THE PEW CHARITABLE TRUSTS

Assessing and Approaching Pension Risk: An Update on Stress Testing and Hybrid Plan Design in the States

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The Pew Charitable Trusts
Public Sector Retirement Systems Project

The Pew Charitable Trusts

- More than 40 active, evidence-based research projects.
- Projects include public safety, immigration, elections, transportation, pensions, and state tax incentives.
- All follow a common approach: data-driven, inclusive, and transparent.

Pew's Public Sector Retirement Systems Project

- Research since 2007 includes 50-state trends on public pensions and retiree benefits relating to funding, investments, governance, and employee preferences.
- Technical assistance for states and cities since 2011.

Principles for Fiscal Sustainability and Retirement Security

- No one-size-fits-all solution, but **key principles** can guide any reform process.

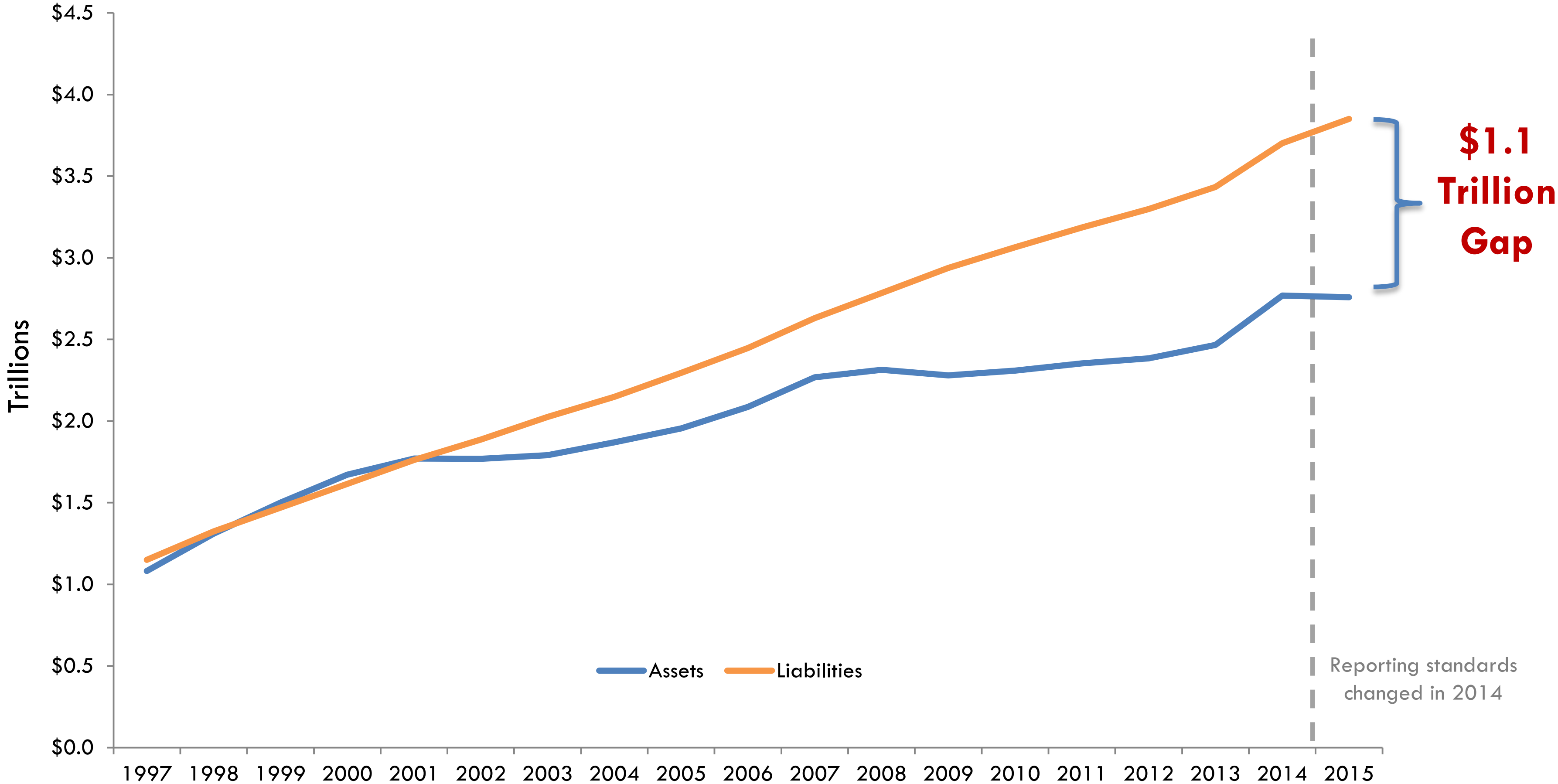
- **Fiscal sustainability principles**
  - Commit to fully funding and paying for pension promises.
  - Manage investment risk and cost uncertainty.
  - Follow sound investment governance and reporting practices.

- **Retirement security principles**
  - Target sufficient contributions and savings to help put employees on a path to a secure retirement.
  - Invest assets in professionally managed, pooled investments with low fees and appropriate asset allocations.
  - Provide access to lifetime income in retirement.

Presentation Overview

- **Introduction**
  - National pension funding
  - Risk premium, investment performance
- **Emerging Trend- Stress Test Reporting**
  - Overview
  - Sample outputs
- **Emerging Trend- Risk Managed Hybrid Plans**
  - Overview
  - Key features

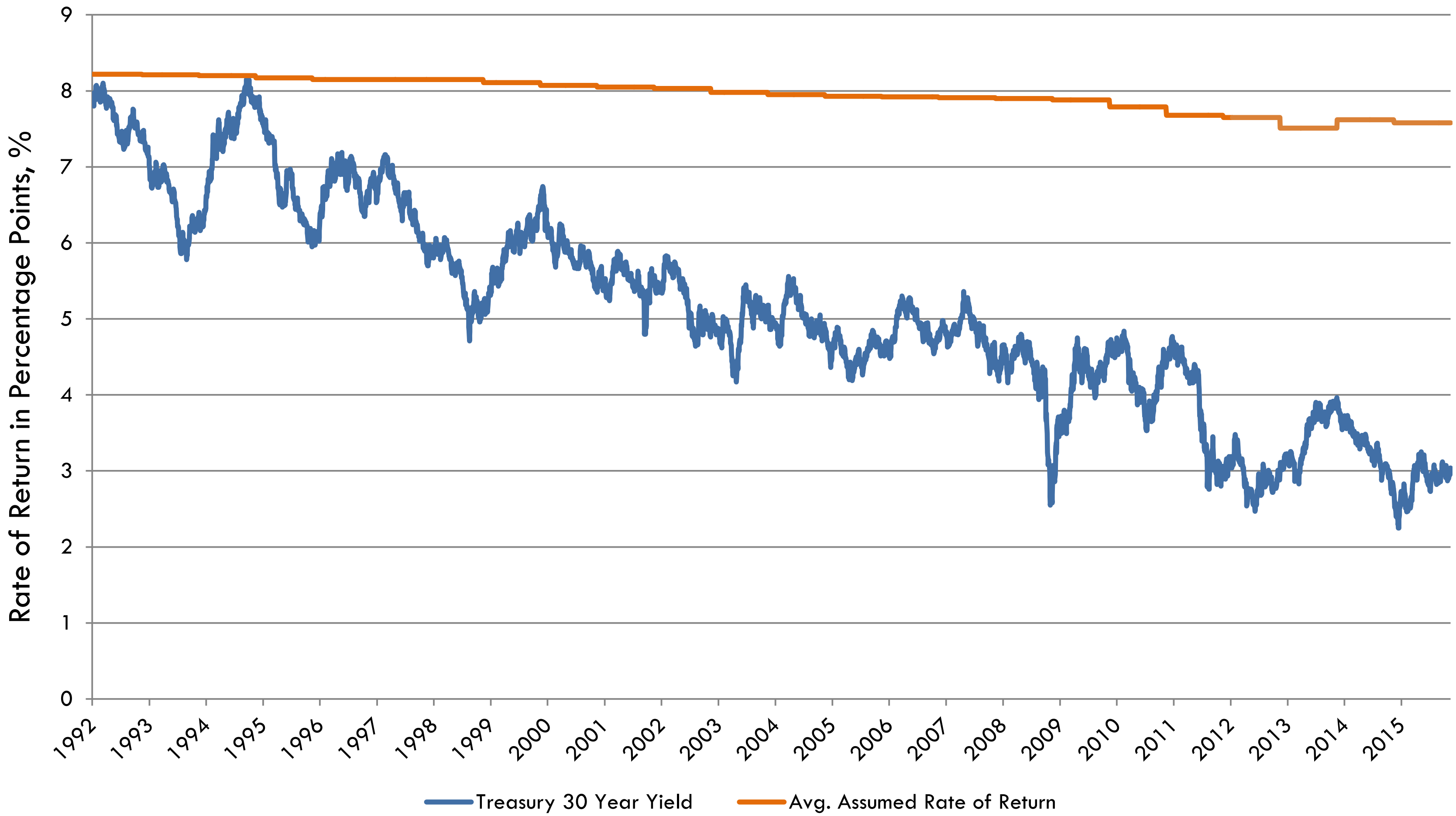
50 State Pension Funding Gap (2015)



Note: GASB reporting standards changed in 2014.
Source: Data for this graph were collected from Comprehensive Annual Financial Reports (CAFRs), actuarial reports and valuations, or other public documents.

Pension Fund Risk Premium at Historic High

US Public Fund Average Increasing Risk Premium – Plan's Assumed Rate of Return Remains Relatively Stable, While Bond Yields Have Declined



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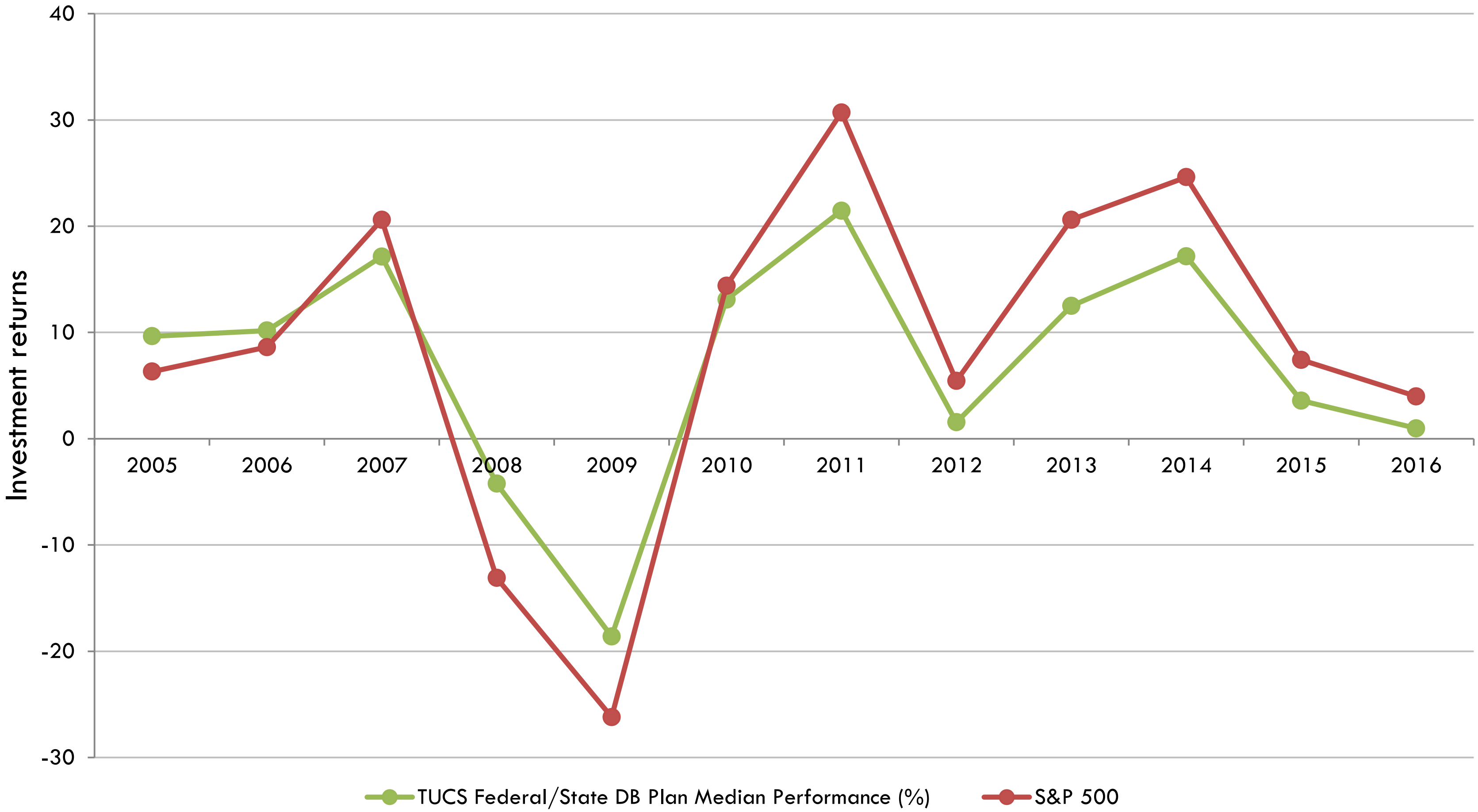
Pension Fund Investments Track the Stock Market

Equity investments and pension fund returns are highly volatile



Sources: The Wilshire®, Trust Universe Comparison Service®

Emerging Trend- Stress Test Reporting

Stress Testing Overview

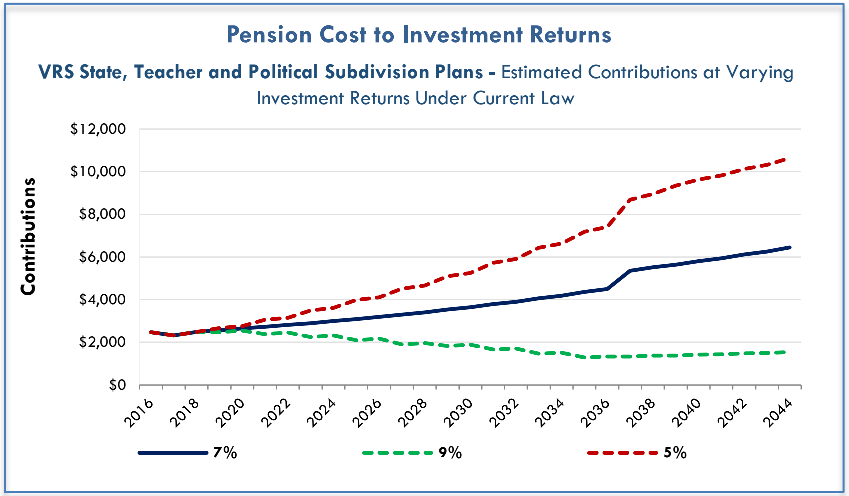
- With interest rates at historically low levels, there is increased attention around both the level of risk in pension fund portfolios and the potential for unplanned costs if return targets are not achieved.

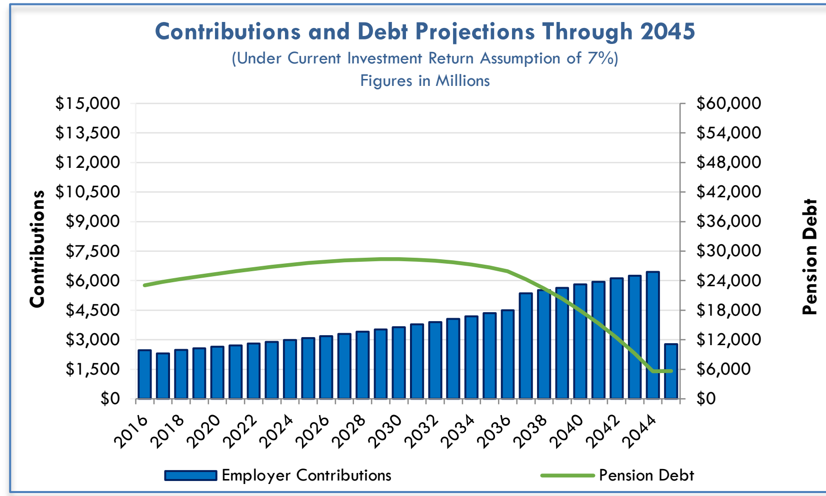
- A growing number of states are now requiring regular analysis of the potential impacts of future economic swings on public pension funds. Known as stress testing, the results can help a state monitor the fiscal strength and sustainability of its pension funds.
  - California, Washington, Colorado, Hawaii, and Virginia have formal stress test reporting.

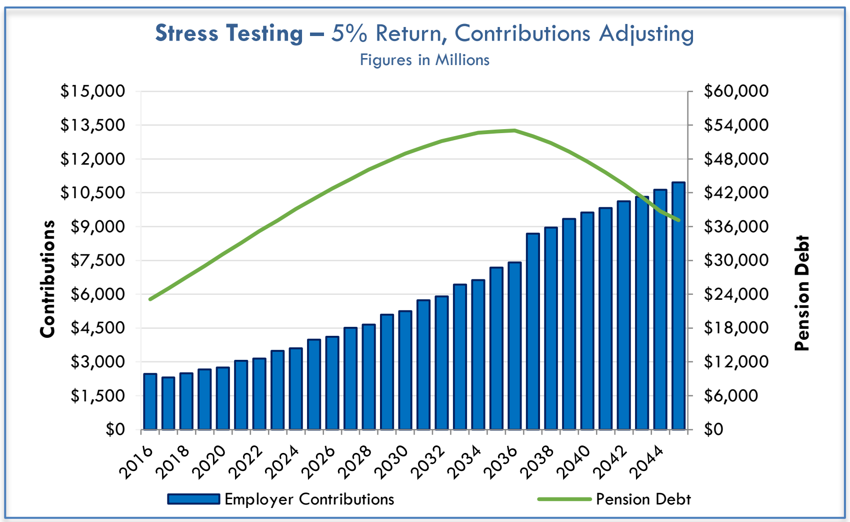
- Stress testing helps show how plan funding levels and costs are shaped by its investments and what to expect as the market fluctuates.

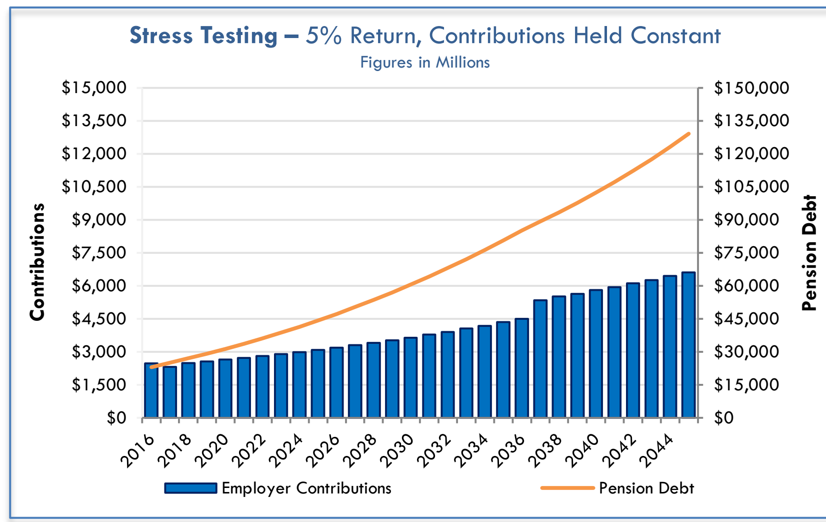
- New rules by the Government Accounting Standards Board (GASB) now require state and local plans to estimate and disclose liabilities based on projected returns that are 1 percentage point above or below their assumed rate of return. The need for additional stress testing was also recommended by the Society of Actuaries' Blue Ribbon Panel on Public Pension Plan Funding in 2014.

Sample Stress Test and Sensitivity Analysis Output



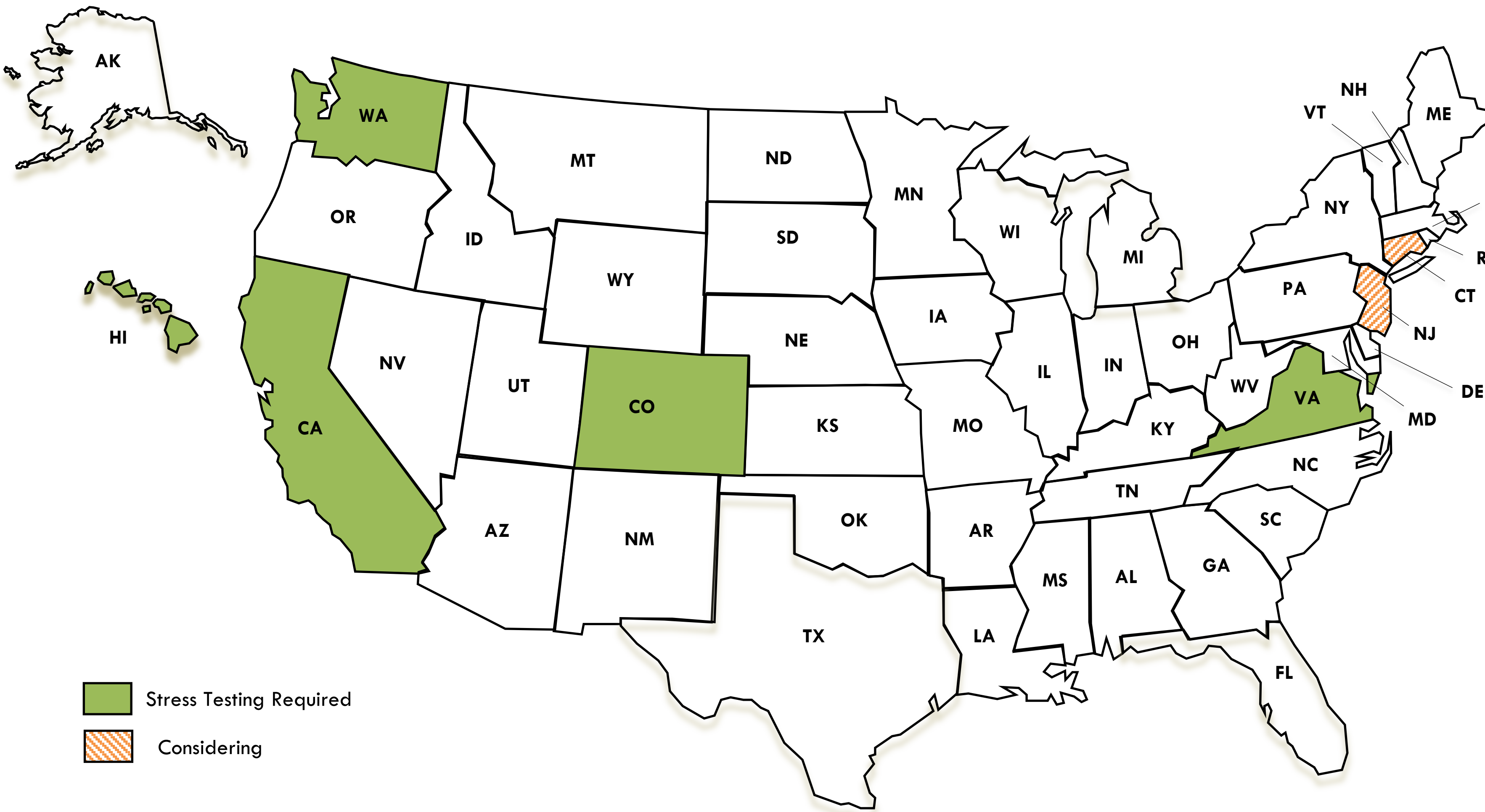






Note: These results only contain estimates for the Virginia State Employees, Teachers, and Political Subdivision plans. State Police (SPORS), Virginia Law Officers (VaLORS), and the Judicial (JRS) plans are all excluded, as these plans comprise only 4% of VRS' total liability.

Stress That Have Adopted Stress Test Reporting



Sample Stress Testing Language

I. **Baseline Projections**

1) Projections of assets, liabilities, pension debt, actuarial recommended contributions, net amortization, benefit payments, payroll, and funded ratio based on plan assumptions for the next 30 years;
2) The expected contributions as a percent of payroll, the ratio of benefit payments to payroll, the ratio of funding liability to payroll, and the ratio of market value of assets to payroll

II. **Sensitivity Analysis**

1) Estimates of the items listed in sub-paragraph 1(a) over a 20 year period assuming investment returns are 2 percentage points above plan assumptions, 2 percentage points below plan assumptions, and 3 percentage points below plan assumptions assuming:
   a. Employer contributions adjust based on current policy
   b. Employer contributions are held constant at the levels calculated for the Baseline Projections

III. **Scenario Analysis (Asset Shock with Low Growth):**

1) Estimates of the items listed in paragraph (1) if there is a one year loss on investments of 15%, followed by a 20 year period of investment returns 2 percentage points below plan assumptions assuming:
   a. Employer contributions adjust based on current policy
   b. Employer contributions are held constant at the levels calculated for the Baseline Projections

Benefits of Stress Testing

- Stress testing can help administrators and policymakers in planning for the next downturn, as well as protect state plans against the worst possible outcome: insolvency.

- Stress testing provides a fuller understanding of increased costs to states caused by market fluctuations.

- Stress testing can provide a useful tool for considering a range of possible economic scenarios when scoring proposed reforms.

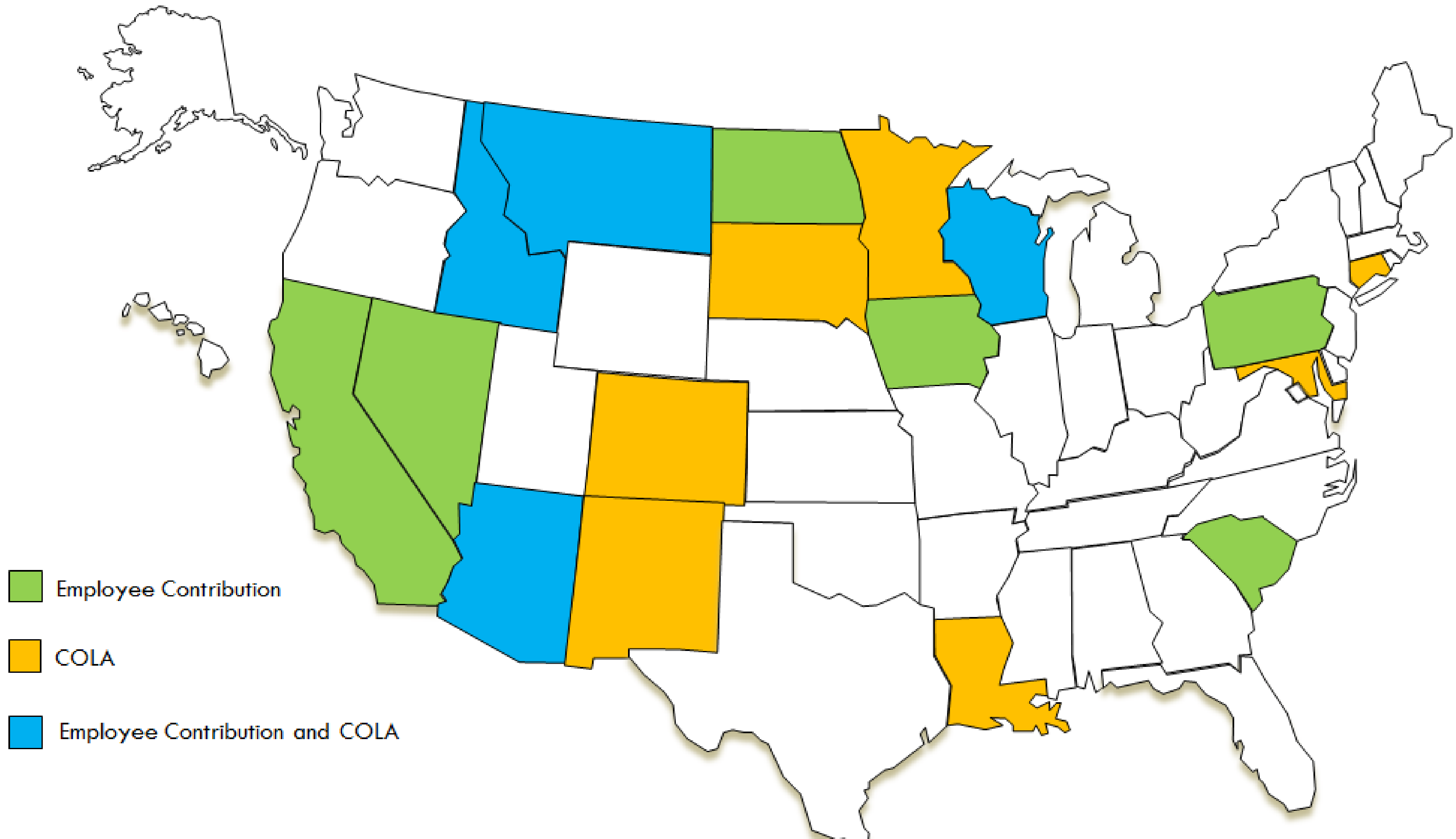
Emerging Trend- Risk Managed Hybrid Plans

Plan Design Overview

- Policymakers across the country have taken a closer look at the way they deliver retirement benefits to employees in recent years.
- States have modified their DB plans - such as establishing cost-sharing features – as well as adopting alternative plans for new workers.
- Twenty three states have implemented an alternative such as a hybrid, defined contribution, or cash balance plan for some workers.
- In the last few years, states have begun designing new hybrid plans that include mechanisms that distribute risk. Under these plans, unexpected costs are shared between employers and employees and the DC component has a focus on retirement security for employees.
- As of 2017, four states – Pennsylvania, Tennessee, Connecticut and Utah – have adopted an RMH as their default, primary benefit for at least some state employees.

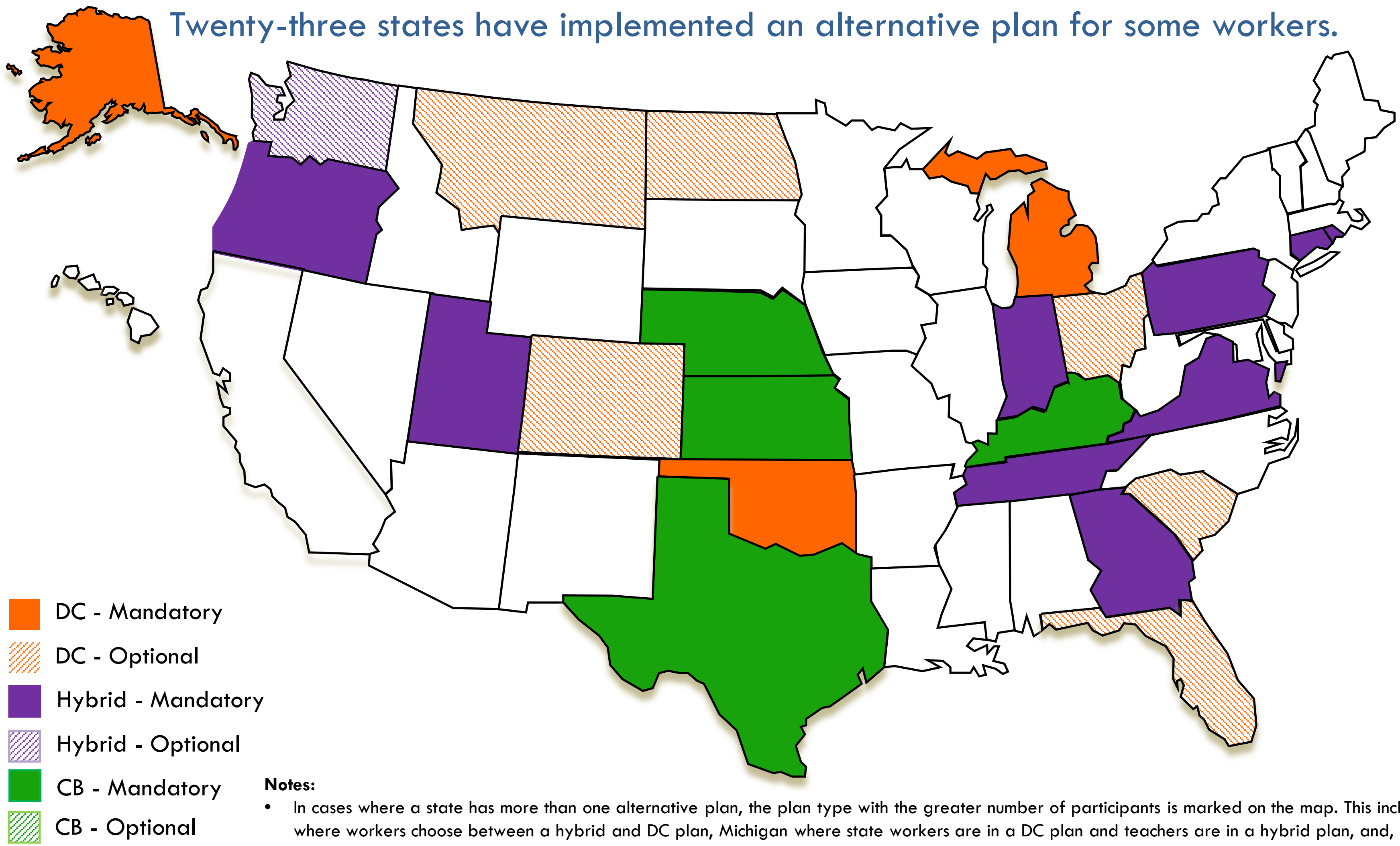
Cost Sharing is Used in Traditional DB Plans

29 DB plans in 17 states have formal cost sharing plans



Growing Number of States with Alternative Public Sector Retirement Plans

Twenty-three states have implemented an alternative plan for some workers.



Notes:

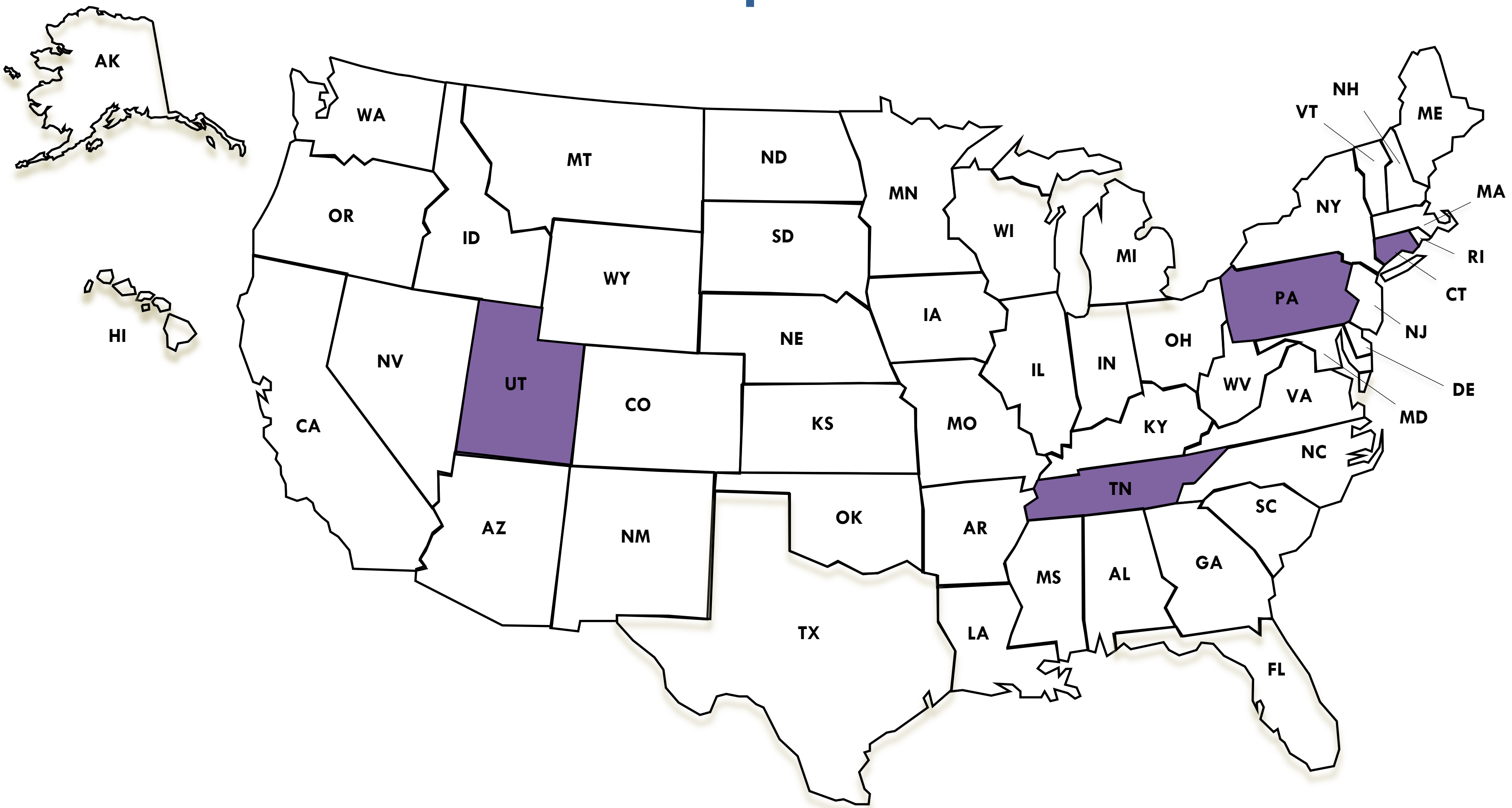
- In cases where a state has more than one alternative plan, the plan type with the greater number of participants is marked on the map. This includes Indiana where workers choose between a hybrid and DC plan, Michigan where state workers are in a DC plan and teachers are in a hybrid plan, and, Ohio where workers choose between a DB, hybrid or DC plan, and Utah where workers choose between a hybrid and DC plan.
- Texas's cash balance plan is only available to local workers.
- In addition, California provides an optional cash balance plan for part-time workers and adjunct educational employees.

Sources: NASRA, NCSL

Features of Standard and Risk Managed Hybrids

Hybrid Feature	Standard	Risk Managed
Smaller DB multiplier increases cost predictability.	✓	✓
Separate DC component that improves the worker savings rate.	✓	✓
Formal DB cost sharing to distribute unexpected cost increases between employee and employer.		✓
DC component minimizes risk for employees through adequate savings rate, low fee investment options, and appropriate distribution options.		✓

States With Risk Managed Hybrids as the Default Option



Note: Michigan also recently adopted a risk managed hybrid plan for teachers. However, the risk managed hybrid plan is not the default. New teachers are defaulted into a defined contribution plan with the option to select the hybrid plan.

Cost Sharing Strategies in RMH plans

- There are a range of ways RMH plans can design cost-sharing mechanisms.

  - **Splitting some or all of the plan costs between the employer and the employees.** Under Michigan's new hybrid plan, employees contribute 50 percent of the cost of the DB portion.

  - **Adjusting the employee contribution in response to investment returns.** Connecticut's hybrid plan distributes losses on investment returns between the employer and employee by increasing the employee contribution.

  - **Capping employer contribution.** In Utah, employer contribution to both DB and DC components is capped at 10%. If the DB cost is greater than 10%, employees contribute the difference. If the DB cost is less than 10%, excess is contributed to DC.

Recap

- With interest rates at historically low levels, there is increased attention around both the level of risk in pension fund portfolios and the potential for unplanned costs if return targets are not achieved.

- Public pension funds have taken steps to address these concerns by:
    - Increasing contributions.
    - Modifying investment return targets and/or asset allocations.
    - Implementing changes to benefit plan design.

- Stress-testing investment returns and pension costs can further aid policymakers in their efforts to better understand and plan for cost uncertainty.

- Risk managed hybrid plans preserve strong benefits, and can achieve full replacement income for career workers, while protecting taxpayers against 50%-75% of unplanned costs.

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