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## OSA Risk Assessment


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*September 22, 2010*

### Today's Presentation

- What is the risk assessment?
- Where did it come from?
- Findings for LEOFF 2
- Possible next steps
- No Board action required today - informational only





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## OSA Recommended Risk Assessment

- State Actuary recommended a system-wide risk assessment to SCPP, L2B, and PFC following the 2009 Report on Financial Condition
- 2009 report noted decline in system health over the past ten years
- System-wide risk assessment released on August 31
  - Includes results for LEOFF 2
  - Full report available on OSA's website

## Risk Assessment

- A dynamic actuarial model using "stochastic" or probabilistic analysis to generate random economic environments and the systems' response
- Traditional analysis relies on "deterministic" assumptions
  - Everything happens as expected
  - Best estimates only
  - Assumes full funding and no future benefit improvements
- Stochastic analysis provides range of outcomes beyond our long-term expectations
  - Models the "real world" volatility we expect to see
  - Quantifies likelihood and amount
- Dynamic component models how the system responds to random economic environments
  - Percent of required contributions made
  - Growth of liabilities due to future benefit improvements

## Deterministic Vs. Stochastic Modeling – An Example

- Investment returns
- Deterministic approach
  - 100 percent chance of 8 percent returns over the long-term
  - No variation in annual returns
- Stochastic approach
  - Probability distribution centered around long-term expectation
  - Significant variation in annual returns

## Assumed Investment Returns For Risk Assessment

Assumed Investment Distribution		
Likelihood	Percentile	Annual Investment Return
1 in 10,000	MIN	(88.1%)
1 in 100	1	(23.6%)
1 in 20	5	(14.2%)
1 in 10	10	(9.5%)
1 in 4	25	(1.6%)
1 in 2	50	7.8%
1 in 4	75	18.0%
1 in 10	90	28.0%
1 in 20	95	34.6%
1 in 100	99	49.2%
1 in 10,000	MAX	458.5%

## Twenty Year Look-Back To Review Investment, Funding And Benefits Policy

- Investment policy
  - Did the trust fund earn 8 percent?
  - Reviewed actual performance
- Funding policy
  - Do "we" fully fund our plans?
  - Compared actual to required contributions
- Benefits policy
  - How often do we improve benefits and by how much?
  - Reviewed actual history and past fiscal notes
- Full analysis available in risk assessment

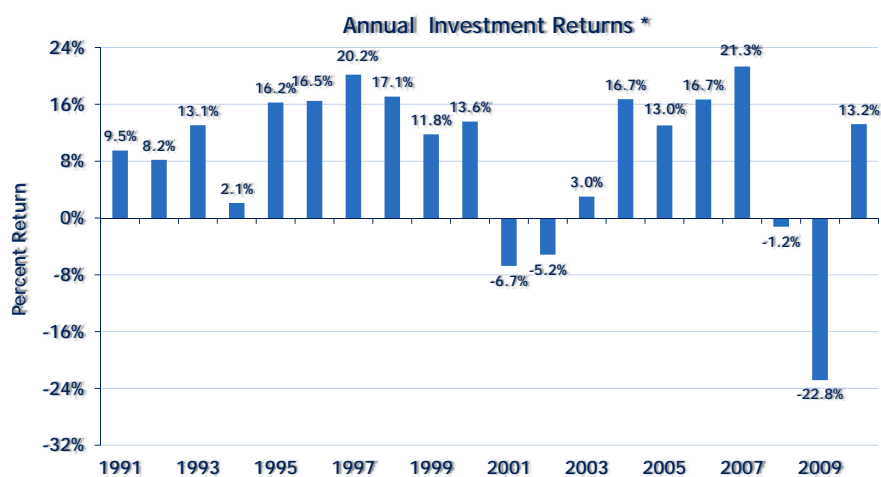


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## 8.23 Percent Average Annual Return Over Past 20 Years



\*Notes:

Fiscal year, time-weighted returns. Dollar-weighted returns vary by plan.

The Commingled Trust Fund (CTF) was created in 1993. Returns for 1993 and later are for the CTF as reported by WSIB. Returns prior to 1993 are total fund returns reported by the Department of Retirement Systems' Comprehensive Annual Financial Report.

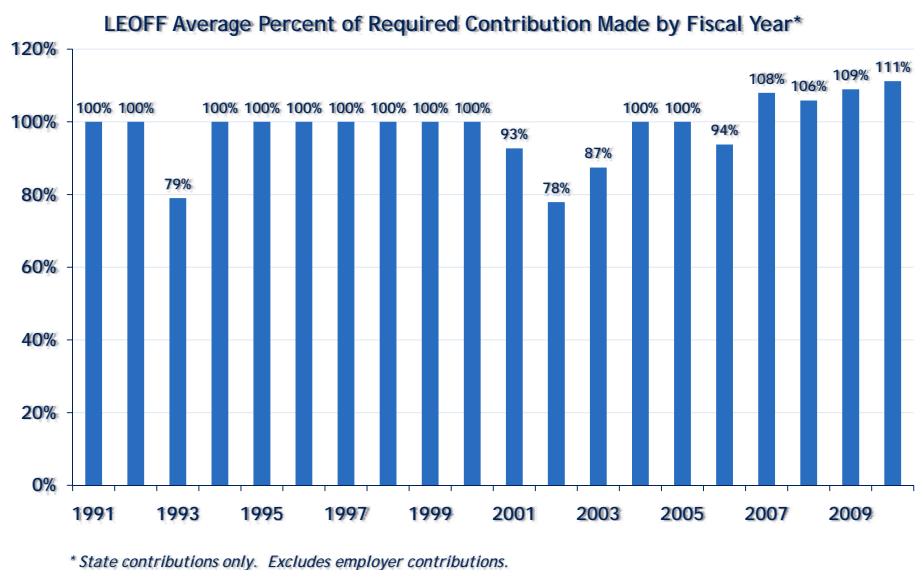


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## LEOFF Received 98 Percent Of Required Contributions

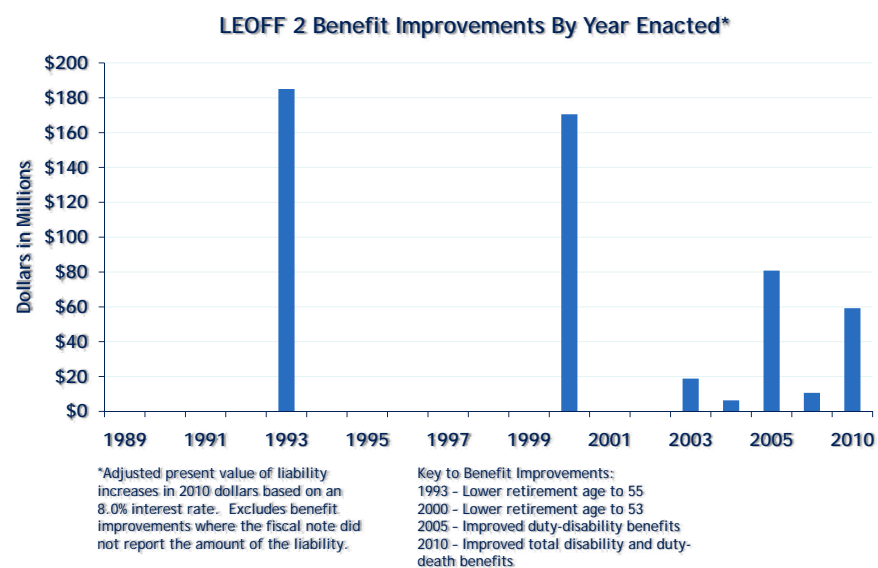


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## One Percent Annual Growth In LEOFF 2 Liabilities From Past Benefit Improvements



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## Findings For LEOFF 2

- Twenty-year look-back
  - Investment income on track, but volatility appears to have contributed to short-term funding and benefit improvement decisions
  - Ninety-eight percent of required contributions made
  - One percent annual growth in liabilities from benefit improvements
- Possible future outcomes from risk modeling
  - Not predictions or forecasts - just possible outcomes
  - Virtually no chance of pay-go in LEOFF 2 if past funding practices continue
  - Future affordability risk if benefits continue to improve at past levels
  - Model output on slides 12-19



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## Possible Future Outcomes Under Two Scenarios

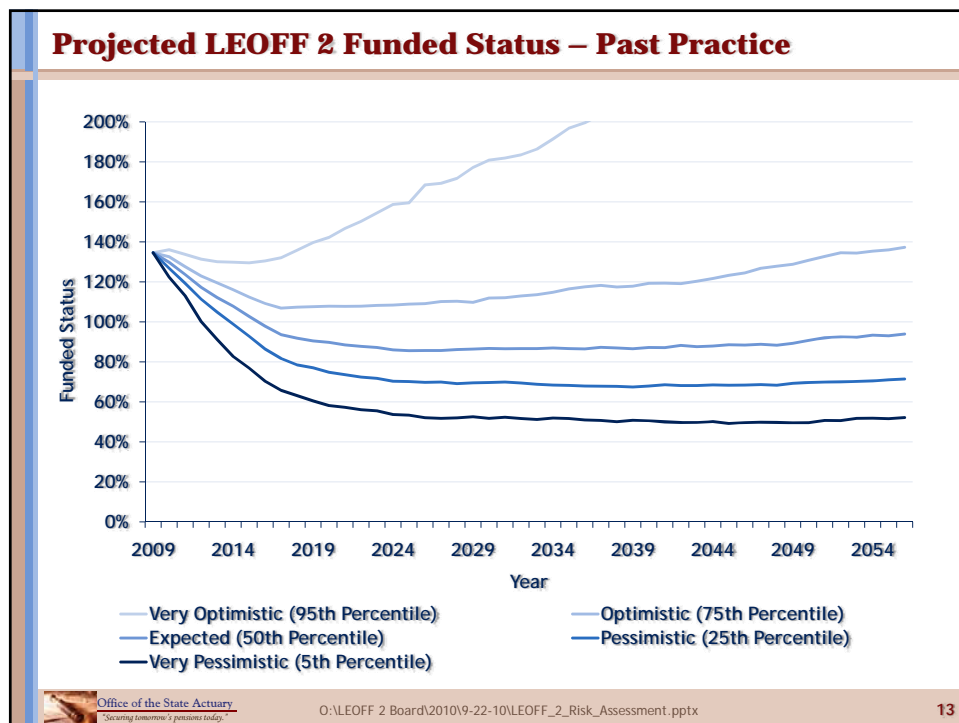
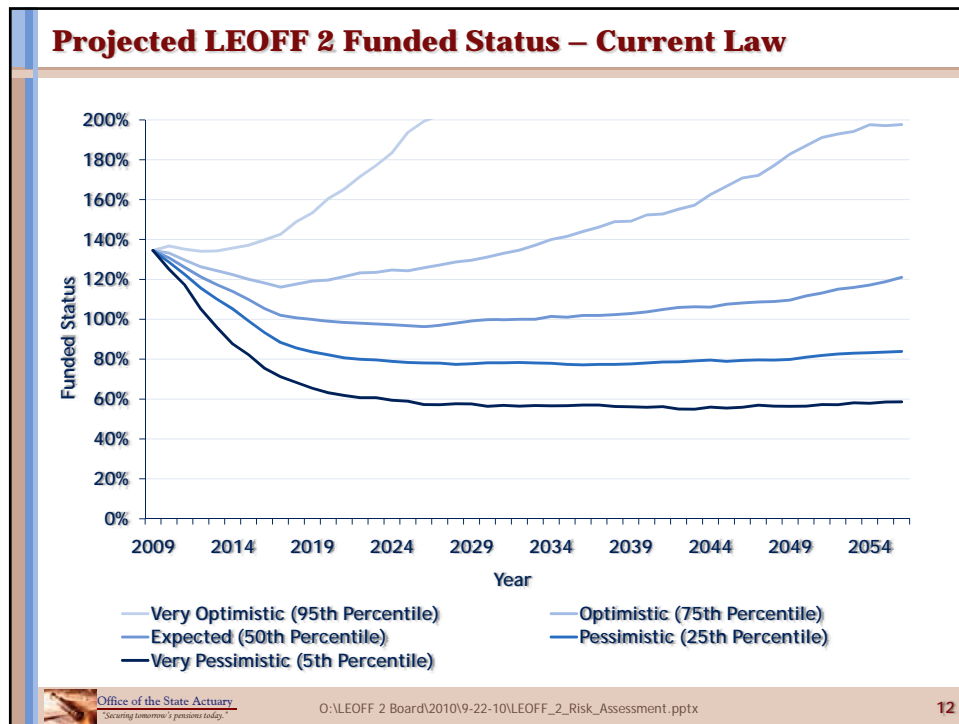
- Current law
  - Full funding and no future benefit improvements
- Past practice
  - Past patterns in the area of funding and benefit improvement continue



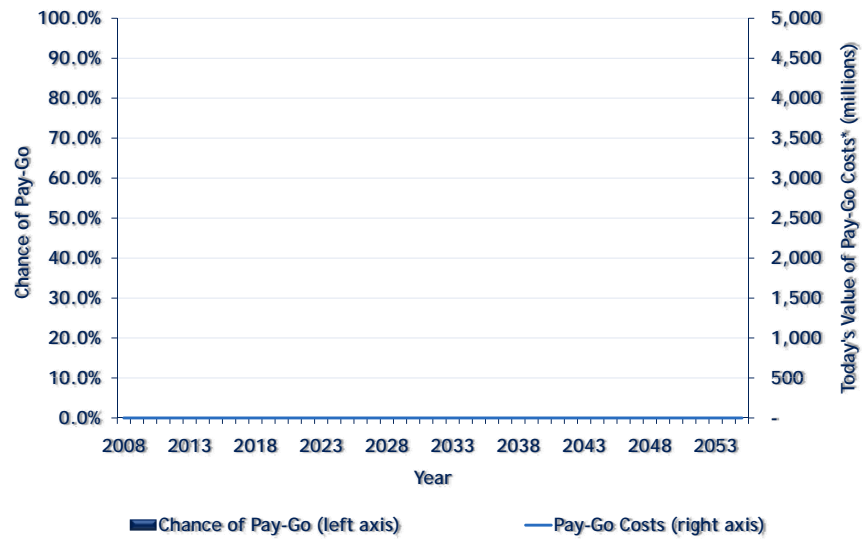
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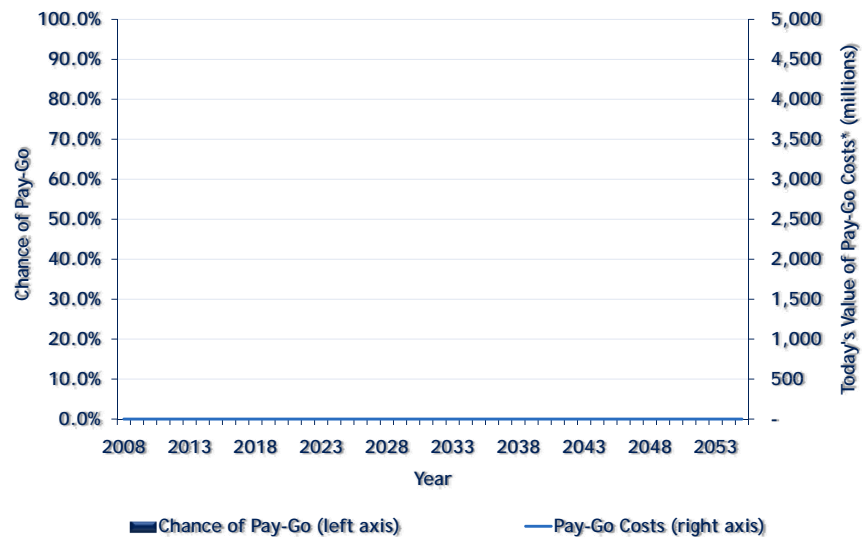
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### LEOFF 2 Pay-Go Risk – Current Law

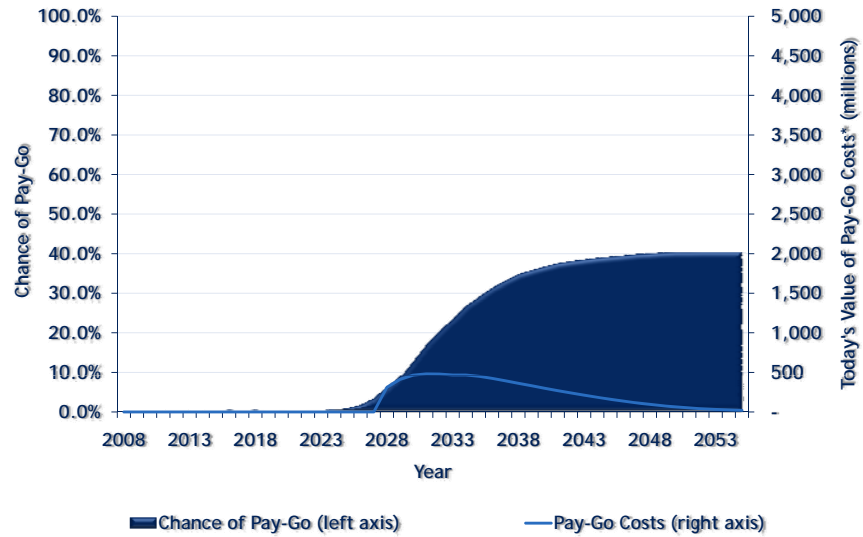


### LEOFF 2 Pay-Go Risk – Past Practice





### LEOFF 1 Pay-Go Risk – Current Law

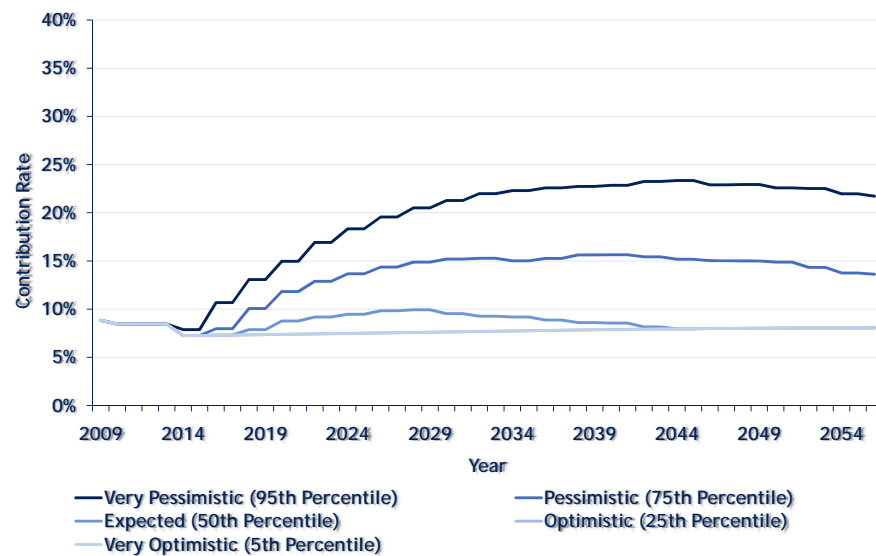


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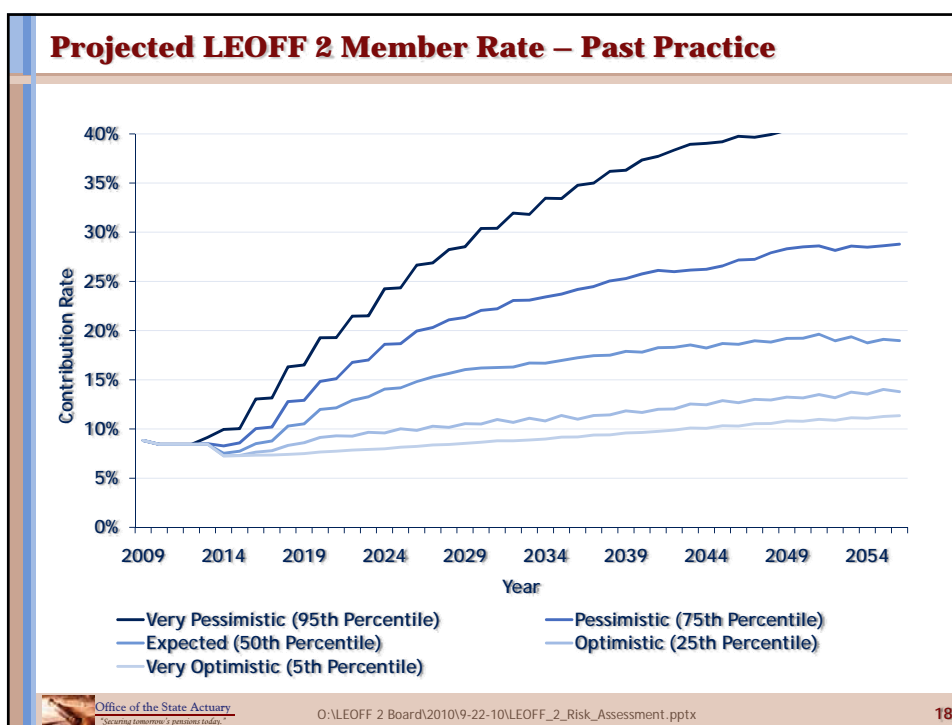
### Projected LEOFF 2 Member Rate – Current Law



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### Recap

- Twenty-year look-back
  - Investment income on track but came with volatility
  - LEOFF 2 received nearly 100 percent of required contributions
  - Consistent growth in liabilities from benefit improvements
- Possible future outcomes
  - Virtually no chance of pay-go in LEOFF 2 if past funding practices continue
  - Future affordability risk if benefits continue to improve at past levels

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### Possible Next Steps

- Determine Board's potential use of model
- Customize risk assessment and model for LEOFF 2
  - Add alternate revenue
  - Model other scenarios
  - Consider different assumptions
- Consider other risks?
- Identify which outcomes or risks you want to
  - Exploit
  - Avoid
  - Reduce or eliminate (if possible)
  - Transfer
- Develop on-going measurement and reporting basis