

**AEP Investment Trusts**  
**Actuarial Assumptions**  
**Description of Methodology**  
**Year End 2013**

**Pension Investment Rate of Return Estimate**

The estimate of future investment rates of return used for financial reporting purposes is constructed based on historical data, actual investment results and industry practices. The rate of return assumption is supported by the asset allocation targets and investment portfolio guidelines specified in the Investment Policy for the pension plan. The rate is established with advice and input from the plan's actuaries and investment consultants, and gives consideration to the prevailing range of asset class return estimates made by investment experts and long-term historical trends for investment returns. It is reviewed each year and is revised if the long-term outlook for investment returns changes materially.

Long-term investment returns tend to centralize to a mean, even though shorter-term returns are more volatile. To project future returns, it is common practice to use average rates taken from an appropriately long time period. To project a portfolio return, the returns for different asset classes are used, with each projected rate weighted by the percentage of the asset class in the targeted investment policy.

The investment policy for the pension fund allocates assets based on the funded status of the pension plan. The objective of the asset allocation policy is to reduce the investment volatility of the fund over time. Generally, more of the investment mix will be allocated to fixed income investments as the plan becomes better funded. Assets will be transferred away from equity investments into fixed income investments according to a schedule based on the market value of assets compared to the most recent estimate of the plan's Projected Benefit Obligation (PBO). Alternative asset classes, such as private equity and real estate investments, are not affected by the investment movements, reflecting their illiquidity and the long-term nature of their investment return horizon. The general equity allocation includes domestic, international and global equities. Also, 1% of the fixed income allocation is assumed to be held in cash for benefit payments, plan expenses and investment transactions. The asset allocation targets stated in the investment policy are given as ranges, allowing for slight deviations from the targets due to fluctuations in the investment markets. Also, consideration is given to the cost of rebalancing the investment portfolio back to the target and shifts in asset allocation are made when the allocations exceed the acceptable range. The calculated rate of return on assets is rounded off to the nearest ¼% to get the final rate.

Historical returns may be viewed two different ways. First, the nominal returns may be analyzed. This is the simpler and more familiar method. Nominal returns are the historical rate of return for an asset class averaged over a length of time. The simple averages are then multiplied by the asset allocation weightings, and the results are summed to determine the expected total investment return.

The other method of analyzing historical return data is based on real rates of return. The premise of the real rate of return method is that each investment has two components of return: the escalation of price due to inflation and a component that represents the growth of the investment in excess of inflation. The real rate of return is the nominal return less the rate of inflation for the return period. This method compensates for the portion of growth due to inflation in the economy.

The real rate of return is calculated by geometrically subtracting the measure of inflation (generally the Consumer Price Index) from the nominal rate of return for each measurement period, then averaging the results over an appropriately long time period. The geometric subtraction calculation corrects for the compounding effect of the two components of return. The projected rate of inflation is then geometrically added to the result to find the projected return for each asset class.

To verify the reasonableness of the pension return assumption, both the nominal returns and the real returns over a variety of historical time periods were projected with the pension fund's target asset allocation. The returns were examined over the last 50 years (1964-2013); the last 40 years (1974-2013) and the last 30 years (1984-2013). Both methods produced results consistent with a 6.00% rate of return assumption.

The nominal returns for each long-term period examined were at or above the 6.0% projected return. Using the real returns method and assuming a modest 2.50% long term rate of inflation also produced results that were in line with the 6.00% projected return.

The base assumptions for the investment rate of return used in the pension projections are that inflation will average approximately 2.50% per year, equities will return 8.0% (5.50% real rate of return), long duration fixed income will average 5.00% (2.50% real rate), intermediate fixed income will average 4.25% (1.75% real rate) and cash will average 3.00% (0.50% real rate of return). At the target asset allocation percentages, the result is an expected total return of 6.00%.

To further validate the investment return assumptions, several measures of relevant market data were compared to historical positions. Currently, the Price-Earnings (P/E) ratio of the S&P 500 is approximately 16.7. This is lower than the 15 year historical average P/E of 19.1, which is an indication that stocks could possibly be undervalued.

The current P/E ratio of the MSCI ACWI Index is also below the 15 year average (14.9 compared to 19.8).

The yield from dividends for the S&P 500 equity index is currently 1.98%. The current S&P 500 index yield is lower than the 10 year US Treasury bond yield of 2.85%.

A similar evaluation was made on the current yield for fixed income and for 90 day treasury bills. The current yield on the Barclay's Long Government Credit index is 5.00%, which is in line with the 5.00% expected return assumed for long duration fixed income securities.

However, it is AEP's view that interest rates are being held at low levels by the Federal Reserve as a short term stimulative measure, and thus current rates are not considered representative of our long-term view of interest rates, which is higher than current levels. The pension portfolio is invested in both corporate securities and government securities which typically have a lower yield than corporate securities. The pension portfolio has also added an intermediate-term fixed income portfolio. Accordingly, the expected return for fixed income securities for 2014 will be 4.60%.

Finally, the current 90 day Treasury bill rate was compared to the assumed rate for cash returns. It is the view of AEP that current rates for 90 day Treasury bills, a proxy for invested cash, are abnormally low due to governmental efforts to stimulate the economy through artificially low interest rates that are lower than the prevailing rate of inflation. The current yield on 90 day T-bills is 0.07%. AEP's assumed rate for cash investment return is 3.00 %, which is more in line with long-term average inflation rate levels. AEP's inflation assumption for 2014 is 2.50%.

AEP used an expected return assumption for the pension fund of 9.0% from 1996 to 2003, 8.75% was used in 2004 and 2005, 8.5% was used in 2006 and 2007, 8.0% was used in 2008, 2009 and 2010, 7.75% in 2011, 7.25% in 2012, and the rate for 2013 was 6.50%. The actual average rate of return for the pension fund over the last 15 years through year-end 2012 was 6.50%, which is in line with the 2013 assumed rate of 6.50%. Based on the current asset allocation, AEP's expected return assumption for the pension fund for 2014 has been lowered to 6.00%.

**Post-Retirement Welfare Trusts Return on Assets Assumption**

The Return on Assets assumption for the OPEB trusts is determined separately from the return assumption for the pension trust for two reasons: The OPEB trusts have differing asset allocations from the pension and the largest of the OPEB trusts is subject to taxes. The net impact of these two differences has resulted in an OPEB investment rate of return assumption for 2014 of 6.75%, which is higher than the pension assumption for 2014. The determination of this assumption is attributable to the impact of an allocation to equities in the OPEB plans which is currently higher than the pension, offset by the tax effect impacting OPEB returns.

The OPEB assets are comprised of five trust funds: the Retiree Life Insurance VEBA, the Union Retiree Medical VEBA, the Non-Union Retiree Medical VEBA, the Pension 401(h) account and the UMWA Retiree Medical VEBA. Although they collectively offset the FAS 106 accounting liability, each trust offsets a designated portion of the liability for the purpose of benefit payments. The Retiree Life Insurance Benefit VEBA Trust covers the life insurance benefits for retired employees, the UMWA Retiree Medical VEBA and the Retiree Medical VEBA Trust for Certain Union Employees covers the medical and dental benefits for retired collectively-bargained employees, and the Pension 401(h) account and the Retiree Medical VEBA Trust pay any medical and dental benefits for retirees who were not covered by a collective bargaining agreement at the time of their retirement.

In 2013, the asset allocations of each of the trusts were evaluated and compared to the portion of the liability that the trust was intended to fund. Individual OPEB trusts were rebalanced in 2013, but the overall asset allocation target of the trusts were maintained and remain in effect for 2014.

Like the pension fund, the Retiree Life Insurance Benefit VEBA Trust, the Retiree Medical VEBA Trust for Certain Union Employees, the UMWA Retiree Medical VEBA Trust and the Pension 401(h) are generally not subject to taxes. However, the Retiree Medical VEBA Trust, which is the largest in assets of the group, is subject to taxes on both income and capital gains. The fund pays taxes at a rate of 39.6% for short-term gains and 20% on dividends and long-term gains. The fund's investments are managed in such a way as to minimize the payment of taxes. Any change in tax rates would have an impact on future returns and also affect AEP's return projections.