Executive Summary

To: Climate Enterprises
From: Austin Hunt, Natalie Joseph, Jianzhen Wang, Jiahui Zhou
Subject: Climate Enterprises Funding Target

INTRODUCTION

The purpose of the experience study is to review the current assumptions in place for the CliEnt pension plan, evaluate the effectiveness of these assumptions with respect to the unexpected movement in demographics observed, and justify the use of new assumptions if necessary. Valuation data observed internally from CliEnt from 2012 to 2017 on years of employment, age of retirement, and age of termination leads us to believe that the current assumptions are outdated and may no longer be applicable to the liability of the pension plan on the grounds that the currently assumed retirement rates and termination rates are divergent from the actual rates. Subsequently, these observations are coupled with external observations of the Social Security Administration and the Center for Disease Control regarding mortality, early retirement penalties on benefits, and investment return rate, to compute the liability of CliEnt with regards to the pension benefit amounts owed to current participants of the plan.

Therefore, the consulting team will analyze the data available from the participants of the pension plan and update the data relative to external observations in mortality and retirement age. The data will also be used to ascertain the liability associated with the current assumptions in place, as well as the liability under the new assumptions. With this information, the consulting team will provide new assumptions for CliEnt that will ensure the liabilities for all employees that are participating within the pension plan are provided for when they retire and draw on their benefits.

METHODOLOGY

The revision of the assumptions involves the predicted rate of retirement for active participants of the pension plan, the rate of retirement for members who have terminated from the pension plan, but are still owed a benefit, as well as the rate at which members terminate from the pension plan with no owed benefit. Utilizing the data from 2012 to 2017 we discover that the actual retirement rates for active members are consistently higher than the assumptions made and that members of the pension plan often age older than 65 before deciding to draw on their benefits from the plan. The data also reveals the rate of termination from active employees is consistently lower in employees aged 30 or younger. Comparing this data with the current assumptions in place that model the expected rates at which members of the plan retire, terminate with an owed benefits, and terminate without an owed benefits, we deduce that there are consistent actuarial losses as the actual rates are consistently inconsistent with the current assumptions in place. These constant inconsistencies have led us to project new assumptions based on the data observed.

When updating our new assumptions, we consider several factors including the age at which participants in the pension plan shift from actively working to retirement, as well as their years of service. We must also consider this for participants in the plan who have terminated from the plan and have either contributed a minimum of 5 years of service or less than 5 years of service. These considerations are used in calculating the liabilities which comprise of the normal retirement benefit of $800 per year with each year of service as well as the early retirement benefit, which contains a 6.67% penalty for each year retired early, received by both active members that retire and members that terminate from the plan but have still put in a minimum of 5 years of service. Our new assumptions involve a strong reliance on the comparison of the actual plan experience with the expected current assumptions under a 95% confidence interval around the current assumptions. After comparing the actual data with the plan experience we note the significance of the data points outside the confidence interval and adjust our assumptions accordingly. This process is repeated for active retirement rates, the terminated vested rates retirement rates, and the active termination rates. Subsequently, these factors are used in conjunction with economic factors and health factors including inflation rates, interest rates, complacency in the labor market, cost of living, and mortality rates.

OUTCOMES

The results of the analysis and comparison of the valuation data with the expected current assumptions have justified the need to review and adjust the assumptions. The comparison exposed an inaccurate portrayal of actual trends when utilizing the assumed rates of retirement and termination. Therefore, the liability assumed for the commencement of pension benefits was also inaccurate. This inaccurate portrayal is the primary explanation for the $7 million difference in liability assumptions between the old and new rates. This increase in liability corresponds with the increased rate of retirement and the decreased in rate of termination. The reason for the incorrect assumptions can be attributed to rising costs of living, increased mortality rate, current interest rates, and complacency in the current labor market. The consulting team will continue to take into consideration the external factors above when reviewing the rates of retirement and termination as well as the future liabilities that face CliEnt. It is the goal of AOFF Consulting to provide accurate assumptions with respect to the pension plan so that their employees can expect a reliable transition into retirement and so that CliEnt can have an accurate portrayal of the liabilities that face them in the future.

Active Retirement Rates		
Age	Current	New
55	5%	5%
56	5%	5%
57	5%	5%
58	5%	5%
59	5%	10%
60	10%	20%
61	10%	25%
62	20%	30%
63	30%	30%
64	40%	30%
65	100%	30%
66	100%	30%
67	100%	30%
68	100%	30%
69	100%	30%
70	100%	65%
71	100%	100%