

# **The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**Actuarial Valuation and Review as of  
July 1, 2012**

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The Segal Company  
100 Montgomery Street, Suite 500 San Francisco, CA 94104  
T 415.263.8200 F 415.263.8290 www.segalco.com

*September 19, 2012*

*Board of Administration  
The Water and Power Employees' Retirement Plan of the City of Los Angeles  
111 North Hope Street, Room 357  
Los Angeles, California 90012*

*Dear Board Members:*

*We are pleased to submit this Actuarial Valuation and Review as of July 1, 2012. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2012-2013 and analyzes the preceding year's experience.*

*This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement Plan. The census information and financial information on which our calculations were based was prepared by the Retirement Office. That assistance is gratefully acknowledged. The actuarial calculations were completed under the supervision of John Monroe, ASA, MAAA, Enrolled Actuary.*

*The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law.*


*We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.*

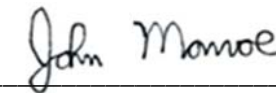
*We look forward to reviewing this report at your next meeting and to answering any questions.*

*Sincerely,*

*THE SEGAL COMPANY*

*By:*

  
*Paul Angelo, FSA, MAAA, EA, FCA  
Senior Vice President and Actuary*

  
*John Monroe, ASA, MAAA, EA  
Vice President and Associate Actuary*

*EK/gxk*

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## SECTION 1: Valuation Summary for The Water and Power Employees' Retirement Plan of the City of Los Angeles

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### Purpose

This report has been prepared by The Segal Company to present a valuation of The Water and Power Employees' Retirement Plan of the City of Los Angeles as of July 1, 2012. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Retirement Plan, as administered by the Board;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of March 31, 2012, provided by the Retirement Office;
- The assets of the Plan as of June 30, 2012, provided by the Retirement Office;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

### Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

*Ref: Pg. 22, 23*

- The actuarial accrued liability exceeds the actuarial value of assets, resulting in an Unfunded Actuarial Accrued Liability (UAAL) of \$2.1 billion, which is an increase from \$1.8 billion in the previous valuation. The Board's funding policy determines the Department's required contribution as the normal cost increased or offset by a UAAL amortization charge or credit. Under this funding policy, the Plan's UAAL is amortized over various 15-year periods, each beginning with the year that each portion or base of the UAAL was first identified and amortized.

*Ref: Pg. 12, 13*

- The required contribution increased from 41.82% to 46.08% of pay for the 2012-2013 plan year, which is estimated to be \$408.5 million. This includes amortization of the components of the Plan's UAAL over 15-year fixed periods. Under the Plan's funding policy, the required contribution rate continues to be larger than the mandatory 110% matching of the employee contribution.

## SECTION 1: Valuation Summary for The Water and Power Employees' Retirement Plan of the City of Los Angeles

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*Ref: Pg. 8*

- The market value of assets earned a return of 0.1% for the July 1, 2011 to June 30, 2012 plan year. The actuarial value of assets earned a return of 1.9% for the July 1, 2011 to June 30, 2012 plan year due to the deferral of most of the current year investment losses and the recognition of prior investment gains and losses. This resulted in an actuarial loss of \$433.9 million when measured against the assumed rate of return of 7.75% per annum. This actuarial investment loss increased the Plan's required contribution by 5.43% of compensation.

*Ref: Pg. 13*

- The salaries for continuing actives increased by 5.1% from the amounts in effect on March 31, 2011 to the amounts in effect on March 31, 2012. Since this increase is less than the average assumed rate of approximately 5.6%, the plan experienced an actuarial gain from individual salary experience. This gain amounted to \$34.7 million for the current year, which decreased the Plan's required contribution by 0.43% of compensation.

*Ref: Pg. 13*

*Ref: Pg. 5*

- The total unrecognized return (i.e., the difference between the market value of assets and the "smoothed" actuarial value of assets) changed by \$138 million during the plan year from a \$121 million unrecognized loss in 2011 to a \$259 million unrecognized loss in 2012. This investment loss will be recognized in the determination of the actuarial value of assets over the next few years. This means that, if the Plan earns the assumed rate of investment return of 7.75% per year (net of expenses) on a **market value** basis, then the deferred losses will be recognized over the next few years as shown in the footnote in Chart 7.
- The unrecognized investment losses of \$259 million represent about 3.5% of the market value of assets. Unless offset by future investment gains or other favorable experience, the future recognition of the \$259 million in past market losses is expected to have an impact on the Plan's future funded ratio and required contributions. This potential impact may be illustrated as follows:
  - If the deferred losses were recognized immediately in the actuarial value assets, the funded percentage would decrease from 78.1% to 75.4%.
  - If the deferred losses were recognized immediately in the actuarial value of assets, the required contribution would increase from 46.08% of covered payroll to 49.32% of covered payroll.

*Ref: Pg. 28*

*Ref: Pg. 5*

- This year, the balance in the General Reserve and the Reserve for Investment Gains and Losses decreased from \$1,969 million as of June 30, 2011 to \$1,802 million as of June 30, 2012. These two reserves track changes in the book value of assets. Consistent with prior valuations, this year we have been instructed to include all but \$73.9 million of the end of year General Reserve and Reserve for Investment Gains and Losses as valuation assets. The \$73.9 million amount is approximately 1% of the end of year market value of assets.

## SECTION 1: Valuation Summary for The Water and Power Employees' Retirement Plan of the City of Los Angeles

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- The actuarial valuation report as of July 1, 2012 is based on financial information as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected. Declines in asset values will increase the actuarial cost of the plan, while increases will decrease the actuarial cost of the plan.
- The last actuarial experience study covered the period from July 1, 2006 through June 30, 2009. We anticipate performing another actuarial experience study during the first half of 2013. As part of that study, recommendations for changes in actuarial assumptions may be made. For each of the demographic actuarial assumptions, these recommendations will generally be based on a comparison of actual experience versus that which was expected to occur.
- The California Actuarial Advisory Panel (CAAP) has recently adopted a set of model disclosure elements recommended for actuarial valuation reports for public retirement systems in California. Information has been added to this valuation report consistent the recommendations regarding basic disclosure elements. In particular, we are now including new information regarding measures of plan volatility.
- The Governmental Accounting Standards Board (GASB) recently approved two new Statements affecting the reporting of pension liabilities for accounting purposes. Statement 67 replaces Statement 25 and is for plan reporting. Statement 68 replaces Statement 27 and is for employer reporting. It is important to note that the new GASB rules only redefine pension expense for financial reporting purposes, and do not apply to contribution amounts for actual pension funding purposes. Employers and plans can still develop and adopt funding policies under current practices. Because these new Statements are not effective until the fiscal year ending June 30, 2014 for Plan reporting and the fiscal year ending June 30, 2015 for employer reporting, the financial reporting information in this report continues to be in accordance with Statements 25 and 27.

*Ref: Pg. 15*

**SECTION 1: Valuation Summary for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**Summary of Key Valuation Results**

	<b>2012</b>	<b>2011</b>
<b>Contributions for plan year beginning July 1:</b>		
Required under funding policy*	\$408,475,049	\$363,886,488
Percentage of payroll*	46.08%	41.82%
<b>Funding elements for plan year beginning July 1:</b>		
Total normal cost (beginning of year)	\$189,950,104	\$186,255,586
Market value of assets (MVA)	7,388,771,569	7,418,089,776
Actuarial value of assets (AVA)	7,573,885,754	7,465,183,643
Actuarial accrued liability (AAL)	9,692,602,852	9,297,204,318
Unfunded/(overfunded) actuarial accrued liability on AVA basis	2,118,717,098	1,832,020,675
Unfunded/(overfunded) actuarial accrued liability on MVA Basis	2,303,831,283	1,879,114,542
Funded ratio on AVA Basis (AVA/AAL)	78.14%	80.29%
Funded ratio on MVA Basis (MVA/AAL)	76.23%	79.79%
<b>GASB 25/27 for plan year beginning July 1:</b>		
Annual pension cost	\$412,224,745	\$341,366,670
Actual contributions	--	321,688,919
Percentage contributed	--	94.2%
Covered payroll**	\$886,539,366	\$805,607,436
<b>Demographic data for plan year beginning July 1:</b>		
Number of retired members and beneficiaries	8,510	8,496
Number of vested former members***	1,648	1,694
Number of active members	8,962	9,203
Total compensation	\$886,539,366	\$870,203,423
Average compensation	\$98,922	\$94,556

\* Required contributions are assumed to be paid at the middle of every year.

\*\* For 2011, this represents the actual covered payroll for 2011-2012 as reported by the Retirement Office.

\*\*\* Includes terminated members due a refund of employee contributions and members receiving Permanent Total Disability (PTD) benefits.

**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**A. MEMBER DATA**

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, vested terminated members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

*A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.*

**CHART 1**  
**Member Population: 2003 – 2012**

<b>Year Ended June 30</b>	<b>Active Members</b>	<b>Vested Terminated Members*</b>	<b>Retired Members and Beneficiaries</b>	<b>Ratio of Non-Actives to Actives</b>
2003	7,731	1,445	9,161	1.37
2004	7,893	1,525	8,973	1.33
2005	7,967	1,397	8,868	1.29
2006	7,926	1,481	8,817	1.30
2007	7,993	1,535	8,746	1.29
2008	8,164	1,548	8,670	1.25
2009	8,868	1,742	8,505	1.16
2010	9,295	1,739	8,468	1.10
2011	9,203	1,694	8,496	1.11
2012	8,962	1,648	8,510	1.13

\* Includes terminated members due a refund of employee contributions and members receiving PTD benefits.



**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**Active Members**

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 8,962 active members with an average age of 48.9, average years of service of 18.2 years and average compensation of \$98,922. The 9,203 active members in the prior valuation had an average age of 48.4, average service of 17.7 years and average compensation of \$94,556.

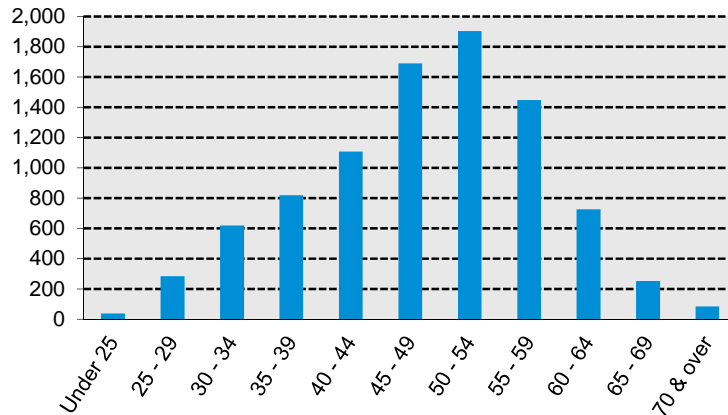
**Inactive Members**

In this year's valuation, there were 1,648 members with a vested right to a deferred or immediate vested benefit, or entitled to a return of their employee contributions, versus 1,694 in the prior valuation.

*These graphs show a distribution of active members by age and by years of service.*

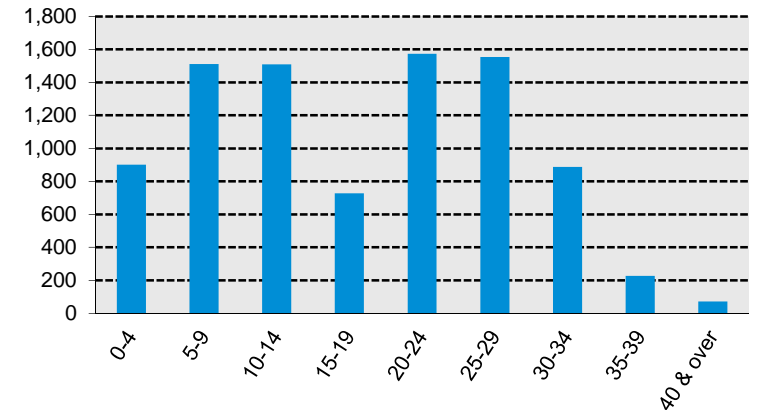
**CHART 2**

**Distribution of Active Members by Age as of June 30, 2012**



**CHART 3**

**Distribution of Active Members by Years of Service as of June 30, 2012**



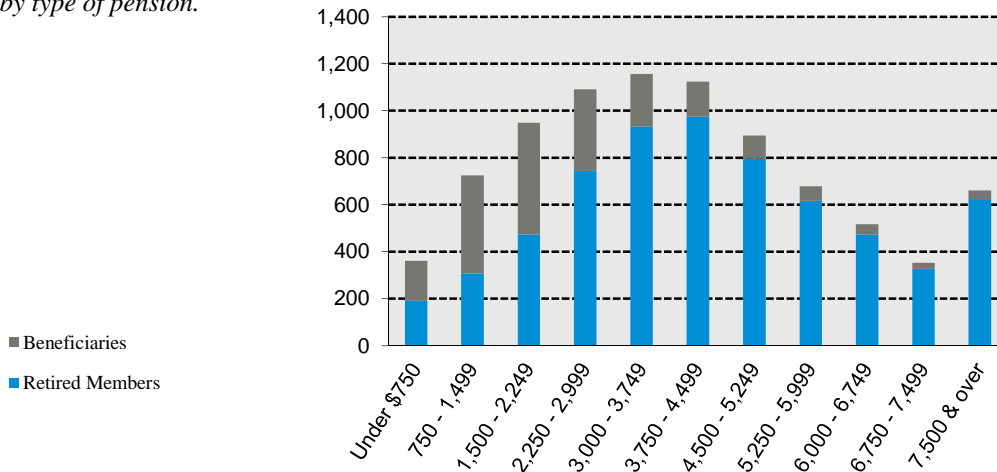
**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**Retired Members and Beneficiaries**

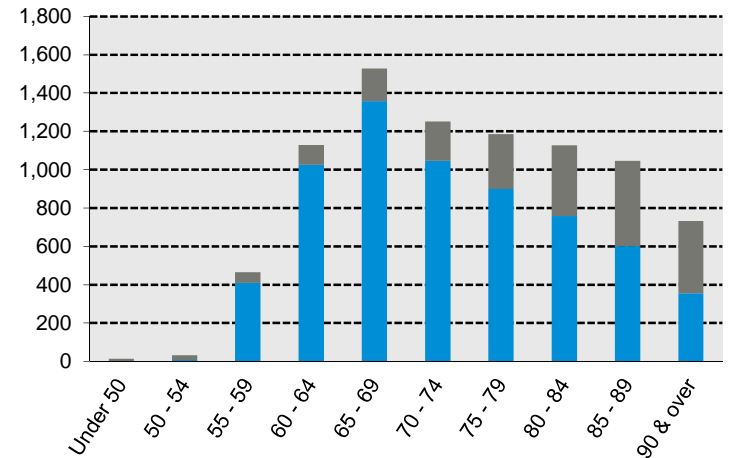
As of June 30, 2012, 6,458 retired members and 2,052 beneficiaries were receiving total monthly benefits of \$35,604,808. For comparison, in the previous valuation, there were 6,406 retired members and 2,090 beneficiaries receiving monthly benefits of \$34,288,307.

*These graphs show a distribution of the current retired members and beneficiaries based on their monthly amount and age, by type of pension.*

**CHART 4**  
**Distribution of Retired Members and Beneficiaries by Type and by Monthly Amount as of June 30, 2012**



**CHART 5**  
**Distribution of Retired Members and Beneficiaries by Type and by Age as of June 30, 2012**



**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

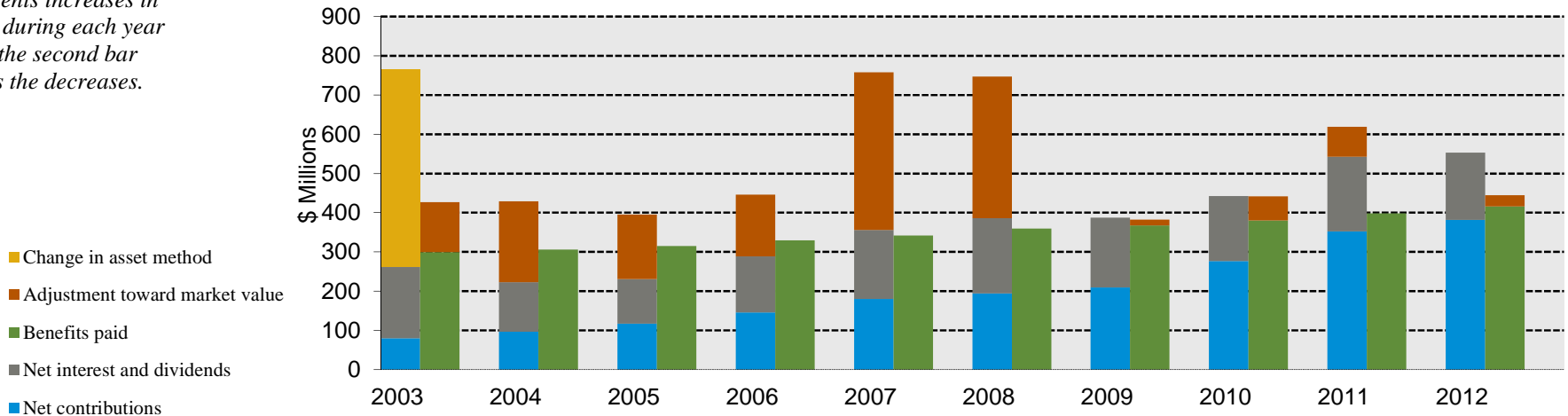
**B. FINANCIAL INFORMATION**

Retirement plan funding anticipates that, over the long term, both contributions and net investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D, E and F.

*The chart depicts the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.*

**CHART 6**  
**Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended June 30, 2003 – 2012**



**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative.

Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Please note that as instructed by Plan staff, we have included all but \$73.9 million (approximately 1% of the end of year market value of assets) in the General Reserve and Reserve for Investments Gains and Losses as valuation assets.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

**CHART 7  
Determination of Actuarial Value of Assets as of June 30, 2012**

1	Market value of assets, June 30, 2012			\$7,388,771,569
2	Calculation of Unrecognized Return	<u>Original Amount*</u>	<u>Unrecognized Return**</u>	
	(a) Year ended June 30, 2012	-\$568,288,259	-\$454,630,607	
	(b) Year ended June 30, 2011	713,766,818	428,260,091	
	(c) Year ended June 30, 2010	223,624,452	89,449,781	
	(d) Year ended June 30, 2009	-1,610,405,832	-322,081,166	
	(e) Year ended June 30, 2008	-911,502,787	<u>0</u>	
	(f) Total Unrecognized Return***			-259,001,901
3	Gross actuarial value: (1) - (2f)			7,647,773,470
4	Portion of General Reserve and Reserve for Investment Gains and Losses not included as valuation asset			<u>73,887,716</u>
5	Net actuarial value as of June 30, 2012: (3) - (4)			<u>\$7,573,885,754</u>
6	Net actuarial value as a percentage of market value: (5) / (1)			102.5%

\* Total return minus expected return on a market value basis

\*\* Recognition at 20% per year over 5 years

\*\*\* Deferred return as of June 30, 2012 recognized in each of the next 4 years:

(a)	Amount Recognized during 2012/2013	-\$248,260,563
(b)	Amount Recognized during 2013/2014	\$73,820,602
(c)	Amount Recognized during 2014/2015	\$29,095,712
(d)	Amount Recognized during 2015/2016	-\$113,657,652
	Subtotal	-\$259,001,901

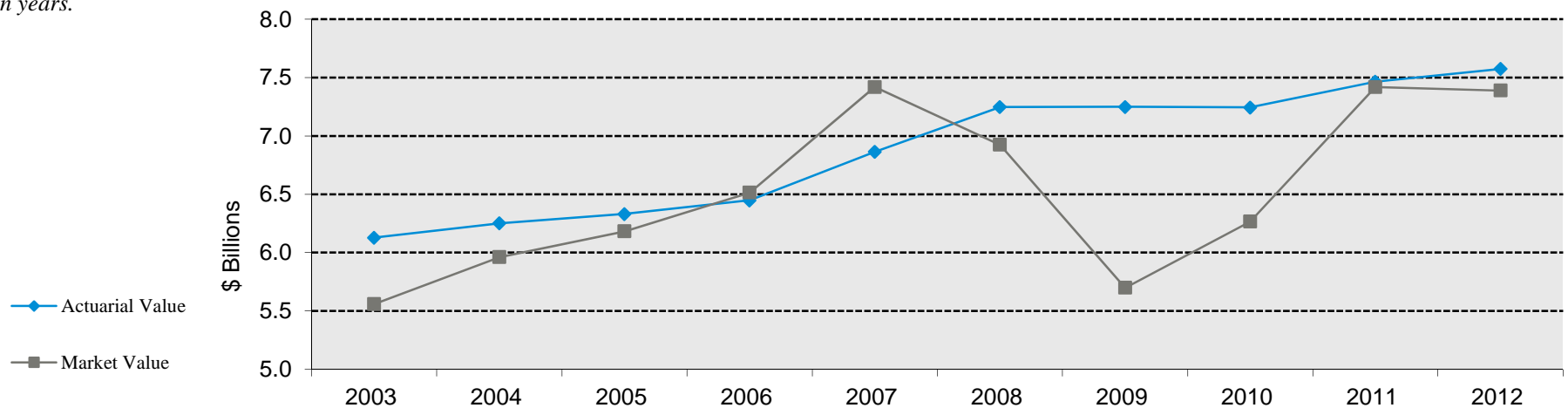
**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

Both the actuarial value and market value of assets are representations of the LADWP's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the LADWP's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

Note that in the chart below, actuarial value of assets are exclusive of a small portion of the General Reserve and Reserve for Investment Gains and Losses while that Reserve is included in the development of the market value of assets.

*This chart shows the change in the actuarial value of assets versus the market value over the past ten years.*

**CHART 8**  
**Actuarial Value of Assets vs. Market Value of Assets as of June 30, 2003 – 2012**



**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**C. ACTUARIAL EXPERIENCE**

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss is \$340,613,539, including \$433,917,715 from investment losses and \$93,304,176 in gains from all other sources. The net experience variation from individual sources other than investments was 1.0% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

*This chart provides a summary of the actuarial experience during the past year.*

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**CHART 9**  
**Actuarial Experience for Year Ended June 30, 2012**

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1. Net loss from investments*	-\$433,917,715
2. Net gain from other experience**	<u>93,304,176</u>
3. Net experience loss: (1) + (2)	-\$340,613,539

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\* *Details in Chart 10*

\*\* *See Section 3, Exhibit G*

**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**Investment Rate of Return**

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the LADWP's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 7.75%. The actual rate of return on an actuarial basis for the 2011-2012 plan year was 1.92%.

Since the actual return for the year was less than the assumed return, the LADWP experienced an actuarial loss during the year ended June 30, 2012 with regard to its investments.

*This chart shows the gain/(loss) due to investment experience.*

**CHART 10  
Market and Actuarial Value Investment Experience for Year Ended June 30, 2012**

	<b>Market Value</b>	<b>Actuarial Value</b>
1. Actual return	\$5,273,279	\$143,293,597
2. Average value of assets	7,400,794,033	7,447,887,900
3. Actual rate of return: (1) ÷ (2)	0.07%	1.92%
4. Assumed rate of return	7.75%	7.75%
5. Expected return: (2) x (4)	\$573,561,538	\$577,211,312
6. Actuarial gain/(loss): (1) – (5)	<u>-\$568,288,259</u>	<u>-\$433,917,715</u>

**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last ten years, including five-year and ten-year averages.

**CHART 11**

**Investment Return – Actuarial Value vs. Market Value: 2003 - 2012**

Year Ended June 30	Net Interest and Dividend Income		Recognition of Capital Appreciation		Change in Asset Method		Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
2003	\$182,004,368	3.20%	-\$127,029,513	-2.24%	\$503,018,121	8.86%	\$557,992,976	9.82%	\$107,504,970	1.93%
2004	126,468,819	2.10	205,922,559	3.42	--	--	332,391,378	5.52	611,980,245	11.22
2005	114,263,238	1.86	164,012,112	2.66	--	--	278,275,350	4.52	419,463,599	7.16
2006	142,834,044	2.29	157,384,016	2.52	--	--	300,218,060	4.81	514,526,795	8.45
2007	175,884,502	2.76	402,557,938	6.33	--	--	578,442,440	9.09	1,066,710,135	16.58
2008	191,456,313	2.82	361,168,481	5.33	--	--	552,624,794	8.15	-324,830,786	-4.43
2009	178,210,091	2.49	-15,044,818	-0.21	--	--	163,165,273	2.28	-1,062,966,407	-15.53
2010	165,427,697	2.30	-61,931,590	-0.86	--	--	103,496,107	1.44	675,223,168	11.96
2011	189,663,213	2.63	76,943,548	1.06	--	--	266,606,761	3.69	1,197,629,301	19.18
2012	<u>171,625,847</u>	2.30	<u>-28,332,250</u>	-0.38	--	--	<u>143,293,597</u>	1.92	<u>5,273,279</u>	0.07
Total	\$1,637,838,132		\$1,135,650,483		\$503,018,121		\$3,276,506,736		\$3,210,514,299	
							Five-year average return	3.43%		1.47%
							Ten-year average return	4.94%		5.11%

*Note: Each year's yield is weighted by the average asset value in that year.*

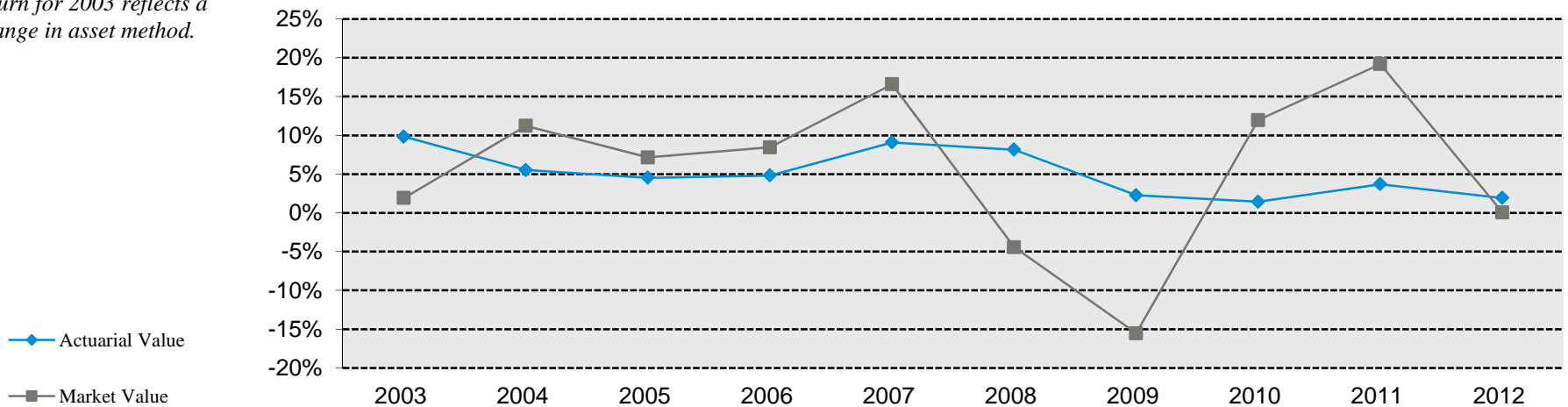


**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

*This chart illustrates how this leveling effect has actually worked over the years 2003 - 2012. The return for 2003 reflects a change in asset method.*

**CHART 12**  
**Market and Actuarial Rates of Return for Years Ended June 30, 2003 - 2012**



## SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles

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### **Other Experience**

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected), and
- salary increases different than assumed.

The net gain from this other experience for the year ended June 30, 2012 amounted to \$93,304,176, which is 1.0% of the actuarial accrued liability.

This gain is mainly the result of lower COLA (from 2011) and salary increases than expected. See Section 3, Exhibit G for a detailed development of the Unfunded Actuarial Accrued Liability.

**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**D. REQUIRED CONTRIBUTION**

The required Department contribution is made up of (a) the normal cost and (b) the amortization of the unfunded or overfunded actuarial accrued liability. For this year, an amortization base is created for the actuarial loss during the plan year ending June 30, 2012. This produces a net total amortization charge of \$259,765,921.

Under the current funding policy, the Department's required contribution rate increased as a percentage of pay. This was primarily the result of the "smoothed" investment return being less than assumed.

*The chart compares this valuation's recommended contribution with the prior valuation.*

**CHART 13**  
**Required Contribution**  
**Year Beginning July 1:**

	2012		2011	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$189,950,104	21.43%	\$186,255,586	21.40%
2. Expected employee contributions	<u>-56,478,914</u>	<u>-6.37%</u>	<u>-55,048,847</u>	<u>-6.32%</u>
3. Employer normal cost: (1) + (2)	\$133,471,190	15.06%	\$131,206,739	15.08%
4. Actuarial accrued liability	9,692,602,852		9,297,204,318	
5. Actuarial value of assets	<u>7,573,885,754</u>		<u>7,465,183,643</u>	
6. Unfunded actuarial accrued liability: (4) - (5)	\$2,118,717,098		\$1,832,020,675	
7. Amortization of unfunded actuarial accrued liability	259,765,921	29.30%	219,105,163	25.18%
8. Total required contribution: (3) + (7), adjusted for timing*	<u>408,475,049</u>	<u>46.08%</u>	<u>363,886,488</u>	<u>41.82%</u>
9. Employer match (110% of (2)), adjusted for timing*	64,534,219	7.28%	62,900,189	7.22%
10. Greater of employer match (9) or total required contribution (8)	<u>\$408,475,049</u>	<u>46.08%</u>	<u>\$363,886,488</u>	<u>41.82%</u>
11. Projected compensation	\$886,539,366		\$870,203,423	

\* Required contributions are assumed to be paid at the middle of every year.

## SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles

The contribution requirements as of July 1, 2012 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

### Reconciliation of Required Contribution Rate

The chart below details the changes in the required contribution rate from the prior valuation to the current year's valuation.

*The chart reconciles the required contribution rate from the prior valuation to the amount determined in this valuation.*

### CHART 14

#### Reconciliation of Required Contribution Rate from July 1, 2011 to July 1, 2012

<b>Required Contribution Rate as of July 1, 2011</b>	41.82%
Effect of investment loss	5.43%
Effect of actual contributions less than expected contribution	0.50%
Effect of gains on individual salary experience	-0.43%
Effect of gains on 2011 COLA experience	-0.89%
Effect of other experience*	-0.35%
<b>Total change</b>	<b><u>4.26%</u></b>
<b>Required Contribution Rate as of July 1, 2012</b>	<b>46.08%</b>

\* Includes effect of increase in total payroll, as well as other differences in actual versus expected experience including mortality, disability, withdrawal and retirement experience.

**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**E. INFORMATION REQUIRED BY THE GASB**

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to the GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded within the range of GASB reporting requirements. Chart 15 below presents a graphical representation of this information for the Plan.

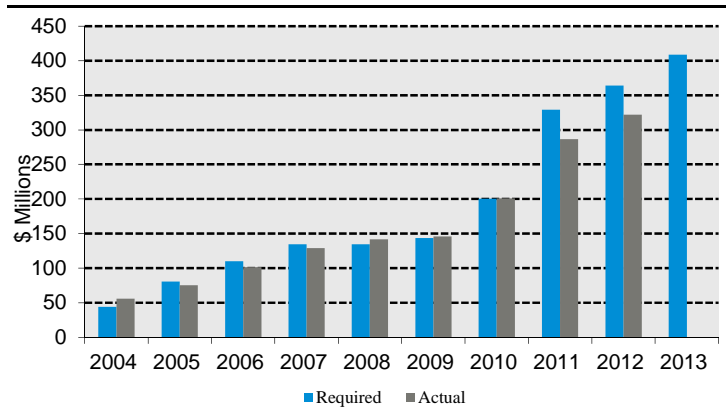
The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated under GASB Standards. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors. This information is shown in Chart 16.

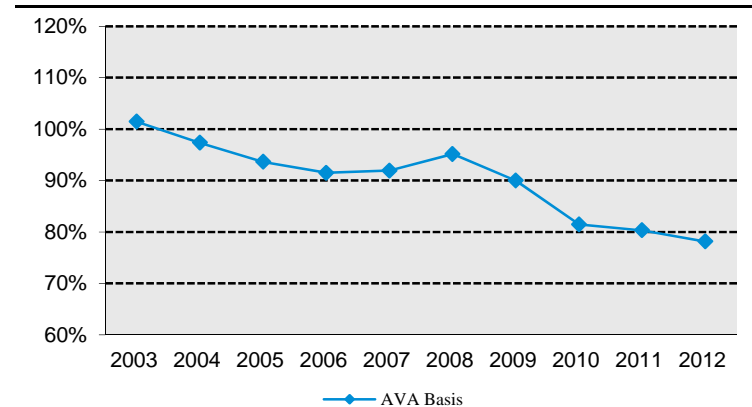
The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

*These graphs show key GASB factors.*

**CHART 15**  
**Required Versus Actual Contributions**



**CHART 16**  
**Funded Ratio**



**SECTION 2: Valuation Results for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**F. VOLATILITY RATIOS**

Retirement plans are subject to volatility in the level of required contributions. This volatility tends to increase as retirement plans become more mature.

The Asset Volatility Ratio (AVR), which is equal to the market value of assets divided by total payroll, provides an indication of the potential contribution volatility for any given level of investment volatility. A higher AVR indicates that the plan is subject to a greater level of contribution volatility. This is a current measure since it is based on the current level of assets.

For LADWP, the current AVR is about 8.3. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 8.3% of one-year's payroll. Since LADWP amortizes actuarial gains and losses over a period of 15 years, there would be a 0.9% of payroll decrease/(increase) in the required contribution for each 1% asset gain/(loss).

The Liability Volatility Ratio (LVR), which is equal to the Actuarial Accrued Liability divided by payroll, provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. This is because, over an extended period of time, the plan's assets should track the plan's liabilities. For example, if a plan is 50% funded on a market value basis, the liability volatility ratio would be double the asset volatility ratio and the plan sponsor should expect contribution volatility to increase over time as the plan becomes better funded.

The LVR also indicates how volatile contributions will be in response to changes in the Actuarial Accrued Liability due to actual experience or to changes in actuarial assumptions.

For LADWP, the current LVR is about 10.9. This is about 31% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long-term.

*This chart shows how the asset and liability volatility ratios have varied over time.*

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**CHART 17**  
**Volatility Ratios for Years Ended June 30, 2008 – 2012**

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<b>Year Ended June 30</b>	<b>Asset Volatility Ratio</b>	<b>Liability Volatility Ratio</b>
2008	9.8	10.8
2009	7.1	10.0
2010	7.3	10.4
2011	8.5	10.7
2012	8.3	10.9

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**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT A**

**Table of Plan Coverage**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2012</b>	<b>2011</b>	
<b>Active members in valuation:</b>			
Number	8,962	9,203	-2.6%
Average age	48.9	48.4	N/A
Average years of service	18.2	17.7	N/A
Projected total compensation	\$886,539,366	\$870,203,423	1.9%
Projected average compensation	\$98,922	\$94,556	4.6%
Account balances	1,119,766,468	1,047,854,903	6.9%
<b>Vested terminated members:*</b>			
Number	1,648	1,694	-2.7%
Average age	52.1	51.5	N/A
Average account balances	\$50,530	\$46,505	8.7%
<b>Retired members:</b>			
Number in pay status	6,458	6,406	0.8%
Average age	73.3	73.3	N/A
Average monthly benefit	\$4,654	\$4,501	3.4%
<b>Beneficiaries:</b>			
Number in pay status	2,052	2,090	-1.8%
Average age	80.4	80.2	N/A
Average monthly benefit	\$2,705	\$2,611	3.6%

\* Includes terminated members due a refund of contributions and members receiving PTD benefits.

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT B**

**Members in Active Service as of June 30, 2012  
By Age, Years of Service, and Average Compensation**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	37	34	3	--	--	--	--	--	--	--
	\$88,450	\$88,455	\$88,392	--	--	--	--	--	--	--
25 - 29	283	190	90	3	--	--	--	--	--	--
	93,476	94,722	90,539	\$102,682	--	--	--	--	--	--
30 - 34	618	195	319	100	4	--	--	--	--	--
	94,189	90,251	96,191	95,019	\$105,817	--	--	--	--	--
35 - 39	818	129	303	344	40	2	--	--	--	--
	91,897	88,404	89,496	94,955	94,220	\$108,313	--	--	--	--
40 - 44	1,106	117	281	337	178	183	10	--	--	--
	93,891	89,311	87,967	90,249	100,383	105,674	\$105,474	--	--	--
45 - 49	1,689	95	210	273	209	545	341	16	--	--
	100,750	89,953	87,228	90,663	100,980	107,999	108,226	\$105,213	--	--
50 - 54	1,902	61	163	203	141	397	589	338	9	1
	103,160	87,779	82,782	89,640	96,843	100,426	111,859	114,283	\$114,587	\$97,007
55 - 59	1,448	51	83	155	81	264	369	335	108	2
	103,100	95,702	85,565	87,578	100,054	101,514	104,360	114,035	110,793	76,033
60 - 64	725	23	44	60	52	130	168	135	80	33
	98,560	85,506	83,311	85,800	93,871	95,020	100,953	104,975	110,387	105,424
65 - 69	252	5	10	29	14	43	56	47	24	24
	98,998	54,656	85,624	91,651	86,412	93,390	101,247	102,569	118,055	108,777
70 & over	84	--	6	6	8	10	21	16	5	12
	89,523	--	64,745	92,979	91,183	86,208	89,021	93,522	92,506	96,147
Total	8,962	900	1,512	1,510	727	1,574	1,554	887	226	72
	\$98,922	\$90,531	\$89,126	\$91,242	\$98,686	\$103,122	\$107,370	\$111,614	\$111,167	\$104,062



**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT C**

**Reconciliation of Member Data**

	<b>Active Members</b>	<b>Vested Former Members*</b>	<b>Retired Members</b>	<b>Beneficiaries</b>	<b>Total</b>
Number as of July 1, 2011	9,203	1,694	6,406	2,090	19,393
New members	104	N/A	N/A	N/A	104
Terminations – with vested rights	-48	48	N/A	N/A	0
Retirements	-269	-24	293	N/A	0
Died with beneficiary	-3	-2	-92	97	0
Died without beneficiary	-15	-6	-150	-144	-315
Rehired	5	-5	0	N/A	0
Data adjustments	0	15	1	9	25
Contribution refunds	<u>-15</u>	<u>-72</u>	<u>N/A</u>	<u>N/A</u>	<u>-87</u>
Number as of July 1, 2012	8,962	1,648	6,458	2,052	19,120

*\*Includes terminated members due a refund of member contributions and members receiving PTD benefits.*

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT D**

**Summary Statement of Income and Expenses on an Actuarial Value Basis**

	Year Ended June 30, 2012	Year Ended June 30, 2011
<b>Net assets at actuarial value at the beginning of the year:</b>	\$7,465,183,643	\$7,244,429,689
<b>Contribution income:</b>		
Employer contributions	\$321,688,919	\$286,699,384
Employee contributions	60,105,653	65,965,607
Administrative expense contributions*	<u>5,428,297</u>	<u>5,672,227</u>
Net contribution income	\$387,222,869	\$358,337,218
<b>Investment income:</b>		
Interest, dividends and other income	\$186,808,735	\$202,487,385
Adjustment toward market value	-28,332,250	76,943,548
Less investment and administrative fees	<u>-20,611,185</u>	<u>-18,496,399</u>
Net investment income	<u>137,865,300</u>	<u>260,934,534</u>
<b>Total income available for benefits</b>	<b>\$525,088,169</b>	<b>\$619,271,752</b>
<b>Less benefit payments:</b>		
Retirement benefits paid	-\$410,859,162	-\$396,136,140
Refund of members' contributions	<u>-5,526,896</u>	<u>-2,381,658</u>
Net benefit payments	-\$416,386,058	-\$398,517,798
<b>Change in reserve for future benefits</b>	<b>\$108,702,111</b>	<b>\$220,753,954</b>
<b>Net assets at actuarial value at the end of the year:</b>	<b>\$7,573,885,754</b>	<b>\$7,465,183,643</b>

\* Included as investment income in other parts of this report (excluding Exhibit F).

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT E**

**Summary Statement of Plan Assets**

	Year Ended June 30, 2012	Year Ended June 30, 2011
<b>Cash equivalents</b>	\$12,177,668	\$10,511,477
<b>Accounts receivable:</b>		
Accrued investment income	\$21,919,418	\$24,749,545
Open investment trades and others	145,055,542	437,517,201
Securities lending - collateral	490,027,647	791,150,970
Department of Water and Power	<u>44,262,520</u>	<u>55,824,201</u>
Total accounts receivable	701,265,127	1,309,241,917
<b>Investments:</b>		
Fixed income	\$2,030,007,946	\$2,312,043,683
Equities	4,444,125,783	4,222,928,007
Other assets	<u>921,362,911</u>	<u>915,648,640</u>
Total investments at market value	<u>7,395,496,640</u>	<u>7,450,620,330</u>
<b>Total assets</b>	\$8,108,939,435	\$8,770,373,724
<b>Less accounts payable:</b>		
Written options	-\$10,398,060	\$0
Accounts payable	-219,742,159	-561,132,978
Security lending - collateral	<u>-490,027,647</u>	<u>-791,150,970</u>
Total accounts payable	-\$720,167,866	-\$1,352,283,948
<b>Net assets at market value</b>	<u>\$7,388,771,569</u>	<u>\$7,418,089,776*</u>
<b>Net assets at actuarial value</b>	<u>\$7,573,885,754</u>	<u>\$7,465,183,643</u>

\* Based on draft financial statements. Subsequent to June 30, 2011 valuation, the market value of assets was changed to \$7,410,336,922.

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT F**

**Development of the Fund Through June 30, 2012**

<b>Year Ended June 30</b>	<b>Employer Contributions</b>	<b>Employee Contributions*</b>	<b>Other Contributions</b>	<b>Net Investment Return**</b>	<b>Benefit Payments</b>	<b>Actuarial Value of Assets at End of Year</b>
2003	\$40,560,882	\$36,490,767	\$2,623,157	\$557,992,976	\$299,555,007	\$6,128,375,723
2004	55,804,924	38,045,999	2,452,293	332,391,378	305,649,192	6,251,421,125
2005	75,490,143	38,855,089	2,534,097	278,275,350	315,528,276	6,331,047,528
2006	101,556,257	41,324,895	2,914,174	300,218,060	329,297,478	6,447,763,436
2007	129,154,539	47,060,446	3,549,724	578,442,440	341,886,580	6,864,084,005
2008	141,862,126	48,694,047	4,195,096	548,429,698	359,411,739	7,247,853,233
2009	145,941,275	59,405,012	4,088,598	159,076,675	367,643,541	7,248,721,252
2010	201,034,807	71,246,053	4,463,141	99,032,966	380,068,530	7,244,429,689
2011	286,699,384	65,965,607	5,672,227	260,934,534	398,517,798	7,465,183,643
2012	321,688,919	60,105,653	5,428,297	137,856,300	416,386,058	7,573,885,754

\* Includes member normal contributions, Additional Annuity program contributions and contributions due to open contracts for purchased service.

\*\* Net of investment fees and administrative expenses. Includes a change in asset method of \$503 million for 2003.

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT G**

**Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2012**

1. Unfunded actuarial accrued liability at beginning of year		\$1,832,020,675
2. Normal cost at beginning of year		186,255,586
3. Total actual contributions (employer and employee)		-381,794,572
4. Interest		
(a) For whole year on (1) + (2)	\$156,416,410	
(b) For half year on (3)	<u>-14,794,540</u>	
(c) Total interest		<u>141,621,870</u>
5. Expected unfunded actuarial accrued liability		\$1,778,103,559
6. Changes due to:*		
(a) Investment loss	\$433,917,715	
(b) Gains on individual salary experience	-34,654,330	
(c) Gains on 2011 COLA experience	-71,492,997	
(d) Other losses	<u>12,843,151</u>	
(e) Total changes		<u>340,613,539</u>
7. Unfunded actuarial accrued liability at end of year		<u>\$2,118,717,098</u>

*\*Does not include a contribution loss of \$40,187,094 during the year from actual contributions less than expected.*

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT H**

**Table of Amortization Bases**

Type*	Date Established	Initial Years	Initial Amount	Annual Payment**	Years Remaining	Outstanding Balance
Combined Base	07/01/2004	15	\$170,392,797	\$18,283,483	7.00	\$103,450,698
Actuarial Loss	07/01/2005	15	267,915,003	28,722,368	8.00	179,548,799
Actuarial Loss	07/01/2006	15	183,420,211	19,647,075	9.00	133,630,810
Actuarial Loss	07/01/2007	15	47,238,833	5,055,792	10.00	36,969,750
Assumption Changes	07/01/2007	15	-18,102,738	-1,937,467	10.00	-14,167,447
Actuarial Gain	07/01/2008	15	-204,179,457	-21,835,001	11.00	-170,016,239
Actuarial Loss	07/01/2009	15	457,336,004	48,869,647	12.00	402,019,566
Plan Amendments	07/01/2009	15	2,239,982	239,358	12.00	1,969,049
Actuarial Loss	07/01/2010	15	626,174,290	66,861,029	13.00	577,323,433
Assumption Changes	07/01/2010	15	255,885,598	27,322,703	13.00	235,922,737
Actuarial Loss	07/01/2011	15	268,017,929	28,618,157	14.00	257,953,253
Plan Amendments	07/01/2011	15	-6,948,892	-741,982	14.00	-6,687,944
Actuarial Loss	07/01/2012	15	380,800,633	<u>40,660,759</u>	15.00	<u>380,800,633</u>
Total				\$259,765,921		\$2,118,717,098

\* The outstanding July 1, 2004 amortization bases were combined into a single amortization base and amortized over 15 years.

\*\* Level dollar amount.

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**EXHIBIT I**

**Section 415 Limitations**

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Section 415 of the Internal Revenue Code (IRC) specifies the maximum benefits that may be paid to an individual from a defined benefit plan and the maximum amounts that may be allocated each year to an individual's account in a defined contribution plan.

A qualified pension plan may not pay benefits in excess of the Section 415 limits. The ultimate penalty for non-compliance is disqualification: active participants could be taxed on their vested benefits and the IRS may seek to tax the income earned on the plan's assets.

In particular, Section 415(b) of the IRC limits the maximum annual benefit payable at the Normal Retirement Age to a dollar limit of \$160,000 indexed for inflation. That limit is \$200,000 for 2012. Normal Retirement Age for these purposes is age 62. These are the limits in simplified terms. They must be adjusted based on each participant's circumstances, for such things as age at retirement, form of benefits chosen and after tax contributions.

Benefits in excess of the limits may be paid through a qualified governmental excess plan that meets the requirements of Section 415(m).

Legal Counsel's review and interpretation of the law and regulations should be sought on any questions in this regard.

Contribution rates determined in this valuation have not been reduced for the Section 415 limitation. Actual limitations will result in gains when they occur.

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**EXHIBIT J**

**Definitions of Pension Terms**

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The following list defines certain technical terms for the convenience of the reader:

**Assumptions or Actuarial**

**Assumptions:**

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

**Normal Cost:**

The amount of contributions required to fund the benefit allocated to the current year of service.

**Actuarial Accrued Liability**

**For Actives:**

The value of all projected benefit payments for current members less the portion that will be paid by future normal costs.

**Actuarial Accrued Liability**

**For Pensioners:**

The single-sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

**Unfunded Actuarial Accrued**

**Liability:**

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan.



**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**Amortization of the Unfunded Actuarial Accrued Liability:**

Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

**Investment Return:**

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT K**

**Actuarial Balance Sheet**

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, we first determine the amount and timing of all future payments that will be made by the Plan for current participants. We then discount these payments at the valuation interest rate to the date of the valuation, thereby determining their present value. We refer to this present value as the "liability" of the Plan.

Second, we determine how this liability will be met. These actuarial "assets" include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future Department normal cost contributions, and the present value of future Department amortization payments or credits.

**Actuarial Balance Sheet**

**Assets**

	<u>June 30, 2012</u>	<u>June 30, 2011</u>
1. Total actuarial value of assets	\$7,573,885,754	\$7,465,183,643
2. Present value of future contribution by members	521,560,577	520,419,413
3. Present value of future Department contributions for:		
(a) entry age normal cost	1,232,323,441	1,241,953,209
(b) unfunded actuarial accrued liability	2,118,717,098	1,832,020,675
4. Total current and future assets	\$11,446,486,870	\$11,059,576,940

**Liabilities**

	<u>June 30, 2012</u>	<u>June 30, 2011</u>
5. Present value of benefits for retirees and beneficiaries:	\$4,808,390,309	\$4,634,291,818
6. Present value of benefits for terminated vested members:	177,116,212	173,440,441
7. Present value of benefits for active members:	6,460,980,349	6,251,844,681
8. Total liabilities	\$11,446,486,870	\$11,059,576,940

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT L**

**Reserves and Designated Balances**

	<u>June 30, 2012</u>	<u>June 30, 2011</u>
1. Reserve for retirement allowance for retired members	\$5,064,057,787	\$4,816,565,276
2. Contribution accounts:		
(a) Members (excluding additional contributions)	1,258,944,364	1,174,202,075
(b) Department of Water and Power	(1,193,305,313)	(1,195,535,211)
3. General Reserve and Reserve for Investment Gains and Losses*	<u>1,801,641,765</u>	<u>1,969,085,633</u>
4. Total	\$6,931,338,603	\$6,764,317,773

\* Out of the total General Reserve and Reserve for Investment Gains and Losses, \$73,887,716 and \$74,180,898 are not included as valuation assets as of June 30, 2012 and June 30, 2011, respectively.

**SECTION 3: Supplemental Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**EXHIBIT M**  
**Adjusted Reserves**

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Each year the Retirement Board adjusts its retired reserves to agree with the value calculated during the valuation. The following table presents the required transfers.

<u>Adjusted Reserves</u>	<u>June 30, 2012</u>	<u>June 30, 2011</u>
1. Retired reserve balance	\$5,064,057,787	\$4,816,565,276
2. Actuarially computed present value	4,808,390,309	4,634,291,818
3. Actuarial gain (loss): (1) – (2)	255,667,478	182,273,458
4. Transfer from (to) DWP contribution accounts from retired reserves:	(255,667,478)	(182,273,458)

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**EXHIBIT I**

**Summary of Actuarial Valuation Results**

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The valuation was made with respect to the following data supplied to us:

1. Retired members as of the valuation date (including 2,052 beneficiaries in pay status)	8,510
2. Members inactive during year ended June 30, 2012 with vested rights*	1,648
3. Members active during the year ended June 30, 2012	8,962

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The actuarial factors as of the valuation date are as follows:

1. Normal cost	\$189,950,104
2. Present value of future benefits	11,446,486,870
3. Present value of future normal costs	1,753,884,018
4. Actuarial accrued liability	9,692,602,852
Retired members and beneficiaries	\$4,808,390,309
Inactive members with vested rights*	177,116,212
Active members	4,707,096,331
5. Actuarial value of assets (\$7,388,771,569 at market value as reported by Retirement Office)	7,573,885,754
6. Unfunded actuarial accrued liability	\$2,118,717,098

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\* Includes terminated members due a refund of member contributions and members receiving PTD benefits.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**EXHIBIT I (continued)**

**Summary of Actuarial Valuation Results**

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	<b>Dollar Amount</b>	<b>% of Payroll</b>
The determination of the required contribution is as follows:		
1. Total normal cost	\$189,950,104	21.43%
2. Expected employee contributions	<u>-56,478,914</u>	<u>-6.37%</u>
3. Employer normal cost: (1) + (2)	\$133,471,190	15.06%
4. Amortization of unfunded actuarial accrued liability	<u>259,765,921</u>	<u>29.30%</u>
5. Total required contribution: (3) + (4), adjusted for timing*	\$408,475,049	46.08%
6. Employer match (110% of (2)), adjusted for timing*	64,534,219	7.28%
7. Greater of (6) employer match or (5) total required contribution	\$408,475,049	46.08%
8. Projected payroll	\$886,539,366	

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\* Required contribution is assumed to be paid at the middle of every year.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT II**

**Supplementary Information Required by the GASB – Schedule of Employer Contributions**

<b>Plan Year Ended June 30</b>	<b>Annual Required Contributions</b>	<b>Annual Pension Cost</b>	<b>Actual Contributions</b>	<b>Actual Contributions/ Annual Required Contributions</b>	<b>Actual Contributions/ Annual Pension Cost</b>
2004	\$44,128,205	\$50,773,126	\$55,804,924	126.5%	109.9%
2005	80,784,677	87,615,788	75,490,143	93.4%	86.2%
2006	110,268,590	116,651,020	101,556,257	92.1%	87.1%
2007	134,504,482	140,328,366	129,154,539	96.0%	92.0%
2008	134,651,427	140,061,851	141,862,126	105.4%	101.3%
2009	141,291,588	146,768,605	145,941,275	103.3%	99.4%
2010	200,578,728	206,025,133	201,034,807	100.2%	97.6%
2011	304,431,910	309,794,712	286,699,384	94.2%	92.5%
2012	336,874,865	341,366,670	321,688,919	95.5%	94.2%
2013	408,475,049	412,224,745	--	--	--

*The amounts indicated for June 30, 2013 will be adjusted at the end of the year based on actual covered payroll.*

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT III**

**Supplementary Information Required by the GASB – Schedule of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll* [(b) - (a)] / (c)</b>
07/01/2003	\$6,128,375,723	\$6,042,086,785	-\$86,288,938	101.43%	\$527,787,469	0.00%
07/01/2004	6,251,421,125	6,421,813,922	170,392,797	97.35%	581,038,783	29.33%
07/01/2005	6,331,047,528	6,763,079,839	432,032,311	93.61%	616,270,095	70.10%
07/01/2006	6,447,763,436	7,046,571,241	598,807,805	91.50%	635,728,131	94.19%
07/01/2007	6,864,084,006	7,467,285,349	603,201,343	91.92%	670,372,663	89.98%
07/01/2008	7,247,853,233	7,619,102,935	371,249,702	95.13%	708,731,840	52.38%
07/01/2009	7,248,721,252	8,057,060,950	808,339,698	89.97%	805,137,795	100.40%
07/01/2010	7,244,429,689	8,893,618,433	1,649,188,744	81.46%	856,089,559	192.64%
07/01/2011	7,465,183,643	9,297,204,318	1,832,020,675	80.29%	870,203,423	210.53%
07/01/2012	7,573,885,754	9,692,602,852	2,118,717,098	78.14%	886,539,366	238.99%

\* Not less than zero



**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**EXHIBIT IV**

**Supplementary Information Required by the GASB**

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<b>Valuation date</b>	July 1, 2012
<b>Actuarial cost method</b>	Entry Age Normal Cost Method
<b>Amortization method</b>	Level dollar amortization
<b>Remaining amortization period</b>	The July 1, 2004 Unfunded Actuarial Accrued Liability is amortized over a 15-year period commencing July 1, 2004. Any subsequent changes in Unfunded Actuarial Accrued Liability are amortized over separate 15-year periods effective with that valuation.
<b>Asset valuation method</b>	The market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market returns and the expected returns on a market value basis, and is recognized over a five-year period.
<b>Actuarial assumptions:</b>	
Investment rate of return	7.75%
Inflation rate	3.50%
Projected salary increases	5.35% to 10.50%*
Cost of living adjustments	3.00% (actual increases are contingent upon CPI increases with a 3.00% maximum)
<b>Plan membership:</b>	
Retired members and beneficiaries receiving benefits	8,510
Terminated members entitled to, but not yet receiving benefits	1,648
Active members	<u>8,962</u>
Total	19,120

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\* Includes inflation at 3.50%, "across the board" increases of 0.75%, plus merit and promotional increases. See Exhibit VI for these increases.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT V**

**Development of the Net Pension Obligation (NPO) and the Annual Pension Cost Pursuant to GASB 27**

<b>Plan Year Ended June 30</b>	<b>Employer Annual Required Contribution (a)</b>	<b>Employer Amount Contributed* (b)</b>	<b>Interest on NPO (c)</b>	<b>ARC Adjustment (h) / (e) (d)</b>	<b>Amortization Factor (e)</b>	<b>Pension Cost (a) + (c) - (d) (f)</b>	<b>Change in NPO (f) - (b) (g)</b>	<b>NPO Balance NPO + (g) (h)</b>
2004	\$44,128,205	\$55,804,924	-\$13,558,251	-\$20,203,172	8.8887	\$50,773,126	-\$5,031,798	-\$184,611,520
2005	80,784,677	75,490,143	-13,938,151	-20,769,262	8.8887	87,615,788	12,125,645	-172,485,874
2006	110,268,590	101,556,257	-13,022,666	-19,405,096	8.8887	116,651,020	15,094,763	-157,391,111
2007	134,504,482	129,154,539	-11,883,013	-17,706,897	8.8887	140,328,366	11,173,827	-146,217,285
2008	134,651,427	141,862,126	-11,039,390	-16,449,814	8.8887	140,061,851	-1,800,275	-148,017,560
2009	141,291,588	145,941,275	-11,175,312	-16,652,329	8.8887	146,768,605	827,330	-147,190,230
2010	200,578,728	201,034,807	-11,112,848	-16,559,253	8.8887	206,025,133	4,990,326	-142,199,904
2011	304,431,910	286,699,384	-10,409,323	-15,772,125	9.0159	309,794,712	23,095,328	-119,104,576
2012	336,874,865	321,688,919	-8,718,698	-13,210,503	9.0159	341,366,670	19,677,751	-99,426,825
2013	408,475,049	408,475,049	-7,278,246	-11,027,942	9.0159	412,224,745	3,749,696	-95,677,129

\* The amount indicated for June 30, 2013 assumes the actual employer contribution for the year is equal to the employer annual required contribution.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**EXHIBIT VI**

**Actuarial Assumptions and Methods**

**Demographic Assumptions:**

**Mortality Rates:**

*After Service Retirement  
and Pre-retirement:*

RP-2000 Combined Healthy Mortality Table with ages set back two years for males and one year for females.

*After Disability Retirement*

RP-2000 Combined Healthy Mortality Table with ages set back two years for males and one year for females.

The tables shown above were determined to contain sufficient provision appropriate to reasonably reflect future mortality improvement, based on a review of mortality experience as of the measurement date.

**Termination Rates before Retirement:**

Age	Rate (%)					
	Mortality*		Disability		Total Withdrawal**	
	Male	Female	Male	Female	Male	Female
25	0.037	0.020	0.006	0.000	6.550	9.200
30	0.039	0.025	0.012	0.006	4.350	7.250
35	0.063	0.044	0.012	0.036	3.060	5.550
40	0.096	0.065	0.018	0.072	2.180	4.150
45	0.130	0.103	0.030	0.102	1.660	3.150
50	0.186	0.155	0.054	0.138	1.260	2.450
55	0.292	0.242	0.126	0.168	0.980	2.100
60	0.527	0.444	0.240	0.000	0.720	1.100
65	1.001	0.862	0.000	0.000	0.420	0.350

\* 5% of pre-retirement deaths are assumed to be duty related, with the remaining being non-duty related.

\*\* No withdrawal is assumed after a member is first eligible to retire. Ordinary withdrawal members are assumed to receive their account balance at termination. Vested termination members are assumed to receive a deferred retirement benefit. 45% of terminations are assumed to be ordinary withdrawals, with the remaining being vested terminations.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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<b>Retirement Rates:</b>	<b>Age</b>	<b>Under 30 Years of Service</b>	<b>Over 30 Years of Service</b>
	50	0.00%	0.00%
	51	0.00	0.00
	52	0.00	0.00
	53	0.00	0.00
	54	0.00	0.00
	55	4.00	25.00
	56	3.00	15.00
	57	3.00	12.50
	58	3.00	12.50
	59	4.00	12.50
	60	5.00	20.00
	61	5.00	10.00
	62	5.00	10.00
	63	5.00	25.00
	64	5.00	20.00
	65	15.00	25.00
	66	15.00	25.00
	67	15.00	25.00
	68	15.00	25.00
	69	15.00	25.00
	70	100.00	100.00

**Benefit for Inactive Vested Members:**

Inactive vested members are assumed to retire at age 60 with a Money Purchase Annuity. Members receiving Permanent Total Disability benefits are assumed to retire at the earlier of age 60 or age 55 with 30 years of service.

**Definition of Active Members:**

First day of biweekly payroll following employment for new department employees or immediately following transfer from other city department.

**Unknown Data for Members:**

Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**Data Adjustments:** Data as of March 31 has been adjusted to June 30 by adding three months of age and, for active employees, three months of service. Contribution account balances were also increased by three months of interest. For members in pay status, we have increased their benefits by the assumed July 1 COLA.

**Percent Married/Domestic Partner:** 85% of male members and 60% of female members are assumed to be married at pre-retirement death or retirement. Spousal gender is assumed to be opposite that of the member.

**Age of Spouse:** Females are 3 years younger than their spouses.

**Future Benefit Accruals:** 1.0 year of service per year.

**Other Government Service:** Members are assumed to purchase an additional 0.15 years of service per year.

**Economic Assumptions:**

**Consumer Price Index:** Increase of 3.50% per year; benefit increases due to CPI subject to 3.00% maximum.

**Employee Contribution, Additional Annuity and Matching Account Crediting Rate:** 7.75%, based on Plan provisions.

**Net Investment Return:** 7.75%, net of administration and investment expenses.

**Salary Increases:** Annual Rate of Compensation Increase

Inflation: 3.50% per year, plus “across the board” salary increases of 0.75% per year, plus the following merit and promotional increases.

<u>Years of Service</u>	<u>Increase</u>
0	6.25%
1	5.25%
2	4.75%
3	3.50%
4	2.00%
5 & Over	1.10%

The merit and promotional increases are added to the sum of the inflationary and “across the board” salary increases.

## SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles

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### **Actuarial Methods:**

#### **Actuarial Value of Assets:**

The market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual and expected returns on a market value basis and is recognized over a five-year period. As directed by the Retirement Office, the actuarial value of assets may be reduced by an amount classified as a non-valuation reserve.

#### **Actuarial Cost Method:**

Entry Age Normal Actuarial Cost Method. Entry Age equals attained age less years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are based on costs allocated as a level percent of salary, with Normal Cost determined as if the current benefit accrual rate had always been in effect ("replacement life").

#### **Amortization Policy:**

The July 1, 2004 Unfunded Actuarial Liability is amortized over a fifteen-year period commencing July 1, 2004. Any subsequent change in Surplus or Unfunded Actuarial Accrued Liability are amortized over separate fifteen-year periods. All amortization amounts are determined in equal dollar amounts over the amortization period. The Board may, by resolution, adopt a separate period of not more than thirty years to amortize the change in Surplus or Unfunded Actuarial Accrued Liability resulting from an unusual event, plan amendment or change in assumptions or methods.

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#### **Changes in Actuarial Assumptions:**

There have been no changes in actuarial assumptions since the prior valuation.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**EXHIBIT VII**

**Summary of Plan Provisions**

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This exhibit summarizes the major provisions of the Retirement Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

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**Plan Year:** July 1 through June 30

**Census Date:** March 31

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**Formula Retirement Benefit:**

*Age & Service Requirement*

Age 60 with 5 years of service  
Age 55 with 10 years of service in the last 12 years  
Any age with 30 years of service; or  
Receiving permanent total disability benefits from the Plan.

Note: To be eligible, the employee must have worked or been paid disability four of the last five years immediately preceding eligibility to retire, or while eligible to retire.

*Monthly Amount*

The greater of 2.1% of the Monthly Salary Base or \$9.50 per year of service. For those age 55 or older with 30 or more years of service the factor is 2.3% of the Monthly Salary Base.

*Monthly Salary Base*

Equivalent of monthly average salary of highest continuous 26 biweekly payroll periods (one year).

*Cost of Living benefit*

Based on changes to Los Angeles area consumer price index to a maximum of 3% per year.

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**Money Purchase Annuity:**

A monthly lifetime benefit equal in value to the employee normal contribution account plus Department matching contribution (current service contribution) account at retirement date.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

**Minimum Benefit:**

If the money purchase annuity amount exceeds the monthly amount of the formula retirement benefit and the retiree meets the eligibility requirements for the formula retirement benefit, the amount of the money purchase annuity is paid and the cost-of-living and death after retirement continuance features of the formula retirement benefit are also paid.

**Early Retirement Reduction Factors:** The early retirement factor is determined by the attained age on the effective date of retirement. Every three months of attained age will affect the factor.

<b>Attained Age at Actual Retirement</b>	<b>Exact Age</b>	<b>+3 Months</b>	<b>+6 Months</b>	<b>+9 Months</b>
48	.7150	.7225	.7300	.7375
49	.7450	.7525	.7600	.7675
50	.7750	.7825	.7900	.7975
51	.8050	.8125	.8200	.8275
52	.8350	.8425	.8500	.8575
53	.8650	.8725	.8800	.8875
54	.8950	.9025	.9100	.9175
55	.9250	.92875	.9325	.93625
56	.9400	.94375	.9475	.95125
57	.9550	.95875	.9625	.96625
58	.9700	.97375	.9775	.98125
59	.9850	.98875	.9925	.99625
60 & Over	1.0000			

The factor is 1.0000 for those retiring at age 55 or later with at least 30 years of service.



**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**Member Normal Contributions:**

If an employee became a plan member after May 31, 1984, the member normal contribution rate is 6% of pay.

If an employee became a plan member before June 1, 1984 or transferred from CERS with an entry age contribution rate, sample rates by entry age are as follows:

Entry Age	Rate
20	2.601%
25	3.102%
30	3.611%
35	4.161%
40	4.742%
45	5.381%
50	6.042%
55	6.762%
59	7.332%

**Department Current Service Contributions:**

The Department of Water and Power makes actuarially based contributions that are a minimum of 110% of employee contributions.

**Disability:**

Disability benefits are paid from the Disability Fund. However, if a member is receiving permanent and total disability benefits, the member may elect to retire. Other than a nominal amount, no service credit during disability is earned for the 2.1% formula; however, credit is earned during disability toward the \$9.50 minimum formula.

**Deferred Withdrawal Retirement Benefit (Vested):**

*Age & Service Requirement*

Age 60 with one year of contributing membership; or  
 Age 55 with 10 years of contributing membership in the 12 years prior to separation from service.

*Amount*

Value of employee normal contribution account plus Department matching contribution (called current service contribution) account at retirement date.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**Death Before Retirement:**

<i>Age and Service Requirement</i>	None
<i>Amount</i>	Refund of member contributions with interest.
<i>Age, Service and Type of Death Requirement</i>	Any death of a member who is eligible for service retirement, but who has not yet retired or attained 25 years of service
<i>Amount</i>	In lieu of the refund of member contributions with interest, the member's spouse may elect an immediate lifetime monthly allowance. The monthly allowance payable to the surviving spouse is the amount the spouse would have received had the member elected a full joint and survivor allowance.
<i>Age, Service and Type of Death Requirement</i>	Duty death with 10 years of service, but prior to service retirement eligibility or attainment of 25 years of service
<i>Amount</i>	In lieu of the refund of member contributions with interest, the member's spouse may elect either: <ul style="list-style-type: none"><li>(a) A deferred lifetime monthly allowance commencing when the member would have been eligible for a service retirement or attained 25 years of service; or</li><li>(b) An immediate lifetime monthly allowance calculated with up to five years added to the member's age or service. This option is only available if the member has attained age 50 or attained 20 years of service.</li></ul> The monthly allowance payable to the surviving spouse is the amount the spouse would have received had the member elected a full joint and survivor allowance.

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**Death After Retirement:** 50% of retiree's unmodified allowance continued to eligible spouse or domestic partner (reduced if difference in ages is greater than five years).

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**Withdrawal of Contributions Benefit (Ordinary Withdrawal):** Refund of employee contributions with interest.

**SECTION 4: Reporting Information for The Water and Power Employees' Retirement Plan of the City of Los Angeles**

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**Changes in Plan Provisions:** There have been no changes in plan provisions since the prior valuation.

**NOTE:** *The summary of major Plan provisions is designed to outline principle Plan benefits as interpreted for purposes of the actuarial valuation. If the Retirement Office should find the Plan summary not in accordance with the actual provisions, the Retirement Office should alert the actuary so they can both be sure the proper provisions are valued.*

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