

CALSTRS

Review of CalSTRS Funding Levels and Risks

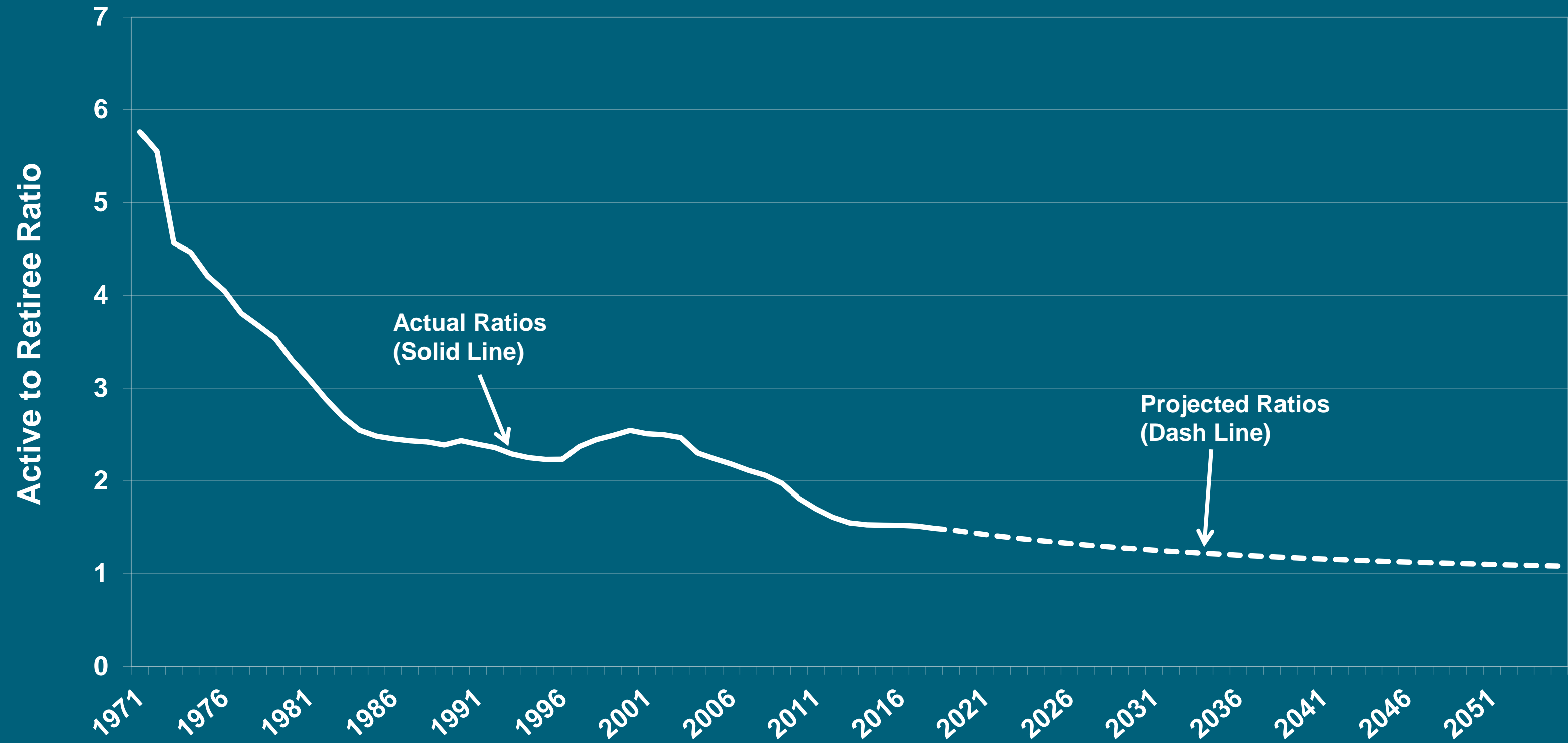
David Lamoureux, Deputy System Actuary

Presented:

November 2018 Teachers' Retirement Board Meeting

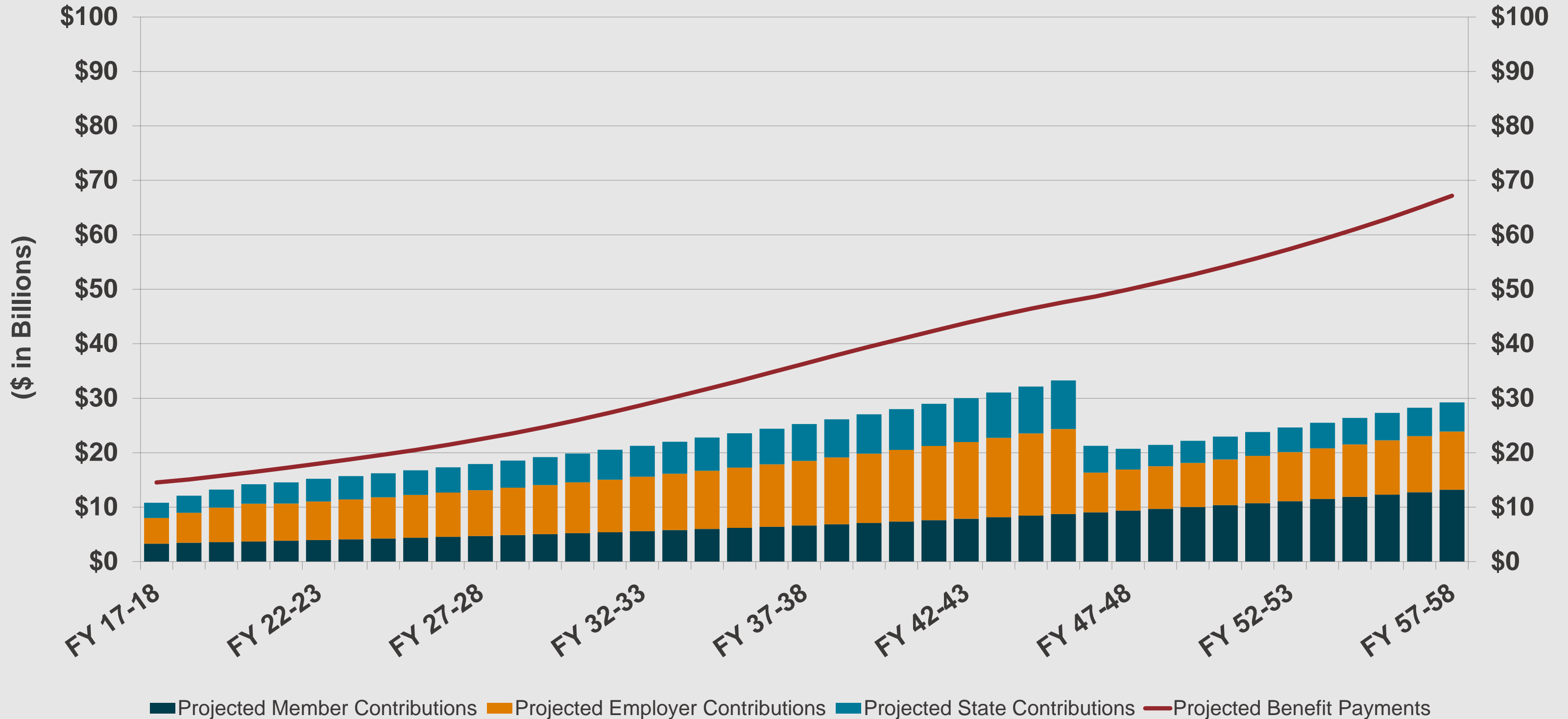
Measures of Plan Maturity and Volatility

CalSTRS Historical and Projected Active to Retiree Ratio

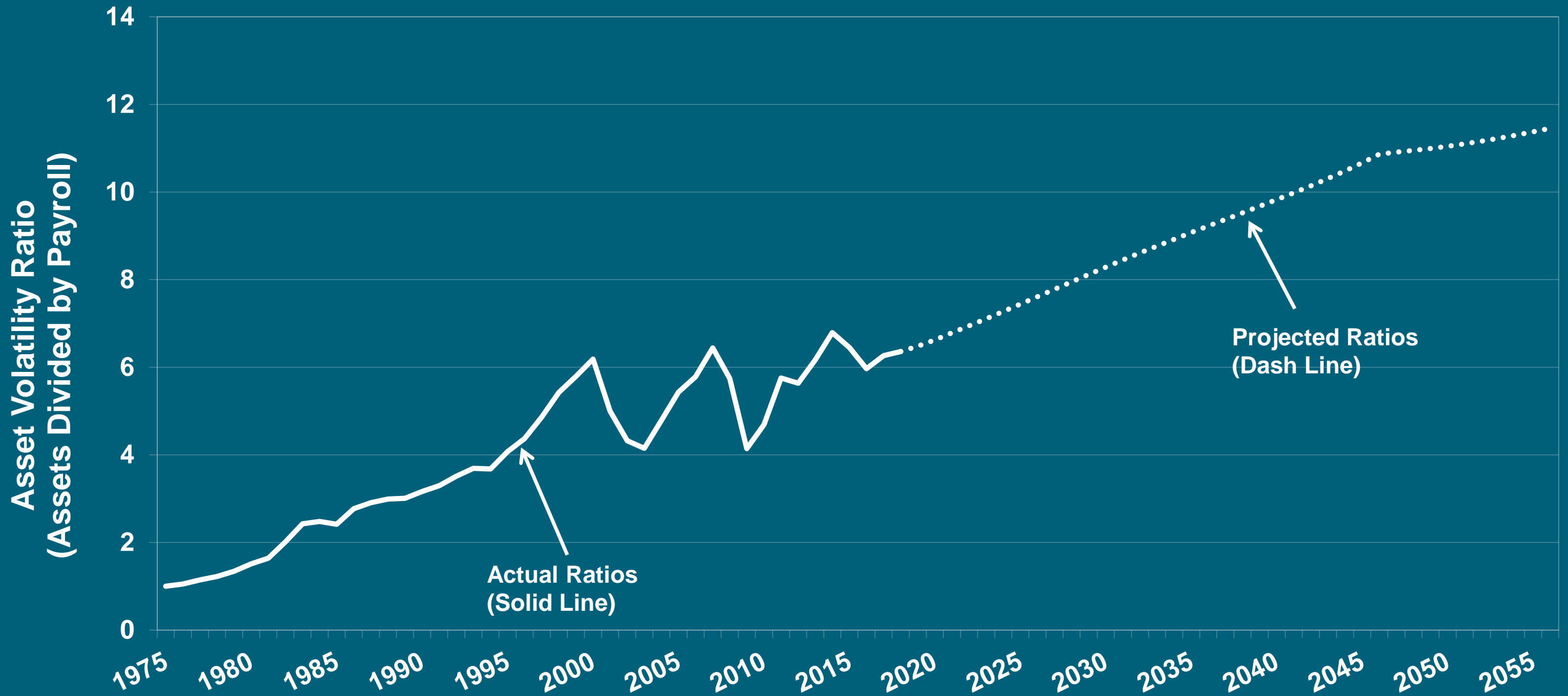


Projected Cash Flows for CalSTRS

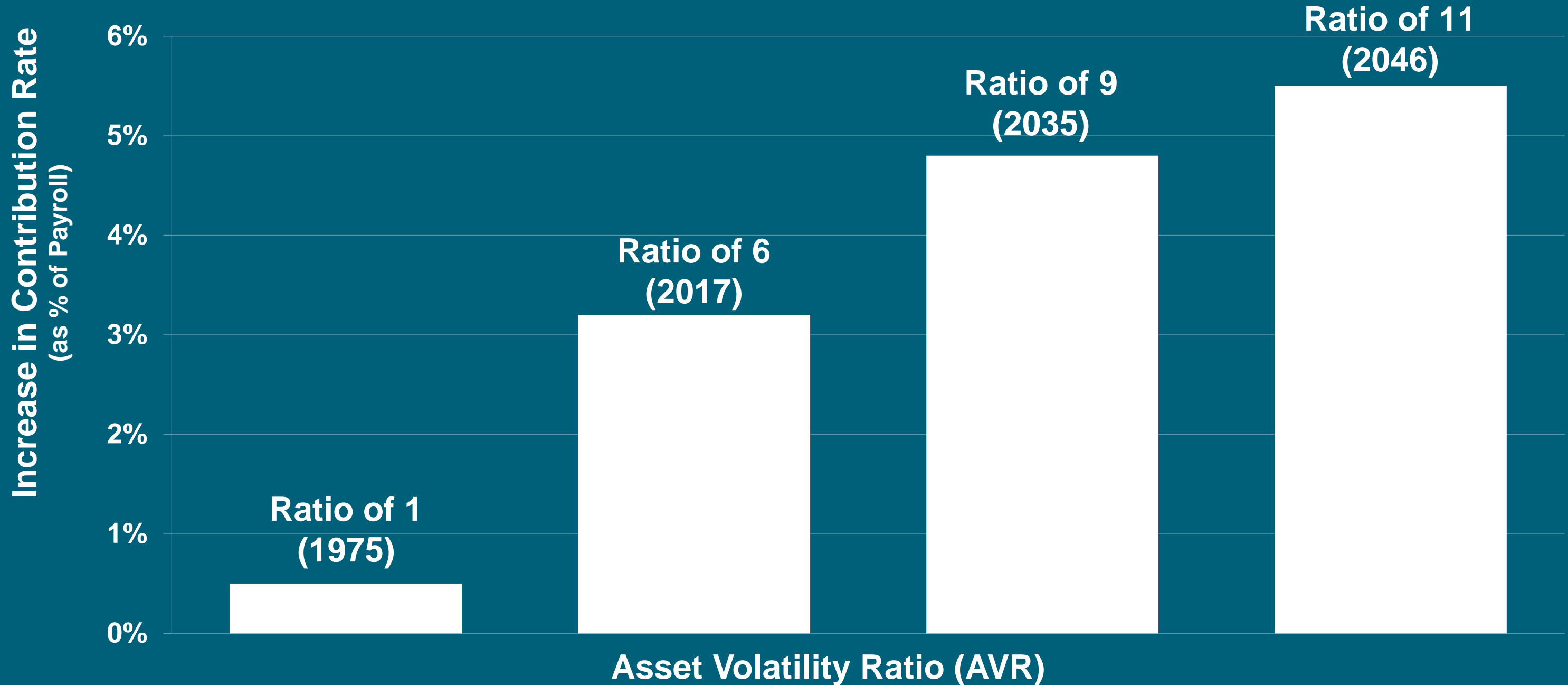
Reflecting 9.0% Return in FY 17-18 and Assuming 7.0% Return Thereafter



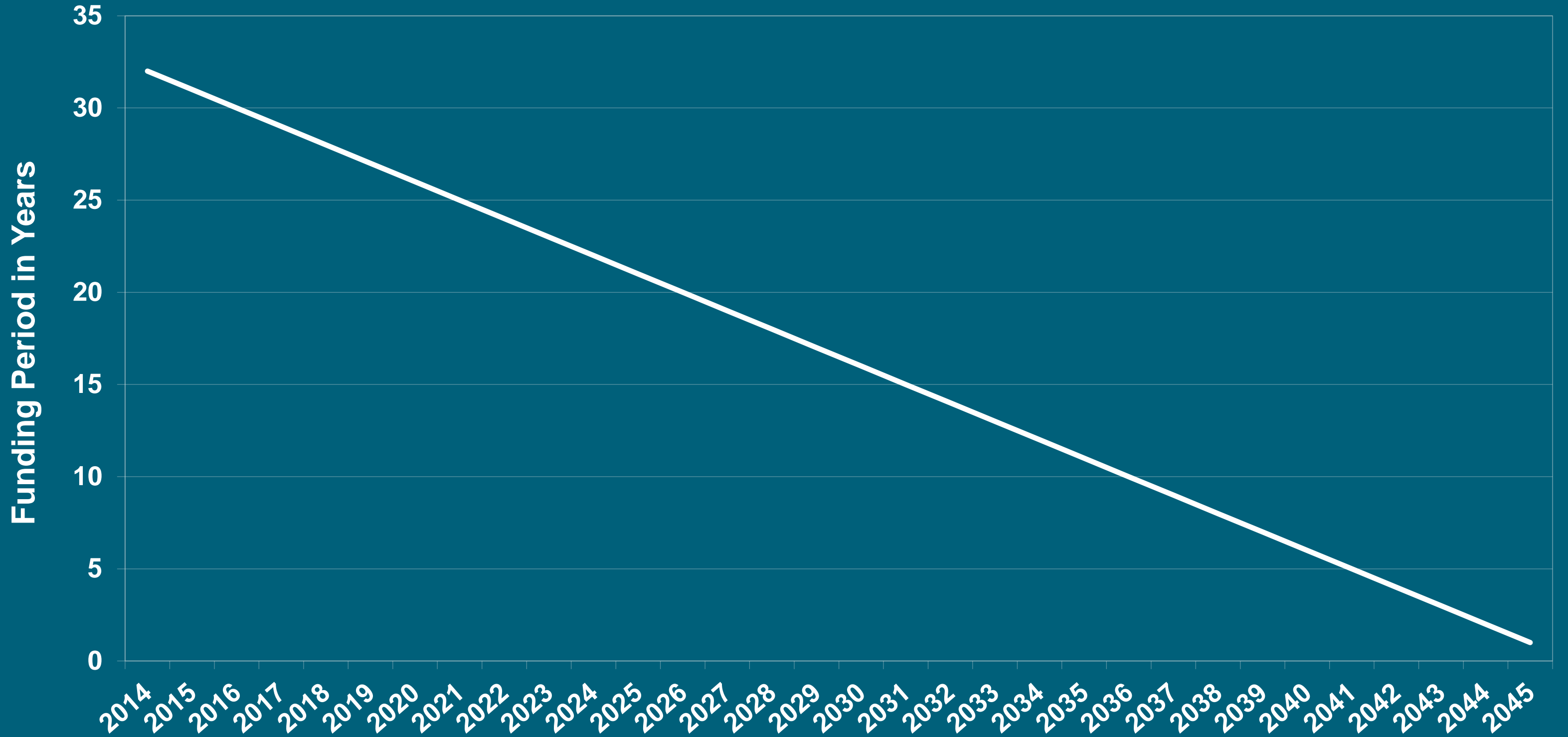
CalSTRS Asset Volatility Ratios



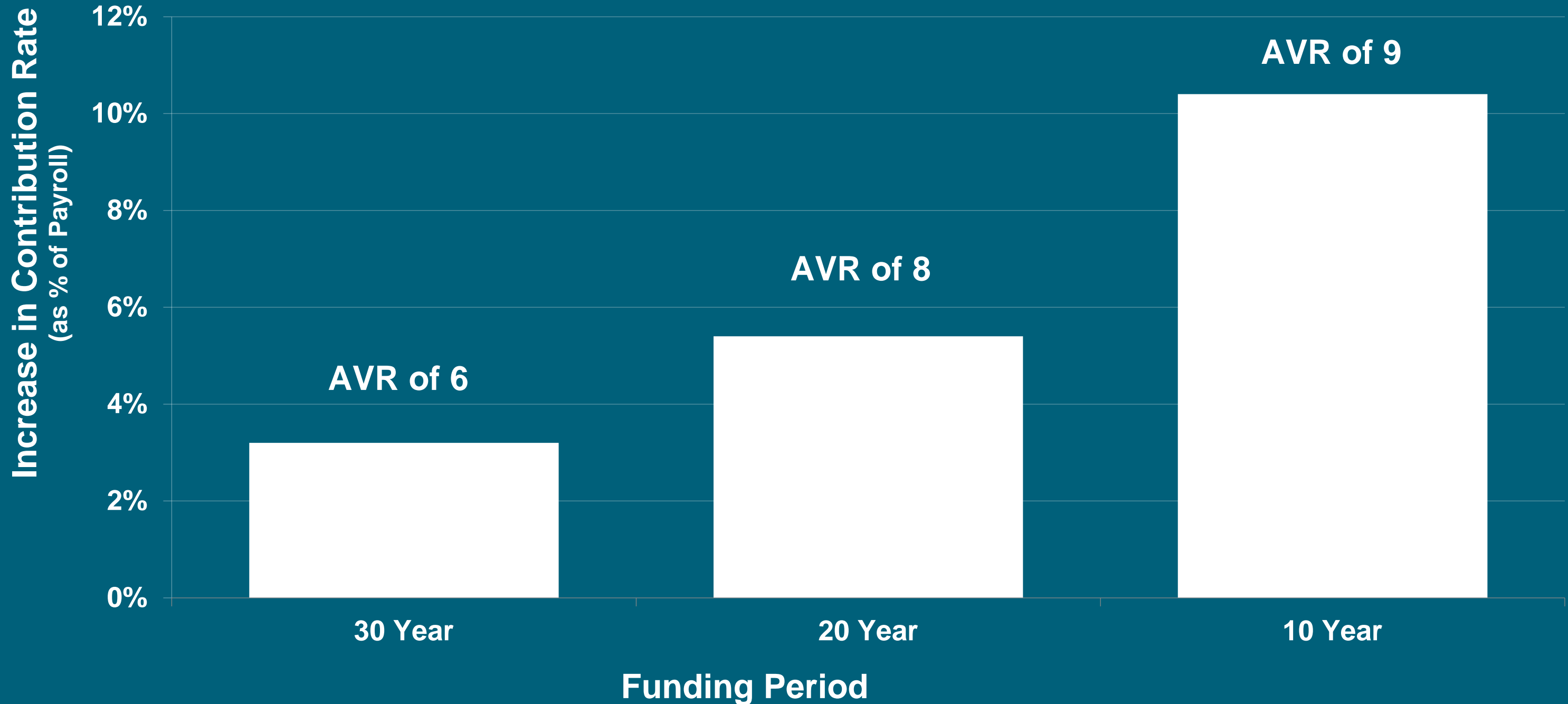
Estimated Increase in Contribution Rates to Fund a 10% Investment Loss (-3% Investment Return) (Assuming 30 Year Funding Period)



Declining Funding Period



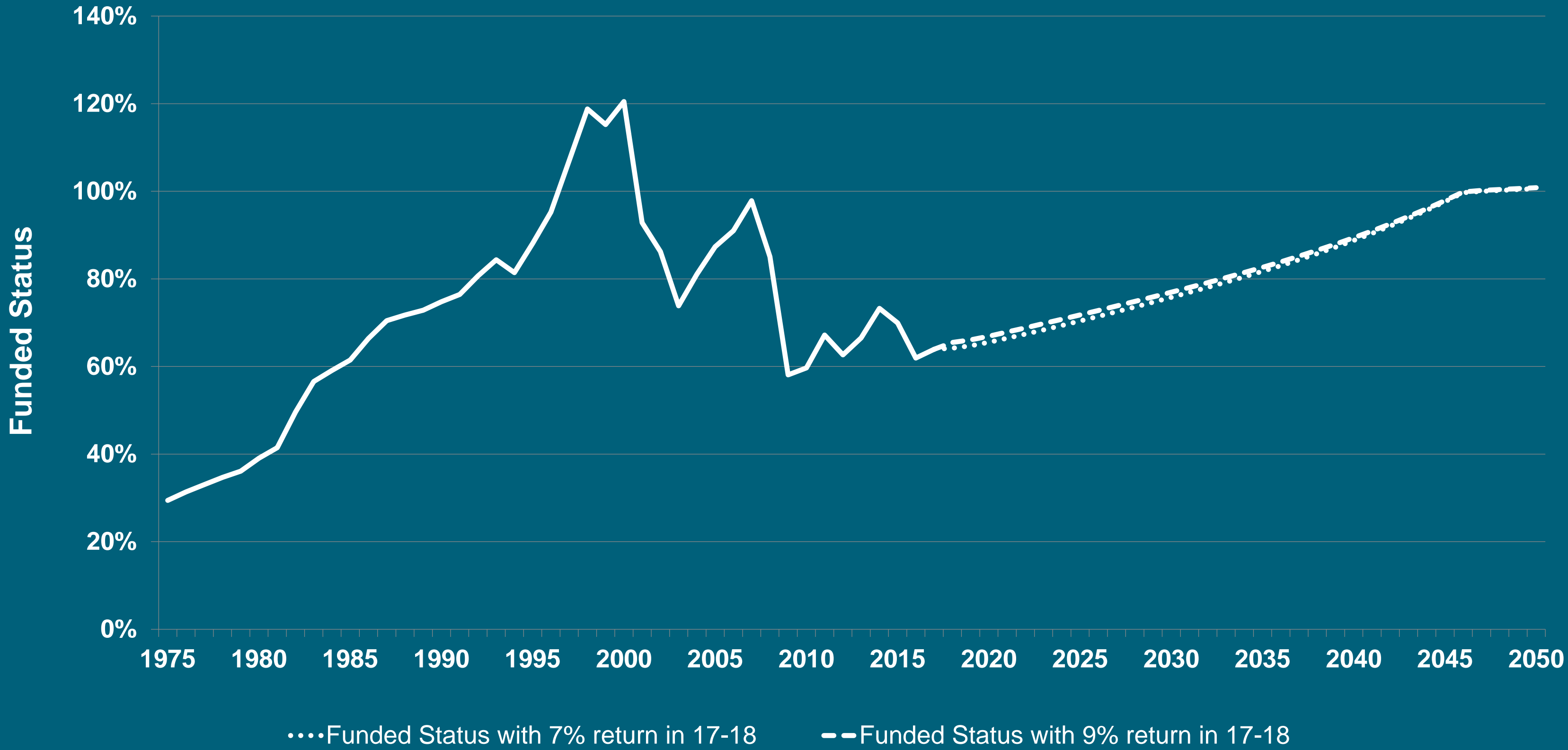
Increasing Maturity and Decreasing Funding Period (Impact of a -3% Investment Return)



Path to Full Funding

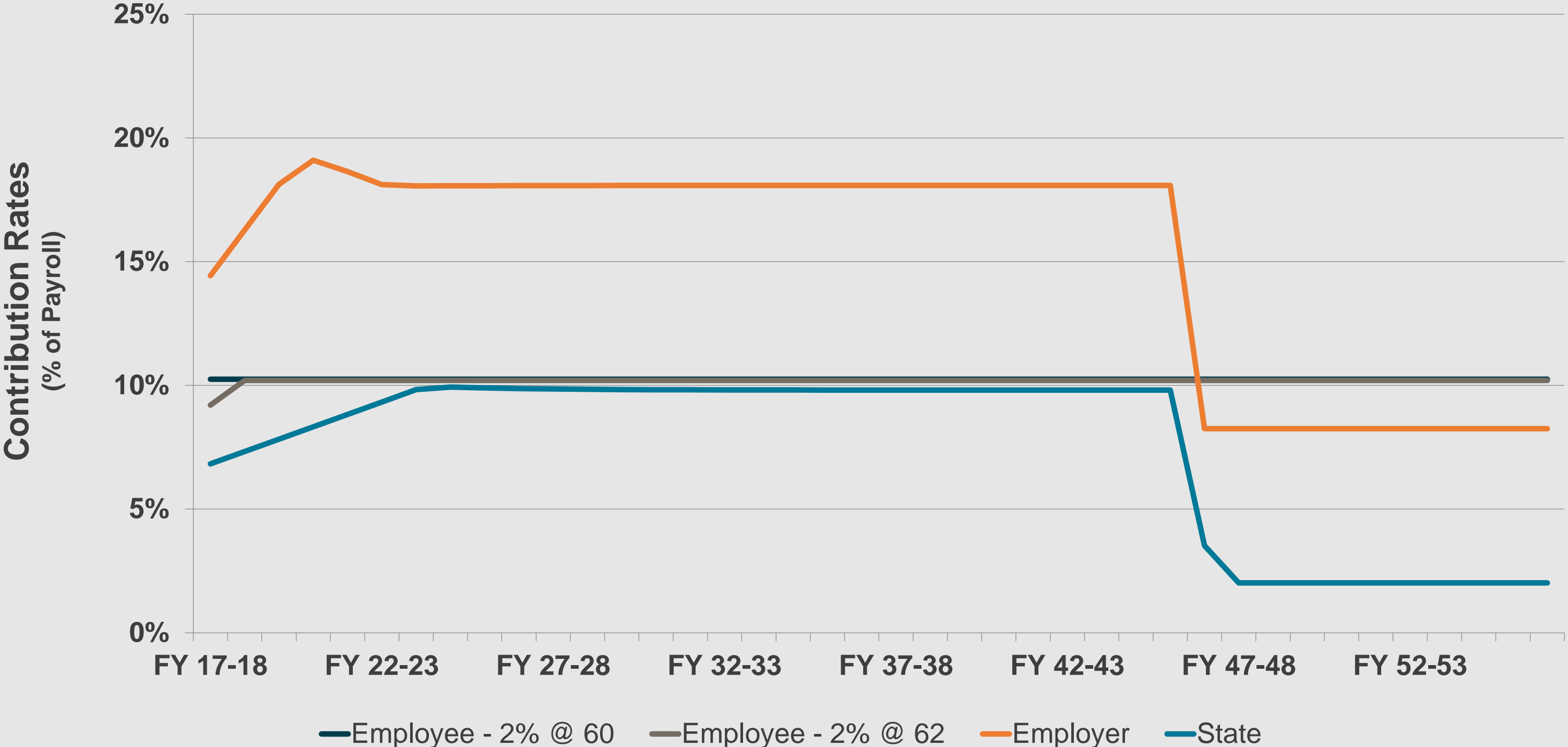
CalSTRS Historical and Projected Funded Status

(Based on the Market Value of Assets)



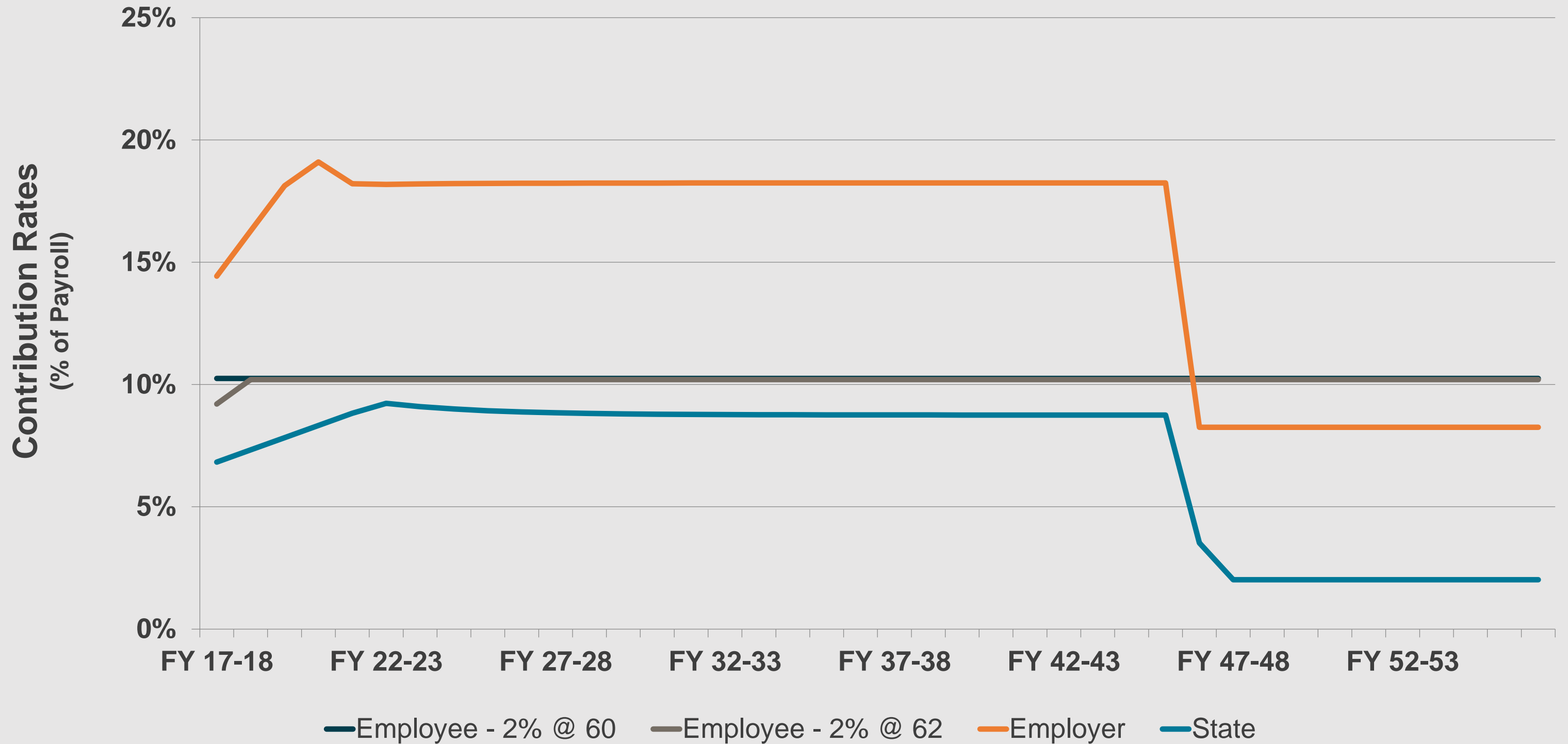
Projected Contribution Rates

(Presented to the Board in May 2018)



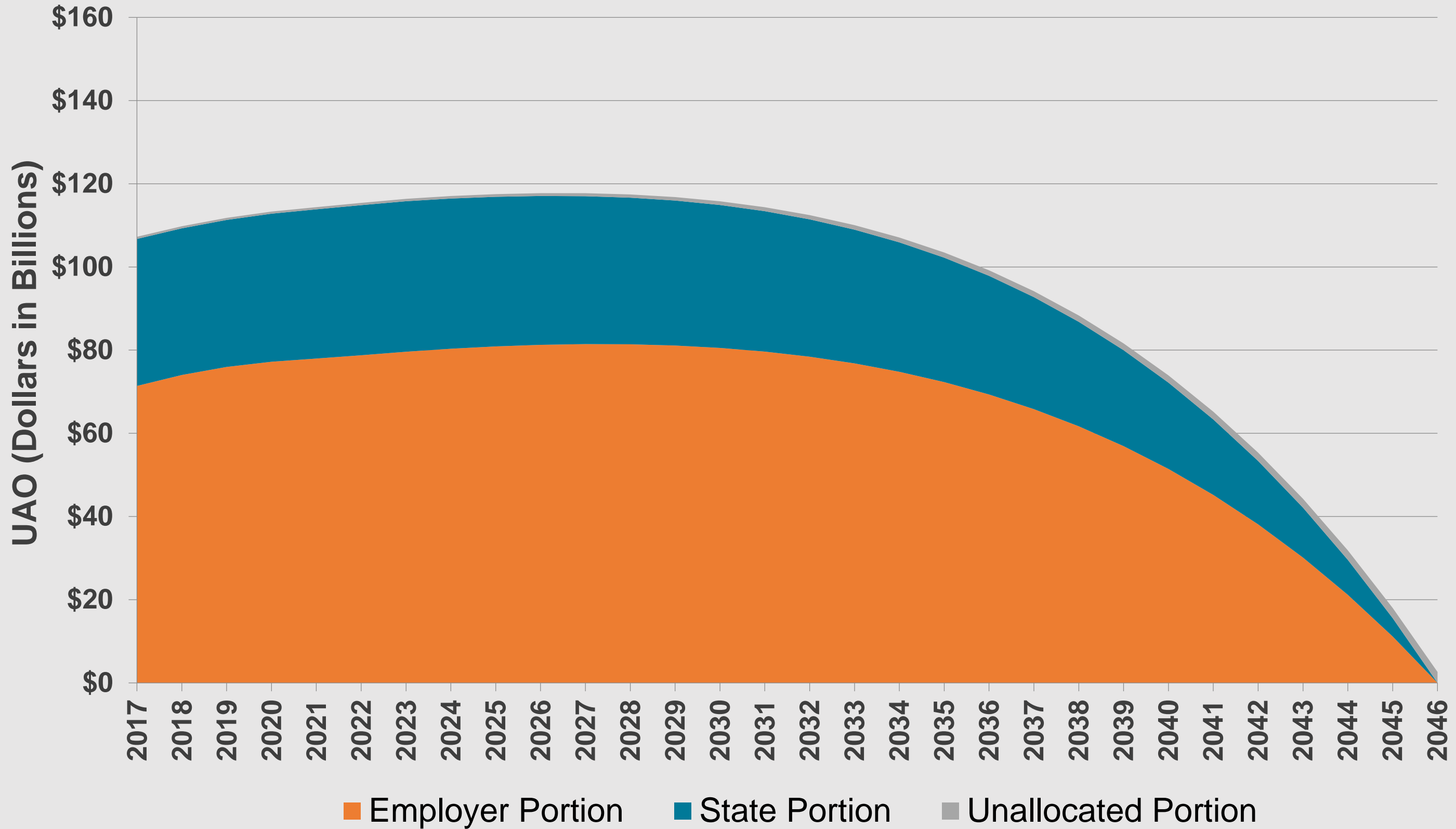
Projected Contribution Rates

After the 9.0% Investment Return in 2017-18



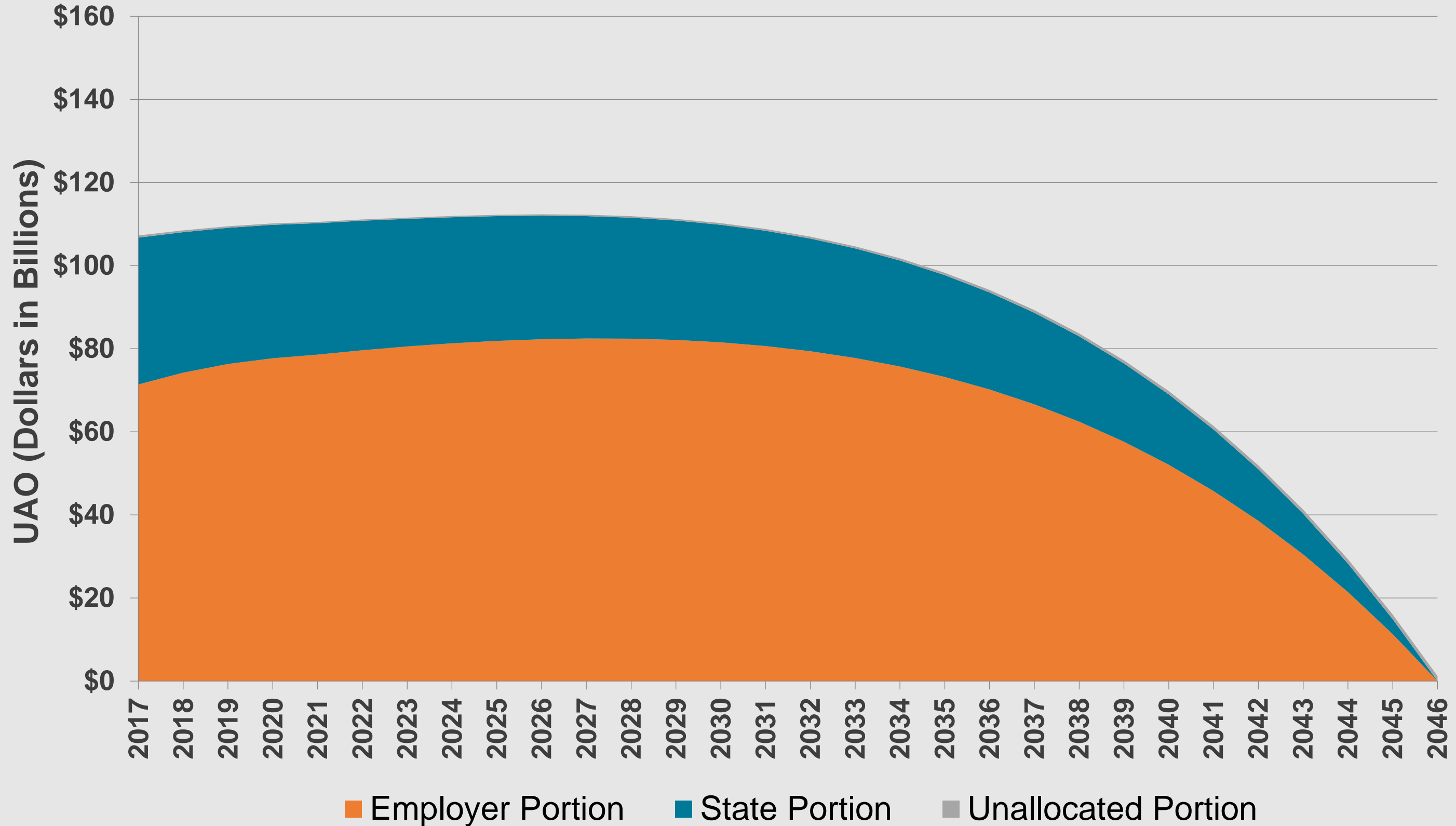
Projected Unfunded Actuarial Obligation

(Presented to the Board in May 2018)



Projected Unfunded Actuarial Obligation

Reflecting 9.0% return in FY 17-18 and assuming 7.0% thereafter



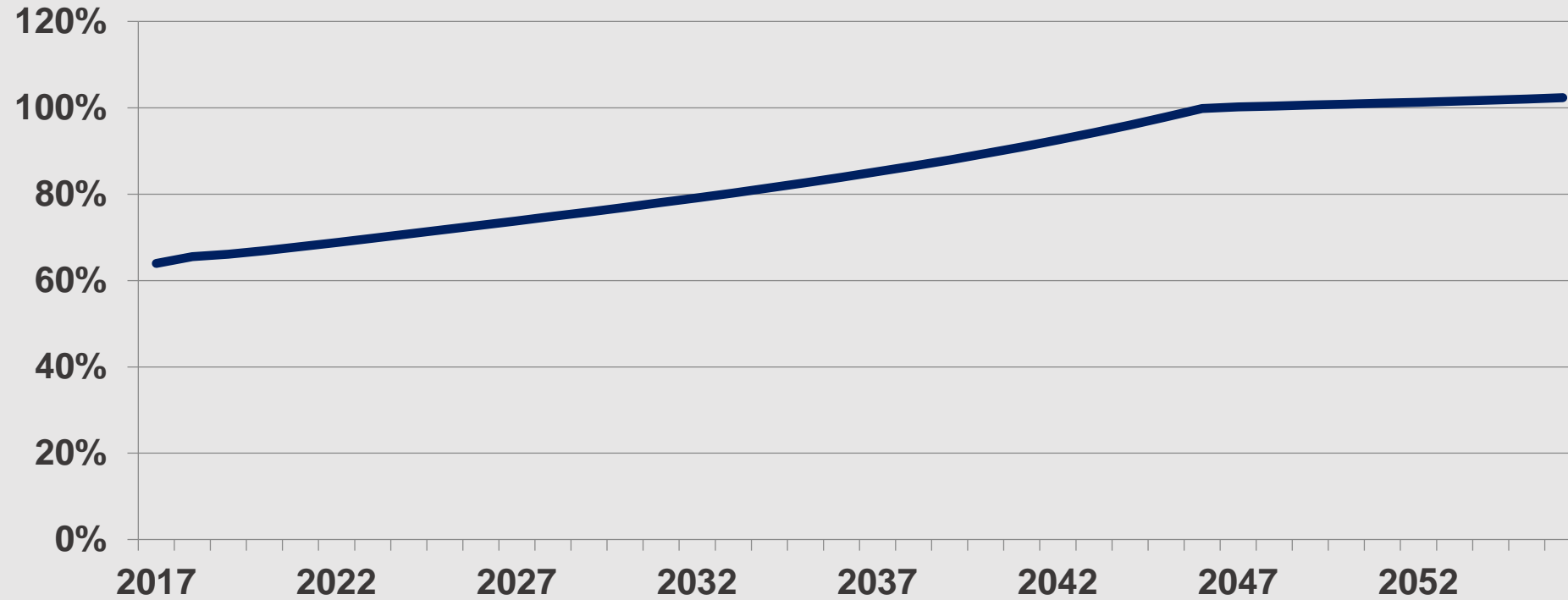
The Risk Environment

Investment Risk

Risk of Sustained Low Returns

Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

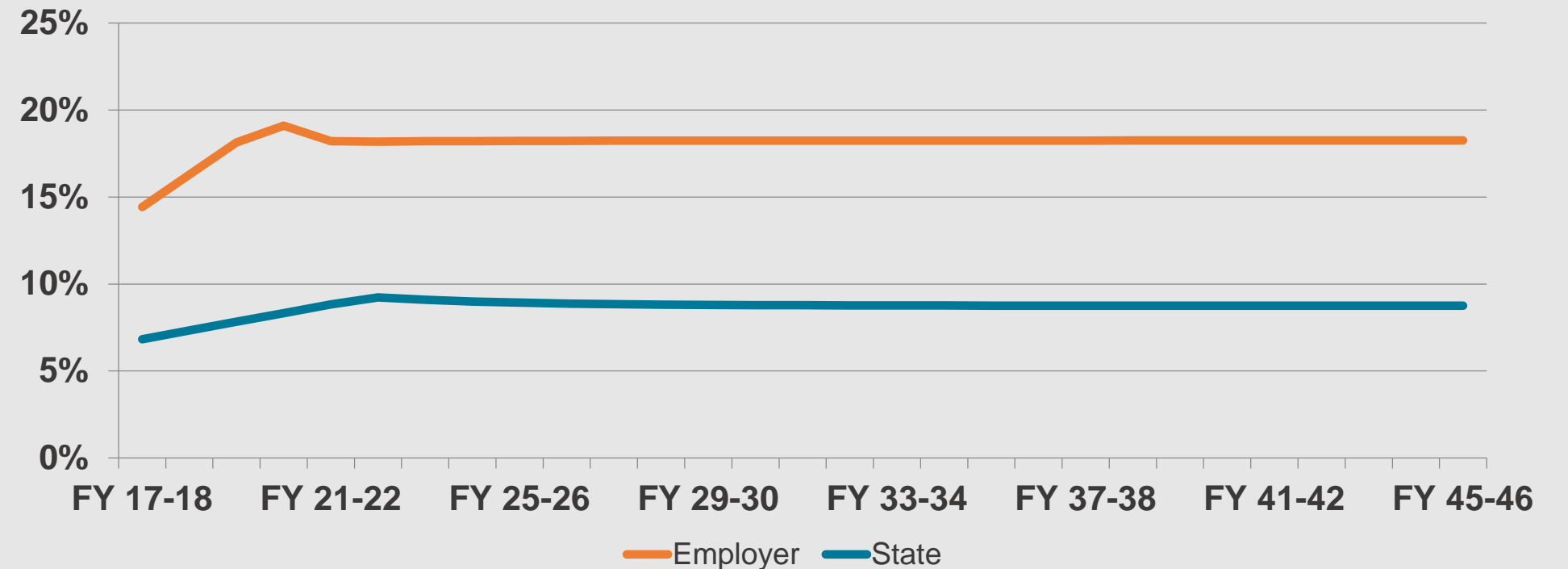
- 9.0% in FY 17-18
- 7.0% thereafter

Funded Status in 2046: 99.8%

Ultimate Contribution Rates:

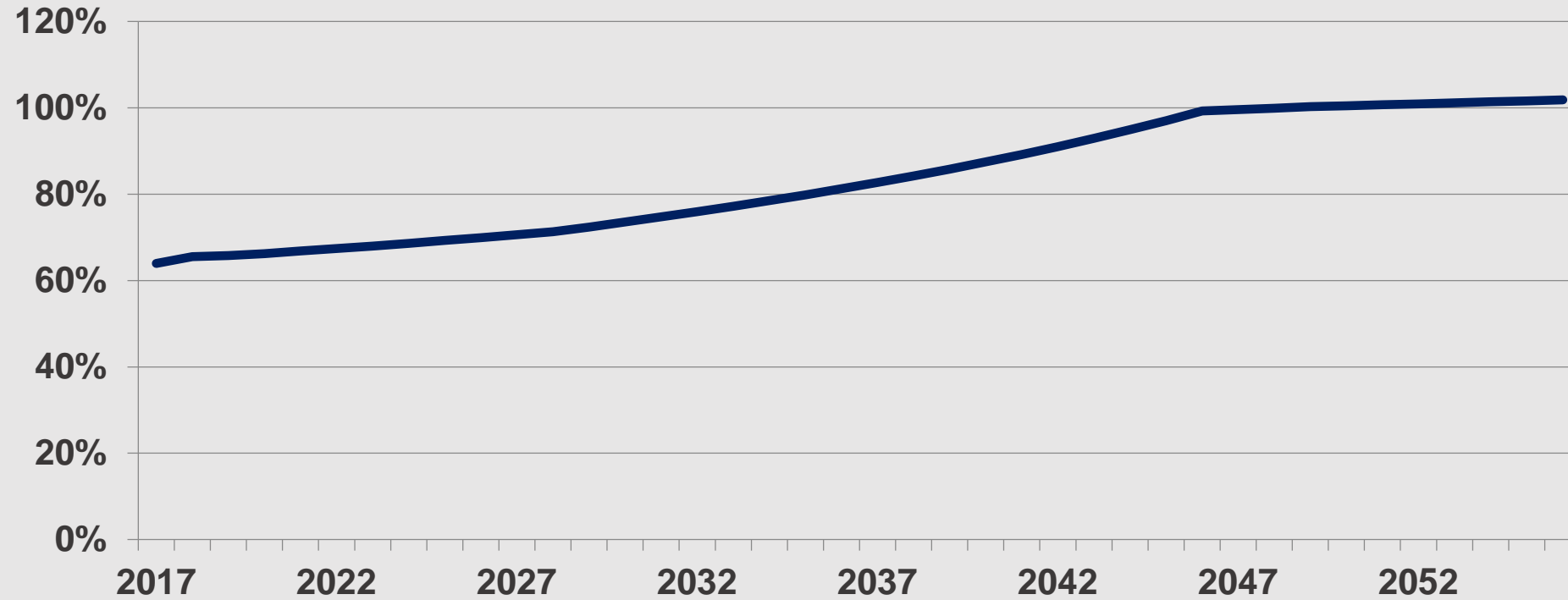
- State: 9.2%
- Employer: 18.2%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

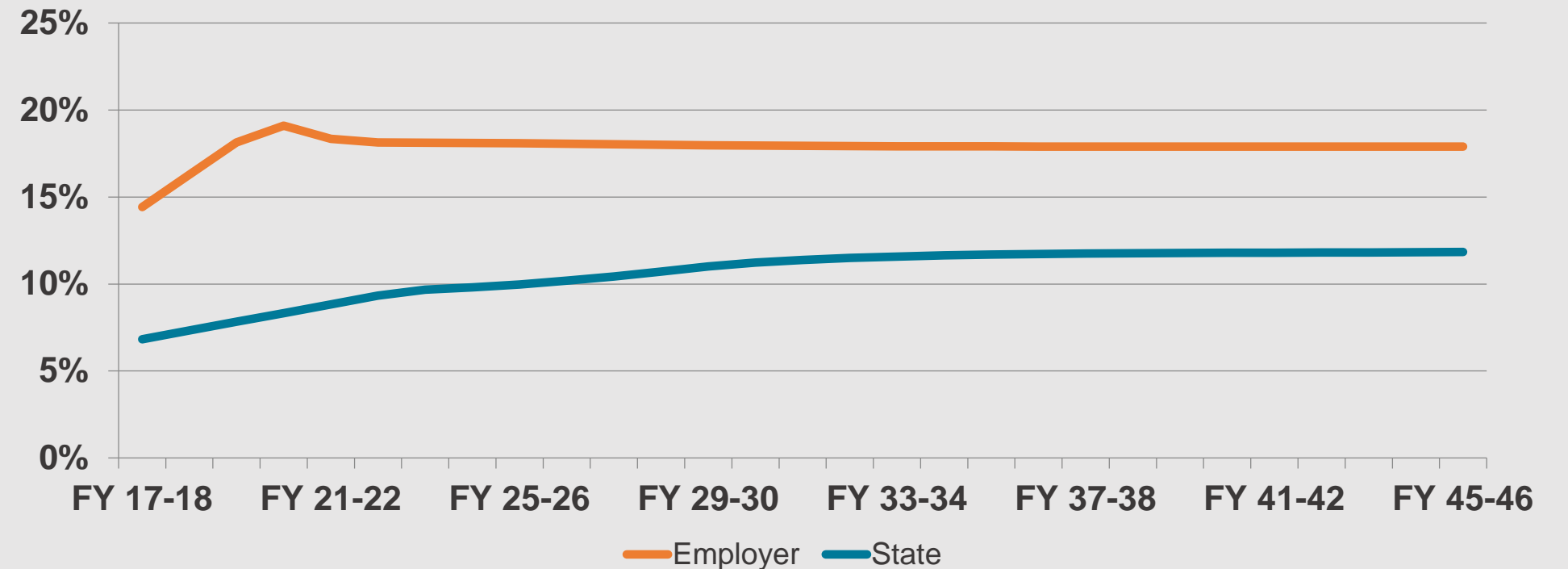
- 9.0% in FY 17-18
- 6.5% for 10 years
- 7.0% thereafter

Funded Status in 2046: 99.2%

Ultimate Contribution Rates:

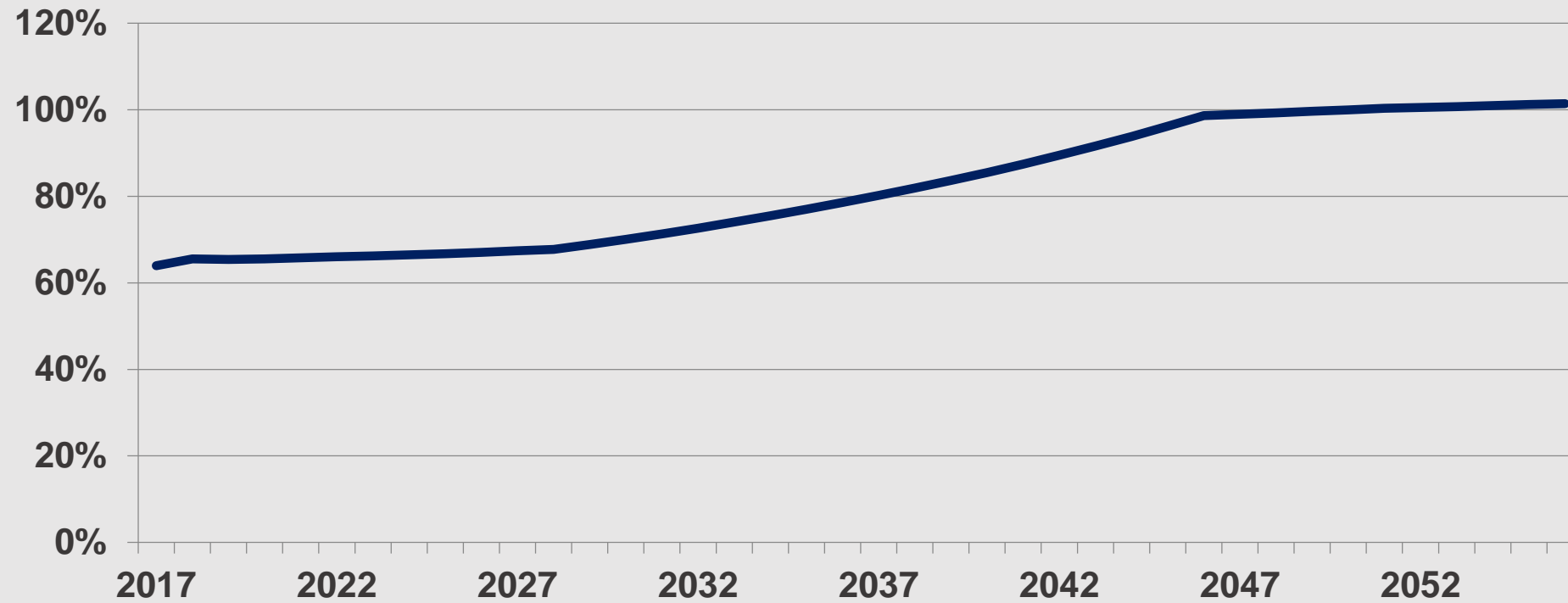
- State: 11.8%
- Employer: 17.9%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

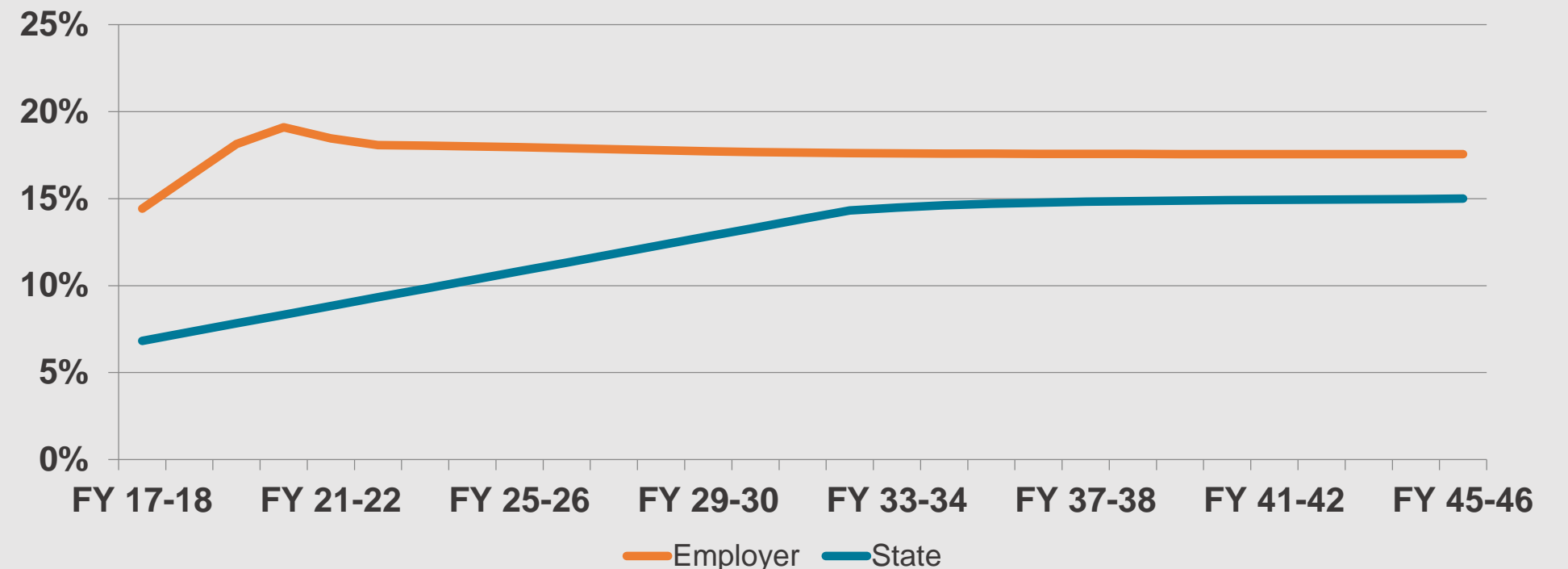
- 9.0% in FY 17-18
- 6.0% for 10 years
- 7.0% thereafter

Funded Status in 2046: 98.7%

Ultimate Contribution Rates:

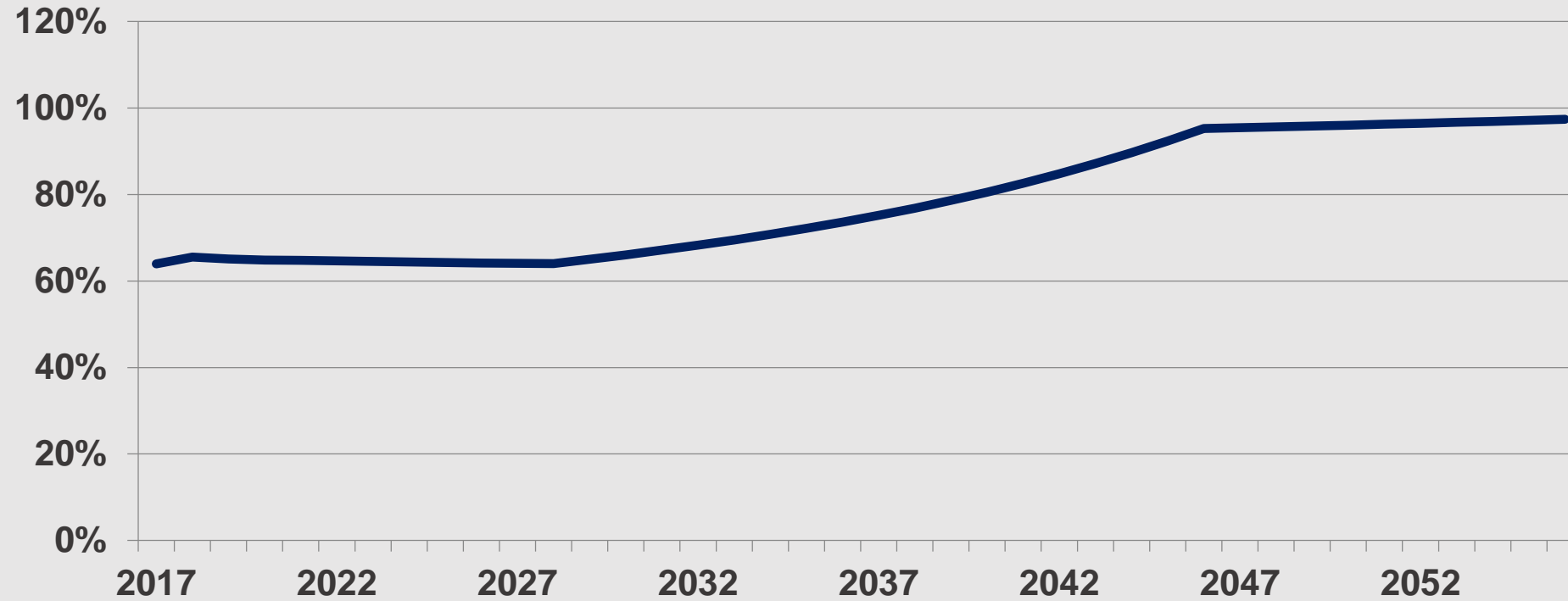
- State: 14.9%
- Employer: 17.6%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

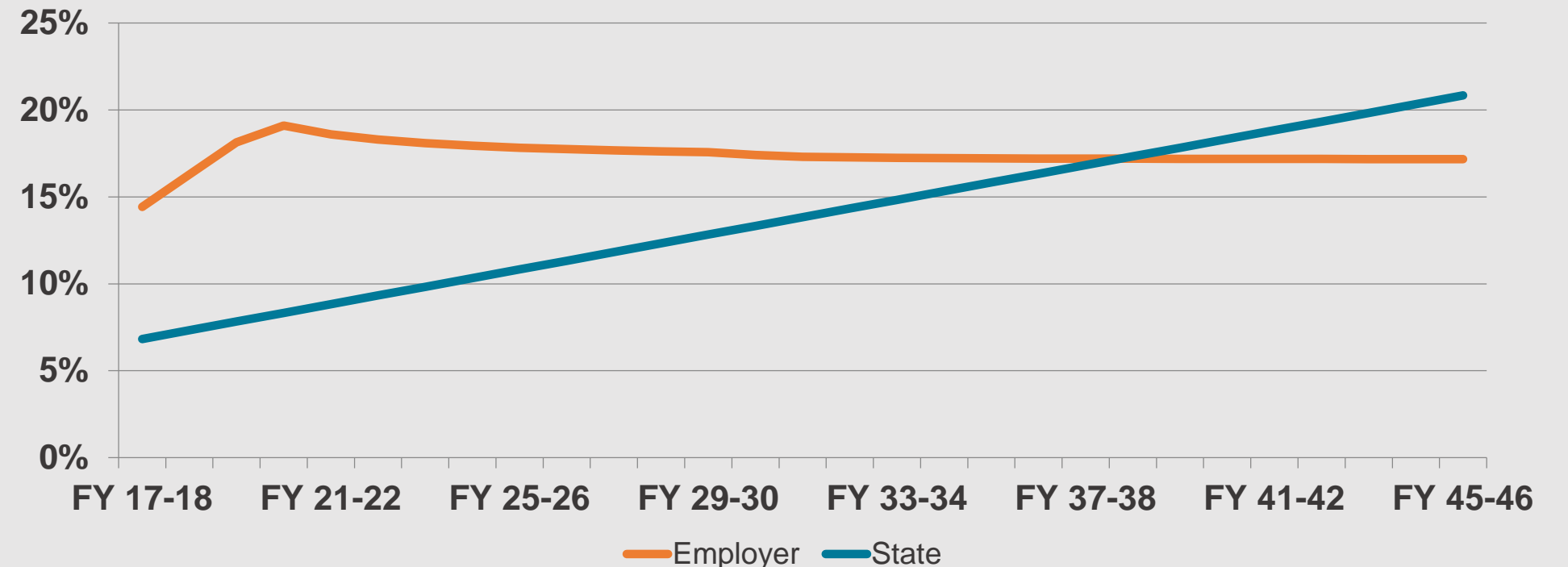
- 9.0% in FY 17-18
- 5.5% for 10 years
- 7.0% thereafter

Funded Status in 2046: 95.3%

Ultimate Contribution Rates:

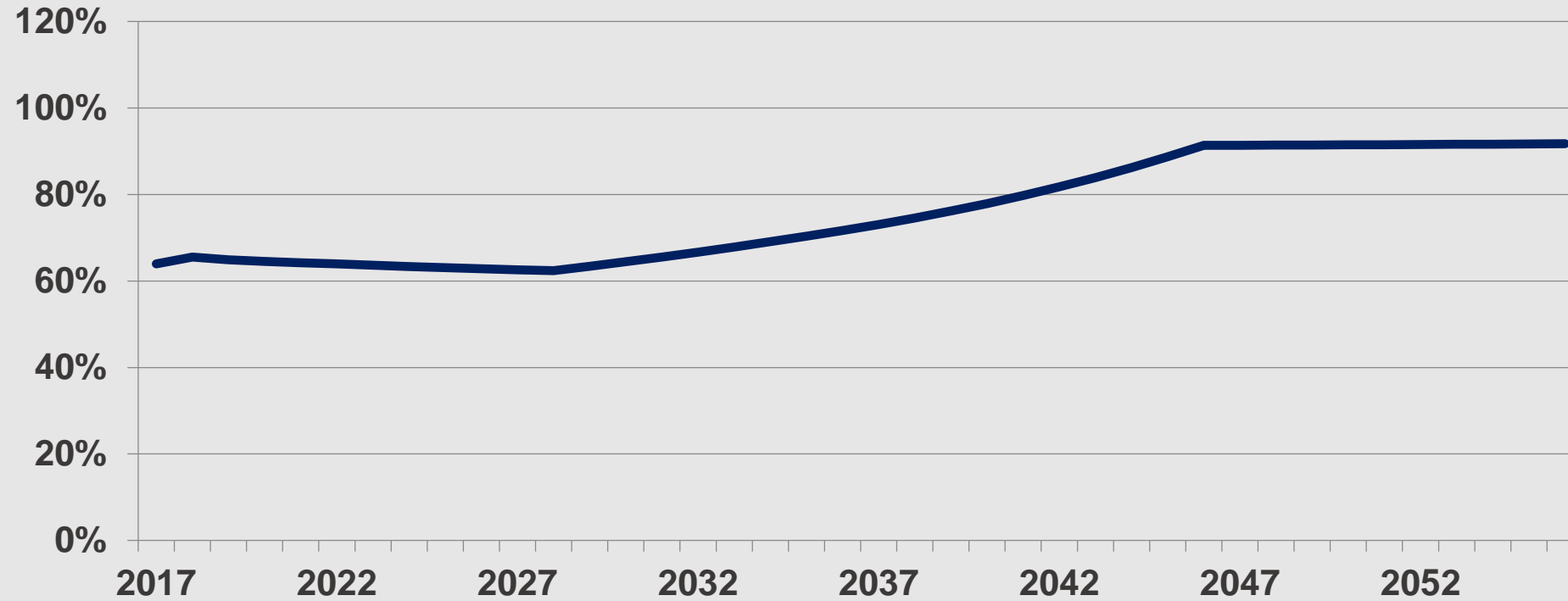
- State: 20.8%
- Employer: 17.2%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

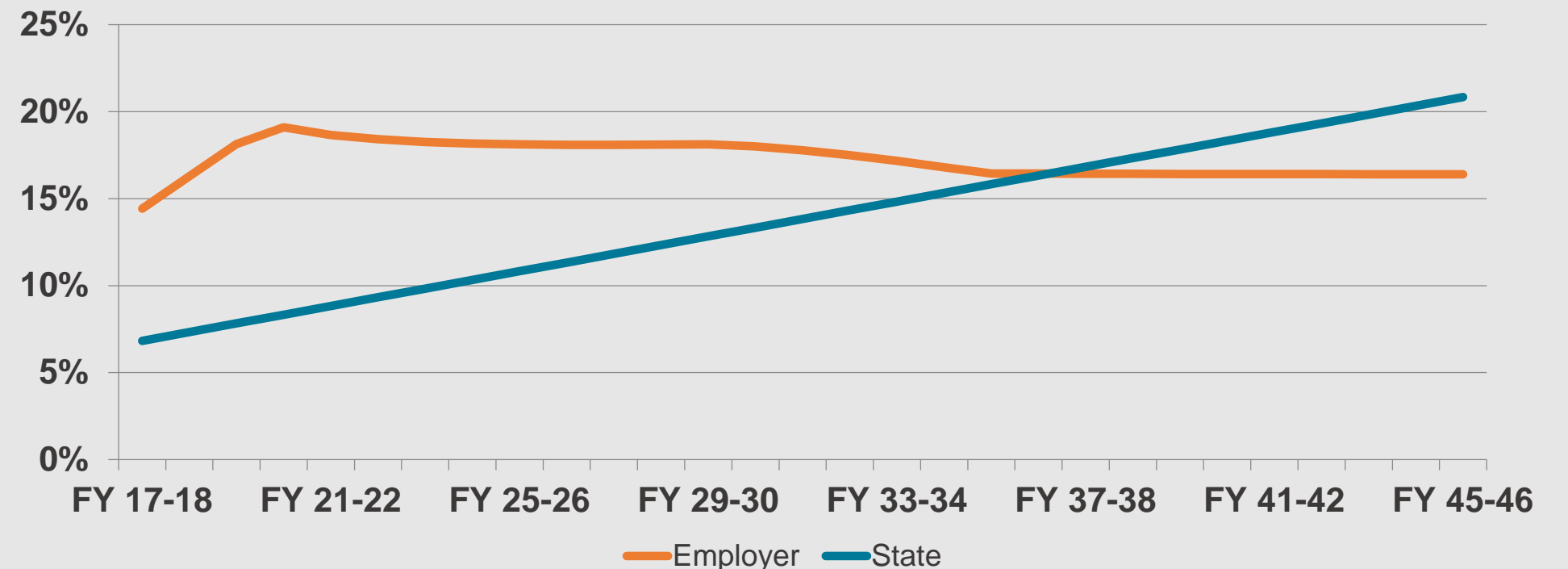
- 9.0% in FY 17-18
- 5.25% for 10 years
- 7.0% thereafter

Funded Status in 2046: 91.4%

Ultimate Contribution Rates:

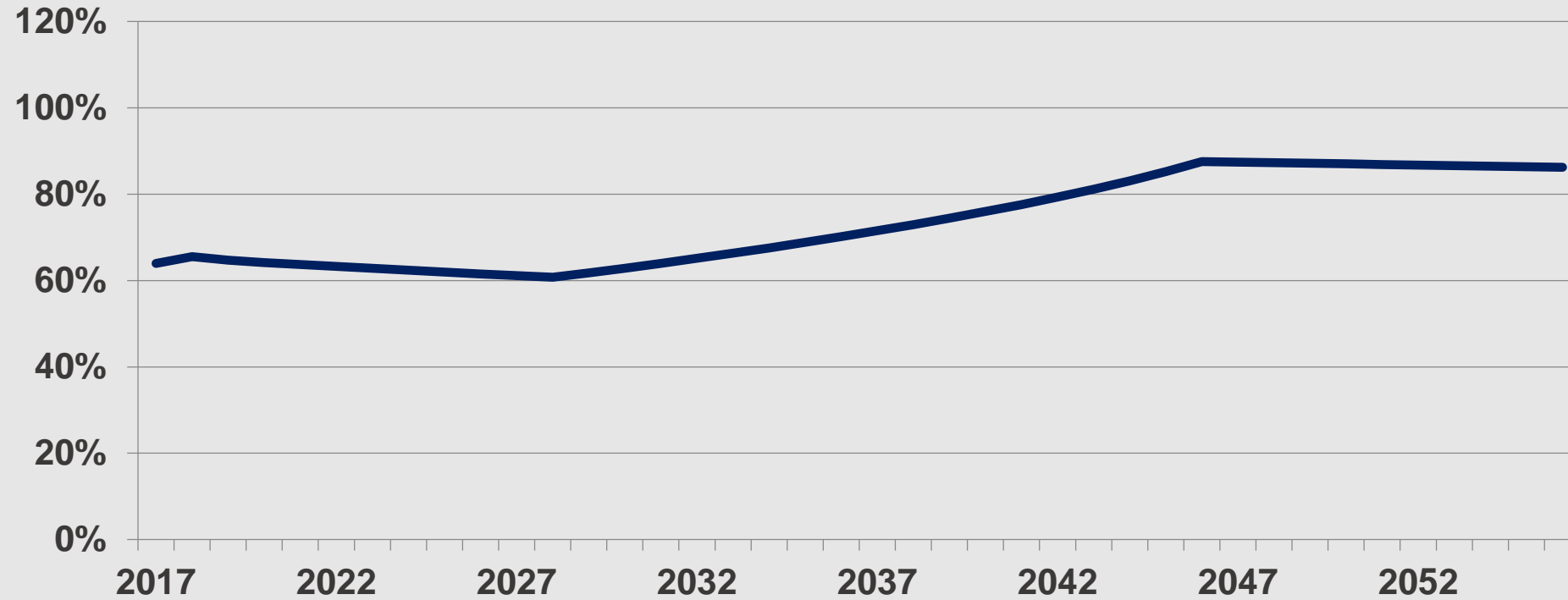
- State: 20.8%
- Employer: 16.4%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

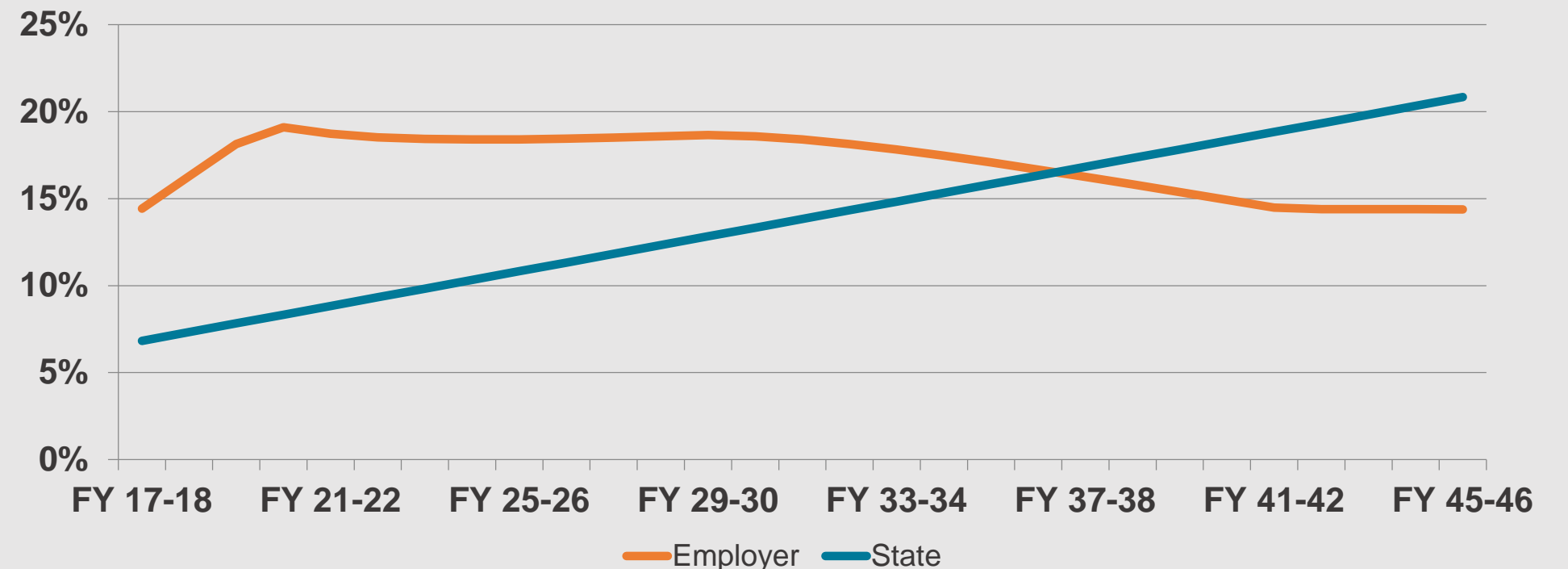
- 9.0% in FY 17-18
- 5.0% for 10 years
- 7.0% thereafter

Funded Status in 2046: 87.5%

Ultimate Contribution Rates:

- State: 20.8%
- Employer: 14.4%

Projected Contribution Rates



Minimum Sustainable Investment Return (to Reach 90% Funding Levels by 2046)

Today

5.75% return over
15 years

5.25% return over
10 years

3.75% return over
5 years

0.00% 1.00% 2.00% 3.00% 4.00% 5.00% 6.00% 7.00%

Minimum Sustainable Investment Return (to Reach 90% Funding Levels by 2046)

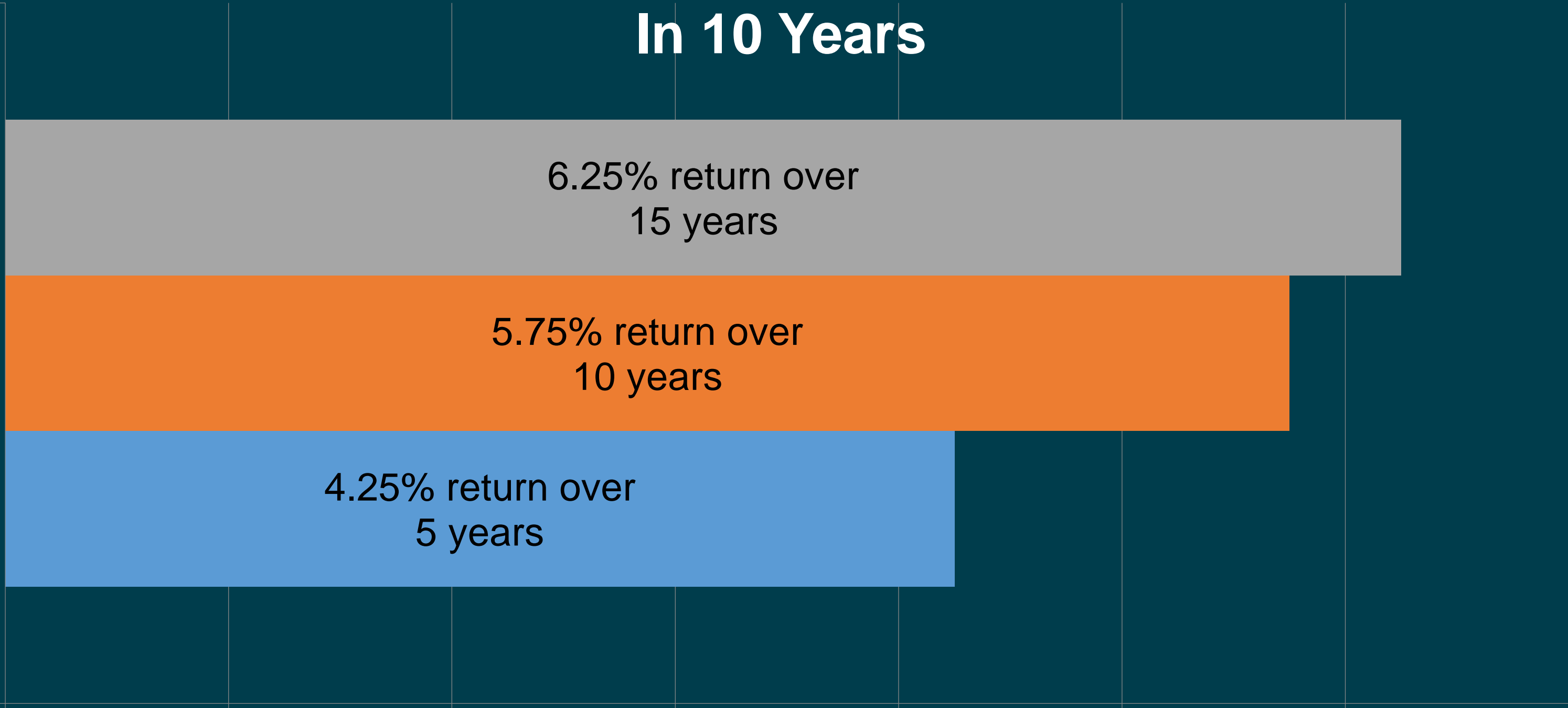
In 10 Years

6.25% return over
15 years

5.75% return over
10 years

4.25% return over
5 years

0.00% 1.00% 2.00% 3.00% 4.00% 5.00% 6.00% 7.00%

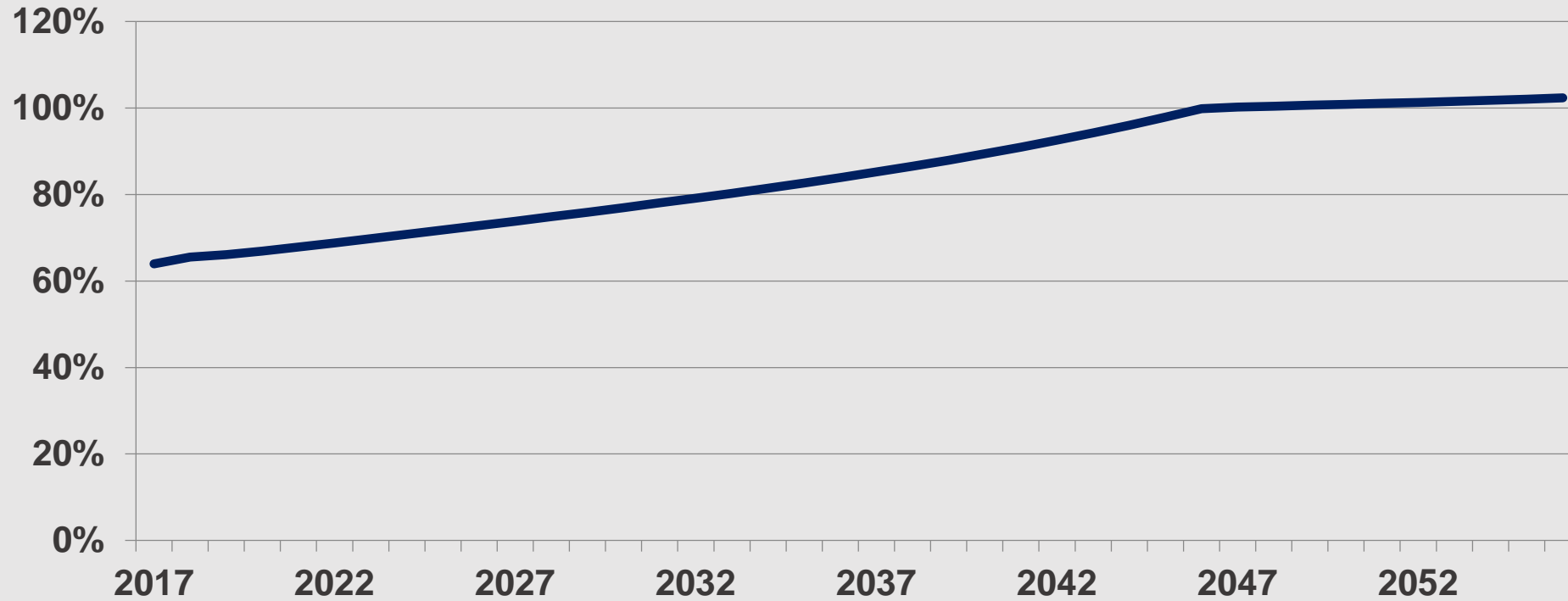


Investment Risk

Risk of a “Shock” in a Single Year

Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

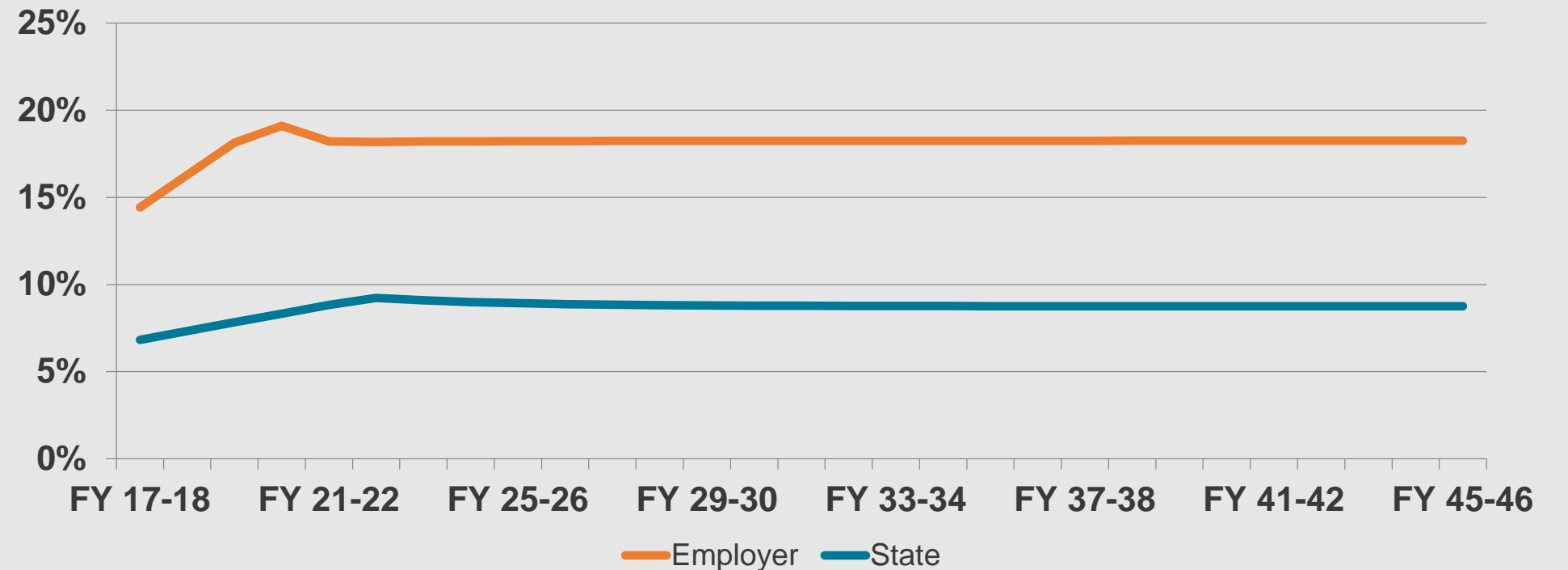
- 9.0% in FY 17-18
- 7.0% thereafter

Funded Status in 2046: 99.8%

Ultimate Contribution Rates:

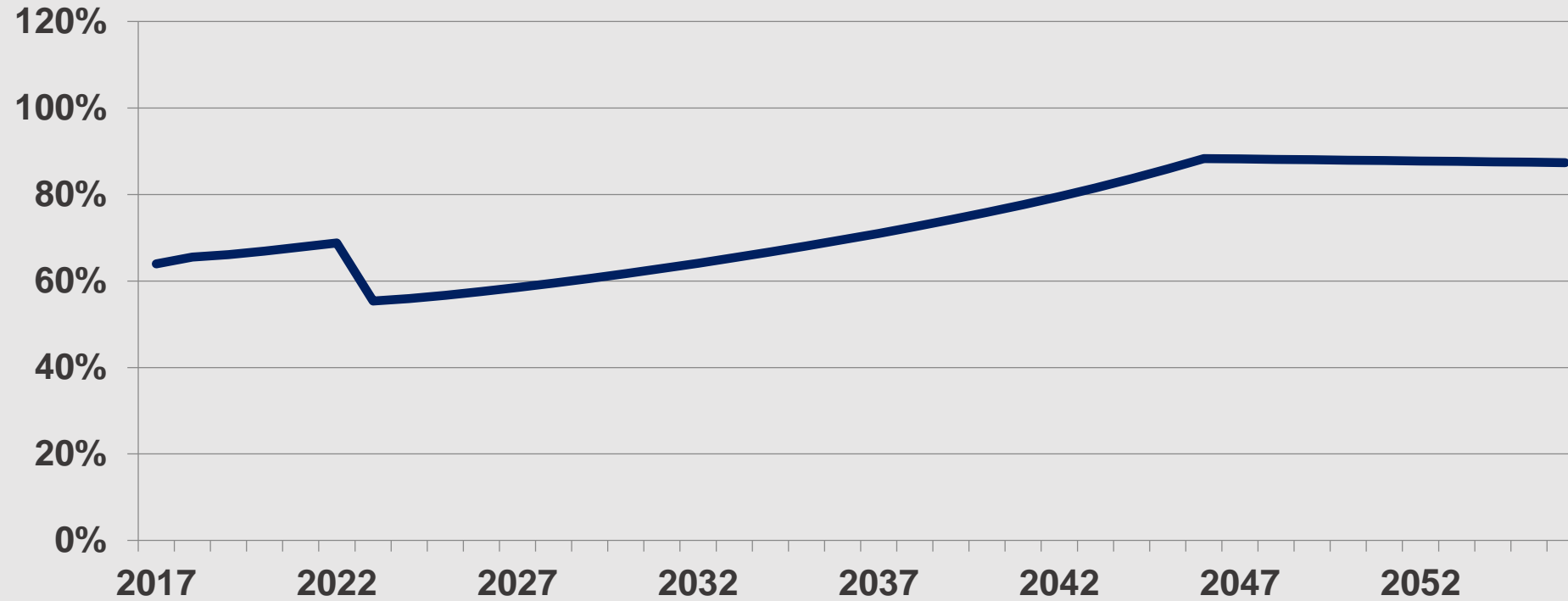
- State: 9.2%
- Employer: 18.2%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

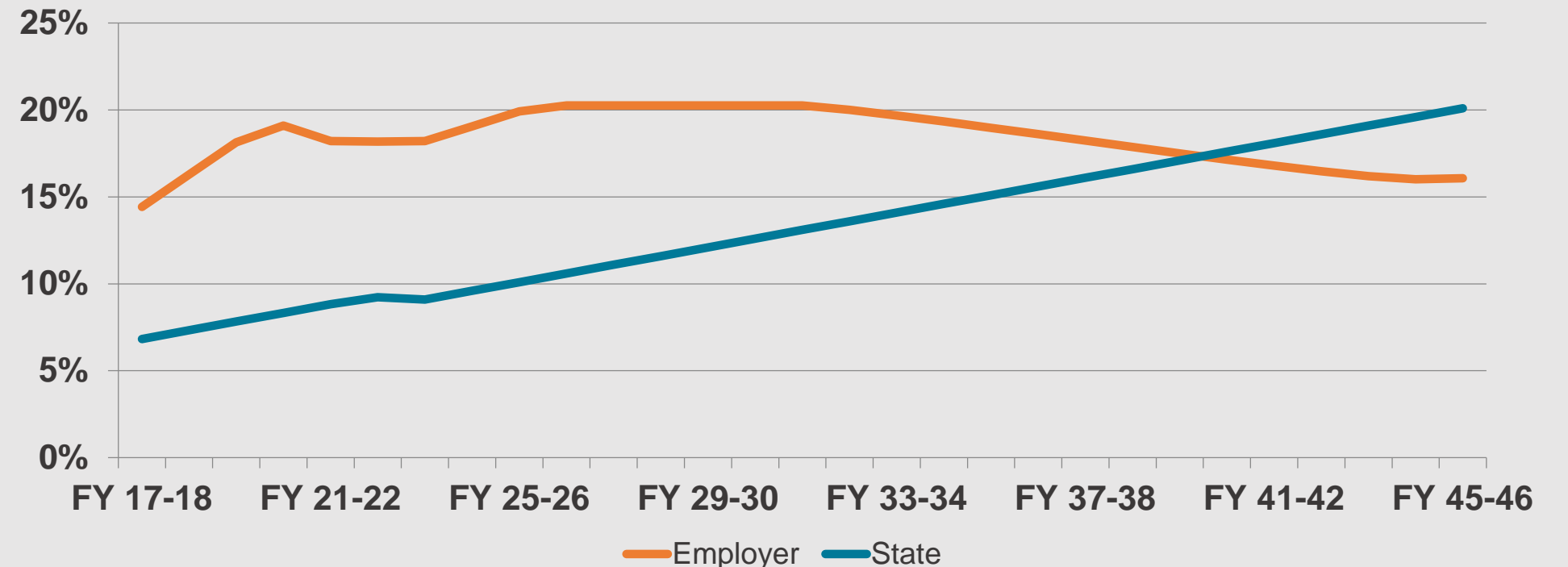
- 9.0% in FY 17-18
- -13% in 5 years
- 7.0% all other years

Funded Status in 2046: 88.3%

Peak Contribution Rates:

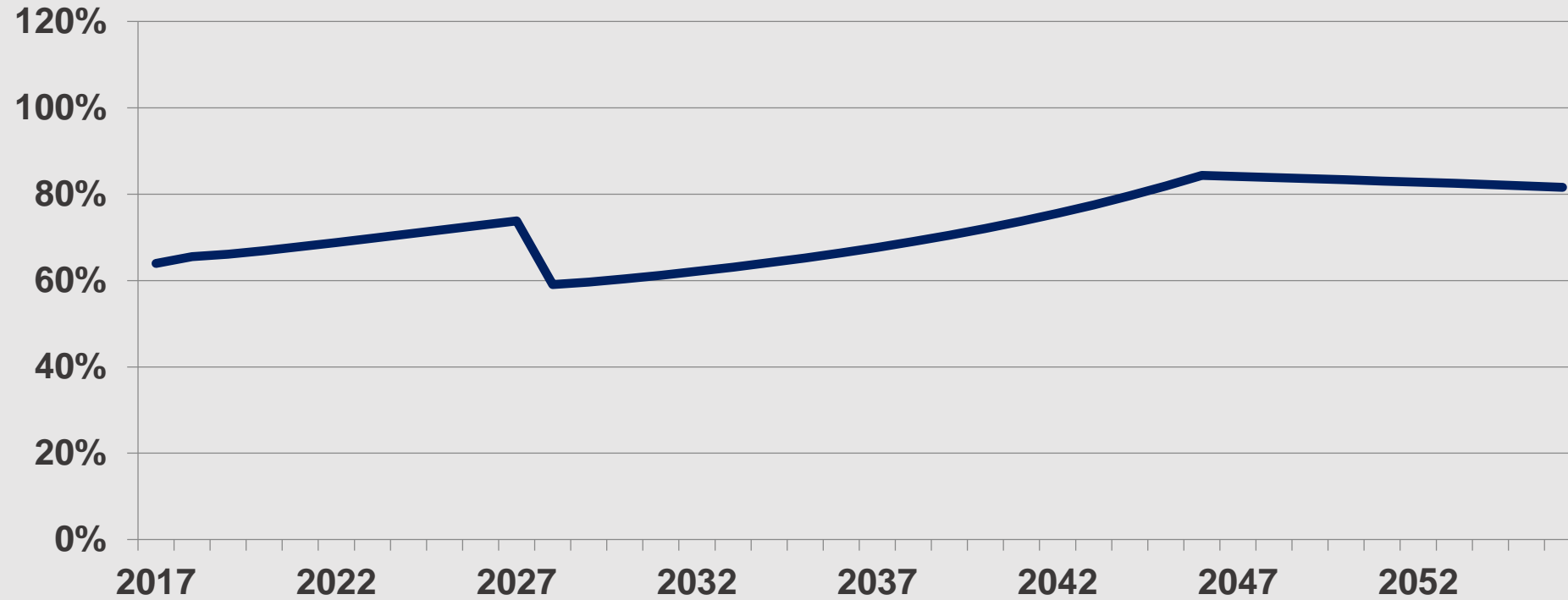
- State: 20.1%
- Employer: 20.25%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

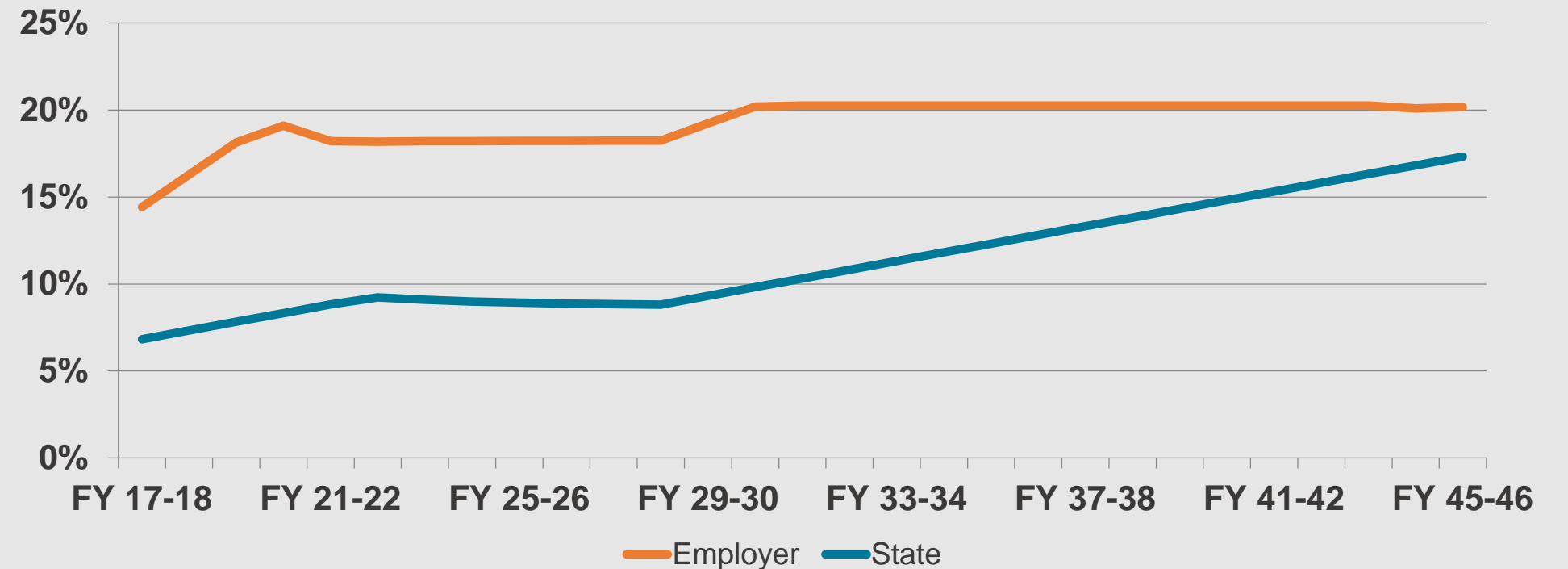
- 9.0% in FY 17-18
- -13% in 10 years
- 7.0% all other years

Funded Status in 2046: 84.4%

Peak Contribution Rates:

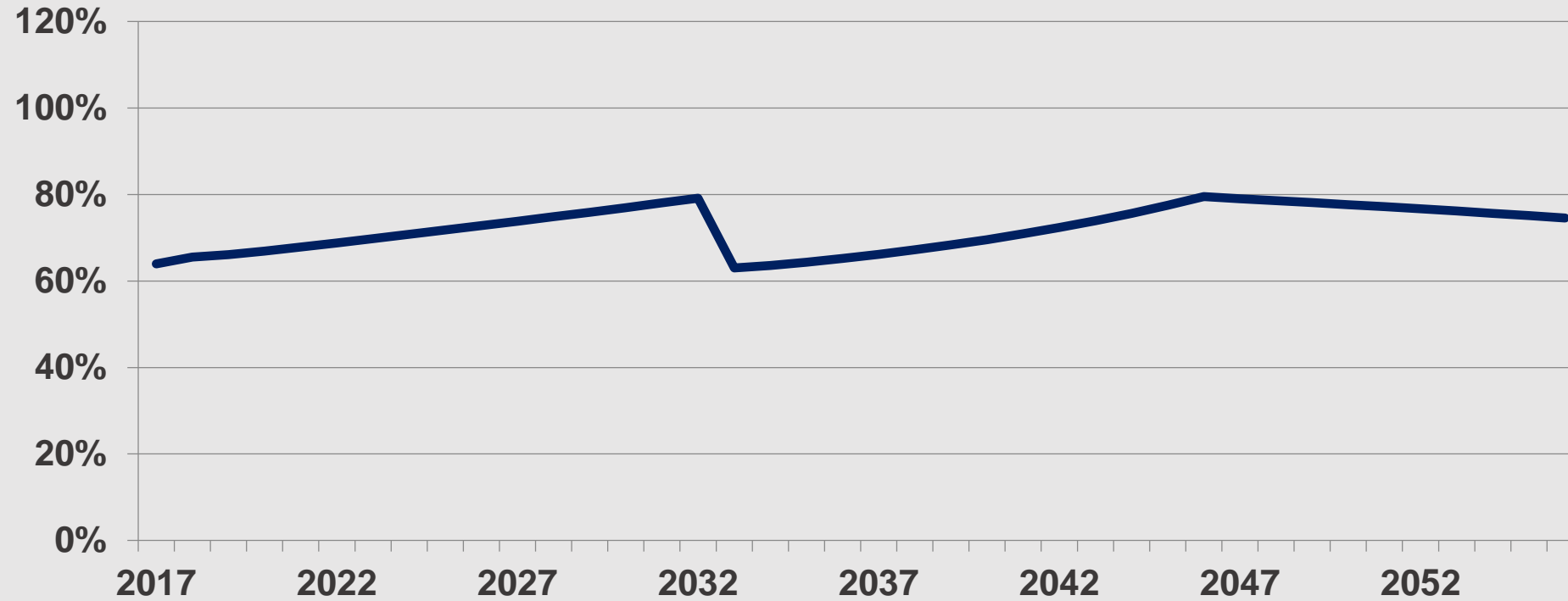
- State: 17.3%
- Employer: 20.25%

Projected Contribution Rates



Projected Funded Status and Contributions Rates

Projected Funded Status



Scenario:

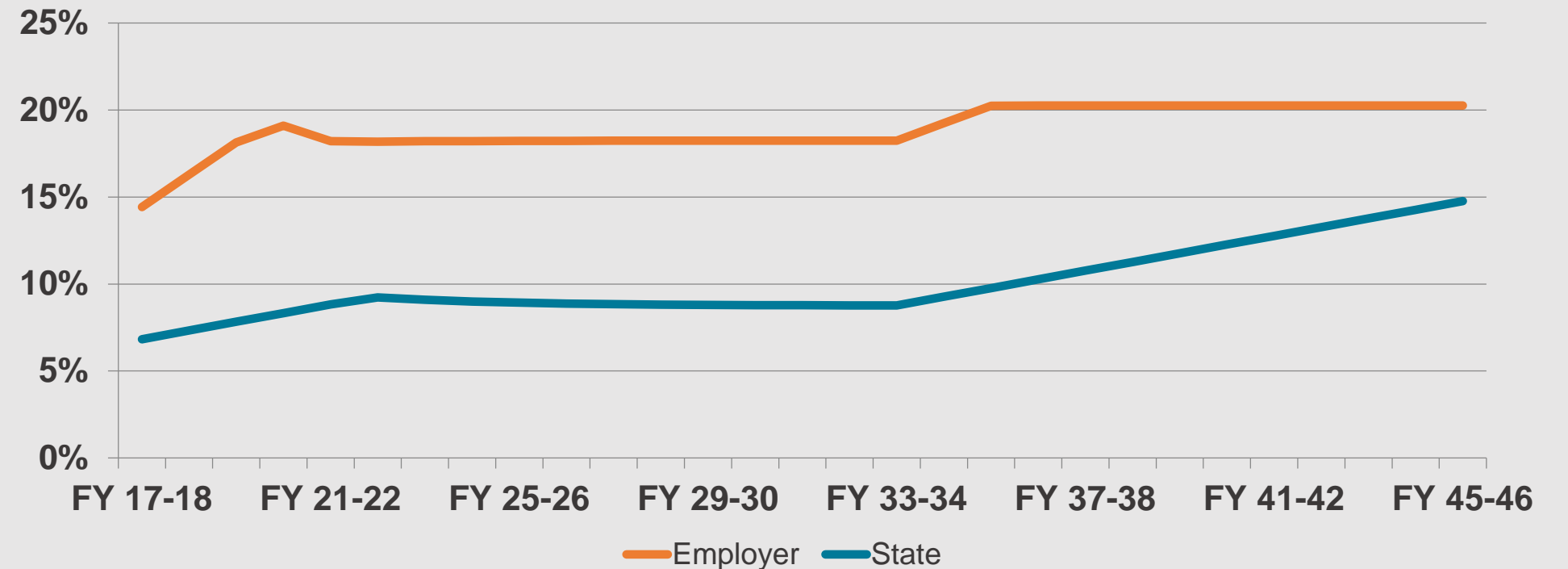
- 9.0% in FY 17-18
- -13% in 15 years
- 7.0% all other years

Funded Status in 2046: 79.5%

Peak Contribution Rates:

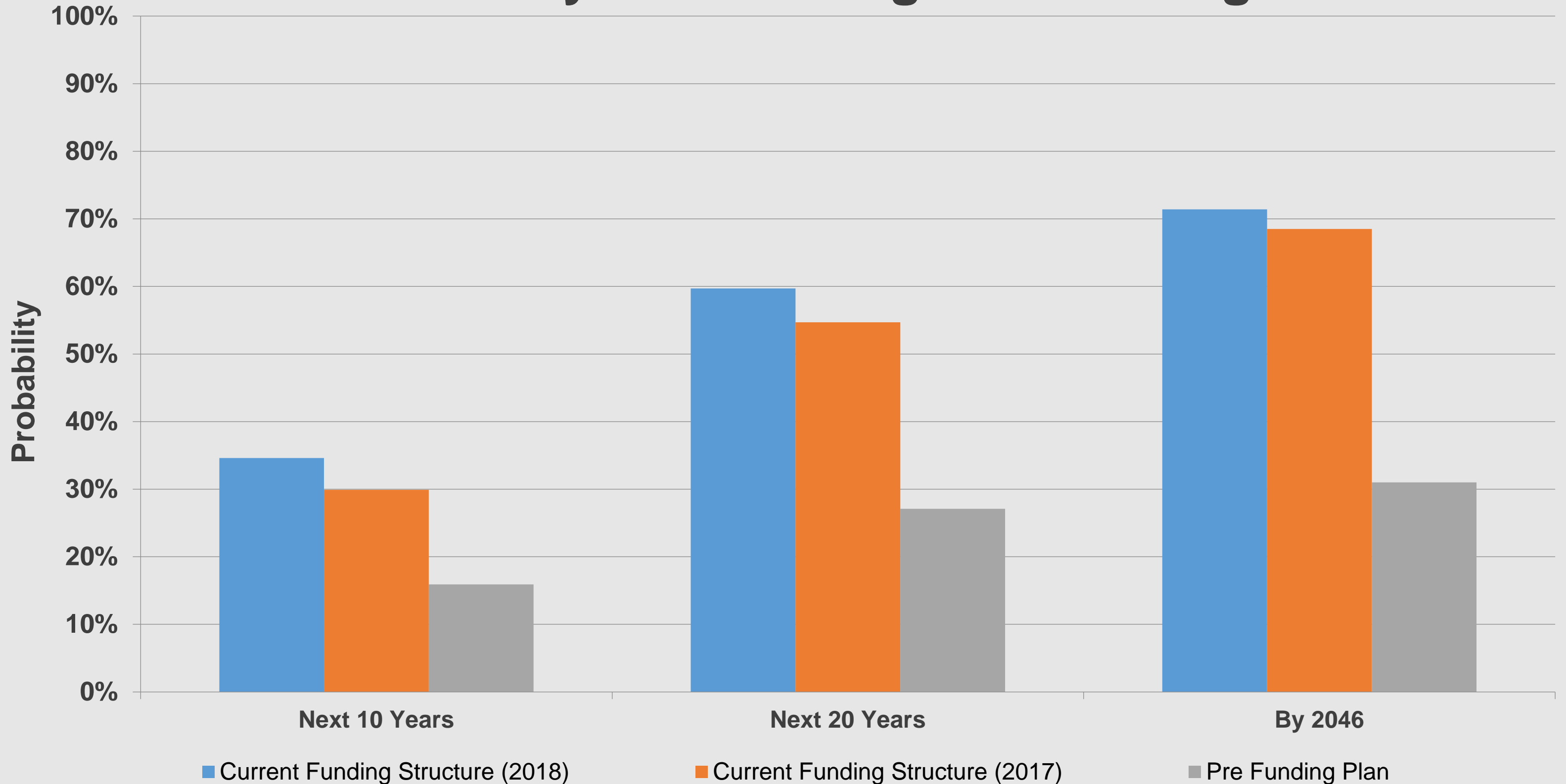
- State: 14.8%
- Employer: 20.25%

Projected Contribution Rates

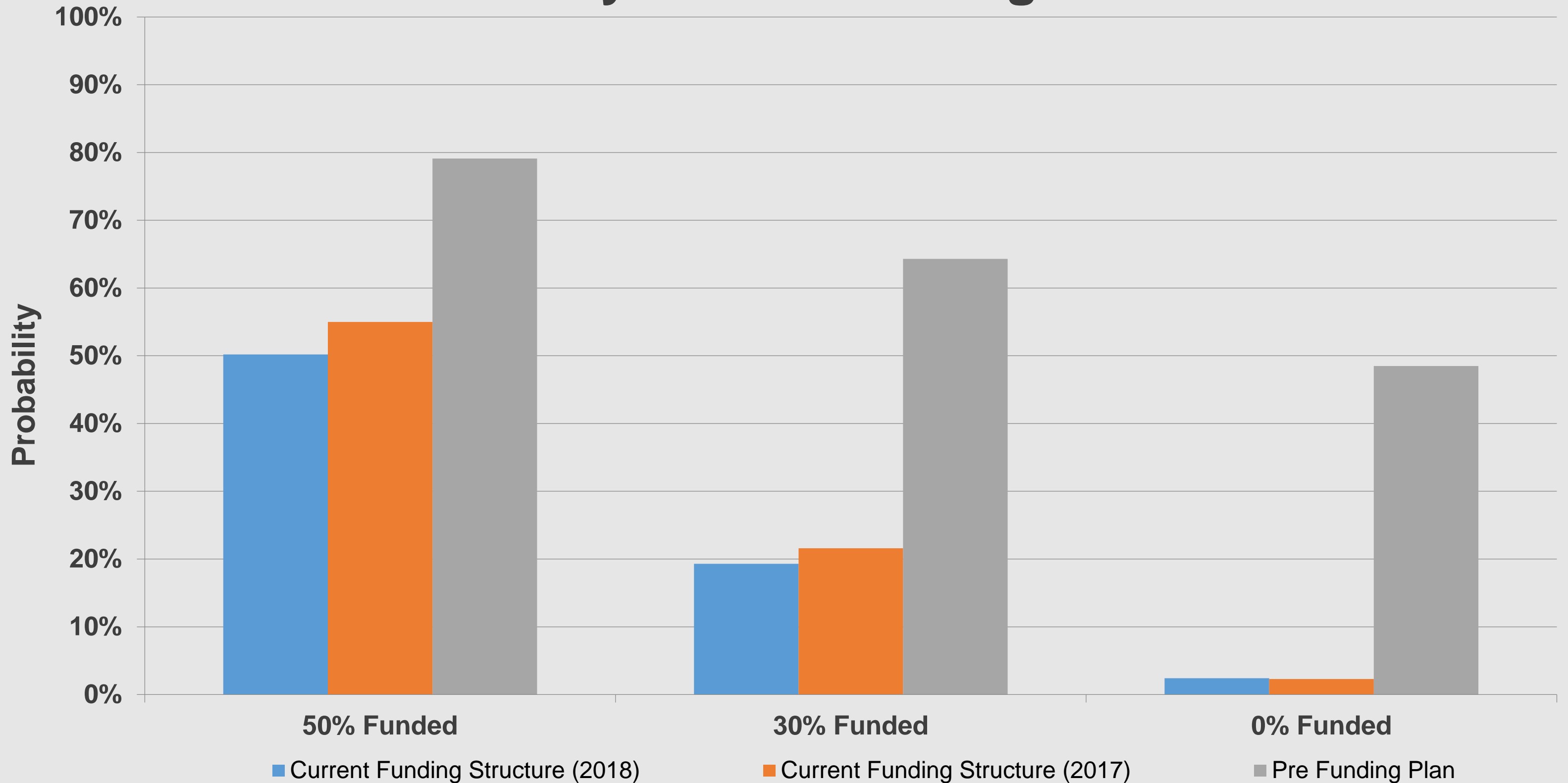


Risk Measures

Probability of Achieving Full Funding



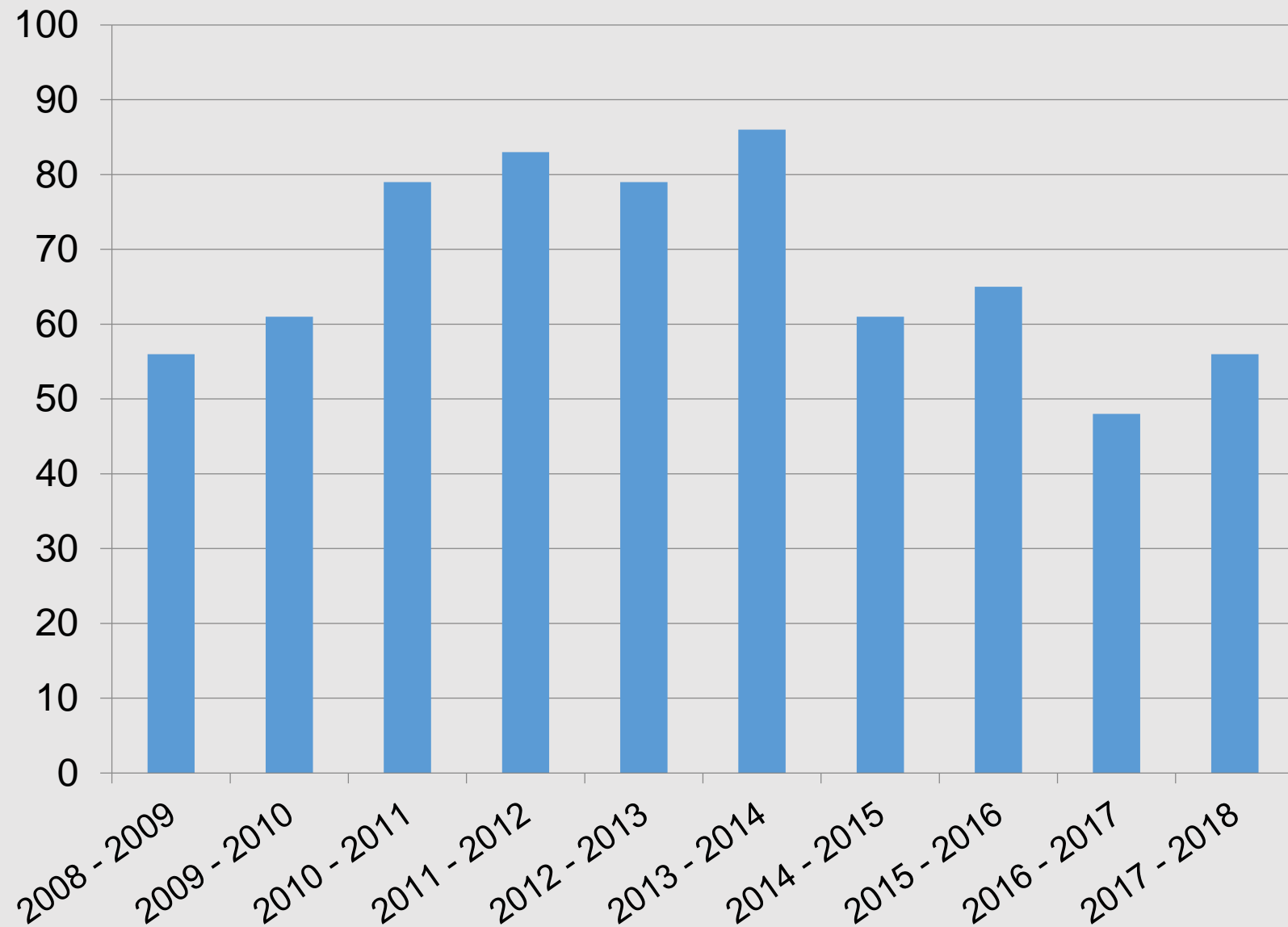
Probability of Low Funding Levels



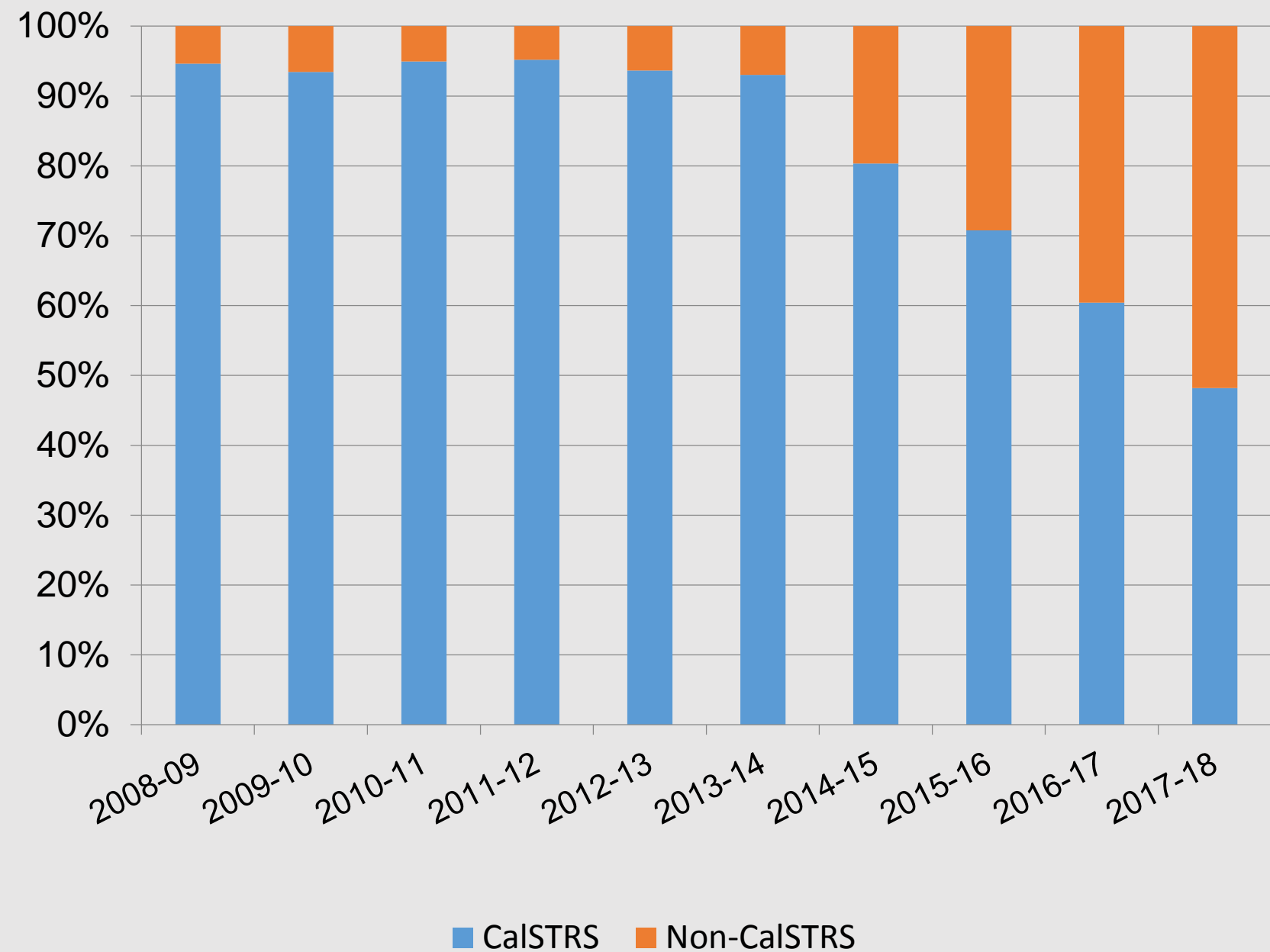
Risk of a Decline In Active Membership and Payroll

Recent Growth in Charter Schools Not Electing CalSTRS

Number of New Charter Schools

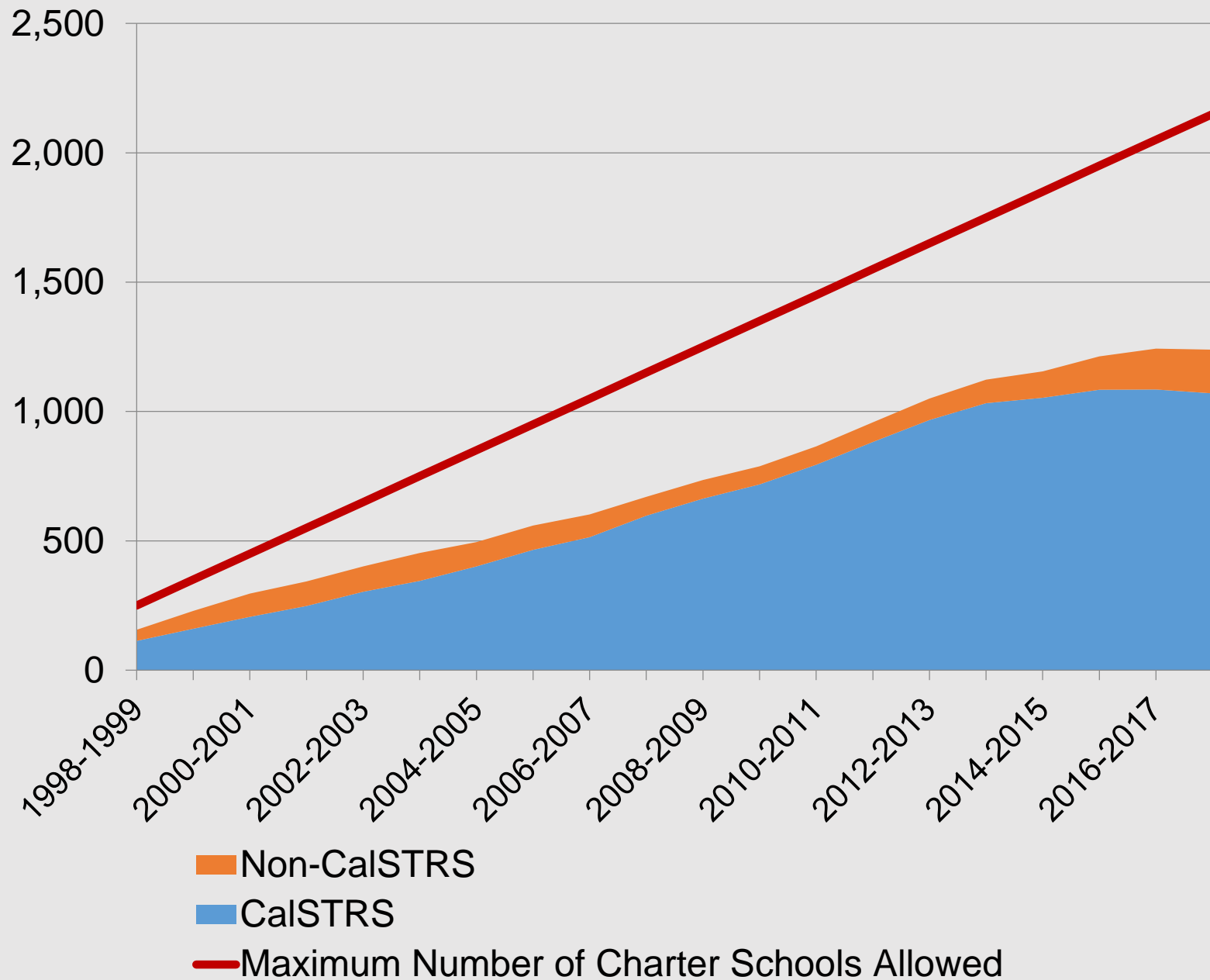


Selection of Retirement Benefits by New Charter Schools

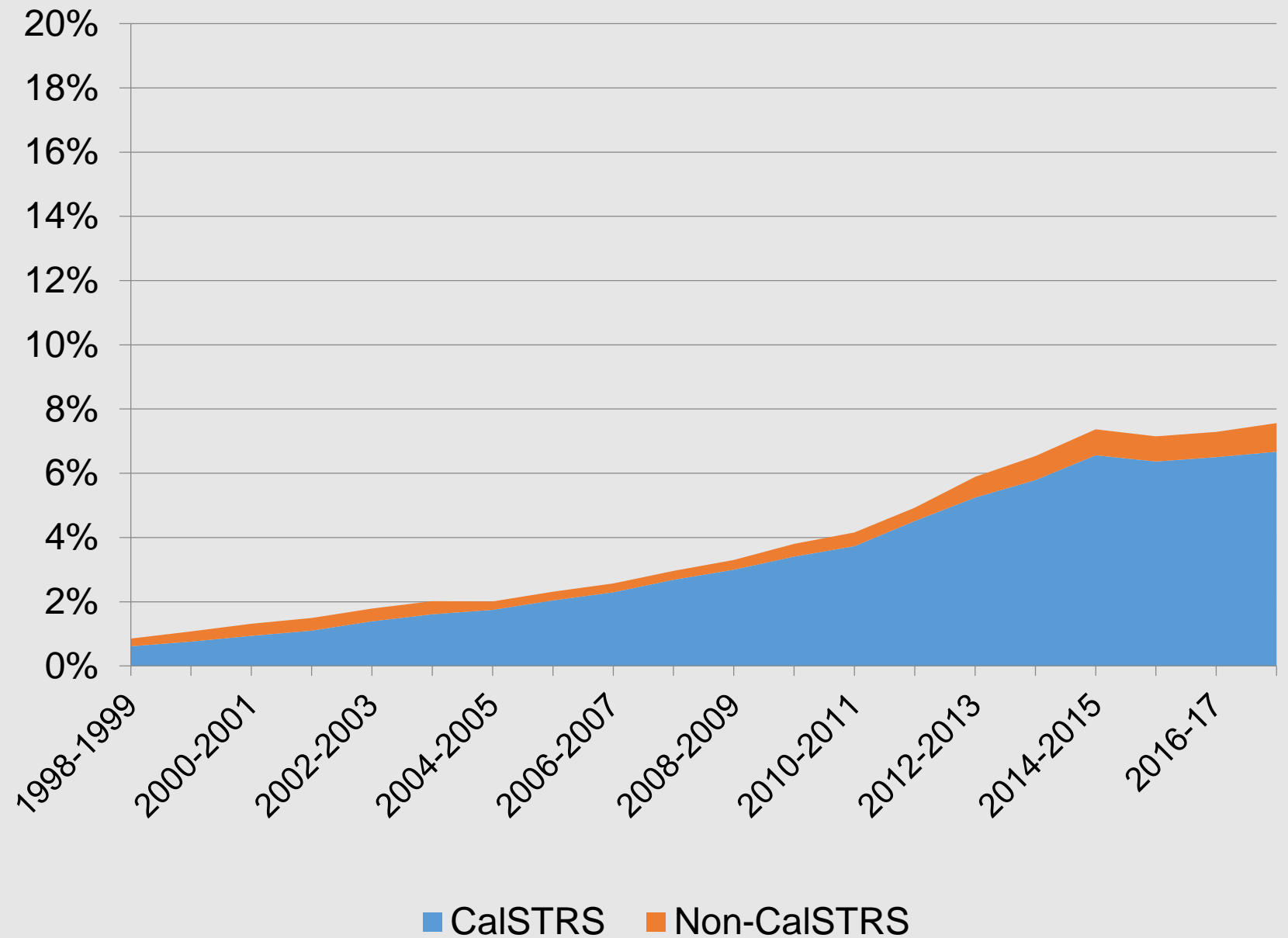


Size of Charter Schools Population

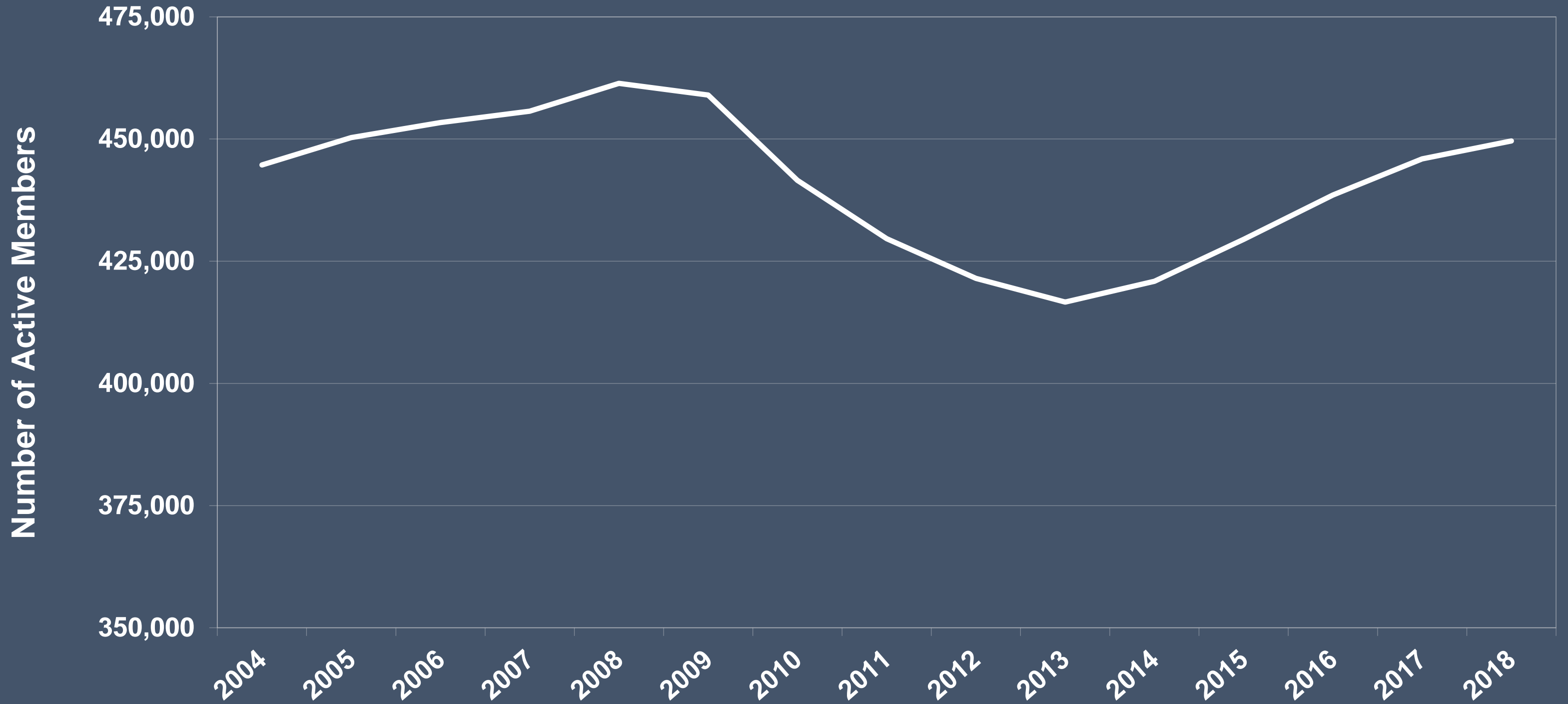
Historical Number of Active Charter Schools



Size of Charter Schools Population Relative to Total CalSTRS Active Membership

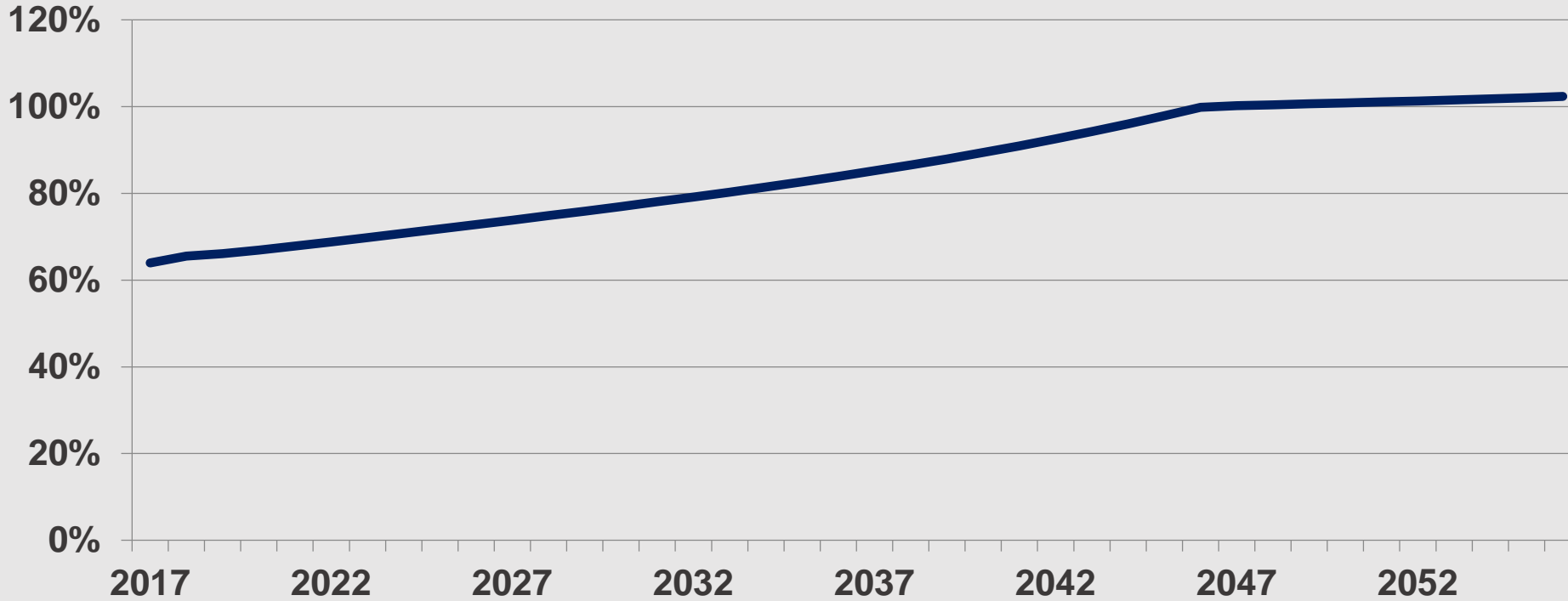


CalSTRS Number of Active Members Last 15 Years - DB Program Only



Impact of a Potential Recession

Projected Funded Status



Scenario:

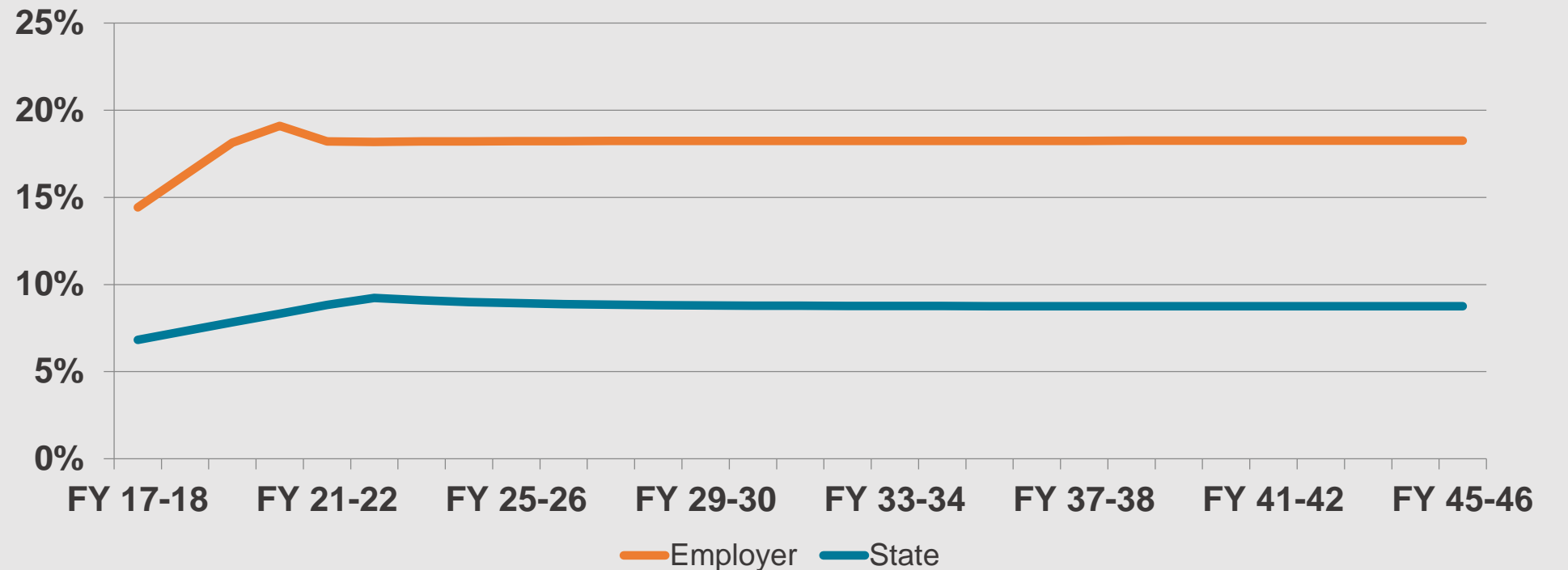
- 9.0% in FY 17-18
- 7.0% thereafter

Funded Status in 2046: 99.8%

Ultimate Contribution Rates:

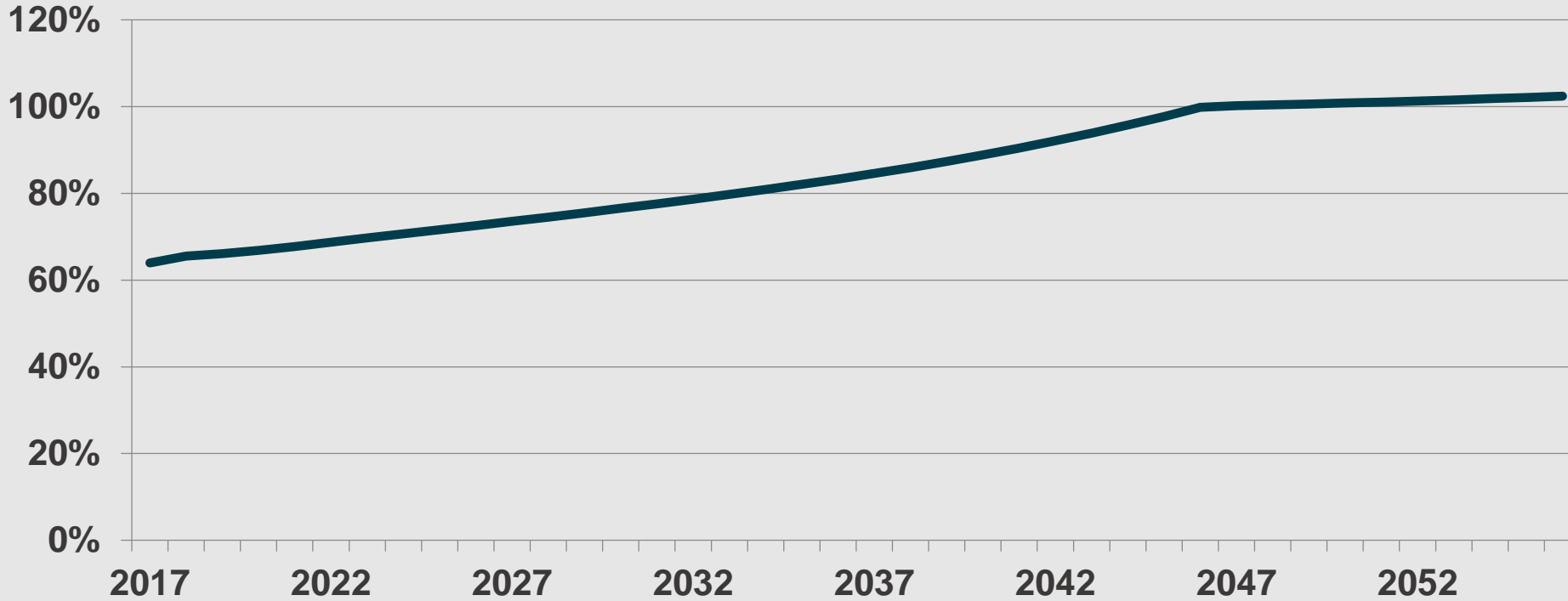
- State: 9.2%
- Employer: 18.2%

Projected Contribution Rates



Impact of a Potential Recession

Projected Funded Status



Scenario:

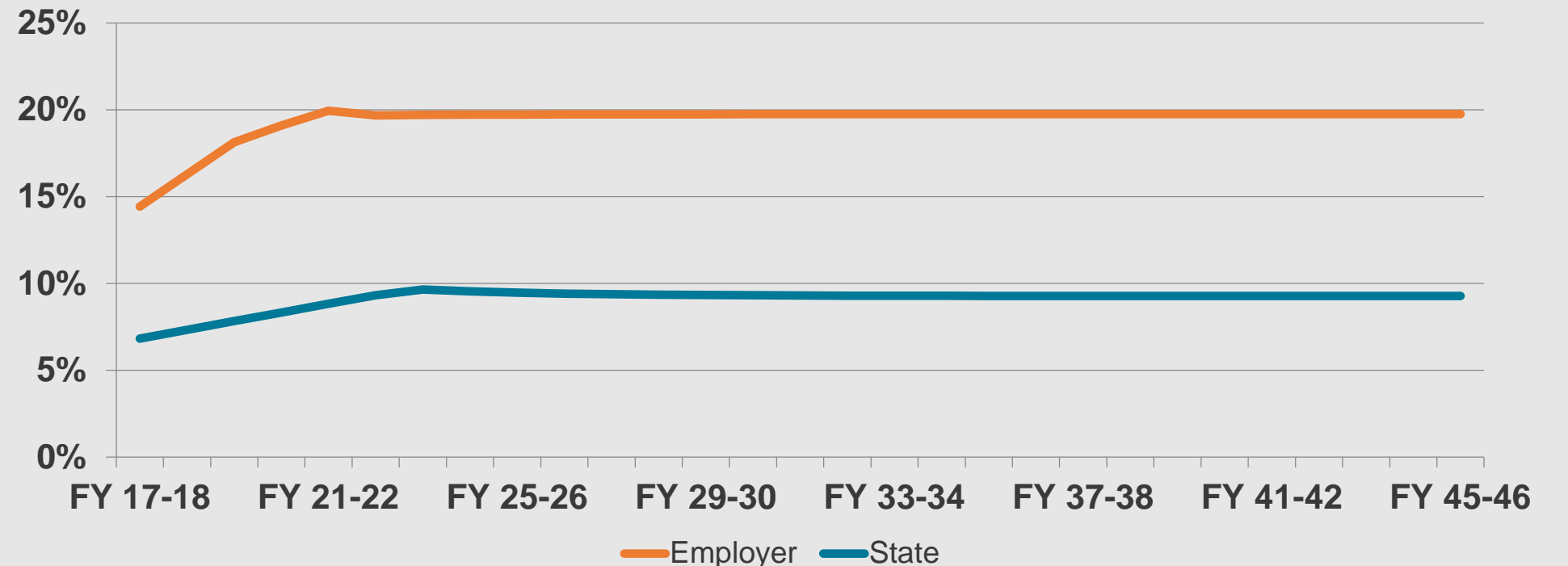
- Decline of 45,000 in membership over 5 years

Funded Status in 2046: 99.8%

Peak Contribution Rates:

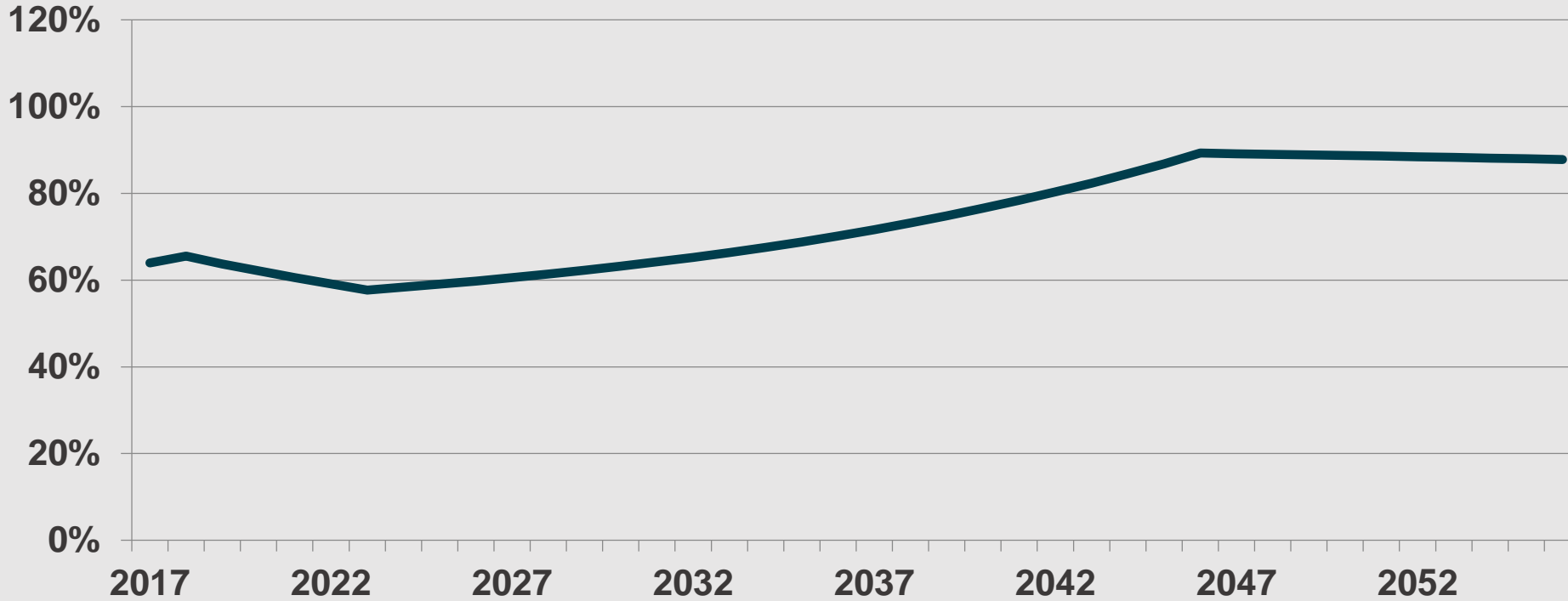
- State: 9.6%
- Employer: 19.8%

Projected Contribution Rates



Impact of a Potential Recession

Projected Funded Status



Scenario:

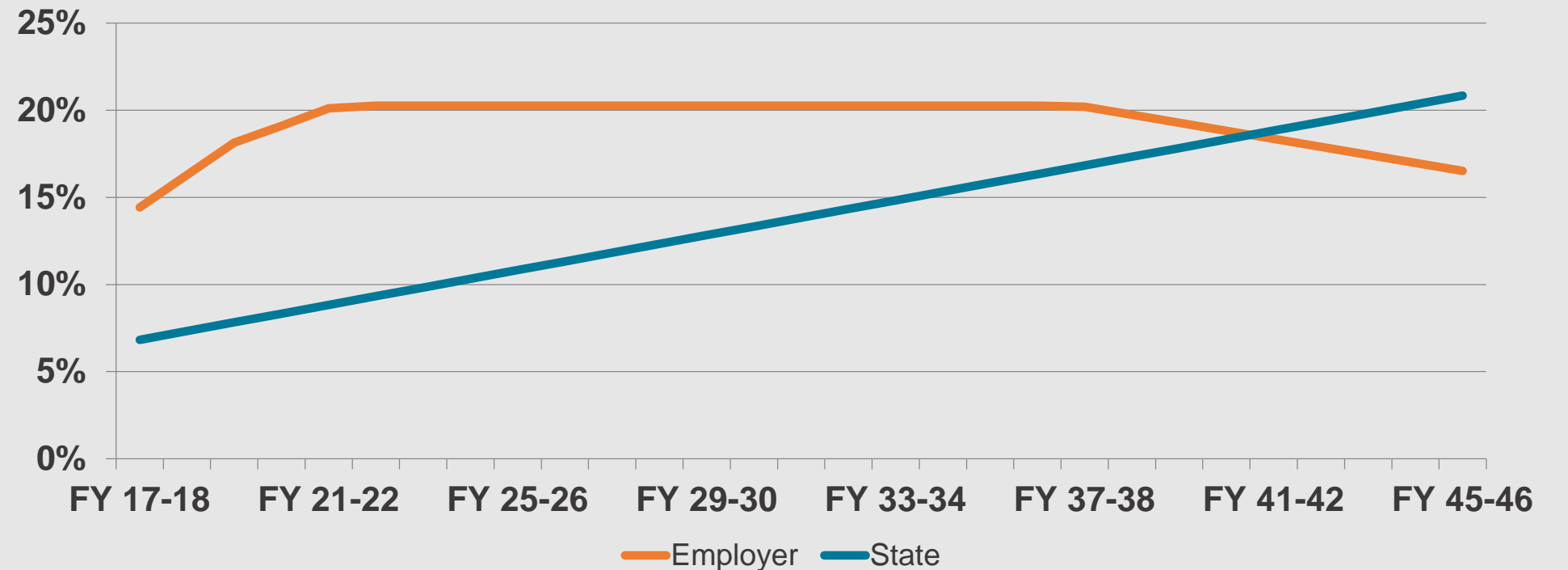
- Decline of 45,000 in membership over 5 years
- 3.5% investment return for next 5 years

Funded Status in 2046: 89.3%

Peak Contribution Rates:

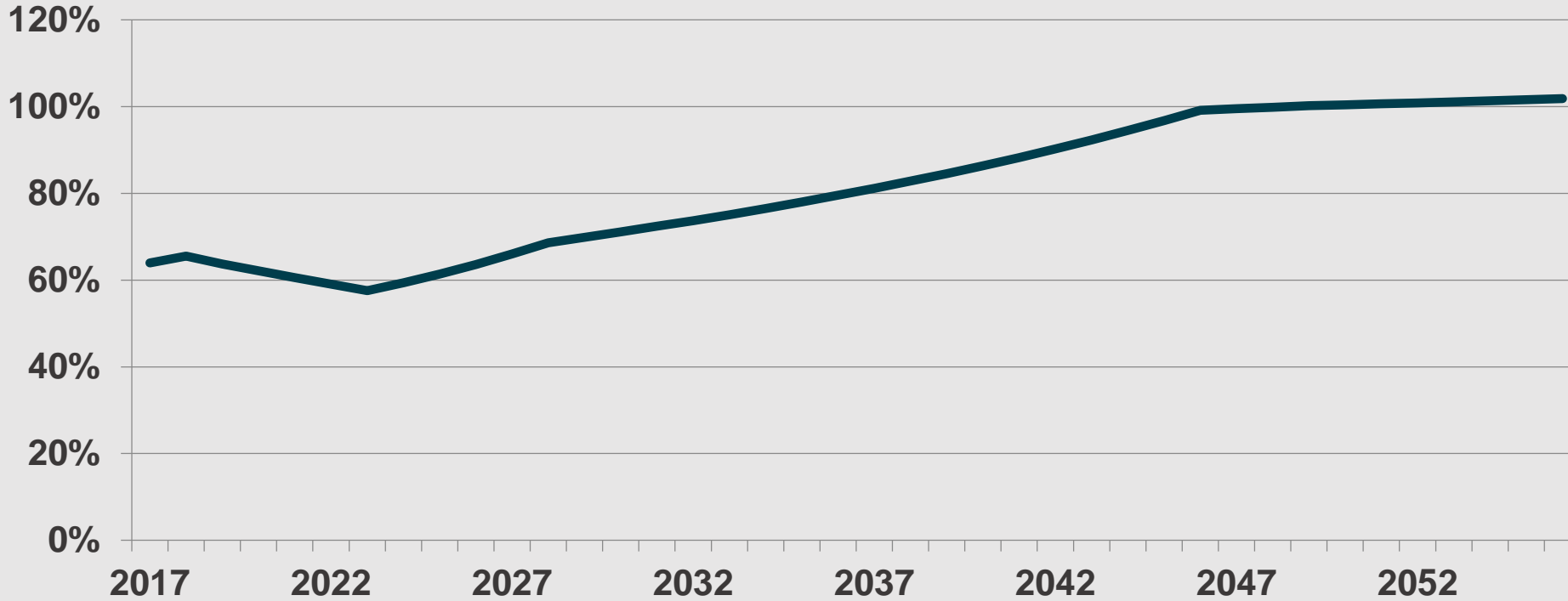
- State: 20.8%
- Employer: 20.25%

Projected Contribution Rates



Impact of a Potential Recession

Projected Funded Status



Scenario:

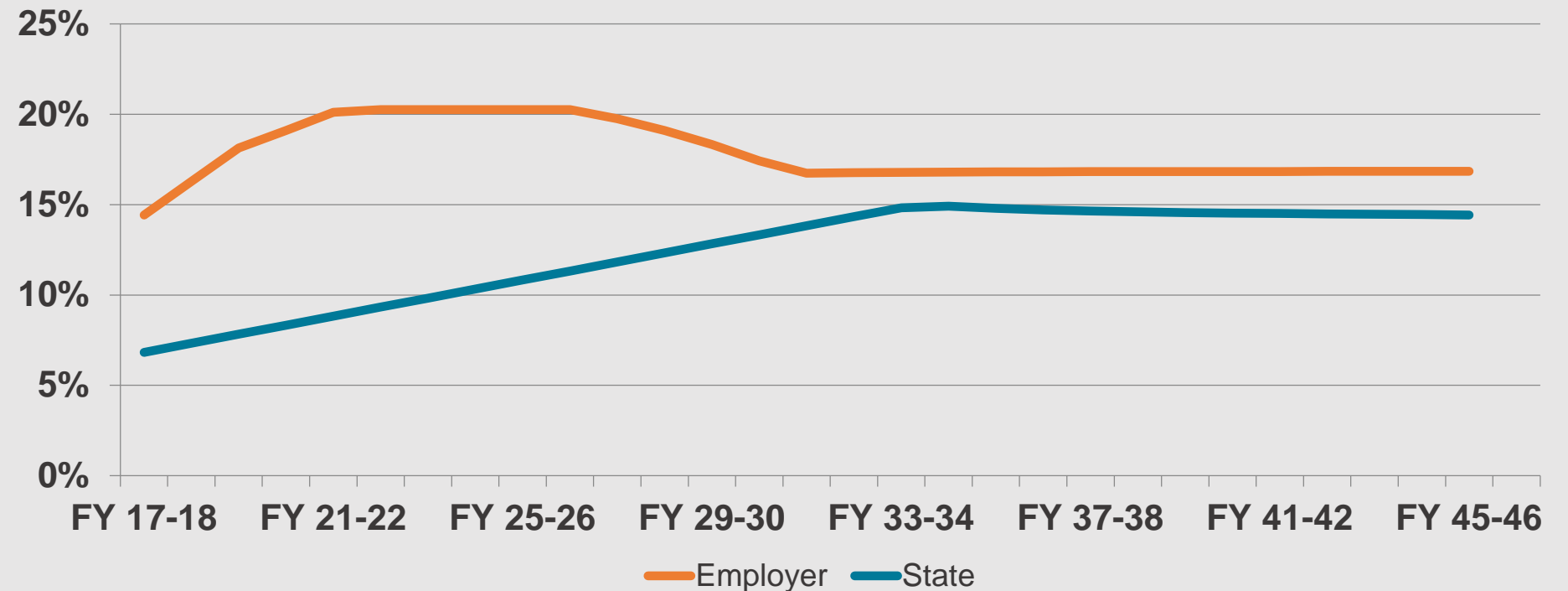
- Same recession scenario
- Membership recovery with 9% return for 5 years following recession

Funded Status in 2046: 99.2%

Peak Contribution Rates:

- State: 14.9%
- Employer: 20.25%

Projected Contribution Rates



Next Steps

Next Steps

- Progress report to the legislature on the status of the funding plan.
- Review of Asset Allocation.
- Review of Actuarial Assumptions.

CALSTRS

CalSTRS.com