



Office of the State Actuary

"Securing tomorrow's pensions today."

Supplement to the 2011 OPEB Report



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Office of the State Actuary

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Introduction

Supplement to the 2011 Other Post- Employment Benefits Report

This supplement contains projections and other analysis that supplements the 2011 Other Post-Employment Benefits (OPEB) Report published by the Office of the State Actuary (OSA) in November 2011. This supplement should be used together with the OPEB report to form a complete actuarial communication. Unless we state otherwise, the analysis below is based on the same data, assumptions, and methods as disclosed in the 2011 OPEB Report.



Section One - Actuarial Exhibits

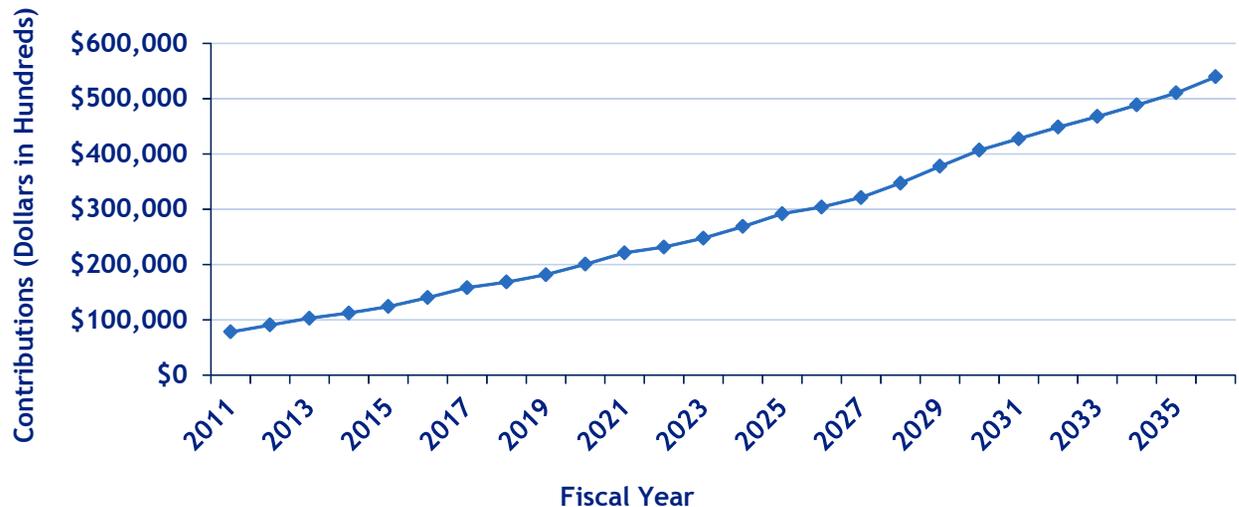
Projections

It is important to look at the projections of the contributions and the liability in order to determine if the contributions are manageable and whether the liabilities will be funded in a reasonable amount of time. Projections allow policy decision makers to determine the best funding policy for the state and their constituents while providing investors and stakeholders the knowledge of what lies ahead. Bond rating agencies will look at these projections to determine whether a well formulated plan is in place, or is necessary.

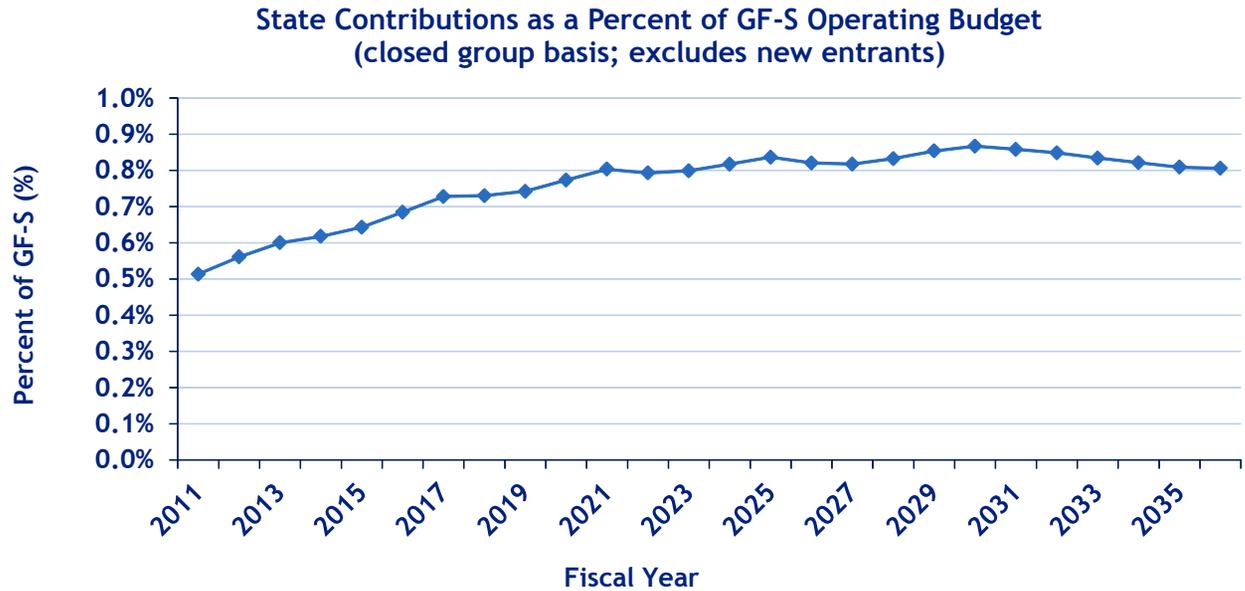
First, observe what the stream of payments will look like with a pay-as-you-go funding policy for the current participants. Twenty-five years is a good time frame for projections since it is enough time to show trends in the future. As the large number of current members and high assumed medical inflation dominate the early years, the annual contributions increase. As projected medical inflation slows down and the closed

current active population starts to dwindle, the annual payments reach a peak and decrease to zero in the long-run. The next graph shows what we expect the contributions to look like for the first twenty-five years under the current pay-as-you-go funding policy.

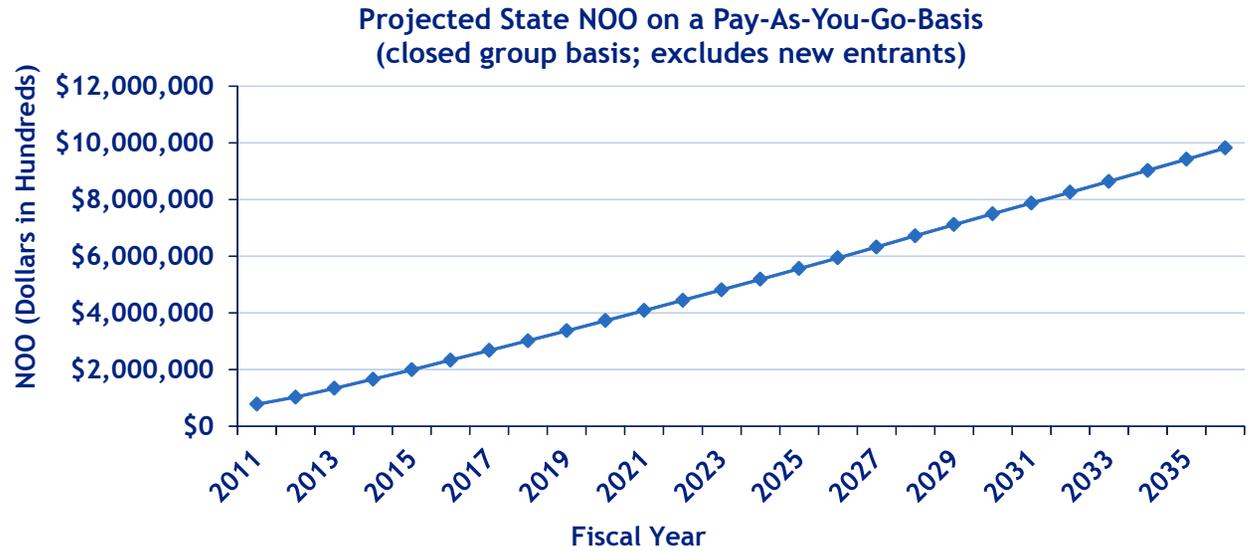
Annual State Contributions on Pay-As-You-Go Basis
(closed group basis; excludes new entrants)



While the expected stream of future contributions is informative, it is only helpful when put in perspective. A good comparison for the state's obligation is to look at the projected contributions as a percentage of the General Fund-State (GF-S) operating budget. The following graph shows the percentage of the contributions relative to the GF-S operating budget. Note that while the contributions seem to drop off in later years, it is because these are based on a closed membership group using pay-as-you-go funding. In other words, these benefits are not becoming more affordable, there are just fewer members alive to receive them since we are not considering new entrants to the plan in this projection. The following graph shows the percentage of the contributions relative to the GF-S operating budget. Note that the GF-S budget is not the sole funding source for these contributions, nor is the entire GF-S budget available to fund these contributions; this is intended to show relative magnitude. We increased the budgeted general fund expenditures for 2011 by 6.1 percent per year to estimate future general fund expenditures.



The last projection we considered was the Net OPEB Obligation (NOO) over the same time period. Remember, the NOO grows as long as contributions continue to be less than the Annual OPEB cost. The NOO is a balance sheet item that shows the cumulative difference between the annual OPEB cost and actual contributions made. The graph to the right shows the NOO; the annual OPEB cost is larger than the contributions in the years that the NOO increases, while the annual OPEB cost is smaller than the contributions in the years that the NOO decreases. In this graph we see that the NOO increases in each year, meaning that projected contributions are less than the annual OPEB cost every year.



Section Two - Sensitivity Analysis

In this section we looked at projections of differing medical inflation, another funding policy, and open-group valuations (which reflect assumed new entrants) to determine how estimated contributions could look in the future.

Stochastic Modeling of Medical Inflation

Medical inflation is the main driver of future pay-as-you-go costs. In the 2011 OPEB Report, we have only looked at the best-estimate for future contributions and the accounting results if medical inflation is plus or minus 1 percent in the future. But, how likely are those scenarios to happen?

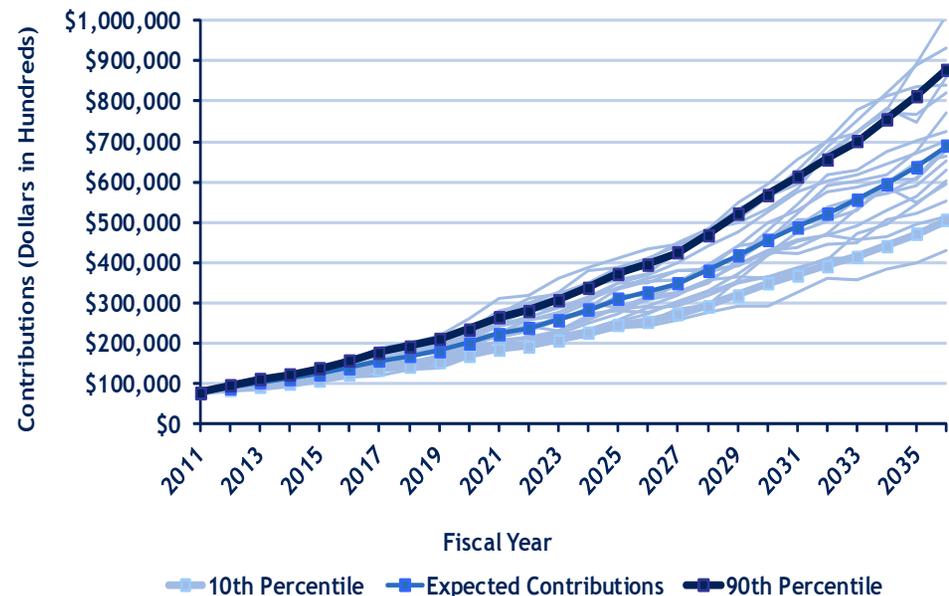
In order to determine the likelihood of future events, we ran a stochastic simulation. Essentially, we determined the variability of medical inflation in the future, using a standard deviation of 4.5 percent. We then simulated 2,000 random streams of contributions for the state based on varying medical inflation. The light blue lines in the

next graph show a sample of these 2,000 simulations. We then rank the simulations in order to determine how many will be above or below a given dollar amount for each future year.

Finally, we can estimate the distribution of the pay-as-you-go costs. For example, the upper blue line is the 90th percentile, which means that 90 percent of the cost

simulations fell below that amount in a given year. Similarly, the bottom blue line is the 10th percentile, which means that 90 percent of the cost simulations were above that amount in a given year. There is an 80 percent chance that the costs will be between the two blue lines in a given year.

Variability of Annual State Contributions on Pay-As-You-Go Basis Based on Variable Rates of Medical Inflation (open group basis; includes new entrants)



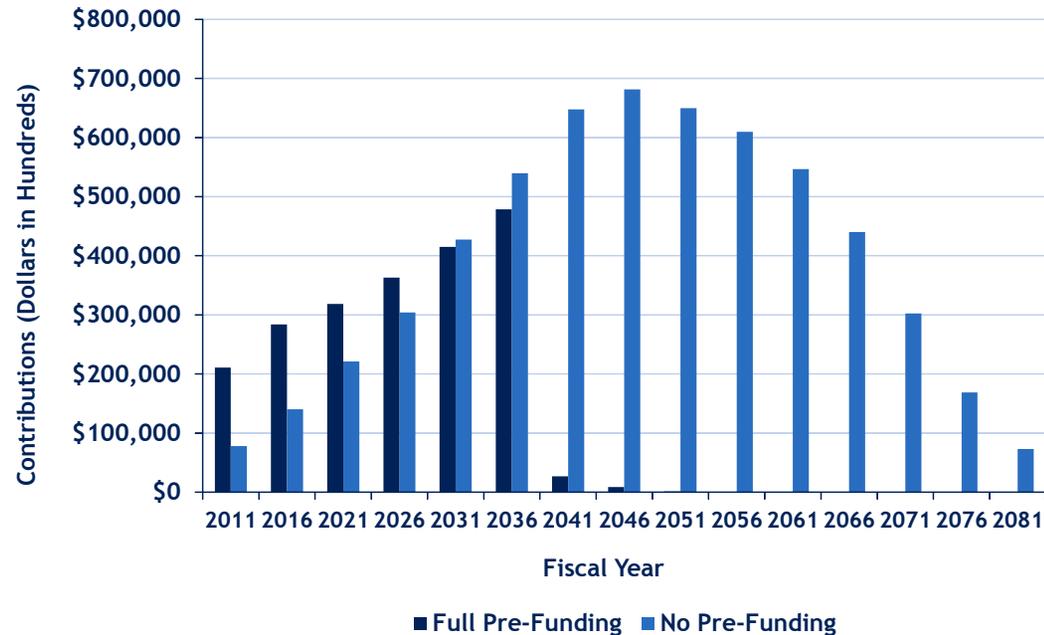
Funding Policy

The funding policy has a large impact on the results. Funding policy can range from no pre-funding (pay-as-you-go) to full pre-funding, or anything in-between. The effect on the actuarial valuation of changing funding policy is to change the assumed interest discount rate based on the level of pre-funding. The amount of the interest discount rate depends on the expected long-term yield on assets used to fund the payment of benefits.

Funding policy involves a balancing act that requires sufficient pre-funding so that the liability is lowered while understanding and committing to contributions that can be realistically made. Please refer to the funding policy subsection in Section 1 of the *2011 OPEB Report* for additional information.

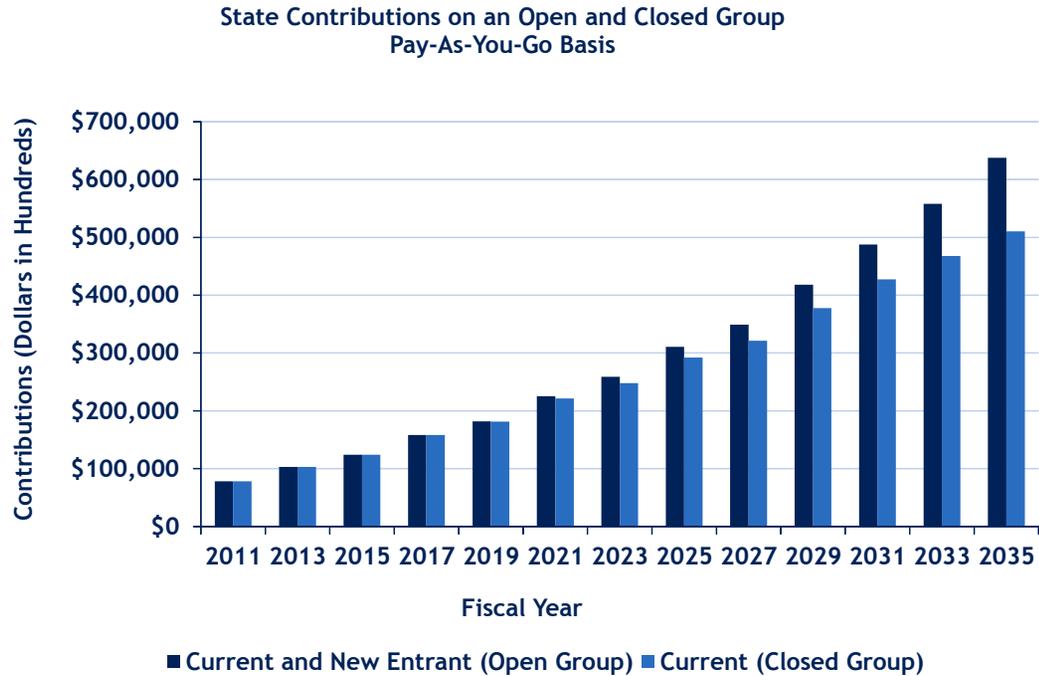
In order to demonstrate this balancing act we show long-term contribution graphs with two bars per year: no pre-funding and full pre-funding. (Note: Projections based on a closed-group basis; no new entrants assumed.)

State Contributions Under Different Funding Policies



Open Group Forecast

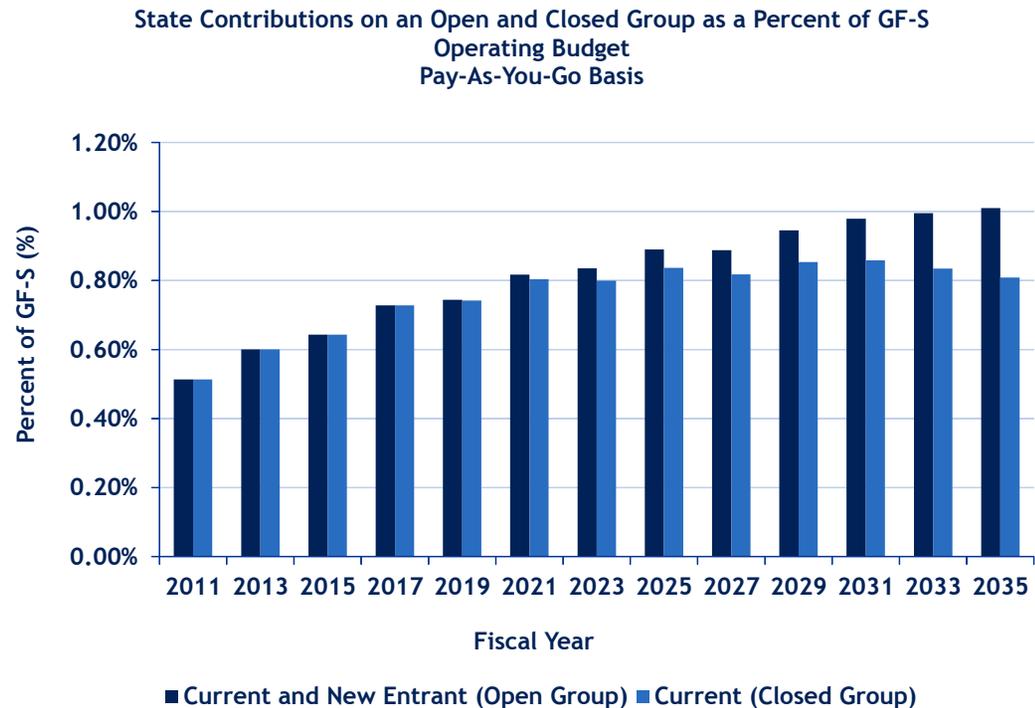
Thus far, we have only looked at contributions for a closed group. In other words, we have only looked at the contributions that would pay the benefits of the current population of active and inactive members. Our earlier graphs in this report show that contributions approach zero as time continues. However, new entrants will likely enter the plan, which would result in steady contribution increases into the future. These contributions are also considered when choosing how to fund the current liabilities since they represent real cash flows in the future. The following graph shows expected state contributions on both an open and closed-group basis.



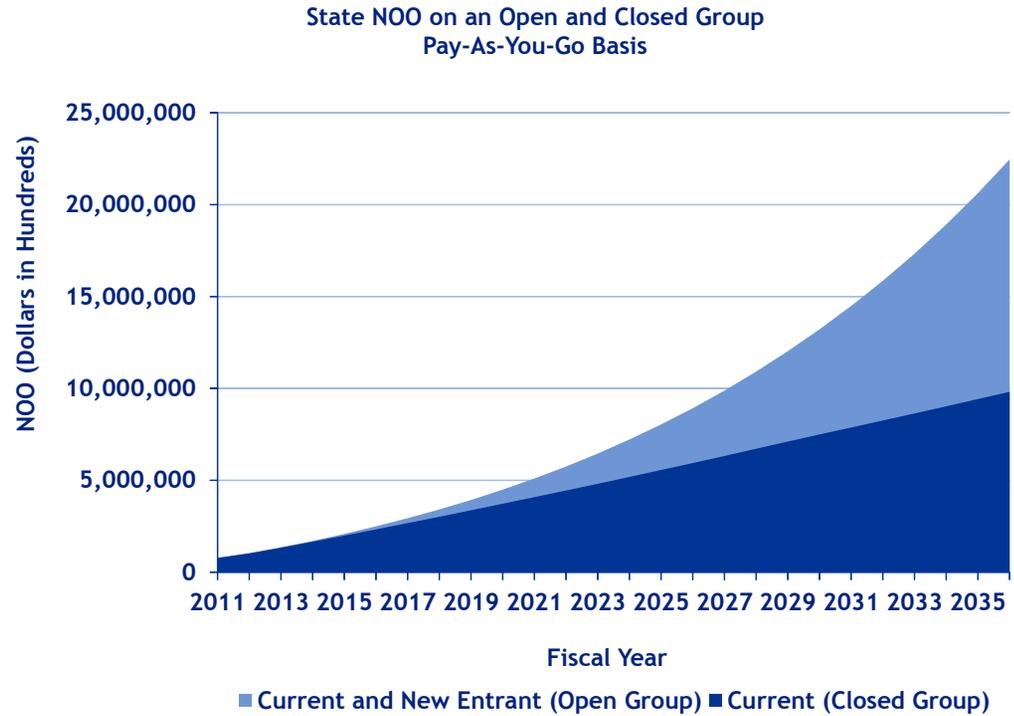
Note that the contributions in this graph are higher than those in the Projections section because they include contributions for new entrants. We assumed that 20 percent of the new entrants are age 24; 20 percent are age 30; 20 percent are age 37; 10 percent are age 42; 10 percent are age 43; 10 percent are age 52; and 10 percent are age 53. Further, we assumed that the total active population will grow by 1.25 percent per year.

The magnitude of the contributions for both the closed and open groups will increase significantly due to assumed inflation (especially beyond 25 years); however, when measured against something else, its relative size can be taken into perspective. We will again turn to the percentage of GF-S operating budget to look at the relative size of contributions to help policy makers determine if they are manageable. The estimated contributions as a percent of GF-S operating budget remain relatively stable over time, even if the nominal amount of contributions increases significantly. Again, note that the GF-S budget is not the sole funding source for these contributions, nor

is the entire GF-S budget available to fund these contributions; this is intended to show relative magnitude.



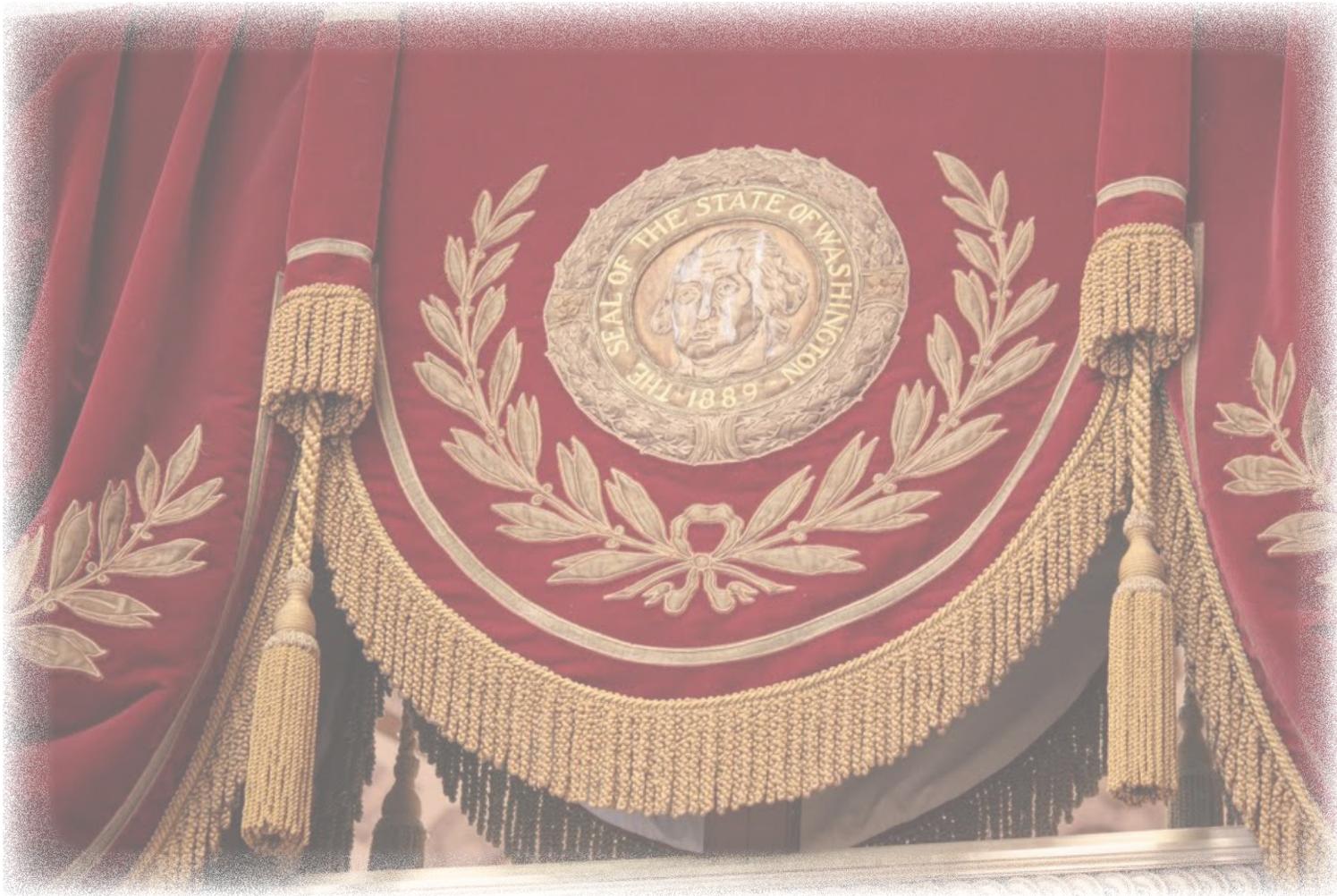
A twenty-five-year look at pay-as-you-go contributions for new entrants is only so helpful since the new entrants typically take many years to get to retirement and start collecting subsidies. Instead, a look at the twenty-five-year NOO shows how the state's balance sheet liability will grow if pay-as-you-go funding continues. Before, under a closed group, the NOO increased to a point and then decreased back to zero in the long run since all of the active members retire and eventually stop receiving subsidies after their death. However, under an open group projection, the NOO continues to grow as new members enter the system. The following graph shows the NOO for both the open and closed groups.





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