UPDATED VALUATION RESULTS ESTIMATES

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

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Calendar

- September: System-wide results of December 31, 2022 actuarial valuation
- December:
  - **Advisory** employer-specific 2025-2027 contribution rates
    - Based on the December 31, 2022 actuarial valuation
  - Long-term financial modeling projections reflecting published investment **returns through September 30, 2023** of **+2.65%**
    - System average contribution rates, funded status, and unfunded actuarial liability (UAL)
- Today: Preliminary estimate of system-wide December 31, 2023 results
  - Based on financial model presented in December, updated for published **full-year 2023 returns** of **+5.98%**
  - Actual December 31, 2023 valuation results will reflect updated member data
    - Initial system-average valuation results will be presented to the Board on July 26, 2024
    - Proposed 2025-2027 contribution rates for Board adoption on October 4, 2024

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Preliminary 12/31/2023 valuation results estimate

Actual 2023 Investment Return	Excluding Side Accounts		Including Side Accounts	
	UAL	Funded Status	UAL	Funded Status
+ 5.98%	**$28.4**	**73%**	**$22.8**	**78%**

(Amounts in billions)

- Estimate reflects 12/31/2022 member census data, including the effect of assumed individual member salary increases during 2023
- Side accounts reflected do not include new accounts established during 2023
- Final valuation results will be based on 12/31/2023 member census data, including the effect of actual individual member salary increases during 2023
- At 12/31/2022 and excluding side accounts, UAL was $28.0 billion and funded status was 73%

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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**

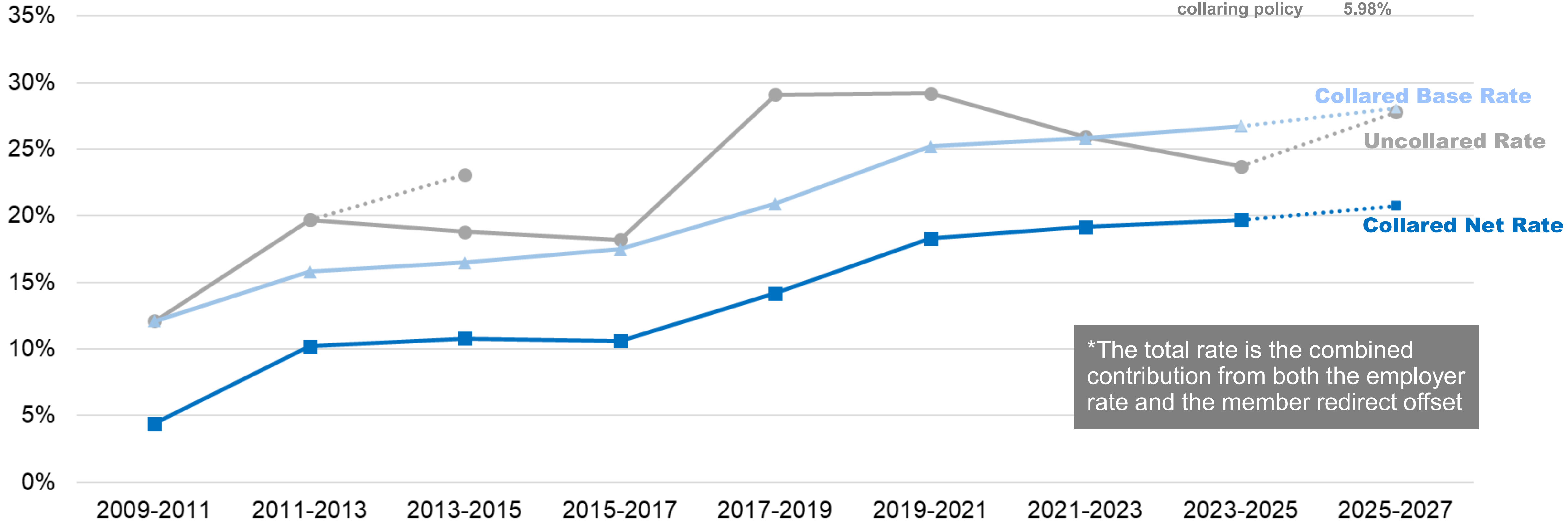
2017-2019 set **post-*Moro***, reflecting 2015 return (**+2.1%**) and second **decrease in assumed return**

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 are **preliminary estimates;** reflects higher salary increase assumptions, 2022 actual return of **-1.55%** and 2023 return of **5.98%**



Assumed Return:	2009-2011	2011-2013	2013-2015	2015-2017	2017-2019	2019-2021	2021-2023	2023-2025	2025-2027
	8.00%	8.00%	8.00%	7.75%	7.50%	7.20%	7.20%	6.90%	6.90%

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System-average pension rates

	2023-2025	Estimated 2025-2027
Uncollared Total Rate	**23.7%**	**27.8%**
Collared Total Base Rate	**26.7%**	**28.1%**
Member Redirect Offset	**(1.1%)**	**(1.1%)**
Collared Base Employer Rate	**25.6%**	**27.0%**
Collared Net Employer Rate	**18.6%**	**19.7%**

(Excludes retiree healthcare and IAP contributions)

- Member redirect offset shown for 2025-2027 is average of 2.40% for Tier One/Tier Two and 0.65% for OPSRP, based on estimated 12/31/2023 payroll weightings
  - Amounts reflect estimated impact of redirect excluding members with monthly pay below statutory threshold
  - Over time, average will converge to OPSRP offset of 0.65%
- Estimates reflect 2023 investment return of +5.98% and 12/31/2022 member census data

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Appendix

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Certification

This presentation summarizes a limited update to deterministic modeling for the Oregon Public Employees Retirement System ("PERS" or "the System") initially presented to the PERS board in December 2023 based on a valuation with a measurement date of December 31, 2022. Updates since December 2023 consist solely of changes to modeled 2023 investment returns as noted in the body of this presentation, including a modeled +21.74% 2023 return on Tier One/Tier Two member variable accounts. The December 2023 presentation and the December 31, 2022 Actuarial Valuation Report should be referenced for additional detail on the assumptions, methods, and plan provisions underlying these results.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts 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, employee 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.

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A 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.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements 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 December 31, 2022 Actuarial Valuation Report provides additional discussion of the System's risks. The PERS Board has the final decision regarding the appropriateness of the assumptions.

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.

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Retirement System Risks

- Oregon PERS, like all defined benefit plans, is subject to various risks that will affect future plan liabilities and contribution requirements, including:
  - **Investment risk**: the potential that investment returns will be different than expected
  - **Demographic risks**: the potential that mortality experience, retirement behavior, or other demographic experience for the plan population will be different than expected
  - **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 plan risks and historical information regarding plan 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.

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