

LEOFF 2 Actuarial Valuation Results

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

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Presentation to: LEOFF Plan 2 Retirement Board

The background features a collage of mathematical concepts. On the left, there are several integral formulas involving square roots of quadratic expressions, such as $\int \frac{dx}{\sqrt{x^2 - a^2}}$, $\int \frac{x^2 dx}{\sqrt{x^2 \pm a^2}}$, and $\int \frac{x dx}{\sqrt{x^2 \pm a^2}}$. In the center, there is a 3D geometric diagram of a cube with vertices labeled A through H. On the right, there are trigonometric formulas including $x = \rho \cos \phi$, $y = \rho \sin \phi$, and the range $-A \leq x^2 + y^2 \leq -C$.

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November 15, 2017

Today's Presentation

- 2016 Actuarial Valuation Highlights
- OSA Interactive Web Reports
- Informational - no Board action needed today



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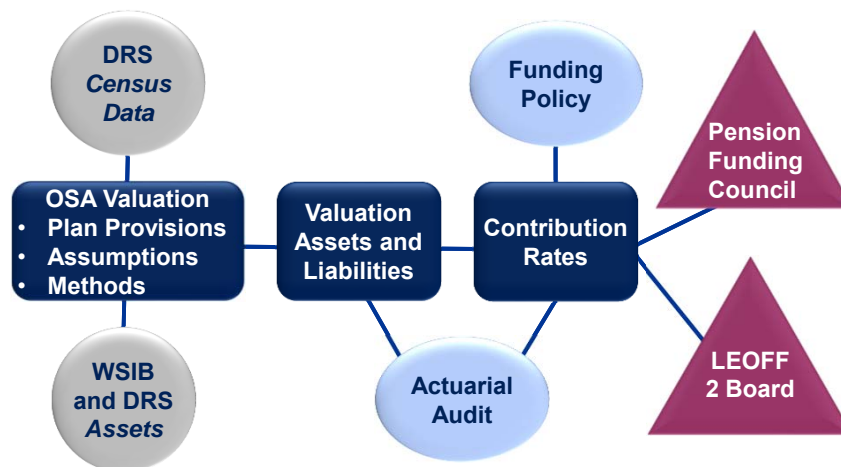
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Purpose Of The 2016 Actuarial Valuation

- “Off-cycle” valuation - not used for contribution rate-setting
 - Current rates adopted through 2019-21 Biennium
- Update contribution rates with new data, assets, and legislation
- Check funding progress
 - Are we on track with systematic actuarial funding plan?
- Certify the underlying data, assumptions, and methods are reasonable and conform with current actuarial standards of practice

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The Actuarial Valuation Process: How We Get From Participant Data To Contribution Rates



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Highlights Of The 2016 Valuation Results

Assets

- 2.48% return on Market Value of Assets (MVA)
- Actuarial Value of Assets (AVA) includes deferred asset loss of \$414 million from lower than expected returns in 2016
- AVA still smoothing asset gains from past years of higher than expected returns

Funded Status

- Funded status remains unchanged at 105% from prior valuation

Contribution Rates

- Contribution rates increased from the prior valuation under Entry Age Normal method (Board's current funding policy) and Aggregate (statutory funding method)

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Change In Participant Data From Last Valuation

	LEOFF 2		
	2015	2016	Difference
Number of Actives	17,019	17,186	167
Average Annual Salary	\$102,411	\$103,947	\$1,536
Average Attained Age	43.6	43.5	(0.1)
Average Service	14.7	14.5	(0.2)
Number of Annuitants	3,710	4,259	549

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Change In Assets From Last Valuation

	LEOFF 2		
<i>(Dollars in Millions)</i>	2015	2016	Difference
Market Value (MV)	\$9,833	\$10,194	\$361
Contributions Less Disbursements*	\$151	\$118	(\$33)
Investment Return	\$430	\$244	(\$186)
Return on Assets**	4.64%	2.48%	(2.16%)

*Includes transfers, restorations, and payables.

**Dollar-weighted return on MVA.

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Update Asset Values

- MVA reported by WSIB
- Calculate 2016 asset gain (or loss) based on 7.5% expected return
- Develop AVA by smoothing past and current asset gains (or losses)
 - Smooth gain (or loss) over a period up to eight years
 - AVA limited to 30% "corridor" around MVA
 - Smoothing method reduces contribution rate and funded status volatility

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Actuarial Value Of Assets

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Calculation of Actuarial Value of Assets				
LEOFF 2				
(Dollars in Millions)				2016
Market Value of Assets				\$10,194
Deferred Gains and (Losses)				
Plan Year Ending	Return on Assets*	Years Deferred	Years Remaining	Amount Deferred**
6/30/2016	2.48%	6	5	(414)
6/30/2015	4.64%	3	1	(89)
6/30/2014	18.93%	8	5	548
6/30/2013	12.31%	5	1	64
6/30/2012	1.45%	7	2	(111)
6/30/2011	21.08%	8	2	175
Total Deferral				173
Actuarial Value of Assets***				\$10,021

*Dollar-weighted rate of return.

**Amount of asset gains and (losses) left to recognize, or apply, in future valuations.

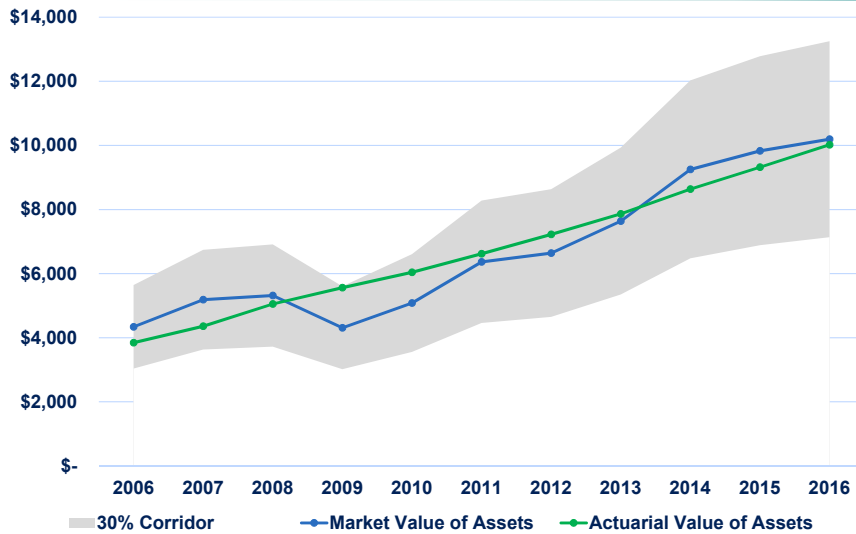
***Actuarial Value of Assets can never be less than 70% or greater than 130% of the Market Value of Assets.

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Actuarial Value Of Assets Less Volatile Than Market Value

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Change In Liabilities From Last Valuation

LEOFF 2			
<i>(Dollars in Millions)</i>	2015	2016	Difference
Present Value of Future Benefits	\$12,152	\$13,013	\$861
Accrued Liability	\$8,838	\$9,571	\$733
Valuation Interest Rate	7.50%	7.50%	--

- Present Value of Future Benefits
 - Today's value of all future expected benefits for current members
- Accrued Liability
 - Today's value of all future plan benefits that have been accrued or "earned" as of the valuation date by current plan members

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Funded Status Is A Measure Of Plan Health

- Funded status =

$$\frac{\$ \text{ Actuarial Value of Assets}}{\$ \text{ Accrued Liabilities}}$$
, Divided By
- Point in time measurement
- If the funded status exceeds 100%, the plan has more than \$1 of assets for every \$1 of accrued benefits
- Plan greater/less than 100% funded status not necessarily overfunded/at-risk

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Change In Funded Status From Last Valuation

LEOFF 2			
<i>(Dollars in Millions)</i>	2015	2016	Difference
a. Accrued Liability	\$8,838	\$9,571	\$733
b. Actuarial Value of Assets	\$9,320	\$10,021	\$701
c. Unfunded Liability (a-b)	(\$482)	(\$450)	\$32
Funded Status (b/a)	105%	105%	0%

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Change In Member Contribution Rates From Last Valuation

LEOFF 2				Adopted
Member Rates	2015	2016	Difference	2017-21
Aggregate Rate	7.46%	7.62%	0.16%	
90% EANC Rate	7.88%	7.91%	0.03%	
100% EANC Rate	8.75%	8.79%	0.04%	8.75%

- Current contribution rates adopted for 2017-2021 biennia equal to 2015 100% EANC rates
- Aggregate method represents statutory funding method
- EANC method represents the Board's current policy

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Summary Of 2016 Actuarial Valuation


- Aggregate (statutory method) contribution rates below current adopted rates
 - Both rates remain reasonable
- Current funded status exceeds 100% and is considered healthy
- Actuarial valuation is snap-shot in time
- AVA recognizing asset gains

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Interactive Web Reports

- OSA has moved some elements from the actuarial valuation report to our website
- Provides the ability to use different inputs to see how the results change
- Current reports include:
 - [Funded Status](#)
 - [Future Value and Present Value of Benefit Payments](#)
 - [Contribution Rates](#) (NEW)

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Funded Status

Valuation Year 2016

Asset Valuation Method Actuarial Value of Assets

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Discount Rate Statutory Rate for Funding

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Funded Ratio as of 6/30/2016
Based on Actuarial Value of Assets and
Liabilities Discounted @ Statutory Rate for Funding*


(Dollars in Millions)	PERS Plan 1	PERS Plan 2/3	TRS Plan 1	TRS Plan 2/3	SERS Plan 2/3	PSERS Plan 2	LEOFF Plan 1	LEOFF Plan 2	WSPRS Plan 1/2	Total
Accrued Liability	\$12,323	\$34,759	\$8,900	\$11,983	\$4,826	\$425	\$4,197	\$9,571	\$1,186	\$88,170
Actuarial Value of Assets	\$6,958	\$30,262	\$5,440	\$10,722	\$4,181	\$402	\$5,275	\$10,021	\$1,084	\$74,345
Unfunded Liability	\$5,365	\$4,497	\$3,460	\$1,261	\$644	\$24	(\$1,078)	(\$450)	\$102	\$13,825
Funded Ratio	56%	87%	61%	89%	87%	94%	126%	105%	91%	84%

*Discount Rates for 2016: Statutory = 7.7% (7.5% in LEOFF 2)

Note: Please see the [Actuarial Valuation Report \(AVR\)](#) on the Office of the State Actuary's website for the data, assumptions, and methods used to produce these results. The AVR also includes other information on the intended use and purpose of this information. Distribution or reliance on this information without consideration of the intended use and purpose could result in its misuse and may mislead others. Totals may not add due to rounding. Starting in 2014, the Entry Age Normal cost method is used to determine Accrued Liability; prior to 2014, the Projected Unit Credit cost method was used.

Source: leg.wa.gov/osa
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Funded Status

Valuation Year 2016

Asset Valuation Method Actuarial Value of Assets

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Discount Rate Statutory Rate for Funding

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Funded Status

Valuation Year: 2016 Asset Valuation Method: Actuarial Value of Assets View Report

Discount Rate: Statutory Rate for Funding

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Funded Ratio as of 6/30/2016
 Based on Actuarial Value of Assets and
 Liabilities Discounted @ Statutory Rate for Funding*

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Questions



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