Key City Stakeholders requested this benchmarking study including Mayor Garcetti, the Los Angeles City Council, and the City’s Rate Payer Advocate.

This summary analysis was derived from a comprehensive benchmarking study performed by PA Consulting Group, Inc. in cooperation with PWC Strategy& and was based upon data provided by LADWP staff.

This “high-level” analysis is the first of a 3-Phase Benchmarking effort being led by LADWP’s Corporate Performance Division. The analysis is focused on operating and capital expenditures on a functional level using audited FY 2012/13 financial information as the base year.

This analysis evaluated LADWP’s performance relative to peer water and power utilities ranking them from the 1st quartile being the “BEST” to the 4th quartile representing the “WORST” performer.
This study benchmarked against large utilities that included both investor-owned and publicly-owned utilities from throughout the United States.

Peer Group #1 (Large Utility Companies > 1 million customers)

<table>
<thead>
<tr>
<th>Operating Company</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Gas and Electric Company</td>
<td>5,354,262</td>
</tr>
<tr>
<td>Southern California Edison Company</td>
<td>4,965,241</td>
</tr>
<tr>
<td>Florida Power &amp; Light Company</td>
<td>4,626,927</td>
</tr>
<tr>
<td>Commonwealth Edison Company</td>
<td>3,842,198</td>
</tr>
<tr>
<td>Consolidated Edison Company of New York, Inc.</td>
<td>3,354,613</td>
</tr>
<tr>
<td>Oncor Electric Delivery Company LLC</td>
<td>3,266,126</td>
</tr>
<tr>
<td>Virginia Electric and Power Company</td>
<td>2,476,191</td>
</tr>
<tr>
<td>Duke Energy Carolinas, LLC</td>
<td>2,428,441</td>
</tr>
<tr>
<td>Georgia Power Company</td>
<td>2,387,727</td>
</tr>
<tr>
<td>CenterPoint Energy Houston Electric, LLC</td>
<td>2,243,818</td>
</tr>
<tr>
<td>Public Service Electric and Gas Company</td>
<td>2,194,066</td>
</tr>
<tr>
<td>DTE Electric Company</td>
<td>2,134,161</td>
</tr>
<tr>
<td>Consumers Energy Company</td>
<td>1,790,148</td>
</tr>
<tr>
<td>PacifiCorp</td>
<td>1,766,984</td>
</tr>
<tr>
<td>Duke Energy Florida, Inc.</td>
<td>1,682,182</td>
</tr>
<tr>
<td>PECO Energy Company</td>
<td>1,582,153</td>
</tr>
<tr>
<td>Los Angeles Department of Water and Power¹</td>
<td>1,479,000</td>
</tr>
<tr>
<td>Duke Energy Progress, Inc.</td>
<td>1,470,039</td>
</tr>
<tr>
<td>Ohio Power Company</td>
<td>1,460,980</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Company</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama Power Company</td>
<td>1,444,803</td>
</tr>
<tr>
<td>Northern States Power Company - MN</td>
<td>1,417,543</td>
</tr>
<tr>
<td>PPL Electric Utilities Corporation</td>
<td>1,410,556</td>
</tr>
<tr>
<td>San Diego Gas &amp; Electric Co.</td>
<td>1,399,745</td>
</tr>
<tr>
<td>Public Service Company of Colorado</td>
<td>1,392,244</td>
</tr>
<tr>
<td>Niagara Mohawk Power Corporation</td>
<td>1,260,076</td>
</tr>
<tr>
<td>Baltimore Gas and Electric Company</td>
<td>1,243,697</td>
</tr>
<tr>
<td>Ameren Illinois Company</td>
<td>1,222,570</td>
</tr>
<tr>
<td>Connecticut Light and Power Company</td>
<td>1,217,399</td>
</tr>
<tr>
<td>Union Electric Company</td>
<td>1,197,295</td>
</tr>
<tr>
<td>NSTAR Electric Company</td>
<td>1,172,940</td>
</tr>
<tr>
<td>Arizona Public Service Company</td>
<td>1,147,462</td>
</tr>
<tr>
<td>Wisconsin Electric Power Company</td>
<td>1,126,869</td>
</tr>
<tr>
<td>Massachusetts Electric Company</td>
<td>1,104,390</td>
</tr>
<tr>
<td>Long Island Power Authority **</td>
<td>1,100,000</td>
</tr>
<tr>
<td>Jersey Central Power &amp; Light Company</td>
<td>1,096,950</td>
</tr>
<tr>
<td>Puget Sound Energy, Inc.</td>
<td>1,085,373</td>
</tr>
<tr>
<td>Ohio Edison Company</td>
<td>1,032,776</td>
</tr>
</tbody>
</table>

¹ LADWP is not included in the peer group of 36 companies

Source: Strategy& analysis; SNL
This study also benchmarked against both investor-owned and publicly-owned utilities from the Western Region of the United States.

### Peer Group #2 (Western Region > 100,000 customers)

<table>
<thead>
<tr>
<th>Operating Company</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Gas and Electric Company</td>
<td>5,354,262</td>
</tr>
<tr>
<td>Southern California Edison Company</td>
<td>4,965,241</td>
</tr>
<tr>
<td>PacifiCorp</td>
<td>1,766,984</td>
</tr>
<tr>
<td><strong>Los Angeles Department of Water and Power</strong></td>
<td>1,479,000</td>
</tr>
<tr>
<td>San Diego Gas &amp; Electric Co.</td>
<td>1,399,745</td>
</tr>
<tr>
<td>Public Service Company of Colorado</td>
<td>1,392,244</td>
</tr>
<tr>
<td>Arizona Public Service Company</td>
<td>1,147,462</td>
</tr>
<tr>
<td>Puget Sound Energy, Inc.</td>
<td>1,085,373</td>
</tr>
<tr>
<td>Salt River Project **</td>
<td>963,217</td>
</tr>
<tr>
<td>Nevada Power Company</td>
<td>859,012</td>
</tr>
<tr>
<td>Portland General Electric Company</td>
<td>833,129</td>
</tr>
<tr>
<td>Sacramento Municipal Utility District **</td>
<td>602,107</td>
</tr>
<tr>
<td>Public Service Company of New Mexico</td>
<td>508,248</td>
</tr>
<tr>
<td>Idaho Power Co.</td>
<td>504,653</td>
</tr>
</tbody>
</table>

** Public Power Company

1) LADWP is not included in the peer group of 26 companies

Source: Strategy& analysis; SNL

<table>
<thead>
<tr>
<th>Operating Company</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tucson Electric Power Company</td>
<td>409,529</td>
</tr>
<tr>
<td>Seattle City Light **</td>
<td>402,608</td>
</tr>
<tr>
<td>El Paso Electric Company</td>
<td>391,774</td>
</tr>
<tr>
<td>Avista Corporation</td>
<td>363,312</td>
</tr>
<tr>
<td>Sierra Pacific Power Company</td>
<td>327,320</td>
</tr>
<tr>
<td>Snohomish County Public Utility District No. 1 **</td>
<td>325,849</td>
</tr>
<tr>
<td>Colorado Springs Utilities **</td>
<td>204,156</td>
</tr>
<tr>
<td>Clark Public Utilities **</td>
<td>186,577</td>
</tr>
<tr>
<td>Tacoma Public Utilities **</td>
<td>169,018</td>
</tr>
<tr>
<td>Imperial Irrigation District **</td>
<td>148,610</td>
</tr>
<tr>
<td>City of Anaheim **</td>
<td>115,248</td>
</tr>
<tr>
<td>Modesto Irrigation District **</td>
<td>113,931</td>
</tr>
<tr>
<td>City of Riverside**</td>
<td>107,362</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY – POWER SYSTEM FINDINGS

- **Total O&M Costs**: Total O&M costs per Customer is one of the most significant metrics and benchmarked favorably in the 2nd quartile.

- **Reliability Metrics**: LADWP reliability metrics benchmarked favorably in the 1st and 2nd quartiles.

- **Financial Metrics**: Given the significant capital investments being made by LADWP, the key financial metrics are in-line with industry peer sets. LADWP’s 4th quartile benchmarking for Net Income per Revenue Dollar metric demonstrates that given LADWP’s costs, its rates are lower than the peer sets.

- **Customer Service O&M**: While overall Customer Service O&M costs are in the 1st quartile relative to Investor Owned Utilities which comprised the bulk of this peer set, there are some other key metrics to consider:
  - *Uncollectible Expenses*: LADWP’s uncollectible expense of .72% or $23 million for FY 12/13 is solidly in the 4th quartile. For FY 13/14 this rises to 1.74% or $58 million. A review of collection policies is warranted.
  - *System Losses*: Total energy losses of 13.1% are in the 4th quartile and merit further analysis.

- **Distribution O&M**: While Distribution O&M costs are in the 4th quartile, additional capital spending in the Power System Reliability Program should drive these costs down as newer infrastructure is installed and system maintenance costs are decreased.

- **Administrative and General (A&G) O&M Costs**: This study includes all pension/benefit costs in the A&G area consistent with Investor-Owned Utility practice. While LADWP benchmarked in the 4th quartile for this metric, employee pension benefits under the recently approved MOU will reduce these costs in the future.

- **LA Metro Wage Rate**: Compared to other regions of the US, wage rates for the Los Angeles Metropolitan area can range from 13% to 33% higher than the national average. It should be noted that the recently approved MOU provides for no cost-of-living increases for 3 years. The labor component, including overtime and benefits, represents 72% the Power System’s total O&M expense.
As has been reported publicly many times, LADWP’s rates are below those of other California Investor Owned Utilities in all classes for FY 12/13.

These Investor Owned Utilities are also increasing rates to fund regulatory requirements and infrastructure reliability programs.
This metric is measuring LADWP’s average electricity rates for residential, commercial and industrial customers among the utility peer sets.

Metric Significance: **HIGH**

- This metric shows that while LADWP’s rates are among the lowest compared to utilities in its region, California’s regulatory and environmental requirements tend to increase rates above the two peer sets in this benchmarking study.
- These requirements include: Once-Through-Cooling, 33% Renewables, 10% Energy Efficiency, and other environmental regulations that drive rates up compared to non-California utilities.
This critical metric measures the total electric utility operations and maintenance expenses (including labor, benefits and A&G) to the total number of ultimate customers.

### Metric Significance: HIGH

- The O&M per Customer metric shows that O&M for the Power System is essentially in-line with the 2nd quartile for the 2 peer utility sets evaluated.
- This metric is one of the most critical benchmarks as it compiles all Generation, Transmission, Distribution, Customer Service, and Administrative & General O&M expenses.
Total O&M benchmarked favorably in the 2nd quartile and represents the aggregate of O&M costs for generation, transmission, distribution, customer service, and A&G. This includes all O&M labor and benefits.

- O&M costs allocated across these areas benchmarked between the 1st and 4th quartile.
- A&G’s 4th quartile benchmarking should see improvements due to the new pension tier (from the recent MOU) and Distribution’s 4th quartile benchmarking should also improve as future CapEx investments are expected to increase.
This metric measures LADWP’s total generation operations and maintenance expenses (including labor) on a installed generation capacity basis.

**Metric Significance:** MEDIUM

- This metric illustrates that power plant operations are in-line with the peer sets on an operating capacity basis.
This metric measures the Transmission operations and maintenance expenses (including labor) associated with delivering power to each retail customer.

**TRANSMISSION O&M**

Metric Significance: MEDIUM

- Transmission O&M for LADWP benchmarked in the 2nd and 3rd quartiles relative to the peers on a per customer basis.
This metric measures the Distribution operations and maintenance expenses (including labor) associated with delivering power to each retail customer.

Metric Significance: MEDIUM

- LADWP’s lower capital spending may be a contributory factor driving this metric into the 4th quartile. This metric is expected to benchmark better in the future with increases in Distribution capital investments (e.g. PSRP).
- These higher levels of Distribution O&M may have favorably impacted reliability as evidenced by 1st and 2nd quartile SAIFI and SAIDI benchmarks, respectively.
- Additional operational changes may need to be evaluated as part of Phases II and III of LADWP’s planned benchmarking studies.
LADWP benchmarks favorably in the 1st quartile when compared to peer sets comprised primarily of investor owned utilities.

It is important to note that LADWP benchmarked in the 3rd quartile for the same metric when compared solely to publicly owned electric utilities.

This may illustrate a difference in business philosophy between Investor Owned Utilities that seem to spend more on customer service O&M versus Publicly Owned Utilities which appear to place greater focus on Distribution O&M.

**Metric Significance:** MEDIUM

- LADWP benchmarks favorably in the 1st quartile when compared to peer sets comprised primarily of investor owned utilities.
- It is important to note that LADWP benchmarked in the 3rd quartile for the same metric when compared solely to publicly owned electric utilities.
- This may illustrate a difference in business philosophy between Investor Owned Utilities that seem to spend more on customer service O&M versus Publicly Owned Utilities which appear to place greater focus on Distribution O&M.
This benchmarking study includes all pension and benefit costs in A&G.

LADWP benchmarked in 4th quartile as a result of the pension/benefit costs in FY 12/13.

This metric will improve as the impacts of the new pension benefits begin to take effect under the recently adopted MOU.

Social Security expenses are not included in A&G for Investor Owned Utilities. If LADWP would remove an amount similar to the Social Security amount, this metric would be $242/customer.

**Metric Significance**: MEDIUM

- This benchmarking study includes all pension and benefit costs in A&G.
- LADWP benchmarked in 4th quartile as a result of the pension/benefit costs in FY 12/13.
- This metric will improve as the impacts of the new pension benefits begin to take effect under the recently adopted MOU.
- Social Security expenses are not included in A&G for Investor Owned Utilities. If LADWP would remove an amount similar to the Social Security amount, this metric would be $242/customer.
TOTAL CAPITAL EXPENDITURES (CapEx)

These metrics measure the amount of CapEx investments made for FY 12/13 as well as average CapEx spending from 2011~2013.

FY 12/13 CapEx per Depreciation Expense ($/$)

<table>
<thead>
<tr>
<th>Large Utility Companies</th>
<th>Western Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st (2.51)</td>
<td>1st (2.25)</td>
</tr>
<tr>
<td>2nd (1.91)</td>
<td>2nd (1.55)</td>
</tr>
<tr>
<td>3rd (1.54)</td>
<td>3rd (1.46)</td>
</tr>
<tr>
<td>4th</td>
<td>4th</td>
</tr>
</tbody>
</table>

LADWP = 3.02

3-Year Average CapEx for FY 10/11 Thru FY 12/13 per Depreciation Expense ($/$)

<table>
<thead>
<tr>
<th>Large Utility Companies</th>
<th>Western Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st (2.73)</td>
<td>1st (2.08)</td>
</tr>
<tr>
<td>2nd (2.03)</td>
<td>2nd (1.93)</td>
</tr>
<tr>
<td>3rd (1.77)</td>
<td>3rd (1.59)</td>
</tr>
<tr>
<td>4th</td>
<td>4th</td>
</tr>
</tbody>
</table>

LADWP = 1.92

**Metric Significance:** MEDIUM

- The FY 12/13 Total CapEx benchmarks show higher investments (1st quartile) for both peer sets representing a reversal of historic under spending by LADWP.
- LADWP increased capital investments in FY 12/13 are largely a function of recent regulatory and environmentally mandated projects/programs. These expenditures are predominantly for construction of the six Haynes combustion turbines.
These metrics measure the amount of distribution CapEx made per distribution depreciation expense. This metric predominantly measures Power System Reliability Program investments.

**Metric Significance: MEDIUM**

- While LADWP benchmarks in the 3rd quartile for both metrics, these results point to a historic trend of distribution related CapEx under spending.
- This historic CapEx under spending could also be contributing to LADWP’s higher Distribution O&M costs when compared to peer utilities.
SAIFI and SAIDI

These metrics are designed to assess system reliability by measuring the Frequency (SAIFI) and Duration (SAIDI) of electricity outage incidents.

Metric Significance: HIGH

- LADWP ranks in the 1st and 2nd quartile for both metrics which demonstrates a high degree of system reliability relative to peers nationwide.
- These results are especially noteworthy given LADWP’s historically low CapEx spending particularly in the Distribution area relative to peer utilities.
Notably in a 2012 APPA benchmarking study of Publicly Owned Utilities, LADWP benchmarked in the 2nd quartile for the Lost Time Incident Rate metric.

LADWP’s more favorable benchmarking in the APPA study may be due to differing philosophies of the IOU versus POU workforce in reporting lost time incidents.

**Metric Significance:** HIGH

- Notably in a 2012 APPA benchmarking study of Publicly Owned Utilities, LADWP benchmarked in the 2nd quartile for the Lost Time Incident Rate metric.
- LADWP’s more favorable benchmarking in the APPA study may be due to differing philosophies of the IOU versus POU workforce in reporting lost time incidents.
Metric Significance: MEDIUM

- Energy losses of 13.1% are higher due to significant transmission line losses for generation plants located in remote areas from which ~60% of all LADWP’s energy is generated.
- LADWP’s lower distribution voltage relative to peers may also be driving this metric higher.
- Efforts are underway to mitigate any potential “non-technical” line losses such as non-billed customers, fraud and energy theft.
The net income per revenue dollar metric measures the amount of income remaining after operation and maintenance expenses, depreciation, taxes and City transfer. Uncollectible Accounts measure the amount of revenue that is not received as a percentage of total operating revenue.

**Net Income per Revenue Dollar (%)**

**Uncollectible Accounts per Total Electric Revenue (%)**

**Metric Significance: HIGH**

- The Net Income per Revenue Dollar metric benchmarked in the 4th quartile and suggests that given LADWP's costs, its rates are low relative to the peer sets.
- LADWP's Uncollectible Accounts metric benchmarks solidly in the 4th quartile relative to its peers which is likely due to the more relaxed collection policies and billing practices.
- Uncollectible Accounts in FY 13/14 have now risen to 1.74% following CISCON’s implementation, which will place LADWP even further into the 4th quartile for this metric.
EXECUTIVE SUMMARY – WATER SYSTEM FINDINGS

- **Total O&M Costs**: The Water Total O&M costs on a per customer and per gallon metric are 2nd/3rd quartiles. This includes the $56 million of O&M in support of the Los Angeles Aqueduct which is an asset that most water utilities do not have. If this cost was excluded, these metrics would improve by one full quartile.

- **Reliability Metrics**: LADWP is essentially 2nd quartile for both Planned and Unplanned Service Disruptions, as well as system losses.

- **Financial Metrics**: The Water System is making significant regulatory and reliability capital investments; however, the key financial metrics are in-line with the industry peer sets.

- **Customer Service O&M**: The Water System benchmark for Customer Service O&M per account fell into the 4th quartile. This result could be lower as a result of business strategies for mostly Publicly Owned Utilities within the AWWA peer set. LADWP bills roughly 71% of the customers on a bi-monthly basis.

- **LA Metro Wage Rates**: Compared to other regions of the US, wage rates for the Los Angeles Metropolitan area can range from 13% to 33% higher than peer utilities. The labor component, including overtime and benefits, represents 73% the Water System’s total O&M expense.
As has previously been reported, LADWP’s rates remain competitive with neighboring water utilities in all customer classes for FY 12/13.

Water utilities in California are increasing rates in response to both state and federal regulatory requirements as well as much needed water storage and recycling infrastructure programs.

**Metric Significance: HIGH**

- As has previously been reported, LADWP’s rates remain competitive with neighboring water utilities in all customer classes for FY 12/13.
- Water utilities in California are increasing rates in response to both state and federal regulatory requirements as well as much needed water storage and recycling infrastructure programs.

### REGIONAL WATER RATES

This critical metric measures the water rates for typical residential (12 HCF), high-use single family (24 HCF) and small commercial (100 HCF) for similarly situated regional utilities. A typical single family residential customer uses about 12 hundred cubic feet (HCF) of water per month or roughly 8,976 gallons.

**Water Rates for FY 12/13 ($/Month)**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Typical Residential</th>
<th>High-Use Single Family</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rates</td>
<td>LADWP 47.56</td>
<td>LADWP 104.30</td>
<td>LADWP 406.30</td>
</tr>
<tr>
<td></td>
<td>Pasadena 44.41</td>
<td>Pasadena 83.88</td>
<td>Pasadena 369.65</td>
</tr>
<tr>
<td></td>
<td>San Diego 64.20</td>
<td>San Diego 116.01</td>
<td>San Diego 425.04</td>
</tr>
<tr>
<td></td>
<td>San Francisco 66.40</td>
<td>San Francisco 128.80</td>
<td>San Francisco 530.50</td>
</tr>
</tbody>
</table>

**Typical Residential**
- LADWP: $47.56
- Pasadena: $44.41
- San Diego: $64.20
- San Francisco: $66.40

**High-Use Single Family**
- LADWP: $104.30
- Pasadena: $83.88
- San Diego: $116.01
- San Francisco: $128.80

**Commercial**
- LADWP: $406.30
- Pasadena: $369.65
- San Diego: $425.04
- San Francisco: $530.50
Benchmark comparisons against Western Region utilities are more appropriate as the importing of water is more prevalent within this peer set.

This comparison is also impacted by high purchased water costs.

This result also reflects Los Angeles Aqueduct costs as well as costs associated with regulatory requirements pertaining to the Owens Valley Dust Mitigation program which are costs unique to LADWP.

**Metric Significance:** HIGH

- Benchmark comparisons against Western Region utilities are more appropriate as the importing of water is more prevalent within this peer set.
- This comparison is also impacted by high purchased water costs.
- This result also reflects Los Angeles Aqueduct costs as well as costs associated with regulatory requirements pertaining to the Owens Valley Dust Mitigation program which are costs unique to LADWP.
These metrics measure operations and maintenance costs per customer and per millions of gallons distributed to retail customers.

**Metric Significance: HIGH**
- LADWP is benchmarking in the 2\(^{nd}\) and 3\(^{rd}\) quartiles for these metrics, reflecting costs that are roughly in-line with the median of the peer set.
- LADWP’s benchmark reflects the inclusion of LA Aqueduct O&M costs of $56 million. If these costs were removed, LADWP would benchmark roughly one quartile better.
These 4th quartile results are inconsistent with the Power System results which could be caused by differences in business strategy between publicly owned utilities and investor owned utilities.

LADWP also has a substantial “brick and mortar” investment in 15 Payment Centers needed to collect customer cash payments.

LADWP bills its residential customers (71% of all customers) on a bi-monthly basis. The Department will be switching customers to a monthly billing cycle which should drive this metric further into the 4th quartile.

**Metric Significance:** MEDIUM

- These 4th quartile results are inconsistent with the Power System results which could be caused by differences in business strategy between publicly owned utilities and investor owned utilities.
- LADWP also has a substantial “brick and mortar” investment in 15 Payment Centers needed to collect customer cash payments.
- LADWP bills its residential customers (71% of all customers) on a bi-monthly basis. The Department will be switching customers to a monthly billing cycle which should drive this metric further into the 4th quartile.
These metrics measure the amount of debt assumed by the utility as well as the utility’s capacity to service its long-term debt obligations.

**Metric Significance: HIGH**

- As a result of significant capital programs, LADWP has comparatively more debt than its peers as evidenced by the 3rd and 4th quartile debt ratio benchmark for this metric.
- Nevertheless, the favorable 2nd quartile benchmark for debt service coverage ratio indicates that the Water System generates adequate revenue to appropriately service its long-term debt.
This metric measures the total amount of system wide water leakage and illustrates both system efficiency and reliability.

**Real Losses per Total Water Introduced to System (%)**

<table>
<thead>
<tr>
<th>National Panel</th>
<th>Region (West)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>1st</td>
</tr>
<tr>
<td>2nd</td>
<td>2nd</td>
</tr>
<tr>
<td>3rd</td>
<td>3rd</td>
</tr>
<tr>
<td>4th</td>
<td>4th</td>
</tr>
<tr>
<td>Worst</td>
<td></td>
</tr>
<tr>
<td>9.5</td>
<td>6.5</td>
</tr>
<tr>
<td>5.9</td>
<td>2.1</td>
</tr>
<tr>
<td>1.0</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**Metric Significance:** MEDIUM

- This metric benchmarks in the 2\textsuperscript{nd} and 3\textsuperscript{rd} quartile and shows that the Water System losses are roughly in-line with the median of the peer set.

LADWP = 3.48
This metric measures the total number of Unplanned Service Disruptions or “incidents” per 1,000 customers. This metric is not a measure of the total number of customers impacted per service disruption.

**Metric Significance:** HIGH

- LADWP 2nd quartile result is a favorable benchmark relative to both National and Western Regional peers.
- This metric is one of the most critical measures of reliability for the Water System as it measures unexpected service disruptions.
This metric measures the total number of Planned Service Disruptions or “incidents” per 1,000 customers. This metric is not a measure of the total number of customers impacted per service disruption.

**Metric Significance:** MEDIUM

- LADWP’s 1st and 2nd quartile results are favorable benchmarks relative to National and Western Regional peers, respectively.
- As water infrastructure programs ramp up, this metric could be impacted.
Following the Board presentation and under the direction of the GM, LADWP’s Corporate Performance Division will conduct a City-wide stakeholder outreach campaign.

The campaign will be designed to inform stakeholders and solicit feedback to identify areas for more in-depth analysis under Phase II of the Benchmarking Study.

In parallel with the campaign, the following action items will be initiated based on Phase I findings with an emphasis on those metrics which fell into the 4th quartile and as part of the Phase II Study:

- **Energy Losses**: Retain 3rd party consultant to assist LADWP staff in identifying and implementing measures to substantially reduce system-wide energy losses.

- **Uncollectible Accounts**: Retain 3rd party consultant to cost effectively assist LADWP staff in identifying and collecting outstanding funds owed in a timely manner.

- **Distribution O&M**: Perform a more extensive analysis of Distribution O&M as part of the Phase II Benchmarking Study. This should include the impacts of proposed higher, Distribution System related capital investments.

- **Customer Service Costs**: Evaluate resource levels, including differing strategies that are used by IOUs and POUs. Identify areas with the highest potential for cost effective changes that will improve Customer Service.

- **Administrative and General**: As part of the Phase II study, conduct an enterprise-wide examination of labor and benefit costs including the Administrative and General function. The ultimate goal will be to identify specific areas/process with the highest potential for improvement and/or cost savings.
**Phase 1 High-Level Benchmarking Study**
- PA amendment approved and signed in September 2014
- 4 months to complete Phase 1 Study

**Preliminary Schedule for Phase 2 - In-Depth Benchmarking Study**
Scope will be developed after results of Phase 1 Benchmarking Study

**Preliminary Schedule for Phase 3 - Business Process Improvement Studies**

**IBEW MOU Expires**
RPA REQUESTED BENCHMARKS
These metrics are designed to measure the total amount of payroll spent per customer and per total assets.

**Power O&M Payroll Dollars per Customer ($/Customer)**

- Large Utility Companies
  - 1st: 92
  - 2nd: 139
  - 3rd: 216
  - 4th: 296

- Western Region
  - 1st: 154
  - 2nd: 200
  - 3rd: 213
  - 4th: 296

**Power O&M Payroll Dollars per Total Assets (%)**

- Large Utility Companies
  - 1st: 1.51
  - 2nd: 1.88
  - 3rd: 2.20
  - 4th: 3.17

- Western Region
  - 1st: 1.51
  - 2nd: 2.08
  - 3rd: 2.41
  - 4th: 3.17

LADWP = 296

LADWP = 3.17
These metrics are designed to measure the total amount of Power payroll spent per customer and per total assets.

**Total Power Payroll Dollars per Customer ($/Customer)**

<table>
<thead>
<tr>
<th>Large Utility Companies</th>
<th>Western Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st: 191</td>
<td>1st: 267</td>
</tr>
<tr>
<td>2nd: 282</td>
<td>2nd: 331</td>
</tr>
<tr>
<td>3rd: 349</td>
<td>3rd: 393</td>
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<tr>
<td>4th: LADWP = 503</td>
<td>4th:</td>
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</tbody>
</table>

**Total Power Payroll Dollars per Total Assets (%)**

<table>
<thead>
<tr>
<th>Large Utility Companies</th>
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<tbody>
<tr>
<td>1st: 2.77</td>
<td>1st: 2.88</td>
</tr>
<tr>
<td>2nd: 3.18</td>
<td>2nd: 3.36</td>
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<tr>
<td>3rd: 3.94</td>
<td>3rd: 3.99</td>
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<tr>
<td>4th: LADWP = 5.38</td>
<td>4th:</td>
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</tbody>
</table>
These metrics are designed to measure the total amount of payroll spent per customer and per total assets.

**Total Payroll Dollars per Customer ($/Customer)**

<table>
<thead>
<tr>
<th>Utility Companies</th>
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<td>3.36</td>
</tr>
<tr>
<td>3.94</td>
<td>3.99</td>
</tr>
</tbody>
</table>

**LADWP = 488**

**LADWP = 5.14**
These metrics measure the total electric utility operation and maintenance costs (including labor, benefits and A&G) to the total number of ultimate customers and to the total number of megawatt hours sold.

**O&M per Customer ($/Customer)**

- **Large Utility Companies**
  - 1st: 625
  - 2nd: 805
  - 3rd: 745
  - 4th: 469

- **Western Region**
  - 1st: 506
  - 2nd: 642
  - 3rd: 630
  - 4th: 469

**O&M per MWh Sold ($/MWh)**

- **Large Utility Companies**
  - 1st: 37
  - 2nd: 31
  - 3rd: 23
  - 4th: 18

- **Western Region**
  - 1st: 37
  - 2nd: 31
  - 3rd: 26
  - 4th: 21

LADWP = 625

LADWP = 39
**TOTAL ASSETS**

**Total Assets per Total Plant (%)**

- **Large Utility Companies**
  - 1st: 98
  - 2nd: 118
  - 3rd: 131
  - 4th: 127

- **Western Region**
  - 1st: 91
  - 2nd: 103
  - 3rd: 127
  - 4th: 127

**Total Assets per Customer ($/Customer)**

- **Large Utility Companies**
  - 1st: 6,450
  - 2nd: 9,112
  - 3rd: 10,847
  - 4th: 10,615

- **Western Region**
  - 1st: 8,596
  - 2nd: 9,598
  - 3rd: 10,615
  - 4th: 10,615

**LADWP**

- **Total Assets per Total Plant (%):** 98
- **Total Assets per Customer ($/Customer):** 9,356
APPENDIX
O&M AND CAPITAL 5–YEAR TREND: POWER SYSTEM

Historical LADWP Power System Costs ($MM)

Discussion

• O&M growth has been limited to 1% annually due to:
  – A number of cost reduction programs that focused on limiting O&M costs
  – Energy efficiency investments were treated as regulatory assets starting in FY 11/12

• Growth in Capital Expenditures (CapEx) largely driven by State mandated and infrastructure investments:
  – Once-Through-Cooling/generation projects
  – Power Reliability Investments
  – 33% Renewable Portfolio Standard

CAGR: Compound Annual Growth Rate
LADWP has made noteworthy efforts to control operating and maintenance expenses as evidenced by its 1% CAGR for O&M.

FY 2012 – 2013 Power O&M ($Millions)

- Production: $188
- Transmission: $45
- Distribution: $195
- Customer: $96
- A&G: $158
- Pension & Benefits: $229
- Other: $925
- Total O&M

Baseline: ~72% of Total Power O&M Baseline

Labor Costs:
- Benefits: $229
- Overtime: $61
- Regular Labor: $377
This metric measures the average quantity of kilowatt hours of energy sold per month per retail customer.

**Metric Significance:** MEDIUM

- LADWP benchmarks in the 4th quartile relative to both peer sets measured.
- LADWP’s lower energy sales are largely driven by moderate temperatures in the Los Angeles area when compared to peers.
- Aggressive Energy Efficiency programs, including codes and standards also drive this metric into the 4th quartile for LADWP.
- LADWP per customer energy sales are between 27% and 30% lower than the peer set medians.
- As a result of this lower energy usage, benchmarks analyzing on a per customer basis are more appropriate for LADWP.
This critical metric measures the total electric utility operation and maintenance costs (including labor, benefits and A&G) to the total number of megawatt hours sold.

**TOTAL OPERATION AND MAINTENANCE EXPENSE BY MWh**

LADWP = 39
This metric measures LADWP’s total generation operation and maintenance costs (including labor) on a installed generation capacity and energy cost basis per megawatt hour.

Large Utility Companies
- Best: 42, 54, 71
- Worst: 44, 54, 71

Western Region
- Best: 51, 60, 71
- Worst: 51, 71

LADWP = 48
This metric measures the Transmission System operations and maintenance expense (including labor) associated with delivering power to each retail customer per megawatt hour.

Transmission O&M per MWh Sold ($/MWh)

Large Utility Companies

<table>
<thead>
<tr>
<th>Rank</th>
<th>Transmission O&amp;M per MWh Sold ($/MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>0.59</td>
</tr>
<tr>
<td>2nd</td>
<td>1.04</td>
</tr>
<tr>
<td>3rd</td>
<td>2.02</td>
</tr>
<tr>
<td>4th</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Western Region

<table>
<thead>
<tr>
<th>Rank</th>
<th>Transmission O&amp;M per MWh Sold ($/MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>0.93</td>
</tr>
<tr>
<td>2nd</td>
<td>1.22</td>
</tr>
<tr>
<td>3rd</td>
<td>1.59</td>
</tr>
<tr>
<td>4th</td>
<td>1.92</td>
</tr>
</tbody>
</table>

LADWP = 1.92
This metric measures the Distribution System operations and maintenance expense (including labor) associated with delivering power to each retail customer on a per megawatt hour basis.

**DISTRIBUTION O&M BY MWh**

![Bar chart showing Distribution O&M per MWh Sold ($/MWh) for Large Utility Companies and Western Region.]

**Large Utility Companies**
- Best: 1st = 2.63, 2nd = 3.23, 3rd = 4.91, 4th = 2.12
- Worst: 1st = 2.91, 2nd = 3.14, 3rd = 2.12

**Western Region**
- Best: 1st = 2.12, 2nd = 2.91, 3rd = 3.14
- Worst: 4th = 3.14

LADWP = 8.28
This metric measures the amount of non-fuel related operations and maintenance costs per megawatt hour of production.

Steam Non-Fuel O&M per Steam Generation ($/MWh)

Large Utility Companies

Best
- 1st: 7.56
- 2nd: 8.53
- 3rd: 10.17
- 4th: 11.58

Worst

Western Region

Best
- 1st: 7.74
- 2nd: 8.54
- 3rd: 11.58
- 4th: 11.58

LADWP = 9.77
This metric measures the amount of hydro electric power related operations and maintenance costs per total hydroelectric capacity in megawatts.

Hydro Non-Fuel O&M per Hydro Op. Capacity ($/MW)

Large Utility Companies

Best
- 1st: 11,853
- 2nd: 17,429
- 3rd: 31,079
- 4th: 39,435

Worst

Western Region

Best
- 1st: 24,785
- 2nd: 30,831
- 3rd: 39,435
- 4th: 48,844

LADWP = 17,392
This metric measures the average annual number of minutes each customer experiences during an interruption for those customers that actually have an interruption.

CAIDI

Customer Average Interruption Duration Index (CAIDI)

National Panel

Best

1st
82.48

2nd
94.87

3rd
109.54

Worst

4th

LADWP = 141.49
Historical LADWP Water System Costs ($M)

Discussion

• O&M growth has been limited to 2% annually due to:
  – A number of cost reduction programs have focused on limiting O&M costs.
  – Water conservation investment were treated as regulatory assets in FY 11/12.

• CapEx growth driven by:
  – Mandated water quality projects (~$193M in FY 12/13).
  – Infrastructure investment (~$154M in FY 12/13).

• Globally, utilities’ water operations OpEx and CapEx is projected to grow at 6% and 7% respectively.

CAGR: Compound Annual Growth Rate
LADWP has made noteworthy efforts to control operating and maintenance expenses as evidenced by its 2% compound average growth rate (CAGR) for O&M.

FY 2012 – 2013 Water O&M ($M)

Included in functional breakdown; excluded from cost benchmark calculations

LA Aqueduct O&M cost of ~$56M (included in Production / Distribution)

73% of Total Water O&M Baseline

Regular Labor $157
Overtime $25
Benefits $105
Labor Costs $287

Production $119
Distribution $49
Customer Service $49
A&G $71
Property & Tax $13
Other Maintenance $21
Total O&M Baseline $392
These metrics show that the relative cost of water service is competitive when compared to Large and Western Region based peer utilities.

LADWP benchmarked in the 2nd or 3rd quartile for customer water usage capped at 7,500 gallons.

**Metric Significance: HIGH**

- These metrics show that the relative cost of water service is competitive when compared to Large and Western Region based peer utilities.
- LADWP benchmarked in the 2nd or 3rd quartile for customer water usage capped at 7,500 gallons.
SELECTED APPA METRICS

(LADWP did not formally participate in the 2013 APPA study. This informal analysis illustrates results based FY 2012/2013 data for the Department.)
The metric measures the distribution expense (including labor and benefits) associated with delivering power to each retail customer.

**Metric Significance: MEDIUM**

- As a result of greater planned distribution capital investments (e.g. PSRP), this metric is expected to improve.
- Additional operational changes may also be evaluated.

* Unlike Investor Owned Utilities, American Public Power Association (APPA) distributes pension and benefit costs to the various functions (including Distribution) rather than centralizes in the A&G.
**APPA METRIC**

**CUSTOMER SERVICE O&M COST PER RETAIL CUSTOMER**

The metric measures the average Operations and Maintenance cost (excluding A&G) incurred by the Department in handling each customer’s account and includes the cost of recovering uncollectible accounts.

**Customer Service O&M Cost per Customer ($/Customer)**

<table>
<thead>
<tr>
<th>Large Utility Companies</th>
<th>Western Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best</td>
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<tr>
<td>1st</td>
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<td>4th</td>
<td>4th</td>
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<tr>
<td>Worst</td>
<td></td>
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<tr>
<td>63</td>
<td>64</td>
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<tr>
<td>98</td>
<td>100</td>
</tr>
<tr>
<td>129</td>
<td>134</td>
</tr>
</tbody>
</table>

**LADWP = 121**

**Metric Significance:** MEDIUM

- This metric is 3rd quartile.
- When LADWP switches customers to a monthly billing cycle, this metric will benchmark further down toward the 4th quartile.
- LADWP has a large number of cash customer service transactions that drive its O&M costs up relative to peer utilities.
- Higher costs associated with performing billing for other City services may also be impacting this metric.

* Unlike Investor Owned Utilities, American Public Power Association (APPA) distributes pension and benefit costs to the various functions (including Customer Service) rather than centralizes in the A&G.
This metric measures the amount of income remaining after accounting for operation and maintenance expenses, depreciation, taxes and tax equivalents for every dollar received from electricity sales.

**Metric Significance:** MEDIUM

- This metric shows that LADWP is in-line with the median relative to its peers.
- This indicates that the level of LADWP rates are appropriate given its costs.
This metric measures the proportion of employees subject to on-the-job injuries and illnesses over the course of the year.

**OSHA Incidence Rate (Per 100 Employees)**

<table>
<thead>
<tr>
<th>Metric Significance: MEDIUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>• This metric is better than the median for both utility peer sets.</td>
</tr>
</tbody>
</table>

LADWP = 1.7
This metric measures the portion of each revenue dollar that will not be collected by the utility.

**Metric Significance: MEDIUM**

- This metric is expected to be higher for FY 13/14 following CISCON implementation.
- LADWP’s “relaxed” collection policies and billing practices may be driving this metric higher.
- Neighboring public utilities are lower:
  - Anaheim 0.18%
  - Riverside 0.29%
  - Pasadena 0.32%
  - Colorado Springs 0.35%
  - Modesto 0.57%

**LADWP = 0.72%**