

## Actuarial Gains/Losses

The next three tables display actuarial gains and losses, expressed as contribution rate changes. Actuaries use gain/loss analysis to compare actual changes to assumed changes in assets, liabilities, and salaries from various sources. We also use this analysis to determine:

- ❖ The accuracy of our valuation model and annual processing.
- ❖ Why contribution rates changed.
- ❖ The reasonableness of the actuarial assumptions.

Actuarial gains will reduce contribution rates; actuarial losses will increase contribution rates. Under a reasonable set of actuarial assumptions, actuarial gains and losses will offset over long-term experience periods.

Change in Employer and State Contribution Rate by Source						
Change in Employer Rate	PERS	TRS	SERS*	PSERS*	LEOFF**	WSPRS
<b>2014 Contribution Rate Before Laws of 2015</b>	<b>12.48%</b>	<b>14.78%</b>	<b>13.07%</b>	<b>11.92%</b>	<b>(8.31%)</b>	<b>10.67%</b>
Remove Rate Floor / Ceiling	0.00%	0.00%	0.00%	0.00%	(0.33%)	0.00%
Remove Plan 1 Benefit Improvements After 2009	(0.14%)	(0.15%)	(0.14%)	(0.14%)	N/A	N/A
Remove Prior Liability and Fixed Amortization Date Adjustment	(0.11%)	(0.77%)	(1.00%)	0.00%	0.29%	(2.40%)
<b>2014 Adjusted Contribution Rate</b>	<b>12.23%</b>	<b>13.86%</b>	<b>11.93%</b>	<b>11.78%</b>	<b>(8.35%)</b>	<b>8.27%</b>
Liability Gains/Losses	0.30%	0.49%	0.94%	0.69%	0.09%	(0.17%)
Asset Gains/Losses	0.94%	1.44%	0.59%	(0.01%)	1.44%	1.55%
Present Value of Future Salaries Gains/Losses	(0.94%)	(1.40%)	(1.08%)	(0.72%)	(0.23%)	(0.36%)
Incremental Changes	0.55%	0.61%	0.51%	0.26%	0.43%	1.27%
Other Gains/Losses	(0.08%)	(0.07%)	(0.01%)	0.06%	(0.29%)	(0.10%)
<b>Total Change</b>	<b>0.77%</b>	<b>1.07%</b>	<b>0.95%</b>	<b>0.28%</b>	<b>1.44%</b>	<b>2.19%</b>
<b>2015 Preliminary Contribution Rate</b>	<b>13.00%</b>	<b>14.93%</b>	<b>12.88%</b>	<b>12.06%</b>	<b>(6.91%)</b>	<b>10.46%</b>
Increase from Applied Rate Floor	0.00%	0.00%	0.00%	0.00%	0.17%	0.00%
Decrease from Applied Rate Ceiling	0.00%	0.00%	0.00%	0.00%	0.00%	N/A
Increase from Plan 1 Benefit Improvements After 2009	0.14%	0.15%	0.14%	0.14%	N/A	N/A
Rate to Amortize Prior Liability	0.11%	0.77%	1.00%	0.00%	0.00%	1.32%
Excess Member Rate	N/A	0.00%	N/A	N/A	N/A	3.12%
Laws of 2016	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>2015 Adjusted Contribution Rate</b>	<b>13.25%</b>	<b>15.85%</b>	<b>14.02%</b>	<b>12.20%</b>	<b>(6.74%)</b>	<b>14.90%</b>

\*The SERS and PSERS rates include the UAAL rate for PERS Plan 1. The "Other Gains/Losses" category includes the "Total Change" for the PERS 1 UAAL rate in those systems.

\*\*The LEOFF contribution rate is the state's portion for Plan 2 (20% of the Normal Cost) plus the UAAL rate for Plan 1.

## II. Actuarial Exhibits

Change in Employer and State Plan 2/3 Normal Cost Rate by Source						
Change in Normal Costs	PERS	TRS	SERS	PSERS	LEOFF*	WSPRS**
<b>2014 Normal Cost Before Laws of 2015</b>	<b>7.37%</b>	<b>7.69%</b>	<b>7.96%</b>	<b>6.81%</b>	<b>3.13%</b>	<b>10.67%</b>
Remove Rate Floor / Ceiling	0.00%	0.00%	0.00%	0.00%	(0.33%)	0.00%
Remove Prior Employer Liability	(0.11%)	(0.77%)	(1.00%)	0.00%	0.00%	(2.40%)
<b>2014 Adjusted Normal Cost Rate</b>	<b>7.26%</b>	<b>6.92%</b>	<b>6.96%</b>	<b>6.81%</b>	<b>2.80%</b>	<b>8.27%</b>
Liabilities						
Salaries	(0.26%)	(0.44%)	0.04%	(0.09%)	0.00%	(0.48%)
Termination	(0.15%)	(0.38%)	(0.19%)	(0.17%)	(0.01%)	(0.38%)
Retirement	0.03%	0.04%	0.05%	0.00%	0.00%	(0.37%)
Disability	0.01%	0.00%	0.01%	0.01%	0.00%	0.02%
Mortality	0.02%	0.04%	0.04%	0.02%	0.01%	(0.01%)
Growth / Return to Work	0.55%	1.19%	0.93%	0.93%	0.27%	0.90%
Other Liabilities	0.08%	0.04%	0.06%	(0.01%)	0.03%	0.15%
<b>Total Liability Gains/Losses</b>	<b>0.28%</b>	<b>0.49%</b>	<b>0.94%</b>	<b>0.69%</b>	<b>0.30%</b>	<b>(0.17%)</b>
<b>Asset Gains/Losses</b>	<b>0.46%</b>	<b>0.38%</b>	<b>0.59%</b>	<b>(0.01%)</b>	<b>0.05%</b>	<b>1.55%</b>
<b>Present Value of Future Salaries Gains/Losses</b>	<b>(0.51%)</b>	<b>(0.72%)</b>	<b>(1.08%)</b>	<b>(0.72%)</b>	<b>(0.20%)</b>	<b>(0.36%)</b>
Incremental Changes						
Plan Change	0.00%	0.00%	0.00%	0.00%	0.05%	0.15%
Method Change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Assumption Change	0.49%	0.48%	0.51%	0.26%	0.00%	1.12%
Correction Change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Experience Study Change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Total Incremental Changes Gains/Losses</b>	<b>0.49%</b>	<b>0.48%</b>	<b>0.51%</b>	<b>0.26%</b>	<b>0.05%</b>	<b>1.27%</b>
<b>Other Gains/Losses</b>	<b>(0.06%)</b>	<b>(0.07%)</b>	<b>(0.12%)</b>	<b>(0.05%)</b>	<b>(0.02%)</b>	<b>(0.10%)</b>
<b>Total Change</b>	<b>0.66%</b>	<b>0.56%</b>	<b>0.84%</b>	<b>0.17%</b>	<b>0.18%</b>	<b>2.19%</b>
<b>2015 Preliminary Normal Cost</b>	<b>7.92%</b>	<b>7.48%</b>	<b>7.80%</b>	<b>6.98%</b>	<b>2.98%</b>	<b>10.46%</b>
Increase from Applied Rate Floor	0.00%	0.00%	0.00%	0.00%	0.17%	0.00%
Rate to Amortize Prior Employer Liability	0.11%	0.77%	1.00%	0.00%	0.00%	1.32%
Excess Member Rate	N/A	0.00%	N/A	N/A	N/A	3.12%
Laws of 2016	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>2015 Adjusted Normal Cost</b>	<b>8.03%</b>	<b>8.25%</b>	<b>8.80%</b>	<b>6.98%</b>	<b>3.15%</b>	<b>14.90%</b>

\*The LEOFF contribution rate is the state's portion only (20% of the Plan 2 Normal Cost).

\*\*The WSPRS normal cost contribution rate applies to Plans 1 and 2.

Change in Employer and State Plan 1 UAAL Rate by Source						
Change in UAAL Rate	PERS	TRS	SERS*	PSERS*	LEOFF**	WSPRS
<b>2014 UAAL Rate Before Laws of 2015</b>	<b>5.11%</b>	<b>7.09%</b>	<b>5.11%</b>	<b>5.11%</b>	<b>(11.44%)</b>	<b>N/A</b>
Remove Rate Floor / Ceiling	0.00%	0.00%	0.00%	0.00%	0.00%	N/A
After 2009	(0.14%)	(0.15%)	(0.14%)	(0.14%)	N/A	N/A
Fixed Amortization Date Adjustment	N/A	N/A	N/A	N/A	0.29%	N/A
<b>2014 Adjusted UAAL Rate</b>	<b>4.97%</b>	<b>6.94%</b>	<b>4.97%</b>	<b>4.97%</b>	<b>(11.15%)</b>	<b>N/A</b>
Liabilities						
Salaries	(0.01%)	(0.03%)	N/A	N/A	(0.01%)	N/A
Termination	0.00%	0.00%	N/A	N/A	0.00%	N/A
Retirement	(0.01%)	0.00%	N/A	N/A	0.02%	N/A
Disability	0.00%	0.00%	N/A	N/A	0.00%	N/A
Mortality	(0.01%)	0.02%	N/A	N/A	0.02%	N/A
Return to Work	0.00%	0.00%	N/A	N/A	0.00%	N/A
Inflation (CPI)	0.00%	0.00%	N/A	N/A	(0.40%)	N/A
Other Liabilities	0.05%	0.01%	N/A	N/A	0.16%	N/A
<b>Total Liability Gains/Losses</b>	<b>0.02%</b>	<b>0.00%</b>	<b>N/A</b>	<b>N/A</b>	<b>(0.21%)</b>	<b>N/A</b>
<b>Asset Gains/Losses</b>	<b>0.48%</b>	<b>1.06%</b>	<b>N/A</b>	<b>N/A</b>	<b>1.39%</b>	<b>N/A</b>
<b>Gains/Losses</b>	<b>(0.43%)</b>	<b>(0.68%)</b>	<b>N/A</b>	<b>N/A</b>	<b>(0.03%)</b>	<b>N/A</b>
Incremental Changes						
Plan Change	0.00%	0.00%	N/A	N/A	0.00%	N/A
Method Change	(0.02%)	(0.02%)	N/A	N/A	0.00%	N/A
Assumption Change	0.08%	0.15%	N/A	N/A	0.38%	N/A
Correction Change	0.00%	0.00%	N/A	N/A	0.00%	N/A
Experience Study Change	0.00%	0.00%	N/A	N/A	0.00%	N/A
<b>Gains/Losses</b>	<b>0.06%</b>	<b>0.13%</b>	<b>N/A</b>	<b>N/A</b>	<b>0.38%</b>	<b>N/A</b>
<b>Other Gains/Losses</b>	<b>(0.02%)</b>	<b>(0.00%)</b>	<b>N/A</b>	<b>N/A</b>	<b>(0.27%)</b>	<b>N/A</b>
<b>Total Change</b>	<b>0.11%</b>	<b>0.51%</b>	<b>0.11%</b>	<b>0.11%</b>	<b>1.26%</b>	<b>N/A</b>
<b>2015 Preliminary UAAL Rate</b>	<b>5.08%</b>	<b>7.45%</b>	<b>5.08%</b>	<b>5.08%</b>	<b>(9.89%)</b>	<b>N/A</b>
Increase from Applied Rate Floor	0.00%	0.00%	0.00%	0.00%	N/A	N/A
Decrease from Applied Rate Ceiling	0.00%	0.00%	0.00%	0.00%	0.00%	N/A
Improvements After 2009	0.14%	0.15%	0.14%	0.14%	N/A	N/A
Laws of 2016	0.00%	0.00%	0.00%	0.00%	0.00%	N/A
<b>2015 Adjusted UAAL Rate</b>	<b>5.22%</b>	<b>7.60%</b>	<b>5.22%</b>	<b>5.22%</b>	<b>(9.89%)</b>	<b>N/A</b>

\*The SERS and PSERS rates are to fund the PERS Plan 1 UAAL.

\*\*The LEOFF contribution rate is the UAAL rate for plan 1. The plan has a surplus of assets over liabilities, so no rate is currently payable.