

## What's Happening @ OSA?

$$\int \frac{x^2 \sqrt{x^2 \pm a^2}}{x} dx = \frac{x}{2} (2x^2 \pm a^2) \sqrt{x^2 \pm a^2} - \frac{a^2}{8} \ln|x + \sqrt{x^2 \pm a^2}| + C$$

### Presentation to: DRS Advisory Committee

Aaron Gutierrez, MPA, JD, Senior Policy Analyst

Michael T. Harbour, ASA, MAAA, Actuary



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## Today's Presentation

- Highlights of the *2021 Report on Financial Condition*
- Highlights of the *2021 Economic Experience Study*
  - Published jointly; full report available on OSA's [website](#)
  - Please see the Appendix for source materials that support this presentation
- Administrative Factors
  - Potential Impact of Economic Assumption Changes

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$\int \frac{x^2 \sqrt{x^2 \pm a^2}}{x} dx = \frac{x}{6} (2x^2 \pm a^2) \sqrt{x^2 \pm a^2} - \frac{a^2}{8} \ln|x + \sqrt{x^2 \pm a^2}| + C$

## 2021 Report on Financial Condition (RFC)

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## Framework for Assessing Financial Condition

**What is the health of the retirement plans today?**

**What is the plan health expected to be in the future?**

**How can the future look different than expected?**

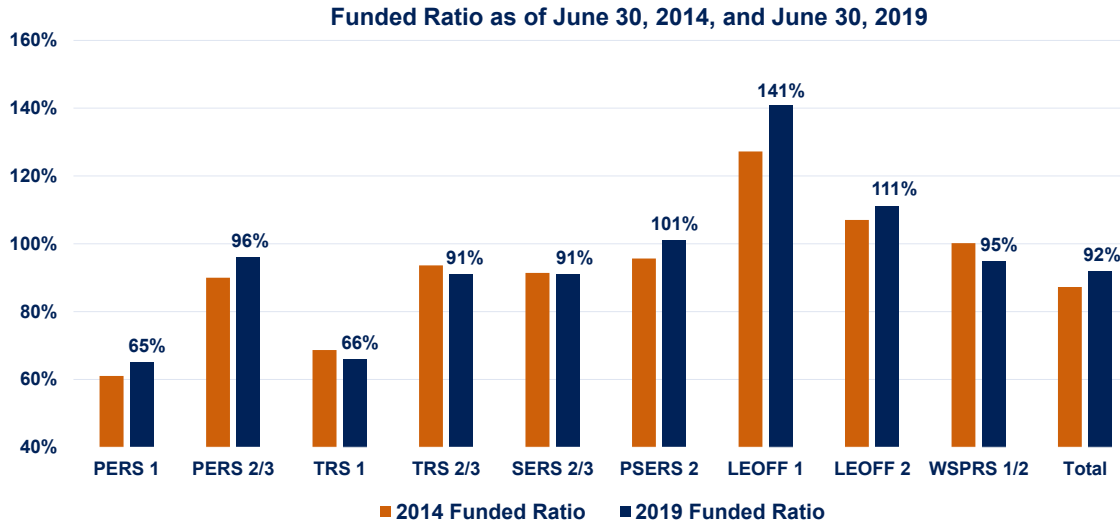
**How can risk factors be managed?**

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## Funded Ratio Generally Increased from 2014



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## Projected Contribution Rates Reflecting FY 2021 Investment Return

System	Total Employer Contribution Rates			
	2021-23 Biennium <i>Adopted</i>	2023-25 Biennium <i>Projected</i>	2025-27 Biennium <i>Projected</i>	2027-29 Biennium <i>Projected</i>
PERS	10.07%	8.55%	4.38%	4.38%
TRS	14.24%	13.40%	5.77%	5.24%
SERS	11.47%	10.12%	4.72%	4.72%
PSERS	10.21%	9.76%	5.46%	5.28%
LEOFF	8.53%	8.53%	7.74%	7.78%
WSPRS	17.66%	17.65%	7.03%	6.88%

- PERS 1 and TRS 1 contributions projected to end after 2023-25 Biennium
- Projected rates do not reflect updated EES recommendations

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## 2021 Was Different than Expected

- June 2021 revenue forecast better outlook than June 2020 revenue forecast
- Investment return on pension assets for FYE June 30, 2021, almost 29%
  - Highest single year return in over 30 years
  - Approximately \$22 billion in investment earnings above assumed
  - Will any be given back through a market downturn?



## The Future Might Be Different than We Expect

- OSA's risk assessment model simulates 2,000 different investment return scenarios
- Assess risks under Current Law and Past Practices
- Affordability and solvency risk measures have improved
  - Please refer to the RFC for likelihood of various projected affordability and solvency measures
  - Select Measures of Pension Risk table on page 11
- [Commentary on Risk](#) webpage provides additional risk analysis and sensitivity of financial measures



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## Report on Financial Condition: Concluding Comments

- Improvements to affordability and solvency metrics
  - Funded ratios improving
  - Contribution rates are beginning to decline after some of the highest in plan history
- FY 2021 investment return further improves projected financial outcomes
- Managing pension risks requires
  - Regular monitoring
  - Making necessary adjustments
  - Applying discipline and a long-term view when considering benefit changes and contribution requirements

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$$\int x^2 \sqrt{x^2 \pm a^2} dx = \frac{x}{6} (2x^2 \pm 3a^2) \sqrt{x^2 \pm a^2} - \frac{a^2}{8} \ln|x + \sqrt{x^2 \pm a^2}| + C$$

## 2021 Economic Experience Study (EES)

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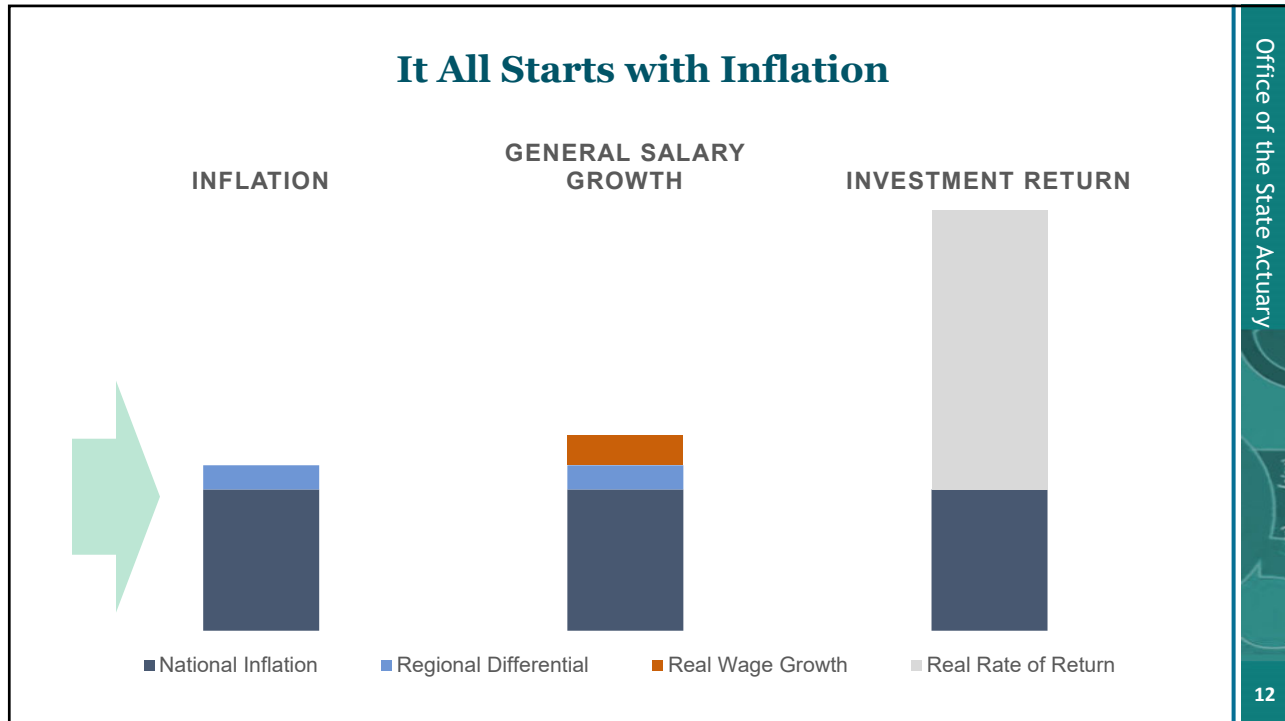
## What Are the Assumptions in This Study?

- Inflation
- General Salary Growth
- Investment Return
- Membership Growth for Plan 1 Funding

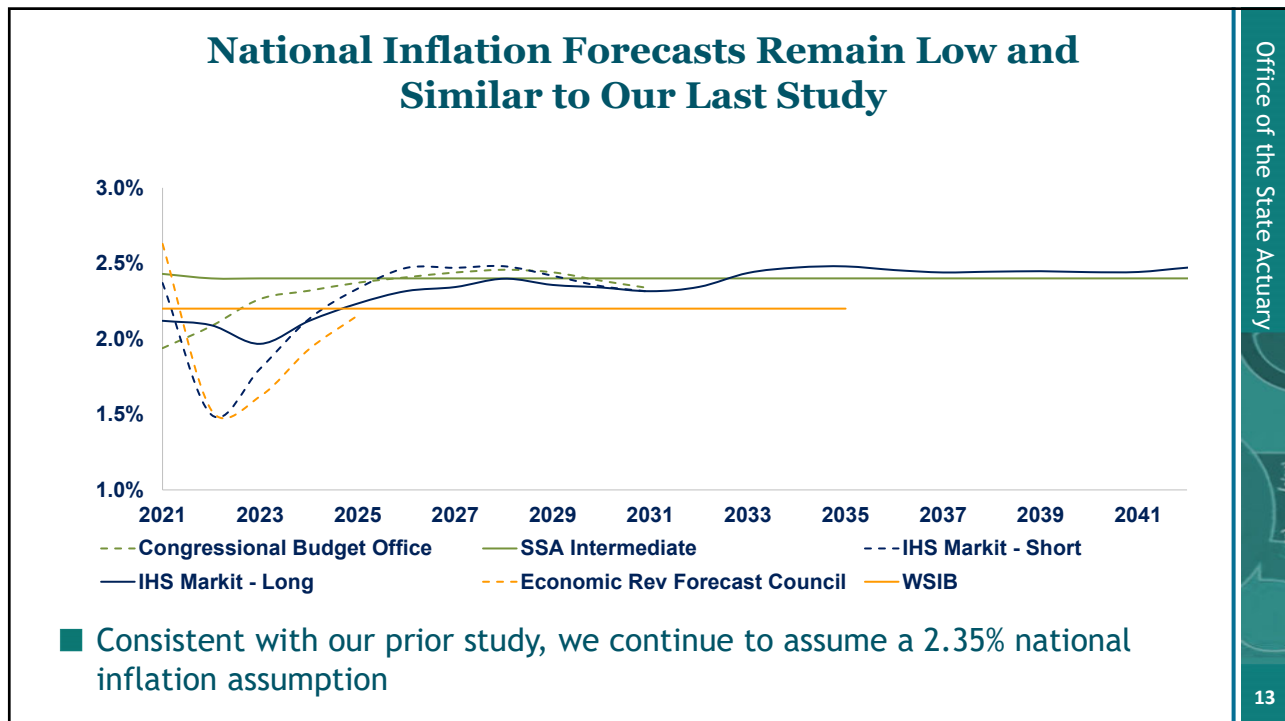
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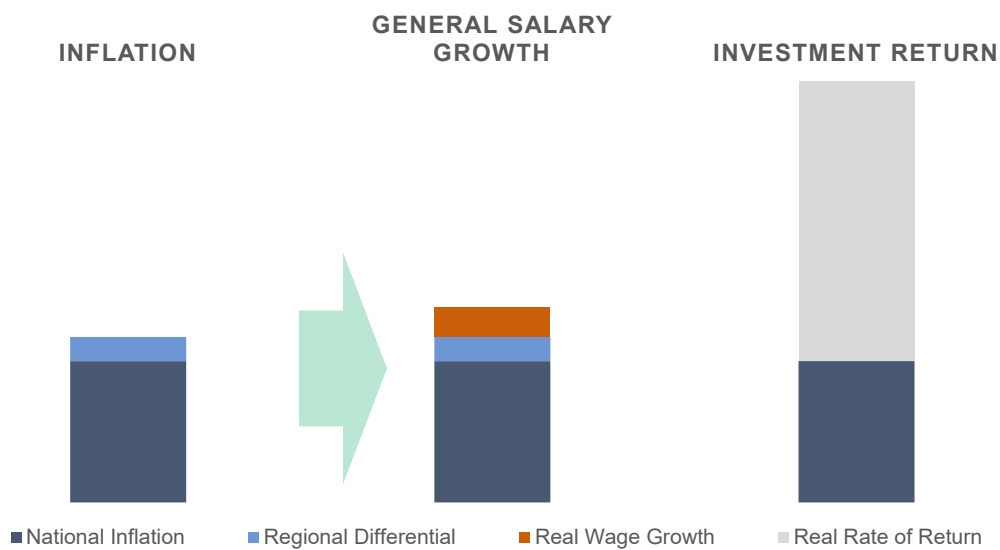
## We Continue to Expect STB Inflation to Outpace National Inflation

Average Inflation			
	STB CPI-W	National CPI-W	Difference
Last 30 years	2.72%	2.26%	0.46%
Last 25 years	2.52%	2.11%	0.42%
Last 20 years	2.36%	2.03%	0.34%
Last 15 years	2.39%	1.87%	0.52%
Last 10 years	2.27%	1.66%	0.62%
Last 5 years	2.60%	1.70%	0.90%

- Consistent with our prior study, we continue to assume a 0.40% regional price inflation differential
- Leads to a Total Inflation assumption of 2.75%

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## Estimate Real Wage Growth above Inflation



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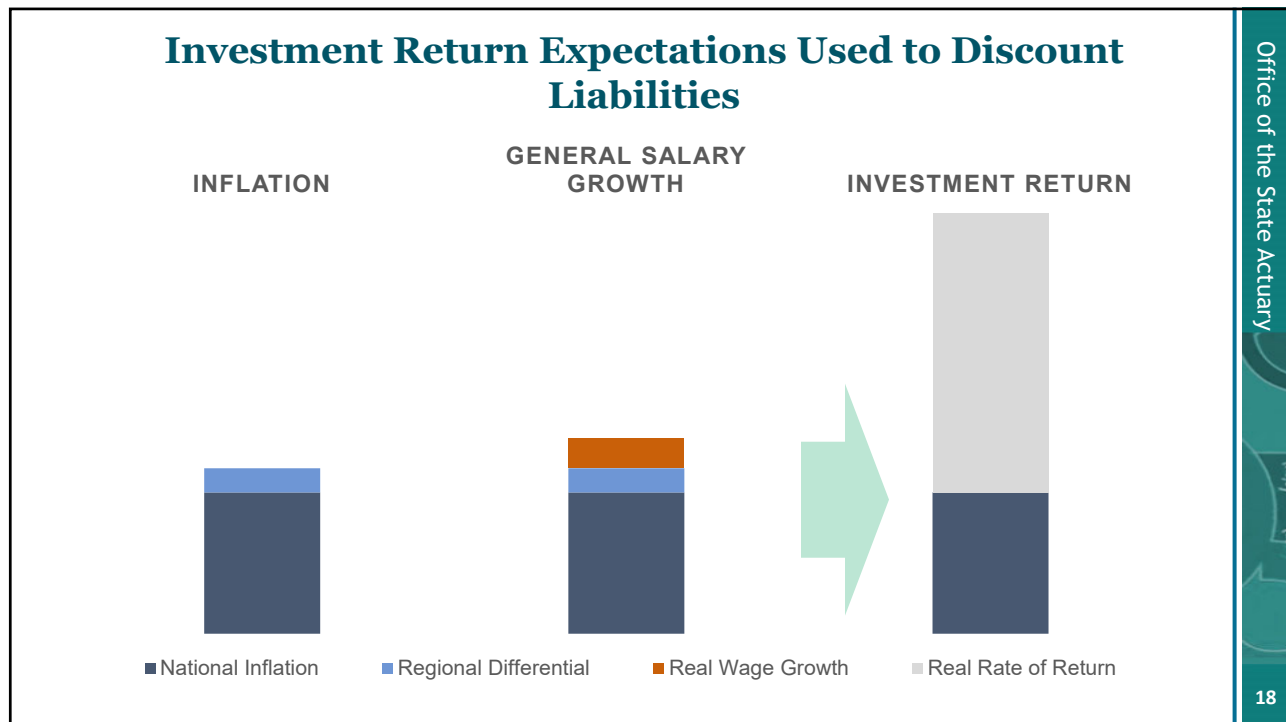
## OSA Models Total Salary Growth with Economic and Demographic Assumptions

- Economic assumption
  - Inflation
  - Real Wage Growth (economic growth above inflation)
- Demographic assumption
  - Service-Based Salary increases
  - For example, merit, longevity or “step increases”
  - Studied every 5-6 years as part of the demographic experience study
- We combine all sources, economic and demographic, to model total expected salary growth
- Focusing on the Economic assumption today
  - Once you set your Inflation assumption, you’re left with the Real Wage Growth assumption to set your General Salary Growth assumption

## We’ve Observed a Longer-Term Downward Trend in Historical Real Wage Growth

Estimated General Salary Growth			
Employees in Open DRS-Administered Plans			
Geometric Averages	Observed Growth of Average Salary (a + b)	Observed Inflation (a)	Estimated Real Wage Growth (b)
Last 10 years (2010-2019)	2.73%	2.17%	0.56%
Last 20 years (2000-2019)	3.38%	2.46%	0.92%
Last 30 years (1990-2019)	3.60%	2.90%	0.69%

- Separately, CBO and SSA average annual real wage growth forecasts declined by 11-13% from our last study
- As a result, we **decreased our General Salary Growth assumption to 3.25%**
  - Represents a Real Wage Growth assumption change from 0.75% to 0.50%



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## What Are Some of the Key Considerations When Selecting a Return Assumption?

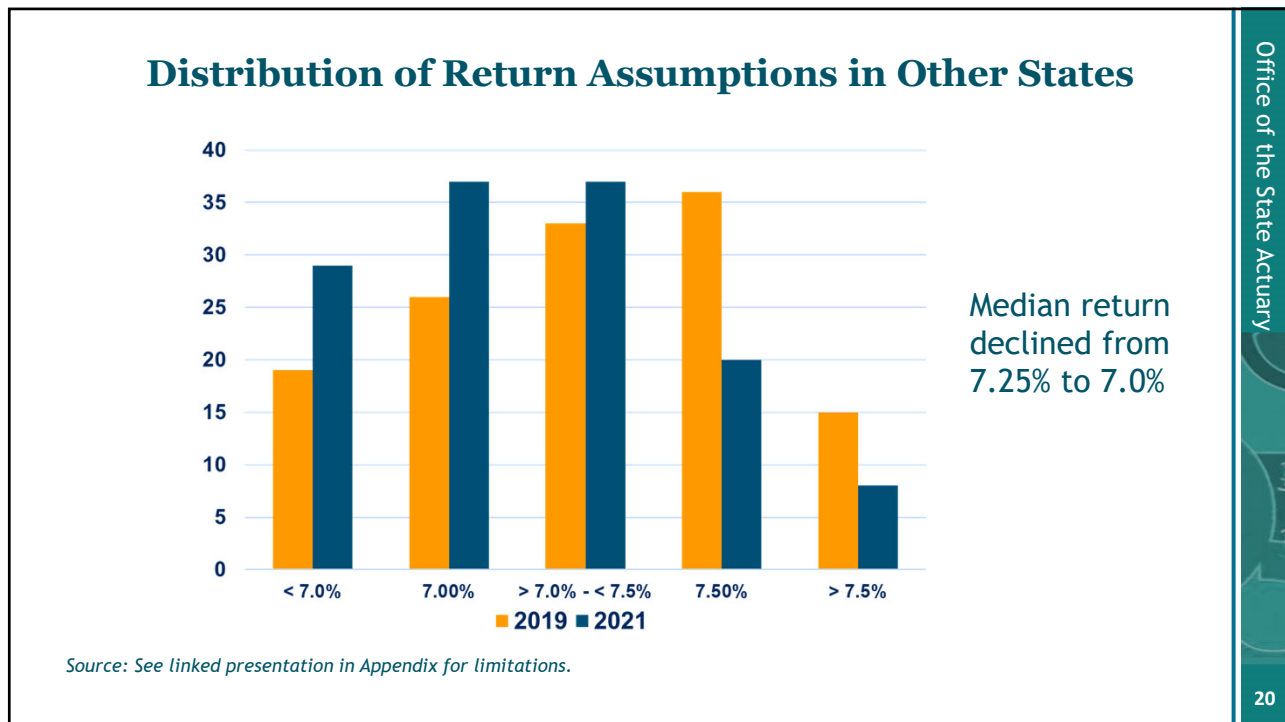
- Capital market assumptions or CMAs
- Asset allocation
- Simulated future returns, net of expenses\*
- Sensitivity analysis
- Consistency of WSIB CMAs and return simulations with use for setting assumptions for a pension funding valuation

*\*Focus of today's presentation.*

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### WSIB Simulated Returns for the Commingled Trust Fund Have Decreased since Our Last Study

Simulated Future Investment Returns*			
	2021	2019	Difference
<b>75th Percentile</b>	8.8%	9.3%	(0.5%)
<b>60th Percentile</b>	7.6%	8.1%	(0.5%)
<b>55th Percentile</b>	7.2%	7.7%	(0.5%)
<b>Median Return</b>	6.9%	7.4%	(0.5%)
<b>45th Percentile</b>	6.5%	7.0%	(0.5%)
<b>40th Percentile</b>	6.1%	6.6%	(0.5%)
<b>25th Percentile</b>	4.9%	5.4%	(0.5%)

\*Simulated returns over 25-year period.

- 50 basis point decreases to the median return (and at most percentiles)
  - Half the simulated returns fall below (or above) “Median Return”
- Ultimately, we arrived at an **Investment Return assumption of 7.00%**

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## What Are the Assumptions in This Study?



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## Membership Growth for Plan 1 Funding

- No change to prior recommendation, other than rounding 0.95% recommendation to 1.00%
  - We rounded the prior assumption/recommendation to reflect a lower level of precision in our future growth expectation
- What is the practical effect?
  - No expected contribution rate or budget impact from this single assumption change (since Plan 1 UAAL rates are at the floor)

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## Summary of Long-Term Economic Assumptions

Assumption	Current	Recommended
Inflation	2.75%	2.75%
General Salary Growth	3.50%	3.25%
Investment Return	7.50%	7.00%
Growth in System Membership	0.95% (PERS) 1.25% (TRS)	1.00% (PERS) 1.00% (TRS)

*Note: Excludes LEOFF 2.*

- What's the impact to contribution rates and budgets?
  - We estimated the cost/savings in combination with the nearly 29% investment rate of return for FY21
- Expected to result in a net cost for the 2023-25 Biennium and a net savings for the 2025-27 Biennium
  - This outcome can partially be attributable to asset valuation method
  - Decision-makers voted to smooth these short-term impacts to budgets

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## Administrative Factors

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## Background

- \$1 = four quarters = ten dimes = twenty nickels
  - Different ways of receiving the same money
- Administrative Factors allow members different ways of receiving roughly the same total value of benefits
- Examples
  - Early Retirement
  - Joint-and-Survivor Option
  - Annuity and Service Credit Purchase
  - Plans 1 Optional COLA

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## Intent/Goal of Factors

- Cost-neutral options, or as close to that as possible
  - Also known as “actuarial equivalence”
  - Unless it’s a subsidized benefit as defined in statute
- Important to consider administrative simplicity
  - The more factors, the more difficult to calculate and administer
  - Blend factors where appropriate
  - Across plans, status, and gender

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## Primary Inputs for Calculating Factors

- Life Expectancy
  - See Mortality Rates from our [2013-18 Demographic Experience Study](#)
- Assumed Investment Rate of Return
  - Recently adopted rate is lower than what's currently in statute

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## Impact of EES on Factors

- Some Administrative Factors will be impacted more than others by a change to assumptions
  - For example, Joint-and-Survivor Option factors are likely to be less impacted than Annuity Purchase factors
- For example, the cost for members to purchase an annuity could increase under recommended assumptions
  - Let's consider an age 65 Plan 3 member with \$100,000 in their DC account
  - This hypothetical individual would initially receive about
    - \$7,500 per year assuming a 7.5% return
    - \$7,150 per year assuming a 7.0% return, just under a 5% reduction

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## Next Steps/Timeline

- Administrative Factors will need to be updated based upon
  - Changes to economic assumptions adopted by the PFC
  - The impact of our *2013-18 Demographic Experience Study*
- Project requires significant resources from both OSA and DRS
  - Actuaries will take 2-3 months to prepare the numbers
  - DRS then takes 10-12 months to program change and communicate with members
- Full implementation likely won't occur until sometime in 2023

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## Questions?

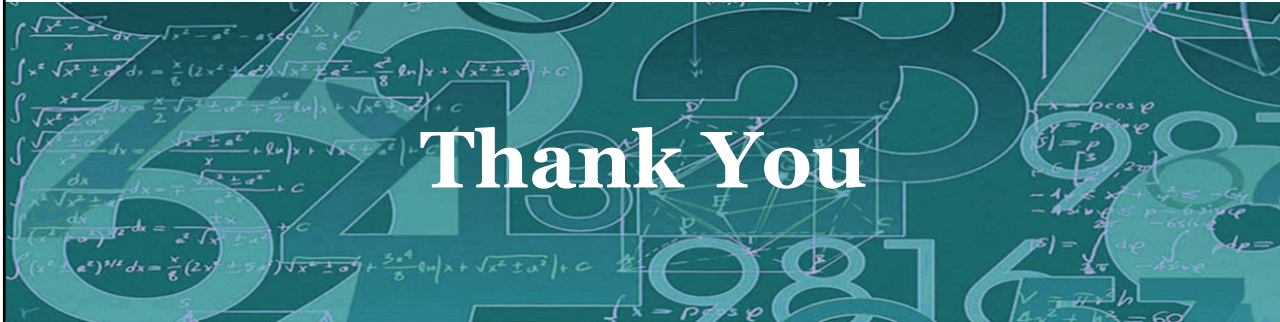


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**Questions? Please Contact: The Office of the State Actuary**  
**[leg.wa.gov/OSA](http://leg.wa.gov/OSA); [state.actuary@leg.wa.gov](mailto:state.actuary@leg.wa.gov)**  
**360-786-6140, PO Box 40914, Olympia, WA 98504**

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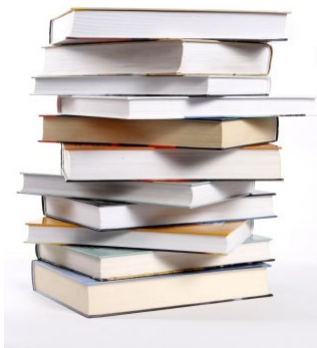
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## Appendix

- [RFC Presentation](#) (Luke Masselink) - September 2021
- [EES Presentation](#) (Matt Smith) - September 2021
- [SCPP Recommendation to the PFC](#) (Aaron Gutierrez) - October 2021



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