



DOLLARS AND SENSE

Weighing the Cost of Switching From Defined Benefit to Defined Contribution

Recent stock market declines and rising unfunded liabilities have prompted a discussion to eliminate the Defined Benefit Plan (DB) and implement a Defined Contribution (DC) only retirement plan for new employees. Government leaders need to carefully weigh the impact such a decision would have not only on the current DB plan and Montana workforce needs, but also on Montana's overall economy.

Does closing the Defined Benefit Plan solve the pension's current funding situation?

No. According to a recent study conducted by the Public Employees' Retirement Board's actuary, Cheiron, closing the PERS Defined Benefit plan will immediately increase the contributions required to cover future benefit payments. The study shows employer contributions needed to cover the unfunded actuarial liability would more than double from approximately \$82 million per year to over \$216 million per year beginning the first year of the transition.

How does a Defined Benefit Plan work?

In the Montana defined benefit plans, employers and employees make contributions into a pension trust fund. As long-term employees retire and begin to draw benefits, they are replaced with new employees who pay into the system. Employers consistently pay contributions on a percent of their total payroll. The trust fund earns investment income on the contributions that help to fund the system. Investment gains and losses are managed over the long term and do not affect the individual's retirement benefit. Benefits are then paid largely from the investment earnings.

What are the advantages of the Defined Benefit Plan?

Defined Benefit (DB) plans:

- Provide secure modest lifetime retirement income for members and their spouses.
- Are funded by participant and employer contributions and investment earnings.
- Are long-term, professionally managed, investment vehicles designed to accumulate funds over the decades of a participant's career in order to deliver a steady stream of benefits at retirement.
- Provide a modest stable retirement income to retirees and play an important role in stimulating Montana's economy.
- Have return on investments that consistently exceed those obtained by individuals in Defined Contribution plans because of pooling, lower fees, and professional management.
- Are more cost effective at providing a benefit that the participant won't outlive.
- Have funds that are professionally managed at a low cost.

What happens when retirees run out of money?

National studies and Montana DC experience show that the majority of employees investing in defined contribution plans tend to remain invested in the plans' default investment option, failing to properly diversify their investments. This lack of interest in retirement planning as well as a lack of investment knowledge threatens an employee's retirement security. Cheiron's report states that retirees in defined contribution plans have a 50% chance of outliving their retirement account balance. Inadequate retirement security will impact Montana in several ways:

- Employees will remain in jobs longer as they recognize they cannot afford to retire.
- Lower retirement savings means defined contribution plan retirees draw smaller amounts than their defined benefit counterparts. Less money will circulate in Montana communities.
- As retirees run out of money, Montana will see an increase in the dependence on public assistance.

What is the answer to the pension problem?

- Work toward a long-term goal of plan sustainability.
- Develop a plan to fund the Annual Required Contribution (ARC) using both employee and employer contributions.
- Consider other revenue streams, with built in sunsets/triggers.
- Build a reserve when returns are good to help when returns are less than the assumed rate of return.
- Ensure all benefit enhancements have a funding mechanism.
- Consider the impact of decisions on the workforce.

April 30, 2012

VIA ELECTRONIC MAIL

Ms. Roxanne Minnehan, Executive Director
Public Employee Retirement Administration
100 North Park, Suite 200
Helena, Montana 59620

Re: PERS Defined Contribution Plan Study

Dear Roxanne:

At the request of the Board, we performed an analysis to determine the financial effects upon the Public Employees' Retirement System (PERS) if it were closed to new members as of July 1, 2012 and all future eligible employees would be placed in a defined contribution plan.

It should be recognized that at the last valuation date of June 30, 2011, PERS had an unfunded actuarial liability (UAL) of \$1.6 billion, which was 150% of current covered payroll. Paying off the UAL depends upon contributions from future payrolls. These payrolls are assumed to increase at the rate of 4% per year. If the Plan is closed to new members, the covered payroll of the defined benefit plan will be expected decrease each year in the future. From an actuarial funding perspective, this would cause two changes in our methodology:

- Since the payroll would no longer be increasing, we would need to change the amortization of the UAL from level percentage of future pay to level dollar. Since level dollar amortization would initially exceed level percent of pay amortization, this would cause an immediate increase in the amortization amount and thus an immediate increase in the annual required contribution (ARC).
- The UAL amortization for the ARC is currently based upon a rolling 30-year period, meaning that we restart the 30 years at each valuation date. With a closed membership, we would move to a closed amortization period of 30 years from the date that the system is closed to new members.

We have attached two tables of projections which show what would likely occur with a closed membership. The projections in these tables assume that plan assets will earn the assumed rate of 7.75% for each year into the future.

The first table assumes that the current employer contribution rate of 7.13% (excluding the educational fund payment) will continue for all future years. The dollar amounts of these contributions will steadily decrease as the covered payroll decreases. In the year beginning July 1, 2012, we would expect contributions of about \$85 million, but these would drop below \$15 million by 2036. As a result of the decreasing contributions, the funded ratio would drop to 2% in 2036 and the System would run out of money before the next year.



The second table assumes that contributions equal to the ARC were made for each year beginning July 1, 2012. The contributions would need to be increased to \$216 million in 2012 and then would slowly decrease, but will be almost \$140 million by 2036. As a percentage of pay the employer contributions would increase from about 18% in 2012 to almost 67% of pay in 2036. Note that the ARC increases by 4.57% of pay from 2011 to 2012 as the change is made from level percent of pay amortization to level dollar amortization. It should be realized that these projections assume continuation of the valuation interest rate of 7.75%. However, as the composition of the membership moves to a much higher percentage of retirees and cash flow requirements increase, the System may need to be more conservatively invested, requiring a reduction in the assumed rate of return and a corresponding increase in contribution requirements.

Many plan sponsors see advantages to defined contribution plans. Among these advantages are the following:

- The main advantage to employers is that the contribution becomes fixed and predictable. There are no unfunded liabilities for the group of employees in the defined contribution plan.
- For younger and possibly more mobile plan participants, the defined contribution plan provides a portable benefit if they move to another employer.
- Plan administration costs are typically lower in defined contribution plans compared to defined benefit plans.

While these advantages are sometimes compelling, many plan sponsors have found that defined benefit plans remain the best way to provide retirement income for employees for a number of reasons.

- Studies have shown that rates of return in defined benefit plans consistently exceed those obtained in individual defined contribution plan accounts. There are a number of reasons for this.
 - Since individual members in defined contribution plans cannot pool their experience with all other members, they tend to be more conservative in their investments. As DC participants age after retirement, they almost have to become more conservative as their accounts are being distributed to them.
 - Most individuals do not have the expertise in selecting investments compared to large funds that can rely upon experienced consultants and money managers.
 - There are certain types of investments (such as private equity) that can be used by large funds and which are not usually available for individuals in defined contribution plans.
 - Investment fees and expenses are generally lower in defined benefit plans than in defined contribution plans.
- One of the greatest advantages of defined benefit plans is the pooling of longevity experience. Since some pensioners receive payments for only a short period before dying, these early deaths offset the cost of providing payments to pensioners whose

lifetimes far exceed average life expectancy. If an individual plans to withdraw his DC account balance over an average life expectancy, this means that he will have a 50% chance of outliving his assets. To assure lifetime income, he will either need to draw smaller amounts (thus living on less income) or need to accumulate a larger fund, which means higher contributions while working compared to a defined benefit plan.

- Defined contribution plans generally cannot provide an adequate level of disability and survivor benefits as a defined benefit plan, so these benefits must be provided by other means.
- The allocation of dollars in a defined contribution plan is more heavily front loaded in a person's career compared to a defined benefit plan. This means that the plan allocates more dollars to persons leaving employment prior to retirement.
- Many defined contribution plans provide for loans and hardship distributions, meaning that there can be significant "leakage" in a participant's account before retirement.
- Defined benefit plans can be designed such that persons can retire at a time which is consistent with the employer's workforce management goals.
- Defined benefit plans can more easily adjust benefits for inflation, both during a person's working career and after retirement.
- Since large defined benefit plans are ongoing, investment losses can be absorbed and recovered by future investment gains over long periods of time. For an individual whose account has a large investment loss just prior to retirement, there is little opportunity to make this up.

All of the issues listed above result in defined benefit plans being much more efficient than defined contribution plans in providing benefits to future retirees. If the goal is to obtain a predetermined level of retirement income at retirement, contributions will be lower to a defined benefit plan than to a defined contribution plan. A corollary to this statement is that for a given level of contributions, retirees will receive more income from a defined benefit plan than from a defined contribution plan. Even after considering these inherent disadvantages of defined contribution plans, if the State still wanted to move all new employees to a defined contribution plan, the State would need a plan to finance the unfunded actuarial liability as shown in the enclosed projections.

The calculations in this letter are based upon the data, actuarial methods and assumptions as were used in the actuarial valuation of the System as of June 30, 2011. In preparing our letter, we relied without audit on information (some oral and some written) supplied by the staff of the System. This information includes, but is not limited to, plan provisions, membership data, and financial information.

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 costs could vary from our results.

Ms. Roxanne Minnehan

April 30, 2012

Page 4

I hereby certify that, to the best of my knowledge, this letter and its contents, which are work products of Cheiron, Inc., are complete and 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 a credentialed actuary, I meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this letter. This letter does not address any contractual or legal issues. We are not attorneys and our letter does not provide any legal services or advice.

Cheiron's letter was prepared exclusively for the Public Employees' Retirement System for a specific and limited purpose. This letter is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

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

Sincerely,
Cheiron



Stephen T. McElhaney, FCA, FSA
Principal Consulting Actuary

Attachment

cc: Margaret Tempkin, FSA

Year	Employer Contributions Equal to Current Statutory Rate		Annual Required Contribution		Funded Ratio
	Pct of Pay	Dollars*	Pct of Pay	Dollars*	
2011	7.13%	82.1	13.49%	200.6	70%
2012	7.13%	85.4	18.06%	216.3	68%
2013	7.13%	75.8	19.40%	206.2	70%
2014	7.13%	72.2	20.21%	204.6	72%
2015	7.13%	68.8	22.17%	213.9	71%
2016	7.13%	65.5	24.45%	224.6	71%
2017	7.13%	62.2	27.13%	236.8	70%
2018	7.13%	58.8	30.36%	250.5	69%
2019	7.13%	55.4	34.23%	266.1	68%
2020	7.13%	52.1	38.86%	283.9	66%
2021	7.13%	48.8	44.44%	304.1	65%
2022	7.13%	45.6	51.21%	327.3	63%
2023	7.13%	42.5	59.39%	353.8	61%
2024	7.13%	39.6	69.24%	384.3	59%
2025	7.13%	36.8	81.23%	419.4	57%
2026	7.13%	34.2	95.86%	460.0	54%
2027	7.13%	31.8	113.84%	507.2	51%
2028	7.13%	29.5	135.96%	562.3	48%
2029	7.13%	27.3	163.57%	627.2	44%
2030	7.13%	25.3	198.53%	704.3	39%
2031	7.13%	23.3	243.45%	796.8	35%
2032	7.13%	21.5	301.57%	909.4	30%
2033	7.13%	19.7	378.74%	1,048.8	24%
2034	7.13%	18.1	483.25%	1,224.9	17%
2035	7.13%	16.4	630.43%	1,453.5	10%
2036	7.13%	14.9	845.28%	1,760.9	2%

*Dollar amounts in millions

Year	Employer Contributions Equal to Annual Required Contribution		Employer Contributions Equal to Annual Required Contribution		Funded Ratio
	Pct of Pay	Dollars*	Pct of Pay	Dollars*	
2011	7.13%	82.1	13.49%	200.6	70%
2012	18.06%	216.3	18.06%	216.3	68%
2013	18.33%	194.7	18.33%	194.7	73%
2014	17.94%	181.6	17.94%	181.6	76%
2015	18.56%	179.1	18.56%	179.1	78%
2016	19.23%	176.6	19.23%	176.6	79%
2017	19.96%	174.2	19.96%	174.2	80%
2018	20.81%	171.7	20.81%	171.7	81%
2019	21.77%	169.2	21.77%	169.2	82%
2020	22.83%	166.7	22.83%	166.7	82%
2021	24.01%	164.3	24.01%	164.3	83%
2022	25.33%	161.9	25.33%	161.9	84%
2023	26.79%	159.6	26.79%	159.6	85%
2024	28.37%	157.5	28.37%	157.5	85%
2025	30.10%	155.4	30.10%	155.4	86%
2026	31.99%	153.5	31.99%	153.5	86%
2027	34.05%	151.7	34.05%	151.7	87%
2028	36.27%	150.0	36.27%	150.0	88%
2029	38.71%	148.4	38.71%	148.4	88%
2030	41.41%	146.9	41.41%	146.9	89%
2031	44.44%	145.5	44.44%	145.5	89%
2032	47.79%	144.1	47.79%	144.1	90%
2033	51.57%	142.8	51.57%	142.8	91%
2034	55.85%	141.6	55.85%	141.6	91%
2035	60.88%	140.4	60.88%	140.4	92%
2036	66.81%	139.2	66.81%	139.2	93%

*Dollar amounts in millions