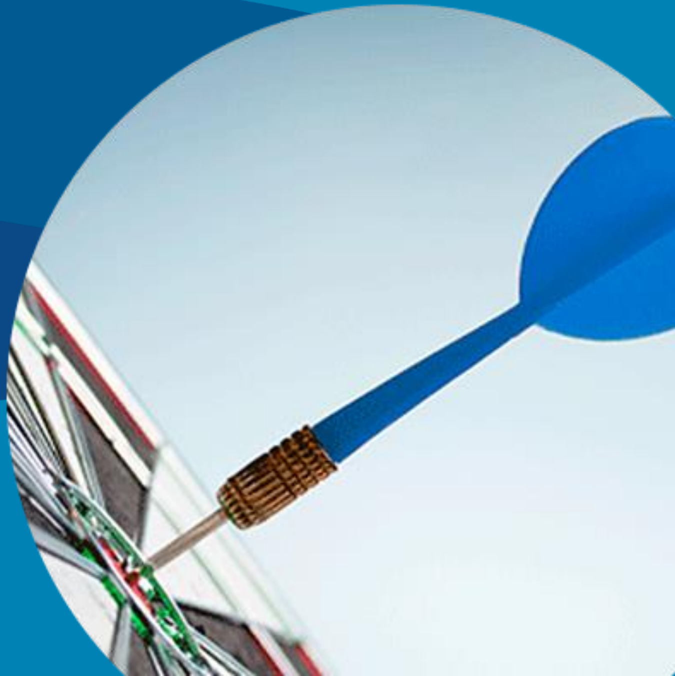
Wyoming Retirement System

October JAC Meeting Presentation

October 26, 2023
Cheyenne, Wyoming

Paul Wood, ASA, FCA, MAAA
Thomas Lyle, FSA, EA, FCA, MAAA



WRS’ Current Standing

Unfunded Accrued Liability

- As of January 1, 2023, across all eight plans, there is approximately $2.8 Billion in Unfunded Accrued Liability (UAL)
- The reality is that this unfunded liability needs to be paid down one way or another
- Currently employing a fixed rate policy to address the unfunded liability
- Contribution rates do not automatically adjust, up or down, in the face of emerging experience

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WRS' Current Standing

The Hidden Volatility of Fixed Rate Funding

- Although we refer to the funding as being "Fixed Rate," recent history has shown it has not been "Fixed"

History of Contribution Rates in the PE Plan		
Valuation Date as of January 1,	**Total EE/ER Fixed Rate Contribution**	**Change in Total EE/ER Fixed Rate Contribution**
2012	14.12%	
2013	14.12%	0.00%
2014	14.62%	0.50%
2015	15.87%	1.25%
2016	16.62%	0.75%
2017	16.62%	0.00%
2018	16.62%	0.00%
2019	17.37%	0.75%
2020	17.87%	0.50%
2021	18.37%	0.50%
2022	18.62%	0.25%
2023	18.62%	0.00%

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WRS' Current Standing

Path Forward

- The JAC has requested information on the impact of moving away from the "Fixed Rate" approach and potentially adopting an Actuarially Determined Contribution (ADC) approach
- So today, we will cover:
  - Elements of a Funding Policy
  - Compare and Contrast Fixed Rate and ADC approaches
  - How could an ADC policy for WRS look?

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Funding Policy Review

Basic Retirement Funding Equation

C + I = B + E

Contributions	Investment Income	Benefits	Expenses
• Funding Policy	• Investment Strategy	• Plan Design	• Administrative Policy

“Net Money In = Money Out”

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Funding Policy Review

What is a Funding Policy?

- Five Elements of a Funding Policy:
  - Actuarial Assumptions
    - Assumptions are studied on a regular basis
    - The Board is very diligent in its review of the assumptions
    - The current assumption set positions us well moving forward
  - Actuarial Cost Method
    - Entry Age Normal – Most common method in Public Sector
  - Asset Smoothing Method
    - Five Year smoothing
    - Focus on asset trends rather than year to year volatility
  - Amortization Procedures
    - More on this in a moment
  - Risk Management Process
    - Consider risk tolerance and budget capacity of the of the State and Local Employers

Funding Policy Review

Elements of WRS Board's Funding Policy - Amortization Procedures

- The Board has an amortization policy
  - Uses a process called "layered amortization" using a level percent of pay approach
  - The unfunded accrued liability as of January 1, 2018 is amortized over a 30 year period (25 years remaining)
  - Future gains and losses over a closed 20-year period

UAAL as of January 1, 2023	$2,548,052,151
Total Prior Remaining Amortization Bases as of January 1, 2023	$2,501,972,251
2023 Amortization Base as of January 1, 2023	**$46,079,900**
2023 Payment (20 years, level percent of pay amortization)	**$3,421,306**

		As of January 1, 2023		
Base Year	**Initial Base**	**Remaining Base**	**Years Remaining**	**Amortization Payment**
2023 Experience Loss	$ 46,079,900	$ 46,079,900	20	$ 3,421,306
2022 Experience Gain	(316,011,592)	(313,252,762)	19	(24,049,570)
2022 Assumption Changes	168,448,054	166,977,477	19	12,819,477
2021 Experience Gain	(103,194,098)	(101,202,432)	18	(8,055,282)
2020 Experience Loss	171,551,375	165,957,479	17	13,735,580
2019 Experience Loss	259,338,420	246,658,278	16	21,298,643
2018 Experience Loss	2,273,969,633	2,336,834,211	25	151,439,076
Total		**$ 2,548,052,151**		**$ 170,609,230**

Funding Policy Review

Elements of WRS Board's Funding Policy – ADC

- Each year, we calculate an ADC and disclose it in the report
  - Normal Cost; plus
  - Administrative Expenses; plus
  - Amortization payment
- We do this because it is a good metric to which we can compare the current statutory rates
- This ADC along with open group projections help inform rate increase recommendations

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Funding Policy Review

Elements of WRS Board's Funding Policy – ADC

ADC Development as of Janaury 1, 2023

	% of Pay	$ Amount In Millions
Normal Cost	11.33%	$ 218
Administration	0.42%	8
Amortization of Unfunded Liability	8.86%	171
Total Rate	**20.61%**	**$ 397**
Current Statutory Total Rate	**18.62%**	**$ 358**
Shortfall	**1.99%**	**$ 38**

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COMPARE AND CONTRAST FIXED RATE VS. ACTUARIALLY DETERMINED CONTRIBUTION (ADC) FUNDING

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Funding Policy Considerations
Fixed Rate vs. ADC Funding

- Fixed Rate Funding
  - The WRS plans are currently funded this way
  - The contribution rate is fixed at a certain level (Volatility is hidden)
  - Plan experience and assumptions changes in the short term can have large impacts on the long term projected funded status
- ADC Funding
  - Contributions are generally equal to the normal cost with administrative expenses plus an amount to amortize the unfunded accrued liability (UAL)
  - The contribution changes every year based on the results of the actuarial valuation and the policy objectives of the Board, i.e., how many years will it take to pay off the UAL, contribution timing lag, etc.
  - More clearly defines how and when the contribution rates will change

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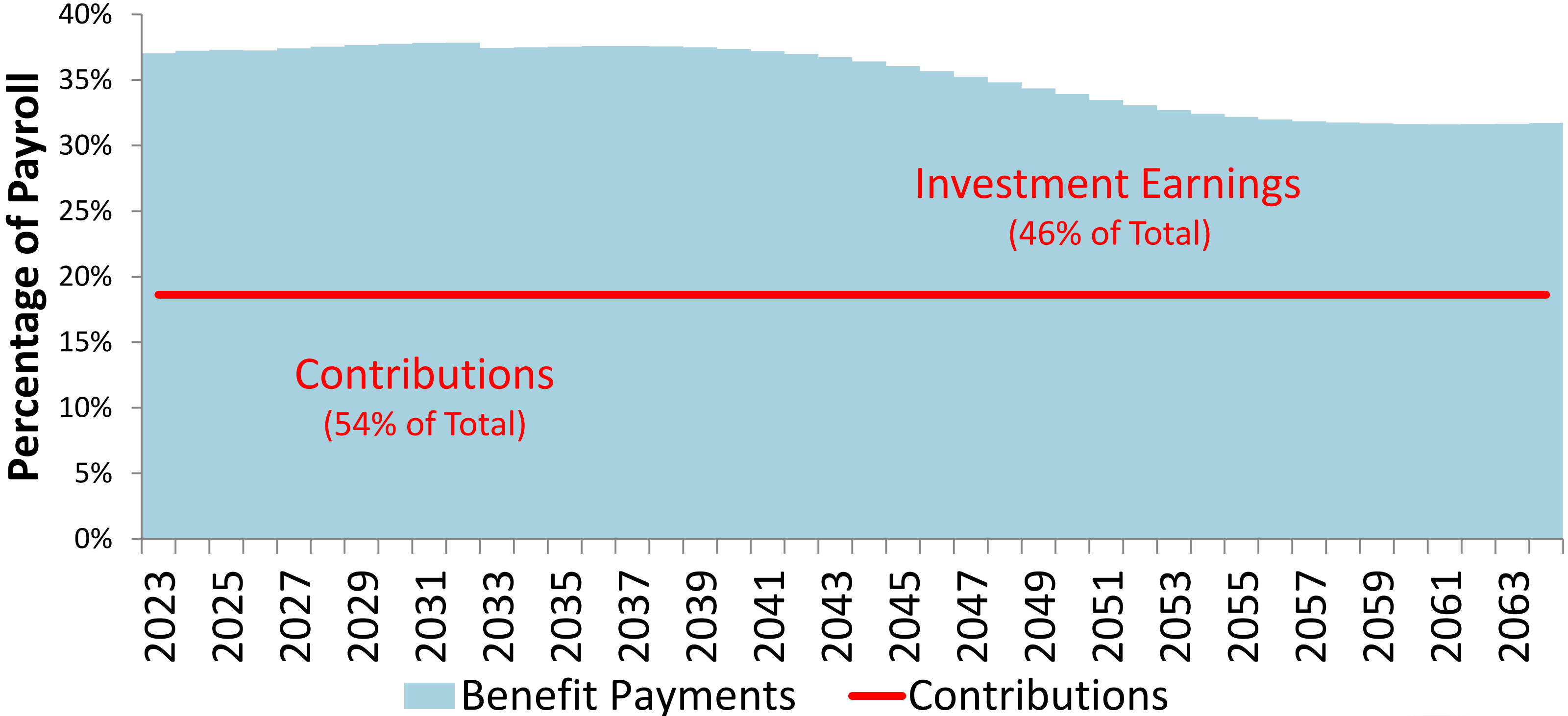
Funding Policy Considerations
Fixed Rate vs. ADC Funding (cont'd)

- Risk/Reward Tradeoff
  - No "free lunch"
  - Fixed Rate funding provides the reward of contribution stability with the risk of funded ratio volatility, especially on the downside
  - ADC Funding provides the reward of funded status stability with the risk of contribution volatility
- Examples on the next slides demonstrate the range of outcomes for contribution rates and funded ratios under each policy

Funding Policy Considerations

Pattern of Contributions – Fixed Rate Funding

- Under the current contribution levels, the PE Plan is expected to be 100% funded in 2064
- Over the next 41 years, 46% of benefit payments would be made via investment income



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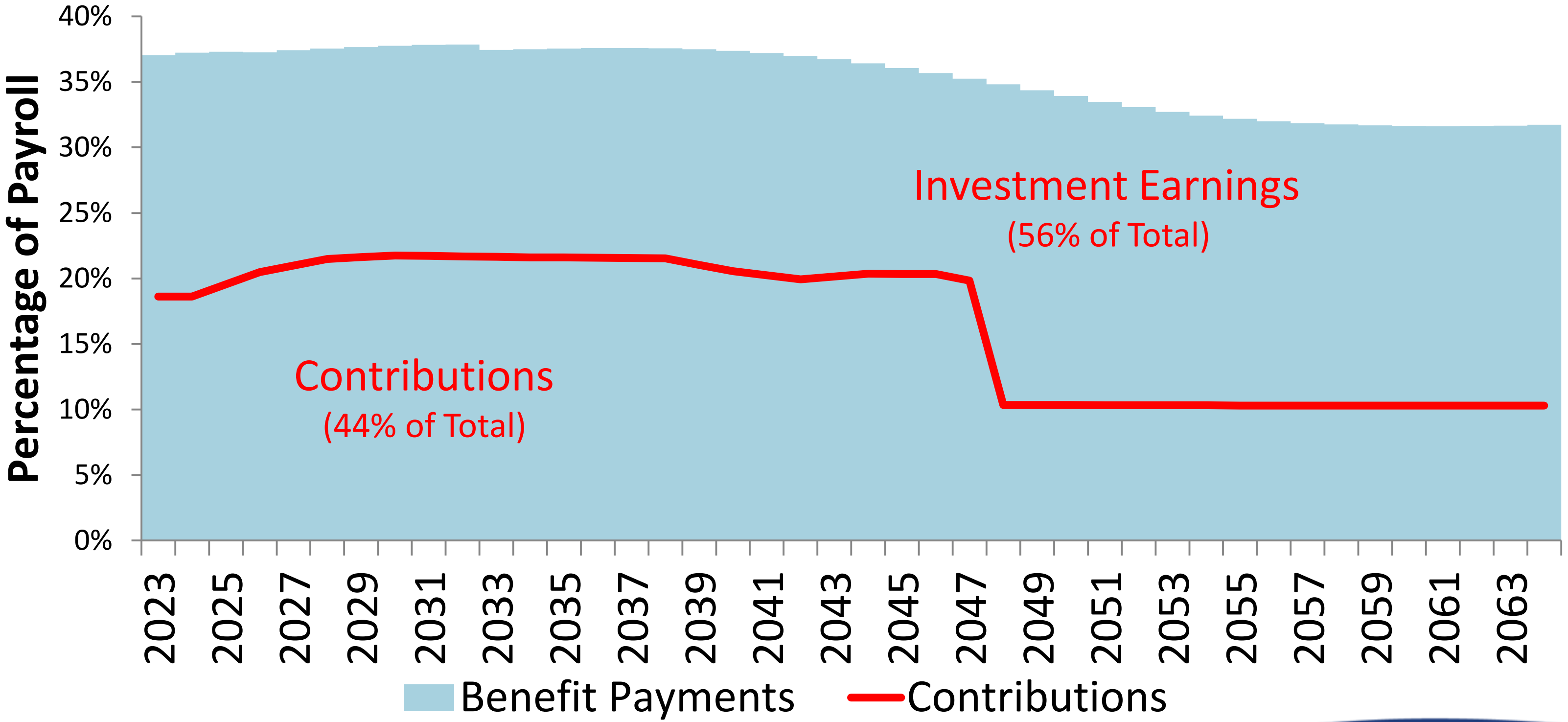
Funding Policy Considerations

Pattern of Contributions – ADC Funding

- By moving to an ADC approach and changing the pattern of contributions, the PE Plan is expected to be 100% funded in 2048 and maintain that level going forward
- Over the next 41 years, 56% of benefit payments would be made via investment income for a savings of $5.3 billion in total



Funding Policy Considerations

Fixed Rate vs. ADC Funding - Summary

- Projected funded status under a fixed rate policy can vary widely
- Fixed rate plans can provide budget stability to the Plan Sponsor but contribution rate volatility is obscured to some extent
- ADC policies could result in up and down swings in the contribution rate year to year
- The risk tolerance of decision makers and plan sponsors ultimately will provide guidance on the best policy for their particular situation

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Funding Policy Considerations

Fixed Rate vs. ADC Funding – Other Thoughts

- A strong funding policy can take a tremendous amount of pressure off of the assumptions
- COLA's are a big concern these days
  - With the fixed rate policy, the likelihood of paying a COLA varies greatly
  - Whereas, with an ADC policy, we have a much better sense of when the contribution rates will drop as the plan approaches full funding, thus freeing up capital to provide funding for a COLA

ADC POLICY CONSIDERATIONS FOR WRS

WRS ADC Policy Considerations

Items to Think About

- We have a great opportunity to work with our legislators to greatly strengthen benefit security for members in WRS
- In order for this process to be successful, we need to strike the right balance between improving benefit security, adding nimbleness to rate changes, and providing affordability to the State and local employers
- Again, we know that the UAL has to be paid over time, this ADC policy will set a systematic and hands on approach to accomplishing this goal

WRS ADC Policy Considerations
Timing

- Wyoming operates under a two-year budgeting process (biennial budget)

Valuation Date	Rates Due to Budget Office*	Rate First Effective	Rate Effective Through	Notes
1/1/2023	4/15/2023	7/1/2024	6/30/2026	Notional - just for understanding
1/1/2024	N/A	N/A	N/A	Off-year valuation - for information
1/1/2025	4/15/2025	7/1/2026	6/30/2028	Rates updated within guardrail limits
1/1/2026	N/A	N/A	N/A	Off-year valuation - for information
1/1/2027	4/15/2027	7/1/2028	6/30/2030	Rates updated within guardrail limits
1/1/2028	N/A	N/A	N/A	Off-year valuation - for information
1/1/2029	4/15/2029	7/1/2030	6/30/2032	Rates updated within guardrail limits
*Note: Local Governments also notified along with State Budget Office.				

- This cycle gives local governments approximately 14 months notice before rates took effect

WRS ADC Policy Considerations

Amortization Policy

- Maintain current Board policy of amortizing the UAL as of January 1, 2018 over a closed 30 year period?
  - This would fully amortize a bulk of the liability by 2048
  - Just about past the point of negative amortization (making immediate progress on paying down the UAL)
- Consider resetting the amortization period when the ADC contributions become effective
  - With level percent of pay amortization, there would be an expectation that the UAL would grow before it is paid down
  - Using a level dollar amortization after a reset would ensure the UAL begins to be paid down immediately (like a 30 year mortgage on your house
- Consider a phase-in to the ADC over a predetermined timeframe
  - Basically building a bridge from where we are today to ADC funding

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WRS ADC Policy Considerations

To Guard Rail Or Not to Guard Rail

- Consider adding guard rails on the contribution increases in off years of the biennium
  - Could be anywhere between 0.5% of pay and 2.0% of pay
  - Run the risk of getting behind schedule and having to dig out of a bigger hole
  - Provides some budgetary stability
- Consider not allowing the rate to drop in any given year when the plan is below a certain funded ratio threshold
- Consider setting a contribution floor equal to the normal cost rate

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WRS ADC Policy Considerations

Scenarios Studied

- **Baseline Scenario** – No change to the fixed rate policy going forward
- **Scenario 1** – Move to ADC Funding with no guard rails and a total contribution rate floor of 0%
- **Scenario 2** – Move to ADC Funding with a guard rail of plus or minus of 1% (applied at the beginning of the biennium) and a total contribution rate floor of the normal cost
- **Scenario 3** - Move to ADC Funding with a guard rail of plus or minus 0.5% (applied at the beginning of the biennium), do not allow the rate to drop unless 90% funded and a total contribution rate floor of the normal cost
- **Scenario 4** – Move to ADC Funding with a reset to 30 year level dollar amortization with no guard rails

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WRS ADC Policy Considerations

Scenarios Studied

- **Scenario 5** – Reset rates to the current ADC levels manually. Do it in two years. Then adopt an ADC to maintain rates, with rates adjusting every two years, with no more than 1.00% increase in any given 2 year period, and a contribution floor of normal cost plus 1% of pay
- **Scenario 6** – Reset the amortization to 30 year level dollar. Then reset the resulting rates to the "new" ADC levels. Do it in two years. Then adopt ADC to maintain, rates adjusting every two years, with no more than 1.00% increase in any given 2 year period, and a contribution floor of normal cost plus 1% of pay

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WRS ADC Policy Considerations

Scenarios Studied

- We have looked at these scenarios for the PE plan
- Showing results assuming median returns (50th percentile) as well as assuming volatile results over the next 30 years that mimic the recent volatility experienced by WRS
- Finally, for reference, 1.0% of pay is approximately $19.7 million in 2024

WRS ADC Policy Considerations

Scenarios Studied - Observations

- The baseline scenario, which assumes no changes in contributions, does not perform well, especially under volatile returns
- Manually increasing the rates over the next two years to a level approaching the , and then adopting an ADC policy, could add some stability to the short term budgeting process
- The tighter the guard rails, the more the outcomes look like a fixed rate plan
- All of the ADC policies shown significantly reduce downside risk for the fund

WRS ADC Policy Considerations

PE Plan – Projected Funded Ratio – 50th Percentile

Projected Funded Ratio - 50th Percentile							
Year	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
2023	77%	77%	77%	77%	77%	77%	77%
2024	78%	78%	78%	78%	78%	78%	78%
2025	78%	78%	78%	78%	78%	78%	78%
2026	78%	78%	78%	78%	78%	78%	78%
2027	76%	77%	77%	77%	77%	77%	77%
2028	76%	77%	77%	77%	78%	77%	77%
2033	79%	82%	82%	82%	82%	82%	82%
2038	80%	88%	86%	85%	86%	87%	87%
2043	83%	95%	92%	90%	92%	94%	93%
2048	87%	104%	99%	97%	98%	100%	99%
2053	91%	107%	104%	101%	104%	106%	105%

WRS ADC Policy Considerations

PE Plan – Projected Total Contribution Rate – 50th Percentile

Projected Contribution Rate - 50th Percentile							
Year	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
2023	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%
2024	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%
2025	18.62%	19.54%	19.54%	19.54%	20.02%	19.37%	19.37%
2026	18.62%	20.63%	20.46%	20.46%	21.39%	20.87%	20.87%
2027	18.62%	21.19%	20.70%	20.63%	21.59%	21.62%	21.80%
2028	18.62%	21.58%	20.98%	20.80%	21.74%	21.62%	21.98%
2033	18.62%	20.80%	20.71%	20.95%	19.86%	21.12%	21.12%
2038	18.62%	20.67%	19.65%	20.54%	18.62%	19.81%	19.61%
2043	18.62%	18.66%	16.92%	15.28%	16.69%	17.01%	16.14%
2048	18.62%	12.24%	11.38%	14.10%	14.11%	11.35%	11.36%
2053	18.62%	7.27%	10.32%	11.11%	12.83%	11.32%	11.32%

WRS ADC Policy Considerations
PE Plan – Projected Funded Ratio – Volatile Returns

Projected Funded Ratio - Volatile Returns							
Year	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
2023	77%	77%	77%	77%	77%	77%	77%
2024	79%	79%	79%	79%	79%	79%	79%
2025	80%	80%	80%	80%	80%	80%	80%
2026	79%	79%	79%	79%	79%	79%	79%
2027	76%	76%	76%	76%	77%	77%	77%
2028	76%	77%	77%	77%	78%	77%	77%
2033	80%	84%	84%	83%	85%	85%	85%
2038	80%	86%	86%	86%	85%	87%	86%
2043	85%	95%	96%	96%	93%	96%	94%
2048	86%	99%	98%	101%	93%	98%	95%
2053	94%	103%	106%	110%	100%	107%	101%

WRS ADC Policy Considerations

PE Plan – Projected Total Contribution Rate – Volatile Returns

Projected Contribution Rate - Volatile Returns							
Year	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
2023	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%
2024	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%	18.62%
2025	18.62%	19.19%	19.19%	19.19%	19.88%	19.37%	19.37%
2026	18.62%	20.07%	19.76%	19.76%	21.03%	20.87%	20.87%
2027	18.62%	21.00%	20.26%	20.01%	21.41%	21.59%	21.80%
2028	18.62%	21.60%	20.76%	20.26%	21.76%	21.57%	21.97%
2033	18.62%	20.18%	21.51%	21.26%	19.23%	21.09%	20.66%
2038	18.62%	21.37%	21.01%	21.71%	19.41%	20.59%	18.93%
2043	18.62%	19.03%	19.66%	21.71%	17.21%	19.17%	17.89%
2048	18.62%	14.81%	19.47%	18.36%	16.29%	18.94%	15.39%
2053	18.62%	10.21%	10.32%	10.33%	15.53%	11.32%	11.32%

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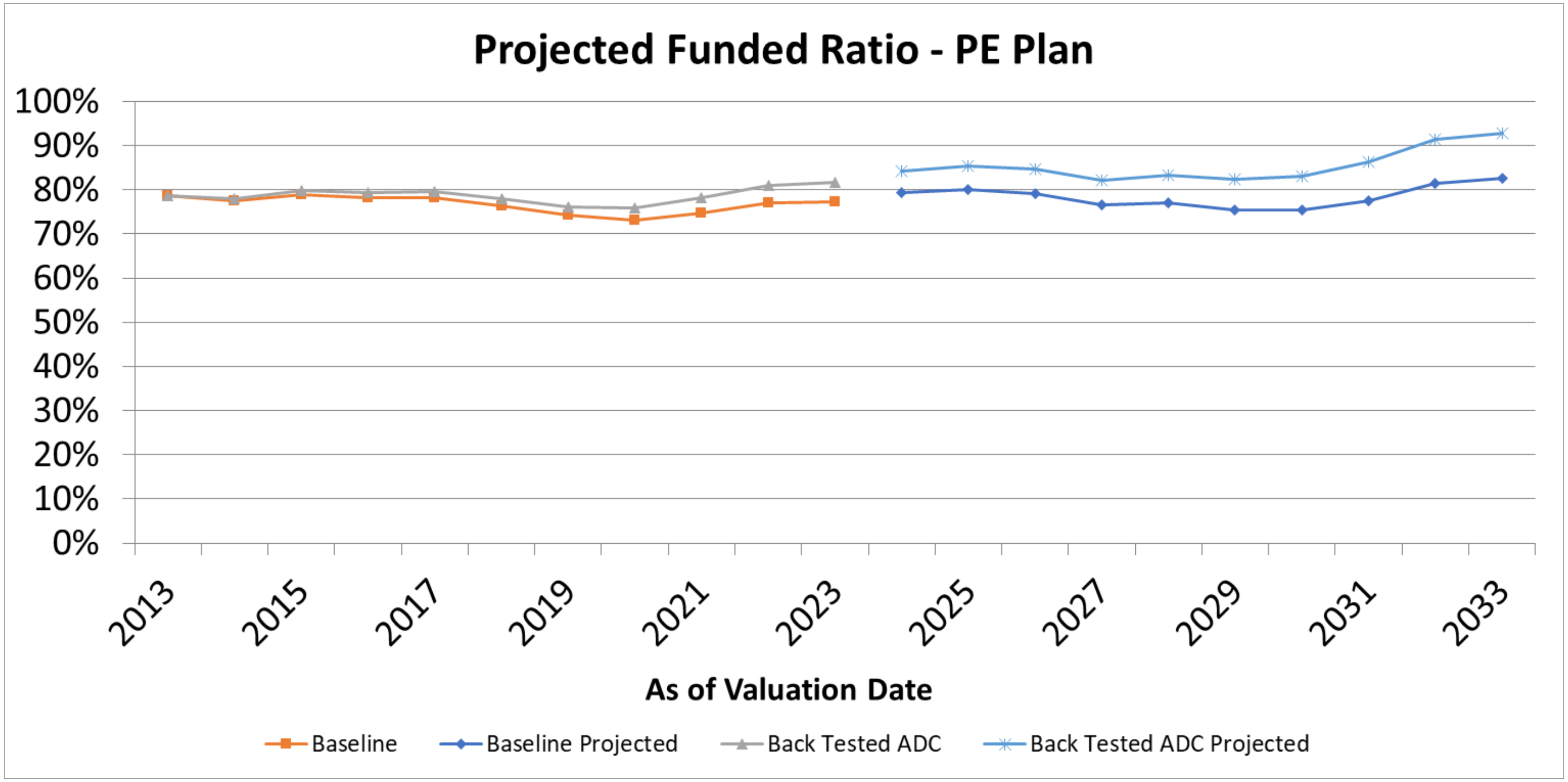
APPENDIX 1 - BACK TESTING

Appendix – Back Testing
PE Plan

- We were asked to back test the Board's current ADC policy for the PE Plan This back testing also includes the impact of assumption changes
- Assumed that the policy was first put into place as of the January 1, 2013 valuation
- Then projected the policy forward ten years using the same series of returns experienced from calendar years 2013 through 2022 (assuming no gains or losses on the liability side)

Appendix – Back Testing

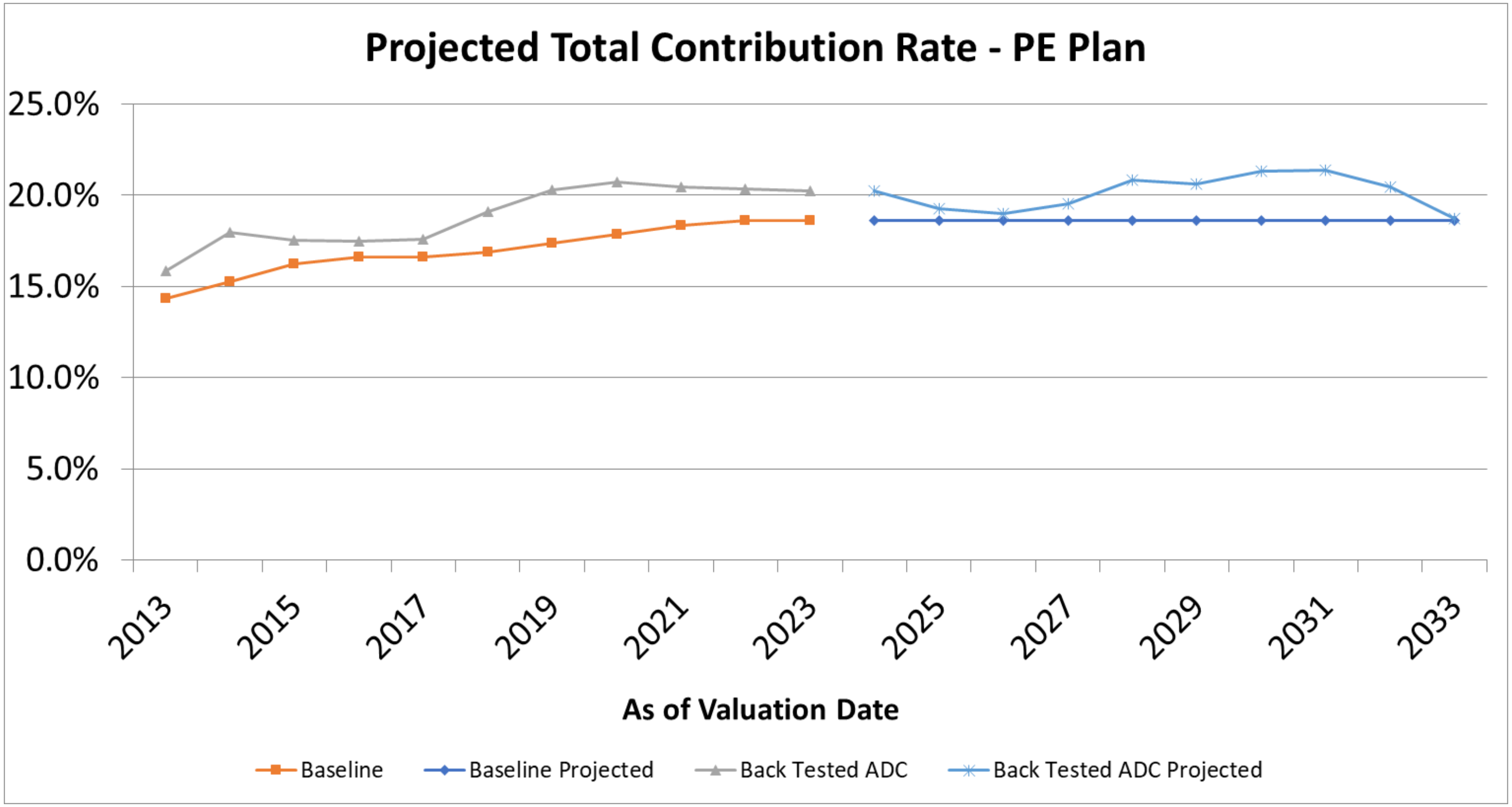
PE Plan – Funded Ratio



- Had the ADC policy been implemented in 2013, the PE plan would be funded at around 82% instead of the current 77% at January 1, 2023
- The PE Plan would projected to be 93% funded in 2033

Appendix – Back Testing

PE Plan – Total Contribution Rate



- Had the ADC policy been implemented in 2013, the contribution rate would have been higher in all years
- In the ten year projection assuming ten years of volatile returns, the average contribution volatility is about 0.7% of payroll

Appendix – Back Testing

PE Plan - Takeaways

- With the ADC policy, you get there and the ride is relatively smooth
- Absent more big assumption changes, the ride can be very smooth, even in the face of volatile investment results