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CALIFORNIA




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Date: January 15, 2016

To: The Board of Water & Power Commissioners
Attention: Barbara Moschos, Commission Secretary

From: Frederick H. Pickel, Ph.D.,
Executive Director/Ratepayer Advocate 

Subject: 2015 LADWP Power Rate Proposal
January 19, 2016 LADWP Board meeting

The attached report, dated January 15, 2016, is the Office of Public Accountability/Ratepayer Advocate's (OPA's) report to the LADWP Board on the LADWP Power Rate Ordinance matter.

If you have any questions, please contact the OPA at 213-978-0220 or fred.pickel@LAcity.org.

Attachment: OPA Ratepayer Advocate Reports on LADWP 2015 Power Rate Proposal, dated January 15, 2016.

cc: The Honorable Mayor Eric Garcetti
The Honorable Members of the City Council
The Honorable City Attorney Michael Feuer
The Honorable Controller Ron Galperin
Sharon M. Tso, Chief Legislative Analyst
Miguel A. Santana, City Administrative Officer
Marcie L. Edwards, General Manager, Department of Water and Power

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January 15, 2016

A Review of LADWP's 2015 Power Rate Proposal

In July 2015, the Los Angeles Department of Water and Power (DWP) submitted to the Board of Water and Power Commissioners (Board) a proposal for rate changes over the next five years for water and power utility rates. In the coming weeks, the DWP Board, the Mayor and the City Council will consider a City Ordinance adopting the proposed rate changes.

This communication describes the Office of Public Accountability's (OPA's) findings regarding issues specific and unique to LADWP's power rate proposal, and costs shared between DWP divisions. The OPA previously published communications of findings on DWP's water rate proposal.

The City Charter and related provisions require the OPA to provide "information to the Board, the City Council, the Mayor, the Neighborhood Councils, and the public on the reasonableness of rate actions and any modification to them." The OPA is an independent "watchdog" for consumers - to assure DWP transparency and accountability.

"Reasonableness" is an opinion held by rate-setting public officials performing a specialized duty to the public interest. The essence of this opinion is whether the rates charged are equitable to the many competing interests facing a monopoly utility. These enterprises are highly regulated by diverse entities for many of their various functions. The costs must have a connection to the provision of reliable service, and the allocation of those costs must be non-discriminatory.

In the OPA's opinion, the DWP's power rate proposal, as modified in December 2015, is just and reasonable.

The OPA, with the assistance of specialized national experts on water and power utilities, has met repeatedly with DWP management and staff, and reviewed the rate action proposal, the

proposed rate action draft ordinance, and a variety of supporting documents. Reports from two consultants, as well as other topics and recommendations, are attached.

Proposed Power Rates: The OPA finds that the proposed rate increases are less than what is needed, but LADWP's Power System will continue to be challenged to perform activities at planned levels. These rate increases average 3.86% annually over the next five years, based on a cumulative, system-average rate increase of 21%, and assuming a 1.6% growth in demand for retail power.

Revenues will climb from \$3.45 billion in FY 2014-15 to \$4.22 billion in FY 2019-20, with most of the new revenue to fund increases in capital project expenditures. The new revenues are also for increases in operating costs, and to reduce the unfunded employee pension liability. The Transfer from the Power Fund is discussed in the attached Navigant report on the power rates, which reflects input from multiple City offices. Whether the Transfer is upheld by courts is likely to be determined in the next five years, during which time the Transfer is forecast to increase by \$61 million over the five years.

The OPA is concerned that the staffing levels will be inadequate for the growing levels of planned capital project expenditures, in part due to the anticipated personnel retirements and constraints on outsourcing.

Increases to Power Bills: A single family residence using 500 kilowatt-hours (kWh) per month in Zone 1 today have a bill of \$76 - 78 per month depending on the season. Within one year it will be \$80 - 82 per month. In three years it will be approximately \$86 - 87 per month. By June 2020 of the plan, the cumulative rate increases raise the bill to \$90 monthly, a \$12 per month increase over five years. The Zone 2 customer is, at 500 kWh, reportedly more typical of that hotter area, and would pay only \$8 per month more over five years. Similarly, a reportedly typical Zone 1 customer is only 350kWh, and would pay \$6 per month more over five years. See attached residential rate graphs and charts.

Power Customer Rates are Just and Reasonable: The OPA supports DWP's updates for rate equity among the different customer classes. DWP's new power access charge for residential customers strikes a balance between multiple competing interests, and may improve equity within this group of customers. This charge, which is less than the minimum bill for most customers, ensures customers with solar contribute to the maintenance of the wire-based infrastructure.

Future Revenue Changes: The OPA supports DWP's proposed "use 'em or lose 'em" concept for adjusting rate increases based on performance. In the nearly 40 public meetings that the OPA has attended on the proposed power and water rates, a common public concern was gaining a better understanding of how DWP's funds were being expended.

The DWP's new rates will have built-in revenue adjustments, decoupling mechanisms and cost pass-throughs to revise rates as operating and capital costs or power demands vary from forecasted levels. For base rate funding of DWP-controlled operations that do not vary with power sales, key performance targets and metrics will be reported to the OPA and the DWP Board.

With the monitoring of these targets and use of these rate control mechanisms, the DWP Board, OPA, City Council, and Mayor will be able to act to keep activities and forecasts better aligned, and to hold the DWP accountable for promised service levels. Revenues collected for capital projects, fuel and purchased power will be adjusted for DWP's actual level of expenditures by passing these costs "through" specific adjustment mechanisms.

Recommendations

1. The OPA would encourage the Board to approve the proposed rates and Ordinance.
2. The OPA seeks to propose labor metrics, in conjunction with DWP, to the Board by June 1, 2016.
3. The Board should request the Department propose methods to provide the Joint Division budget control over its funded activities, to include potentially a transfer at the beginning and end of each budget year.
4. The DWP should immediately proceed with its planned second stage of benchmarking, and include to the extent practical the recommendations in Oliver Wyman's preliminary labor findings report and the Navigant report.
5. The DWP should at the earliest practicable time seek to increment its credit for low income and Lifeline customers with an inflation adjustment. All other rate elements are already incremented above 2010 base rates.

Attachments:

1. **Power rate graphics and tables**
2. **OPA comments on labor costs**
3. **OPA observations on public trust**
4. **Oliver Wyman findings**
5. **Navigant report**

Proposed versus Current Residential R1 Rates and Zone 1 Bills with 500 kWh Monthly Demand

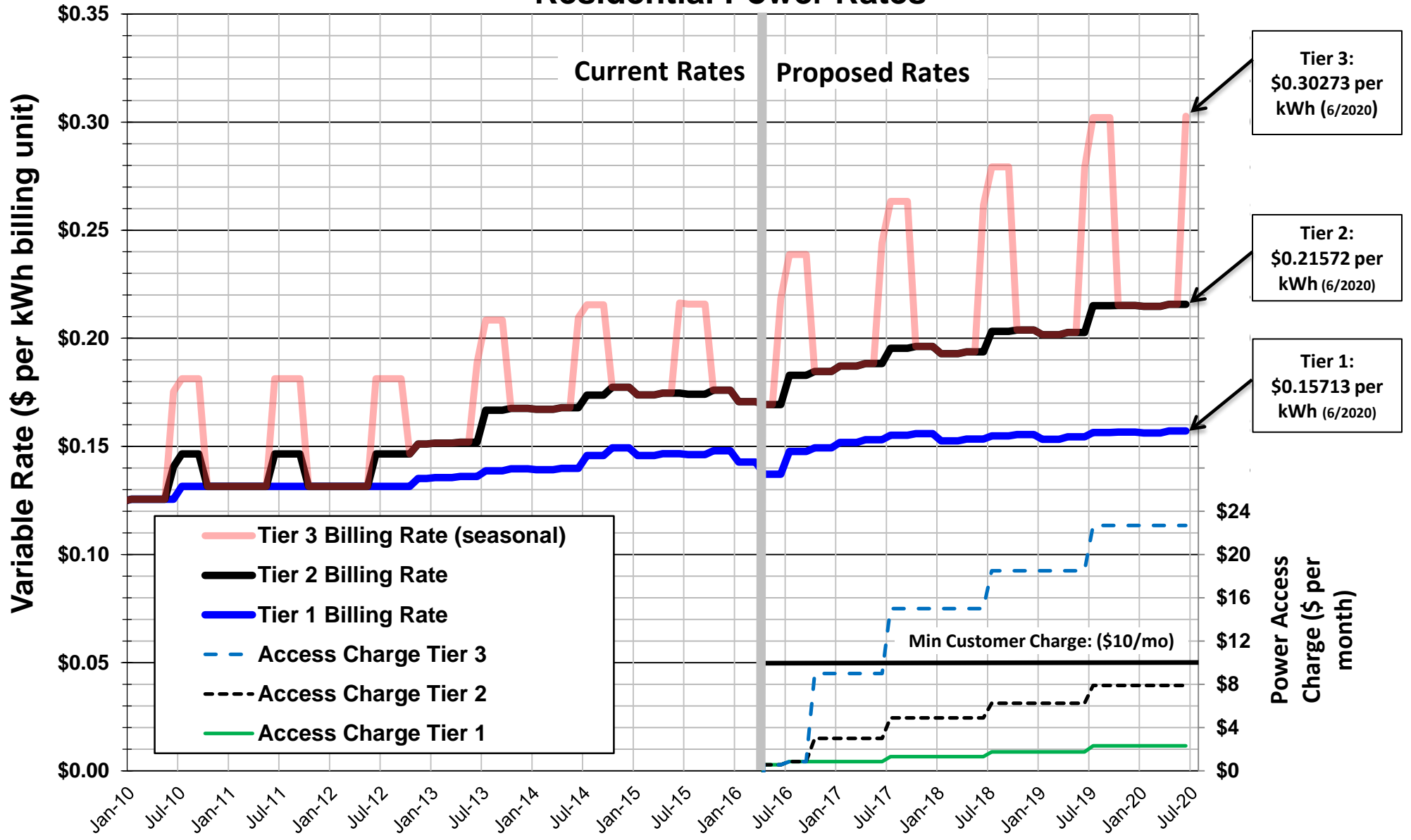
Current Rates				Proposed Rates: One Year Change from Current Rates						Proposed Rates: Two Year Change from Current Rates												
Rate Type	High Season	Low Season	Low Season	High Season	Jul 2015 to Jul 2016 Change		Low Season	Oct 2015 to Oct 2016 Change		Low Season	January 2016 to January 2017 Change		High Season	Jul 2015 to Jul 2017 Change		Low Season	Oct 2015 to Oct 2017 Change		Low Season	January 2016 to January 2018 Change		
	Jul to Sep-15	Oct to Dec-15	Jan to Mar-16	Jul to Sep-16	\$	%	Oct to Dec-16	\$	%	Jan to Mar-17	\$	%	Jul to Sep-17	\$	%	Oct to Dec-17	\$	%	Jan to Mar-18	\$	%	
Fixed Access Charges (\$/month)																						
Tier 1	none	none	none	\$0.85	na		\$0.85	na		\$0.85	na		\$1.30	na		\$1.30	na		\$1.30	na		
Tier 2	none	none	none	\$0.85	na		\$3.00	na		\$3.00	na		\$4.90	na		\$4.90	na		\$4.90	na		
Tier 3	none	none	none	\$0.85	na		\$9.00	na		\$9.00	na		\$15.00	na		\$15.00	na		\$15.00	na		
Energy Rate (\$/kWh)																						
Tier 1	\$0.14617	\$0.14798	\$0.14274	\$0.14764	\$0.00147	1%	\$0.14939	\$0.00141	1%	\$0.15185	\$0.00911	6%	\$0.15516	\$0.00899	6%	\$0.15594	\$0.00796	5%	\$0.15259	\$0.00985	7%	
Tier 2	\$0.17417	\$0.17598	\$0.17074	\$0.18293	\$0.00876	5%	\$0.18468	\$0.00870	5%	\$0.18714	\$0.01640	10%	\$0.19544	\$0.02127	12%	\$0.19622	\$0.02024	12%	\$0.19287	\$0.02213	13%	
Tier 3	\$0.21587	\$0.17598	\$0.17074	\$0.23870	\$0.02283	11%	\$0.18468	\$0.00870	4%	\$0.18714	\$0.01640	10%	\$0.26329	\$0.04742	20%	\$0.19622	\$0.02024	9%	\$0.19287	\$0.02213	13%	
Household Bill (a)	\$77.29	\$78.19	\$75.57	\$79.97	\$2.68	3%	\$80.84	\$2.65	3%	\$82.07	\$6.50	9%	\$84.92	\$7.64	10%	\$85.31	\$7.12	9%	\$83.64	\$8.07	11%	
Year to Year Change in Monthly Household Bill				\$2.68	3.5%		\$2.65	3.4%		\$4.78	8.6%		\$4.96	6.2%		\$4.47	5.5%		\$1.57	1.9%		

Current Rates				Proposed Rates: Three Year Change from Current Rates						Proposed Rates: Four Year Change from Current Rates												
Rate Type	High Season	Low Season	Low Season	High Season	Jul 2015 to Jul 2018 Change		Low Season	Oct 2015 to Oct 2018 Change		Low Season	January 2016 to January 2019 Change		High Season	Jul 2015 to Jul 2019 Change		Low Season	Oct 2015 to Oct 2019 Change		Low Season	January 2016 to January 2020 Change		
	Jul to Sep-15	Oct to Dec-15	Jan to Mar-16	Jul to Sep-18	\$	%	Oct to Dec-18	\$	%	Jan to Mar-19	\$	%	Jul to Sep-19	\$	%	Oct to Dec-19	\$	%	Jan to Mar-20	\$	%	
Fixed Access Charges (\$/month)																						
Tier 1	none	none	none	\$1.75	na		\$1.75	na		\$1.75	na		\$2.30	na		\$2.30	na		\$2.30	na		
Tier 2	none	none	none	\$6.25	na		\$6.25	na		\$6.25	na		\$7.90	na		\$7.90	na		\$7.90	na		
Tier 3	none	none	none	\$18.50	na		\$18.50	na		\$18.50	na		\$22.70	na		\$22.70	na		\$22.70	na		
Energy Rate (\$/kWh)																						
Tier 1	\$0.14617	\$0.14798	\$0.14274	\$0.15490	\$0.01216	8%	\$0.15546	\$0.00748	5%	\$0.15334	\$0.01060	7%	\$0.15646	\$0.01372	9%	\$0.15665	\$0.00867	6%	\$0.15618	\$0.01344	9%	
Tier 2	\$0.17417	\$0.17598	\$0.17074	\$0.20323	\$0.03249	17%	\$0.20379	\$0.02781	16%	\$0.20167	\$0.03093	18%	\$0.21505	\$0.04431	22%	\$0.21524	\$0.03926	23%	\$0.21477	\$0.04403	26%	
Tier 3	\$0.21587	\$0.17598	\$0.17074	\$0.27933	\$0.10859	41%	\$0.20379	\$0.02781	13%	\$0.20167	\$0.03093	18%	\$0.30206	\$0.13132	47%	\$0.21524	\$0.03926	18%	\$0.21477	\$0.04403	26%	
Household Bill (a)	\$77.29	\$78.19	\$75.57	\$86.45	\$9.16	12%	\$86.73	\$8.54	11%	\$85.67	\$10.10	13%	\$89.32	\$12.03	16%	\$89.42	\$11.23	14%	\$89.18	\$13.61	18%	
Year to Year Change in Monthly Household Bill				\$1.52	1.8%		\$1.42	1.7%		\$2.03	2.4%		\$2.87	3.3%		\$2.69	3.1%		\$3.51	4.1%		

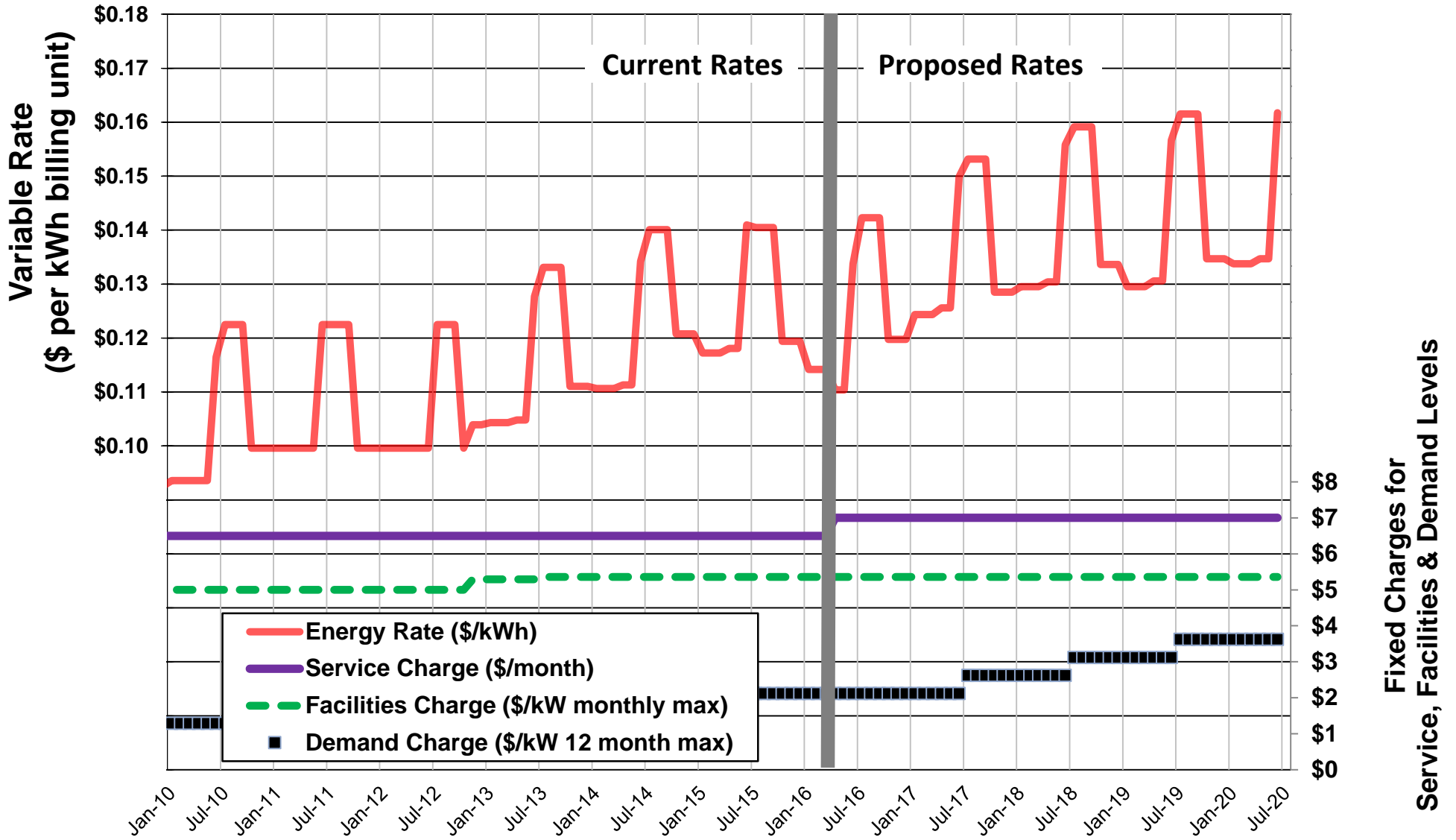
Current Rate		Proposed Rate: Five Year Change from Current to June 2020			
Rate Type	High Season Jun-15	High Season Jun-20	Change from Jun-15 to June 2020		
			\$	%	
Fixed Access Charge					
Tier 1	none	\$2.30	na		
Tier 2	none	\$7.90	na		
Tier 3	none	\$22.70	na		
Energy Rate (\$/kWh)					
Tier 1	\$0.14664	\$0.15713	\$0.01049	7%	
Tier 2	\$0.17464	\$0.21572	\$0.04108	24%	
Tier 3	\$0.21634	\$0.30273	\$0.08639	40%	
Household Bill (a)	\$77.52	\$89.65	\$12.13	16%	
Year to Year Change in Monthly Household Bill			\$3.45	0.5%	

(a) The monthly household bill example is for 500kWh in Zone 1, with a blend of Tier 1 and 2 energy charges and a Tier 1 access charge.

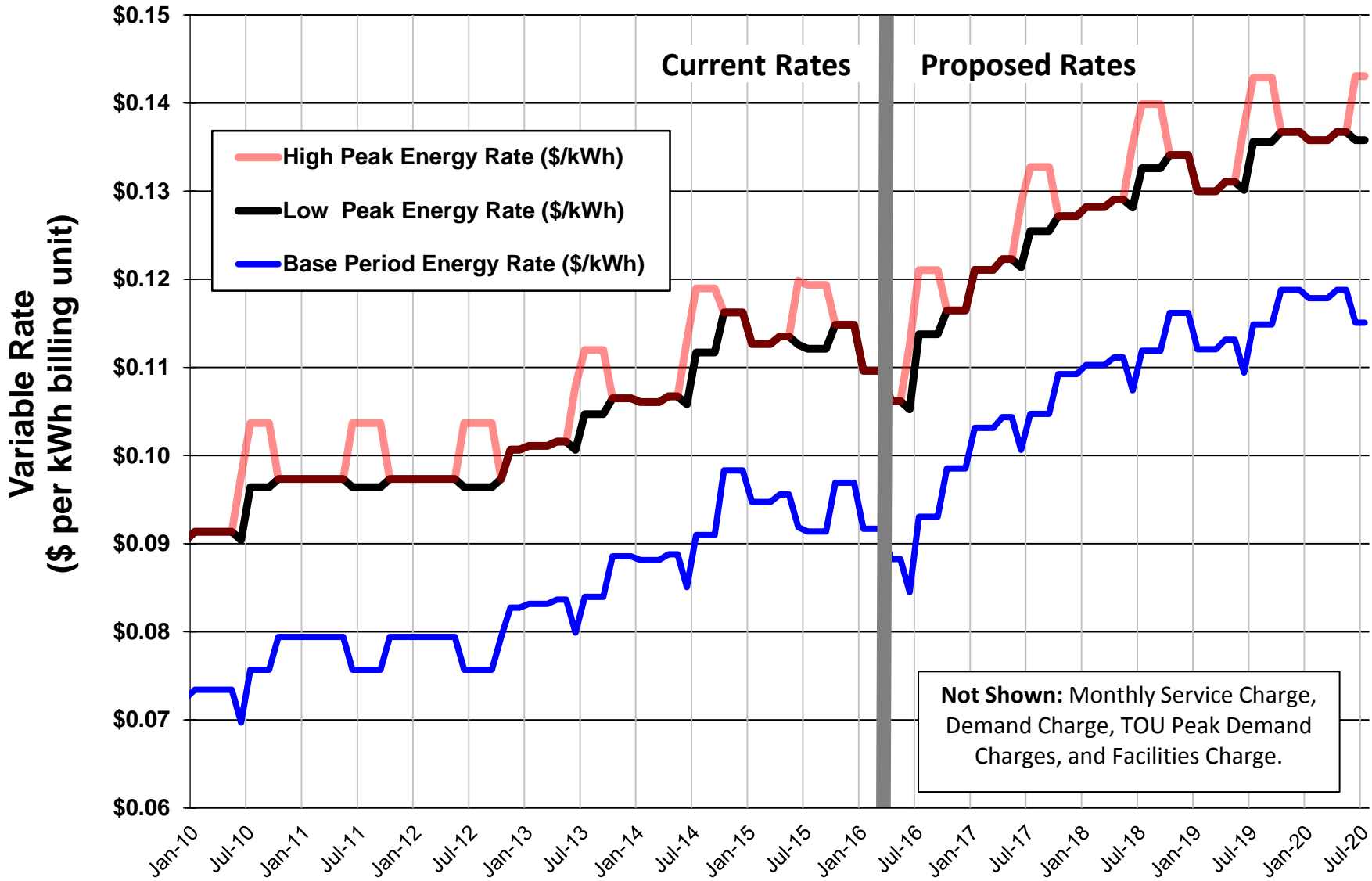
Current & 2015 Proposed LADWP Schedule R-1 Residential Power Rates



Current & 2015 Proposed LADWP Schedule A1-A Small Commercial Class Power Rates



Current & 2015 Proposed LADWP Schedule A-2B Medium Commercial Class TOU Power Energy Charges



OPA's Comments on Labor Costs

The purpose of this section is to describe OPA's findings and opinions on DWP's labor costs including base wages, health care, retirement benefits, and other cash compensation. OPA finds that, in reference to industry measures, labor costs at DWP are too high in certain areas. However, under existing work rules and processes, there are insufficient workers to deliver the planned maintenance and capital work. While not amenable to short-run changes, the OPA believes that there are long-run structural opportunities for improvements to DWP's costs of labor and work processes, as described below. OPA reviewed total compensation since 1970, and finds DWP's long-run labor costs have performed similarly to the national average.

I. OPA's Opinion Regarding Labor Costs

The forecast labor costs for DWP range from \$1.7 billion in fiscal year (FY) 2015-2016 to \$1.9 billion in FY 2019-2020. (See attachment L-1.) DWP's rate request, if performed as proposed, involves a mere 0.82% increase per year. Additional reductions pose too large a risk to output, safety, and basic service levels.

DWP has "held the line" on base wages and reduced pension costs since the last power rate review in 2012. OPA addressed both of these in the last rate review, but not health or other cash compensation. A continued effort and a more holistic approach to all these components is needed for future improvements. OPA is relying on DWP's commitments to pursue a detailed staffing and productivity analysis in Phase 2 of its ongoing benchmarking study, and will provide targeted advice as that work proceeds. OPA hired Oliver Wyman/Mercer, a national firm specializing in labor, to support its evaluation.

1. **Base Wages:** DWP's last MOU had no base wage cost of living increases for the first three of four years, beginning approximately in 2014. However, during the five years of the planned rate forecast, this MOU agreement will expire.
 - A more in-depth look at base salaries by job classification is needed to make sustained progress. As DWP is aware, the industry does not use unverified simple averages since that approach misrepresents benchmarked total compensation and productivity comparisons.¹

¹ OPA has simple average base wages from DWP's 2014 payroll that are as low as \$82,000 per person. However, simple averages provide no comparative basis with which to evaluate the reasonableness of rates or meet a fiduciary standard of care. Comparison to a utility that outsourced large or entire groups of employees, for example, would be biased.

- In keeping with industry benchmarking, salaries should be adjusted to reflect all aspects of local labor supply, and not just local costs of living.
 - DWP should participate in three annual salary surveys, and publicly publish an annual summary of the results to the Board.
 - The proposed DWP rate structures are flexible enough to adjust to new MOU terms, within a limited range of possibilities.
 - OPA recommends that Phase 2 of the ongoing DWP benchmarking study include a more structured and centralized assessment of the approximately \$60 million of labor costs spent annually on non-employees.²
2. **Retirement:** Similarly, DWP's last MOU had a major adjustment to retirement benefits by introducing a Tier 2 pension program for its new employees. The new program moved the DWP's retirement costs to the top of the best (least costly) quartile, and \$2,000 - \$3,000 per employee below industry medians.
- No other benchmarked publicly owned utility (POU) requires the level of contributions that DWP employees pay for their defined benefits; most other POU employees make no contributions. These retirement savings should be considered when weighing other DWP compensation elements that are above industry median levels.
 - DWP plans to aggressively reduce \$1.45 billion in unfunded pension liabilities. The forecast value for unfunded pension liabilities will be \$222 million by 2021.
3. **Health:** DWP's health element of total compensation is approximately \$5,000 per employee above the industry median. DWP's cost is made up of both active employee (\$20,000) and retiree health (\$3,000).
- DWP's workers, in voting to approve the current MOU, opted to protect health benefits at the prior level while accepting major concessions in cost of living adjustments to base wages and a second, lower pension tier for retirement. In the context of total compensation negotiations, DWP may re-evaluate a redesign of

² OPA found that in calendar year 2014, 714 positions in payroll data were non-employees, including several different types of workers on daily and hourly rates. DWP should segment this group into major labor categories, like hiring hall or civil service personnel, and integrate these resource choices with improvements to the structure of labor costs.

medical benefits and a verification of dependent enrollments to better align with industry peers.

- Healthcare is a rapidly evolving area. DWP is in a weak position to structure requests for proposals from multiple insurers. DWP could improve public trust with a more transparent procurement process for the negotiated level of benefits.

4. **Other Compensation:** This type of total cash compensation is \$11,000 per employee above the industry median, and is indicative of DWP management challenges and efficiency losses explored in OPA's July 1, 2015 report, "Learning from DWP's Billing Challenges."

In OPA's opinion, the total labor costs requested in the proposed rate cases, when compared against recent DWP service levels and infrastructure replacement projects, are too low. In other words, the cycle of under-performing labor is likely to continue, as there are not enough workers under existing work rules and processes to deliver the maintenance and capital work. Therefore, DWP may expend both firm overhead and benefits on simply moving slower than forecasted.

With reference to industry standards, labor costs at DWP are too high if staffing levels and total compensation are used. Because these labor costs cannot be immediately reduced, it would be illusory to reduce rates with the expectation that productivity will increase, without also providing needed productivity-related investments. It is well established in the utility field that productivity investments often take longer than three years to produce cost savings.

Ultimately, whether labor costs are too much, too little, or just right will depend on how DWP modernizes over the next five years. As such, improvements in labor metrics and monitoring will be recommended by June 1, 2016.

II. Why Review Labor Costs?

The purpose of reviewing labor costs, which are not amenable to short-run change, is to make the proposed rate approval conditioned on active pursuit of long-run structural opportunities for improvement. In regulated investor-owned utilities, shareholders bear the risk of unreasonable labor costs disallowed in rate-based revenues. They also gain the reward when productivity occurs by any means after a rate increase is approved, even if that means mass reductions in the labor force, and compromises to service quality. Gaming behaviors by regulated monopolies in this context are notorious, and obtaining true productivity is difficult and slow.

The rate review of a municipal public utility's labor costs serves a different purpose. OPA believes it is important for ratepayers to have a general cost assessment, and more confidence

that rates are fair. Labor and ratepayer alignment can best be attained in the four to eight year timeframe that respects the negotiation of labor rates in a set periodic schedule, and therefore can fully consider the lead times for productivity changes. Staffing is often reallocated, with very gradual shifts in personnel due to retraining and attrition.

Historically, the existing DWP governance framework acts on labor issues in a relatively fragmented manner. The legislative process and electoral cycles focus on the short run. However, creating a new position, like a meter setter, is reportedly a three year process. The absence of total compensation reviews in DWP's prior rate-setting efforts highlights the missed opportunities for sustained effort on long-run structural adjustments to labor. As a result, the industry is slowly becoming more efficient, while DWP is held back by fundamental restrictions, which need change. A regular rate review including labor costs is important for taking stock. DWP cannot otherwise get the public support and City Council help it needs to become more agile.

III. How are Reasonable Labor Costs Determined?

OPA's approach to labor cost analysis is to use established industry methodology and conduct a "total compensation" review. OPA's preliminary labor cost review is intended to provide all decision makers with a more global perspective on both labor and employee costs. This review did not undertake to review any exempt or civil service labor costs, nor did it review important work rules affecting the productivity of labor. The utility industry has a refined methodology for comparing labor costs between utilities. OPA has applied this total compensation method to DWP in its evaluation of the proposed rate request and embedded labor expenditures. It focuses on cash expenditures to employees in a selected test year, regardless of how funded or smoothed out over time through accrual accounting.³

Reviewing total cash compensation is one step in reviewing the costs of service. This step is independent of how the funding of labor is sourced, which varies significantly from one utility to the next. Assessing the reasonableness of this cost necessarily involves a review of the output of the firm (i.e., productivity) at historical labor cost levels, as well as a review of other utilities' labor costs and staffing levels to deliver similar services.

While each utility is unique in some ways, this type of review is fundamental. Unlike other types of reviews that only look at each labor cost element in isolation, total cash compensation implicitly recognizes the *trade-offs* made by any particular group of workers. In other words,

³ As a consequence, DWP's relative asset position in funding pensions and retiree health is not considered. Accounting disclosures of unfunded employee retirement liabilities is relatively new, which complicates trends and comparisons. Further, the future ability or willingness of many other government entities to honor retiree healthcare commitments is in question. OPA preferred to avoid undue speculation about other jurisdictions' ultimate funding or timing decisions, until industry standards change. OPA hereby acknowledges that DWP's retirement benefits may be better funded.

some unions give up some amount of one type of labor benefit to gain more of another type of labor benefit. *Total cash compensation is therefore by nature more holistic.*

In OPA's opinion, total compensation analysis is the best way to inform all the various governance elements involved in and accountable for DWP. Total compensation maximizes flexibility by explicitly recognizing trade-offs, while maintaining an ability to compare the fairness of labor costs with the industry. "Cherry picking", citing to individual elements but not the whole of labor compensation, is thereby discouraged. DWP's fourth quartile total compensation indicates the stress of accelerating industry change on a rigid organizational structure.

It is worth noting that DWP's historic performance over the last 40 years has been strong. Labor inflation at DWP was exceedingly subdued in the hotter growth decades of the 1970's and 1990's. Labor inflation at DWP between 1970 and 2010 has been 5% compound annual growth rate (CAGR) without adjustment, and only 1.6% CAGR after adjusting with the GDP producer price index. The Social Security Administration's average wage index for the same period was 4.88%.⁴

Past performance should be borne in mind so that short-lived gyrations of the Great Recession and accelerating retirements, both of which have accelerated internal promotions, are considered alongside the consequences of unfilled vacancies. Authorized but unfunded positions at utilities may create an illusion of productivity, but without any modernization they have produced at DWP backlogged work, deferred replacement of aged infrastructure, and higher overtime. None of these are in ratepayers' long-term interests.

⁴ In 1970, wages, retirement and health care cost \$743M in 2009 dollars, and in 2010, they cost \$1,400M, also in 2009 dollars.

L-1 OPA DATA REQUEST ON LABOR COSTS

A. Three Systems' Labor Costs

	FY14-15 APRV	FY15-16 E	FY16-17 E	FY17-18 E	FY18-19 E	FY19-20 E	FY20-21 E
1 Power System							
a wages (CE 10 & 11)	\$ 503,670	\$ 527,303	\$ 539,581	\$ 553,130	\$ 565,263	\$ 594,653	\$ 598,176
b pensions	219,133	199,307	192,439	180,689	173,054	164,578	151,084
c healthcare	97,667	113,419	120,548	127,760	139,528	149,283	159,821
2 Water System							
a wages	\$ 200,387	\$ 204,615	\$ 207,108	\$ 211,693	\$ 218,004	\$ 224,404	\$ 230,095
b pensions	96,665	89,172	86,143	80,692	77,231	73,524	67,454
c healthcare	43,083	50,745	53,962	57,055	62,269	66,691	71,354
3 Joint System							
a wages (CE 10 & 11)	\$ 330,902	\$ 353,263	\$ 359,697	\$ 369,752	\$ 380,568	\$ 391,690	\$ 402,878
b pensions	160,138	156,104	151,304	142,087	135,776	129,245	118,595
c healthcare	71,373	88,834	94,781	100,466	109,472	117,234	125,453
TOTAL DEPARTMENT	\$ 1,723,019	\$ 1,782,761	\$ 1,805,564	\$ 1,823,322	\$ 1,861,164	\$ 1,911,303	\$ 1,924,910

B. Two Funds' Labor Costs

	FY14-15 APRV	FY15-16 E	FY16-17 E	FY17-18 E	FY18-19 E	FY19-20 E	FY20-21 E
1 Power Fund							
a wages (CE 10 & 11)	\$ 707,222	\$ 746,727	\$ 763,627	\$ 783,637	\$ 804,478	\$ 840,768	\$ 851,371
b pensions	320,089	299,456	289,573	271,978	260,288	247,611	227,281
c healthcare	142,663	170,410	181,396	192,308	209,862	224,599	240,424
	\$ 1,169,973	\$ 1,216,593	\$ 1,234,596	\$ 1,247,923	\$ 1,274,627	\$ 1,312,978	\$ 1,319,075
From Water (transfer)							
d wages (CE 10 & 11)	\$ 92,124	\$ 96,640	\$ 100,188	\$ 101,160	\$ 101,619	\$ 103,412	\$ 106,686
e pensions	42,809	40,428	40,040	36,916	34,876	32,841	30,205
f healthcare	19,080	23,006	25,082	26,102	28,120	29,789	31,952
	\$ 154,013	\$ 160,074	\$ 165,310	\$ 164,179	\$ 164,615	\$ 166,041	\$ 168,842
To Water (transfer)							
g wages (CE 10 & 11)	\$ (76,962)	\$ (79,942)	\$ (80,984)	\$ (88,565)	\$ (91,011)	\$ (86,358)	\$ (91,290)
h pensions	(33,152)	(32,091)	(31,241)	(33,773)	(32,434)	(27,247)	(26,176)
i healthcare	(14,776)	(18,262)	(19,570)	(23,880)	(26,150)	(24,715)	(27,689)
	\$ (124,889)	\$ (130,295)	\$ (131,795)	\$ (146,217)	\$ (149,595)	\$ (138,320)	\$ (145,155)
TOTAL Power Fund	\$ 1,199,097	\$ 1,246,372	\$ 1,268,112	\$ 1,265,885	\$ 1,289,647	\$ 1,340,700	\$ 1,342,762
2 Water Fund							
a wages (CE 10 & 11)	\$ 327,737	\$ 338,453	\$ 342,760	\$ 350,938	\$ 359,358	\$ 369,979	\$ 379,779
b pensions	155,848	145,128	140,313	131,489	125,773	119,737	109,852
c healthcare	69,461	82,587	87,896	92,972	101,407	108,609	116,204
	553,046	566,169	570,968	575,399	586,537	598,324	605,834
From Power (transfer)							
d wages (CE 10 & 11)	\$ 76,962	\$ 79,942	\$ 80,984	\$ 88,565	\$ 91,011	\$ 86,358	\$ 91,290
e pensions	33,152	32,091	31,241	33,773	32,434	27,247	26,176
f healthcare	14,776	18,262	19,570	23,880	26,150	24,715	27,689
	124,889	130,295	131,795	146,217	149,595	138,320	145,155
To Power (transfer)							
g wages (CE 10 & 11)	\$ (92,124)	\$ (96,640)	\$ (100,188)	\$ (101,160)	\$ (101,619)	\$ (103,412)	\$ (106,686)
h pensions	(42,809)	(40,428)	(40,040)	(36,916)	(34,876)	(32,841)	(30,205)
i healthcare	(19,080)	(23,006)	(25,082)	(26,102)	(28,120)	(29,789)	(31,952)
	\$ (154,013)	\$ (160,074)	\$ (165,310)	\$ (164,179)	\$ (164,615)	\$ (166,041)	\$ (168,842)
TOTAL Water Fund	\$ 523,922	\$ 536,390	\$ 537,453	\$ 557,437	\$ 571,517	\$ 570,603	\$ 582,147
TOTAL DEPARTMENT	\$ 1,723,019	\$ 1,782,761	\$ 1,805,564	\$ 1,823,322	\$ 1,861,164	\$ 1,911,303	\$ 1,924,910

C. Rate Revenue Required, Given Stated Capitalization of Labor Costs

	FY14-15 APRV	FY15-16 E	FY16-17 E	FY17-18 E	FY18-19 E	FY19-20 E	FY20-21 E
1 Power Fund							
a O&M	\$ 713,382	\$ 744,242	\$ 755,255	\$ 778,966	\$ 800,473	\$ 825,089	\$ 840,609
b Capitalized	485,716	502,130	512,857	486,918	489,175	515,610	502,154
TOTAL Revenue Required	\$ 1,199,097	\$ 1,246,372	\$ 1,268,112	\$ 1,265,885	\$ 1,289,647	\$ 1,340,700	\$ 1,342,762
2 Water Fund							
a O&M	\$ 301,680	\$ 307,369	\$ 314,778	\$ 334,070	\$ 345,129	\$ 337,323	\$ 346,566
b Capitalized	222,242	229,020	222,675	223,367	226,388	233,280	235,582
TOTAL Revenue Required	\$ 523,922	\$ 536,390	\$ 537,453	\$ 557,437	\$ 571,517	\$ 570,603	\$ 582,147
TOTAL DEPARTMENT	\$ 1,723,019	\$ 1,782,761	\$ 1,805,564	\$ 1,823,322	\$ 1,861,164	\$ 1,911,303	\$ 1,924,910

Recommendations:

Use "e" for estimates; use accrual accounting unless footnoted otherwise as Alternatively, discuss other options with OPA.

Source: LADWP Data Request Response FSO_FY16_22_Labor Costs Excel

OPA Observations Concerning Public Trust in the Department of Water and Power

I. Improving Transparency of Certain Expenses

The purpose of this section is to describe ratepayer costs of funding to institutions outside of the DWP that are less directly involved in supplying water or power. Given the public concern about these funds, the OPA recommends better safeguards, to limit the funding at the budgeted levels or ensure a direct connection to water and power utility functions. This challenge to the public trust is further complicated by DWP's governance under the City Charter. In this section, OPA has identified improvements that can be easily implemented.

1. External Relationships

OPA has asked for estimates from the DWP for research, development and demonstration (RD&D), promotions and advertising, and other external relationships that involve a regular and periodic payment. Community engagement is typically a component of these types of utility costs. The DWP estimates the current fiscal year will expend \$10 million on all these types of costs, and has escalated this amount by inflation over the rate review period. (See Attachment T-1.) This represents 0.2% of DWP's annual revenue. These are reasonable costs for this subset of activities.

As is common with utilities nationwide, the DWP is involved in RD&D of new technologies that are not necessarily sourced from the competitive sector. Natural monopolies present special challenges: because there is only one buyer, taking private investment risk in innovation takes far longer horizons. This is a sub-specialty in utility ratemaking. DWP also makes regular payments for memberships in industry associations, some of which do research and some of which share best practices. These expenditures are reasonable.

Utilities are governed by special limitations in their use of advertising. Conservation messaging, and the promotions designed to encourage conservation, are evaluated for their benefits by specific methods for the conservation program concerned. In contrast, burnishing of brand by spending advertising money is, in a monopoly utility, generally a prohibited expense. The DWP's expenditures on advertising for public education purposes are reasonable.

The OPA believes that the public distrust would be lessened, and that the Board of Water and Power Commissioners (Board) would be well served, by the creation of a consolidated, summarized annual report with the budget for these external activities

and expenditures. An annual, summary report should include actual expenditures after the fact, to compare with the budgeted amount funded in the proposed rates. Providing this assurance of the overall level of programmatic spending could be both reassuring to the public and would provide a forum for public comment. This framework is more in keeping with a proprietary department, and can avoid some micromanagement by the Board, and City officials in hand-picking recipients, which could pose challenges to fiduciary standards of care and ethics.

OPA would encourage the Board to set out any additional guidance in a policy statement that is neutral, will stand the test of time, and is not tied to specific institutions.

Regarding the Los Angeles Cleantech Incubator at the La Kretz Innovation Campus (LACI), the OPA recommends that the DWP continue to develop its relationship with LACI. The Board should request the Department to work with LACI to develop objective criteria and expectations over the next five to ten years. The metrics should include regular annual reports of the full-time, year-round jobs created by companies working with LACI, segregated by those physically in full time occupancy at La Kretz, and those that are using only LACI services. The Board should assess how this institutional relationship is functioning after several years. This provides this relationship more time to mature, and is consistent with the slow nature of RD&D for utilities.

2. City Services

Services that support DWP operations are often provided by other City departments. While budgeted within the current rate proposal, these annual payments are not currently consolidated into a single annual Board report that illuminates the magnitude of intra-City service and support of the DWP by the City after the fact. According to the DWP, annual payments for services paid by the DWP for City services have been:

FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
\$54 million	\$65 million	\$55 million	\$64 million	\$60 million

Source: Pay history LACITY 5 years with SUMMARY tables

The OPA recommends that the annual CAO submission to the DWP Board for City Services in the coming years coordinate its accounting of all DWP expenditures for City services from the prior year, whether or not general funds were involved. In this way, the Board can (1) evaluate DWP's costs for the City services it receives, (2) clarify the full scope of the intra-City relationships, and (3) enhance their fiduciary standard of care when considering other intra-City payment requests from time-to-time. Additionally,

OPA recommends that any City civil service personnel costs in DWP's payroll, which are not included in the above amounts, be included and identified in this annual evaluation.

It is important to make these costs more visible. DWP has a relatively small net income target compared to its total revenue. Hence, it is essential for DWP to be able to plan its expenditures in advance. By aggregating these intra-City services and reporting on them annually, reprioritization or substituting of one service for another can be made with assurance that the costs are already included in the rates. Otherwise, DWP would have to defer infrastructure replacement further.

The OPA finds that there is a wide range of opinion on the level and reasonableness of these service payments. An annual review should reduce this speculation and would improve the public's understanding of the true amounts.

II. Water and Power Bill Payments to DWP by City Departments

The OPA has recommended that DWP publicize past due accounts receivable and expensed bad debt from all government customers for calendar years 2013 and 2014; we now add 2015. Including all three years of these payments, and of write-offs for segregated disputed and undisputed amounts, can provide important perspective in comparison with the incorrect bills and disputed amounts generated by DWP's recently installed retail billing system.

III. Labor Relations

The OPA believes that the DWP's public relationship is poor in part because the public, and most City officials, have the perspective that the DWP rarely uses external resources such as outsourced labor, when it is more feasible or economic than relying on internal resources. However, the DWP's Labor Relations managers have advised OPA that substantial DWP outsourcing occurs, following the agreed procedure in its IBEW Appendix B Memorandum of Understanding (MOU). Activity pursuant to this Appendix is already tracked: reportedly, over 90% of the activity concludes successfully in under one month.

The OPA repeats its prior recommendation that this information should be posted, once a month. The outsourcing exceptions can be much better understood by sharing the accumulating knowledge of outsourcing. If management seeks it, but is unable to obtain it, that should be weighed against all the outsourcing that does occur. The DWP's responsibility to optimize internal and external resources cannot be met if no one knows how this is working in practice. The public's support of the fairness of these outcomes, and the rates that pay for it, need to be earned by a cumulative, multi-year record that is observably equitable.

IV. Solar

1. Utility Built Solar

Solar is now commercial. The DWP needs to have a “gate” in project management so that construction is blocked for small solar projects with costs per kWh delivered higher than competitively sourced alternatives or \$0.15/kWh, whichever is lower. Costs should include full allocation of overhead.

2. Community Solar

DWP has not included in its rate proposal any program or costs for community solar. The OPA will review such proposals when they become available, as many different forms of community solar are possible, including community aggregation. The DWP has proposed phasing out the existing green provisions of the ordinance. Limited participation resulted from a 3 cents/kWh premium, and funds were used to buy renewable energy credits on the market.

V. Training

The OPA explored training costs for LADWP in 2013-2014 and found approximately \$130M of funds were used for training, with only \$4M representing out of pocket expenditures. The vast majority of the training funds are an allocated portion of payroll that is managed in a highly distributed manner. The DWP needs more flexible means of procuring advice and training when internal expertise is either absent or fully committed. The OPA recommends that the Board request the Department develop a consolidated plan by which the DWP’s “out of pocket” training expenditures and needs can be met.

T-1 External Third Party Payments

Research & Development, Demonstration, Advertisement, Professional and Community Engagement Costs

FY	14/15	15/16	16/17	17/18	18/19	19/20	20/21
La Kretz Innovation Campus¹	2,000,000	920,000	890,000	907,800	925,956	944,475	963,365
Construction	2,000,000	400,000					
O&M		520,000	890,000				
EPRI	1,384,459	1,712,526	1,712,526	1,735,000	1,735,000	1,735,000	1,765,000
Board Contract	1,384,459	1,384,459	1,384,459				
Board Amendment		328,067	328,067				
Research²	620,150	763,949	799,227	845,212	892,116	929,959	968,558
For DWP Sponsorships*	620,150	588,949	624,227	670,212			
Climate Study		175,000	175,000	175,000			
Project funding³	120,784	114,745	117,040	119,380	121,768	124,203	126,688
Memberships	2,510,663	2,385,130	2,456,684	2,505,817	2,555,934	2,607,052	2,659,193
Advertisements⁴	1,100,000	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013	2,552,563
For DWP Sponsorships*	950,671	950,671					
Drought Related	149,329	1,049,329					
School/Education⁵	1,223,439	1,223,439	1,345,783	1,345,783	1,372,699	1,400,153	1,428,156
For DWP Sponsorships*	673,439	624,439	696,783				
El Pueblo	65,000	65,000	65,000				
Education Grants	485,000	534,000	584,000				
Industry Event	408,631	388,199	395,963	403,883	411,960	420,200	428,604
Community Non-Profit	255,087	249,985	380,550	399,578	419,556	440,534	462,561
Grant Awards⁶	1,170,000	1,080,000	1,800,000	1,836,000	1,927,800	2,024,190	2,125,400
Water Conservation	270,000	270,000	500,000				
Energy Efficiency	900,000	810,000	1,000,000				
Innovation Fund (WC and EE)			300,000				
Promotional⁷	110,965	105,417	107,525	109,676	111,869	114,106	116,389
Total (rounded)	10,900,000	10,940,000	12,110,000	12,410,000	12,790,000	13,170,000	13,600,000
LADWP's Employee/ Retiree Contribution⁸	180,000	183,600	187,300	191,000	194,800	198,700	202,700

1. La Kretz 14/15 Spending are for construction. Costs for FY 15/16 includes finishing construction costs with O&M for the Campus. FY 16/17 and beyond represent projected O&M for the campus. Listed costs are only for maintenance, operations and general outreach of the campus (i.e. flyers, banners, displays). LADWP does not provide funding for LACI operations.

2. Research includes funding to the Water Research Foundation, Cal-Tech for Earthquake Research, etc.

3. Related to pilot projects and such programs as Earthquake Soil Liquefaction Assessment, water resources needs, etc.

4. Increase in costs are due mostly to promote water conservation during the drought.

5. School and Education costs includes \$484K for Water Conservation/Energy Efficiency Grants and other outreach efforts (i.e. Science bowl, classroom materials and educational outreach on electrical safety). These costs also include the history of Water Exhibit at El Pueblo.

6. LADWP provides Innovation grants for Energy Efficiency and Water Conservation. These grants are reviewed and awarded by LADWP on specific programmatic goals related to water and power issues. Grant funding are within the energy efficiency and water conservation portfolio. Grants primarily focus on behavioral conservation measures and recordable savings are noted in LADWP Water Conservation and Energy Efficiency Totals.

7. Promotional items include materials that promote water and power programs and encourage conservation and safety. Costs also include outreach to LADWP's retirement community.

8. LADWP employee's support numerous City Charities out of their own pockets. Through LADWP's Employee's Association and the City's Combined Charity Contribution, LADWP employees contribute to a number of causes throughout the city.

* "DWP Sponsorships" are for Community, Research, Advertising and Promotional funding under \$150,000. These items have a formalized approval process that requires

Source: LADWP Data Request Response on Community Impact Estimates



LADWP'S LABOR COSTS

PRELIMINARY FINDINGS ON THE LABOR STUDY

PREPARED FOR:

OFFICE OF PUBLIC ACCOUNTABILITY / RATEPAYER ADVOCATE

JANUARY 15, 2016

Context and objectives of the Oliver Wyman / Mercer support effort

- The Office of Public Accountability / Ratepayer Advocate's (OPA/RPA) mission states that it shall "provide public independent analysis of department actions as they relate to water and electricity rates." In early July 2015, LADWP initiated a rate proposal before the LADWP Board of Water and Power Commissioners (LADWP Board).
- The scope of work for Oliver Wyman / Mercer is to provide support for OPA in its efforts toward completing its independent analysis of LADWP's 2015 water and electricity rate analysis by providing benchmarking analysis in the following areas:
 - Wages and salaries, including overtime and other forms of cash compensation
 - Health benefits, including medical, dental and vision
 - Non-health benefits, including life, disability, time-off and retirement
 - Total compensation (the package of wages, health & non-health benefits)
- The purpose of Oliver Wyman's support is to provide an independent, fact-based, high-level review of the LADWP's labor-related costs. This summary provides a preliminary overview of labor cost-related information for the OPA as it reviews the reasonableness of LADWP's rate proposals.

This summary will be incorporated into OPA's overall review of the rate proposals. OPA will work collaboratively with the LADWP to refine, expand and finalize this labor cost analysis by June 1 in advance of establishing performance targets and metrics.

Summary of Preliminary Labor Cost Findings and Conclusions

- **Total labor costs:** LADWP's total labor costs include base salaries, other forms of cash compensation above base salary (e.g., overtime pay), retirement and health care costs.
- **Importance of total labor costs:** LADWP's labor costs now total over \$1.8 billion annually. Labor costs represent significant portions of LADWP's revenues and cash outlays.
- **Total compensation management:** Utilities increasingly look at all components of compensation together to develop strategies to attract and retain employees as well as better manage costs.
- **Base salary:** Preliminary results suggest LADWP has an average base salary that falls in the 3rd quartile among utility peers (i.e., higher cost than median).¹
- **Other cash compensation (above base salary):** Preliminary results suggest that LADWP's cash compensation above base is in the 4th quartile (i.e., highest cost quartile), driven by higher overtime pay.¹
- **Retirement and health benefits costs:** Taken together, LADWP has slightly above median total benefit costs; while health benefit costs are above the median, retirement costs are below median.²
- **Total compensation costs:** LADWP ranks in the lower 4th quartile against utilities driven by higher cash compensation above base salary and health benefits.
- **Senior management cash compensation:** LADWP's senior management team ranks below median.

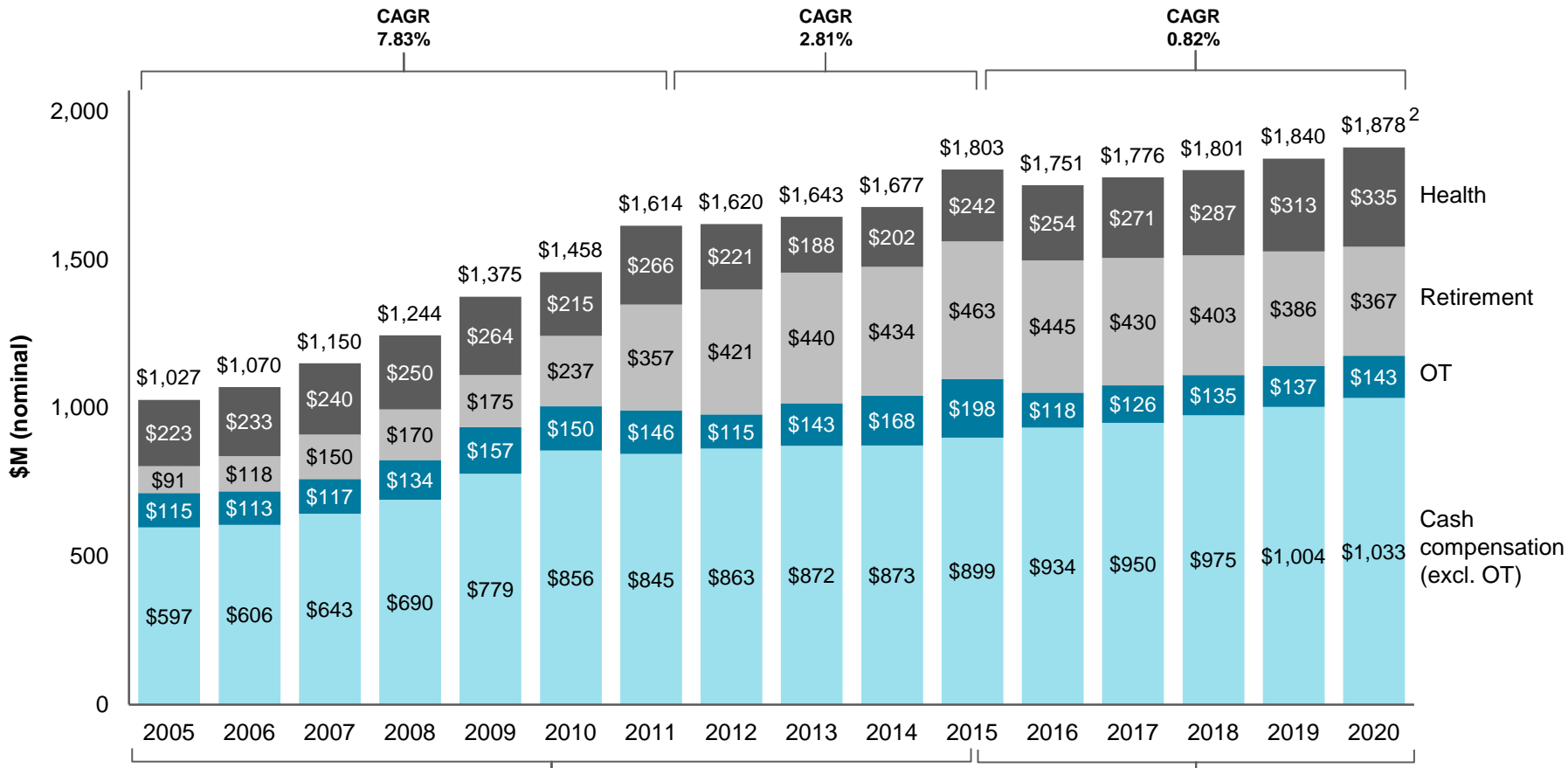
1. Salary comparisons were obtained from widely accepted utility surveys as sourced below with over 1,000 utility company participants; salary surveys were obtained from Mercer, Economic Research Institute, and American Water Works Association

2. Comparisons were made against separate, agreed upon by stakeholders, panels of 19 investor-owned utilities (IOUs) and 11 publicly-owned utilities (POUs).

Historical and forecast employee-related costs

Total LADWP employee costs for both power and water have trended upward reaching \$1.8B in 2015. LADWP's forecasts suggest lower growth rates, well below recent trends.

Total employee-related costs¹ Power and Water

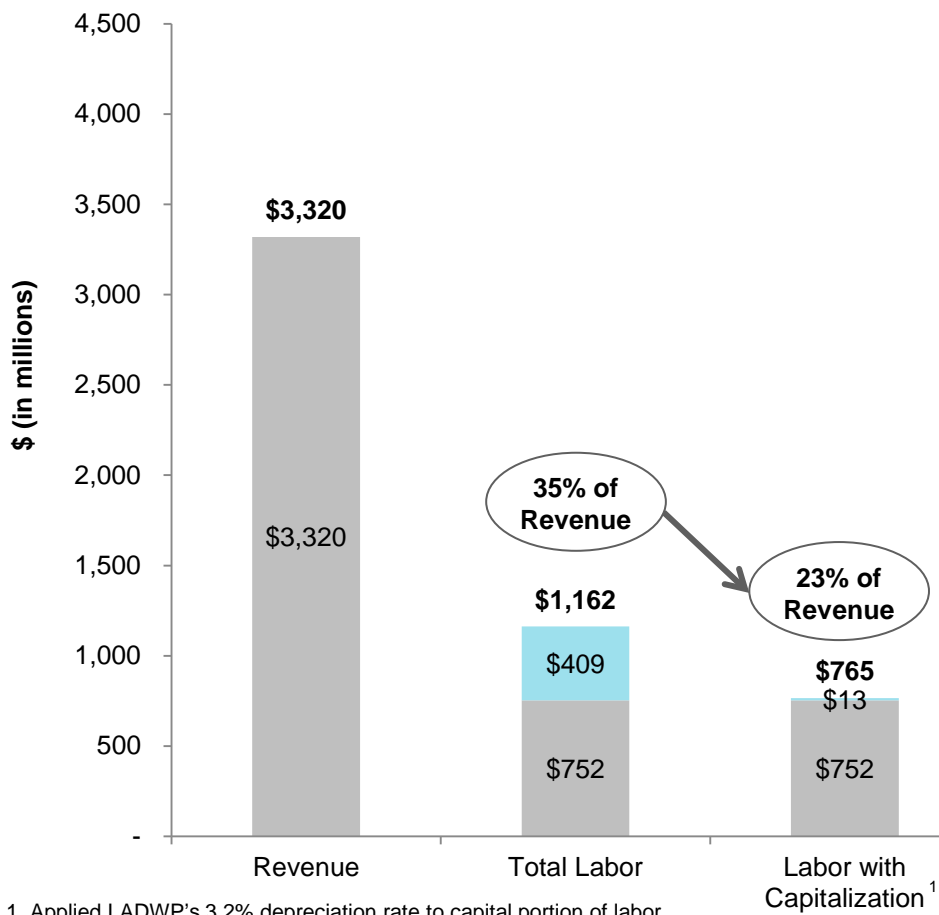


1. Excludes the cost of daily exempts
 2. \$1,919 M including cost of non-employees on payroll
 Note: Years denote fiscal year end (e.g., 2009 ends June 2009)
 Source: LADWP

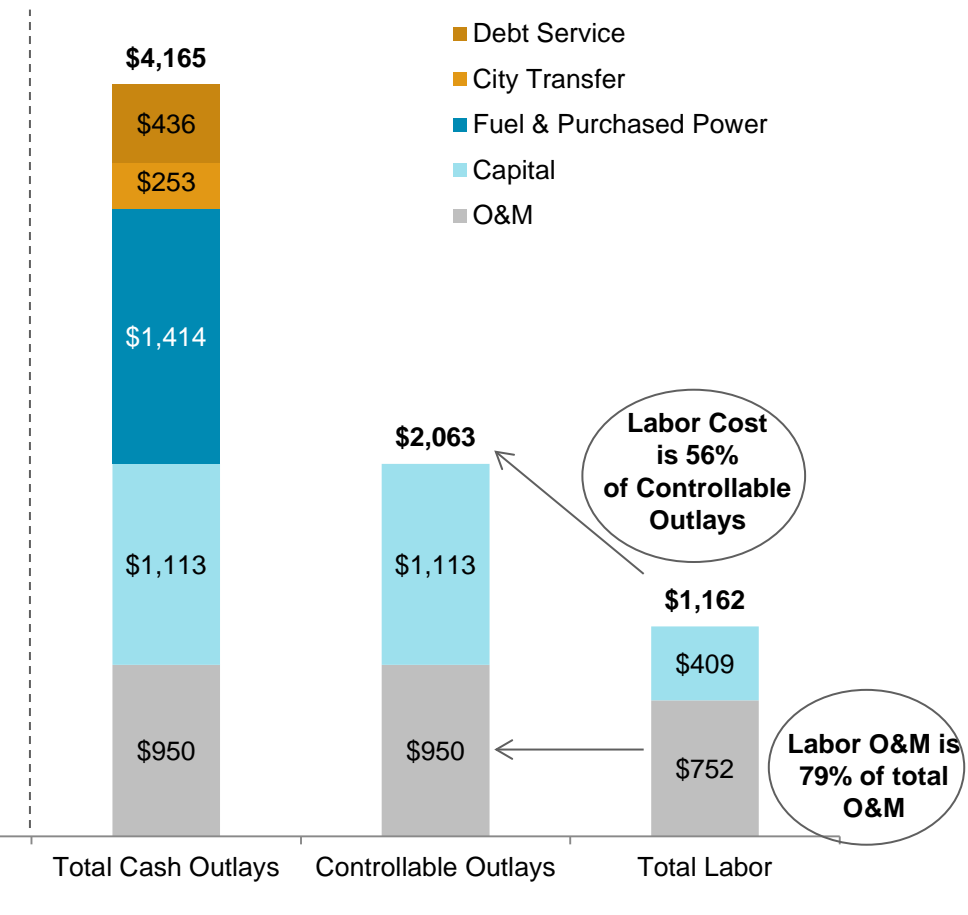
Importance of labor cost: Power

Managing labor costs is important to LADWP. In 2014, power labor costs represented 35% of revenue and 56% of controllable cash outlays.

Labor-related cost: relative to revenue
FYE 2014, Power



Labor-related cost: relative to cash outlays
FYE 2014, Power

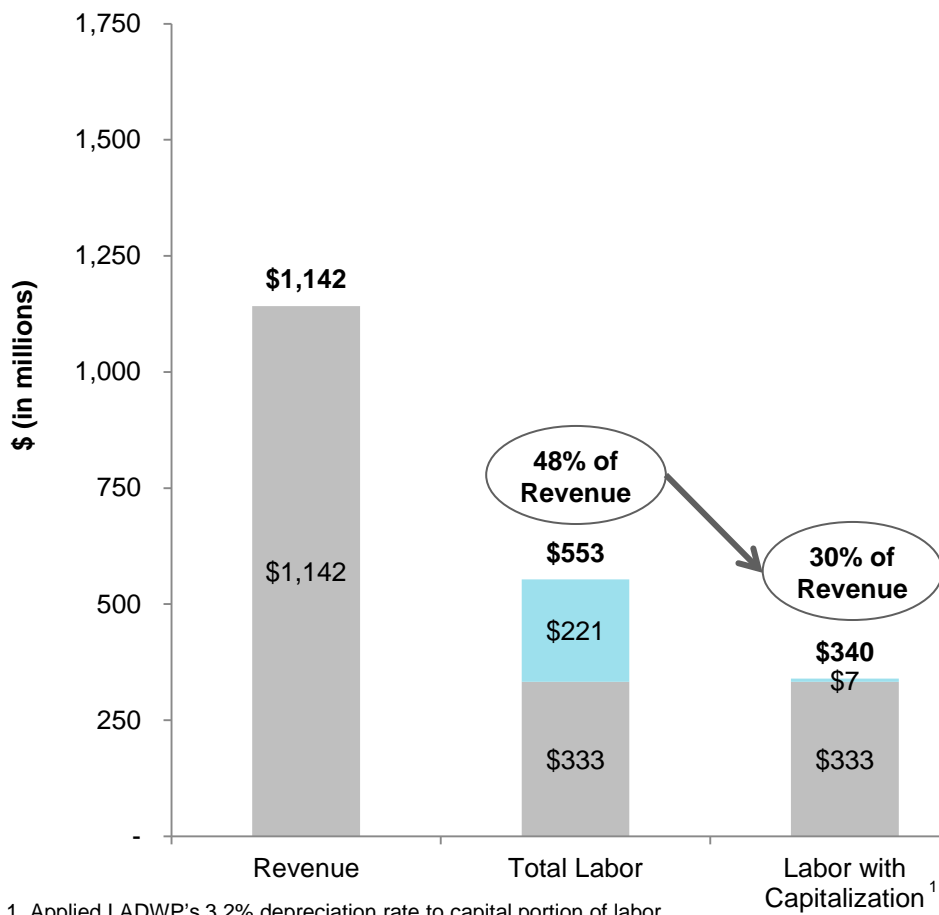


1. Applied LADWP's 3.2% depreciation rate to capital portion of labor
 Note: LADWP 2014 data used
 Source: LADWP data request provided by OPA, LADWP financial reports, Oliver Wyman analysis

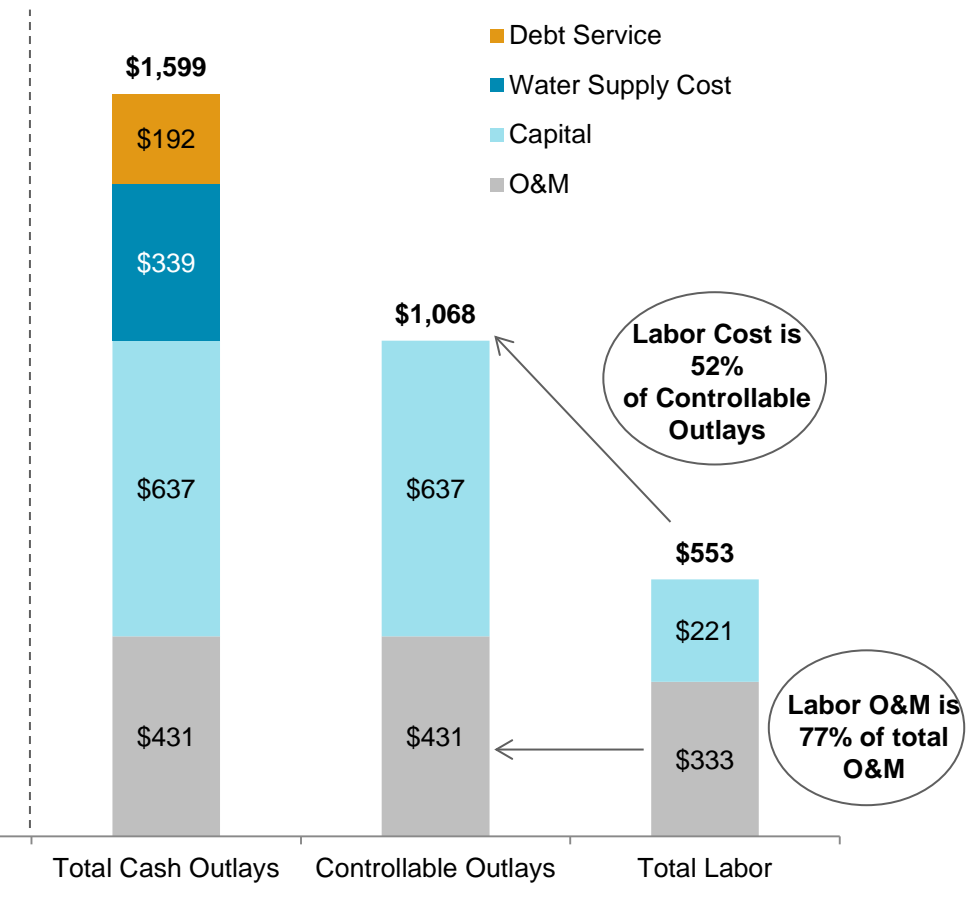
Importance of labor cost: Water

Labor costs are also important to the water business. In 2014, water labor costs represented 48% of revenue and 52% of controllable cash outlays.

Labor-related cost: relative to revenue
FYE 2014, Water



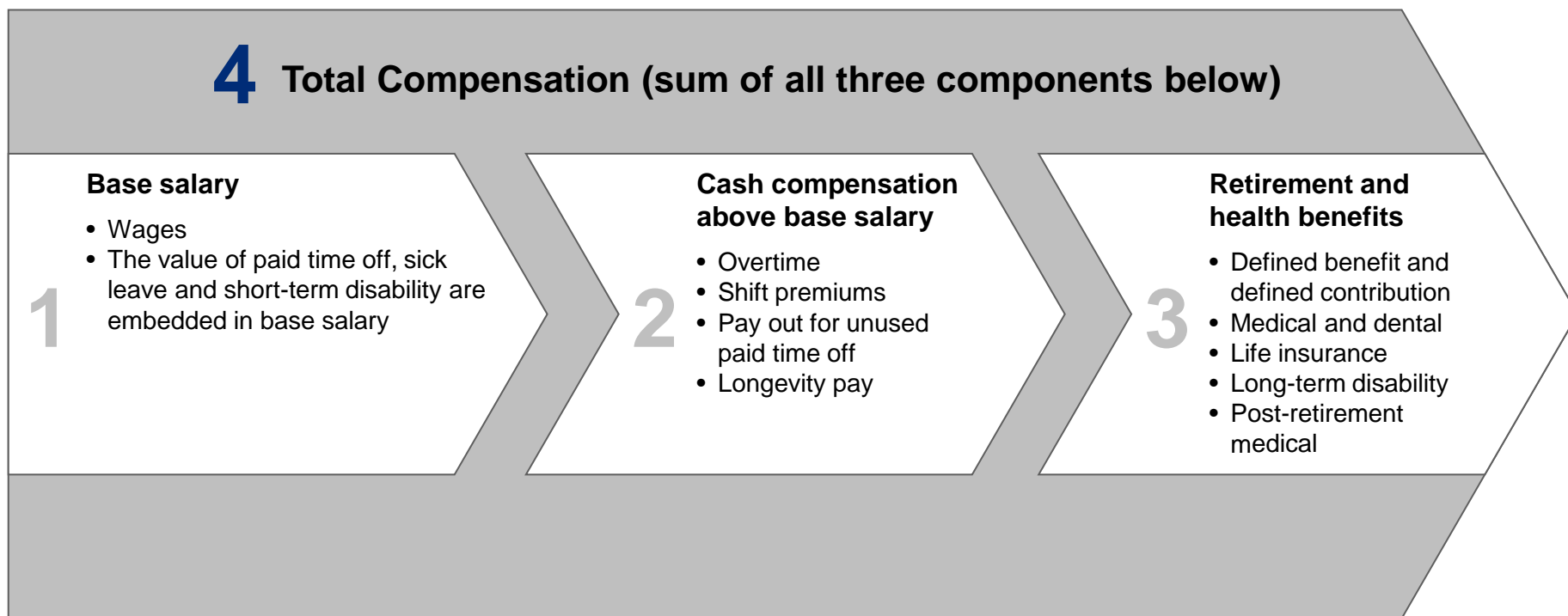
Labor-related cost: relative to cash outlays
FYE 2014, Water



1. Applied LADWP's 3.2% depreciation rate to capital portion of labor
 Note: LADWP 2014 data used
 Source: LADWP data request provided by OPA, LADWP financial reports, Oliver Wyman analysis

Components of total costs of compensation

Utilities increasingly look at all components of compensation together to develop strategies to attract and retain employees as well as better manage costs.



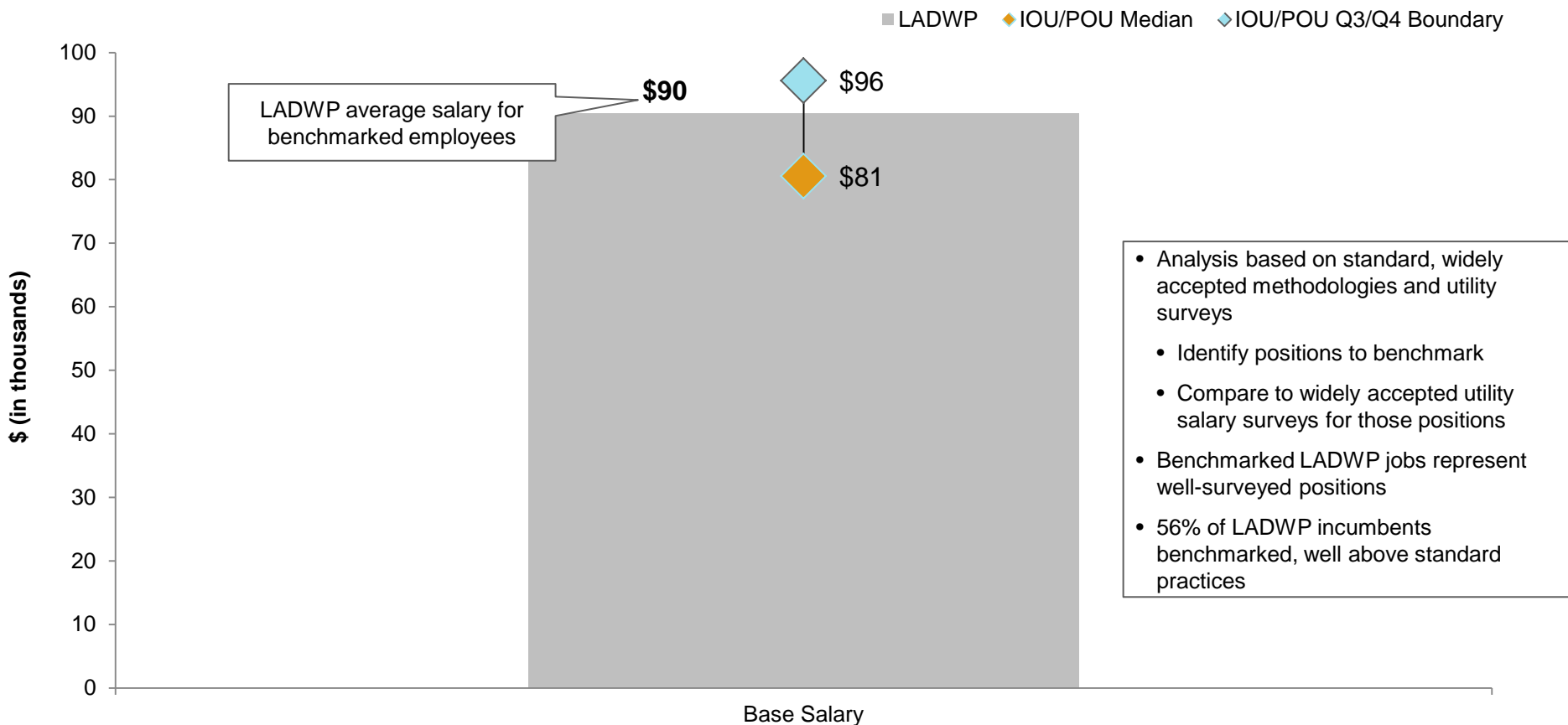
LADWP's compensation components were compared to other utilities on the basis of quartiles, where 1st quartile represents lowest cost and 4th quartile represents highest cost. Charts on the following slides show median and boundary point data between quartiles (e.g., between the 3rd and 4th quartiles.)

Base salary

Preliminary results suggest LADWP has an average base salary that falls in the 3rd quartile among both investor-owned (IOU) and publicly-owned utility (POU) peers.¹

Average employee base salary

Oct 2014-Sep 2015, LADWP vs peer organization, IOU and POU



- Analysis based on standard, widely accepted methodologies and utility surveys
- Identify positions to benchmark
- Compare to widely accepted utility salary surveys for those positions
- Benchmarked LADWP jobs represent well-surveyed positions
- 56% of LADWP incumbents benchmarked, well above standard practices

1. Preliminary results based on market data and analysis subject to revision. Salary comparisons were obtained from widely accepted utility surveys as sourced below with over 1,000 utility company participants.

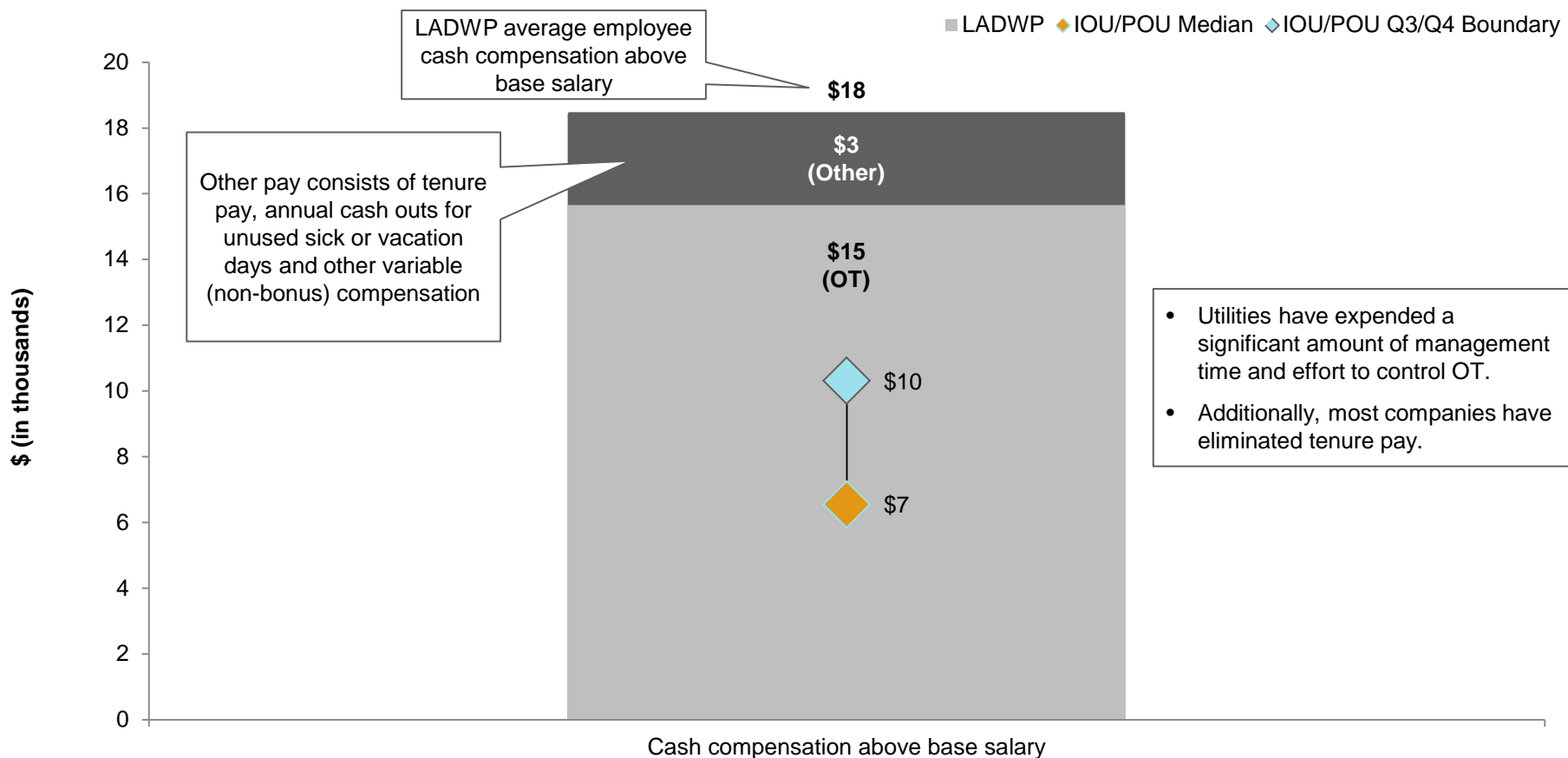
Source: LADWP; utility industry salary surveys from Mercer, Economic Research Institute, and American Water Works Association; Mercer analysis

Cash compensation above base salary

Preliminary results suggest that LADWP's cash compensation above base is in the 4th quartile, driven by higher overtime levels.¹

Cash compensation above base salary per employee

Oct 2014-Sep 2015, DWP vs peer organization, IOU and POU



1. Preliminary results based on market data and analysis subject to revision. Methodology was the same as for base salary. Salary comparisons were obtained from widely accepted utility surveys as sourced below with over 1,000 utility company participants.

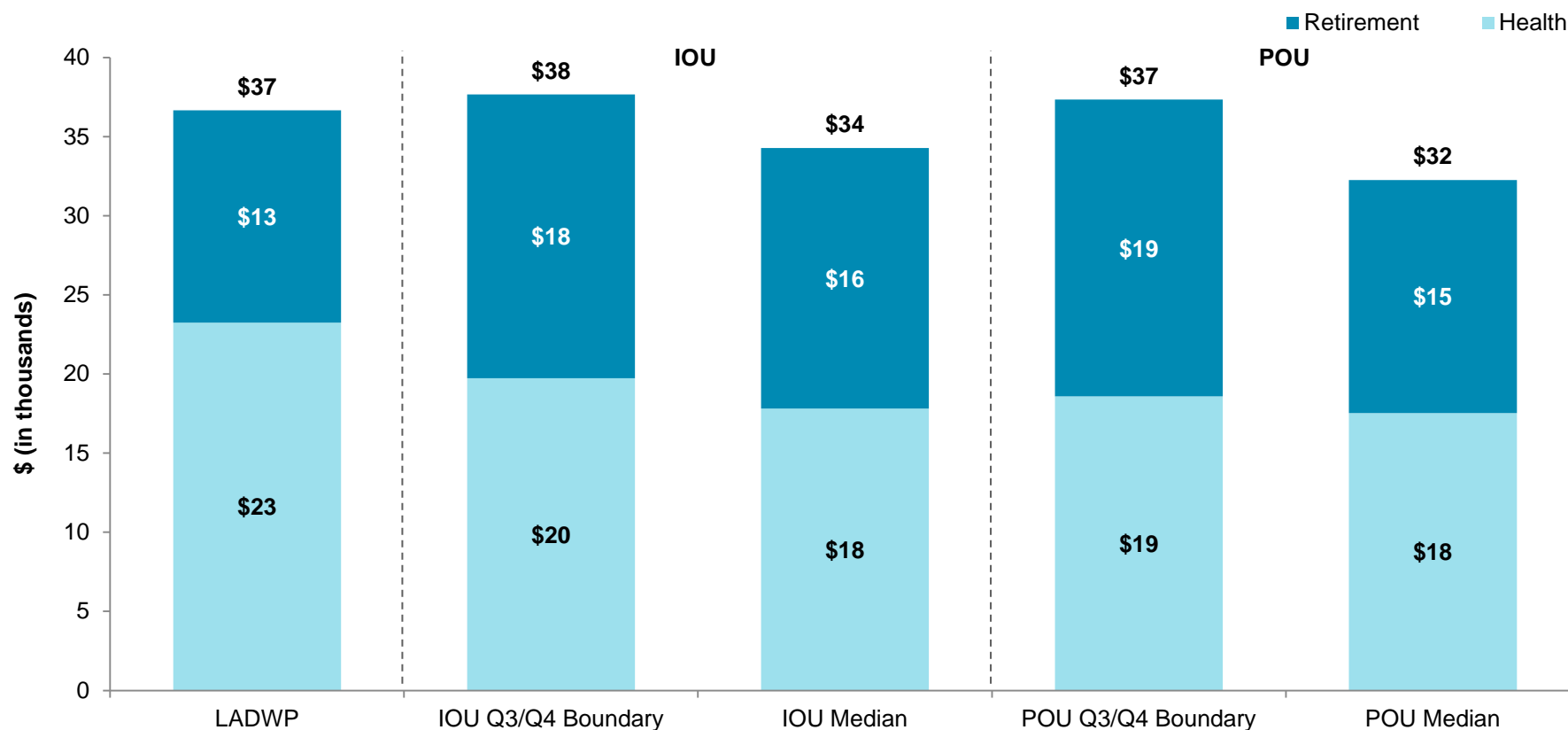
Source: LADWP; utility industry salary surveys from Mercer, Economic Research Institute, and American Water Works Association; Mercer analysis

Retirement and health benefits costs

Taken together, LADWP has slightly above-average benefit costs; health benefit costs are above median while retirement costs are below median.

Total retirement and health benefit cost per employee Oct 2014-Sep 2015, DWP vs peer organizations, IOU and POU

- Analysis based on commonly used retirement & benefit cost methodologies
- All benefits included; net employer-paid cost incorporated
- Costs established using consistent assumptions across LADWP and peers



Note: Long-term disability and life insurance costs included in Health benefits; due to rounding, the sum of parts may not add up to total. Cost of OPEBs shown in Appendix on Slide 18. Comparisons were made against separate, agreed upon by stakeholders, panels of 19 investor-owned utilities (IOUs) and 11 publicly-owned utilities (POUs). Source: LADWP, Mercer analysis of selected IOUs and POUs

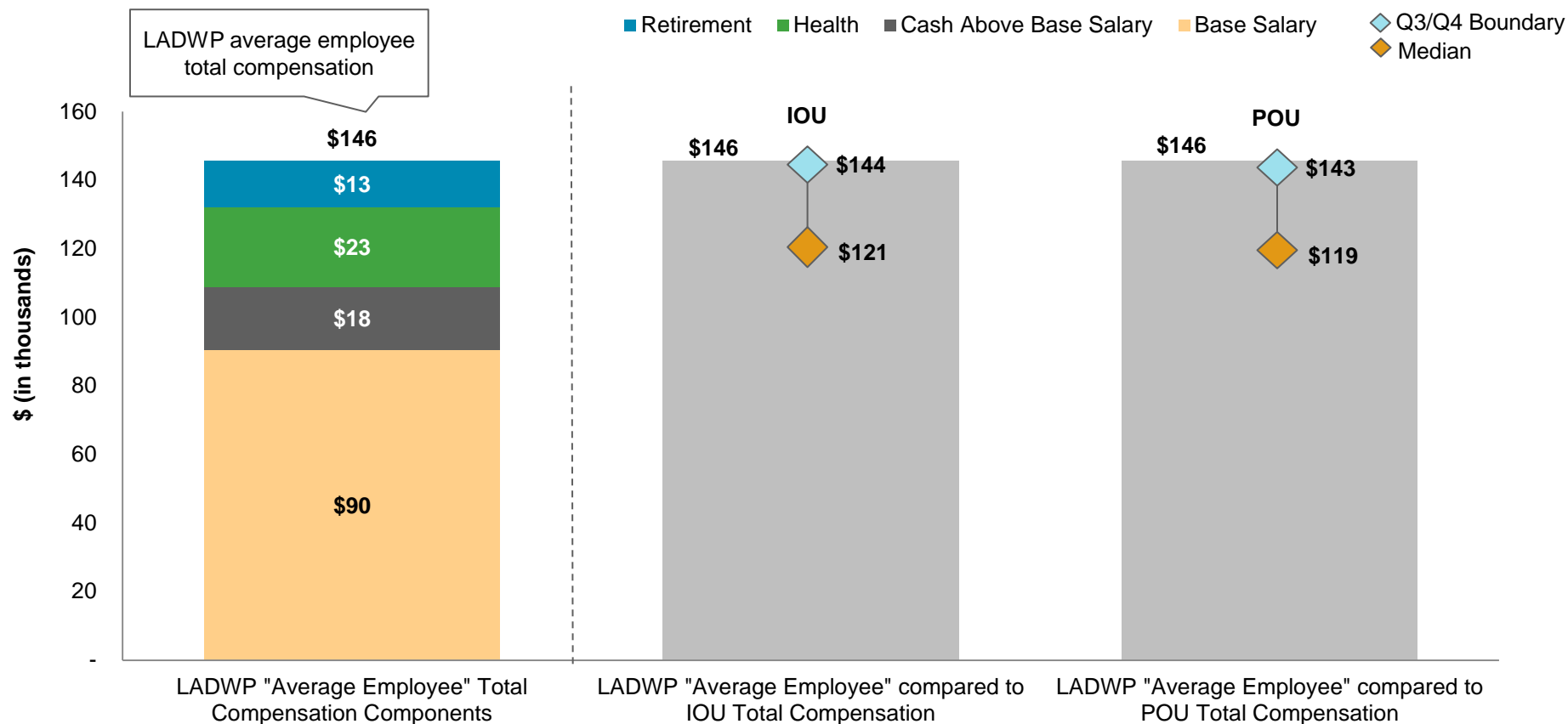
Total compensation costs

LADWP ranks in the lower 4th quartile against utilities driven by higher cash compensation above base salary and health benefits.

“Average” Employee Total Compensation¹

Oct 2014-Sep 2015, LADWP vs IOU and POU peers

Illustrative



1. Preliminary results based on market data and analysis subject to revision. Comparisons reflect the aggregate of Slides 7-9.

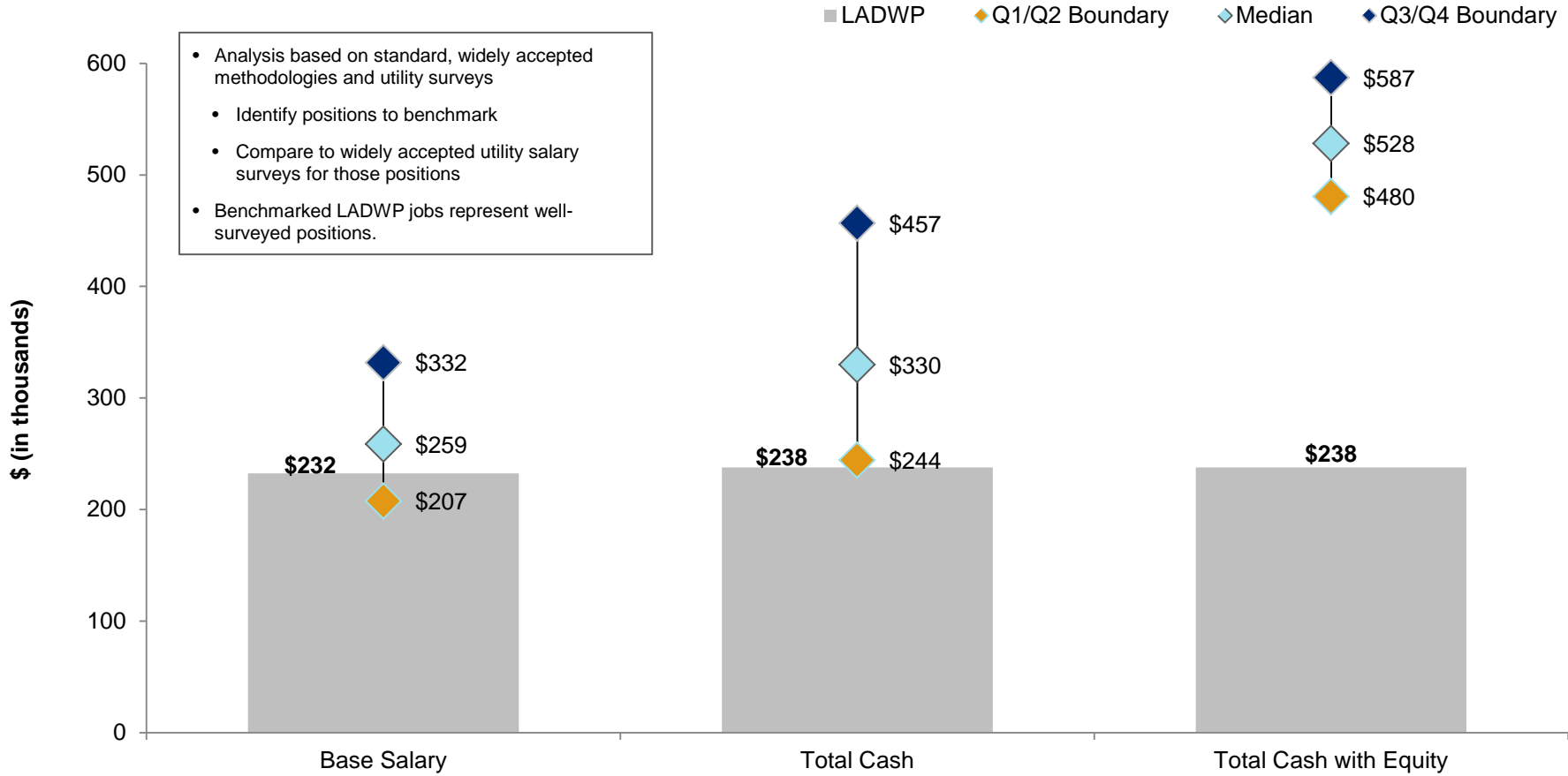
Note: Long-term disability and life insurance costs included in Health benefits; due to rounding, the sum of parts may not add up to total; base salary and cash above base salary not separated between IOUs and POUs due to data availability.

Source: LADWP, Mercer analysis of selected IOUs and POUs (salary surveys from CY2015)

Total cash compensation for senior management

LADWP's senior management team ranks below median: well below median if equity available to IOUs is considered.

Base, Total Cash, and Total Cash with Equity of Senior Management against IOU peers
 11 executive positions including GM, Oct 2014-Sep 2015



Note: Senior management average based on 11 executives including GM. Compensation comparisons were obtained from widely accepted utility surveys as sourced below with over 1,000 utility company participants.

Source: LADWP, utility industry salary surveys from Mercer, Economic Research Institute, and American Water Works Association; Mercer analysis
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Preliminary recommendations for the OPA: begin modernization

- **Labor initiatives:** Improving labor-related costs and performance will take time. Changes most likely will be addressed through future MOU processes (e.g., in 2017) rather than through immediate rate actions. Both shorter- and longer-term initiatives can be considered:

Shorter-term recommendations

- **Develop and use basic tools of compensation management:**
 - Participate in annual utility salary surveys
 - Update LADWP job descriptions to more accurately reflect roles, responsibilities and necessary skills
 - Develop comprehensive, detailed organizational charts which will better inform compensation strategy
- **Conduct detailed review of cash compensation above base salary:** Evaluate LADWP's use of overtime and conduct an in-depth study to analyze the impact of paid time-off on performance.
- **Ensure that LADWP's Phase II benchmarking efforts comprehensively address labor issues:** Labor costs should not be considered in isolation. Near-term benchmarking efforts should address labor costs together with staffing levels in total and by function as well as organizational analysis, all linked to productivity and performance. Focusing on the first three components of the O&M cost savings curve (Slide 14) will help to focus those efforts.
- **Adopt labor-related metrics in the near-term:** Adopt new labor-related metrics to help manage LADWP's performance (i.e., developed and recommended by June 1st for implementation on July 1st 2016).

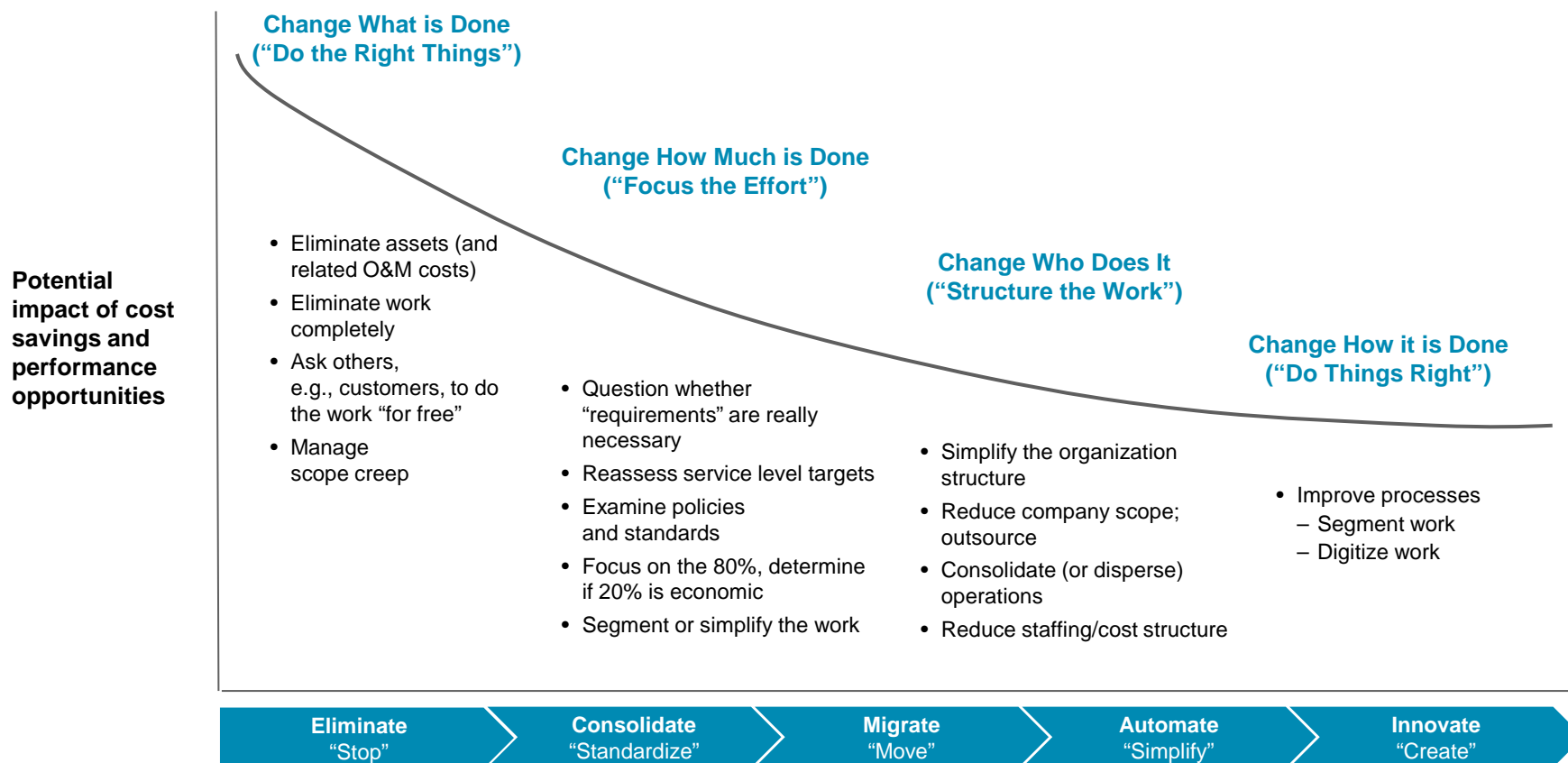
Longer-term recommendations

- **Rethink total compensation strategy at LADWP:** Total compensation is high. A number of stakeholders are involved in shaping total compensation (e.g., LADWP, CAO, Unions, etc.). Begin to consider all elements of compensation together, bringing together management involved in each separate element.
- **Consider options for changes in total compensation:** Options exist to redesign and manage medical benefits and use of paid-time-off benefits, to address pension adders, and to consider performance-based / variable pay programs.
- **Rethink executive and leadership talent and rewards strategy:** Management compensation is low and challenges are substantial (e.g., executing on the future investment plans included in the current rate proposals).

Improving performance

Improving productivity and reducing costs requires more than changing only **how** work is performed; it requires rethinking **what** is done, **how much** is done and **who** does it.

Opportunities to improve performance & reduce cost



To improve performance and mitigate rate pressure, utilities such as LADWP are focusing on stopping doing low-value tasks, consolidating, standardizing, automating, simplifying, and innovating much more than in the past.

Next steps for the OPA

- Work collaboratively with LADWP to refine, expand, and finalize this total compensation analysis.
 - Develop peer comparison of base salaries and compensation above base for detailed job categories at the LADWP.
 - Confirm that overtime and other cash compensation comparisons are consistent.
 - Establish framework for analysis for non-employee labor costs, such as exempts.
- Work collaboratively with LADWP in their Phase II benchmarking to begin high-level analysis of staffing levels, organization, and productivity, incorporating the compensation study results.
- Work collaboratively with LADWP to develop a set of labor and compensation-related metrics to recommend by June 1st which address labor cost, staffing, and use of third-party contractors and services.
- Issue a complete study on total labor costs.

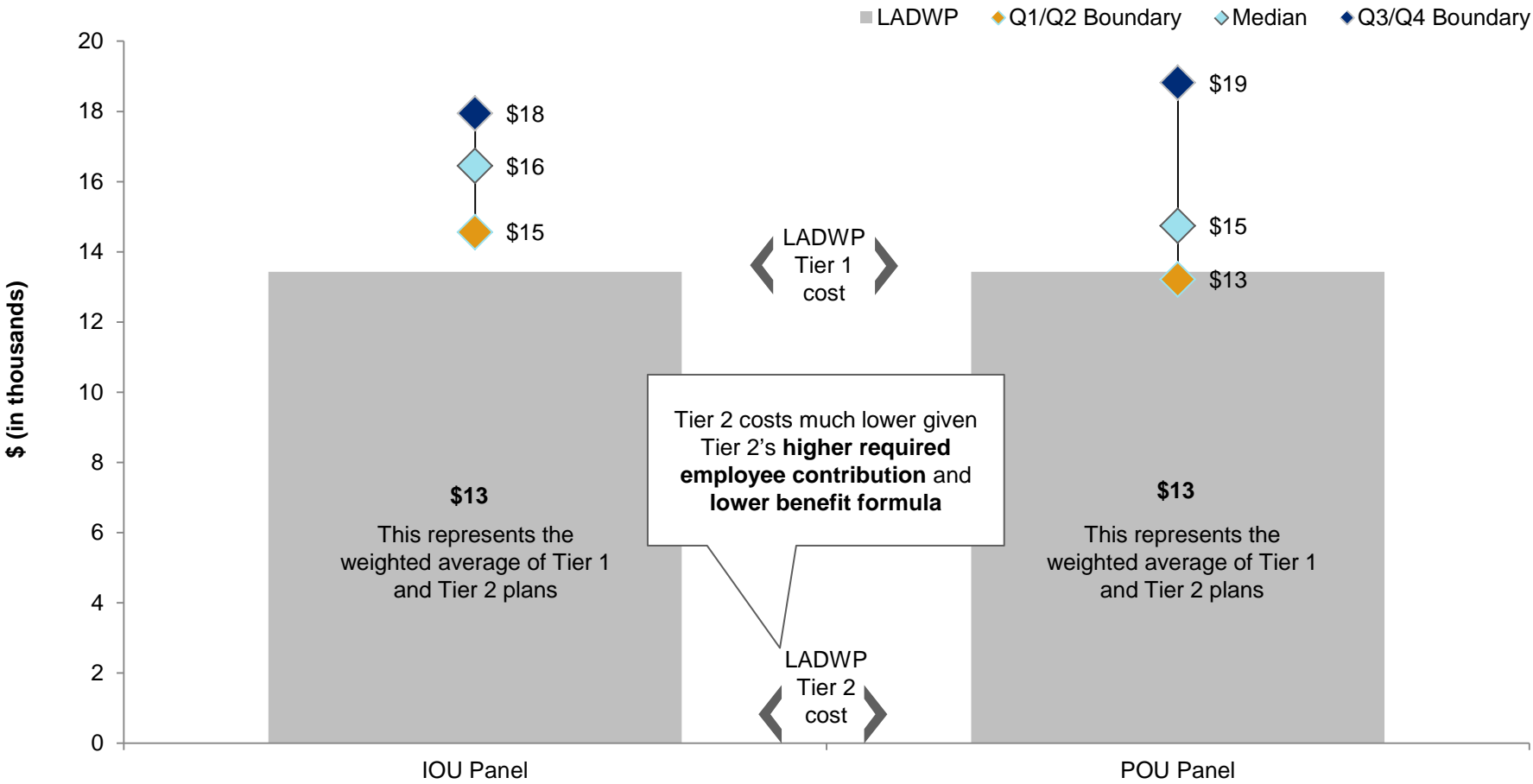
| Appendix

Retirement benefits costs

Costs are below median driven by employee contributions and the design of the Tier 2 plan.

Total retirement benefit cost per employee

DWP vs peer organization, IOU and POU



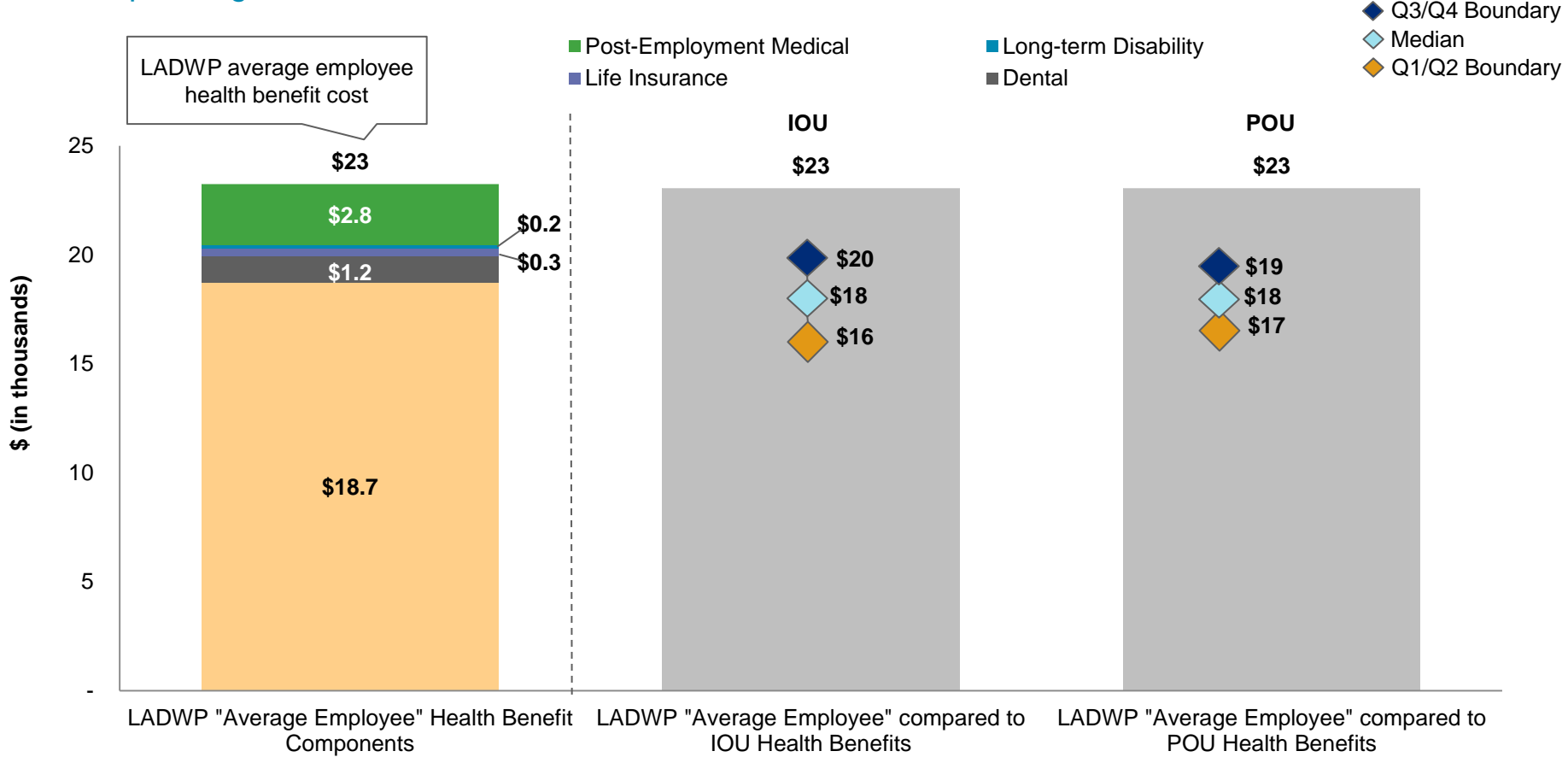
Note: Comparisons were made against separate, agreed upon by stakeholders, panels of 19 investor-owned utilities (IOUs) and 11 publicly-owned utilities (POUs). Source: LADWP, Mercer analysis.

Health benefits costs

LADWP costs are in the 4th quartile against IOUs and POUs, driven by higher medical costs.

Total health benefit cost per employee

DWP vs peer organization, IOU and POU



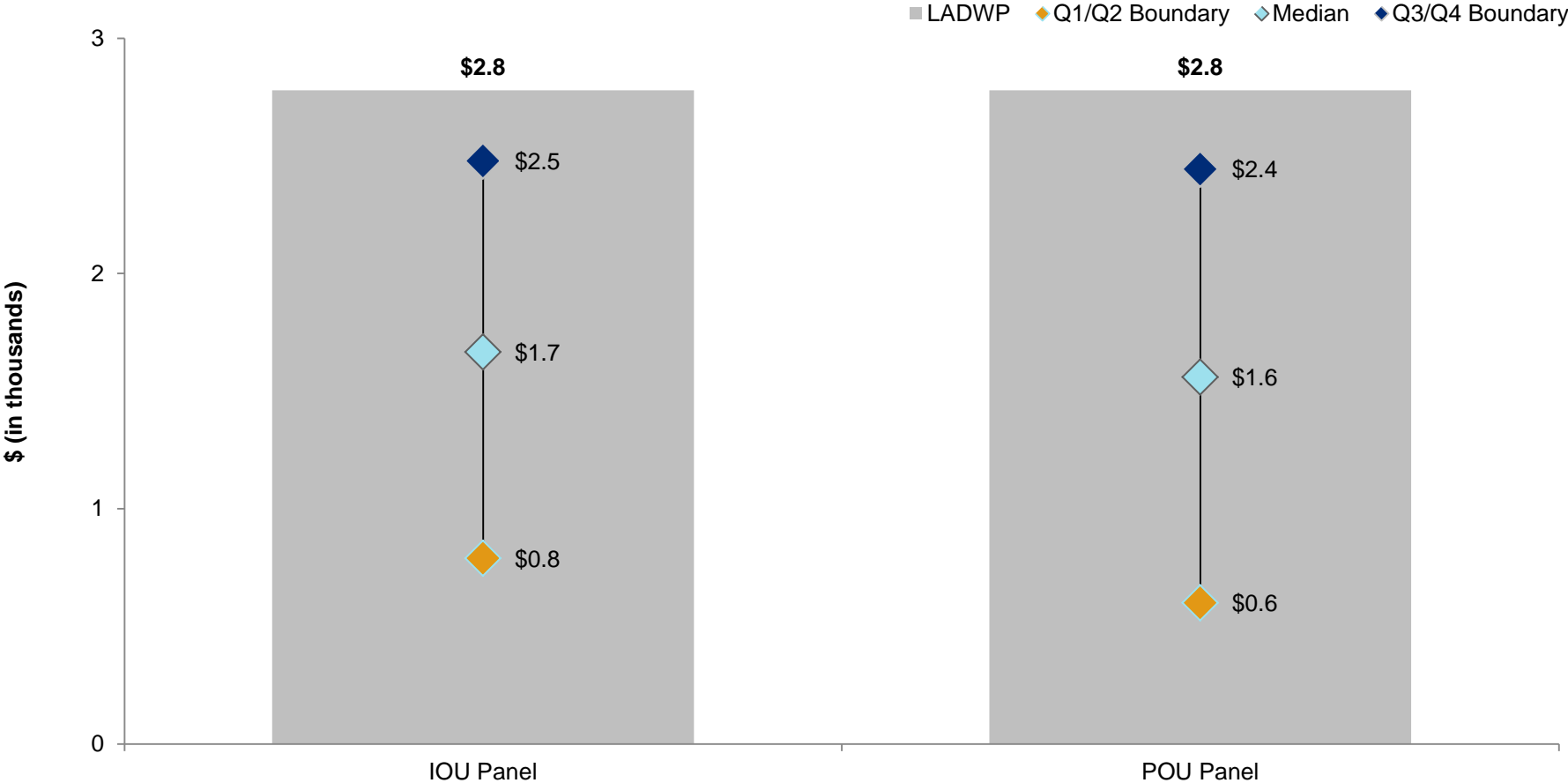
Note: Includes medical, dental, life insurance, long-term disability, and post-employment medical; all other non-retirement benefits (paid time off, sick leave, short-term disability) with the exception of long-term disability included in base salary. Comparisons were made against separate, agreed upon by stakeholders, panels of 19 investor-owned utilities (IOUs) and 11 publicly-owned utilities (POUs)

Source: LADWP, Mercer analysis

Other post-employment medical benefit costs (OPEBs)

LADWP has 4th quartile post-employment health costs relative to both IOU and POU panels.

Post-employment health benefit cost per employee DWP vs peer organization, IOU and POU



Note: Comparisons were made against separate, agreed upon by stakeholders, panels of 19 investor-owned utilities (IOUs) and 11 publicly-owned utilities (POUs).
Source: LADWP, Mercer analysis.

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QUALIFICATIONS, ASSUMPTIONS AND LIMITING CONDITIONS

Oliver Wyman was engaged by the City of Los Angeles Office of Public Accountability / Ratepayer Advocate (OPA) to provide support to the OPA in its efforts toward completing its independent analysis of LADWP's 2015 water and electricity rate proposals.

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Review of LADWP's 2015 Power and Water Rate Increase Proposal

Power System

Prepared for:
The Office of Public Accountability / Ratepayer Advocate
of the City of Los Angeles



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Executive Summary

Navigant was retained by the Office of Public Accountability / Ratepayer Advocate (OPA) of the City of Los Angeles (the City) to conduct an independent review of the power and water rate increase proposed by the Los Angeles Department of Water and Power (LADWP or the Department) for the FY 2015-16 to FY 2019-20 period (the Study Period). The primary objective of this review is to determine if the proposed water and power rate increases are supported by appropriate plans, regulatory requirements, and public policy objectives, and that the associated revenue requirements are appropriately divided among the Department's customer classes. This section of the report focuses solely on Navigant's assessment of the proposed power rate increase, as the proposed water rate increase is addressed in a separate section which was published in December 2015.

LADWP's Power System is entering a major transition period. In addition to the Department's key objectives related to the reliable supply of electricity, affordable rates, and environmental stewardship, the organization is now facing a number of important regulatory mandates. The Department must simultaneously reduce greenhouse gas emissions, integrate increasing amounts of renewable generation, repower in-basin power plants and eliminate once-through cooling, and replace its current coal supply. It must also contend with extensive aging infrastructure and increasing workforce retirement. To fund its activities to meet these goals and requirements, LADWP has proposed a 3.86 percent annual average rate increase over the Study Period.

Notably, the Power System is also contending with inefficient contracting and procurement processes and is experiencing challenges with workforce productivity. On one hand, LADWP's increasing revenue requirements appear to be justified by regulatory mandates, critical system reliability needs, and policy objectives; on the other hand, issues surrounding inefficiency and low productivity complicate the matter. Navigant believes the major Power System projects should be funded to meet regulatory and operating requirements, but we also believe the rate increase should be conditioned by a formal commitment from the Department to increase productivity and by a mechanism to ensure accountability. Because of these opposing conditions (i.e., programs that are necessary or required but are complicated by sub-optimal productivity/compensation), a performance measurement and improvement approach is critical for this rate increase.

To conduct this assessment, Navigant reviewed the proposed power rate ordinance, historical budget data for the past three fiscal years, forecasted budget data for the next five fiscal years, multiple financial scenarios, the power Cost of Service Study (COSS), program plans, a preliminary compensation study completed by Oliver Wyman (Oliver Wyman Report) on behalf of the OPA, and various other data and documents. Additionally, we reviewed relevant findings from the 2012 Power System Financial Review and Rate Restructuring Analysis by PA Consulting for the City of Los Angeles and the City Council recommendations that accompanied the approval of the 2012 rate action. Navigant also recently completed the 2015 Industrial, Economic, and Administrative (IEA) Survey, a comprehensive assessment of the Department's capital programs and operations. This report leverages the IEA Survey's findings for power infrastructure and addresses some of the governance challenges facing the Department as a whole. Broadly, governance challenges identified in the IEA Survey include decentralized authority, a lack of external reporting and accountability, and a lack of internal controls and accountability. A key

recommendation for governance was to *tie financial and performance metrics to rates by ordinance*. This would mean defining and reporting a set of key metrics to decision makers on a specific schedule, in order to inform annual rate adjustments via the adjustment factors. This is also closely related to the IEA Survey recommendation for tying programs in the Power System's Integrated Resource Plan to rates. The IEA Survey also dealt with capital program underspending, the problematic hiring process, and other issues, which led us to further explore implementation capability and workforce productivity in this report.

The Department, expanding on the recommendations of the OPA, the City Administrative Officer (CAO), the Chief Legislative Analyst (CLA) and Navigant, directly addresses the recommendation for key metrics in the final proposed rate ordinance. This will significantly increase transparency and accountability at LADWP. In particular, the ordinance defines a new, bi-annual reporting process that highlights the link between rates and progress on key programs and, if necessary, adjusts rates based on the performance of these programs. With uncertainty surrounding the implementation of some capital programs and the Department's history of capital underspending and workforce productivity challenges, there is significant value in having the Department's progress reporting mechanism built into the rate ordinance to ensure that critical programs and expenditures are appropriately monitored.

The Department has been instrumental in supporting Navigant to design and include in the ordinance the reporting mechanisms described above. In our experience, the willingness of LADWP to include more robust reporting, tracking, and accountability provisions in the ordinance is unprecedented and a reflection of more mature and sustainable management practices. Additionally, the proposed ordinance language creates a more significant, sustained, and meaningful role for the OPA in the rate review process.

In our assessment of LADWP's past and proposed budgets and program plans, Navigant found the major programs and their expenditures to be aligned with local and state mandates and goals. Given the significant amount of work needed to accomplish these programs, and accounting for the current union agreement and existing workforce conditions, the proposed budgets appear reasonable. Most programs are based on state mandates, although some are based on City of Los Angeles goals which go beyond the state level and require additional funding. Additionally, the Power System Reliability Program (PSRP) is not state-mandated but it is a critical program that may need even more funding to achieve the preferred asset replacement rate and reduce the backlog of repairs. However, in the past LADWP has struggled with underspending due primarily to contracting and procurement issues. While the Department has made notable improvements in some areas (e.g., Efficiency Solutions), other divisions will likely still face significant challenges ramping up to the proposed plans (including the PSRP). The Department recognized this implementation issue, and after discussions with the OPA and Navigant, trimmed the PSRP budget in the first two years of the rate proposal to better reflect its ability to ramp up.

In addition to funding the major programs, the rate increase would help avoid negative financial consequences associated with increased borrowing and, potentially, a bond rating downgrade. The proposed revenue in LADWP's five-year financial plan enables the Department to meet its Board-approved financial targets, which are designed by its financial advisor to maintain the current bond rating and hence borrowing costs. Without the rate increase, LADWP would be at higher risk of a downgrade, which in the long term would increase the burden of interest costs to be recovered from ratepayers. Even despite the proposed rate increase, LADWP's long-term debt levels may soon become unsustainable. This issue is not new, but it is accelerating in severity and the consequences for ratepayers may be significant if the Department does not move to address it. Navigant recommends the OPA and

CAO/CLA undertake a separate study to look at the impact of increasing debt levels over the short and medium term and identify alternatives to mitigate the associated risks. This study should include an evaluation of LADWP's debt level against its peers, the development and analysis of scenarios examining the impact of varying capitalization factors on rates, and the identification of the most appropriate options for LADWP to limit its debt to a reasonable level while avoiding a rate shock.

Navigant also reviewed the July 2015 COSS for the Power System, which used marginal cost principles to evaluate its cost structures and to ensure that power rates are appropriate for each customer class over the Study Period. Overall, Navigant's assessment indicates that while the power COSS represents positive progress in informing the rate design for those systems, the study does not fully capture the true marginal cost of providing service over the Study Period. Further, in balancing legal and policy considerations, LADWP's customer class allocations resulting from the power COSS are applied to only a small fraction of the total power system revenue requirement, which results in overall electric rates that are not solely based on the utility's cost of service.

Overall, the Department's proposed rate increase appears necessary to meet the goals and mandates mentioned above, given its already highly-leveraged capital structure and current operational practices, and despite the uncertainty around LADWP's ability to implement several of its programs. As mentioned previously, tracking implementation success and productivity levels is critical for the ongoing evaluation and adjustment of rates. In this report Navigant introduces several possible solutions and enforcement mechanisms similar to the program performance metrics mentioned above that would ensure efficient delivery of LADWP's key services. In our view, the metric reporting mechanism, associated rate adjustments, and the formal mid-point review included in the rate ordinance—coupled with productivity improvement measures—should provide sufficient accountability to manage a rate increase of the proposed scale.

Findings are discussed in more detail in the following sections:

- Review of the power rates ordinance.
- Analysis of revenue requirements.
- Review of the power COSS.
- Impact of the rate proposal on LADWP's customers.
- Assessment of the 2015 IEA Survey recommendations in the context of the rate proposal.
- Review of the 2012 City Council recommendations in the context of the rate proposal.
- Evaluation of LADWP's productivity challenges in the context of the rate proposal.
- Rate proposal recommendations.

Review of Power Rates Ordinance

In the proposed rate ordinance, LADWP has revised the Rate Schedules and General Provisions, and added a Performance Reporting section. Navigant reviewed these proposed changes and, in this report, focuses primarily on the addition of Performance Reporting, as it is the most significant modification to LADWP's power rate ordinance.

The Performance Reporting section provides for the first time that the Board will establish performance metrics ("Board Metrics"), together with corresponding targets and acceptable variances, as well as a comprehensive reporting process designed to track the Department's progress toward its operational, financial, strategic, and policy objectives. This section includes an initial comprehensive set of metrics

tied to the regulatory requirements, programs, and projects driving its current power rate action. As envisioned, the Department will report twice each year to its Board and, as appropriate, to the City Council Energy and Environment Committee its financial progress toward achieving the project and program targets (i.e., the Board Metrics) that are the key drivers behind its revenue needs. If the Department misses any of its Board Metric targets outside the pre-set variances, then review and assessment by the OPA, the Board and, if appropriate, the Energy and Environment Committee are triggered. In this assessment process, the OPA can recommend reductions (or increases) to the rates based on performance.

Utilizing OPA's recommendations, the Board and City Council can determine whether rate adjustments are necessary to ensure rates reflect work actually being performed and that the Department is able to respond to changing market conditions in order to achieve its project and program goals.

The addition of Performance Reporting is a historical and unprecedented improvement in LADWP's power rate change and governance processes. Currently, almost 75 percent of the power rate components can be changed as frequently as quarterly, and are capped. This structure provides the Department with the flexibility to make timely rate adjustments to meet changing Departmental needs, but it fails to provide transparency or accountability with regards to the level of rates.

The Department has recognized the need to provide greater rate transparency and accountability. In collaboration with the OPA and City leadership, LADWP has revised its power ordinance to remove the adjustment factor caps and to impose comprehensive Performance Reporting tied to operational and financial targets. Performance outside the target range triggers automatic review by OPA, which includes bi-annual reports that opine on the Department's performance and provide rate recommendations. In this new process, the OPA has the option to share such reports with the Energy and Environment Committee of the City Council for its consideration and disposition, including recommending full Council jurisdiction over the related rate factors under City Charter Section 245.

Initial metrics are identified in the ordinance together with the requirement that the Board adopt targets and acceptable variances before City Council considers the proposed rate action. The Department identifies and defines twenty two metrics applicable to the Power System, some with sub categories and each tied to the relevant rate component it impacts. Board Metrics, their corresponding targets, and the acceptable variance from each target can be modified by the Board with review and assessment by the OPA.

In Navigant's view, the initial Board Metrics represent an appropriate data set that should achieve the goal of raising the visibility and understanding of actual performance on important projects and programs among the Department's key stakeholders. The proposed target variances for most metrics allow for an initial learning process and should be refined and tightened in future years as the Department and OPA gain experience with Performance Reporting.

Analysis of Revenue Requirements

A utility's revenue requirement represents the money it must collect from customers (via rates) to fund its operations. Determining the total revenue requirement is the first step in the standard utility ratemaking process. This section of the report analyzes the Department's methodology for calculating the revenue requirement, the rate drivers serving to increase the total revenue requirement over the

Study Period, the feasibility of implementing the programs behind the rate drivers, the financial metrics associated with the revenue requirement, and the City Transfer component of the revenue requirement.

LADWP's Revenue Requirements Determination Methodology

LADWP's Power System revenue requirements reflect two objectives:

- Achieve a revenue level that meets its pre-defined financial metric targets.
- Recover the Power Organization's estimate of its total expenses.

According to the July 2015 Power System Rate Action Report, the annual revenue requirement comprises the following:

- Operations and maintenance (O&M) expenses,
- Cash-funded capital expenditures,
- Debt service cost, and the
- Planned transfer to the City.

In addition to recovering these expenses, LADWP's revenue requirements are designed to maintain the financial metric targets defined by its financial advisor, Public Resources Advisory Group (PRAG) and approved by the Board of Water and Power Commissioners. The Department has specific targets for metrics including the debt service coverage ratio, days of operating cash, capitalization ratio, net income, and full obligation ratio.

Accepted industry practice for municipal utilities is that annual revenues are sufficient to provide for all costs related to the operating and capital requirements of the utility. Financial integrity is one aspect of a utility's health, and is typically considered along with actual expenditures. Accordingly, LADWP's revenue requirement methodology is standard, although the Department would benefit from formalizing the methodology around its financial metrics. Currently, the process for meeting financial metrics through the base rate revenues is not transparent or well-understood outside of LADWP's Financial Services Organization.

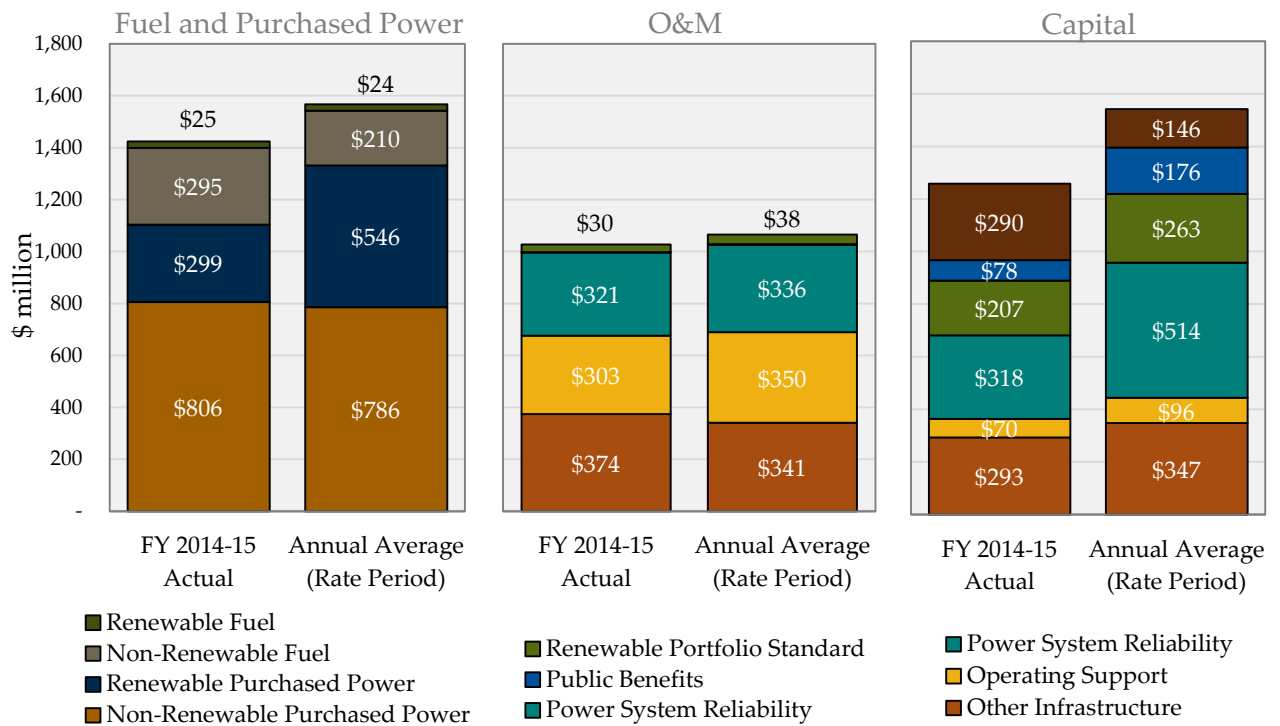
Rate Drivers

Navigant conducted a detailed review of the Power System's major programs that are driving the rate increase. The primary drivers necessitating a revenue increase in the next five years are the following:

- Achieving 15 percent energy efficiency savings by 2020 (averaging a revenue requirement increase of \$64 million annually).
- Providing local solar program opportunities for customers (averaging a revenue requirement increase of \$43 million annually).
- Providing reliable electric service and addressing aging infrastructure with the PSRP (averaging a revenue requirement increase of \$21 million annually).
- Meeting a Renewable Portfolio Standard (RPS) of 25 percent by 2016 and 33 percent by 2020 (averaging a revenue requirement increase of \$18 million annually).
- Repowering in-basin power plants and eliminating once-through cooling (averaging a revenue requirement increase of \$11 million annually).

As Navigant concluded in the IEA Survey, these initiatives are aligned with LADWP and the City’s stated plans and goals. They are also largely driven by state regulatory mandates. However, as mentioned previously, low workforce productivity may be contributing to these rate drivers by inflating program costs. While this is important to keep in mind, it is not the focus of this section of the analysis. A comparison of average expenditures over the Study Period to actual expenditures in FY 2014-15 is shown below.

Figure E-1. Study Period Average Annual Expenditures Compared to FY 2014-15



As shown, the increase in fuel and purchased power expenditures compared to the current year is driven by a significant increase in renewable purchased power. And although the PSRP is the largest capital program expense overall, energy efficiency and local solar (included in the RPS, above) have the most significant growth impacting revenue requirements.

It is notable that, among capital expenditures, energy efficiency and local solar programs account for the two largest average annual revenue requirement increases but are required neither by regulatory mandates nor by critical system infrastructure needs to the extent they are planned. Ambitious targets for these programs are primarily based on City of Los Angeles policy goals and community interest in customer savings programs. As such, curtailing these programs is one option to minimize expenditures. If this is a priority, the City and LADWP should conduct a cost-benefit analysis of these programs to determine a reasonable approach. However, energy efficiency is typically a very low-cost resource so reducing the program scope may not in fact provide cost savings.

One observation related to the financial plan for the major Power System programs driving rates is that budget reallocation for projects within programs is constantly shifting. This is inconsistent with sound financial practice and oversight. While this is common for an organization with changing system needs

and priorities, the latest budget analyzed by Navigant and included in the final rate case does not fully reflect the most recent re-budgeting activities; for example, reallocating funds from a recently canceled \$184 million renewable transmission project (upgrades to the Pacific DC Intertie). This highlights the need for a budgeting and re-budgeting process controlled by the Chief Financial Officer with continuous reporting and appropriate supervision.

LADWP's Capability to Implement its Plan

The Department's actual expenditures have the potential to vary significantly from estimates, based on the successful implementation of the Power System's major programs to support the policy and regulatory initiatives listed previously. Navigant used historical budget data and program progress reports and implementation plans to assess the likelihood of meeting planned expenditures over the Study Period. The Department has had a mixed record over the past few years. As discussed in the 2015 IEA Survey, procurement, contracting, and workforce attrition and hiring issues have posed challenges to plan implementation, which has negative impacts for overall productivity.

Because energy efficiency is the largest contributor to the increase in revenue requirements over the Study Period, it is especially important that the Department be able to roll out programs to achieve its energy savings goals. This has been an area of concern in the past, as LADWP has struggled with accurately planning its energy efficiency portfolio and associated budget and has been constrained by limited staffing resources in the Efficiency Solutions group. However, the group has recently made good progress in closing the gap between the approved budget and actual program spending. Although the planned spending and energy savings show a dramatic increase over the Study Period, the Department's approach now appears to be ambitious but reasonable as a "stretch" target. At the time of writing this report, the Efficiency Solutions group had recently added 21 new hires, established an umbrella contracting agreement, and documented a detailed Efficiency Solutions Portfolio Business Plan.

Other key programs with significant spending ramp-ups over the Study Period include renewable transmission to support the RPS, the local solar feed-in tariff, and the PSRP. These programs were rolled out over the last few years, but still depend on improved contracting and procurement processes to gather momentum. These program ramp-ups should be focus areas of the Department.

Currently, Navigant does not have concerns for several important programs based on strong implementation thus far. These are large-scale renewable purchased power agreements to meet the RPS and the repowering of in-basin power plants to eliminate once-through cooling, which have met early milestones.

Revenue Requirements Benchmarking and Sensitivity Analysis

Navigant completed a benchmarking analysis comparing LADWP's power rates, O&M expenditures, capitalization ratio, and cash on hand to a panel of California peer utilities. Power rates throughout California are projected to increase during the Study Period; however, LADWP's system average and average residential retail rates are expected to increase more quickly than those of peers based on available data, eroding some of the competitive rate advantage the Department has enjoyed in the past. O&M expenditures are currently in line with municipal peers, but will increase over the Study Period. The Department's capitalization factor, or ratio of long-term debt to total capital, is higher than all but one other peer and is also forecasted to increase steadily over time. The ratio of cash on hand to total

retail revenue is currently in line with peers but is planned to drop to a lower ratio for the Study Period to meet the defined cash on hand target.

The Department's credit outlook is considered stable by the three main rating agencies, which is predicated partially on the proposed rate increase providing increased revenue for five years. However, the consistent increase in long-term debt may become a credit rating concern in the future. Although the financial metrics are not forecasted to exceed their thresholds over the Study Period, they will be positioned to do so soon after the end of the Study Period, which indicates slowly weakening metrics.

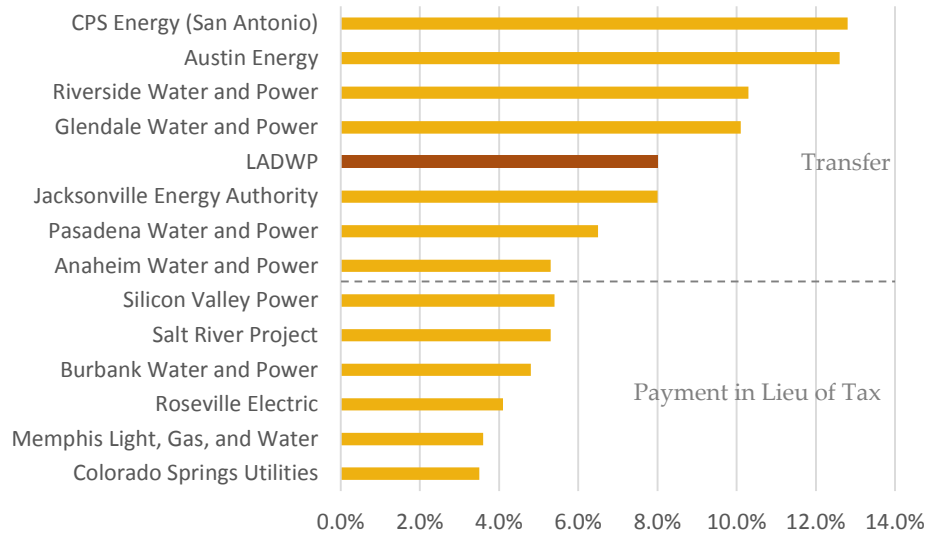
On the policy side, Navigant does not expect the Power System's direction to change significantly over the Study Period. However, Navigant reviewed several key legal, policy, and industry developments that have the potential to impact the Power System, despite the uncertainty surrounding them. Legal events that may have an impact include the outcome of lawsuits related to Proposition 26 and the recent extension of the federal solar tax credit. The passage of Senate Bill 350 is not expected to have an impact over the Study Period, but will in the long term (after 2020). One policy development is the changing rules around net energy metering for customer solar and other generation, but this is unlikely to change in Los Angeles with strong support for local solar. Industry developments that may have an impact are related to the increase in distributed generation and the advancement of grid modernization efforts.

City Transfer Analysis

Navigant analyzed the Los Angeles City Transfer from the Power System Revenue Fund (City Transfer) to determine its impact on the proposed power rate increase. The City Transfer is a controversial topic and the extent to which it affects rates can be misunderstood.

Navigant benchmarked the Los Angeles City Transfer against a peer panel of 15 municipal utilities across the U.S., including the largest municipal utilities and neighboring utilities in Southern California. According to benchmarking study results, the City Transfer is in line with payments made by peer utilities.

Figure E-2. City Payments as a Percentage of Municipal Utility Gross Operating Revenue



Note: Data from FY 2012-13, FY 2013-14 or FY 2014-15.

Sources: Utility annual reports, financial statements, city charters, and city budgets.

Navigant also analyzed different rate scenarios to determine the short-term and long-term effects on power rates of applying the City Transfer funds to alternative uses—eliminating its use in the Los Angeles General Fund. Results show that the City Transfer is not driving the proposed rate increase. Even by eliminating the entire Transfer (of which the majority is contained in the capped (frozen) base rates) and minimizing rates, rates would still increase annually by an average of 3.08 percent over the Study Period, or approximately four-fifths of the proposed annual average rate increase of 3.86 percent.

While eliminating the Transfer would alternatively enable the Department to reduce long-term borrowing and achieve some interest savings, this is not an effective solution to the growing debt issue which will require a long-term strategy. Another option is to apply the Transfer funds to capital programs such as the PSRP. For example, this would enable the replacement of more than half of the Power System’s total crossarms (specifically, the replacements would be enabled financially but without regard to sufficient labor or procurement activities). However, the implementation challenges facing the Department would likely prevent it from effectively using the funds in this manner.

Navigant believes that from the City’s perspective, when discussing eliminating the use of the City Transfer in the General Fund and its impact on rates, potential savings must be weighed against the importance of the City Transfer to the Los Angeles General Fund. The General Fund is the primary operating fund of the City with the broadest use; the one restriction is that it must be used for governmental purposes. Many departments depend on the General Fund for more than 90 percent of their appropriations, including Police, Fire, City Attorney, Office of Finance, City Clerk, City Council, and Controller. Because the General Fund is treated as a pool of money to be allocated according to departmental needs, it is impossible to track dollars from the Power Revenue Fund specifically. A useful comparison is rather the fraction of a department’s budget that is equivalent to the amount of the City Transfer. The FY 2014-15 City Transfer was equivalent to nearly half of the Fire Department’s total budget of \$585 million, or approximately one-fifth of the Police Department’s total budget, or three-

quarters of the combined total budgets of the City Attorney, Information Technology Agency, and Department of Transportation. Or, it is equivalent to nearly 90 percent of the combined Library and Recreation and Parks Funds.

If Los Angeles were not to use the City Transfer in the General Fund, budget cuts to various department would be necessary, which would impact services to the public. Under these circumstances, eliminating the use of the City Transfer would be a challenge.

Review of COSS

LADWP completed a Cost of Service Study for its Power System in July 2015. The study used marginal cost principles to evaluate its cost structures and to ensure that its power rates are appropriate for each customer class over the Study Period. This objective stems in part from Proposition 26 which requires that costs be considered in setting certain fees charged by local publicly-owned utilities. As a result, a COSS is an important tool in analyzing utility rates.

In Navigant’s assessment, the 2014 Power and Water COSS, completed as part of the 2015 Rate Action Reports, reflect COSS best practices on several fronts:

- **COSS Application and Mechanics:** The COSS calculations followed best practices for a COSS in terms of the process and mechanics used in calculating functional cost components, unit cost classifications, and unit costs.
- **Input Methodology:** LADWP based its studies on marginal cost principles which is consistent with California and City of Los Angeles policy and should help to achieve its ratemaking objectives over time. Particularly in this era of conservation, marginal cost-based rates send a price signal to customers to use electricity efficiently day-to-day and to make longer-term decisions like buying efficient appliances and devices.

However, Navigant identified legal, data, and institutional limitations with LADWP’s COSS. Together with legal and policy considerations, these limitations significantly restrict the application of the COSS in the power rate design process and compromise the achievement of full cost-based rates over the Study Period.

Legal Limitations

California ballot measure Proposition 26 (2010) requires among other things that costs be considered in setting certain fees charged by local governments for products or services. In the publicly-owned utility context, this requirement has been interpreted to mean that the cost of providing services to each utility customer class should be considered in setting those rates to which Proposition 26 applies, and subsidization from one customer class to another should be avoided.

- **Impact on Power System Rates:** While the interpretation of Proposition 26 is being decided by the courts, LADWP has adopted two rate ordinances: one adopted prior to 2010 and preserved since then (defined in the “Original Electric Rate Ordinance”), and one adopted in 2012 (defined in the “Incremental Electric Rate Ordinance”). The Department has applied its COSS results to only one rate component of the Incremental Rate Ordinance (the “I-Base” rate or incremental base rate), resulting in only 14 percent of the revenue requirement being allocated consistent with the COSS results by the end of the Study Period.

Data Limitations

Key inputs to the studies are not uniformly based on forward-looking costs and system demands consistent with marginal cost principles, as internal data and record-keeping systems were not able to provide current audited inputs upon which to base the studies.

- **Hybrid method for cost inputs:** The Department used a hybrid, partial forward/partial backward-looking cost input approach, relying on historical fiscal year 2012-2013 data as the most recent audited data set available for certain key COSS inputs, including certain Operations & Maintenance and customer-related costs, at the time the COSS was performed. This hybrid approach is inconsistent with best practices for a marginal COSS and undermines the integrity of the Department’s COSS results. However, this concern is largely tempered in this instance because the majority of the Department’s costs (approximately 80 percent) are based on forward-looking inputs. Future COSS should utilize uniformly forward-looking costs based on a more current test year.
- **Customer load data:** The Department did not conduct a current load research study to derive its customer class and system usage inputs; instead, it based its COSS on purely historical 2012-13 customer load data. The Department was limited to 2012-13 data because it was the most recent year for which accurate and audited customer usage data was available, due to implementation challenges associated with LADWP’s Customer Information System which resulted in incomplete or inaccurate customer usage data records beginning in 2013. Reliance on three-year old data resulted in customer profiles that may not accurately reflect customer usage going forward. Historical customer usage and profiles, in the aggregate and between customer classes, can be expected to change over time as the Department’s ambitious customer programs designed to influence customer load patterns are implemented.

Institutional Limitations

The lack of integration of LADWP’s cost, rate, and financial models and databases heightens the risk of human and data translation errors, and highlights a lack of institutional management and financial reporting systems.

- LADWP’s power rate design model, rate ordinance model, financial models, SAS database and the Customer Care and Billing system are not integrated. Consequently, data is moved from one platform to the other manually which significantly increases the risk of data manipulation errors, and there does not appear to be a process in place to update data on a regular basis across all platforms. This causes discrepancies in the data used from one model to another as well as limitations and inefficiencies in the rate design process.
- The Department’s complex power rate design model is developed and managed by one individual only, which creates institutional memory and knowledge transfer challenges.

Impact of the Rate Proposal on LADWP’s Customers

Navigant conducted an analysis of the proposed rate increase impact on monthly customer bills over the Study Period for residential (R-1), small commercial (A-1-A), medium commercial (A-2-B), and large commercial and industrial (A-3-A) customer classes.

Our analysis focused on evaluating the level of monthly bill increases across the full spectrum of LADWP customer’s power usage and load factors. Specifically, Navigant assessed whether customer

with lower power usage or a high load factor will face smaller monthly bill increases compared to high usage customers.

Overall, while all Schedule R-1 customers will face a monthly bill increase over the Study Period, the Department appears to have appropriately designed its power rates and allotments to limit the rate increase for low usage residential customers. Navigant also concluded that approximately 90 percent of Schedule R-1 customers will face a monthly bill increase that is lower than the percent total average annual rate increase over the Study Period.

All Schedule A-1 customers will face a lower average monthly bill increase than the percent total annual average rate increase over the Study Period, consistent with Power COSS findings. In addition, Schedule A-1 customers with a load factor close to one will face a lower average monthly bill increase than customers with a lower load factor. Accordingly, the Schedule A-1 rate structure rewards customers that use energy efficiently.¹ However, this does not appear to be the case for Schedule A-2-B and A-3-A customers since customers with higher load factors will face a higher average monthly bill increase than customers with lower load factors.

Assessment of the 2015 IEA Survey Recommendations in the Context of the Rate Proposal

This report draws from the analysis and findings from the recently released 2015 IEA Survey of LADWP, also conducted by Navigant. The IEA Survey reviewed the Power System's major plans including the 2014 Integrated Resource Plan (IRP), the 2013 Power System Reliability Program (PSRP), the 2014 Long-Term Transmission Assessment, and the 2014 Los Angeles pLAN. Navigant then provided recommendations in the IEA Survey based on the Department's progress against these plans.

In particular, the proposed rate ordinance addresses the IEA Survey's recommendation related to critical short-term governance changes. Specifically, Navigant recommended that the Department improve reporting and transparency by tying financial and performance metrics to rates by ordinance. In response, the proposed ordinance includes language on reporting requirements for Power System metrics and the actions that will be taken to review the metrics, thereby linking the implementation of future rate adjustments to LADWP's performance. This is the basis of a formal and continuous rate review process which would be a significant improvement to the status quo as described in the IEA Survey.

Additionally, Navigant's findings in the IEA Survey confirm the challenges facing the Power System (e.g., greenhouse gas emissions, once-through cooling, energy efficiency, and the Renewable Portfolio Standard). It also finds that implementation is a risk and recommends that the Power System report on key metrics for both resource (Integrated Resource Plan) and reliability (PSRP) programs, which is addressed by the same proposed rate review process.

Review of the 2012 City Council Recommendations in the Context of the Rate Proposal

In 2012, the City Council adopted an amended committee report with ten recommendations associated with the Department's Incremental Electric Rate Ordinance. Navigant reviewed the Department's progress in relation to these recommendations. The Power System has addressed or has a plan to address the majority of the recommendations, with additional work to be done to improve

¹ Load factor is defined as: Total Monthly Average kWh / (Max High Peak kW for Month * Hours in the Month).

contracting/outsourcing and hiring, aspects of the COSS methodology, and business operations practices.

Evaluation of LADWP's Productivity Challenges in the Context of the Rate Proposal

Navigant assessed the rate proposal in the context of relevant findings from the 2012 Power System Financial Review and Rate Restructuring Analysis by PA Consulting for the City of Los Angeles, the City Council recommendations that accompanied the approval of the 2012 rate action, the 2015 IEA Survey, the Department's 2015 Phase 1 Benchmarking Study, and preliminary results from a total compensation benchmarking study completed by Oliver Wyman on behalf of the OPA. Over the course of this assessment Navigant identified several data points that, taken together, indicate higher compensation at LADWP compared to similarly situated utilities and opportunities for productivity improvements. Given that compensation is directly linked to the collective bargaining process, the primary focus for this report is productivity issues.

To supplement the past reports and benchmarking efforts, Navigant performed a simple analysis of the Department's productivity, comparing the number of employees per 1,000 customers to peer electric utilities. LADWP ranks in the 4th quartile, indicating that significant opportunities exist for improvement in overall productivity. This is critical as funding needs continue to increase to address aging infrastructure, increased regulation for a cleaner fuel supply, and other mandates. Additionally, as described in the Power System Rate Action Report, the Department plans to hire a significant number of new employees to replace workers leaving the system. Given the productivity challenges facing the Department, hiring plans should be tied to productivity improvements. While the Department must combat the loss of institutional knowledge from retirements and ramp up a number of major programs, it should not use a "brute strength" approach to try to meet operating goals. To face these challenges, the Department's current operational practices must evolve to become more efficient and nimble. Otherwise, obtaining rate increases or incurring even higher debt levels will be the only means of funding future costs.

The City may choose to make productivity improvement a focus of the rate action because of the significant funds and major programs at stake. If so, there are a number of options for supporting, measuring, and/or enforcing LADWP's increased productivity. Several possible solutions to address sub-optimal productivity are as follows:

- Accelerate governance reforms to provide a consistent commitment to performance improvement.
- Conduct a formal assessment to shed more light on productivity challenges and design specific solutions.
- Define contracting and procurement strategies to improve processes that cause delays.
- Strengthen project management.
- Strengthen the Corporate Performance group.
- Deploy technology more effectively.

To further enhance the metrics and reporting structure currently proposed, the power rate ordinance could be supplemented with a measure of productivity. Several different approaches may be considered. Navigant identified three initial options for the mechanism to tie rates to productivity:

1. A single basic metric or “productivity factor” with an established quartile performance goal related to peers and reported with the existing Board Metrics. If the productivity performance goal is not met, revenue requirements for the following year could be automatically adjusted. The City Council could specifically define the metric, peer panel, and quartile performance goal in the rate ordinance; alternatively, it could require by ordinance that the Board define this information.
2. A small set of metrics similar to Option 1 but related specifically to the productivity of major Power System programs.
3. A smaller rate increase than that proposed, based on a desired percentage improvement in overall productivity.

These high-level options will require additional consideration, but for the purposes of this report they represent simple, meaningful mechanisms for ensuring the current rate increase resources are deployed more efficiently over time.

Rate Recommendations

Power rates ordinance:

- **Board Metric Variances:** Navigant recommends that the Department work with the OPA to refine the variance ranges applicable to the Power System Board Metric targets. The Department will quickly gain more experience with these metrics and improve its ability to accurately and realistically forecast work and deliver on results. Variances should be tightened as appropriate to reflect the Department’s deep expertise with many of the reported activities, and to more closely align with the margin of error used at other utilities.
- **Interim Rate Review Inputs:** For the interim rate review, the Department will consider updating its Base Rate Revenue Targets to reflect updated forecasts for revenues, expenditures, and overall fiscal performance. The Department should ensure that its interim load forecast is based on a current assessment of demand side resources including energy efficiency and local solar.

Revenue requirements:

- Formalize and fully document the revenue requirements determination methodology, including the process for allocating base rate revenue to specific funding needs and financial metrics.
- Assess the risks associated with not implementing the PSRP at its recommended level.
- Conduct a cost-benefit analysis of the programs that go above and beyond state goals (energy efficiency and local solar).
- In close collaboration with the City, identify and assess solutions to streamline the hiring and selection process.
- Define and implement an outsourcing strategy as part of LADWP’s workforce resource planning, in order to support program implementation. This strategy should be incorporated into the Department’s Integrated Human Resource Plan and operated as a high priority initiative with full support from City Management as directed by City Council and Mayor.

- Navigant also recommends the OPA and CAO/CLA undertake a separate study looking at reducing debt levels in the future and adopting a more structured cash/debt planning model.

COSS:

- Apply the Power COSS findings to the totality of the revenues generated by the incremental adjustment factor components.
- Conduct another Power System COSS for Test Year 2018/19 using 2017/18 actual data and based on a robust load research study which forecasts customer class usage profiles and overall demand, and incorporate into rates as soon as practicable. Additionally, the updated COSS should utilize uniformly forward-looking costs.
- Integrate the rate design model, the rate ordinance model, the financial models, the SAS database and the Customer Care and Billing system to prevent data discrepancies between the models, systems and the databases, and streamline the rate design process.
- Develop a robust internal knowledge transfer plan that includes training on the existing rate design models and approaches.

Productivity:

- **Productivity Improvements:** Consider options to increase productivity at the Department, in conjunction with progress underway by the Corporate Performance group. This could include conducting a formal performance assessment, defining contracting and procurement strategies, strengthening project management, and other options. Initiating the governance reform as recommended in the 2015 IEA Survey could be a requisite for sustained improvement.
- **Productivity Mechanisms:** Consider different approaches to tie rates to productivity improvements, including a single metric (“productivity factor”), a small set of productivity metrics for major Power System programs, or an overall reduction to the proposed revenue requirements based on the desired productivity improvement.

1. Introduction

1.1 Study Objectives

On March 8, 2011, voters approved City Charter Amendment I, which established the Office of Public Accountability as a City department. The role of the OPA is to shed greater light on the operation and finances of the Department, including the proposed increases in water and power rates. The OPA has asked Navigant to conduct an independent review of LADWP's proposed power and water rate increases. The proposed power and water rates are for the five-year period from FY 2015-16 to FY 2019-20 (the Study Period).

This section of the report presents Navigant's assessment of the proposed 3.86 percent increase in power rates over the Study Period. The primary objective of this assessment is to determine if the proposed power rate increase is appropriate. To make this determination, Navigant examined the following focus areas:

Review of Power Rates Ordinance: Navigant reviewed the proposed power rate ordinance with a focus on the revisions and additions to the document. In particular, Navigant focused on assessing and revising Section 4 of the ordinance, which addresses LADWP's reporting requirements related to its program management performance, as this is the most significant modification to the ordinance.

Analysis of Revenue Requirements: Navigant analyzed the Department's revenue sources and its load forecast, which are fundamental parts of the revenue requirement and rate calculations. We also evaluated the Department's methodology for its revenue requirements in the context of industry best practice. Following this, the majority of this chapter is a detailed review of the major Power System programs (including fuel and purchased power, capital, and O&M components) that are driving the rate increase. Building on this, we used recent program progress reports and implementation plans to assess the reasonableness of planned expenditures for the Study Period.

Additionally, we performed a benchmarking study comparing LADWP's financial metrics (average system and residential retail rates, O&M expenditures, capitalization ratio, and ratio of operating cash to revenue) to peer utilities in California. We also conducted an assessment of LADWP's credit ratings as they relate to the proposed revenue and financial metrics, and summarized potential policy and industry changes that may further impact revenue requirements in the future.

Finally, we present our analysis of the Power System Revenue Fund transfer to the City of Los Angeles. This includes a brief history of the transfer, the use of the funds in the City, a benchmarking analysis against peer municipal utilities, and a scenario analysis to illustrate the impact of the transfer on rates.

Review of COSS: Navigant provided context and overall best practices for conducting a COSS, compared LADWP's Power and Water COSS against those best practices, assessed how the Department used its COSS in developing its proposed Power System rates, and provided recommendations for improvements to future COSS processes and analysis.

Impact of the Rate Proposal on LADWP's Customers: This analysis focused on determining the level of monthly bill increases across the full spectrum of LADWP customers' power usage.

2015 IEA Survey Recommendations: Navigant assessed the proposed rate action in the context of the recommendations provided in the 2015 IEA Survey.

City Council Recommendations: In 2012, the City Council adopted an amended committee report with ten recommendations for LADWP. In this chapter, Navigant reviewed the Department's progress in relation to these recommendations.

Evaluation of LADWP's Productivity: Navigant reviewed past and current findings related to low productivity at LADWP. In this chapter we also introduce high-level options for performance improvements to minimize expenditures contributing to rates and a mechanism to tie performance to rates.

Rate Recommendations: Navigant summarizes recommendations developed in the focus areas described above.

1.2 Approach

Information for this report was derived from several primary sources:

- Proposed power rate ordinance.
- Documents provided on a secure portal including financial case scenarios, budgets for the last three fiscal years and the next five fiscal years, and program plans.
- Cost of Service Study for the Power System.
- Insight and information gathered from interviews and documents in the 2015 IEA Survey.
- Best practices with regards to revenue requirement development and rate design.
- A literature review of California regulation and peer utility publications on relevant Power System topics including financial metrics.
- A preliminary compensation study completed by Oliver Wyman on behalf of the OPA.
- Navigant's experience with LADWP's prior rate actions, IEA Surveys, and other practices.

Navigant also worked closely with Department personnel to fully understand the various financial scenarios that were provided and to gain insight into the various components of the proposed rate design.

2. Proposed Power Rate Structure Assessment

2.1 Overview of LADWP's Proposed Rate Ordinance Changes

2.1.1 Overview

The Board of Water and Power Commissioners establishes water and electricity rates for the LADWP. Rates are also subject to approval by the City Council by rate ordinance. In the current power rate action, LADWP proposes to revise Sections 2 (Rate Schedules) and 3 (General Provisions), and to add Section 4 (Performance Reporting) to its power rate ordinance. In this report, Navigant summarizes the changes to Sections 2 and 3 and focuses primarily on the addition of Section 4, as it is the most significant modification to LADWP's power rate ordinance.

2.1.2 Ordinance Section 2: Rate Schedules

Revisions to the power Rate Schedules reflect the changes to each of the Department's power rate schedules for each fiscal year starting with FY 2015-16 through FY 2019-20 resulting from the proposed power rate action. Rates continue to be comprised of (1) base rate components that recover the costs of general operations, and (2) adjustment factors designed as cost "pass throughs" that recover costs outside the Department's control, such as power purchases, and specific program costs like infrastructure reliability.

Changes to the power rate schedules are designed to moderate the impact on customers by phasing in the increase at an annual average of 3.86 percent each year over the Study Period. Rates retain current incentives for energy conservation and sustainable technology adoption including tiered rates that tie customers' bills to the level of consumption. The major change is the addition of a new Residential monthly tiered fixed charge tied to the same level of monthly consumption reflected in existing rate tiers and two temperature zones. Current Commercial and Industrial rate design remains largely unchanged, as do Net Energy Metering rates that provide incentives for additional distributed generation programs.

Finally, Navigant has compared the base rate values resulting from the proposed rate action (as included in Section 2 of the ordinance) to the output of LADWP's rate design model and confirmed that the two set of values match.

2.1.3 Ordinance Section 3: General Provisions

The General Provisions focus on defining each of the adjustment factor accounts and the methodology for incorporating those accounts into rates, including the caps that limit the degree to which each of the adjustment factors can be increased. As discussed in greater detail later in this report, most current caps are eliminated in the revisions to the General Provisions. Section 3 also incorporates changes to the rate component accounts necessary to allocate costs to each of the customer class tiers, and to ensure that under or over collections of those accounts are either credited to or collected from customers as necessary.

2.1.4 Ordinance Section 4: Performance Reporting

The Performance Reporting section proposes for the first time that the Board will establish performance metrics (Board Metrics), together with corresponding targets and acceptable variances, as well as a

comprehensive reporting process designed to track the Department's progress toward its operational, financial, strategic and policy objectives. This new Performance Reporting section proposes an initial comprehensive set of metrics tied to the regulatory requirements, programs, and projects driving the Department's current power rate actions.

2.2 Current Rate Change Process and Reporting

2.2.1 Current Rate Change Process

As noted above, LADWP power rates currently comprise the base rate (approximately half of the total power revenue requirements over the Study Period) and adjustment factor components (the other half). Base rate changes must be reviewed by and incorporate input from the OPA, and be approved first by the Board and ultimately by the full City Council to be incorporated into new City Ordinances. LADWP's base power rates were last changed in 2012.²

Adjustment factor components are defined in the General Provisions section of the City Ordinances, and most of these factors are updated quarterly pursuant to Board approval and OPA review.

Adjustment factors are capped within the ordinance. In an environment where base rates change infrequently and adjustment factor components comprise approximately half of customers' total rate, the capped adjustment factor structure provides the Department with the flexibility to make timely rate adjustments to meet changing Departmental investment and operational needs, but fails to provide transparency or accountability with regard to the level of rates.

2.2.2 Current Reporting Practices

While LADWP's current public reporting practices provide some visibility and accountability into investment and operational needs, they offer little insight into how those investments and operations ultimately impact rates. Current reports include a weekly report to the Mayor's Office addressing customer service metrics as well as monthly operational updates to the LADWP Board regarding the Power and Water Systems, respectively, as well as financial activities and administrative support updates. Other initiatives launched in recent years, such as the Power Integrated Resource Plan and enhanced community outreach, provide important strategic and operational information to the communities the Department serves.

These reports and initiatives provide insight into the status of various projects, programs and strategies at a specific point in time. There is currently no regular reporting mechanism, however, that conveys holistic progress against the projects and programs contained in base rates and the adjustment factors that make up the rates customers pay and that are driving the Department's proposed rate increases. Lack of this type of reporting represents a gap in LADWP's rate setting process, and illustrates many of the larger themes of the lack of trust, transparency, accountability, and centralized control and reporting identified by Navigant in the 2015 IEA Survey.

² While the interpretation of Proposition 26 is being decided by the courts, the Department proposes to preserve the electrical rate structure in effect on November 3, 2010, and to layer incremental charges on top of them. For purposes of this rate action, LADWP thus proposes that all changes for power service rates be applied to only the Incremental Electric Rate Ordinance.

Trust and Transparency: As Navigant noted in its IEA Survey, the Department has for many years communicated inadequate information on major programs and performance against key goals to City decision makers. Information tends to become more transparent and available in years when the Department is requesting City action on rate changes or other financial issues, but outside those instances the Department lacks consistent and reliable metric reporting that ties together its operations and finances with the rates and bills that customers experience. As a result, City decision makers, community groups and other interested parties lack transparency into LADWP’s rates, the degree to which the Department’s operations impact those rates, and what customers are getting for the power rates they pay.

Accountability: In an environment in which information about how strategies and operations impact rates is not transparent, decision makers and the larger community are left with few options to hold the Department accountable when customers are impacted by operations or when rates change. The Department’s replacement of the Customer Information System in 2013 is an obvious example of a major initiative that ran significantly over budget and did not meet intended operational goals, but those shortcomings were not reported and their impact on customer service and rates was not understood outside the Department until well after the fact.

Centralized Controls and Reporting: As the 2015 IEA Survey notes, the Department currently lacks appropriate, centralized oversight and reporting through the Financial Services Organization (FSO) on budgets and the movement of funds between programs and projects within the Water and Power Organizations. As a result, project budgets change internally and new budgets replace those that were originally communicated to City Council without transparent updates on results or implications for the underlying projects/programs, or for rates.

2.3 LADWP’s Proposed Changes to the Ordinance

2.3.1 Overview

The Department has recognized the information gap between its key Power System projects, programs, and goals that drive rates and the rates it charges customers. Working together with the OPA and City leadership, the Department proposes in this rate action to enhance its rate setting process by adding Performance Reporting to the City’s Power Rate Ordinance. As discussed in greater detail below, Performance Reporting introduces comprehensive new metric reporting requirements and processes, targets, and tolerance bands for the key projects and programs that drive the Department’s power rates.

2.3.2 Key Performance Metrics, Targets and Variance Bands

As proposed, Performance Reporting provides for the Board of Water and Power Commissioners to establish key performance metrics (Board Metrics) and corresponding targets and variances that represent the Department’s acceptable progress toward its operational, financial, strategic and policy goals.

Initial Board Metrics are identified in the ordinance together with the requirement that the Board adopt targets and acceptable variances in a timely manner. In the ordinance, the Department identifies and defines twenty two metrics applicable to the Power and Joint Systems.³ Some metrics have sub

³ The metrics related to the Joint System are also included in the water rates ordinance.

categories and each is tied to the relevant power rate adjustment factor it impacts. For example, the Department has proposed six metrics designed to measure program costs and progress toward meeting key goals contributing to the Energy Cost Adjustment Factor component of rates, including renewable energy procurement, greenhouse gas emission reductions, and energy efficiency goals. The complete list of proposed Power System metrics is shown below in Table 2-1.

Table 2-1. Power System Board Metrics

Rate Adjustment Factor	Board Metric	Definition	Variance
None	Human Resources Total Budget vs. Actual (\$M)	Board-approved annual budget compared to actual expenditures	+/- 15%
	Human Resources Total FTEs vs. Plan	Total number of full time equivalent positions occupied compared to annual Authorized Personnel Resolution	+/- 15%
	Financial and Human Resources Replacement Project Total Spending vs. Plan	Board-approved annual budget compared to actual expenditures	+/- 20%
	Financial and Human Resources Replacement Project Progress vs. Schedule	Project milestones met compared to project schedule	TBD ⁴
	Repowering/Once-Through-Cooling Budget vs. Actual (\$M)	Board-approved estimated project cost compared to actual project cost	+/- 15%
	Once Through Cooling Project Milestones vs. Compliance Deadlines	Plant actual compliance dates compared to the plan	+/- 12 months
Energy Cost Adjustment Factor	Total Renewable Portfolio Standard (RPS) Ratio (%)	GWh from RPS resources/GWh of retail sales (compared to the state requirement)	+/- 3% ⁵
	Total RPS Cost (\$/MWh) vs. Plan, by Technology	Total RPS purchased power cost (\$/MWh) as compared to plan, by technology (e.g., solar photovoltaic)	+/- 15%
	Greenhouse Gas (GHG) Emissions Reduction Ratio (%)	GHG emissions for current year/GHG emissions in 1990 (millions of metric tons)	+/- 3%

⁴ Variance to be set based on LADWP's Project Plan.

⁵ +/- 3% of each year's goal toward the State of California mandate.

Rate Adjustment Factor	Board Metric	Definition	Variance
	Energy Efficiency (EE) Ratio (%)	GWh installed compared to the 2010 baseline/GWh for all customers	+/- 15%
	EE Portfolio Budget vs. Actual (\$M)	Board-approved annual budget compared to actual expenditures	+/- 15%
	Levelized EE Program Costs (\$/kWh)	Cost per kWh over the lifetime of installed energy efficiency solutions	+/- 15%
	Average Levelized Cost of Energy of Purchased Power Agreements (PPAs)	Average Levelized cost (\$/MWh) for all PPAs signed during the previous fiscal year	+/- 15%
Reliability Cost Adjustment Factors	PSRP Generation Capital and O&M Budget vs. Actual (\$M)	Board-approved annual budget compared to actual expenditures	+/- 15%
	PSRP Transmission Capital and O&M Budget vs. Actual (\$M)	Board-approved annual budget compared to actual expenditures	+/- 15%
	Unit Cost (\$/mile) of Underground Circuits	Cost per mile of underground circuits	+/- 15%
	PSRP Substation Capital and O&M Budget vs. Actual (\$M)	Board-approved annual budget compared to actual expenditures	+/- 15%
	PSRP Distribution Capital and O&M Budget vs. Actual (\$M)	Board-approved annual budget compared to actual expenditures	+/- 25%
	Number of Critical PSRP Distribution Assets Replaced vs. Plan	Numbers of poles, crossarms, and transformers and miles of cable replaced compared to the PSRP	+/- 25%
	Average Unit Price for Critical PSRP Distribution Assets	Average unit price per pole, per crossarm, per mile of cable, and per transformer	TBD in 2017 for 2018 implementation
	Average Cost of Power System Training Plan per Graduated Trainee	Average cost of training for Electric Distribution Mechanic Technician (EDMT) and Electrical Mechanic Technician (EMT) classifications per trainee that graduates from respective training program	TBD in 2017 for 2018 implementation

Rate Adjustment Factor	Board Metric	Definition	Variance
	Number of Trainee Graduates vs. Power System Training Plan	Number of Electric Distribution Mechanic Technician (EDMT) and Electrical Mechanic Technician (EMT) trainees that graduate from each respective training program against the annual training plan	TBD in 2017 for 2018 implementation

As proposed, the Board Metrics, their corresponding targets, and the acceptable variance from each target may be modified by the Board upon Department request at any time, and a review of the Board Metrics, targets, variances and the reporting process itself is required by the Board by July 1, 2017. The OPA must be provided thirty days’ notice to review and provide their own assessment to the Board of any proposed revisions.

2.3.3 Board Metric Reporting

In addition to identifying metrics, the Department proposes comprehensive reporting protocols and processes for the Board Metrics. Specifically, the Department proposes that its Chief Financial Officer report to its Board on February 1 and August 1 of each year on (1) the Board Metrics and results; (2) Board Metric targets; (3) variance of actual performance from the target; (4) the Department’s explanation of the cause of the variance; and (5) if necessary, a proposed mitigation plan to address variances outside of the established acceptable range.

The Department’s proposed Performance Reporting specifically addresses the role of the OPA. In particular, the OPA will be provided quarterly updates of Board Metric results and required to provide its own assessment and recommendations on the Department’s Board Metric results to the Board on February 1 and August 1 each year. The OPA is, in addition to other performance issues, to report on areas where the Department has not met the target or variance ranges established by the Board. In this new process, the OPA has the option to share such reports with the Energy and Environment Committee of the City Council for its consideration and disposition, and including recommending full Council jurisdiction over the related rate factors under City Charter Section 245. It is important to note that the OPA has recently expressed interest in adding new metrics to the list presented above, prior to the release of the final electric ordinance.

Essentially, the Department proposes to replace the adjustment factor caps previously in place on most of its rate components with a highly structured biannual review and assessment process.⁶ As envisioned, the Department will report twice each year to its Board and, as appropriate, to the Energy and Environment Committee its financial progress toward achieving the project and program targets (i.e., the Board Metrics) that are the key drivers behind its revenue needs. If the Department misses any of its Board Metric targets outside the pre-set variances, then review and assessment by the OPA, the Board and even the Energy and Environment Committee are triggered. In that assessment and advised by

⁶ Caps on low income-eligible customer rates remain in place.

OPA, the Board and City Council can determine whether rate adjustments are necessary to ensure rates reflect work actually being performed or that the Department is able to respond to changing market conditions in order to achieve its project and program goals. As proposed, the closer the Department comes to its Board Metric targets, the simpler its review and assessment process will be.

2.3.4 Interim Rate Review

In addition to the biannual Board Metric Reporting process, Performance Reporting provides that the Department and the OPA each conduct an interim rate review by June 30, 2019 and provide the results of those reviews to the Board and to the Energy and Environment Committee of the City Council. This interim rate review is proposed in order “to provide an opportunity for the Department to realign its forecasts with actual conditions and to communicate related issues to the Board...and to the City Council.” The interim rate review would include an updated five-year financial and performance outlook, updated base rate revenue targets and loads as well as forecast and market conditions, and an update for the City Council and Mayor’s office on progress responding to concerns and recommendations from those offices.

As with any of the biannual Board Metric reports from the OPA, this interim rate review would be subject to the consideration and disposition of the Board as well as the Energy and Environment Committee. Notably, the Performance Reporting section of the proposed rate ordinance provides explicit flexibility to the Board to increase or decrease the Base Rate Revenue Target by up to two percent, as necessary, in response to the interim rate review report findings.

2.3.5 Changes to the Definition of the Base Rate Revenue Target Adjustment

As discussed in greater detail in the following chapter, LADWP’s revenue requirements are derived from three different sources: base rates, adjustment factors and non-retail revenues. The latter includes generation and transmission wholesale revenues, and Contributions in Aid of Construction (CIAC). Accurate forecasting for wholesale revenues and CIAC is a challenging exercise and the Department has historically been conservative in its forecast, resulting in revenue over-collection. Up to now, LADWP used this extra revenue to decrease borrowing. While this approach helped reduce the Department’s interest expenses, the impact on the Department’s revenue requirements, and ultimately rates, has been limited.

In collaboration with Navigant, the OPA advised LADWP to develop a new approach that would directly reduce LADWP’s revenue requirements by the amount of over-collected revenue, resulting in a greater rate decrease when non-retail revenues are over-collected, compared to the existing approach.

To address this issue, the Department made adjustments to the Base Rate Revenue Target Adjustment (BRRTA) mechanism (General Provision T of the ordinance). The purpose of the BRRTA is to adjust rates to account for any changes in actual base rate revenue compared to the Base Rate Revenue Target (BRRT). An over-collection of base rate revenue would be credited back to the ratepayers while an under-collection would result in a rate increase.

A BRRT has been determined and is included in the ordinance for each fiscal year of the Study Period, as shown in the table below.

Table 2-2. Base Rate Revenue Targets during the Study Period

Fiscal Year	Base Rate Revenue Target
FY 2015/16	\$1,951M
FY 2016/17	\$1,960M
FY 2017/18	\$2,032M
FY 2018/19	\$2,120M
FY 2019/20	\$2,230M

The changes made to the BRRTA mechanism include the decrease of the BRRT by the actual net wholesale revenues and CIAC exceeding LADWP’s budgeted amounts. The budgeted amounts are specified in the ordinance and outlined in the table below. With this approach, LADWP’s revenue requirements will be directly decreased by any extra wholesale revenues and/or CIAC, resulting in a rate decrease for the ratepayers.

Table 2-3. Wholesale and CIAC Budgeted Revenues

Fiscal Year	Net Wholesale Revenue Budgeted Amount	CIAC Budgeted Amount
FY 2015/16	\$35M	\$22M
FY 2016/17	\$34M	\$23M
FY 2017/18	\$37M	\$23M
FY 2018/19	\$38M	\$24M
FY 2019/20	\$40M	\$15M

2.4 Assessment of Board Metric Reporting

2.4.1 Assessment of Proposed Metrics, Targets and Acceptable Variances

Navigant has reviewed the metrics the Department developed, as well as the proposed target variances for each metric. In Navigant’s view, the initial Board Metrics represent an appropriate data set that should achieve the goal of raising the visibility and understanding of important projects and programs among the Department’s key stakeholders. Initial target variances for most metrics are acceptable, albeit

generous, and should be refined and tightened in future years as the Department gains more experience with Board Metrics reporting.

The 22 power and joint system metrics and sub-metrics proposed by the Department reflect the major programs and projects underway at the Department and appropriately emphasize those programs and projects that are driving rates higher. In this rate action the Department cites several key programs that are contributing to the need for increased revenues: Infrastructure Reliability, Power Supply Transformation, Customer Opportunities Programs (including Energy Efficiency and Local Solar programs) and Fuel Costs. Each of these programs is captured, some in multiple ways, within the proposed Board Metrics. Further, adjustment factors containing the programs that put the most upward pressure on rates are more prominently featured in the metrics selected. As Table 2-1 illustrates, the Energy Cost Adjustment Factor and the Reliability Cost Adjustment Factor, which together represent the programs with the highest revenue impact on rates going forward, appropriately reflect more attention in the Board Metric reporting process.

The variance tolerance bands for each Power System metric proposed by the Department generally exceed the equivalent margins of error found in the utility industry. Navigant has reviewed the contingency factors and tolerance bands adopted in recent years by the California Public Utilities Commission (CPUC) for investor-owned utilities (IOUs) and found that the margin of error for utility projects and program forecasts consistently falls in the range between five and 10 percent. For example, automatic reviews are triggered at the CPUC any time an IOU's actual electricity procurement costs fall five percent below or above the utility's annual forecast. Higher adopted margins can be found in CPUC decisions and stakeholder settlements relating to infrastructure projects and consumer program administration. Those margins vary depending on the type, scale and level of innovation of the infrastructure project or program being administered, but they generally do not exceed ten percent.

The purpose of the tolerance bands proposed by the Department is to recognize the possibility or even likelihood that the Department will not exactly match every one of its spending, program or milestone goals, and to provide a range within which completion of those goals could be considered successful. The range for each metric must be large enough to accommodate unanticipated or unplanned events that could impact meeting a target in either direction. At the same time it must be narrow enough that the metric remains meaningful and that necessary stakeholder attention is brought to bear in support of its ultimate success.

LADWP proposes a 15 percent variance for most of its project and program Power System Board Metrics, with even larger variances (25 percent) for distribution system budget and progress against plan metrics. The two other exceptions relate to two state-mandated metrics: total RPS ratio and greenhouse gas emissions reduction ratio, at three percent and five percent respectively. As previously noted, most other adopted margins that trigger automatic reviews or other action for IOU operations do not exceed 10 percent. Navigant believes the Department's proposed 15 percent variance for most Power System Board Metrics, and particularly its proposed 25 percent variance for distribution system work, reflect a lack of project management and coordination competencies on the Power System relative to the Water System.⁷ Nevertheless, the Department has deep experience in much of the work reflected in the power Board Metrics, including investment in and operation and maintenance of electric generation, transmission, substation and distribution facilities. While these proposed variances may serve the initial

⁷ This relative gap is consistent with the findings of the 2015 IEA Survey.

purpose of gaining experience with Performance Reporting, in the medium and long terms a 15-25 percent variance range for core work is too wide and will render the Performance Reporting meaningless unless modified.

The Department proposes similar (15-20 percent) variances for its Joint System Board metrics. Navigant understands these larger ranges reflect the Department's reliance on outside departments to assist in many steps of its human resources and hiring processes, and the relative current uncertainty around the Department's future Financial and Human Resources Replacement Project.

The draft Ordinance's provision for changes to be made to the metrics, targets and variances is important. While the particular Board Metrics shown in Table 2-1 are relevant and appropriate now, they may not always be so. In the short term the Department will gain more experience with these metrics and improve its ability to accurately and realistically forecast work and deliver on results, and refinements can be made. Navigant strongly recommends that the Department work with OPA to refine each of the Power System Board Metric variance ranges, so that they reflect the Department's expertise with many of the metric-related activities, and to be more in line with the margin of error adopted for other utilities.

As previously noted, Performance Reporting provides for the OPA to be notified in advance of any modifications to the metrics, their targets, and/or associated variances that the Department intends to propose to its Board. It further requires the OPA to provide its own assessment of any proposed metric changes to the Board. Proactively involving the OPA in any changes to the metrics, targets and variances is critical to ensure that they remain meaningful and relevant.

Over the longer term, the City's and the Department's goals and objectives are likely to evolve—and should evolve—as program and project goals are met and new challenges emerge, creating the need for different metrics.

2.4.2 Assessment of Board Metric Reporting Requirements & Process

In Navigant's assessment, the Department's proposed ordinance changes—particularly the addition of Performance Reporting as outlined above—represent a historical and unprecedented step forward in enhancing visibility into the Department's operational, financial, strategic, and policy objectives and achievements. Navigant has identified specific improvements to the interim rate review that should be modified to ensure this visibility is timely and robust. In the aggregate, however, the Board Metric reporting requirements address many of the information-sharing shortcomings consistently observed at the Department, accommodate California's rapidly changing policy and technology environments, and bring the Department up to an acceptable level of reporting that can be continuously refined and improved.

2.4.2.1 Board Metric Reporting Addresses Issues Raised in the IEA Report

The proposed Board Metric reporting requirements address numerous critiques of the Department raised by its stakeholders over the years and identified by Navigant in its IEA Report. Specifically, by establishing a vehicle to communicate consistent and reliable metrics on major programs and performance against goals to key decision makers in the City, the Department improves the transparency into its operations and financial decisions. By building in escalating layers of review of its metric results the further those results are from established targets, the Department has more incentive

than ever before to ensure its project and program forecasts are robust and accurate, thereby improving overall Department accountability for the revenue it asks its customers to pay. In turn, more robust and accurate forecasts will improve the Department’s ability to implement the large-scale projects and programs that are critical to providing reliable, clean electricity in Los Angeles.

Further, designating reporting responsibility of a holistic set of metrics to the Department’s Chief Financial Officer helps to centralize controls and reporting by not only bringing together what in the past has been fragmented departmental reporting, but also by linking operational and policy goals with their financial and rate counterparts. Finally, the Board Metric reporting proposal is specific about the role of the OPA in the metric reporting and review process.

2.4.2.2 Board Metric Reporting Accommodates California’s Unique Environment

Navigant believes that LADWP’s Performance Reporting proposal appropriately acknowledges California’s rapidly changing environmental and technology landscape as well as ambitious policy leadership. The revised ordinances retain the Department’s ability to change adjustment factors and even base rates relatively quickly, as necessary, to reflect progress or changes in California’s dynamic energy policies and technology developments.

Removal of the caps on the adjustment factors gives the Department the ability to ensure rates reflect the cost of providing service closer to real time, and not defer important infrastructure or program work in order to keep rates below previously-determined levels that may no longer be relevant. At the same time, the addition of regular, structured communication and review channels with the OPA, the Board, City Council and the public about its operations and financial decisions will ensure parties are informed and not surprised. Such dialogue is critical in rapidly changing times, and should facilitate more informed discussions about future rate changes.

2.4.2.3 Board Metric Reporting Puts LADWP at the forefront of California utilities

Finally, LADWP’s Board Metric Reporting proposal is consistent with the current trend to expand transparency in utility operations and practices statewide and to tie particular utility investments and programs to their impact on rates. While LADWP is not the only California utility to consider reporting on operational metrics linked to its revenue and rates, it will be the first to work proactively to develop and operationalize both base rate and adjustment factor-related metrics.

Navigant notes that in December 2014 the CPUC adopted a framework for the IOUs to file in their General Rate Cases⁸ (GRC) risk-related information and metrics in order to assist the CPUC in assessing the IOUs’ rate requests. Further, the CPUC directed the IOUs to submit annual reports in subsequent GRC years about the investments, projects and programs undertaken to mitigate those risks. The CPUC noted that the information filing and reporting requirements adopted are designed to facilitate “...additional transparency and participation on how the safety risks for energy utilities are prioritized by the Commission and the energy utilities, and provide accountability for how these safety risks are managed, mitigated and minimized.”⁹

⁸ Equivalent to the Department’s Rate Action.

⁹ CPUC Decision D.14-12-025, at p. 3.

Specific information and reporting requirements related to the CPUC framework are pending. In the meantime, LADWP will begin its reporting on base rate and adjustment factor-related metrics in August 2016, well ahead of the IOUs and other publicly-owned utilities.

2.5 Findings and Recommendations

Navigant has identified a few areas of the ordinance that should be modified to ensure that the Performance Reporting process as proposed is timely and robust.

Board Metric Variances: Navigant recommends that the Department work with the OPA to refine the variance ranges applicable to each of the Power and Joint System Board Metric targets. The Department will quickly gain more experience with these metrics and improve its ability to accurately and realistically forecast work and deliver on results. Variances should be tightened as appropriate to reflect the Department's deep expertise with many of the metric-related activities, and to be more in line with the margin of error adopted for other utilities.

Interim Rate Review Inputs: For the interim rate review, the Department will consider updating its Base Rate Revenue Targets to reflect updated forecasts for revenues, expenditures, and overall fiscal performance. The Department should ensure that its interim load forecast is based on a current assessment of demand side resources including energy efficiency and local solar.

3. Revenue Requirements Analysis

LADWP is requesting a 3.86 percent average annual rate increase over the five-year Study Period (FY 2015-16 to FY 2019-20). For context, LADWP’s rates last went up by a 5.5 percent average annual increase in FY 2012-13 and FY 2013-14,¹⁰ when City Council approved new incremental rates on top of the prior base rates. Previously in 2010, a rate increase had been planned to address rising costs, but based on poor economic conditions at the time, the Department suspended new base rate increases for FY 2010-11 and FY 2011-12. The base rates—excluding the incremental rate added in FY 2012-13—last increased in 2008, when City Council approved a multi-year revenue increase of 2.9 percent in May 2008, 2.9 percent in July 2008, and 2.7 percent in July 2009.¹¹

This section examines the basis of the Department’s request for the current rate increase. As with most electric utilities in today’s landscape, LADWP’s funding needs continue to increase in order to address aging infrastructure, increased regulation for a cleaner fuel supply, and other challenges. A utility’s revenue requirement represents the money it collects from customers (via rates) to fund its expenses. Without a rate increase to cover future expenses, and given current challenges with efficiency and productivity levels, the Department would be required to increase borrowing as it has done in the past—with negative repercussions related to higher debt levels.

This section covers the following topics:

- **LADWP’s Revenue Requirements Determination Methodology:** Navigant evaluated the Department’s methodology for its power system revenue requirements including operating costs and targeted financial metrics, and the sources of revenue including base rates, adjustment factors, and non-retail revenues. This evaluation also includes a comparison to industry best practice. Finally, we discuss the Power System’s load forecast in detail, which is a fundamental part of the revenue requirement and rate calculations.
- **Rate Drivers:** Navigant conducted a detailed review of the major Power System programs (including fuel and purchased power, capital, and operations and maintenance components) that are driving the rate increase.
- **LADWP’s Capability to Implement its Plan:** The Department’s actual expenses contributing to revenue requirements have the potential to vary significantly from estimates, based on the successful implementation of the Power System’s major programs. Historically, power reliability related programs, energy efficiency, and local solar have struggled to meet targets. We used recent program progress reports and implementation plans to assess the reasonableness of planned expenditures for the Study Period.
- **Revenue Requirements Benchmarking and Sensitivity Analysis:** Navigant performed a benchmarking study comparing LADWP’s historic and projected average rates and other financial metrics to peer utilities in California. We also conducted an assessment of LADWP’s credit ratings as they relate to the proposed revenue and financial metrics, and summarized

¹⁰ Prior Rate Adjustments: www.myladwp.com/2016_2020_rate_request.

¹¹ LADWP Power System Rate Action Report (Ch. 2 p. 36), July 2015.

potential policy and industry changes that may further impact revenue requirements in the future.

- **City Transfer Analysis:** Navigant conducted an evaluation of the Power System City Transfer to the Los Angeles General Fund, including its history, uses in the City, a benchmarking assessment with peer utilities, and a scenario analysis to describe impacts on rates.

3.1 LADWP’s Revenue Requirements Determination Methodology

As mentioned above, a utility’s revenue requirement represents the money it must collect from customers (via rates) to fund its expenses. Determining the total revenue requirement is the first step in the standard utility ratemaking process. The second step is to allocate revenue requirements among the utility’s customer classes, and the third and final step is rate design, in which the utility creates an ordinance or a tariff establishing rates and charges for each customer class so that revenues align with the allocated revenue requirements. This section evaluates LADWP’s approach to calculating its power system revenue requirement, as represented by the Power System’s financial plan for the Study Period.

3.1.1 Description of LADWP’s Methodology

3.1.1.1 Objectives

The Department’s revenue requirements are closely tied to the utility’s rate objectives. The Power System’s fuel, operations and maintenance (O&M), and capital program needs as well as the utility’s financial obligations are decided upon and prioritized in the context of a set of overarching objectives. In its Power System Rate Action Report, LADWP defines the following objectives for rates:¹²

- Maintain affordability,
- Support business development,
- Encourage conservation and sustainable customer resources,
- Meet legal requirements,
- Assist in the transformation to a distribution-oriented utility,
- Assure financial stability, and
- Utilize marginal cost of service in the rate design.

Keeping rates affordable and competitive is a key objective for LADWP and a typical goal of municipal utilities. The Department generally seeks to minimize costs when possible (establishing a new corporate performance group to focus on future process improvements, continuing a fuel price hedging program, etc.) and to keep its rate proposals within manageable limits. This is closely related to LADWP’s second objective regarding business development, which seeks to support local businesses in Los Angeles largely through competitive commercial and industrial electric rates.

However, these objectives must be balanced with funding the utility’s important infrastructure and operational needs, which are driving the overall average rate increase. The “assist in the transformation to a distribution-oriented utility” objective above is primarily related to the Power System’s initiatives to rebuild local power plants, increase renewable energy, local solar, and energy efficiency, and replace coal power. These major initiatives are discussed in Section 3.2 (Rate Drivers), which provides the

¹² LADWP Power System Rate Action Report (Ch. 5, p. 5.), July 2015.

context that most are in fact driven by regulatory requirements. The power industry is moving toward the distribution-oriented utility model, as discussed in Section 3.4.3, but LADWP has made only preliminary moves in this direction outside of compliance with regulatory mandates. This rate objective will likely become a greater focus of the Department in the future.

As a counterbalance to increasing rates to accommodate infrastructure and operational needs, the “conservation and sustainable customer resources” objective is intended to help mitigate the increase in total bills. For example, LADWP offers a variety of energy efficiency programs and local solar opportunities to provide savings opportunities to customers, although administering these programs also contributes to revenue requirements.

The legal considerations associated with the ratemaking process include requirements from City Charter Section 676 and Proposition 26. A detailed discussion of Proposition 26 is included in Section 3.5.

Finally, assuring financial stability means meeting financial metric requirements and demonstrating a low risk profile to credit rating agencies. This is important because much of the Department’s investments in the Power System are financed through borrowed funds. In June 2013, Public Resources Advisory Group (PRAG) provided LADWP with financial metric targets which are referenced by the current rate proposal. These include the Department’s current credit ratings of Aa3 by Moody’s, AA- by Standard & Poor’s (S&P), and AA- by Fitch Ratings.¹³ Credit ratings are further discussed in Section 3.4.2. The financial metric targets are particularly important determinants for the Power System’s revenue requirements, as described in the next subsection.

3.1.1.2 Methodology

LADWP’s power system revenue requirements reflect two objectives:

- Achieve a revenue level that meets its pre-defined financial metric targets.
- Recover the Power Organization’s estimate of its total expenses.

According to the July 2015 Power System Rate Action Report, the annual revenue requirement comprises the following:

- O&M expenses,
- Cash-funded capital expenditures,
- Debt service cost, and the
- Planned transfer to the City (“City Transfer”).

For the Study Period, the estimate of total expenses for future fuel and purchased power supply costs, O&M, and capital expenditures required to deliver electricity to customers and comply with relevant regulatory mandates are discussed in detail in Section 3.2 (Rate Drivers). Other costs outside of these major programs are also included, with several examples listed in Table 3-1.

Table 3-1. Selection of Expenses Impacting Revenue Requirements

Expense	Description
CO ₂ Credit and Other Emissions	Expenses totaling \$23 million over the Study Period.

¹³ Memorandum on Financial Metrics, Public Resources Advisory Group, June 12, 2013.

Depreciation	Expenses totaling \$3.4 billion over the Study Period, including depreciation for regulatory assets like the Barakat settlement, ¹⁴ solar incentives (SB 1), and energy efficiency.
Property Tax	Expenses totaling \$94 million over the Study Period.
Interest	Expenses totaling \$2.0 billion over the Study Period. Variable interest rates are assumed to increase from 0.18 percent to 1.75 percent over the Study Period; fixed interest rates are assumed to increase from 4.25 percent to 5.45 percent over the Study Period.
City Transfer	Eight percent of Power System total operating revenue totaling \$1.5 billion over the Study Period.
Legal Settlement	Legal settlement expenses related to fuel expenditures totaling \$80 million over the Study Period. ¹⁵

Source: Power System Final Rate Case 143.

The total revenue requirement is designed to ensure the full recovery of all planned expenses under the utility’s existing capital structure;¹⁶ in other words, to achieve the revenue needed for cash funding as well as to support debt financing (debt service cost). For its extensive debt financing activities, LADWP strives to maintain a number of financial metric targets defined by its financial advisor and approved by the Board, and therefore a bond credit rating that minimizes interest rates. Financial metrics reflect spending, revenue, and debt levels to convey the utility’s overall financial performance. If metrics deteriorate, credit ratings could be downgraded which would result in higher borrowing costs. The Department has specific targets for metrics including the debt service coverage ratio, days of operating cash, capitalization ratio, net income, and full obligation ratio.

In fact, determining the revenue that will meet its financial metric targets is the first step. The Department then considers its planned expenses (as described above), and the estimated revenue to recover those expenses, which is derived from the following three sources:

- **Base rates:** Revenue recovering labor costs, public benefits costs, real estate costs, customer service costs, information technology and other equipment and software costs, certain O&M costs (e.g., O&M for jointly owned power plants like the Palo Verde Nuclear Generating Station), capital costs for repowering local plants, and others.
- **Adjustment factors:** Revenue recovering fuel, purchased power, capital, and O&M costs for key Power System programs, as described in Section 3.2 (e.g., the Power System Reliability Program, energy efficiency, and others).

¹⁴ Total cost of \$160 million to be collected over a 10-year period beginning in FY 2015. This is the result of the Barakat Consulting vs. LADWP case which reached a settlement in October 2008. LADWP’s statement: www.ladwpnews.com/go/doc/1475/236242/STATEMENT-BY-LOS-ANGELES-DEPARTMENT-OF-WATER-AND-POWER-REGARDING-SETTLEMENT-OF-BARAKAT-CONSULTING-CASE.

¹⁵ This does not include the settlement related to the Customer Information System (CIS), which has not yet been determined. The costs associated with this settlement will ultimately be recovered through the Variable Energy Adjustment (VEA) rate adjustment factor.

¹⁶ A utility’s capital structure identifies the source and cost of funds for both debt and equity.

- **Non-retail revenues:** Generation and transmission wholesale revenues, interest income, and others.

If the above revenues do not meet the pre-determined level that satisfies the Department’s financial metric targets, base rate revenues are increased to achieve the desired level. The adjustment factors generally cannot be modified in this way because they are explicitly defined by formulas in the rate ordinance for particular programs,¹⁷ and non-retail revenues are essentially simple cash receipts which cannot be modified either. Base rates—although the amount charged to each customer class is shown in the electric rate ordinance—are developed using formulas that are not formally defined in the electric rate ordinance. Because of this, the electric rate ordinance does not reveal the extent to which base rates are adjusted to satisfy the financial metric targets.

The Department also typically tailors its total requested rate increase to be palatable to customers and to City Council (e.g., aiming for an average annual increase of less than five percent), without necessarily reflecting all the work that should be done—for example, eliminating the backlog of distribution infrastructure related repairs (“fix-it tickets”). This has not yet proven to be an issue for the Department because fully implementing programs like the PSRP is a challenge for multiple other reasons related to procurement, contracting, and in some cases hiring. However, stakeholders should understand that in the ratemaking process, higher priority may be given to the size of the rate increase and financial metric targets than to power system improvements (assuming that the most basic critical operational needs are met). LADWP has not clearly presented or explained these dynamics to stakeholders.

Under the current revenue requirements methodology, one possibility is that while base rates are inflated to meet financial targets, adjustment factors related to certain key programs are minimized to maintain a reasonable rate increase. This would result in a larger pool of unallocated funds, collected in base rates, which could be used at the discretion of the Department. This relates directly to the 2015 IEA Survey, in which Navigant found that LADWP moves funds internally within the Power Organization without adequate transparency and controls. A key recommendation resulting from this finding was for the Department to improve internal governance by better monitoring, tracking, and reporting on budgeting decisions. The current revenue requirements determination methodology is partially in line with this recommendation because it includes adjustment factors assigned to revenues for specific key programs. However, the methodology as it relates to the modification of base rates is opaque and contributes to this issue.

3.1.1.3 Best Practices

The revenue requirement for a utility is the aggregate of all of the operating and other costs incurred to provide service to the public. It is the amount of revenue the utility will actually collect should it experience the sales volume assumed for the purpose of setting rates. Accepted industry practice is that annual revenues be sufficient to provide for costs including O&M activities, capital projects to develop and maintain the power system, labor costs associated with the former, fuel and purchased power, taxes,

¹⁷ The definition of the IRCA in the electric rate ordinance includes language that enables the Department to adjust the level of cash funding for the PSRP and therefore the revenues generated by this adjustment factor.

and the maintenance of the utility’s financial integrity.¹⁸ Maintaining financial integrity relates to the cost of capital to provide services, including interest on debt, and a depreciation allowance to repay loans and investments.¹⁹ Altogether, these are the underlying costs of service for the utility.

Revenue requirements for investor-owned utilities (IOUs) differ because they are defined as the total amount of money the utility must collect from customers to pay all operating expenses, as described, but also to include a reasonable or “fair” return on investment. This is the rate base/rate of return procedure. Understandably, the rate of return can be controversial, as there are often differing opinions on a utility’s obligations to its investors.²⁰ In principle, a fair rate of return should provide a return on investment commensurate with returns from other investments with equivalent risk.²¹ Regulators of IOUs must first compute the total cost of service, then decide what return investors may receive. These, with the addition of taxes, comprise the allowed revenue requirement for the test period (the period for which the IOU requests rates).

IOUs in California are required to seek authorization from the California Public Utilities Commission (CPUC) for their revenue requirements. Due to the increasingly varied nature of utility costs and large number of energy policies at play, the determination of revenue requirements and the rate-setting process at the CPUC have grown more complex over time. The primary forum for determining revenue requirements is the General Rate Case proceeding, which occurs on a three-year cycle and in which the CPUC decides on the reasonableness of requests for revenue requirement increases. The IOUs earn a rate of return or profit only on costs that are utility-owned and capitalized (for many expenses, there is no rate of return—these are pass through costs). Over the past ten years, the California electric IOUs have been authorized for an approximate 10.25 percent to 11.50 percent rate of return on equity.²²

Publicly-owned utilities like LADWP, which are not privately held by investors requiring a rate of return, typically use a cash basis or “cash needs”²³ approach for determining revenue requirements. Seattle City Light, a large municipal utility in Washington State, follows this procedure and defines its revenue requirement as “the revenue level necessary to financially sustain the operations of the utility; as commonly used at City Light, that part of the utility’s required revenues that must be collected through retail customer rates.” The calculation of revenues required from customers is 1.8 x debt service + power costs + O&M costs + other costs - other revenue (e.g., surplus power sales).²⁴ Similarly, Glendale

¹⁸ “Revenue Requirements: Is There a Right Way to Determine?” Burns & McDonnell, June 2003 (www.burnsmcd.com/Resource_PressRelease/1662/FileUpload/article-technicalpaper-RevenueRequirementsIsThereaRightW.pdf).

¹⁹ “Revenue Regulation and Decoupling: A Guide to Theory and Application,” The Regulatory Assistance Project, June 2011.

²⁰ “Group Exercise I: Calculating the Revenue Requirement,” Colorado Department of Regulatory Agencies (www.naruc.org/international/Documents/Calculating%20Revenue%20Requirement_Davis.pdf).

²¹ “Revenue Requirements: Utility Basis,” Burns & McDonnell, November 2003.

²² Electric and Gas Utility Cost Report: Public Utilities Code Section 747 Report to the Governor and Legislature, California Public Utilities Commission, April 2015 (www.cpuc.ca.gov/NR/rdonlyres/A87AF775-6CBF-4076-984E-08675CE39332/0/2014AB67Final.pdf).

²³ LADWP Power System Rate Action Report (Ch. 2, p. 9.), July 2015.

²⁴ www.seattle.gov/light/rates/docs/glossary.pdf.

Water and Power in California sums its O&M expenses, taxes, capital additions financed with rate revenue, and debt service (principal and interest) to calculate its total revenue requirement.²⁵

The Department similarly includes debt service considerations in its calculation of revenue requirements, which is a standard and necessary practice. LADWP also prioritizes a number of other financial metrics impacting revenue requirements that, according to its financial advisor, are key factors in the utility's credit rating. These include days of operating cash on hand and a relatively high Fixed Charge Coverage ratio, which together form more of a safety net than directly support utility operations. Other municipal utilities also identify and maintain various similar financial metric goals, but with a range of targets and credit ratings. The financial advisor cautions that changes to LADWP's recommended financial metrics could trigger a credit rating downgrade.²⁶ Because it is important for LADWP to be able to continue its long-term borrowing activities, the argument could be made that it is reasonable for the Department to maintain its specific metrics in order to maintain its financial health and minimize financing costs. However, there is some flexibility here, as other utilities operate with different ratings according to what they consider to be prudent financial practices.

Utility revenue requirements are very important and undergo a high amount of scrutiny during requests for increased rates, and so LADWP should formalize its revenue requirements determination methodology around its financial metrics and better explain how these targets impact rates. This will determine if and how base rates should reflect the financial metric targets and what those targets should be. As mentioned previously, the current process is not standardized, transparent, or well-understood by stakeholders outside LADWP's Financial Services Organization. And in addition to formalizing the methodology around financial metrics, LADWP should establish a formal process for moving or re-allocating funding between programs as conditions change, after base rates are collected.

It is also standard practice for LADWP and other municipal utilities to include the City Transfer or equivalent in their revenue requirements recovered by rates. However, as noted elsewhere, the City Transfer is currently being challenged in courts and is further discussed in Section 3.5.

3.1.2 Load Forecasts

The load forecast is an important factor in the Power System's financial plan because it has a direct impact on revenue requirements and rates. As mentioned previously, the final revenue requirement is the total revenue LADWP will actually collect should it experience the sales volume assumed for the purpose of setting rates. The Power System considers the load forecast in several calculations: a number of its planned program expenditures which impact revenue requirements are based on the load forecast (for example, determining the number of new generation resources required to meet future load), and overall rates are calculated by dividing revenue requirements by the forecasted sales for that period.

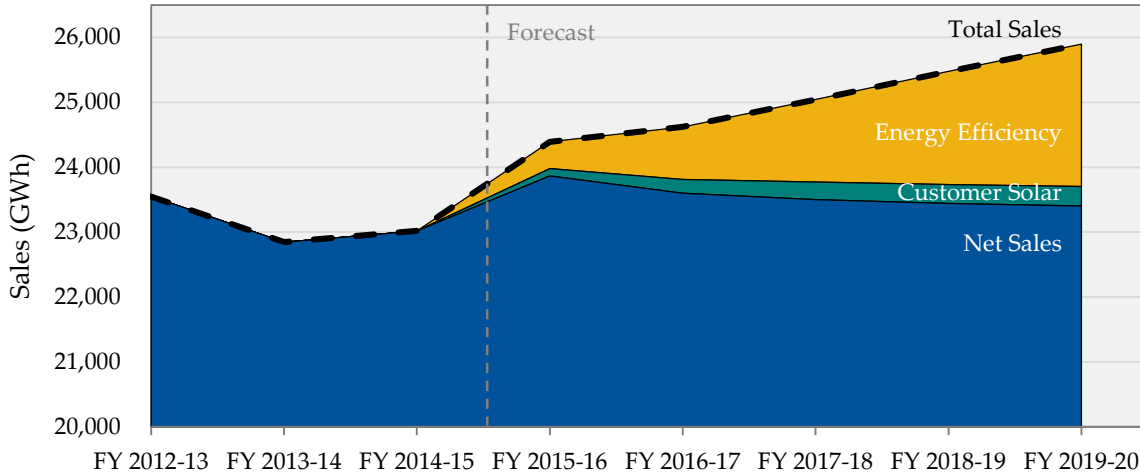
The Department's current forecast is shown below, including the impact of demand side load reduction.

²⁵ Glendale Water & Power Rate Redesign Final Report, November 2011

(www.ci.glendale.ca.us/government/council_packets/Reports_112911/CC_SpMtg_Item1_112911.pdf).

²⁶ LADWP Power System Rate Action Report (Ch. 2, Appendix H: Memorandum to Department of Water and Power of the City of Los Angeles from the Public Resources Advisory Group, June 2013).

Figure 3-1. Power System Historical and Forecasted Retail Sales (2012-2020)

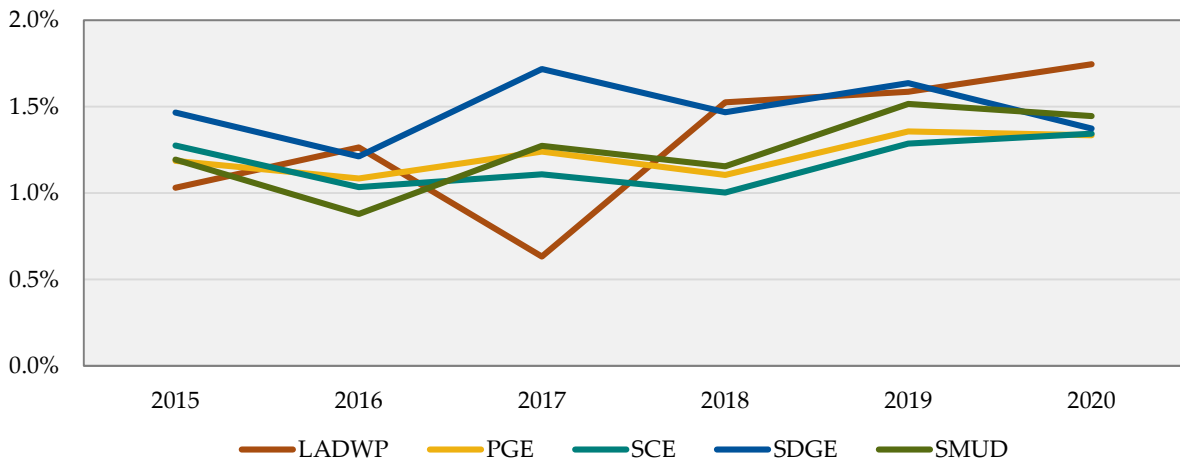


Source: Power System Case 143.

In the current financial plan, rates are set according to the forecasted net retail sales shown above. If the forecast is accurate, the Power System should recover its revenue requirements accurately. Because the forecast is such a fundamental input, it is important that the Department update the forecast regularly as conditions change. This is part of the annual integrated resource planning effort which mostly recently produced the 2014 Integrated Resource Plan (IRP). A formal new IRP is produced every other year with updates in the interim (the 2015 report will be an update to the 2014 IRP).

In the 2015 IEA Survey, Navigant performed a benchmarking study comparing LADWP’s 2014 IRP load forecast with other California utilities and found that the growth rate before energy efficiency was generally in line with the California investor-owned utilities and the Sacramento Municipal Utility District (SMUD) for the Study Period (Figure 3-2). However, the 2014 IRP did not include a sensitivity analysis for a range of load growth scenarios, which is recommended by Navigant in the IEA Survey as a best practice.

Figure 3-2. Annual Net Energy Load Growth for California Utilities



Sources: LADWP’s Power System 2014 IRP, Appendix N; California Energy Commission Demand 2014-2024 Baseline Forecast, Net Energy for Load (Mid).

Despite efforts by electric utilities to make their load forecasts as accurate as possible, actual net retail sales typically differ from projections. For example, load growth may be greater than reflected in the forecast and financial plan. Without a way to accommodate this higher load growth scenario, LADWP would be at risk of over-collecting (generating more revenue than needed), because rates would have been set higher to meet the same revenue targets but with lower expected electricity sales.

Alternatively, load growth may be lower than reflected in the forecast and financial plan, which means LADWP would be at risk of under-collecting (not generating as much revenue as needed) because rates would have been set lower to meet the same revenue targets but with greater expected electricity sales. Importantly, successful demand side resource programs such as energy efficiency—which are mandated in California—reduce customer load. And as shown previously in Figure 3-1, energy efficiency and local solar programs have a significant impact for LADWP. Without a mechanism to recover costs, utilities would be dis-incentivized to offer these demand side programs due to the risk of lost revenue from lower electricity sales. The accepted solution for utilities across the industry (both municipally-owned and investor-owned) to address this issue is the decoupling mechanism.

Decoupling is the term for a rate adjustment mechanism that separates a utility’s non-production cost recovery from its actual sales. Non-production costs, including everything related to the delivery of electricity but not the production of electricity, are viewed as fixed because the utility does not have control over them in the short term (production costs, on the other hand, vary directly with energy consumption or sales in the short term).²⁷ Decoupling does not change the traditional ratemaking procedure, but does add an automatic “true up” to adjust rates based on the over or under-recovery of target revenues.²⁸ This means that energy conservation and other demand side programs can be encouraged while maintaining financial stability for the electric utility.²⁹ If, after accounting for actual electricity sales and revenue, non-production costs are under-recovered, rates are adjusted to recover them in the next period.³⁰ The Power System’s rate financial structure includes the decoupling mechanism which flags over and under-collections in a given period and adjusts rates for the following period.

Over and under-collection risks associated with specific programs are also mitigated by LADWP’s pass-through adjustment factors in the rate structure, which can be adjusted quarterly to reflect actual costs and other changing conditions. For example, in the higher-than-forecasted load growth scenario, the Department’s power supply will likely also increase, causing the upward adjustment of the fuel and purchased power related adjustment factor. There are also consequences for the Renewable Portfolio Standard, for which the percentage of renewable energy is based on retail sales. Increased sales above the forecast would require the Department to procure additional qualifying renewable resources, also

²⁷ “Revenue Regulation and Decoupling: A Guide to Theory and Application,” The Regulatory Assistance Project, June 2011.

²⁸ Decoupling for Electric & Gas Utilities: Frequently Asked Questions,” National Association of Regulatory Utility Commissioners, 2007 (www3.epa.gov/statelocalclimate/documents/pdf/supp_mat_decoupling_elec_gas_utilities.pdf).

²⁹ “Decoupling Policies: Options to Encourage Energy Efficiency Policies for Utilities,” National Renewable Energy Laboratory, 2009 (www.nrel.gov/docs/fy10osti/46606.pdf).

³⁰ LADWP provides further discussion of its decoupling mechanism in the Power System Rate Action Report, Chapter 5.

increasing revenue requirements and causing the upward adjustment of the purchased power or RPS related adjustment factor.

The greatest risk for LADWP's customers currently pertains to the energy efficiency and customer solar (feed-in tariff) programs. Both programs have ambitious goals which depend on customer participation and directly impact customer load; however, both programs have underperformed thus far. This is further described in Section 3.3 (LADWP's Capability to Implement its Plan). If the programs do not perform as planned going forward, the Department may allocate even more funding to attempt to reach its goals which are also a high priority for the City. In this case, the load reduction would not be realized and rates would be adjusted through decoupling, but ratepayers would still continue to pay for the programs without realizing savings. However, based on the Efficiency Solutions group's preparation thus far, the energy efficiency savings appear to be feasible.

Overall, the Department employs industry standard practices for balancing these inputs and mitigating risks associated with the load forecast.

3.2 Rate Drivers

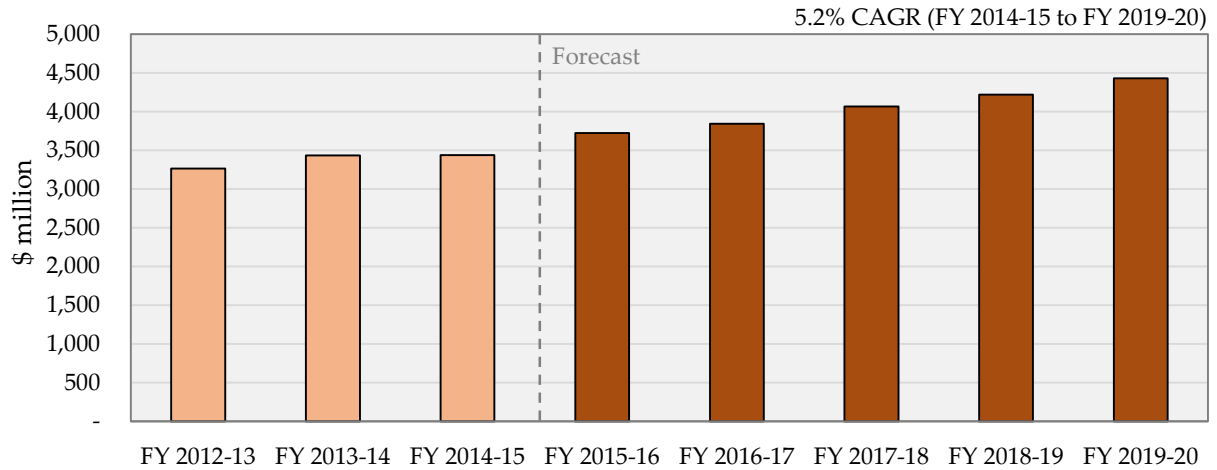
The basis of the current rate proposal is the Department's increased revenue requirements to keep up with rate drivers, described in detail in this section. The primary drivers necessitating a revenue increase in the next five years are the following initiatives:

- Achieving 15 percent energy efficiency savings by 2020.
- Providing local solar program opportunities for customers.
- Providing reliable electric service and addressing aging infrastructure with the PSRP.
- Meeting a Renewable Portfolio Standard of 25 percent by 2016 and 33 percent by 2020.
- Repowering in-basin power plants and eliminating once-through cooling.

LADWP's Power System is entering a major transition period. In addition to the Department's basic key objectives related to the reliable supply of electricity, affordable rates, and environmental stewardship, the organization is now facing a number of important regulatory mandates. The Department must simultaneously reduce greenhouse gas emissions, integrate increasing amounts of renewable generation, repower in-basin units and eliminate once-through cooling, and replace its current coal supply. In addition to these requirements, it is contending with aging infrastructure and workforce retirement.

All told, this is an immense challenge for the utility and will put additional stress on its existing assets, in addition to requiring significant investment in new infrastructure, power supply contracts, and personnel. This section presents a description of the Department's goals related to the challenges summarized above and Navigant's analysis of the programs supporting these goals. These comprise the primary new revenue requirements driving the 3.86 percent average annual rate increase in the final rate case (Power System Case 143). As part of this, LADWP's total revenue will see a 5.2 percent compound annual growth rate (CAGR) from FY 2014-15 to FY 2019-20.

Figure 3-3. Power System Annual Total Revenue



Source: Power System Case 143, December 18, 2015.

Notably, the Power System is also contending with inefficient contracting and procurement processes and challenges with productivity. To some extent, these issues obscure the true rate drivers. On one hand, LADWP’s increasing revenue requirements appear to be justified by regulatory mandates and critical system reliability needs; on the other hand, issues surrounding efficiency and productivity call into question the use of resources including cash from rates. It is important to keep in mind that these issues may drive some of the rate increase. However, this is not the focus of this section of the analysis. In the following subsections, we review each major Power System program as it exists under current conditions. Workforce productivity is further discussed in Chapter 8.

3.2.1 Power System Goals and Mandates

Navigant’s recently completed 2015 IEA Survey reviewed the Power System’s 2014 Integrated Resource Plan (IRP)³¹ and includes a detailed discussion of the Department’s goals, applicable regulatory mandates, and City of Los Angeles and state policies. In the IEA Survey, Navigant concluded that the Department’s goals and strategies described in the 2014 IRP are robust and align with city and state policies as well as regulatory mandates. The 2014 IRP’s goals are listed in the table below, matched with the current rate proposal’s average annual revenue requirement change (compared to FY 2014-15).

Table 3-2. 2014 IRP Power System Goals and Level of Rate Impact

Power System Goals	Average Annual Revenue Requirement Increase
Achieve 15 percent energy efficiency savings by 2020	\$64 million
Increase local solar	\$43 million
Invest in the Power System Reliability Program	\$21 million
Meet a Renewable Portfolio Standard of 25 percent by 2016 and 33 percent by 2020	\$18 million

³¹ 2015 Industrial, Economic, and Administrative Survey of the Los Angeles Department of Water and Power, Navigant Consulting, December 10, 2015. See Volume I: Power Generation Infrastructure.

Eliminate once-through cooling (OTC) in coastal thermal power plants by 2029	\$11 million
Eliminate coal by 2025	-\$6 million
Implement 506 MW of demand response capacity by 2026	N/A
Install 178 MW of energy storage by 2021	N/A
Support the electrification of the transportation sector	N/A
Reduce Greenhouse Gas Emissions to 1990 levels by 2020	N/A

Note: The last four items identified in the 2014 IRP do not contribute significantly to revenue requirements.

Sources: *Power System 2014 Integrated Resource Plan*; data provided November 12, 2015.

The last four goals included in the table above do not significantly factor into the revenue requirement for the rate proposal because they are either pilot-stage programs or, in the case of greenhouse gas emissions, a goal that will be accomplished via the other programs. The majority of the above goals are influenced directly by the following regulatory mandates.

- Senate Bill 1037/Assembly Bill 2021: Senate Bill 1037 and Assembly Bill 2021 require LADWP to meet its resource needs first through all cost-effective energy efficiency and demand response, with a state goal of reducing energy consumption by 10 percent in 10 years.³²
- Senate Bill 350: Senate Bill 350 or the Clean Energy and Pollution Reduction Act of 2015 establishes a target for the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources (RPS) of 50 percent by December 31, 2030, and for the cumulative doubling of statewide energy efficiency savings in electricity use by retail customers by January 1, 2030.³³ LADWP will be required to establish annual targets for energy efficiency savings and demand reduction consistent with this goal.
- Senate Bill 2 (1X): Senate Bill 2 (1X) directed the California Energy Commission to set new Renewable Portfolio Standard procurement targets, new renewable resource eligibility definitions, and new reporting requirements applicable to publicly-owned utilities, requiring LADWP to procure 25 percent of its retail sales from RPS-eligible resources in 2016 and 33 percent in 2020.³⁴
- Senate Bill 1/Senate Bill 585: 2006, Senate Bill 1 kicked off the Go Solar California statewide effort to implement solar energy incentive programs, requiring LADWP to offer a program by January 1, 2008.³⁵ LADWP’s cap for expenditure on customer net-metered solar energy systems over the established 10-year period is \$313 million, per Senate Bill 585 in 2011.³⁶
- Senate Bill 32/Senate Bill 1332: Senate Bill 32 requires publicly-owned utilities serving 75,000 customers or more to make a feed-in tariff available to owners and operators of eligible

³² Levine, AB 2021, Chapter 734, Statutes of 2006. Full chapter text available at: www.energy.ca.gov/sb1/meetings/ab_2021_bill_20060929_chaptered.pdf.

³³ SB 350 text available at: leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350.

³⁴ SBX1-2 text available at: www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0001-0050/sbx1_2_bill_20110412_chaptered.html.

³⁵ SB 1 (Murray, Chapter 132, Statutes of 2006, § 4), as codified in Public Resources Code Sections 25780-25784. A high-level overview from the California Energy Commission is accessible at: www.energy.ca.gov/sb1.

³⁶ Senate Bill 585 (Kehoe, Chapter 312, Statutes of 2011) enacted on September 22, 2011.

renewable energy systems within the service territory of the utility until the utility meets its proportionate share of the statewide cap of 750 MW.³⁷ LADWP is required to offer a feed-in tariff program for its 75 MW share. SB 1332 required adoption by July 1, 2013.³⁸

- Assembly Bill 1368: Senate Bill 1368 or the California Greenhouse Gas Emissions Performance Standard Act led to the establishment of a standard for baseload generation owned by or under long-term contract to publicly-owned utilities, which requires LADWP to end its two coal plant contracts when they expire in 2019 and 2027 because they exceed the minimum emissions standard.³⁹
- Clean Water Act Section 316(b): The Clean Water Act requires LADWP to eliminate OTC cooling at its coastal power plants by 2029.⁴⁰ The California State Water Resources Control Board implemented the “Use of Coastal and Estuarine Waters for Power Plant Cooling” policy, effective on October 1, 2010, which established technology-based standards to reduce the harmful effects associated with cooling water intake structures on marine and estuarine life.
- Stipulated Order for Abatement: In 2000, LADWP received a Stipulated Order for Abatement from the South Coast Air Quality Management District to reduce local air emissions through the repowering of its less efficient in-basin generating facilities. This is combined with projects to eliminate OTC.⁴¹
- Assembly Bill 2514/Assembly Bill 2227: Assembly Bill 2514, as amended by Assembly Bill 2227, requires California utilities to incorporate energy storage into the grid by determining an appropriate target for the procurement of viable and cost-effective energy storage systems by 2016 and 2020.⁴²
- Assembly Bill 32: AB 32 or the California Global Warming Solutions Act of 2006 established an aggressive greenhouse gas (GHG) reduction target for the State of California, which requires LADWP to reduce GHG emissions to 1990 levels by 2020.⁴³ Enforcement and compliance began on January 1, 2013. The state goal is to achieve emissions 80 percent below 1990 levels by 2050.

³⁷ SB 32 text available at: www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0001-0050/sb_32_bill_20091011_chaptered.html.

³⁸ SB 1332 text available at: www.leginfo.ca.gov/pub/11-12/bill/sen/sb_1301-1350/sb_1332_bill_20120927_chaptered.html.

³⁹ Overview available at: www.energy.ca.gov/emission_standards.

⁴⁰ Ocean Water Standards – CWA §316(b) Regulation, California Environmental Protection Agency State Water Resources Control Board (www.swrcb.ca.gov/water_issues/programs/ocean/cwa316).

⁴¹ “LADWP Begins Rebuilding Scattergood Power Plant to Eliminate Ocean Water Cooling, Reduce Emissions and Improve Reliability,” Los Angeles Department of Water and Power, August 29, 2013 (www.ladwpnews.com/go/doc/1475/1886746/).

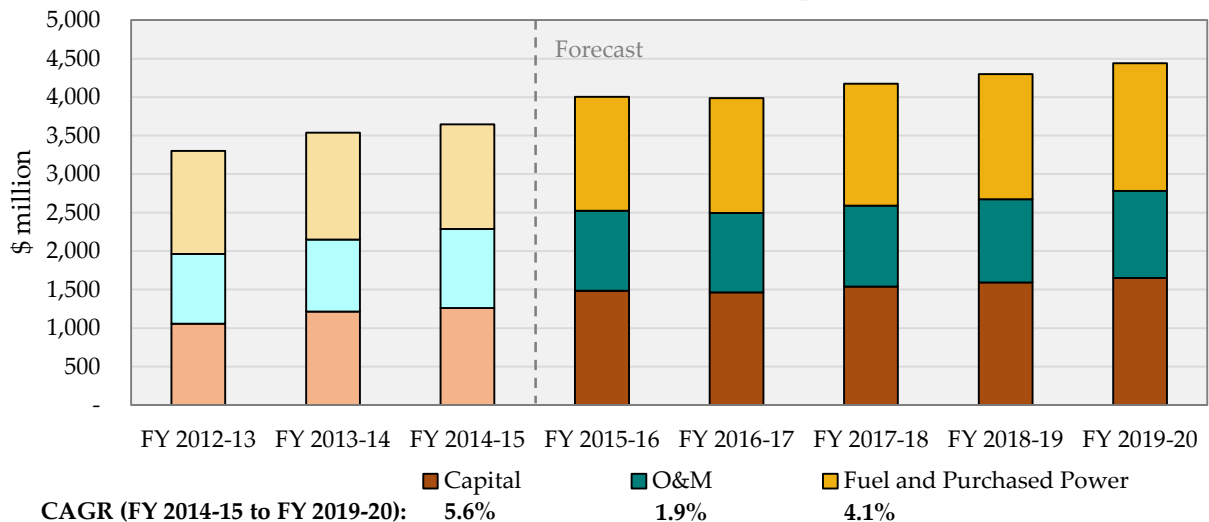
⁴² AB 2514 – Energy Storage Procurement Targets from Publicly Owned Utilities, California Energy Commission (www.energy.ca.gov/assessments/ab2514_energy_storage.html).

⁴³ AB 32, Nunez, Chapter 488, Statutes of 2006. Text of AB 32 available at: www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf.

3.2.2 Key Expenditures

Navigant used the Department’s final proposed rate case and budget for FY 2015-16 through FY 2019-20 as well as reported budget actuals from the previous three years to assess the Power System’s key expenditures.⁴⁴ Key expenditures are divided into fuel and purchased power, O&M, and capital budget categories. The annual increases in these three categories over the past three years and the Study Period are illustrated in the figure below.

Figure 3-4. Annual Key Power System Expenditures



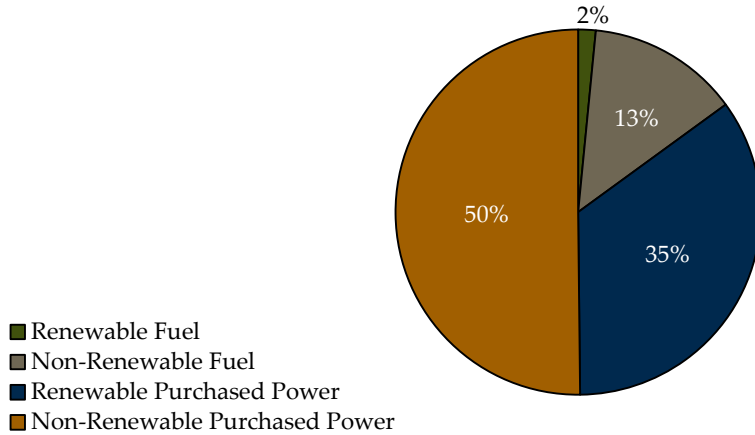
Source: Power System Case 143, December 18, 2015.

The above trend is primarily driven by increases in capital programs and in fuel and purchased power (specifically, renewable purchased power). The increase in O&M expenditures is comparatively small (1.9 percent CAGR from FY 2014-15 to FY 2019-20). Fuel and purchased power includes both renewable and non-renewable expenses (Figure 3-5), while O&M and capital expenditures are budgeted for the same major Power System programs (Figure 3-6).

⁴⁴

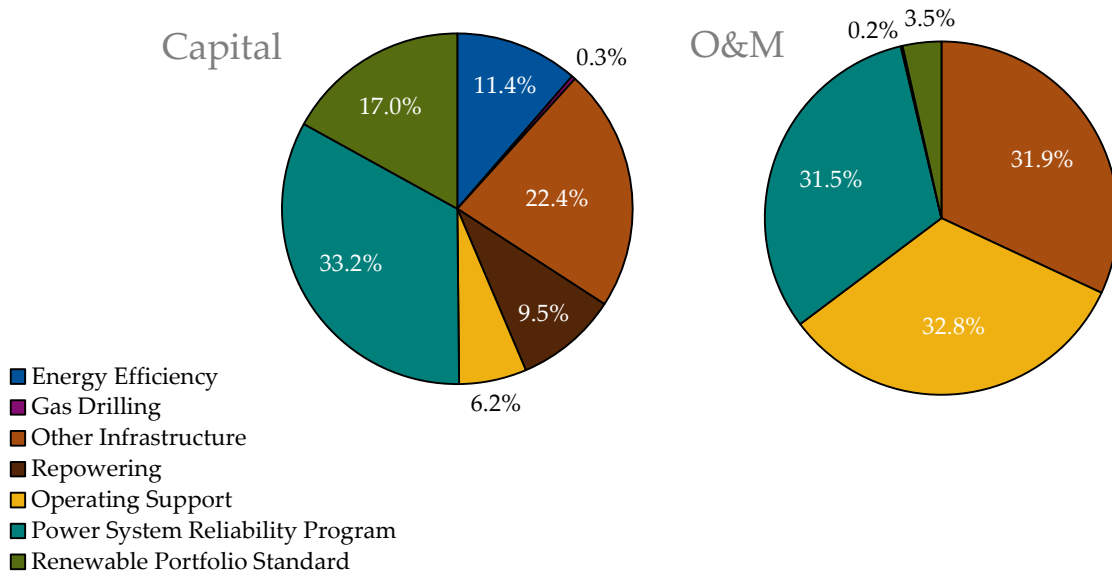
Power System Case 143 and Power System Budget Data (November 22, 2015) provided November 6, 2015.

Figure 3-5. Total Fuel and Purchased Power Expenditures (2015-2020)



Source: Data request 1-A-15 (September 16, 2015) provided November 12, 2015.

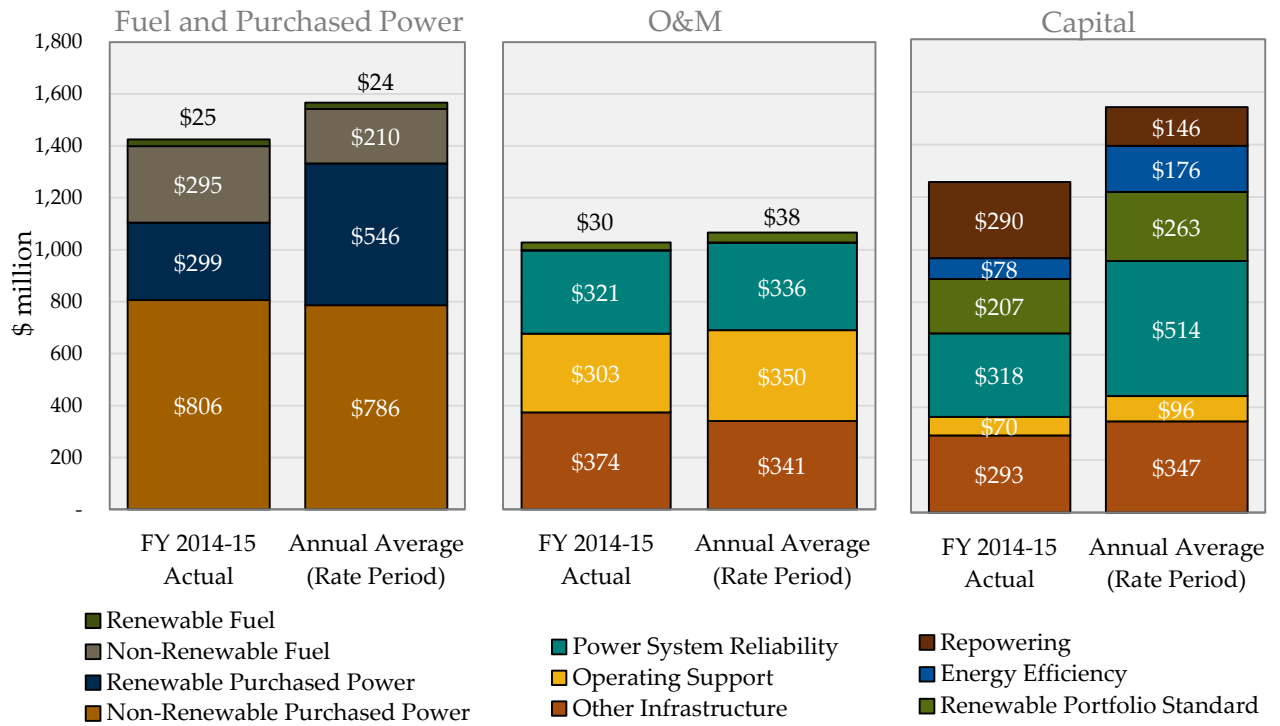
Figure 3-6. Total Capital and O&M Expenditures (2015-2020)



Source: Power System Case 143, December 18, 2015.

The following figure compares the proposed average over the Study Period to actual expenditures in FY 2014-15 for each of the three key expenditure categories, illustrating the relative increases and decreases among major programs.

Figure 3-7. Study Period Average Annual Expenditures Compared to FY 2014-15



Sources: Power System Case 143, December 18, 2015; data request 1-A-15 (September 16, 2015) provided November 12, 2015.

As shown, the increase in fuel and purchased power expenditures compared to the current year is driven by a significant increase in renewable purchased power, which is offset partially by a decrease in non-renewable fuel and a small decrease in non-renewable purchased power. The small increase in O&M expenditure is due to Operating Support and the PSRP, and the increase in capital expenditure is driven by increases in almost all programs and offset partially by a decrease in average repowering expenditures. However, the average repowering investment is not representative of individual years because investments are made irregularly over the Study Period according to a specific staggered schedule. This is further discussed in Section 3.2.2.6 (Once-Through Cooling and Repowering). Although the PSRP is the largest capital program expense overall, it is energy efficiency and local solar (included in the RPS) which have the most significant growth impacting revenue requirements.

Accomplishing the goals identified in the 2014 IRP depends largely on the success of these major Power System programs. The Power System Rate Action Report also describes these programs in detail as rate drivers for the current proposed increase. In that report, repowering and the RPS are grouped in the Department’s “Power Supply Transformation.” The other major component of the Power Supply Transformation is the transition away from coal. Specifically, in the beginning of the Study Period, LADWP will cease to receive power from the Navajo coal plant. The Power System has already finalized the replacement of Navajo with the natural gas Apex Generating Station, which is reflected in the budget. However, compared to the 2014 IRP and Navigant’s 2015 IEA Survey which focus on the replacement of the Intermountain Power Project (IPP) coal plant, there is less attention on coal in this analysis because IPP replacement will occur after the Study Period.

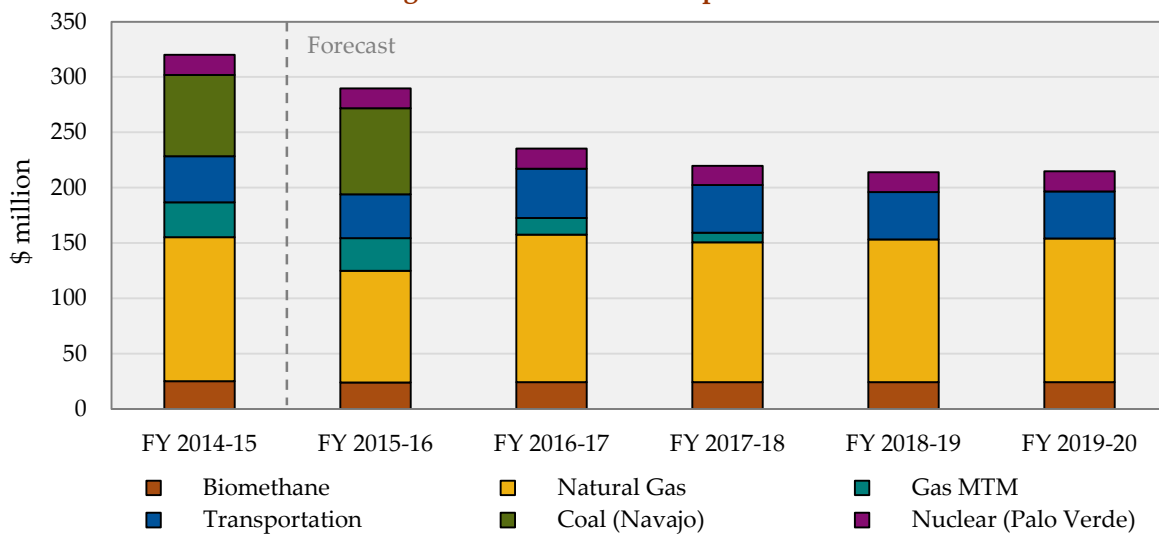
The programs that receive significant attention in the 2014 IRP and the Power System Rate Action Report but do not figure as prominently in the proposed budget are the several emerging technology programs listed in Table 3-2. Specifically, demand response, smart grid, and electric vehicle initiatives are still small budget items. However, they are important components of the “Customer Opportunities Program” as advertised in the Power System Rate Action Report (in particular, demand response) and, according to the 2014 IRP, will make a significant impact on the Power System by 2030. Because there is attention on these projects, we include them in this report despite the minor overall budget impacts.

In the following sections, Navigant leverages past work from the 2015 IEA Survey report along with updated budget and revenue information from the Department to assess the Power System’s expenditures on a program-by-program basis.

3.2.2.1 Fuel

Specific fuel expenditures for the Study Period are shown in the figure below. Biomethane is the only fuel in renewable fuel expenditures. Fuel expenditures are recovered in rates by the Variable Energy Adjustment.

Figure 3-8. Annual Fuel Expenditures

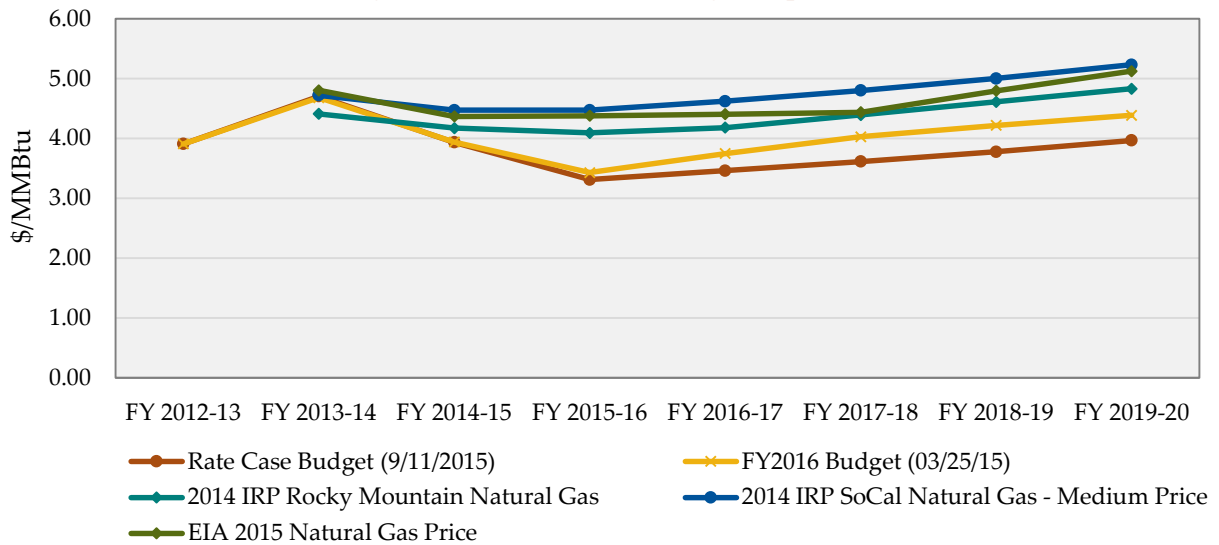


Note: Gas MTM is the mark to market price difference between a hedge prices and the current market price.

Source: Data request 1-A-15 (September 16, 2015) provided November 12, 2015.

As shown, natural gas is the largest fuel expense. The Power System’s natural gas price forecast is shown below, illustrating several of LADWP’s recent annual forecasts compared to the final revised forecast for the rate case from September 2015. Here, prices are also compared to data from the Energy Information Agency’s (EIA) forecast for 2015, which in 2014 was very similar to LADWP’s IRP forecast.

Figure 3-9. Natural Gas Pricing Comparison



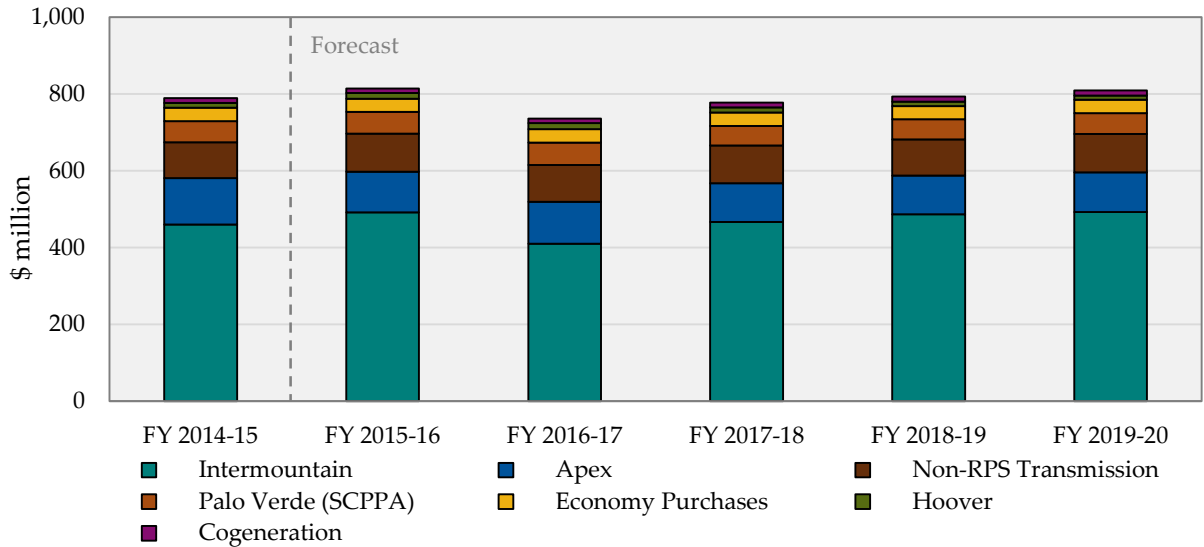
Sources: Data request 1-B-11 Natural Gas Burnertip Pricing (September 11, 2015); LADWP 2014 IRP, Appendix N; EIA Annual Energy Outlook 2015, Pacific Region.

Based on the more recent, lower natural gas prices, overall fuel expenditures for the Study Period were adjusted downwards from previous cases and significantly modified compared to forecasts in 2014. Low natural gas prices will help LADWP achieve a less costly transition from coal to natural gas. However, because natural gas prices are variable and at times can experience significant volatility, the forecast may not be accurate for the entire Study Period. To mitigate this risk, the Department runs a natural gas fuel price hedging program, regularly updates its price forecasts to revise estimates, and recovers natural gas fuel costs through the VEA rate adjustment factor. The VEA allows the Department to recover lost revenue if actual prices are higher than predicted.

3.2.2.2 Purchased Power

Although non-renewable purchased power is a significant expense for the Power System, it is not expected to change significantly over the Study Period. In particular, the largest expenditure is for coal power from the Intermountain Power Project, which will not be divested until 2025.

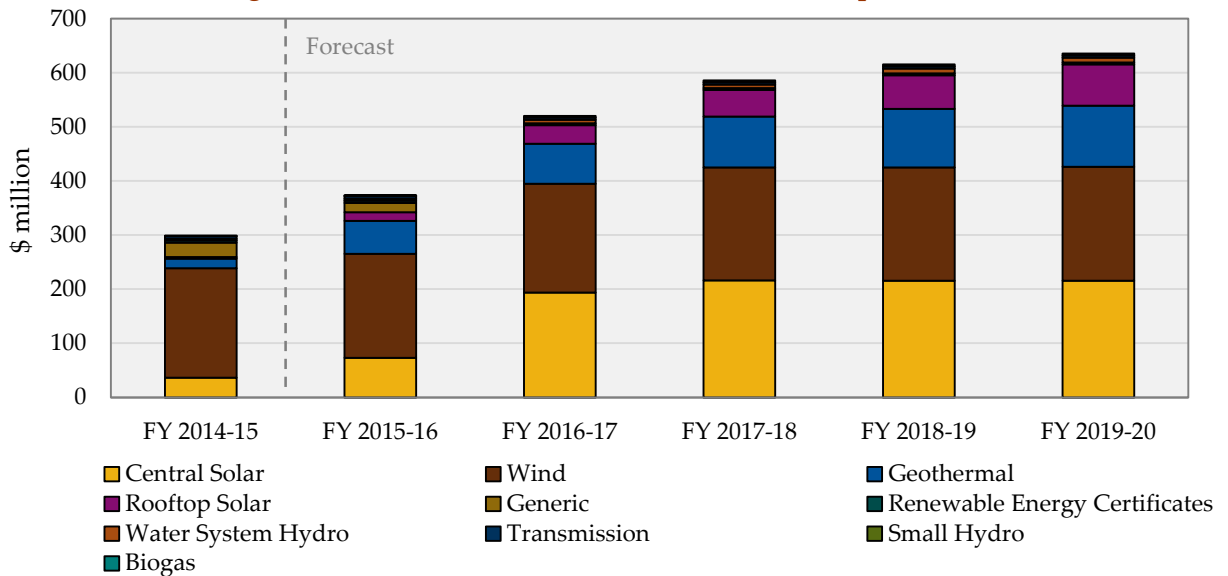
Figure 3-10. Annual Non-Renewable Purchased Power Expenditures



Source: Data request 1-A-15 (September 16, 2015) provided November 12, 2015.

As mentioned, the increase in purchased power expenditures is driven primarily by the increase in renewable purchased power; specifically, central and rooftop solar and geothermal (Figure 3-11, below). This offsets some of the non-renewable purchases. Figure 3-10 shows coal power purchased from IPP experiencing a dip in FY 2016-17 because of the significant increase in renewable purchased power that year, allowing LADWP to use less coal to meet demand.

Figure 3-11. Annual Renewable Purchased Power Expenditures



Source: Data request 1-A-15 (September 16, 2015) provided November 12, 2015.

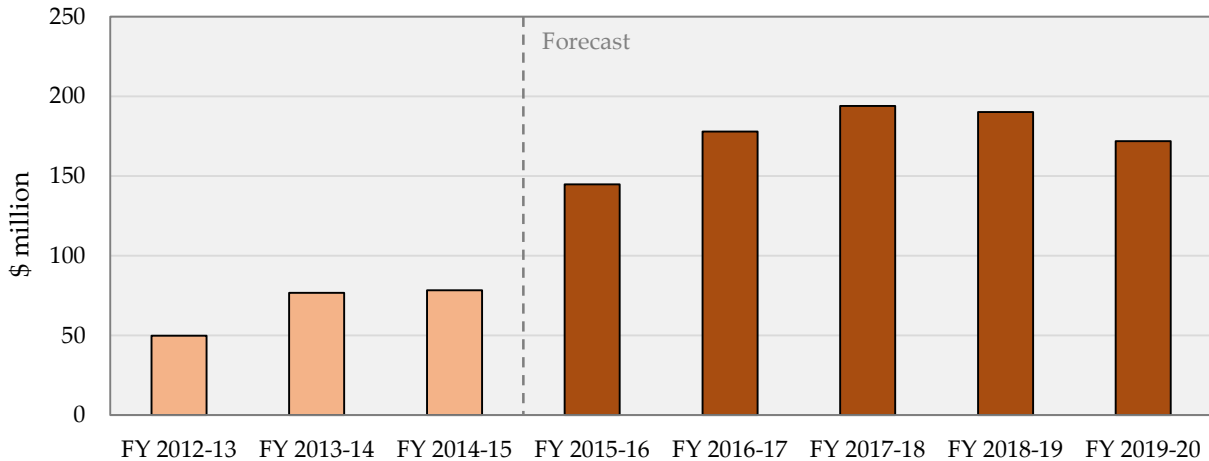
Increasing renewable purchased power supports the Department’s required RPS targets, as described further in Section 3.2.2.4, and decreases the need for fuel. Renewable purchased power is recovered in rates by the Variable Renewable Portfolio Standard Energy Adjustment (VRPSEA).

3.2.2.3 Energy Efficiency

Energy efficiency is the most significant single component of the proposed power rate increase in terms of increasing revenue requirements. LADWP’s Power System Rate Action Report states a business goal of investing a total of \$878 million in energy efficiency programs over the Study Period to save 2,489 GWh by FY 2019-20. According to the Department, this requires a \$64 million average annual revenue increase over the Study Period.

The planned annual budget for energy efficiency is shown in Figure 3-12. All expenditures for energy efficiency programs are capital expenditures.

Figure 3-12. Annual Energy Efficiency Expenditure



Source: Power System Case 143, December 18, 2015.

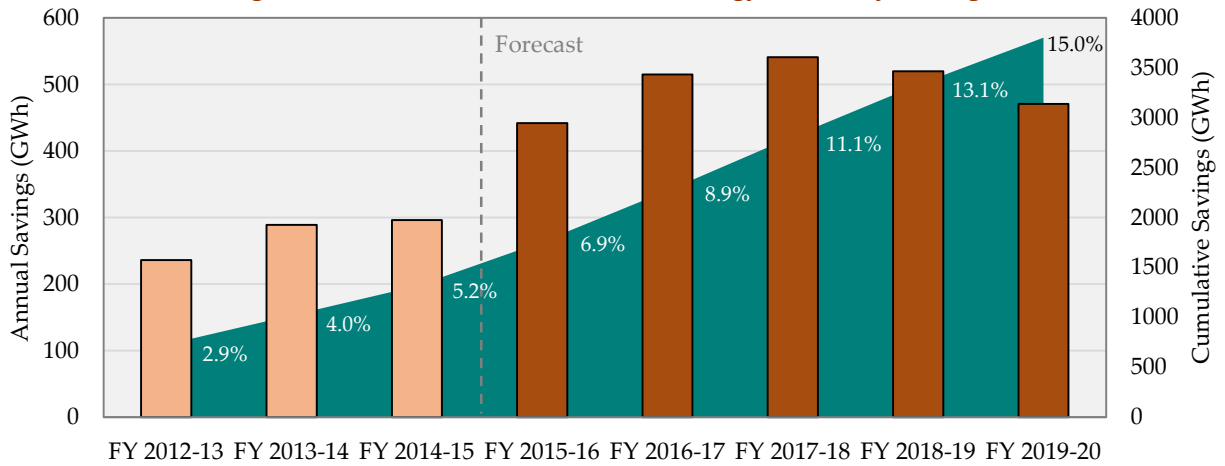
The Department’s overarching goal is to reach a total of 15 percent energy efficiency savings for the ten-year period from FY 2010-11 to FY 2019-20, as adopted by the Board of Water and Power Commissioners and Mayor Garcetti of Los Angeles. According to the Efficiency Solutions Portfolio Business Plan (including savings from Codes and Standards) LADWP achieves the full 15.0 percent savings in FY 2019-20 compared to the baseline. The financial plan in Rate Case 143 shows 13.8 percent energy savings compared to the FY 2010-11 baseline due to the exclusion of Codes and Standards.⁴⁵

According to data provided by LADWP’s Efficiency Solutions group, from FY 2010-11 to FY 2014-15 the Department achieved 1,313 GWh in energy savings. And according to the Efficiency Solutions Portfolio Business Plan, the ten-year total will be 3,802 GWh. The annual energy efficiency savings and cumulative savings in GWh starting in FY 2010-11 are shown together in Figure 3-13, below. The

⁴⁵ Building ordinances for energy efficiency defined by regulatory agencies and industry groups. LADWP does not budget for these energy efficiency savings because they result from the building industry itself and not Department-run programs.

percentage represents progress towards the Department’s 15 percent goal, which is calculated from the FY 2010-11 baseline of 25,388 GWh.⁴⁶

Figure 3-13. Annual and Cumulative Energy Efficiency Savings



Sources: *Efficiency Solutions Group (November 3, 2015); Nexant Territorial Potential Draft Report.*

Figure 3-12 shows a significant increase from current expenditures to the levels planned for FY 2015-16 and FY 2016-17 and Figure 3-13 shows a dramatic increase in energy savings in GWh for the same. This planned ramp-up will be a very large task, and the Department’s ability to manage it is one of the key topics addressed in the next section of this report (Section 3.3).

The 15 percent energy efficiency savings goal is a result of Nexant’s energy efficiency potential study for the Department, published in June 2014. The goal is adapted from the scenarios in that report, which were found by Nexant to be economically and technologically feasible.⁴⁷ LADWP’s Efficiency Solutions Portfolio Business Plan cites a total resource cost (TRC) test value of 2.4 for the portfolio. The TRC is the primary measurements of energy efficiency cost-effectiveness in California, which compares program administration and customer costs to utility resource savings (benefit-cost ratio). A TRC of 1.0 or above passes the cost-effectiveness test (benefits are greater than costs).⁴⁸ Hence, although spending increases significantly over the Study Period, the portfolio is still based on cost-effective energy saving measures.

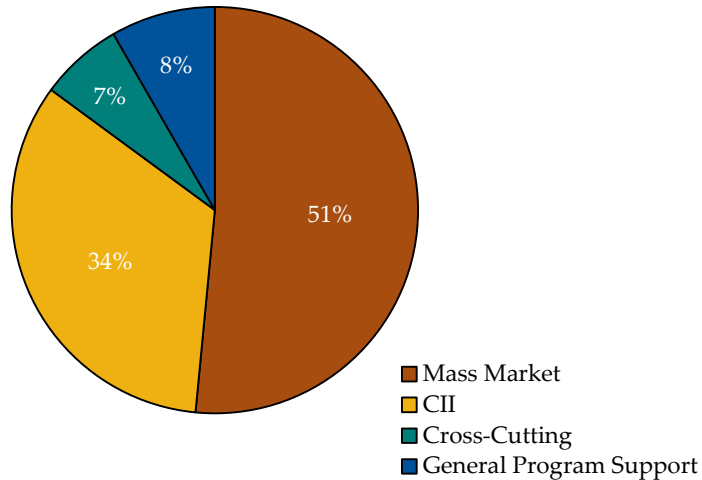
Energy efficiency programs in the portfolio are divided into Mass Market (residential, low-income, multi-family, and small business customers), CII (larger commercial and industrial customers), and Cross-Cutting (serving different customer segments) programs. Administrative costs for these programs are categorized under general program support.

⁴⁶ LADWP Territorial Potential Draft Report, Volume 1. Nexant, June 24, 2014.

⁴⁷ In the study, technical potential is defined as savings that can be realized if energy efficiency savings measures are applied in all feasible instances, regardless of cost. Economic potential is a subset of technical potential, where measures are cost-effective from the Total Resource Cost perspective.

⁴⁸ The Energy Efficiency Policy Manual, Version 5, July 2013 (www.cpuc.ca.gov/NR/rdonlyres/7E3A4773-6D35-4D21-A7A2-9895C1E04A01/0/EEPPolicyManualV5forPDF.pdf).

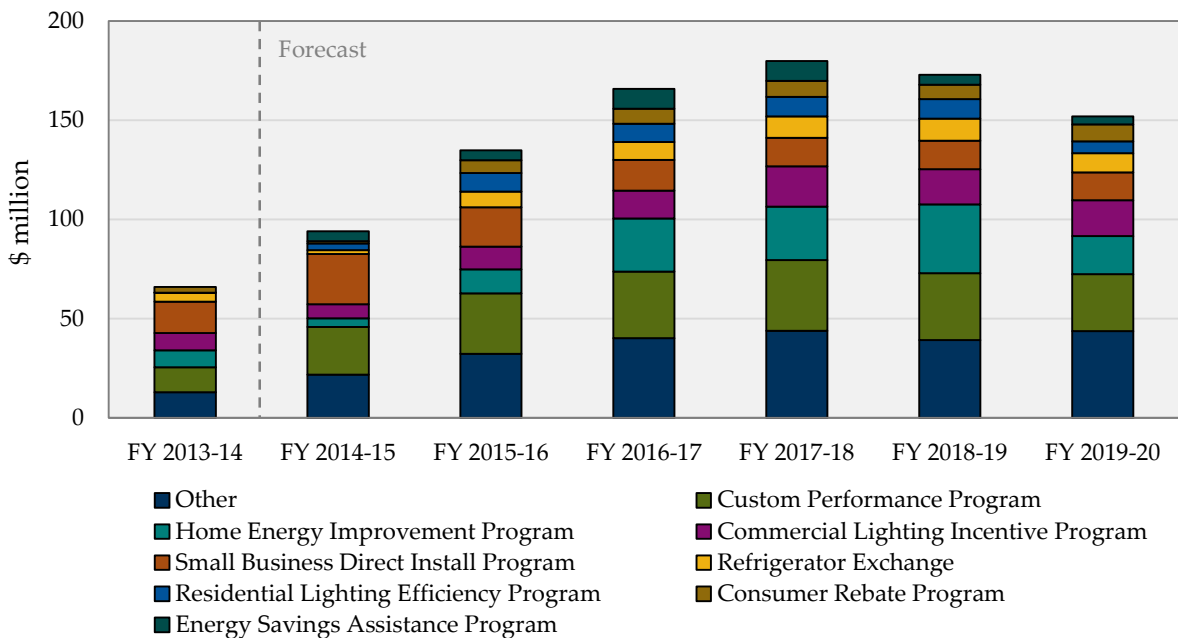
Figure 3-14. Total Energy Efficiency Capital Expenditure (2015-2020)



Source: Power System Rate Action Report, Chapter 2 Appendix D.

The increase in expenditures for the individual programs that are the largest rate drivers is shown below. The top eight programs account for 75 percent of expenditures over the Study Period. Energy efficiency expenditures are recovered by the Capped Renewable Portfolio Standard Energy Adjustment (CRPSEA).

Figure 3-15. Annual Energy Efficiency Program Expenditures



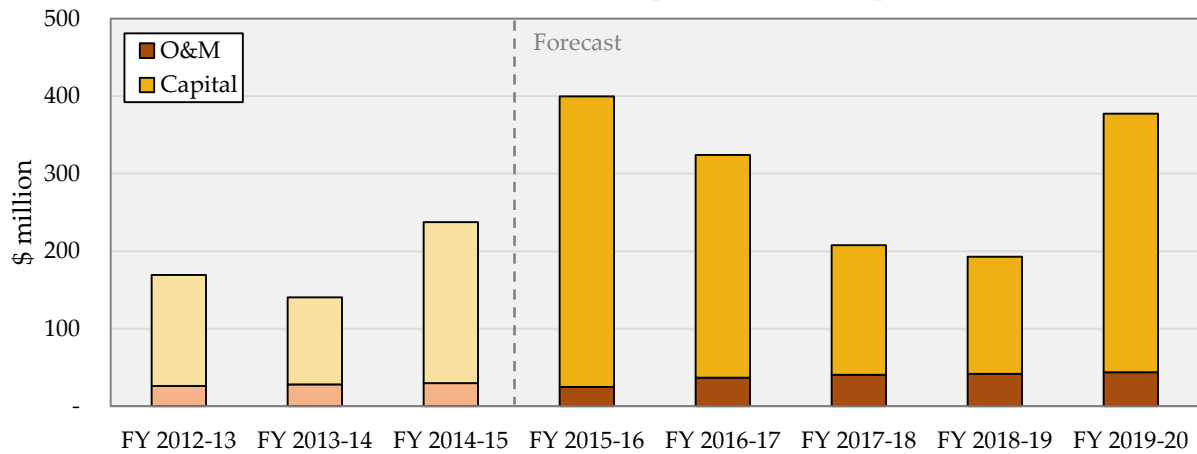
Source: LADWP Efficiency Solutions Portfolio Business Plan FYs 2014/15-2019/20.

3.2.2.4 Renewable Portfolio Standard and Local Solar

According to the Department, renewable energy inclusive of both the RPS requirement and local solar contributes to a \$61 million average annual revenue requirement increase (the second largest behind energy efficiency). Local solar is the larger portion of this at \$43 million. As described previously, LADWP is required by state law to meet a 25 percent RPS in 2016 and a 33 percent RPS in 2020, which coincides with the end of the Study Period. LADWP met the required 20 percent RPS over the 2011-2013 compliance period, but must make additional progress to meet the next targets.

In particular, annual renewable capital expenditures will increase dramatically from FY 2014-15 to FY 2015-16. Renewable purchased power was discussed previously in Section 3.2.2.2.

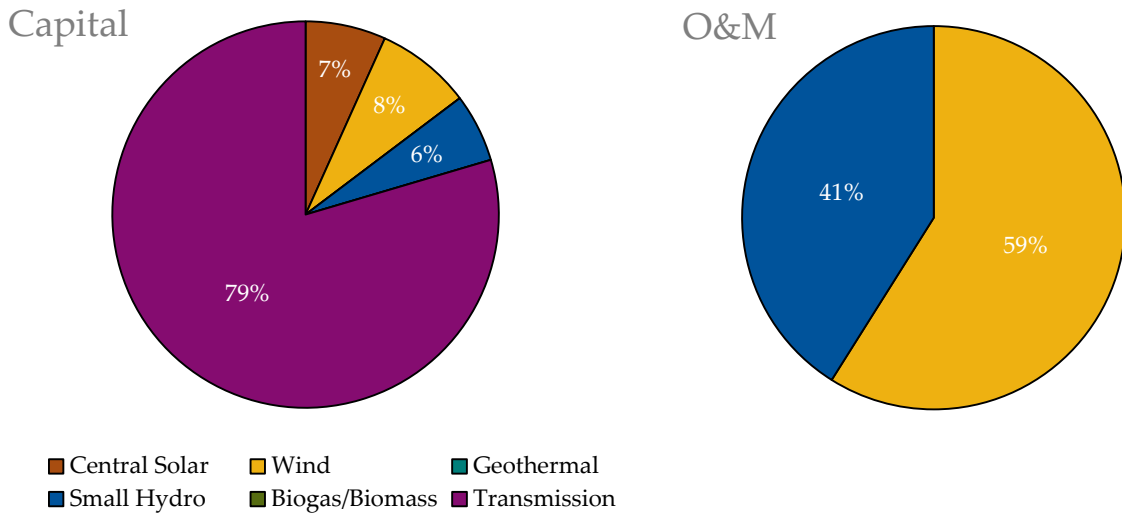
Figure 3-16. Annual Renewable Capital and O&M Expenditures



Source: Power System Case 143, December 18, 2015.

Renewable capital expenditures will ramp up significantly over the Study Period overall; however, in later years investment will decrease slightly until new transmission ramps up again in FY 2019-20. Overall, the majority of the capital budget is allocated to renewable transmission projects (as shown in Figure 3-17). Renewable O&M expenditures are relatively minor in comparison to capital (and purchased power), and consist of O&M for LADWP-owned wind and small hydro power plants.

Figure 3-17. Total Renewable Capital and O&M Expenditures (2015-2020)



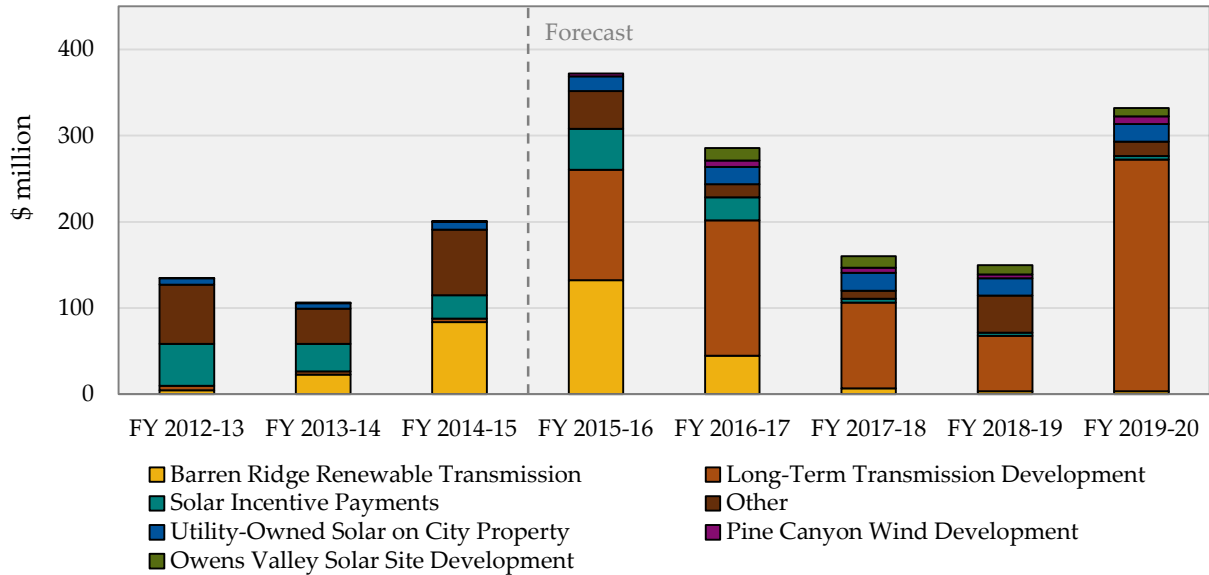
Note: Updated budget data for Case 143 does not break down projects by resource; however, this breakdown is not expected to change significantly.

Source: Power System Rate Action Report, July 2015.

The significant increase in capital in FY 2015-16 is partly the result of the program significantly underspending its approved capital budget in FY 2013-14 and FY 2014-15, using just \$320 million of the \$643 million budget for the two years combined.⁴⁹ This is largely attributable to delays affecting the Barren Ridge Renewable Transmission Project, which is critical for bringing more renewable power into Los Angeles from remote areas. In FY 2013-14 the project spent \$22.7 million rather than the approved \$132.8 million; and in FY 2014-15 spent \$83.6 million rather than the approved \$217.7 million. Even more notably, other long-term transmission development expenditures make a huge leap in FY 2015-16. Past and planned expenditures by project are shown in Figure 3-18, below.

⁴⁹ LADWP Power Budget Data (November 22, 2015).

Figure 3-18. Annual Renewable Capital Project Expenditures

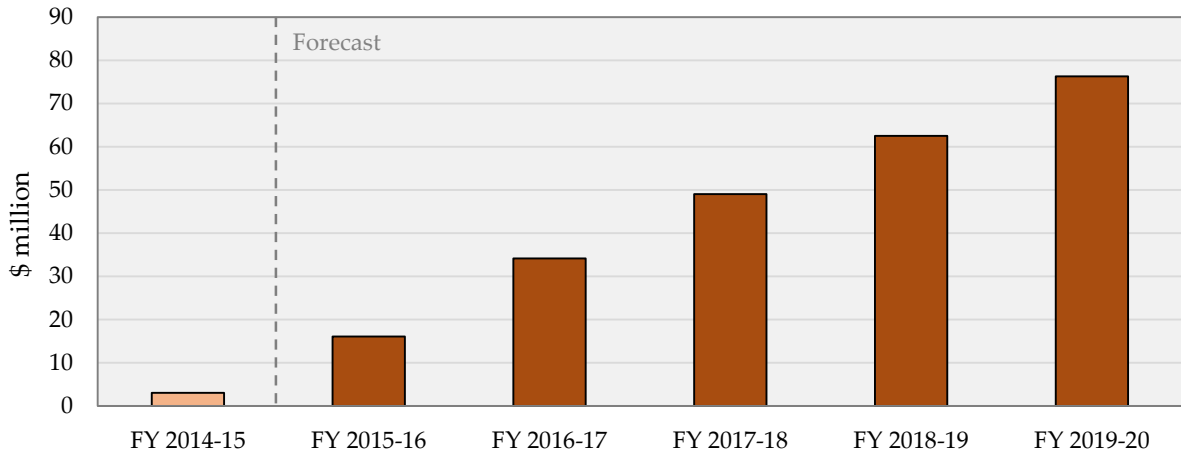


Source: LADWP Power Budget Data, November 22, 2015.

As discussed in the 2015 IEA Survey, the Department reported that it had finalized contracts for just over 30 percent RPS for 2020, with additional contracts under negotiation to make up another 5.7 percent. From this, LADWP should have no problem complying with the 33 percent RPS in terms of contracted projects, but is at risk of procurement and schedule delays like those affecting Barren Ridge. This, and the Department’s preparation for the dramatic increase in transmission development, are discussed in Section 3.3.

Although LADWP-built local solar will increase over the Study Period, there is also a decrease in incentive payments for the Solar Incentive Program, which will begin to finish its state-defined funding allocation for customer net-metered installations. However, because of the decreasing price of solar PV systems, the reduction in incentives will not necessarily slow the rate of customer-owned solar installations taking place in Los Angeles. Local solar expenditures increase significantly due to increasing purchased power (through the feed-in tariff program), which is an important driver of the \$43 million average annual revenue requirement increase. The ability of LADWP to implement the feed-in tariff program is another key topic addressed in the next section of this report (Section 3.3).

Figure 3-19. Annual Rooftop Solar Purchased Power Expenditure



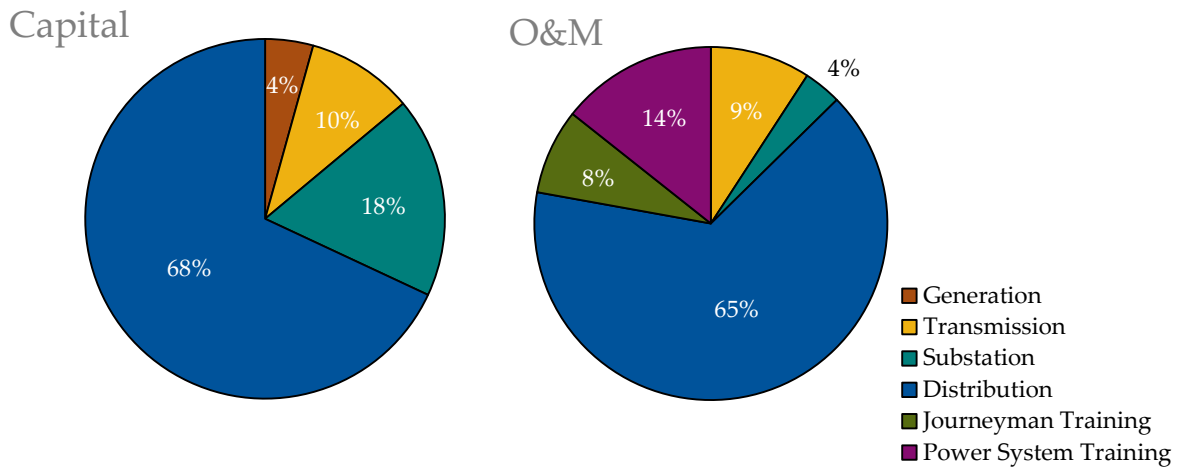
Source: LADWP Power Budget Data, November 22, 2015.

Renewable capital expenditures are incorporated in the Capped Renewable Portfolio Standard Energy Adjustment (CRPSEA) rate adjustment factor and renewable O&M expenditures are recovered by both the Capped and Variable Renewable Portfolio Standard Energy Adjustments (CRPSEA and VRPSEA).

3.2.2.5 Power System Reliability Program

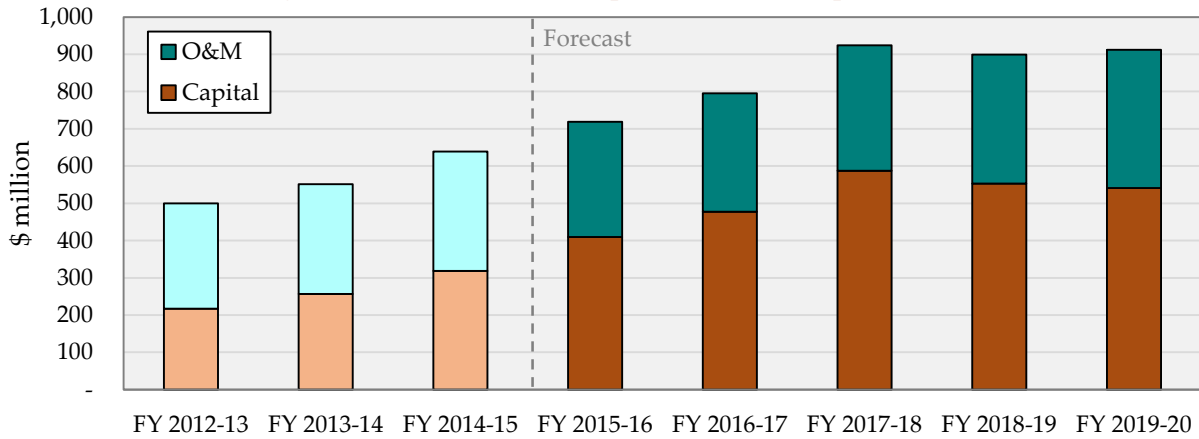
The PSRP is the third-largest contributor to the average annual revenue requirement increase at \$21 million. The PSRP was established in 2014 as the successor to the Power Reliability Program (PRP), in order to establish a more comprehensive approach to system reliability planning, the aging infrastructure challenge, and preparing to modernize the Power System. The PSRP addresses generation, transmission, substation, and distribution functions and infrastructure through prioritized capital and O&M investments.

Figure 3-20. Total PSRP Capital and O&M Expenditures (2015-2020)



Source: Power System Rate Action Report, July 2015.

Figure 3-21. Annual PSRP Capital and O&M Expenditure



Source: Power System Case 143, December 18, 2015.

Above, PSRP expenditures show a significant increase from current spending levels to the levels planned over the Study Period, primarily in distribution. The Department’s ability to manage the planned ramp-up is one of the key questions addressed in the next section of this report (Section 3.3). Implementation ability aside, Navigant considers the ramp-up to be justified to the extent that it supports a needed, more robust replacement strategy. The PSRP aims to decrease replacement cycles so that they are closer to actual expected asset lifetimes; for example, the proposed replacement cycle for substation circuit breakers will align with equipment expected lifetimes going forward (30 years), as will the proposed cycle for substation and generation transformers (45 years).⁵⁰

The PSRP focuses on establishing a systematic replacement program with planned investment projects, which Navigant agrees is a more cost-effective approach than reactive or emergency asset replacement.⁵¹ In its rate proposal, the Department’s stated goal is to balance appropriate investment levels for infrastructure reliability while minimizing the impact on customer rates.⁵² However, in order to keep the rate increase acceptable to City leadership and ratepayers, some important asset replacements will not align with asset lifetimes nor match the PSRP preferred rate.

The Power System Rate Action Report describes the plan to achieve 4,000 pole replacements in FY 2015-16 and increase to 5,000 and then 6,000 replacements per year in the following years, which would improve the pole replacement cycle from 146 years to 80 years but not meet the PSRP preferred 60-year replacement cycle. The 138 kV underground transmission circuit replacement cycle will be 68 years, while the expected average asset life is 40 years.⁵³ And, underground distribution cables will be replaced every 112 years rather than the preferred cycle of every 75 years.^{54 55}

⁵⁰ PSRP Lifecycle Asset Chart provided by the Los Angeles Department of Water and Power, October 2, 2015.

⁵¹ The Department cites the example of a deferred major overhaul for the OVES Upper, Middle, and Control Gorge project, which subsequently had a forced outage that resulted in a project cost of \$50.7 million rather than the original \$9.9 million. A strategic replacement program, rather than a reactive approach, is industry best practice.

⁵² Power System Rate Action Report.

⁵³ Ibid.

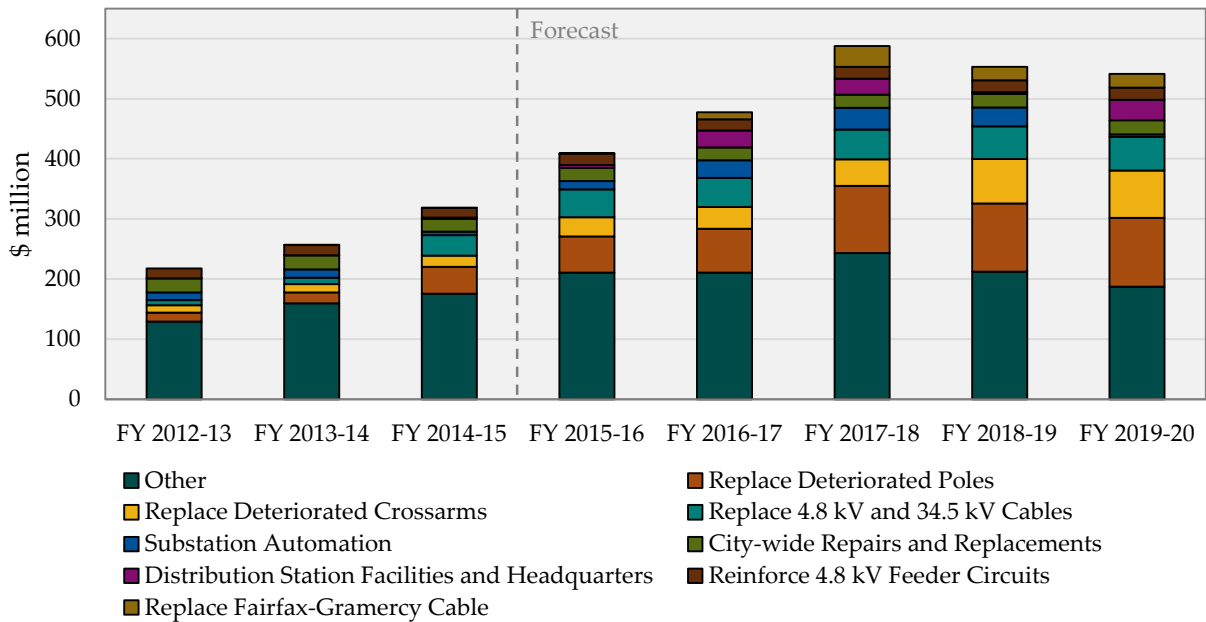
⁵⁴ Power System Rate Action Report, Chapter 3: Rate Drivers, p. 28.

⁵⁵ 2014 IRP, Appendix E (Power System Reliability Program).

Additionally, there are currently 41,000 “fix-it tickets” (distribution system repairs and replacements identified through field work) in the queue and the number is projected to increase to 46,000 in 2017 (compared to a desired level of 2,000 to 5,000). Regardless of the Department’s current implementation ability, the City should be aware of the trade-off between rate increases and the vast extent of infrastructure reliability needs.

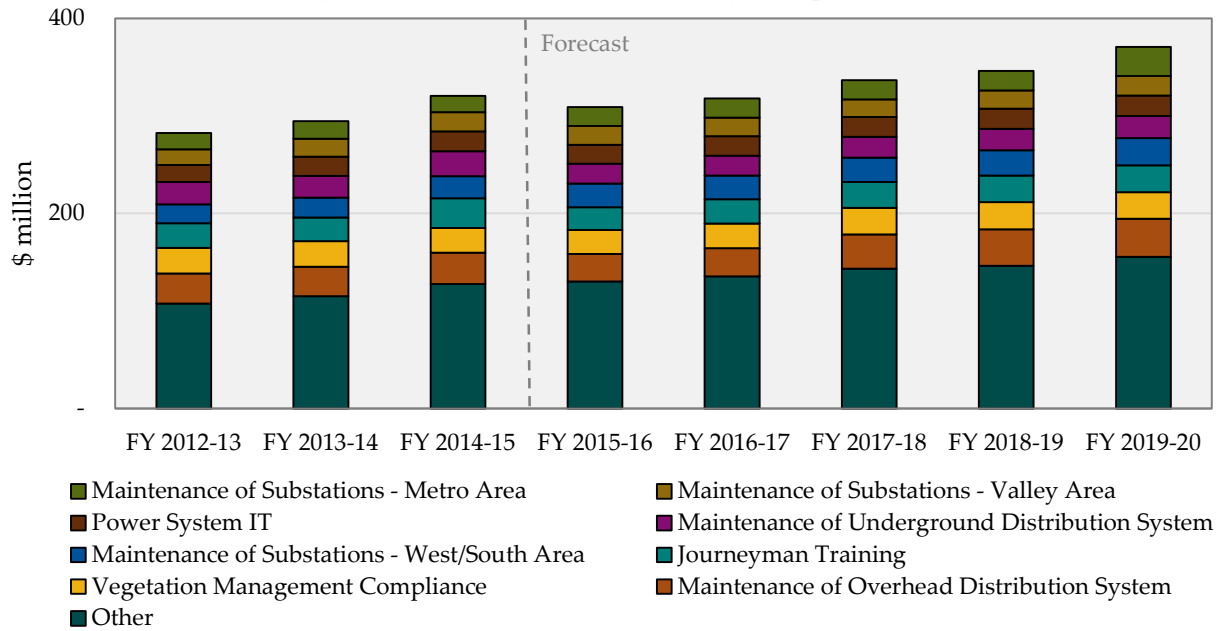
Current PSRP priorities are illustrated by the largest planned project expenditures over the Study Period, as shown in the following figures. The largest eight capital projects account for 59 percent of the total capital expenditure and the largest eight O&M projects account for 58 percent of the total O&M expenditure. PSRP expenditures are recovered by the Incremental Reliability Cost Adjustment.

Figure 3-22. Annual PSRP Capital Project Expenditures



Source: LADWP Power Budget Data, November 22, 2015.

Figure 3-23. Annual PSRP O&M Project Expenditures



Source: LADWP Power Budget Data, November 22, 2015.

3.2.2.6 Once-Through Cooling and Repowering

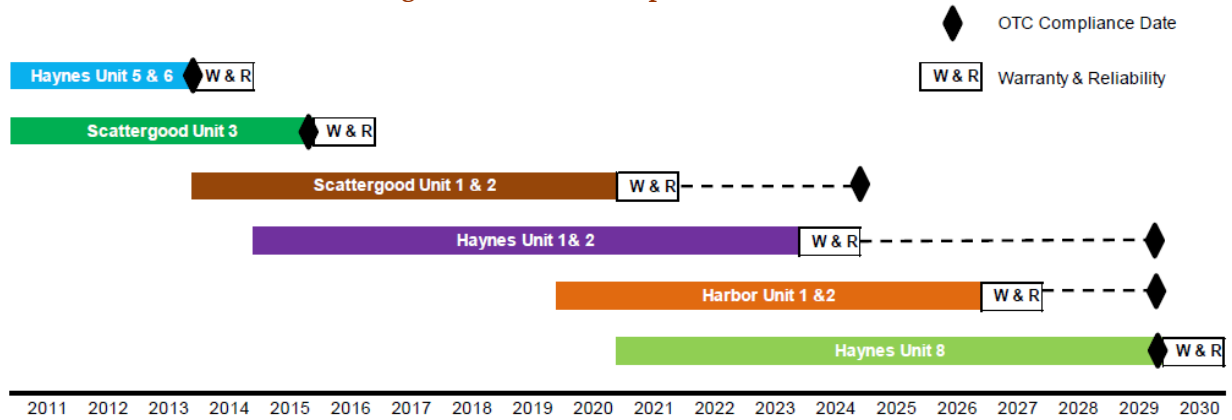
LADWP’s in-basin power plants are being repowered in order to comply with once-through cooling (OTC) requirements and emissions requirements, and to address age and fuel price volatility issues currently facing the facilities. The elimination of OTC in coastal power plants is a regulatory mandate applicable to LADWP’s four in-basin natural gas plants (Haynes Generating Station, Harbor Generating Station, Scattergood Generating Station, and Valley Generating Station). The repowered plants will be significantly more efficient and help operate a power system with more variable renewable energy resources. This effort is expected to cost \$731.6 million in capital over the Study Period.⁵⁶ According to the Department, this is expected to require an \$11 million average annual revenue increase.

Upgrades to the hydropower Castaic plant are also included in this budget category; although Castaic is not affected by OTC requirements, upgrades will also serve to modernize this local power plant.

The OTC compliance schedule from the 2014 IRP is shown below for reference. Scattergood Unit 3, Scattergood Units 1 and 2, and Haynes Units 1 and 2 repowering and OTC elimination activities all overlap with the Study Period to some extent.

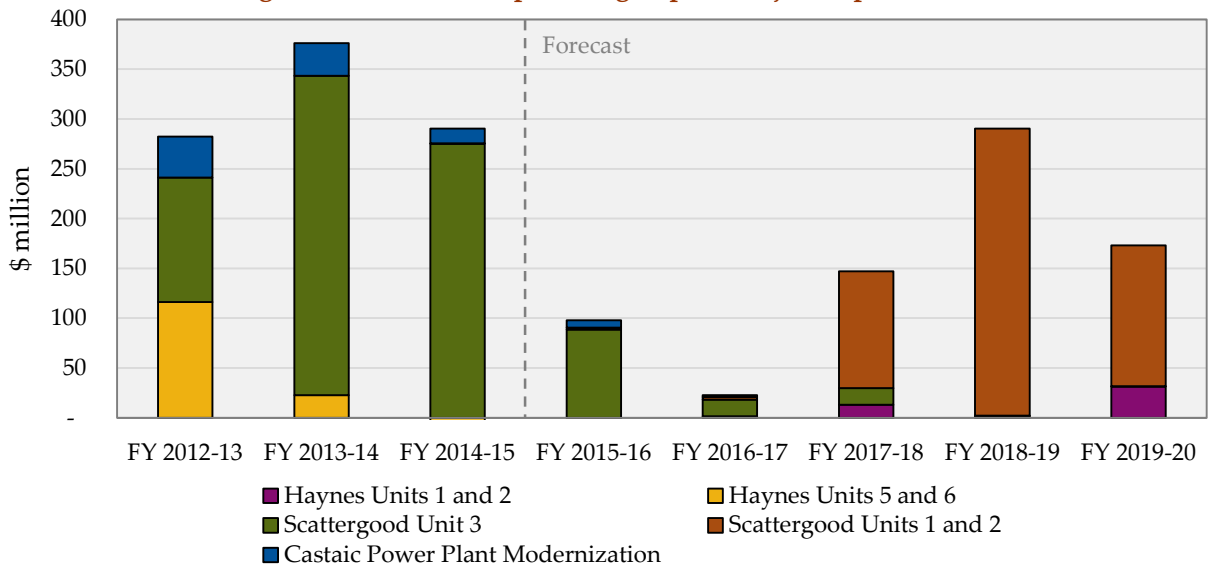
⁵⁶ LADWP Power Budget Data (November 22, 2015).

Figure 3-24. OTC Compliance Schedule



Source: Power System 2014 Integrated Resource Plan, p. ES-16.

Figure 3-25. Annual Repowering Capital Project Expenditures



Source: LADWP Power Budget Data, November 22, 2015.

The Department reported having finished the first project for Haynes Units 5 and 6 on schedule and on budget and looks to be on schedule for Scattergood Unit 3 as well, which is currently finishing construction. By far, the largest expenditure over the Study Period is budgeted for Scattergood Units 1 and 2, with the bulk of the work taking place in FY 2017-18 to FY 2019-20, as shown in the figure above. In the current budget, Haynes Units 1 and 2 will begin initial work in FY 2015-16 and account for a more significant part of the spending in FY 2019-20. Both Scattergood and Haynes Units 1 and 2 are budgeted in later years than shown in the schedule in Figure 3-24; however, they have significant buffers and are not obviously at risk at this time. Repowering expenditures are incorporated in Base Rates.⁵⁷

⁵⁷ Ibid.

3.2.2.7 Coal Transition

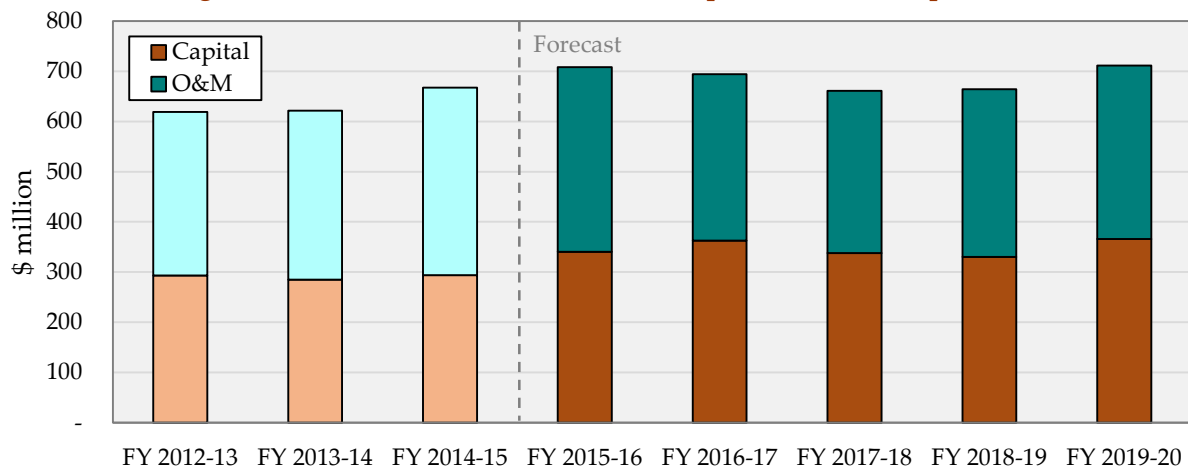
The Power System’s coal transition is the replacement of the Navajo Generating Station with the Apex natural gas plant, with the differential made up by increased energy efficiency and renewable energy. According to the Department, the coal transition will actually decrease the average annual revenue requirement by \$6 million due to decreased fuel costs after financing the purchase of the smaller Apex Generating Station with off-balance sheet debt through the Southern California Public Power Authority (SCPPA). Because of this financing arrangement, the capital costs of Apex do not drive a revenue requirement increase and are not included here.

Until the end of 2016, the Department will still receive power from Navajo, which accounts for normal Navajo-related fuel and O&M costs through FY 2015-16. Natural gas fuel costs for Apex extend over the Study Period and were described previously in Section 3.2.2.1 (Fuel).

3.2.2.8 Other Infrastructure

There are a number of sizable projects that fall into the “other infrastructure” category, which are not part of the major programs described so far. The vast majority of other infrastructure projects contribute to the revenue requirements for Base Rates (with the exception of the demand response program described in the next subsection, which is recovered by the CRPSEA).

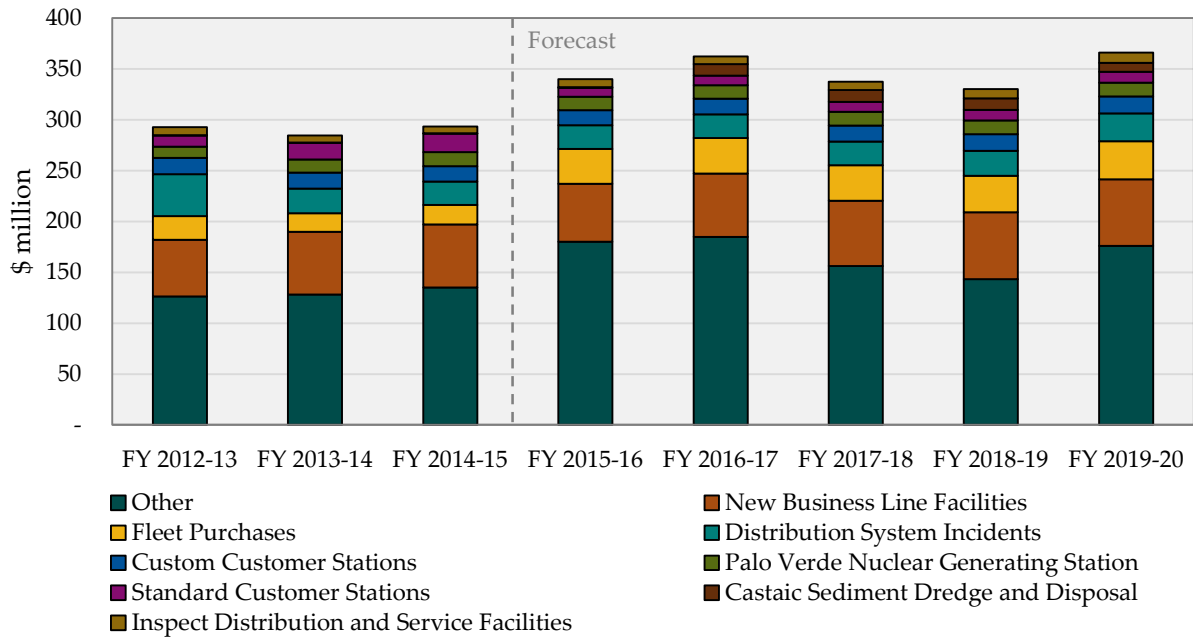
Figure 3-26. Annual Other Infrastructure Capital and O&M Expenditures



Source: LADWP Power Budget Data, November 22, 2015.

Capital expenditures for other infrastructure projects cover a large number of miscellaneous projects, with the largest eight projects accounting for 52 percent of the total (as shown below in Figure 3-27). The construction of power facilities for new business and fleet purchases are the largest single items over the Study Period.

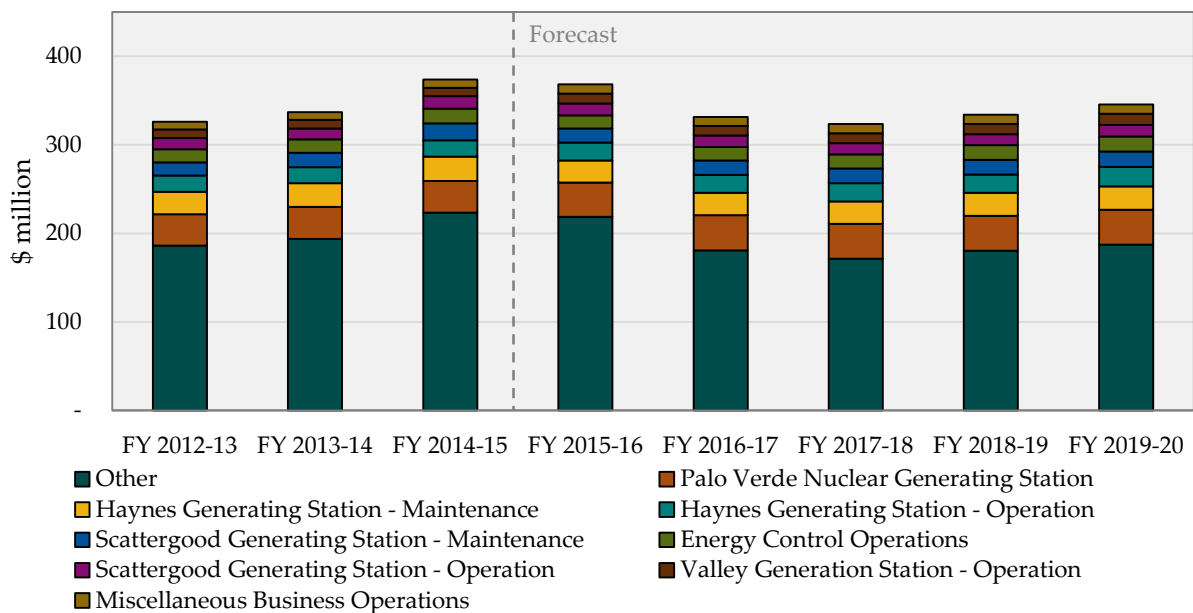
Figure 3-27. Annual Other Infrastructure Capital Project Expenditures



Source: LADWP Power Budget Data, November 22, 2015.

O&M expenditures for other infrastructure projects also cover a wide range of small to mid-size budget items, with the largest eight projects accounting for just 45 percent of the total. The largest expenses over the Study Period are payments to Arizona Public Service for LADWP’s O&M share of the Palo Verde Nuclear Generating Station and the operation and maintenance of the in-basin natural gas generating stations, as shown below.

Figure 3-28. Annual Other Infrastructure O&M Project Expenditures

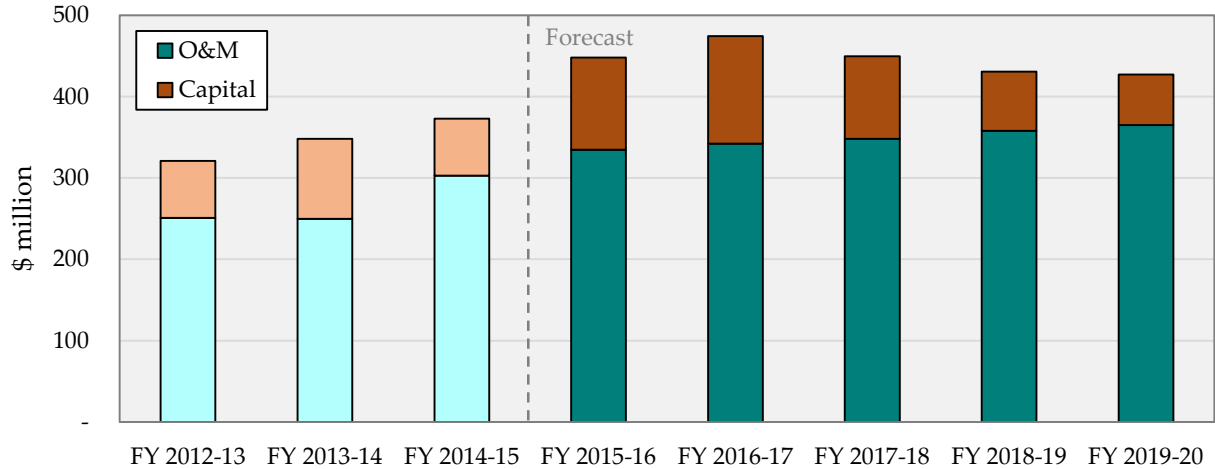


Source: LADWP Power Budget Data, November 22, 2015.

3.2.2.9 Operating Support

The Operating Support budget category is primarily for O&M expenditures related to general power operations and the Department’s Joint Services (e.g., IT and customer service), as shown below.

Figure 3-29. Annual Operating Support Capital and O&M Expenditure

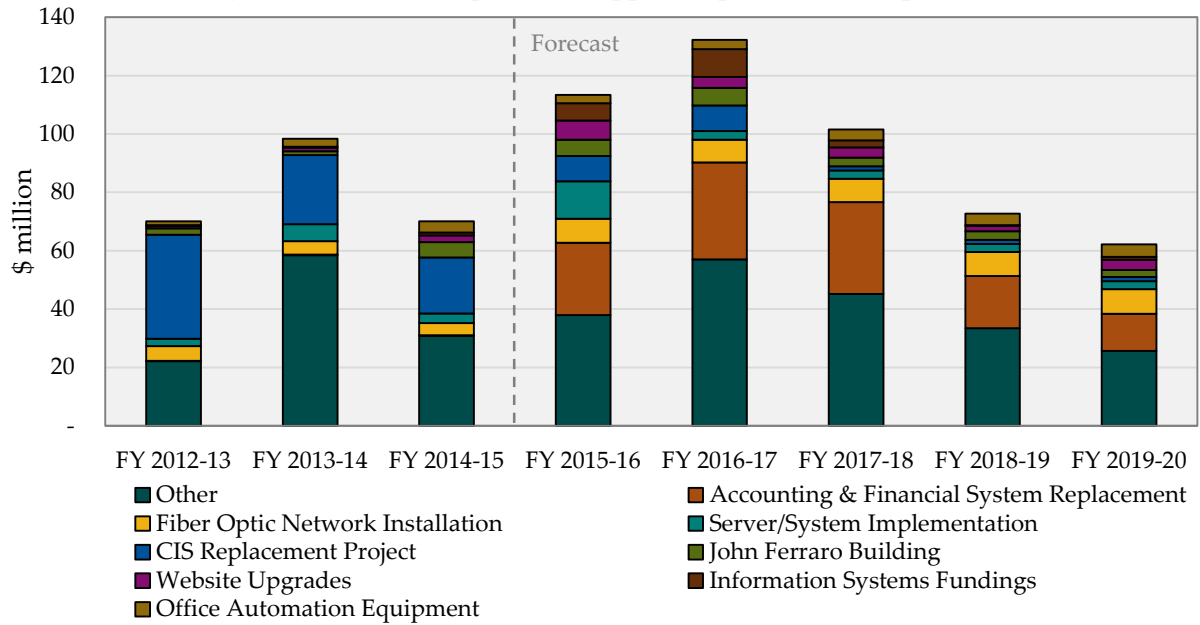


Source: LADWP Power Budget Data, November 22, 2015.

Capital expenditures for Operating Support also include a number of mid-size projects, with the largest eight projects accounting for 59 percent of the total (as shown in Figure 3-30 below). In recent years, the CIS replacement project was the largest item;⁵⁸ the next IT system overhaul will be the largest item going forward, as the Department replaces the accounting and financial information system.

⁵⁸ At the time of this report, no legal decision had been issued regarding CIS settlement costs, which are accordingly not reflected in the current rate proposal.

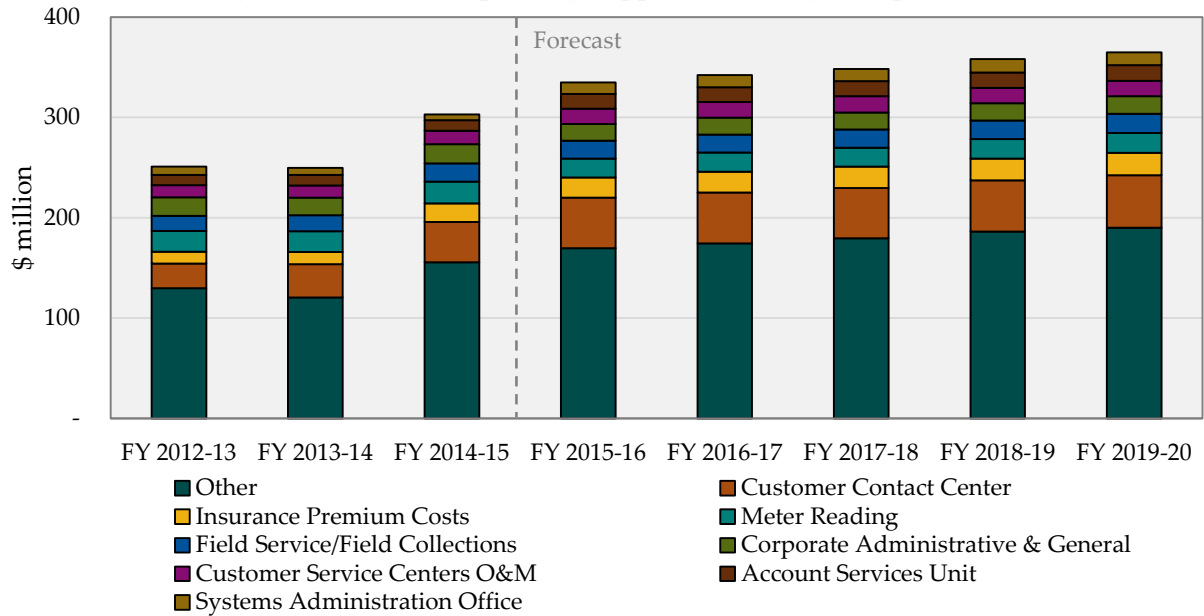
Figure 3-30. Annual Operating Support Capital Project Expenditures



Source: LADWP Power Budget Data, November 22, 2015.

O&M expenditures for Operating Support include even more mid-size projects, with the largest eight projects accounting for only 49 percent of the total as shown below. The largest expenditure over the Study Period is budgeted for the customer contact center, which handles all residential calls relating to customer billing, requests for services, and trouble calls. In particular, LADWP is contemplating an aggressive hiring plan in various areas of customer service. It is believed that additional hiring is required to definitively resolve many of the outstanding issues associated with the CIS implementation, better meet core customer service requirements, and address attrition in the organization that was experienced over the last several years. The precise nature of that plan (including number of hires) is being evaluated by the Department. To ensure an efficient delivery of the customer service function at LADWP, Navigant recommends that this hiring plan be inclusive of recommendations to increase productivity in this area.

Figure 3-31. Annual Operating Support O&M Project Expenditures



Source: LADWP Power Budget Data, November 22, 2015.

3.2.2.10 Emerging Technology

Emerging technology programs including demand response, smart grid, and electric vehicle infrastructure are highlighted both in the 2014 IRP and the Power System Rate Action Report but are comparatively small items in the proposed budget. These are important initiatives that are planned to be very impactful on the Power System in the future, but during the Study Period will remain fairly preliminary (currently, they are pilot-stage programs not ready for a full-scale rollout).

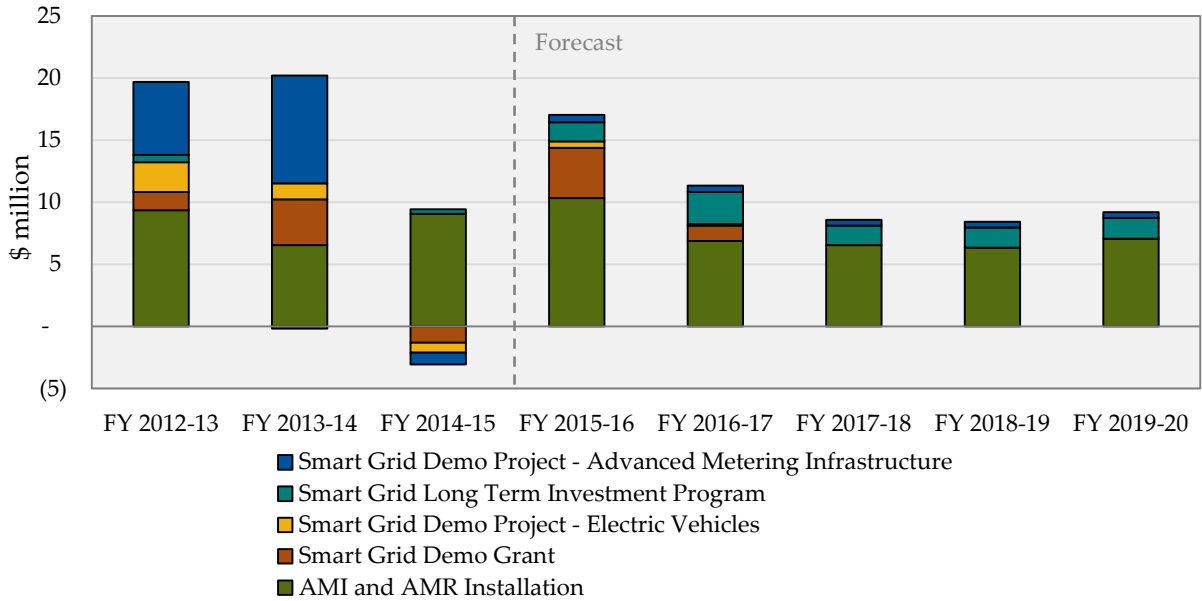
Smart Grid

As discussed in the 2015 IEA Survey, LADWP has a comprehensive smart grid strategy and implementation roadmap. To date, there are several budgeted smart grid initiatives with capital expenditures shown in Figure 3-32, below. Smart grid expenditures are incorporated into Base Rates.

The Smart Grid Demonstration Project is a grant-enabled pilot program with Smart Grid L.A., including several different components like the integration of electric vehicle charging. The Smart Grid Investment Program consists of 12 programs planned over a period of 10 years, including Advanced Metering Infrastructure (AMI) and Advanced Meter Reading (AMR) installation which is by far the largest budget item but is still being deployed on a relatively limited scale. LADWP’s AMI program is behind that of the California investor-owned electric utilities (IOUs)—at the end of 2014, the AMI rollout for IOUs was complete, with over 12 million meters installed throughout the three territories.⁵⁹

⁵⁹ California Smart Grid Annual Report to the Governor and Legislature, January 2015 (www.cpuc.ca.gov/NR/rdonlyres/BCDBFE10-E89E-4933-8457-EA6B6E3D5D52/0/SmartGridAnnualReport2014Final011215.pdf).

Figure 3-32. Annual Smart Grid Capital Project Expenditures

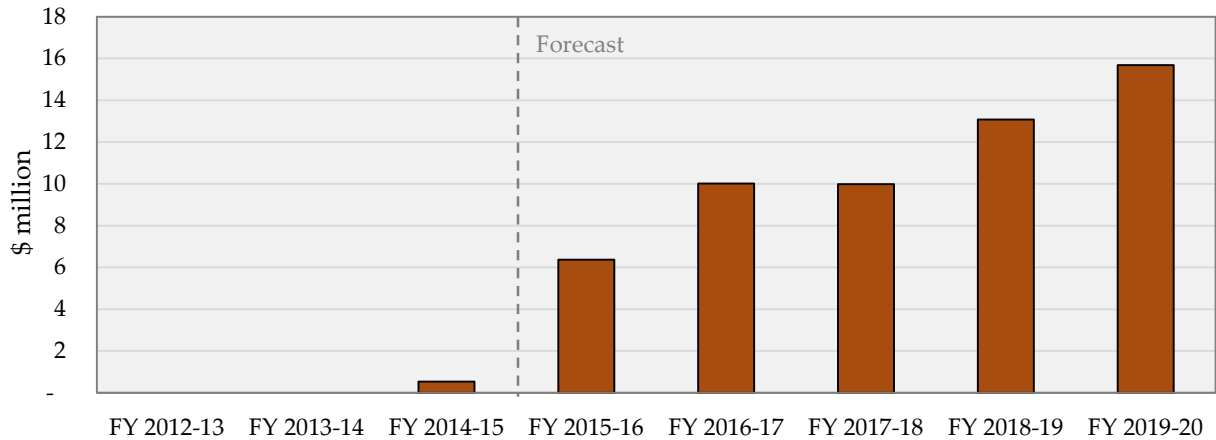


Note: Negative budget in FY 2014-15 due to receiving grant funding.
 Source: LADWP Power Budget Data, November 22, 2015.

Demand Response

The demand response program is also still in its pilot stage. Proposed demand response spending is shown in Figure 3-33; however, it is unlikely that the Department will move beyond the pilot in FY 2015-16 as shown. The Power System reports that it will have a final demand response plan after its next pilot phase in June-October 2016. Demand response expenditures are recovered by the CRPSEA.

Figure 3-33. Annual Demand Response Capital Expenditure



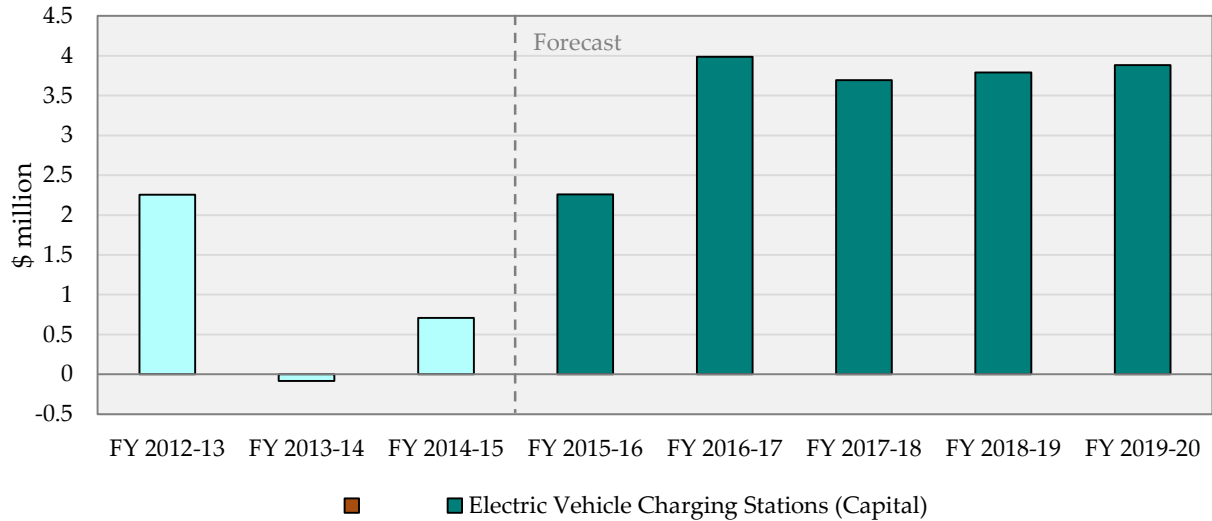
Source: LADWP Power Budget Data, November 22, 2015.

Electric Vehicles

In addition to the smart grid pilot project for electric vehicle integration, the Department will also invest capital in additional electric vehicle charging stations for the City of Los Angeles and LADWP

customers, and O&M for electric vehicle rebates and program administration (Figure 3-34). These expenditures are incorporated into Base Rates.

Figure 3-34. Annual Electric Vehicle Capital and O&M Project Expenditures



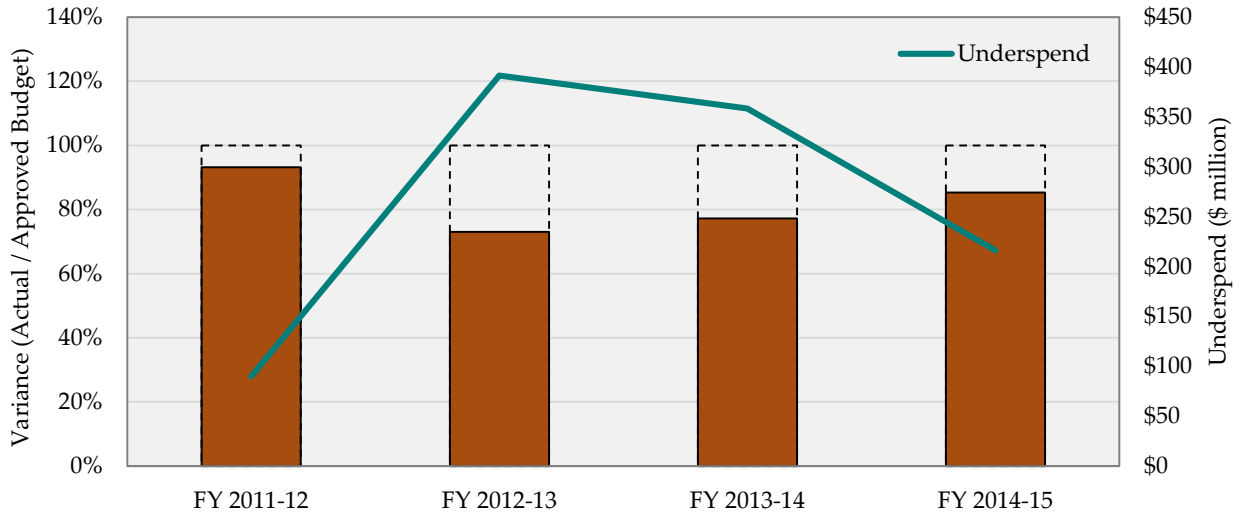
Source: LADWP Power Budget Data, November 22, 2015.

LADWP and Los Angeles leadership have high hopes for these programs in the future, but the programs will not have a significant impact over the Study Period and will not be able to have meaningful metrics applied until the pilots are complete and full implementation plans are determined.

3.3 LADWP’s Capability to Implement its Plan

The Department has had a mixed record of successful program implementation over the past few years. Several of the Power System’s major programs have struggled to perform at their planned levels, although others, like the RPS, have met their state-mandated targets. Procurement, contracting, and workforce attrition and hiring issues have posed the main challenges, as discussed in the 2015 IEA Survey. Relatively low workforce productivity is another barrier to program accomplishments (see Chapter 8). One result of this is that only 85 percent of the overall Power System capital budget was spent in FY 2014-15, as shown in the figure below.

Figure 3-35. Power System Budget Variance, FY 2012-FY 2015



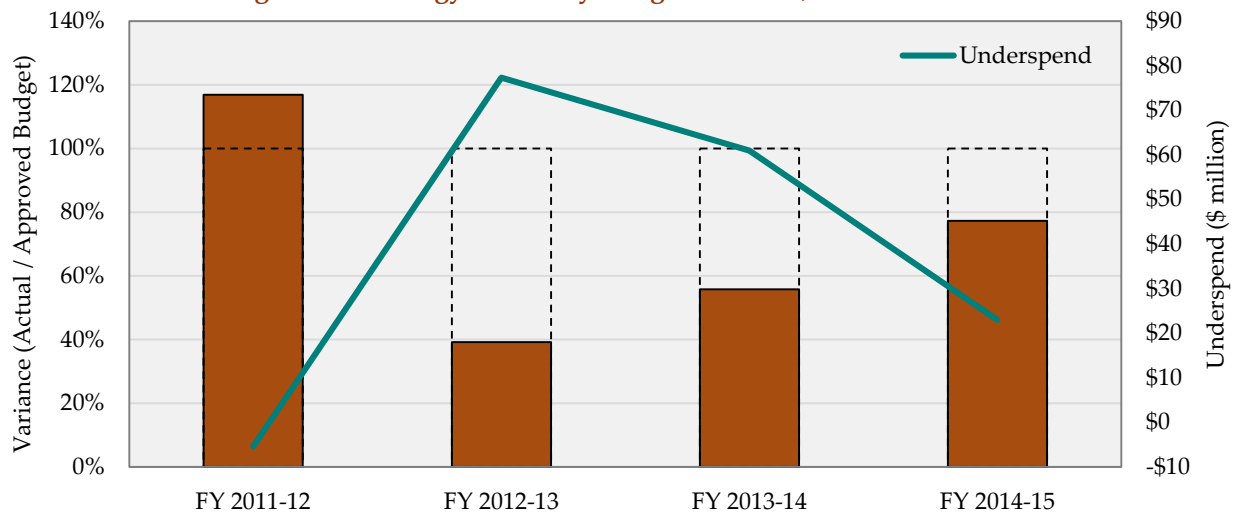
Source: LADWP Power Budget Data, November 22, 2015.

Although FY 2014-15 is an improvement over the previous two years, implementation remains a concern for the Study Period because of the significant capital ramp-up planned, as described previously in Section 3.2. The following subsections explore LADWP’s ability to implement each of the major programs driving revenue requirements.

3.3.1 Energy Efficiency

Because energy efficiency is the largest contributor to the increase in revenue requirements over the Study Period, it is especially important that the Department be able to roll out programs to achieve its energy savings goals. This has been an area of concern in the past, as LADWP has struggled with accurately planning its energy efficiency portfolio and associated budget and has been constrained by limited staffing resources. However, as shown below, the Efficiency Solutions group has recently made good progress in closing the gap between the approved budget and actual program spending.

Figure 3-36. Energy Efficiency Budget Variance, FY 2012-FY 2015



Source: LADWP Power Budget Data, November 22, 2015.

Part of the context for the above figure is that the extreme budgets for FY 2012-13 and FY 2013-14 were the result of the Department’s inexperience with budgeting its new, more aggressive energy efficiency program (according to interviews for the IEA Survey). 2009 was a strong year for energy efficiency savings, and the Board adopted new energy efficiency goals in 2011 and 2012—at this point, the Department appears to have been eager to make progress but lacked implementation experience. Then, as the Efficiency Solutions group gained more experience and conducted a new energy efficiency potential study, the budget was scaled back and became more realistic.

Although the planned spending and energy savings for FY 2015-16 show a dramatic increase from past years (as shown previously in Figure 3-12 and Figure 3-13), the Department’s approach now appears to be ambitious but reasonable. The level of effort required to achieve the significant energy efficiency portfolio ramp-up is fully understood by LADWP’s Efficiency Solutions group, which has made a serious effort to prepare for the next five years and effectively increase program spending.

Understanding past performance is important for future improvement. The Department tracks its energy efficiency portfolio performance through an annual evaluation, measurement, and verification analysis. The most recent study⁶⁰ found that programs in the portfolio (with data ranging from FY 2011-12 to FY 2013-14) achieved a total realization rate of 0.92, which is the ratio of measured energy savings to predicted or claimed energy reduction (a unity ratio means that savings were delivered exactly as expected).⁶¹ This is a good rate for the portfolio, especially with multiple programs over-delivering. Only one program (the Refrigerator Turn-In & Recycle program) underperformed significantly. One of the main recommendations made by the study was for the Efficiency Solutions group to provide sufficient staffing to support all programs.

⁶⁰ Evaluation, Measurement, and Verification of the Los Angeles Department of Water and Power Energy Efficiency Programs, Annual Report Volume 1, Navigant Consulting, February 13, 2015.

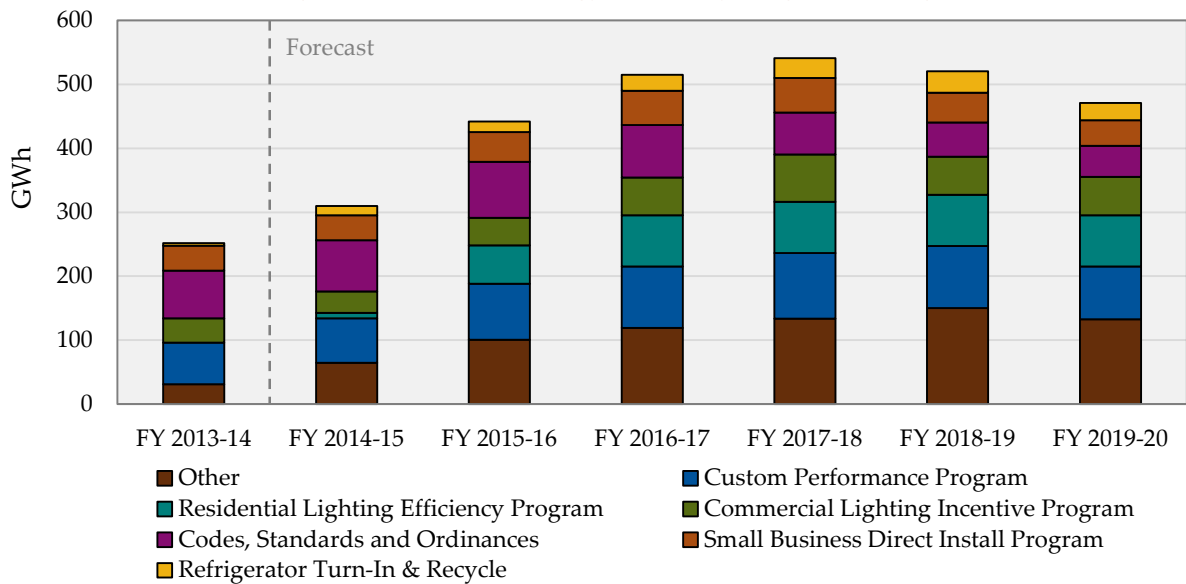
⁶¹ www.naesb.org/pdf4/dsmee_ee_programs.pdf.

The Efficiency Solutions group has done just that, making significant progress ramping up resources and partnerships. For example, 21 new hires were recently added (with six to seven more still to come).⁶² The group has also partnered with SCPPA under an umbrella agreement for energy efficiency programs. Under the umbrella agreement, LADWP (and other partners) will be able to use SCPPA’s contractors for a variety of efficiency programs. SCPPA’s handling of the procurement process will effectively circumvent LADWP’s often onerous in-house process. Other partners include Southern California Gas Company, the Los Angeles Unified School District, ARCA Inc. (appliance recycling), the City of Los Angeles, and non-profit organizations.⁶³ The partnership with Southern California Gas Company in particular has been a notable success so far, and the Efficiency Solutions team feels optimistic about its available resources.

The Efficiency Solutions group has also mapped out the planned expenditures and energy savings annually, by program, through FY 2022-23 in its Efficiency Solutions Portfolio Business Plan. This provides a reassuring level of specificity for implementing the needed ramp-up on a program-by-program basis. In particular, the portfolio also includes a new upstream HVAC program, expands the CII Food Service Program, revamps the Commercial Lighting Incentive program, and invests more in marketing and community engagement.

As illustrated by Figure 3-37 below, the top six programs account for 74 percent of planned energy savings over the five-year rate period. Of these, the Residential Lighting Efficiency Program is the largest new effort planned for the period (the others having been implemented previously). From the lighting programs and others, it is clear that consumers in LADWP’s territory can still make many basic energy efficiency improvements which will contribute significantly to the 15 percent savings goal. With good management of these six programs, the Department will be well on its way to achieving its goal.

Figure 3-37. Annual Energy Efficiency Program Savings



Source: LADWP Efficiency Solutions Portfolio Business Plan FYs 2014/15-2019/20.

⁶² At the time of writing this report, the new hires were still in training.

⁶³ LADWP Efficiency Solutions Portfolio Business Plan FYs 2014/15 – 2019/20.

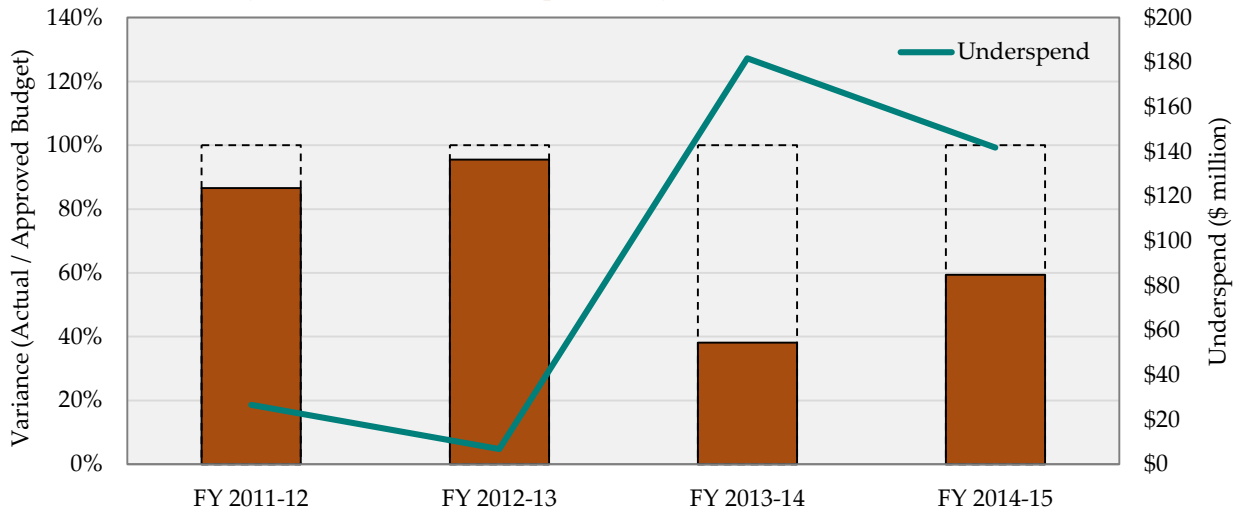
However, some risk and uncertainty is unavoidable because the energy efficiency portfolio depends on factors outside of the Department’s control; namely, customer participation. Should the program underperform because of low participation, the Capped Renewable Portfolio Standard Energy Adjustment Factor will balance the underspending the following year, and actual spending and the cumulative percentage of energy savings will be reported as key metrics.

3.3.2 RPS and Local Solar

Investments for the RPS and local solar programs comprise the second largest revenue requirement increase behind energy efficiency. Although the Department was in compliance with the 20 percent RPS requirement over the 2011-2013 period, it has underspent the planned capital budget for the two years following. Meeting the RPS but underspending on capital renewable investments is possible because the Department can make wholesale green power purchases for compliance rather than building or contracting with local renewable generators. However, the latter renewable procurement strategy is more closely aligned with City of Los Angeles goals.

Local solar is also one component of the capital budget shown below (not including local purchased power through the feed-in tariff program), but the underspending shown is primarily the result of delays in the Barren Ridge Renewable Transmission Project.

Figure 3-38. Renewable Capital Budget Variance, FY 2012-FY 2015



Source: LADWP Power Budget Data, November 22, 2015.

Despite delays, the Department expects the remainder of Barren Ridge Renewable Transmission Project to be completed in the next two years. Long-term transmission development other than Barren Ridge is the other major RPS capital expenditure over the Study Period. It is also subject to uncertainty because it is a new large-scale effort (Figure 3-18 in Section 3.2 shows the planned budget go from only a few million dollars per year to over \$100 million in FY 2016-17). To assess the Power System’s preparedness

for the dramatic ramp-up in renewable transmission, we reviewed expenditures and progress at the project level. Notable projects in long-term transmission development include the following:⁶⁴

- Voltage/current upgrade of the Pacific DC Intertie: \$184.4 million over the Study Period, canceled.⁶⁵
- Conversion of the Victorville-Century line to HVDC: \$74.7 million over the Study Period, currently in the feasibility assessment/preliminary design phase.
- Conversion of the Mead-Victorville line to 500 kV: \$68.6 million over the Study Period, currently in the conceptual planning phase.
- Upgrade of LADWP's West-of-the-River lines: \$45.0 million over the Study Period, currently in the feasibility assessment phase. However, the feasibility study has been delayed for further consideration at a later time.
- Large battery storage demonstration project: \$40.4 million over the Study Period, moved to another budget line item.
- Apex new 500 kV line: \$37.1 million over the Study Period, currently in the feasibility assessment phase.

Notably, the largest project impacting revenue requirements every year of the Study Period (upgrades to the Pacific DC Intertie) has been canceled. This is a recent development not reflected in the budget data used for this report, but the Power System reports that it will add the funding for this canceled project to other programs for a net change of \$0 in the total capital budget.⁶⁶ This is an average \$36.9 million each year of the Study Period, or a requirement for approximately \$14.8 million cash funding each year using LADWP's standard capitalization ratio. Compared to the \$18 million average annual revenue requirement increase attributed to the RPS program, this is extremely significant. The Department should ensure that these funds are used for renewable capital expenditures; or, reflect this budget reallocation in the first rate adjustment using the proposed adjustment factors. This is one example of the way in which the Power System reallocates funding internally and therefore highlights the importance of reporting on the key performance metrics to track actual expenditures.

The original FY 2015-16 renewable transmission budget also largely depended on the implementation of the battery storage demonstration project, which is no longer classified in long-term transmission development but still accounts for \$30 million of the total renewable capital budget for that year. Otherwise, most of the remaining projects have progressed to feasibility studies or later stages of development. However, these are still early stages and there is a significant amount of risk for large construction projects that have not yet established construction schedules. Progress updates in the first several years should be provided to confirm or revise spending projections over the Study Period.

In the 2015 IEA Survey, Navigant assessed LADWP's status for the Solar Incentive Program (incentives for customer net metered solar) component of its local solar effort. We concluded that recent installation data (as shown below) supports the idea that the Department will be able to meet its program goal in the

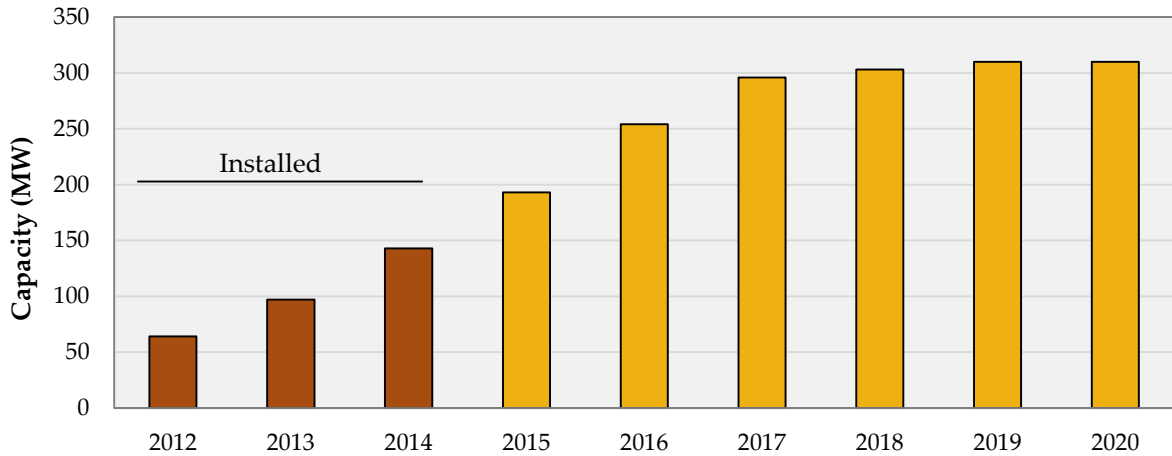
⁶⁴ Power System Transmission Plan Master File (November 17, 2015).

⁶⁵ According to information from LADWP on November 19, 2015.

⁶⁶ According to information from LADWP on December 11, 2015.

next few years. While the program may not attain the participation level forecasted for FY 2015-16 (\$48 million in incentive payments shown in Figure 3-18), it will be completed during the Study Period.

Figure 3-39. 2014 IRP Cumulative Net Metered Solar, Historical and Projected



Source: Navigant analysis based on the LADWP 2014 IRP, Appendix N.

The IEA Survey also evaluated the local solar feed-in tariff. This program is not part of the capital expenditures for the Study Period, but rather a component of purchased power. LADWP and the Mayor’s Office maintain an online dashboard tracking the program’s progress.⁶⁷ The latest dashboard from November 3, 2015 reported 7.9 MW commissioned with 5.6 MW of applications received for the fifth and final allocation of the 100 MW program. As discussed in the IEA Survey, this is a low success rate caused primarily by wait list drop-outs and processing delays.

Over the Study Period, the Department’s plans include not only the 100 MW feed-in tariff program, but an additional 300 MW program. LADWP has instituted a number of improvements, including clearing the inactive projects on the wait list and establishing a streamlined permit process; however, the feed-in tariff is still overly-ambitious at this point in time. The planned local solar purchases in Figure 3-19 are unlikely to be achieved so quickly.

Overall, the Power System faces some uncertainty with its planned renewable expenditures, specifically its large, capital-intensive renewable transmission projects and customer participation-based local solar programs. Renewable transmission has the greatest potential to impact the 33 percent RPS mandate as critical infrastructure for bringing large-scale renewable power purchases to Los Angeles—hence, it should be closely monitored. The impact of local solar on the RPS is more limited, but local solar constitutes a significant part of the revenue requirement increase and should also be monitored to ensure ratepayer benefits are realized.

3.3.3 Power System Reliability Program

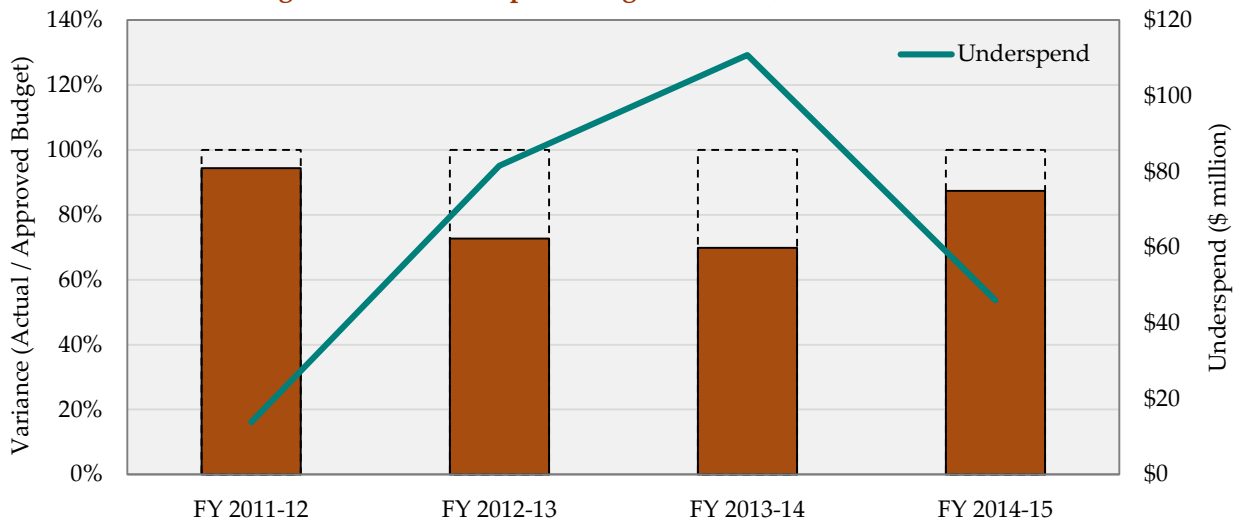
Unlike energy efficiency and local solar which are driven in part by customer participation, the PSRP’s success depends solely on the Department’s ability to fund and implement it. PSRP performance was

⁶⁷ Dashboard available on the website: www.ladwp.com/fit.

another focus area of the 2015 IEA Survey, which includes a section in the Power Transmission & Distribution Infrastructure Report (Volume II) dedicated to PSRP implementation.

In the past few years, the PSRP (and its predecessor the PRP) struggled with contract delays and delays in the procurement process. In the IEA Survey, Navigant found that the PSRP spent 72.7 percent of its budget in FY 2012-13, 69.8 percent of its budget in FY 2013-14, and 87.4 percent of its budget in FY 2014-15. The FY 2014-15 underspending was primarily in the substation and transmission programs (the transmission program spent only 56 percent of its approved budget from FY 2012-13 to FY 2014-15).

Figure 3-40. PSRP Capital Budget Variance, FY 2012-FY 2015



Source: LADWP Power Budget Data, November 22, 2015.

Fortunately, the trend shown in Figure 3-40 above is a positive one, as the Power System appears to be recovering from several years of underspending on the PSRP. Based on discussions with Navigant, the Power System revised PSRP expenditures for the Study Period downward in the first few years in order to more accurately reflect its ability to implement the program. This is carried out in a more gradual ramp-up in the final Rate Case 143. However, the PSRP is a critical program and LADWP must make resources available so that reliability improvements can be made. These improvements should not be limited by process and personnel barriers.

According to the Power System’s PSRP lifecycle asset plan, asset replacement rates are supposed to ramp up significantly over the Study Period. The following table shows the improved asset replacement rates in years (a decrease in years indicates an increased rate).

Table 3-3. PSRP Asset Replacement Rates

Asset	Current Replacement Rate (Years)	Future Replacement Rate (Years)
Poles	146	80
Distribution Transformers	46	43
Substation High Side Transformers	70	45
Substation Load Side Transformers	70	45
Local Substations Transformers	70	50
Substation Circuit Breakers	30	30

34.5 kV Circuit Breakers	45	30
4.8 kV Circuit Breakers	60	30
138 kV Underground Transmission Circuits	72	68
138 kV Stop	75	50
Generator Transformers	50	45

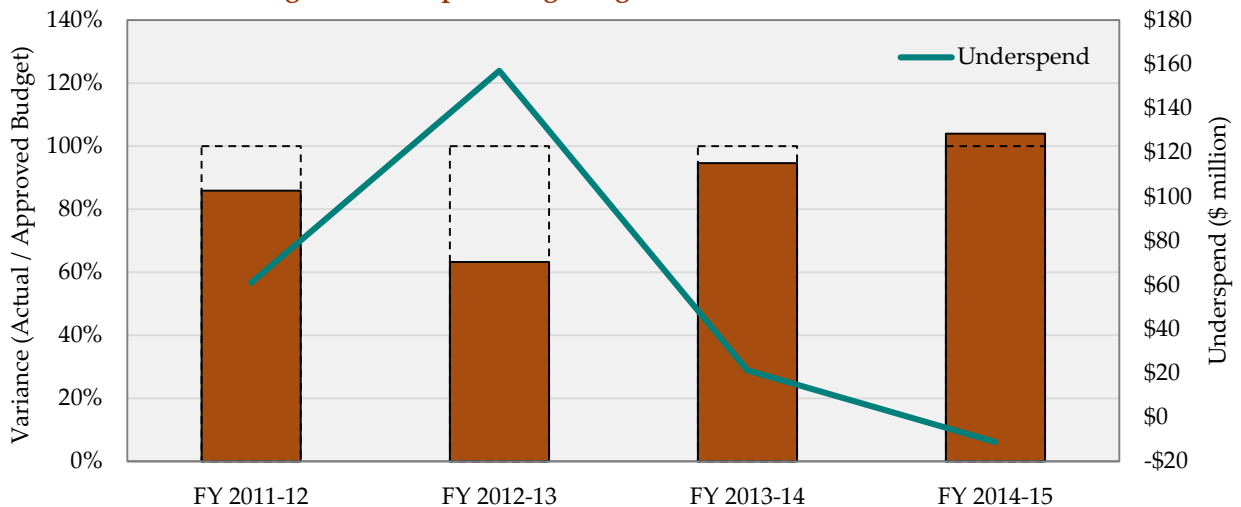
Source: PSRP Lifecycle Asset Chart, data request 1-B-3 (October 2, 2015).

Despite the downward revisions to the PSRP budget, this plan may still be a large challenge for LADWP. To manage this risk, key performance metrics in the proposed rate design will monitor the budget and several of the major asset replacement efforts.

3.3.4 Repowering

The local power plant repowering effort is largely dictated by the OTC compliance schedule, as discussed in Section 3.2.2.6. So far, the Department has done a good job of maintaining the schedule and has reported no concerns with overall compliance.

Figure 3-41. Repowering Budget Variance, FY 2012-FY 2015



Source: LADWP Power Budget Data, November 22, 2015.

Figure 3-41 shows a significant underspend only in FY 2012-13; otherwise implementation has tracked closely with the budget in recent years. The gap in FY 2012-13 was caused by a delay in the Scattergood Unit 3 repowering project, which has since spent its full budget and is planned to reach substantial completion early in the Study Period. Repowering implementation is not a concern at this time.

3.3.5 Staffing

Workforce attrition, hiring delays, and contracting delays have impacted the majority of programs at LADWP. As described in the 2014 IRP, the Department launched an Integrated Human Resource Plan (IHRP) as a staffing solution in 2013. The IHRP does a good job diagnosing the growing workforce gap, quantifying hiring needs under current working conditions, and outlining a high-level strategy for internal improvements. However, it does not address some of the external hiring challenges facing the Department, as described in the Governance Report of the IEA Survey (Volume V). According to the IEA

Survey, the current City hiring process has been too slow to keep up with LADWP’s needs, especially with an increasing number of retirements. Additionally, the extremely limited number of civil service exempt positions has limited the Department’s ability to hire outside experts into the organization. Ensuring that the Power System divisions have the optimal staffing resources remains one of the high priority recommendations from the IEA Survey.

The IHRP also does not address contracting resources. In the IEA Survey, Navigant recommends that LADWP adopt an explicit outsourcing strategy as part of its workforce resource planning. This is particularly important because Department labor is assigned to work on only 7.5 percent of the planned expenditures over the Study Period.⁶⁸

However, the Department also struggles with low productivity as discussed in Chapter 8 of this report. This means that LADWP’s assessment of its hiring needs may need to be revised based on performance improvements to streamline operations and increase workforce productivity. Consequently, plans to address the future workforce gap should consider increased productivity as well as the more flexible and nimble hiring practices identified in the IEA Survey.

3.3.6 Outlook

Overall, there is a moderate to high amount of uncertainty surrounding the implementation of several key Power System programs. There is some uncertainty around energy efficiency because it depends on customer adoption; however, otherwise the Efficiency Solutions group has demonstrated a clear path to implementation. The programs to most closely monitor are renewable transmission, the local solar feed-in tariff, and the PSRP. Although the PSRP made progress in reducing underspending last year (FY 2014-15) and revised planned spending downwards for the first several years of the Study Period, it has not yet articulated a clear plan to achieve the full ramp-up.

This means that there is particular value in the Department’s adjustment factor cost recovery mechanism and new key performance metric reporting. The cost adjustment factors will help recover accurate costs associated with the Power System’s expenditures over the Study Period. Additionally, having a progress reporting mechanism built into the rate ordinance, as adopted by the Department, will ensure that the critical programs are appropriately monitored so that impacts to rates are transparent and understandable. Budget changes made to renewable transmission that occurred during the course of the study highlight the need for this continuous reporting process.

Most importantly, the Department should continue efforts to improve its contracting and procurement processes. It is critical that LADWP put substantial effort towards streamlining these activities. The SCPPA contracting umbrella for energy efficiency is one good strategy that could serve as a model for other programs.

3.4 Revenue Requirements Benchmarking and Sensitivity Analysis

To better understand LADWP’s revenue requirements, Navigant conducted a set of additional analyses on the revenue requirements. This section includes the following:

⁶⁸ Rate request fact sheet available at: www.myladwp.com/2016_2020_rate_request.

- **Financial Metrics Benchmarking Study:** A comparison of the Power System’s financial metrics (system average retail rate, residential rate, O&M expenditures, capitalization ratio, and ratio of cash on hand to revenue) to peer electric utilities.
- **Credit Rating Considerations:** An assessment of the Power System’s projections for its debt service coverage ratio, capitalization factor, and days of operating cash for the next five years against approved financial targets and the impact on credit ratings.
- **Impact of Potential Changes to Policy Objective and the Utility Industry:** A summary of expected future key policy and industry changes and an evaluation of the likely impact on rates.

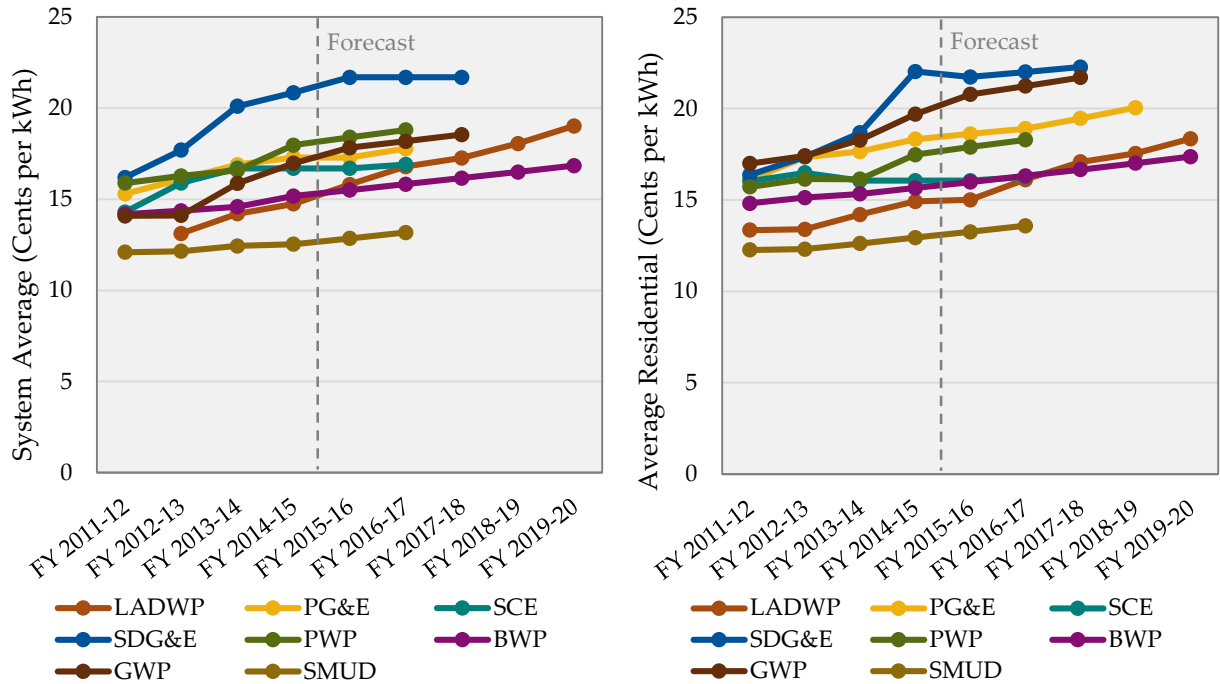
3.4.1 Financial Metrics Benchmarking Study

Navigant completed a benchmarking analysis comparing LADWP’s average rates, O&M costs, and capitalization ratio to its municipal and California investor-owned utility peers. For this analysis, peer utilities include Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas and Electric Company (SDG&E), Pasadena Water and Power (PWP), Burbank Water and Power (BWP), Glendale Water and Power (GWP), and Sacramento Municipal Utility District (SMUD).

3.4.1.1 Retail Rates

Navigant benchmarked LADWP’s system average retail rate and average residential retail rate against the peer panel. Historically, the Department’s rates have been lower than those of peers, due in part to inexpensive coal and nuclear power generation. In the figure below, system average retail rates (calculated by dividing total electric revenue by total retail energy sales) and average residential rates (calculated by dividing total electric revenue from residential customers by total retail energy sales to residential customers) are shown.

Figure 3-42. System Average and Average Residential Retail Rates Comparison (2012-2020)



Notes: The investor-owned utilities PG&E, SCE, and SDG&E are currently filing General Rate Cases (GRCs) with the California Public Utilities Commission (CPUC). SDG&E also has a residential rate reform proposal under consideration in R.12-06-013, proposing a gradual implementation concluding in the GRC Phase 2 for 2019. LADWP’s average residential rates are approximate only.

Sources: LADWP average rates from Case 143; utility annual reports and business updates, rate action reports, and filings with and decisions from the CPUC.⁶⁹

Although LADWP’s system average and residential rates are still lower than most peers’ at the time of this report, the current proposed rate increase puts the Department on track to surpass a number of its municipal peers and approach the rates of investor-owned utilities more closely than in previous years. Retail rate forecasts were not available for many of the peer panel utilities after 2017, so it is also possible that LADWP’s peers will obtain further increases in later years. However, with currently available data, the Department is proposing a steeper rate increase than shown for the other utilities. Most similarly,

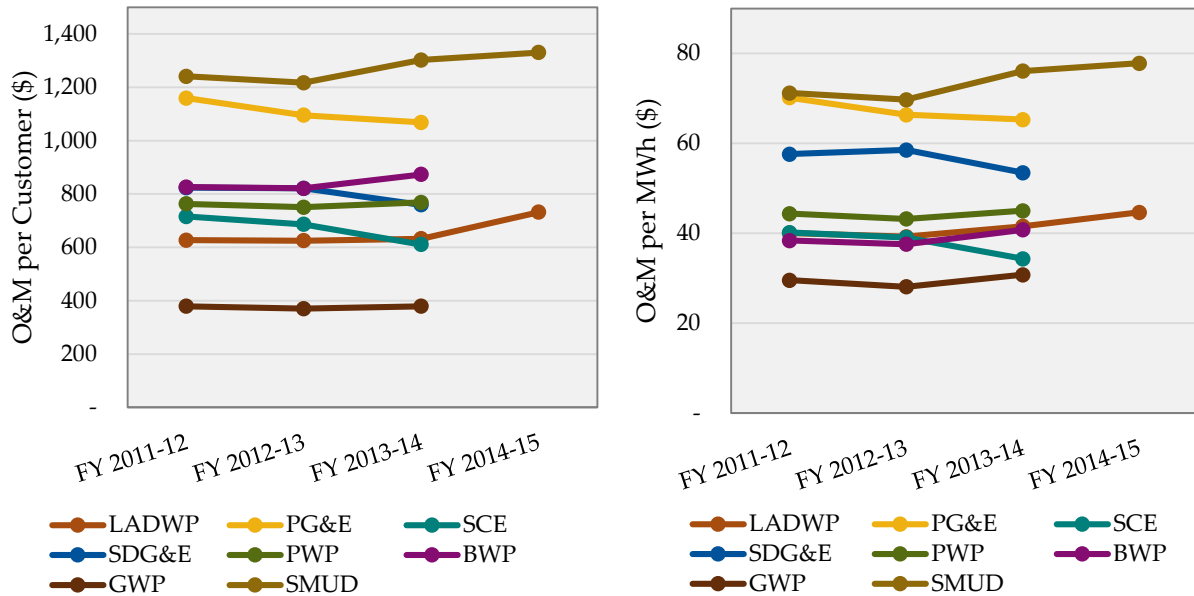
⁶⁹ LADWP Power System Case 143; LADWP Power System Rate Action Report, July 2015; Municipal Securities Rulemaking Board Annual Report on LADWP, Fiscal Year ending June 30, 2014; Electric and Gas Utility Cost Reports, CPUC, 2012-2015; PG&E 2017 GRC Prepared Testimony, September 2015; Business Update July 2015, Edison International; Proposed Decision on Test Year 2015 GRC for Southern California Edison Company, CPUC, September 2015; Application of San Diego Gas & Electric Company for Authority to Update Marginal Costs, Cost Allocation, and Electric Rate Design, CPUC, April 2015; Sempra Energy 2014 Annual Report; PWP 2014 and 2012 Annual Reports; Electric Rates Workshop, PWP, 2014; BWP 2013-2014 Annual Report; Fiscal Year 2015-16 Proposed Budget, BWP, May 2015; GWP Annual Report 2013-14; Proposed Electric Rate Presentation, GWP, 2013; SMUD 2014 Annual Report; 2012 and 2013 SMUD Financial Statements; Chief Executive Officer and General Manager’s Report and Recommendations on Rates and Services, SMUD, April 2015.

BWP also has a long-term rate increase plan, but for only a 2.1 percent annual average rate increase from 2016-2020 compared to LADWP's 3.86 percent annual average increase.⁷⁰

3.4.1.2 O&M

Navigant compared LADWP's historical O&M expenditures (on a dollar per customer and dollar per kilowatt-hour basis) against the peer panel. O&M expenditures are considered representative of a utility's day-to-day efficiency because spending in this area is affected by the way in which the utility is managed. However, O&M practices still depend on a variety of different factors; for example, the positive implication of preventative O&M spending versus the negative implication of remedial or emergency O&M spending. O&M benchmarking results are shown in the figure below.

Figure 3-43. Historical O&M per Customer and per MWh Retail Sales Comparison (2012-2015)



Notes: PG&E and SCE O&M are total consolidated costs; PWP O&M costs include other operating expenses and administrative & general; BWP O&M costs include transmission, distribution, and other operating expenses; GWP O&M costs include transmission, distribution, and customer accounting and sales; SMUD data is calendar year-end. Sources: Annual and financial utility reports.⁷¹

LADWP's O&M costs overall are currently very competitive with peers; however, as discussed in Section 3.2.2 (Key Expenditures), they are forecasted to increase over the Study Period.

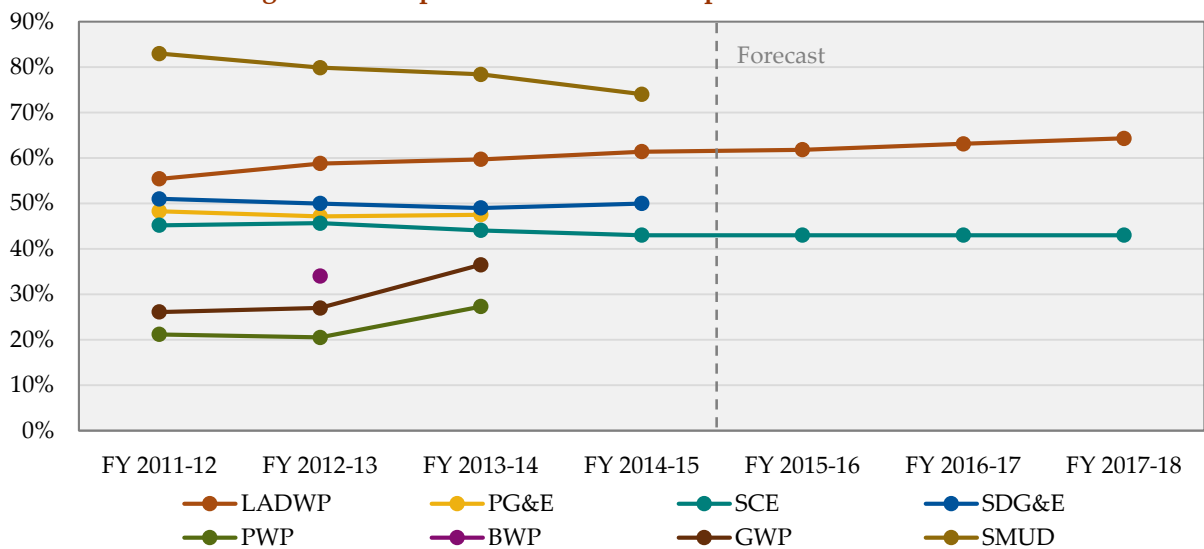
⁷⁰ Actual and planned rate increases (p. 12) in the Fiscal Year 2015-16 Proposed Budget, Burbank Water and Power, May 12, 2015.

⁷¹ LADWP Power System Case 143; Municipal Securities Rulemaking Board Annual Report on LADWP; SCE 2014 Financial Report; Business Update July 2015, Edison International; Sempra Energy 2014 Annual Report; Sempra Energy 2014 Statistical Report; PWP 2013 and 2014 Annual Reports; BWP 2012-2013 Audited Financial Statement (2012: p. 5); BWP 2013-2014 Annual Report; 2014 GWP Electric Financials; 2014 GWP Electric Operating Statistics; SMUD 2014 Annual Report.

3.4.1.3 Capitalization and Cash on Hand

The Department’s financial metrics related to debt are also an important basis of comparison with peer utilities. A utility’s debt service coverage ratio, capitalization factor, and cash on hand are good indicators of financial and credit strength (rating agencies typically focus on these metrics). Most importantly in this context, the capitalization factor informs proposed rate increases because it reflects the utility’s balance between cash funding from rates and borrowing, which comes with interest expenses down the road. For example, an increasingly high capitalization factor (the ratio of long-term debt to total capital⁷²) over time indicates that the utility is not getting the rate increases it actually needs, and is relying more heavily on borrowing.

Figure 3-44. Capitalization Factor Comparison (FY 2012-2018)



Sources: LADWP Power System Case 143; PG&E Annual Report 2013 and 2014; SCE 2015 General Rate Case Update Testimony; Sempra Energy Annual Report 2013 and 2014; PWP Annual Report 2013 and 2014; PRAG Financial Metrics for LADWP, June 12, 2013; GWP Electric Operating Statistics 2014; SMUD Annual Report 2014.

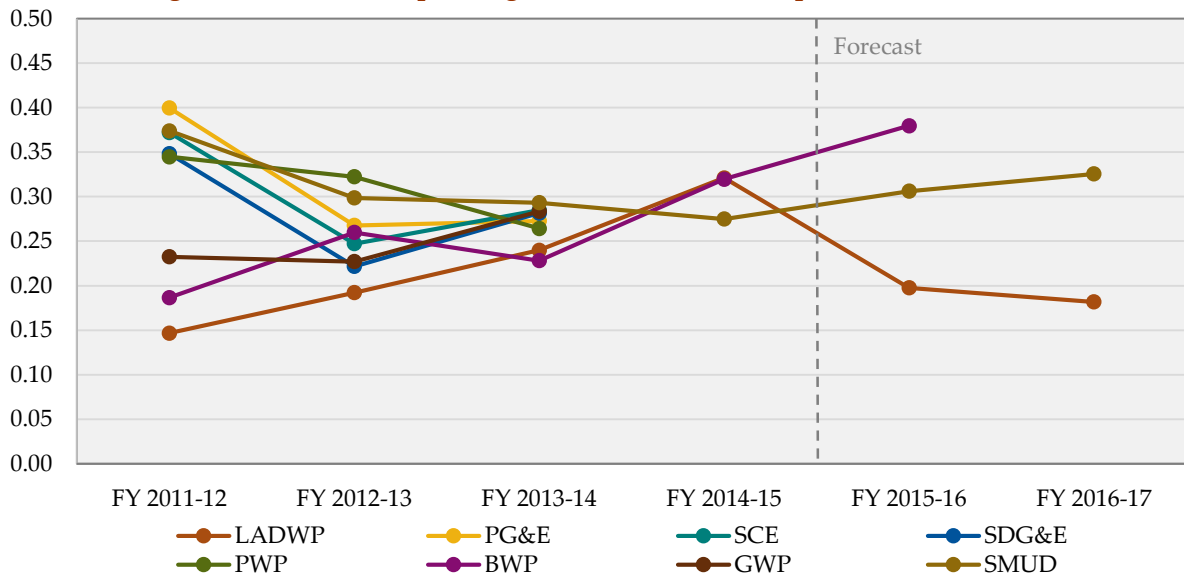
As shown in Figure 3-44 above, the Department’s capitalization factor still increases over time under the current rate proposal. This demonstrates that despite the proposed rate increases, the Power System will still incur greater debt in the future.

The investor-owned utilities have a different operating environment with imposed limits on their capitalization factors. From this, their factors are consistent with each other but lower than LADWP’s. The municipal utility peers, with the exception of SMUD, have lower capitalization ratios than LADWP, although GWP and PWP both show recent increases. The fact that LADWP’s capitalization factor is significantly higher than GWP, PWP, and BWP indicates that the Department relies more heavily on debt financing. SMUD’s ratio has historically been higher than LADWP’s, but the above figure shows that the two are converging. However, additional data would be needed to further analyze the Department’s capitalization factor trend compared to the other municipal peers.

⁷² Specifically, calculated by dividing long-term debt by long-term debt plus total equity.

LADWP’s ratio of operating cash on hand to retail revenues has generally been in line with peer utilities over the past several years, as shown in Figure 3-45, below. However, the target for cash on hand over the Study Period reduces LADWP’s ratio below that of peers. Utilities with more cash and cash equivalents are better able to survive temporary disruptions and cash flow shortfalls.⁷³ This trend, in combination with the increasing capitalization factor, shows that even though the Power System plans to put more of its revenue towards expenses and maintain less cash on hand, total expenses are still large enough to incur additional debt.

Figure 3-45. Ratio of Operating Cash to Revenue Comparison (FY 2012-2017)



Sources: LADWP Power System Case 143; PG&E Corp Annual Report 2014; Edison International Financial and Statistical Report 2014; Sempra Energy Annual Report 2014; PWP Annual Report 2012, 2013, and 2014; City of Burbank Adopted Budget FY 2011-12, 2013-14, and 2015-16; GWP Annual Report Electric Utility Financials 2012-13; Chief Executive Officer and General Manager’s Report and Recommendations on Rates and Services, SMUD, April 2015.

3.4.2 Credit Rating Considerations

This section examines the Power System’s financial metrics in the context of the three most prominent ratings agencies—Standard and Poor’s (S&P), Fitch Ratings (Fitch), and Moody’s—as well as the recommendations of LADWP’s financial advisor, Public Resources Advisory Group (PRAG).

3.4.2.1 Ratings

In August 2015, S&P assigned an AA-, Fitch assigned an AA-, and Moody’s assigned an Aa3 rating to the 2015 Series “B” Power System Revenue Bonds issued by LADWP and affirmed the same for the

⁷³ www.amwa.net/sites/default/files/moodys-rfc-municipalutilitybonds.pdf.

Power System’s long-term rating.^{74,75,76} The AAA class is the highest rating (followed by AA) and the “+” or “-” and a 1, 2, or 3 (for Moody’s) further distinguishes ratings within a category. This shows that LADWP’s Power System is rated at the low end of the “double-A” category, a relatively high score that has not changed significantly over the past several years.

The Department’s outlook is currently considered to be stable by all three rating agencies—in part, based on the potential of the five-year rate proposal to add greater revenue certainty. In particular, the ratings are highly dependent on financial margins and debt levels, which are affected directly by revenue from the proposed rates. The ratings and stable outlook are also founded on a number of factors that are unlikely to change regardless of the outcome of the current rate proposal: the Department is an unregulated monopoly providing an essential service, it has a large and diverse service area, it has a diverse power supply, and it uses automatic cost recovery mechanisms. Additionally, it is making a significant capital investment in modernizing the generation fleet and developing renewable resources (according to state requirements). Without increased rates, financial margins and debt levels would be adversely impacted by this capital investment.

Using the proposed rates available at the time in August 2015, Moody’s considered higher retail rates to be an important part of the stable outlook because they would enable LADWP’s debt ratio to remain near the current level even after the five-year capital improvement plan is completed (in other words, the Department’s debt-to-capital ratio would not have to increase significantly to fund planned projects). At the same time, the rating agencies encourage LADWP to maintain competitive rates. They also consider more qualitative factors such as the Department’s ability to institute timely rate increases. This is particularly important and is relevant to the current proposal. Multiple factors come into play when assessing the Department’s ability to secure a rate increase, but most of them are outside the Department’s control.

The political environment in Los Angeles has the most significant external impact on LADWP’s ability to secure a rate increase. Because revenues driving the rate increase are ultimately approved by the elected City Council, rate actions are dependent on political favor and the election cycle. In particular, City Councilmembers are often critical of rate increases which create a larger financial burden for their constituents, and require thorough justifications for any increase.

Hence, to maintain a good rating, the Department must find the (difficult) balance between requesting rates that are high enough to control future borrowing but low enough to remain competitive and pass Council approval. However, in the previous financial benchmarking section (Section 3.4.1), Navigant found that LADWP’s rates will likely become less competitive (Figure 3-42). Additionally, the next sub-

⁷⁴ S&P Power System Revenue Bond Ratings, August 31, 2015

(www.ladwp.com/cs/idcplg?IdcService=GET_FILE&dDocName=OPLADWPCCB436430&RevisionSelectionMethod=LatestReleased).

⁷⁵ Fitch Power System Revenue Bond Ratings, August 28, 2015

(www.ladwp.com/cs/idcplg?IdcService=GET_FILE&dDocName=OPLADWPCCB436432&RevisionSelectionMethod=LatestReleased).

⁷⁶ Moody’s Power System Revenue Bond Ratings, August 28, 2015

(www.ladwp.com/cs/idcplg?IdcService=GET_FILE&dDocName=OPLADWPCCB436431&RevisionSelectionMethod=LatestReleased).

section illustrates the Power System’s increasing debt ratio (capitalization factor), which will most likely be a constraint on its future credit ratings despite the rate increase.

3.4.2.2 Financial Targets

The Department’s financial advisor, PRAG, provided its most recent memorandum on financial metrics for planning purposes in June 2013, with the primary goal to help maintain LADWP’s current credit ratings. PRAG’s report also included a benchmarking study of the Power System’s ratings and key financial metrics against California peers.⁷⁷ PRAG’s conclusion was that the Power System is generally (1) stronger than the peer group with response to debt service coverage, (2) similar to its peers with respect to debt ratio, and (3) weaker than its peer with respect to liquidity (generally speaking, its access to cash).

In its report, PRAG concludes that LADWP may have some ability to modify its long term financial metric targets and still maintain its AA-/AA-/Aa3 ratings; however, with the caution that any changes do have the potential to change the Department’s credit rating, based on the rating agencies’ determinations. A single-notch downgrade would place the credit of the Power System in the less than “double-A” rating. This category is more costly than the current category in terms of financing costs. PRAG’s final recommendation for the Power System is a debt ratio no higher than 68 percent, a fixed charge coverage ratio of 1.70x (replacing the debt service coverage ratio of 2.25x), and to maintain 170 days cash on hand inclusive of the Debt Reduction Trust Fund.

For comparison, the table below summarizes LADWP’s forecast for its key financial metrics over the Study Period. The following graphs illustrate financial metrics over the past several years and the forecast compared to targets.

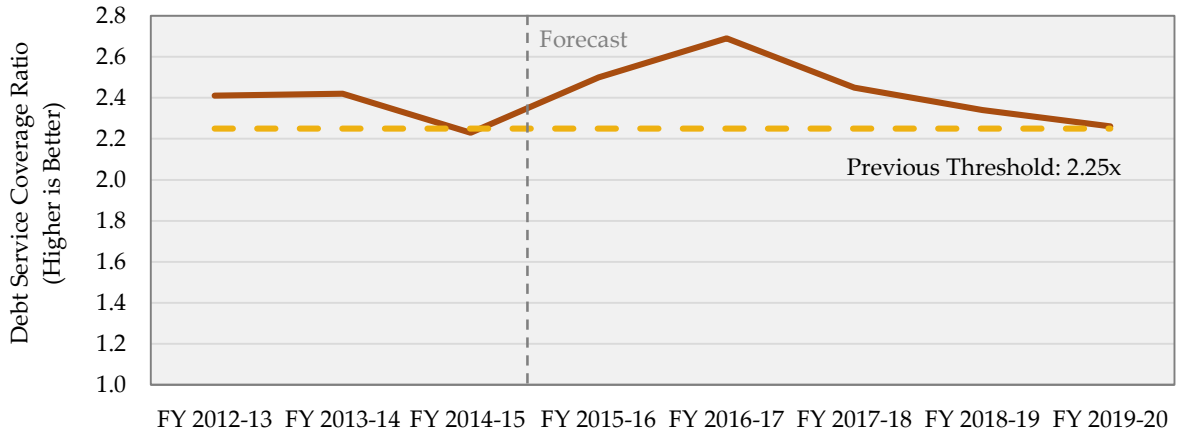
Table 3-4. LADWP’s Financial Metric Projections for the Study Period

Financial Metric	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
Debt Service Coverage	2.50	2.69	2.45	2.34	2.26
Full Obligation (Fixed Charge) Coverage	1.71	1.77	1.69	1.80	1.83
Capitalization Factor (Debt Ratio)	61.8%	63.1%	64.3%	65.4%	66.4%
Days Operating Cash on Hand	171	170	170	170	170

Source: Power System Case 143, December 18, 2015.

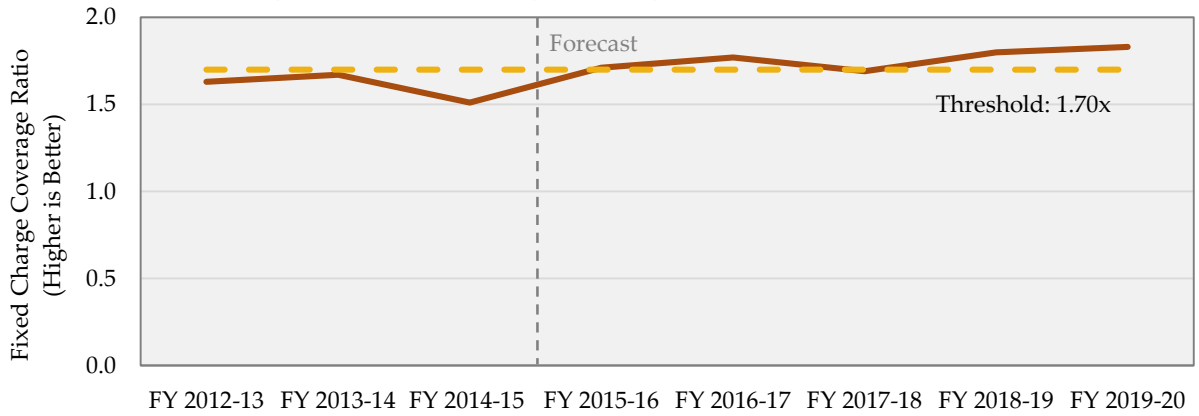
⁷⁷ Power System Rate Action Report (Ch. 2, Appendix H: Memorandum to Department of Water and Power of the City of Los Angeles from the Public Resources Advisory Group, June 2013, p. 4).

Figure 3-46. Debt Service Coverage Ratio (FY 2013-FY 2020)



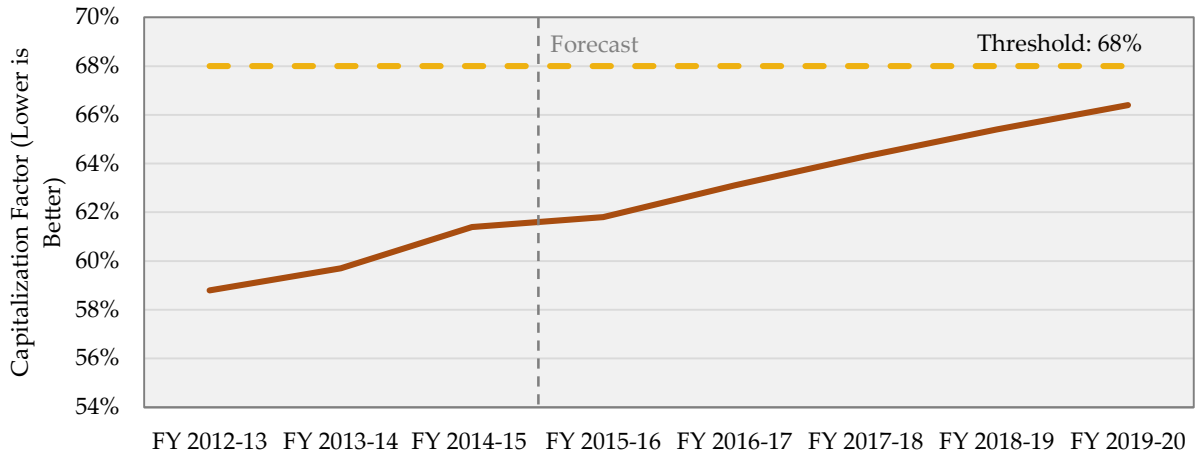
Source: Power System Case 143, December 18, 2015.

Figure 3-47. Fixed Charge Coverage Ratio (FY 2013-FY 2020)



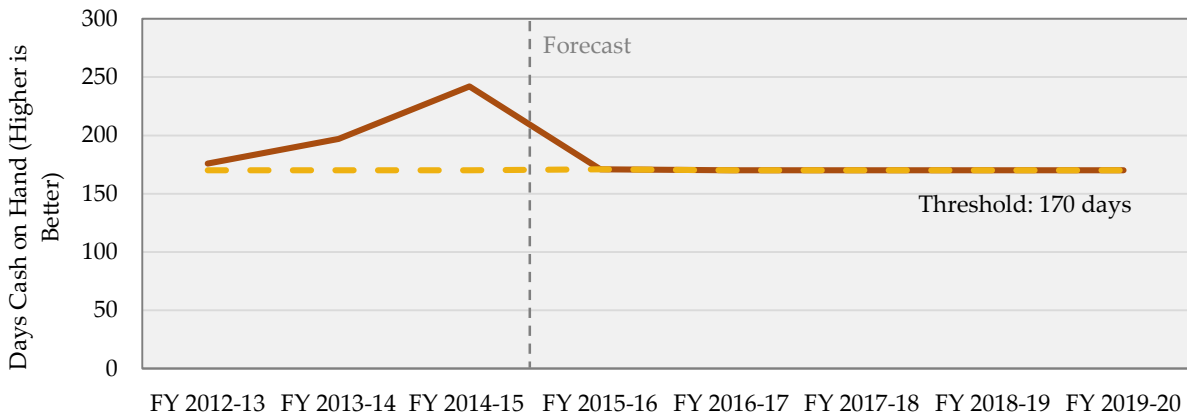
Source: Power System Case 143, December 19, 2015.

Figure 3-48. Capitalization Factor (FY 2013-FY 2020)



Source: Power System Case 143, December 19, 2015.

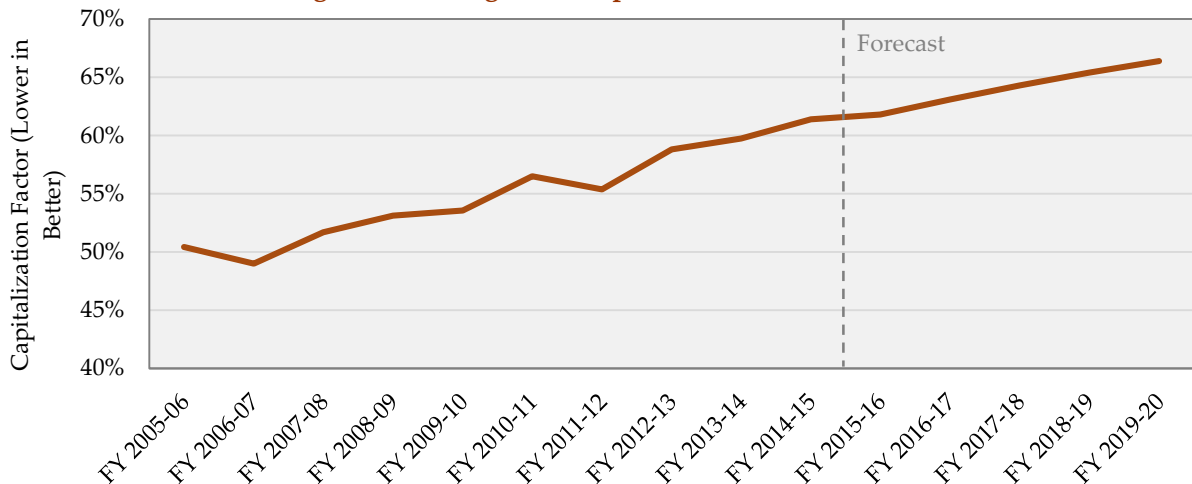
Figure 3-49. Days Cash on Hand (FY 2013-FY 2020)



Source: Power System Case 143, December 19, 2015.

As shown, the Power Organization forecasts exactly meeting its targeted threshold (minimum) of 170 days of cash on hand, coming in just below its targeted threshold (maximum) of a 68 percent capitalization factor, and coming in just above its targeted threshold (minimum) of a 1.70x full obligation (fixed charge) coverage ratio by the end of the Study Period. However, the historical data from preceding years shows that the days of cash on hand has recently been significantly higher than the threshold, at 242 days in FY 2014-15. This indicates there may be more room for adjusting this metric if similarly high values occur in the Study Period. On the other hand, the fixed charge coverage ratio has recently been below its recommended target and the capitalization factor has nevertheless increased. In the long run, this may result in weaker metrics. Over a longer time period, as shown below, the capitalization factor has maintained this trend.

Figure 3-50. Long-Term Capitalization Factor Trends



Sources: Power System Case 143, December 19, 2015; Power System Historical Financial Metrics (October 21, 2015).

As mentioned, at the end of the Study Period, the capitalization factor is forecasted to meet the recommended threshold. But based on the figure above, it is likely to follow the long-term trend and further increase. This trend is unsustainable and a concern from a credit rating standpoint considering

that the Power System could potentially be rated below the double-A category if debt becomes a greater concern for the ratings agencies. Navigant recommends the OPA and CAO/CLA undertake a separate study looking at reducing debt levels in the future and adopting a more structured cash/debt planning model. This study should include an evaluation of LADWP’s debt level against its peers, the development and analysis of scenarios looking at the impact of varying capitalization factors on rates over the long-term, and the identification of the most appropriate options for LADWP to limit its debt to a reasonable level while avoiding a rate shock.

3.4.2.3 Cost of a Downgrade

If LADWP is unable to maintain the financial metric targets shown above, it has a higher risk of being downgraded by the rating agencies—as forewarned by PRAG and the agencies themselves. A downgrade would impact the Department’s financial flexibility and increase borrowing costs. Determining the total cost of a rating downgrade requires an estimation of the impact of a downgrade on each debt instrument in addition to the forecast of future debt requirements.

In a data request for Navigant, LADWP modeled two scenarios related to a one-notch downgrade to credit ratings (AA- to A+), based on the final Case 143. This resulted in Cases 139 and 141.

- **Case 139:** The fixed interest rate increases from 5.45 percent to 5.50 percent and the variable interest rate increases from 0.41-1.75 percent to 0.46-1.80 percent, due to a one-notch downgrade in current financial market conditions.
- **Case 141:** The fixed interest rate increases from 5.45 percent to 5.85 percent and the variable interest rate increases from 0.41-1.75 percent to 0.66-2.00 percent, due to a one-notch downgrade in high interest rate conditions.

Results are shown in the table below.

Table 3-5. Power System Case 143 Credit Rating Sensitivity

Scenario	Case	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	Average
Annual Rate Increase (%)	Case 143	-1.51%	7.18%	6.25%	2.83%	4.55%	3.86%
	Case 139	-1.51%	8.45%	6.40%	2.68%	4.68%	4.13%
	Case 141	-1.49%	8.67%	6.52%	2.75%	5.02%	4.29%
Annual Revenue Increase (\$M)	Case 143	-55.0	250.0	232.0	111.0	184.0	144.4
	Case 139	-55.2	294.1	240.6	107.0	191.4	155.6
	Case 141	-54.7	301.9	245.3	110.1	206.0	161.7
Interest Expense (\$M)	Case 143	307.7	347.0	392.0	440.4	484.1	394.3
	Case 139	350.1	389.8	434.9	486.5	534.7	439.2
	Case 141	354.7	396.6	444.7	499.9	551.3	449.4

Source: Data request 1-A-25 (December 19, 2015).

In Case 139, the Department would pay increased average annual interest expenses of \$45 million over the Study Period. In Case 141 with higher interest rates, it would pay increased average annual interest expenses of \$55 million. Both cases also result in less cash on hand and higher debt service. In both cases, the average annual rate increase is moderate, at 0.28 percent and 0.43 percent higher, respectively. This produces an additional \$11 million in revenue each year under Case 139 and an additional \$17 million in revenue each year under Case 141.

The Power System Rate Action Report also included other two sensitivity scenarios that could lead to a credit rating downgrade, although these are based on the original Case 19. They are: (1) a delay in the rate action by one year (with no cut in O&M in the first year), because LADWP would have a Full Obligation Coverage ratio of 1.57x which is below the financial target; and (2) no rate increase for five years (with no cuts), because of an additional borrowing of \$214 million per year to maintain 170 days of cash on hand. The second is a less realistic scenarios because if the rate action were to be significantly delayed, the Department would cut be forced to cut spending.

At this time, a credit rating downgrade appears to be a moderate but not severe risk for the Power System; Navigant considers the increasing debt level itself to be the greater risk. A large amount of debt and at-risk credit ratings are complementary issues; a credit rating downgrade is one possible result of increasing debt levels and in turn, the effects of a downgrade would be more significant when the Power System issues increased amounts of debt in future years. Taken together, these factors make increasing borrowing costs a significant long-term issue.

3.4.3 Impact of Potential Changes to Policy Objectives and the Utility Industry

The Power System’s policy objectives are laid out comprehensively in the Los Angeles pLAn issued by the Mayor’s Office and by LADWP’s 2015 Briefing Book. The primary high-level goals are reiterated here, showing the close alignment of these documents in a number of areas. The 2015 Briefing Book is primarily based on the Power System’s 2014 IRP.

Table 3-6. Summary of Primary Policy Objectives

Source	Objectives
Los Angeles pLAn	<ul style="list-style-type: none"> ● Increase local solar. Increase installed capacity of local solar to 400 MW by 2017. Install 900-1,500 MW local solar by 2025. Increase cumulative total energy storage capacity to at least 1,654 MW by 2025. Install at least 1 MW solar on the L.A. Convention Center by 2017. ● Energy efficiency. Use energy efficiency to deliver 15 percent of all L.A.’s project electricity needs by 2020, including expanding LADWP’s energy efficiency programs. ● Reduce GHG emissions. Establish a pathway by 2017 to derive 50 percent of LADWP’s electricity from renewable sources by 2030. Reduce GHG emissions 45 percent below the 1990 baseline by 2025. Completely divest from coal-fired power plants by 2025. ● Electric vehicles. Increase the percentage of electric and zero-emission vehicles in the city to 10 percent by 2025.
2015 Briefing Book	<ul style="list-style-type: none"> ● Transition out of coal power by 2025 at the latest. ● Meet an RPS of 33 percent by 2020. ● Develop local solar, particularly customer-based programs. ● Rebuild local power plants and eliminate once-through cooling. ● Invest in energy efficiency and achieve 15 percent cumulative energy savings over the 10-year period through 2020. ● Upgrade and replace critical aging power infrastructure.

	<ul style="list-style-type: none"> • Encourage citizens to buy or lease an electric vehicle with rebates and public charging stations.
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The following sub-sections include a discussion of the legal, policy, and industry factors that may interact with the above goals and impact the Department’s power rates in the future.

3.4.3.1 Key Legal Changes

A pending lawsuit, new state legislation, and an extension to the expiring federal solar tax incentive have the potential to affect the several of the Power System’s major programs and its rates, although with a high level of uncertainty.

Proposition 26

A key recent legal change that can impact the Department is Proposition 26. A detailed discussion of Proposition 26 is included in Section 3.5.

Senate Bill 350

SB 350 or the “Clean Energy and Pollution Reduction Act of 2015”⁷⁸ recently established a new RPS target for California. It requires the amount of electricity generated and sold to retail customers per year be increased to 50 percent by December 31, 2030. Additionally, it requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings of retail customers by January 1, 2030. One original provision of the bill was ultimately not passed, which was to reduce oil use in vehicles by 50 percent by 2030.

SB 350 also includes new reporting requirements for publicly-owned electric utilities like LADWP. Specifically, LADWP must report to the California Energy Commission (CEC) information on its renewable energy resources procurement status and future plans that are to be presented at a noticed public meeting, which will be posted on the CEC website. The CEC may also issue a notice of violation and correction against a local publicly-owned electric utility for failure to comply with renewable procurement targets, and refer it to the California Air Resources Board which may impose penalties (Section 399.30 of the Public Utilities Code).

And, according to the amended Section 9505 of the Public Utilities Code, by March 15, 2013, and by March 15 of each year thereafter, each local publicly-owned electric utility must report to the Energy Commission and to its customers all of the following information:

- Its investment in energy efficiency and demand reduction programs.
- A description of each energy efficiency and demand reduction program, program expenditures, and cost-effectiveness of each program, and expected and actual energy efficiency savings and demand reduction results.
- The sources of funding of its energy efficiency and demand reduction programs.

⁷⁸ Approved by Governor Brown on October 7, 2015. Text available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350.

- The methodologies and input assumptions used to determine the cost-effectiveness of its energy efficiency and demand reduction programs.
- A comparison of its annual target for achievable cost-effective electricity efficiency savings to reported electricity efficiency savings and demand reduction.

LADWP anticipated the passage of this legislation with its ambitious energy efficiency goal and the inclusion of a high-RPS scenario in its 2014 IRP (50 percent by 2030). Because of this, and because compliance for both is not until 2030, the rate increase over the Study Period will not be affected further—the Power System will continue to invest in the 33 percent RPS and 15 percent energy efficiency savings by 2020, as planned before SB 350 was passed. However, the proposed power rate ordinance is complementary to SB 350, as several of the new performance metrics reported by the Department to the CEC will also be reported to the OPA, Board, and Council.

In terms of Department goals, the next iteration of LADWP’s IRP (the 2015 update) is expected to include the 50 percent RPS as the recommended case (replacing the 40 percent recommendation in the 2014 IRP). This will be adopted as the utility’s new goal for 2030. The Efficiency Solutions Group will also prepare for the doubling of retail customer energy efficiency, which will be included in its subsequent energy efficiency potential studies and portfolio business plans. Additional capital investments will be required in these two areas in the future.

Extension of the ITC

The Department’s local solar goals may be most impacted by the extension of the Federal Investment Tax Credit (ITC) beyond December 31, 2016. The ITC is a tax credit equal to 30 percent of the total system value for solar energy systems on residential and commercial properties. After 2016, the commercial and utility-scale credits had previously been planned to drop to 10 percent and the residential credit to zero percent.⁷⁹

In a recent study, Bloomberg New Energy Finance found that with the expiration of the ITC, the U.S. solar build rate would be reduced from an average of eight gigawatts per year (2014-2016) to six gigawatts per year (2017-2022). A five-year extension of the ITC, which is the policy supported by solar industry players, was found to raise the average build rate to 10 gigawatts per year (2017-2022).⁸⁰

With the expiration, the Power System’s Solar Incentive Program and feed-in tariff program may have suffered from decreased participation after the ITC expires, as project economics would be less attractive to customers. For a program like the feed-in tariff program, which has experienced delays, it is unlikely that the Department will be able to accelerate customer participation before 2017 to take better advantage of the ITC. However, having these incentive programs in place makes up for the loss of the ITC to a certain extent—customer solar adoption may be less affected in Los Angeles than in other regions without local incentives.

⁷⁹ www.seia.org/policy/finance-tax/solar-investment-tax-credit.

⁸⁰ “How extending the investment tax credit would affect US solar build,” Bloomberg New Energy Finance, September 15, 2015 (www.seia.org/sites/default/files/resources/BNEF_SEIA%20Solar%20Forecast_15%20September%202015.pdf).

In addition to local solar impacts, LADWP’s utility-scale solar procurement may also have been adversely affected by the scheduled expiration. New solar PPAs signed in 2017 and onward would likely have higher prices than the very competitive PPAs leading up to the ITC expiration.

On December 18, 2015, Congress passed an extension for another three years after 2016. The ITC will then ramp down incrementally through 2021 and remain at 10 percent in 2022.⁸¹ Because the expiration had been expected for some time, this new extension to the ITC may have a larger (positive) impact on customer power rates than the reverse (due to LADWP having planned for the expiration during the Study Period). With the extension, the Power System’s portfolio after 2016 will include lower-cost utility-scale solar PPAs than expected because of the continued 30 percent tax credit. Additionally, local residents and businesses will have a stronger motivation to install solar after 2016.

3.4.3.2 Key Policy Changes

Navigant considers it unlikely for the City of Los Angeles and LADWP to make material changes to their goals for the Power System over the Study Period, with the exception of increasing renewable and energy efficiency goals related to new legislation (SB 350, as described previously). One possibility would be for the Department to take a more aggressive stance on coal divestment. It is also worthwhile here to discuss the relatively new opposition to net energy metering from numerous electric utilities, although this is not currently the position of LADWP.

Early Divestment of Coal

As laid out in the Power System’s 2014 IRP, the Department plans to replace its last coal power plant—the Intermountain Power Project (IPP)—in 2025. This is two years before the contract with IPP ends, at which time the state requirement for emissions standards goes into effect as established by Senate Bill (SB) 1368. Under SB 1368, the CPUC and CEC implemented an emissions performance standard for all retail providers of electricity: emissions from baseload generation owned by or under long-term contract to publicly-owned utilities must be equal to or better than the performance standard of gas-fired combined cycle units, or 1,100 pounds per megawatt-hour.⁸²

Replacing IPP in 2025 is a voluntary early divestiture goal by the Department, but still lags behind the efforts of other large California utilities, as discussed in the 2015 IEA Survey. Since early coal replacement is strongly motivated by public support and political will, in the IEA Survey Navigant recommended revisiting and finalizing the IPP replacement strategy. Although the Power System cannot replace it by 2020 due to contractual issues with other participants, 2023 may be an option to be adopted as the new policy goal. This would come after the Study Period and not affect the rates proposed for the Study Period.

Net Energy Metering

Net energy metering for customer solar energy systems has become a controversial topic among electric utilities. Net energy metering (NEM) is a rate mechanism designed to accommodate onsite renewable

⁸¹ “Congress Passes Tax Credits for Solar and Wind: ‘Sausage Making at its Most Intense,’” GreenTech Media, December 18, 2015 (www.greentechmedia.com/articles/read/breaking-house-passes-1.1-trillion-spending-bill-with-renewable-energy-tax).

⁸² Overview available at: www.energy.ca.gov/emission_standards.

generation, in which participating customers receive a bill credit for excess generation that is exported to the grid during time when it is not used to serve onsite load.⁸³ Multiple utilities have taken issue with solar generation being credited at retail electricity prices, and are working to calculate the true “value of solar” and a “fair” compensation for customer-generators that, according to utilities, would be lower than retail prices.

In California, the CPUC and IOUs are developing a NEM successor tariff to take effect on July 1, 2017 or upon reaching the five percent program limit for NEM capacity.⁸⁴ The Office of Ratepayer Advocates filed in this proceeding, with the opinion that the existing NEM tariff does not account for the rapid growth of solar, declining solar costs, rising retail rates, and the need for solar customers to “share in the costs of the distribution system.”^{85,86} On the IOU side, for example, PG&E proposed a usage-based demand charge and new compensation to credit solar generation, resulting in a \$13-29 monthly net impact (less savings) for a typical prospective solar customer planning to install a 3.0 kilowatt system.⁸⁷ A proposed decision was issued by the CPUC on December 15, 2015, which would continue the existing NEM structure but with some cost adjustments. These adjustments include payment of the one-time interconnection fee and payment of all non-bypassable charges for energy from the grid. NEM customers who sign up in 2018 or later would also be required to utilize time-of-use rates (however, all residential customers of the IOUs will be moved to time-of-use rates in 2019). The proposed decision is scheduled for voting in late January 2016.⁸⁸

Utilities in Arizona have been particularly aggressive in challenging existing NEM rules. Theoretically, this is to make the policy more equitable and require customers with solar to fairly pay for using the grid, but solar industry players argued that it actually constitutes an attack on customer self-generation and understates the true value of solar. Previously, in November 2013, the Arizona Corporation Commission voted to charge \$0.70 per kilowatt to solar owners to offset Arizona Public Service (APS) Company revenue losses from rooftop solar. This was effectively a compromise between APS and the solar industry, as APS had originally recommended a charge in the \$8.00 per kilowatt range.⁸⁹

⁸³ www.cpuc.ca.gov/PUC/energy/DistGen/netmetering.htm.

⁸⁴ CPUC Rulemaking (R.) 14-07-002 (www.cpuc.ca.gov/PUC/energy/DistGen/NEMWorkShop04232014.htm).

⁸⁵ “What’s Missing from Media Coverage of Net Metering,” Greentech Media, October 29, 2015 (www.greentechmedia.com/articles/read/whats-missing-from-media-coverage-of-net-metering).

⁸⁶ Proposal of the Office of Ratepayer Advocates for Net Energy Metering Successor Standard Contract of Tariff (<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M154/K058/154058222.PDF>).

⁸⁷ “PG&E Proposes Smart Energy Reform in Support of Growth of Rooftop Solar,” Pacific Gas & Electric Company, August 3, 2015 (www.pge.com/en/about/newsroom/newsdetails/index.page?title=20150803_pge_proposes_smart_energy_reform_in_support_of_growth_of_rooftop_solar).

⁸⁸ “CPUC Issues Proposed Net Energy Metering Decision to Ensure Customers Continue to Benefit From Going Solar,” California Public Utilities Commission (<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M156/K501/156501053.PDF>).

⁸⁹ “Arizona Preserves Net Metering by Charging a Small Fee to Solar Owners,” Greentech Media, (www.greentechmedia.com/articles/read/Charging-a-Fee-to-Solar-Owners-Preserves-Net-Metering-in-Arizona).

In 2015, both Tucson Electric Power (TEP) and APS proposed new ways to reimburse net metered customers.⁹⁰ The underlying premise of the application from APS to the state regulator, the Arizona Corporation Commission, is that there is a cost shift associated with NEM that increases rates for customers without rooftop solar systems,⁹¹ that was not addressed adequately by the 2013 ruling. Solar advocates responded that, while certain cost shifts do exist in utility rates, distributed solar energy has benefits that outweigh its costs and APS wants a solution that would ultimately make distributed solar uneconomical.⁹² Developments in Arizona are still underway, although TEP agreed to wait until its 2016 rate case to address its proposed changes to net metering.⁹³

LADWP's approach is not expected to change over the Study Period, as local solar has been highlighted as a key element of the renewable energy program. Unlike the California IOUs, LADWP's Solar Incentive Program is still offering rebates for customer solar. Residential NEM is also still at a low penetration in LADWP's service territory (less than one percent). At this level, potential benefits of increasing customer solar and NEM participation include increasing stability on transformers and alleviating overloaded conditions.⁹⁴ The proposed residential rates do have an impact on NEM customers, however. The new minimum charge and revised tier pricing result in slightly higher bills for NEM customers as they do for other residential customers.⁹⁵ Nonetheless, there are no plans to credit solar customers for less than the retail rate.

3.4.3.3 Key Industry Changes

The 2015 State of the Electric Industry from Black & Veatch⁹⁶ surveyed 435 industry participants across the U.S., who reported that aging infrastructure is the most important issue for the electric industry. The next issues were (in descending order) reliability, environmental regulation, cybersecurity, aging workforce, economic regulation, and emerging technology. As discussed in Section 3.2 of this report (Rate Drivers), infrastructure investment over the Study Period is the main driver for the increased revenue requirement, with a large amount of capital dedicated to replacing or upgrading aging infrastructure. However, aging infrastructure needs are well-understood and not likely to change going forward. Additionally, Navigant's 2015 IEA Survey found that LADWP is on track for NERC cybersecurity compliance in 2016 and that the Department is aware of and attempting to address its serious aging workforce issue. Hence, the industry trends with the most potential to change LADWP's goals and rates in new ways over the next five years relate to reliability and emerging technology. Here, we address these topics in a discussion of distributed generation and grid modernization.

⁹⁰ "What's solar worth? Inside Arizona utilities' push to reform net metering rates," Utility Dive, June 1, 2015 (www.utilitydive.com/news/whats-solar-worth-inside-arizona-utilities-push-to-reform-net-metering-r/399706/).

⁹¹ Comments to Staff's Report and Recommended Order, Arizona Public Service Company (<http://images.edocket.azcc.gov/docketpdf/0000149335.pdf>).

⁹² Response to Staff Recommended Order, Arizona Solar Energy Industries Association (<http://images.edocket.azcc.gov/docketpdf/0000149303.pdf>).

⁹³ "US: TEP to wait for 2016 rate case before attempting to modify net metering," PV Magazine, August 21, 2015 (www.pv-magazine.com/news/details/beitrag/us--tep-to-wait-for-2016-rate-case-before-attempting-to-modify-net-metering_100020704/#axzz3tOWhXh3Z).

⁹⁴ NEM Rider on the Residential and C&I Rates, LADWP (Data Request 1-B-6).

⁹⁵ Residential NEM Analysis, LADWP (September 2015, Data Request 1-B-6).

⁹⁶ 2015 Strategic Directions: U.S. Electric Industry Report, Black and Veatch, 2015 (<http://bv.com/reports/2015/electric/>).

Distributed Generation

Distributed generation has a significant disruptive potential for the power industry's traditional utility business model. Distributed renewable energy integration is a particular challenge. According to the Black & Veatch report, 80 percent of electric utilities believe that distributed generation, particularly solar photovoltaic, represents a serious challenge to their business. The Southwestern U.S. including California had the highest response rate for distributed generation posing a moderate to major threat. In a time when customers are able to generate their own power and send it back to the grid, utilities must maintain their complex infrastructure to accommodate this electricity as well as meet government mandates for reliability. In this environment, it is also a challenge to maintain sales and determine a fair recovery of costs.

The survey also found that 64.4 percent of industry stakeholders expected the integration of distributed energy resources to require significant, large or modest investment (the Southwestern U.S. including California had a 70.0 percent response). Many utilities, like LADWP, are still primarily in the review stage for assessing the impacts of distributed generation on infrastructure. The Department's preliminary studies in this area are one topic of the 2015 IEA Survey. As mentioned in the IEA Survey, the Power System expects to more comprehensively address the impacts of a high penetration of renewables in the 2015 update to the IRP and the 2016 IRP. One of Navigant's recommendations from the Survey is to ensure that completing these studies is a high priority. The effect on customer rates can only be determined when the Department has quantified its system impacts.

In terms of cost recovery, the Department has moved towards higher fixed charges (the minimum bill charge) as one way of maintaining its revenue base as distributed generation and demand side management like energy efficiency grow, without penalizing customers who remain "on grid." This is not expected to change over the Study Period.

Grid Modernization

Grid modernization efforts are closely related to the increasing penetration of distributed generation, as utilities face new infrastructure demands associated with renewable and distributed energy resources. This requires a grid redesign for new functionality, including distribution management systems, high speed communications, advanced sensors, and energy storage.⁹⁷ The Edison Electric Institute predicts that investor-owned utilities will spend nearly \$60 billion through 2017 on grid modernization and reliability, new transmission lines, substations, and other improvements. The ideal outcome of these efforts is often called "Utility 2.0" or "Utility of the Future," a utility that can thrive with distributed renewable energy generation, energy storage, and advanced energy management.⁹⁸

The transition will be challenging in part because the industry has to shift its business model; for example, the traditional model is for a utility to own and control its power generation assets (and its main financial incentives are tied to this). In the new model, utilities will integrate many different resources and systems they do not own. The distribution system will become even more important as a result, and is being called the "hub of the 21st century electricity system" because it enables this two-way

⁹⁷ www.eei.org/issuesandpolicy/stateregulation/Pages/GridModernization.aspx.

⁹⁸ "Beyond Utility 2.0: Part 1," Clean Technica, September 21, 2015 (<http://cleantechnica.com/2015/09/21/beyond-utility-2-0-part-1-prelude-future/>).

electricity flows between generators and consumers.⁹⁹ Importantly, this adds another challenge for modernization efforts, as distribution systems are aging across the U.S.

One of the newer industry developments in this space is the increased participation of emerging technology startup companies with new offerings for utilities. Utilities are increasingly looking at partnerships with technology companies specializing in data analytics, demand response, electric vehicle integration, and more. Several large U.S. utilities have made direct investments in clean technology startup companies through their deregulated arms.¹⁰⁰

The CPUC has a number of active regulatory proceedings related to distributed generation and grid modernization; however, so far they are lagging rather than driving the forefront of grid modernization. In the future, these will directly impact the California IOUs and possibly provide a comprehensive roadmap for LADWP.

LADWP’s smart grid demonstration pilots are one step towards grid modernization; however, they are at a very small scale (for example, the limited extent of Advanced Metering Infrastructure so far). The modernization of the in-basin natural gas power plants for increased power supply flexibility (in conjunction with the elimination of OTC) is another step forward. LADWP’s studies on the impact of a high penetration of renewable energy will identify further ways in which the Power System should modernize, especially in terms of the distribution system. While these are developments to watch, new plans and investments will most likely come after the Study Period.

3.5 City Transfer Analysis

Each fiscal year, LADWP transfers a portion of its gross operating revenue to the City of Los Angeles General Fund (“City Transfer” or “Transfer”). Section 344 of the Los Angeles City Charter defines the Transfer as it relates to a surplus in the Water Revenue Fund or Power Revenue Fund at the end of the prior fiscal year; in recent years, the Power Revenue Fund has provided a Transfer equal to eight percent of gross operating revenue.¹⁰¹ In fiscal year (FY) 2013-14 the City Transfer totaled \$253 million, and in FY 2014-15 it totaled \$266 million. This dollar amount is forecasted to continue to increase over the Study Period (FY 2015-16 through FY 2019-20) as operating revenues increase.¹⁰²

The financial dynamics of the City Transfer are particularly relevant given that the Department is currently requesting this rate increase over the Study Period. As a part of this review, City stakeholders requested an analysis of the City Transfer. In this section, Navigant offers context in which the Transfer’s ratepayer and City-wide impacts can be examined, and investigates the materiality of the Transfer within LADWP’s rate design. The section covers the following topics:

- **Background of Los Angeles City Transfer:** Navigant provides a brief history of the origins of the City Transfer as well as an overview of laws that have shaped the Transfer’s structure and

⁹⁹ “Beyond Utility 2.0: Part 2,” Clean Technica, September 30, 2015 (<http://cleantechnica.com/2015/09/30/beyond-utility-2-0-part-2-present/>).

¹⁰⁰ “Edison Electric Institute: Utilities Are Eager for New Partnerships With Startups,” Greentech Media, May 19, 2015 (www.greentechmedia.com/articles/read/Utilities-Are-Hungry-For-New-Partnerships-With-Startups).

¹⁰¹ City of Los Angeles Charter available at: www.amlegal.com/codes/client/los-angeles_ca/.

¹⁰² Data provided by LADWP on November 5, 2015.

may further impact it in the future. We also discuss the details of the Transfer mechanism and the fund’s role in the City budget.

- **City Transfer Benchmarking:** Navigant reviewed the rate structures and budgets found in a peer panel of publically-owned utilities (POUs) to identify mechanisms similar to the City Transfer and provide a basis of comparison for its frequency, magnitude, and other characteristics.
- **Impact of the Los Angeles City Transfer on Rates:** Navigant analyzed four rate scenarios to determine the short-term and long-term effects on rates of applying the Transfer funds to alternative uses at LADWP.

3.5.1 Background of the Los Angeles City Transfer

This section provides context for the study by reviewing the definition, history, and evolution of the City Transfer. Particularly relevant are the numerous changes the Transfer has undergone in the past, and the new challenge it faces from current legislation. At the end of the section, we also provide a discussion of the impact the Transfer has on the City budget.

3.5.1.1 Definition of the City Transfer

The City Transfer is impacted by two sections in the Los Angeles City Charter. First, Section 344 states that the City Council may, by ordinance, direct that a transfer be made to the Reserve Fund from surplus money in the Water Revenue Fund or Power Revenue Fund with the consent of the Board of Water and Power Commissioners. The Board must then must notify the Los Angeles City Council and Mayor of its approval in whole, in part, or its disapproval by December 31. Second, Section 684 requires LADWP to submit its planned budget to City Council by March 31 of each year with updates by May 31.¹⁰³

Although eight percent of gross operating revenue is the current target for the amount of the Transfer, it is subject to limitations to protect the financial health of the utility. The limitations on the City Transfer are that no transfer may exceed the prior fiscal year’s net income, and no transfer may result in the prior fiscal year’s surplus (less the recommended transfer amount) being less than 33 and one-third percent of the total indebtedness (including the current portion) outstanding not more than ten days prior to the date of such transfer.¹⁰⁴ According to interviews, occasionally in the past the Department has not been able to meet the targeted Transfer based on this criteria, and as a result only a portion of the City Transfer was approved by the Board.

3.5.1.2 Brief History of the City Transfer

Capital expenditures for the development of LADWP’s facilities were originally financed through the issuance of general obligation bonds. Responsibility for the bonds’ maturing principal and interest fell upon Los Angeles taxpayers in the form of a separate property tax levy. In 1925, the Power System began a “repayment of taxes” program to transfer funds to the City’s general fund each fiscal year until

¹⁰³ City of Los Angeles Charter available at: www.amlegal.com/codes/client/los-angeles_ca/.

¹⁰⁴ Information provided by LADWP on December 1, 2015, from a recent Board of Water and Power Commissioners package.

the value of the taxpayers' principal and interest payments were repaid in full, which occurred in 1935. The Water System began a similar repayment in 1929 and concluded in 1960.

Following the repayment of taxes, the Power System continued transferring surplus funds to the City under the provisions of Section 382 of the then existing Los Angeles City Charter. In April 1945, Mayor Bowron established a formula for the annual transfer amounting to "two percent of the earned surplus at the end of year next preceding the fixing of the budget, but not to exceed five percent of the gross operating revenues for such next preceding year." The Water System also adopted this formula after fully repaying taxpayers in 1960.

In 1971, the Board and City Council reached an informal agreement to modify the formula by eliminating the limitation relating to "earned surplus" and basing the calculation on five percent of the prior year's gross operating revenue rather than the "next preceding year."¹⁰⁵ The Power System transfer increased to seven percent of gross operating revenue in fiscal year 2003,¹⁰⁶ and subsequently increased to eight percent.¹⁰⁷ Eight percent was determined to be a reasonable target for the Power System's surplus by the Board and City Council.

3.5.1.3 Water System Transfer

Under the provisions of the City Charter, the Water System was originally subject to the same Board-authorized transfer of funds as the Power System. However, transfers from the Water System ceased in July 2009 when the Los Angeles Superior Court decided in *City of Los Angeles v. All Persons* that the 2007 and 2008 Water System City Transfers were illegal under Proposition 218.¹⁰⁸ Prior to this, the Water Revenue Fund transfer was no more than five percent of the Water System's gross operating revenue. In the Superior Court case, the contested Transfer totaled \$29.9 million.¹⁰⁹

Approved by the voters in 1996 and known as the "Right to Vote on Taxes Act," Proposition 218 introduced Articles XIII C and XIII D of the California Constitution. Proposition 218 was intended to protect taxpayers by limiting the methods by which local governments can create or increase taxes, fees, and charges without taxpayer consent. One of the primary aspects was the prohibition of local governments from imposing fees on property owners for services that are available to the public at large—including through water service fees. Proposition 218 explicitly stated that fees for the provision of electrical or gas service shall not be deemed charges or fees imposed as an incident of property ownership.¹¹⁰

¹⁰⁵ Transfers to City Reserve Fund Memorandum to Commissioners Maloney and Glazer, 1976.

¹⁰⁶ Los Angeles: Structure of a City Government, Raphael J. Sonenshein, 2006

(www.lwvlosangeles.org/files/Structure_of_a_City.pdf).

¹⁰⁷ www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-factandfigures?_afdf.ctrl-state=1txck3m7j_33&_afLoop=103431595264048.

¹⁰⁸ Department of Water and Power of the City of Los Angeles Water System Revenue Bonds, July 25, 2012 (<http://emma.msrb.org/ER617228-ER478893-ER881830.pdf>).

¹⁰⁹ Proposition 218 Update, City Attorneys Department, 2009 (www.cacities.org/getattachment/a4ca5fb1-a3e1-4512-bfd6-1cc390229089/9-2009-Annual-DANIEL-HENTSCHKE_Proposition-218-Upd.aspx).

¹¹⁰ California Constitution, Article 13 (www.leginfo.ca.gov/const/article_13).

Section 6 of Article XIII D further established five limitations on fees subject to its provisions, including the limitations that fee revenues cannot exceed the funds required to provide the service and that fee revenues cannot be used for any purposes other than that for which the fee is imposed.¹¹¹ Because the cost of Water System transfers were passed to ratepayers through higher water fees, and the revenues were transferred to the City’s general fund, the court in *City of Los Angeles v. All Persons* found the transfer violated the cost of service and use limitations. The judgment against the City stated:

“...the City may not collect, either for retention or transfer, rates for water and water-related services that are designed to generate a surplus (i.e., ‘revenues [that] exceed the funds required to provide [water and water-related] service’ to its customers) after servicing all debts and paying all expenses related to the production and provision of water and water-related services for its customers and setting aside reasonable reserves (including reserves for water- and water service-related capital projects and contingencies)...”¹¹²

Since the court ruling, no transfers have been made from the Water System to the Los Angeles General Fund. Additionally, following this ruling the Power System transfer went from seven to eight percent.

3.5.1.4 Measure J

The City Transfer procedure in the Charter was most recently amended by Measure J in April 2011. This change was shaped by the events surrounding LADWP’s FY 2009-2010 budget proposal. The Department’s power rate structure allows for an Energy Cost Adjustment Factor (ECAF) over the base rate to recover expenditures such as fuel, purchased power, the Renewable Portfolio Standard, and demand side management efforts. The ECAF is adjusted quarterly, with increases originally capped at \$0.001 per kilowatt-hour per quarter. In September 2009, the Board approved an increase of the ECAF cap to \$0.006 per kilowatt-hour per quarter to help maintain LADWP’s financial condition.¹¹³

In response to the increase, the City Council engaged PA Consulting to provide an independent fiscal review of the ECAF. PA Consulting’s report in February 2010 recommended increasing the cap to \$0.008 per kilowatt-hour for the Department to address under-collection and maintain the Board’s targeted financial ratios and bond rating.¹¹⁴ Following the report, the Board passed a resolution authorizing an increase in the ECAF cap to the recommended \$0.008 per kilowatt-hour. The City Council unanimously vetoed this action. In response, LADWP stated that without the cap increase the Department would not be able to transfer the remaining \$73.5 million of the FY 2009-2010 City Transfer.¹¹⁵ The City Controller

¹¹¹ California Property Tax Information, Proposition 218 (www.californiataxdata.com/pdf/proposition218.pdf).

¹¹² Proposition 218 Update.

¹¹³ Report on the Los Angeles Department of Water and Power’s April 5, 2010 Letter Regarding the Feasibility for Transfer of Surplus Power Revenue Funds, Crowe Horwath, June 10, 2010 (http://controller.lacity.org/stellent/groups/electedofficials/@ctr_contributor/documents/contributor_web_content/lacityp_010463.pdf).

¹¹⁴ City of Los Angeles Independent Fiscal Review of the Los Angeles Department of Water and Power Energy Cost Adjustment Factor (ECAF) and Residential Rate Design proposals, PA Consulting, February 25, 2010 (www.lachamber.com/clientuploads/EWE_committee/LACITYP_009075.pdf).

¹¹⁵ Report on the Los Angeles Department of Water and Power’s April 5, 2010 Letter Regarding the Feasibility for Transfer of Surplus Power Revenue Funds, Crowe Horwath, June 10, 2010

estimated that LADWP’s withholding of funds would leave a \$10 million deficit in the City’s General Fund by May 5, affecting non-revenue generating services such as parks, libraries, public works, and city planning, calling the situation the “the most urgent fiscal crisis that the city has faced in recent history.”¹¹⁶

Following negotiations, the Department’s subsequent \$0.006 per kilowatt-hour ECAF cap increase required was approved and the money was transferred to the City, but nonetheless resulted in a downgrading of the City’s bond rating. Troubled by the Department’s lack of transparency, the Council proposed Measure J to amend the Charter to a) require the Department for informational purposes to submit to the Council by March 31 each year a preliminary budget for the ensuing fiscal year and update the budget by May 31, and b) establish a procedure for making surplus transfers from the Power Revenue Fund to the City Reserve Fund.¹¹⁷

Measure J was approved in March 2011 and added new provisions to the City Charter. As described previously, the completely new Section 684 provides that the Board shall submit a preliminary budget for the upcoming fiscal year to the City Council for informational purposes by no later than March 31 of each year with updates by May 31 based on additional information received after March 31. And under the new provisions of Section 344, the Board may withhold consent to make the transfer in whole or in part if it finds the transfer would have a material negative impact in the year in which the transfer is to be made; however, if the Board does not approve the transfer in full, it must provide a detailed explanation and assessment of feasibility which the CAO must independently verify before the Board acts to amend or uphold its preliminary findings.¹¹⁸

3.5.1.5 Proposition 26

The legality of payments from municipal utilities to general funds is currently being challenged in Los Angeles and several other cities across California. Lawsuits have been filed arguing that such payments violate Proposition 26.¹¹⁹ The proposition, known as the “Stop Hidden Taxes” initiative, passed in November 2010 to amend Articles XIII A and XIII C of the California Constitution.¹²⁰ Proposition 26 provides the definition of a tax to cover certain of the fees, levies, charges, or exactions imposed by the State and local governments and require that certain state taxes be approved by two-thirds supermajority vote in the California State Legislature and that certain local taxes be approved by two-thirds of voters. Further, Proposition 26 exempts certain fees that are imposed for a specific benefit to the

(http://controller.lacity.org/stellent/groups/electedofficials/@ctr_contributor/documents/contributor_web_content/lacityp_010463.pdf).

¹¹⁶ Once Again, Council to Ask DWP for Money, NBC Los Angeles (www.nbclosangeles.com/news/local/DWP-Refuses-to-Transfer-735-Million-to-the-City-89948147.html).

¹¹⁷ Charter Amendment LA-J, DWP Revenue Transfers and Budget Deadline City of Los Angeles, Smart Voter, 2011 (www.smartvoter.org/2011/03/08/ca/la/meas/LA-J/).

¹¹⁸ City of Los Angeles Charter available at: www.amlegal.com/codes/client/los-angeles_ca/.

¹¹⁹ “Lawsuits threaten DWP payments to city,” *The Los Angeles Times*, April 20, 2015 (www.latimes.com/local/cityhall/la-me-adv-dwp-transfer-20150420-story.html).

¹²⁰ California Proposition 26, Supermajority Vote to Pass New Taxes and Fees, Ballotpedia, 2010 ([https://ballotpedia.org/California_Proposition_26,_Supermajority_Vote_to_Pass_New_Taxes_and_Fees_\(2010\)\)](https://ballotpedia.org/California_Proposition_26,_Supermajority_Vote_to_Pass_New_Taxes_and_Fees_(2010))).

payer that is not provided to those not charged, and which does not exceed the reasonable costs to the State/local government of conferring the benefit.¹²¹

In 2015, the City of Los Angeles was made subject to three class action lawsuits related to the City Transfer: *Chapman v. City of Los Angeles*, *Eck v. City of Los Angeles*, and *Eisan v. City of Los Angeles*. The claimants in *Chapman*, *Eck*, and *Eisan* allege that the City violates the California Constitution by charging customer fees in excess of the cost of providing electric utility service, as allegedly evidenced by the City Transfer. The three cases have been consolidated into a single, consolidated complaint (*Eck*) and related before a single judge. This Consolidated Complaint names the City, LADWP, and the LADWP Board of Water and Power Commissioners as defendants. The plaintiffs, on behalf of a class of LADWP electricity ratepayers, seek a refund of alleged excess fees collected from January 30, 2012, through the end of the lawsuit. They also seek a declaration that LADWP's electric rates are invalid and an order enjoining the City from continuing to collect the allegedly excessive rates. The City plans to defend against the suit vigorously. All three named defendants have answered the Consolidated Complaint. The lawsuit is currently in the discovery stage. The lawsuit may have an impact on the City of Los Angeles' credit ratings as well as its budget. Standard & Poor's (S&P) revised the City's outlook from "positive" to "stable" in late October 2015, citing uncertainty arising from the two class action lawsuits challenging the Power Revenue Fund transfers. S&P's ratings committee was concerned that an adverse ruling in the lawsuit could result in up to \$1.3 billion in repayments to utility users in addition to the \$250 million budget gap from the loss of the income from the Transfer.¹²²

LADWP is not the only California municipal utility whose transfer mechanism is being challenged. In January 2015, an appellate court in Northern California held that the City of Redding's Electric Utility's payment to the City in lieu of taxes (PILOT) is subject to Proposition 26 (*Citizens for Fair REU Rates v. City of Redding*). The Court rejected the City's argument that its PILOT is not a tax because it is not "imposed" on electric utility customers, as they are voluntary customers. Rather, the Court concluded that a "tax does not lose its revenue-generating character because there is a theoretical but unrealistic way to escape the tax's purview." The Court also rejected the argument that the PILOT was grandfathered in, reiterating the fact that the PILOT was not adopted pursuant to an ordinance, but is instead approved as part of the budget every two years.¹²³ The California Supreme Court has granted review of the decision, and as a result the appellate court decision has been vacated.¹²⁴

A suit has also been filed against the City of Glendale, whose City Charter authorizes a transfer to the general fund of up to 25 percent of the operating revenues of Glendale Water and Power (although in reality it is usually around thirteen percent). In 2013, the Los Angeles County Civil Grand Jury offered an Interim Report on the City of Glendale and Propositions 218 and 26 recommending that the City of Glendale obtain an independent legal opinion regarding compliance with Proposition 26, hold a special election obtaining transfer approval by two-thirds of voters, and, if voters reject the transfer, consider

¹²¹ California Constitution, Article 13 available at: www.leginfo.ca.gov/const/article_13.

¹²² "Lawsuits Result in Revised Los Angeles Outlook," Fidelity Investments, October 26, 2015 (https://fixedincome.fidelity.com/ftgw/fi/FINewsArticle?id=201510261904SM_BNDBUYER_0001087817_110.1).

¹²³ Court Holds City Electric Utility's PILOT Is Subject to Proposition 26, Aleshire & Wynder, 2015 (www.awattorneys.com/news/court-holds-city-electric-utility%E2%80%99s-pilot-subject-proposition-26).

¹²⁴ California Supreme Court Case: S224779 (http://appellatecases.courtinfo.ca.gov/search/case/mainCaseScreen.cfm?dist=0&doc_id=2102031&doc_no=S224779).

alternate sources of revenue.¹²⁵ The City of Glendale asserts that it does not violate Proposition 26 because the ballot measure is not retroactive to previously authorized transfers that have remained unaltered since adoption of the measure.¹²⁶ The case against the City of Glendale is still pending and a trial date has yet to be set.

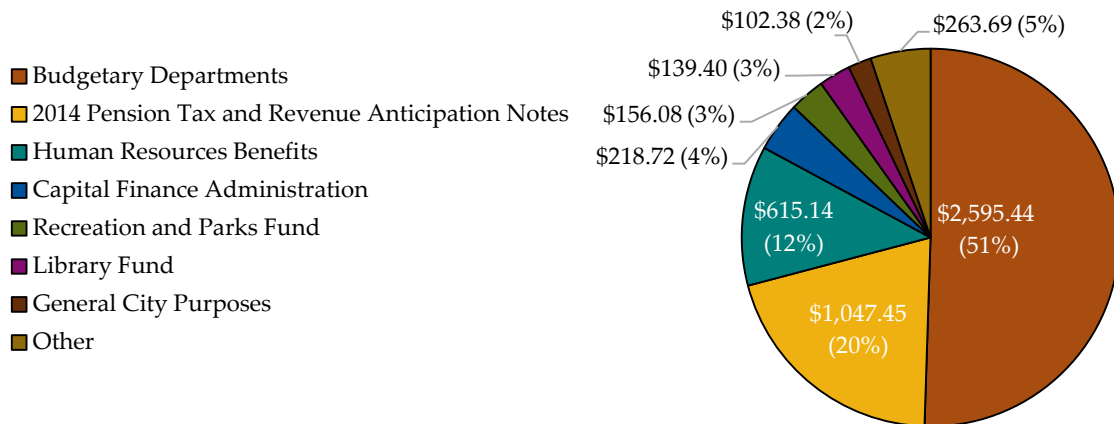
The fate of municipal utility transfers to city general funds throughout California remains uncertain under Proposition 26. The outcomes of the current lawsuits have the potential to significantly alter utility rate structures and city budgets in the coming years.

3.5.1.6 Use of Funds

Like a private utility, which is asked to meet a certain return on investment or profit margin for its investors, LADWP is expected to meet its targeted surplus transfer to its owner, the City. The primary difference from a private utility is that the Transfer funds are used to meet public needs.

In FY 2010-11, the Transfer amounted to approximately six percent of the City of Los Angeles General Fund budget, which finances City services such as police, fire, and recreation and parks.¹²⁷ It was a similar percentage in FY 2014-15, at approximately five percent of the General Fund.¹²⁸ The General Fund is the primary operating fund of the City with the broadest use; the one restriction is that it must be used for governmental purposes.

Figure 3-51. Total General Fund Appropriation, FY 2014-15 (\$ Million)



Source: City of Los Angeles Budget, FY 2014-15.

¹²⁵ Glendale Water & Power and Propositions 218 and 26, County of Los Angeles Civil Grand Jury, 2013 (<http://grandjury.co.la.ca.us/gjury12-13/Interim%20Final%20Report%202012-13.pdf>).

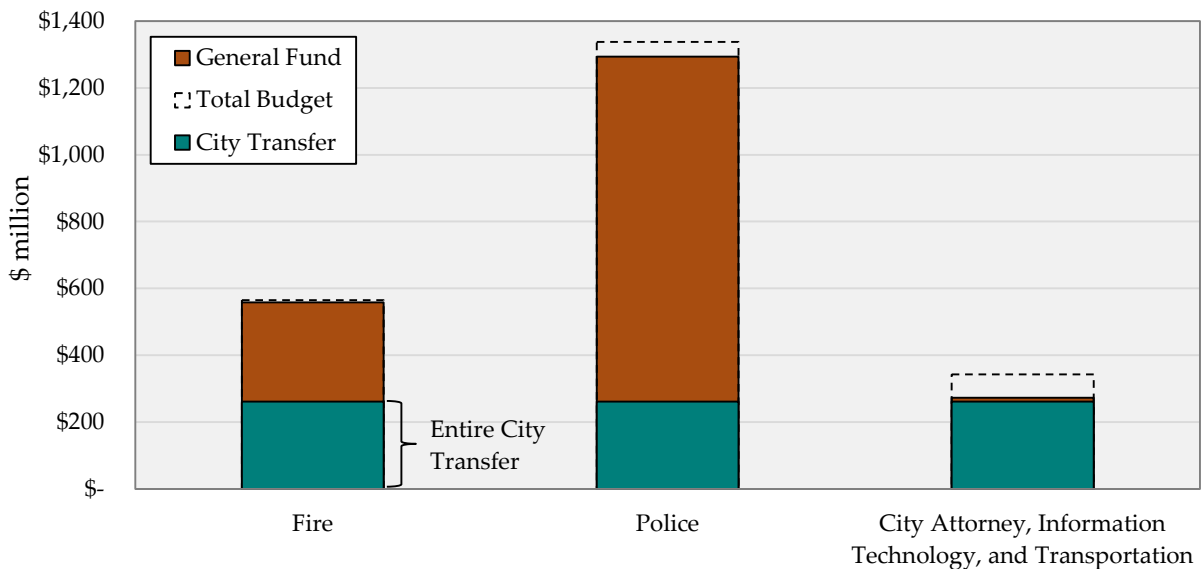
¹²⁶ Op-Ed: Glendale’s City Charter is clear, Glendale News-Press, 2014 (http://articles.glendalenewspress.com/2014-03-21/opinion/tn-gnp-oped-glendales-city-charter-is-clear-20140321_1_glendale-city-manager-city-charter-water-transfer).

¹²⁷ Charter Amendment LA-J, DWP Revenue Transfers and Budget Deadline City of Los Angeles, Smart Voter, 2011 (www.smartvoter.org/2011/03/08/ca/la/meas/LA-J/).

¹²⁸ City of Los Angeles Budget, Fiscal Year 2014-15 (http://controller.lacity.org/stellent/groups/ElectedOfficials/@CTR_Contributor/documents/Contributor_Web_Content/LACITYP_029191.pdf).

The largest appropriation for a budgetary department in FY 2014-15 was for the Police Department, followed by the Fire Department, City Attorney, and Department of Transportation. Many departments depend on the General Fund for more than 90 percent of their appropriations, including Police, Fire, City Attorney, Office of Finance, City Clerk, City Council, and Controller.¹²⁹ However, it is impossible to track dollars from the Power Revenue Fund through the General Fund to their ultimate uses. This is because all funding sources go into a general pool of money, which is allocated according to departments' needs as recommended by the CAO and Mayor's Office and approved by the Mayor and City Council. A useful comparison is rather the fraction of a department's (or multiple departments') budget that is equivalent to the amount of the City Transfer. In the figure below, the entire City Transfer amount is compared individually to three different City budgets for scale.

Figure 3-52. Budgetary Department General Fund Appropriation Comparison, FY 2014-15



Source: City of Los Angeles Budget, FY 2014-15.

As shown above, the FY 2014-15 City Transfer was equivalent to nearly half of the Fire Department's total budget of \$585 million (99 percent from the General Fund). Alternatively, the City Transfer was equivalent to approximately one-fifth of the Police Department's total budget (97 percent from the General Fund), or three-quarters of the combined total budgets of the City Attorney, Information Technology Agency, and Department of Transportation (a combined 80 percent from the General Fund). Or, it is equivalent to nearly 90 percent of the combined Library and Recreation and Parks Funds.

If the City Transfer from LADWP to the General Fund was not made, the City of Los Angeles would have to make significant cuts to its budget provided by the General Fund, as demonstrated by the equivalent budgets described above. Various departments would experience budget cuts and the level of cuts would impact services to the public.

Not making the City Transfer to the General Fund would be particularly difficult for the City because of the major budget cuts made in response to the financial crisis, during which the City struggled with a

¹²⁹ Ibid.

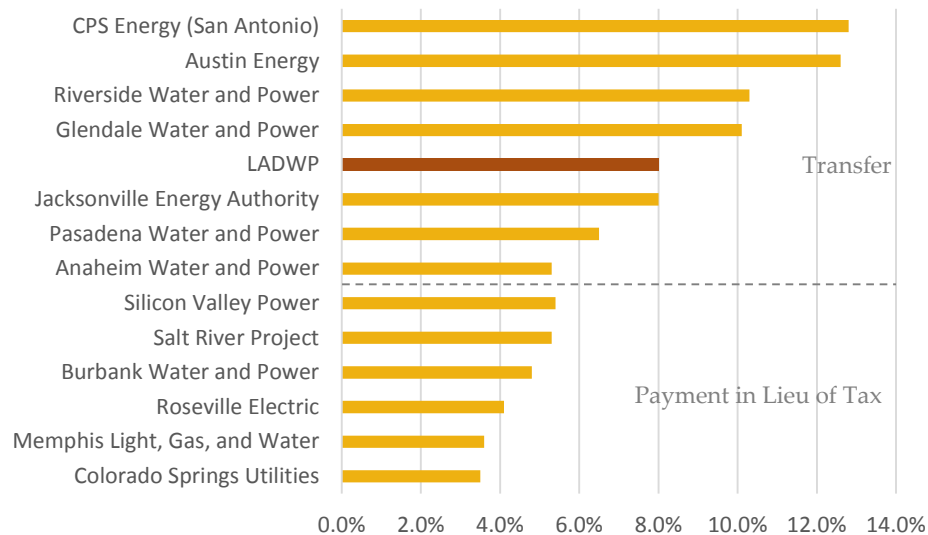
\$500 million budget gap.¹³⁰ These cuts trimmed essentially all of the lower priority spending in the City at the time. Under these circumstances, eliminating the use of the City Transfer would be a challenge.

3.5.2 City Transfer Benchmarking

Navigant completed a benchmarking analysis comparing LADWP’s City Transfer to the equivalent transfers of 15 municipal utility peers, selected for their comparable size or geographic location. The analysis examined the origins of each utility’s transfer mechanism, the annual transfer value, and the transfer value as a percentage of annual operating revenues. Transfers generally fall into one of two categories: a city transfer similar to LADWP’s or a payment in lieu of taxes. The transfer values are representative of the full utility transfer (electric, water, and other services), unless otherwise noted.

We have also included findings from a 2014 Moody’s report on public power electric utilities’ payments to state and local governments, for reference. Moody’s values represent payments and contributions as a percentage of operating revenue for electric services only, unless otherwise noted.¹³¹ Results are summarized in the figure and table below.

Figure 3-53. City Payments as a Percentage of Municipal Utility Gross Operating Revenue



Note: Data from FY 2012-13, FY 2013-14 or FY 2014-15.

Sources: Utility annual reports, financial statements, city charters, and city budgets.

¹³⁰ “In Somber Speech, Villaraigosa Lays Out Plan For Layoffs, Furloughs, Reforms,” *The Huffington Post*, June 20, 2010 (www.huffingtonpost.com/2010/04/20/villaraigosa-expected-to-n_544640.html).

¹³¹ US Public Power Electric Utilities: Payments to Local Governments are Stable but Vulnerable Amid Fiscal Pressures, Moody’s Investors Service, May 1, 2014.

Table 3-7. Summary of Municipal Utility Peer Panel City Payments

Utility	Definition	Amount, FY 2013-14	% of Total Operating Revenue, FY 2013-14	% of Electric Operating Revenue, 2013 (Moody's) ¹³²
CPS Energy	Transfer to the General Fund of up to 14% of gross revenue.	\$336.2M (FY 2014-15)	12.8% (FY 2014-15)	12.8%
Austin Energy	Transfer to General Fund not exceeding 12% of three-year average revenue, calculated using the current year estimate and actual revenues from the past two years, with a \$105 million floor.	\$105.3M (FY 2012-13)	12.6% (FY 2012-13) ¹³³	8.8% (FY 2011-12)
Riverside Water & Power	Transfer to General Fund, not to exceed 11.5% of gross operating revenues for the prior fiscal year, exclusive of surcharges, of each specific utility.	\$42.4M	10.3%	N/A
Glendale Water & Power	Transfer to General Reserve Fund of up to 25% of operating revenues, based on City Council discretion.	\$20.6M	10.1%	N/A
Jacksonville Energy Authority	Transfer to the General Fund based on a millage rate of 5.5 mills per kWh delivered to retail users and wholesale users with a firm contract and 2.1 mills per cubic foot of potable water and sewer services. Franchise fee of 3% of electric and water and sewer revenues, excluding unbilled and uncollectible revenues.	Total: \$148.2M (Transfer: \$109.2M Franchise fee: \$39.0M)	Total: 8.0% (Transfer: 5.9% Franchise Fee: 2.3% ¹³⁴)	11.6%
LADWP	Transfer to the Reserve Fund from surplus money in the Power Revenue Fund.	\$266.0M (FY 2014-15)	8.0% (FY 2014-15)	7.9%
Pasadena Water & Power	Transfer to General Fund of up to the lesser of 16% of gross income or 100% of net income, based on City Council discretion.	\$16.2M	6.5%	N/A
Anaheim Water & Power	Transfer to General Fund of up to 4% of the gross revenue earned by the utility during the previous fiscal year exclusive of amounts paid for O&M. An additional right-of-way transfer to	Total: \$26.2M (Transfer: \$19.7M)	Total: 5.3% (Transfer: 4.0% Right-of-way fee: 1.3% ¹³⁵)	5.0%

¹³² Moody's reported values are electric-only and include payments and contributions to state as well as local governments.

¹³³ Based on single-year revenue.

¹³⁴ Assumed to include unbilled and uncollected revenues.

¹³⁵ Adjusted to percentage of total operating revenue.

	the General Fund equal to 1.5% of retail revenues of the prior fiscal year is added.	Right-of-way fee: \$6.5M)		
Silicon Valley Power	Contribution in lieu of taxes to the General Fund not to exceed 5% of gross receipts.	\$16.7M	5.4%	5.0%
Salt River Project	Voluntary contributions in lieu of ad valorem taxes, calculated on the same basis as ad valorem taxes.	\$161.6M (FY 2014-15)	5.3% (FY 2014-15)	5.5%
Burbank Water & Power	Transfer in lieu of taxes, 5% of certain retail electric sales to the General Fund, 1.5% of certain retail electric sales to the Street Lighting Fund.	\$11.0M	4.8%	N/A
Roseville Electric	Payment of in lieu of tax franchise fee to General Fund not to exceed 4% of total operating and capital expenditures.	\$6.3M	4.1% ¹³⁶	N/A
Memphis Light, Gas, and Water	Transfer in lieu of taxes based on ad valorem tax value (equalized property tax rate multiplied by net plant value multiplied by assessment ratio) plus 4% of the average of revenue less power costs from electric operations for the preceding three fiscal years.	\$61.0M	3.6%	2.8%
Colorado Springs Utilities	Fee in lieu of taxes calculated as \$0.006173 per kWh delivered and \$0.391539 per Mcf of gas delivered at 14.65 psi.	\$32.5M (FY 2014-15)	3.5% (FY 2014-15)	3.6% (FY 2011-12)

Notes: Moody's reported values are electric-only and include contributions to state as well as local governments. The Glendale Water and Power and Burbank Water and Power transfer and operating revenue values do not include water services.

Overall, LADWP's eight percent transfer falls in line with peer transfers ranging from 3.5 percent to 12.8 percent of annual operating revenues. LADWP's transfer also falls between CPS Energy (12.8 percent) and Salt River Project (5.3 percent), the two peer utilities that similarly serve cities with populations greater than one million people.¹³⁷ And according to a Moody's credit report, eight percent of utility revenues is the median for a municipal electric utility.¹³⁸ The following sub-sections provide a detailed review of the transfers summarized in the table above.

3.5.2.1 City Transfer Mechanism

The transfer from the utility to the city's general fund based on a percentage of revenue is the most common mechanism among the peer panel of municipal utilities.

¹³⁶ Based on Operating Expenses and Acquisition and Construction of Capital Assets, Net.

¹³⁷ CPS Energy serves San Antonio with a 2013 population of 1.4 million; Salt River Project serves most of Phoenix with a 2013 population of 1.5 million.

¹³⁸ www.yieldandincome.com/bondsOnline/rating_doc.cfm?DA=view&RID=8465.

CPS Energy

In 1942, the City of San Antonio purchased the San Antonio Public Service Company. As part of the deal, the City established a provision for its new Public Service Company to provide up to 14 percent of gross revenue to the City's General Fund for police and firefighters, roads, drainage, and other services. This practice has continued through the present time, and in FY 2012-13 it was the General Fund's single largest revenue stream, providing 29.3 percent of the total available resources.¹³⁹

In FY 2014-15, CPS Energy transferred approximately \$336 million, or 12.8 percent of total electric and gas operating revenue, to the City of San Antonio. The amount has remained relatively consistent with the two prior transfers of 13.1 percent (FY 2013-14) and 12.8 percent (FY 2012-13) of electric and gas operating revenue.¹⁴⁰

Austin Energy

The City of Austin, Texas Financial Policies state that Austin Energy shall transfer to the City's General Fund up to 12 percent of the three-year average revenue, calculated using the current year's estimated revenue and the previous two years' actual revenues.¹⁴¹ It has a floor of \$105 million.¹⁴² The transfer helps keep the City's tax rate stable and funds City services including parks, libraries, police, and economic development.¹⁴³

A report by the nonprofit organization Public Citizen¹⁴⁴ undertook to determine how common General Fund transfers are from public utilities in Texas cities, how common it is for those transfers to include revenue from out-of-city ratepayers, and what the standard rate of such General Fund transfers is. Although Texas is a very different operating environment than California, some interesting findings resulted. Of the 100 largest cities in Texas, 94 owned at least one utility through their municipal government. Of those 94 cities, 49 were found to make a rate of return that assisted the General Fund (this was more common in larger cities, occurring in 76 percent of cities with a population greater than 100,000).

The survey revealed that for the eight largest Texas public power utilities, General Fund transfers ranged from 6.4 percent to 14.7 percent (based on the utility's overall expenditures). San Antonio was shown in 2011 to collect more from CPS Energy than the City of Austin did from Austin Energy. The total transfers included the return on investment as well as General and Administrative costs. In 2011, Austin Energy transferred an amount equal to 12.3 percent of its expenditures, while CPS Energy transferred an

¹³⁹ Publicly-owned CPS Energy a boon to customers, city of San Antonio, Tracy Idell Hamilton, October 24, 2013 (<http://newsroom.cpsenergy.com/publicly-owned-cps-energy/>).

¹⁴⁰ 2014-2015 CPS Energy Annual Report (www.cpsenergy.com/content/dam/corporate/en/Documents/Finance/FY_2015_Annual_Report.pdf).

¹⁴¹ City of Austin, Texas Financial Policies 2014-15 Volume II (www.austintexas.gov/edims/document.cfm?id=227970).

¹⁴² General Fund Transfer calculations: <https://austinenergy.com/wps/wcm/connect/ea40e9bd-0c16-4211-9a96-1319bd355701/Fin-generalFundTransfer.xls?MOD=AJPERES>.

¹⁴³ Austin Energy Annual Report FY 2013, Lighting the Way for Austin's Future (<https://austinenergy.com/wps/wcm/connect/e1cdc885-e38d-4be5-8883-c9ba54e33f44/2013AnnualReport.pdf?MOD=AJPERES>).

¹⁴⁴ "Public Profit for the Public Good: A Survey of Municipal Utility Rate and Profit Policies for Texas Cities," Public Citizen, 2012 (www.citizen.org/documents/2012-12-03%20Public%20Profit%20for%20the%20Public%20Good1.pdf).

amount equal to 13.1 percent of its expenditures. The report also summarizes the history of the Austin Energy General Fund transfer, which was motivated in part to supplement the city's general fund which suffered from being unable to levy sufficient property taxes, as a result of being the seat of state government and home to the University of Texas.

However, the Austin General Fund transfer has not been without controversy. During the proceedings of the Austin Energy rate case in 2012, ratepayers challenged the right of the City of Austin to transfer rates to government services. This was an issue especially for out-of-city ratepayers, who made up 13 percent of the utility's customer base at the time. The controversial 2012 rate case was the first time since 1994 that electric rates were changed. Non-City of Austin ratepayers filed a petition at the Texas Public Utilities Commission (PUC) to challenge the rate increase, exercising their appeal rights. PUC staff argued for a \$31 million reduction to the General Fund transfer (roughly one-third of the total) and a \$46 million reduction to its revenue requirement increase (more than half). Ultimately, the parties settled, with the result that Austin Energy's revenue was reduced by \$5.75 million below the original proposal to benefit out-of-city ratepayers.¹⁴⁵

From the 2012 rate case, Austin City Council maintained its transfer to the General Fund but froze it at \$105 million. However, the amount the utility pays for support services (Administrative and General) has continued to grow. The FY 2012-13 transfer was \$105.3 million, 12.6 percent of the year's operating revenue.¹⁴⁶ Inclusive of the General Fund transfer, the total amount was \$155.0 million in FY 2014-15 and is projected to reach \$158.8 million in FY 2015-16. The utility has calculated that it pays for 44.7 percent of the mayor and Council's budget, and the same for the Communications and Public Information Office budget.¹⁴⁷

Riverside Water and Power

Section 1204 of the Riverside City Charter defines the use of revenue for each public utility for each fiscal year. The revenue funds are to be used for the following purposes in the following order: operation and maintenance, payment of interest on revenue bonded debt, payment of the principal of said debt, the establishment and maintenance of reserves for the above interest and principal, capital expenditures, and payment to the City General Fund. Annual payment to the General Fund is to occur in twelve equal monthly installments not to exceed 11.5 percent of the gross operating revenues, exclusive of surcharges, of each specific utility for the prior fiscal year.¹⁴⁸ Transfers from the Electric Utility to the City's general fund in FY 2013-14 totaled \$38.70 million, which was 11.5 percent of FY 2012-13 gross operating revenue, including adjustments.

Transfers from the Water Utility to the General Fund were \$6.99 million for FY 2013-14, however, the Water Utility received a \$3.33 million transfer back from the General Fund as mandated by the terms of a

¹⁴⁵ "Austin Energy Wins Round One," *The Austin Chronicle*, March 8, 2013 (www.austinchronicle.com/news/2013-03-08/austin-energy-wins-round-one/).

¹⁴⁶ Austin Energy Annual Report FY 2013, *Lighting the Way for Austin's Future* (<https://austinenenergy.com/wps/wcm/connect/e1cdc885-e38d-4be5-8883-c9ba54e33f44/2013AnnualReport.pdf?MOD=AJPERES>).

¹⁴⁷ "Austin Energy Payments to City Keep Growing," *The Austin Monitor*, March 18, 2015 (<http://kut.org/post/austin-energy-payments-city-keep-growing>).

¹⁴⁸ Riverside City Charter, Section 1204, available at: www.riversideca.gov/municode/pdf/charter/article-12.pdf.

2013 lawsuit settlement in which the General Fund agreed to return \$10 million over a three year period beginning FY 2013-14. The net transfer to the City from the Water Utility was \$3.66 million, 5.3 percent of gross operating revenue, net of uncollected revenue. In total, Riverside Water and Power transferred \$42.36 million in FY 2013-14 which equated to 10.3 percent of electric and water operating revenues.¹⁴⁹

Glendale Water and Power

Article XI, Section 22 of the Glendale City Charter specifies that an amount equal to 25 percent of the operating revenues of the department of Glendale Water and Power (GWP) shall be transferred from the GWP surplus fund to the City's general reserve fund of the General Fund at the end of each fiscal year. The City Council may annually reduce the amount or wholly waive the transfer if necessary to insure the sound financial position of GWP.¹⁵⁰ The City's general reserve fund is a permanent revolving fund maintained for the purpose of keeping the payment of the running expenses of the city on a cash basis. Council has the power to transfer from the general fund to any fund provided that the money is returned on or before the end of the fiscal year in which said transfers are made.¹⁵¹ The City discontinued its transfer of water revenue to the General Fund in February 2011 for Proposition 218 compliance.¹⁵²

While the Charter allows a transfer of up to 25 percent of operating revenues, the Council has historically exercised their authority to reduce the amount, transferring approximately 13 percent of retail revenue on average.¹⁵³ The transfer has remained between ten and twelve percent for the last five fiscal years. In FY 2013-14, GWP transferred \$20.61 million to the City's general reserve fund, or 10.1 percent of the Electric Utility's total operating revenue.¹⁵⁴

Jacksonville Energy Authority

Jacksonville Energy Authority (JEA) is required to contribute annually to the General Fund of the City of Jacksonville based on a formula negotiated under an eight-year agreement established in FY 2007-08. The Electric Enterprise Fund transfer is equal to 5.5 mills per kilowatt-hour delivered by JEA to retail users in its service area and to wholesale customers under firm contracts having an original term of more than one year. The Water and Sewer Fund transfer is equal to 2.1 mills per cubic foot of potable water and sewer service provided. The calculations are subject to a minimum average increase of \$2.5 million per year through FY 2015-16.

In FY 2013-14, JEA transferred \$87.32 million from the Electric Enterprise Fund (6.1 percent of electric operating revenues) and \$21.87 million from the Water and Sewer Fund (5.7 percent of water and sewer

¹⁴⁹ Riverside Public Utilities 2014 Financial Report (www.riversideca.gov/utilities/pdf/annual/2013-2014-Financial-Annual-Report.pdf).

¹⁵⁰ Glendale City Charter, Article XI Section 22 available at: http://qcode.us/codes/glendale/view.php?topic=the_charter-xi-22&frames=on.

¹⁵¹ Glendale City Charter, Article XI Section 15.

¹⁵² City of Glendale, CA Report to the City Council, June 2013 (www.ci.glendale.ca.us/government/council_packets/Reports_061113/CC_8c_061113.pdf).

¹⁵³ Glendale Water & Power Rates, Frequently Asked Questions (www.glendaleca.gov/government/city-departments/glendale-water-and-power/rates/frequently-asked-questions#116).

¹⁵⁴ Glendale Water & Power Annual Report 2013-2014, Independent Auditor' Report on the Financial Statements of the Electric Enterprise Fund, 2014 (www.glendaleca.gov/home/showdocument?id=19876).

operating revenues). In total, JEA transferred \$109.19 million to the General Fund, or 5.9 percent of total operating revenues.¹⁵⁵ In October 2015, Jacksonville’s City Council president called for a simplification of the payment calculation from the formula based on millage rates to 6.2 percent of a three-year rolling average of gross revenue. This would guarantee the minimum yearly payment to the city would not go below \$114 million.¹⁵⁶

JEA also pays the City of Jacksonville a franchise fee equal to three percent of the electric system and the water and sewer system revenues, excluding unbilled revenues and uncollectible amounts, as defined by Section 21.07 (l) of the Jacksonville City Charter. The monthly fee commenced for revenues effective April 1, 2008 with a per customer maximum of \$2.4 million per fiscal year of electric rate revenues. The franchise fee is in consideration of the administrative costs incurred by the City to coordinate functions and services with JEA, for the exclusive right to serve electric, water and sewer customers, for the use of public rights-of-way, and in consideration of the unique relationship of JEA and the City as a wholly owned public utility. The franchise fee may be increased by ordinance, initiated by the Mayor and approved by two-thirds supermajority of the City Council, but may not exceed six percent of the gross utility revenue.¹⁵⁷ In FY 2013-14, JEA contributed \$29.22 million in franchise fees from the electric fund (2.2 percent of electric operating revenue) and \$9.78 million from the water and sewer funds (2.5 percent of water and sewer operating revenue), for a total fee of \$38.99 million (2.3 percent of total operating revenues).¹⁵⁸

Pasadena Water and Power

Pasadena Water and Power (PWP) makes an annual transfer to the City of Pasadena as defined by Sections 1407 and 1408 of the City Charter. Section 1407 mandates that each fiscal year an amount equal to eight percent of the gross income of the electric works received during the preceding fiscal year, not to exceed one-half of the net income of the electric works, shall be transferred to the General Fund of the City and shall be applied first to the payment of interest and principal on any bonds of the City which are or shall become wholly payable that fiscal year, and second to municipal improvements included in the budget of the City for that fiscal year. Section 1408 provides that each fiscal year the Council shall transfer an additional amount defined in the same fashion and transferred at the same time in the same manner as Section 1407, to be expended for any municipal purpose. In both cases, if the City Council determines that the transfer of such amounts would be detrimental to the proper functioning and

¹⁵⁵ JEA Annual Report 2014, Strategic Agility (www.jea.com/About/Investor_Relations/Financial_Reports/2014_Annual_Report.aspx).

¹⁵⁶ The Florida Times-Union, City Council President Wants More JEA Concessions in Contribution Agreement, October 2015 (<http://jacksonville.com/news/2015-10-27/story/city-council-president-wants-more-jea-concessions-contribution-agreement>).

¹⁵⁷ Charter of the City of Jacksonville, Section 21.07 (l) available at: http://apps2.coj.net/City_Council_Public_Notices_Repository/2014.02.13%20TFGC%20GovernHandout%20JEA%20Charter.docx.

¹⁵⁸ JEA Annual Report 2014, Strategic Agility (www.jea.com/About/Investor_Relations/Financial_Reports/2014_Annual_Report.aspx).

administration of the utility, the Council may declare by resolution that no transfer, or a transfer of a smaller amount, shall be made.¹⁵⁹

In FY 2013-14, PWP transferred \$14.68 million from the Power Enterprise Fund to the City's General Fund, an amount equal to 7.8 percent of total power operating revenues. This transfer is up slightly from the FY 2012-13 transfer of 7.4 percent of total power operating revenues. The Water Enterprise Fund transferred \$1.54 million, or 2.8 percent of total water operating revenues. In total, PWP transferred \$16.23 million, 6.5 percent of power and water operating revenues.¹⁶⁰

Anaheim Water and Power

The Anaheim City Charter Section 1221 states that Anaheim Water and Power (AWP) shall transfer an amount equal to, or less than, four percent of the gross revenue earned by the utility during the previous fiscal year to the General Fund of the City, exclusive of amounts paid for operations and maintenance of the system.¹⁶¹ The City uses the General Fund to provide needed public services to the City's residents, including police, fire, parks, and libraries.¹⁶² The utilities also transfer a right-of-way fee to the General Fund equal to 1.5 percent of retail revenues of the prior fiscal year.¹⁶³

In FY 2013-14, the Electric Utility transferred \$17.13 million based on the current year's total operating revenues and true-up adjustments on the prior year's total operating revenues. The transfer equaled 3.7 percent of the prior year's total revenues or four percent of FY 2013-14 total operating revenues. The Electric Utility right-of-way fee equaled \$5.56 million, which was 1.7 percent of the prior year's net retail revenue or 1.3 percent of FY 2013-14 total operating revenues.¹⁶⁴

The Water Utility transferred \$2.62 million in FY 2013-14, 4.2 percent of the prior year's total revenues or four percent of FY 2013-14 total operating revenues. The right-of-way fee transferred an additional \$0.902 million, which equaled 1.5 percent of the prior year's net retail revenue (1.4 percent of FY 2013-14 total operating revenues).¹⁶⁵ Combined, the Electric and Water Utilities transferred \$26.20 million to the City of Anaheim's General Fund in FY 2013-14. This represented 5.3 percent of the total electric and water operating revenues.

3.5.2.2 Payment in Lieu of Taxes Mechanism

Payment in lieu of taxes was the second most common transfer mechanism. The basis of the transfer calculations in the peer panel are varied and include percentage of revenue, percentage of services provided, and calculations based on ad valorem tax calculations.

¹⁵⁹ Pasadena City Charter, Article XIV Sections 1407 and 1408 available at:

www.municode.com/library/ca/pasadena/codes/code_of_ordinances?nodeId=CH_ARTXIVWAPOUTOP.

¹⁶⁰ Pasadena Water and Power 2014 Annual Report (http://cityofpasadena.net/waterandpower/Annual_Reports/).

¹⁶¹ Anaheim City Charter, Section 1221, available at: <http://www.anaheim.net/DocumentCenter/View/9584>.

¹⁶² City of Anaheim Water Utility Fund Financial Statements 2014 and 2013 (www.anaheim.net/DocumentCenter/Home/View/1979).

¹⁶³ City of Anaheim Electric Utility Fund Financial Statements 2014 and 2013 (www.anaheim.net/DocumentCenter/Home/View/1978).

¹⁶⁴ Ibid.

¹⁶⁵ City of Anaheim Water Utility Fund Financial Statements 2014 and 2013.

Silicon Valley Power

Section 1320 of the Santa Clara City Charter states that receipts from City-operated utilities are to be paid into the City Treasury and maintained in a separate utilities fund for the following purposes in the following order: operating expenses and pension charges, repairs and maintenance, interest and sinking funds on bonds, payment not to exceed five percent of the gross receipts of utilities to the general fund of the City, extensions and improvements, and establishment of a sinking fund for replacement of utilities property.¹⁶⁶

In FY 2013-14, Silicon Valley Power contributed an estimated \$16.71 million in lieu of taxes to the City's general fund.¹⁶⁷ This contribution was 5.4 percent of the utility's total operating revenues.¹⁶⁸ The contribution in lieu of taxes is forecast to increase to \$19.3 million for FY 2014-15, primarily driven by market projections for electric consumption and rate increases assumed in the SVP Five-Year Financial Plan.¹⁶⁹

Salt River Project

The Salt River Project (SRP) refers collectively to the Agricultural Improvement and Power District (the District) and the Salt River Valley Water Users' Association (the Association). The District owns and operates an electric system that serves power users in a 2,900 square mile service territory in parts of Maricopa, Gila and Pinal counties and mine loads in a 2,400 square mile area in Gila and Pinal counties of Arizona.¹⁷⁰

As a political subdivision of the State of Arizona, the District is exempt from federal and state income taxes. The Association, as a private corporation, is not exempt from income taxes for activities where it is not acting as an agent of the District. The District is also exempt from property taxation, but in accordance with Arizona law, makes voluntary contributions in lieu of ad valorem taxes each year to the State of Arizona, school districts, cities, counties, towns and other political subdivisions, for which property taxes are levied and within whose boundaries the District has property included in its electric system. The amount paid is calculated on the same basis as ad valorem taxes paid by a private utility corporation.

Taxes and tax equivalents for SRP amounted to \$161.64 million in FY 2014-15, or 5.3 percent of total operating revenues.¹⁷¹

Burbank Water and Power

¹⁶⁶ Charter of the City of Santa Clara Section 1320, available at:

(www.codepublishing.com/CA/SantaClara/#!/santaclarach.html#1320).

¹⁶⁷ City of Santa Clara California 2015-16 through 2019-20 Five-Year Financial Plan, July 1, 2014

(www.santaclaraca.gov/home/showdocument?id=12560).

¹⁶⁸ City of Santa Clara Electric Utility Enterprise Fund (SVP) Financial Statements 2014 and 2013

(www.siliconvalleypower.com/home/showdocument?id=8200).

¹⁶⁹ City of Santa Clara California 2015-16 through 2019-20 Five-Year Financial Plan, July 1, 2014

(www.santaclaraca.gov/home/showdocument?id=12560).

¹⁷⁰ www.srpnet.com/about/servicearea.aspx.

¹⁷¹ Salt River Project Combined Financial Statements as of April 30, 2015 and 2014 Together with Report of Independent Auditors (www.srpnet.com/about/financial/2015AnnualReport/pdfx/AuditedFinancials_2015.pdf).

As defined by Section 610 of the Burbank City Charter, Burbank Water and Power (BWP) makes a yearly transfer in lieu of tax to the City not to exceed seven percent of certain retail electric sales and five percent of certain water revenues, at the discretion of the Council. In accordance with the Charter, BWP currently transfers 6.5 percent of retail electric sales. Five percent is deposited into the City's General Fund, which funds fire and police, parks and recreation, senior programs, library programs, planning, street maintenance, and building inspection; and the remaining 1.5 percent is deposited into the Street Lighting Fund. The full five percent of water revenues is deposited into the General Fund.

In FY 2013-14, the Electric Utility transferred \$8.52 million to the General Fund and \$2.45 million to the Street Lighting Fund, equating to 5.1 percent and 1.5 percent of total retail operating revenues, respectively. The total transfer of \$10.97 million is 4.8 percent of total operating revenues for the Electric Utility. Retail customer's also contributed \$11.04 million to the City's General Fund in the form of a utility users' tax of seven percent of certain electric retail revenues.

The Water Utility transferred \$1.32 million in FY 2013-14, 4.4 percent of total potable and recycled water sales. The transfer of funds from the Water Enterprise Fund to the City General Fund was challenged in 2013 as a violation of Proposition 218. The settlement will undo the water transfer for all future years beginning FY 2014-15 and require the City to transfer \$1.5 million to the Water Enterprise Fund over four years.¹⁷²

Roseville Electric

As described in the Roseville City Charter Section 9.01, City-owned utilities may pay a franchise fee in lieu of taxes (not to exceed four percent of total operating and capital expenditures) to the City's General Fund for the purpose of accounting for the value of the occupation of public right of way. All franchise fee revenue is to be budgeted and appropriated solely for police, fire, parks and recreation, or library services.¹⁷³

The payment in lieu of taxes for FY 2013-14 was \$6.31 million, while total operating expenses were \$146.83 million and the acquisition and construction of capital assets was \$8.56 million.¹⁷⁴ The payment was equal to 4.1 percent of the total of these two expenditures.

Memphis Light, Gas and Water

Tennessee Code Annotated (TCA) 7-34-115 mandates that a municipal utility system's charges, rates and fees shall reflect the actual cost of providing the services rendered and that no public works shall operate for gain or profit or as a source of revenue to a governmental entity, but shall operate for the use and benefit of the consumers served by the public works.¹⁷⁵ TCA 7-52-304 provides that every municipality may cause to be paid from its electric system revenues an amount in lieu of taxes not to exceed a maximum equal to the sum of a) the equalized property tax rate multiplied by the net plant value of the

¹⁷² BWP 2013-2014 Annual Report (www.burbankwaterandpower.com/annual-reports).

¹⁷³ Roseville City Charter, Section 9.01, available at: www.qcode.us/codes/roseville/?view=desktop&topic=13-13_29-13_29_010.

¹⁷⁴ Roseville Electric Utility Annual Report 2014: We Power Your Future (<http://eganenergy.com/wp-content/uploads/2015/07/2014-Annual-Report-Roseville-Electric.pdf>).

¹⁷⁵ Tennessee Code Annotated 7-34-115: Operation of utility systems Disposition of revenue, available at: <http://law.justia.com/codes/tennessee/2010/title-7/chapter-34/7-34-115>.

electric plant and the book value of materials and supplies multiplied by the assessment ratio in effect at the beginning of the given fiscal year and b) four percent of the average of revenue less power costs from electric operations for the preceding three fiscal years.¹⁷⁶ TCA 7-39-404 sets an equivalent maximum for the municipality's gas system.¹⁷⁷

In FY 2013-14, the Electric Division of Memphis Light, Gas, and Water made a transfer of \$39.30 million to the City of Memphis, equating to 3.1 percent of the Electric Division operating revenues. The Gas Division transferred \$17.32 million, or 5.3 percent of gas operating revenues. The Water Division has a separate agreement with the City to transfer \$2.5 million per year, through 2028. In FY 2013-14, per City resolution, an additional \$1.9 million was requested and approved for transfer from the Water Division. In full, the utility transferred \$61.02 million to the City in FY 2013-14, equaling 3.6 percent of the total operating revenue.¹⁷⁸

Colorado Springs Utilities

Article 6-40 of the Colorado Springs City Charter states the net earnings of Colorado Springs Utilities (CSU) shall be appropriated for the necessary requirements of any of its departments and any remaining surplus may be appropriated to the general revenues of the City.¹⁷⁹ Resolution No. 131-10, approved in August 2010, fixed the electric surplus funds transfer rate to \$0.006173 per kilowatt-hour and the gas surplus rate to \$0.391539 per thousand cubic feet (Mcf) delivered at 14.65 psi. This fee in lieu of taxes replaces the franchise, property, and sales tax revenues the City would collect if the electric and natural gas services were provided by an investor-owned utility.¹⁸⁰

The total transfer for the FY 2014-15 approved budget is \$32.48 million, or 3.5 percent of approved total operating revenues.¹⁸¹

3.5.3 Impact of the Los Angeles City Transfer on Rates

To determine the impact of the City Transfer on power rates, Navigant and LADWP's Financial Services Organization modeled four alternative City Transfer scenarios. These scenarios apply City Transfer funds to alternate uses, as described below.

1. **Apply all Transfer funds to minimize a potential rate increase:** We reduced the City Transfer to \$0 and applied funds to the incremental base revenue in order to achieve the minimum rate increase required.
2. **Apply all Transfer funds to maximize net income:** We reduced the City Transfer to \$0 and applied all funds applied to net income in order to achieve a long-term reduction in borrowing.

¹⁷⁶ Tennessee Code Annotated 7-52-304: Tax equivalents authorized conditions and limitations, available at: <http://search.mleesmith.com/tca/07-39-0404.html>.

¹⁷⁷ Tennessee Code Annotated 7-39-404.

¹⁷⁸ MLGW: Gateway to our Community, Key to its Success, 2014 Annual Report (www.mlgw.com/images/content/files/pdf/2014AR_web.pdf).

¹⁷⁹ City of Colorado Springs Charter, Section 6-40 available at: www.sterlingcodifiers.com/codebook/index.php?book_id=855.

¹⁸⁰ CSU 2015 Annual Operating and Financial Plan (www.csu.org/CSUDocuments/2015aofp.pdf).

¹⁸¹ Ibid.

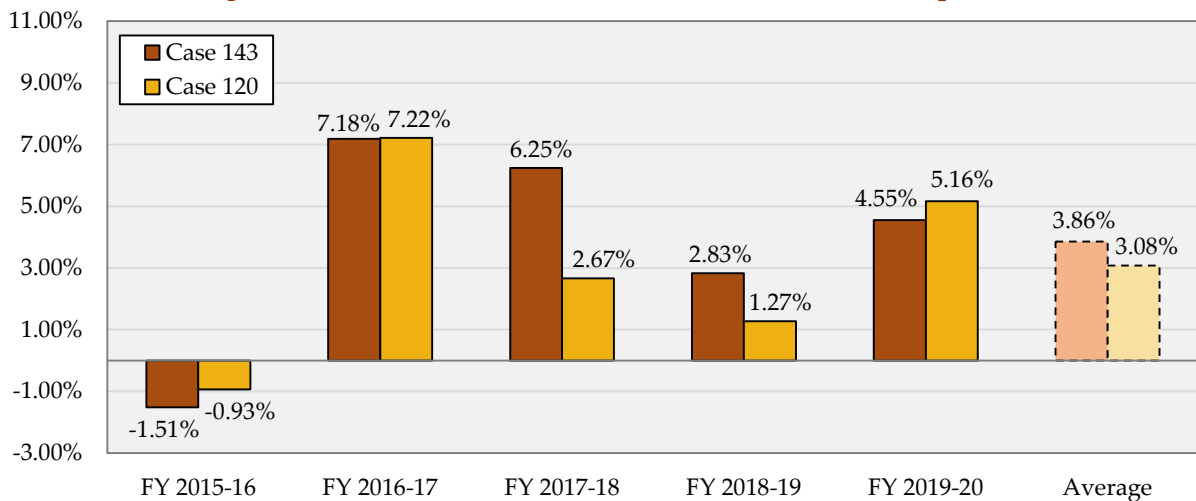
3. **Apply all Transfer funds to existing infrastructure replacement:** We reduced the City Transfer to \$0 and applied funds to the PSRP capital program while maintaining the same rate increase as the final Case 143.
4. **Apply all Transfer funds to labor costs:** We reduced the City Transfer to \$0 and applied funds to non-PSRP O&M and capital expenditures while maintaining the same rate increase as the final Case 143.

These scenarios are not intended to mimic what actions the Department would actually take were the City Transfer to be eliminated; rather, they demonstrate extreme cases of the use of these funds to determine the upper bounds of their impacts. All scenarios are constrained by the Department’s Board-approved financial targets.

3.5.3.1 Minimize a Rate Increase

For this scenario, we created Case 120 which reduced the City Transfer to \$0 and applied funds first to the incremental base revenue. The objective of this scenario is to show how much of a rate increase would still be required without the City Transfer compared to the base case (or in other words, how much the base case’s average rate increase over the five years is minimized by the removal of the City Transfer). The reduction to the annual rate increase is shown below.

Figure 3-54. Case 120 Annual Incremental Rate Increase Comparison



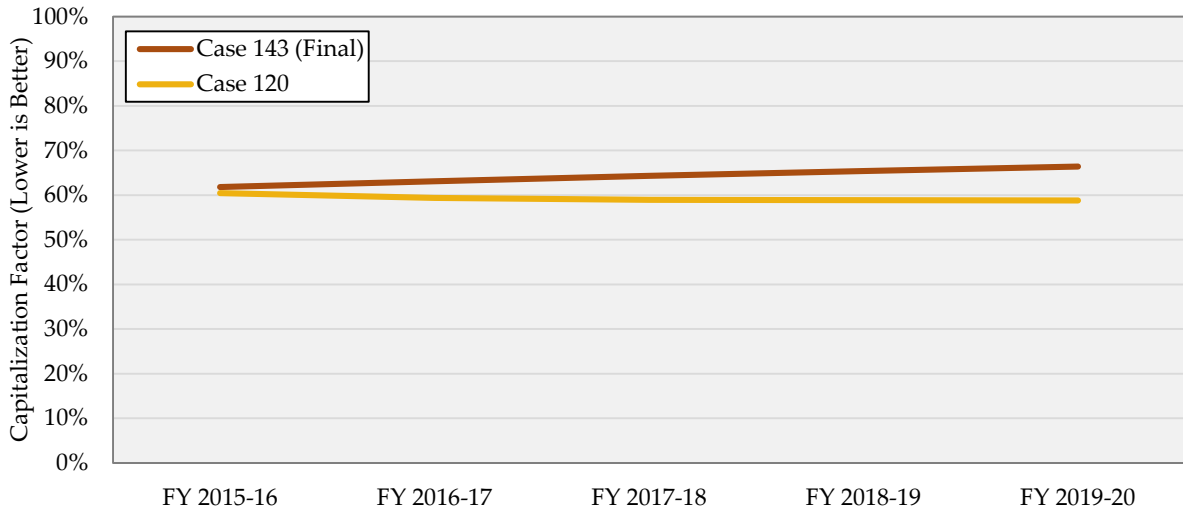
Source: Data request 1-A-24 (December 19, 2015).

By applying City Transfer funds to a reduction in retail revenue, the average annual rate increase for the Study Period is reduced from 3.86 percent to 3.08 percent. Over the five years, this is a total difference of \$392 million in retail revenue collected from customers.

Clearly, this is not equivalent to the entire City Transfer being applied to a reduction in retail revenue over five years. The Department also uses the City Transfer funds to reduce borrowing for capital expenditures by approximately \$1.3 billion over the Study Period. This is because the financial metrics approved by the Board cannot be sustained by such a large reduction in revenue if the entire Transfer amount were to be used for this purpose. To maintain the targeted days of operating cash, the Financial Services Organization would divide the funds between revenue and borrowing. Reducing borrowing

has the additional benefit of reducing interest expenses and the capitalization factor (shown below). This would be a positive long-term trend to establish, as opposed to the currently increasing debt levels.

Figure 3-55. Case 120 Capitalization Factor Comparison

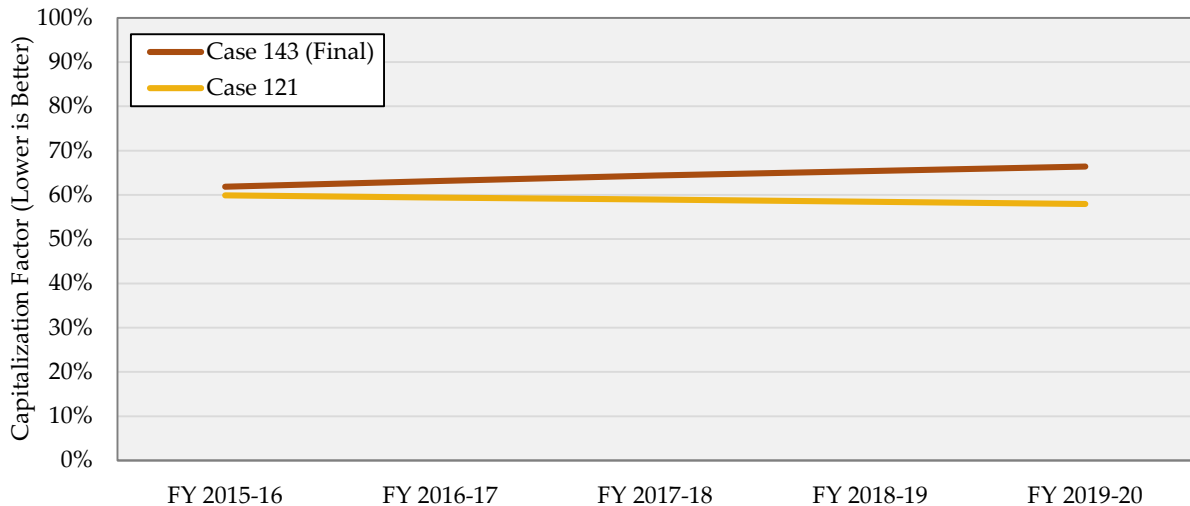


Source: Data request 1-A-24 (December 19, 2015).

3.5.3.2 Maximize Income and Reduce Borrowing

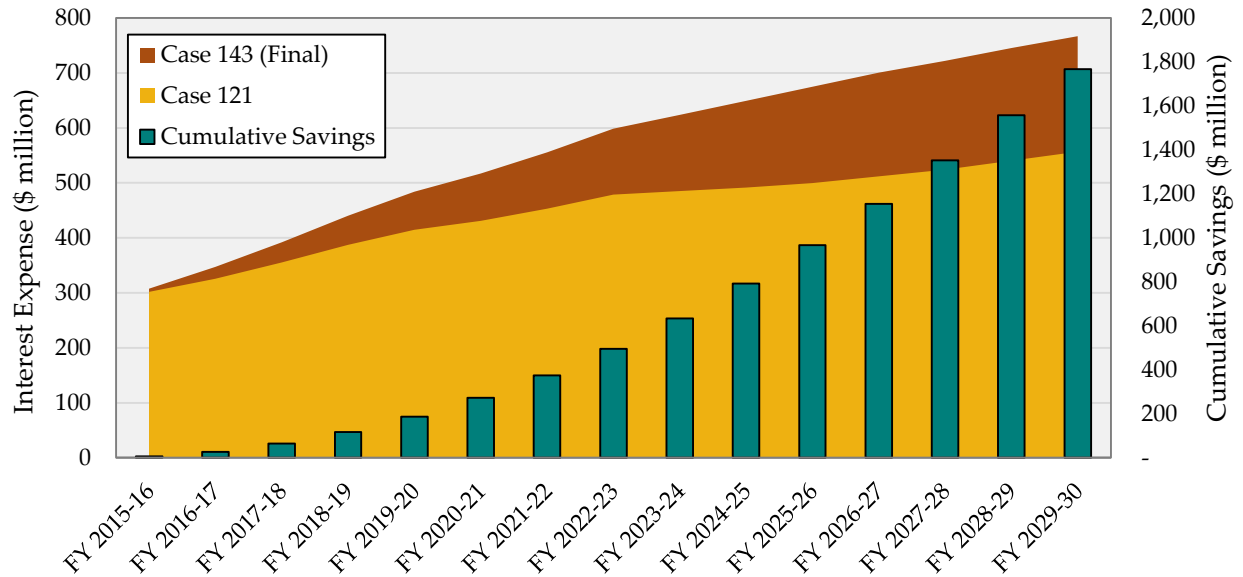
For this scenario, we created Case 121 which reduced the City Transfer to \$0 and applied funds first to net income so that the Department could reduce borrowing. The objective of this scenario is to show the largest long-term reduction in borrowing and hence interest expenses without the City Transfer. Because these are long-term implications, we examine the impact of applying all transfer funds to maximize net income over the next 15 years. Like Case 120, this scenario results in a reduction to the rate increase, averaging a rate increase of 3.45 percent over the Study Period compared to 3.86 percent in the final Case 143. There is also a positive impact on long-term debt levels, as shown below.

Figure 3-56. Case 121 Capitalization Factor Comparison



Source: Data request 1-A-24 (December 19, 2015).

Figure 3-57. Case 121 15-Year Interest Expense Comparison



Note: Cases 143 and 121 do not formally run until 2030, but were extrapolated out to this date upon Navigant’s request.

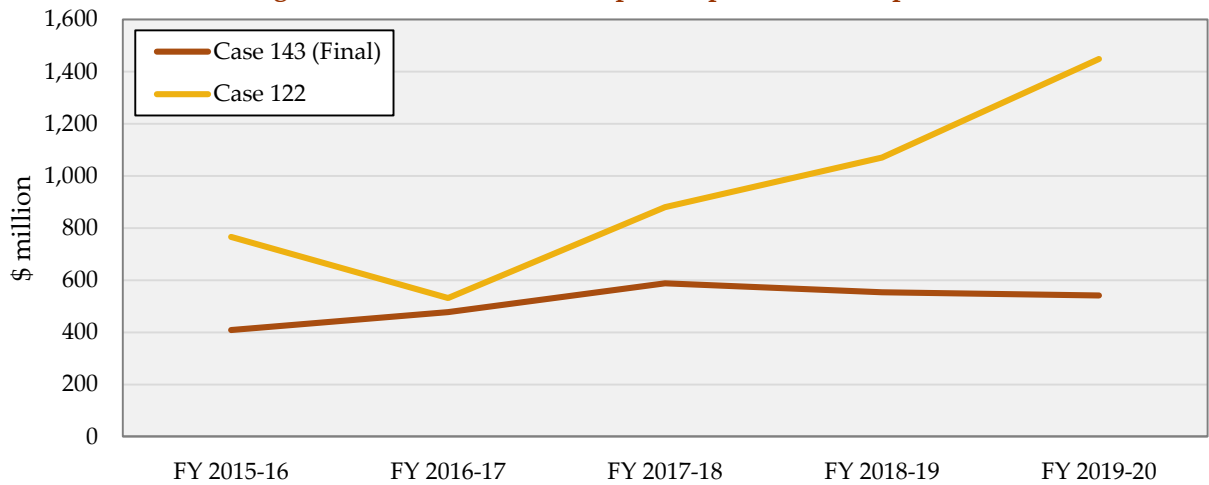
Source: Data request 1-A-24 (December 19, 2015).

Over the Study Period, the capitalization factor decreases rather than increasing as in Case 143, which is a more sustainable trend that could present a more positive outlook to credit rating agencies. And at the end of the Study Period, the annual interest expense in Case 121 is \$70 million lower than in Case 143; and after 15 years, the annual difference is \$210 million. Cumulatively, this represents a significant \$1.77 billion in savings over 15 years.

3.5.3.3 Increase Infrastructure Replacement

For this scenario, we created Case 122 which reduced the City Transfer to \$0 and applied funds to the PSRP capital program, using the standard 35 percent cash and 65 percent debt ratio. The objective of this scenario is to show how many assets could be replaced using the City Transfer funds, with the same average rate increase as the final case. This demonstrates the increased scale of infrastructure improvements that could be achieved (theoretically) with the same rate increase but no City Transfer.

Figure 3-58. Case 122 PSRP Capital Expenditure Comparison



Source: Data request 1-A-24 (December 19, 2015).

Because the City Transfer funds serve as the cash-only portion, the overall amount of PSRP capital spending (including debt serviced amounts) increases dramatically over the Study Period. Altogether, this is more than \$2 billion in additional PSRP capital expenditures over five years—on top of the currently proposed \$2.5 billion.

To put this spending in perspective, the unit costs for several major PSRP asset types, as found in a 2015 analysis by the Power System, are shown in the table below.

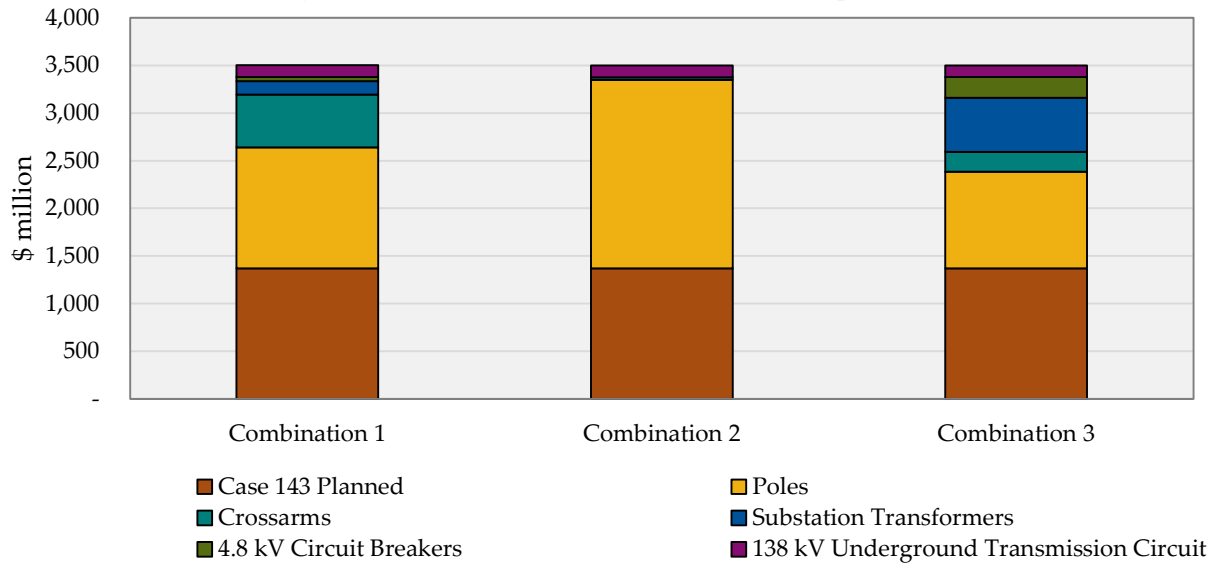
Table 3-8. Sample PSRP Asset Average Unit Costs

Asset Class	Average Unit Cost
Poles	\$50,727.58
Crossarms	\$3,361.39
Substation Transformers	\$710,045.00
4.8 kV Circuit Breakers	\$216,595.00
138 kV Underground Transmission Circuit	\$15,337,653.00

Source: PSRP Life Cycle Asset Chart (Data request 1-B-3), October 2, 2015.

According to the unit costs shown in the table above, and taking into account the planned replacements over the Study Period and LADWP’s total existing count of each asset, applying 100 percent of the City Transfer funds to poles would enable approximately 42,000 additional replacements, or approximately 21 percent of the Power System’s total. For crossarms, 100 percent of the City Transfer funds would enable over 630,000 additional crossarm replacements, or 53 percent of the Power System’s total. However, the replacements would be enabled financially but without regard to having sufficient labor and procurement capacity. Rather than being committed to a single asset class, the extra funds would more likely be applied to a combination of asset replacements over the Study Period. Three example combinations are shown below. Figure 3-59 shows the additional poles, crossarms, substation transformers, 4.8 kV circuit breakers, and 138 kV underground transmission circuit miles on top of the planned replacements for this specific group of assets (“Case 143 Planned”).

Figure 3-59. Case 122 Increased PSRP Asset Replacement



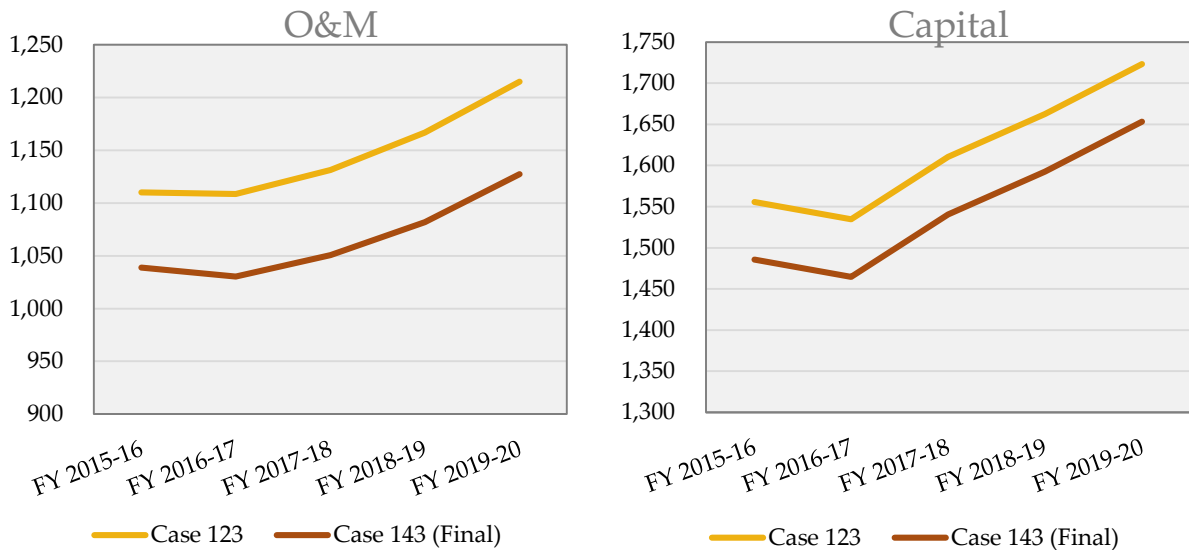
Sources: PSRP Life Cycle Asset Chart (Data request 1-B-3), October 2, 2015; Data request 1-A-24 (December 19, 2015).

The City Transfer would make a significant impact on PSRP asset replacement. However, it is important to note that in the final Case 143, the Power System revised its planned PSRP spending downward from the first proposed case for the beginning of the Study Period to reflect actual implementation capability. Based on this and Navigant’s findings related to contracting and procurement challenges contributing to underspending, the PSRP could not reasonably be funded to the level exhibited in Case 122.

3.5.3.4 Fund Labor Costs

For this scenario, we created Case 123 which reduced the City Transfer to \$0 and applied the funds to non-PSRP O&M and capital expenditures. The objective of this scenario is to show the funding that could be applied towards labor, after eliminating the City Transfer but with the same rate increase as the final Case 143. The Financial Services Organization applied a portion of the City Transfer amount to O&M and a portion to capital while ensuring that it would meet its targeted financial metrics. The remaining City Transfer funds, after meeting the minimum debt service coverage ratio, were then used to reduce borrowing.

Figure 3-60. Case 123 Non-PSRP O&M and Capital Expenditure Comparison



Source: Data request 1-A-24 (December 18, 2015).

Over the Study Period, the increased non-PSRP O&M and capital expenditures total \$403 million and \$350 million, respectively.

Table 3-9. Total Power Labor Costs over the Study Period

FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
\$ 1,227,462	\$ 1,246,591	\$ 1,260,035	\$ 1,287,219	\$ 1,325,785

Source: Labor costs FY 2015-16 through FY 2020-21 final budget (OPA request from November 30, 2015).

Compared to total labor costs of approximately \$6.3 billion over the Study Period, the increase in O&M and capital spending for labor together is 12 percent of this amount. Over the Study Period, in Case 123 borrowing for capital expenditures is reduced \$814.9 million.

3.6 Conclusions for the Revenue Requirements

LADWP appears to use a standard methodology for calculating its revenue requirements, but is not entirely transparent with regards to changes made to base revenues to meet its financial targets. Most publicly-owned utilities have unique financial requirements which makes benchmarking these metrics difficult. Consequently, Navigant recommends that the Department formalize its revenue requirements determination methodology to transparently incorporate its financial metric targets and show the impact on base rate revenues.

The Department’s expenditures contributing to its revenue requirements appear to be reasonable based on regulatory mandates, City and LADWP goals, and system reliability needs, as described in Section 3.2. In particular, the decrease in non-renewable fuel and increase in renewable purchased power over the Study Period are the result of the required transition away from coal and meeting the 33 percent RPS. And while the PSRP is not a state or city-mandated program, it is critical for the reliable operation of the Power System.

It is notable that energy efficiency and local solar account for the two largest average annual revenue requirement increases, but are driven neither by regulatory mandates nor by critical system infrastructure needs. The 15 percent energy efficiency goal is five percent above the state goal (10 percent by 2020) and the solar feed-in tariff program is significantly larger than the original state program requirement. However, the ambitious energy efficiency target is justified in that energy efficiency is the lowest cost resource and is first in the California energy resource loading order, meaning the state requires utilities to first implement all cost-effective energy efficiency demand side resources before generation resources.¹⁸² Additionally, achieving 15 percent energy efficiency savings is a City of Los Angeles goal. Local solar under the expanded feed-in tariff program—although aligned with City of Los Angeles policy and LADWP’s objective to increase customer savings opportunities—is not similarly the least-cost option. Providing customers the opportunity to go solar is a tradeoff, as rooftop solar is more expensive in dollars per kilowatt-hour than utility-scale solar, but the program benefits participating citizen-ratepayers and businesses.

Regardless of regulatory mandates and other motivators, program expenditures over the Study Period will ultimately depend on the utility’s ability to implement its major programs. Overall, there is a moderate to high amount of uncertainty surrounding the implementation of several key Power System programs; specifically, the risk of underspending on programs due to contracting and procurement issues. The programs to watch in particular are renewable transmission, local solar, and the PSRP. Energy efficiency implementation is at risk if customer participation is low, but has demonstrated good preparation for its ramp up. Renewable transmission has undergone recent budget changes, reallocating approximately \$14.8 million cash funding each year of the Study Period. Compared to the \$18 million average annual revenue requirement increase attributed to the RPS program, this is extremely significant. The Department’s adjustment factor cost recovery mechanism and new key performance metric reporting are especially valuable under these circumstances.

The increase in revenue requirements and consequent increase in rates results in the Department’s rates being less competitive compared to its peers than in the past (as summarized in Section 3.4.1). In particular, LADWP’s rates appear to increase more quickly than other California utilities over the Study Period (based on available data). But, in addition to funding the aforementioned programs, the increase is necessary to meet the Department’s Board-adopted financial metrics. Failing to meet the financial metrics puts the Department at risk of a credit downgrade, which would result in costlier debt service. Even despite the increase in rates, long-term debt is a growing burden that must be carefully managed. Navigant recommends the OPA and CAO/CLA undertake a separate study looking at reducing debt levels in the future and adopting a more structured cash/debt planning model.

Though the City Transfer is often a controversial topic, it is not driving the current rate increase. Even by eliminating the entire Transfer (of which the majority is contained in the capped (frozen) base rates) and minimizing rates, rates would still increase annually by an average of 3.75 percent. While eliminating the Transfer would alternatively enable the Department to reduce long-term borrowing and achieve some interest savings, this is not an effective solution to the growing debt issue which will require a long-term strategy. Additionally, the implementation challenges facing the Department would likely prevent it from effectively using these funds on capital programs. These considerations must be weighed against the importance of the City Transfer to the Los Angeles General Fund.

¹⁸² California Assembly Bill 2021.

4. Review of Cost of Service Study

4.1 Cost of Service Study: Role and Best Practices

4.1.1 Utility Rate setting objectives

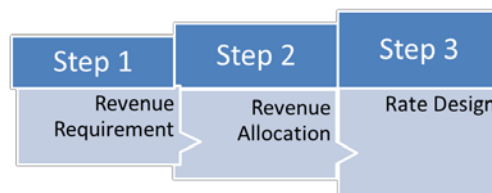
Utility rate setting policy in California has evolved into a relatively consistent set of objectives: stability, fairness, efficiency and conservation. LADWP states, for example, that its electric rate changes are designed to provide financial stability; support LADWP’s efforts to sustainably improve infrastructure reliability and meet renewable energy and energy efficiency goals; and follow legal and regulatory requirements.

Similarly, the California Public Utilities Commission consistently sets investor-owned utility rates with the objective that rates be based on cost-causation principles, that is, they should reflect an accurate allocation of the different costs of providing service among customer groups; that rates should encourage conservation; that rates should provide stability, simplicity and customer choice; and that rates should encourage economically efficient decision-making.

Finally, as noted in Section 3.5, California ballot measure Proposition 26 (2010) requires among other things that costs be considered in setting certain fees charged by local governments. However, as noted in Section 3.5, the application and interpretation of Proposition 26 currently awaits legal resolution in the courts.

4.1.2 Role of a Cost of Service Study

A COSS is an important analysis that aids in achieving cost-based rates, as well as ensuring rates are fair, stable, efficient, and provide incentives for customers to conserve. Essentially, a COSS informs the last two steps of a three-step ratemaking process: (1) revenue requirement development, (2) revenue allocation, (3) and rate design.



In revenue allocation (Step 2 above), the COSS is the foundational analysis used to allocate responsibility for collecting the utility’s revenue requirement across its different customer rate groups. The resulting allocations are then considered when designing rates (Step 3 above) for each customer rate group. A COSS is not typically used to identify the level of the utility’s costs or in developing the utility’s overall revenue requirement; rather, once the revenue requirement is identified, a COSS aids in allocating it properly among customer classes.

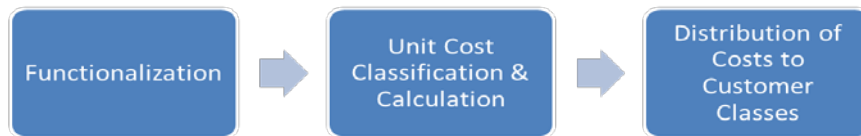
A COSS is a fundamental and detailed analysis of the costs that each class of customers creates to provide utility service so that each class pays its fair share of total utility costs. It ensures that rates are appropriately and fairly set in order to recover the appropriate revenues from each type of customer. An equitable rate structure based on a proper COSS reflects the fact that the utility system provides service

to different classes of customers with varying electricity use patterns, demands and conditions of service, and therefore imposes different costs on the system.

There is no universally accepted COSS methodology; ratemaking objectives often drive the assumptions and inputs used. Most COSS follow the same consistent process, or set of calculations, however, to arrive at the appropriate customer class allocation.

4.1.3 Cost of Service Study Process

At its most basic, a COSS comprises three steps. First, costs are assigned to the primary utility functions and their respective sub-functions; second, costs are allocated to cost drivers and unit costs are calculated; and third, those costs are distributed to customer classes. Each step examines detailed factors that can vary over time, including climate zone, location, time of day, customer size, end use application, customer use profiles, or mix of customers in a particular area.



4.1.3.1 Functionalization

In this step, the utility identifies each of the major functions of utility service and allocates costs to those functions. These functions are the fundamental elements of how the utility provides service that require the utility to incur costs. The goal is to attribute costs to the utility service components, sub-components and ultimately to the rate elements, with which they are most closely related. Electric utility functions include, for example, transmission, electric generation, distribution, customer service and other administrative and general (A&G) expenses such as employee administration and management.

4.1.3.2 Unit Cost Classification & Calculation

Next, the utility assigns a unit of measurement to each cost function above by examining what kinds of customer behavior drive that cost. Costs are often classified into one of three groups: volumetric, demand, and customer costs.

- **Volumetric Costs** are typically costs that vary with a customer’s average commodity usage, such as the volume of electricity, measured in electric kilowatt-hours or kWh.
- **Demand Costs** are costs that vary with customer demand; that is, costs that vary with the total peak capacity that the customer has available to consume. The costs of facilities such as electric transmission, distribution and generation capacity are typically considered demand costs. These facilities are designed and built to serve peak customer usage, or demand, but may not be used at peak capacity one hundred percent of the time.
- **Customer Costs** reflect the costs of customer access to the system and ongoing customer support services. They include, for example, the cost of interconnection, metering, and ongoing customer support services. Customer-related costs are typically incurred based on the number of customers, regardless of the amount of commodity consumed, and are therefore generally considered to be fixed costs.

With costs properly classified, the utility can calculate unit costs for each functional component.

4.1.3.3 Distribution of Costs to Customer Classes

Once costs are functionalized and classified, they are allocated to individual customer classes based on the usage characteristics of each class. In this final step, the utility identifies its major customer groups, or classes, and their respective cost causation factors. Customer classes are often grouped by rate schedule, with similar rate schedules consolidated (e.g. residential, commercial, industrial, etc.). From here, the appropriate revenue requirement allocation for each customer class is calculated by multiplying the functional unit costs by its corresponding customer class-specific cost causation factor; the total functional revenue requirements are then summed by class.

4.1.3.4 Load Research Studies

While not part of the three-step process, a foundational best practice of any COSS is a current load research study. This study reflects the utility’s forecast of overall customer consumption as well as consumption profile, by customer class. The utility’s analysis of when, where and how much its customer classes are using, measured volumetrically, by total capacity needed and total number of customers, becomes the cornerstone for distributing costs in the final COSS process step above. While not necessarily an annual analysis, completion of a load research study is considered best practice as part of conducting any COSS.^{183, 184}

4.1.4 Cost of Service Study Methodology

As previously noted, while every COSS contains the same set and order of mechanical calculations, the methodology for deriving unit costs and other inputs for those calculations can vary depending on desired policy objectives. Several COSS methodologies exist, but all are variations on forward-looking or historical, backward-looking costs.

4.1.4.1 Forward-Looking Studies

Marginal cost is the most common forward-looking methodology, and the predominant method used in utility COSS in California. As classically defined, marginal costs reflect the change in costs incurred (or avoided) to serve an incremental (or decremental) change in consumption, or demand for service.

Marginal cost studies should:

- Consistently use forward looking cost inputs based on future resource mix, investment plans and customer load growth forecasts. Cost inputs are based on a starting point in time, otherwise known as a Test Year, and projected or forecast forward from the Test Year.
- Encompass a future period that is long enough to reflect the resource and investments necessary to meet any forecast change in demand.
- Link any change in customer usage, or demand inputs, with the costs of each cost driver.

¹⁸³ California’s large investor-owned energy utilities perform load research studies annually.

¹⁸⁴ The 2012 PA Consulting report on the Financial System Rate Review and Rate Restructuring Analysis recommended that the Department conduct an updated load profile study.

- Calculate the revenues that the utility would collect if all of its customers were charged rates that equal marginal cost. The utility’s adopted total revenue requirement will not necessarily equal the total marginal cost revenue requirement calculated. The marginal cost allocations, or relative proportions, are applied to the adopted revenue requirement to calculate rates.

The replacement cost study methodology is also forward-looking, however, unlike the marginal cost methodology it is not linked to changes in demand. It focuses on estimating the amount the utility would have to pay to replace an asset at the present time according to its current worth.

4.1.4.2 Backward-Looking Studies

Backward-looking methodologies focus on the historical cost of past investment. The embedded cost methodology¹⁸⁵ is the most common backward-looking approach. With its focus on historical costs, the embedded cost methodology is unaffected by changes in current or future demand. As a result, the embedded cost methodology does not send efficient price signals. While it can offer context for forecasting future costs, it is less useful in developing least-cost investment or resource mix plans. Direct cost studies, another backward-looking methodology, assess direct material, labor, expenses and variable production overhead costs over a period of time for a product. Like the embedded cost methodology, it is not linked to a change in demand.

4.2 Assessment of LADWP’s COSS against best practices

This chapter provides an assessment of LADWP’s 2014 COSS against the best practices described above. Navigant reviewed LADWP’s approach and use of the COSS mechanics and methodology, including functional cost components, unit cost classifications and input assumptions.

LADWP’s 2014 Power COSS is a comprehensive and significant step forward in informing its power revenue allocation and rate design for the upcoming Study Period. For the 2014 COSS, LADWP based its study on marginal cost principles which is consistent with California policy and should help to achieve its ratemaking objectives over time. Key inputs to the study are not uniformly based on forward-looking costs and system demands, however, as internal data and record-keeping systems were not able to provide current audited inputs upon which to base the study.

4.2.1 LADWP Approach

Navigant’s assessment found that LADWP followed best practices for process and mechanics in calculating its functional cost components, unit cost classifications and unit costs. LADWP’s selection of its marginal cost inputs, however, was inconsistent. While the marginal cost methodology reflects best practices for California, the Department did not use uniformly forward-looking inputs, as discussed in more detail below.¹⁸⁶

¹⁸⁵ Also known as Average Embedded Cost.

¹⁸⁶ The Department also conducted what it describes as separate embedded cost analysis for the Power System, for purposes of providing context for its marginal cost-based COSS results. This embedded cost analysis is not a complete COSS and was not utilized for purposes of revenue allocation or rate design; as such, it was not assessed by Navigant against the best practices described above.

Briefly, in identifying functional elements and costs for its unit marginal cost development, the Department relied upon the following inputs:

- A Test Year of Fiscal Year 2012-2013.
- Operations & Maintenance costs, customer counts and customer class load shapes are all based on FY 2012/13 data.
- Capital costs are based on the Department’s 2013 Integrated Resource Plan (IRP).
- Market energy costs are based on 2019 forecasts.
- System losses are based on the Department’s 2010 Power Loss Study.
- Resulting COSS customer class allocations are reflected solely in the calculation of incremental base revenues, as discussed below.

4.2.2 Key Observations and Concerns

4.2.2.1 LADWP’s Marginal Cost Methodology

LADWP’s goal of using marginal cost principles for its Power COSS is consistent with California policy and helps to achieve its ratemaking objectives. As noted previously, the marginal cost methodology is widely used by California public and investor-owned utilities in setting rates. As the California Public Utilities Commission noted in its precedent-setting decision in 1981:

“We have chosen marginal costs as our foundation for [electric cost] allocation and rate design. We have used marginal costs to promote economic efficiency and to provide the greatest good for the greatest number”¹⁸⁷

The CPUC reiterated this objective in its 2013 rulemaking to restructure residential electricity rate design.

Particularly in this era of conservation, marginal cost-based rates send a price signal to customers to use electricity efficiently day-to-day, and to make efficient longer-term decisions like buying efficient appliances and devices. Marginal cost-based rates enable customer to make optimal consumption decisions because they most accurately reflect the cost of consuming an incremental (or decrement) unit of service. If prices are not set at marginal cost, they may provide the incentive to over-consume power if prices are set too low, or conversely to underutilize the commodity if prices are set too high. These principles are generally applicable and particularly so in this era of conservation; the Board has set ambitious goals to reduce electric consumption through energy efficiency by 15 percent by 2020. Marginal cost-based rates therefore reflect both the reality and the values of the City of Los Angeles’ utilities.

4.2.2.2 Hybrid approach to functional cost inputs compromises marginal cost integrity

While the Department states it relies on marginal cost principles, its COSS is not a purely marginal cost-based analysis because not all inputs used for deriving unit costs are forward-looking. For example, O&M as well as customer-related costs are based on FY 2012-13 actual costs. Energy procurement and capital costs that comprise the majority of the Department’s Power System revenue requirement, on the

¹⁸⁷ D.93887, CPUC 2d 349, 491 (1981)

other hand, are based on forward-looking methodologies. Forward energy procurement costs are based on system lambda of 2019 Prosym Study forecasts scaled back to the 2012-13 Test Year, and marginal capital costs are based on the Department's most recent twenty-year Integrated Resource Planning document.¹⁸⁸ Overall, approximately 78 percent of LADWP's Power System revenue requirement was allocated based on forward-looking cost inputs.

This hybrid, partial forward/partial backward-looking cost input approach is inconsistent with best practices for a marginal COSS. The Department states that it used this hybrid approach as historical 2012-2013 was the most recent audited data set available for certain key inputs, including O&M and customer related costs, at the time the COSS was performed. As described previously, the use of forward-looking costs that capture expected changes in the utility's cost of providing future services is foundational for a marginal COSS. For example, using forecast costs necessary to operate and maintain the utility system instead of two-year old actual costs, will more accurately capture the utility's unit marginal costs and could be particularly important to capture over a time period like now when the Department is undertaking ambitious capital investment and program changes.

The next COSS performed by the Department, however, should utilize uniformly forward-looking costs in order to ensure that the revenue requirement to which future COSS are applied send more appropriate price signals to customers and remain cost-based. Navigant suggests that the Department undertake the next Power COSS following the 2017-18 budget year, as described more fully below.

4.2.2.3 Reliance on historical customer load data does not align with marginal cost principles

In Navigant's assessment of LADWP's COSS, the use of historical 2012-13 customer load presents the most significant area of concern. Instead of conducting a load research study to derive its customer class usage inputs, LADWP used purely historical customer usage data in its 2014 COSS. The system demand and customer load shapes used by the Department are based on calendar year 2012 loads, scaled by hour and by customer class to FY 2012-13 levels based on related 2012-13 data. The Department states that 2012-13 customer usage data is the most recent year for which accurate and audited customer usage data is available due to implementation challenges in implementing LADWP's Customer Information System, which resulted in incomplete or inaccurate customer usage data records beginning in 2013. The Department notes that many of these issues have been or are in the process of being resolved, but at the time it conducted its COSS, FY 2012-13 provided the most recent reliable data.

As previously discussed, a utility's analysis of when, where and how much its customer classes are using utility services is the cornerstone for distributing costs. As such, any COSS – and particularly a true marginal cost COSS measuring not only forward-looking costs but also anticipated customer class usage profiles – should be based on up-to-date customer profiles.

A load research study is the most common tool for deriving this important input. Without it, the Department's revenue requirement allocation among customer classes is based upon three year-old customer profiles that may not accurately reflect customer usage going forward. Historical customer usage and profiles – in the aggregate and between customer classes – can be expected to change over time as energy efficiency, demand response, customer solar and other ambitious programs designed specifically to influence customer load patterns, are implemented over the Study Period. In its 2014 IRP released in December 2014, the Department's updated load forecast projects overall system load to

¹⁸⁸ LADWP completes a new IRP every two years; it used the 2013 IRP for purposes of its 2014 COSS.

decrease slightly (by 0.6 percent) between FY 2012-13 and FY 2019-20; however, the projected changes for each customer class differs more significantly. For example, the Department projects that residential and commercial class usage will decrease by almost two percent and four percent, respectively over that period, while industrial class usage is expected to increase over 2.5 percent. These expected changes are not reflected in the COSS. If used, it is reasonable to believe they would have impacted the resulting revenue allocations between customer classes.

For these reasons, and in order to set future rates as accurately as possible, it is critically important that customer class usage calculations reflect as closely as possible the customer's expected load levels and profile using the most current available information. For that reason, Navigant recommends that the Department conduct a Power System COSS for Test Year 2018-19 using 2017-18 budget year data. The COSS should be based on a robust load research study of audited budget year data which forecasts customer class usage profiles and overall demand.

4.2.2.4 Findings & Recommendations

LADWP's 2014 COSS is a positive step forward in adding rigor to LADWP's rate setting process and will continue to move the Department toward cost-based rates overall. Navigant's assessment found that LADWP followed best practices for process and mechanics in calculating its functional cost components, unit cost classifications and unit costs. Further, its approach of using marginal cost principles for its Power COSS is consistent with California, City and Department policy and helps to achieve its ratemaking objectives, and the Department's proactive completion of a COSS for the water system in addition to the power system demonstrates a level of rigor and uniformity not previously demonstrated.

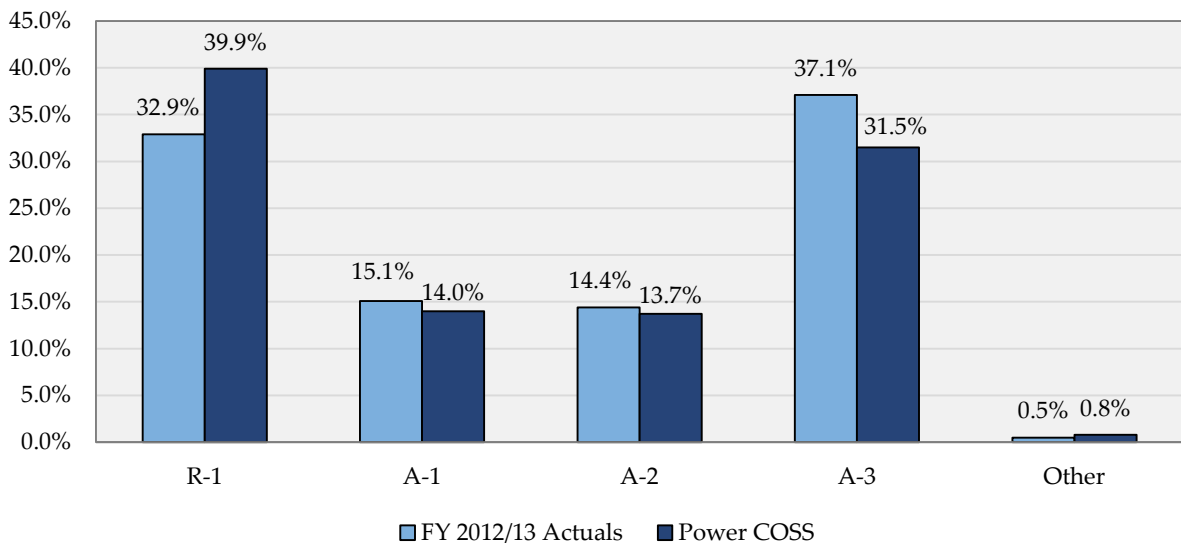
Use of the marginal cost methodology reflects best practices for California, however, the Department's hybrid approach uses historical and forward-looking inputs for its calculations, which dilutes the full marginal cost signals in the Power COSS. In particular, reliance on FY 2012-13 historical data for some inputs including O&M and Customer expenses, and particularly customer load and class profile data, result in costs that may not truly capture the utility's marginal costs of providing service. Navigant recommends that future COSS continue to rely on the marginal cost approach, and apply uniformly future-looking costs based on a more recent test year as well as load forecasts based on a current load research study. In particular, the Department should conduct a load research study and updated COSS for the Power System from audited FY 2017-18 data.

4.3 Cost of Service Study and Power Rate Design

4.3.1 LADWP’s Power Rate Design Approach

The Power COSS revealed that the Department’s commercial and industrial customers are currently subsidizing residential customers. The share of LADWP revenues generated from residential customers (Schedule R-1) in FY 2012-13 was seven percent lower than the level recommended in the Power COSS, while the share of revenues generated from commercial and industrial customers (Schedules A-1, A-2 and A-3) was 7.4 percent higher. This disparity indicates that LADWP’s current electric rates do not currently capture the cost difference in providing power services to residential, commercial and industrial customers.

Figure 4-1. FY 2012-13 Actual Revenue Allocation Against the Power COSS Results



Source: 2014 Power Service Cost of Service Study, July 2015.

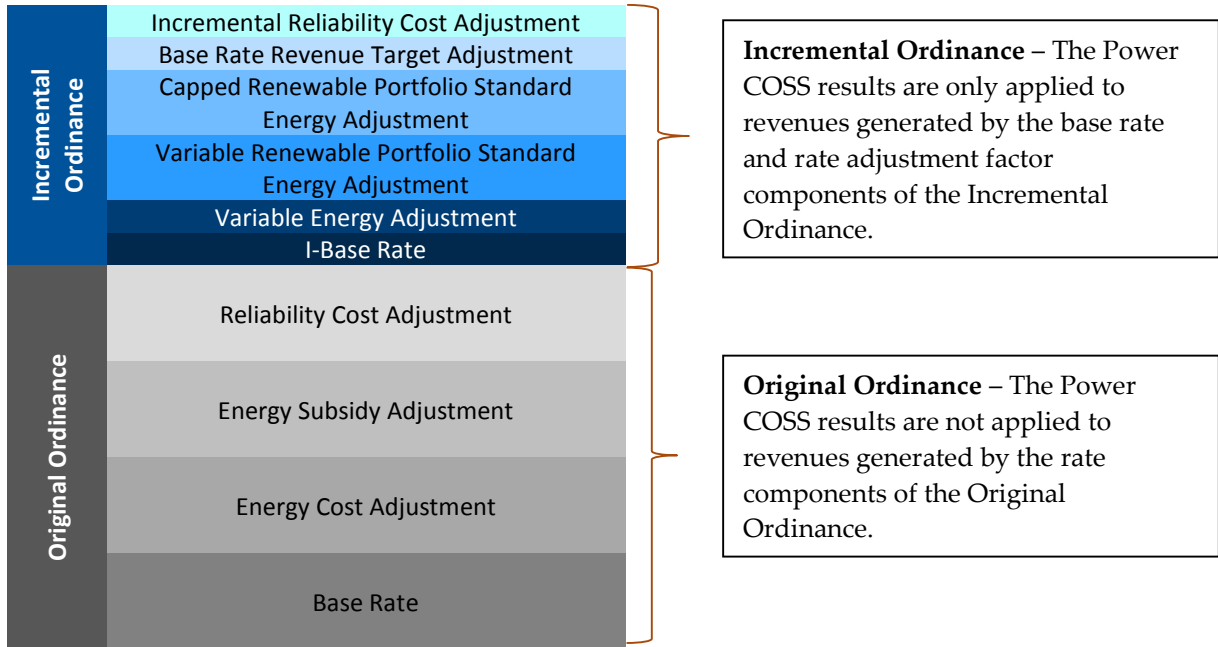
To address this issue, the Department developed a new power rate design methodology with the objective to progressively transition towards the revenue allocation recommended in the Power COSS throughout the Study Period. Implementing the Power COSS recommendations in year one of the Study Period would have led to a significant rate increase all at once for residential customers that would be difficult for those customers to absorb, otherwise known as rate shock.

In addition, in addressing the COSS recommendations, the Department also had to consider the applicability of Proposition 26 when developing its rate design methodology. The primary focus of Proposition 26 in the publicly owned electric utility context is to ensure that costs be considered in setting of the electric rates to which it applies. A result of this requirement is the need for costs related to providing power services to be reflected in the rates of each utility customer class, and avoid subsidization from one customer class to another.

LADWP currently has two power ordinances: the Original Electric Rate Ordinance which went into effect on September 19, 2008 and set electric rates to be effective July 1, 2009, and the Incremental Electric Rates Ordinance that went into effect on November 11, 2012. Proposition 26 was adopted in November 2010, after the adoption of the Original Ordinance and before the adoption of the Incremental Ordinance.

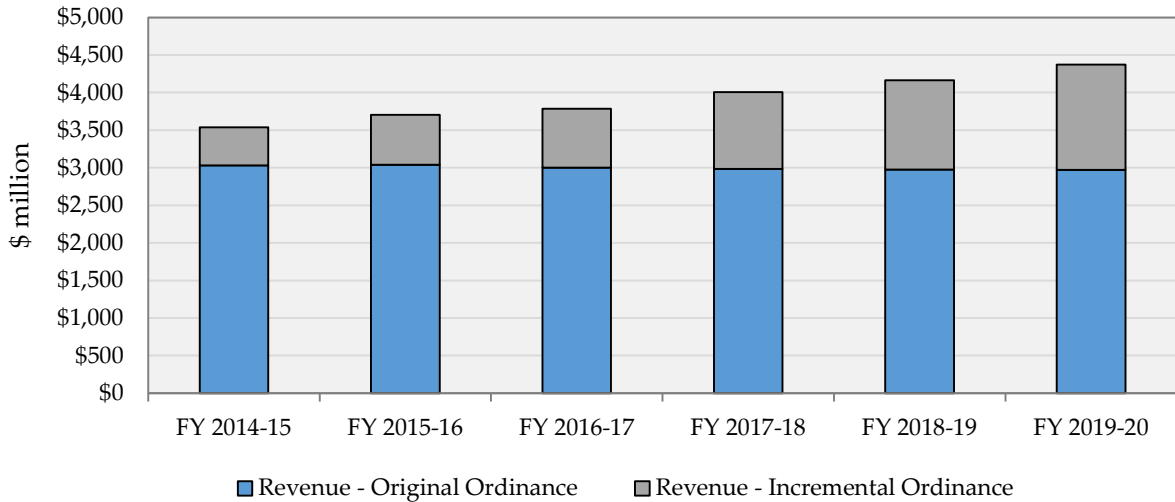
LADWP elected to only apply the Power COSS results to the share of revenues generated by the rates set in the post-Proposition 26-era Incremental Ordinance. As a result, the rates included in the Original Ordinance will be preserved for the current power rate action, and the Power COSS results will only be applied to the rates defined in the Incremental Ordinance. An illustration of the Original and Incremental Ordinances and the rate components they include is displayed on Figure 4-2.

Figure 4-2. Rate Components Included in the Original and Incremental Power Rate Ordinances



As shown on Figure 4-3, the revenues generated by the Incremental Ordinance rate components will represent only 25 percent of LADWP’s total revenue requirements, or \$1.012 billion over the Study Period. Since the share of revenue requirements derived from the Incremental Ordinance is significantly smaller than the total revenue requirements, applying the Power COSS results solely to the “incremental share” of revenue requirements will have a limited impact on the Department’s total revenue allocation.

Figure 4-3. Breakdown of Revenue Requirements - Original vs. Incremental Ordinance



Source: LADWP’s Financial Plan Case 19¹⁸⁹.

Further, interviews with LADWP’s rate design staff and the review of the Department’s power rate design model have revealed that the Power COSS results were only applied to the I-Base Rate component of the Incremental Ordinance. The adjustment factors included in the Incremental Ordinance are updated on a quarterly basis and LADWP’s rate design staff have stated that adjusting these adjustment factors to reflect the Power COSS results quarterly would create workload and technical challenges that LADWP’s financial team and the Customer Care and Billing system do not have the capacity to handle. As a result, the Power COSS results were only applied to a very small share of LADWP’s total revenue requirements, as demonstrated by Figure 4-4 and Figure 4-5 below.

The share of revenues generated by the I-Base rate component represents only 15 percent of the Department’s total revenue requirement, or an annual average of approximately \$600 million of the total \$4 billion over the Study Period.

¹⁸⁹ As discussed in greater detail in section 4.3.3, Case 19 is not the most up to date financial plan case, therefore the power rate design model does not include LADWP’s most recent revenue requirement assumptions.

Figure 4-4. Rate Components Included in the Original and Incremental Power Rate Ordinances – I-Base Rate vs. Other Rate Components

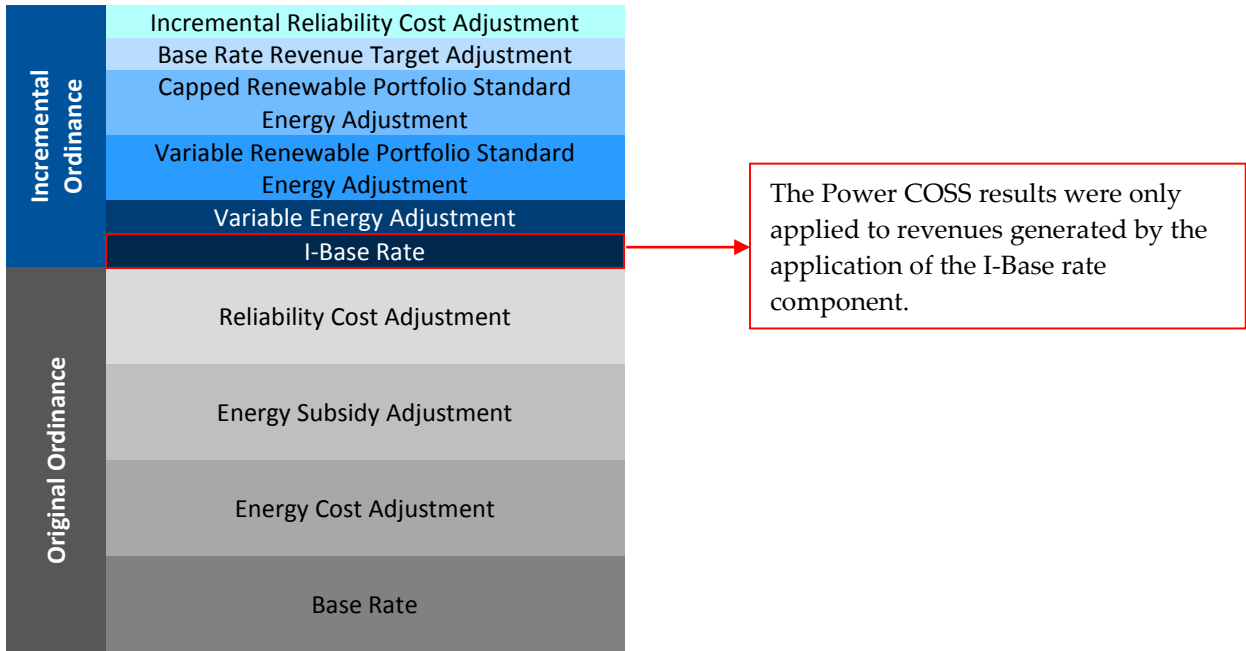
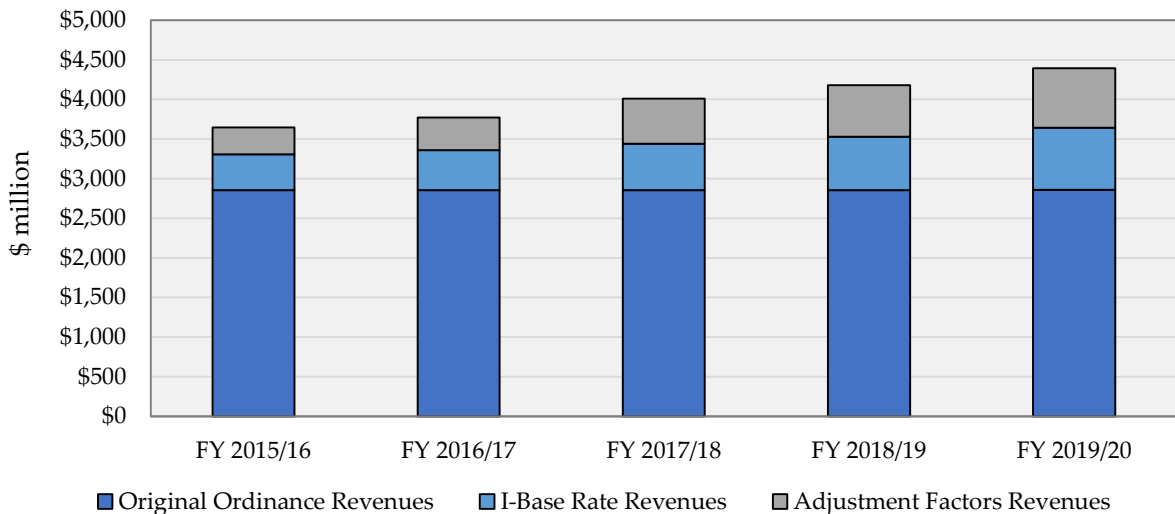


Figure 4-5. Breakdown of Revenue Requirements - Original Ordinance vs. Incremental Base Rate vs. Incremental Rate Adjustment Factor Components



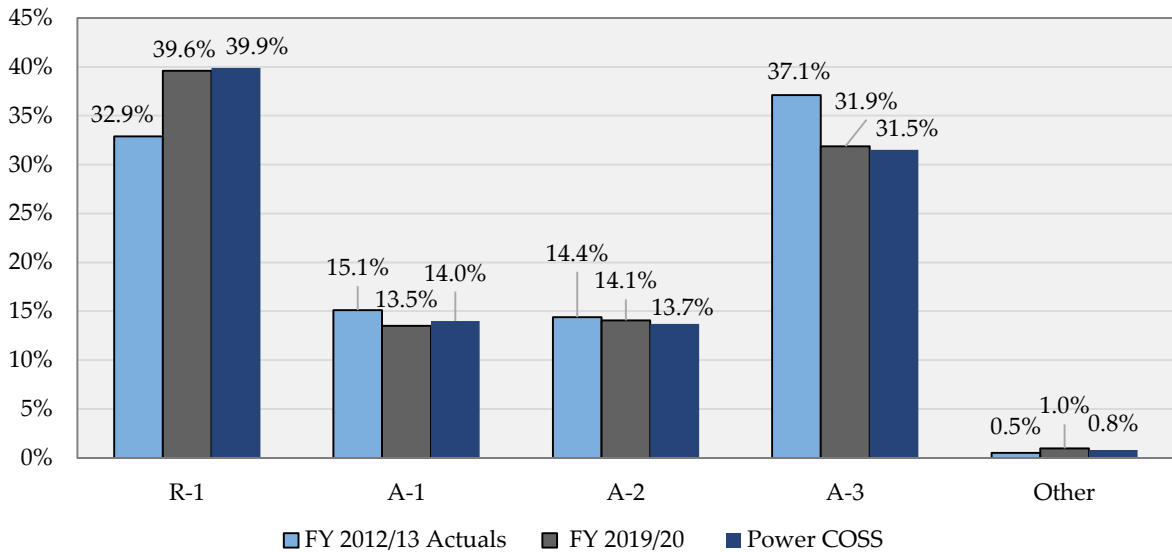
Source: Navigant's estimates based on LADWP's power rate design model.

4.3.2 Alignment to the Power COSS

Navigant reviewed LADWP's power rate design model to validate the allocation of LADWP's revenue requirements by customer class resulting from the application of the I-Base rate component in FY 2019-20. Figure 4-6 shows that the resulting FY 2019-20 I-Base rate revenue allocation is very similar to the

Power COSS results, and demonstrates that LADWP correctly applied the Power COSS results to its I-Base rate design methodology.

Figure 4-6. FY 2012-13 Actual Revenue Allocation vs. Power COSS Results vs. FY 2019-20 Revenue Requirements Allocation Generated by the I-Base Rate Component



Source: 2014 Power Service Cost of Service Study, July 2015 and Navigant’s estimates based on LADWP’s power rate design model.

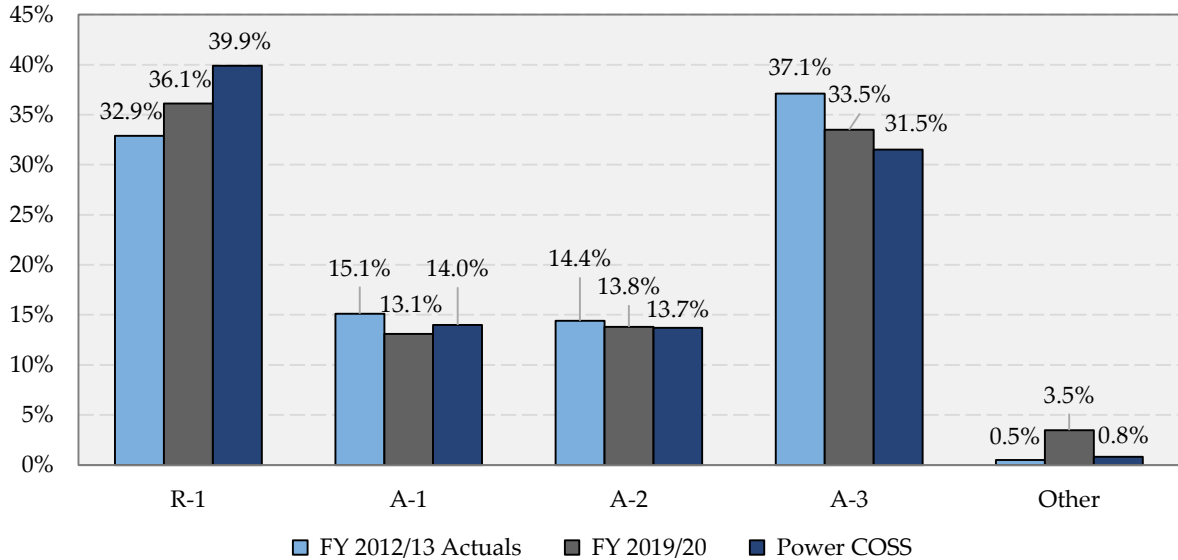
LADWP’s revenue requirements allocation for FY 2019-20 differs from the Power COSS results, however, when total revenues generated from the Incremental Ordinance rate components (I-Base rate plus incremental rate adjustment factors) and total revenues (Original plus Incremental Ordinances) are considered.

Figure 4-7 shows actual revenues generated by 2019-20 from all of the Incremental Ordinance rate components, not just the I-Base rate component. Applying the Power COSS to just the I-Base rate and withholding it from the remaining elements of the Incremental ordinance results in a residential revenue share 3.8 percent lower than the COSS target and commercial and industrial shares 1.2 percent higher than the COSS in FY 2019-20.

Figure 4-8 completes the progression by including LADWP’s total projected revenue allocation for FY 2019-20 (i.e., all Original and Incremental Ordinance rate components), and indicates that the Department will make very limited progress towards the Power COSS revenue allocation targets. The share of residential revenues will remain 5.8 percent below the level recommended by the COSS, and A-3 revenues are projected to be 2.0 percent above the target.

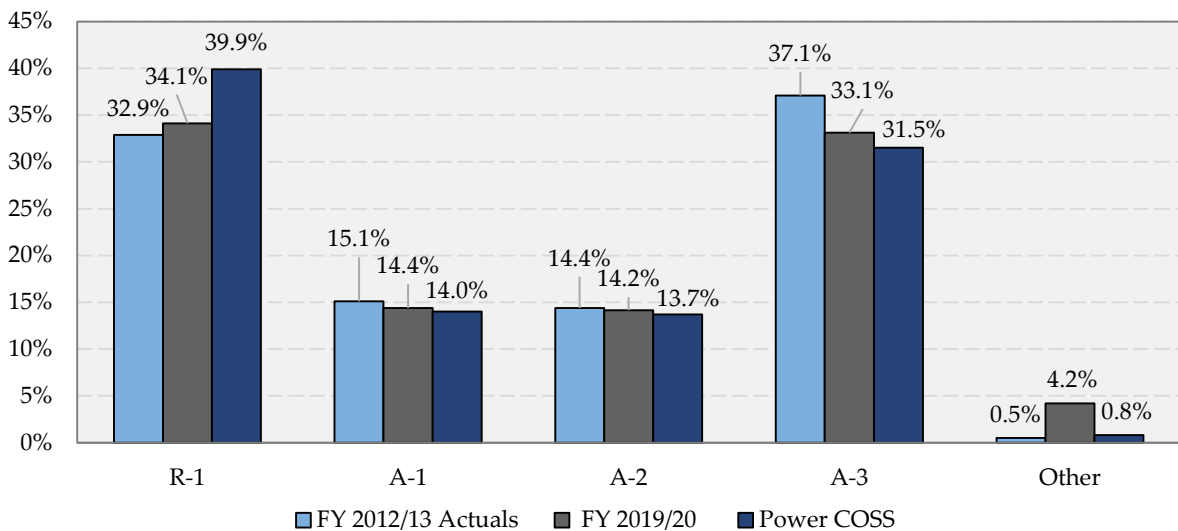
Navigant concludes that applying the Power COSS to only the I-Base rate component will make very limited progress in reducing the gap in total revenue allocation between commercial and industrial customers observed in Figure 4-1. As a result, commercial and industrial customers will continue to subsidize residential customers over the Study Period.

Figure 4-7. FY 2012-13 Actual Revenue Allocation vs. Power COSS Results vs. FY 2019-20 Revenue Allocation Generated by the Rate Components of the Incremental Ordinance



Source: 2014 Power Service Cost of Service Study, July 2015 and Navigant's estimates based on LADWP's power rate design model.

Figure 4-8. FY 2012-13 Actual Revenue Allocation vs. Power COSS Results vs. Total FY 2019-20 Revenue Allocation



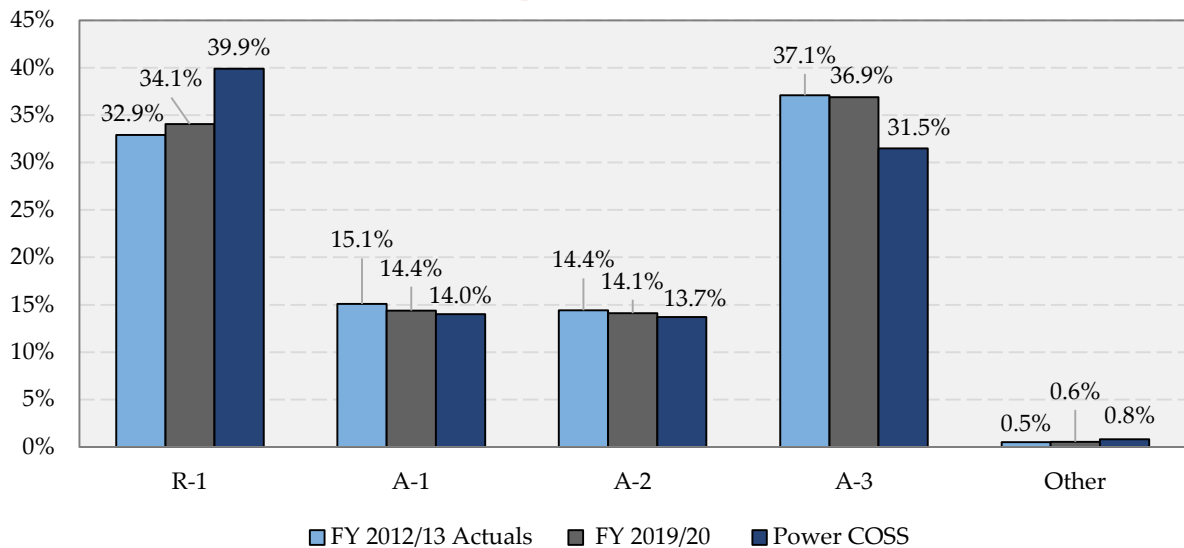
Source: 2014 Power Service Cost of Service Study, July 2015 and Navigant's estimates based on LADWP's power rate design model.

The "Other" customer group depicted in Figure 4-7 and Figure 4-8 highlights an inconsistency between LADWP's rate design and the Power COSS in terms of how those models incorporate particular

customer rate schedules in the A-3 customer group.¹⁹⁰ The Power COSS includes the XCD and XRT customer classes in the A-3 customer group while LADWP’s rate design includes those customer classes in the “Other” customer group. This discrepancy resulted in the large difference in revenue allocation for the “Other” customer group between the FY 2019-20 revenue requirements and the Power COSS observed in Figure 4-8.

Including the XCD and XRT customer classes in the A-3 customer group in the rate design model would shift revenues from the “Other” to the A-3 customer group and bring the FY 2019-20 revenue allocation for these two customer groups in line with the Power COSS results, as demonstrated in Figure 4-9. In this example, the share of FY 2019-20 residential revenue requirements would remain 5.8 percent below the level recommended by the COSS, and commercial and industrial revenues would be 6.2 percent above the target. This analysis, while illustrating an inconsistency in the Department’s models, further validates the subsidy of residential customer by commercial and industrial customers – inconsistency notwithstanding.

Figure 4-9. FY 2012-13 Actual Revenue Allocation vs. Power COSS Results vs. Total FY 2019-20 Revenue Allocation – Customer Group A-3 Includes the XCD and XRT Customer Classes



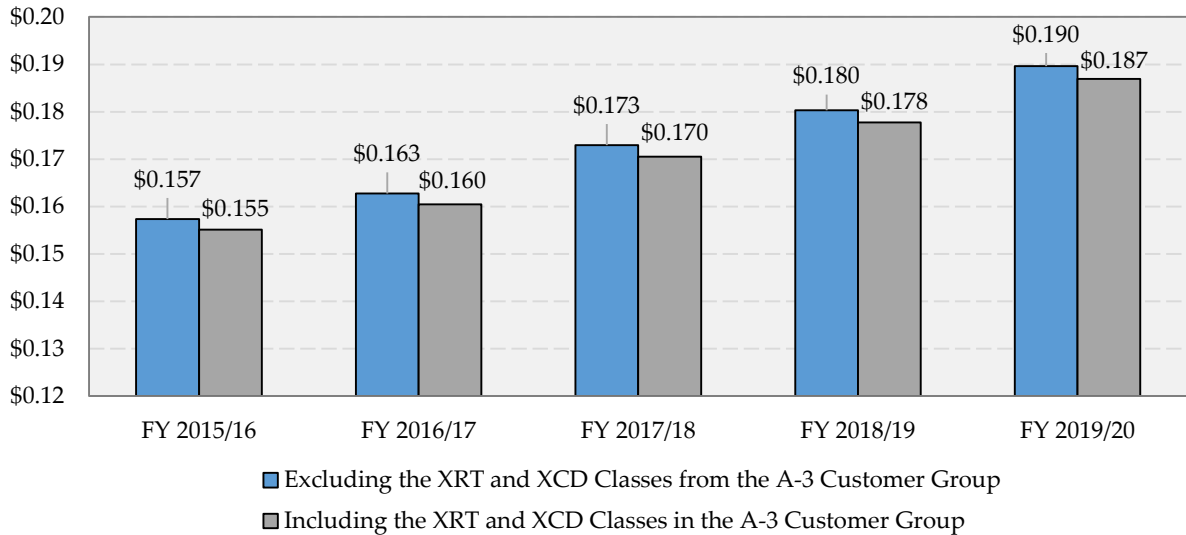
Source: 2014 Power Service Cost of Service Study, July 2015 and Navigant’s estimates based on LADWP’s power rate design model.

Finally, Navigant developed a revision to LADWP’s rate design model to determine the impact on the system average rate of excluding the XCD and XRT classes from the A-3 customer group. Navigant’s revised model shows that including the XCD and XRT rate schedules results in a decrease of the system average rate by 1.4 percent on average, or 0.25 cents per kWh over the Study Period, as demonstrated by Figure 4-10.

As mentioned previously, Navigant recommends that the Department conduct a new COSS in 2017. It is critical that for the next iteration of the COSS LADWP ensures that the customer class categorization used in the rate design model be identical to the categorization used in the COSS.

¹⁹⁰ The Power COSS includes the A-3-A, A-3-B, CG-3, XRT and XCD customer classes in the A-3 customer group category, while the power rate design model excludes the XCD and XRT classes.

Figure 4-10. Impact of Excluding the XRT and XCD Customer Classes from the A-3 Customer Group on the System Average Rate



Source: Navigant’s revision to LADWP’s power rate design model.

4.3.3 Review of LADWP’s Power Rate Design Model

This section provides a high level overview of LADWP’s power rate design model. LADWP’s power rate design model consists of a Microsoft Excel spreadsheet which develops target rates for the R-1, A-1, A-2 and A-3 customer classes for each year of the Study Period, that partly reflect the results of the Power COSS. The target rates are inputs to the Department’s SAS model, which test the rate design across the entire customer population to ensure LADWP’s revenue target is achieved. From the SAS model results, tiered seasonal base rates for each customer class are generated. The rate design model only determines energy charges, as LADWP uses a more ad-hoc approach to develop capacity charges.

The key steps used by LADWP to design the proposed power base rates and incorporate the results of the COSS include:

- Step 1: Determine historical average rates for the R-1, A-1, A-2 and A-3 customer classes for FY 2012-13. FY 2012-13 represented the fiscal year with the most up to date data at the time the rate design model was developed.
- Step 2: Escalate the average rates developed in Step 1 to FY 2014-15 using actual escalation rates as reported in the FY 2013-14 and FY 2014-15 financial plans, and develop a system average rate for FY 2014-15 using the average rates computed in this Step.
- Step 3: Using the system average rate developed in Step 2 and the annual increases for the incremental base rate and the incremental adjustment factors included in the most recent financial plan over the Study Period, develop target rates for the incremental base rate and the incremental adjustment factors.

- Step 4: For each year of the Study Period, determine revenues generated by the incremental base rate and the incremental adjustment factors developed in Step 3 for the R-1, A-1, A-2 and A-3 customer classes using FY 2012-13 demand numbers.
- Step 5: Apply the Power COSS results to the incremental base rate revenue for each year of the Study Period and to each customer class. As previously described, the Power COSS results are not applied to the revenues derived from the application of the incremental rate adjustment factors.
- Step 6: For each year of the Study Period and each customer class, determine the incremental base rate and incremental adjustment factors to be applied during the Study Period by dividing the incremental base rate revenue adjusted to reflect the Power COSS results and the incremental adjustment factor revenue by the customer class FY 2012-13 demand.
- Step 7: Develop system average rates for each year of the Study Period by adding the incremental rates developed in Step 6 to the rates representative of the Original Ordinance.
- Step 8: Develop the tiered seasonal rates to be included in the Incremental Ordinance by using the system average rates developed in Step 7 as inputs to LADWP's SAS model. The SAS model ultimately generates the tiered seasonal base rates to be included in the Incremental Rate Ordinance.

While the overall approach used by the Department to develop its power rate design model generates mathematically accurate results given their inputs, Navigant has identified a number of improvements to be considered by LADWP:

- As mentioned previously, the Power COSS results were only applied to the revenues generated by the I-Base rate component.
- The Department's power rate design model is not based on the latest financial plan case and, therefore, does not include LADWP's most up to date revenue requirement assumptions. The power rate design model is based on Case 19 which results in an annual average rate increase of 4.74 percent while the case driving the proposed rate increase (Case 143) results in an annual average rate increase of 3.86 percent over the Study Period. As a result, the reduction in annual average rate increase observed between Case 19 and Case 143 is not reflected in the base rates proposed by the Department for this rate action.
- LADWP applied historical load data (FY 2012-13) to projected revenues in order to determine future rates, just as it used historical load data in its Power COSS. Using historical load data in its rate design model prevents the Department from capturing the impact on rates of changes in demand across customer classes. LADWP's ambitious Energy Efficiency goals will certainly affect the distribution of LADWP load across its customer classes, and this distribution is expected to change quite significantly between FY 2012-13 and FY 2019-20.
- LADWP escalated FY 2012-13 average rates to the beginning of the Study Period (FY 2014-15) to develop revenue projections for the Study Period. The justification for this approach provided to Navigant was some uncertainty over the reliability of the 2014-15 revenue projection provided to the rate design team. Similar to the use of historical load forecasts mentioned above, this approach does not capture the impact on rates of future changes in revenues across customer classes.

- LADWP’s rate design model, the rate ordinance model, the financial models, the SAS database and the Customer Care and Billing system are not integrated. Consequently, data is moved from one platform to the other manually which significantly increases the risk of data manipulation errors, and there does not appear to be a process in place to update data on a regular basis across all platforms. This causes discrepancies in the data used from one model to another as well as limitations and inefficiencies in the rate design process.
- The rate design and rate ordinance models are developed and managed by one individual only. This situation creates knowledge transfer issues.
- In general, the rate design and rate ordinance models are not uniformly organized, labeled and referenced, and require significant historical understanding about their development and operation in order to perform accurately and consistently. These limitations could create further knowledge transfer challenges.

4.3.4 Findings and Recommendations

4.3.4.1 Findings

While considerable progress has been made in moving to a COSS rate setting process LADWP only applied the findings from the Power COSS to a small portion of its revenue requirements, i.e. the revenues generated through the application of the I-Base rate.

Because the COSS revenue allocations are applied to a relatively small portion of the Department’s electric system revenue, residential customers will continue to be subsidized by commercial and industrial customers over the Study Period. During that time, the Department will make very limited progress towards the Power COSS revenue allocation targets. Pending resolution of these issues relating to Proposition 26 in the courts, this will remain an area of uncertainty.

4.3.4.2 Recommendations

Navigant has developed the following recommendations for LADWP’s consideration:

- Apply the Power COSS findings to the revenue generated by the incremental adjustment factor components.
- Use the most up to date revenue requirement assumptions in the power rate design model.
- Determine future rates using current load forecasts and projected revenues as opposed to historical data.
- Develop a robust knowledge transfer plan that includes training on the existing rate design models and approaches.
- Ensure the Microsoft Excel spreadsheet models are clearly organized, labeled and referenced with instructions to facilitate knowledge transfer to other LADWP employees.
- Integrate the rate design model, the rate ordinance model, the financial models, the SAS database and the Customer Care and Billing system to prevent data discrepancies between the models, systems and the databases, and streamline the rate design process.

- Conduct another Power System COSS for Test Year 2018-19 using 2017-18 actual data, based on a robust load research study which forecasts customer class usage profiles and overall demand. The updated COSS should be incorporated into Power System rates as soon as practicable, consistent with legal requirements.

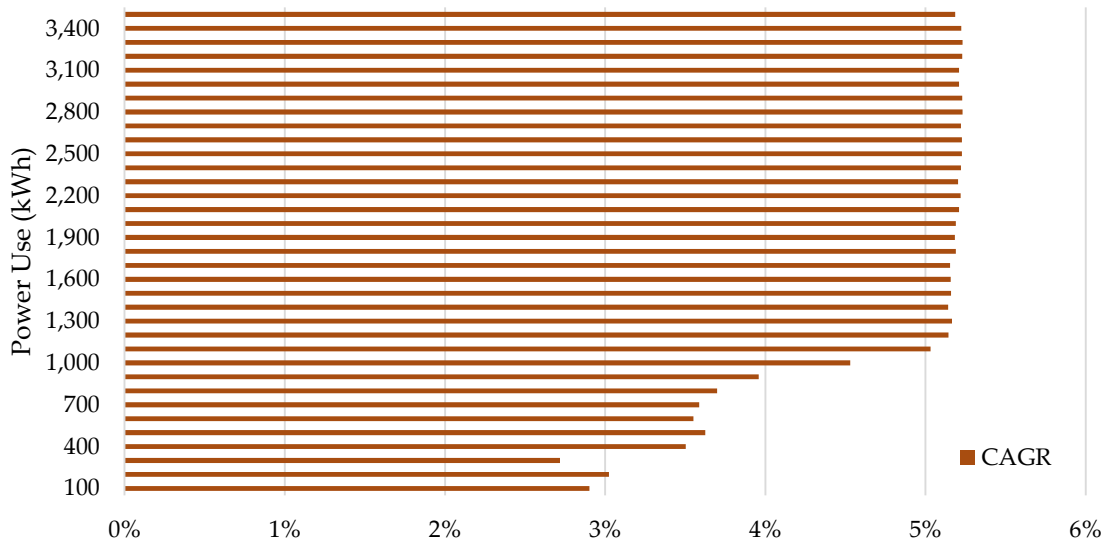
5. Impact of the Rate Increase Proposal on LADWP’s Customers

This chapter provides an analysis of the proposed rate increase impact on monthly customer bills over the Study Period for residential (R-1), small commercial (A-1-A), medium commercial (A-2-B), and large commercial and industrial (A-3-A) customer classes. Our analysis focused on evaluating the level of monthly bill increases across the full spectrum of LADWP customer’s power usage and load factors. Specifically, Navigant assessed whether customer with lower power usage or a high load factor will face smaller monthly bill increases compared to high usage customers.

5.1 Schedule R-1 Customer Class

Residential customers are categorized under Schedule R-1. For each year of the Study Period, the Department provided Navigant with customer bill forecasts by power usage level for Schedule R-1. Figure 5-1 depicts the CAGR of monthly bills over the Study Period for usage levels between 100 and 3,400 kWh.

Figure 5-1. Average Annual Bill Increase by Power Usage over the Study Period – Schedule R-1



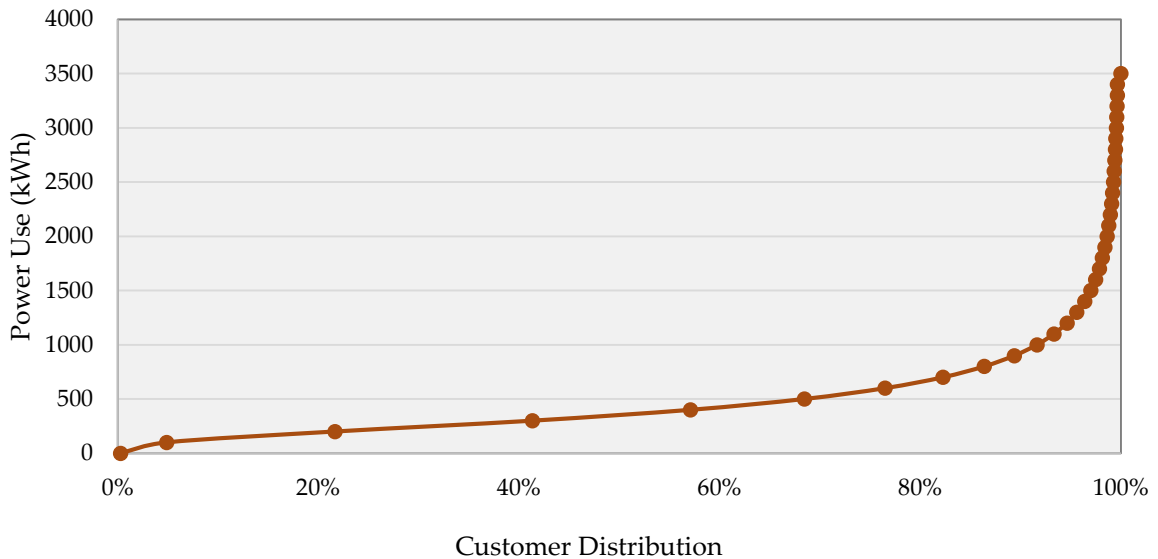
Source: Customer billing data forecasts provided by the Department.

The proposed rates for Schedule R-1 are designed to ensure that customers who use less power experience a lower increase in their power bills compared to those who use more power (see Figure 5-1). Schedule R-1 customers that use less than 800 kWh per month will see their bill increase by less than 3.7 percent, which is less than the system average annual rate increase of 3.86 percent over the Study Period. On the other hand, customers using more than 1,100 kWh per month or more will experience an average annual increase of at least five percent over the Study Period.

The majority of Schedule R-1 customers will face a monthly bill increase that is smaller than the 3.86 percent average annual rate increase over the Study Period. Figure 5-1 shows that a rate increase of 3.86 percent would correspond to a monthly power usage of approximately 860 kWh. Leveraging the distribution of Schedule R-1 customers across the power usage spectrum depicted in Figure 5-2 below, Navigant concludes that approximately 88.3 percent of Schedule R-1 customers use less than 860 kWh

per month, and will therefore face a monthly bill increase that is lower than the 3.86 percent total average annual rate increase. Accordingly, larger power users will be assigned the biggest share of the revenue requirement increase.

Figure 5-2. Distribution of Schedule R-1 Customers across the Power Usage Spectrum



Source: Customer billing data forecasts provided by the Department.

5.1.1 Customer Bill Impact by Tiers

The proposed rate action includes three tier rate structure for Schedule R-1 customers. In addition, each tier has two temperature zones. The allotment for the first tier is set at 350 kWh per month for Zone 1 and 500 kWh per month for Zone 2. Navigant’s analysis shows that customers who limit their power usage to Tier 1 will experience an average annual bill increase of less than 3.1 percent for Zone 1 customers and 3.6 percent for Zone 2 customers. These increases are smaller than the 3.86 percent total average annual rate increase over the Study Period.

Tier 2 customers will be allocated 1050 kWh per month in Zone 1 and 1500 kWh per month in Zone 2. Schedule R-1 customers that use 1050 kWh will face an average monthly bill increase of approximately 4.8 percent. Similarly, residential customers using 1500 kWh will face an average monthly bill increase of 5.2 percent.

Schedule R-1 customers that use more than 1050 kWh per month in Zone 1 and 1500 kWh per month in Zone 2 will be in Tier 3 and will face monthly bills of approximately 5.2 percent, which is larger than the 3.86 percent total average annual rate increase over the Study Period. These findings are summarized in Table 5-1.

Table 5-1. Maximum Rate Increase over the Study Period per Tier – Schedule R-1

		Tier 1	Tier 2	Tier 3
Upper Tier Usage Block	Zone 1	350	1050	N/A
	Zone 2	500	1500	N/A

Corresponding Maximum Annual Rate Increase	Zone 1	3.1%	4.8%	5.2%
	Zone 2	3.6%	5.2%	5.2%

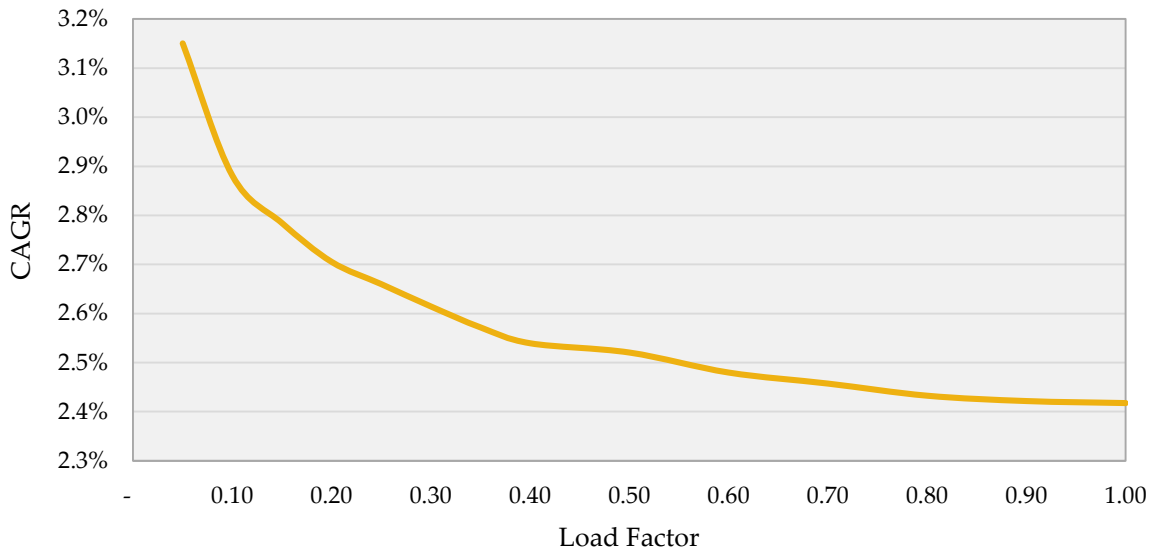
Source: Customer billing data forecasts provided by the Department.

Overall, while all Schedule R-1 customers will face a monthly bill increase over the Study Period, the Department appears to have appropriately designed its power rates and allotments to limit the rate increase for low usage customers.

5.2 Schedule A-1 Customer Class

Small commercial customers are categorized under Schedule A-1. The customer bill analysis conducted for Schedule A-1 follows the same approach to the one described above for Schedule R-1. Figure 5-3 depicts the CAGR of monthly bills over the Study Period for load factors between 0.05 and 1.

Figure 5-3. Average Annual Bill Increase by Load Factor over the Study Period – Schedule A-1



Source: Customer billing data forecasts provided by the Department.

Figure 5-3 shows that the size of the rate increase drops as the load factor increases. Accordingly, LADWP’s rate structure rewards small commercial customers that use energy efficiently (i.e. a load factor close to one).¹⁹¹

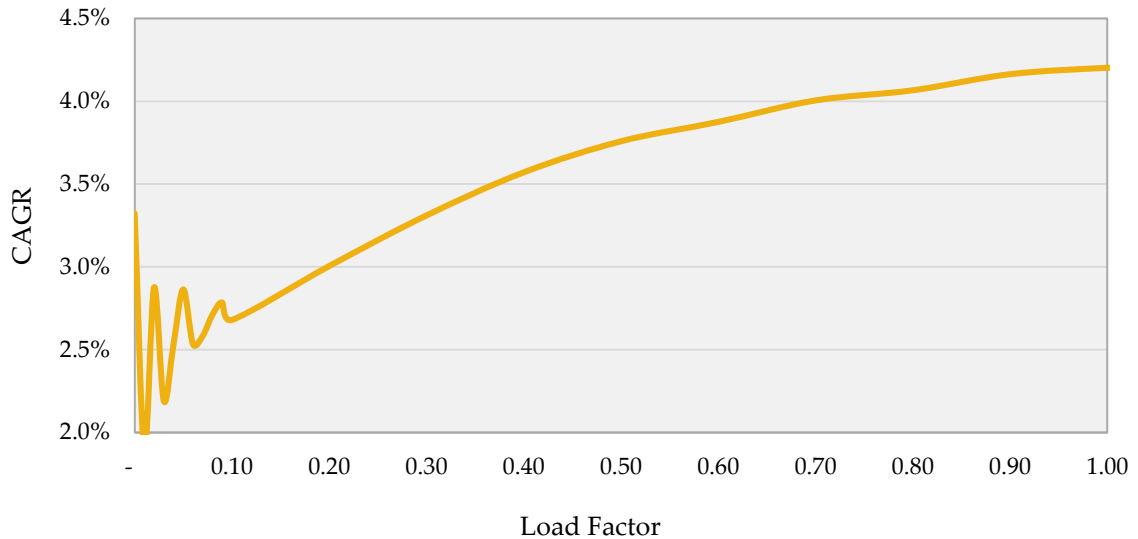
Notably, the average annual monthly bill increase for Schedule A-1 ranges between 2.4 and 3.2 percent. Therefore, all Schedule A-1 customers will face a lower average monthly bill increase than the 3.86 percent total annual average rate increase over the Study Period. This is consistent with the findings of the Power COSS which highlights that commercial and industrial customers have been subsidizing residential customers.

¹⁹¹ Load factor is defined as: Total Monthly Average kWh / (Max High Peak kW for Month * Hours in the Month).

5.3 Schedule A-2 Customer Class

Medium commercial customers are categorized under Schedule A-2. The customer bill analysis conducted for Schedule A-2-B follows the same approach to the one described above for Schedules R-1 and A-1. Figure 5-4 depicts the CAGR of monthly bills over the Study Period for load factors between 0 and 1.

Figure 5-4. Average Annual Bill Increase by Load Factor over the Study Period – Schedule A-2-B



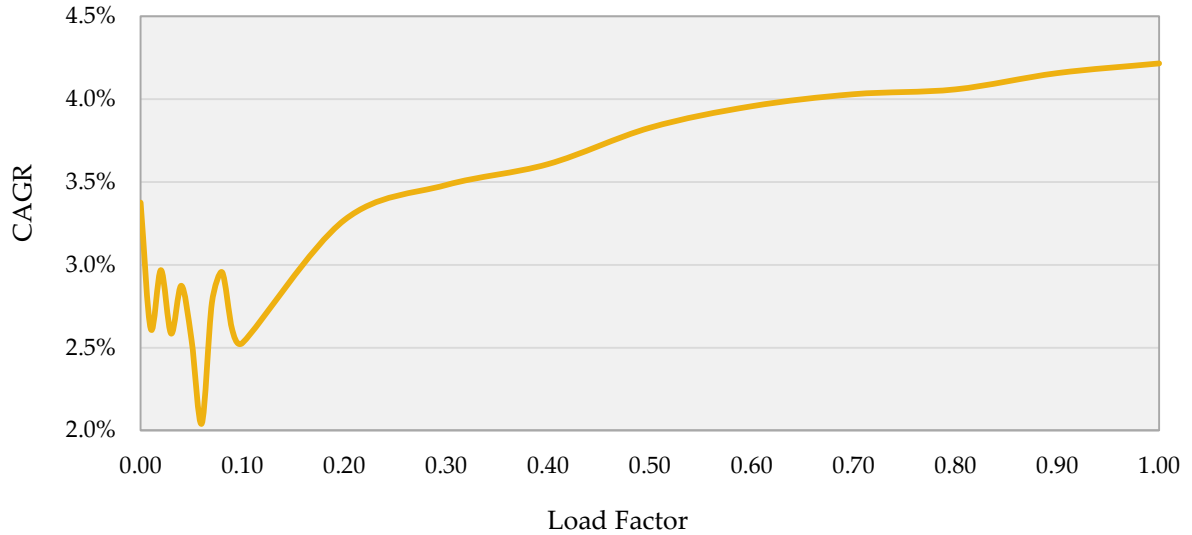
Source: Customer billing data forecasts provided by the Department.

Contrary to the observation made for Schedule A-1, the size of the rate growth increases with the load factor. Specifically, Schedule A-2-B customers with a load factor of 0.5 or less will face a lower average monthly bill increase than the 3.86 percent total annual average rate increase over the Study Period whereas customers with a load factor of 0.7 or greater will face an average monthly bill increase of 4 percent or higher. Based on these findings, the rate structure for Schedule A-2-B does not support efficient energy use.

5.4 Schedule A-3 Customer Class

Large commercial and industrial customers are categorized under Schedule A-3-A. The customer bill analysis conducted for Schedule A-3 follows the same approach described above. Figure 5-5 depicts the CAGR of monthly bills over the Study Period for load factors between 0 and 1.

Figure 5-5. Average Annual Bill Increase by Load Factor over the Study Period – Schedule A-3-A



Source: Customer billing data forecasts provided by the Department.

Similar to the observation made for Schedule A-2, the size of the rate growth increases with the load factor, which does not support efficient energy use. Specifically, Schedule A-3-A customers with a load factor of 0.5 or less will face a lower average monthly bill increase than the 3.86 percent total annual average rate increase over the Study Period whereas customers with a load factor of 0.6 or greater will face an average monthly bill increase of four percent or higher.

6. 2015 IEA Survey Recommendations

This study is closely related to the recent 2015 IEA Survey of LADWP completed by Navigant. The IEA Survey reviewed the Power System’s major plans including the 2014 IRP, the 2013 PSRP, the 2014 Long-Term Transmission Assessment, and the 2014 Los Angeles pLAN. Navigant then provided recommendations in the IEA Survey based on the Department’s progress against these plans.

In particular, the proposed rate ordinance addresses the IEA Survey’s recommendation related to critical short-term governance changes. Specifically, Navigant recommended that the Department improve reporting and transparency by tying financial and performance metrics to rates by ordinance. In response, the proposed ordinance includes language on reporting requirements for Power System metrics and the actions that will be taken to review the metrics, thereby linking the implementation of future rate adjustments to LADWP’s performance. This is the basis of a formal and continuous rate review process which would be a significant improvement to the status quo as described in the IEA Survey.

Additionally, according to Navigant’s findings in the IEA Survey, the Power System faces a number of challenges that will require significant capital and O&M expenditures related to compliance with regulatory mandates including greenhouse gas emissions, once-through cooling, energy efficiency, the RPS, and coal replacement. The programs with the largest impact on the rate increase include energy efficiency, renewable energy, and the PSRP.

The following sections describe the major findings for the Power Organization from the IEA Survey that the Department’s plans to address in the current rate proposal.

6.1 Governance

The 2015 IEA Survey identified a number of governance challenges facing the Department as a whole, which therefore impact the Power Organization. Key governance issues include:

- Decentralized City authority without enough insight into Department operations and finances.
- Lack of external reporting on consistent and reliable key performance indicators.
- Lack of internal authority, controls, and accountability with respect to financial practices.
- Ambiguous role of the Office of Public Accountability requiring further refinement of the office’s mission and responsibilities.

In the Governance Chapter of the Survey, Navigant provides the following near-term recommendation:

Navigant recommends that LADWP tie financial and performance metrics to rates by ordinance. This would mean defining and reporting a set of key metrics to decision makers on a specific schedule, in order to inform annual rate adjustments via the adjustment factors. Specifically, for each major Department program and initiative, the ordinance would require agreed-upon metrics (including budget targets and actuals, milestones, etc.) to be reported to the Office of Public Accountability, Board of Water and Power Commissioners, and City Council (Energy and Environment Committee).

The Department, following the recommendations of OPA, the City Administrative Officer, and the Chief Legislative Analyst, directly addresses this recommendation in the final proposed ordinance. As mentioned, a number of metrics related to key programs and a new reporting process are defined in the

ordinance. There are several aspects to this innovation which address the above issues and recommendation, as follows:

1. Reported metrics provide additional insight into Department operations and finances for City Council and City Executives, increasing transparency.
2. Metrics serve as consistent and reliable key performance indicators as they are defined by ordinance and follow a fixed reporting schedule.
3. Metric reporting activities are carried out in LADWP's Financial Services Organization under the supervision of the Chief Financial Officer (CFO), requiring the Water (and Power) Organization(s) to coordinate with the finance team and reinforcing the authority of the CFO.
4. The Ratepayer Advocate and OPA are responsible—by ordinance—for reviewing the Department's metrics on a fixed schedule and reporting to the Board and City Council Energy & Environment Committee, clearly defining responsibilities.

Based on these additions to the ordinance, Navigant considers LADWP to have adequately addressed its critical short-term governance recommendation in the 2015 IEA Survey.

6.2 Integrated Resource Planning

The 2014 IRP is a sound planning document for the Power System's key programs; however, the IEA Survey discussed concerns with the Department's ability to ramp up implementation to meet several relatively aggressive goals. To monitor program implementation and determine how well LADWP delivers on its goals, the first high priority recommendation from the IEA Survey Power Generation Infrastructure Report was the following:

Formalize current IRP practices and link the IRP more closely to rates, requiring by ordinance [...] key performance metrics for IRP programs and goals. Establish specific milestones for programs to be reflected in the reported metrics. In this way, the IRP will remain an engineering document produced by the Power System but be more effectively leveraged for rate decisions.

The recommendation for updates on key performance metrics is carried out in the metric reporting described in the previous subsection, as there are metrics proposed for each of the major programs in the 2014 IRP. The metrics defined in the proposed ordinance related to the IRP currently include the following list. Their units and an acceptable range of values (variances) are also defined.

- Repowering—Actual project cost vs. budget (dollars)
- Once-Through Cooling—In-service date vs. compliance plan
- Percent RPS vs. state mandate for the next compliance period
- RPS—Total renewable purchased power cost vs. plan, by technology (dollar per MWh)
- RPS—Average levelized cost of purchased power agreements (dollar per MWh)
- Greenhouse Gas Emissions Reduction Ratio (metrics tons for current year/metric tons in 1990)
- Energy Efficiency—Savings installed vs. 2010 baseline (percentage)
- Energy Efficiency—Actual spend vs. budget (dollars)
- Energy Efficiency levelized portfolio cost (dollar per kWh)

The Variable Energy Adjustment Factor, Capped Renewable Portfolio Standard Energy Adjustment Factor, and the Variable Renewable Portfolio Standard Energy Adjustment Factor including these program metrics are updated quarterly. And as generation resource needs change over time, the Board

of Water and Power Commissioners has the ability to revise the metrics themselves and their variances twice a year, which may occur after information is provided from the latest IRP. In this way, the Power System is held accountable for updating and delivering on its preferred resource plan, and the IRP is elevated in importance with this connection to power rates.

6.3 Power System Reliability Program

The IEA Survey concluded that the PSRP is well-developed and represents a comprehensive plan for the management of the Department’s power assets, but also found evidence of underspending due to contracting and procurement issues—specifically, challenges in hiring contractors and inefficiencies in procurement process. Accordingly, Navigant made several recommendations as follows:

- The future version of the PSRP should clearly spell out the strategy objectives, and directly align to the Department’s objectives.
- LADWP should expand its PSRP to include implementation strategies as well as specific annual deliverables and metrics.
- All tasks required for the implementation of the plan should be documented in the PSRP.
- LADWP should include specific continuous improvement elements in the PSRP that are designed to better optimize results and cost.
- LADWP should report more clearly to the Board on progress against well-defined milestones and outline a plan to ramp up program implementation effectively.

The final recommendation for reporting on progress is again carried out explicitly in the metric reporting component of the proposed ordinance. The other recommendations are reflected less directly in the ordinance, but strongly influence the Department’s ability to accomplish the plan and its methods for reporting on progress. The metrics defined in the ordinance related to the PSRP currently include the following list. Their units and an acceptable range of values (variances) are also defined.

- Generation capital and O&M actual spend vs. budget (dollars)
- Transmission capital and O&M actual spend vs. budget (dollars)
- Transmission cost per circuit-mile for underground circuits (dollars per mile)
- Substation capital and O&M actual spend vs. budget (dollars)
- Distribution capital and O&M actual spend vs. budget (dollars)
- Distribution assets replaced vs. plan—Number of poles, crossarms, transformers, miles of cable
- Distribution asset average unit price—Cost per pole, crossarm, transformer, mile of cable

Again, as PSRP asset needs change over time, the Board of Water and Power Commissioners has the ability to revise the metrics and their variances based on information from the Power System. This should elevate the priority of the PSRP, which is critical for system reliability but is often not highlighted compared to programs working towards City goals and with more customer engagement (such as energy efficiency and local solar).

One finding discussed in the IEA Survey but not addressed in rates is that the Department considers risk throughout the PSRP but has not analyzed the risks posed by differences between the recommended PSRP plan and the authorized budget. This could be included as a discussion during the rate mid-point review in the Study Period, with updates on the system’s overall asset condition.

7. City Council Recommendations

In 2012, the City Council adopted an amended committee report with ten recommendations associated with the Department's Incremental Electric Rate Ordinance. Navigant reviewed the Department's progress in relation to these recommendations and presents our findings in this section. As included in LADWP's Power System Rate Action Report, the Department has submitted several reports that summarize the status of implementation activities for each recommendation. Our review of each recommendation is provided below, in order.

1. Conduct negotiations with labor to find common ground that allows for greater flexibility to contract out effectively and bring salaries and benefits closer to other power utility providers.

In 2013, the Department implemented a new labor Memorandum of Understanding (MOU) with IBEW Local 18 through 2017. According to the Power System Rate Action Report, the new MOU provides LADWP with greater flexibility to contract out for labor and services, which is in alignment with the City Council recommendation. Additionally, the new MOU deferred the Cost of Living Adjustment (COLA) for three years, which is estimated to save the Department approximately \$385 million over the four-year contract period. The new MOU also includes a Tier 2 pension category for new hires, which is expected to provide the Department with savings over the long term. This is highlighted in the preliminary compensation study completed by Oliver Wyman on behalf of the OPA which shows lower retirement costs at LADWP compared to the median of the peer panel. However, total compensation at LADWP is still in the fourth quartile, with an annual average of \$146k compared to \$121k and \$119k for the median of Investor and Publicly Owned Utilities, respectively.

There is further progress to be made with regard to effective contracting. Given that more than 50 percent of the capital projects for the Power System will be contracted out over the Study Period, the ability to quickly contract out is critical to meeting the operational and strategic goals of the Department. Moreover, if the Department is not able to contract out efficiently, it will be at risk of underspending its budget for key capital programs. As discussed previously in this report, the Department has struggled with this issue in recent years. Contracts are often delayed and the RFP process is lengthy and burdensome.

Navigant recommends that the Department develop a formal outsourcing strategy to align contracting needs with the hiring plan and operational goals. A formal strategy will provide the advanced planning needed to accommodate the extensive process. In addition, the Efficiency Solutions group has circumvented the Department's in-house staffing process through its Southern California Public Authority (SCPPA) umbrella agreement that allows the group to use SCPPA contractors for a variety of efficiency programs. The Department should investigate the feasibility of using similar agreements to support other key programs.

2. Reevaluate and consider replacing the surcharge-based restructuring approach with fully restructured permanent rates once legal considerations allow.

Given the existing legal considerations, the Department has been advised to retain the surcharge-based structure implemented in 2012 for the proposed rate action.

3. Conduct a formal cost of service study in order to prepare for future power rate restructuring.

As discussed in Chapter 4, the Department carried out this City Council recommendation by completing a COSS for the Power System in 2014. The COSS uses marginal cost principles to evaluate the Department's cost structures and to ensure that its power rates are appropriate for each customer class over the Study Period. A marginal cost based COSS is consistent with California policy and is widely used by California public and investor-owned utilities; however, best practice states that marginal cost studies should consistently use forward-looking cost inputs, and the Department's COSS uses a hybrid of forward and backward-looking inputs. Accordingly, Navigant recommends that the next COSS utilize uniformly forward-looking costs.

Additionally, the current COSS is only applied to a small portion of the total Power System revenue requirement. Therefore, the overall proposed electric rates are not reflective of the utility's cost of service. In the future, if the Department restructures its rate design as described in the previous recommendation, it should reconsider its application of the COSS.

4. Conduct a benchmarking assessment to review the cost per project for the repowering program and the Power Reliability Program to ensure cost reasonableness.

Repowering

Due to the Power System's unique system configuration and reliability requirements, the Department's deadline to eliminate OTC was extended through 2029. Repowering the applicable in-basin natural gas plants is being conducted together with the elimination of OTC. The Department reports being on schedule and within the approved budget for the completed plants in the repowering program. But according to the Power System Rate Action Report, the Department has performed only limited benchmarking to ensure that costs associated with repowering are reasonable, because of the uniqueness of the Department's system which makes comparisons challenging.

As mentioned in the 2015 IEA Survey, LADWP did a commendable job of finishing the first large repowering project (Haynes Generating Station Units 5 and 6) under budget. The second repowering project (Scattergood 3) is on schedule for substantial completion by December 2015. Budget information provided by LADWP indicates this project is below the original budget so far (possibly based on procurement and labor schedule modifications). Based on these findings, the Department is spending according to its plan; however, additional benchmarking with reasonably comparable efforts by other utilities should be conducted to satisfy the recommendation.

Additionally, the metrics included in the proposed rate ordinance for the Power System compare the repowering budget against actuals and to monitor completion of OTC project milestones against compliance deadlines. These metrics will increase transparency and accountability for spending over the Study Period.

Power System Reliability Program

The PSRP is the Department's guide to rebuilding and modernizing the aging power grid through the management and replacement of its generation, transmission, substation, and distribution assets. According to the Power System Rate Action Report, the Department retained IEC to conduct a Reliability Benchmark Assessment (RBA) as recommended by the City Council. The purpose of the RBA was to ensure that the program had the appropriate resources and levels of expenditure. Key recommendations provided by IEC included increasing asset replacements, hiring additional staff, training existing staff, and improving reporting on performance metrics.

Navigant provided similar recommendations in the 2015 IEA Survey. Specifically, Navigant used its proprietary Asset Management Diagnostic Tool to assess the Department’s Transmission and Distribution (T&D) asset management function against industry best practice and stated objectives. The evaluation was conducted using the 2013 PSRP and the 2014 Long-Term Transmission Assessment. Based on this assessment, Navigant identified a number of areas of improvement requiring immediate attention. Key areas of improvement include the need for a formal asset management and continuous improvement framework, improvements to asset life estimates, the implementation of an outsourcing strategy, changes to the procurement process, and the development of a robust plan to address expected staff attrition.

As mentioned previously, the proposed rate ordinance includes a performance reporting section. The Department has included metrics such as budget against actuals, number of assets replaced, and average unit cost for each of the four PSRP functions. These metrics will support the City Council’s recommendation to monitor PSRP performance and to ensure cost reasonableness.

5. Identify opportunities to contract out and explore the potential savings, including the benchmarking of staffing and outsourcing levels against utility peers.

In accordance with the City Council recommendation, the Department benchmarked staffing in February 2015, but did not focus on contracting. The study highlighted that total O&M benchmarked in the second quartile while Distribution and Administrative & General O&M benchmarked in the fourth quartile against the selected peer panel.

As mentioned above, Navigant noted in the 2015 IEA Survey that LADWP does not have a clearly stated contracting strategy. Navigant recommends that the Department define a contracting strategy with contract requirements that selectively incent best performance by contractors through quality and safety standards, performance incentives, and performance penalties. This strategy will help identify opportunities and savings related to contracting.

6. Review overtime expenses allocation, as well as the Department’s contractual requirements that have an impact on overtime.

Given the contracting and hiring challenges outlined above, the Department often has more overtime expenses than budgeted. According to the Power System Rate Action Report, an overtime rate of approximately 15 percent of regular labor costs is best practice and the Department has exceeded this rate in recent years. This is highlighted in the preliminary compensation study completed by Oliver Wyman on behalf of the OPA, which found that LADWP’s cash compensation above base is in the fourth quartile due primarily to higher overtime levels.

7. Complete a rigorous review of the Department’s hedging plan to lock in low fuel prices.

According to the Power System Rate Action Report, LADWP retained a consultant to review the hedging program to ensure that the Department was effectively reducing rate volatility due to fuel prices. The consultant provided a hedging framework that is being developed by the Power System. The Department is also reporting on the operation and effectiveness of the hedging program through Risk Control Reports to the Board. These reports aim to provide increased transparency into the long-term anticipated fuel requirements of the Department.

The 2014 IRP provided additional insight into the Department’s hedging plans for the Study Period and beyond. The IRP quantifies risk associated with natural gas price volatility by modeling high and low

fuel price scenarios and integrating the Department’s natural gas hedging program. The hedging strategies used in the IRP are intended to mitigate the risk associated with replacing a significant portion of coal resources with new natural gas. Implementing these strategies into long-term resource planning at LADWP will limit unplanned rate changes. To further adhere to City Council’s recommendation, Navigant recommends that the Department put significant effort towards completing its hedging strategy and aligning it with the consultant’s recommended framework.

8. Establish a plan for energy efficiency that maintains expenditure levels at an achievable and cost effective level.

Because energy efficiency is the largest rate driver of the proposed rate increase, it is critical that the Department have a reasonable plan for implementation. The Board has formally adopted an energy efficiency goal of 15 percent by 2020, which aligns with the energy efficiency potential study that indicated the 15 percent goal was achievable and cost effective. Notably, this goal is more aggressive than what is mandated by law.

As discussed in more detail in Section 3.3 (LADWP’s Capability to Implement its Plan), the Department’s Efficiency Solutions group has put significant effort into ramping up the energy efficiency portfolio over the Study Period. For example, the group has partnered with SCPFA under an umbrella agreement that provides the Power System with contractors and handles procurement. This partnership is expected to limit program costs and streamline implementation. The group’s detailed Efficiency Solutions Portfolio Business Plan also establishes the portfolio’s cost-effectiveness and plans expenditure level by individual program. Overall, the Department appears to be complying with this City Council recommendation.

Additionally, the proposed power rate ordinance includes energy efficiency metrics such as the energy efficiency percentage, budget against actual spending for the portfolio, and levelized energy efficiency program costs. Mandated, quarterly reporting on these metrics will further ensure that the Department’s energy efficiency activities are reasonable and in alignment with the proposed plan.

9. Seek greater Departmental efficiency by pursuing process improvement efforts across a range of areas and practices.

According to the Power System Rate Action Report, the Corporate Performance function is planning to complete a number of Business Process Mapping Studies to compare the Department’s operations to peer utilities and industry best practice. The Department is also improving its reporting for certain key performance indicators (KPI) through efforts by Corporate Performance. Process improvement is a critical component to efficiently completing tasks against plan. Accordingly, the performance reporting section of the proposed rate ordinance will further motivate the Department to improve its processes to ensure that it receives the requested funding from rates for key programs.

10. Submit a semi-annual report to the Mayor and Council regarding the status of the Renewable Portfolio Standards (RPS) program and its impact on rates.

The Department provides monthly reports on the RPS program to the Board and quarterly reports on the costs related to the RPS program to support adjustment factor calculations. These reports provide frequent RPS updates to the Mayor and City Council in accordance with this recommendation.

As mentioned above, the proposed rate ordinance includes a performance reporting section that identifies metrics that will be provided to key stakeholders on a quarterly basis. RPS metrics in the proposed power ordinance include total RPS percentage, total RPS cost against plan by technology,



greenhouse gas (GHG) emissions reduction from 1990 levels, and average levelized cost of energy of the power purchase agreements (PPA) for renewable energy signed during the previous fiscal year. The Department's performance as it relates to these RPS metrics will be directly tied to changes in rates.

8. Evaluation of LADWP's Productivity

8.1 Productivity Challenges

Navigant has assessed the Department's pending Power Rate Action Plan in the context of relevant findings from the 2012 Power System Financial Review and Rate Restructuring Analysis by PA Consulting (2012 PA Consulting Report) for the City of Los Angeles, the City Council recommendations that accompanied the approval of the 2012 rate action, the 2015 IEA Survey, the Department's 2015 Phase 1 Benchmarking Study, as well as a preliminary results from a total compensation benchmarking study completed by Oliver Wyman on behalf of the OPA. Over the course of this assessment Navigant has identified several data points that, taken together, indicate higher compensation at LADWP compared to similarly situated utilities and opportunities for productivity improvements. In particular, the Oliver Wyman Report indicates that LADWP's total compensation is in the 4th quartile (quartile with the highest total compensation numbers) of their peer panel, while Navigant's productivity benchmarking analysis also indicates 4th quartile performance (quartile with the lowest productivity).

The Oliver Wyman Report provided preliminary results that still need to be refined, expanded and finalized. In the absence of final compensation numbers, Navigant has mostly focused its analysis on productivity issues, while acknowledging a trend of higher compensation at LADWP. It is important to note that compensation issues cannot be addressed prior to 2017, when the Department's Memorandum of Understanding (MOU) can be renegotiated by the City. Hence, this section identifies the data points that indicate productivity is an issue the Department must address and outlines several options the Department and City leaders could consider to improve it.

As noted previously, LADWP's funding needs continue to increase in order to address aging electric infrastructure, increased regulation for a cleaner fuel supply, and other challenges. The Department's proposed power rate increase appears necessary to meet these goals given its already highly-leveraged capital structure and current operational practices. But the Department's current operational practices must also evolve to become more efficient and nimble. The programs and projects driving this rate increase are in many ways unprecedented in their scale and scope; California's environmental landscape and regulatory requirements are the most ambitious in the country, and in areas like energy efficiency the City strives to exceed those state mandates. Even a highly efficient utility would be challenged in this context. In the Department's case, however, Navigant has observed several factors that call into question its ability to efficiently manage resources. Simply put, productivity must be addressed if the Department is to continue to meet its goals.

8.1.1 Past Reports

Productivity and operational efficiency are not new concerns. The 2012 PA Consulting Report raised concerns about productivity as one of the key building blocks the Department should address to manage operating costs. In addition, in the City Council's 2012 amended committee report on the Department's Incremental Rate Ordinance, the Council addressed concerns about productivity in its recommendations for process improvements, efficiency of the customer energy efficiency program, exploring outsourcing options, and reviewing overtime expenses allocation, as well as the Department's contractual requirements that have an impact on overtime. As discussed in Chapter 7, the Department has made some progress on these recommendations, particularly with the energy efficiency program; however, much work remains on these efforts.

Further, the 2015 IEA Survey identified the Department’s inability to implement Power System programs at scale and execute projects as a critical challenge for the Department and its customers going forward (discussed in Chapter 3.3 and Chapter 6 of this report). While unique challenges for individual programs or projects is an accepted reality in utility operations and capital projects, consistent underspending across virtually all Power System capital programs in recent years indicates that productivity must improve for the Department to succeed at program implementation.

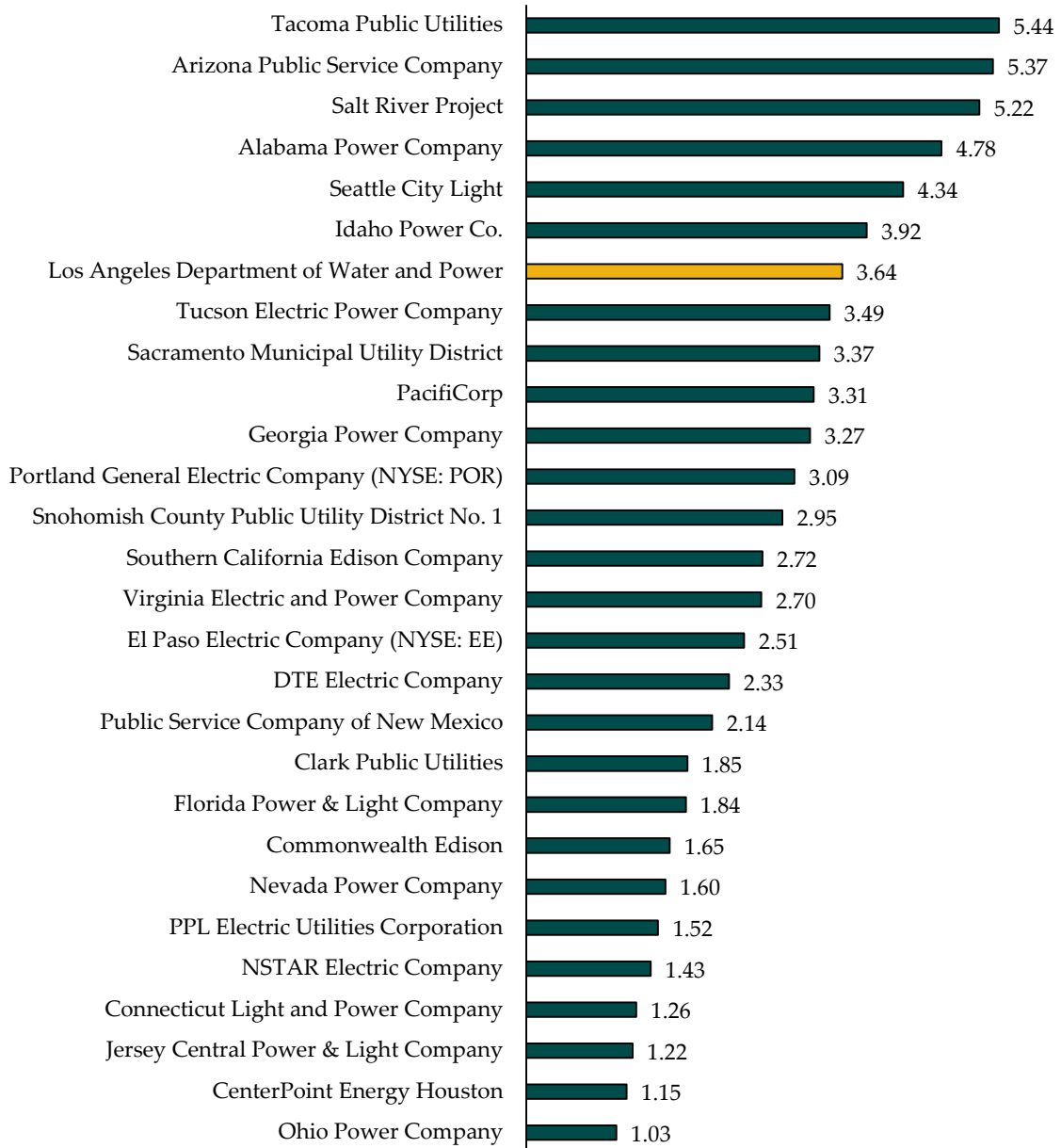
8.1.2 Benchmarking

The Department’s 2015 Phase 1 Benchmarking Study indicates operational productivity needs attention in some areas, with Distribution O&M and Administrative & General O&M benchmarking in the 4th quartile (highest cost per customer). While the Department is investigating further potential driver(s) of these results and their impact on other service metrics, these initial results are nevertheless early indicators of low productivity in these areas. Navigant understands that staffing was not included in Phase 1 of the Benchmarking Study, but may be examined in Phase 2.

While the OPA will be working collaboratively with LADWP on its Phase 2 benchmarking of staffing levels, organization and productivity, at the time of this writing, no other current studies relating to productivity or operational efficiency are available. In the absence of other studies, Navigant performed its own analysis of a basic measure of productivity: employees per 1,000 Customers. Taking from the peer utilities used in the Department’s Phase 1 Benchmarking Study, Navigant assessed the Department’s employees per 1,000 customers against IOUs and POUs that provide only electric service.

Figure 8-1 below shows LADWP in the 4th quartile, indicating that opportunities exist for improvement in overall productivity. Navigant also looked at additional peer panels, including 1) POUs that provide only electric services; 2) California POUs that deliver power and water services; and 3) California utilities that are typically considered peers of LADWP, with results shown in the following figures.

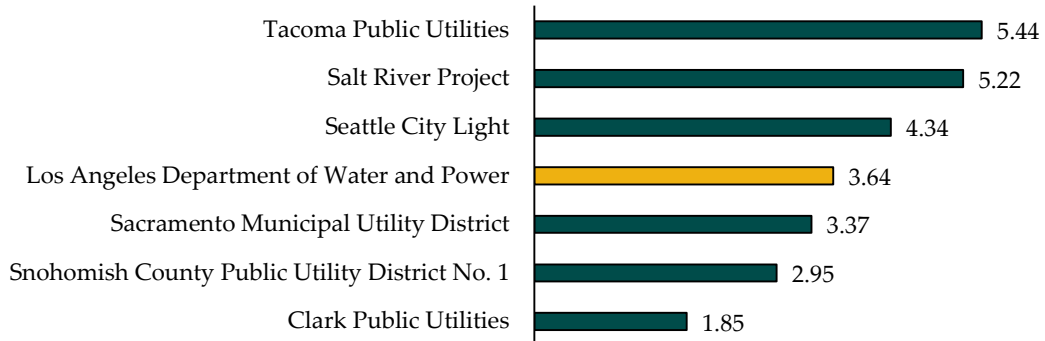
Figure 8-1. Employees per 1,000 Customers – Electric IOUs and POUs



Note: LADWP's peer panel utilities for which no data was available on SNL Financial were excluded.

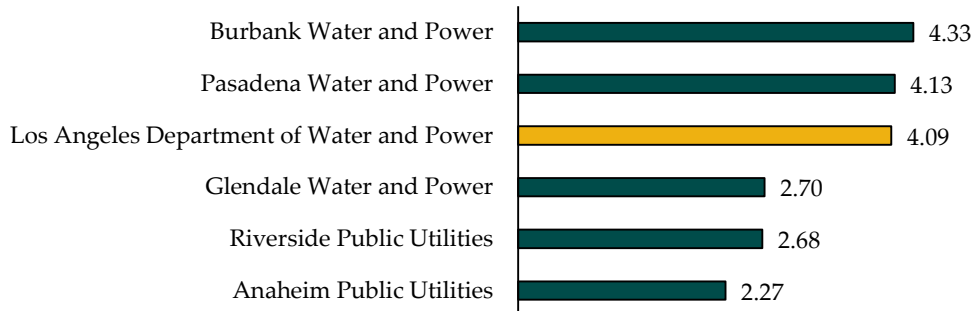
Source: www.snl.com/Sectors/Energy/

Figure 8-2. Employees per 1,000 Customers – Electric POU



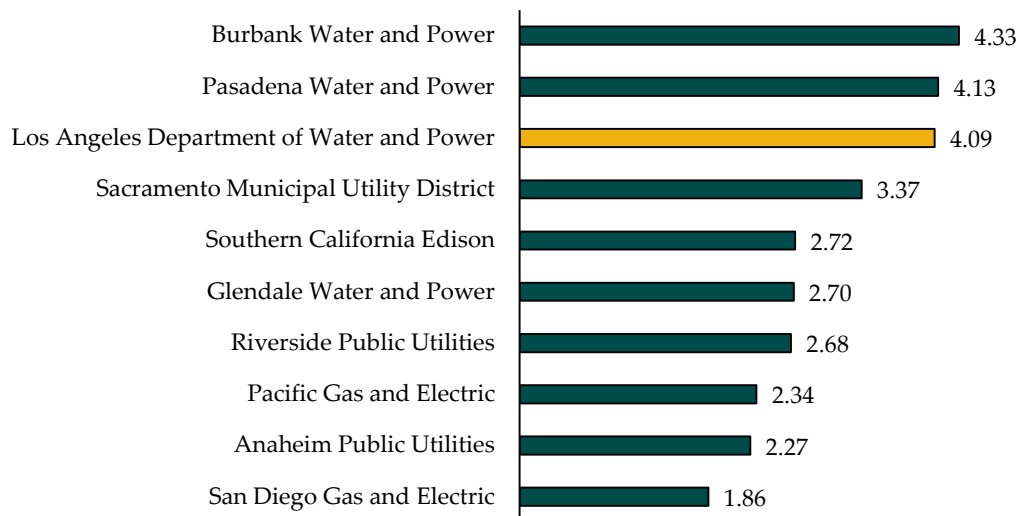
Source: SNL Financial, utility annual reports and websites.

Figure 8-3. Employees per 1,000 Customers – Electric and Water POU



Source: SNL Financial, utility annual reports and websites.

Figure 8-4. Employees per 1,000 Customers – California Utilities



Source: SNL Financial, utility annual reports and websites.

Compared to the smaller group of electric-only POU in the second peer panel (Figure 8-2), LADWP is in the middle of the pack. Results are similar for electric and water POU (Figure 8-3). Among California peers including both IOUs and POU (Figure 8-4), LADWP is between the 3rd and 4th quartiles.

8.2 Impact on Rates

Finally, for this rate review Navigant considered LADWP’s rates in the context of productivity. LADWP’s relatively low electricity rates are, among other things, a reflection of its highly leveraged capital structure, and do not necessarily reflect efficient operations. As noted previously, an increasingly leveraged capital structure over time indicates that the utility is not getting the rate increases it needs, and is relying more heavily on borrowing. Essentially, this strategy depends on future generations to fund current operations instead of using cash from current customer rates as efficiently as possible. Currently only SMUD is more heavily leveraged than LADWP among its California peers, with the gap between them projected to shrink over the next five years as the Department is projected to further increase its debt funding over the Study Period close to the ceiling recommended by PRAG (this trend was discussed in Section 3.4.1). When that ceiling is reached, productivity improvements, rate increases, or both will be the only means of funding future Power System cost increases.

8.3 Options for Addressing Low Productivity

Based on the above findings, there is room for improving productivity at the Department. The City may choose to make this a focus of the rate action because of the significant funds and major programs at stake. If so, there are a number of options for supporting, measuring, and/or enforcing LADWP’s increased productivity.

8.3.1 Solutions to Increase Productivity

In this subsection, Navigant suggests several possible high-level solutions to address sub-optimal productivity. Most of these options are based on recommendations made in the 2015 IEA Survey and standard business practices. Readers should note that the information here is not exhaustive by any means, but is a starting point for a more in-depth look at options that support increased productivity.

8.3.1.1 Accelerate Governance Reforms

Stable and strong leadership commitment to performance improvement is widely understood to be a critical factor for success. However, as discussed in the governance section of the IEA Survey, LADWP has struggled with high general manager turnover and is subject to decentralized City authority. In that report, Navigant offered a recommendation for how to establish a process for instituting governance reform, which would ideally result in a ballot measure in 2017. The goal of the reform would be to establish a governance structure with clarity of leadership, accountability, transparency, adequate oversight and controls, consistency, and efficiency; these characteristics would also provide a strong foundation for increased productivity. Hence, it may be valuable for the City to ensure this effort is underway as soon as possible.

8.3.1.2 Conduct a Formal Assessment

One of the first logical steps would be to perform analyses to both shed more light on productivity challenges and then design specific solutions for them, working collaboratively with performance improvement experts. For example, a gap analysis or needs assessment would identify the steps required for LADWP to become a more productive organization than it is in its current state. This could include field studies as well as other methods. Alternatively—or additionally—LADWP could focus on

specific process improvements such as Power System procurement processes, data sharing processes, or employee onboarding processes.

8.3.1.3 Define Contracting and Procurement Strategies

The Power System should focus on improving contracting and procurement processes to minimize delays from these activities. The gap in contracting and procurement strategies has been mentioned many times throughout this report as having a negative impact on program implementation. The IEA Survey agreed with these findings, and further specified that LADWP should define an outsourcing strategy as part of its workforce resource planning. Overall, this would be in internal effort to formalize an efficient and effective approach to contracting and procurement.

8.3.1.4 Strengthen Project Management

The 2015 IEA Survey identified project management to be an under-developed area in both the Power System and Joint Services. Recommendations from that report included:

- Adopt a more sophisticated project management business discipline with project management specialists...Enhance tools and processes to centrally and comprehensively manage programs through commissioning.
- Establish a formal project management office for technology infrastructure to ensure that projects are monitored and completed.

Alternatively to developing a strong internal Project Management Office, LADWP could hire an external project management firm to oversee certain major projects.

8.3.1.5 Strengthen Corporate Performance

LADWP established an internal Corporate Performance group to undertake process improvements and other cost-saving activities. This is a good step forward for performance improvement and could be further reinforced by the addition of experts from outside of the Department to bring new perspectives.

8.3.1.6 Deploy Technology More Effectively

Many utilities struggle with updating outdated technology systems, expanding automation, and streamlining software applications, which can help significantly with efficient, modern operations. The IEA Survey made a number of recommendations for infrastructure technology (IT) at LADWP:

- Develop an IT Strategic Plan that builds on the IT Strategic Agenda to address major technology initiatives, desired outcomes, performance metrics, and specific target dates.
- Establish an executive-level governance that is tasked with setting, monitoring, and evaluating the direction of the Department's technology infrastructure.
- Ensure that IT has the staff and contracting resources to address its current system challenges as well as future upgrades and platform implementation.

Adopting and properly leveraging technology solutions has proven to have a significant impact on operations.

8.3.2 Rate Mechanisms and Revenue Impacts

The metrics adopted by the Department in the power rate ordinance ensure that the Power System achieves its planned program activities and is held accountable when it does not. To further enhance the metrics and reporting structure currently proposed, the power rate ordinance could be supplemented with a measure of productivity. Reported metrics and associated consequences in this area will ensure that the Power System achieves its planned program activities efficiently.

The City could consider several different approaches to tie rates to productivity improvements. We have identified several options for mechanisms to accomplish this, as follows.

1. Select a single basic metric such as number of employees per customer (a “productivity factor”) and compare to a pre-defined peer panel of utilities, with an established quartile performance goal set for the following year(s). If the productivity performance goal is not met, revenue requirements for the following year could be automatically adjusted. The City Council could specifically define the metric, peer panel, and quartile performance goal in the rate ordinance; alternatively, it could require by ordinance that the Board define this information.
2. Alternatively, establish a small set of metrics related to the productivity of major Power System programs, with goals, annual reporting and review, and consequences similar to the single productivity metric outlined above. In this instance, productivity metrics should target areas that have historically underspent, such as key capital programs like the PSRP, and programs that are driving the current rate increase, like Energy Efficiency.
3. Approve a smaller rate increase than that proposed (which is an annual average of 3.86 percent for the Study Period) by a certain percentage related to the desired improvement in productivity. This is equivalent to an automatic reduction in the proposed revenue requirement each year, requiring greater operational efficiency.

Navigant notes that these are high-level options and require additional consideration, but they represent simple, meaningful mechanisms for ensuring the current rate increase resources are deployed more efficiently over time. And although they require additional development to ensure they are effective, Options 1 and 2 leverage the Board Metric reporting and review process already proposed.

It is important to point out that, in any instance where productivity performance is built into a rate review mechanism, it is critical to ensure that end user service does not decline at the expense of productivity gains. End use service metrics relating to customer service or satisfaction such as call center wait times, service reliability metrics such as SAIDI and SAIFI, and safety metrics relating to OSHA events or reportables, are commonly reviewed in tandem with productivity requirements. As the Department already tracks and reports on such metrics separate from the Board Metrics, incorporating them into a performance monitoring mechanism would be prudent.

9. Rate Proposal Recommendations

Power rates ordinance:

- **Board Metric Variances:** Navigant recommends that the Department work with the OPA to refine the variance ranges applicable to the Power System Board Metric targets. The Department will quickly gain more experience with these metrics and improve its ability to accurately and realistically forecast work and deliver on results. Variances should be tightened as appropriate to reflect the Department's deep expertise with many of the reported activities, and to more closely align with the margin of error used at other utilities.
- **Interim Rate Review Inputs:** For the interim rate review, the Department will consider updating its Base Rate Revenue Targets to reflect updated forecasts for revenues, expenditures, and overall fiscal performance. The Department should ensure that its interim load forecast is based on a current assessment of demand side resources including energy efficiency and local solar.

Revenue requirements:

- Formalize and fully document the revenue requirements determination methodology, including the process for allocating base rate revenue to specific funding needs and financial metrics.
- Assess the risks associated with not implementing the PSRP at its recommended level.
- Conduct a cost-benefit analysis of the programs that go above and beyond state goals (energy efficiency and local solar).
- In close collaboration with the City, identify and assess solutions to streamline the hiring and selection process.
- Define and implement an outsourcing strategy as part of LADWP's workforce resource planning, in order to support program implementation. This strategy should be incorporated into the Department's Integrated Human Resource Plan and operated as a high priority initiative with full support from City Management as directed by City Council and Mayor.
- Navigant also recommends the OPA and CAO/CLA undertake a separate study looking at reducing debt levels in the future and adopting a more structured cash/debt planning model.

COSS:

- Apply the Power COSS findings to the totality of the revenues generated by the incremental adjustment factor components.
- Conduct another Power System COSS for Test Year 2018/19 using 2017/18 actual data and based on a robust load research study which forecasts customer class usage profiles and overall demand, and incorporate into rates as soon as practicable. Additionally, the updated COSS should utilize uniformly forward-looking costs.
- Integrate the rate design model, the rate ordinance model, the financial models, the SAS database and the Customer Care and Billing system to prevent data discrepancies between the models, systems and the databases, and streamline the rate design process.
- Develop a robust internal knowledge transfer plan that includes training on the existing rate design models and approaches.

Productivity:

- **Productivity Improvements:** Consider options to increase productivity at the Department, in conjunction with progress underway by the Corporate Performance group. This could include conducting a formal performance assessment, defining contracting and procurement strategies, strengthening project management, and other options. Initiating the governance reform as recommended in the 2015 IEA Survey could be a requisite for sustained improvement.
- **Productivity Mechanisms:** Consider different approaches to tie rates to productivity improvements, including a single metric (“productivity factor”), a small set of productivity metrics for major Power System programs, or an overall reduction to the proposed revenue requirements based on the desired productivity improvement.