

# The Water and Power Employees' Retirement Disability and Death Benefit Insurance Plan

**Review of the Death Benefit Fund  
as of July 1, 2024**



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February 5, 2025

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, 2024 for the Death Benefit Fund. It summarizes the actuarial data used in the valuation and establishes the funding requirements for July 1, 2024 to June 30, 2025.

This report has been prepared in accordance with generally accepted actuarial principles and practices for the exclusive use and benefit of the Board of Administration (the Board), based upon information provided by the Retirement Office.

Segal does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. To the extent we can, however, Segal does review the data for reasonableness and consistency. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report and we have no reason to believe there are facts or circumstances that would affect the validity of these results.

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; and changes in plan provisions or applicable law.

The actuarial calculations were directed under the supervision of Eva Yum, FSA, MAAA and Enrolled Actuary. 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 this actuarial valuation is complete and accurate. The assumptions used in this actuarial valuation were selected by the Board based upon our analysis and recommendations. In our

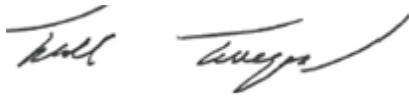
opinion, the assumptions are reasonable and take into account the experience of the Plan and reasonable expectations. In addition, in our opinion, the combined effect of these assumptions is expected to have no significant bias.

Segal makes no representation or warranty as to the future status of the Plan and does not guarantee any particular result. This document does not constitute legal, tax, accounting or investment advice or create or imply a fiduciary relationship. The Board is encouraged to discuss any issues raised in this report with the Plan's legal, tax and other advisors before taking, or refraining from taking, any action.

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

Sincerely,

Segal



Todd Tauzer, FSA, MAAA, FCA, CERA  
Senior Vice President and Actuary



Eva Yum, FSA, MAAA, EA  
Vice President and Actuary

# Table of Contents

Section 1: Actuarial Valuation Summary.....	6
Purpose and basis.....	6
Valuation highlights .....	7
Summary of key valuation results.....	10
Important information about actuarial valuations.....	13
 Section 2: Actuarial Valuation Results .....	 15
A. Member information .....	15
B. Financial information .....	17
C. Actuarial experience .....	20
D. Other changes impacting the actuarial accrued liability.....	23
E. Unfunded actuarial accrued liability .....	24
F. Required contribution .....	25
G. Funded status .....	28
H. Actuarial balance sheet.....	29
I. Risk.....	30
 Section 3: Supplemental Information .....	 31
Exhibit A: Table of plan demographics .....	31
Exhibit B: Distribution of active members .....	32
Exhibit C: Summary of income and expenses on a market value basis.....	33
Exhibit D: Summary statement of plan assets.....	34
Exhibit E: Development of the Fund through June 30, 2024 .....	35
Exhibit F: Table of amortization bases .....	36

# Table of Contents

Exhibit G: Projection of UAAL balances and payments.....	37
Section 4: Actuarial Valuation Basis .....	39
Exhibit 1: Actuarial assumptions, methods and models .....	39
Exhibit 2: Summary of plan provisions .....	42
Appendix A: Definition of Pension Terms .....	45

# Section 1: Actuarial Valuation Summary

## Purpose and basis

This report was prepared by Segal to present a valuation of the Death Benefit Fund as of July 1, 2024. The valuation was performed to determine whether the assets and contribution rates are sufficient to provide the prescribed benefits.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Fund, as administered by the Board;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of March 31, 2024, provided by the Retirement Office;
- The assets of the Fund as of June 30, 2024, provided by the Retirement Office;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Retirement Board for the July 1, 2024 valuation;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. adopted by the Retirement Board for the July 1, 2024 valuation; and
- The funding policy adopted by the Retirement Board.

Certain disclosure information required by Governmental Accounting Standards Board (GASB) Statements No. 74 and 75 as of July 1, 2024 for the Fund is provided in a separate report.

One of the general goals of an actuarial valuation is to establish contributions which fully fund the Fund's liabilities, and which remain as level as possible for each generation of active members. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

The contribution requirements are determined as a percentage of payroll. The employer rates provide for both normal cost and a contribution to amortize any unfunded or overfunded actuarial accrued liabilities. In this valuation, we have applied the funding policy adopted by the Retirement Board on May 18, 2000 and most recently amended on November 9, 2022. Details of the funding policy are provided in *Section 4, Exhibit 1* on page 40.

The rates calculated in this report may be adopted by the Board for the fiscal year that extends from July 1, 2024 through June 30, 2025.

## Section 1: Actuarial Valuation Summary

### Valuation highlights

#### Plan changes

1. The results of this valuation reflect changes in the plan provisions adopted by the Board on August 23, 2023. Effective October 1, 2022, the Family Death Benefit is increased from \$416 to \$937 per month payable to each surviving child and to the spouse (if the member's spouse has care of one or more of the member's eligible children), limited to a maximum of \$2,187 per month per family compared to \$1,170 before. This increase was also applied to current recipient of the Family Death Benefit. These plan changes increased the unfunded actuarial accrued liability (UAAL) by \$3.1 million and increased the Department's required contribution rate by 0.05% of payroll. A summary of the plan provisions is provided in *Section 4, Exhibit 2* starting on page 42.

#### Funding measures

2. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) increased from 33.06% to 37.06%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets, the funded ratio increased from 29.98% to 35.15%. These measurements are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for, or the amount of, future contributions. A history of the funded ratio for the Plan is provided in *Section 2, Subsection G* on page 28.
3. The unfunded actuarial accrued liability (the difference between the actuarial accrued liability and the actuarial value of assets) decreased from \$103.9 million to \$100.8 million. This decrease is primarily due to the expected decrease from contributions made to pay down the UAAL offset somewhat by the effect of changes in plan provisions and an investment return on the actuarial value of assets (i.e., after asset smoothing) lower than the 2.75% rate assumed in the prior valuation. A reconciliation of the Plan's UAAL from the prior year is provided in *Section 2, Subsection E* on page 24.

A schedule of the current UAAL amortization balances and payments may be found in *Section 3, Exhibit F* starting on page 36. A graphical projection of the UAAL amortization balances and payments is provided in *Section 3, Exhibit G* starting on page 37.

#### Actuarial experience

4. The net actuarial loss of \$1.6 million, or 1.01% of the actuarial accrued liability, is due to an investment loss of \$1.4 million, or 0.88% of actuarial accrued liability and a net loss from sources other than investments of \$0.2 million, or 0.13% of the actuarial accrued liability.

## Section 1: Actuarial Valuation Summary

5. The rate of return on the market value of assets was 3.67% for the year ending June 30, 2024. The return on the actuarial value of assets was 0.26% for the same period due to the deferral of most of the current year investment gain and the partial recognition of prior years' investment losses. This resulted in an actuarial loss when measured against the assumed rate of return of 2.75% used in the July 1, 2023 valuation. This actuarial investment loss (after asset smoothing) increased the Department's required contribution rate by 0.01% of payroll.

### Contributions

6. The Board's funding policy determines the Department's required contribution as the normal cost increased by a UAAL amortization charge. 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. The Department's required contribution rate decreased from 1.14% to 1.12% of payroll for the 2024-2025 plan year; those contributions are estimated to be \$17.5 million. This decrease is primarily due to the increase in total payroll reducing the UAAL contribution rate, offset somewhat by the effect of changes in plan provisions and an investment return on the actuarial value (i.e., after asset smoothing) less than the 2.75% rate assumed in the prior valuation. A complete reconciliation of the Department's required contribution rate is provided in *Section 2, Subsection F* on page 25.
7. Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the UAAL and the principal balance. The funding policy adopted by the Board of Retirement meets this standard.

### Future expectations

8. The total unrecognized net investment loss (i.e., the difference between the market value of assets and the 'smoothed' actuarial value of assets) as of July 1, 2024 is \$3.1 million as compared to an unrecognized net investment loss of \$4.8 million in the previous valuation. This net deferred loss of \$3.1 million will be recognized in the determination of the actuarial value of assets for funding purposes over the next four years as shown in *Section 2, Subsection B* on page 18.

The net deferred loss of \$3.1 million represent about 5.5% of the market value of assets. Unless offset by future investment gains or other favorable experience, the recognition of the \$3.1 million net market loss is expected to have an impact on the plan's future funded ratio and the Department's required contributions. This potential impact may be illustrated as follows:

- a. If the net deferred loss was recognized immediately in the actuarial value of assets, the funded percentage would decrease from 37.06% to 35.15%.

For comparison purposes, if the net deferred loss in the July 1, 2023 valuation had been recognized immediately in the July 1, 2023 valuation, the funded percentage would have decreased from 33.06% to 29.98%.



## Section 1: Actuarial Valuation Summary

- b. If the net deferred loss was recognized immediately in the actuarial value of assets, the aggregate required contribution rate would increase from 1.12% to 1.14% of payroll.

For comparison purposes, if the net deferred loss in the July 1, 2023 valuation had been recognized immediately in the July 1, 2023 valuation, the aggregate required contribution rate would have increased from 1.14% to 1.17% of payroll.

### Risk

- 9. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2024. The Plan's funded status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the plan year. Moreover, this actuarial valuation is based on Plan data as of March 31, 2024 (adjusted to June 30, 2024 by adding three months of age, service and interest on contribution balance, and increasing Retirement benefits by the assumed July 1 COLA for members in pay status) and it does not include any possible short-term or long-term impacts on mortality of the covered population that may emerge after July 1, 2024. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.
- 10. Because the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition, but have included a brief discussion of some risks that may affect the Plan in *Section 2, Subsection I*, beginning on page 30.

### GASB

- 11. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution (ADC) under the Plan's funding policy and measuring the progress of that funding policy. The net OPEB liability and OPEB expense under GASB Statements No. 74 and No. 75, for inclusion in the Plan's and employer's financial statements as of June 30, 2024, are to be provided separately. The accounting disclosures will utilize different methodologies from those employed in the funding valuation, as required by the GASB. However, the ADC in this valuation is expected to be used as the ADC for GASB financial reporting.

## Section 1: Actuarial Valuation Summary

### Summary of key valuation results

#### Required Contribution<sup>1</sup> for Plan Year Beginning July 1

Line Description	2024	2023
Total Rate (% of Compensation)	1.12%	1.14%
Estimated Annual Dollar Amount	\$17,534,835	\$16,430,011

<sup>1</sup> Required contributions are assumed to be paid at the middle of every year.

## Section 1: Actuarial Valuation Summary

### Valuation Results as of July 1

Line Description	2024	2023
<b>Actuarial accrued liability</b>		
• Total actuarial accrued liability	\$160,164,758	\$155,233,537
– Retired members and beneficiaries	114,174,919	107,615,503
– Inactive members	4,950,353	5,110,869
– Active members	41,039,486	42,507,165
• Normal cost for plan year beginning July 1	6,985,472	6,256,775
<b>Assets</b>		
• Market value of assets (MVA)	\$56,291,656	\$46,533,638
• Actuarial value of assets (AVA)	59,362,003	51,316,174
• Actuarial value of assets as a percentage of market value of assets	105.5%	110.3%
<b>Funded status</b>		
• Unfunded actuarial accrued liability on MVA basis	\$103,873,102	\$108,699,899
• Funded percentage on MVA basis	35.15%	29.98%
• Unfunded actuarial accrued liability on AVA basis	\$100,802,755	\$103,917,363
• Funded percentage on AVA basis	37.06%	33.06%
• Amortization period on AVA basis <sup>1</sup>	15 years	15 years
<b>Key assumptions</b>		
• Net investment return	2.75%	2.75%
• Inflation rate	2.50%	2.50%

<sup>1</sup> Changes in unfunded actuarial accrued liability for each valuation are amortized over separate 15-year periods.

## Section 1: Actuarial Valuation Summary

### Demographic Data as of July 1

Demographic Data by Status	2024	2023	Change
<b>Active members</b>			
• Number of members <sup>1</sup>	11,485	11,039	4.0%
• Average age	46.1	46.5	-0.4
• Average service	12.5	13.1	-0.6
• Total projected compensation	\$1,565,869,644	\$1,443,732,069	8.5%
• Average projected compensation	\$136,340	\$130,785	4.2%
<b>Retired members and beneficiaries</b>			
• Number of members	8,034	7,904	1.6%
– Retired <sup>2</sup>	7,958	7,819	1.8%
– Beneficiaries <sup>3</sup>	76	85	-10.6%
• Average age	72.7	72.5	0.2
• Average monthly benefit <sup>4</sup>	\$998	\$534	86.9%
<b>Inactive members</b>			
• Number of members <sup>5</sup>	559	575	-2.8%
• Average age	55.5	55.6	-0.1
<b>Total members</b>	<b>20,078</b>	<b>19,518</b>	<b>2.9%</b>

<sup>1</sup> Includes 1,564 and 1,583 active members who have Supplemental Family Death Benefit (SFDB) coverage for 2024 and 2023, respectively.

<sup>2</sup> Includes 178 and 168 retired members who have SFDB coverage for 2024 and 2023, respectively.

<sup>3</sup> Receiving Family Death or Supplemental Family Death benefits.

<sup>4</sup> This is the average monthly benefit for beneficiaries currently receiving Family Death or Supplemental Family Death Benefits. 2024 amount reflects Plan changes in Family Death benefits adopted by the Board on August 23, 2023.

<sup>5</sup> Includes members receiving Permanent Total Disability (PTD) benefits. Excludes terminated members with less than five years of service who are not eligible for death benefits.

## Section 1: Actuarial Valuation Summary

### Important information about actuarial valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Input Item	Description
<b>Plan provisions</b>	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
<b>Member information</b>	An actuarial valuation for a plan is based on data provided to the actuary by the Plan. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
<b>Financial information</b>	Part of the cost of a plan will be paid from existing assets — the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the Plan. A snapshot as of a single date may not be an appropriate value for determining a single year's contribution requirement, especially in volatile markets. Plan sponsors often use an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
<b>Actuarial assumptions</b>	In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan members for the rest of their lives and the lives of their beneficiaries. This requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of members in each year, as well as forecasts of the plan's benefits for each of those events. In addition, the benefits forecasted for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments (if applicable). The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan's assets. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions are selected within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model may use approximations and estimates that will have an immaterial impact on our results. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

## Section 1: Actuarial Valuation Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the WPERP. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement at a specific date — it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of future financial measures, except where otherwise noted.
- If WPERP is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting or tax advice and is not acting as a fiduciary to the Plan. This valuation is based on Segal's understanding of applicable guidance in these areas and of the Plan's provisions, but they may be subject to alternative interpretations. The WPERP should look to their other advisors for expertise in these areas.
- While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
- Segal's report shall be deemed to be final and accepted by WPERP upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

# Section 2: Actuarial Valuation Results

## A. Member information

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive vested 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 and B*.

### Member Population

As of July 1	Active Members	Inactive Members <sup>1</sup>	Retired Members and Beneficiaries (Pay Status)	Total Non-Actives	Ratio of Non-Actives to Actives	Ratio of Pay Status to Actives
2019	10,362	630	7,445	8,075	0.78	0.72
2020	10,778	619	7,560	8,179	0.76	0.70
2021	10,605	599	7,703	8,302	0.78	0.73
2022	10,799	595	7,853	8,448	0.78	0.73
2023	11,039	575	7,904	8,479	0.77	0.72
2024	11,485	559	8,034	8,593	0.75	0.70

<sup>1</sup> Includes members receiving Permanent Total Disability (PTD) benefits. Excludes terminated members with less than five years of service who are not eligible for death benefits.

## Section 2: Actuarial Valuation Results

### Historical plan population

The chart below demonstrates the progression of the active population over the last six years. The chart also shows the growth among the retired population over the same time period.

Member Data Statistics  
*Active Members versus Retired Members and Beneficiaries (Pay Status)*

As of July 1	Active Count	Active Average Age	Active Average Service	Pay Status Count	Pay Status Average Age	Pay Status Average Monthly Amount <sup>1</sup>
2019	10,362	47.2	14.6	7,445	72.5	\$494
2020	10,778	46.7	13.9	7,560	72.5	\$472
2021	10,605	46.7	13.8	7,703	72.3	\$470
2022	10,799	46.5	13.3	7,853	72.3	\$530
2023	11,039	46.5	13.1	7,904	72.5	\$534
2024	11,485	46.1	12.5	8,034	72.7	\$998

<sup>1</sup> This is the average monthly benefit for beneficiaries currently receiving Family Death or Supplemental Family Death Benefits. The amounts shown in the 2021 or earlier valuation reports exclude the Supplemental Family Death Benefits.



## Section 2: Actuarial Valuation Results

### B. Financial information

Retirement plan funding anticipates that, over the long term, both contributions and investment earnings (less investment fees) 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 transactions for the valuation year, is presented in *Section 3, Exhibits C, D, and E.*

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 valuation 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.

#### Allocation of Market Value of Assets as of June 30, 2024

Line Description	Amount
Estimated liability for family allowances	\$8,653,010
Contribution account for family allowances	7,632,021
General reserve	42,326,320
<b>Total reserves and designated balances</b>	<b>\$58,611,351</b>
Unrealized appreciation/(depreciation) in the fair value of investments	(2,319,695)
<b>Total reserves and designated balances at fair value</b>	<b>\$56,291,656</b>

## Section 2: Actuarial Valuation Results

### Determination of Actuarial Value of Assets for Year Ended June 30, 2024

Step	Actual Return	Expected Return	Investment <sup>1</sup> Gain/(Loss)	Percent Deferred <sup>2</sup>	Amount
1. Market value of assets					\$56,291,656
<b>2. Calculation of deferred return</b>					
a. Year ended June 30, 2020	\$2,793,526	\$1,109,116	\$1,684,410	0%	\$0
b. Year ended June 30, 2021	343,631	1,360,790	(1,017,159)	20%	(203,432)
c. Year ended June 30, 2022	(4,381,121)	1,498,779	(5,879,900)	40%	(2,351,960)
d. Year ended June 30, 2023	(279,861)	1,200,906	(1,480,767)	60%	(888,460)
e. Year ended June 30, 2024	1,855,220	1,388,339	466,881	80%	<u>373,505</u>
<b>f. Total deferred return<sup>3</sup></b>					<b>\$(3,070,347)</b>
<b>3. Actuarial value of assets: 1 – 2f</b>					<b>\$59,362,003</b>
4. Ratio of actuarial to market value: <b>3 ÷ 1</b>					105.5%

<sup>1</sup> Actual return minus expected return on a market value basis.

<sup>2</sup> Recognition at 20% per year over 5 years.

<sup>3</sup> Deferred return as of June 30, 2024 recognized in each of the next four years:

a. Amount recognized on June 30, 2025	\$(1,582,189)
b. Amount recognized on June 30, 2026	(1,378,757)
c. Amount recognized on June 30, 2027	(202,777)
d. Amount recognized on June 30, 2028	93,376
<b>e. Total unrecognized return as of June 30, 2024</b>	<b>\$(3,070,347)</b>

## Section 2: Actuarial Valuation Results

### Historical investment returns

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 actual market value investment return for the last five years, including an average over that time period.

#### Investment Return – Market Value and Actuarial Value

Year Ended June 30	Market Value Return Amount	Market Value Return Percent	Actuarial Value Return Amount	Actuarial Value Return Percent
2020	\$2,793,526	8.82%	\$1,360,417	4.33%
2021	343,631	0.88	1,494,240	3.98
2022	(4,381,121)	(10.23)	456,249	1.07
2023	(279,861)	(0.64)	(137,776)	(0.29)
2024	<u>1,855,220</u>	3.67	<u>143,031</u>	0.26
<b>Total</b>	<b>\$331,395</b>		<b>\$3,316,161</b>	
<b>Most recent five-year geometric average return</b>		<b>0.30%</b>		<b>1.85%</b>

## Section 2: Actuarial Valuation Results

### 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 actuarially determined contribution will decrease from the previous year. On the other hand, the actuarially determined contribution 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. There are no changes in actuarial assumptions reflected in this valuation.

The actuarial experience for the year can be found below and a discussion of the major components can be found on the following pages.

#### Actuarial Experience for Year Ended June 30, 2024

Source	Amount
1. Net loss from investments <sup>1</sup>	\$1,376,827
2. Net (gain) from contribution experience	(45,013)
3. Net loss from other experience <sup>2</sup>	260,839
<b>4. Net experience (gain)/loss</b>	<b>\$1,592,653</b>

<sup>1</sup> Details on next page.

<sup>2</sup> Does not include the effect of plan, method or assumption changes, if any.

## Section 2: Actuarial Valuation Results

### Investment experience

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 Fund's investment policy.

For valuation purposes, the assumed rate of return on the actuarial value of assets is 2.75% based on the July 1, 2023 valuation. The actual rate of return on an actuarial basis for the 2023-2024 plan year was 0.26% after considering the recognition of prior years' investment gains and losses. Since the actual return for the year was lower than the assumed return, the Fund experienced an actuarial loss during the year ended June 30, 2024 with regard to its investments.

#### Investment Experience for Year Ended June 30, 2024

Line Description	Market Value	Actuarial Value
1. Net investment income	\$1,855,220	\$143,031
2. Average value of assets	50,485,037	55,267,573
3. Rate of return: $1 \div 2$	3.67%	0.26%
4. Assumed rate of return	2.75%	2.75%
5. Expected investment income: $2 \times 4$	1,388,339	1,519,858
<b>6. Investment gain/(loss): <math>1 - 5</math></b>	<b>\$466,881</b>	<b>\$(1,376,827)</b>

## Section 2: Actuarial Valuation Results

### Contributions

Contributions for the year ended June 30, 2024 totaled \$16.9 million, compared to the projected amount of \$16.8 million. This resulted in a gain of \$45,013 for the year, when adjusted for interest to the end of the year.

### 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:

- Mortality experience (more or fewer than expected deaths)
- The extent of turnover among members
- Retirement experience (earlier or later than projected)
- Salary increases (greater or smaller than projected)
- Service increases (greater or smaller than projected)
- Retiree and beneficiary COLAs higher or lower than anticipated

The net loss from this other experience for the year ended June 30, 2024 amounted to \$0.3 million, which is 0.17% of the actuarial accrued liability. See *Section 2, Subsection E* for a detailed development of the unfunded actuarial accrued liability.

## Section 2: Actuarial Valuation Results

### D. Other changes impacting the actuarial accrued liability

#### Actuarial assumptions and methods

There were no changes in actuarial assumptions since the prior valuation.

Details on actuarial assumptions and methods are in *Section 4, Exhibit 1*.

#### Plan provisions

The changes in plan provisions reflected in this report were adopted by the Board on August 23, 2023.

- Effective October 1, 2022, the Family Death Benefit is increased from \$416 to \$937 per month payable to each surviving child and to the spouse (if the member's spouse has care of one or more of the member's eligible children), limited to a maximum of \$2,187 per month per family compared to \$1,170 before. This increase was also applied to current recipient of the Family Death Benefit.
- These plan changes increased the unfunded actuarial accrued liability (UAAL) by \$3.1 million and increased the Department's required contribution rate by 0.05% of payroll.

A summary of plan provisions is in *Section 4, Exhibit 2*.

## Section 2: Actuarial Valuation Results

### E. Unfunded actuarial accrued liability

#### Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2024

Line Description	Amount
<b>1. Unfunded actuarial accrued liability at beginning of year</b>	<b>\$103,917,363</b>
2. Normal cost at beginning of year	6,256,775
3. Expected employer and member contributions	(16,820,969)
4. Interest to end of year (whole year on 1 + 2 and half year on 3)	2,801,637
<b>5. Expected unfunded actuarial accrued liability at end of year: Sum of 1 through 4</b>	<b>\$96,154,806</b>
6. Changes due to:	
a. Investment return less than expected, after asset smoothing	\$1,376,827
b. Actual contributions greater than expected under funding policy	(45,013)
c. Other experience loss <sup>1</sup>	260,839
d. Plan changes	3,055,296
<b>e. Total changes</b>	<b>\$4,647,949</b>
<b>7. Unfunded actuarial accrued liability at end of year: 5 + 6e</b>	<b>\$100,802,755</b>

<sup>1</sup> Includes effect of differences in actual versus expected experience including (but not limited to) mortality, retirement, disability, and termination experience.



## Section 2: Actuarial Valuation Results

### F. Required contribution

The required contribution is equal to the employer normal cost payment and the amortization of the unfunded actuarial accrued liability. As of July 1, 2024, the recommended employer contribution rate is 1.12% of compensation or \$17.5 million in dollars.

The Board sets the funding policy used to calculate the required contribution based on layered 15-year amortization periods<sup>1</sup> in equal dollar amounts. See *Section 4, Exhibit 1* for further details on the elements of the funding policy. Based on this policy, there is no negative amortization and each amortization layer is fully funded in 15 years. As shown in the graphical projection of the UAAL amortization balances and payments found in *Section 3, Exhibit G*, before taking into consideration the deferred investment gains/losses that will be recognized in the next several valuations, the UAAL of the Plan is expected to be fully amortized by 2039, assuming all assumptions are realized and contributions are made in accordance with the funding policy.

The current funding policy is intended to fully fund the cost of the benefits and to allocate the cost of benefits reasonably and equitably over time while minimizing the volatility of the required contributions. The normal cost component of the required contribution is expected to remain level as a percent of payroll. The UAAL amortization component of the required contribution is expected to remain level in dollar amount except when any current amortization layer is fully amortized, assuming there are no future actuarial gains or losses. Furthermore, the funded ratio is expected to increase as the UAAL is methodically funded by employer contributions.

<sup>1</sup> Changes in UAAL due to actuarial gains or losses, changes in actuarial assumptions or methods, and plan amendments for each valuation are amortized over separate 15-year periods.

## Section 2: Actuarial Valuation Results

### Required Employer Contribution for Year Beginning July 1

Line Description	2024 Amount	2024 % of Projected Compensation	2023 Amount	2023 % of Projected Compensation
1. Total normal cost	\$6,985,472	0.45%	\$6,256,775	0.44%
2. Expected member contributions	396,618	0.03%	385,655	0.03%
3. Employer normal cost: 1 – 2	6,588,854	0.42%	5,871,120	0.41%
4. Actuarial accrued liability	160,164,758		155,233,537	
5. Actuarial value of assets	59,362,003		51,316,174	
6. Unfunded actuarial accrued liability: 4 – 5	100,802,755		103,917,363	
7. Amortization payment on unfunded actuarial accrued liability <sup>1</sup>	10,708,147	0.68%	10,336,043	0.72%
<b>8. Total required employer contribution: 3 + 7, adjusted for timing<sup>2</sup></b>	<b>\$17,534,835</b>	<b>1.12%</b>	<b>\$16,430,011</b>	<b>1.14%</b>
9. Projected compensation	\$1,565,869,644		\$1,443,732,069	

<sup>1</sup> The amortization of the UAAL in accordance with the funding policy is determined as the sum of the amortization amount from the separate UAAL amortization layers created in each valuation and amortized over 15-year periods.

<sup>2</sup> Contributions are assumed to be paid at the middle of the year.

## Section 2: Actuarial Valuation Results

### Reconciliation of required employer contribution rate

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

#### Reconciliation from July 1, 2023 to July 1, 2024

Item	Contribution Rate
1. Required employer contribution rate as of July 1, 2023	1.14%
<b>2. Changes due to:</b>	
a. Investment return less than expected after asset smoothing	0.01%
b. Actual contributions greater than expected	0.00%
c. Changes in member demographics on normal cost	(0.02)%
d. Net other experience losses <sup>1</sup>	0.00%
e. Amortizing UAAL over an increased total payroll	(0.06)%
f. Plan changes	0.05%
<b>g. Total change</b>	<b>(0.02)%</b>
<b>3. Required employer contribution rate as of July 1, 2024: 1 + 2g</b>	<b>1.12%</b>

<sup>1</sup> Other differences in actual versus expected experience including (but not limited to) mortality, retirement, disability, and termination.

## Section 2: Actuarial Valuation Results

### G. Funded status

A commonly reported piece of information regarding the Plan's financial status is the funded ratio. These ratios compare the market and actuarial value of assets to the actuarial accrued liability of the Plan. Higher ratios indicate a relatively well-funded plan while lower ratios may indicate recent changes to actuarial assumptions, funding of the plan below actuarial requirements, poor asset performance, or a variety of other causes.

The funded status measures shown in this valuation are appropriate for assessing the need for or amount of future contributions. However, they are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations.

#### Schedule of Funding Progress

As of July 1	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a) ÷ (b)	Projected Compensation (c)	UAAL as a % of Projected Compensation [(b) - (a)] ÷ (c)
2019	\$28,518,673	\$134,257,596	\$105,738,923	21.2%	\$1,141,875,615	9.3%
2020	36,017,294	133,737,063	97,719,769	26.9%	1,211,798,340	8.1%
2021	40,541,328	134,038,066	93,496,738	30.2%	1,233,265,179	7.6%
2022	45,165,590	153,187,434	108,021,844	29.5%	1,309,850,320	8.2%
2023	51,316,174	155,233,537	103,917,363	33.1%	1,443,732,069	7.2%
2024	59,362,003	160,164,758	100,802,755	37.1%	1,565,869,644	6.4%

## Section 2: Actuarial Valuation Results

### H. Actuarial balance sheet

An overview of the Plan's funding is given by an actuarial balance sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current members is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the "liability" of the Plan.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

#### Actuarial Balance Sheet as of July 1

Line Description	2024	2023
<b>Liabilities</b>		
Present value of benefits for retired members and beneficiaries	\$114,174,919	\$107,615,503
Present value of benefits for inactive vested members	4,950,353	5,110,869
Present value of benefits for active members	140,998,941	129,237,417
<b>Total liabilities</b>	<b>\$260,124,213</b>	<b>\$241,963,789</b>
<b>Current and future assets</b>		
Total actuarial value of assets	\$59,362,003	\$51,316,174
Present value of future normal cost contributions	99,959,455	86,730,252
Present value of future unfunded actuarial accrued liability contributions	100,802,755	103,917,363
<b>Total of current and future assets</b>	<b>\$260,124,213</b>	<b>\$241,963,789</b>

## Section 2: Actuarial Valuation Results

### I. Risk

Because the actuarial valuation results are dependent on a fixed set of assumptions and data as of a specific date, there is risk that emerging results may differ, perhaps significantly, as actual experience is fluid and will not exactly track current assumptions. This potential divergence may have a significant impact on the future financial condition of the plan.

This section does not contain a detailed analysis of the potential range of future measurements, but does include a concise discussion of some of the primary risks that may affect the future financial condition of the Death Benefit Fund. We do not recommend that a more detailed assessment of the risks be performed due to the relatively small liabilities of the death benefits as compared to the main retirement benefits paid by WPERP.

This section provides descriptions and basic assessments of the primary risks that are likely to have an ongoing influence on the financial health of the Death Benefit Fund. Historical trends and maturity measures are shown in *Section 2, Subsection I* of the July 1, 2024 Actuarial Valuation Report for WPERP.

### Risk assessments

- **Longevity Risk** (the risk that mortality experience will be different than expected)

The actuarial valuation includes current life expectancy assumptions and an expectation of future improvement in life expectancy, which are significant assumptions given the relatively long duration of liabilities for pension plans. Emerging plan experience that does not match these expectations will result in increases or decreases in the actuarially determined contribution over time. Because the Death Benefit Fund provides for death benefits payable to surviving spouses and children rather than a retirement annuity such as that paid by the Retirement Plan, members living longer than expected generally results in a decrease in liabilities and contribution rates.

- **Other Risks**

In addition to longevity, the valuation includes a variety of other assumptions that are unlikely to match future experience exactly. Examples of other demographic assumptions include retirement, termination and disability assumptions.

Some plans also carry significant contribution risk, defined as the potential for actual future contributions deviating from expected future contributions. However, the employer has a proven track-record of making the actuarially determined contributions based on the Board's actuarial funding policy, so contribution risk is minimal.

# Section 3: Supplemental Information

## Exhibit A: Table of plan demographics

### Total Plan — Demographics as of July 1

Demographic Data by Status	2024	2023	Change
<b>Active members</b>			
• Number <sup>1</sup>	11,485	11,039	4.0%
• Average age	46.1	46.5	-0.4
• Average years of service	12.5	13.1	-0.6
• Total projected compensation	\$1,565,869,644	\$1,443,732,069	8.5%
• Average projected compensation	\$136,340	\$130,785	4.2%
<b>Inactive members</b>			
• Number <sup>2</sup>	559	575	-2.8%
• Average age	55.5	55.6	-0.1
<b>Retired members</b>			
• Number in pay status <sup>3</sup>	7,958	7,819	1.8%
• Average age	73.0	72.9	0.1
<b>Beneficiaries</b>			
• Number in pay status <sup>4</sup>	76	85	-10.6%
• Average age	39.5	38.1	1.4
• Average monthly benefit <sup>5</sup>	\$998	\$534	86.9%

<sup>1</sup> Includes 1,564 and 1,583 active members who have Supplemental Family Death Benefit (SFDB) coverage for 2024 and 2023, respectively.

<sup>2</sup> Includes members receiving Permanent Total Disability (PTD) benefits. Excludes terminated members with less than five years of service who are not eligible for death benefits.

<sup>3</sup> Includes 178 and 168 retired members who have SFDB coverage for 2024 and 2023, respectively.

<sup>4</sup> Receiving Family Death or Supplemental Family Death benefits.

<sup>5</sup> 2024 amount reflects Plan changes in Family Death benefits adopted by the Board on August 23, 2023.

## Section 3: Supplemental Information

### Exhibit B: Distribution of active members

#### Total Plan

#### Active Counts & Average Projected Compensation by Age and Years of Service as of July 1, 2024

Age	Total	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 Years and Over
Under 25	121	119	2	—	—	—	—	—	—	—
	\$110,969	\$110,293	\$151,159	—	—	—	—	—	—	—
25-29	740	588	151	1	—	—	—	—	—	—
	125,204	118,231	152,442	\$112,694	—	—	—	—	—	—
30-34	1,387	772	565	50	—	—	—	—	—	—
	128,221	112,249	146,332	170,190	—	—	—	—	—	—
35-39	1,603	648	704	144	104	3	—	—	—	—
	129,546	112,107	133,038	161,080	\$169,017	\$195,164	—	—	—	—
40-44	1,649	440	619	138	332	116	4	—	—	—
	139,647	114,009	129,778	158,159	169,845	180,420	\$159,704	—	—	—
45-49	1,612	316	459	114	304	333	85	1	—	—
	138,605	111,920	122,932	144,777	151,140	167,876	154,261	\$173,639	—	—
50-54	1,587	201	382	79	250	351	226	90	8	—
	138,940	113,234	121,470	137,984	142,197	150,154	146,867	196,393	\$164,427	—
55-59	1,370	102	250	61	173	304	153	220	105	2
	146,862	111,850	121,816	134,875	137,718	140,926	153,519	184,298	190,795	\$188,299
60-64	920	52	127	43	131	192	95	123	123	34
	144,645	117,655	121,607	129,469	136,149	136,897	139,103	165,058	178,333	187,413
65-69	360	15	41	11	58	59	41	62	46	27
	135,311	120,634	118,121	142,763	129,342	134,522	131,413	139,753	141,430	166,370
70 and over	136	4	6	9	17	36	14	14	16	20
	125,671	65,386	122,029	115,456	114,271	113,663	117,810	171,067	150,196	128,827
<b>Total</b>	<b>11,485</b>	<b>3,257</b>	<b>3,306</b>	<b>650</b>	<b>1,369</b>	<b>1,394</b>	<b>618</b>	<b>510</b>	<b>298</b>	<b>83</b>
	<b>\$136,340</b>	<b>\$113,551</b>	<b>\$131,364</b>	<b>\$149,928</b>	<b>\$150,889</b>	<b>\$151,560</b>	<b>\$146,737</b>	<b>\$175,993</b>	<b>\$175,144</b>	<b>\$166,472</b>



## Section 3: Supplemental Information

### Exhibit C: Summary of income and expenses on a market value basis

#### Statement of Income and Expenses for Years Ended June 30

Line Description	2024	2023
<b>Department of Water &amp; Power contributions</b>		
• Death benefit	\$16,471,934	\$14,631,549
• Administrative expenses	2,157,962	1,865,675
– <b>Department contribution income</b>	<b>\$18,629,896</b>	<b>\$16,497,224</b>
<b>Contributions from members</b>		
• Insured lives' death benefit	\$279,204	\$269,483
• Supplemental family death benefits	107,886	108,539
– <b>Members' contribution</b>	<b>\$387,090</b>	<b>\$378,022</b>
<b>Investment income</b>		
• Investment income	\$2,252,180	\$1,516,486
• Net appreciation in fair value of investments	(337,538)	(1,746,806)
• Less investment expense	(59,422)	(49,541)
– <b>Net investment income</b>	<b>\$1,855,220</b>	<b>\$(279,861)</b>
<b>Total income available for benefits</b>	<b>\$20,872,206</b>	<b>\$16,595,385</b>
<b>Less benefit payments and administrative expense</b>		
• Death benefit (active/retired members)	\$(7,522,255)	\$(8,142,167)
• Family allowances	(1,437,225)	(581,671)
• Administrative expense	(2,154,708)	(1,863,048)
– <b>Total payments</b>	<b>\$(11,114,188)</b>	<b>\$(10,586,886)</b>
<b>Change net assets at market value</b>	<b>\$9,758,018</b>	<b>\$6,008,499</b>
<b>Net assets at market value at the beginning of the year</b>	<b>\$46,533,638</b>	<b>\$40,525,139</b>
<b>Net assets at market value at the end of the year</b>	<b>\$56,291,656</b>	<b>\$46,533,638</b>

**Note:** Results may be slightly off due to rounding.

## Section 3: Supplemental Information

### Exhibit D: Summary statement of plan assets

#### Statement of Plan Assets as of June 30

Line Description	2024	2023
<b>Cash equivalents</b>	<b>\$1,261,941</b>	<b>\$3,600,528</b>
<b>Accounts receivable</b>		
• Department of Water and Power	\$2,271,228	\$2,894,539
• Accrued investment income	189,370	161,133
• Others	20,044	20,044
– <b>Total accounts receivable</b>	<b>\$2,480,642</b>	<b>\$3,075,716</b>
<b>Investments</b>		
• Fixed income	\$54,208,840	\$46,336,527
• Short-term investments	4,810,447	270,352
– <b>Total investments at market value</b>	<b>\$59,019,287</b>	<b>\$46,606,879</b>
<b>Total assets</b>	<b>\$62,761,870</b>	<b>\$53,283,123</b>
<b>Accounts payable</b>		
• Pending investment purchases	\$185,972	\$159,970
• Other	916,260	775,390
• Death claims in process — insured lives	5,367,982	5,814,125
– <b>Total liability</b>	<b>\$6,470,214</b>	<b>\$6,749,485</b>
<b>Net assets at market value</b>	<b>\$56,291,656</b>	<b>\$46,533,638</b>
<b>Net assets at actuarial value</b>	<b>\$59,362,003</b>	<b>\$51,316,174</b>

**Note:** Results may be slightly off due to rounding.

## Section 3: Supplemental Information

### Exhibit E: Development of the Fund through June 30, 2024

Year Ended June 30	Employer Contributions	Member Contributions	Administrative Expenses	Net Investment Return	Benefit Payments	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2019	\$8,777,581	\$358,073	\$1,599,880	\$2,292,799	\$8,232,053	\$28,806,740	\$28,518,673	99.0%
2020	14,908,884	384,893	1,606,529	2,793,526	7,922,692	37,364,822	36,017,294	96.4%
2021	14,522,798	373,989	1,621,742	343,631	10,245,251	40,738,247	40,541,328	99.5%
2022	14,991,933	372,258	1,855,962	(4,381,121)	9,340,216	40,525,139	45,165,590	111.5%
2023	16,497,224	378,022	1,863,048	(279,861)	8,723,838	46,533,638	51,316,174	110.3%
2024	18,629,896	387,090	2,154,708	1,855,220	8,959,480	56,291,656	59,362,003	105.5%

## Section 3: Supplemental Information

### Exhibit F: Table of amortization bases

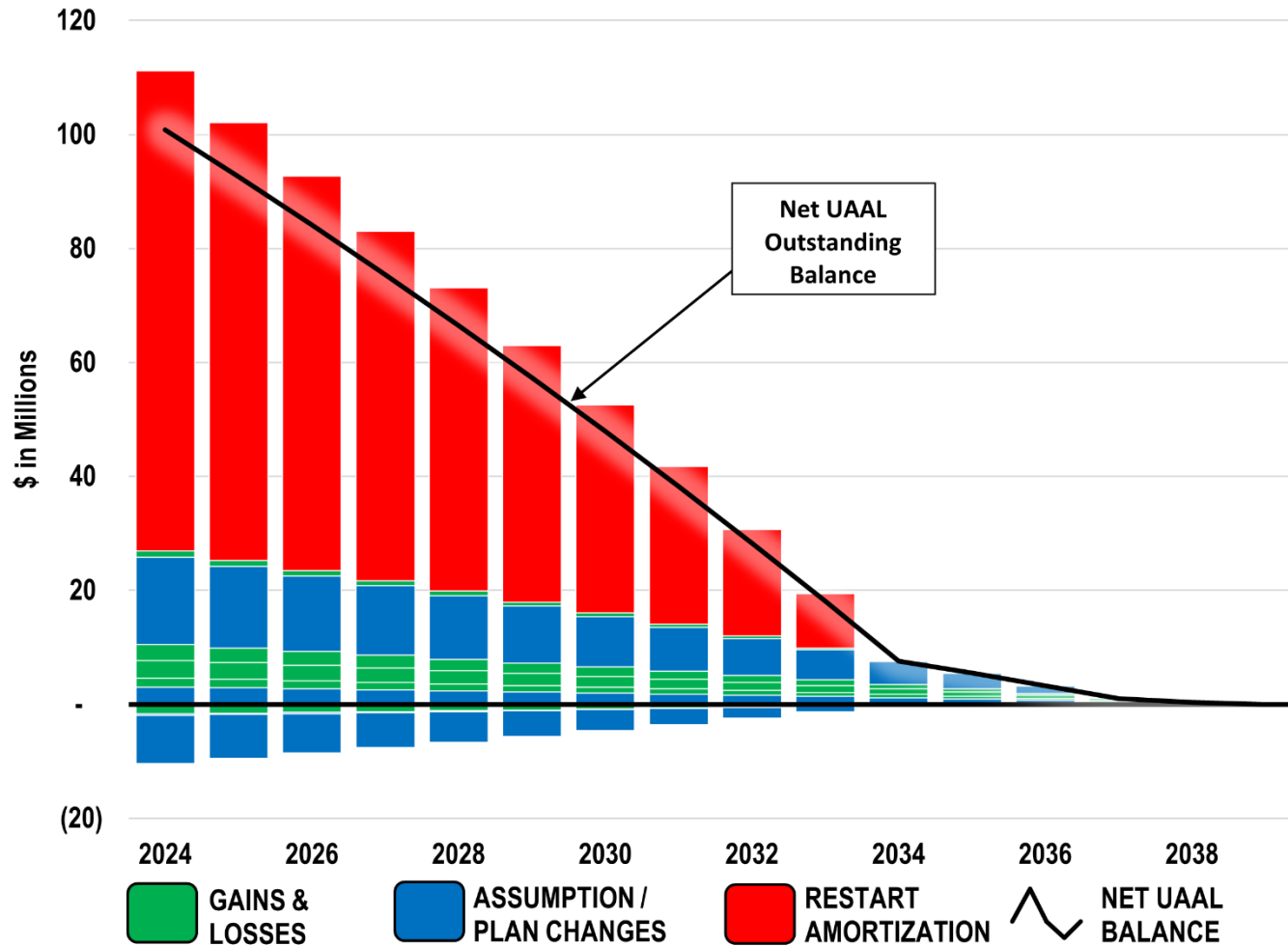
Base Type	Date Established: July 1	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment <sup>1</sup>
Initial amortization	2019	\$117,442,917	15	\$84,258,641	10	\$9,491,067
Assumption changes	2019	(11,703,994)	15	(8,396,953)	10	(945,850)
Actuarial gain	2020	(2,165,579)	15	(1,681,765)	11	(174,456)
Funding policy changes	2020	(373,648)	15	(290,171)	11	(30,100)
Actuarial loss	2021	1,317,099	15	1,098,122	12	105,771
Actuarial loss	2022	3,102,980	15	2,758,474	13	248,417
Assumption changes	2022	17,224,419	15	15,312,092	13	1,378,946
Actuarial loss	2023	3,275,743	15	3,096,366	14	262,248
Actuarial loss	2024	1,592,653	15	1,592,653	15	127,504
Plan changes	2024	3,055,296	15	3,055,296	15	244,600
<b>Total</b>				<b>\$100,802,755</b>		<b>\$10,708,147</b>

<sup>1</sup>Level dollar amount as of beginning of year.

## Section 3: Supplemental Information

### Exhibit G: Projection of UAAL balances and payments

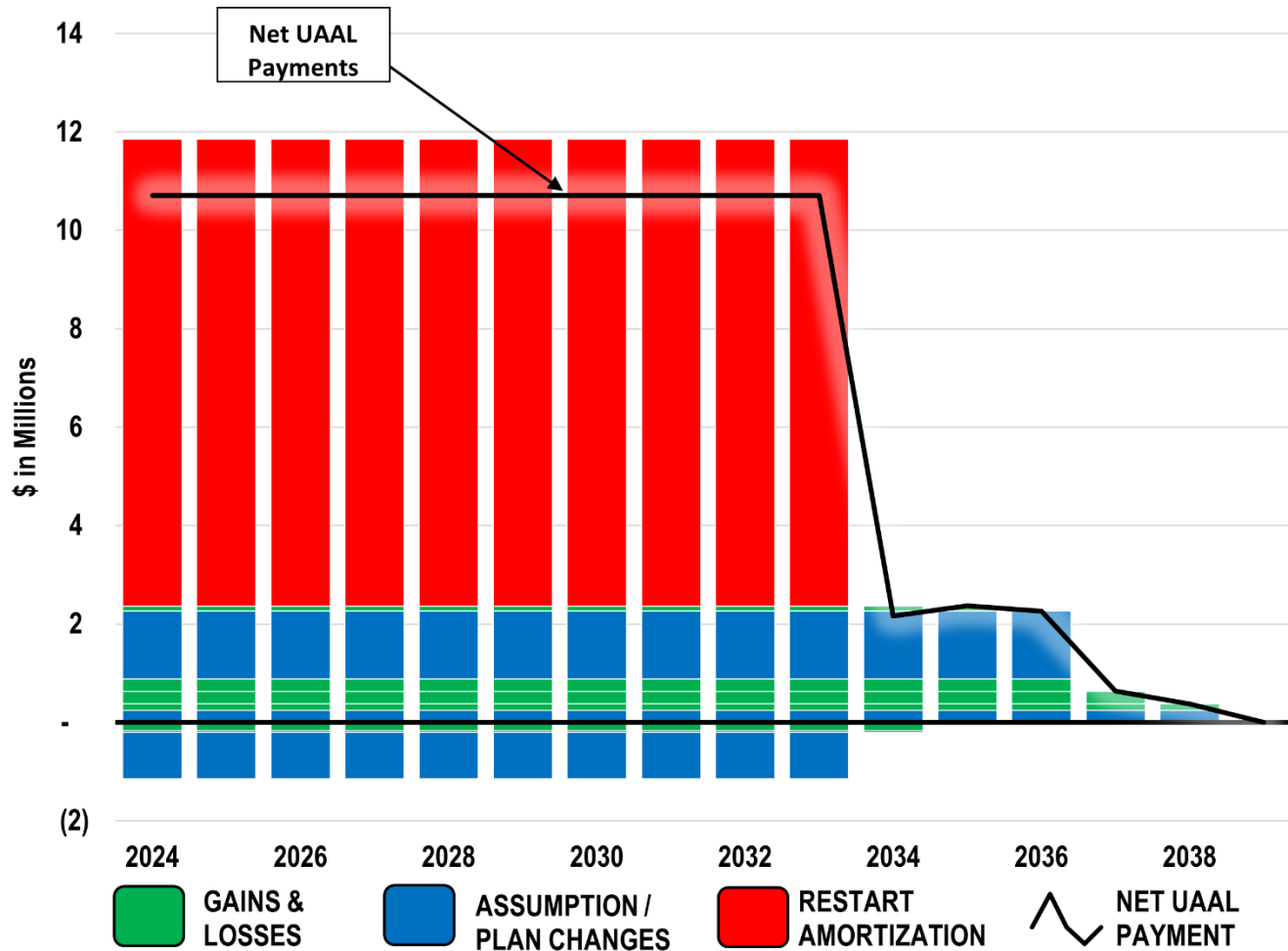
Outstanding Balance of \$100.8 Million in Net UAAL as of July 1, 2024



**Note:** This projection illustrates how the current UAAL of \$100.8 million will be paid for over the next 15 years with the layered amortization bases. The deferred investment losses to be recognized in the next few valuations are not reflected in this projection.

## Section 3: Supplemental Information

Annual Payments Required to Amortize \$100.8 Million in Net UAAL as of July 1, 2024



**Note:** This projection illustrates how the current UAAL of \$100.8 million will be paid for over the next 15 years with the layered amortization bases. The deferred investment losses to be recognized in the next few valuations are not reflected in this projection.

# Section 4: Actuarial Valuation Basis

## Exhibit 1: Actuarial assumptions, methods and models

### Rationale for assumptions

The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is generally shown in the July 1, 2018 through June 30, 2021 Actuarial Experience Study and our supplemental letter entitled Review of Investment Return Assumption for Death and Disability Funds both dated May 20, 2022. All actuarial assumptions and methods shown below apply to both Tier 1 and Tier 2 members.

### Net investment return

2.75%, net of investment expenses.

### Family composition at death for active members

Plan	Family Death Benefits	Supplemental Family Death Benefit
Not Married; No Children	20%	0%
Not Married; One Child	5%	15%
Not Married; 2+ Children	7%	17%
Married; No Children	16%	0%
Married; One Child	15%	22%
Married; 2+ Children	30%	39%
Married; One Disabled Child	7%	7%
• 1st Child's Age	10	10
• 2nd Child's Age	8	8

No benefits are assumed to be payable upon deaths of active members age 55 or over or deaths of inactive vested members (receiving a Permanent Total Disability benefit) or retirees at any age.

## Section 4: Actuarial Valuation Basis

Healthy child payments are assumed to end when the child reaches age 18. Disabled child payments are assumed to continue for life.

### Other actuarial assumptions

Same as those used in July 1, 2024 actuarial valuation report for the Retirement Plan.

### 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.

### Actuarial cost method

Entry age 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.

### Amortization policy

The July 1, 2019 unfunded actuarial accrued liability is amortized over a fifteen-year period commencing July 1, 2019 (fully amortized as of July 1, 2034). Any subsequent changes in unfunded actuarial accrued liability are amortized over separate fifteen-year periods. All amortization amounts are determined in equal dollar amounts over the amortization period. If the Plan becomes fully funded, the previous amortization layers are considered fully amortized. If the surplus becomes 20% or greater, the surplus that is in excess of 20% of the actuarial accrued liabilities will be amortized over a 30-year period in equal dollar amounts. 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 or change in assumptions or methods.

### Models

Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user



## Section 4: Actuarial Valuation Basis

control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

### **Justification for change in actuarial assumptions, methods or models**

There have been no changes in actuarial assumptions, methods or models since the prior valuation.

## Section 4: Actuarial Valuation Basis

### Exhibit 2: Summary of plan provisions

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

#### Plan year

July 1 through June 30

#### Covered members

Age and Service Requirement for Family Death Benefit	Pre-retirement death of an active member at any age who is a full member of WPERP and was contributing to WPERP. If death occurs after retirement, must be receiving a monthly retirement allowance from WPERP and had at least five years of Department Service at retirement.
Age and Service Requirement for Supplemental Family Death Benefit	<p>Pre-retirement death of an active member at any age who is a full member of WPERP and was contributing to WPERP or post-retirement death of retired member receiving monthly retirement allowance from WPERP.</p> <p>Must be enrolled and make contributions by payroll deductions for 39 successive biweekly payroll periods (approximately 18 months) before coverage becomes effective.</p>
Other Requirements for Family Death Benefit and Supplemental Family Death Benefit	<p>The plan provides a monthly benefit for each surviving child that is:</p> <ul style="list-style-type: none"><li>• The naturally or legally adopted child of the member</li><li>• Under 18 and unmarried, or</li><li>• Disabled and over age 18 (only if the disability occurred before age 18) and unmarried.</li></ul>
Insured Lives Death Benefit (Contributing Active Members)	<p>Any age with six months of continuous service.</p> <p>Pre-retirement death of an active member who is a full member of WPERP and was contributing to WPERP.</p>
Insured Lives Death Benefit (Non-Contributing Retired Members)	Death occurs after retirement and member was receiving a monthly retirement allowance from WPERP and had at least five years of Department Service at retirement.

## Section 4: Actuarial Valuation Basis

### Member contribution rate

Benefit	Rate
Family Death Benefit	None.
Supplemental Family Death Benefit	\$2.25 per biweekly period (or \$4.90 per month if retired).
Insured Lives Death Benefit (Contributing Active Members)	\$1.00 per biweekly payroll period.
Insured Lives Death Benefit (Non-Contributing Retired Members)	None.

### Department contribution rate

The Department of Water and Power makes actuarially determined contributions that consist of the normal cost plus an amortization of the unfunded actuarial accrued liability as described in further detail in Exhibit 1.

### Death Benefit

Benefit	Amount
Family Death Benefit	<p>The monthly benefit is the sum of:</p> <ul style="list-style-type: none"><li>• \$937 per month to each surviving child, plus</li><li>• \$937 per month to spouse (if the member's spouse has care of one or more of the member's eligible children)</li></ul> <p>Limited so that the total amount payable cannot exceed \$2,187 per month.</p> <p>In addition, the spouse's portion will not be paid if the spouse is receiving a Survivor's Optional Death Benefit Allowance or an Eligible Spouse Allowance from the Retirement Plan. The benefit is no longer payable when the member's children no longer satisfy the eligibility requirements noted above.</p>
Supplemental Family Death Benefit	<p>The monthly benefit is the sum of:</p> <ul style="list-style-type: none"><li>• \$520 per month to each surviving child, plus</li><li>• \$520 per month to spouse (if the member's spouse has care of one or more of the member's eligible children)</li></ul> <p>Limited so that the total amount payable cannot exceed \$1,066 per month.</p> <p>In addition, the spouse's portion will not be paid if the spouse is receiving a Survivor's Optional Death Benefit Allowance or an Eligible Spouse Allowance from the Retirement Plan. The benefit is no longer payable when the member's children no longer satisfy the eligibility requirements noted above.</p>

## Section 4: Actuarial Valuation Basis

Benefit	Amount
Insured Lives Death Benefit (Contributing Active Members)	A single sum distribution equal to 14 times monthly salary. In addition to this Insured Lives Death Benefit, death benefits payable from the Retirement Plan are payable to the beneficiary (not valued in this valuation).
Insured Lives Death Benefit (Non-Contributing Retired Members)	A single sum distribution equal to 14 times the member's Full Retirement Allowance (to a maximum of \$20,000). In addition to this Insured Lives Death Benefit, death benefits payable from the Retirement Plan include any unpaid Retirement Plan allowances due and the balance of contributions remaining in the Retirement Plan if Option A was the member's selected method of pension payment all of which is payable to beneficiary (not valued in this valuation).

### Changes in plan provisions

The following amendment was adopted since the prior valuation. The cost impact of the amendment has been reflected in this valuation:

The monthly benefit for Family Death benefit was the sum of:

- \$416 per month to each surviving child, plus
- \$416 per month to spouse (if the member's spouse has care of one or more of the member's eligible children)

Limited so that the total amount payable cannot exceed \$1,170 per month.

# Appendix A: Definition of Pension Terms

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

Term	Definition
Actuarial accrued liability for actives	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial accrued liability for retirees and beneficiaries	Actuarial present value of lifetime benefits to existing retirees and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial cost method	A procedure allocating the actuarial present value of future benefits to various time periods; a method used to determine the normal cost and the actuarial accrued liability that are used to determine the actuarially determined contribution.
Actuarial gain or loss	A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates. To the extent that actual experience differs from that assumed, actuarial accrued liabilities emerge which may be the same as forecasted or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield actuarial liabilities that are larger than projected.
Actuarially equivalent	Of equal actuarial present value, determined as of a given date and based on a given set of actuarial assumptions.
Actuarial present value	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of actuarial assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

## Appendix A: Definition of Pension Terms

Term	Definition
Actuarial present value of future benefits	The actuarial present value of benefit amounts expected to be paid at various future times under a particular set of actuarial assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The actuarial present value of future benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of member contributions or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial valuation	The determination, as of a valuation date, of the Normal cost, actuarial accrued liability, actuarial value of assets, and related actuarial present values for a plan, as well as actuarially determined contributions.
Actuarial value of assets	The value of the Plan's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined contribution.
Actuarially determined	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the Plan.
Actuarially determined contribution	The employer's contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The actuarially determined contribution consists of the employer normal cost and the amortization payment.
Amortization method	A method for determining the amortization payment. The most common methods used are level dollar and level percentage of payroll. Under the level dollar method, the amortization payment is one of a stream of payments, all equal, whose actuarial present value is equal to the unfunded actuarial accrued liability. Under the level percentage of pay method, the amortization payment is one of a stream of increasing payments, whose actuarial present value is equal to the unfunded actuarial accrued liability. Under the level percentage of pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization payment	The portion of the pension plan contribution, or actuarially determined contribution, that is intended to pay off the unfunded actuarial accrued liability.

## Appendix A: Definition of Pension Terms

Term	Definition
Assumptions or actuarial assumptions	The estimates upon which the cost of the Plan is calculated, including: <b>Investment return</b> — the rate of investment yield that the Plan will earn over the long-term future; <b>Mortality rates</b> — the rate or probability of death at a given age for employees and retirees; <b>Retirement rates</b> — the rate or probability of retirement at a given age or service; <b>Disability rates</b> — the rate or probability of disability retirement at a given age; <b>Withdrawal rates</b> — the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; <b>Salary increase rates</b> — the rates of salary increase due to inflation, real wage growth and merit and promotion increases.
Closed amortization period	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See “open amortization period.”
Decrements	Those causes/events due to which a member’s status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined benefit plan	A retirement plan in which benefits are defined by a formula based on the member’s compensation, age and/or years of service.
Defined contribution plan	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan’s earnings are allocated to each account, and each member’s benefits are a direct function of the account balance.
Employer normal cost	The portion of the normal cost to be paid by the employer. This is equal to the normal cost less expected member contributions.
Experience study	A periodic review and analysis of the actual experience of the Plan that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified based on recommendations from the Actuary.
Funded ratio	The ratio of the valuation value of assets to the actuarial accrued liability. Plans sometimes also calculate a market funded ratio, using the market value of assets, rather than the valuation value of assets.
GASB 74 and GASB 75	Governmental Accounting Standards Board (GASB) Statements No. 74 and No. 75. These are the governmental accounting standards that set the accounting rules for Postemployment Benefit Plans Other Than Pensions and the employers that sponsor or contribute to them. Statement No. 75 sets the accounting rules for the employers that sponsor or contribute to Postemployment Benefit Plans Other Than Pensions, while Statement No. 74 sets the rules for the plans themselves.

## Appendix A: Definition of Pension Terms

Term	Definition
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.
Negative amortization	Negative amortization is a result of an increase in the unfunded actuarial accrued liability when the amortization payment is less than the interest accrued on the unfunded actuarial accrued liability.
Net OPEB liability (NOL)	The liability of employers and non-employer contributing entities to employees for benefits provided through a defined benefit OPEB plan.
Normal cost	The portion of the actuarial present value of future benefits and expenses, if applicable, allocated to a valuation year by the actuarial cost method. Any payment with respect to an unfunded actuarial accrued liability is not part of the normal cost (see “amortization payment”). For pension plan benefits that are provided in part by employee contributions, normal cost refers to the total of member contributions and employer normal cost unless otherwise specifically stated.
Open amortization period	An open amortization period is one which is used to determine the amortization payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in each future year in determining the amortization period.
Plan fiduciary net position	Market value of assets.
Service costs	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
Total OPEB liability (TOL)	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 74 and 75.
Unfunded actuarial accrued liability	The excess of the actuarial accrued liability over the valuation value of assets. This value may be negative, in which case it may be expressed as a negative unfunded actuarial accrued liability, also called the funding surplus or an overfunded actuarial accrued liability.
Valuation date or actuarial valuation date	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Benefits is determined. The expected benefits to be paid in the future are discounted to this date.
Valuation value of assets	The actuarial value of assets reduced by the value of non-valuation reserves.

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