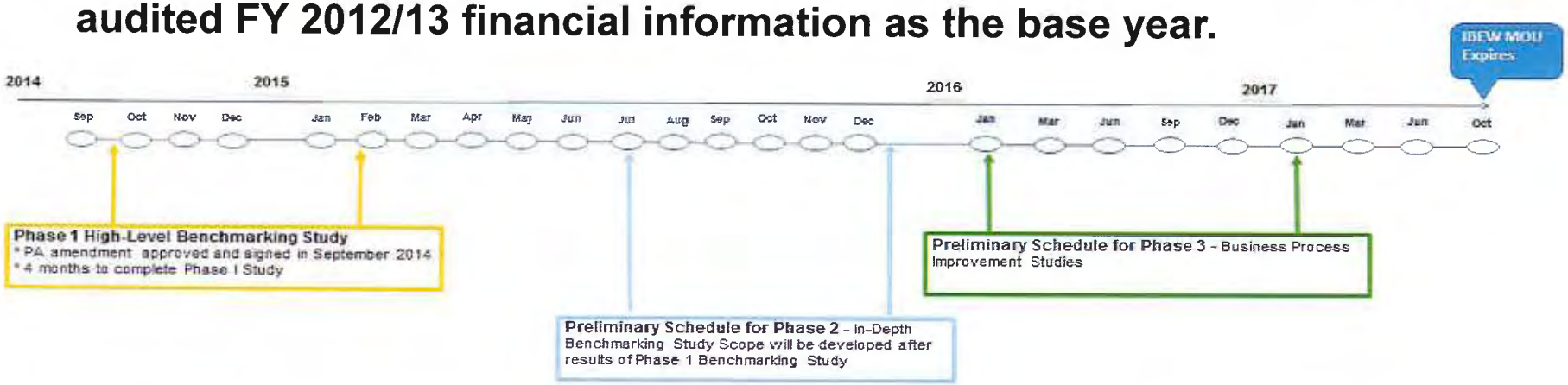
Los Angeles LADWP Department of Water & Power

BENCHMARKING ANALYSIS

March 17, 2015

BACKGROUND

- 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& (formerly Booz & Company) 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.**

PEER GROUP #1 – SIZE: 36 ELECTRIC UTILITY COMPANIES WITH MORE THAN 1 MILLION ELECTRIC CUSTOMERS

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)

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

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

*** Public Power Company*
1)) LADWP is not included in the peer group of 36 companies
Source: Strategy& analysis; SNL

PEER GROUP #2 – WESTERN REGION: 26 ELECTRIC UTILITY COMPANIES WITH MORE THAN 100,000 CUSTOMERS IN THE WEST

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)

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

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

*** Public Power Company*
1) LADWP is not included in the peer group of 26 companies
Source: Strategy& analysis; SNL

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.

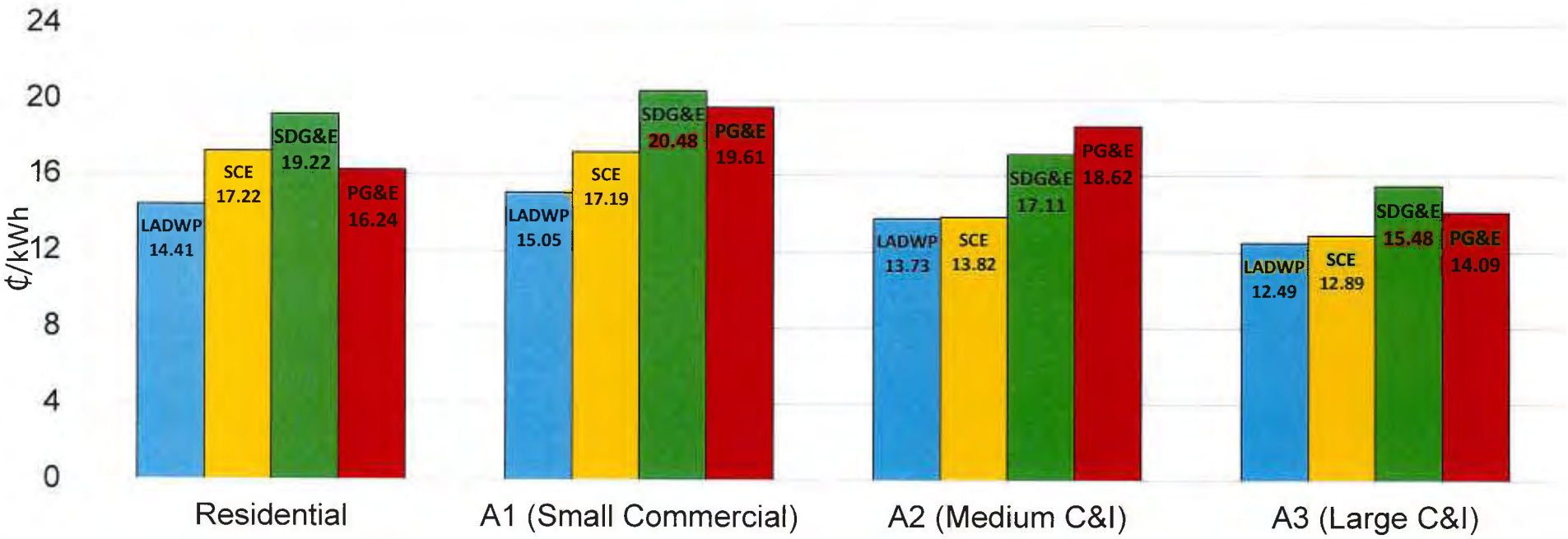
- **Administrative and General (A&G) O&M Costs:** This study includes all pension/benefit costs in the A&G area consistent with Investor-Owned Utility practice. While LADWP benchmarked in the 4th quartile for this metric, employee pension benefits under the recently approved MOU will reduce these costs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

MAJOR CALIFORNIA UTILITIES ELECTRICITY RATES

This critical metric measures the electricity rates for residential, small commercial, medium and large commercial and industrial customers for major California utilities.

Electricity Rates for Other Major California Utilities - FY 12/13 (¢/kWh)

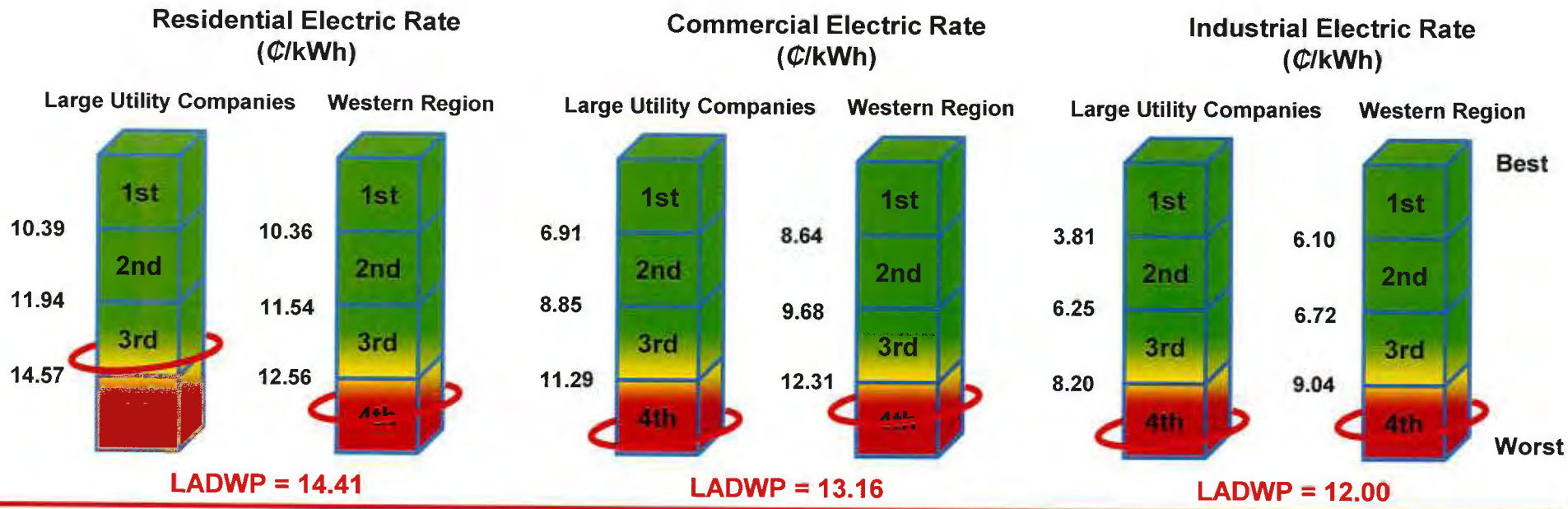


Metric Significance: HIGH

- 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.

NATIONAL ELECTRICITY RATES

This metric is measuring LADWP's average electricity rates for residential, commercial and industrial customers among the utility peer sets.

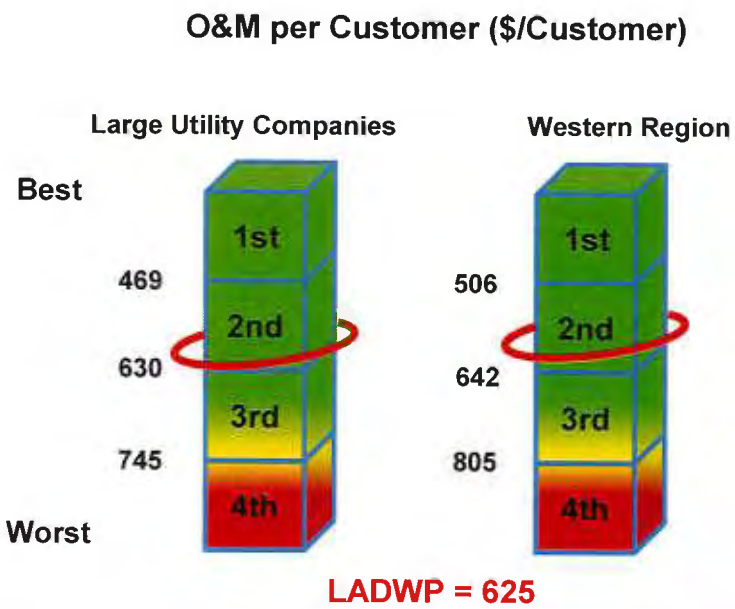


Metric Significance: HIGH

- 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.

TOTAL OPERATIONS AND MAINTENANCE EXPENSES

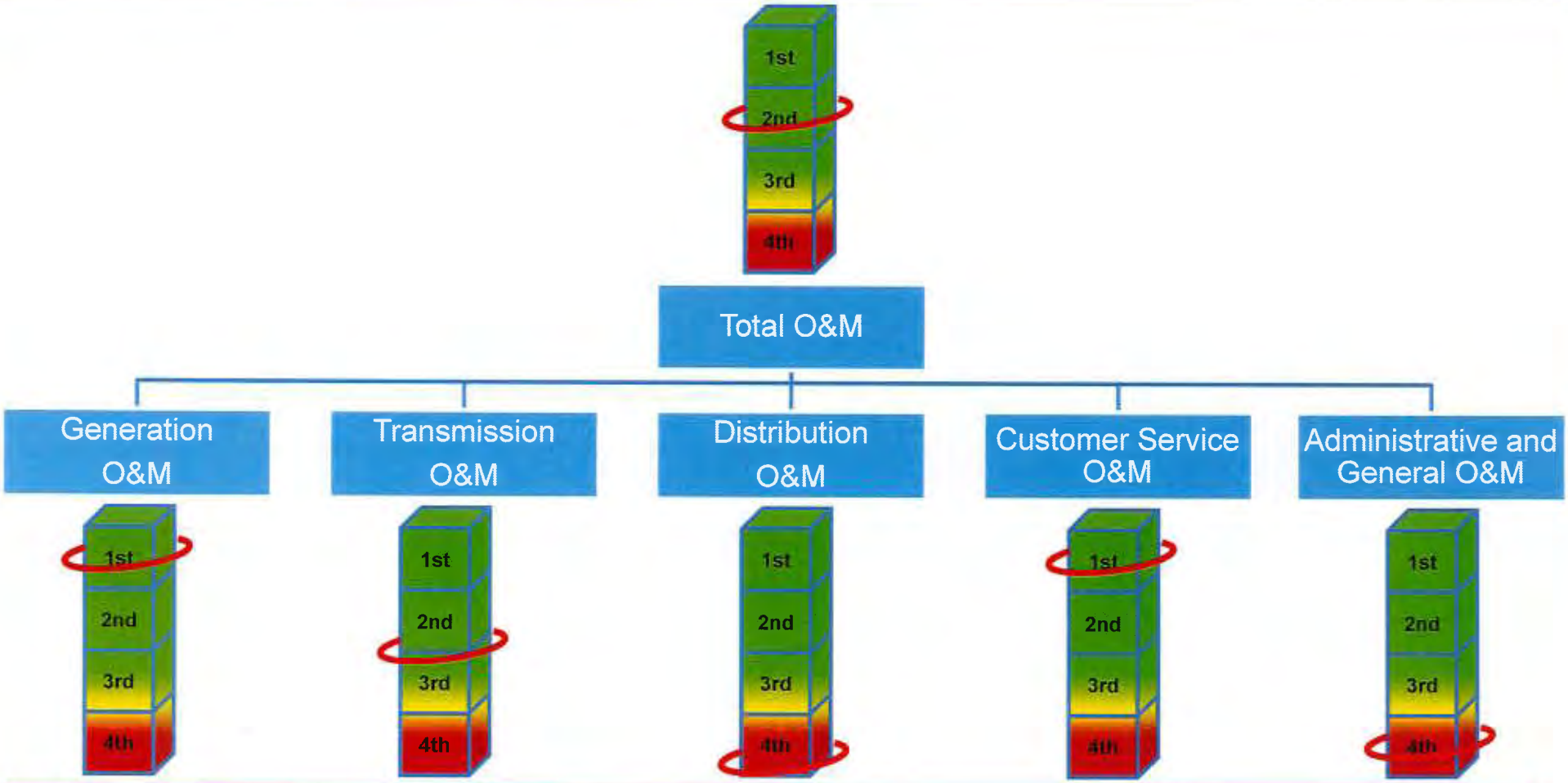
This critical metric measures the total electric utility operations and maintenance expenses (including labor, benefits and A&G) to the total number of ultimate customers.



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 OPERATIONS AND MAINTENANCE EXPENSES

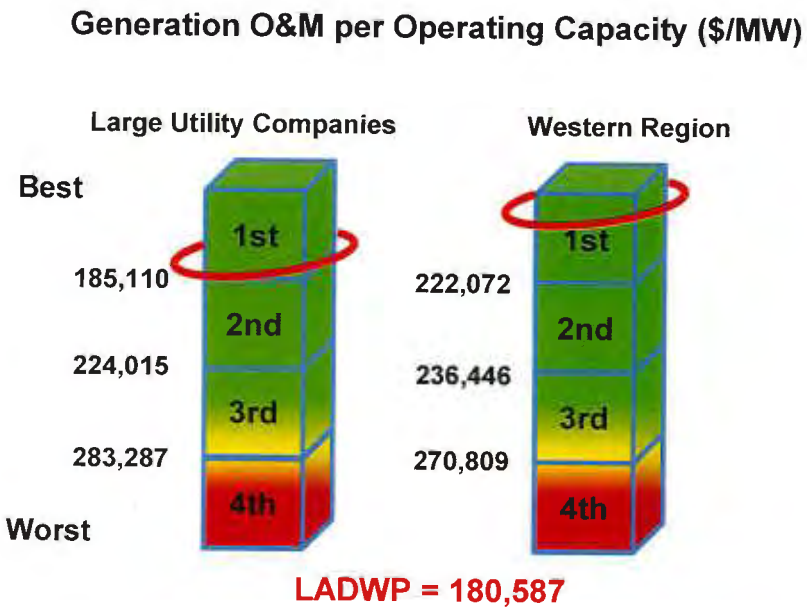


Metric Significance: HIGH

- 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.

GENERATION O&M

This metric measures LADWP's total generation operations and maintenance expenses (including labor) on a installed generation capacity basis.

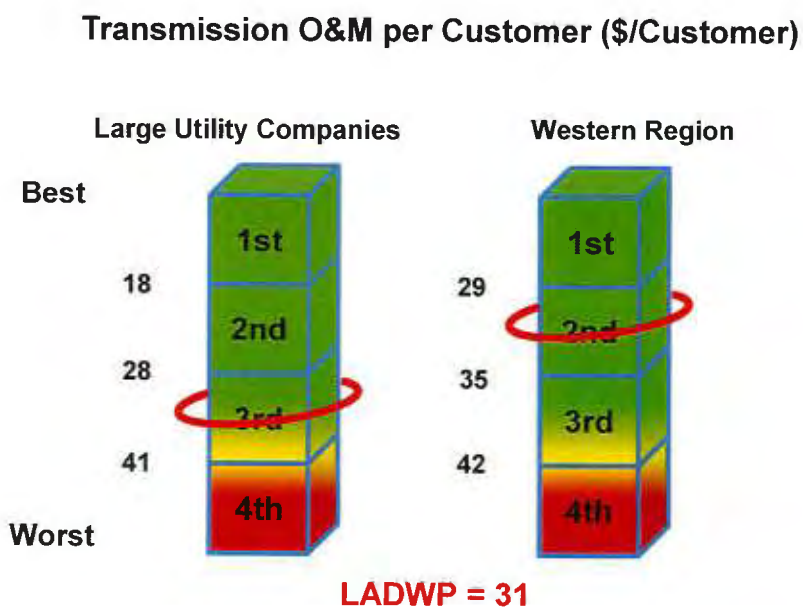


Metric Significance: MEDIUM

- This metric illustrates that power plant operations are in-line with the peer sets on an operating capacity basis.

TRANSMISSION O&M

This metric measures the Transmission operations and maintenance expenses (including labor) associated with delivering power to each retail customer.

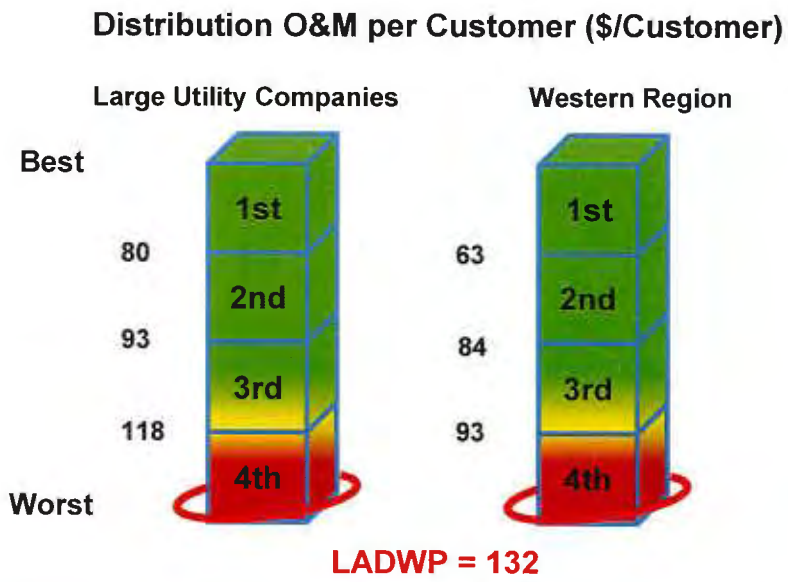


Metric Significance: MEDIUM

- Transmission O&M for LADWP benchmarked in the 2nd and 3rd quartiles relative to the peers on a per customer basis.

DISTRIBUTION O&M

This metric measures the Distribution operations and maintenance expenses (including labor) associated with delivering power to each retail customer.



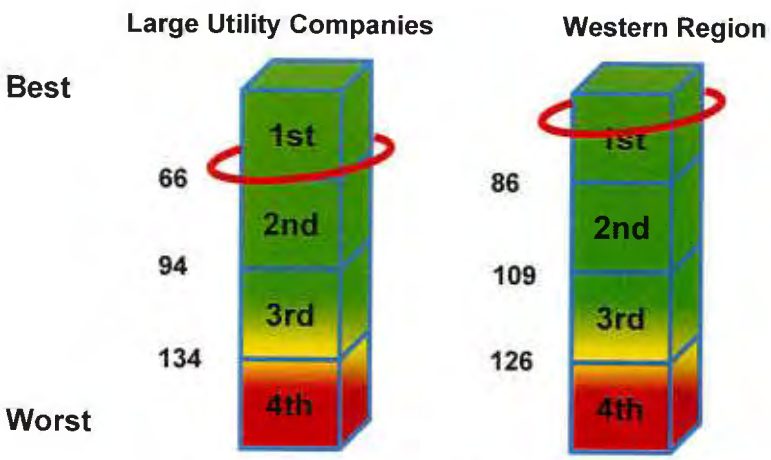
Metric Significance: MEDIUM

- 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.

CUSTOMER SERVICE O&M

This metric measures the total Customer Service O&M (including labor) expenses per retail customer net of uncollectible accounts.

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



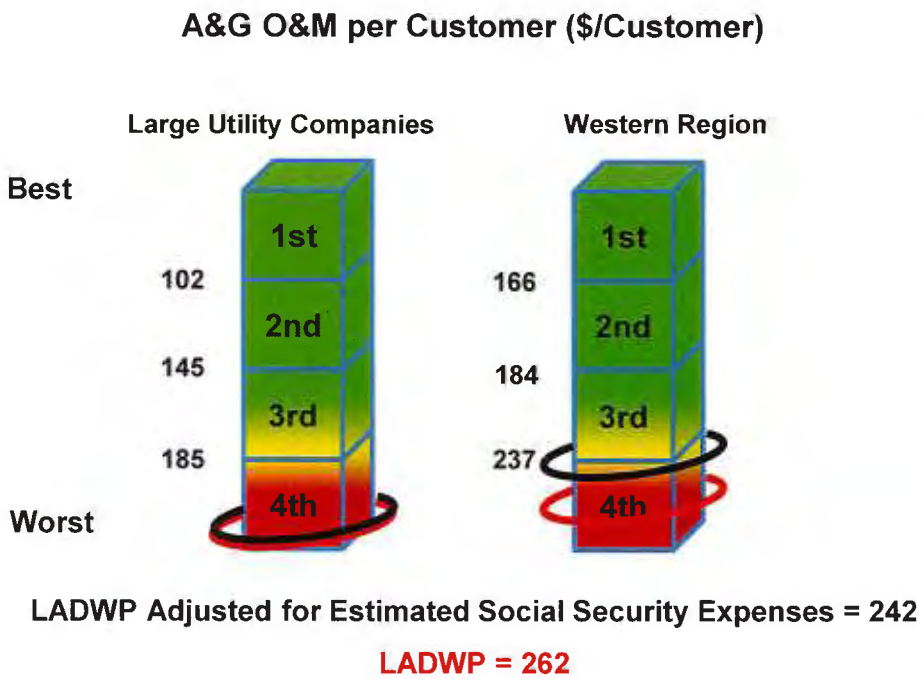
LADWP = 65

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.

ADMINISTRATIVE AND GENERAL (A&G) O&M

This metric measures the average administrative and general expenses (including pension and benefits) incurred by the utility on behalf of each retail customer.



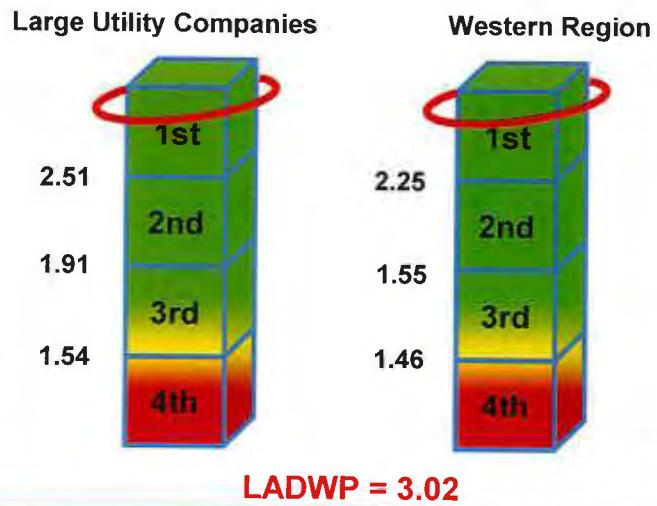
Metric Significance: MEDIUM

- 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.

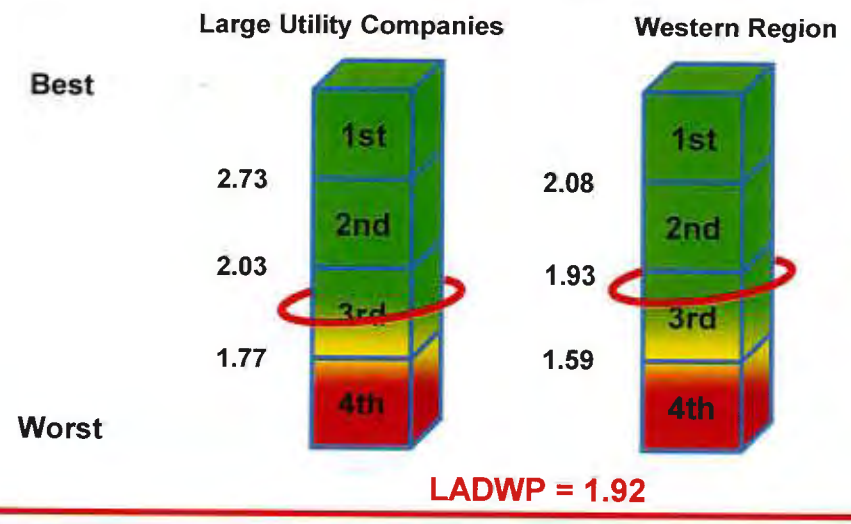
TOTAL CAPITAL EXPENDITURES (CapEx)

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 ($/$)



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



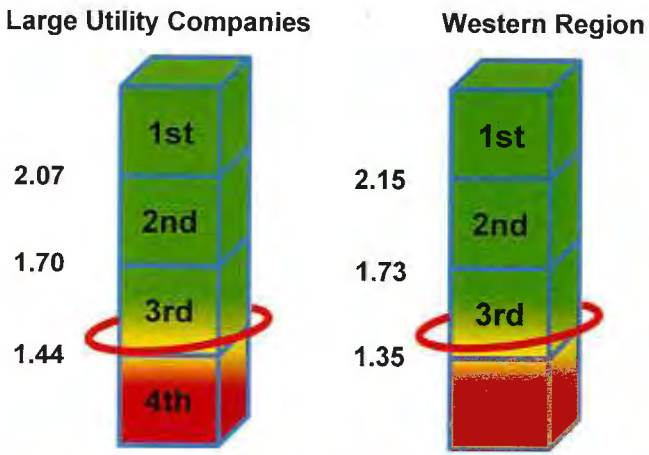
Metric Significance: MEDIUM

- 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.

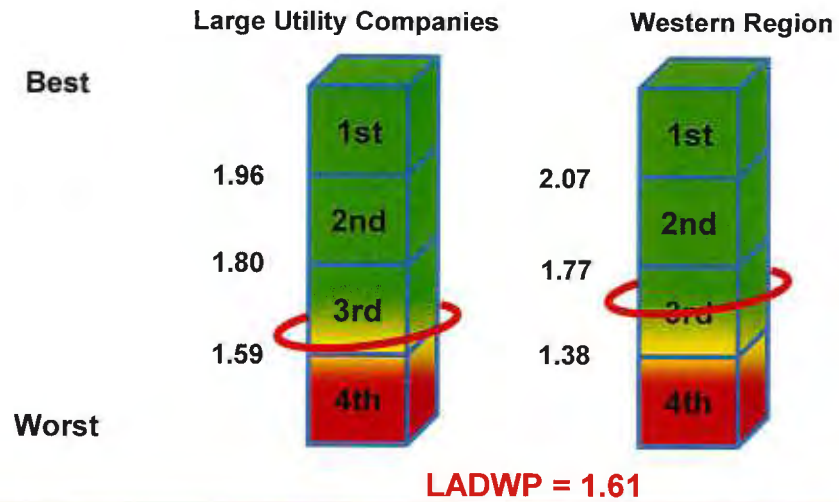
DISTRIBUTION CAPITAL EXPENDITURES (CapEx)

These metrics measure the amount of distribution CapEx made per distribution depreciation expense. This metric predominantly measures Power System Reliability Program investments.

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



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



Metric Significance: MEDIUM

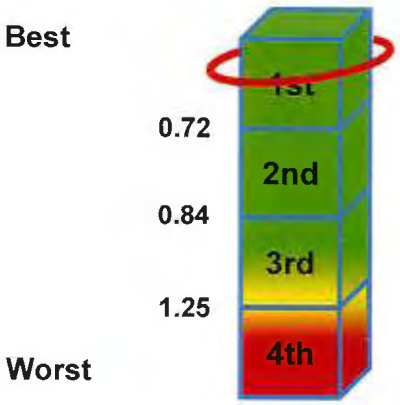
- While LADWP benchmarks in the 3rd quartile for both metrics, these results point to a historic trend of distribution related CapEx under spending.
- This historic CapEx under spending could also be contributing to LADWP's higher Distribution O&M costs when compared to peer utilities.

SAIFI and SAIDI

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

System Average Interruption Frequency Index (SAIFI)

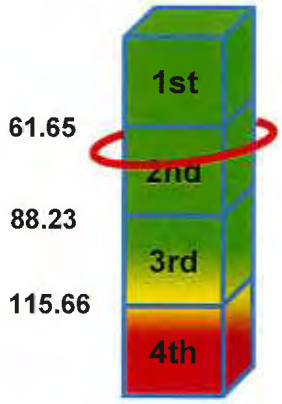
National Panel



LADWP = 0.45

System Average Interruption Duration Index (SAIDI)

National Panel



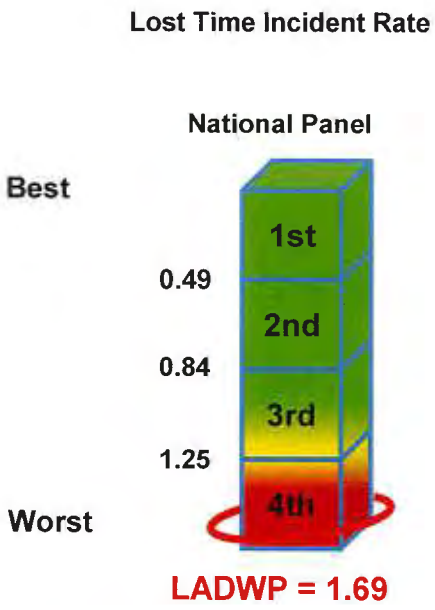
LADWP = 63.69

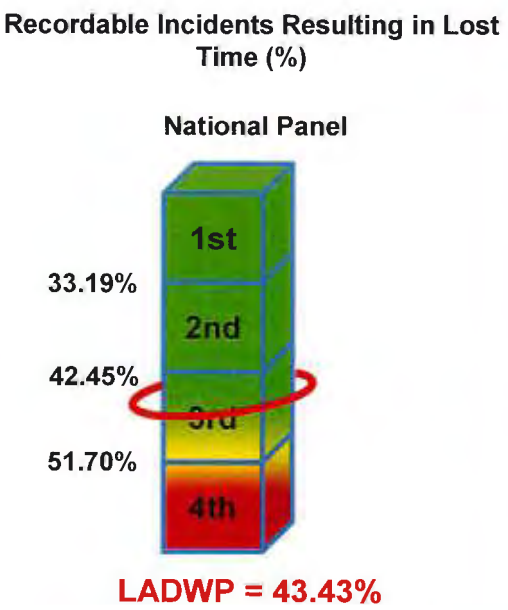
Metric Significance: HIGH

- 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.

Lost Time Incident Rate
Recordable Incidents Resulting in Lost Time

This metric measures how many recordable incidents resulted in lost time due to on-the-job injuries and illnesses over the course of the year.



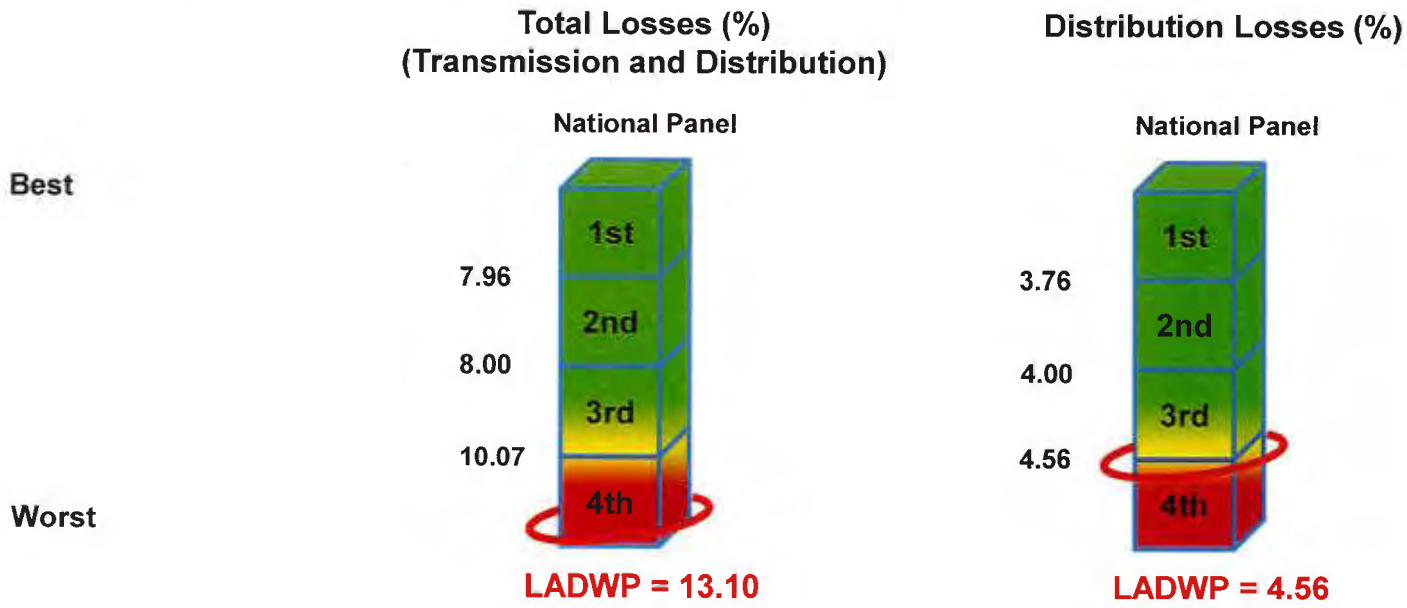


Metric Significance: HIGH

- 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.

TRANSMISSION AND DISTRIBUTION LOSSES

This metric measures how much energy is lost in a utility's electrical transmission and distribution system and is an indication of overall electrical system efficiency.



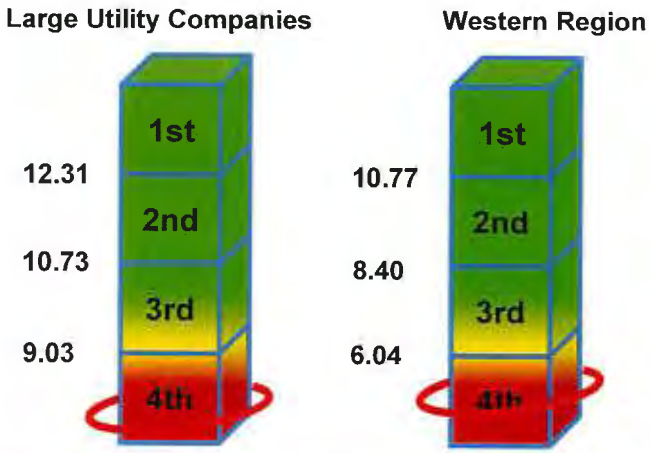
Metric Significance: MEDIUM

- 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.

FINANCIAL STATEMENT RATIOS

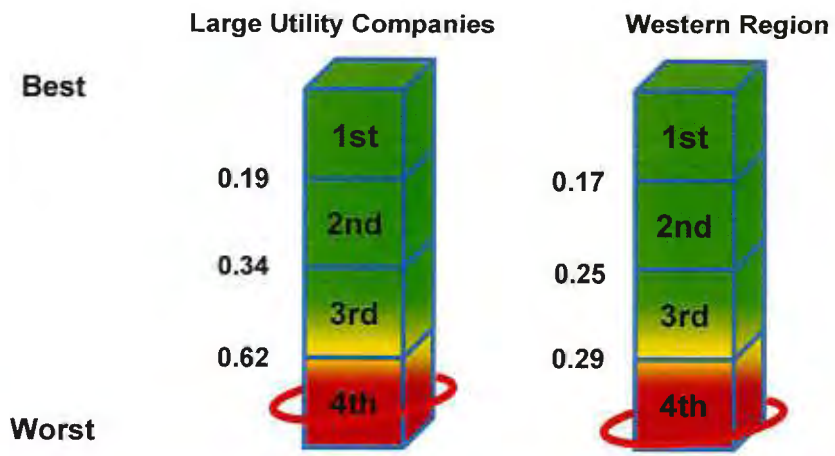
The net income per revenue dollar metric measures the amount of income remaining after operation and maintenance expenses, depreciation, taxes and City transfer. Uncollectible Accounts measure the amount of revenue that is not received as a percentage of total operating revenue.

Net Income per Revenue Dollar (%)



LADWP = 4.32

Uncollectible Accounts per Total Electric Revenue (%)



LADWP = 0.72

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.

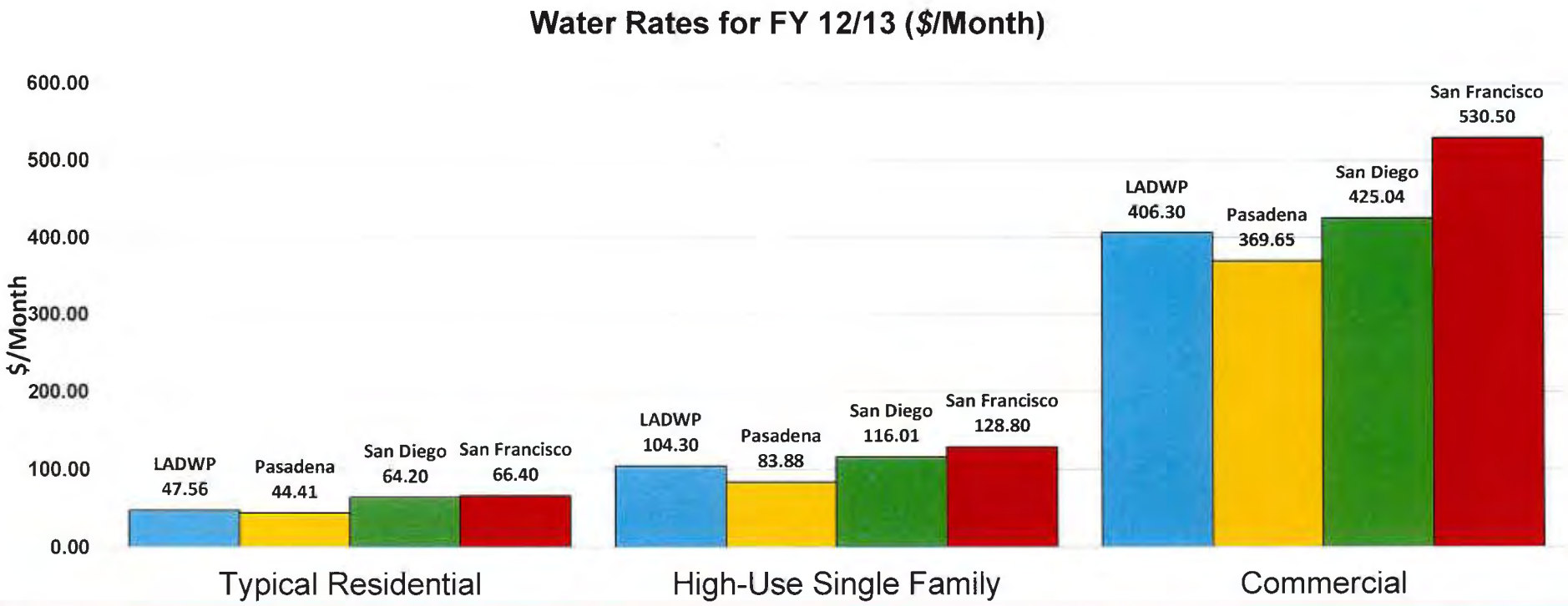
- **Financial Metrics**: The Water System is making significant regulatory and reliability capital investments; however, the key financial metrics are in-line with the industry peer sets.

- **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.

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.

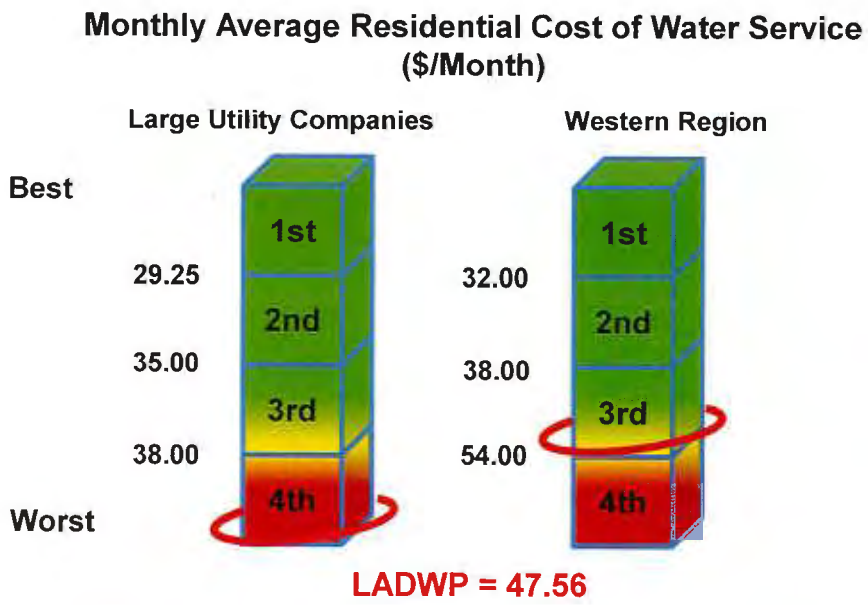


Metric Significance: HIGH

- 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.

WATER SYSTEM RATES

This metric measures monthly average cost of water service for residential customers.



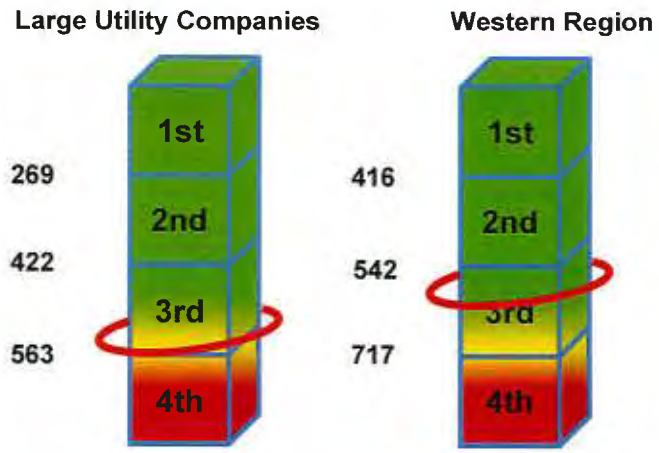
Metric Significance: HIGH

- 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.

WATER SYSTEM O&M

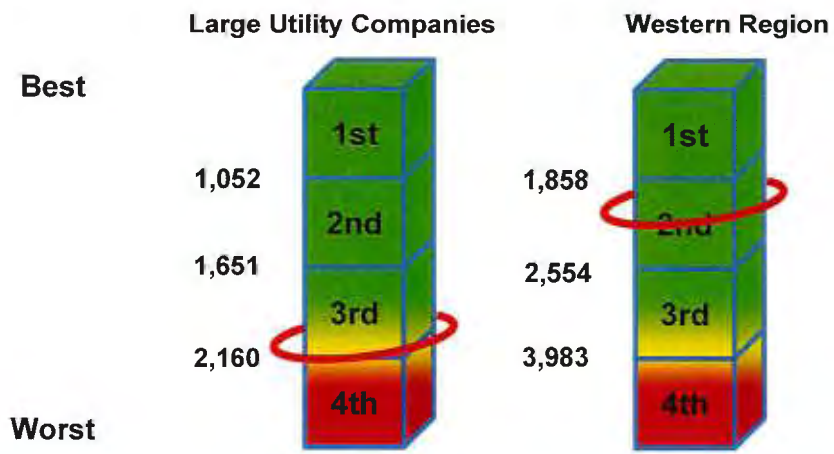
These metrics measure operations and maintenance costs per customer and per millions of gallons distributed to retail customers.

O&M Cost per Customer ($/Customer)



LADWP = 558

O&M Cost per Million Gallons Distributed ($/MG)



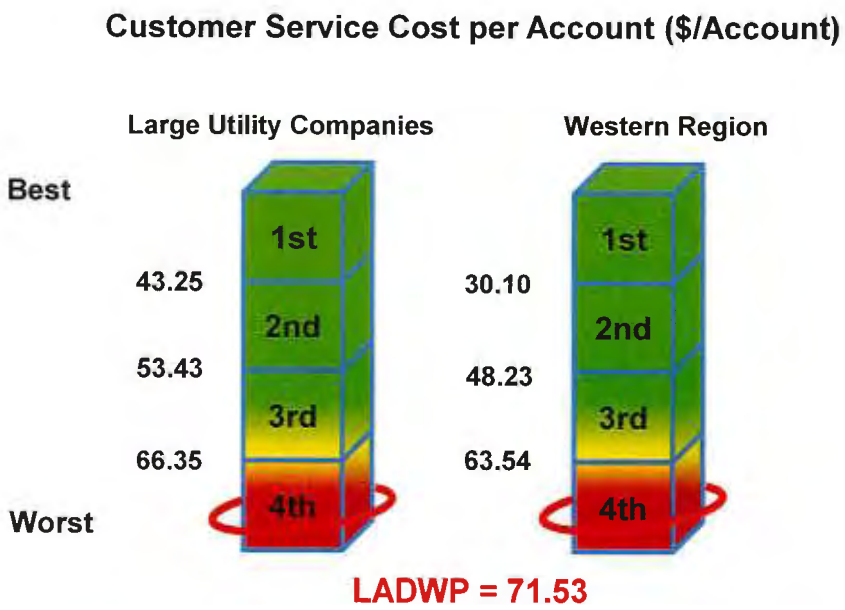
LADWP = 2,049

Metric Significance: HIGH

- LADWP is benchmarking in the 2nd and 3rd 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.

CUSTOMER SERVICE O&M COST PER CUSTOMER ACCOUNT

This metric measures the Customer Service cost including Uncollectible Accounts per total number of active accounts.

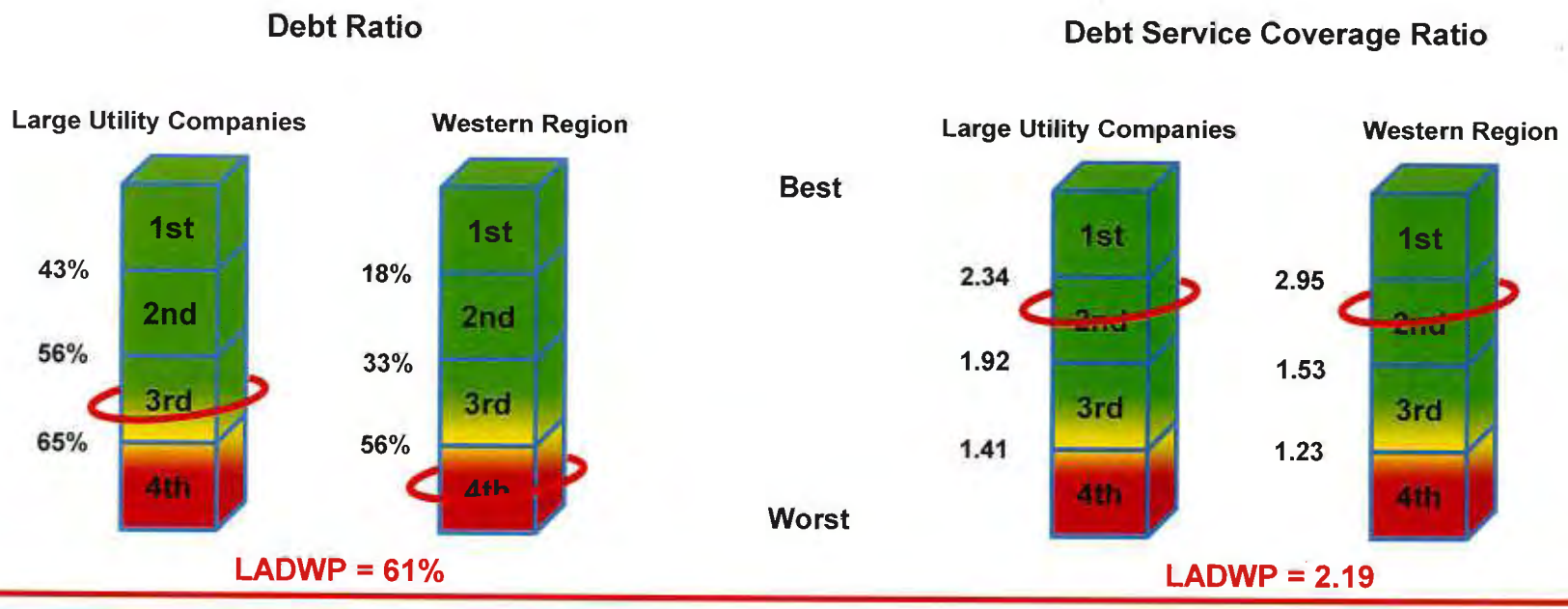


Metric Significance: MEDIUM

- 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.

WATER SYSTEM FINANCIAL METRICS

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.



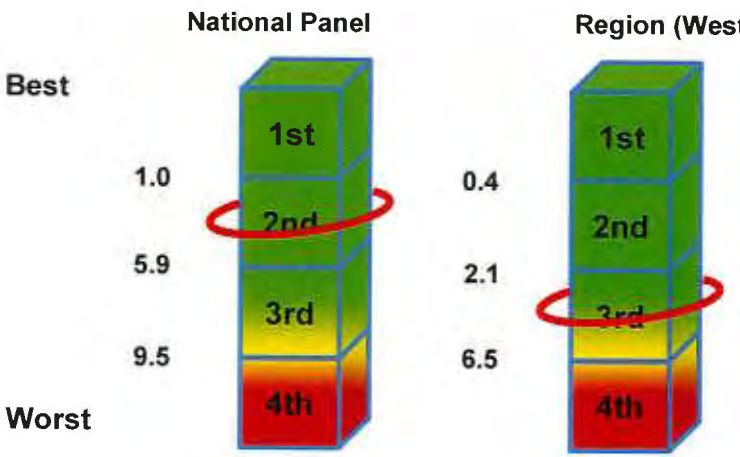
Metric Significance: HIGH

- 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.

REAL LOSSES PER TOTAL WATER INTRODUCED TO THE SYSTEM

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 (%)



LADWP = 3.48

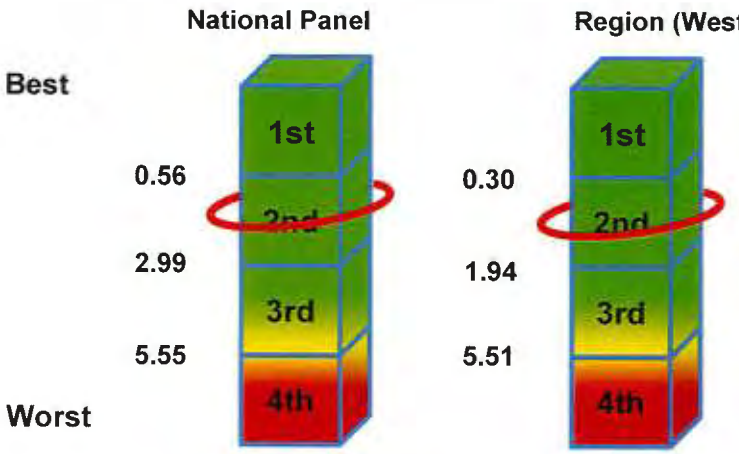
Metric Significance: MEDIUM

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

TOTAL UNPLANNED SERVICE DISRUPTIONS PER CUSTOMER

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.

Total Unplanned Service Disruptions per Customer (Disruption/1,000 Customers)



LADWP = 1.1

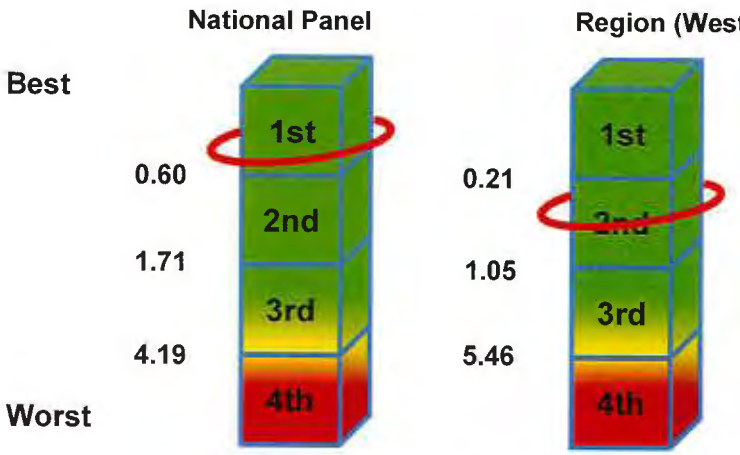
Metric Significance: HIGH

- 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.

TOTAL PLANNED SERVICE DISRUPTIONS PER CUSTOMER

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.

Total Planned Service Disruptions per Customer (Disruption/1,000 Customers)



LADWP = 0.47

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.

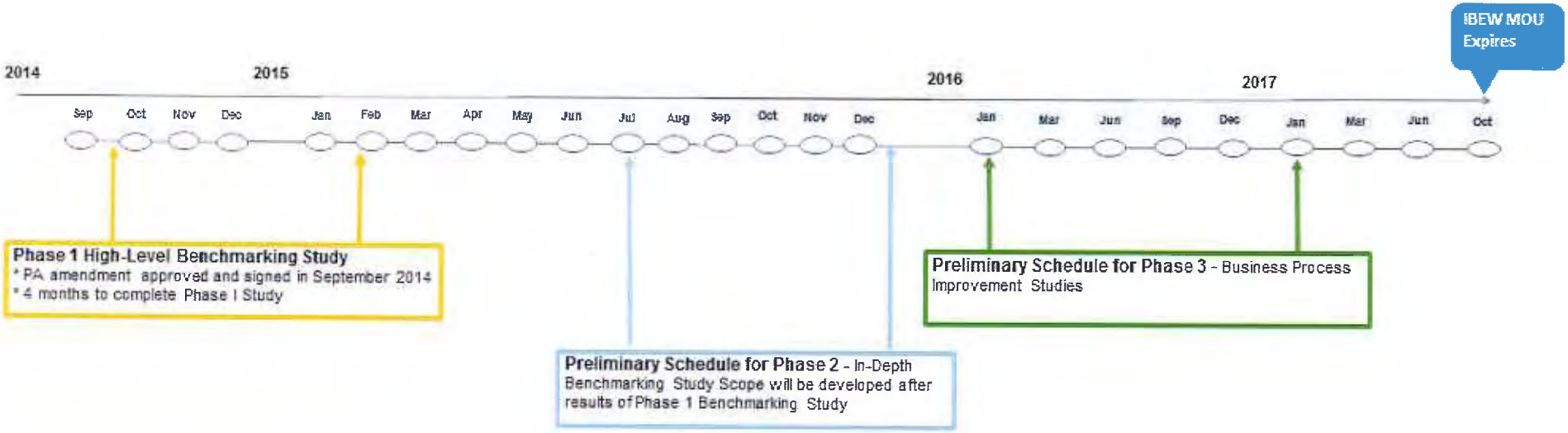
NEXT STEPS

- 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.

BENCHMARKING SCHEDULE

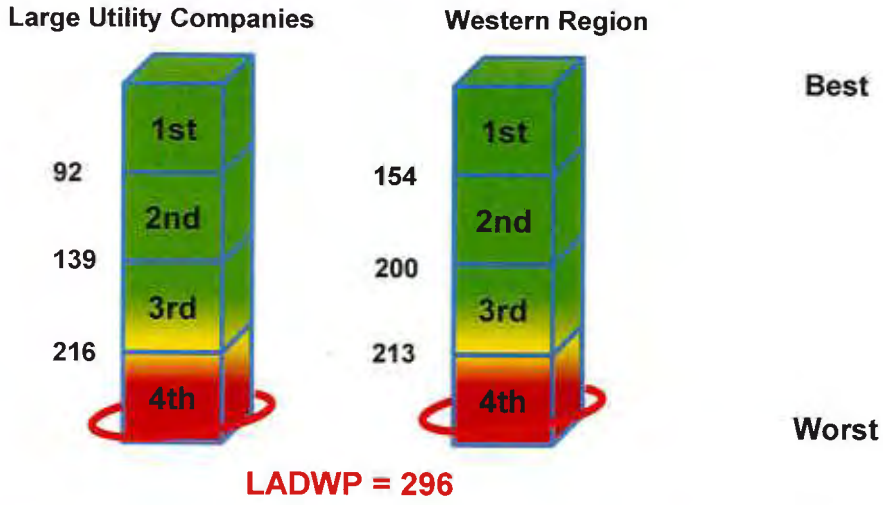


RPA REQUESTED BENCHMARKS

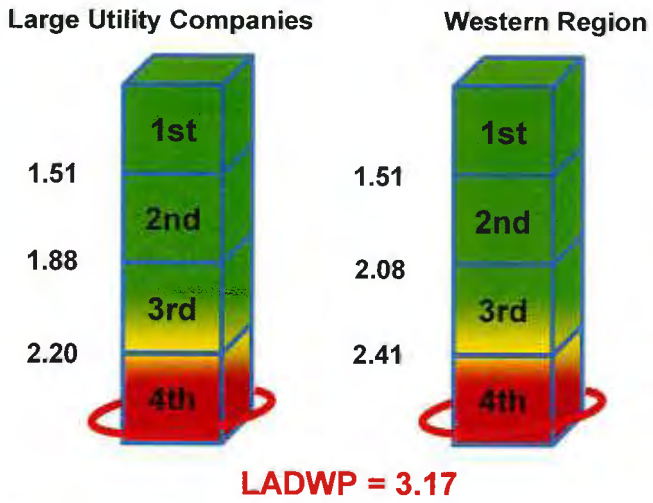
POWER O&M PAYROLL DOLLARS

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)



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

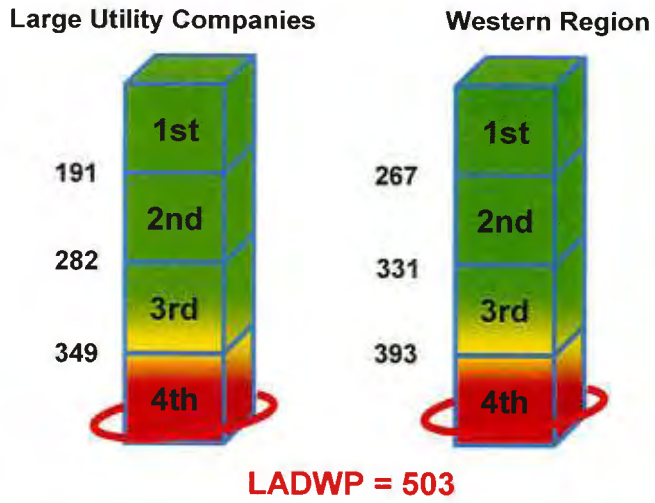


TOTAL POWER PAYROLL DOLLARS

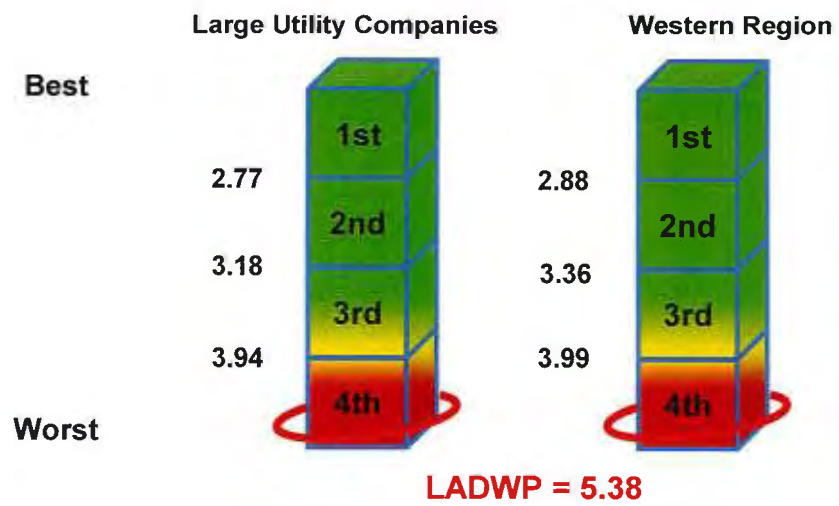
(LADWP BENCHMARK IS POWER CAPITAL AND O&M ONLY)

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)



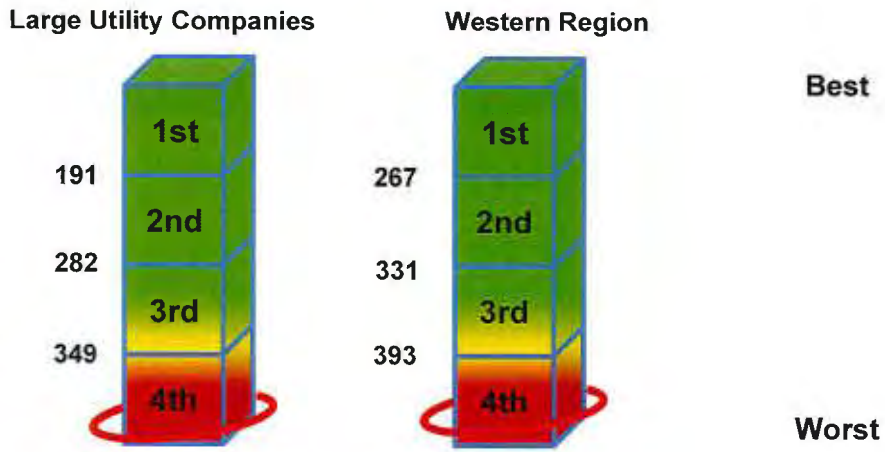
Total Power Payroll Dollars per Total Assets (%)



TOTAL PAYROLL DOLLARS
(LADWP BENCHMARK IS POWER AND WATER COMBINED)

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

Total Payroll Dollars per Customer ($/Customer)

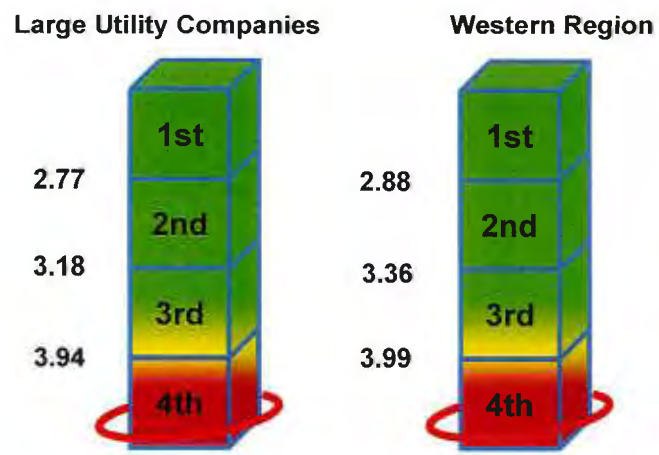


LADWP = 488

Best

Worst

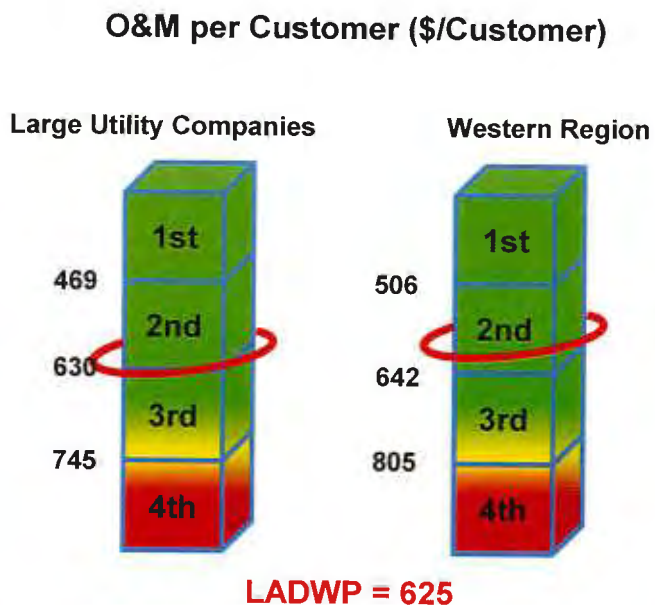
Total Payroll Dollars per Total Assets (%)

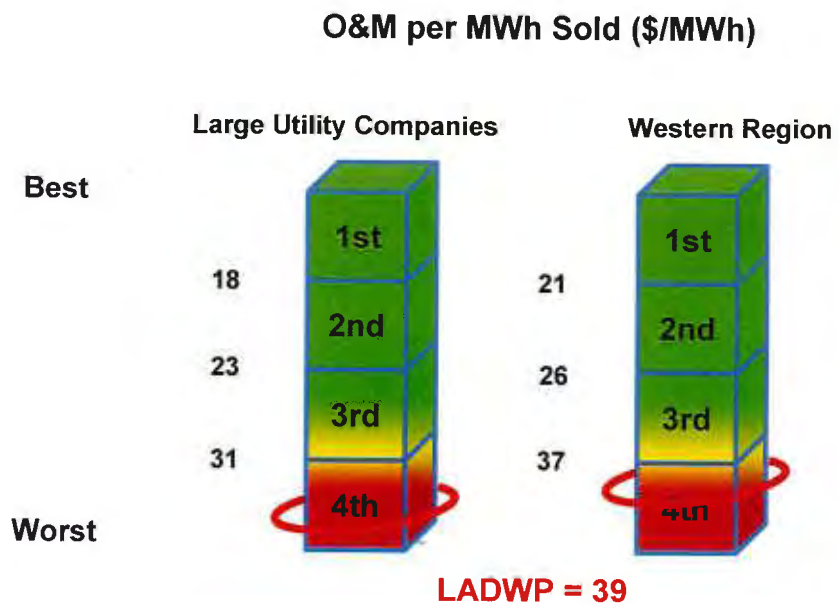


LADWP = 5.14

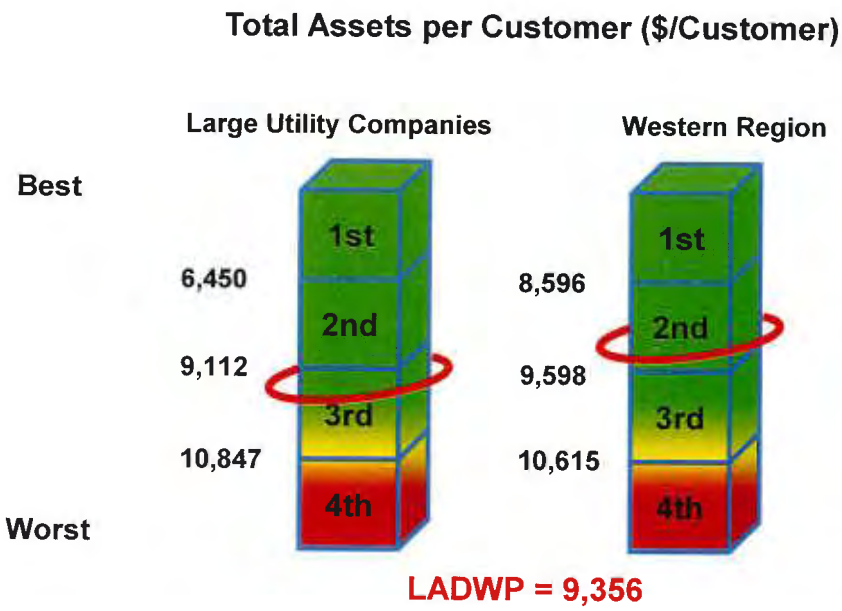
O&M

These metrics measures 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.



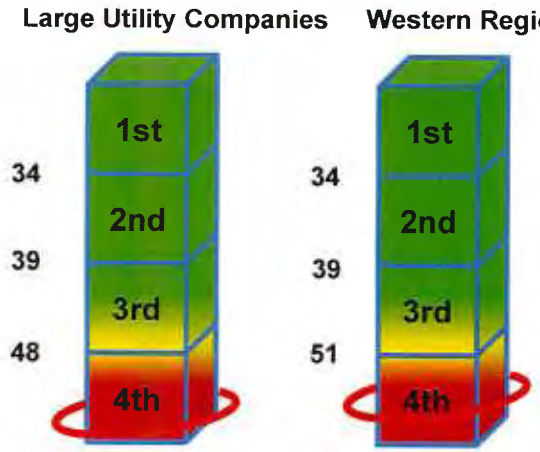


TOTAL ASSETS



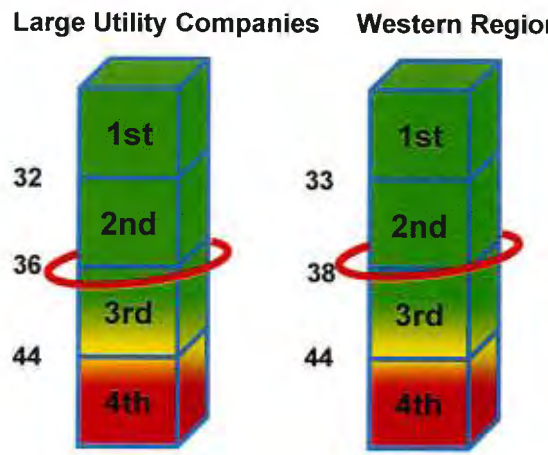
SALES

Production & Power Purchases Expense per Total Retail Sales ($/MWh)



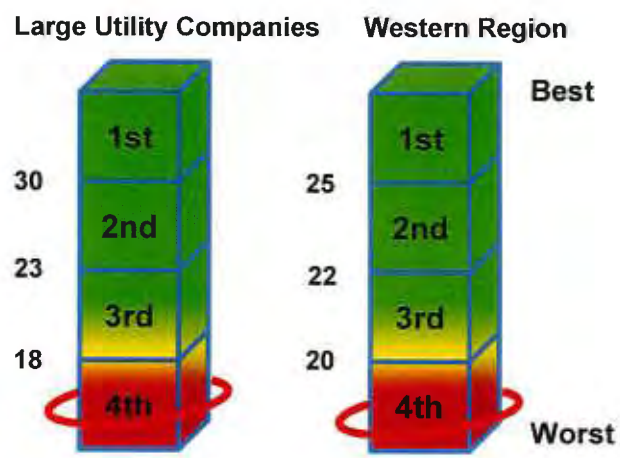
LADWP = 57

Residential Sales per Total Retail Sales (%)



LADWP = 36

MWh Sold per Customer (MWh/Customer)

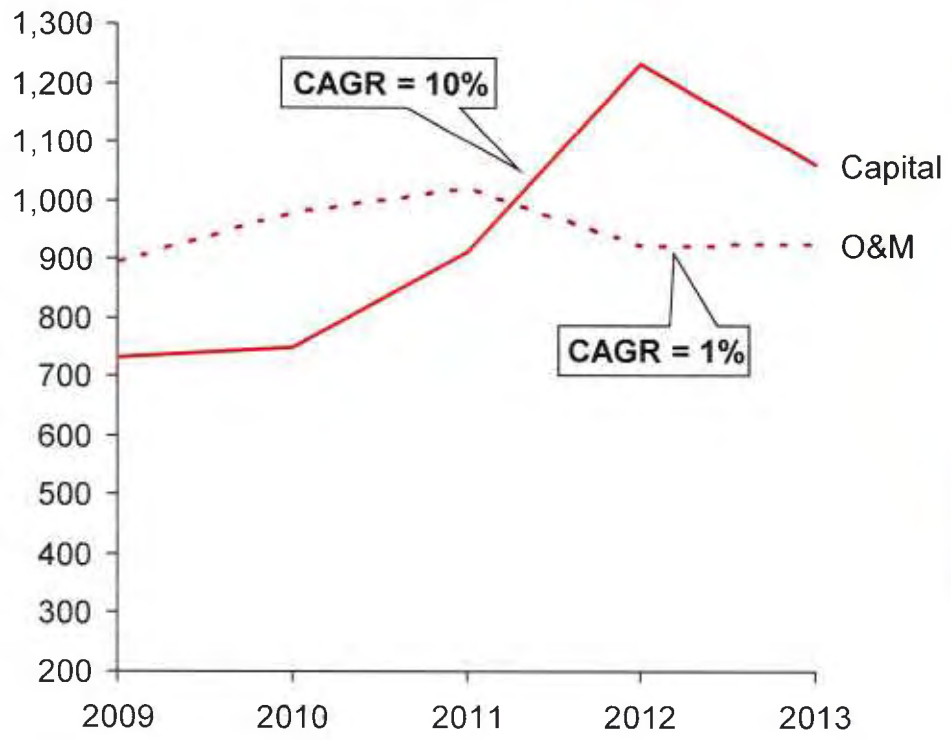


LADWP = 16

APPENDIX

O&M AND CAPITAL 5 –YEAR TREND: POWER SYSTEM

Historical LADWP Power System Costs ($MM)



CAGR: Compound Annual Growth Rate

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

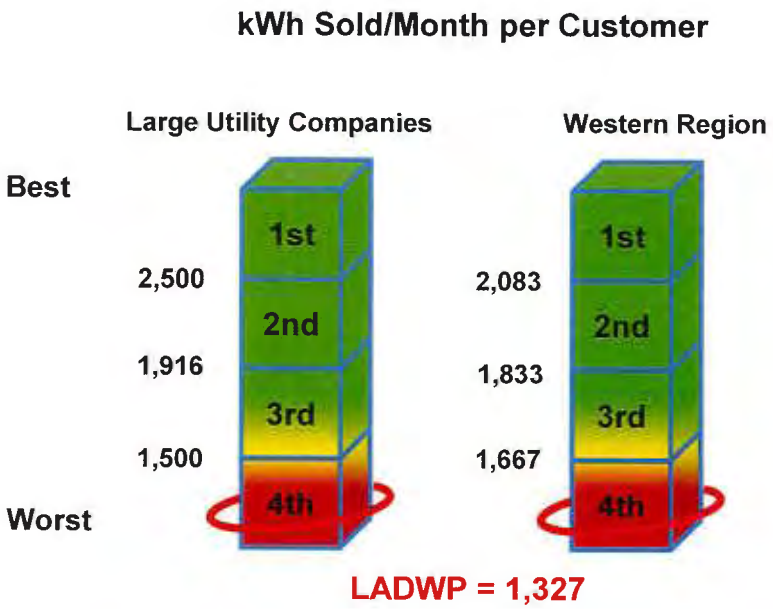
O&M COMPONENTS: POWER SYSTEM

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)

ENERGY SALES PER CUSTOMER

This metric measures the average quantity of kilowatt hours of energy sold per month per retail customer.

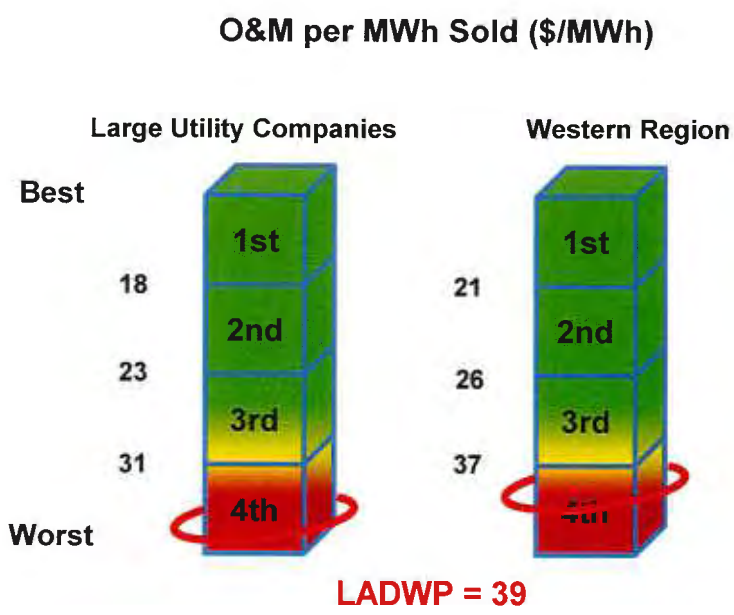


Metric Significance: MEDIUM

- 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.

TOTAL OPERATION AND MAINTENANCE EXPENSE BY MWh

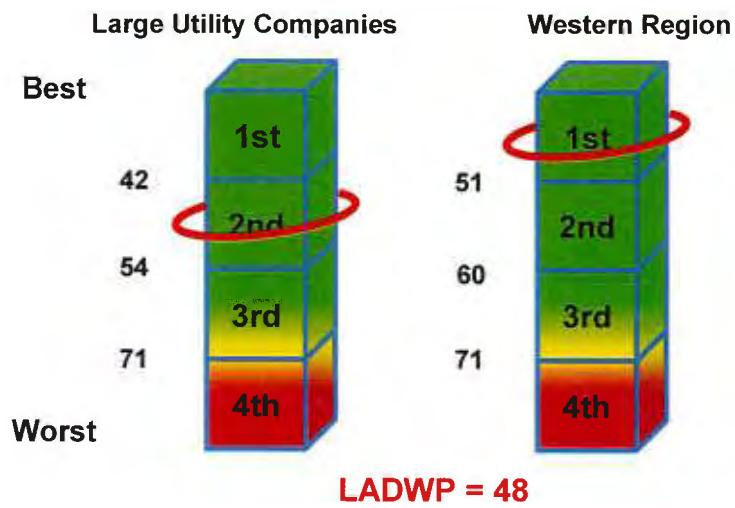
This critical metric measures the total electric utility operation and maintenance costs (including labor, benefits and A&G) to the total number of megawatt hours sold.



POWER GENERATION O&M COSTS BY MWh

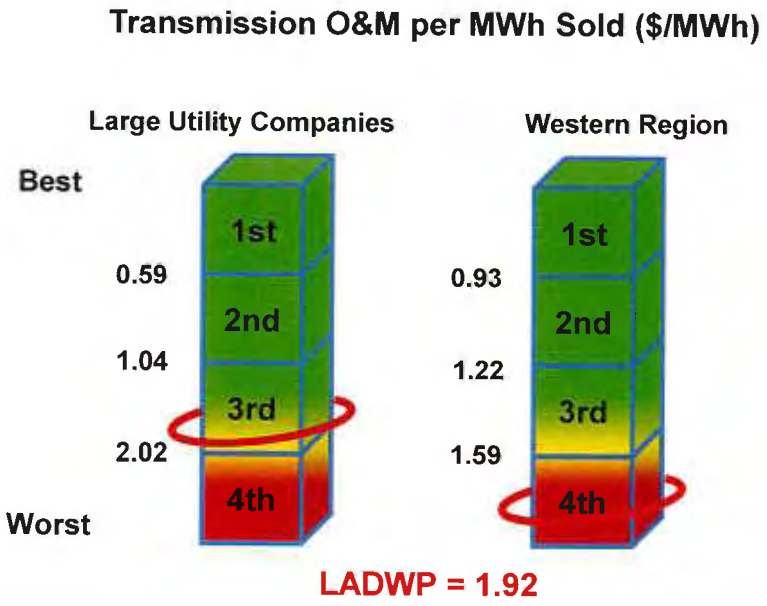
This metric measures LADWP's total generation operation and maintenance costs (including labor) on a installed generation capacity and energy cost basis per megawatt hour.

Generation O&M per Net Generation ($/MWh)



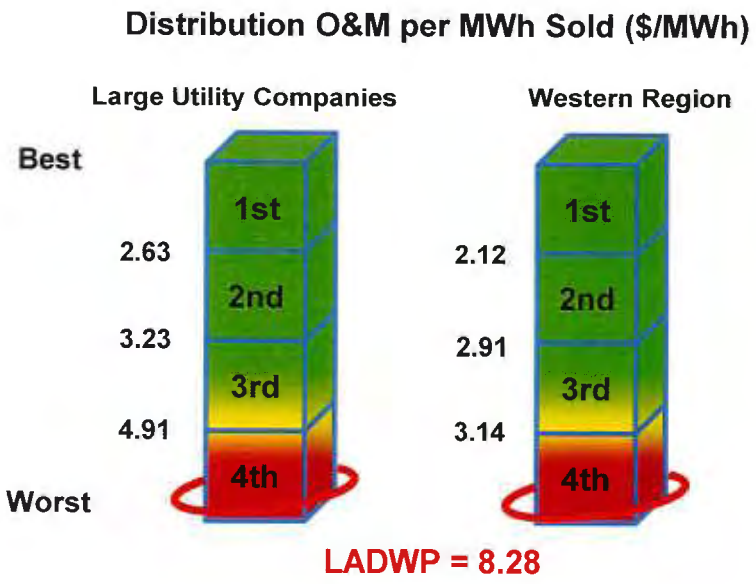
TRANSMISSION O&M BY MWh

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



DISTRIBUTION O&M BY MWh

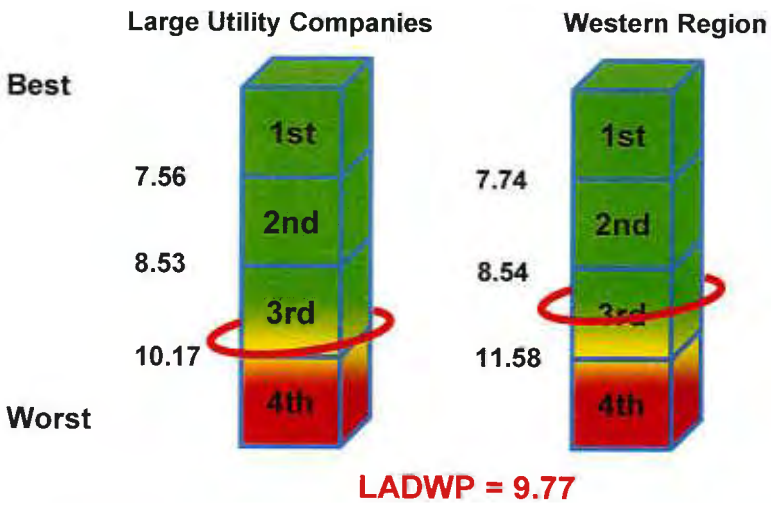
This metric measures the Distribution System operations and maintenance expense (including labor) associated with delivering power to each retail customer on a per megawatt hour basis.



STEAM NON-FUEL O&M PER STEAM GENERATION

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

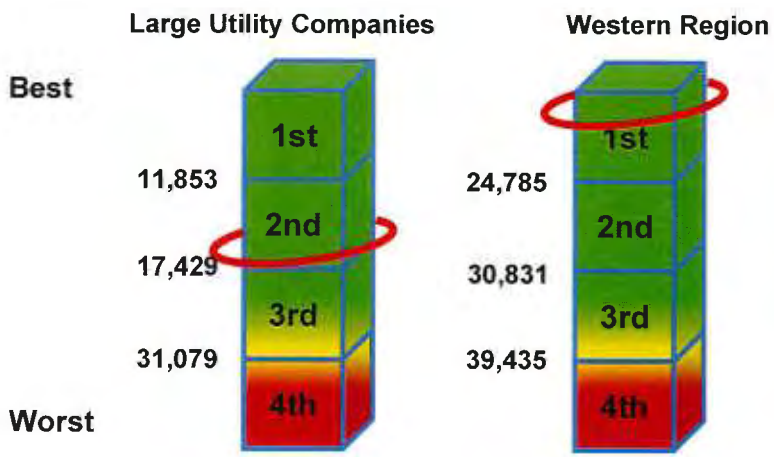
Steam Non-Fuel O&M per Steam Generation ($/MWh)



HYDRO NON-FUEL O&M PER HYDRO OP. CAPACITY

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

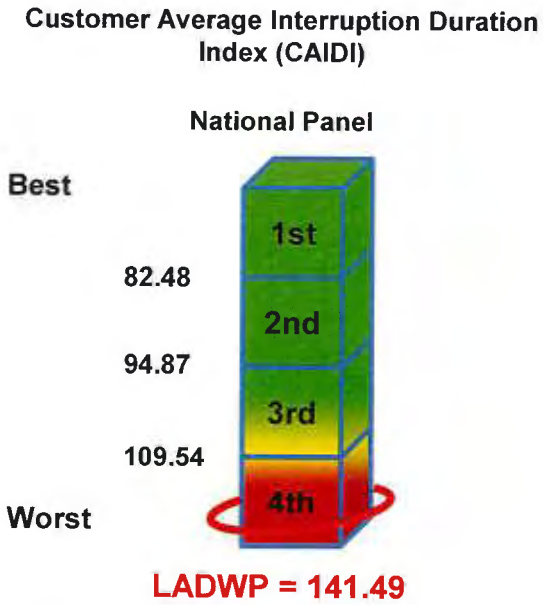
Hydro Non-Fuel O&M per Hydro Op. Capacity ($/MW)



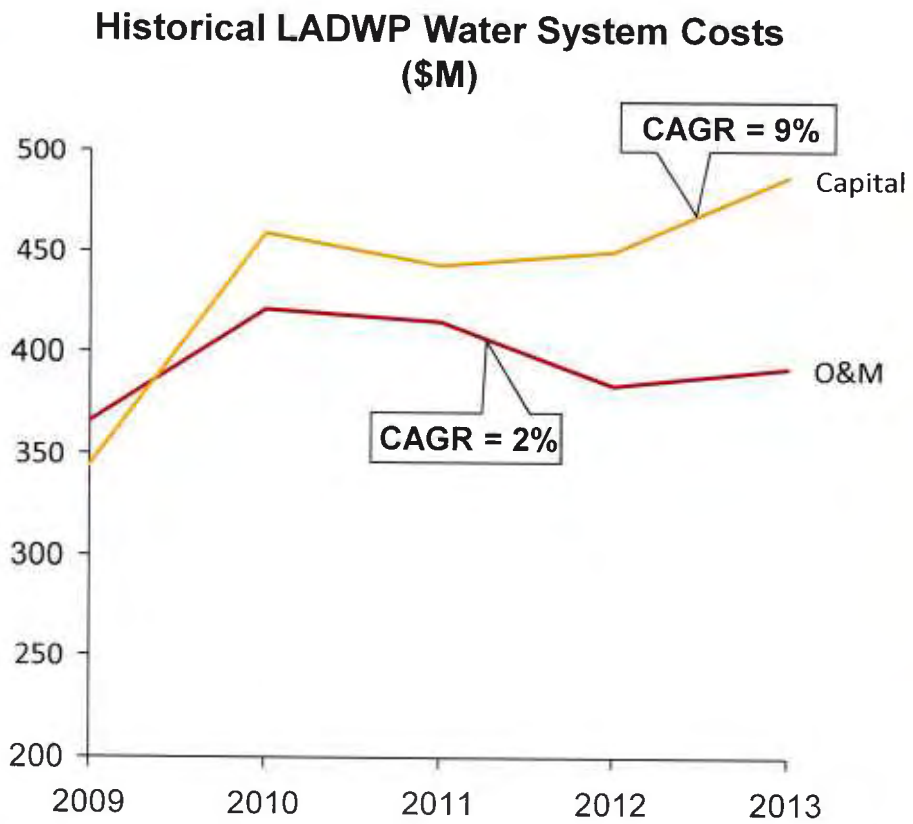
LADWP = 17,392

CAIDI

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



O&M AND CAPITAL 5 – YEAR TREND: WATER SYSTEM



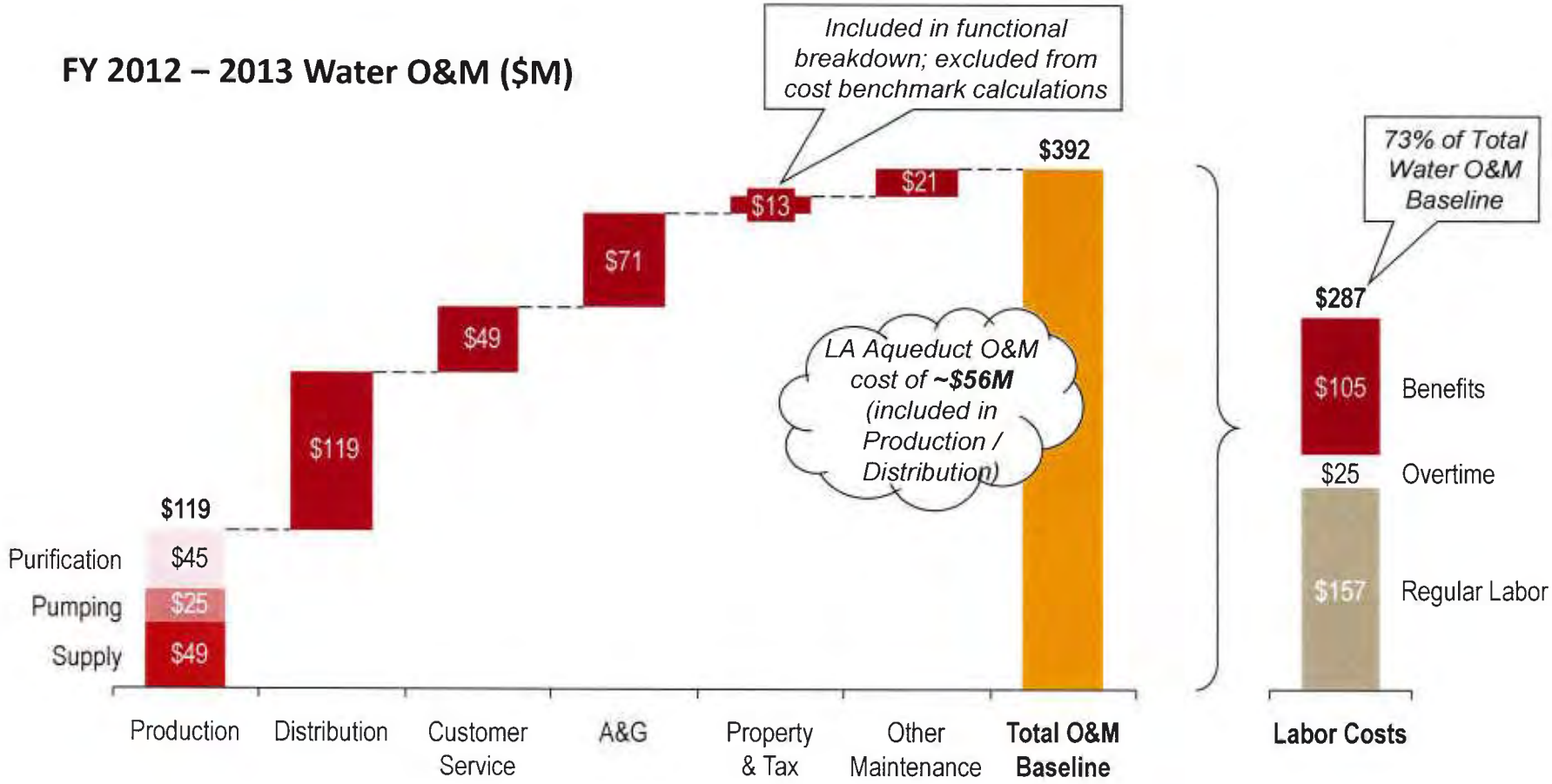
CAGR: Compound Annual Growth Rate

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.

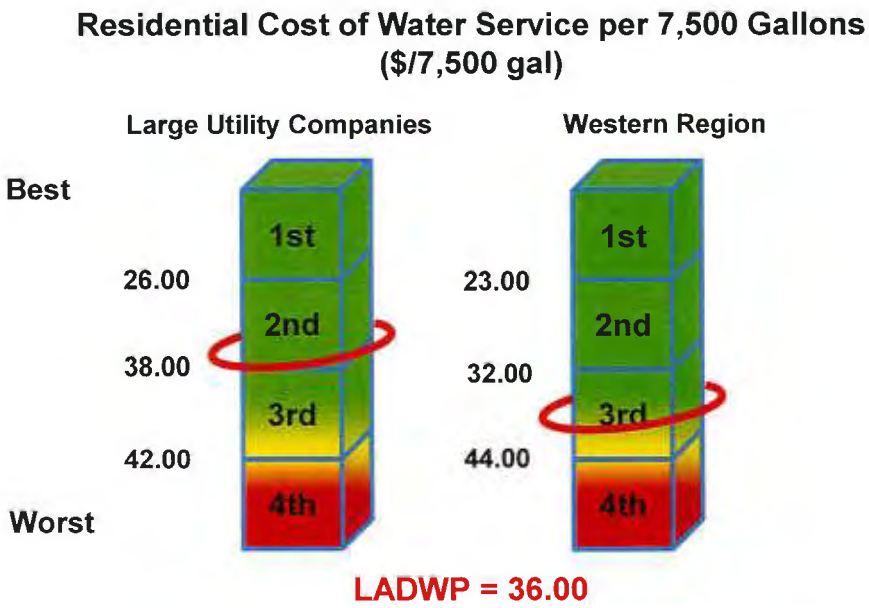
O&M COMPONENTS: WATER SYSTEM

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



WATER SYSTEM RATES

These metrics measure the total cost per gallon of water distributed to customers as well as the cost of water service per 7,500 gallons which is the average estimated residential monthly water usage amount.



Metric Significance: HIGH

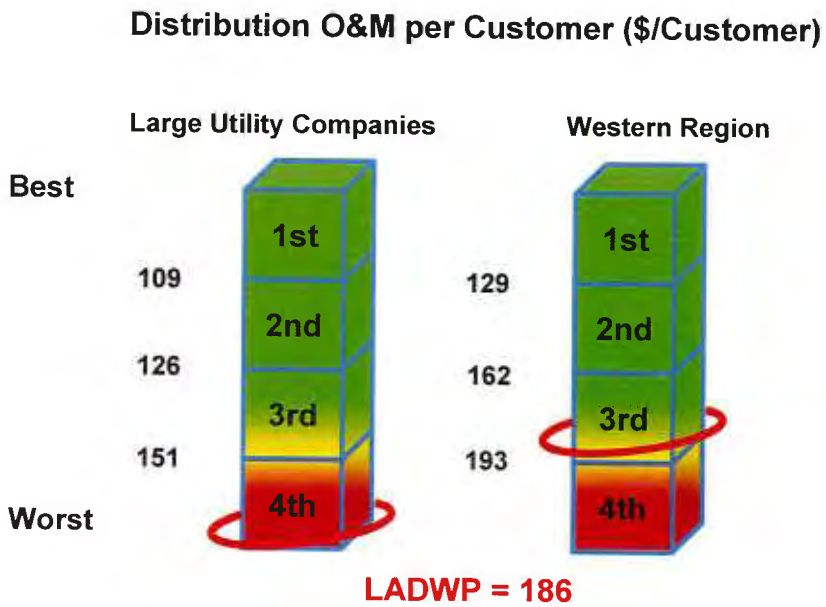
- These metrics show that the relative cost of water service is competitive when compared to Large and Western Region based peer utilities.
- LADWP benchmarked in the 2nd or 3rd quartile for customer water usage capped at 7,500 gallons.

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.)

APPA METRIC
DISTRIBUTION O&M EXPENSE PER RETAIL CUSTOMER

The metric measures the distribution expense (including labor and benefits) associated with delivering power to each retail customer.



Metric Significance: MEDIUM

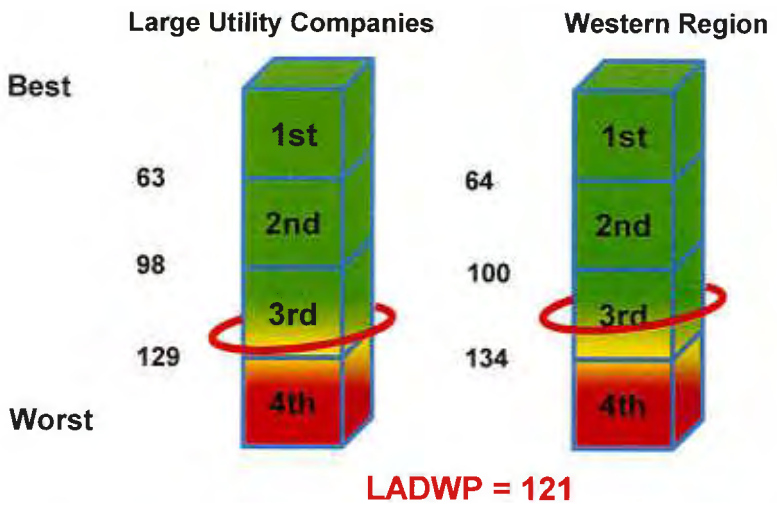
- As a result of greater planned distribution capital investments (e.g. PSRP), this metric is expected to improve.
- Additional operational changes may also be evaluated.

* Unlike Investor Owned Utilities, American Public Power Association (APPA) distributes pension and benefit costs to the various functions (including Distribution) rather than centralize those costs in 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)



Metric Significance: MEDIUM

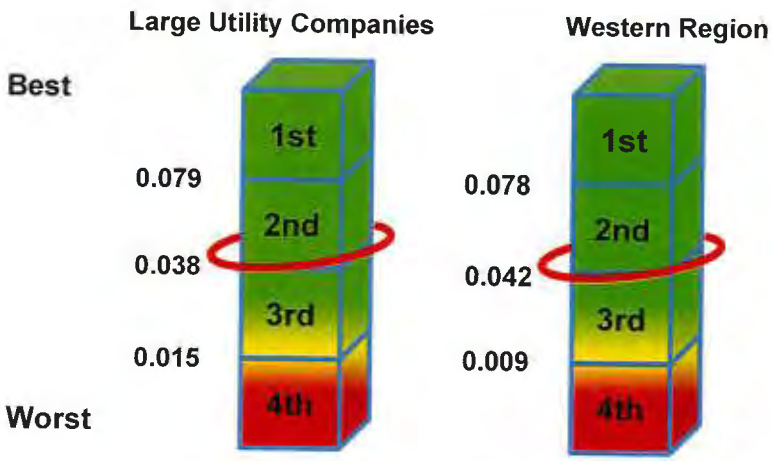
- This metric is 3rd quartile
- When LADWP switches customers to a monthly billing cycle, this metric will benchmark further down toward the 4th quartile.
- LADWP has a large number of cash customer service transactions that drive its O&M costs up relative to peer utilities.
- Higher costs associated 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 centralize those costs in A&G.

APPA METRIC
NET INCOME PER REVENUE DOLLAR

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.

OSHA Incidence Rate (Per 100 Employees)



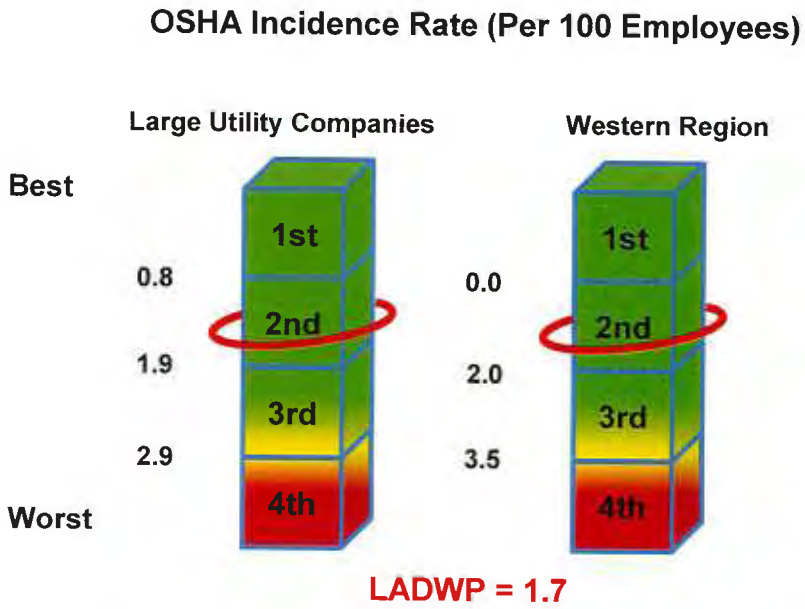
LADWP = 0.043

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.

APPA METRIC
OSHA INCIDENCE RATE (PER 100 EMPLOYEES)

This metric measures the proportion of employees subject to on-the-job injuries and illnesses over the course of the year.

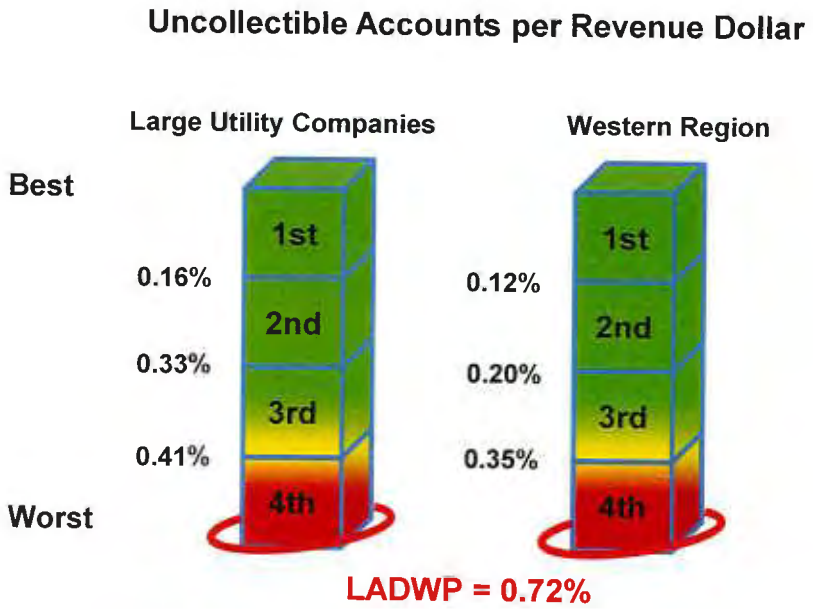


Metric Significance: MEDIUM

- This metric is better than the median for both utility peer sets.

APPA METRIC
UNCOLLECTIBLE ACCOUNTS PER REVENUE DOLLAR

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%

Los Angeles Department of Water & Power

INFORMATIONAL BOARD LETTER

JEFFERY L. PELTOLA
Director
Corporate Performance

MARCIE L. EDWARDS
General Manager

DATE: **March 12, 2015**

SUBJECT: **Phase I Benchmarking – Findings and Update**

EXECUTIVE SUMMARY

This Board letter presents the findings from Phase I of the Benchmarking Analysis (Analysis) of the Los Angeles Department of Water and Power (LADWP) conducted by PA Consulting Group, Inc. in cooperation with PWC Strategy& (formerly Booz & Company) (Consultants). This analysis was completed on January 30, 2015.

As outlined to the Board on June 17, 2014, a comprehensive overall benchmarking analysis of LADWP will be conducted in three phases (each of which builds on data, analysis and findings derived from the previous phase) outlined as follows:

- Phase I: Compare operational and financial data to other utilities
- Phase II: Conduct more in-depth analysis on the findings and initial observations, including staffing levels
- Phase III: Develop recommendations for business process improvements

Phase I of the benchmarking study began approximately three months ago and included meetings between the Consultants and LADWP operating organization staff to ensure the most accurate analysis possible. LADWP staff also coordinated with the City of Los Angeles (City) Ratepayer Advocate to ensure that meaningful and appropriate metrics were used in the study.

This analysis presents areas where LADWP is on par or better than its peers; and, areas where there are opportunities to improve. In some instances, LADWP is already taking steps to improve areas identified by the analysis including but not limited to Uncollectible Accounts and Energy Losses in the Distribution System.

LADWP intends to use the initial Phase I findings as a "road map" to identify areas for more in-depth analysis and containing the highest potential for improvement.

KEY POWER SYSTEM BENCHMARK FINDINGS

Total Power System Operations & Maintenance (O&M) Costs:

- Finding: Total O&M costs per Customer is comprised of Generation, Transmission, Distribution, Customer Service, and Administrative & General (A&G) O&M functional costs including labor and benefits. This metric is one of the LADWP's most significant operational metrics. For LADWP this metric benchmarked favorably in the 2nd quartile.

- Finding: While the Total O&M costs benchmarked favorably, the Power System's A&G O&M and Distribution O&M function metrics benchmarked in the 4th quartile and warrant further analysis.

Reliability Metrics:

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

- Observation: Further analysis will be performed in subsequent benchmarking studies to determine the extent to which LADWP's relatively high Distribution O&M costs had a positive impact on these reliability metrics; and, whether increased distribution capital spending as part of the upcoming Power System Reliability Program (PSRP) can lower Distribution O&M while still maintaining high reliability.

Financial Metrics:

- Finding: The LADWP's key financial metrics are in-line with industry peer sets.

- Observation: Given the substantial capital investments being made by LADWP to meet various regulatory and environmental mandates, LADWP has been able to target and maintain adequate revenues and manage internal O&M costs to support these higher levels of debt. Additionally, LADWP's 4th quartile benchmarking for Net Income per Revenue Dollar is actually a positive indicator. Specifically, this demonstrates that given LADWP's costs, its rates still remain lower than the peer sets.

Customer Service O&M:

- Finding: Overall Customer Service O&M costs are in the 1st quartile relative to Investor Owned Utilities (IOU) which comprised the bulk of this peer set.

- Observation: Despite this 1st quartile benchmarking, JD Power and Associates continues to rank LADWP last in Customer Satisfaction among peer utilities which may indicate a need to increase spending on customer focused programs and improve service metrics. Additionally, further analysis is needed to review the

relationship between Customer Service O&M, Distribution O&M, and the reliability metrics. It appears that IOUs may focus more of their resources in the Customer Service area than many of the publicly owned utilities (POU). However, Distribution System O&M costs are higher in the POU sector than the IOU sector. Therefore, while more analysis is needed, the differences in spending between the two governance models may be indicative of POUs placing higher importance on Distribution O&M (which will tend to improve reliability); and, IOUs placing higher focus on customer service.

Uncollectible Expenses:

- Finding: LADWP's Uncollectible Expenses (i.e. write-offs of customer payments) of 0.72 percent or approximately $23 million for Fiscal Year (FY) 2012/13 benchmarks negatively in the 4th quartile. If LADWP was at the peer set median, it would result in a savings of approximately $12 million annually.

- Observation: Uncollectible Expenses for FY 2013/14 have risen even further to 1.74 percent or $58 million as a result of the CISCON implementation coupled with relaxed collection policies and billing practices. A thorough review of collection policies and billing practices is recommended. LADWP is investigating the use of a 3rd party expert to assist with improving this metric.

Electrical System Energy Losses: Losses are the energy being generated in LADWP's system minus the energy that is metered and actually billed.

- Finding: Total energy losses of 13.1 percent benchmark in the 4th quartile.

- Observation: LADWP receives approximately 60 percent of its energy from power plants in remote locations. This results in Transmission losses of roughly 8.5 percent which benchmarks in the 4th quartile. However, Distribution losses of 4.56 percent also benchmarked in the 4th quartile and merits further analysis to identify causal factors such as: unbilled meters, theft, and other "non-technical" related losses.

Distribution O&M:

- Finding: Distribution O&M costs benchmark in the 4th quartile.

- Observation: As previously noted, elevated Distribution O&M costs will tend to positively impact reliability. However, planned additional capital spending under the PSRP should help to drive these O&M costs down. Further analysis is needed to ensure that as newer infrastructure is installed, system O&M costs will decrease while still preserving LADWP's historically high system reliability.

A&G O&M Costs:

- Finding: This benchmarking study centralizes all pension/benefit costs into the A&G category consistent with IOU practice. LADWP benchmarked in the 4th quartile for this metric.

- Observation: The recently approved Memorandum of Understanding (MOU) that contains no cost of living increases for three years and implements a lower pension tier for new employees should significantly reduce this metric over time. The newly adopted lower pension benefits for new employees is especially critical as roughly 40 percent of the existing LADWP workforce is eligible to retire in the next five years. Also, if LADWP were to adjust for not having Social Security costs, this metric improves to between the 3rd and 4th quartile.

KEY WATER SYSTEM BENCHMARK FINDINGS

Total Water System O&M Costs:

- Finding: The Water Total O&M costs on a Per Customer and Per Gallon metric basis are 2nd and 3rd quartiles, respectively.

➢ Observation: This metric includes $56 million of O&M associated with the Los Angeles Aqueduct that is an asset whose cost, size, complexity and value in terms of serving as a major water resource is relatively unique to LADWP. If this cost were excluded (given that many other agencies acquire the majority of their water from wells or wholesalers), these metrics would improve by one full quartile.

Reliability Metrics:

- Finding: LADWP is essentially 2nd quartile for Planned and Unplanned Water System Service Disruptions as well as for system losses.

  Observation: These metrics show that the reliability of the LADWP Water System is in-line with the median for both utility peer sets.

Financial Metrics:

- Finding: The key financial metrics are in-line with the industry peer sets as evidenced by LADWP's Debt Service Coverage Ratio which benchmarked solidly in the 2nd quartile demonstrating adequate capacity to service long-term debt obligations.

- Observation: The Water System is making significant reliability and regulatory driven capital investments. In order to fund these investments in the most cost effective manner, LADWP needs to issue significant levels of long-term debt (i.e. Bonds). However, LADWP has been able to target and maintain sufficient financial metrics to

support these higher levels of debt. This includes the Board adopted financial planning criteria of 1.7 times debt service coverage.

Customer Service O&M:

- Finding: The Water System benchmark for Customer Service O&M per account was 4th quartile.

  Observation: This benchmarking could be as a result of business strategies adopted by mostly publicly owned utilities (within the water industry peer set) that seem to place a premium on operational costs for greater reliability. This is in contrast to peer utilities comprised primarily of IOUs that appear to spend more on customer service O&M rather than the operational O&M areas. Be advised that LADWP currently bills roughly 71 percent of its customers on a bi-monthly basis, O&M costs are expected to rise when the LADWP switches to a monthly billing cycle for all customers.

BENCHMARKING ANALYSIS STRATEGY

LADWP's Corporate Performance Division along with the Consultants performed a rigorous analysis of all data and results. These efforts included an in-depth review, validation, and reconciliation of every data element used to support the metrics contained in this analysis. This intense level of rigor was applied to ensure that the data and all corresponding results and calculations were as accurate as possible. As a consequence, there were numerous revisions made to this study to ensure the highest level of precision throughout the process. The following is a sampling of the efforts made by the Consultant and LADWP staff to ensure accurate data and results:

- Reconciliation: The reported overall costs were reconciled with the audited financial statements for FY 2012/13. As previously identified, one of LADWP's most critical metrics is Total O&M per Customer for both Water and Power. To the extent possible, both the Consultant and LADWP staff traced the data back to a verifiable source to ensure confidence in the results. For example, the O&M value used for both Water and Power reconciles with the LADWP's audited Financial Statements for FY 2012/13.

  A&G Costs: The initial results for A&G O&M functional costs for the Power System were in the 1st quartile. Both the consultants and LADWP staff conducted further reviews of how the IOUs reported A&G functional costs. It was discovered that IOUs appeared to centralize the pension and benefit costs for their entire work force in A&G. Whereas LADWP (consistent with other POUs) allocate the pension and benefits to the various operating categories. LADWP performed a specific analysis to benchmark this data consistent with how IOUs report it. This reallocation resulted in LADWP's A&G functional cost benchmark moving from 1st to 4th quartile. This change in calculation methodology was done to ensure LADWP's benchmarking results were the most accurate relative to the peer sets.

- Planned and Unplanned Water Disruptions: The initial results for these metrics were multiples of the 4th quartile metric. Both LADWP and the Consultant then surveyed the various utilities that were part of the American Water Works Association (AWWA) benchmarking study and discovered that only LADWP's metric was based on the number of customers disrupted per incident versus other utilities that were reporting each incident. This resulted in LADWP's metric being reported as a multiple of the number of customers. By changing the calculation methodology to be consistent with the AWWA, LADWP's metric moved from the 4th quartile to 1st/2nd quartiles. This is another example where close scrutiny and validation of the data results in a more accurate basis for obtaining benchmarking results.

- Steam Generation O&M per Capacity: The initial data for the LADWP Steam Generation capacity costs included generation capacity which LADWP has both directly owned and/or indirectly owned. However, the peer O&M costs that were being benchmarked only included the directly owned generation plants, yielding a 2nd quartile benchmarking result. LADWP staff and the Consultant reviewed the calculation and corrected this inconsistency by reallocating the costs versus capacity resulting in this metric moving from the 2nd to the 3rd quartile. While this cost reallocation may have resulted in a reduced quartile ranking, it illustrates the data validation efforts made in order to have a more accurate comparative assessment.

BENCHMARKING BACKGROUND

This study is in response to a Los Angeles City Council (City Council) request made in September of 2012 and the Mayor's letter sent in December of 2013 directing the LADWP to engage a qualified outside consulting firm to conduct a benchmarking study. The General Manager established a new Corporate Performance Division within the LADWP to oversee this analysis. Consistent with the Mayor's goal to make Los Angeles "the best run city in America," the Corporate Performance Division is conducting a multi-phase, LADWP-wide benchmarking study to identify opportunities that achieve greater efficiency and cost savings for ratepayers and to communicate key findings in a transparent manner with customers and stakeholders.

The Consultants that performed this study were retained in September 2014 to complete the initial two phases of the proposed three phase benchmarking study. This Board letter represents a detailed summary of the information derived from a comprehensive 122 page benchmarking study published by the Consultants. Phase I of the benchmarking effort was focused on LADWP's operating and capital expenditures on a functional level using audited financial information from FY 2012/13 as the base year.

PEER GROUPS

LADWP's benchmarking study was designed to evaluate its performance relative to peer water and power utilities from throughout the United States ranking them from the 1st quartile being the "BEST" to the 4th quartile representing the "WORST" performer. For the Power System, the LADWP was benchmarked against both Large Electric Utilities (Peer Group #1) with over one million customers and Western Regional Electric Utilities (Peer Group #2). The following peer group sets included both IOUs and POUs.

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

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

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

*** Public Power Company*
1)) LADWP is not included in the peer group of 36 companies
Source: Strategy& analysis; SNL

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

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

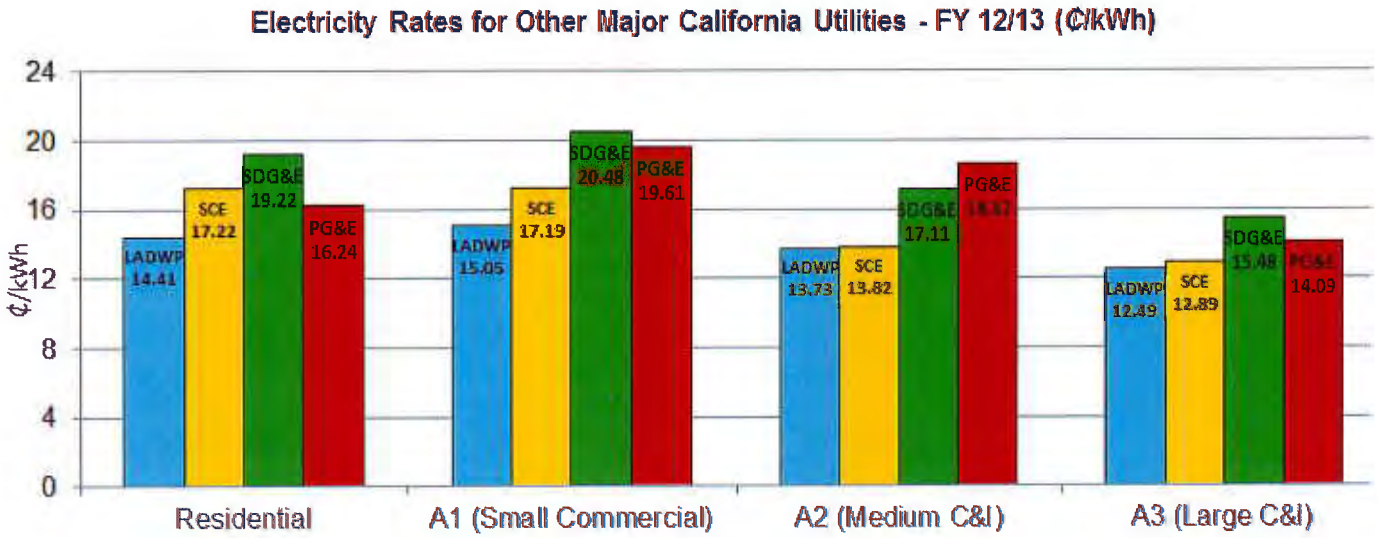
Operating Company	Customers
Tucson Electric Power Company	409,529
Seattle City Light**	402,608
El Paso Electric Company	391,774
Avista Corporation	363,312
Sierra Pacific Power Company	327,320
Snohomish County Public Utility District No. 1**	325,849
Colorado Springs Utilities**	204,156
Clark Public Utilities**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

***Public Power Company*
1) LADWP is not included in the peer group of 26 companies
Source: Strategy& analysis; SNL

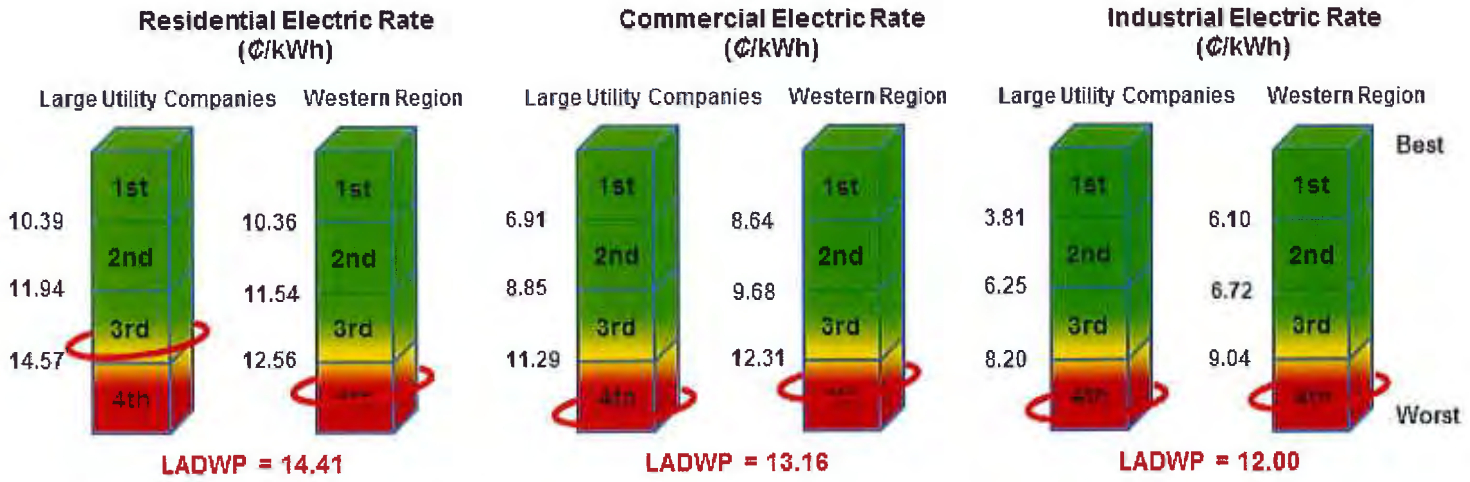
DETAILED FINDINGS

Power System -

- Electricity Rates: For most utilities, rates are one of the most critical metrics to consider. LADWP's electricity rates for residential, small commercial, medium and large commercial/ industrial customers for FY 2012/13 are below those of other California utilities.



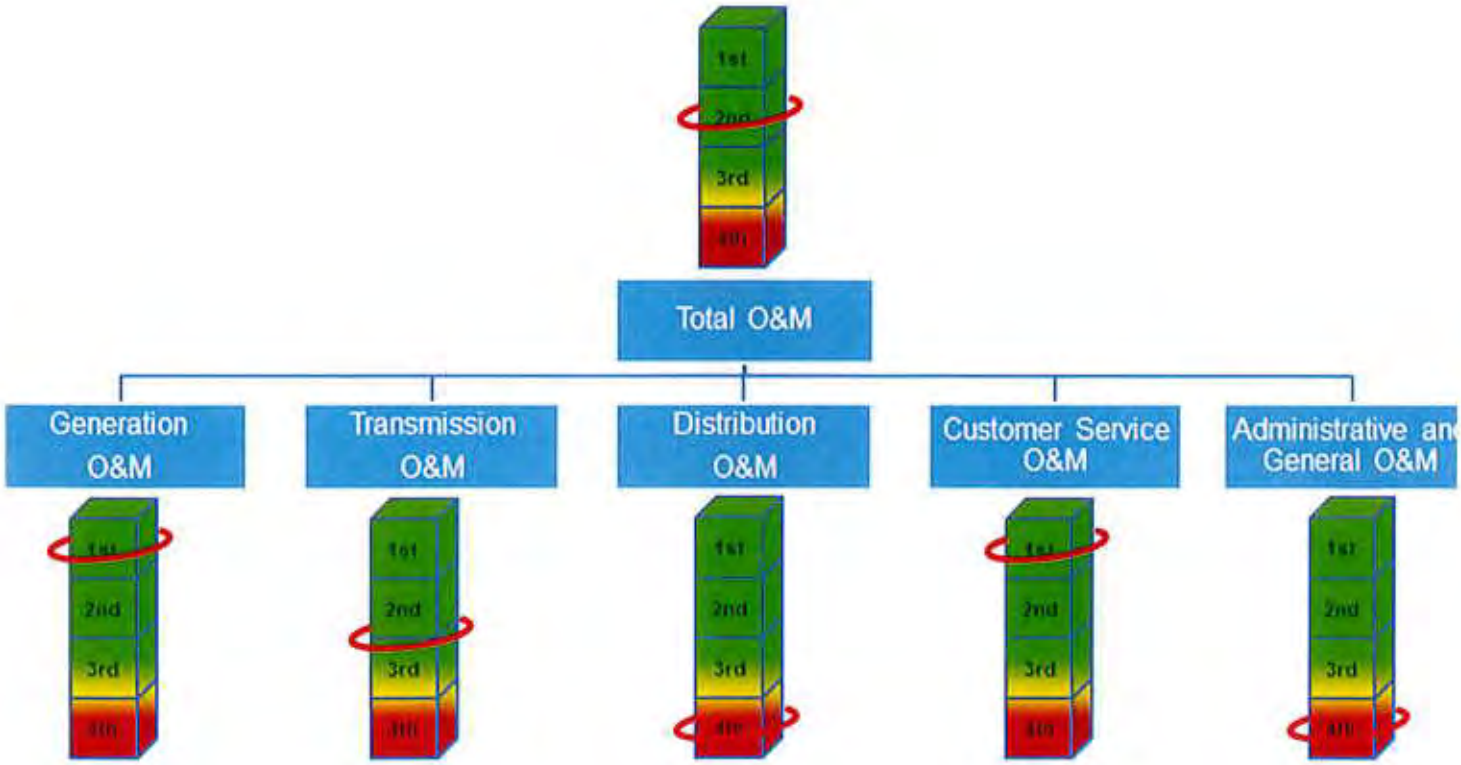
For LADWP and the other California utilities, there are numerous regulatory and environmental requirements that provide significant upward pressure on rates. The most financially and operationally impactful regulatory requirements include re-powering of coastal power plants as a result of the state's Once-Through-Cooling restrictions, the 33 percent Renewable Portfolio Standard (which may rise to as much as 50 percent), 10 percent Energy Efficiency, and coal free generation pledge. As a consequence, when comparing LADWP electricity rates to utility peers nationally, LADWP benchmarks in the 4th quartile across nearly all customer classes. The effects of these regulatory requirements are directly related to the environmental leadership position California has adopted in the above noted areas.



- Total O&M Costs: Total O&M cost per Customer is one of the most critical Power System metrics with LADWP benchmarking favorably in the 2nd quartile. These costs represent the aggregate of all Power System O&M costs including Generation, Transmission and Distribution, Customer Service and A&G functional expenses.

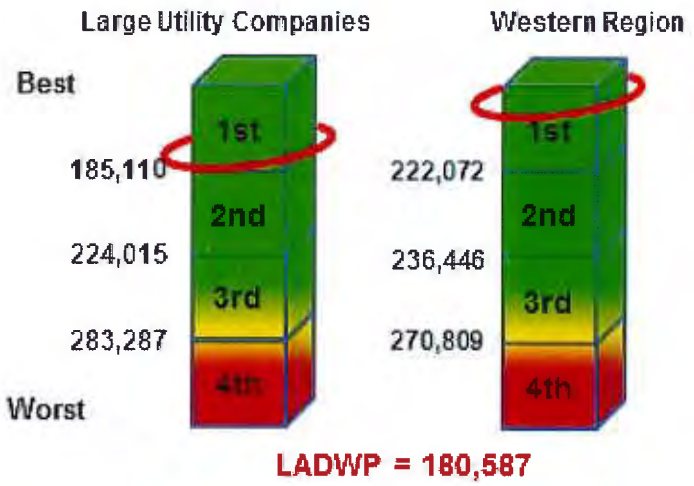
  The overall Total O&M, as well as the various functional O&M categories should improve as there will be no cost of living increases for three years. The lower pension benefits for new employees that were implemented under the recently approved MOU should also help improve LADWP's A&G functional costs as roughly 40 percent of the existing work force are eligible to retire within the next five years.

  The 4th quartile benchmark for Distribution O&M is also expected to improve as LADWP's CapEx infrastructure investments (investments in capital assets) are anticipated to increase under the PSRP. Additional operational issues which may be impacting Distribution O&M costs will be investigated as part of the planned Phase II benchmarking study.

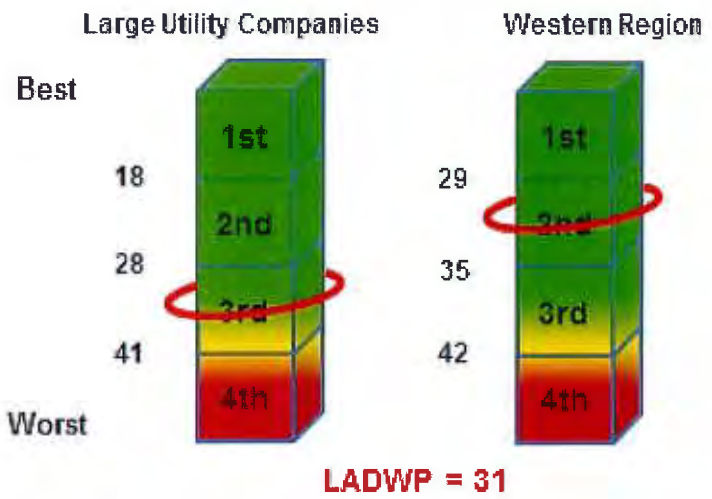


- Generation and Transmission O&M: As illustrated in the chart below, the Generation and Transmission O&M costs are essentially at or below the median for the peer sets. These metrics are key contributors to the overall O&M costs metric placing in the 1st and 2nd quartile relative to the other utility peer sets.

Generation O&M per Operating Capacity ($/MW)

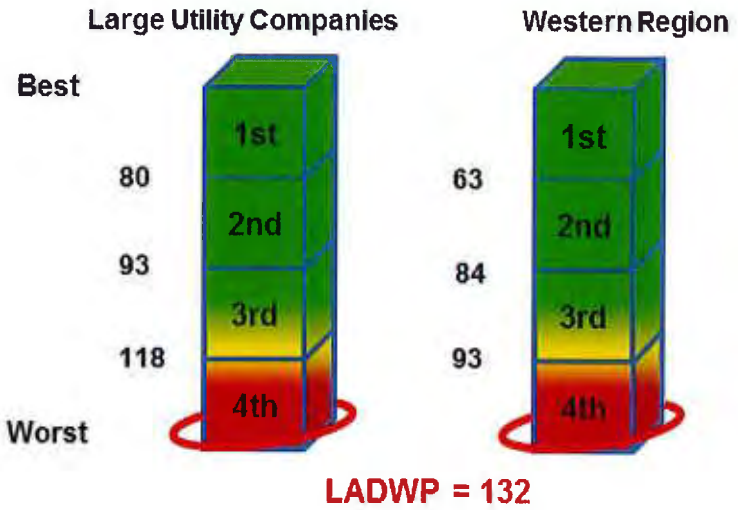


Transmission O&M per Customer ($/Customer)



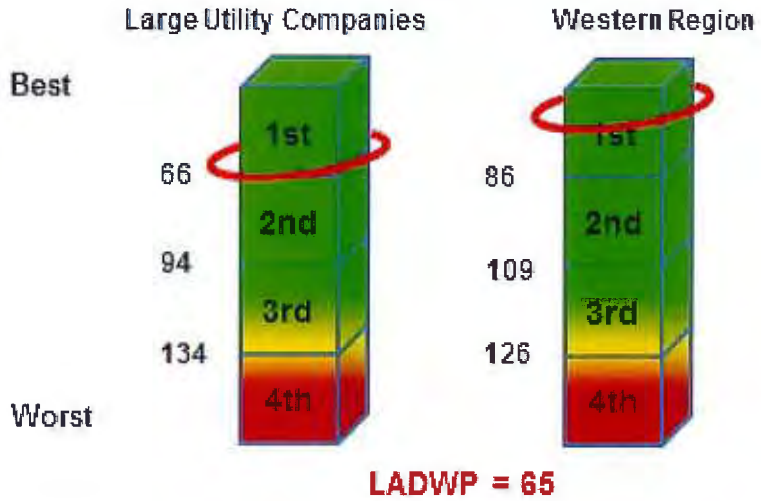
- Distribution O&M: Higher Distribution O&M will have a favorable impact on reliability as evidenced by 1st and 2nd quartile System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) benchmarks, respectively. LADWP's lower capital spending may be a contributory factor driving this metric higher. This metric is expected improve with planned increases in Distribution capital investments (e.g. PSRP). Additional operational changes may also need to be evaluated as part of Phases II and III of LADWP's planned benchmarking studies.

Distribution O&M per Customer ($/Customer)

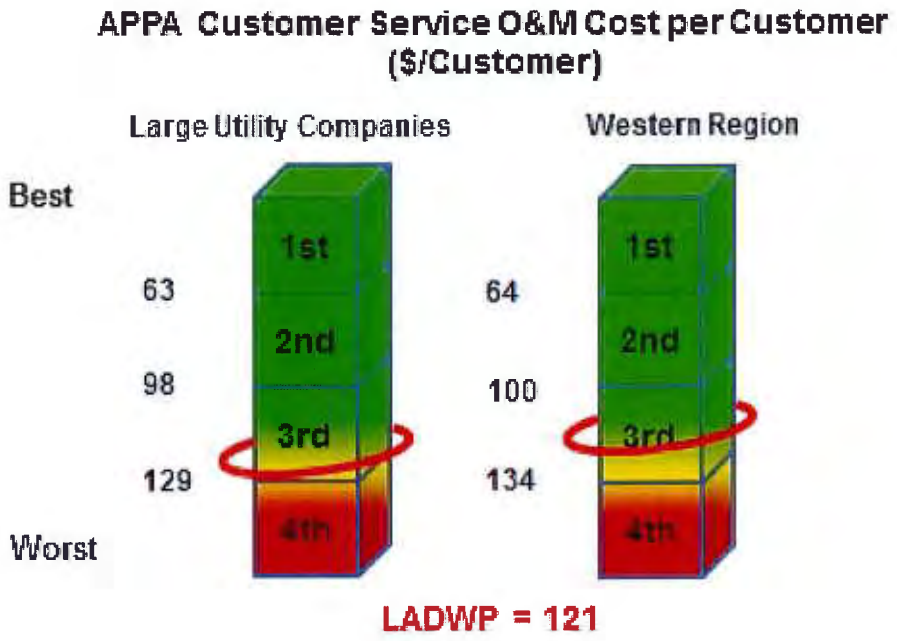


- Customer Service O&M: LADWP benchmarks favorably in the 1st quartile when compared to peer sets comprised primarily of IOU's.

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



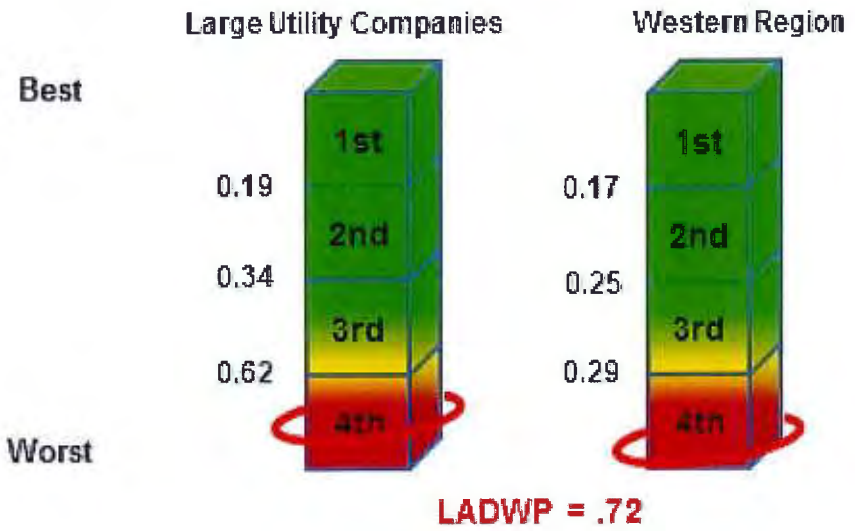
- It is important to note that LADWP benchmarked in the 3rd quartile for the same metric when using the APPA peer set which is comprised solely of POUs. These differing results may again illustrate a difference in business philosophy between IOUs versus POUs in terms of relative spending on Customer Service O&M versus Distribution O&M. IOUs appear to spend more on Customer Service O&M whereas POUs (such as LADWP) appear to spend more on Distribution O&M.



While overall Customer Service O&M costs are in the 1st quartile relative to the peer sets, there are some other key Customer Service metrics that require further analysis:

- *Uncollectible Expenses*: LADWP's uncollectible expense of .72 percent equates to $23 million for FY 2012/13 and is solidly in the 4th quartile. If the LADWP metric was at the peer set median, it would result in a savings of approximately $12 million per annum. LADWP's Uncollectible Expenses are likely due a more "relaxed" collection policy when compared to industry peers. Uncollectible Accounts for FY 2013/14 have also risen to 1.74 percent or $58 million following CISCON's implementation. The latter result could place LADWP even further into the 4th quartile for this metric.

Uncollectible Accounts per Total Electric Revenue (%)

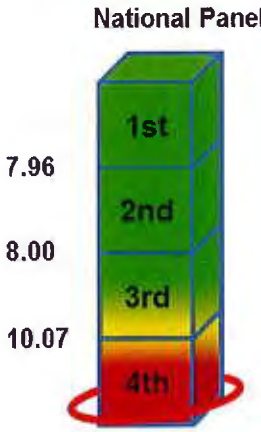


Neighboring public utilities Uncollectible Account percentages appear to be significantly lower than LADWP. As a consequence, a more detailed review of collection policies and billing practices is commencing.

- Neighboring public utilities are lower:
  - Anaheim .18%
  - Riverside .29%
  - Pasadena .32%
  - Colorado Springs .35%
  - Modesto .57%

- Energy Losses in the Transmission and Distribution Systems: Total energy losses of 13.1 percent place LADWP in the 4th quartile relative to its peers nationally. LADWP's energy losses are higher than industry peers because of Transmission line electricity losses associated with generation plants located in remote areas. Approximately 60 percent of LADWP's electricity in FY 2012/13 is produced by power plants (i.e. Intermountain Power Project, Palo Verde and Navajo) which are located hundreds of miles from Los Angeles. However, Distribution System related energy losses benchmarked in the 4th quartile as well. This metric will be further analyzed to identify electricity losses potentially stemming from sources such as non-billed customers, fraud, energy theft, and other "non-technical" losses.

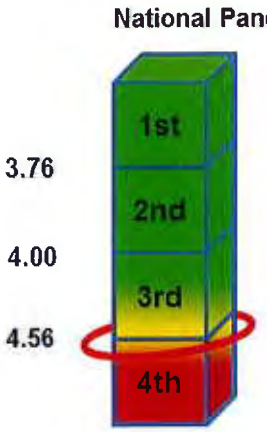
Total Losses (%)
(Transmission and Distribution)



LADWP = 13.10

Total Losses are the Sum of Transmission and Distribution Losses.

Distribution Losses (%)

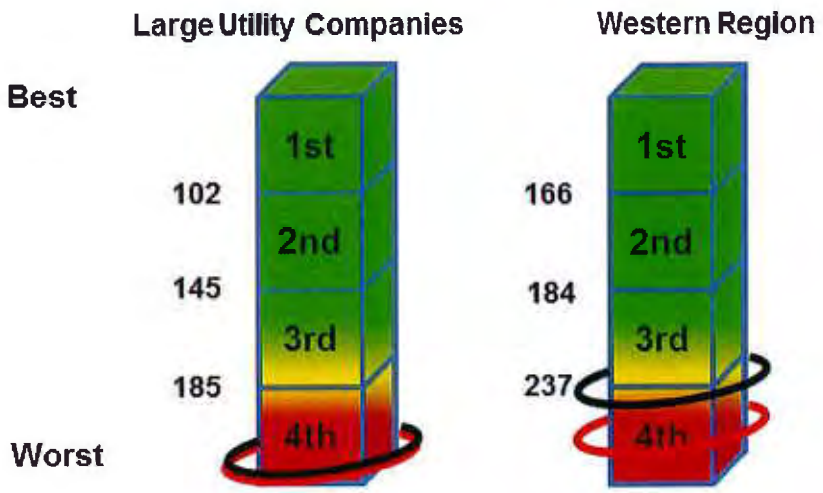


LADWP = 4.56

For Distribution, Losses Calculated as a Percent of MWh delivered to the Distribution Substation Level

- A&G O&M Costs Per Customer: Consistent with IOU practice, this study requires that all pension/benefit costs be centralized into an A&G function category. As a result, LADWP benchmarked in the 4th quartile for this metric. However, this metric will improve as cost savings are realized from the lower pension benefits for new employees implemented under the latest MOU. This is especially critical as 40 percent of LADWP's workforce is eligible for retirement over the next five years. It is important to note that all of the IOU employees have Social Security costs that are not centralized in the A&G category. LADWP does not pay Social Security costs for its employees. If LADWP were to remove a similar amount from this metric, the result would be $242/Customer or nearly 3rd quartile for the Western Utility peer set.

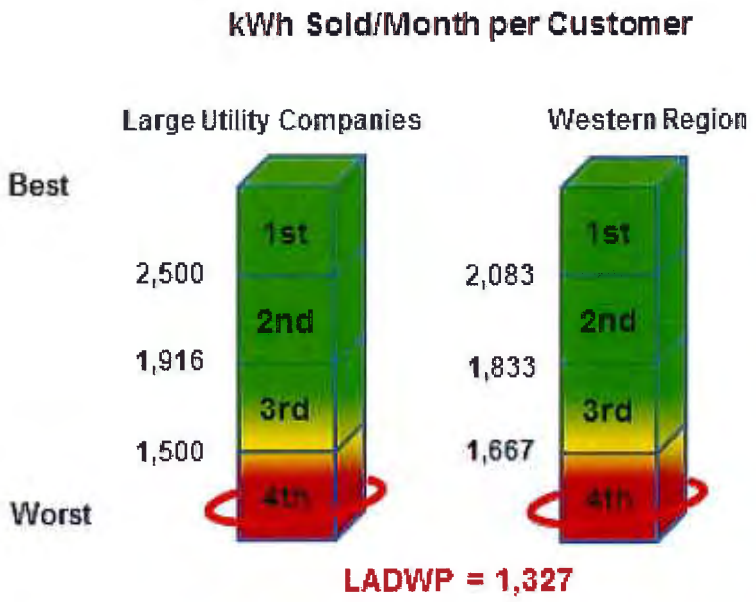
A&G O&M per Customer ($/Customer)



LADWP Adjusted for Estimated Social Security Expenses = 242

LADWP = 262

- Energy Sales per Customer: LADWP customers use an average of 27 percent to 30 percent less than the peer set medians. This results in a 4th quartile benchmarking for this metric. However, these results are consistent with the direction of the Board as well as energy saving policies set forth by the Mayor, City Council, and other key stakeholders in the City:



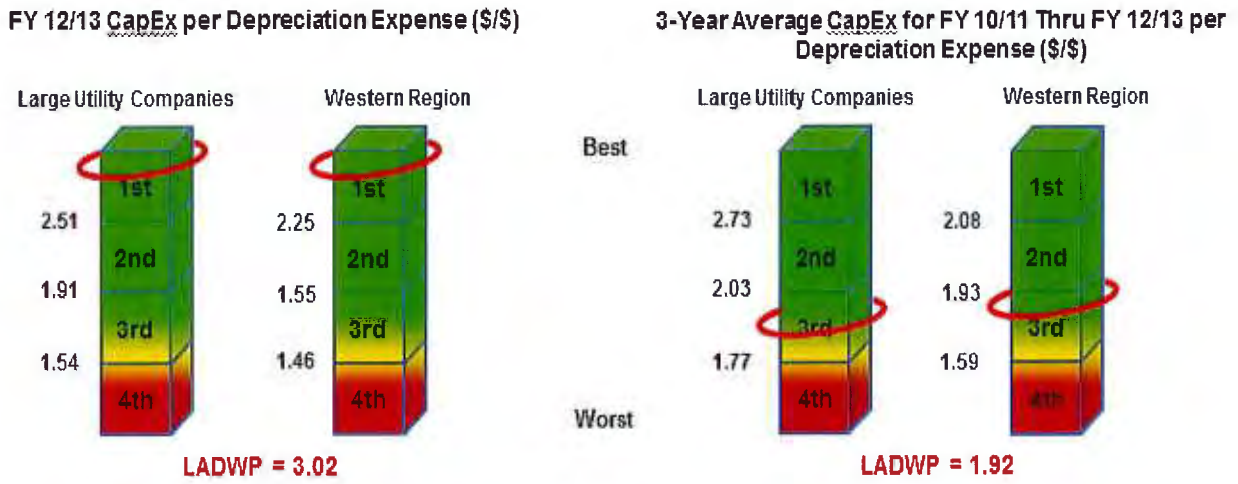
- LADWP customers average 1,327 kWh/month. The National median is 1,916 kWh/month or 30 percent higher. The Western Regional median is 1,833 kWh/month or 27 percent higher than LADWP customers.

- Los Angeles enjoys some of the most temperate weather in the country. As a result of the City's relatively moderate weather, LADWP customers have low air conditioning and heating loads when compared to utility customers in other regions of the country.

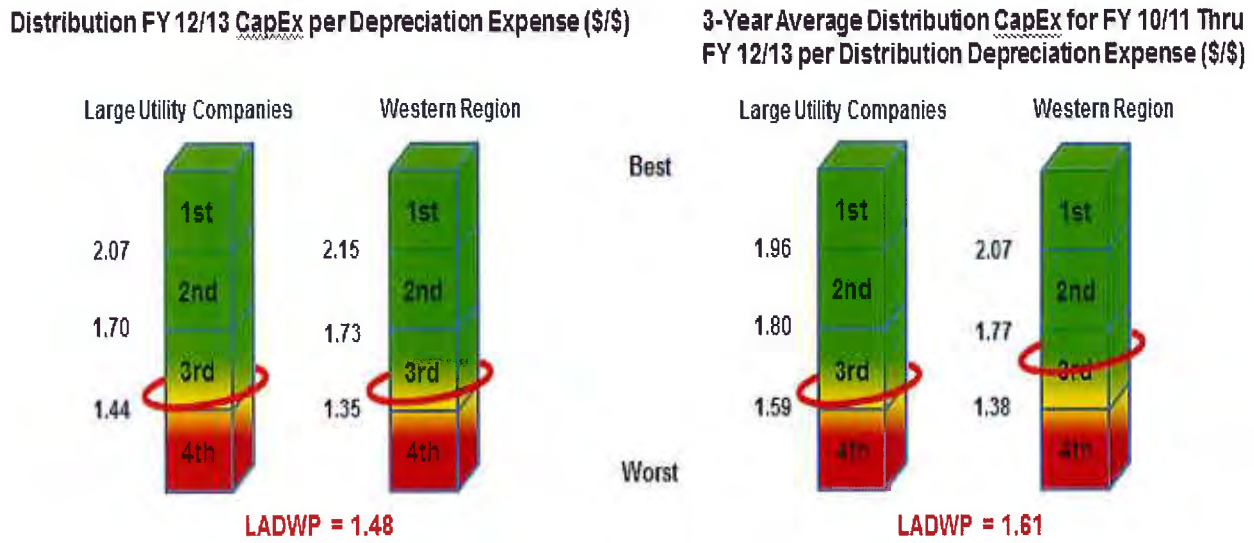
- Los Angeles has pursued very aggressive Energy Efficiency programs including strict codes/standards for buildings and appliances.

- As a result of LADWP's lower energy sales per Customer, it was determined that the more appropriate measure to benchmark LADWP was on a per Customer basis rather than on a per kWh Sold basis.

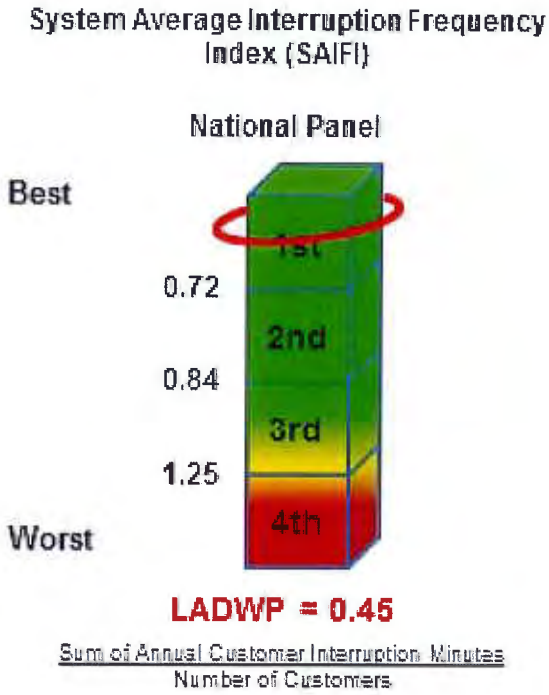
- Total Capital Spending: The Total CapEx per Depreciation metric for FY 2012/13, LADWP benchmarked in the 1st quartile reflecting higher infrastructure investments relative to both peer sets in FY 2012/13. However, a more accurate trend analysis is illustrated by the three-year average metric where LADWP benchmarked in the 3rd quartile. In FY 2012/13 LADWP drove up this metric with the installation of the six Haynes combustion turbines associated with the repowering program.

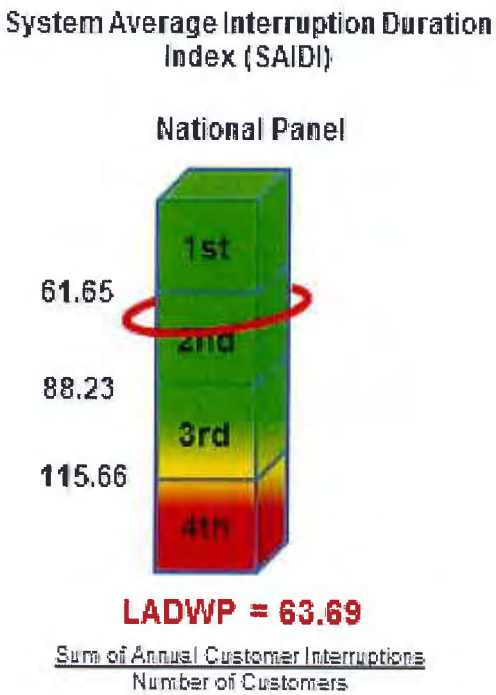


- Distribution Capital Spending: Specific to capital spending in the Distribution area, LADWP benchmarks in the 3rd quartile for both the FY 2012/13 and 3-year average metrics. This reflects historic infrastructure under spending and could be contributing to LADWP's higher distribution O&M costs. The operational effects of CapEx under spending will be further investigated in subsequent benchmarking studies.



- Reliability Metrics: System reliability is a critical issue for electric customers. LADWP ranks in the 1st and 2nd quartile for both SAIFI and SAIDI metrics, respectively. These benchmark results demonstrate a high degree of system reliability relative to peers nationwide. LADWP's higher reliability could be driven by relatively higher Distribution O&M costs. As was previously discussed, LADWP's spending in Distribution Capital Expenditures has been lower; however, much of the LADWP Distribution infrastructure is near or beyond its service life. The upcoming rate action proposes to ramp up the Distribution System capital spending. As this new infrastructure is installed, additional operational changes may need to be evaluated to improve LADWP's 4th quartile Distribution O&M benchmark without unfavorably impacting system reliability.

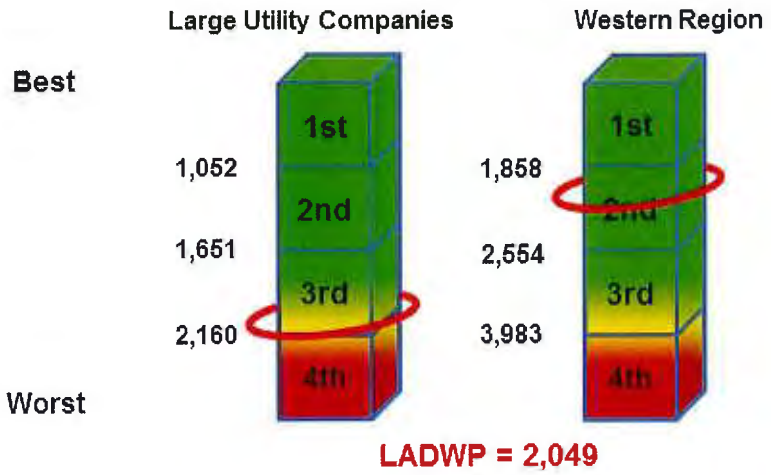




Water System -

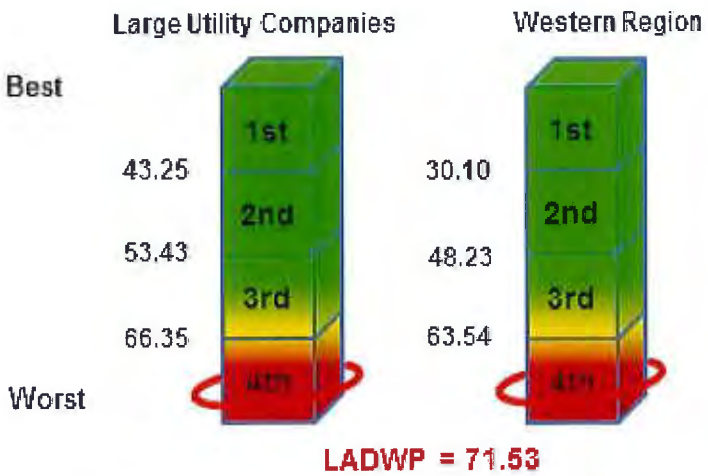
- Total Water O&M Costs: The Water Total O&M costs on a per Customer and per Gallon metric are 2nd/3rd quartiles. This metric includes the $56 million of O&M cost for the Los Angeles Aqueduct that most water utilities will not incur for water supply costs. If the Los Angeles Aqueduct costs were excluded, these metrics would improve by roughly one quartile.

O&M Cost per Million Gallons Distributed ($/MG)

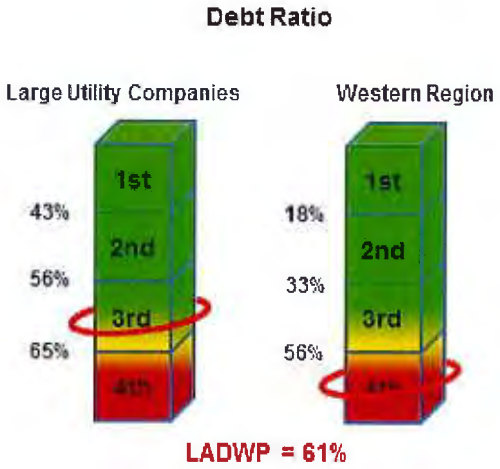


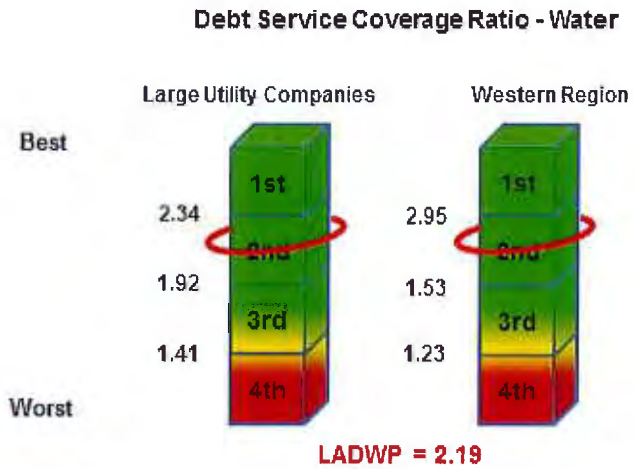
- Customer Service O&M: The Water System benchmark for Customer Service O&M per account was 4th quartile. Similar to the Power System findings, this metric may benchmark lower as a result of business strategies adopted primarily by POUs within the AWWA peer set. Specifically, POUs appear to focus more resources on their operational costs, where IOUs seem to focus more resources on Customer Service O&M. Be advised that LADWP currently bills roughly 71 percent of the customers on a bi-monthly basis. As such, these costs will increase as LADWP customers are switched to a monthly billing cycle.

Customer Service Cost per Account ($/Account)

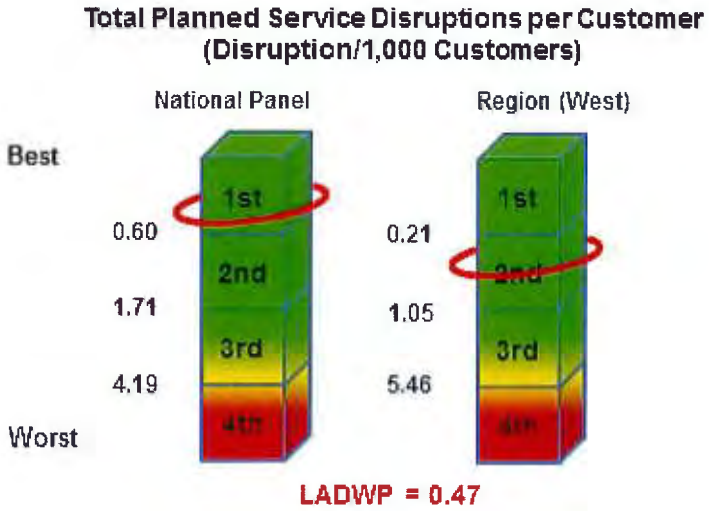


- Financial Metrics: The Water System is currently making significant regulatory and reliability related capital investments that require increasing debt levels. This is evidenced by the 4th quartile debt ratio benchmarking. However, LADWP has been able to target and maintain key financial metrics, including adequate funding to service current debt levels. This includes the Board adopted Financial Planning criteria of 1.7 times debt service coverage.

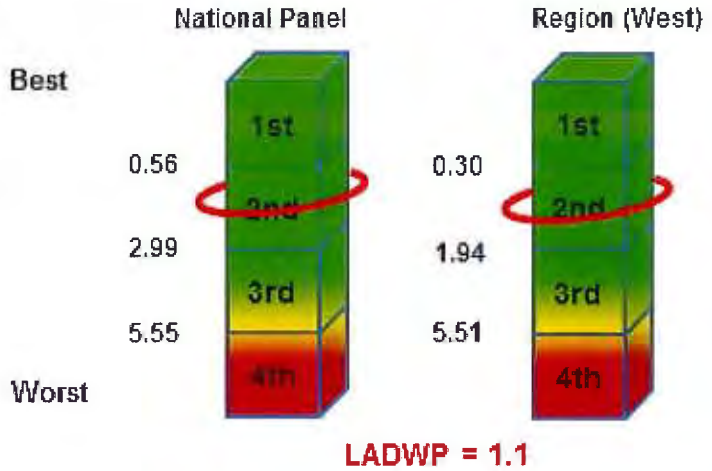




- Reliability Metrics: LADWP benchmarked very favorably between the 1st and 2nd quartile for planned and unplanned service disruptions. Be advised that as infrastructure programs ramp up, these metrics could be impacted.



Total Planned Service Disruptions per Customer (Disruption/1,000 Customers)



- LA Metro Wage Rates: Compared to other regions of the US, wage rates for the Los Angeles Metro area can range from 13 percent to 33 percent higher than peer utilities. The labor component including overtime and benefits represents 72 percent and 73 percent the Power and Water System's total O&M expense, respectively.

Function	Job Title	LA, CA Metro	Philadelphia PA	Atlanta GA	Miami FL Metro	Dallas TX	Detroit MI Metro	Chicago IL	AVG.	Delta to LA
Operations	Control & Valve Installers / Repairers	$31	$25	$26	$22	$22	$29	$28	$25	+33%
	Electrical Engineers	$53	$46	$42	$46	$47	$44	$43	$45	
	Electrical Power-Line Installers & Repairers	$47	$31	$23	$25	$26	$32	$35	$29	
	Water / Wastewater Treatment Plant Operators	$34	$24	$19	$26	$19	$20	$28	$23	
	Supervisors of Mechanics, Installers & Repairers	$35	$34	$30	$30	$30	$30	$33	$31	
Customer Service	Meter Readers	$23	$21	$16	$17	$14	$20	$24	$19	+13%
	Bill & Account Collectors	$19	$19	$16	$17	$16	$17	$19	$17	
	Customer Service Reps	$18	$18	$17	$14	$16	$17	$18	$17	
Corporate	Labor Relations Specialists	$35	$26	$28	$20	$35	$28	$22	$27	+21%
	Lawyers	$79	$69	$70	$73	$66	$60	$66	$67	
	Computer Systems Analysts	$44	$44	$37	$48	$41	$43	$39	$42	
	Financial Analysts	$51	$39	$40	$35	$42	$39	$40	$39	

Immediate Next Steps:

Following this Board presentation and based upon Board feedback, LADWP will communicate the Consultant's findings and LADWP's observations to the Mayor and City Council in response to their original requests for the benchmarking analysis.

LADWP will also conduct briefings for our other key stakeholders so they can gain additional insights into the workings of LADWP and the steps we will be taking to make LADWP more efficient. LADWP anticipates transparent and candid discussions which will provide additional value to this process.

As previously stated, after receiving the Phase I data, LADWP will begin developing the scope for the Phase II study which will provide an analysis of all the initial findings to determine what key areas need to be the focus of the Phase III Business Process Improvement Studies.

Given their level of importance, LADWP anticipates taking the following immediate actions and/or formally including these items in the Phase II scope of work:

- **Uncollectible Expenses:** LADWP's uncollectible expense of 0.72 percent or $23 million for FY 2012/13 is in the 4th quartile. For FY 2013/14 this metric more than doubled to 1.74 percent or $58 million.

  Action Item: LADWP will retain a third-party party consultant to assist LADWP in identifying the root causes of the growth of its Uncollectible Expenses and developing procedures to reduce these expenses in the future. A review of LADWP's current collection policies and billing practices is also strongly recommended.

- **Electrical Losses in the Distribution System:** Energy losses in the Distribution System of 4.6 percent are in the 4th quartile and merit further analysis.

  Action Item: LADWP has initiated a third-party analysis to determine the source of the electric line losses with an initial focus on "non-technical" Distribution System losses such as energy theft, non-billed meters and fraud.

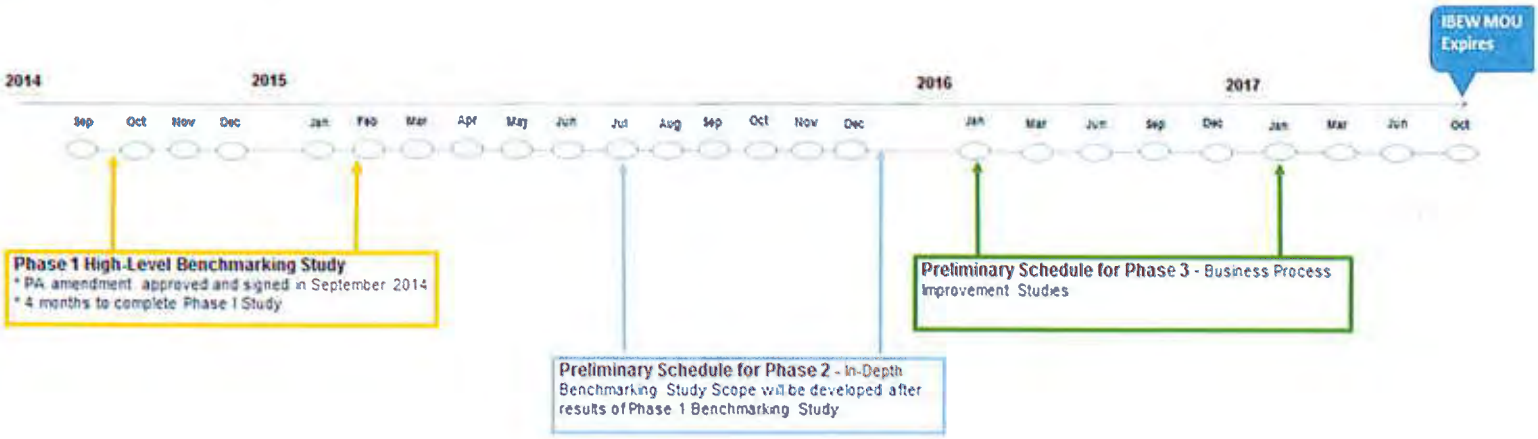
- **Customer Service O&M Costs:** While overall Customer Service O&M costs benchmark favorably in the 1st quartile, JD Power and Associates continues to rank LADWP very low in Customer Satisfaction among peer utilities. This may suggest that LADWP actually may need to increase its spending on customer focused programs to improve communication and service levels.

  Action Item: It is recommended that a third-party consultant should be retained to work with LADWP on determining appropriate resource level and reviewing the current customer service offerings relative to other high performing utilities. This analysis should include a review of the key differences between the differing strategies of IOUs relative to POUs. This study should analyze their cost effectiveness relative to impacts on Customer Service.

- **Distribution O&M Costs:** LADWP benchmarks in the 4th quartile for this metric; however, the related reliability metrics are 1st and 2nd quartile.

  Action Item: As part of the Phase II Study scope, LADWP needs to analyze the most cost effective methods for reducing Distribution System O&M costs without negatively impacting reliability. LADWP's benchmarks also show that Distribution Capital investments are below peer set medians and should be increased. As these infrastructure investments are increased (as part of the upcoming PSRP), LADWP needs to reduce Distribution System O&M costs. This should also include analysis of the cost/benefits of work practice changes.

- **Administrative and General Costs:** LADWP benchmarked in the 4th quartile for this metric.

  Action Item: As part of Phase III of LADWP's planned benchmarking program, the Corporate Performance Division will utilize the data captured in Phase I and the key findings from the in-depth analysis performed in Phase II to develop recommendations to reduce LADWP's Administrative and General costs by adopting best practices from other utilities wherever applicable and appropriate for LADWP.

Benchmarking Schedule