



Teachers' and State Employees' Retirement System of North Carolina

Actuarially Determined Employer Contributions (ADEC) Projections for the State System

January 26, 2023, Board of Trustees Meeting

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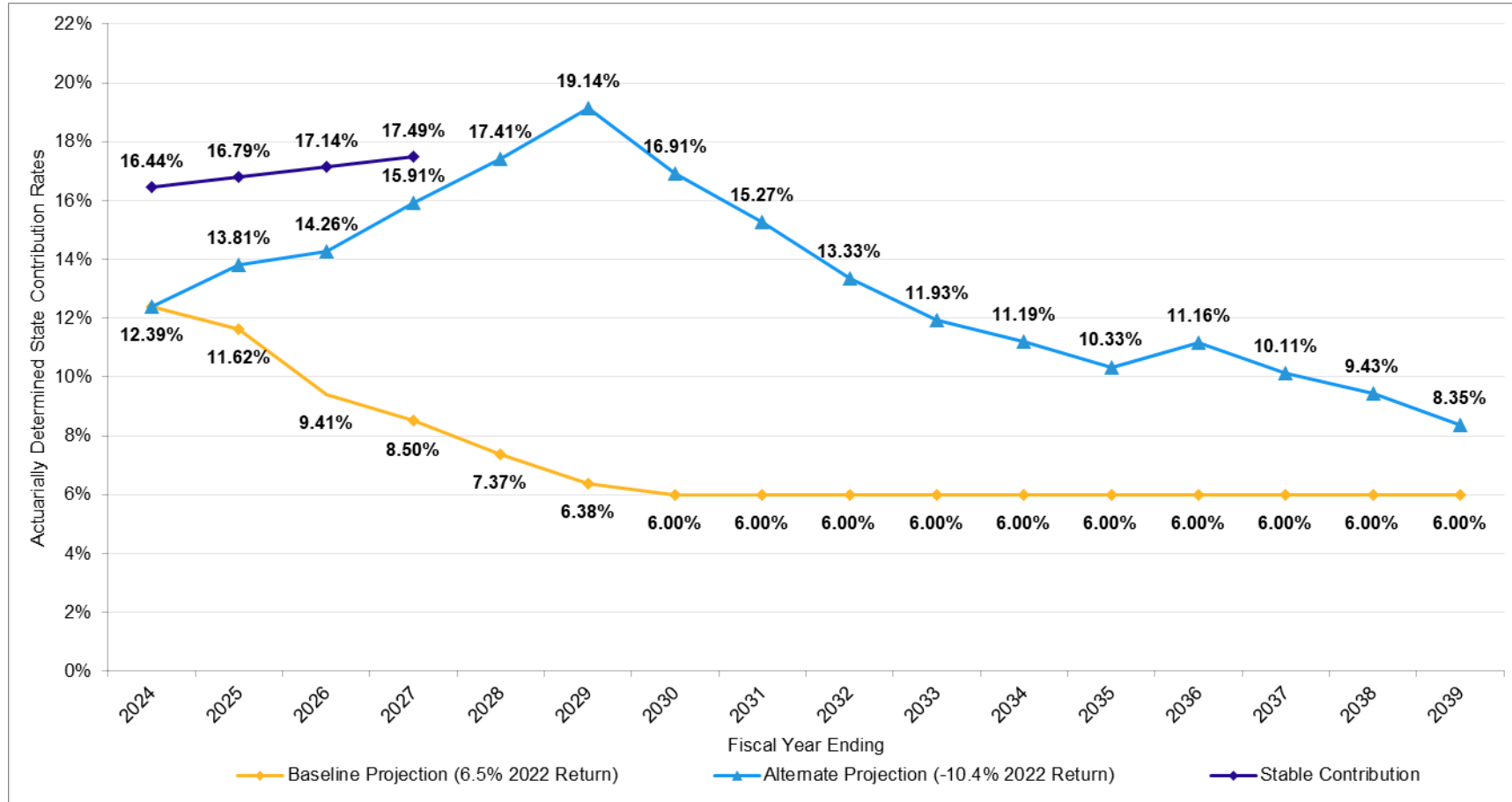
Elizabeth Wiley, FSA, EA, MAAA, FCA

Projections

- Projections of contribution requirements and funded status into the future can be helpful planning tools for stakeholders. This section provides such projections. The projections of the actuarial valuation are known as deterministic projections. Deterministic projections are based on one scenario in the future. The baseline deterministic projection is based on December 31, 2021 valuation results and assumptions.
- Key Projection Assumptions
 - Valuation interest rate of 6.50% for all years in conjunction with direct rate smoothing of the employer contribution rate over a 5-year period beginning July 1, 2022.
 - 6.50% investment return on market value of assets
 - Actuarial assumptions and methods as described in Appendix D of the December 31, 2021 valuation report. All future demographic experience is assumed to be exactly realized.
 - The contribution rate under the Employer Contribution Rate Stabilization Policy (ECRSP) is contributed until fiscal year ending 2027.
 - The actuarially determined employer contribution rate is contributed for fiscal years ending 2028 and beyond.
 - The employer contribution shall not be less than the employee contribution, which is currently 6%.
 - 0% increase in the total active member population
 - No cost-of-living adjustments granted
 - Future pay increases based on long-term salary increase assumptions
- The ECRSP adopted by the Board of Trustees on April 29, 2021 requires that recommended contributions be 0.35% of payroll greater than the appropriated contribution during the prior year, with the following bounds: (1) contributions may not be less than the actuarially determined employer contribution (ADEC) rate and (2) contributions may not be greater than a contribution determined using the same assumptions used to calculate the ADEC but using a discount rate equal to the long-term Treasury bond yield.
- In addition, we have provided one other alternate deterministic projection. This alternate deterministic projection is based on the same assumptions as the baseline deterministic projection except that it assumes a -10.4% asset return for calendar year 2022.

Projections

Projected Contribution Rates



Alternate Projection utilizes estimated return of -10.4% for calendar year 2022 compared to Baseline Projection assumption of 6.5%.

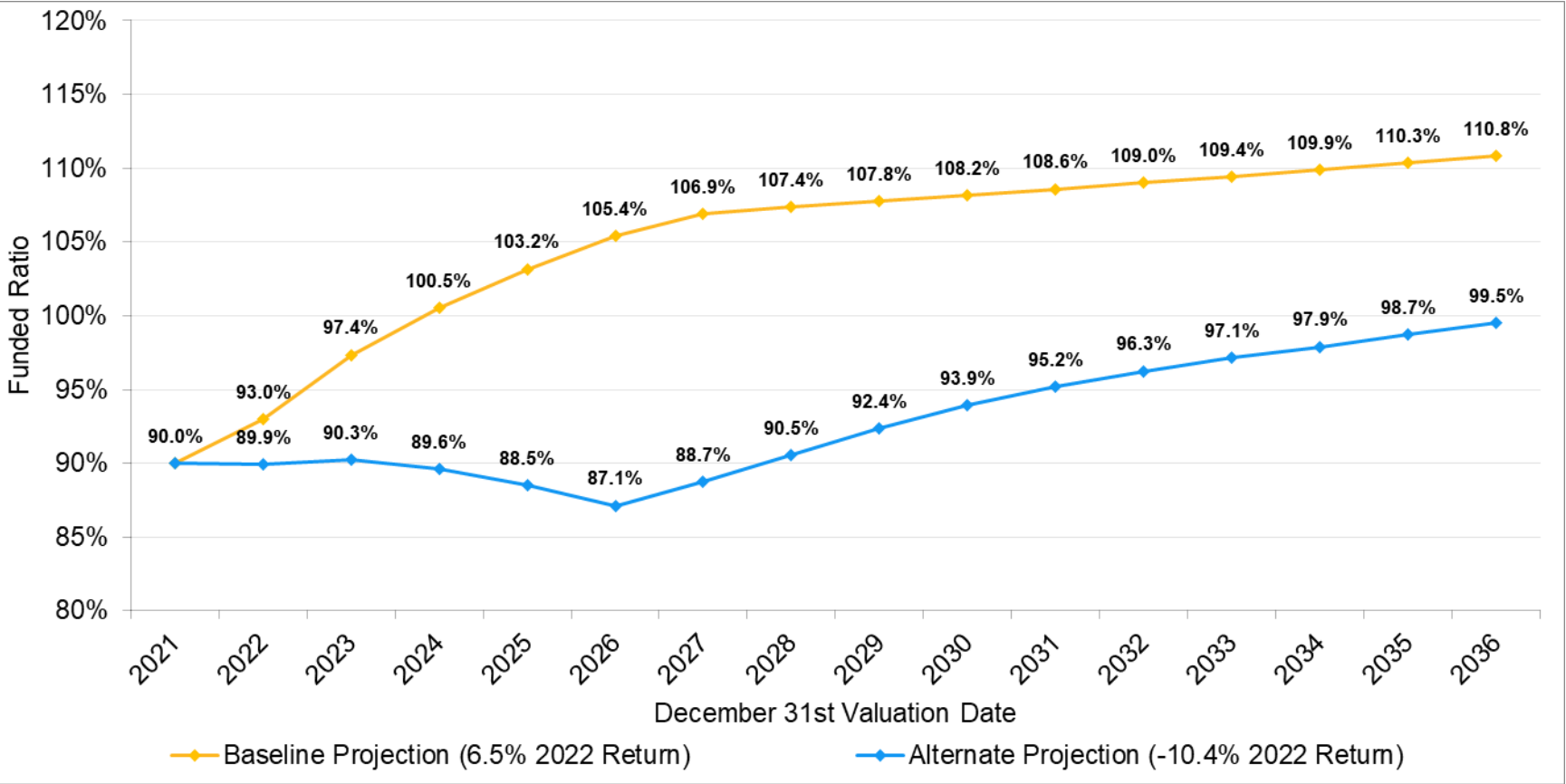
The estimated return for the 2022 calendar year is -16.9% lower than expected, resulting in a market value of assets \$14.6 billion lower than expected.

The unfunded actuarial accrued liability is projected to be higher than previously expected given this loss, resulting in higher employer contribution rates over the projection period.

A detailed summary of the deterministic projections is provided in Section 9.

Projections

Projected Funded Ratio



Given the lower than expected return for 2022, estimated market value of assets are \$14.6 billion lower than anticipated.

This asset loss will be phased in to the funded status of the plan over a five-year period from December 31, 2022 to December 31, 2026, causing a decline in the funded status until the loss is fully recognized. Thereafter, the funded status of the plan begins to climb upward.

Certification

The purpose of this presentation is to provide the Board of Trustees (“Board”) of the Teachers’ and State Employees’ Retirement System of North Carolina estimated future projections based on the December 31, 2021 valuation results for discussion during the January 26, 2023 Board meeting attended by the actuaries. This presentation is provided for informational purposes and should not be used as actual future funding contribution rates for the System

Use of these presentation results for any other purpose or by anyone other than the Board, the State of North Carolina, or their respective staffs may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the presentation results for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advance review of any statement, document, or filing to be based on the results contained in this presentation. Buck will accept no liability for any such statement, document, or filing to be made without its prior review.

Unless otherwise noted, the data, assumptions, methods, plan provisions, and model associated with the development of these results are the same as those described in the December 31, 2021 valuation report prepared October 2022. Risks inherent in the measurements herein are also the same as those described in that report.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and 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. Because of limited scope, Buck performed no analysis of the potential range of such future differences, except for some limited analysis in financial projections.

This report was prepared under our supervision and in accordance with all applicable Actuarial Standards of Practice. We are Fellows of the Society of Actuaries, Enrolled Actuaries, Members of the American Academy of Actuaries, and Fellows of the Conference of Consulting Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. We are available to discuss this report with you at your convenience.

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Appendix

Fiscal Year Contribution Projection

Alternate Projection (-10.4% Return in 2022, 6.50% Return Thereafter)

Fiscal Year Ending	Employer Contribution Rate	Employer Contribution (\$)	Member Contribution (\$)	Benefit Payments (Val Year) (\$)	Payroll (\$)
6/30/2024	16.44%	2,809,039,000	1,025,197,000	-6,317,692,000	17,086,613,000
6/30/2025	16.79%	2,927,155,000	1,046,035,000	-5,589,767,000	17,433,916,000
6/30/2026	17.14%	3,052,221,000	1,068,456,000	-5,772,264,000	17,807,593,000
6/30/2027	17.49%	3,183,304,000	1,092,042,000	-5,960,299,000	18,200,707,000
6/30/2028	17.41%	3,240,306,000	1,116,705,000	-6,157,975,000	18,611,753,000
6/30/2029	19.14%	3,644,344,000	1,142,428,000	-6,362,931,000	19,040,461,000
6/30/2030	16.91%	3,295,208,000	1,169,205,000	-6,576,296,000	19,486,744,000
6/30/2031	15.27%	3,046,922,000	1,197,219,000	-6,794,322,000	19,953,647,000
6/30/2032	13.33%	2,725,030,000	1,226,570,000	-7,014,746,000	20,442,837,000
6/30/2033	11.93%	2,499,735,000	1,257,201,000	-7,236,854,000	20,953,356,000
6/30/2034	11.19%	2,404,238,000	1,289,136,000	-7,455,541,000	21,485,593,000
6/30/2035	10.33%	2,276,894,000	1,322,494,000	-7,671,678,000	22,041,565,000
6/30/2036	11.16%	2,524,953,000	1,357,501,000	-7,885,207,000	22,625,024,000
6/30/2037	10.11%	2,349,299,000	1,394,242,000	-8,093,022,000	23,237,374,000
6/30/2038	9.43%	2,251,964,000	1,432,851,000	-8,296,821,000	23,880,851,000
6/30/2039	8.35%	2,051,130,000	1,473,866,000	-8,490,573,000	24,564,434,000

Asset and Liability Projection

Alternate Projection (-10.4% Return in 2022, 6.50% Return Thereafter)

Valuation Date	Market Value of Assets (\$)	Actuarial Value of Assets (\$)	Accrued Liability (\$)	Unfunded Accrued Liability (\$)	Funded Ratio
12/31/2021	87,966,353,000	83,139,458,000	92,356,226,000	9,216,768,000	90.0%
12/31/2022	76,389,562,000	84,287,163,000	93,759,137,000	9,471,975,000	89.9%
12/31/2023	79,586,896,000	86,729,619,000	96,079,601,000	9,349,982,000	90.3%
12/31/2024	82,829,552,000	88,172,749,000	98,408,062,000	10,235,313,000	89.6%
12/31/2025	86,237,324,000	89,166,762,000	100,743,952,000	11,577,190,000	88.5%
12/31/2026	89,818,656,000	89,818,656,000	103,080,911,000	13,262,255,000	87.1%
12/31/2027	93,543,644,000	93,543,644,000	105,412,629,000	11,868,985,000	88.7%
12/31/2028	97,552,456,000	97,552,456,000	107,734,946,000	10,182,490,000	90.5%
12/31/2029	101,656,730,000	101,656,730,000	110,044,632,000	8,387,902,000	92.4%
12/31/2030	105,519,481,000	105,519,481,000	112,341,621,000	6,822,140,000	93.9%
12/31/2031	109,140,197,000	109,140,197,000	114,625,160,000	5,484,963,000	95.2%
12/31/2032	112,518,645,000	112,518,645,000	116,901,147,000	4,382,501,000	96.3%
12/31/2033	115,759,617,000	115,759,617,000	119,174,213,000	3,414,596,000	97.1%
12/31/2034	118,909,699,000	118,909,699,000	121,450,332,000	2,540,633,000	97.9%
12/31/2035	122,144,994,000	122,144,994,000	123,739,606,000	1,594,612,000	98.7%
12/31/2036	125,457,603,000	125,457,603,000	126,050,788,000	593,185,000	99.5%

