles from O&M; Customer Accounts, Customer Service and Information and Sales grouped into Customer Service. (2) LADWP overall customer service O&M includes cost of energy efficiency and water conservation programs which LADWP capitalizes but all others expense in O&M.
Operations Support
Operations Support functions are driven by the needs of the Power and Water Systems; each function provides service at a relatively high total cost

Commentary

- The Operations Support functions support the Systems at a relatively high cost
- Feedback from SME interviews are:
  - These functions appear responsive to the needs of the Power and Water Systems
  - There is less internal customer satisfaction with Purchasing and Materials Management. The Systems have added staff to better smooth supply chain activities; users would prefer to have Fleet “do more” to get the field vehicles that best serve their needs in shorter timeline
- Staffing and total costs fall mostly in the 4th quartile. LADWP uses an internal-resource focused operating model
- More resources and staff will be needed in the future as investment levels in Power and Water expand
- Functional managers believe they can be more effective and efficient by transforming support functions to become more “full business/functional managers” rather than just “pure service providers”
- Many peer utilities have repositioned Operations Support functions by changing the governance model and addressing service and total cost decision-making
- Note that this study is focused on internal labor and third-party service costs. These functions typically have associated costs of materials, equipment, and utility vehicles. Peers have realized supply chain savings for internal labor and materials by repositioning based on cost as well as responsiveness/quality of support

Source: LADWP employee census, Oliver Wyman analysis
Note: Total cost refers to base and overtime pay earned by employees and any professional service, outside services or contract labor related spend (both O&M and Capital)
1. Assessment of responsiveness determined based on feedback from SME interviews

Operations Support functions overview

<table>
<thead>
<tr>
<th>Environment</th>
<th>Purchasing and Materials Management</th>
<th>Safety</th>
<th>Fleet Services</th>
<th>Facilities Management</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost ($M)</td>
<td>$24</td>
<td>$36</td>
<td>$6</td>
<td>$29</td>
<td>$33</td>
</tr>
<tr>
<td>Total Cost quartile vs. benchmarks</td>
<td>Q4</td>
<td>Q4</td>
<td>Q3</td>
<td>Q4</td>
<td>Q4</td>
</tr>
<tr>
<td>Responsiveness to internal customer</td>
<td>✓ ✓ Improvement needed</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>Relative control over business decisions</td>
<td>More</td>
<td>Less</td>
<td>Less</td>
<td>Less</td>
<td>Less</td>
</tr>
</tbody>
</table>

Total Cost of all functions is $158 million
Shared Services 

Shared Services functions deliver support to LADWP at below median total costs and staffing levels

Commentary

• Shared Services functions provide support to LADWP across a range of activities

• Multiple functions expressed the need for increased staff levels. Total cost is low compared to third-party benchmarks

• External Relations and Communications focus is on improving communication to help LADWP meet its business and customer goals

• A new ERP system would provide the next step to improved performance in Finance, Accounting, and Planning

• Rates and Regulatory Affairs emphasized the need for additional resources, and desires greater visibility within LADWP

• LADWP is unique in that attorneys are provided entirely by the City while the legal administrative support (e.g. Claims, paralegals) are internal LADWP staff

Source: LADWP employee census, LADWP Vendor and City spend data, CA City Data, Oliver Wyman analysis

Note: Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor related spend (both O&M and Capital)

1. Assessment of responsiveness determined based on feedback from SME interviews

Total Cost of all functions is $70 million
Information Technology

Information Technology represents a work in progress to better support the future goals of LADWP. With robust plans and governance, further hiring and spending can be supported.

Commentary

• Information Technology responds as well as can be expected to the needs of LADWP, especially when considering the antiquated nature of the IT infrastructure.

• Staffing is slightly above median and costs are roughly at median compared to industry peers. Based on LADWP’s internal-labor intensive business model, we would expect staffing levels in IT to be above median.

• Telecommunications is the main driver of IT being above median for staffing and total cost because it requires personnel for its unique, multi-state network.

• Multiple IT sub-functions are understaffed and may require recruitment of resources. The recruiting effort is already lengthy and is further complicated because LADWP pays these job classes below median compared to peers.

• Even quick wins, such as IT equipment inventorying and revamping the system to streamline the servicing of internal customers, are at risk due to the lengthy recruitment process to hire outside expertise – at the very least it lengthens time to complete these initiatives.

• RFPs for software and services associated with implementing an ERP system are scheduled to be awarded in 2020.

• Excluding the Customer system (CIS), net IT assets appear low considering the size of LADWP.

Total Spend

<table>
<thead>
<tr>
<th>Total Spend as % of Revenue</th>
<th>Total Spend per Employee (headcount)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below median</td>
<td>Above median</td>
</tr>
<tr>
<td>2.0%</td>
<td>$12,937</td>
</tr>
</tbody>
</table>

LADWP = 2.1% LADWP = $9,924

<table>
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<tr>
<th>Sub-function</th>
<th>FTE</th>
<th>Lowest</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT</td>
<td>419</td>
<td>Q1 Q2</td>
<td>Q3 Q4</td>
</tr>
<tr>
<td>Application Systems Dev &amp; Maintenance, Cybersecurity, Computer ops &amp; admin, End User/Information Center</td>
<td>282</td>
<td>Q1 Q2</td>
<td>Q3 Q4</td>
</tr>
<tr>
<td>Telecommunications/Mobility</td>
<td>137</td>
<td>Q1 Q2</td>
<td>Q3 Q4</td>
</tr>
</tbody>
</table>

Telecommunications/Mobility drive total IT staffing above median.

FTE

FTE per 100 total company FTE, IOU and POU Panels.

Source: LADWP employee census, LADWP Vendor and City spend data; Oliver Wyman analysis

Note: (1) To ensure comparable costs a 36.8% benefits adder was added to LADWP base pay.

Total Cost of function is $97 million.
Human Resources
Human Resources supports the Systems to the best of its ability due to the unique challenges it faces

Commentary
- LADWP Human Resources supports the Systems with the capacity that it has. The central function is somewhat unique in that it does not control key aspects of the end-to-end Human Resources process.
- Human Resources within LADWP is fragmented: 40% of FTEs reside outside the LADWP Human Resources organization even after excluding Retirement Office and training personnel.
- LADWP and Human Resources must work with the City’s Personnel Office in critical path areas such as classifying jobs, recruiting, and selecting staff. The collaboration extends the hiring process significantly longer than peers.
- Hiring issues are most likely caused by a combination of the Department’s practices and City Personnel’s policies.
- In the near-term, HR is focused on rolling out its succession planning for LADWP, preparing for HRMS upgrade, and examining a workforce development function focusing recruitment activities in disadvantaged parts of the City.
- HR is expanding its recruitment efforts through multiple strategies to meet the five-year goals and support the Systems in their hiring targets.

Total Spend

- **Total Spend as % of Revenue**
  - Lowest: Q1 = 0.2%, Q2 = 0.3%, Q3 = 0.5%
  - Highest: LADWP = 0.6%

- **Total Spend per Employee (headcount)**
  - Q1: $1,691, Q2: $2,091, Q3: $3,011, Q4: $3,011
  - LADWP = $2,680

**Internal labor and City/Outside services spend by organization**

- Retirement Office: 9%
- City HR functions: 2%
- LADWP HR function outside of Corp HR: 55%
- LADWP Corp HR: 34%

Total Cost of function is $26 million

Source: LADWP employee census, LADWP Vendor and City spend data; Oliver Wyman analysis
Note: (1) To ensure comparable costs a 36.8% benefits adder was added to LADWP base pay and LADWP training was excluded from Base and OT. (2) Labor spend transfer to City HR functions is $597K
Management
Management, including the Executive team, tries to meet the needs of the Systems by providing leadership and guidance to achieve goals. Compensation remains an issue

Commentary

• Executive Management has provided strategic guidance to develop and define the major pillars of LADWP’s strategy moving forward

• The senior leadership position has not been stable with 5 different General Managers in the past decade which has a significant impact. To achieve modernization, leading utilities have CEOs and COOs serving for at least 5 years, with robust executive team succession plans in place

• Executives’ total pay is well below median compared to peers, which makes it difficult to attract and retain top talent at the executive level

• Structure of the executive team is similar to peers; however, CIO and CHRO positions are often seen as direct reports to the CEO whereas at LADWP they report to CAO

• Long-term, the group will have to manage a major modernization of LADWP in order to evolve into a utility that is financially successful, has a customer focus, and provides environmental stewardship

• Concern was expressed that employees are not incentivized to pursue management opportunities at LADWP because of compensation changes moving from IBEW to MEA MOU

  – Additional issues arise from significant cost increases for rising managers from misalignment of health plans between IBEW and MEA

Pay by market salary plus bonus/incentive pay band
Oct 2014–Sep 2015

Job classes with salary above $175K

<table>
<thead>
<tr>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$182K</td>
<td>$202K</td>
<td>$291K</td>
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</tr>
</tbody>
</table>

16 LADWP Class Codes
203 LADWP benchmarked employees
3% of benchmarked employees

At the higher end of the pay band, LADWP pays significantly less than peers

Current organization chart of direct reports to GM

AGM Power (Eng. & Tech Svc)  Retirement Plan Office
AGM Power (Const, Maint. & Ops)  AGM External and Regulatory Affairs
AGM Water  City Attorney
Chief Financial Officer  Corporate Safety
Chief Administrative Officer  Real Estate

Total Cost of function is $3.4 million

Source: LADWP employee census, CA City Data, utility industry salary surveys from Mercer; Mercer analysis, Oliver Wyman analysis

Note: Executives defined as those who report directly to the senior officer (e.g. CEO, General Manager)
Section 5.C  Staffing and internal labor cost
Power System (Generation, T&D) Staffing
FTEs: 5,779

Power with Allocated Operating/Shared Services
FTE per 1K electric customers, IOU and POU Panels

Comments

• This staffing view includes all Electric Generation, Transmission and Distribution staff as well as an appropriate portion of operations and shared service staff
  – LADWP allocates 67% of non-operating staff to Power and 33% to Water
• FTEs per customer is a common high-level metric used by management teams in the utility industry to evaluate overall productivity. However, this common measure does not consider outsourcing differences between utilities
• LADWP’s internal-labor intensive business model is the driver for LADWP’s Power System 4th quartile staffing results against both POUs and IOUs
  – The expectation is for LADWP to rank well above median due to its internal-labor driven utility business model
• The 4th quartile staffing results are consistent with the analysis performed for the OPA in reviewing LADWP’s power rate increase proposal; this analysis also showed LADWP in the 4th quartile1
• Utilities falling in the 4th quartile are more likely to engage in company-wide organizational reviews and modernization initiatives

Source: LADWP employee census, CA City Data, Oliver Wyman proprietary database, Oliver Wyman analysis
Note: (1) From “Review of LADWP’s 2015 Power and Water Rate Increase Proposal” prepared for OPA section 8.1.2
Water System Staffing
FTEs: 2,661 (without aqueduct)

Water with Allocated Operating/Shared Services
FTE per 1K water customers, IOU and POU Panels

Comments

- Overall results for Water are similar to Power
- This staffing view includes all Water related staff as well as an appropriate portion of shared service staff, and excludes Aqueduct personnel
  - LADWP allocates 67% of non-operating staff to Power and 33% to Water
- As with the Electric business, the number of Water customers is commonly used as the normalizing factor
- LADWP’s internal-labor intensive business model is the driver for LADWP’s Water System 4th quartile staffing results against both POUs and IOUs
  - The expectation is for LADWP to rank well above median due to its internal-labor driven utility business model
- LADWP has 4th quartile staffing levels with or without the aqueduct staffing included
- An additional IOU panel supplemented with national water IOUs shows a similar 4th quartile result
- Utilities falling in the 4th quartile are more likely to engage in company-wide organizational reviews and large-scale modernization initiatives

Source: LADWP employee census, CA City Data, Oliver Wyman proprietary database, Oliver Wyman analysis
Note: (1) LADWP Water value excludes aqueduct

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Summary of results - Staffing

Most of LADWP’s functions fall in the 3rd and 4th quartiles for staffing. Given LADWP’s labor-intensive business model, lower than median staffing suggests additional resources may be required.

Summary staffing results for all functions

<table>
<thead>
<tr>
<th>Quartile relative to panel, 2015</th>
<th>POU Panel</th>
<th>IOU Panel</th>
<th>Number of FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Distribution</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>1,897</td>
</tr>
<tr>
<td>Electric Transmission</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>581</td>
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<tr>
<td>Generation</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>827</td>
</tr>
<tr>
<td>Electric Resource Planning &amp; Supply</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>44</td>
</tr>
<tr>
<td>Electric Environmental</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>32</td>
</tr>
<tr>
<td>Water</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>1,694</td>
</tr>
<tr>
<td>Water Environmental</td>
<td>Q1 Q2 Q3 Q4</td>
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<td>44</td>
</tr>
<tr>
<td>Customer Service</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>1,176</td>
</tr>
<tr>
<td>Marketing/EE/Conservation Programs</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>121</td>
</tr>
<tr>
<td>External Relations &amp; Communications</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>29</td>
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<tr>
<td>Finance, Accounting &amp; Planning</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
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<td>Q1 Q2 Q3 Q4</td>
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<tr>
<td>Human Resources</td>
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<tr>
<td>Purchasing &amp; Materials Management</td>
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<td>Q1 Q2 Q3 Q4</td>
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<tr>
<td>Executive Mgmt – Exec Support</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>38</td>
</tr>
</tbody>
</table>

Note: Does not include City Attorneys assigned to LADWP (panel companies have attorneys included).
Power System (Generation, T&D) Internal Labor Cost (POU panel only)
Total Pay: $671M

Power with Allocated Operating/Shared Service
Base, Overtime, and Total Pay; $ per electric customer, POU Panels

Comments

• Total pay results in Power are consistent with LADWP’s staffing position. LADWP’s 4th quartile staffing position drives a similar 4th quartile total pay position

• There are 5,779 FTE in the Power business

• LADWP falls into the 4th quartile for base pay, overtime pay, and total pay costs versus POUs

• LADWP has the highest overtime pay levels compared with peer POUs
  – Higher levels of overtime may suggest the need for more staffing given the internal-labor driven utility business model

• The Phase I benchmarking from 2015 also indicated that LADWP had 4th quartile total pay on a per customer basis

Source: LADWP employee census, CA City Data, Oliver Wyman analysis
Note: Labor cost is not available for IOU due to lack of salaries tied directly to staff; additionally, cash OT is not typically disclosed by IOUs for strategic and competitive reasons

© Oliver Wyman
Water System Internal Labor Cost (POU panel only)
Total Pay: $283M (without aqueduct)

Water with Allocated Operating/Shared Service
Base, Overtime, and Total Pay; $ per 1K water customer ($ ‘000), POU Panels

Comments

- Total pay results in Water are consistent with LADWP’s staffing position. LADWP’s 4th quartile staffing position drives a similar 4th quartile total pay position
- There are 2,661 FTEs in the Water business, excluding aqueduct
- LADWP falls into the 4th quartile for base pay, overtime pay, and total pay versus POU
  - Higher levels of overtime may suggest the need for more staffing given the internal-labor driven utility business model

Source: LADWP employee census, CA City Data, Oliver Wyman analysis
Note: Labor cost is not available for IOU due to lack of salaries tied directly to staff; additionally, cash OT is not typically disclosed by IOUs for strategic and competitive reasons.
(1) LADWP Water value excludes aqueduct
Summary of results – Total internal labor cost
Overall, LADWP is predominantly in the 3rd and 4th quartiles for total internal labor cost

Total internal labor costs results for all functions
Quartile relative to POU panel, 2015

<table>
<thead>
<tr>
<th>Function</th>
<th>Base Pay</th>
<th>OT Pay</th>
<th>Total Pay</th>
<th>Number of FTE</th>
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<td>Q1 Q2 Q3 Q4</td>
<td>1,897</td>
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<tr>
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<td>Safety</td>
<td>Q1 Q2 Q3 Q4</td>
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<td>Q1 Q2 Q3 Q4</td>
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</tbody>
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Section 5.D  Strategic issues
D. Monitor progress
4 recommendations to monitor modernization performance

C. Evolve management
4 recommendations to help evolve LADWP management capabilities

B. Enable modernization
5 recommendations to better enable the path to modernization through Human Resources, Information Technology, and Operations Support

A. Improve core utility
4 recommendations to improve core utility businesses of Power, Water and Customer Service
Power Distribution and Water Transmission and Distribution

Feedback, especially from Power staff, suggests that staff resources and hiring are insufficient to complete planned operations, maintenance, compliance, and inspection work even though comparative costs are high relative to IOU peers.

### Power Distribution O&M Cost

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<tr>
<th>Quarter</th>
<th>IOU Panel</th>
<th>LADWP</th>
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<td>Q1</td>
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<tr>
<td>Q2</td>
<td>$105</td>
<td></td>
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<td>Q3</td>
<td>$120</td>
<td></td>
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<tr>
<td>Q4</td>
<td>$146</td>
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</table>

### Water T&D O&M Cost

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<th>IOU Panel</th>
<th>LADWP</th>
</tr>
</thead>
<tbody>
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<td>Q1</td>
<td>$44</td>
<td>$140</td>
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<tr>
<td>Q2</td>
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<td>Q3</td>
<td>$54</td>
<td></td>
</tr>
<tr>
<td>Q4</td>
<td>$140</td>
<td></td>
</tr>
</tbody>
</table>

**Feedback from divisions**

**Power distribution**

- Power Distribution O&M expenses are high vs. IOUs and low vs. POUs, in part reflecting uniqueness and scale of LADWP’s operations.
- LADWP’s SAIDI/SAIFI are below median while CAIDI is typically 4th quartile.
- The systems and automation are mostly behind the industry. Systems enhancements will be crucial to ensuring reliability and managing costs.
- Distribution field positions are understaffed and too low to complete its current work plan.
- Distribution will need more staff to meet LADWP’s future goals, net of retirements.

**Water Transmission & Distribution (T&D)**

- Water T&D O&M expenses are high compared to large CA IOUs but below median relative to smaller POUs, in part reflecting uniqueness of LADWP’s water system.
- Water is making progress to meet service level commitments:
  - It is assessing and investigating water leaks in less than 4 hours; it is working towards providing notification of water outages within 60 minutes.
  - It is making strides towards a goal of replacing 1% of system pipe per year.
- Water has action plans to better manage challenges. In the longer term, LADWP will need to ensure it can hire skilled personnel to not only meet future goals but also to replace retiring staff; future hiring needs in Water are significant (e.g. >250 staff).

4th quartile O&M expenses coupled with conclusions that work cannot be completed, especially in Power, suggest examination of the root causes of LADWP’s position.

Source: LADWP FERC/CPUC-account data, FERC Form 1, CA PUC annual financial filings, Oliver Wyman analysis.

Note: O&M expenses exclude purchased fuel, power, and water.
Improving Customer Service

LADWP uses an internal-labor intensive staffing model to deliver the customer experience. Results are encouraging but sustained effort will be required, especially with residential customers. Digital modernization will be needed to mitigate labor costs as well as adjust resources for how to best serve customers.

Customer Service FTEs
FTE per 100K electric + water customers, IOU and POU Panels

<table>
<thead>
<tr>
<th>Year</th>
<th>IOU Panel</th>
<th>POU Panel</th>
</tr>
</thead>
<tbody>
<tr>
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<td>15.4</td>
<td>Q1</td>
</tr>
<tr>
<td>Q2</td>
<td>40.6</td>
<td>Q2</td>
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<tr>
<td>Q3</td>
<td>47.0</td>
<td>Q3</td>
</tr>
<tr>
<td>Q4</td>
<td>51.5</td>
<td>Q4</td>
</tr>
</tbody>
</table>

LADWP = 54.2

LADWP’s brand and customer engagement research

Residential customers
- LADWP’s brand and customer engagement research suggests consistent performance over the last few years.
- However, LADWP still falls below median, lagging on brand trust and service satisfaction.
- Research from the American Customer Service Index (ACSI) suggests LADWP has made progress versus peers.

Business customers
- LADWP performs much better: LADWP was named a trusted brand from 2016 to 2018 by Cogent.
- In 2018, LADWP was ranked as the top utility in the Western region by business customers in Cogent’s annual survey.

ACSI energy utilities customer satisfaction study
Based on a 100 point scale

Source: LADWP employee census, CA City Data, Oliver Wyman proprietary database, LADWP transaction survey, ACSI, Oliver Wyman analysis.

1. “Cogent Reports: 33 Utilities Are Recognized as the Easiest to do Business With”, March 27, 2019
Capital spend optimization
LADWP invests as much if not more than most utilities in capital programs; impact can improve further through ensuring and leveraging best practices

LADWP is improving to better manage future spend
- Asset management, staffing, processes, and tools are evolving in both the Power and Water Systems to make better capital decisions
- Power System’s five-year capital improvements plan (2019-2023) is $8.6B
- Water System’s five-year capital improvements plan (2019-2023) is $6.8B

LADWP has started tracking metrics
- Water and Power tracks capital budget to actual spend for generation, transmission, substation, distribution, water supply, pump, regulator, and renewables
- Unit costs are beginning: for miles, poles, transformers, cross-arms, cable, underground circuits
- Assets replaced against plan: mainline, trunkline, meters, poles, transformers, etc.

Illustrative industry-standard best practices
- **Plan**: Single, comprehensive, shared, and visible capital plan
- **Prioritized**: Encompasses all customer and compliance work and most important system needs
- **Realistic**: Is achievable, can be afforded, and includes expectations for emergent work
- **Optimized**: Synced with resources and budget
- **Timely**: Work enters process promptly, with enough lead-time to deliver efficiently by need date
- **Current**: Need date changes are updated promptly
- **Mature**: Work meets minimum “constructability” or preparation standards, increasing towards execution
- **Ready**: Ability to perform (long cycle) work must be verified before the day that field work starts
- **Responsive**: Schedules adjusted promptly to address emerging customer and safety needs
- **Stable**: Changes tightly managed, especially closer to execution
- **Measurable**: Metrics used to track, evaluate and correct on-going performance
- **Accountable**: Clear roles / responsibilities for overall process and functional requirements
- **Transparent**: Easy-to-understand updates and status reports available to enable follow-through
- **Adherence**: Designs, plans, procedures and schedules are followed unless safety, compliance or reliability concern
- **Feedback**: Changes communicated to originators (some approvals required) to provide feedback and learning

Source: LADWP, FERC-account data, FERC Form 1, CA PUC annual financial filings, Oliver Wyman analysis
Note: (1) Capital includes P&B and result is a year snapshot and does not represent any amortization. (2) LADWP Power result accounts for moving energy efficiency from capital to Customer Service O&M. (3) LADWP Water result accounts for moving water conservation from capital to O&M and excluding aqueduct. (4) List of metrics is not exhaustive.

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## Hiring needs

Significant additional hiring will be needed under LADWP’s labor-intensive business model. Additional headcount net of retirements is needed to meet goals.

<table>
<thead>
<tr>
<th>Function</th>
<th>Resource needs identified through feedback</th>
<th>Resources required above retirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (Distribution &amp; Transmission)</td>
<td>Distribution is hanging on. It needs more staff to keep up the work: infrastructure, O&amp;M, compliance, outage, and new business. Transmission is spread thin and requires additional staff System planning, line crews &amp; management, meter shop &amp; test are areas that are most understaffed</td>
<td>Many</td>
</tr>
<tr>
<td>Power (Gen &amp; Resource Planning)</td>
<td>Generation and Resource Planning and Supply have no current issues with staffing</td>
<td>None</td>
</tr>
<tr>
<td>Water</td>
<td>Must continually attract and hire skilled workers to execute its capital plans. Requires 15% increase in FTE to meet its goals. Water has developed action plans to link future work with staffing needs</td>
<td>Many</td>
</tr>
<tr>
<td>Customer Service</td>
<td>Achieving goals will require additional resources to keep pace with churn, but not necessarily higher numbers of staff</td>
<td>Some</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Requires additional positions and investment in improving the recruitment of entry level staff from industry and directly from schools as well as attracting qualified experienced hires</td>
<td>Many</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Expanding recruitment efforts to meet the Systems’ 5-year goals and support their hiring targets</td>
<td>Minimal</td>
</tr>
<tr>
<td>Operations Support</td>
<td>Security needs to hire approved staff to meet 5-year goals. Facilities Management requires additional resources. Safety needs more staff. Fleet, Purchasing, Environment – none at this time</td>
<td>Some</td>
</tr>
<tr>
<td>Shared Services</td>
<td>Rates and Regulatory Affairs has critical need for more resources. Multiple functions requested additional Legal resources. External Relations and Communications, Finance – none at this time</td>
<td>Some</td>
</tr>
<tr>
<td>Executive Management</td>
<td>No additional resource needs</td>
<td>None</td>
</tr>
</tbody>
</table>

The apparent resource needs are well above the current 10,349 annual personnel resolution (APR). There is a need for a comprehensive and reality-based Integrated Human Resource Plan to clearly and transparently identify future needs under LADWP’s labor-intensive business model.

Source: LADWP, LADWP 2014 Integrated Human Resource Plan, Oliver Wyman analysis
Workforce planning and management

Many companies, including utilities, are taking a comprehensive analytical look at future workforce needs and the processes required to fill and manage gaps on an ongoing basis; much work remains to be done at LADWP.

Demand Forecast
- Capital work (replacement and new business)
- O&M and service work
- Compliance/inspection
- Emergency work
- Intermittent tasks

Supply Forecast
- Internal work force
- Workforce productivity: skills and productive time; impact of transfers and staff movement
- Turnover, retirement, new hires, attrition
- Overtime use and constraints
- 3rd party resources and services; City contracting process

Talent Management Process

Improvements have been made such as better exams, more frequent exams, greater use of online tools, and enlarging the applicant pool. Typically takes 3-10 months to fill position.

Gaps identified by supply-demand analysis drive prioritization of talent management efforts

Managed by the Systems

HR has focused on the Talent Management Process, including working with City Personnel

No comprehensive department-wide integrated human resource plan (IHRP) exists at LADWP

The first three steps of the critical path can be high-risk areas for delays: both LADWP and the City have roles

New hires can advance and transfer out of entry-level positions, creating a constant cycle of recruitment and training

Getting it all right is crucial to LADWP: the analytics must result in timely and accurate talent gap indicators while processes must work well to provide sufficient and skilled LADWP internal resources.
Focusing on critical hiring areas
There are many areas that are in need of more attention from hiring in order to support the modernization; this can potentially be addressed through re-alignment, retraining of staff

Selections of sub-functions with staffing significantly below median compared to both POU and IOU panels
2015, number of FTE in given subfunction (#)

<table>
<thead>
<tr>
<th>Operations</th>
<th>Support and Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Function</strong></td>
<td><strong>Sub-function</strong></td>
</tr>
<tr>
<td>Safety</td>
<td>Safety (42)</td>
</tr>
<tr>
<td>Customer service</td>
<td>Meter installation / removal and calibration (145)</td>
</tr>
<tr>
<td>Electric distribution</td>
<td>Line crews and management (696)</td>
</tr>
<tr>
<td>Water</td>
<td>Operations &amp; Maintenance (358)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Function</strong></th>
<th><strong>Sub-function</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resources</td>
<td>Organizational planning and design (4)</td>
</tr>
<tr>
<td>Electric distribution</td>
<td>Asset management and system planning (17)</td>
</tr>
<tr>
<td>External relations</td>
<td>Governmental affairs (4)</td>
</tr>
<tr>
<td>Finance, accounting, and planning</td>
<td>Risk (8)</td>
</tr>
<tr>
<td>IT</td>
<td>Cybersecurity (10)</td>
</tr>
<tr>
<td>Database administration</td>
<td>End user/information center (38)</td>
</tr>
<tr>
<td>Network administration</td>
<td>Compliance (4)</td>
</tr>
<tr>
<td>Regulatory affairs</td>
<td>Rates &amp; pricing (6)</td>
</tr>
<tr>
<td></td>
<td>Regulatory affairs (2)</td>
</tr>
</tbody>
</table>

Source: LADWP census, 2015 CA City Data, Annual financial reports to CPUC, Oliver Wyman proprietary database, Oliver Wyman analysis
Note: All the sub-functions fall in the first quartiles compared to both the POU and IOU panels
Building Information Technology
LADWP must upgrade its IT infrastructure to underpin any modernization

Current state
• Current operating and support systems are old, costly, and inefficient
• Key systems are old and internally developed requiring significant manual process
• Feedback from SMEs across most functions suggest that LADWP is lagging in understanding and leveraging technology
• Ongoing IT spend (excluding hardware/major projects) is below median

LADWP initiatives
• Recent organizational changes are focused at enhancing LADWP’s technology and cyber-security posture
• A variety of systems upgrade initiatives are in process throughout LADWP including Customer Information System upgrades, budget system replacement, eProcurement system, and ERP planning
• RFPs for the purchase of ERP software and system integration services are planned for 2020
• An initiative to allow a vendor to provide approved commercial off-the-shelf software more quickly to staff has recently been approved

LADWP’s IT Strategic Plan aligns efforts to Department’s goals
• Secure, protect, & maintain IT infrastructure and data
• Align IT roadmap, processes, people, and resources to help Divisions achieve their goals
• Attract, develop, and retain a professional, high-quality IT workforce
• Adopt new technologies to improve business operations (i.e., cost savings and optimizing headcount)
• Improve overall internal (employee & staff) customer experience and communications

Total Spend

<table>
<thead>
<tr>
<th>IT FTE (excl. Telecom)</th>
<th>Total Spend per Employee (headcount)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>Q1: 2.9, Q2: 3.6, Q3: 5.6</td>
</tr>
<tr>
<td>LADWP</td>
<td>$12,937</td>
</tr>
<tr>
<td>Highest</td>
<td>Q4: 5.6</td>
</tr>
<tr>
<td>LADWP</td>
<td>$9,924</td>
</tr>
</tbody>
</table>

Many utilities have faced cost and schedule issues in executing on IT plans and initiatives

Source: LADWP employee census, CA City Data, Oliver Wyman proprietary database, Oliver Wyman analysis
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Governance of Operations Support functions

LADWP’s Operations Support functions can become more effective and efficient through the use of a better operational governance model; service improvement also needs focus in some areas.

Current state
- Total cost of all functions is over $150M
- Nearly all Operations Support functions have 4th quartile costs compared to peers
- Operations Support function managers feel decisions of their functions are currently driven by the Power and Water Systems needs
- Operations Support function managers believe governance changes to provide them greater authority over budgeting and work planning can improve efficiency of their operations
- According to internal customers, service levels can improve in Purchasing

Key questions
- What should be the roles and responsibilities governing how Operations Support Functions interact with the Power and Water Systems?
- How and when are requests initiated from systems to support functions?
- How are the value and cost of requested support considered and determined?
- How are service requirements prioritized across the Systems?
- What level initiates, recommends, approves, and enables the decision making process?
- How are positions moved? When are positions added? How is that decided?

Issues
- Executive role in defining roles, responsibilities, accountability, and authority for Operations Support functions
- Service level definitions and standard metrics from feedback from System “customers”
- Budgeting process
- Method to evaluate and prioritize System requests and costs to Operational Support functions
- General performance measures (cost, cycle time, etc.)
Modernization of LADWP: Alignment of Head, Heart, and Guts required
Some of the required alignment is visible; other pieces are a “work in progress”

**LADWP’s Head**
The business context
- Long-term goals established
- Function- & organization-specific strategies just beginning to be developed and linked to overall goals
- Business model transparency lacking
- Operating and financial performance including drivers not widely understood within LADWP or communicated to Board

**LADWP’s Guts**
The supporting infrastructure
- Data, technology and systems lacking
- Many metrics collected; beginning to embrace management by key metrics and transparent reporting (e.g., rate and equity metrics)
- Policy, processes and procedures most likely need work
- Internal-labor intensive operating model and governance needs focused management and possible modification at some time

**LADWP’s Heart**
The people context
- Talented and dedicated workforce
- Solid teaming operating under business and organizational constraints
- Greater stability needed on Executive Team
- Uniqueness drives many behaviors

Solid base exists, with room to mature as an organization and improve
Transforming specific LADWP functions
Most functions at LADWP must engage in some kind of future modernization

<table>
<thead>
<tr>
<th>Function</th>
<th>Today</th>
<th>Tomorrow</th>
</tr>
</thead>
</table>
| **Power**              | • Replace infrastructure  
                       | • Spend the capital budget  
                       | • Respond to customer issues  
                       | • Try to keep up with work   | • Spend for the biggest “bang for the buck”  
                       | • Invest in Smart Grid and renewables  
                       | • Anticipate customer issues  
                       | • Grow transmission network   |     | ✔ | ✔ |
| **Water**              | • Replace infrastructure  
                       | • Spend the capital budget  
                       | • Respond to customer issues | • Spend for the biggest “bang for the buck”  
                       | • Diversify water resources  
                       | • Respond to customer issues | |     | ✔ | ✔ |
| **Customer Service**   | • Focus on customer service  
                       | • Not there yet with customer experience, but already at a high cost | • Provide exemplary service at an appropriate cost  
                       | • Translate into better LADWP positioning and brand | |     | ✔ | ✔ |
| **Information Technology** | • Outdated IT systems across LADWP  
                       | • Best efforts support given constraints | • Develop modern, agile, digital, and secure systems enabling service and operations | |     | ✔ | ✔ |
| **Human Resources**    | • Best efforts support given constraints  
                       | • Transactional | • Effectively supports labor-intensive business model (e.g., through hiring and progression) | |     | ✔ | ✔ | ✔ |
| **Operations Support Services** | • Provides services to Power and Water at a high cost | | • Balances cost and need to deliver responsive service | |     | ✔ | ✔ | ✔ |
| **Shared Services**    | • Delivers services to Power and Water and to corporate stakeholders | | • Expands advisory impact (e.g., Finance, Rate & Regulatory) | |     | ✔ | ✔ |
| **Executive Management** | • Revolving leaders with below median total compensation | | • Drives modernization together while meeting City and community obligations | |     | ✔ | ✔ | ✔ |
Trade-offs in decision-making

Like other utilities, LADWP must prioritize and balance its numerous demands in order to achieve its goals but mitigate increases in rates and customer bills.

Service quality and growth
- What service level do our customers demand?
- How responsive does LADWP need to be for new business?
- What level of reliability is demanded by customers?
- How should we prioritize stakeholder requests?

Investment
- What are the investment priorities of our systems?
- What is the “right” investment level?
- Are we getting the “biggest bang for the buck”?

Rates and bill impact
- What is the impact of our service level, investment and O&M plan?
- Should we re-assess our rates and bill targets?
- What tradeoffs do we make as we adjust our plans?

Operations & Maintenance
- What is the “right” amount of spend on O&M?
- Do we have the resources to execute our plan?
- Are we allocating our resources to meet customer needs?
- Are we in compliance with regulations?

This is an iterative process that seeks to balance investment, O&M, and customer service levels with rates and bills that are acceptable to customers and political leaders.
Embedding a performance and metrics culture
LADWP has a history of collecting metrics. It should leverage this foundation to expand and evolve so the entire organization adopts a performance metric culture.

The process is started by assessing the gaps between future possibility and current-state reality.

**LADWP current-state:**
- Individual divisions capture and track numerous metrics.
- Transparency in infancy using rate and equity metrics.
- LADWP most likely has too many metrics – more than 50 for rate & equity metrics alone - and does not use key ones to manage the business.
- Metrics are driven from bottom up, not top down (or outside).
- Management’s ability to manage to key metrics just beginning.

**Current-state reality**
How achievable is LADWP’s vision for metrics given operational and political reality?
What key gaps must be addressed?

**LADWP future-state:**
- Leaders manage to a few strategic metrics.
- Strategic metrics link directly to and drive divisional metrics which are used by operational levels to manage the business.
- Metrics are transparent to all stakeholders.
- Performance to strategic metrics is well understood throughout LADWP.
- If possible, compensation in part reflects achievement of goals as tracked by key metrics.

**Future-state possibility**
Which key areas will LADWP measure performance to ensure it delivers on its goals to customers, stakeholders, and employees?

**Closing the gaps**
What leadership, engagement, talent, or operational changes are necessary to address the key gaps?
Managing controllable O&M expenses
Many utilities use cost per customer as a corporate-wide metric to drive performance across the organization

- Utilities like most businesses strive to control O&M expenses
- Many widely communicate “controllable O&M” expenses or expenses per customer as measures of cost control effectiveness
- Controllable expenses typically exclude non-controllable and pass-through charges such as fuel, purchased power, and pension and benefits expenses
- Focus also lends itself to both O&M and rates benchmarking against peers (see SDG&E example)
- Goals vary but many strive to keep controllable O&M growth below inflation or even flat (see DTE Energy example)
Controlling O&M expenses
Like most utilities, LADWP will be challenged to manage future O&M expenses; the labor-intensive business model only makes the situation more challenging

Annual growth in non-fuel/purchased power/purchased water O&M Expenses - excludes P&B 2009-2015, cost per customer growth (%)

<table>
<thead>
<tr>
<th></th>
<th>LADWP Power O&amp;M</th>
<th>Power IOU O&amp;M Median</th>
<th>LADWP Water O&amp;M</th>
<th>Water IOU O&amp;M Median</th>
<th>LADWP Labor Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>As reported</td>
<td>0.1</td>
<td>1.7</td>
<td>1.0</td>
<td>0.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Adjusted for EE/WC</td>
<td>2.1</td>
<td></td>
<td>3.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

POU not included because cannot remove P&B spend from publicly available data

- Since the recession, most utilities have sought to better control the growth in non-fuel/purchased power O&M expenses:
  - Median growth for Power IOUs was 1.7%
  - Leading Power IOUs are targeting zero growth in controllable O&M expenses
  - O&M expenses at Water IOUs have increased less than 1% per year since 2009
- Most utilities look for opportunities to capitalize rather than expense costs as one lever to control O&M expenses. LADWP benefits from the ability to capitalize energy efficiency (EE) and water conservation (WC) spending; most utilities are required to expense these costs (e.g., EE and WC)
- Expensing rather than capitalizing EE and WC costs drives LADWP’s O&M expense growth higher
  - Power O&M has grown about 2% per year
  - Water’s expenses have grown about 3% per year
- The growth in LADWP’s internal-labor costs places upward pressure on O&M expense
  - Since 2009, LADWP’s internal-labor costs have grown about 2.5% per year including cash and overtime costs
  - The current MOU may drive internal-labor cost growth even higher

Source: LADWP FERC/CPUC-account data, FERC Form 1, CA PUC annual financial filings, Oliver Wyman analysis
Note: O&M expenses exclude purchased fuel, power, and water, and Pension and Benefits

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Managing base cash compensation: Higher pay for lower salary jobs

Positions at LADWP where median industry pay is less than $100K are well above peers for both base pay and when bonus/incentives are included in the market data.

### Commentary

- For those job classes with market salary plus bonus/incentive pay less than $100,000, LADWP employees are just above the market 75th percentile.
- LADWP’s approach is generally consistent with the City’s goals, as outlined by Mayor Garcetti’s statements, including on minimum wage increases.

### Pay by market salary plus bonus/incentive pay band

**Oct 2014–Sep 2015**

- **<$100,000**
  - Lowest: $62.1 K
  - Q1: $84.6 K
  - Q2: $73.5 K
  - Q3: $62.1 K
  - Q4: $111.3 K
  - Highest: $181.7 K
  - LADWP = $86.2 K
  - 45 LADWP Class Codes
  - 3,929 LADWP benchmarked employees
  - 67% of benchmarked employees

- **$100,001-$175,000**
  - Lowest: $111.3 K
  - Q1: $136.4 K
  - Q2: $122.7 K
  - Q3: $111.3 K
  - Q4: $201.6 K
  - Highest: $291.0 K
  - LADWP = $114.2 K
  - 28 LADWP Class Codes
  - 1,794 LADWP benchmarked employees
  - 30% of benchmarked employees

- **>$175,000**
  - Lowest: $181.7 K
  - Q1: $291.0 K
  - Q2: $201.6 K
  - Q3: $181.7 K
  - Q4: $291.0 K
  - Highest: $291.0 K
  - LADWP = $181.0 K
  - 16 LADWP Class Codes
  - 203 LADWP benchmarked employees
  - 3% of benchmarked employees

### Source:
- LADWP; utility industry salary surveys from Mercer; Mercer analysis

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Managing base cash compensation: LADWP’s higher internal labor cost
LADWP has made a deliberate decision to ensure its employees have a living wage which translates to higher salary spend than peer utilities for matched jobs

Cost difference between LADWP and market median pay
Calculated based on difference between LADWP salary and market median times number of jobs at LADWP in a given class

<table>
<thead>
<tr>
<th>LADWP pay above market median</th>
<th>Market median pay</th>
<th>LADWP pay below market median</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 job types</td>
<td>22 job types</td>
<td>4 job types</td>
</tr>
<tr>
<td>4,233 employees</td>
<td>858 employees</td>
<td>220 employees</td>
</tr>
<tr>
<td>+$54.3M above market</td>
<td>+$12.4M above market</td>
<td>- $0.7M below market</td>
</tr>
</tbody>
</table>

For matched jobs, 71% of LADWP employees earning less than $100K are paid above median.

This includes key positions such as Assistant General Manager and skilled Systems Programmer.

Market salary under $100,000 | $100,000 | Market salary over $100,000

Commentary

- LADWP shows a commitment to paying a living wage. At LADWP, 80% of job classes that were matched pay above the market median.
- The combined result based on total pay difference to market medians suggests LADWP pays $66.7M more for “above market positions”, $6.9M less for “below market positions” resulting in a net of $59.8M.
- LADWP could become more competitive by adjusting the pay of high-skilled positions to market median, such as Assistant General Manager and Systems Programmer.
- As the LADWP evolves its workforce, balancing priorities to attract and retain necessary skillsets will need to be considered in future MOU negotiations.

Source: LADWP; utility industry salary surveys from Mercer; Mercer and Oliver Wyman analysis
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Addressing overtime costs: OT level and contribution to total pay
Overtime pay: $157M (census), $198M (FY15) and $299M (FY21 proposed)

LADWP organization level
% earning and amount of Overtime, POU Panels

<table>
<thead>
<tr>
<th>% earning OT (FTEs)¹</th>
<th>% OT of cash compensation¹</th>
<th>Median OT amount²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>Lowest</td>
<td>Lowest</td>
</tr>
<tr>
<td>Q1</td>
<td>Q1</td>
<td>Q1</td>
</tr>
<tr>
<td>54.1%</td>
<td>5.3%</td>
<td>$264</td>
</tr>
<tr>
<td>Q2</td>
<td>Q2</td>
<td>$454</td>
</tr>
<tr>
<td>57.7%</td>
<td>6.8%</td>
<td>$1,389</td>
</tr>
<tr>
<td>Q3</td>
<td>Q3</td>
<td></td>
</tr>
<tr>
<td>62.0%</td>
<td>10.0%</td>
<td></td>
</tr>
<tr>
<td>Q4</td>
<td>Q4</td>
<td></td>
</tr>
</tbody>
</table>

Highest

LADWP = 88.7%
LADWP = 16.0%
LADWP = $9,160

Comments
- Compared to POUs that have employees who earn OT, LADWP has the highest percent of employees as well as the highest level of OT relative to total cash compensation
  - Almost 89% of LADWP’s employees are eligible for OT
  - For this Employee Census, OT at LADWP averaged 16% of cash compensation
- Budget for OT in FY21 suggest OT costs are growing
- LADWP’s uses OT to perform ongoing core utility work, suggesting incremental staffing needs
- This does not include the amount of OT that is paid in hours instead of cash; however payment in cash for OT worked is the preferred method payment for OT at LADWP

Source: LADWP employee census, CA City Data, Oliver Wyman analysis
Note: (1) The values for “% earning OT (FTEs)” and “% OT of cash compensation” are dollar weighted using the sum of base salary and OT pay. (2) The values for “Median OT amount” are employee weighted to prevent distortion by small numbers of extreme high or low earners.
Addressing overtime costs: Overtime pay

For the most part, OT pay is concentrated in operational functions resulting in 10% of the company earning 40% of total OT pay

OT groups – highest to lowest OT earners
% of total OT, OT total is $157M from census¹

Percent of employees in groups
% (9,743 FTE included in study)

Top 500 OT earners
59%

500-1000
15%

Remaining 8,743
25%

Total
100%

Top 500
40% of OT…

OT earners 500-1000
25%

Remaining 8,743
15%

Total
100%

No apparent mechanism exists to translate high overtime use at LADWP to trigger analysis/plans to hire additional staff into those functions

The highest OT earners are in operational functions with the greatest concentration occurring in:
- T&D Line Crews & Management
- Water & Power Construction Crews
- Gen. Operations & Maintenance
- Water Operations & Maintenance
- Transformer & Substation Crews
- T&D System Operations

…is earned by 10% of employees

Source: LADWP employee census, Oliver Wyman analysis
1. Actual total OT for FY14/15 was $198M and has increased to $253M in FY17/18

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Considering the use of third-party services
There is a wide range in the amount that each LADWP function leverages outside services

LADWP Total Labor Spend and Percent of spend to outside services
2015, Total Labor spend is $M

<table>
<thead>
<tr>
<th>Function</th>
<th>Contract - All Capital</th>
<th>Base Pay</th>
<th>Contract - O&amp;M labor only</th>
<th>OT Pay</th>
<th>Total Percent of Spend to Outside Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water System</td>
<td>43%</td>
<td>19%</td>
<td>32%</td>
<td>6%</td>
<td>30%</td>
</tr>
<tr>
<td>Power System</td>
<td>41%</td>
<td>14%</td>
<td>36%</td>
<td>10%</td>
<td>29%</td>
</tr>
<tr>
<td>Legal</td>
<td>23%</td>
<td>67%</td>
<td>5%</td>
<td>6%</td>
<td>63%</td>
</tr>
<tr>
<td>Environmental</td>
<td>15%</td>
<td>77%</td>
<td>4%</td>
<td>6%</td>
<td>63%</td>
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<td>83%</td>
<td>14%</td>
<td>36%</td>
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</tbody>
</table>

**Commentary**

- The City’s outsourcing strategy is defined in Charter Section 1022 where it describes a process to determine if the work is “feasible and economic” as a criteria to outsource
  - This includes a process to engage labor through the various bargaining unit MOUs
- The use of contractor work varies by function whose drivers include department structure and labor rules/practices
- Including capital contracts for Water and Power, average % contract spend for LADWP is 30%; excluding capital is 25%
- There are a number of ways to go about fixing the hiring process where there are long hiring processes outside of LADWP control. A temporary solution to address short term labor gaps can be selective use of third parties

Source: LADWP employee census, LADWP Vendor and City spend data, Oliver Wyman analysis
Note: There is no P&B loading in labor cost
Public utility total compensation
There are a growing number of public utilities that include some kind of incentive-based component in total compensation

North American public utilities with executive compensation plans
Salary represents base pay in 2018 while annual incentives are based on 2018 performance

1. CPS Energy
   - City: San Antonio, TX
   - Utility size:
     - Power customers: 840k+
     - Gas customers: 350k+
     - Capacity (owned): ~4,700 MW
     - Employees: ~3,100
   - Eligibility:
     - CEO, but other executives may qualify (1)
   - CEO Compensation:
     - Salary: $472k
     - Annual cash incentive: $339k
     - L/T cash incentive: $106k
     - Total Cash Comp: $917k

2. San Antonio Water System
   - City: San Antonio, TX
   - Utility size:
     - Water customers: 460k+
     - Wastewater customers: 410k+
     - Employees: ~1,700
   - Eligibility:
     - CEO (1)
   - CEO Compensation:
     - Salary: $468k
     - Annual cash incentive: $100k
     - L/T cash incentive: NA
     - Total Cash Comp: $564.5k

3. ENMAX
   - City: Calgary, AB
   - Utility size:
     - Power customers: 668k
     - Capacity (owned): ~1,500 MW
     - Employees: ~1,700
   - Eligibility:
     - CEO, 4 Executives
   - CEO Compensation:
     - Salary: $565k
     - Annual cash incentive: $490k
     - L/T cash incentive: $740k
     - Total Cash Comp: $1.8M

Source: Utility websites, Rivard Report, SEC 10K

© Oliver Wyman
Listening to employees: Obtaining LADWP employee feedback
The graphic below shows the most common words used in discussions with LADWP staff during this study; staff has great depth of knowledge and dedication to doing the right things; harnessing the potential is a great opportunity for LADWP

Most common words in LADWP and OPA feedback

Benefits from employee engagement

• At the Federal level when comparing the least engaged organizations, those with the most engaged employees are twice as likely to achieve goals
• Additionally, those most engaged Federal organizations have:
  - 25% lower sick day occurrence
  - 65% fewer EEO complaints
  - 65% lower OSHA lost time rates
• At the state and local level, the most engaged employees, when compared to least engaged, are much more likely to believe they impact quality, cost, customer service
• According to Gallup research, private sector companies with more engaged employees lead to higher earnings, higher productivity and better customer service

Source: Wordart.com
1. CPS HR Consulting “Building Employee Engagement – A Roadmap and Lessons Learned"
Embracing benchmarking across LADWP
LADWP should begin to embed benchmarking relative to peers and the utility industry into the business

**Function benchmarking**

<table>
<thead>
<tr>
<th>Function</th>
<th>Current benchmarking efforts</th>
<th>Examples of benchmarking options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td>Power plant statistics, Peer SAIFI and CAIDI</td>
<td>Expand to plant cost and performance EEI or Southern Company Industry Study</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Data provider to AWWA</td>
<td>Actively use AWWA in the business</td>
</tr>
<tr>
<td><strong>Customer Service</strong></td>
<td>Court-mandated metrics</td>
<td>Utilities Contact Center Benchmarking Association</td>
</tr>
<tr>
<td><strong>Finance</strong></td>
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<td>APQC Open Standards Benchmarking</td>
</tr>
<tr>
<td><strong>Human Resources</strong></td>
<td>None</td>
<td>Saratoga</td>
</tr>
<tr>
<td><strong>Information Technology</strong></td>
<td>Gartner</td>
<td>Gartner, Utility Information Technology Benchmark (UNITE)</td>
</tr>
<tr>
<td><strong>Purchasing &amp; Materials Mgmt</strong></td>
<td>None</td>
<td>UPMG Supply Chain Benchmarking Survey, CAPS Research</td>
</tr>
<tr>
<td><strong>Legal</strong></td>
<td>None</td>
<td>Consilio Law Department Performance Benchmarking Series, HBR Consulting</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>Phylmar Regulatory Roundtable, Citywide Safety Professional ED18 Committee</td>
<td>Continue with current efforts and expand to leverage/track OSHA as well</td>
</tr>
<tr>
<td><strong>Fleet Services</strong></td>
<td>Utilimarc utility metrics</td>
<td>Continue to use Utilimarc</td>
</tr>
<tr>
<td><strong>Facilities Management</strong></td>
<td>None</td>
<td>Building Owners and Managers Association (BOMA) Office Experience Exchange Report</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>None</td>
<td>Building Owners and Managers Association (BOMA) Office Experience Exchange Report</td>
</tr>
<tr>
<td><strong>Overall LADWP</strong></td>
<td>None</td>
<td>Capital spend, O&amp;M expense, and employees per customer</td>
</tr>
</tbody>
</table>

**Commentary**

- Better managed utilities embrace benchmarking against third parties at part of their performance management
- Selected but not comprehensive efforts are used within LADWP today
- LADWP does not typically use benchmarking to understand or improve performance
- Many utilities perform broad benchmarking exercises such as this study periodically (e.g., every 5 years or so, ranging from high-level cost studies to deep productivity assessments by function)
- **Driving and coordinating a LADWP effort represents an appropriate task for Corporate Performance to manage**
Section 6 | Functional Snapshots
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<td>5 Staffing and Productivity Highlights</td>
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# Functional Snapshot – contents

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<td>Electric Generation</td>
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<tr>
<td>Electric Resource Planning and Supply</td>
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<td>Water</td>
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<td>Fleet Services</td>
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<td>Facilities Management</td>
<td>158</td>
</tr>
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<td>Security</td>
<td>160</td>
</tr>
<tr>
<td>Executives</td>
<td>162</td>
</tr>
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</table>
Snapshots provide a one-page summary for each function

Explanation of quartiles

- This study uses a comparative technique that leverages quartiles to show LADWP’s position relative to peer utilities for staffing, staff cost (e.g. total pay cost), total cost, Operating and Maintenance (O&M), and Capital costs.

- **Staffing, staff cost, total cost, and O&M expense:**
  - Highest staff level/cost results in 4th while lowest staff level/cost is 1st quartile
  - Total cost gives more complete picture of costs since it includes 3rd party spend
  - Companies typically want to control O&M expenses and keep them as low as possible while properly maintaining their systems

- **Capital cost:**
  - Highest spend results in Q1 while lowest is Q4
  - Capital costs are investments to improve infrastructure therefore higher spending is viewed as preferential

Panels and descriptions for metrics

<table>
<thead>
<tr>
<th>Notation</th>
<th>Description of panel and included costs</th>
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<tbody>
<tr>
<td>POU</td>
<td>Used for FTE, total pay, OT and total cost metric to compare to POU panel – for total cost metric, includes total base and OT pay plus services contract spend (excludes benefits adder)</td>
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<tr>
<td>IOU</td>
<td>Used for FTE and total cost to compare to IOU panel – total cost metric is based on FERC or CPUC financial data for capital and O&amp;M</td>
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<tr>
<td>Utilities</td>
<td>Used for total cost to compare to third-party utility benchmarks including base and OT pay plus services contract spend - includes a benefits adder to base pay</td>
</tr>
<tr>
<td>All industries</td>
<td>Used for total cost to compare to third-party benchmarks for all types of companies including base and OT pay plus services contract spend - includes a benefits adder to base pay</td>
</tr>
</tbody>
</table>

Over 90 SMEs from all LADWP functions participated in the feedback sessions
Business model implications
LADWP uses an internal labor driven business model, outlined in the City Charter provision, which is distinct from utility peers

When reviewing individual functional snapshots, the reader must keep in mind the implications of LADWP’s business model. As a general rule, it is expected that LADWP typically has above median staffing and internal labor cost relative to investor-owned and public utilities.
Power Distribution snapshot
Take-away: Distribution struggles to move forward. Labor-intensive business model presents challenges. The function will need to increase resources to meet work plans

Discussion

• LADWP has a number of unique features that make it difficult to compare with others. O&M expenses and Capital costs reflect unique aspects of Los Angeles: old age of distribution infrastructure, dense urban environment, historic and rapid build out of the city, working hours restrictions (e.g., city noise ordinances and anti-gridlock policies); the function manages over 6,000 stations and facilities, including both distribution and substations
• The Power System has been responsible for investing over $5B from 2014-2018. The function handles emergencies well. Collaboration between planning, engineering and construction has improved. Between 2014-2018, reliability as measured by SAIDI/SAIFI is typically better than PG&E and SCE, although CAIDI is worse
• Capital spending reflects deferral of needed investment. The Department has field crews positioned throughout the city in order to minimize service interruptions and quickly respond to power outages. Higher O&M expenses including overtime also reflects O&M backlog for inspections and maintenance
• The higher comparative staffing results reflect LADWP’s labor-intensive business model. Hiring is not fast enough to keep up with the accelerated Power System Reliability Program (PSRP) and new business requirements; more bodies are needed. Initiatives such as the electrical mechanic training program are useful but need to be sustained over many years. Currently there is no comprehensive Integrated Human Resources Plan (IHRP) to plan for and estimate future needs. Various divisions within Power have individual IHRPs
• Staffing limitations are the single biggest hurdle to Power Distribution being able to keep up with demands from new business, routine maintenance (including inspections), and outage response. Due to inadequate staffing, personnel have been advanced more quickly to ensure the “pyramid” is maintained but this has resulted in staff filling positions with less experience than is necessary to most effectively execute all aspects of their job
• Power is challenged to not only hire and train personnel in a timely manner but also to retain them. Ambitious employees seem to leave at a higher rate than others for a number of reasons with the most common one being better pay at IOUs/contractors
• Tracking performance, using metrics, and benchmarking are just at the beginning stages, and all of these steps are useful
• Better customer focus and outreach could help tell a better external story on what LADWP is doing for ratepayers
• There appears to be process issues and suboptimal handoffs between engineering/design and field resources for key processes (e.g., new business construction) that results in inefficiencies and higher costs

Commentary

Power Distribution is making some strides in improving the distribution system: (1) investing strongly overall with the PSRP and (2) achieving recent goals on replacing poles, transformers, and cable. LADWP has delivered outage frequency results (SAIFI) better that CA IOUs and national IOU median. However, average outage duration per customer (CAIDI) has been worse than CA IOUs and national IOU median (both per IEEE standard). Initiatives are focused on prioritizing circuits for investment, continuing hiring efforts, and improving customer outage communications. However, between new business demand, O&M, and outage response, the field is overwhelmed. In addition, due to staffing shortages, people are not getting the necessary experience at the various levels (especially Journeymen) and this impacts their ability to train more junior staff. In many areas of the field, staffing levels have progressed beyond “crisis mode” in terms of having the right number of people with the right skills at the various levels (Journeymen, Foreman, etc.). Although LADWP has started to become more customer focused, improvements can still be made in end-to-end processes through closer coordination (e.g. gaps between engineering and construction for new business). LADWP has 4th quartile O&M expenses that typically result in deeper reviews of the function which can include work planning, prioritization and management, and crew productivity and size.
Power Distribution snapshot
Take-away: Distribution struggles to move forward. Labor-intensive business model presents challenges. The function will need to increase resources to meet investment plans

Summary

*Power Distribution is a critical function, with significant spending and staffing. Distribution has produced average reliability while meeting the City’s growth needs and is investing heavily to improve reliability further. Distribution struggles to get the work done. Longer-term, the labor-intensive business model will be challenged to meet investment goals, evolving productivity targets, and O&M needs.*

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
<th>Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Power Capital Cost $M</td>
<td>$1,097</td>
<td>Q1 (POU/IOU)</td>
</tr>
<tr>
<td>Total Distribution O&amp;M Expense $M</td>
<td>$217</td>
<td>Q1/Q4 (POU/IOU)</td>
</tr>
<tr>
<td>FTE</td>
<td></td>
<td>Q2/Q4 (POU/IOU)</td>
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</tbody>
</table>

LADWP staffing and costs vs. benchmarks

Power Distribution consists of field workers, engineering, planning and other functions that directly support the operation, maintenance, design, planning and construction of distribution and substation assets and network.

Using automation/technology

- Distribution IT systems are 10 years behind: currently deploying and testing GIS in Power; updating Outage Management; starting Distribution Automation initiatives
- Distribution uses a comprehensive work system (WMIS) to plan, manage, and track all jobs and crews. WMIS should be re-evaluated and improved
- As the grid evolves, Distribution could use more sophisticated grid modelling software to better plan and integrate distributed resources into its operations

Using company/third-party resources

- Power uses more internal labor resources to carry out capital and distribution O&M work than other utilities
- 3rd party use is primarily used for repair/replacement of rotten poles
- In part, the lack of contractor availability drives LADWP’s in-house construction and O&M business model. Workers through union halls are also in limited supply

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital). (1) Includes all Power capex; Distribution capex cannot be provided separately due to system limitations. Capital excludes the regulatory asset for Energy Efficiency spend. (2) O&M are operational costs only, no shared services
Power Transmission snapshot
Take-away: Transmission represents a function that will need to evolve to meet LADWP’s renewable future

Discussion

• It is difficult to compare LADWP to others: O&M expenses and capital costs reflect unique aspects of LADWP’s vast transmission system, encompassing 3,760 miles of circuits across 5 Western states. The transmission team often works in locations outside of LA. The operation of two long-distance HVDC transmission systems, which have markedly different operating modes, equipment, and maintenance requirements than AC lines do, requires separate skills and materials. LADWP also has three legacy transmission lines that are unique to the industry and present challenges in terms of equipment maintenance and replacement.

• The labor-intensive business model will challenge LADWP to achieve its extensive replacement, upgrade, and new installation goals for its transmission system including for cable, hole covers, towers, and specific new lines.

• New challenges will arise in the journey to a 100% renewable portfolio. The transmission strategy and execution steps will need to address accessing renewables, integrating renewables, operating and maintaining existing lines, and upgrading assets.

• To meet five-year goals, Power Transmission will require additional staff as the group is spread thin, or rely more on contractors than it has in the past.

Commentary

This function is working to replace and to upgrade aging transmission lines mainly through its Power System Reliability Program (PSRP) program. Transmission will become an even more critical link as in-basin generation assets are reduced and significant transmission upgrades and additions will be necessary to import power from outside of the LA area. Many peer utilities have increased their focus on the transmission business by developing specific strategies, focusing on issues and projects often through a dedicated organization, and upgrading the capabilities of staff. Having an integrated, end-to-end process from development through design and construction of transmission assets is crucial. As greater amounts of renewable energy is brought into the area via the bulk network, it will be critical to have streamlined process that mitigates delays and cost overruns for the inevitable build out of the transmission system. Rate metrics provide a start to tracking and improving transmission performance.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital).
Power Transmission snapshot
Take-away: Transmission represents a function that will need to evolve to meet LADWP’s renewable future

Summary

The Power Transmission function is critical to ensuring reliability and providing the pathway to more renewables. Transmission has supported LADWP’s reliability performance. Longer-term, the labor-intensive business model will be challenged to meet replacement, upgrade, installation, and O&M goals without adding more staff.

Using automation/technology

- Transmission systems have automation at various levels with some stations having upgrades budgeted/planned in the short term, while others are part of the 5-year plan. Those without control upgrades will likely, over time, experience more control failures than upgraded ones.

Using company/third-party resources

- In Transmission, Power uses internal resources for work within stations. For other types of capital work, internal resources receive right-of-first-refusal for both engineering and construction work. Very specialized transmission work is outsourced but LADWP personnel are typically present to provide oversight and guidance.

LADWP staffing and costs vs. benchmarks

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
<th>Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Power Capital Cost¹ ($)</td>
<td>$1,097</td>
<td>Q1 (POU/IOU)</td>
</tr>
<tr>
<td>Total Transmission O&amp;M Expense² ($)</td>
<td>$75</td>
<td>Q2/Q3 (POU/IOU)</td>
</tr>
<tr>
<td>FTE</td>
<td>Q3/Q4 (POU/IOU)</td>
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</tr>
<tr>
<td>Total Pay Cost</td>
<td>Q3</td>
<td></td>
</tr>
<tr>
<td>% earning OT</td>
<td>Q4</td>
<td></td>
</tr>
<tr>
<td>OT % of total cash</td>
<td>Q3</td>
<td></td>
</tr>
</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123.

- LADWP has one of the most aggressive power capital programs in the industry.
  - Transmission is focused on cable replacement program, maintenance hole lid restraint retrofit program and upgrades to several transmission lines. Major projects represent separately budgeted transmission work.
  - Transmission O&M expenses are above median vs. IOUs and below vs. POU’s, in part reflecting LADWP’s larger scale.
  - Staffing and OT levels reflect capital programs using in-house resources.
  - This function is organizationally divided between AGM Power of Engineering & Technical Service and AGM Power Construction, Maintenance and Operations.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital). (1) Includes all Power capex; Transmission capex cannot be provided separately due to system limitations. Capital excludes the regulatory asset for Energy Efficiency spend. (2) O&M are operational costs only, no shared services.
Electric Generation snapshot
Take-away: Generation has been working to increase efficiency of its generation facilities while adding supply resources to meet changing demands from RPS goals

Discussion

• LADWP is unique in its generation mix by combining mostly fossil-fuel based assets in-basin and a more diverse fuel mix sourced from other parts of California as well as 4 states, including hydro, nuclear and renewable resources. It owns 44 facilities with 4.8 GW capacity, jointly owns or contracts from another 4 facilities for 2.7GW, and lists >24,000 DG sites for 300 MW

• California has extremely aggressive renewable and Greenhouse Gases (GHG) reduction goals driving increased need for renewable sources to meet state mandates. Increasing the amount of local Distributed Generation (DG) assets will be imperative throughout the LA area to support Renewable Portfolio Standard (RPS) targets, but also mitigate the necessary upgrades to the transmission network as more power is required from outside the LA area

• In February 2019, the Mayor announced the cancellation of plans for improvements to in-basin natural gas plants and replaced them with a commitment to invest in more renewables to meet the goal of 100% renewable power by 2045. This may require a reassessment of the resource and capital needs necessary to make this change with minimal impact on rates

• The staffing philosophy to rely on internal labor aligns with the broader LADWP approach; Generation uses a Scheduled Inspection and Repair team for outages/overhauls in order to maximize utilization and still internalize work that others commonly outsource. Generation uses outside resources for specialized expertise (e.g., proprietary control systems, specialized materials/services, etc.)

• Generation requires 24-hour operations at facilities which is a driver of higher OT levels compared to other functions at LADWP; California limits planned outages to 9 months (summer prohibition) which drives additional OT in order to complete annual maintenance in only 75% of year

Commentary

Generation has been meeting capital investment requirements (e.g. major unit overhauls at generating assets, transformer replacements and replacement of 6 MW hydro plant). The function uses industry-standard metrics to track and improve performance of its generating units. Decisions to cancel life extension plans for in-basin assets may require LADWP to develop an Integrated Human Resource Plan to address existing and future workforce needs.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital).
Electric Generation snapshot

Take-away: Generation has been working to increase efficiency of its generation facilities while adding supply resources to meet changing demands from RPS goals

Summary

The Generation function has helped LADWP provide some of the lowest rates in southern California with its in-basin fossil plants. Generation has produced good availability and capacity factors in order to supply power from internal sources rather than relying on external power producers. Generation performs at competitive cost levels. Generation will need to address capital and workforce plans due to the Mayor’s announcement to not extend the life of in-basin plants.

Using automation/technology

- A number of systems are employed to operate and control generation assets, which are periodically upgraded based on life cycle and new requirements (e.g., for cyber security)

Using company/third-party resources

- Generally use internal resources for capital and O&M work
- Outside resources used mainly when specialized expertise is required

LADWP staffing and costs vs. benchmarks

<table>
<thead>
<tr>
<th>Type</th>
<th>Value Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Power Capital Cost¹ ($M)</td>
<td>$1,097 Q1 (POU/IOU)</td>
</tr>
<tr>
<td>Total Generation O&amp;M Expense² ($M)</td>
<td>$197 Q1/Q2 (POU/IOU)</td>
</tr>
<tr>
<td>FTE</td>
<td>Q3/Q2 (POU/IOU)</td>
</tr>
<tr>
<td>Total Pay Cost</td>
<td>Q3</td>
</tr>
<tr>
<td>% earning OT</td>
<td>Q4</td>
</tr>
<tr>
<td>OT % of total cash</td>
<td>Q4</td>
</tr>
</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

- LADWP has one of the most aggressive power capital programs in the industry
  - The future mix of owned versus contracted resources will drive future investment levels
- Generation O&M expenses are low vs. IOUs and POUs, in part reflecting scale with some impact due to differences in generation/fuel mix between LADWP and panel utilities
- Staffing and OT levels reflect capital programs using in-house resources
- This function is organizationally divided between AGM Power of Engineering & Technical Service and AGM Power Construction, Maintenance and Operations

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital). (1) Includes all Power capex; Generation capex cannot be provided separately due to system limitations. Capital excludes the regulatory asset for Energy Efficiency spend. (2) O&M are operational costs only, no shared services

© Oliver Wyman
Electric Resource Planning and Supply snapshot

Take-away: Resource Planning will become increasingly important in the coming years, as achieving RPS targets, de-carbonization goals, and load growth from electrification will include using a greater portion of renewable resources and possibly purchased power.

Discussion

- LADWP has a diverse and unique mix of owned/operated facilities of which ~68%, on a % of net dependable MW, is gas fueled while the remainder is renewable and large hydro. Of jointly owned or contracted sources, roughly 16% is fossil powered while the remainder is renewable, coal, large hydro, or nuclear.
- In order to meet renewable goals, the majority may be met using Power Purchase Agreements (PPA) with ownership options. The main distributed energy source of installed capacity may be from feed-in-tariff at ~50MW per year, with smaller amounts coming from community solar and solar incorporated to facilities.
- In order to meet the goal of 100% renewable power by 2045, the function will face challenges in developing reliable alternative resources without raising prices or increasing the risks of outages.
- The function has a broad set of objectives to meet LADWP’s renewable and risk management goals.

Commentary

This function appears to be meeting its primary goals of procuring the necessary power for distribution operations as well as replacing fossil sources with renewable energy. LADWP has been keeping up with its plan to meet the 2020 RPS target as well as operating within the allowable cost bands for solar, wind and geothermal cost (per MWh) as defined by rate metrics. Current staffing levels are adequate to procure the necessary power. As in-basin fossil sources are retired, distributed resources grow, and the electrification of the transport network continues, this function may require increased resources to achieve mandated RPS targets while keeping rates as competitive as possible. Ripple effects from more in basin resources may require additional resources in other functions such as Power Transmission & Distribution.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Electric Resource Planning and Supply snapshot

Take-away: Resource Planning will become increasingly important in the coming years, as achieving RPS targets, de-carbonization goals, and load growth from electrification will include using a greater portion of renewable resources and possibly purchased power.

Summary

Resource Planning and Supply is a critical function to procure necessary resources for the Power System. The function has become even more central in ensuring LADWP meets mandatory renewable energy targets. This function has been successful in keeping up with the plan to meet 2020 Renewable Portfolio Standard (RPS) targets and should meet its near-term objectives.

Using automation/technology

- Most systems at this time are internally developed, custom applications
- Upgrades to commercial software are planned as LADWP becomes more integrated with regional power markets (e.g., entering the Energy Imbalance Market)

Using company/third-party resources

- The work is carried out predominantly using internal labor resources

LADWP staffing and costs vs. benchmarks

Electric Resource Planning and Supply consists of those employees that plan and procure the electric supply which is sold to LADWP customers as well as contract to provide fuel source to generation facilities.

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Total Cost</td>
<td>Q1 (POU)</td>
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<tr>
<td>FTE</td>
<td>Q1/Q2 (POU/IOU)</td>
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<tr>
<td>Total Pay Cost</td>
<td>Q1</td>
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<tr>
<td>% earning OT</td>
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<td>OT % of total cash</td>
<td>Q4</td>
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</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123.

- LADWP has low total cost and staffing levels for its Electric Resource Planning and Supply function
  - Lower FTE levels are driven primarily by the power forecasting and fuel procurement sub-functions
  - OT is also higher relative to peers but below the LADWP median

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Water snapshot

Take-away: Water has spent aggressively to meet its infrastructure investment targets. The labor-intensive model will challenge achieving long-term goals

Discussion

• LADWP has a number of unique features that make it difficult to compare with others. O&M expenses and capital costs reflect unique aspects of Los Angeles: old age of distribution infrastructure, dense urban environment, historic and rapid build out of the city, working hours restrictions (e.g., city noise ordinances and anti-gridlock policies); this function operates 7,337 miles of distribution pipe, and >125 treatment and pumping stations that services an area of 473 sq. mi. The 370 mile aqueduct represents another unique feature that presents investment and maintenance challenges.

• The Water system is very old with an average pipe age of over 60 years. Current annual replacement rate is ½ of the goal that LADWP has established (1% of pipe per year).

• LADWP has implemented an asset management program to address the long-term sustainability of its major facilities and infrastructure. Near-term initiatives such as individual ground water clean-up, increasing storm-water capture and infrastructure investment will enable LADWP to meet its longer-term goals. Between 2014 and 2018, LADWP invested over $3B in the Water system.

• Water is making progress on meeting service level commitments. It is meeting its commitment to assess and investigate water leaks in less than 4 hours; it is working towards providing notification of water outages within 60 minutes; it has established a goal of completing 80% of new water service requests within 100 or 140 days, depending on size; it also is making strides towards a goal of replacing 1% of system pipe per year (~387k ft per year); LADWP last met their replacement goal for mainline pipe in FY17/18 (215k ft) – it missed similar targets in FY18/19 and FY19/20; however it has exceeded its goals in Trunk Line replacement in FY18/19 and FY19/20.

• Comparative costs and staffing results generally reflect the City’s and LADWP’s philosophy of performing a majority of work with internal labor as well as providing the ability to quickly respond to local disruptions for minimal interruption of service. The system’s uniqueness also drives higher staffing levels and costs relative to peers.

• In the longer-term, to continue achieving aggressive pipe replacement and system growth goals, Water must continually attract and hire skilled workers to execute its plans for pipe, meter and corrosion station replacement. Water will require net hiring (i.e., net of retirements) to meet its goals. Water has action plans to link work and staffing needs.

• Staffing is a limiting factor to complete all planned capital work.

• Water actively works to engage its employees through regular communications to the entire water organization.

Commentary

Water has continually invested over the years to improve its system at levels higher than peers. Water spent over $4B for the 10 years ending FY15 while keeping customer rates at some of the lowest levels in Southern California. Water’s O&M performance is mixed versus POUs and IOUs: results vs. peers likely reflect unique features and higher service levels. Industry practice typically includes detailed reviews of 4th quarter O&M expenses to understand the main cost drivers, identify areas of improvement, and determine if the “right” amount of O&M is being spent and targeting the most critical areas. The Department has made conscious decisions to provide enhanced services through rapid response to disruptions which drive higher O&M spend. Modern “time and motion” studies would be useful to identify inefficiencies within the work planning and execution process to help reduce cost – none have been conducted for ~20 years. Completing those can validate assumptions related to efficiency and safety as well as enable more accurate budgeting and planning of work.

The creation of Water rate metrics represent a positive step to deeper understanding of and control of costs. The function is meeting or exceeding performance in 8 of 16 rate metrics having targets based on the latest report (Apr 2020).

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital).
**Water snapshot**

**Take-away:** Water has spent aggressively to meet its infrastructure investment targets. The labor-intensive model will challenge achieving long-term goals.

### Summary

*Water is on a good path to continue to invest and build for the future. The Water system has aggressively invested in infrastructure by increasing annual pipe replacement by 8% per year over the last 10 years including 40 miles alone in FY18. In the longer term, LADWP will need to ensure it can hire skilled personnel to not only meet current plans but also to replace retiring staff.*

### LADWP staffing and costs vs. benchmarks

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
<th>Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Capital Cost(^1,2)</td>
<td>$449</td>
<td>Q1/Q1 (POU/IOU)</td>
</tr>
<tr>
<td>Total O&amp;M Cost(^1,3)</td>
<td>$166</td>
<td>Q1/Q4 (POU/IOU)</td>
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<tr>
<td>FTE</td>
<td></td>
<td>Q4/Q4 (POU/IOU)</td>
</tr>
<tr>
<td>Total Pay Cost</td>
<td></td>
<td>Q4</td>
</tr>
<tr>
<td>% earning OT</td>
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<td>Q4</td>
</tr>
<tr>
<td>OT % of total cash</td>
<td></td>
<td>Q4</td>
</tr>
</tbody>
</table>

*Water includes all personnel who are involved in the operation, maintenance, engineering, design, construction, resource management, and support of the water system or assets.*

### Using automation/technology

- Water uses common systems including GIS, Maximo, SCADA, Primavera, H2O Net, and AUTOCADD. It uses a comprehensive work system (WMIS) to plan, manage, and track all jobs and crews
- LADWP is currently working to upgrade Maximo as well as implement its Water Information Network (WIN)
- Water system is controlled and/or monitored via SCADA to maintain pressure using a network of pumps, control valves and tanks. WIN system upgrades will enable better use of analytics

### Using company/third-party resources

- Leveraging 3rd parties are currently limited in scope which is narrowly focused on trunk-line construction
- Other utilities, especially water IOUs, have employed third-parties to a higher degree than LADWP especially for capital work

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*Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital). (1) Total O&M and Capital cost exclude spend related to the LA aqueduct due to its uniqueness to LADWP. (2) Capital excludes the regulatory asset for Water Conservation spend. (3) O&M are operational costs only, no shared services.*
Environmental snapshot
Take-away: This function provides the necessary support to the Systems in order to meet infrastructure goals and maintain regulatory compliance

Discussion

- California has much more stringent environmental regulations than nearly all federal mandates. Of these state regulations, the one that most significantly impacts this function is Cap and Trade for Greenhouse Gas emissions.
- The Environmental function has helped the Power system cut emissions in half (from 1990 level) as well as enabled consistent increases in capital projects over the past 10 years, moving from a combined water/power level of $750M to $1,500M per year. Workload in the function has increased in step with the increase in capital projects.
- Comparative staffing and total cost results generally reflect the resources needed to meet the needs of both systems and state regulations. LADWP operates older, more environmentally challenged infrastructure in a state with the most stringent environmental regulations.
- Near- and long-term goals are aimed at becoming a leader in environmental stewardship. To meet this goal, the Environmental function will have to ensure all necessary external resources continue to be aligned to support work.
- In coordination with the Systems, but focused on Power, LADWP is rolling out a process to ensure early involvement of the Environmental function for all upcoming projects to reduce work delays from lack of permits, etc. Water already has a well established “gate” system that involves Environmental.

Commentary

The Environmental function appears to meet the needs of the systems as well as air and water quality mandates from the state and federal levels. Environmental has evolved into an important and valued function to advance LADWP’s goals. However, meeting these mandates comes at a high total cost. LADWP has aggressive capital plans for both Water and Power. A key procedural component of successfully completing projects on time and on budget requires early involvement from the appropriate Environmental personnel. This involvement helps early identification of environmental impacts and mitigates downstream delays, as well as ensure all required documentation is completed to minimize violations and fines.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital).
Environmental snapshot

Take-away: This function provides the necessary support to the Systems in order to meet infrastructure goals and maintain regulatory compliance.

**Summary**

*Environmental supports the Systems by providing services, oversight and documentation to maintain regulatory compliance. It ensures environmental compliance by meeting California Environmental Quality Act (CEQA) and other environmental permit requirements for large projects. It continually trains staff in hazardous waste, air and wastewater quality, and storm water compliance. Both near and long-term, the Environmental function can help meet LADWP’s five-year goals by being more of a partner with the Systems than pure support.*

**LADWP staffing and costs vs. benchmarks**

*Environmental includes personnel who ensure the department documents and complies with environmental regulations relating to electrical and water operations.*

<table>
<thead>
<tr>
<th>Type</th>
<th>Quartile</th>
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</thead>
<tbody>
<tr>
<td>Total Cost</td>
<td>Q4 (POU)</td>
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<tr>
<td>FTE</td>
<td>Q3/Q4 (POU/IOU)</td>
</tr>
<tr>
<td>Total Pay Cost</td>
<td>Q4</td>
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<tr>
<td>% earning OT</td>
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<td>OT % of total cash</td>
<td>Q4</td>
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</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123.

- LADWP’s total comparative Environmental costs are high relative to POU peers
- Staffing is above median against both IOUs and POUs
- California has more stringent environmental regulations than the federal level, highlighted by the POU panel median staffing (mostly CA) being three times that of IOU (national panel)
- OT levels are higher than peers but well below LADWP median

**Using automation/technology**

- Environmental uses standard Microsoft Office products and an internally developed web based system for managing workload
- Environmental has evaluated off-the-shelf options, but those would create more work to operate than current in-house solution

**Using company/third-party resources**

- Compared to other functions at LADWP, Environmental uses a much larger proportion of third-party resources relative to internal staff labor (~60%)
- This greater reliance on third-party resources is due to the high demand from capital work, as well as specialized remediation work

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime paid earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Customer Service snapshot

Take-away: Customer Service has faced significant challenges. Improvements are occurring. Costs are high. To meet Department and customer goals, more resources may be required.

Discussion

- LADWP’s customer service function has been through a great deal of change, starting with the Customer Information System (CIS) upgrade in 2013, resulting in the current court-mandated monitoring. It reflects a labor-intensive approach which staffs all call centers, staffs collections and other services, operates 14 service centers, operates its own print & mail shop, and produces customer bills that not only include water and power but also sanitation and sewer services.

- Comparative costs and staffing reflect a high amount of insourcing and include roles such as service centers that have largely been replaced with expanded payment locations by peers. LADWP is investing in customer service centers in its goal to be part of the local community and more accessible to its customers. It also provides a place to educate people on energy efficiency and water conservation. Community-based service strategies reflect LA’s diverse customer and cultural base.

- LADWP strives to provide excellent customer service and it has established a Customer Bill of Rights.

- Other shorter-term goals, such as completing the Customer Journey Mapping will inform how to prioritize investment to areas needing improvement, such as outage and emergency notification as well as installation speed for new service requests. Stabilizing CIS and upgrading the Interactive Voice Response (IVR) will provide the basis for a more robust customer service platform.

- Achieving better service will require further improvements in hiring. Improvements have occurred (e.g., larger applicant pools, better exam testing and test scheduling, and focus on attracting a higher caliber pool). However, continued high turnover rates largely driven by transfers to other LADWP functions will challenge meeting goals and improving performance.

- OPA has suggested that there may be issues of work planning and productivity related to field focused work (e.g. Credit and Collections).

Commentary

Customer service cost comparison to both POUs and IOUs for water and power are above median, reflecting the uniqueness of LADWP’s investment in customer service. The philosophy of engaging the community aligns with LADWP’s 5-year goals but comes with higher costs. LADWP has been making strides to improve customer service as evidenced by the 2019 renewal of the Customer Bill of Rights and metrics such as ~1 minute wait time which is 2nd quartile (per AWWA). Research suggests that LADWP is delivering consistent service to residential customers, but below that of peer utilities. Among business customers, LADWP’s delivers much better service than utility peers. The Department may be meeting short-term targets (e.g., improving speed of call answer by adding staff) but missing opportunities to both improve service and manage costs by not focusing on root causes (e.g., improved bill presentment, increased brand focus, enable first contact resolution and positively impact the customer experience). There may be issues of work planning, coordination and productivity from field operations that spill over into Customer Service – end-to-end process examination is required to improve. Most likely, LADWP will require step changes in technology to improve both service and mitigate cost growth, especially developing a digital technology strategy. LADWP is likely less automated in many areas than peer utilities.
Customer Service snapshot

Take-away: Customer Service has faced significant challenges. Improvements are occurring. Costs are high. To meet Department and customer goals, more resources may be required.

Summary

*Providing exemplary customer service is a key goal for LADWP. This function has been a public focal point at LADWP since 2013. It is working to meet its own as well as court-mandated metrics. LADWP’s challenge is to achieve its customer goals at a reasonable cost.*

### Using automation/technology

- Current CIS was implemented in 2013; short-term investment is targeted at upgrading current systems (e.g. IVR, website)
- LADWP is one of few utilities that has walk in service centers and is unique in that the Department is upgrading rather than consolidating or eliminating centers

### Using company/third-party resources

- Resource mix reflects the City’s and LADWP’s decision to use utility staff. Few third-party services are used
- Other utilities (both POU and IOU) have employed third-parties for after-hours and overflow call centers as well as print/mail services

**LADWP staffing and costs vs. benchmarks**

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
<th>Quartile</th>
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</thead>
<tbody>
<tr>
<td>Total Labor &amp; Services Cost</td>
<td>Q4 (POU)</td>
<td></td>
</tr>
<tr>
<td>Power Total O&amp;M (SM)</td>
<td>$221</td>
<td>Q3/Q3 (POU/IOU)</td>
</tr>
<tr>
<td>Water Total O&amp;M (SM)</td>
<td>$94</td>
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<td>FTE</td>
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</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

- LADWP’s Customer Service total costs are higher relative to peers, both IOUs and POUs
- Comparative power and water total O&M costs are broadly defined, and include costs for energy efficiency and conservation programs. LADWP has strong emphasis on customer service which is manifest in similar cost per customer between electric and water (i.e., $155 per electric customer/$143 per water customer); water peers typically have lower levels of customer service cost (e.g., water median is 25% of electric’s median)
- High FTE count driven by numerous roles filled with internal labor that have commonly been outsourced or automated by peers
- Comparisons also capture the beginning of staffing ramp-up to meet goals and court-mandated requirements
- Internal staffing level and costs reflect support to Bureau of Sanitation for sending bills and processing payments

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Marketing/Energy Efficiency/Conservation Programs snapshot
Take-away: Marketing is supporting the Systems with numerous efficiency and conservation programs at a competitive total cost

Discussion

- Marketing/Energy Efficiency/Water Conservation has been and will be a key part of meeting Power & Water goals and meeting renewable mandates. Marketing has developed and is managing roughly 30 energy efficiency and water conservation programs across 6 different customer groups and offers rebates for more than 30 products.
- This function has been involved in electric vehicle expansion programs. Detailed planning is necessary to accommodate the load growth on the network based on greater electrification of the transportation sector.
- In the near term, LADWP will need to invest in its customer web-based portals in order to make them more user friendly and functional from front end (e.g., sign up for programs) to back end (e.g., tracking savings, processing of rebates).
- In the longer term, as digitization becomes more prevalent, LADWP will need to more proactively and regularly engage its customers on efficiency and conservation measures in order to maintain behavioral change efforts that have occurred (e.g., water conservation even after a drought period has ended).

Commentary

Marketing/Energy Efficiency/Water Conservation is meeting the needs of the systems and LADWP customers. The function delivers a variety of programs to benefit customers and conserve resources at competitive internal labor costs. LADWP developed a variety of programs aimed at reducing power and water use by leveraging rebates, equipment installations, and behavioral change. Peer utilities are increasingly linking marketing efforts to overall customer experience strategies. Others also strive to meet policy goals while providing benefits to the utility and operations. Digital marketing and sales solutions are growing in the utility industry, helping to mitigate cost increases.

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Marketing/Energy Efficiency/Conservation Programs snapshot

Take-away: Marketing is supporting the Systems with numerous efficiency and conservation programs at a competitive total cost

Summary

This function has helped reduce energy and water consumption by responding to the needs of LADWP’s customers. The level of customer engagement will continue to increase. Long-term in order for LADWP to regularly interact with customers and improve efficiency and conservation efforts, the Department will need better tools to engage their customers (e.g., leveraging digital technology).

LADWP staffing and costs vs. benchmarks

Marketing/EE/WC includes staff who forecast power and water demands, develop energy efficiency and water conservation programs, market and advertise for LADWP and support economic development in the service territory.

<table>
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LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123.

Using automation/technology

- Use CRM and other common office tools to track rebates and other data
- A better front-end interface (e.g., website, mobile functionality) with customers is necessary, as well as the accompanying back office mechanism (e.g., savings tracking, payments, rebates) to more fully engage all customer types

Using company/third-party resources

- Marketing spends roughly 35% on outside services which is above average of functions at LADWP
- The function relies less on third parties to develop and manage programs because they believe the programs are better managed by internal employees
- Execution of energy efficiency and conservation programs are often outsourced by IOUs

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
External Relations and Communications snapshot

Take-away: External Relations and Communications has provided critical communications services. More effort may be required in the future

Discussion

• The function has significant engagement externally and internally on key issues such as power, water, renewables, and environmental, on many critical communications topics (e.g., outages, capital projects, path to a smart grid), and with numerous important audiences (over 90 Neighborhood Councils which have communication agreements in-place with LADWP, broad territory covering multiple states, etc.)

• The value of the External Relations and Communications is seen by internal LADWP customers. Power and Water loop External Relations and Communications into their initiatives

• Their cost and staffing are mostly below peers although the function recently added staff. The content area is attractive to recent graduates interested in environment and community work

• To meet five-year goals, External Relations and Communications must continue to add qualified personnel to staff for both internal and external audience communications, as well as expand its technology solutions to better connect and communicate with LADWP’s customers across a diverse range of issues

• Expanding its graphics support staff represents a change that External Relations and Communications should do quickly since it will enable them to support content production

Commentary

The External Relations and Communications function is critical to supporting a utility’s strategy. Much of the utility industry’s focus has been on external communications to key audiences such as customers, regulators, community members and leaders. Recent LADWP announcements (e.g., the decision not to replace/upgrade the three in-basin gas plants, the renewal of the Customer Bill of Rights) will require ongoing and potentially increased communications. Other utilities have increased communications efforts with initiatives to improve customer satisfaction

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External Relations and Communications snapshot
Take-away: External Relations and Communications has provided critical communications services. More effort may be required in the future

Summary
External Relations and Communications have evolved to meet LADWP’s growing needs and unique environment. The relatively small function will be called upon to do more in the future. In the long term, additional qualified staff and expanded technology solutions will be important.

LADWP staffing and costs vs. benchmarks
External Relations and Communications includes employees who manage both internal and external communications as well as community relations

Using automation/technology
• Improvements to communication and social media tools (e.g., email blasts) would be welcome but are understood to be lower priority for LADWP’s IT function
• Technical and creative improvement in audio-visual tools would be welcomed

Using company/third-party resources
• Mostly use internal labor supplemented by some specialized contracts

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Finance, Accounting and Planning snapshot
Take-away: The function supports the goals of the LADWP at competitive costs; system upgrades can help “step-up its game” even more

Discussion

- In collaboration with other functions, Finance, Accounting, and Planning has been central to the LADWP’s ability to mitigate rate increases even though there is heavy infrastructure investment in Power and Water systems and requirements to meet renewable mandates. LADWP has no material weaknesses in its financial area as identified by independent auditors.
- Finance has helped maintain a strong debt rating of AA- for Power and AA for Water.
- Near-term goals are focused on maintaining a strong bond rating, enabling adequate cash flow for capital spending, supporting the upgrade of the budget system, and improving employee engagement within the LADWP.
- ERP implementation will provide greater visibility into amounts and types of spend that can enable greater efficiency by linking asset accounting and financial reporting.
- Internal staffing and labor costs, although higher overall, when combined with outsourced labor result is below median total cost.
- The critical long-term initiative is to plan and install an ERP system; it is a top priority which will support continuing the short-term goals and enable greater efficiency in financial decision making across LADWP.

Commentary

Finance, Accounting, and Planning has helped enable innovative rate design in order to help mitigate power and water rate increases, and ensuring cash flow for significant infrastructure investment. Moving forward, upgrading systems will be a crucial component in helping LADWP meet its short- and long-term goals. An upgraded budget system and financial system replacement (which is a subset of the ERP) could help increase efficiency across the organization to help offset other expense growth and avoid potential rate increases. Being able to make more informed and timely decisions related to project execution (e.g. financial impact of delays, assess alternative plans for a project) and meet data demands from numerous sources (e.g. Mayor, OPA, Press, etc.) will require Finance, Accounting, and Planning to be more involved and have more capable, flexible tools. In addition, a review of the budgeting process could be beneficial allowing prioritization of initiatives across the entire department in order to balance finite resources. Most peers, especially IOUs, have upgraded core enterprise-wide systems.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay plus 36.8% benefits adder and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Finance, Accounting and Planning snapshot
Take-away: The function supports the goals of the LADWP at competitive costs; system upgrades can help “step-up its game” even more

Summary

Finance, Accounting, and Planning provides financial services to LADWP at below median cost. FSO has helped to mitigate rate increases by maintaining strong debt rating of AA- for Power and AA for Water and enabled adequate cash flow for capital. In the long-term, the function will require a modern ERP to become more effective and efficient in responding to the needs of internal and external demands.

Using automation/technology
• Relies on antiquated mainframe systems that require specific technical expertise to maintain and are personnel intensive
• Plans to upgrade the budget system will provide greater capabilities such as running multiple budget scenarios and faster analytic reporting; it will also serve as a pre-amble for the more complex ERP installation
• Plans to upgrade to a modern ERP would enable greater efficiency: automation of manual checks in Accounts Payable, reduction of double entries in Payroll currently necessary from HRMS and EIS systems, and faster General Ledger closing cycle in Accounting

Using company/third-party resources
• Usage of third-parties is in line with the City’s and LADWP’s approach
• Compared to LADWP average, Finance, Accounting and Planning uses above average level of services (36% of spend); however, when comparing total cost including third-party spend, LADWP has a lower cost relative to peers

LADWP staffing and costs vs. benchmarks

Finance, Accounting and Planning comprises all accounting, payroll, budgeting, finance and treasury positions at the utility

<table>
<thead>
<tr>
<th>Type</th>
<th>Quartile</th>
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<tbody>
<tr>
<td>Total Cost</td>
<td>&lt;Median¹ (utilities)</td>
</tr>
<tr>
<td>FTE</td>
<td>Q3/Q4 (POU/IOU)</td>
</tr>
<tr>
<td>Total Pay Cost</td>
<td>Q3</td>
</tr>
<tr>
<td>% earning OT</td>
<td>Q4</td>
</tr>
<tr>
<td>OT % of total cash</td>
<td>Q4</td>
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</table>

POU only

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

• Even when including staff who perform finance functions that are part of the unique Retirement Office, LADWP's total cost is below median
• FTE levels are driven by budgeting and planning needs required of a typical large, public organization and exacerbated by antiquated financial systems
• Total pay cost is consistent with staffing levels
• OT usage is below LADWP median

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay plus 36.8% benefits adder and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital); (1) Third-party benchmark does not have quartiles and allows only to determine above/below median
Rates and Regulatory Affairs snapshot

Take-away: Rates and Regulatory affairs has facilitated infrastructure improvement through innovative rate design and kept LADWP in compliance with regulatory requirements; planning is required to build future staff capability and mitigate the impact of retirements

**Discussion**

- Through innovative rate designs such as power access charge, tier rates, and minimum charges, LADWP’s Rates group has helped enable greater than 8% growth per year in Power and Water capital investment to replace aging infrastructure, transform power/water supply to meet mandates and improve customer service. They have also been involved in the early developments of AMI and worked with Customer, Care & Billing System to better coordinate the billing process
- A unique attribute of the Rates group is that staff manage an AMI system that is used for billing large Commercial and Industrial customers
- Regulatory Affairs is the point function in two major areas: (1) FERC, NERC, and WECC Reliability Standards compliance requirements and (2) non-Reliability Standard requirements including federal, state, and city agency mandates. The function manages 465 current NERC compliance requirements and 160 non-Federal periodic reports regularly interacting with ~100 SMEs within LADWP to address compliance matters; they are also the key point of contact for federal and state regulatory agencies. A unique attribute of this group is that they perform both regulatory affairs and ensure compliance with mandates
- Comparative staffing and costs are low and reflect the minimal level of headcount in Rates and Regulatory Affairs. Rates and Regulatory Affairs could benefit from more visibility within LADWP and management could provide more support for the function
- With more frequent rate actions, short- and long-term goals are to mitigate rate hikes while accommodating a greater variety of renewable resources required by mandates

**Commentary**

Rates and Regulatory Affairs are meeting the needs and goals of LADWP. Rates are more flexible to allow collection of revenue supporting capital investment and new sources of power/water supply through innovative rate mechanisms as well as remaining compliant with mandates through the Regulatory Affairs function. The function carries out its tasks at a low total cost relative to peers. However this low cost reflects lower investment in personnel, advancement opportunities and technology for the group. The function is most likely not appropriately staffed to carry out its work in the future. Rates and Regulatory work requires unique skillsets and experience that are extremely difficult to find outside of these functions at utilities. A number of utilities have suffered the lasting negative impact on the business when they do not staff with properly qualified and trained personnel in the rates and regulatory affairs function. Regulatory Affairs will likely become more active in how policy is set at state and local level.
Rates and Regulatory Affairs snapshot

Take-away: Rates and Regulatory affairs has facilitated infrastructure improvement through innovative rate design and kept LADWP in compliance with regulatory requirements; planning is required to build future staff capability and mitigate the impact of retirements.

Summary

This function supports investment in infrastructure through innovative rate mechanisms and ensures compliance with Federal and State regulatory requirements. LADWP continues to be in compliance with regulatory requirements. In order to continue to meet both near- and long-term goals, the function needs to identify and train suitable replacements for the unique skillsets required before current employees retire; it will also likely need to create incentives to attract and retain requisite talent.

LADWP staffing and costs vs. benchmarks

Rates and Regulatory Affairs are those involved in developing power and water rates, meeting Federal and state regulatory compliance requirements, and interfacing with regulators.

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<tr>
<td>Total Cost</td>
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<tr>
<td>FTE</td>
<td>Q1/Q1 (POU/IOU)</td>
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<tr>
<td>Total Pay Cost</td>
<td>Q1</td>
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<tr>
<td>% earning OT</td>
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LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

- LADWP’s Rates and Regulatory Affairs total costs are low relative to peers as are staffing levels compared to both IOU and POU peers
- FTE levels reflect low frequency of rate actions and challenges of hiring personnel with necessary skillset
- FTE levels are low for both Rates and Regulatory Affairs groups relative to IOU/POU peers
- Regulatory has added staff (+4 positions)
- Total cost higher than normal due to 2015 rate action
- OT near LADWP median also driven by rate action work

Using automation/technology

- The function uses standard office products; Rates staff also use SAS, MV90, MVPBS and MVWEB to serve C&I customers
- Regulatory Affairs would greatly benefit from more automation/technology tools to gather, store, and share work. Currently, the data gathering and sharing process is manually done which is both time and resource intensive and increases risk of inaccuracies that could lead to fines; Rates can use tools that leverage web transformative technology to improve business processes
- Although not a direct benefit, the new budget system will provide more information about customers enabling the design of better programs various customer groups

Using company/third-party resources

- Rates and Regulatory Affairs used third-parties for roughly 60% of work for FY 14/15
- The resource mix was strongly influenced by the rate action that was ongoing during this study period

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Human Resources snapshot
Take-away: HR is responding to the needs of LADWP based on the requirements of the City’s civil service structure and its union environment. HR has a high total cost. Improving HR may represent the key to meeting LADWP’s long-term goals since staffing issues drive performance at the utility

**Discussion**

- Internal customers of HR believe improving the function, especially the hiring process, could represent the number one priority at LADWP to meet future needs. LADWP internal customers understand improvement is both a Department and City issue. Recruiting, testing, vetting, developing job descriptions all represent improvement areas although many acknowledge City Personnel department plays a key role in these challenges, where different “thinking” is needed. Users believe HR is short-handed
- Comparative costs and staffing results, all above median, reflect meeting the services required by LADWP’s internal labor forces and the City’s requirements. The full HR function is unique since the organization and reporting structure spans across LADWP and the City. Within LADWP, HR functions span multiple organizations
- The LADWP’s HR effort is a result of being part of the civil service of the City, having a unionized work force (over 90% represented by single union), and uniquely operating an internal Retirement Office that most peers outsource. Requirements such as internal staff being considered for vacancies, civil service requirements, MOU and union processes, as well as “reasonable accommodation” policies require resources – both time and people – which have a cumulative effect. HR is one of the most complex functions at LADWP with personnel in nearly every organization performing some level of HR function
- Hiring challenges are due to both internal-LADWP process and City Personnel but HR has been working to streamline the hiring process using online testing, giving ability to make onsite offers for some job types, and amending requirements for who performs interviews; a great deal of work remains to improve both LADWP and City side of the hiring process
- Job mobility within LADWP is a double-edged sword as it acts as an attractive aspect of LADWP but also causing a multiplier effect on the hiring/staffing process
- HR is expanding its recruitment efforts through multiple strategies to meet the five-year goals and support the Systems hiring targets
- Numerous DDR descriptions are woefully outdated and do not accurately reflect the required skills and capabilities
- OPA believes that no apparent mechanism exists to translate high overtime use at LADWP to trigger analysis/plans to hire additional staff into those functions
- HR could address relatively understaffed areas (e.g. Corporate HR org) by reallocating/retraining existing employees

**Commentary**

HR appears to meet the needs given its challenges. Even after excluding the Retirement Office and training personnel, HR has above median total cost. A component of this may be that numerous people who perform HR functions, do not do them full time (e.g., only 25% of a person’s work), which is less efficient. Moving forward, HR would be well served to become the central coordinator of an integrated workforce planning for all systems. Currently, Power system has its own process/methodology and Water its own. Having end-to-end visibility of labor supply and demand dynamics will enable HR to reduce discontinuity between them and increase the responsiveness and efficiency of the talent acquisition process. Timing is appropriate to modernize processes to improve talent management as it is supported by the Commission, aligns with the recommendations from the City’s Controller (2018 Hiring report) as well as efforts to improve and modernize the hiring process at the City’s Personnel Department. LADWP’s HR function is evolving to better serve the Systems. In the future, the Department may be also well served by focusing on training and development, where other utilities have experienced step change improvement in business results. HR may consider having dedicated City Personnel resources embedded at department similar to Legal’s use of City Attorneys

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Human Resources snapshot

Take-away: HR is responding to the needs of LADWP based on the requirements of the City’s civil service structure and its union environment. HR has a high total cost. Improving HR may represent the key to meeting LADWP’s long-term goals since staffing issues drive performance at the utility.

Summary

Human Resources provides support to the Systems based on requirements and constraints placed on it by City/State policies, the civil service system, and its MOUs. In the near-term, HR is developing a succession plan to help streamline the LADWP’s leadership development as well as staffing up for HRMS upgrade. Ensuring a streamlined and effective HR hiring process may represent the single most important focus to help LADWP meet its long-term goals.

LADWP staffing and costs vs. benchmarks

Human Resources consists of personnel whose primary function is benefits, organizational planning, training, employee services, workers compensation, recruiting/hiring, and compensation.

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<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Total Cost</td>
<td>Q3/Q4 (utilities)</td>
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<tr>
<td>FTE</td>
<td>Q4/Q4 (POU/IOU)</td>
</tr>
<tr>
<td>FTE (Corp HR)</td>
<td>Q1/Q2 (POU/IOU)</td>
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<tr>
<td>Total Pay Cost</td>
<td>Q4</td>
</tr>
<tr>
<td>% earning OT</td>
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</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123.

Using automation/technology

- LADWP does have an HRMS system but it is antiquated and still requires a considerable amount of manual support
- Part of the ERP implementation will involve an HRMS module to make it much more self-service to employees and require less support from HR personnel
- Many IOUs have adopted more self service HRMS systems (Workday, Peoplesoft) to provide more self service to employees

Using company/third-party resources

- Resource mix reflects the City’s and LADWP’s decision to use utility staff
- LADWP has an internal Retirement Office which is an area that nearly all POU and IOUs use third-parties to operate
- HR utilizes a low amount of third-parties (~13% of spend to outside services) and is lower than many other areas at LADWP

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Information Technology snapshot

Take-away: IT is a work in progress. IT works hard to respond to the needs of the Systems but is constrained by antiquated technology and the challenges of attracting and retaining qualified IT staff

Discussion

• LADWP’s IT function reflects an organization that supports numerous organically developed systems and relies on specialized expertise to continue operating a unique system that still relies on some mainframes. IT supports over 200 applications, 9,000+ computers, ~2,000 servers, and 2 mainframes as well as an extensive telecom network and infrastructure that stretches to 5 states, including CA

• Even though LADWP has a labor-intensive model, IT staffing is only slightly above median. Staffing levels are driven by telecommunications personnel for its unique multi-state network. Staffing for all remaining sub-functions other than Applications Development are below median. Comparative total costs are roughly median compared to industry, which is confirmed with other independent work by Gartner

• In the recent past and near term, IT has been working to increase its cyber security capability in order to keep up with emerging threats and harden the network. Additionally, a focus for the CSD IT has been to stabilize CIS and meet court mandated metrics

• Internal users believe IT tries to support LADWP given its challenges; there is a broad belief that IT needs more resources to be effective

• In order to meet the five-year goals, IT needs additional positions and a vehicle to contract for outside expertise. It needs some optimization from City’s Personnel Department in the recruiting of entry-level jobs from industry and directly from schools. IT, as an efficiency enabler, is critical to bringing the organization together; in order to optimize, employees need to have the necessary tools

• Related to the ERP upgraded, the Department selected a software vendor in July 2020 and are currently negotiating with the possible System Integrators (SI); upon SI selection, the contracts will be awarded for both software and the SI

Commentary

IT delivers technological services to the department at a roughly median total cost (excluding hardware). Considering the relatively low total cost of IT and its median staffing levels (consisting of a large number of telecoms personnel), IT appears to be generally understaffed in key areas such as cybersecurity and computer operations and support. Additionally, the PMO may lack staff with appropriate expertise to lead large-scale IT projects like those planned in the near future. LADWP has been working to address these identified deficiencies. CIS upgrades, implementation of smart-grid, and Maximo upgrades will all require retraining existing staff or attracting external hires, which has been a challenge for the department for a myriad of reasons. LADWP will need to show its ability to undergo a large system upgrade with the billing system while progressing towards the goal of implementing a modern ERP. Recent organizational changes (October 2019) should enhance LADWP’s technology and cyber security posture. The three-year IT Strategic Plan, which features significantly increased spending and headcount, will enable IT to develop the necessary tools LADWP will need to achieve its Department-wide goals.

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Information Technology snapshot

Take-away: IT is a work in progress. IT works hard to respond to the needs of the Systems but is constrained by antiquated technology and the challenges of attracting and retaining qualified IT staff.

Summary

This function responds as well as can be expected to the needs of the LADWP especially when considering the antiquated nature of the IT infrastructure. It has roughly median spending, indicative of underspend on IT. Future technology upgrade initiatives (e.g., a modern ERP system) should assist LADWP in meeting its future goals.

Using automation/technology

- Typical of utilities, LADWP uses a variety of systems developed internally and requiring specialized personnel to maintain (email, timekeeping, accounting programs, HRMS, intranet, etc.). Many utilities have transformed their IT infrastructure by migrating to ERP systems.
- Initiatives are underway in upgrading the budget system, replacing the eProcurement system, and upgrading the CRM/billing system.
- IT Strategic Plan includes significant investments that will enable migration to the cloud, replacement of mainframes with data-centers, upgrade Outage Mgmt systems, and provide more web-based tools enabling greater efficiency.
- RFPs for the purchase of ERP software and system integration services are planned for 2020. An initiative to allow a vendor to provide approved commercial off-the-shelf software more quickly to staff was approved in 2020.

Using company/third-party resources

- IT spends roughly 31% on third-parties which is above the average of LADWP functions. Third-parties are used when internal skillsets are lacking, and the goal is to eventually internalize the necessary expertise. Increased use of third-parties will likely be necessary during implementation and early stages of ERP transition. Initiatives are underway to facilitate more third-party hiring (Enterprise Technology contract).
- Long-term, LADWP’s philosophy for third-party usage may revolve around new product and services that do not exist internally.

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LADWP staffing and costs vs. benchmarks

Information Technology includes all personnel who support the information technology infrastructure and includes telecommunications.

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<thead>
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</tr>
<tr>
<td>FTE (less Telcom)</td>
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</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123.

- LADWP’s comparative total cost is roughly at median relative to utility peers.
- FTE level is driven largely by telecommunication personnel who maintain a network that is spread across multiple states.
- Total pay cost moves higher driven by field personnel (telecoms) who have similar pay level and OT use as electric field staff; IT-specific Data Base Administrators and Programmers are paid below market.
- OT levels are largely driven by telecom FTE.
Purchasing and Materials Management snapshot
Take-away: Purchasing and Materials Management supports the needs of Power and Water at a relatively high cost; internal customers indicate service level can improve

Discussion

• Purchasing and Materials Management services are provided at more than 50 facilities, making it easier for the Systems to obtain materials and equipment. The function supports the capital project and O&M needs of the Systems. Due to the facilities often being separated, Power and Water support is typically divided
• The City’s and the Department’s focus on providing opportunities for smaller, more local, and more diverse vendors presents challenges to consolidation and standardization initiatives
• Purchasing and Materials Management tracks key metrics such as cycle time, part availability, costs, inventory values, and cycle count accuracy
• LADWP does not actively practice strategic sourcing
• In the short term, some changes are driving improvements, such as creating minimum reorder points at key facilities, monthly meetings with stores, and evaluation of “top spend” for possible contracts
• Despite current efforts, numerous processes are still not efficient. Some LADWP organizations (e.g. Power) staff their own support functions. These support organizations have new initiatives to further streamline processes (e.g., RFP support) and provided helpful process trainings
• To meet five-year goals, Purchasing and Materials Management needs to expand Maximo capabilities to include minimum reorder points, electronic bidding, reporting for cycle time and cost savings capture, and visibility of stock across departments and facilities

Commentary

The function provides internal-customer focused services at a high cost. The function is the focus of cost reduction efforts at many utilities. LADWP may still have a number of “shadow functions” located outside of the purchasing organization that engage in similar activities and support supply chain efforts. Many utilities have focused on consolidation of purchasing and materials activities, including reducing the number of vendors and consolidating warehousing. Efforts are being made to reduce the time for RFP issuance and selection as currently the average time (for professional service contracts) is more than a year – initial goal is to get to 6 months and then possibly faster but achieving these improvement goals will likely rely heavily on automation capabilities that the function does not have

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Purchasing and Materials Management snapshot
Take-away: Purchasing and Materials Management supports the needs of Power and Water at a relatively high cost; internal customers indicate service level can improve

Summary

Purchasing and Materials Management supports the needs of the Systems by delivering materials, equipment, and services at a relatively high cost. There are multiple factors contributing to the higher cost operations including: internal customer demands, facility configuration, old systems, and diversity goals.

Using automation/technology

• Key procurement systems are old and the vintage pre-2000 code requires significant manual process (e.g., with work orders). The function uses Maximo, eRSP (bidding system that is currently not functioning and using BAVN website while also piloting invalua), and contract management system on a mainframe
• Newer ERP systems coupled with an updated procurement module/web-interface should yield better performance
• The use of supply chain analytics is still in its infancy. There are opportunities to significantly improve getting the right materials to the right place at the right time

Using company/third-party resources

• The function strives to use only internal labor resources and only leverages outside services when necessary

LADWP staffing and costs vs. benchmarks

Purchasing and Materials Management includes buyers, dedicated contract managers/administrators, inventory specialists and storeroom clerks

<table>
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<tr>
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<tr>
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LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

• The Total Cost for LADWP’s Purchasing and Materials Management activities is high compared to peers. Total costs are 3X the median for utilities in the leading third-party benchmarking survey
• Staffing levels generally reflect the response of Purchasing and Material Management to the needs of the Systems and Facilities
• Some recent initiatives have been made to increase staff in more strategic sub-function positions (e.g. buyers)

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Legal snapshot
Take-away: Legal meets the needs of the Systems at a median cost

Discussion

• LADWP’s legal function is customer focused and performs a variety of necessary functions in order to comply with local, state and federal regulations as well as address numerous other needs. Being a large, visible, public entity, LADWP is subject to numerous externally-driven legal proceedings; additionally, Legal reviews most contracts issued by the Department, reviews all Board resolutions, handles legal aspects of being a large property owner, and assists with all HR issues that require Legal for resolution. Note that (1) some contracts with low dollar threshold amounts and (2) details for standard contracts may not be individually reviewed by Legal

• Legal generally uses City attorneys for the majority of “nuts-and-bolts” tasks. Legal uses outside counsel only for specialized tasks (e.g., class actions, bond issuances, wildfire issues, etc.)

• Comparative costs and staffing results reflect the needs of the legal function at LADWP which provides support but does not directly employ attorneys to handle a large array of legal work; dedicated attorneys are part of the City’s staff

Commentary

Legal meets the needs of the Systems as well as external parties at a median total cost. Although overall staffing levels for nearly all the key components of Legal are above median relative to IOUs (which can outsource more), it is in line with the legal staff levels at CA POUs which likely share more common legal environment with LADWP. Some utilities have been successful with aligning Claims closely with Legal since the staff often work closely with the lawyers, but Claims has been organized in many different ways across peer utilities.

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Legal snapshot
Take-away: Legal meets the needs of the Systems at a median cost

Summary

Legal consists of LADWP’s internal staff and City Attorneys that work together to support LADWP. The total cost of LADWP’s legal functions fall at about median compared to peers. Legal supports the demands of the System through addressing a range of legal matters.

Using automation/technology
• No systems highlighted in discussions with Legal staff

Using company/third-party resources
• LADWP leverages the City for roughly 80% of spend. Half of the $16M spent on outside services pays for the use of City Attorneys
• IOUs follow a mix of legal staffing strategies: some retain a smaller core legal staff and use outside counsel extensively; others staff heavily with inside lawyers. Both models have proven successful

LADWP staffing and costs vs. benchmarks

<table>
<thead>
<tr>
<th>Type</th>
<th>Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost</td>
<td>Q2 (utilities)</td>
</tr>
<tr>
<td>FTE (excl. City Attorneys)</td>
<td>Q2/Q3 (POU/IOU)</td>
</tr>
<tr>
<td>Total Pay Cost (excl. City Attorneys)</td>
<td>Q3</td>
</tr>
<tr>
<td>% earning OT</td>
<td>NA</td>
</tr>
<tr>
<td>OT % of total cash</td>
<td>NA</td>
</tr>
</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

• LADWP’s total comparative legal function costs are below median compared to utility peers
• FTE levels are heavily driven by paralegal and clerk staff; LADWP does have higher staffing of Claims compared to IOUs, but is median to POU peers; LADWP does not directly staff attorneys – they are provided by the City
• Positional salaries and not staff levels drive the total internal labor cost to above median
• POU panel peers do not have personnel in the legal function who earn OT; overall OT levels are below median for LADWP

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay plus 36.8% benefits adder and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital). Cost measures include the City attorneys, while staffing only include LADWP personnel
Safety snapshot

Take-away: Safety meets the needs of the Systems at higher than median cost. Safety at LADWP has an expanded role compared to peer utilities.

Discussion

- LADWP faces safety requirements and challenges that are in many ways unique within the utility industry. LADWP’s system is challenging given its significant number of facilities with asbestos and an electrical system which has ~50% of its cables containing lead. Some unique efforts of Safety include required asbestos training completed with in-house resources; support to the Home Energy Improvement Program; sustainability/LEED certification; support of community solar, asbestos, and fall protection; and health issues related to working in and around homeless encampments.
- Staffing levels are low given requirements/unchartedness of LADWP’s systems, especially in the Corporate Safety organization.
- OSHA recordable incident metric is higher than peers possibly due to the fact that LADWP does more construction with internal staff than peers.
- Safety actively engages with other utilities and City departments through groups such as Electrical Power Research Institute’s (EPRI) Health and Safety Committee, Phylmar Regulatory Roundtable, California Utilities Roundtable, and Citywide Safety Professional ED18 Committee which enables information sharing as well as benchmarking opportunities.
- Near- and longer-term initiatives aligned to achieving five-year department goals include co-locating of corporate safety and system safety offices, establishing a corporate safety audit group, implementing Learning Management System to track and document safety training, and transitioning to an intranet system to replace email/paper based systems.
- Establishing a process where Corporate Safety has input into other function’s initiatives can mitigate issues downstream and streamline continuing support. Environmental is using a similar approach to ensure early involvement in all upcoming Power and Water projects to anticipate needs and reduce work delays.

Commentary

Safety supports LADWP’s needs given the additional demands required of its aging infrastructure, CA requirements, and additional complexities that most utilities do not have or can more readily outsource. OSHA recordable rate is higher than utility industry medians although the LADWP does perform more high-risk work with internal labor (e.g. construction) which could be a driver. Additionally, IOUs tend to more stringently control their reportables whereas LADWP tends to be more transparent in its reporting. Other utilities have developed a strong centralized focus on safety and make the function highly visible to senior management. Utilities have made great strides in improving worker safety and delivering sustained multi-year improvement in OSHA rates of 10% or more annually.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital).
Safety snapshot
Take-away: Safety meets the needs of the Systems at higher than median cost. Safety at LADWP has an expanded role compared to peer utilities

Summary
This function provides a variety of safety services for the Systems, many of which are not provided by IOU and POU peers, that drive above median cost. Safety provides a comprehensive set of services to LADWP required by old infrastructure, aging workforce, and a strict regulatory environment. LADWP performs a greater amount of safety work with internal staff. Greater integration with the Systems, improved use of technology, and additional qualified staff to support the Systems will be important to meeting the LADWP’s five-year goals.

Using automation/technology
- LADWP’s ergonomic evaluation program remains largely driven by demand for in-person evaluations, despite recent implementation of technology-based ergonomic evaluation solution
- Chemical Product Approval and Safety Data Sheet Review system maintains a database, inventory management, and hazard analysis program to monitor the purchase of chemicals

Using company/third-party resources
- Safety uses primarily in-house resources, unless capabilities or accreditations are lacking (e.g., Industrial Hygiene Lab services are outsourced due to lack of capability or necessary accreditations to perform work in-house)
- Certain asbestos, lead, and hazardous waste training is outsourced due to the requirement that it must be administered by state approved provider

LADWP staffing and costs vs. benchmarks
Safety consists of personnel who develop and administer safety programs as well as ensure compliance to all regulations. This includes not only operational safety for field workers but also health-related work (e.g. those interacting with asbestos, lead).

<table>
<thead>
<tr>
<th>Type</th>
<th>Quartile</th>
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</thead>
<tbody>
<tr>
<td>Total Cost</td>
<td>Q3 (POUs)</td>
</tr>
<tr>
<td>Total Cost (Corp only)</td>
<td>Q1 (POUs)</td>
</tr>
<tr>
<td>FTE</td>
<td>Q3/Q2 (POU/IOU)</td>
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<tr>
<td>FTE (Corp Only)</td>
<td>Q1/Q1(POU/IOU)</td>
</tr>
<tr>
<td>Total Pay Cost</td>
<td>Q4</td>
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<tr>
<td>% earning OT</td>
<td>Q4</td>
</tr>
<tr>
<td>OT % of total cash</td>
<td>Q4</td>
</tr>
</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123.

- Limited total cost benchmarks exist for Safety. Available information suggests LADWP is somewhat above median
- LADWP’s FTE levels are just above median relative to IOU and POU peers. However, staff in the Safety function are dispersed across 9 organizations, including the Corporate Safety organization (which is 1st quartile for staffing)
- Internal labor costs for this modest-sized function reflect somewhat higher pay per position plus much higher OT pay
- OT levels are consistent with practices and MOU terms at LADWP

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Fleet Services snapshot
Take-away: There are opportunities for Fleet to enhance the management of Department assets while continuing to meet the needs of the Systems

Discussion

- Fleet provides services for over 8,300 vehicles (including 200 vehicle variants) and units at 27 locations and 54 fueling stations, reflecting the dense operating environment, aging vehicle fleet, and need for 24-hour operations
- Industry benchmarking reflects that LADWP Fleet Services completes an average of 3.8 work orders annually per unit compared to the industry average of 6.3 work orders annually. LADWP time between work orders are 95 days versus 58 days for industry. This data indicates that Fleet invests more in fleet maintenance to achieve longer in service/equipment availability intervals
- Near-term initiatives include operator and maintenance personnel training, evaluation of new vehicle technologies, succession planning and expanding vehicle acquisition budget. These will allow LADWP to safely operate and maintain increasingly complex vehicles, meet AQMD regulations, determine the next generation of vehicles, and turnover its fleet every ten years
- Vehicle purchasing has now become part of the Fleet, with the aim to better support end-to-end vehicle management

Commentary

Fleet meets the needs of the Systems, but at a high cost compared to peers. Fleet’s services and staffing is mostly responsive to the needs of the Systems. An area of improvement from the Systems perspective is their preference that Fleet advocate to external regulators in order to gain exceptions for certain vehicles which would allow the field to procure trucks that better serve their needs (e.g., Diesel vs CNG vehicles). Additionally, similar to how Environmental is working to become a formal part of the project planning process, Fleet could mirror this approach in order to be involved earlier in the planning so that vehicle lead time is understood early enough to reduce reliance on rental programs. LADWP appears to have many more vehicles per employee than other utilities to serve its difficult, congested service territory which may account for utilization issues. Other utilities have increased the management role and accountability of the fleet function including authority to determine fleet make-up and asset decisions (e.g., age of vehicles, customization levels, etc.). Fleet has had a benchmarking program for the last five years with a credible firm, which can further help LADWP achieve its goal of becoming a better fleet manager.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay plus 36.8% benefits adder and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Fleet Services snapshot
Take-away: There are opportunities for Fleet to enhance the management of Department assets while continuing to meet the needs of the Systems

Summary

This function reflects a cost that is comparatively high as a result of the aggressive service levels and emphasis on quality. Providing Fleet Services with the authority to control fleet composition, utilization, and equipment assignments will enable fleet managers to more effectively support the LADWP’s short-term and five-year goals, especially to mitigate costs and increase efficiency.

Using automation/technology
• Fleet employs a vehicle maintenance system (M4 Fleet) that is upgraded periodically
• Fleet is evaluating how greater leverage of technology can reduce costs (e.g. self check out/in, becoming Sourcewell member, GPS/telemetry in vehicles, etc.)

Using company/third-party resources
• Fleet uses very little third-party services for maintenance and support (e.g. LADWP contracts out towing), while peer utilities generally contract out ~20% of maintenance work
• Other utilities have had limited success using third parties, due to quality and administration issues
• Fleet Services may gain efficiencies by selectively outsourcing maintenance that free-up mechanics to focus on critical equipment availability, specialized maintenance, and complex repairs

LADWP staffing and costs vs. benchmarks

Fleet Services consists of staff, including mechanics, drivers, pilots, and costs to purchase, lease, and maintain LADWP’s vehicles, investigate accidents, and provide extensive driving trainings

<table>
<thead>
<tr>
<th>Type</th>
<th>Quartile</th>
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<tbody>
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<td>&gt;Median¹ (utilities)</td>
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<tr>
<td>FTE</td>
<td>Q4/Q4 (POU/IOU)</td>
</tr>
<tr>
<td>Total Pay Cost</td>
<td>Q4</td>
</tr>
<tr>
<td>% earning OT</td>
<td>Q4</td>
</tr>
<tr>
<td>OT % of total cash</td>
<td>Q4</td>
</tr>
</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

• Including ownership, operating, fuel and support costs, LADWP’s total fleet costs are high versus other utilities on a per customer and per vehicle basis. Higher operating and support costs drive this positioning
• Support and FTE levels are driven by the requests of the Systems
• Staffing levels, not base salaries, drive labor-related Fleet costs since LADWP pays only about 10% over median for mechanics classifications (excluding OT)
• OT levels are consistent with LADWP practices and MOU terms

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay plus 36.8% benefits adder and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital); (1) Third-party benchmark does not have quartiles and allows only to determine above/below median

© Oliver Wyman
Facilities Management snapshot

Take-away: Facilities provides support services to the Power and Water Systems at a relatively high cost

Discussion

• LADWP has a very large inventory and a wide range of facility types: hundreds of facilities including land parcels and well over 10,000,000 square feet. The inventory consists of many classifications of operating and support facilities, both occupied and vacant, across multiple states. Many facilities have extensive HVAC systems that require staff for routine and frequent maintenance

• Facilities are constructed and maintained, generally separate for Water and Power, to support Capital and O&M projects and the need to position staff throughout the city in order to minimize service interruptions by quick response to water/power outages (e.g., leaks, lines down, etc.).

• Staff can provide the full-range of facilities’ services (e.g., design, HVAC installation, landscaping, building maintenance, custodial services, craftsmen, lock shop, paint shops, etc.)

• Staffing levels reflect unique service needs in LA (e.g. congestion) and coverage philosophy (e.g., 72-hour response to call goal).

Commentary

Facilities delivers service to LADWP at a relatively high cost but provides a wide range of in-house services. The utility industry has moved to managing facilities as a business which includes comprehensive facility management and strategy plus understanding and managing costs. Increased use of third-party resources is common across the utility industry, including for facility design and maintenance, custodial, and landscaping services. Examining the governance for how to allocate responsibility and budget for facility management-related work (e.g. landscaping, HVAC) will help to better control costs, provide a central prioritization process using SMEs for all facilities, provide more efficient resource planning, and enable the function to be proactive instead of reactive. Better leverage of technology to monitor maintenance schedules, costs and resource demands will further increase efficiency of this function.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Facilities Management snapshot
Take-away: Facilities provides support services to the Power and Water Systems at a relatively high cost

Summary

Facilities focuses on meeting internal customer operating, maintenance, and capital project needs of the Power and Water Systems. A comprehensive range of facilities services is provided by the function. Available information suggests the costs of LADWP’s facilities support is relatively high. Transforming into more actively managing the “facilities management” components at all sites (landscaping, HVAC, etc.) should help mitigate costs and increase efficiency.

Using automation/technology

- Use common office tools to track maintenance requirements and schedules but not on a sharable platform
- Developing Maximo to track labor and other resource costs to support budgeting and resource planning purposes

Using company/third-party resources

- Facilities uses mainly internal labor resources to provide its services
- Use of third-party service providers is lessened due to the lack of available or suitable contractors and the quality of third-party work (e.g., HVAC activities)

LADWP staffing and costs vs. benchmarks

Facilities Management includes personnel who maintain non water/power facilities (such as HQ building), exterior/grounds of facilities, provide custodial and office services, and are real estate and trade professionals

- Facilities provides services at a high cost. All industry (including non-utilities) benchmarks suggest that total facilities costs are above median (on a $ per square foot basis). The all industry benchmarks are only directional since the exact number and size of facilities has not been comprehensively evaluated
- Staffing at LADWP and OT levels reflect a large number of scattered facilities and high levels of service

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
*Security snapshot*

**Take-away:** Security could evolve to meet new threats while continuing to meet the needs of the Systems. Security services are provided at high cost

---

**Discussion**

- The LADWP’s security efforts have reflected the needs of the utility’s infrastructure. Security is now needed for 42 “bid” areas/work locations. In FY19, the number of bids increased to 48. Security is required to staff for multiple shifts, special assignments, and field-related construction (e.g., 3 shifts and 30 special assignments at any one time).

- Evolving threats may require some shifts in LADWP’s Security strategy going forward to better manage risks using advanced analytics, optimizing security resources, and employing more security technology

---

**Commentary**

Security appears to meet the needs of the Systems at a high cost. Security costs and relative ranking against others reflects both the City’s and LADWP’s decision in meeting requests and contractual (MOU) terms. Moving forward, across the industry, utility management has generally elevated the need for/voice of Security in the organization. Utilities are (1) increasingly considering how best to address threats while still meeting utility needs, (2) weighing greater centralization of management of security strategy and execution, (3) optimizing the deployment of security staff, (4) increasing the use of third-party resources to mitigate costs, and (5) enhancing security through the greater use of technology.

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Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay plus 36.8% benefits adder and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Security snapshot

Take-away: Security could evolve to meet new threats while continuing to meet the needs of the Systems. Security services are provided at high cost.

Summary

The function delivers security services to the 48 work locations areas currently required by the Systems. Filling recently approved positions will better position Security to address evolving threats. In the longer-term, Security may be better able to support LADWP’s five-year goals through optimizing LADWP staffing resources and increasing use of technology.

LADWP staffing and costs vs. benchmarks

Security includes staff and costs that maintain the physical security of LADWP assets and buildings, including staff for investigations.

Using automation/technology

- Security uses basic office tools
- In the near-term, use of better database tools will improve information analysis
- Better risk analysis and analytics will improve strategy execution
- Monitoring technology will become more prevalent in the utility industry

Using company/third-party resources

- Resource mix reflects the City’s and LADWP’s approach to utilizing in-house resources to provide services
- Security can use third-parties for about 25% of its work going forward
- Other utilities (both POU and IOU) have employed third-parties to a greater extent to provide security

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay plus 36.8% benefits adder and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

- LADWP’s total comparative security costs are high relative to peers and most likely are high against “all industries” as well. The all industry benchmarks are only directional since the exact number and size of facilities has not been comprehensively evaluated
- FTE levels are generally driven by the requests of the Systems and Facility Managers
- Staffing levels, not base salaries, drive security labor costs since LADWP pays only slightly above median for security positions (excluding OT)
- OT levels are very high due to System security requirements and terms of MOUs
Executive Management – Executives snapshot

Take-away: LADWP will need a stable and skilled executive leadership to meet customer goals, modernize the utility, and spend cost-effectively to manage rates

Discussion

- LADWP’s executives provide support and guidance to all the key groups within LADWP. They have provided direction for the firm with short-term goals aimed at improving customer service as well as positioning the company to be successful in its renewable power use and other mandates.
- Leadership and management will have to evolve to be successful: creating a performance culture and using key metrics to manage the business are skills that will need to be upgraded.
- Training for manager development also lacks at the Department and although some areas of the LADWP have clear career paths, many do not.
- An effort needs to be made to address the “people related issues”, such as ensuring employees know they are valued and having salaries/benefits that reflect their position/stature within the organization. Both of these are critical in order to help evolve and improve the LADWP.
- There is general consensus that executive and management compensation needs to be modernized to meet needs of attracting and developing future leaders; however, this will take a great deal of political support for such a program to be implemented at the LADWP and will prove challenging.
- Lower comparative costs and staffing reflect the impact of City/civil service limitations on pay for utility leadership positions as well as hiring appropriate number of executives to guide the key groups within LADWP.
- In order to develop a stable succession of managers who can be groomed for executive roles, employees need to be incentivized to progress into management and above.

Commentary

LADWP’s executives appear to be meeting the needs of the systems through setting goals and providing the necessary leadership to achieve those goals. Leadership is challenged given the multiple stakeholders involved: the Mayor, the LADWP Board, City Council, Neighborhood Councils, etc.; Overall, Executive leadership has been relatively stable with the exception of high turnover for the General Manager as 6 different people have occupied the position in the past decade – additionally, some turnover at senior management positions accompanies the replacement of the GM. Most successful modernizations have a leader in place for 5-10 years. Future initiatives such as installing an ERP will require a strong and committed senior leadership team: many failures and cost overruns dot the utility landscape with large-scale systems projects. The total comparative cost for LADWP is low relative to peers at POUs and with the Joint Compensation Study – a modern executive and management compensation program should be considered.

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital)
Executive Management – Executives snapshot
Take-away: LADWP will need a stable and skilled executive leadership to meet customer goals, modernize the utility, and spend cost-effectively to manage rates

Summary

This function appears to be providing the necessary strategic guidance. They have developed and clearly defined the major pillars of LADWP’s strategy moving forward in order to become a more customer centric organization while meeting numerous state and federal regulations. Long-term, the leadership team will need to enable the modernization in order to successfully evolve into a utility that is financially successful, customer oriented, and a strong environmental steward.

LADWP staffing and costs vs. benchmarks

Executive staff for this study are the senior officer (i.e., CEO, GM) and those officers who report directly to the senior officer

<table>
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<th>Type</th>
<th>Quartile</th>
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<td>Sr Mgmt Cash Comp(^1) (base+bonus)</td>
<td>Q2 (IOU)</td>
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<tr>
<td>Total Cost</td>
<td>Q1 (POU)</td>
</tr>
<tr>
<td>FTE</td>
<td>Q1/Q1 (POU/IOU)</td>
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<tr>
<td>Total Pay Cost</td>
<td>Q1 (POU)</td>
</tr>
</tbody>
</table>

LADWP uses an internal labor intensive business model. It is expected that LADWP typically has above median staffing and total pay costs - refer to page 123

- LADWP’s total comparative cost for its executives is very low both in aggregate and on a position basis as indicated by the 2017 Joint Compensation Study
  - Senior managers earn near 1\(^{st}\) quartile when considering base+bonus (e.g., near the lowest compensation)
- Overall LADWP has an appropriate number of executives for the size of the company
- Executives at LADWP are not eligible for bonuses which is a main reason for low total cost

Using automation/technology

- This function does not directly benefit from the use of automation or technology, however, increased system capabilities will provide access to more timely and detailed information to assess priorities and make decisions

Using company/third-party resources

- Generally not relevant for the Executive Management function
- Roughly 4% of total cost for executives and executive support are from third-parties

Note: All LADWP data sourced from LADWP employee census (Oct 2014-Sep 2015); Total cost refers to base pay and overtime pay earned by employees and any professional service, outside services or contract labor-related spend (both O&M and Capital) (1) Value for Cash comp (base+bonus) is per employee
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LADWP SMEs who participated in study
Over 130 LADWP Executives, SMEs and City staff have provided input into this project

<table>
<thead>
<tr>
<th>Function/Office</th>
<th>Number of participants in discussions</th>
<th>Function/Office</th>
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<tr>
<td>Customer Service</td>
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<td>Rates &amp; Regulatory Affairs</td>
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<tr>
<td>Environmental</td>
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<td>Safety</td>
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<td>Fleet Services</td>
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</tr>
<tr>
<td>Marketing/Energy Efficiency/Water Conservation</td>
<td>10</td>
<td>Office of Public Accountability (OPA)</td>
<td>3</td>
</tr>
<tr>
<td>Purchasing &amp; Materials Management</td>
<td>4</td>
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</tbody>
</table>
Functional study
Oliver Wyman used industry standard methodologies in determining and evaluating the functional staffing and cost levels at LADWP

• This functional study represents a joint effort between OPA and LADWP with the analysis performed by Oliver Wyman in cooperation with and based on data provided by LADWP staff.

• Organizing by function provides a more standardized approach for examining the resources necessary to perform specific activities done by the utility, regardless of where they are executed within a given company.

• This functionalization process enables the determination of the total number of employees – and their associated cost – for functions and sub functions; these results can then be compared to staffing and costs at peer Publicly-Owned Utilities (POUs) and Investor-Owned Utilities (IOUs).

• The labor cost component consists of two parts:
  – Base salary
  – Overtime pay
  – For the purposes of this study, the two components sum to total pay (excludes miscellaneous pay such as longevity, etc.).

• Analysis on labor and non-labor spend was also performed at a top-down level relative to POUs and IOUs.
Approach
LADWP, OPA, and Oliver Wyman agreed to leverage both POU and IOU panels, when available, to provide context into LADWP spend

• Oliver Wyman worked with subject matter experts (SME) within the LADWP to functionalize all LADWP employees who worked during the applicable time period, regardless of length

• Two panels were developed, one for Publicly Owned Utilities (POU) and another for Investor-Owned Utilities (IOU)
  – Panel companies for POUs were selected from the most comparable California utilities as well as large power and water utilities in other states for which detailed public information was available
  – IOU staffing data is from comparable companies selected from OW’s proprietary databases which we build and maintain using public information, industry and statistical information, and information furnished by others
  – IOU companies have comparable customer density, cost of labor/living and labor environments as LADWP

• LADWP was compared to the POU panel for both staffing level and labor cost; IOU only for staffing level
  – For different functions or cost comparisons, the panel sizes may vary based on quality of data available

• As with LADWP’s Phase 1 effort and the Joint Compensation Study, this analysis evaluated LADWP’s staffing levels and costs relative to peer utilities, ranking them from the 1st quartile representing the “lowest” to the 4th quartile representing the “highest”
  – LADWP is not included in the quartile development; their results are overlaid on top of the panel
  – The 1st and 4th quartiles relative to peer IOUs and POUs would be areas of focus for further examination
  – Capital spend is viewed as investment so the quartiles are reversed – 1st means most spend and 4th is the least

• The staffing data includes LADWP employees from October 2014 to September 2015. This is the same data used in the 2016 rate action and 2017 Joint Compensation Study and together serve as a common baseline for future comparisons to measure changes in performance
  – Although there have been staffing and organizational changes, we have assumed that even with these changes the results and conclusions from this study are applicable to the current LADWP
Summary methodology
Leveraging headcount, organizational and financial data, we functionalized the LADWP and panel companies in order to compare performance

1. Source data
   - Identify necessary and appropriate sources for desired analyses
   - Census file with employee data (incl. salary)
   - Detailed employee level data (incl. salary)
   - Staffing from select IOUs in Oliver Wyman databases (excl. salary)
   - Detailed vendor spend
   - Detailed budgets
   - “FERC-account” financial results
   - Annual audited financial statements
   - FERC Form 1, State water filing

2. Process
   - Apply source and output specific process to data
   - Categorize employees using role, title, organizational location into function and sub function
   - Functionalize spend, exclude non-scope expenses (i.e. fuel, purch. power, fees, hardware, equipment, etc.)
   - Exclude non-scope expenses (i.e. fuel, purch. power, etc.)

3. Output
   - Clean and review output from various sources
   - Functionalized FTE, Base Salary and OT totals
   - Functionalized FTE, Base Salary and OT totals
   - Functionalized FTE totals
   - Bottom up functionalization of contract spend
   - Bottom up functionalization of contract spend
   - Labor and non-labor split by O&M/capital & accounts
   - Labor and non-labor split by O&M/capital & accounts
   - Labor and non-labor split by O&M/Capital
   - Labor and non-labor split by O&M/Capital

4. Analysis
   - Leverage output from various sources to drive required analyses relative to IOU and POU panels
   - Comparison of normalized FTEs
   - Comparison of normalized FTEs
   - Comparison of normalized FTEs
   - Comparison of normalized labor/non-labor split and total cost; portion of total spend that is labor
   - Comparison of normalized labor/non-labor split and total cost; portion of total spend that is labor
   - Comparison of normalized labor/non-labor split and total cost; portion of total spend that is labor
   - Comparison of normalized labor/non-labor split and total cost; portion of total spend that is labor

Evaluating the combined results from the three types of analysis will provide a more complete analysis of labor-related spend at LADWP

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POU Panel
We selected 26 companies with publicly-available staffing and salary data with an emphasis on western utilities

Data on POU panel companies
Customer counts from 2015

<table>
<thead>
<tr>
<th>Municipal utility name</th>
<th>Electric customers served</th>
<th>Water customers served</th>
<th>Municipal utility name</th>
<th>Electric customers served</th>
<th>Water customers served</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Imperial Irrigation District (IID)</td>
<td>152,725</td>
<td>NA</td>
<td>City of Palo Alto</td>
<td>29,299</td>
<td>20,037</td>
</tr>
<tr>
<td>City of Anaheim</td>
<td>115,682</td>
<td>63,145</td>
<td>East Bay Municipal Utility District</td>
<td>NA</td>
<td>382,000</td>
</tr>
<tr>
<td>*City of Riverside</td>
<td>108,776</td>
<td>64,000</td>
<td>City of San Diego</td>
<td>NA</td>
<td>276,000</td>
</tr>
<tr>
<td>*City of Glendale</td>
<td>86,782</td>
<td>33,976</td>
<td>Irvine Ranch Water District</td>
<td>NA</td>
<td>204,475</td>
</tr>
<tr>
<td>*City of Pasadena</td>
<td>65,318</td>
<td>37,972</td>
<td>City of San Francisco</td>
<td>NA</td>
<td>174,111</td>
</tr>
<tr>
<td>City of Burbank</td>
<td>53,153</td>
<td>26,826</td>
<td>City of Fresno</td>
<td>NA</td>
<td>133,163</td>
</tr>
<tr>
<td>*Sacramento Municipal Utility District</td>
<td>607,727</td>
<td>NA</td>
<td>City of Long Beach</td>
<td>NA</td>
<td>90,000</td>
</tr>
<tr>
<td>*Modesto Irrigation District</td>
<td>121,615</td>
<td>NA</td>
<td>Placer County Water Authority</td>
<td>NA</td>
<td>39,489</td>
</tr>
<tr>
<td>*Turlock Irrigation District</td>
<td>98,000</td>
<td>NA</td>
<td>*CPS Energy (San Antonio)</td>
<td>771,603</td>
<td>NA</td>
</tr>
<tr>
<td>City of Santa Clara (Silicon Valley Power)</td>
<td>53,235</td>
<td>25,714</td>
<td>*Austin Energy</td>
<td>450,479</td>
<td>NA</td>
</tr>
<tr>
<td>City of Roseville</td>
<td>53,000</td>
<td>41,479</td>
<td>*Seattle City Light</td>
<td>422,809</td>
<td>NA</td>
</tr>
<tr>
<td>City of Redding</td>
<td>44,000</td>
<td>28,000</td>
<td>*Snohomish Public Utility District No. 1</td>
<td>341,109</td>
<td>20,000</td>
</tr>
<tr>
<td>City of Alameda</td>
<td>34,525</td>
<td>28,000</td>
<td>Austin Water</td>
<td>NA</td>
<td>223,162</td>
</tr>
<tr>
<td>*Los Angeles DWP</td>
<td>1,493,000</td>
<td>676,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Integrated Utility  SCPPA  Non-California

Even though LADWP is larger than all of the POU panel companies, these 26 utilities represent a robust panel for comparison purposes

Source: Financial Filings to State Controller, POU Financial filings and POU websites
Note: Although Irrigation Districts do have water operations, their water operations are not considered in this study due to customers being very large (commercial, other municipalities or farms); additionally San Francisco has electric T&D operations but are also excluded because their customers are mostly municipal or other large customers, not residential customers.
We chose 24 utilities from Oliver Wyman’s proprietary dataset of comparable companies with detailed internal headcount by function.

The IOUs generally are comparable to LADWP based on customer density, cost of labor/living and labor environment – we jointly agreed to use 24 utilities for the IOU panel.
Additional Water and Electric IOUs

In order to provide similar and sufficient labor and non-labor costs for water and electric, we have included an additional panel of 9 CA water IOUs, 7 national water IOUs and 3 CA electric IOUs where high-level, but not employee-level, data was available.

Additional water and electric IOUs
Number of water customers, financial data from CY2015 used

<table>
<thead>
<tr>
<th>Water Service areas</th>
<th>Electric Service areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Gas &amp; Electric Co.</td>
<td>5,417,000 customers</td>
</tr>
<tr>
<td>San Jose Water</td>
<td>221,000 customers</td>
</tr>
<tr>
<td>California Water</td>
<td>444,000 customers</td>
</tr>
<tr>
<td>Great Oaks</td>
<td>21,000 customers</td>
</tr>
<tr>
<td>Park Water Company</td>
<td>30,000 customers</td>
</tr>
<tr>
<td>Suburban Water</td>
<td>75,000 customers</td>
</tr>
<tr>
<td>San Diego Gas &amp; Electric</td>
<td>1,417,000 customers</td>
</tr>
<tr>
<td>Golden State Water</td>
<td>254,000 customers</td>
</tr>
<tr>
<td>California American Water</td>
<td>169,000 customers</td>
</tr>
<tr>
<td>Apple Valley Water</td>
<td>23,000 customers</td>
</tr>
<tr>
<td>San Gabriel Valley</td>
<td>93,000 customers</td>
</tr>
<tr>
<td>Southern California Edison Co.</td>
<td>5,020,000 customers</td>
</tr>
</tbody>
</table>

Source: Annual financial reports submitted to the CPUC, FERC Form 1