

Kentucky Retirement Systems



2018 Actuarial Review

**Public Pension Oversight Board
November 26, 2018**

VALUATION BASIS (as of June 30, 2018)

- 1. No assumption changes since the prior valuation**
- 2. Legislation and benefit changes:**
 - **HB 185**: Provided increased benefits for members who die in the line of duty
 - **HB 200**: Set KERS and SPRS bi-annum contribution rates
 - **HB 265**: Maintained FY 2019 contribution rate at 49.47% for Regional Mental Health, Health Departments, Universities, and Advocacy Agencies in KERS Non-Haz (118 entities representing approximately 25% of covered payroll)
 - **HB 362**: Phased-in the contribution rates for CERS
 - **SB 151**: Not reflected in 2018 actuarial valuation (currently in State Supreme Court)
- 3. Amortization period = 25 years**

VALUATION SUMMARY (as of June 30, 2018)

- 1. Investment return was 7.4% to 9.3%** (return varies by fund)
 - \$410 million more in plan assets than expected (\$279 million for pension and \$131 million for insurance funds)
 - Recognized in the contribution rates over the next five years
- 2. All insurance plans showed funded ratio improvement with favorable premiums experience and increased member contributions**
 - Unfunded liabilities declined by \$0.91 billion
- 3. Pension unfunded liabilities increased**
 - \$0.46 billion increase caused by lower payroll and higher retirements

VALUATION SUMMARY (as of June 30, 2018)

4. KERS and SPRS Hazardous pension plans more stable

- Benefited from 2017 and 2018 additional general fund appropriations

5. Change in active membership and covered payroll

- Active membership declined in all five systems
- Covered payroll decreased in both KERS and the CERS Haz
- Small change in covered payroll for CERS Non-Haz and SPRS

6. Maintaining or increasing KERS Non-Haz contributions is critical

- Current assets cover two years of benefit payments

June 30, 2018 assets' were \$2.0 billion

Benefit payments for the 2018 fiscal year were \$981 million

GRS VALUATION COMMENTS

- **It is imperative the State and participating employers in the Systems, contribute the actuarial determined contribution in every year to improve the System's financial security**
- **KRS should investigate a method (e.g. level \$) to allocate the amortization cost to participating employers that is not associated with covered payroll**
 - ✓ Needed most for KERS Non-Hazardous
 - ✓ Legislative action will be required

Unfunded Accrued Liability

\$ in Billions

Plan	2017 Valuation			2018 Valuation			Change In UAAL
	Pension	Insurance	Combined	Pension	Insurance	Combined	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KERS Non-Hazardous	\$13.47	\$1.86	\$15.33	\$13.66	\$1.55	\$15.21	(\$0.12)
KERS Hazardous	0.51	(0.07)	0.44	0.51	(0.12)	0.39	(\$0.05)
CERS Non-Hazardous	6.04	1.13	7.17	6.24	0.72	6.96	(\$0.21)
CERS Hazardous	2.41	0.59	3.00	2.47	0.43	2.95	(\$0.05)
SPRS	0.71	0.10	0.81	0.72	0.07	0.79	(\$0.02)
TOTAL	\$23.14	\$3.61	\$26.75	\$23.60	\$2.70	\$26.30	(\$0.45)

Funded Ratios

Plan	2017 Valuation		2018 Valuation	
	Pension	Insurance	Pension	Insurance
(1)	(2)	(3)	(4)	(5)
KERS Non-Hazardous	13.62%	30.70%	12.88%	36.42%
KERS Hazardous	54.14	117.65	55.50	129.98
CERS Non-Hazardous	52.84	66.39	52.69	76.68
CERS Hazardous	48.15	66.92	48.44	74.60
SPRS	27.02	65.23	27.11	71.55
TOTAL KRS	34.14%	57.75%	34.07%	66.27%

Employer Contribution Rates Comparison

Plan	2017 Valuation			2018 Valuation			Rates
	Pension	Insurance	Combined	Pension	Insurance	Combined	FY 2019
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KERS Non-Hazardous	71.03%	12.40%	83.43%	74.54%	10.65%	85.19%	83.43%¹
KERS Hazardous	34.39	2.46	36.85	34.42	0.00	34.42	36.85
CERS Non-Hazardous	21.84	6.21	28.05	22.52	4.76	27.28	21.48²
CERS Hazardous	35.69	12.17	47.86	36.98	9.52	46.50	35.34²
SPRS	119.05	27.23	146.28	120.54	19.50	140.04	146.28

¹ Certain Quasi KERS Non-Haz agencies remained at 49.47%

² Contribution rate phase-in for CERS under (HB 362) has 12% annual increase cap

Sensitivity Analysis

Pension Discount Rate

Plan	Pension Unfunded Liability			Pension Funded Ratio		
	-1%	Valuation Rate ¹	+1%	-1%	Valuation Rate	+1%
(1)	(2)	(3)	(4)	(5)	(6)	(7)
KERS Non-Hazardous	\$15.56	\$13.66	\$12.07	11.5%	12.9%	14.3%
KERS Hazardous	0.65	0.51	0.39	49.4	55.5	61.8
CERS Non-Hazardous	7.83	6.24	4.91	47.0	52.7	58.6
CERS Hazardous	3.09	2.47	1.96	42.9	48.4	54.2
SPRS	0.85	0.72	0.62	24.1	27.1	30.3.9
TOTAL KRS	\$27.98	\$23.60	\$20.00	30.4%	34.1%	37.8%

¹ KERS & SPRS valuation rate = 5.25%; KERS Haz and CERS valuation rate = 6.25%

Sensitivity Analysis

Insurance Discount Rate

Plan	Insurance Unfunded Liability			Insurance Funded Ratio		
	-1%	Valuation Rate (6.25%)	+1%	-1%	Valuation Rate (6.25%)	+1%
(1)	(2)	(3)	(4)	(5)	(6)	(7)
KERS Non-Hazardous	\$1.85	\$1.55	\$1.30	32.4%	36.4%	40.6%
KERS Hazardous	(0.68)	(0.12)	(0.16)	115.3	130.0	145.2
CERS Non-Hazardous	1.12	0.72	0.39	67.9	76.7	85.9
CERS Hazardous	0.64	0.43	0.25	66.1	74.6	83.4
SPRS	0.11	0.07	0.05	63.6	71.6	79.8
TOTAL KRS	\$3.66	\$2.70	\$1.82	58.8%	66.3%	74.1%

Sensitivity Analysis

Payroll Growth

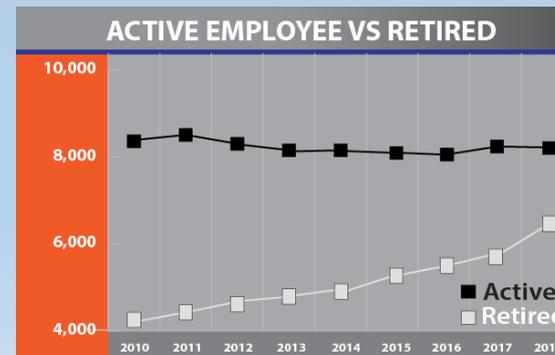
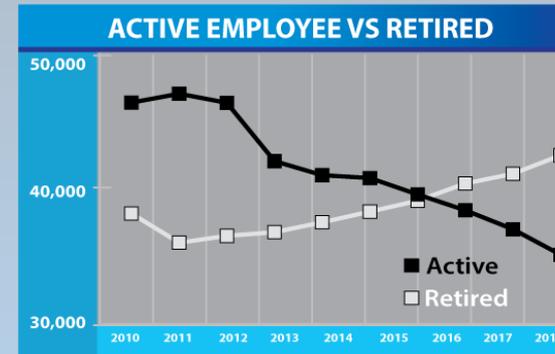
Plan	Pension Employer Contribution Rate%			Insurance Employer Contribution Rate%		
	-1%	2018 Valuation Determined Rate ¹	+1%	-1%	2018 Valuation Rate ¹	+1%
(1)	(2)	(3)	(4)	(5)	(6)	(7)
KERS Non-Hazardous	81.51%	74.54%	68.02%	11.47%	10.65%	9.88%
KERS Hazardous	36.94	34.42	32.05	0.00	0.00	0.00
CERS Non-Hazardous	24.31	22.52	20.84	4.96	4.76	4.57
CERS Hazardous	40.28	36.98	33.91	10.07	9.52	9.00
SPRS	131.5	120.54	110.29	20.65	19.50	18.42

¹ KERS & SPRS valuation payroll growth assumption = 0%; CERS valuation payroll growth assumption = 2.0%

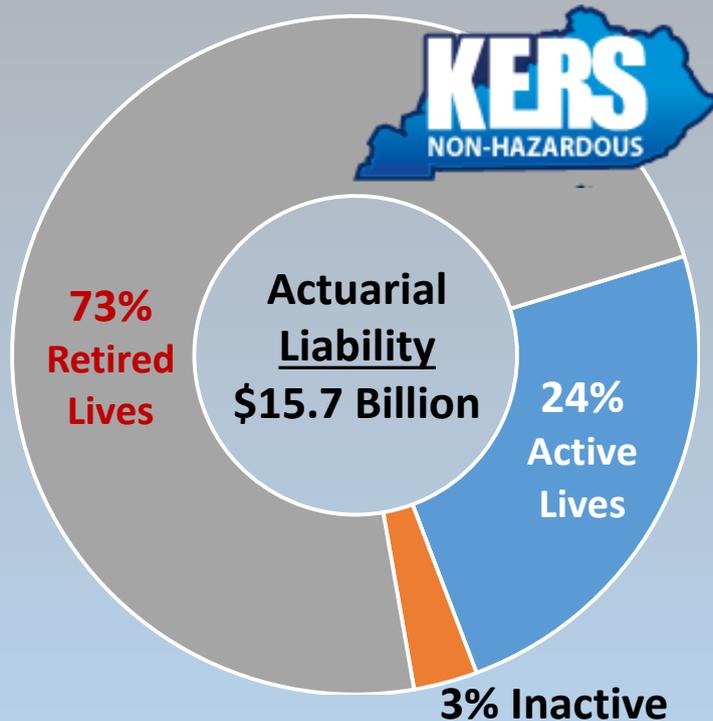
TRENDS – KERS & CERS Non-Haz

- Benefit costs have declined – HOWEVER;
- Active employees are paying retiree benefits; declining #'s
- No retiree contributions
- Prospective benefits change – don't reduce retiree payments

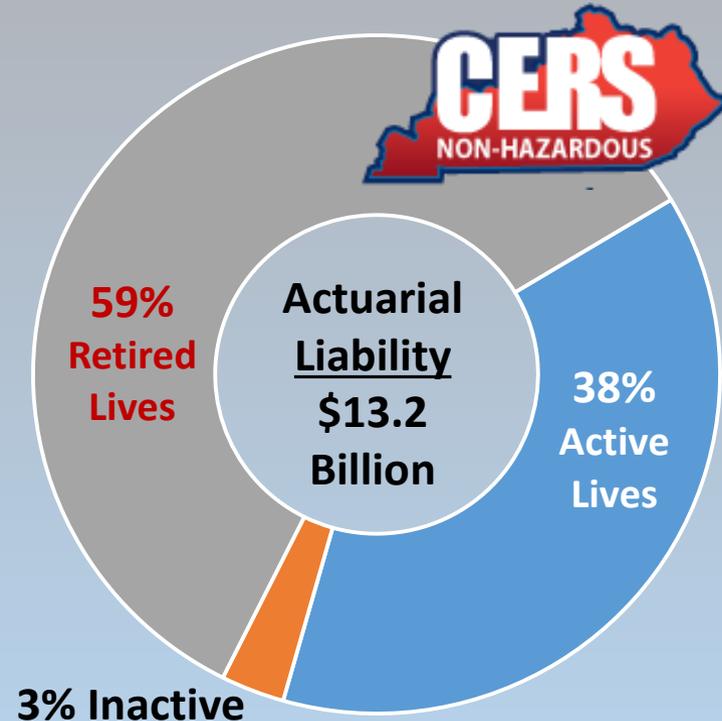
NORMAL COST RATES (Excludes administrative expense and net of member contributions)	KERS Non-Hazardous		CERS Non-Hazardous	
	Pension	Insurance	Pension	Insurance
Effective Dates				
Tier 1 Cost Before 7/03	9.28%	4.26%	7.15%	4.89%
Tier 1 Cost After 7/03	9.22%	2.35%	6.69%	3.10%
Tier 2 Cost 9/08	6.16%	0.59%	4.10%	1.16%
Tier 3 Cost 1/14	2.50%	0.55%	1.56%	1.22%



Pension – Retiree Obligation



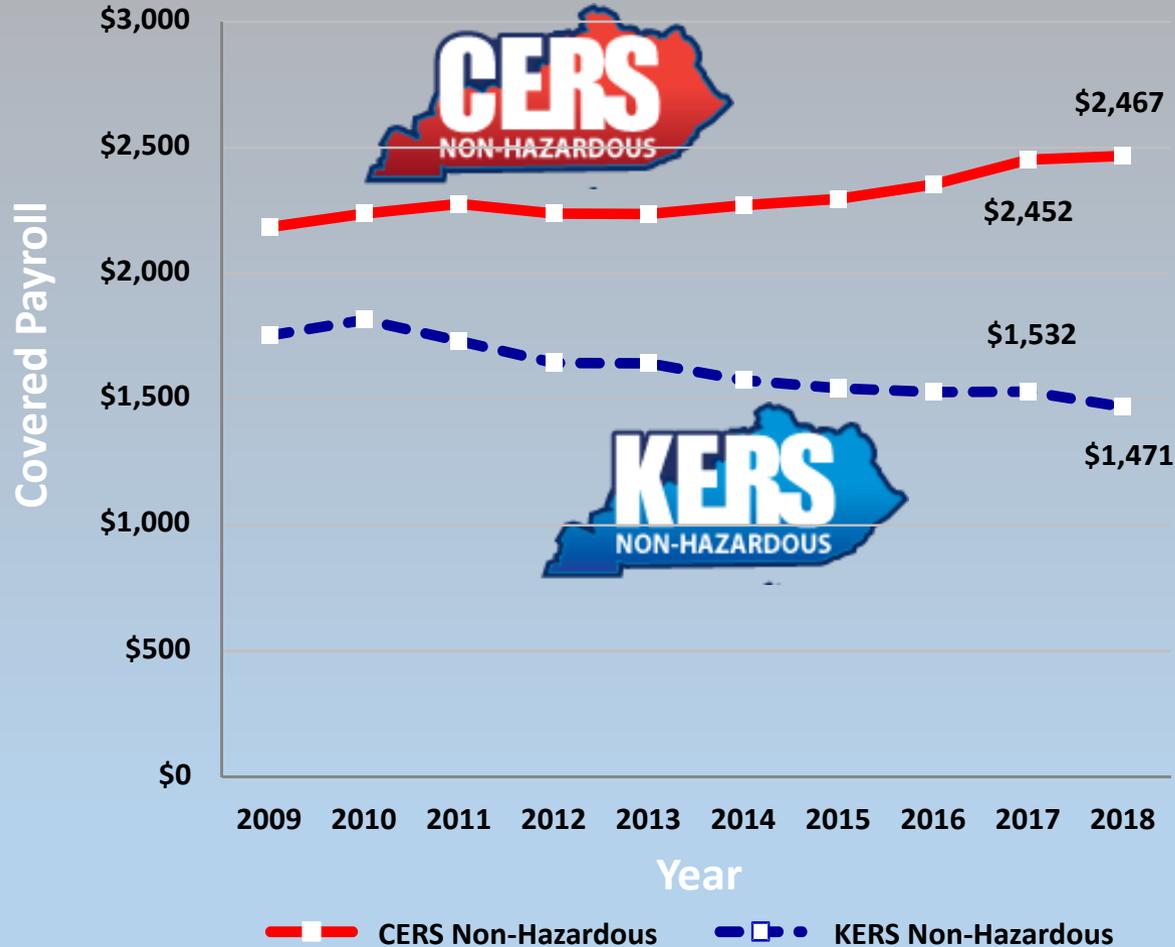
Unfunded Liability = \$13.7B
Actives to Retired Ratio = 0.76



Unfunded Liability = \$6.2B
Actives to Retired Ratio = 1.32

June 30, 2018 Valuation

Funding Issue – Adverse Payroll Trends

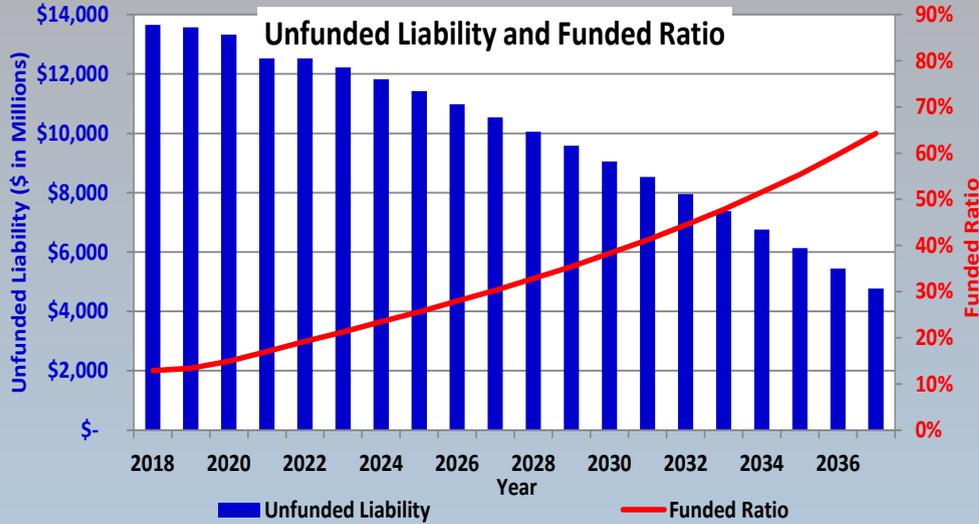


10 Year Active Payroll (\$ in Thousands)

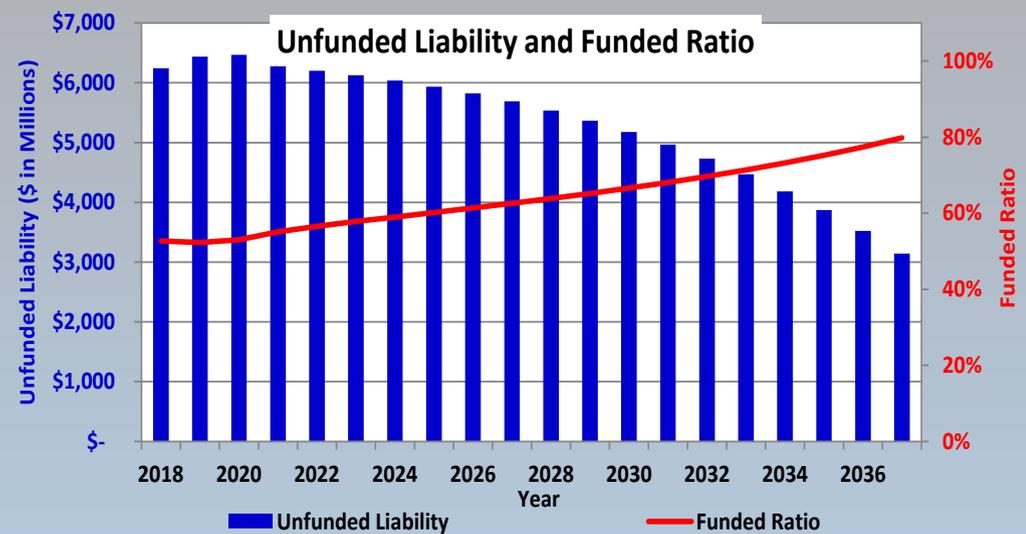
Valuation Date	KERS Non-Haz	CERS Non-Haz
6/30/2008	1,837,873	2,166,613
6/30/2009	1,754,413	2,183,612
6/30/2010	1,815,146	2,236,855
6/30/2011	1,731,633	2,276,596
6/30/2012	1,644,897	2,236,546
6/30/2013	1,644,409	2,236,277
6/30/2014	1,577,496	2,272,270
6/30/2015	1,544,234	2,296,716
6/30/2016	1,529,249	2,352,762
6/30/2017	1,531,535	2,452,407
6/30/2018	1,471,477	2,466,801
2018 vs 2017	-3.9%	0.6%
2018 Valuation Assumption	0.0%	2.0%

Projections – KERS & CERS

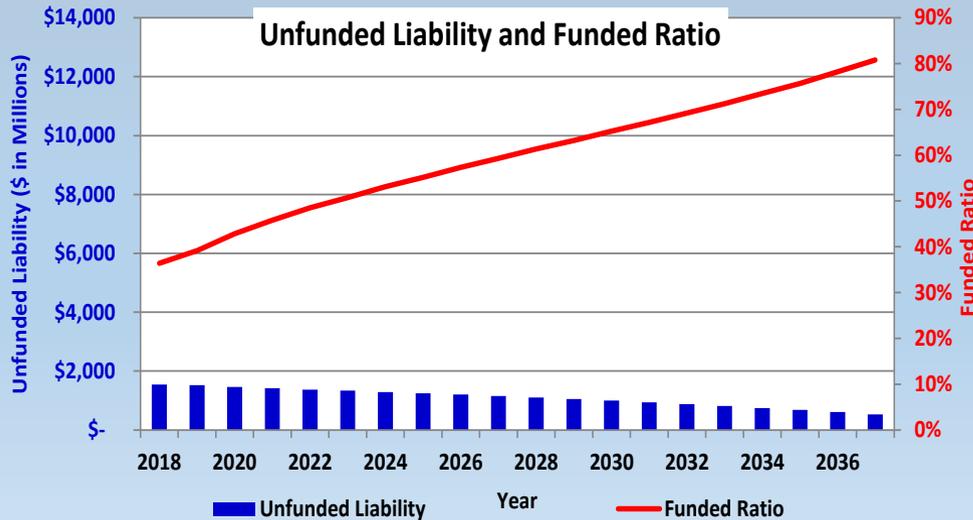
KERS Non-Haz Pension



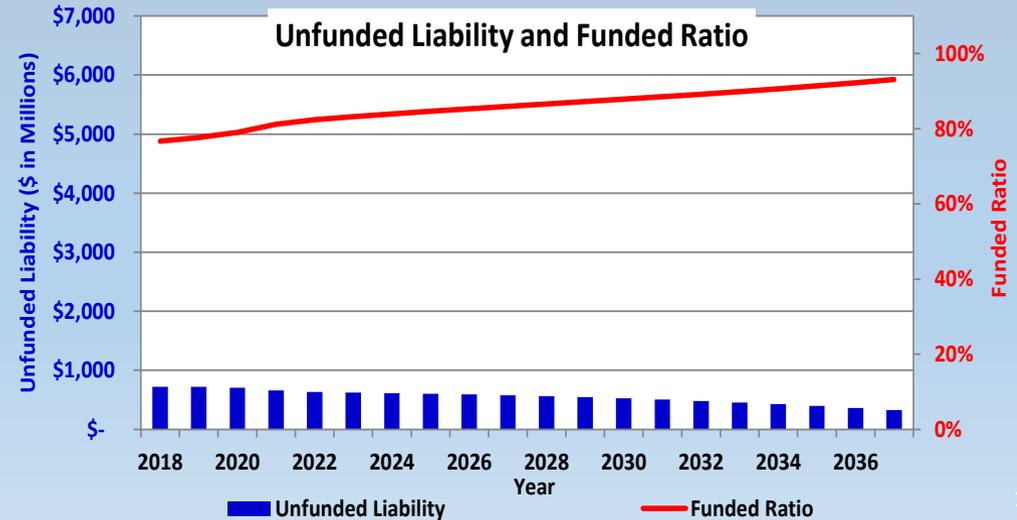
CERS Non-Haz Pension



KERS Non-Haz Insurance



CERS Non-Haz Insurance



APPENDIX

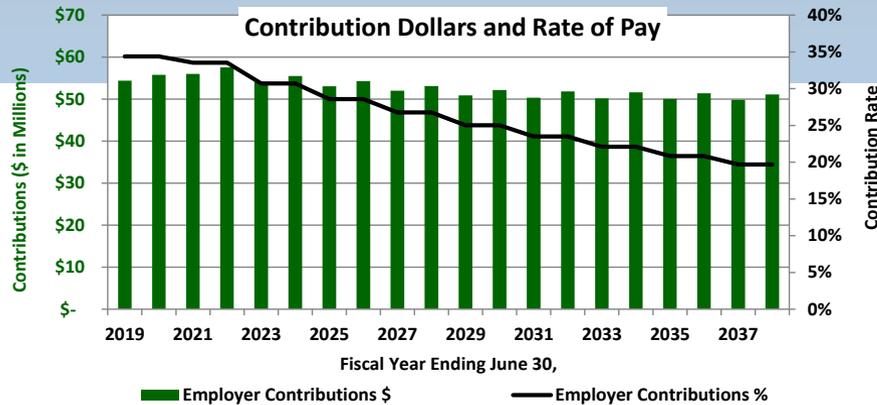
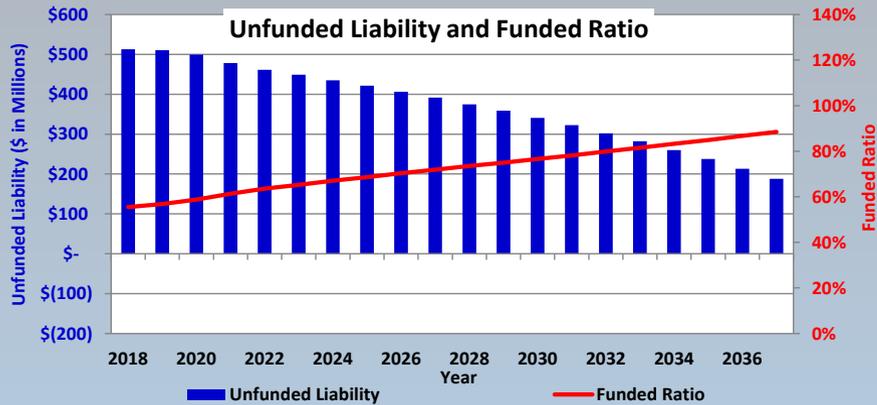
Hazardous Plan Information – Projections

- KERS
- CERS
- SPRS

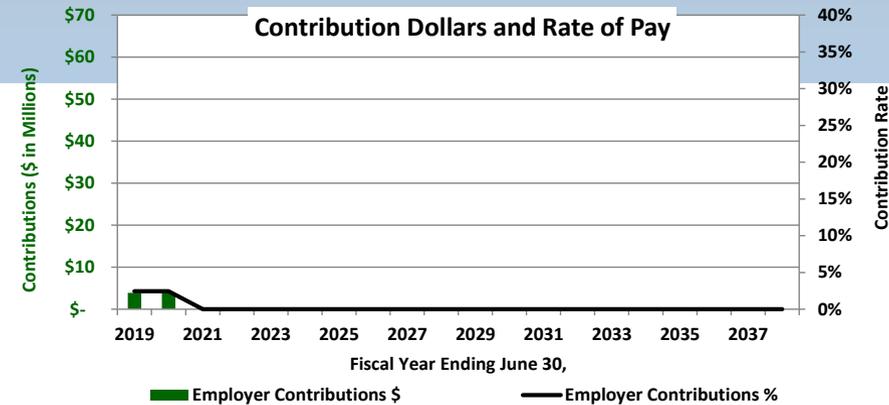
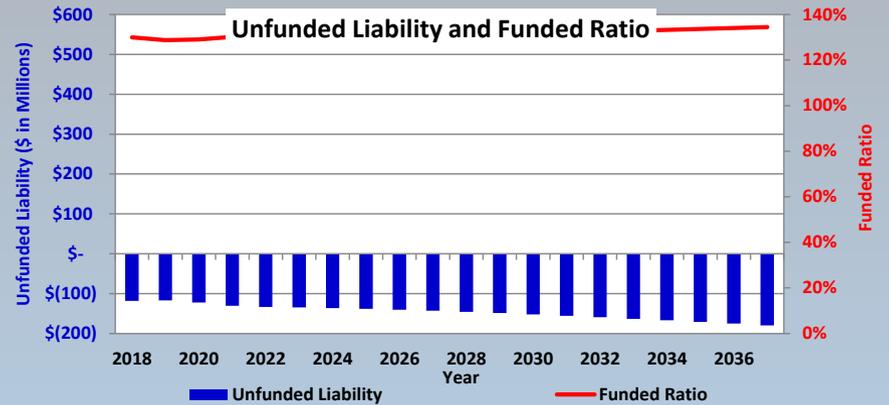
KERS Non-Haz Alternative Scenario – Projections

KERS Hazardous

Pension

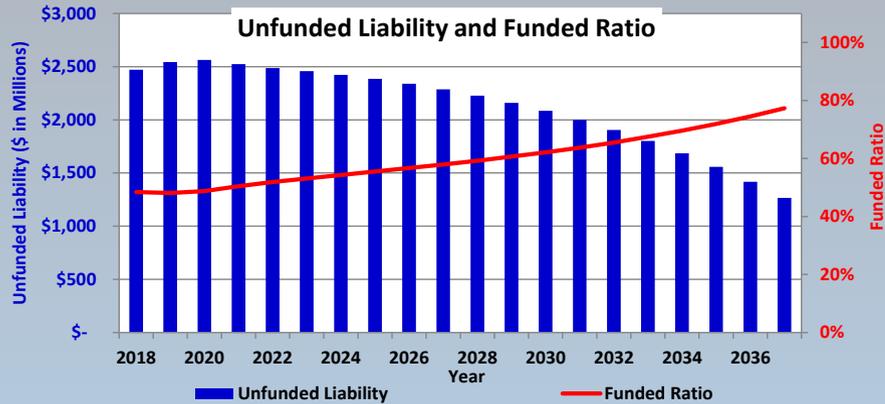


Insurance

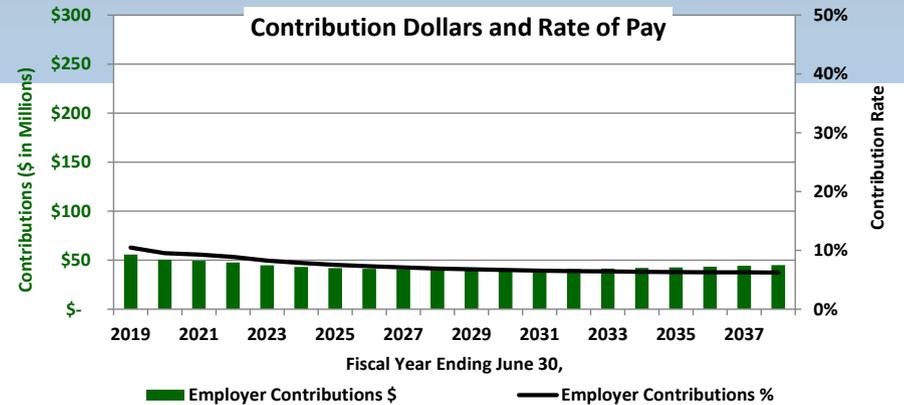
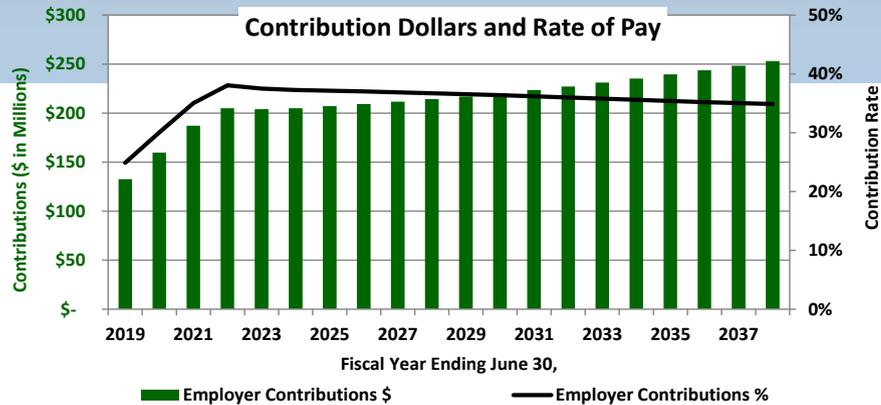
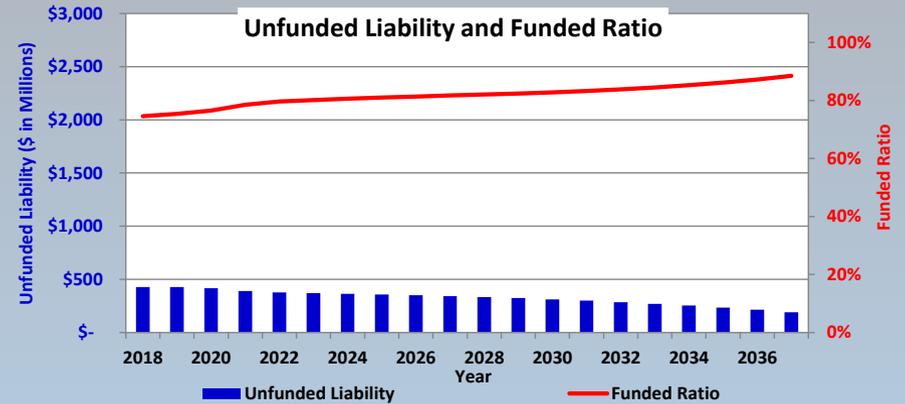


CERS Hazardous

Pension

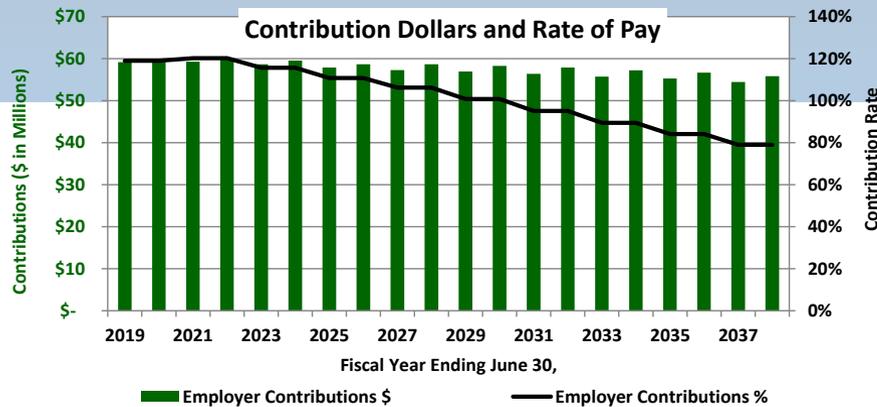
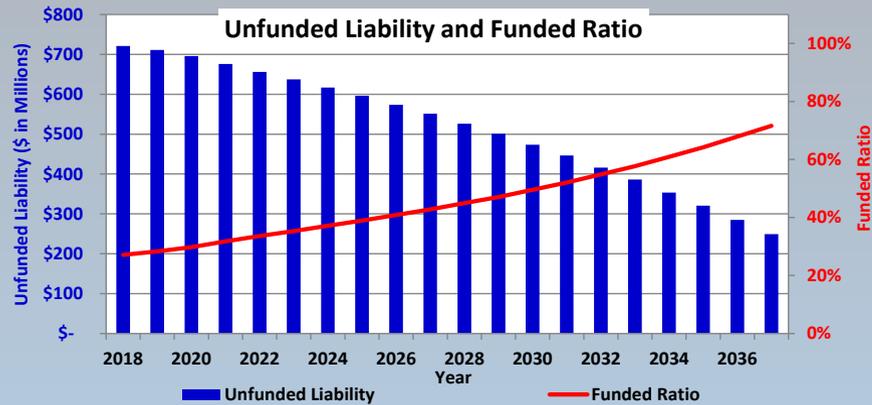


Insurance

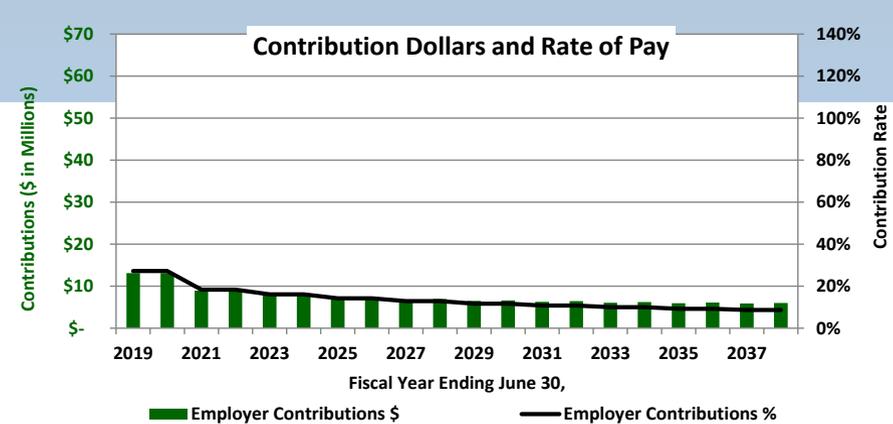
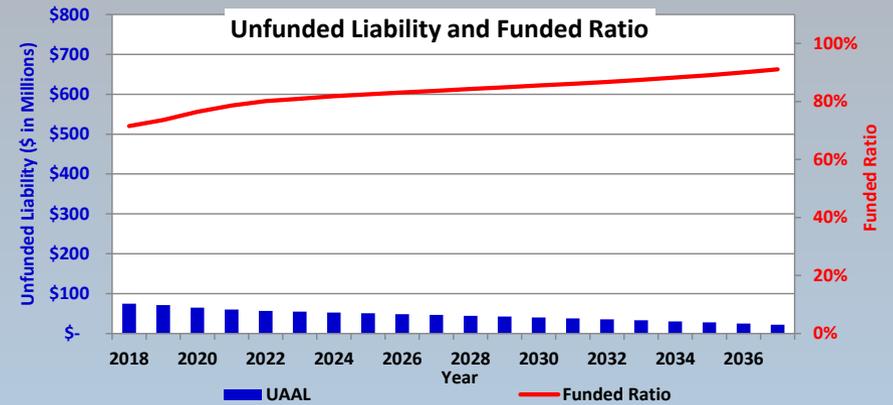


SPRS

Pension

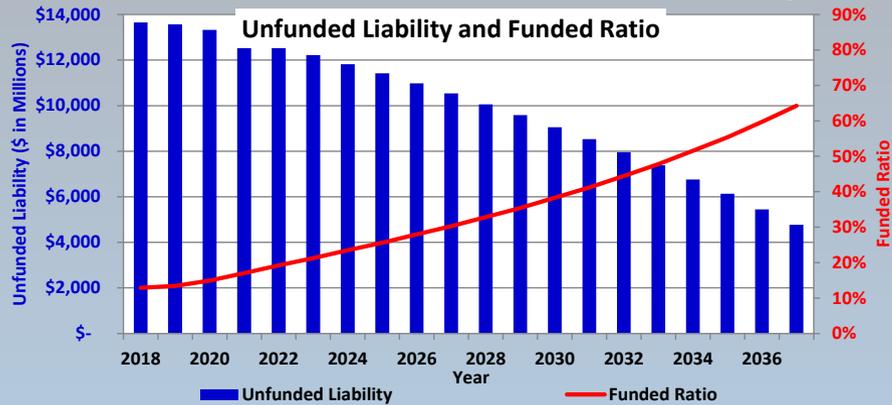


Insurance



KERS Non-Hazardous – Alternative Scenario

Constant Future Membership



2% Annual Membership Decline

