November 8, 2013

VIA ELECTRONIC MAIL

Public Employees Retirement Board
100 North Park, Suite 200
Helena, Montana 59620

Re: PERS June 30, 2013 Actuarial Results Without Changes to Future GABA

Dear Members of the Board:

House Bill 454 (HB 454), which was enacted during the 2013 legislative session made changes to the Public Employees' Retirement System (PERS) with respect to enhanced funding and reductions in levels of the Guaranteed Annual Benefit Adjustment (GABA). The actuarial valuation for PERS as of June 30, 2013 fully recognized these changes. The Board has requested a supplemental actuarial valuation report that recognizes the funding changes, but assumes that the future GABA will be specified in the Code prior to enactment of HB 454. The purpose of this report is to provide the results of this supplemental actuarial valuation.

Data, Methods and Assumptions

The calculations in this letter are based upon the data, actuarial methods, assumptions and plan provisions as were used in the Actuarial Valuation of the System as of June 30, 2013, except for (i) retaining the GABA provisions as were in the law prior to the passing of HB 454 and (ii) assuming that the member contribution rate will be 7.9% for all future years.

In preparing this letter, we relied on information (some oral and some written) supplied by the staff of the Public Employee Retirement Administration. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The actuarial assumptions reflect our understanding of the likely future experience of the System and the assumptions as a whole represent our best estimate for the future experience of the System. The results of this letter are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the proposed legislation could vary from our results.

Valuation Results

The results of the supplemental actuarial valuation are shown in the enclosed Attachments.

- Attachment A: Summary
- Attachment B: Liabilities
- Attachment C: Contributions
- Attachment D: Future Outlook

Certification

We hereby certify that, to the best of our knowledge, this letter and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this letter. This letter does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This letter was prepared exclusively for Montana Public Employees' Retirement System for the purposes described herein. This letter is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

If you have any questions or need additional information, please feel free to contact us.

Sincerely,
Cheiron

Stephen T. McElhaney, FCA, FSA
Principal Consulting Actuary

Margaret Tempkin, FSA
Principal Consulting Actuary

Attachments

ATTACHMENT A
SUMMARY

The following table compares the results at June 30, 2013, both (i) fully recognizing the HB 454 changes and (ii) disregarding changes to GABA contained in House Bill 454. These are compared to the June 30, 2012 valuation results. The results shown in the middle column below are the same as were contained in the June 30, 2013 actuarial valuation report for the System.

Table A-1
Montana Public Employees' Retirement System
Summary of Valuation Results

Valuation as of:	June 30, 2012	Full Recognition HB 454 June 30, 2013	Prior GABA Provisions June 30, 2013
Assets and Liabilities			
Actuarial Liability (AL)	$ 5,661,281,490	$ 5,160,950,992	$ 5,902,662,931
Actuarial Value of Assets (AVA)	3,816,919,734	4,139,921,129	4,139,921,129
Unfunded AL (AVA-AL)	$ 1,844,361,756	$ 1,021,029,863	$ 1,762,741,802
Less: PCR-UAL	11,053,147	8,749,140	8,749,140
Net Unfunded AL	$ 1,833,308,609	$ 1,012,280,723	$ 1,753,992,662
Funded Ratio (AVA/AL)	67.4%	80.2%	70.1%
Present Value of Accrued Benefits (PVAB)	$ 4,916,084,348	$ 4,543,203,426	$ 5,176,242,727
Market Value of Assets	3,921,812,233	4,299,238,343	4,299,238,343
Unfunded PVAB	$ 994,272,115	$ 243,965,083	$ 877,004,384
Accrued Benefit Funding Ratio	79.8%	94.6%	83.1%
Ratio of Actuarial Value to Market Value	97.3%	96.3%	96.3%
Contributions as a Percentage of Payroll			
Statutory Funding Rate	14.18%	18.78%	18.78%
Less: Transfer to DB Ed Fund	0.04%	0.04%	0.04%
Net Statutory Funding Rate	14.14%	18.74%	18.74%
Normal Cost Rate	11.80%	10.90%	11.82%
Available for Amortization of UAL	2.34%	7.84%	6.92%
Period to Amortize	Does not amortize	14.5 years	43.7 years
Projected 30-year Level Funding Rate	20.71%	15.75%	20.19%
Projected Shortfall (Surplus)	6.53%	(3.03%)	1.41%

ATTACHMENT B
LIABILITIES

Several types of liabilities are calculated and presented in this letter. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them. A more complete description of each appears in the June 30, 2013 actuarial valuation report for the System.

The following table discloses each of these liabilities for the current valuation, utilizing GABA provisions contained in law before adoption of House Bill 454, and compared to the prior valuation. With respect to each disclosure, a subtraction of the appropriate value of system assets yields, for each respective type, a **net surplus** or an **unfunded liability**.

Table B-1
Liabilities/Net (Surplus)/Unfunded

	June 30, 2012	Prior GABA Provisions June 30, 2013
Present Value of Benefits		
Active Participant Benefits	$ 3,456,788,033	$ 3,453,591,941
Retiree and Inactive Benefits	3,131,292,565	3,391,998,267
Present Value of Benefits (PVB)	**$ 6,588,080,598**	**$ 6,845,590,208**
Market Value of Assets (MVA)	$ 3,921,812,233	$ 4,299,238,343
Future Member Contributions	573,705,041	657,739,836
Future Employer Contributions *	582,632,328	902,802,699
Funding Shortfall/(Surplus)	1,509,930,996	985,809,330
Total Resources	**$ 6,588,080,598**	**$ 6,845,590,208**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 6,588,080,598	$ 6,845,590,208
Present Value of Future Normal Costs (PVFNC)	926,799,108	942,927,277
Actuarial Liability (AL=PVB–PVFNC)	**5,661,281,490**	**5,902,662,931**
Actuarial Value of Assets (AVA)	3,816,919,734	4,139,921,129
Net (Surplus)/Unfunded (AL – AVA)	**$ 1,844,361,756**	**$ 1,762,741,802**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 6,588,080,598	$ 6,845,590,208
Present Value of Future Benefit Accruals (PVFBA)	1,671,996,250	1,669,347,481
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 4,916,084,348**	**$ 5,176,242,727**
Market Value of Assets (MVA)	$ 3,921,812,233	$ 4,299,238,343
Net Unfunded (PVAB – MVA)	**$ 994,272,115**	**$ 877,004,384**

* Includes Employer, State, DC/ORP, and Coal Tax contributions.

ATTACHMENT B
LIABILITIES

Changes in Liabilities

Below, we present key changes in liabilities since the last valuation, utilizing GABA provisions contained in law before adoption of House Bill 454 for the June 30, 2013 results. On the next page, we provide more detail on the sources of the actuarial (gain)/loss as measured on the basis of actuarial liability.

Table B-2

	Present Value of Benefits	**Actuarial Liability**	**Present Value of Accrued Liability**
Liabilities June 30, 2012	$ 6,588,080,598	$ 5,661,281,490	$ 4,916,084,348
Liabilities June 30, 2013	6,845,590,208	5,902,662,931	5,176,242,727
Prior GABA Provisions			
Liability Increase (Decrease)	257,509,610	241,381,441	260,158,379
Change Due to:			
Actuarial (Gain)/Loss	NC*	(16,760,182)	NC*
Plan Changes	5,045,208	(13,536,488)	0
Benefits Accumulated and Other Sources	252,464,402	271,678,111	260,158,379

* NC = not calculated.

Table B-3
Summary of Actuarial Gains and Losses as of June 30, 2013

Actuarial Liabilities as of July 1, 2012	$ 5,661,281,490
Normal Cost	121,498,465
Actual Benefit Payments	(286,869,605)
Interest	437,049,250
Expected Actuarial Liability as of July 1, 2013	5,932,959,600
Actual Liability before House Bill 454 as of July 1, 2013	$ 5,916,199,418
Liability (Gain)/Loss	$ (16,760,182)
Sources of Liability (Gain)/Loss	
Salary (Gain)/Loss	$ (32,966,044)
New Participant (Gain)/Loss	12,678,920
Active Retirements (Gain)/Loss	5,735,543
Active Terminations (Gain)/Loss	(1,135,124)
Active Deaths (Gain)/Loss	915,450
Active Disability (Gain)/Loss	(1,321,290)
Inactive Decrements (Gain)/Loss	11,692,059
Other (Gain)/Loss	(12,359,696)
Actual Liability as of July 1, 2013 (HB454 - Prior GABA Provisions)	$ 5,902,662,931
Liability (Gain)/Loss due to plan changes – (HB 454 – Prior GABA Provisions)	$ (13,536,488)
Actuarial Value of Assets as of July 1, 2012	$ 3,816,919,734
Net Cash Flow	(124,050,181)
Expected Earnings	291,094,026
Expected Actuarial Value of Assets as of July 1, 2013	3,983,963,579
Actual Actuarial Value of Assets as of July 1, 2013	$ 4,139,921,129
Investment (Gain)/Loss	$ (155,957,550)
Total Liability (Gain)/Loss – no GABA changes	(30,296,670)
Total Actuarial (Gain)/Loss	$ (186,254,220)

ATTACHMENT B
LIABILITIES

Table B-4 shows the actuarial liabilities as of the current valuation, utilizing GABA provisions contained in law before adoption of House Bill 454, and compared to the prior valuation. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets. The funded ratio is the ratio of the actuarial value of assets to the actuarial liability.

Table B-4
Actuarial Liabilities for Funding

	June 30, 2012	Prior GABA Provisions June 30, 2013
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 3,131,292,565	$ 3,391,998,267
Active Member Benefits	2,529,988,925	2,510,664,664
Total Actuarial Liability	**$ 5,661,281,490**	**$ 5,902,662,931**
2. Actuarial Value of Assets	$ 3,816,919,734	$ 4,139,921,129
3. Unfunded Actuarial Liability	$ 1,844,361,756	$ 1,762,741,802
4. Funded Ratio	67.4%	70.1%

Montana Code Annotated (MCA) 19-2-407 requires an analysis of how market performance is affecting the actuarial funding of the System. Table B-5 presented below shows the same information as in Table B-4 above, but using market value of assets rather than actuarial value of assets.

Table B-5
Actuarial Liabilities on Market Value Basis (MCA 19-2-407)

	June 30, 2012	Prior GABA Provisions June 30, 2013
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 3,131,292,565	$ 3,391,998,267
Active Member Benefits	2,529,988,925	2,510,664,664
Total Actuarial Liability	**$ 5,661,281,490**	**$ 5,902,662,931**
2. Market Value of Assets	$ 3,921,812,233	$ 4,299,238,343
3. Unfunded Actuarial Liability	$ 1,739,469,257	$ 1,603,424,588
4. Funded Ratio	69.3%	72.8%

ATTACHMENT B
LIABILITIES

Table B-7 shows the development of the portion of the unfunded actuarial liability allocated to PERS members who are in alternative defined contribution plans. This liability is funded by the Plan Choice Rate (PCR) contributions.

Table B-7
Plan Choice Rate Unfunded Liability

	June 30, 2013
1. PCR-UAL as of June 30, 2012	$ 11,053,147
2. Assumed Interest at 7.75% per year	856,619
3. Less: PCR Contributions to DBRP reduced by Normal Cost	(3,042,720)
4. Interest at 7.75% on line 3	(117,905)
5. PCR – UAL as of June 30, 2013	$ 8,749,140

Table B-8 determines the sufficiency of the Plan Choice Rate (PCR), which is used to determine the contributions made to the System for purposes of funding the PCR unfunded liability. Results from the June 30, 2013 valuation utilizing GABA provisions contained in law before adoption of House Bill 454 are used in this calculation.

Table B-8
Plan Choice Rate

		Prior GABA Provisions June 30, 2013
PCR – Normal Cost Rate		
Normal Cost Rate		
DBRP Members Only		11.82%
Including DCRP and ORP members		11.83%
Difference	(A)	(0.01%)
Payroll as of June 30, 2013		
DBRP Members Only	(B)	$ 1,047,120,467
DCRP and ORP members	(C)	$ 106,419,342
PCR – Normal Cost Rate	(A) X (B) ÷ (C)	(0.10%)
PCR – UAL Amortization		
PCR – UAL as of June 30, 2013		$ 8,749,140
PCR Available for Amortization		
Current PCR Amortization Rate		2.64%
Less: PCR – Normal Cost Rate		(0.10%)
PCR Available for Amortization - 2013		2.74%
Years to Amortize PCR – UAL from June 30, 2013		3.2 years
Maximum Years for Amortization		15.75 years
Sufficient or Insufficient		Sufficient

ATTACHMENT C
CONTRIBUTIONS

The tables below present and compare the contribution rates for the System for this valuation and the prior one. Results from the June 30, 2013 valuation utilizing GABA provisions contained in law before adoption of House Bill 454 are used in this development.

Table C-1
Statutory Basis

	June 30, 2012	Prior GABA Provisions June 30, 2013
Statutory Funding Rates		
Members	7.01%	7.90%
Employers and State[1]	7.17%	8.17%
Coal Tax Contributions	N/A	2.61%
DC/ORP Contributions	N/A	0.10%
Total	14.18%	18.78%
Transfer to Education Fund	0.04%	0.04%
Net Contribution to DBRP	14.14%	18.74%
Normal Cost Rate[2]	11.80%	11.82%
Funding Rate Available for Amortization	2.34%	6.92%
Unfunded Actuarial Liability (Surplus)	$ 1,844,361,756	$ 1,762,741,802
Less: PCR-UAL	11,053,147	8,749,140
UAL Funded by DBRP	1,833,308,609	1,753,992,662
Years to Amortize[3]	Does not amortize	43.7 years

[1] Rates shown are for the fiscal year following the valuation date. The allocation of the rate between Employers and the State is described in Appendix C, item 2, of the PERS Actuarial Valuation report as of June 30, 2013.

[2] The normal cost rate is projected to be 9.93% for members eligible after July 1, 2011. It is expected that the average normal cost rate will decrease over the next generation of active plan members.

[3] On a market value basis, the unfunded actuarial liability did not amortize at June 30, 2012 and was 35.5 years at June 30, 2013.

ATTACHMENT C
CONTRIBUTIONS

Table C-2 Calculated Contribution Basis	June 30, 2012	Prior GABA Provisions June 30, 2013
Normal Cost Rate	11.80%	11.82%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	8.87%	8.33%
Total Calculated Contribution Rate	20.71%	20.19%
Less Statutory Rate	14.18%	18.78%
Shortfall (Surplus) in Statutory Rate	6.53%	1.41%

Table C-3 Calculated Contribution on Market Value (MCA 19-2-407)	June 30, 2012	Prior GABA Provisions June 30, 2013
Normal Cost Rate	11.80%	11.82%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	8.36%	7.57%
Total Calculated Contribution Rate	20.20%	19.43%
Less Statutory Rate	14.18%	18.78%
Shortfall (Surplus) in Statutory Rate	6.02%	0.65%

The following table shows the expected results for the next five valuations (assuming all assumptions are met, including 7.75% return).

Table C-4 *
Projected Calculated Contribution Rates

Valuation Year	Rate
2014	19.29%
2015	19.02%
2016	18.52%
2017	18.24%
2018	17.95%

* These projections reflect the plan and contribution changes associated with House Bill 454, disregarding any changes to GABA.

ATTACHMENT C
CONTRIBUTIONS

Under MCA 19-3-315 and MCA 19-3-316, certain temporary member and employer contributions will cease as of the next January 1, if the amortization period without regard to these contributions would not cause the amortization period to exceed 25 years. This calculation is shown below:

Table C-5
Amortization Period Without Temporary Contributions

	Prior GABA Provisions June 30, 2013
Net Contribution to DBRP	16.37%
Normal Cost Rate	11.82%
Funding Rate Available for Amortization	4.55%
Years to Amortize	Does not amortize

Since the amortization period in Table C-5 exceeds 25 years, there would be no reduction in member or employer contribution rates as of January 1, 2014, if the prior GABA provisions were used for this calculation.

ATTACHMENT D
FUTURE OUTLOOK

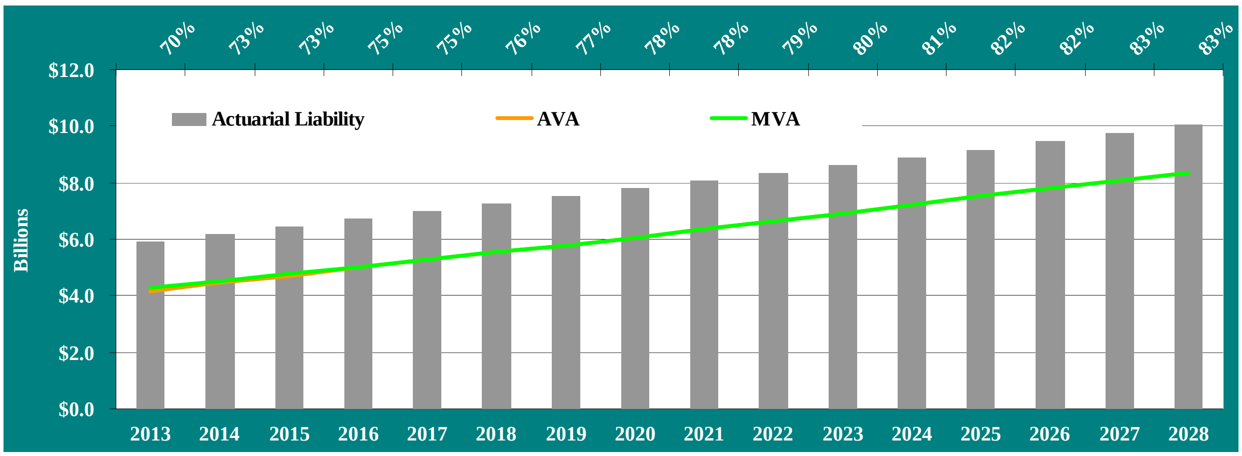
Future Outlook

<u>Baseline Projections</u>

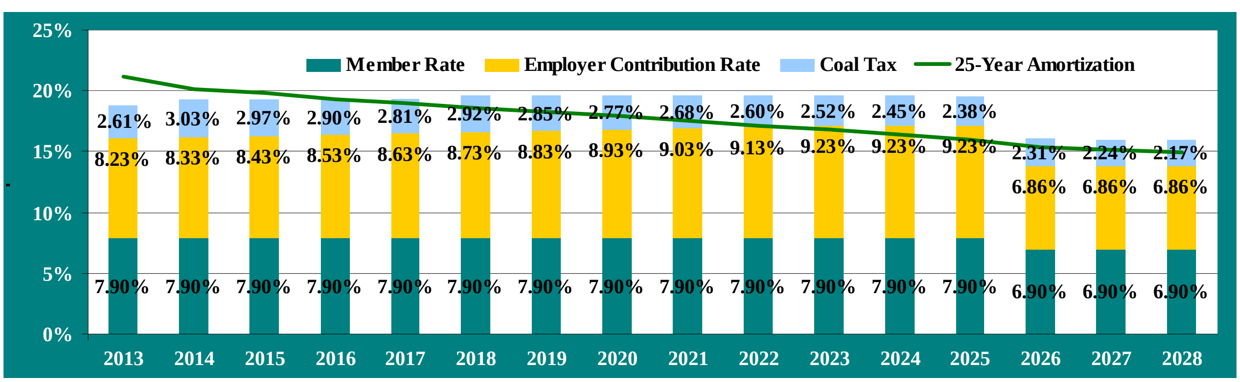
These graphs show the expected progress of the System over the next 15 years assuming the System's assets earn 7.75% on their *market value*, and that contributions continue to be made at the current statutory rates.

These projections as well as all of the projections that follow, reflect the plan and contribution changes associated with House Bill 454, disregarding any changes to GABA.

The chart below shows the funded status of the system would be expected to gradually increase over the 15-year period, eventually reaching a funded ratio of 83% by the end of the period.



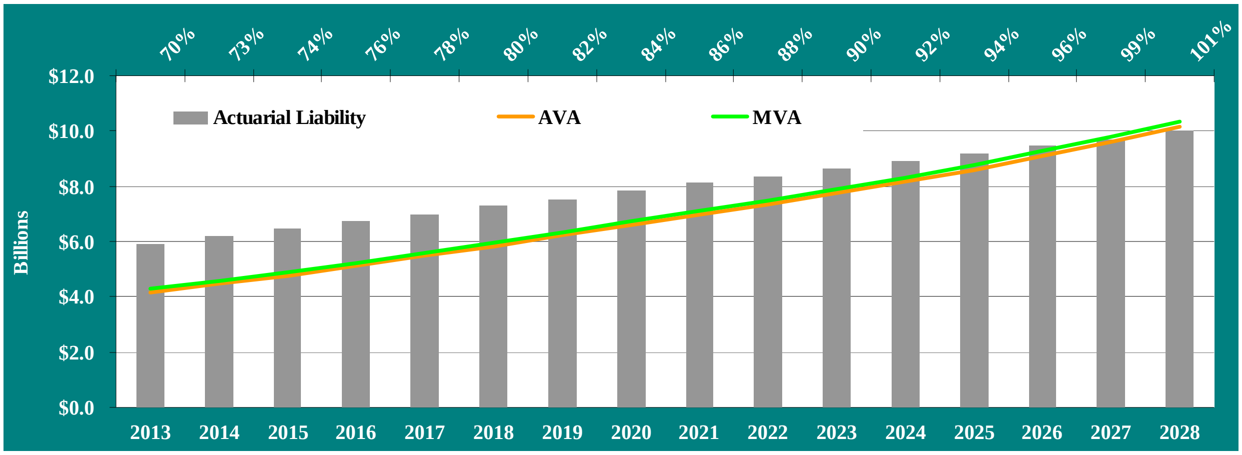
The chart below shows that the total contribution (member and State) computed based on a 25-year amortization of the unfunded actuarial liability, which is the statutory threshold for determining whether employer and employee contribution rates can be reduced. The member and state contribution rates would be expected to remain at heightened levels until 2026, after which time the temporary contributions will cease, leaving a lower contribution level for the remaining years. Coal tax contributions are projected at the levels shown using information provided by the Governor's Office of Budget and Program Planning.



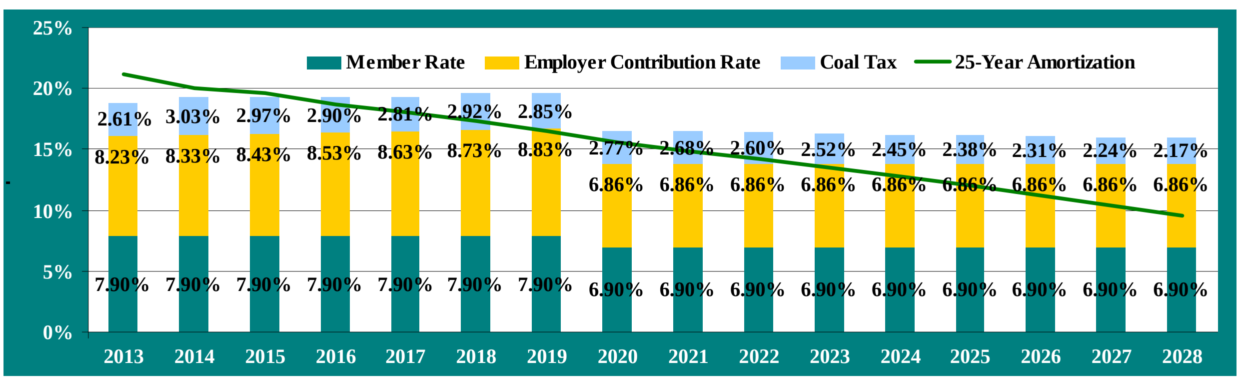
ATTACHMENT D
FUTURE OUTLOOK

Projections with Asset Returns of 9.25%

The future funding status of this System will be impacted by the investment earnings. Changes in market returns can have significant effects on the System's status. These two charts below show what the next 15 years would look like with a 9.25% annual return in each year (i.e. 1.5% greater than the assumed rate of return).



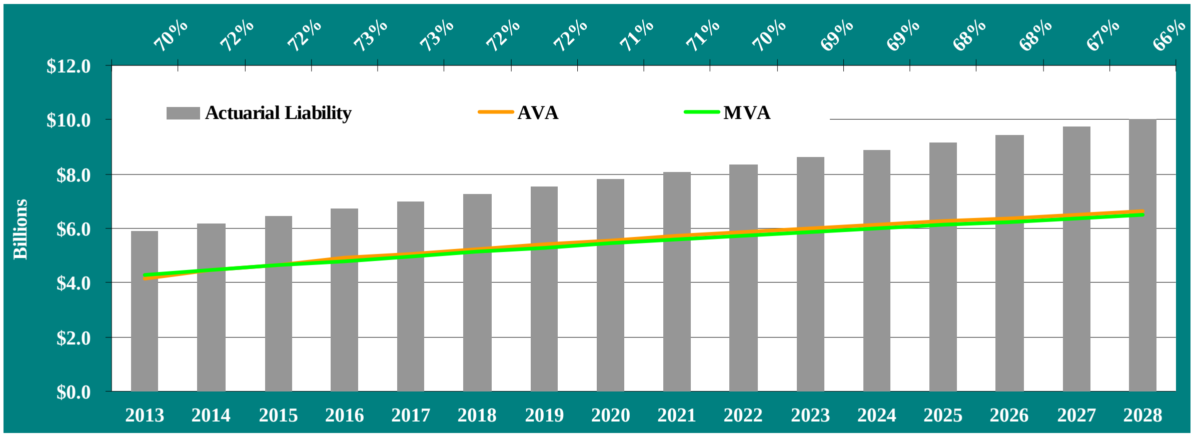
Compared to the baseline projections, the funded status improves more rapidly over the 15-year period. The 25-year amortization contribution rate decreases quicker, with the temporary contributions concluded after 2019.



ATTACHMENT D
FUTURE OUTLOOK

Projections with Asset Returns of 6.25%

To further demonstrate how fluctuations in the earnings rate can impact funding, we show the anticipated system funding projections if the invested assets earn 6.25% per year over the entire 15-year period (i.e., 1.5% less than the assumed rate of return).



Under this scenario, the funded status slightly increases as previous investment gains are realized, and then begins to decline. The 25-year amortization contribution rate initially drops and then begins to increase remaining above the statutory rate through the period. The temporary employee and employer contributions are projected to remain in effect throughout the projection period.