



Year-End 2023 Actuarial Valuation Results

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

Presented by:

Matt Larrabee, FSA, EA
Scott Preppernau, FSA, EA

July 26, 2024

This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Executive Summary

- Average collared base employer contribution rates **will increase 1.47% of pay starting July 2025**
 - Collared base employer rates are paid by new employer contributions and/or side account transfers
- Average collared net employer contribution rates **will increase 4.08% of pay starting July 2025**
 - Collared net rates are paid by new employer contributions
- Factors affecting this valuation's July 2025 – June 2027 contribution rate calculations
 - Collared base rate increase driven mostly by updates to the individual member pay increase assumption adopted with 2022 Experience Study
 - Contributed to 1.00% increase in OPSRP collared UAL rate; also increased normal cost rates
 - The collared Tier One/Tier Two UAL rate is unchanged for School Districts and SLGRP
 - System-wide payroll grew by over 20% in the two years since the last rate-setting valuation
 - Reduces the average rate offset for employer side accounts
- **Year-end 2023** funded status is **72% excluding side accounts**, down from 73% at year-end 2022
- **Year-end 2023** funded status is **77% including side accounts**, down from 79% at year-end 2022

System-Average Weighted Total* Pension-Only Rates

2009-2011 rates set prior to economic downturn

2011-2013 rates first to reflect -27% return in 2008 and +19% in 2009

2013-2015 shown before (dotted line) and after (solid line) legislated changes

2015-2017 set pre-Moro reflecting 2012 (+14.3%) & 2013 (+15.6%) returns, first decrease in assumed return

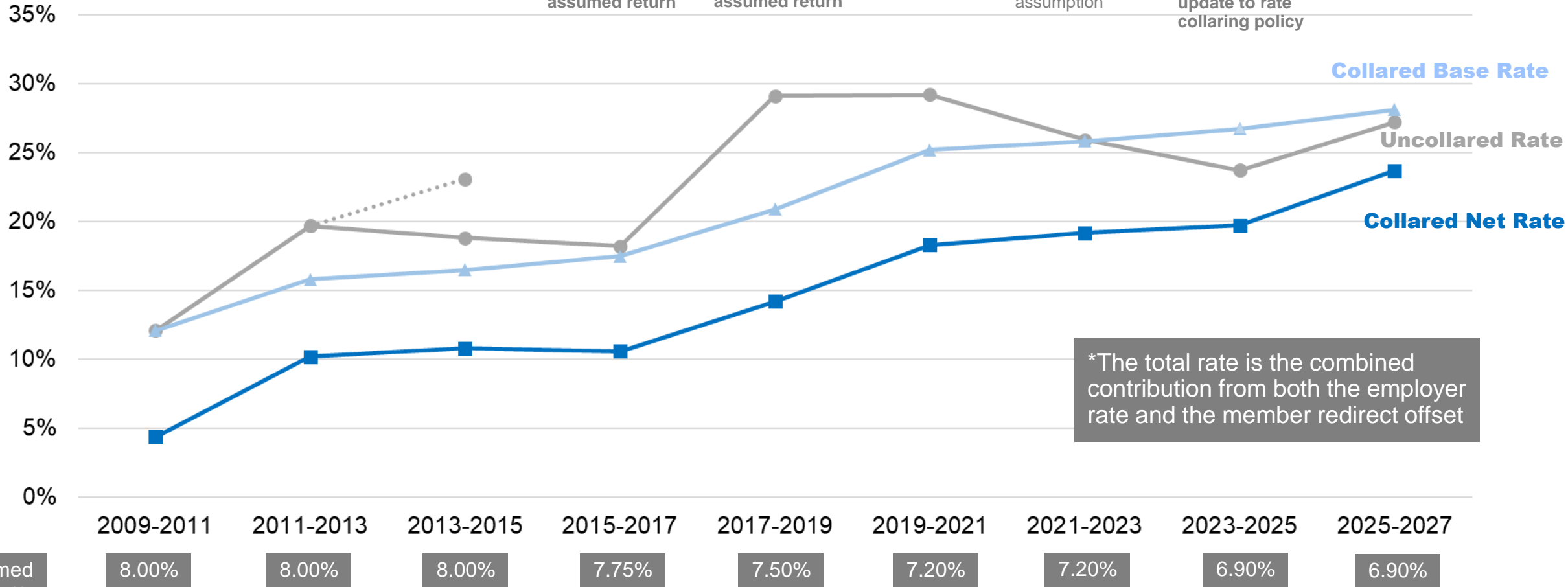
2017-2019 set post-Moro, reflecting 2015 return (+2.1%) and second decrease in assumed return

2019-2021 reflects +15.4% return in 2017 and third decrease in assumed return

2021-2023 rates reflect mandated reamortization of Tier One/Tier Two UAL, biennial returns near assumption

2023-2025 rates reflect 2021 actual return of +20.05%, a fourth decrease in assumed return and an update to rate collaring policy

2025-2027 rates reflect 2022 return of -1.55% and higher salary increase assumptions



*The total rate is the combined contribution from both the employer rate and the member redirect offset

This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Funded Status & Unfunded Actuarial Liability (UAL)

System-Total Pension Funded Status (\$ billions)			
Valuation:	12/31/2021 Rate-Setting	12/31/2022 Advisory	12/31/2023 Rate-Setting
Assumed return:	6.90%	6.90%	6.90%
Actuarial liability	\$ 98.4	\$ 102.9	\$ 106.4
Assets (excluding side accounts)	<u>78.4</u>	<u>74.9</u>	<u>77.0</u>
UAL (excluding side accounts)	\$ 20.0	\$ 28.0	\$ 29.4
Funded status (excluding side accounts)	80%	73%	72%
Side account assets	<u>\$ 6.6</u>	<u>\$ 6.2</u>	<u>\$ 5.4</u>
UAL (including side accounts)	\$ 13.4	\$ 21.8	\$ 24.0
Funded status (including side accounts)	86%	79%	77%

Overview

- Today we will review summary valuation results as of December 31, 2023 for:
 - Tier One/Tier Two & OPSRP retirement programs
 - Retiree Health Insurance Account (RHIA), and
 - Retiree Health Insurance Premium Account (RHIPA)
- Formal, detailed results will be presented in our forthcoming December 31, 2023 System-Wide Actuarial Valuation Report
- This valuation will be the basis for 2025-2027 employer contribution rates presented for adoption at the October 4 Board meeting:
 - Employers' individual rates will be in the October meeting materials
- All work is based on:
 - Asset levels and member demographics at year-end 2023
 - Updates to methods and assumptions from the 2022 Experience Study
- PERS will deliver employer-specific reports after the rates are adopted

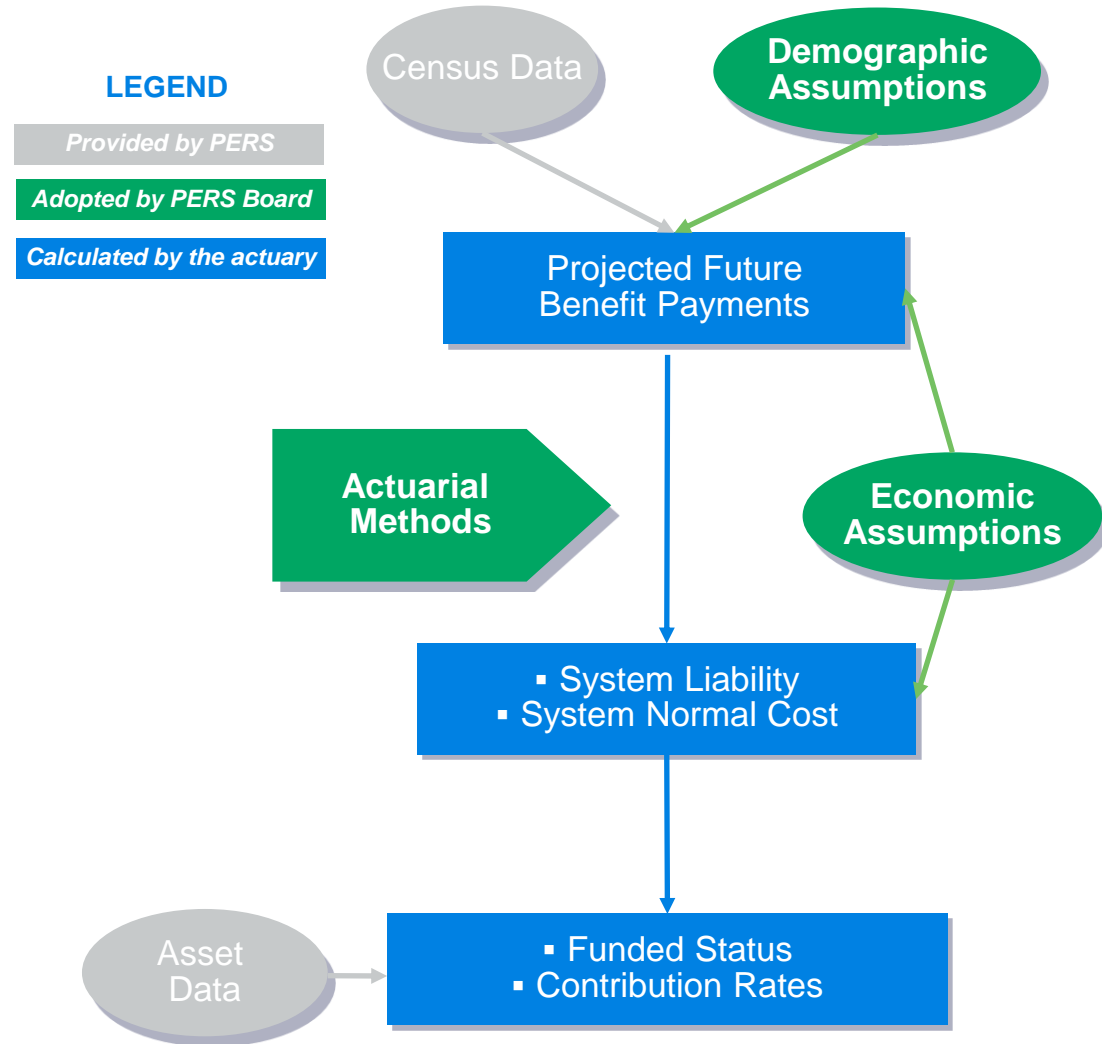
Valuation Process and Timeline

- Actuarial valuations are conducted annually
 - Alternate between “rate-setting” and “advisory” valuations
 - This valuation as of 12/31/2023 is rate-setting
- Board adopts contribution rates developed in rate-setting valuations, and those rates go into effect 18 months after the valuation date

Rate-Setting Valuation Date	Employer Contribution Rates
12/31/2021 →	July 2023 – June 2025
12/31/2023 →	July 2025 – June 2027
12/31/2025 →	July 2027 – June 2029

Two-Year Rate-Setting Cycle

- July 2023: Assumptions & methods adopted by Board in consultation with the actuary
- September 2023: System-wide 12/31/22 actuarial valuation results
- December 2023: Advisory 2025-2027 employer-specific contribution rates
- July 2024: System-wide 12/31/23 actuarial valuation results**
- October 2024: Disclosure & adoption of employer-specific **2025-2027 contribution rates**



This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Guiding Objectives - Methods & Assumptions

- Transparent
- Predictable and stable rates
- Protect funded status
- Equitable across generations
- Actuarially sound
- GASB compliant

Some of the objectives can conflict, particularly in periods with significant volatility in investment return or projected benefit levels. Overall system funding policies should seek an appropriate balance between conflicting objectives.

Changes Since the Last Rate-Setting Valuation

- The 12/31/2021 rate-setting valuation developed 2023-2025 contribution rates
- Since the 12/31/2021 rate-setting valuation:
 - The PERS Board adopted **new assumptions and methods** from the 2022 Experience Study, including assuming greater future individual member salary increases
 - Higher salary growth assumptions increased the value of projected future benefits associated with past service (Accrued Actuarial Liability), with the effect most pronounced for OPSRP
 - **Asset returns were significantly less** than the long-term assumed rate of 6.90% per year
 - Cumulative 2022-2023 regular account return was +4.3% compared to assumed two-year return of +14.3%
 - Actual returns during 2024 will be reflected in next year's advisory valuation
 - **Cumulative system payroll increase of greater than 20%** over the two-year period between rate-setting valuations
 - Active member headcount increased about 8% during this period

Changes Since the Last Advisory Valuation

- The 12/31/2023 rate-setting valuation develops 2025-2027 contribution rates for Board adoption, and reflects the following changes since the 12/31/2022 advisory valuation
 - 2023 OPERF regular account return of +5.98%, which produced a single-year actuarial investment loss of \$0.8 billion
 - System payroll increase of 10.5% from 12/31/2022 to 12/31/2023
 - Increased benefits for OPSRP Police & Fire members from House Bill 4045 passed in 2024 legislative session (see following slides)
- The 12/31/2022 advisory actuarial valuation already reflected:
 - Updated assumptions and methods from the 2022 Experience Study
 - Investment experience during 2022 of -1.55%
 - System projected payroll increased over 9% from 12/31/2021 to 12/31/2022

Plan Changes from House Bill 4045

- Normal retirement age for OPSRP P&F benefits lowered from 60 to 55
 - Members still qualify for earlier unreduced retirement if age 53 with 25+ years of service
- Forensic scientists and elected District Attorneys added to P&F definition
- New “hazardous position” member classification created for OPSRP, with benefit levels and retirement eligibilities that fall in between existing classifications of General Service and Police & Fire
 - Hazardous position classification statutorily limited to employees at Oregon State Hospital with direct patient contact and emergency telecommunicators
- Effective date for first two changes is January 1, 2025; hazardous position classification is first effective January 1, 2030

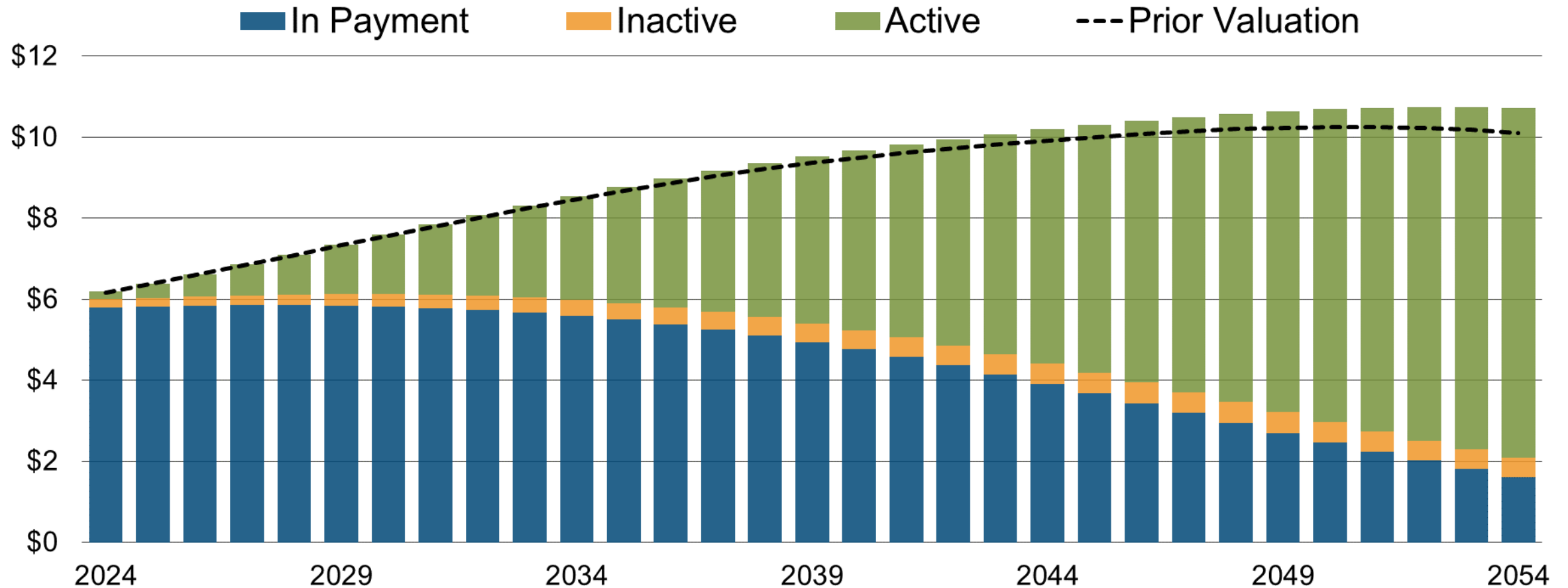
Plan Changes from House Bill 4045

- The December 31, 2023 rate-setting valuation reflects the change in OPSRP P&F retirement age, but not the other two HB 4045 changes
 - Expansion of P&F definition will come through in future census data
 - Hazardous position classification will be incorporated into future valuations after employer reporting of this population to PERS is established
- The reduction in OPSRP P&F normal retirement age is a benefit increase that adds to liabilities measured in the valuation
 - Actuarial accrued liability increased by \$128 million (approximately 5% increase in liability for OPSRP P&F benefits at the valuation date)
 - Approximately \$48 million due to inactive members with OPSRP P&F service
 - Increased OPSRP P&F normal cost rate by approximately 0.80% of payroll (from 14.9% to 15.7%)

Projected Benefit Payments for Members as of 12/31/2023

Does Not Include Projected Benefit Payments for Anyone Joining OPSRP After 12/31/2023

Tier One/Tier Two & OPSRP Expected Benefit Payments by Status as of 12/31/2023 (in \$ billions)

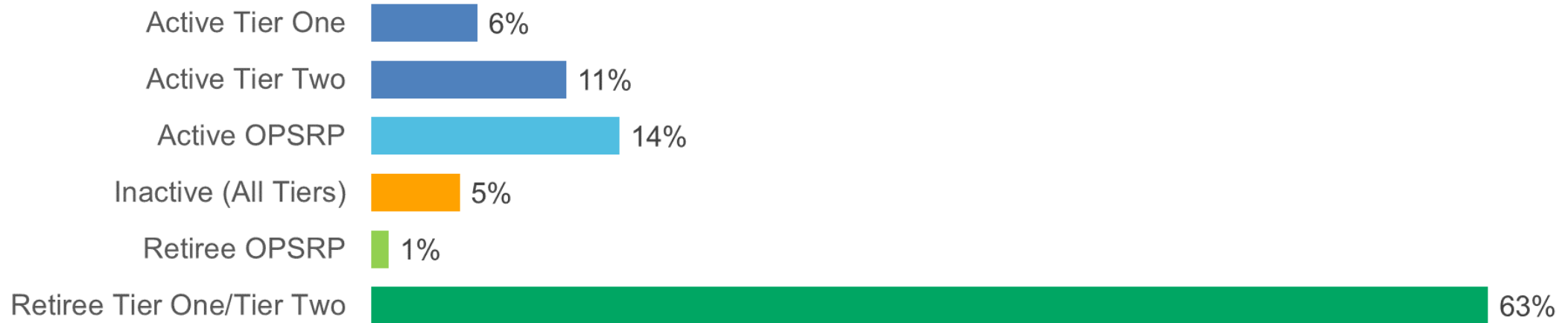


This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

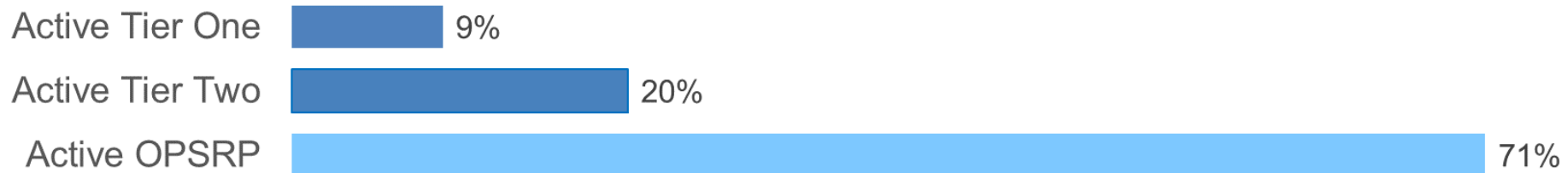
Actuarial Accrued Liability and Normal Cost by Category

12/31/2023 Tier One/Tier Two and OPSRP Actuarial Accrued Liability and Normal Cost

Actuarial Accrued Liability by Member Tier and Status on December 31, 2023



Normal Cost by Member Category on December 31, 2023



Accrued Actuarial Liability is the present value of benefits allocated to service prior to 2024

Normal Cost is the present value of benefits allocated to projected service during 2024

Sources of 2023 UAL (Excluding Side Accounts) Change

(\$ billions)	UAL Increase
Expected UAL increase/(decrease) during 2023	(\$ 0.2)
2023 actual investment performance	0.8
Plan changes	0.1
Actual demographic experience different than assumed	<u>0.6</u>
Actual UAL increase/(decrease) during 2023	\$ 1.3

- The **expected UAL increase/(decrease)** is the UAL change, based on 12/31/2022 valuation results and contribution rates in effect during 2023, projected to occur during 2023 if actual 2023 experience followed that valuation's assumptions
- The 2023 investment loss (i.e., actual versus assumed return) reflects actual 2023 OPERF returns of +5.98% compared to the assumed 6.90% return
- The increase from actual demographic experience different than assumed was primarily due to individual member salary increase experience during 2023 higher than the long-term assumption

Tier One/Tier Two Rate Pool Funded Status and UAL

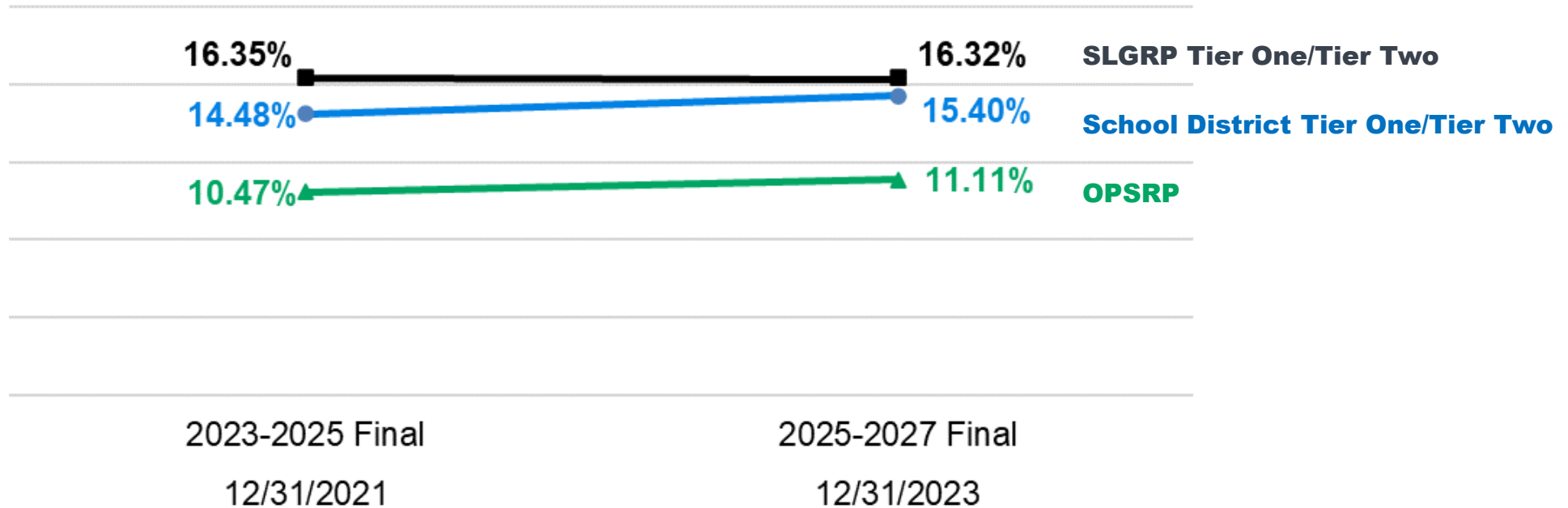
Amounts Shown as of December 31, 2023

(\$ billions) <i>Totals may not add due to rounding</i>	SLGRP	School Districts
Tier One/Tier Two actuarial liability	\$ 48.8	\$ 32.6
Tier One/Tier Two assets (excluding side accounts)	<u>34.1</u>	<u>24.8</u>
Tier One/Tier Two UAL (excluding side accounts)	\$ 14.7	\$ 7.9
Tier One/Tier Two funded status (excluding side accounts)	70%	76%
Projected 2024 Tier One/Tier Two + OPSRP payroll	\$ 9.0	\$ 5.0
Assets to payroll ratio (excluding side accounts)	3.8x	5.0x
UAL to payroll ratio (excluding side accounts)	1.6x	1.6x
Side account assets	\$ 2.2	\$ 2.9
Tier One/Tier Two UAL (including side accounts)	\$ 12.5	\$ 5.0
Tier One/Tier Two funded status (including side accounts)	74%	85%

Comments on 2025 – 2027 Rates

- No single employer pays the system-wide average rate
 - Individual employer rates reflect either rate pool or independent employer-specific results, not the system-wide average
 - Relative proportion of Tier One/Tier Two vs. OPSRP payroll also varies by employer
- Employers in a rate pool do not pay the pool average rate
 - Actual rates reflect employer-specific side account rate offsets and/or any remaining SLGRP charges/offsets
 - SLGRP normal cost rates are specific to an employer's workforce mix of member tier and job classification
- Rates shown on the next several slides do not include the effects of:
 - Individual Account Plan (IAP) contributions
 - Rates for the RHIA & RHIPA retiree healthcare programs
 - Debt service payments on pension obligation bonds

Changes in Total Normal Cost Rate

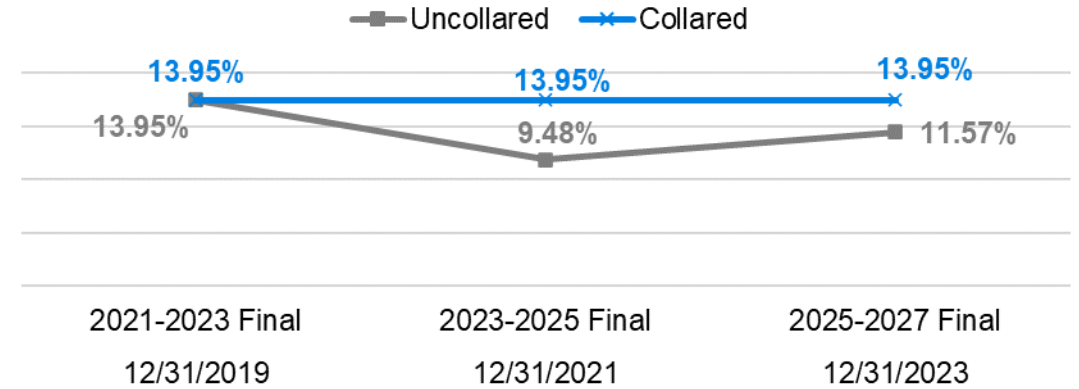


- Normal cost rates increased since the last rate-setting valuation for School Districts and OPSRP primarily due to higher future individual member salary increase assumptions adopted with the most recent experience study

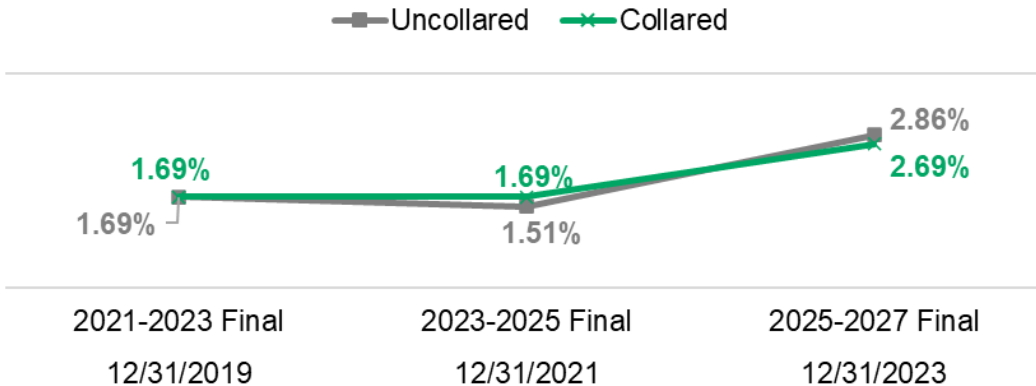
Changes in UAL Rates

- The rate collar policy helped stabilize the level of collared UAL rates during recent pattern of investment gains followed by investment losses
 - Maintaining the collared 2023-2025 UAL Rate above the uncollared 2023-2025 rate allowed the two large Tier One/Tier Two pools to absorb investment losses without immediately increasing Tier One/Tier Two UAL rates paid by employers
 - OPSRP UAL Rate increased due to assumption changes which increased the expected cost for past service liabilities

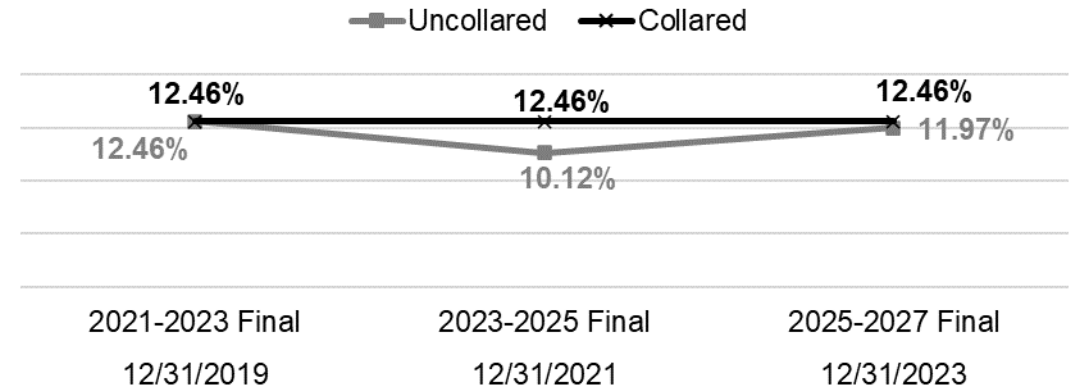
School District Tier One/Tier Two UAL Rate*



OPSRP UAL Rate

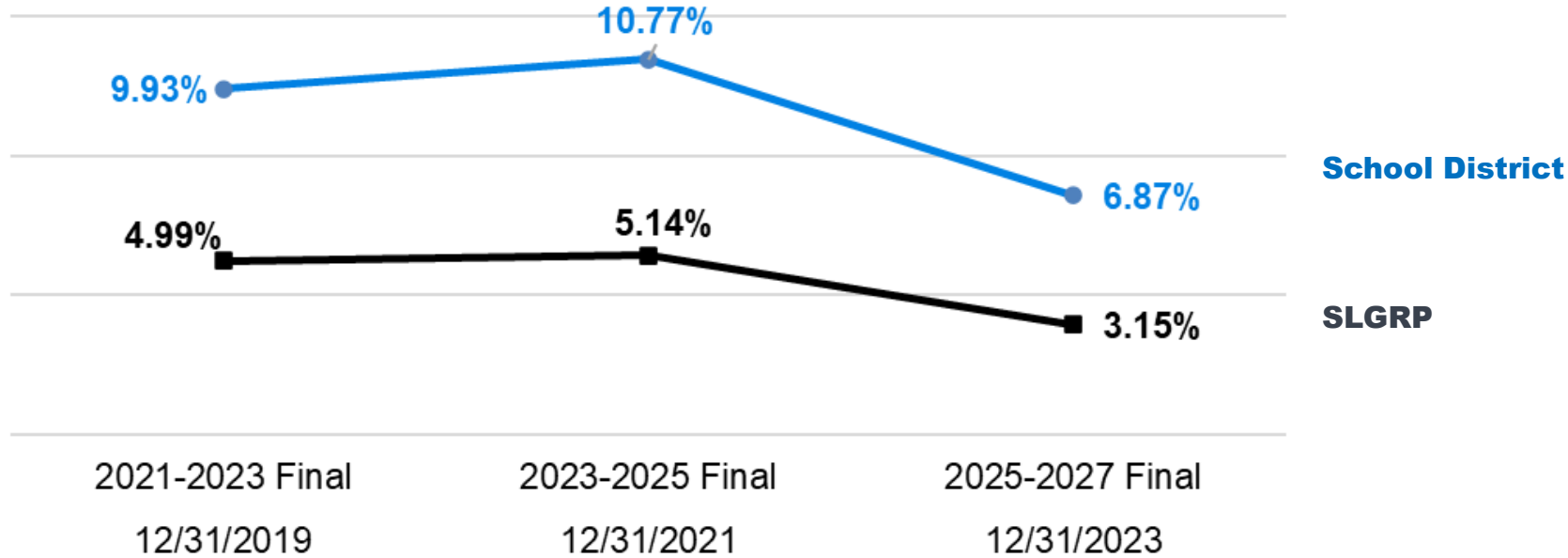


SLGRP Tier One/Tier Two UAL Rate*



*Excludes rate for Multnomah Fire District #10

Changes in Average Side Account Offset



- Average side account offset decreased since the last rate-setting valuation, due to:
 - Lower than assumed investment returns during 2022 and 2023
 - Higher than assumed payroll growth, which accelerates the spend-down of the side account balance using the offset rate currently in effect
 - Changes made to rate offset calculation to reflect timing of rate change and short remaining amortization for majority of side accounts

School Districts Rate Summary

Weighted Average Total Rates (Tier One/Tier Two and OPSRP)

	Final 2023 - 2025	Final 2025 - 2027	Increase/ (Decrease)
Uncollared Total Base Rate	22.38%	26.11%	3.73%
Collared Total Base Rate	27.03%	28.32%	1.29%
Collared Base Employer Rate	25.93%	27.32%	1.39%
Collared Net Employer Rate	15.16%	20.45%	5.29%

- The uncollared total base rate increase was primarily due to investment losses, but also reflects higher recent and assumed future salary growth
- The collared total base rate for School Districts is greater than the uncollared total base rate because the collar does not allow the UAL rate to decrease when the rate pool funded status excluding side accounts is less than 87%
- The collared net employer rate increase was larger than the increase in the collared base employer rate due to the reduction in the average side account offset

SLGRP Rate Summary

Weighted Average Total Rates (Tier One/Tier Two and OPSRP)

	Final 2023 - 2025	Final 2025 - 2027	Increase/ (Decrease)
Uncollared Total Base Rate	23.89%	27.09%	3.20%
Collared Total Base Rate	26.41%	27.41%	1.00%
Collared Base Employer Rate	25.31%	26.41%	1.10%
Collared Net Employer Rate	19.51%	22.96%	3.45%

- The uncollared total base rate increase was primarily due to investment losses, but also reflects higher recent and assumed future salary growth
- The collared total base rate for the SLGRP is greater than the uncollared total base rate because the collar does not allow the UAL rate to decrease when the rate pool funded status excluding side accounts is less than 87%
- The collared net employer rate increase was larger than the increase in the collared base employer rate due to the reduction in the average side account offset

System-Wide Rate Summary

Weighted Average Total Rates (Tier One/Tier Two and OPSRP)

	Final 2023 - 2025	Final 2025 - 2027	Increase/ (Decrease)
Uncollared Total Base Rate	23.73%	27.22%	3.49%
Collared Total Base Rate	26.74%	28.11%	1.37%
Collared Base Employer Rate	25.64%	27.11%	1.47%
Collared Net Employer Rate	18.61%	22.69%	4.08%

- System-wide rates are the payroll-weighted average of rates for School Districts, the SLGRP, and independent employers that do not pool their Tier One/Tier Two liability experience
- At a system-wide level, the uncollared total base rate of 27.22% is 0.89% of pay lower than the collared total base rate of 28.11%, reflecting that for most employers the rate collar prevents a decrease in the 2025-2027 UAL rate that would otherwise have occurred compared to the current level

Projected 2025-2027 Total (Member + Employer Net) Contributions

(\$ millions)	Projected 2023-25 Payroll*	(A) Projected 2023-25 Total Contribution	Projected 2025-27 Payroll*	(B) Projected 2025-27 Total Contribution	(B - A) Projected Total Contribution Increase / (Decrease)
State Agencies	\$ 9,460	\$ 1,960	\$ 10,120	\$ 2,440	\$ 480
School Districts	9,970	1,600	10,660	2,270	670
All Others	<u>11,210</u>	<u>2,380</u>	<u>11,980</u>	<u>2,990</u>	<u>610</u>
Total	\$ 30,640	\$ 5,940	\$ 32,760	\$ 7,700	\$ 1,760

- Employer net contributions exclude employer side account transfer amounts
- Biennium-to-biennium increase driven primarily by the collared employer net rate change and secondarily by projected biennium-to-biennium payroll growth
- All amounts reflect the 11% increase in system payroll and 4% increase in active member headcount since the last advisory valuation

* Assumes total payroll grows at 3.40% annually based on 12/31/2023 active member census. The collared net rate applied to this payroll reflects the projected change over time in payroll composition as new OPSRP members are hired to replace retiring Tier One/Tier Two members

Factors Driving the Projected Contribution Increase

- The projected \$1.8 billion 2025 - 2027 total contribution increase consists of:
 - \$1.4 billion due to system-wide average increase in collared net employer contribution rates
 - Primarily driven by cumulative 2022 & 2023 investment losses along with higher liabilities due to recent and assumed future salary growth
 - Also reflects decrease in average remaining side account offsets due to significant payroll growth
 - Includes impact on average contribution rate of projected change over time in payroll distribution between Tier One/Tier Two and OPSRP
 - \$0.4 billion due to projected system payroll growth between 2023-2025 and 2025-2027
 - Assumed system payroll growth of 3.4% per year / 6.9% per biennium means the collared net employer rate increase is applied to a larger payroll base in non-inflation-adjusted dollars
 - Does not reflect projected change in payroll distribution between Tier One/Tier Two and OPSRP
- In 2025-2027, redirected member EPSA contributions expected to continue to pay a portion of total contribution rates
 - An estimate of this effect is shown on the next slide

Projected Split of 2025-2027 Total Contributions

(\$ millions)	Estimated 2023-25 Member Redirect Contributions*	Estimated 2025-27 Member Redirect Contributions*	Projected 2023-25 Employer Contribution	Projected 2025-27 Employer Contribution
State Agencies	\$ 95	\$ 95	\$ 1,865	\$ 2,345
School Districts	105	105	1,495	2,165
All Others	<u>115</u>	<u>115</u>	<u>2,265</u>	<u>2,875</u>
Total	\$ 315	\$ 315	\$ 5,625	\$ 7,385

* Reflects member redirect offset of 2.40% of payroll for Tier One and Tier Two, and 0.65% for OPSRP for 2023-25 and 2025-2027; the statutory 2.50% and 0.75% redirection levels were adjusted downward to estimate the anticipated effect of members below the statutory pay threshold who will not have contributions redirected

12/31/2023 Retiree Health Care Valuations

- Cumulative retiree health liabilities are less than 1% of the pension liability
- Two separate retiree health care benefit subsidies are valued:
 - RHIA provides a \$60 per month subsidy toward healthcare premiums for Medicare-eligible Tier One/Tier Two retirees
 - RHIPA provides Tier One/Tier Two state employees who retire prior to age 65 with an alternative to PEBB coverage until they reach Medicare eligibility
- OPSRP retirees are not eligible for either subsidy
- The combination of a shortened UAL amortization period and recent experience has improved both RHIA and RHIPA funded status to over 100%
- The Board policy applies a special amortization method when these programs are over 100% funded
 - Amortizes the actuarial surplus over Tier One/Tier Two payroll using a rolling 20-year amortization, and allows the subsequent negative UAL rate to offset the normal cost, but not below a total contribution rate of 0.0%

12/31/2023 Retiree Health Care Valuations

UAL and 2025-27 Contribution Rates

(\$ millions)	RHIA		RHIPA *	
	12/31/2022	12/31/2023	12/31/2022	12/31/2023
Actuarial Liability	\$ 345	\$ 330	\$ 41	\$ 40
Assets	<u>720</u>	<u>730</u>	<u>86</u>	<u>92</u>
UAL	\$ (375)	\$ (400)	\$ (45)	\$ (52)
Funded Status	209%	221%	208%	228%
Normal Cost Rate (Tier One/Tier Two payroll only)	0.04%	0.04%	0.09%	0.09%
UAL Rate applied to Tier One/Tier Two payroll**	<u>(0.04%)</u>	<u>(0.04%)</u>	<u>(0.09%)</u>	<u>(0.09%)</u>
Total Rate	0.00%	0.00%	0.00%	0.00%

* State Agencies, OUS, and State Judiciary are the only employers who pay RHIPA rates

** UAL Rate applied to OPSRP payroll is limited to a minimum of 0.00%

Valuation Next Steps

- Between now and the October 4, 2024 meeting we will:
 - Prepare listings of employer-specific 2025-2027 contribution rates for adoption at the meeting
 - Issue system-wide December 31, 2023 actuarial valuation report
 - Prepare employer-specific rate-setting December 31, 2023 actuarial valuation reports
 - PERS to distribute to employers after the October meeting

Contribution Rate & Funded Status Projections

- In December, we will present contribution rate and funded status projections based on this valuation
 - That analysis will use the latest year-to-date investment return information at the time the projections are made
- Projections will be developed using two types of models
 - Steady return
 - Individual lines reflecting a small number of steady future actual investment return scenarios
 - Variable return
 - Probability distributions reflecting a wide variety of noisy scenarios for possible actual future investment returns
 - The modeling will include updates to the risk metrics we have used in projection studies conducted in previous years



Appendix

This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Certification

This presentation summarizes key preliminary results of an actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2023, for the Plan Year ending December 31, 2023. The results are preliminary in nature and may not be relied upon to, for example, prepare the System’s Annual Comprehensive Financial Report. The reliance document will be the forthcoming formal December 31, 2023 System-Wide Actuarial Valuation Report.

Actuarial computations presented in this report are for purposes of presenting contribution rates consistent with the adopted funding policy of the System. The computations prepared for other purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System’s funding policy. The calculations in this report have been made on a basis consistent with our understanding of the plan provisions described in the appendix of this report. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System’s staff. This information includes, but is not limited to, statutory provisions, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different, and our calculations may need to be revised.

Actuarial assumptions, including discount rates, mortality tables, and others identified in this report, and actuarial cost methods are adopted by the PERS Board, which is responsible for selecting the plan’s funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods, and assumptions used in this valuation are those that have been so adopted and are described in this report. The System is solely responsible for communicating to Milliman any changes required thereto. All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which, in our professional opinion, are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System and are expected to have no significant bias . The valuation results were developed using models intended for valuations that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice.

This valuation report is only an estimate of the System’s financial condition as of a single date. It can neither predict the System’s future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Certification

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, 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 or modifications to contribution calculations based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. Our annual financial modeling presentation to the PERS Board should be referenced for additional analysis of the potential variation in future measurements. Our forthcoming December 31, 2023 Actuarial Valuation Report will provide additional discussion of the System's risks. The PERS Board has the final decision regarding the selection of the assumptions and actuarial cost methods.

Milliman's work is prepared solely for the internal business use of the Oregon Public Employees Retirement System. Milliman does not intend to benefit or create a legal duty to any third-party recipient of this report. No third-party recipient of Milliman's work product should rely upon this report. Such recipients should engage qualified professionals for advice appropriate to their own specific needs. No third-party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel. The actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States*, published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. Assumptions related to the claims costs and healthcare trend (cost inflation) rates for the retiree healthcare program discussed in this report were determined by Milliman actuaries qualified in such matters.

Data Exhibits

	December 31, 2023				December 31, 2022	
	Tier One	Tier Two	OPSRP	Total	Total	
Active Members						
Count	8,601	24,276	158,710	191,587	183,642	
Average Age	58.7	54.0	43.7	45.7	45.8	
Average Service	28.8	22.4	7.7	10.5	10.7	
Average prior year Covered Salary	\$ 101,575	\$ 97,078	\$ 69,408	\$ 74,358	\$ 71,601	
Inactive Members¹						
Count	7,936	12,649	33,288	53,873	52,513	
Average Age	63.3	56.7	48.7	52.7	52.7	
Average Monthly Benefit	\$ 2,450	\$ 1,041	\$ 553	\$ 947	\$ 958	
Retired Members and Beneficiaries¹						
Count	128,766	23,789	13,332	165,887	163,196	
Average Age	74.6	69.4	69.0	73.4	73.1	
Average Monthly Benefit	\$ 3,376	\$ 1,551	\$ 703	\$ 2,899	\$ 2,852	
Total Members	145,303	60,714	205,330	411,347	399,351	

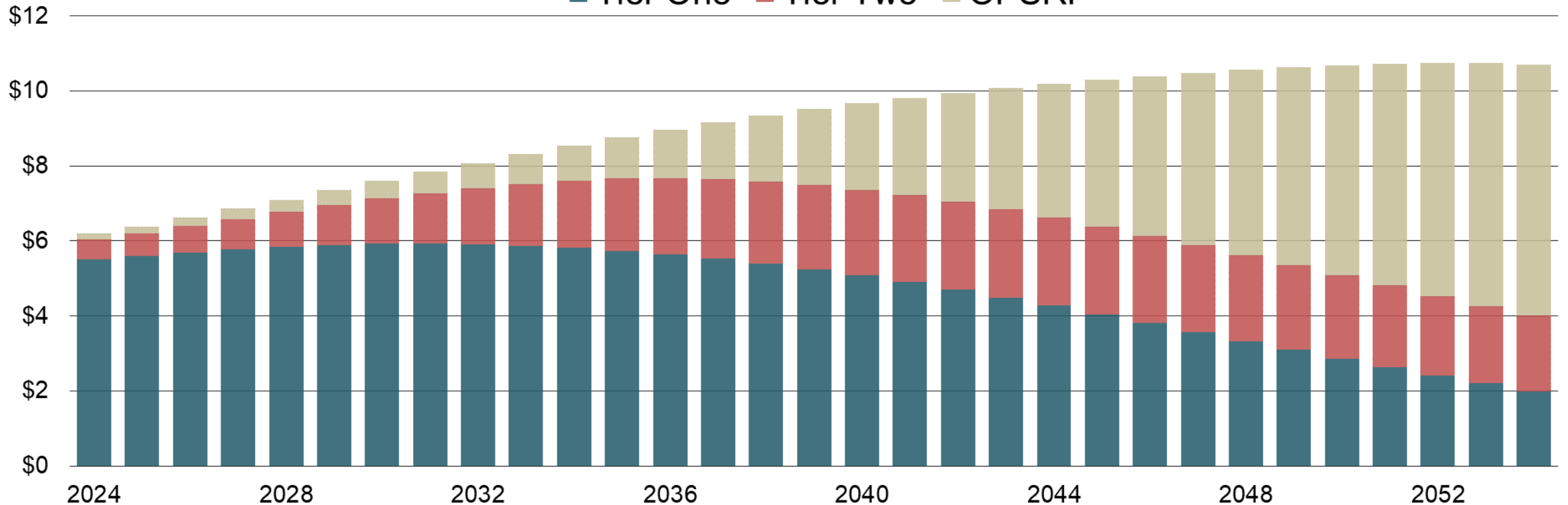
¹ Inactive and Retiree counts are shown by lives within the system. In other words, a member is counted once for purposes of this exhibit, regardless of their service history for different rate pools. This contrasts with the method used to count inactive participants in some of the later exhibits.

Projected Benefit Payments by Tier for Members as of 12/31/2023

Does Not Include Projected Benefit Payments for Anyone Joining OPSRP After 12/31/2023

Tier One/Tier Two & OPSRP Expected Benefit Payments
by Tier as of 12/31/2023 (in \$ billions)

■ Tier One ■ Tier Two ■ OPSRP



This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

School District Weighted Total* Pension-Only Rates

2009-2011 rates set prior to economic downturn

2011-2013 rates first to reflect -27% return in 2008 and +19% in 2009

2013-2015 shown before (dotted line) and after (solid line) legislated changes

2015-2017 set pre-Moro reflecting 2012 (+14.3%) & 2013 (+15.6%) returns, first decrease in assumed return

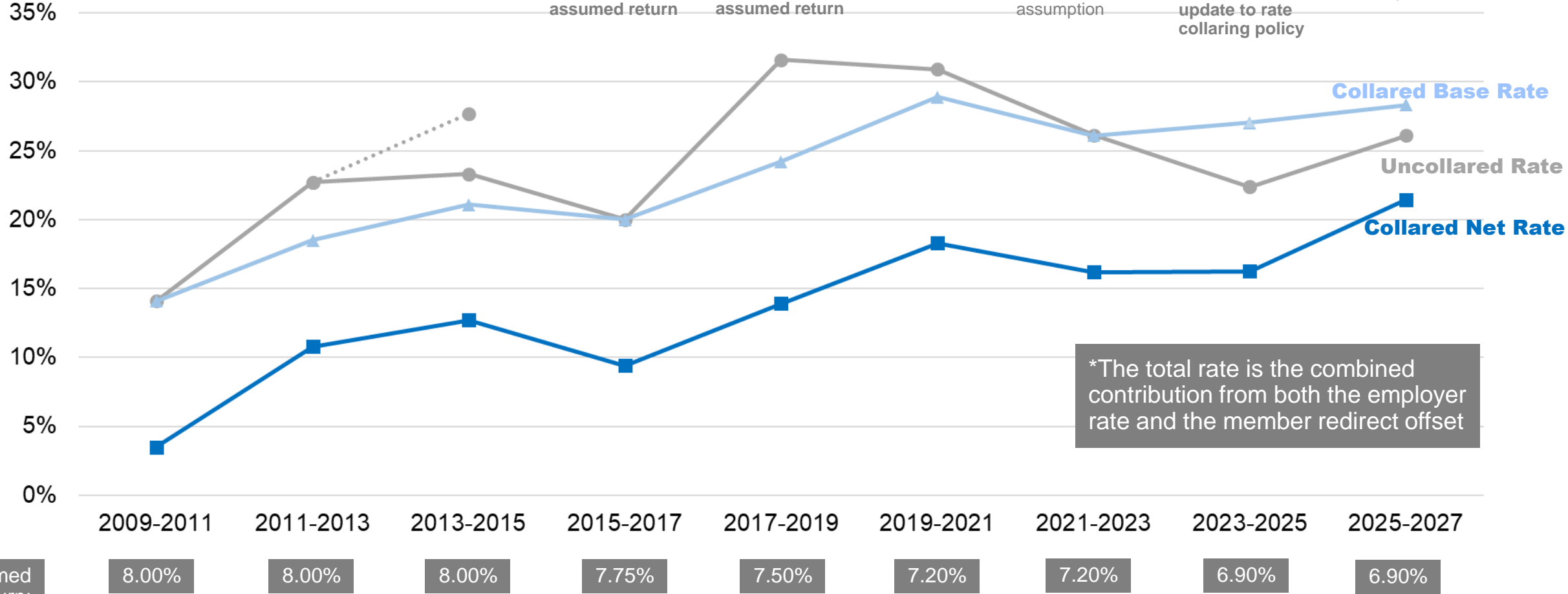
2017-2019 set post-Moro, reflecting 2015 return (+2.1%) and second decrease in assumed return

2019-2021 reflects +15.4% return in 2017 and third decrease in assumed return

2021-2023 rates reflect mandated reamortization of Tier One/Tier Two UAL, biennial returns near assumption

2023-2025 rates reflect 2021 actual return of +20.05%, a fourth decrease in assumed return and an update to rate collaring policy

2025-2027 rates reflect 2022 return of -1.55% and higher salary increase assumptions



*The total rate is the combined contribution from both the employer rate and the member redirect offset

Assumed Return:	8.00%	8.00%	8.00%	7.75%	7.50%	7.20%	7.20%	6.90%	6.90%
-----------------	-------	-------	-------	-------	-------	-------	-------	-------	-------

This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

SLGRP Weighted Total* Pension-Only Rates

2009-2011 rates set prior to economic downturn

2011-2013 rates first to reflect -27% return in 2008 and +19% in 2009

2013-2015 shown before (dotted line) and after (solid line) legislated changes

2015-2017 set pre-Moro reflecting 2012 (+14.3%) & 2013 (+15.6%) returns, first decrease in assumed return

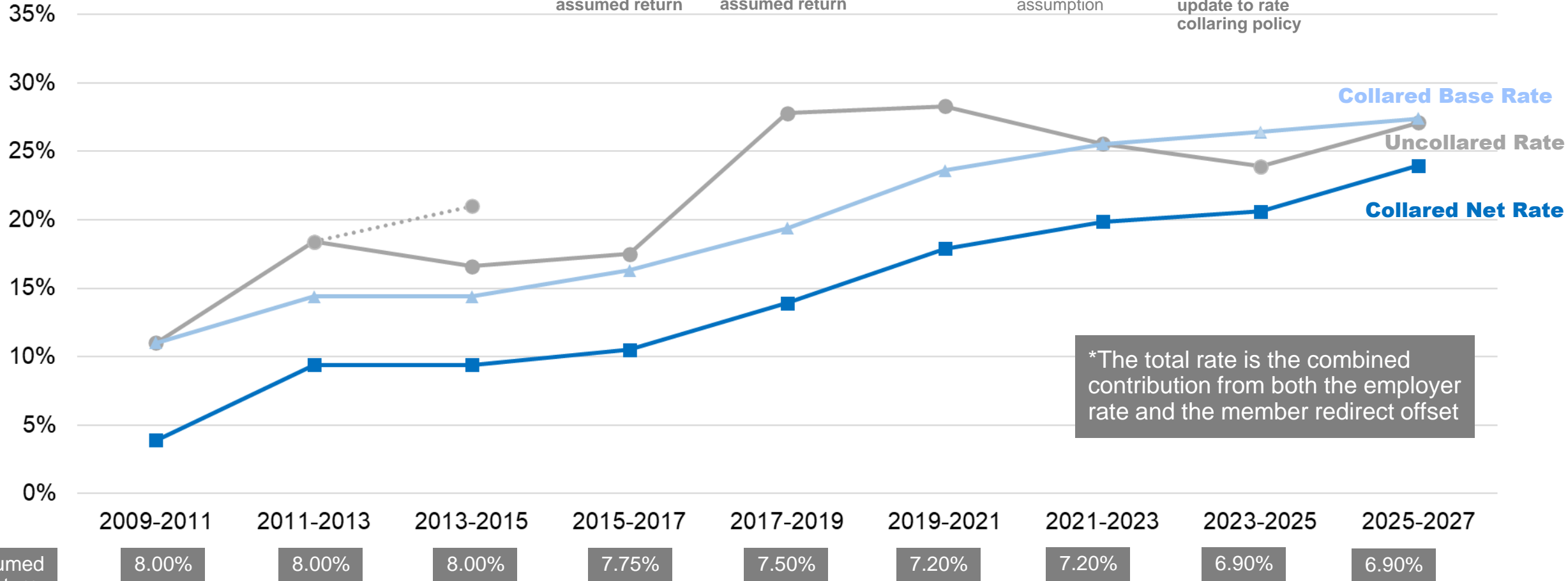
2017-2019 set post-Moro, reflecting 2015 return (+2.1%) and second decrease in assumed return

2019-2021 reflects +15.4% return in 2017 and third decrease in assumed return

2021-2023 rates reflect mandated reamortization of Tier One/Tier Two UAL, biennial returns near assumption

2023-2025 rates reflect 2021 actual return of +20.05%, a fourth decrease in assumed return and an update to rate collaring policy

2025-2027 rates reflect 2022 return of -1.55% and higher salary increase assumptions



*The total rate is the combined contribution from both the employer rate and the member redirect offset

This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Funded Status and UAL by Program

Pension Funded Status (\$ billions) at 12/31/2023 <i>totals may not add due to rounding</i>			
	Tier One/ Tier Two	OPSRP	Combined
Actuarial liability	\$ 89.3	\$ 17.0	\$ 106.4
Assets (excluding side accounts)	<u>\$ 64.1</u>	<u>\$ 13.0</u>	<u>\$ 77.0</u>
UAL (excluding side accounts)	\$ 25.3	\$ 4.1	\$ 29.4
Funded status (excluding side accounts)	72%	76%	72%
Side account assets			<u>\$ 5.4</u>
UAL (including side accounts)			\$ 24.0
Funded status (including side accounts)			77%

Uncollared Total Pension Rates – School Districts

Excludes Retiree Health Care, IAP Contributions, Rate Collar, Side Accounts

	12/31/2021 Valuation 2023 – 2025 Final Rates			12/31/2023 Valuation 2025 – 2027 Final Rates		
	Payroll			Payroll		
	Tier One / Tier Two	OPSRP	Weighted Average ¹	Tier One / Tier Two	OPSRP	Weighted Average ¹
Total Normal Cost	14.48%	9.89%	11.24%	15.40%	10.47%	11.62%
Tier One/Tier Two UAL	9.63%	9.63%	9.63%	11.63%	11.63%	11.63%
OPSRP UAL	<u>1.51%</u>	<u>1.51%</u>	<u>1.51%</u>	<u>2.86%</u>	<u>2.86%</u>	<u>2.86%</u>
Uncollared Total Rate	25.62%	21.03%	22.38%	29.89%	24.96%	26.11%
Increase/(Decrease)				4.27%	3.93%	3.73%

¹ Weighting based on pool payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date

The pool-average collared base and net rates for 2025-2027 are shown on subsequent slides

Rates shown on this slide are “total” rates and include the member EPSA contribution component of the normal cost

Collared Total Pension Base Rates – School Districts

Excludes Retiree Health Care & IAP Contributions, Side Account Offsets

	12/31/2021 Valuation 2023 – 2025 Final Rates			12/31/2023 Valuation 2025 – 2027 Final Rates		
	Payroll			Payroll		
	Tier One / Tier Two	OPSRP	Weighted Average ¹	Tier One / Tier Two	OPSRP	Weighted Average ¹
Uncollared Total Rate	25.62%	21.03%	22.38%	29.89%	24.96%	26.11%
Effect of Rate Collar	<u>4.65%</u>	<u>4.65%</u>	<u>4.65%</u>	<u>2.21%</u>	<u>2.21%</u>	<u>2.21%</u>
Collared Total Base Rate	30.27%	25.68%	27.03%	32.10%	27.17%	28.32%
Increase/(Decrease)				1.83%	1.49%	1.29%

¹ Weighting based on pool payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date

The 2025 – 2027 collared total base rates increased due to the combined effects of the higher recent and assumed future salary increases and the rate collar’s restriction on collared UAL rate decreases prior to satisfaction of funded status thresholds

The increase in the 2025-2027 collared total base rates was less than shown in the 12/31/2022 advisory valuation primarily due to a decrease in the normal cost rates.

Rates shown on this slide are “total” rates and include the member EPSA contribution

Collared Employer Pension Rates – School Districts

Excludes Retiree Health Care & IAP Contributions

	12/31/2021 ¹ Valuation 2023 – 2025 Final Rates			12/31/2023 ¹ Valuation 2025 – 2027 Final Rates		
	Payroll			Payroll		
	Tier One / Tier Two	OPSRP	Weighted Average ²	Tier One / Tier Two	OPSRP	Weighted Average ²
Collared Total Base Rate	30.27%	25.68%	27.03%	32.10%	27.17%	28.32%
Member Redirect Offset	<u>(2.40%)</u>	<u>(0.65%)</u>	<u>(1.10%)</u>	<u>(2.40%)</u>	<u>(0.65%)</u>	<u>(1.00%)</u>
Collared Base Employer Rate	27.87%	25.03%	25.93%	29.70%	26.52%	27.32%
Side Account Rate (Offset)	<u>(10.77%)</u>	<u>(10.77%)</u>	<u>(10.77%)</u>	<u>(6.87%)</u>	<u>(6.87%)</u>	<u>(6.87%)</u>
Collared Net Employer Rate	17.10%	14.26%	15.16%	22.83%	19.65%	20.45%
Increase/(Decrease)				5.73%	5.39%	5.29%

¹ For this exhibit, adjustments are assumed not to be limited due to an individual employer reaching a 0.00% contribution rate

² Weighting based on pool payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date, OPSRP's payroll weighting increased between valuation dates

Rates vary by employer, as only some employers have side accounts

Weighted-average net employer rates increased more than collared base employer rates, due to a decrease in the average side account offset as an outcome of actual investment returns and high payroll growth during 2023

Uncollared Total Pension Rates – SLGRP Average

Excludes Retiree Health Care, IAP Contributions, Rate Collar, Side Accounts

	12/31/2021 Valuation 2023 – 2025 Final Rates			12/31/2023 Valuation 2025 – 2027 Final Rates		
	Payroll			Payroll		
	Tier One / Tier Two	OPSRP	Weighted Average ¹	Tier One / Tier Two	OPSRP	Weighted Average ¹
Normal Cost	16.35%	10.47%	12.04%	16.32%	11.11%	12.18%
Tier One/Tier Two UAL	10.34%	10.34%	10.34%	12.05%	12.05%	12.05%
OPSRP UAL	<u>1.51%</u>	<u>1.51%</u>	<u>1.51%</u>	<u>2.86%</u>	<u>2.86%</u>	<u>2.86%</u>
Uncollared Total Rate	28.20%	22.32%	23.89%	31.23%	26.02%	27.09%
Increase				3.03%	3.70%	3.20%

¹ Weighting based on pool payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date.

The pool-average collared net rates which employers would be charged are shown on subsequent slides

Rates shown on this slide are “total” rates and include the member EPSA contribution component of the normal cost

Rates vary, sometimes widely among employers in the SLGRP

Collared Total Pension Base Rates – SLGRP Average

Excludes Retiree Health Care & IAP Contributions, Side Account Offsets

	12/31/2021 ¹ Valuation 2023 – 2025 Final Rates			12/31/2023 ¹ Valuation 2025 – 2027 Final Rates		
	Payroll			Payroll		
	Tier One / Tier Two	OPSRP	Weighted Average ²	Tier One / Tier Two	OPSRP	Weighted Average ²
Uncollared Total Rate	28.20%	22.32%	23.89%	31.23%	26.02%	27.09%
Effect of Rate Collar	<u>2.52%</u>	<u>2.52%</u>	<u>2.52%</u>	<u>0.32%</u>	<u>0.32%</u>	<u>0.32%</u>
Collared Total Base Rate	30.72%	24.84%	26.41%	31.55%	26.34%	27.41%
Increase				0.83%	1.50%	1.00%

¹ For this exhibit, adjustments are assumed not to be limited due to an individual employer reaching a 0.00% contribution rate.

² Weighting based on pool payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date

Rates shown on this slide are “total” rates and include the member EPSA contribution

Collared Employer Pension Rates – SLGRP Average

Excludes Retiree Health Care & IAP Contributions

	12/31/2021 ¹ Valuation 2023 – 2025 Final Rates			12/31/2023 ¹ Valuation 2025 – 2027 Final Rates		
	Tier One / Tier Two	Payroll OPSRP	Weighted Average ²	Tier One / Tier Two	Payroll OPSRP	Weighted Average ²
Collared Total Base Rate	30.72%	24.84%	26.41%	31.55%	26.34%	27.41%
Member Redirect Offset	<u>(2.40%)</u>	<u>(0.65%)</u>	<u>(1.10%)</u>	<u>(2.40%)</u>	<u>(0.65%)</u>	<u>(1.00%)</u>
Collared Base Employer Rate	28.32%	24.19%	25.31%	29.15%	25.69%	26.41%
Side Account (Offset)	(5.14%)	(5.14%)	(5.14%)	(3.15%)	(3.15%)	(3.15%)
SLGRP Charge/(Offset)	<u>(0.66%)</u>	<u>(0.66%)</u>	<u>(0.66%)</u>	<u>(0.30%)</u>	<u>(0.30%)</u>	<u>(0.30%)</u>
Collared Net Rate	22.52%	18.39%	19.51%	25.70%	22.24%	22.96%
Increase				3.18%	3.85%	3.45%

¹ For this exhibit, adjustments are assumed not to be limited due to an individual employer reaching a 0.00% contribution rate.

² Weighting based on pool payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date

Rates vary by employer, sometimes significantly, as only some employers have side accounts and the SLGRP charge/(offset) varies by employer

Uncollared Total Pension Rates – System-Wide

Excludes Retiree Health Care, IAP Contributions, Rate Collar, Side Accounts

	12/31/2021 Valuation 2023 – 2025 Final Rates			12/31/2023 Valuation 2025 – 2027 Final Rates		
	Payroll			Payroll		
	Tier One / Tier Two	OPSRP	Weighted Average ¹	Tier One / Tier Two	OPSRP	Weighted Average ¹
Normal Cost	15.91%	10.47%	11.98%	16.21%	11.11%	12.21%
Tier One/Tier Two UAL	10.24%	10.24%	10.24%	12.15%	12.15%	12.15%
OPSRP UAL	1.51%	1.51%	1.51%	2.86%	2.86%	2.86%
Uncollared Total Rate	27.66%	22.22%	23.73%	31.22%	26.12%	27.22%
Increase				3.56%	3.90%	3.49%

¹ Weighting based on system-wide payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date.

Rates shown on this slide are “total” rates and include the member EPSA contribution component of the normal cost

Collared Total Pension Base Rates – System-Wide

Excludes Retiree Health Care & IAP Contributions, Side Account Offsets

	12/31/2021 Valuation 2023 – 2025 Final Rates			12/31/2023 Valuation 2025 – 2027 Final Rates		
	Tier One / Tier Two	Payroll OPSRP	Weighted Average ¹	Tier One / Tier Two	Payroll OPSRP	Weighted Average ¹
Uncollared Total Rate	27.66%	22.22%	23.73%	31.22%	26.12%	27.22%
Effect of Rate Collar	3.01%	3.01%	3.01%	0.89%	0.89%	0.89%
Collared Total Base Rate	30.67%	25.23%	26.74%	32.11%	27.01%	28.11%
Increase				1.44%	1.78%	1.37%

¹ Weighting based on system-wide payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date.

Rates shown on this slide are “total” rates and include the member EPSA contribution

Collared Employer Pension Rates – System-Wide

Excludes Retiree Health Care & IAP Contributions

	12/31/2021 ¹ Valuation 2023 – 2025 Final Rates			12/31/2023 ¹ Valuation 2025 – 2027 Final Rates		
	Tier One / Tier Two	Payroll OPSRP	Weighted Average ²	Tier One / Tier Two	Payroll OPSRP	Weighted Average ²
Collared Base Rate	30.67%	25.23%	26.74%	32.11%	27.01%	28.11%
Member Redirect Offset	<u>(2.40%)</u>	<u>(0.65%)</u>	<u>(1.10%)</u>	<u>(2.40%)</u>	<u>(0.65%)</u>	<u>(1.00%)</u>
Collared Base Employer Rate	28.27%	24.58%	25.64%	29.71%	26.36%	27.11%
Side Account (Offset)	(6.64%)	(6.64%)	(6.64%)	(4.24%)	(4.24%)	(4.24%)
SLGRP Charge/(Offset)	(0.39%)	(0.39%)	(0.39%)	(0.18%)	(0.18%)	(0.18%)
Collared Net Rate	21.24%	17.55%	18.61%	25.29%	21.94%	22.69%
Increase				4.05%	4.39%	4.08%

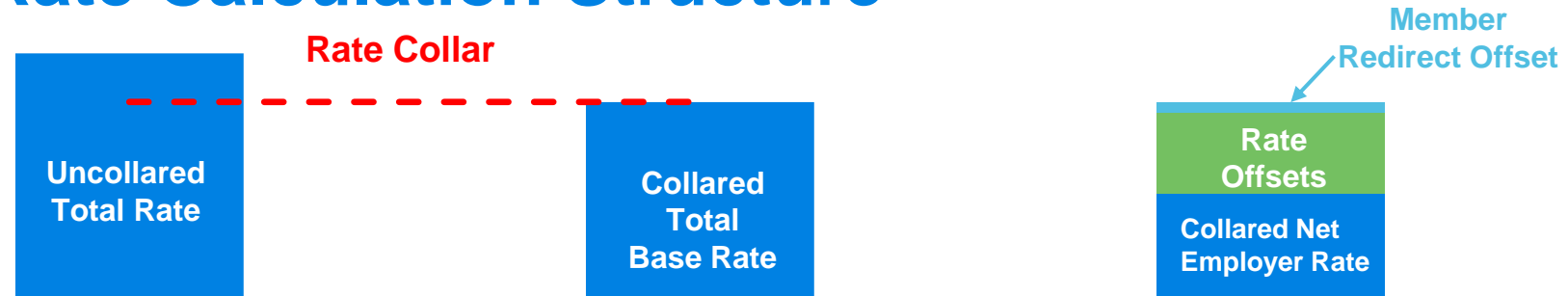
¹ For this exhibit, adjustments are assumed not to be limited due to an individual employer reaching a 0.00% contribution rate.

² Weighting based on system-wide payroll levels (Tier One/Tier Two, OPSRP) as of the valuation date

Rates vary by employer, as only some employers have side accounts

Changes in side account offsets are not collared

Overview of Rate Calculation Structure



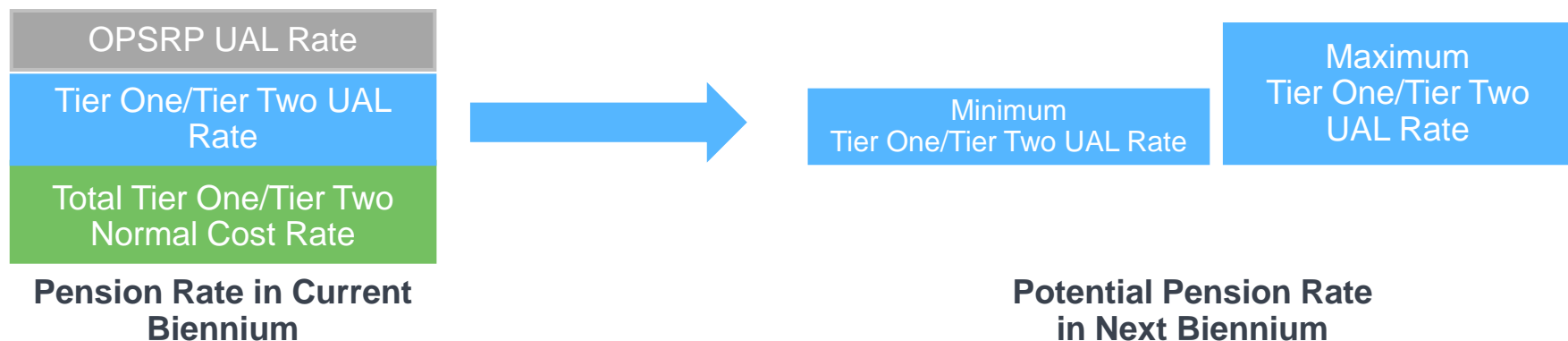
- The ***uncollared total rate*** is the theoretical contribution rate to reach 100% funded status over a specified amortization period if:
 - Contributions at that rate started on the actuarial valuation date, and
 - Actual future experience mirrors the actuarial valuation's assumptions, and
 - The normal cost rate does not change in subsequent years
- The rate collar sets a biennium's ***collared total base rate***, limiting the base rate change for a single biennium when there is a large change in the uncollared rate
- ***Member redirect offset*** reflects estimated portion of collared total base rate paid by redirected member contributions
- Employers pay the ***collared net employer rate***, which reflects the member redirect offset and any rate offset adjustments from:
 - Side account rate offsets for employers with side accounts
 - SLGRP charges/offsets (e.g., Transition Liability/Surplus)

This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Rate Collar Design

- Rate collar focuses on the biennium-to-biennium change in the UAL Rate component
 - Normal Cost Rate component is always paid in full and is not subject to a rate collar limitation
- The maximum biennium to biennium change in UAL Rate permitted by the rate collar is:
 - **SLGRP and School District Pools Tier One/Tier Two UAL Rates:** 3% of pay
 - **OPSRP UAL rate:** 1% of pay
 - **Tier One/Tier Two UAL Rates of Independent Employers:** greater of 4% of pay or 1/3rd of the difference between the collared and uncollared Tier One/Tier Two UAL Rates at the last rate-setting valuation
- UAL Rate is not allowed to decrease at all unless funded status excluding side accounts is at least 87%, and a full collar width decrease is not allowed unless funded status is at least 90%

Illustration of Rate Collar for Tier One/Tier Two UAL Rate



This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Retirement System Risks

- Oregon PERS, like all defined benefit systems, is subject to various risks that will affect future system liabilities and contribution requirements, including:
 - **Investment risk:** the potential that investment returns will be different than assumed
 - **Demographic risks:** the potential that mortality experience, retirement behavior, or other demographic experience for the system membership will be different than assumed
 - **Contribution risk:** the potential that actual future contributions will be materially different than expected, for example if there are material changes in the system's covered payroll
- The results of an actuarial valuation are based on one set of reasonable assumptions, but it is almost certain that future experience will not exactly match the assumptions.
- Further discussion of system risks and historical information regarding system experience are shown in our annual actuarial valuations. In addition, our annual financial modeling presentation to the PERS Board illustrates future outcomes under a wide range of future scenarios reflecting variation in key risk factors.

Investment Risk

Low Default Rate Obligation Measure (LDROM)

To the extent that actual investment returns differ from the assumed investment return, the Plan’s future assets, funding contributions, and funded status may differ significantly from those presented in this valuation. Effective for measurement dates February 15, 2023 or later, Actuarial Standard of Practice 4 (ASOP 4) requires an actuary performing a funding valuation to calculate and disclose a “low-default-risk obligation measure” (LDROM) as of the measurement date. The LDROM is based on a discount rate derived from low-default-risk fixed income securities. This measure is for disclosure purposes only and does not affect or replace measurements adopted for System funding. A comparison of the LDROM to funding policy results can be viewed as providing information related to investment risk and the tradeoffs between a System’s current asset allocation and a hypothetical portfolio containing 100% low-default-risk fixed income securities.

The System’s target allocation selected by the Oregon Investment Council represents a balance of risk and return. Investing in an entirely low-default-risk fixed income allocation would be expected to reduce future investment returns and therefore increase future required contributions, but the lower risk levels may result in lower year-over-year volatility in the contribution and might provide more benefit security for plan members. Conversely, investing in higher-returning asset classes may increase future investment returns and therefore reduce future employer contributions, but would also increase the volatility of those contributions and potentially reduce benefit security for plan members.

The LDROM measure shown below reflects an interest rate based on the FTSE Liability Index (which is based on high-quality corporate bond yields) as of the valuation date, weighted based on projected benefit payments for the System. Except for the interest rate, the LDROM was calculated using the same assumptions and methods adopted for the funding valuation.

<i>\$ billions</i>	FTSE Index (LDROM)	Funding assumption
Interest rate	4.81%	6.90%
Actuarial liability at 12/31/2023	\$ 136.4	\$ 106.4
Funded status (excluding side accounts) at 12/31/2023	56%	72%

This work product was prepared for discussion purposes only and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Any recipient of this work product who desires professional guidance should engage qualified professionals for advice appropriate to its own specific needs.

Actuarial Basis

Data

We have based our calculation of the liabilities on the data supplied by the Oregon Public Employees Retirement System and summarized in the data exhibits on the preceding slides.

Assets as of December 31, 2023, were based on values provided by Oregon PERS reflecting the Board's earnings crediting decisions for 2023.

Methods / Policies

Actuarial Cost Method: Entry Age Normal, adopted effective December 31, 2012.

UAL Amortization: The UAL for OPSRP and Retiree Health Care as of December 31, 2007 were amortized as a level percentage of combined valuation payroll over a closed 16-year period for OPSRP and a closed 10-year period for Retiree Health Care. For the Tier One/Tier Two UAL, the amortization period was reset at 20 years as of December 31, 2013. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier One/Tier Two UAL over a closed 22-year period at the December 31, 2019 rate-setting valuation which will set actuarially determined contribution rates for the 2021-2023 biennium. Gains and losses between subsequent odd-year valuations are amortized as a level percentage of combined valuation payroll over the amortization period (20 years for Tier One/Tier Two, 16 years for OPSRP, 10 years for Retiree Health Care) from the odd-year valuation in which they are first recognized.

For the Retiree Health Care programs (RHIA and RHIPA), beginning with the December 31, 2021 rate-setting valuation the amortization policy when a program is over 100% funded status will be to amortize the actuarial surplus over Tier One/Tier Two payroll using a rolling 20-year amortization basis. The resulting negative UAL Rate will offset the normal cost rate for the program, but not below 0.0%. If either program subsequently fell below 100%, the UAL would be amortized over combined payroll following the 10-year closed, layered amortization policy.

Actuarial Basis

Methods / Policies (cont'd)

Contribution rate stabilization method: The UAL Rate contribution rate component for a rate pool (e.g. Tier One/Tier Two SLGRP, Tier One/Tier Two School Districts, OPSRP) is confined to a collared range based on the prior biennium's collared UAL Rate contribution rate component (prior to consideration of side account offsets, SLGRP transition liability or surplus rates, or pre-SLGRP liability rate charges or offsets).

Collar Width: the rate pool's new UAL Rate contribution rate component will generally not increase or decrease from the prior biennium's collared UAL Rate contribution rate component by more than the following amount:

- Tier One/Tier Two SLGRP and Tier One/Tier Two School District Pool: 3% of payroll
- OPSRP: 1% of payroll
- Tier One/Tier Two rates for independent employers: greater of 4% of payroll or one-third of the difference between the collared and uncollared UAL Rate at the prior rate-setting valuation. In addition, the UAL Rate will not be allowed to be less than 0.00% of payroll for any Tier One/Tier Two independent employer with a funded status (excluding side accounts) less than 100%.

UAL Rate decrease restrictions: the UAL Rate for any rate pool will not be allowed to decrease if the pool's funded status is 87% (excluding side accounts) or lower; the allowable decrease will phase into the full collar width from 87% funded to 90% funded.

The contribution rate stabilization method is considered an output smoothing method which results in a reasonable relationship between the smoothed contribution and the corresponding actuarially determined contribution without output smoothing.

Expenses: System-wide administration expenses are assumed to be equal to \$64.0M. The assumed expenses are allocated between Tier One/Tier Two and OPSRP based on projected payroll and are added to the respective normal costs.

Actuarial Value of Assets: Equal to Market Value of Assets excluding Contingency and Tier One Rate Guarantee Reserves. The Tier One Rate Guarantee Reserve is not excluded from assets if it is negative (i.e., in deficit status). The Actuarial Value of Assets includes the value of Employee Pension Stability Accounts (EPSA).

Actuarial Basis

Methods / Policies (cont'd)

Actuarially Determined Contribution (ADC): The contribution determined by the plan's funding policy is expected to exceed the normal cost, plus interest on the unfunded actuarial accrued liability. Presuming that all actuarial assumptions are realized and that the plan sponsor makes contributions anticipated by the funding policy, the unfunded actuarial accrued liability is expected to be fully amortized no later than 20 years after the contribution rates determined in this valuation take effect. The funding policy is consistent with the plan accumulating assets adequate to make benefit payments when due. Actuarial standards require the actuary to calculate and disclose a "Reasonable ADC", which considers that the actuarial methods and actuarial assumptions are in compliance with Actuarial Standards of Practice. Based on the assumptions and methods used in this report, we believe the ADC is reasonable in accordance with actuarial standards. In our opinion, the ADC reflects a balance among benefit security for plan members, intergenerational equity among stakeholders, and stability of periodic costs.

We considered reflecting the 18-month delay between the rate-setting valuation date and the July 1 date on which newly adopted rates first take effect. The effect of the contribution time lag is not reflected for regular UAL amortizations but is reflected for amortization of side accounts and Pre-SLGRP amounts. Please see the in the 2022 Experience Study for the discussion and rationale for this methodology.

Assumptions

Assumptions for valuation calculations are as described in the 2022 Experience Study for Oregon PERS and presented to the PERS Board in July 2023.

Provisions

Provisions valued are as detailed in the forthcoming 2023 Valuation Report.