

Stabilizing Public Sector Pensions: The Contribution Rate Cap

DISCUSSION PAPER

April 24, 2014

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Executive Summary

Bill 9, the *Public Sector Pension Plans Amendment Act, 2014*, requires the funding of benefits under the Local Authorities Pension Plan, the Public Service Pension Plan and the Special Forces Pension Plan subject to a cap on overall contribution rates paid by employers and employees. Through this paper, the Government is consulting with stakeholders on the major aspects of the contribution cap, which will apply to service earned after 2015. To focus the consultation, this paper sets out four potential options for the process of determining the contribution rate cap and three options for the form the contribution rate cap could take.

The four options for determining the cap range from the government making the decision after seeking input from plan sponsors, to placing the responsibility on the sponsors. The three options for the form the cap would take are: a fixed percentage of salary; a multiple of the cost of current benefits, also expressed as a percentage of salary; and, a combination of the two.

The paper also explains the key role of sponsors in determining a funding and benefits policy that will interact with the contribution cap and the investment policy to form the overall risk management framework within which the sponsors and board of trustees of a plan will manage the plan's costs and risks.

When reading the assumptions and analyses contained within, stakeholders should be prepared to answer the following questions:

- What process should be used for setting the contribution rate cap?
- How should the contribution rate cap be set?
- What should the initial contribution rate cap be?
- How often should the contribution rate cap be reviewed?
- Are there alternative models or options to consider?

Feedback related to this paper should be provided no later than July 31, 2014 to:

Pension Policy Branch
Financial Sector Regulation and Policy (FSRP) Division
Treasury Board and Finance
426 Terrace Building
9515 - 107 Street
Edmonton, AB T5K 2C3
Or e-mail questions or responses to: pensionreform@gov.ab.ca

For more information visit our website: www.pensionsustainability.alberta.ca

Overview

Under Bill 9, the *Public Sector Pension Plans Amendment Act, 2014*, the funding of benefits under the Local Authorities Pension Plan (“LAPP”); Public Service Pension Plan (“PSPP”); and Special Forces Pension Plan (“SFPP”) must take into account a contribution rate cap, which will apply to service after 2015. The contribution rate cap, which will apply to both member and employer contribution rates, will ensure that, over the long term, the pension plans remain affordable for plan members and taxpayers.

The cap for each plan will be set – and periodically reviewed and potentially reset – following consultation and analysis by the *plan sponsors*¹. This paper outlines the factors, assumptions and analysis that would inform the setting of the contribution cap for each of the plans.

Who makes these decisions, and how they are made, are key issues and this paper provides some proposals in that regard. It is important to note that a contribution cap for a pension plan is not a matter of a single, permanent decision, and it is not “one size fits all” for all plans. The paper also discusses how the plan’s funding and benefits policy and investment policy interact with the contribution cap. The former is set by the sponsors. The latter would typically be set by the trustees taking the funding and benefits policy into consideration. In the transition period, the current board would set both. It is important to note that ultimately, setting and periodically resetting a contribution rate cap is a decision that can only be made after conducting a technical actuarial analysis and after the development of these policies which take into consideration the impact of the eventual decision on the pension system and interested parties.

The respondents to this paper are requested to provide recommendations on the process for determining the contribution rate cap and the form of the contribution rate cap. In this paper, we have outlined four potential options for the process of determining the contribution rate cap, and three different options for the form of the contribution rate cap. However, respondents can make alternate recommendations.

Background

An actuarial valuation determines the contribution rates for a *defined benefit pension plan*. The actuarial valuation divides the contribution into two parts. The first part is the cost of the benefits being earned in the current year, referred to as the “current service cost”. The second part is an adjustment depending on whether there is a surplus or deficit in the plan for the benefits that have been earned in the past. If there is a deficit, special contributions must be made to pay off the deficit. Deficits (unfunded liabilities) in the Alberta public sector plans must be amortized through these special contributions, paid by both employees and employers, over a period which can be no more than 15 years from the valuation date on which the deficit was identified. On the other hand, if there is a surplus, contributions can be decreased, or *reserves* can be built up, to help the plan deal with potential funding challenges in the future.

Contribution rates for the plans have been steadily increasing since 2000.

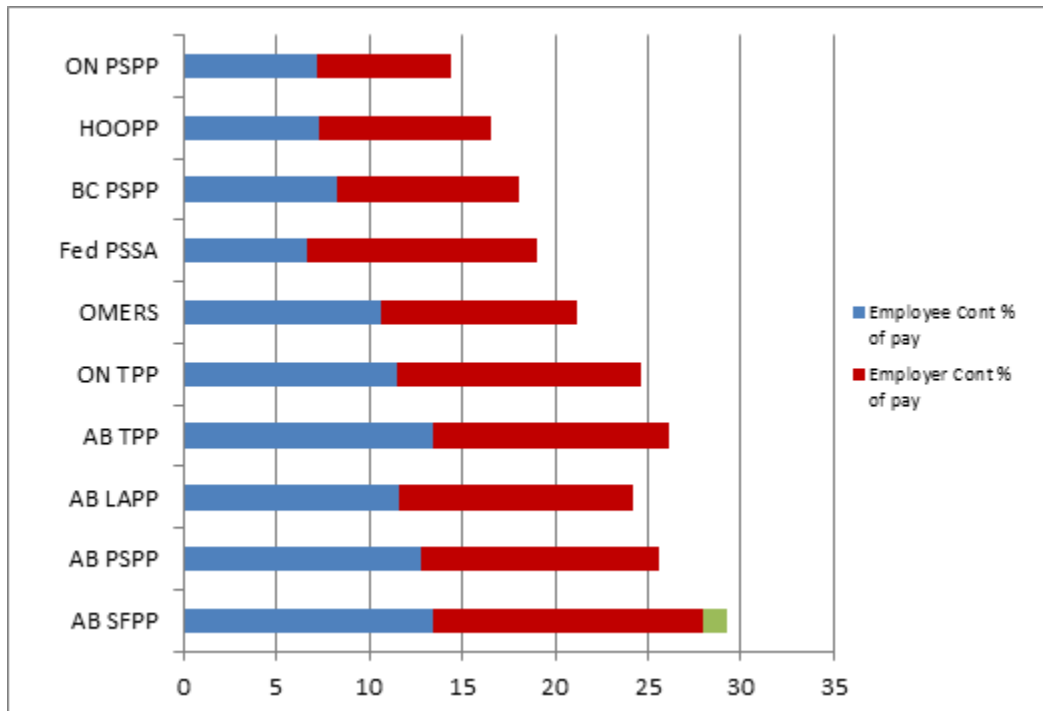
¹ Appendix A has a glossary of pension terms. Italicized words / terms are defined in the glossary.

<u>Plan</u>	Total Contribution Rate			
	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2014</u>
LAPP	10.8%	15.88%	21.78%	24.16%
PSPP	10.12%	13.22%	19.88%	25.62%
SFPP*	19.75%	21.37%	29.25%	29.25%

*Includes government contribution of 1.25 per cent of salary towards the unfunded liability for service prior to January 1, 1992

The contribution rates are at the top end of the scale when compared with other major Canadian public sector pension plans as shown in the graph below.

Contribution Rates for Public Sector Pension Plans as at January 1, 2014



Note: ON PSPP is the Ontario Public Service Pension Plan; HOOPP is the Healthcare of Ontario Pension Plan; BC PSPP is the British Columbia Public Service Pension Plan; Fed PSSA is the Government of Canada Public Service Superannuation Plan; OMERS is the Ontario Municipal Employees Retirement System and ATPP is the Alberta Teachers' Pension Plan

The increases in the required contribution rates are largely attributed to volatile investment returns. Another factor which helps explain the rise in contribution rate is that interest rates have been very low for a sustained period with no immediate prospects of improvement². The effect of both of these factors is that there is a reduction in the expected investment returns and a corresponding decrease in *discount rates*³ that are used to value the liabilities of the pension plans. A lower discount rate results in higher plan liabilities and contribution rates, all other things being equal. Current contribution rates in the plans have also been increased to reflect some mortality improvement, but they do not yet fully reflect the new Canadian *mortality tables*, which would have an impact of increasing contribution rates by 2 per cent to 3 per cent of salary. Lastly, while investment returns since 2008 have been approximately 10 per cent per year on average (see Rate of Return and Discount Rate graphs below for each plan), there is a significant risk that the next market correction will drive contribution rates to even higher levels.

The above factors, combined with the shared cost-risk model of the plans where both the employers and active plan members share any contribution rate increases and the costs associated with the amortization of any unfunded liabilities, puts the plans in a tenuous situation. As shown in the table below, the maturity of the plans, as indicated by the ratio of active members to inactive members places a significant burden on active plan members and employers. There are relatively fewer active plan members to absorb contribution rate increases .

Plan	1993	Now
LAPP	3 contributing members to 1 pensioner	2 contributing members to 1 pensioner
PSPP	2 contributing members to 1 pensioner	1 contributing members to 1 pensioner
SFPP	4 contributing members to 1 pensioner	2 contributing members to 1 pensioner

The reason this is an issue is that an unfunded liability, once identified in a valuation, must be paid through contributions made by active members and their employers. As a plan matures, a greater proportion of the plan’s liabilities is comprised of pensioners and deferred members. The plan must rely heavily on investment returns, as opposed to cashflows from new contributions, to pay for pensions.

² The Report on Canadian Economic Statistics 1924-2012 published by the Canadian Institute of Actuaries reports that the yields on long term Government of Canada bonds (CANSIM Series V122487) in 2012 were at their lowest point since data was first recorded in 1936. Low inflation expectations, low economic growth projections and the guidance from the world’s central banks signal low interest rates for a protracted period of time. As well, see the Alberta Treasury Board and Finance paper “Discount Rate History and Analysis” which outlines the historical basis for setting discount rates and the potential risks in the current methodology for setting discount rates used by public sector pension plans (<http://www.finance.alberta.ca/publications/pensions/sustainability/research-Discount-Rate-History-and-Analysis.pdf>)

³ As well, see the Alberta Treasury Board and Finance paper “Discount Rate History and Analysis” which outlines the historical basis for setting discount rates and the potential risks in the current methodology for setting discount rates used by public sector pension plans (<http://www.finance.alberta.ca/publications/pensions/sustainability/research-Discount-Rate-History-and-Analysis.pdf>)

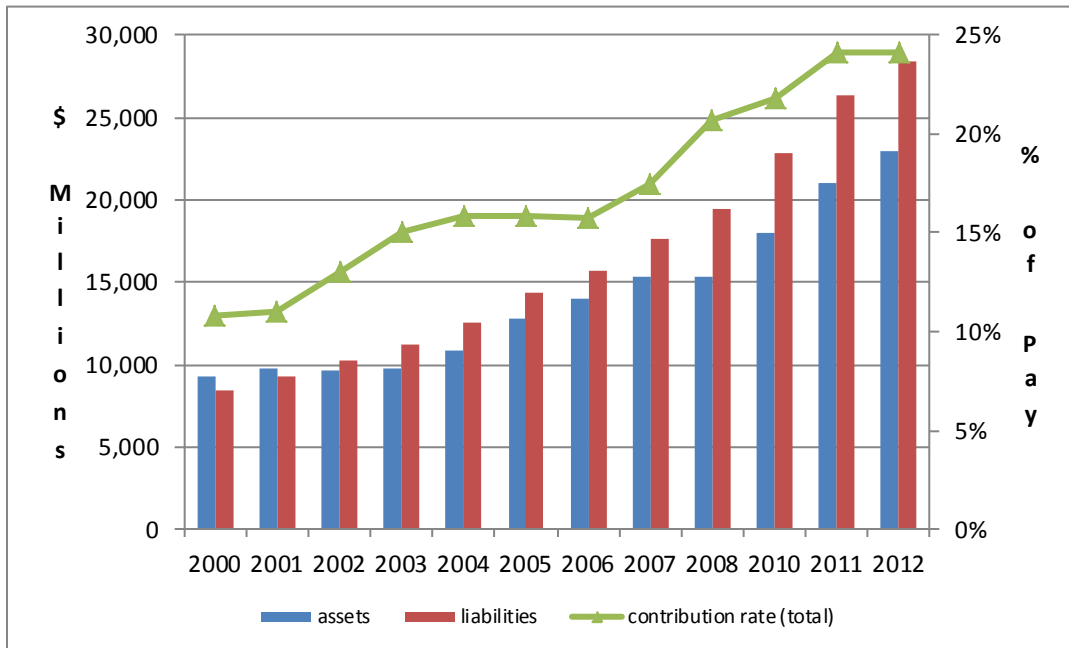
Therefore, investment losses, or simply achieving a rate of return lower than assumed in an actuarial valuation, will have a much greater impact on plan funding. There is no way to perfectly immunize a plan from this type of investment risk, particularly when a significant portion of the plan's assets is invested in equities.

It is reasonable for the plans to invest in equities, as the plans can be "patient investors" with a long time horizon and can anticipate capturing "*equity risk premium*". However, there will inevitably be times when the plans will incur investment losses. Incurring additional investment losses while the plans are at various stages of paying previous unfunded liabilities, can result in even more unfunded liabilities, pushing contributions even higher. The graphs below outline, for each plan, the rates of return earned by the plans against the discount rates used in each actuarial valuation since 2000. As well, the second graph displays the actuarial liabilities, assets and contribution rates for each of the plans since 2000, as at dates when valuations were performed.

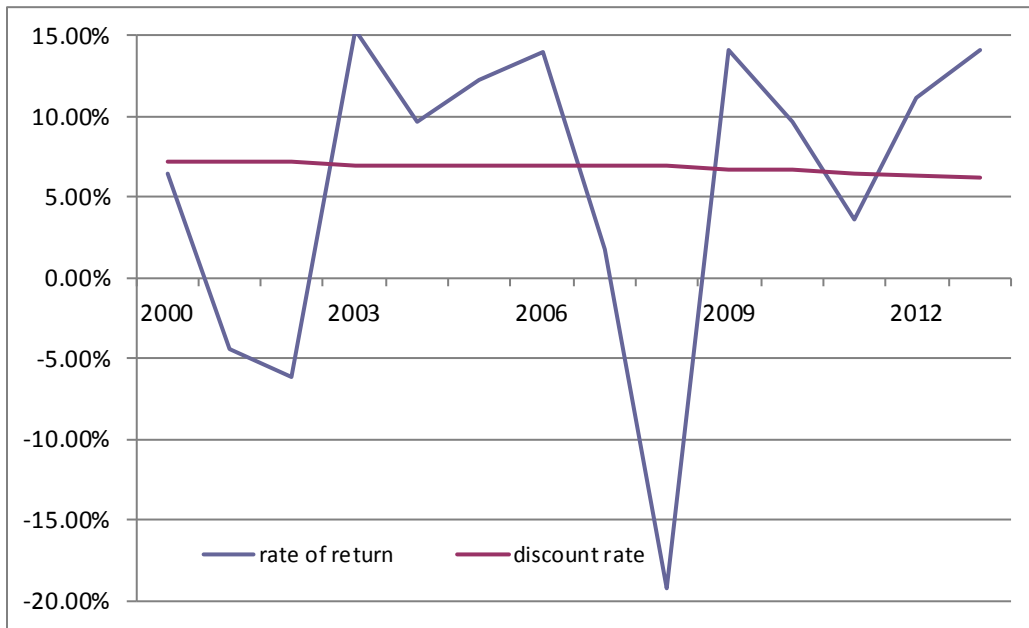
LAPP Rates of Return and Discount Rates Since 2000



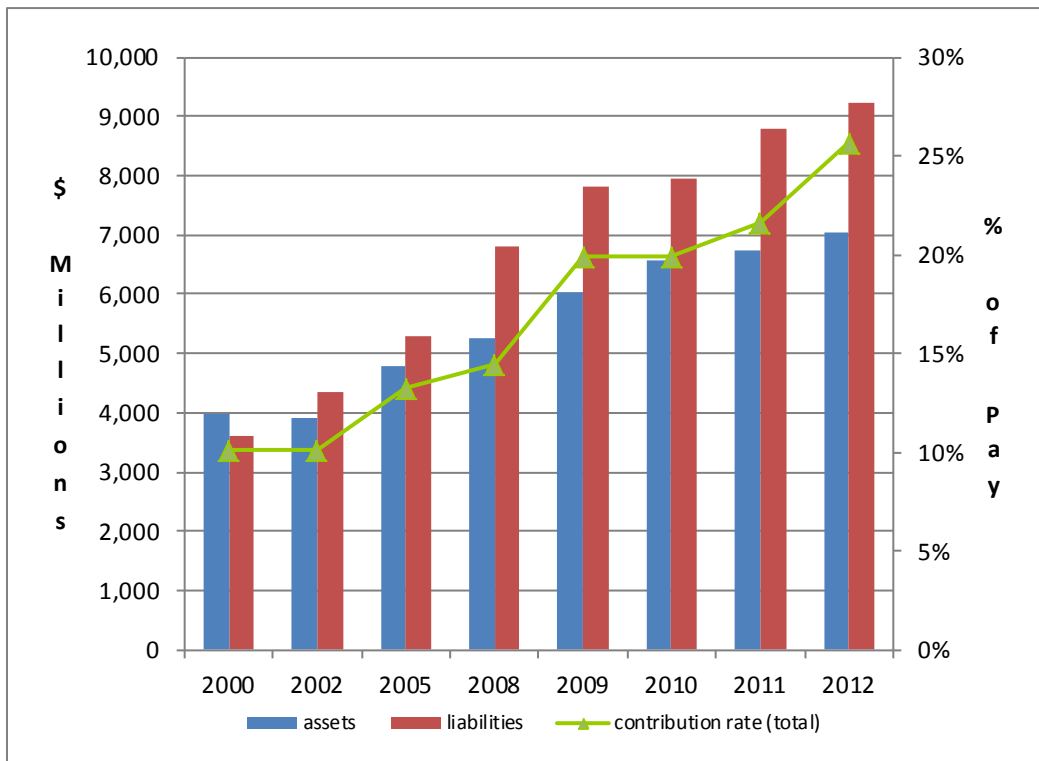
LAPP Assets, Liabilities and Contribution Rates Since 2000



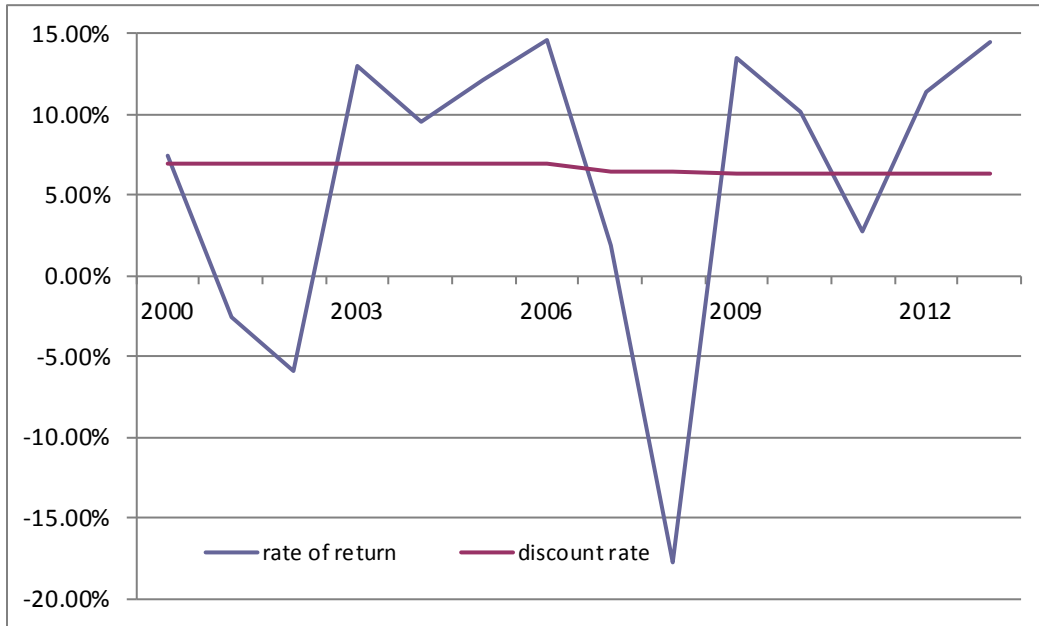
PSPP Rates of Return and Discount Rates Since 2000



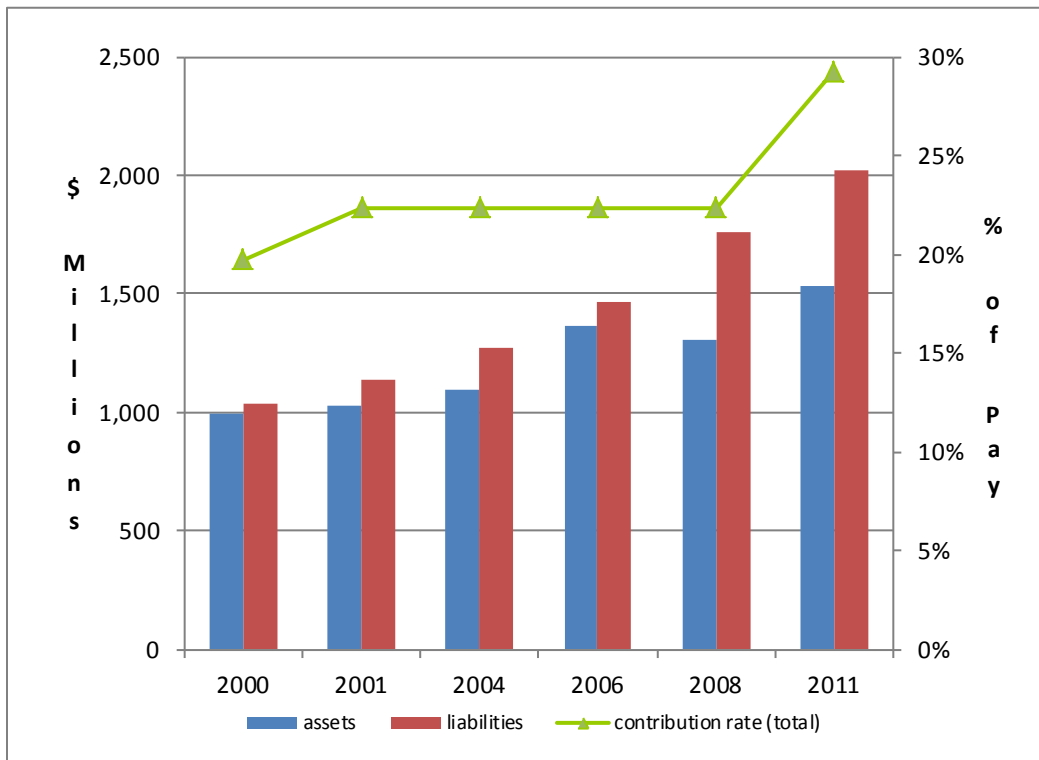
PSPP Assets, Liabilities and Contribution Rates Since 2000



SFPP Rates of Return and Discount Rates Since 2000



SFPP Assets, Liabilities and Contribution Rates Since 2000



Key Plan Provisions

LAPP, PSPP and SFPP are all *defined benefit highest average earnings pension plans* that provide cost of living adjustments (COLA) to *deferred vested members* and pensioners. Appendix B summarizes the key plan provisions for the three plans.

The provisions that comprise the greatest source of cost and risks to the plans are the highest average earnings, early retirement and the COLA provisions. With changes announced pursuant to the Amendment Act, the costs associated with the early retirement provision have been decreased, while the risks associated with the COLA provision have been managed for benefits earned for post 2015 service.

For plan members of the LAPP and PSPP who wish to retire before age 65, both the date on which a member qualifies for an unreduced early retirement and the magnitude of the early retirement reductions will be increased for LAPP and PSPP. The changes to these provisions will lower the costs to the plan associated with members who choose early retirement and will be closer to their fair value.

COLA will now be conditional for benefits earned for post 2015 service and not guaranteed. COLA (at 60 per cent of Alberta inflation) will still be funded by contributions and therefore is expected to be paid in most years. Therefore the COLA provision change will not result in lower contribution rates. This type of COLA provision is called “target” or “contingent” COLA. However, granting of annual increases will depend of the plan’s financial position. A circumstance which could limit the amount of COLA that would be paid to retired member is when a plan is already at, or nearly at, its contribution rate cap, meaning that there would not be sufficient contribution room to be able to pre-fund the anticipated full cost of another COLA.

The changes announced do not affect the fact the plan’s calculating benefits according to a final average salary. The plans will still have to manage the risks associated with payment of benefits based on the final average earnings of a plan member because the rate of actual salary escalation will be unknown until the member actually terminates, retires, or dies. Techniques that can be used to manage risk will be examined in further detail in the factors/ risk mitigation section.

Other Jurisdictions

Alberta public sector pension plans are not the only public sector plans which are undergoing changes in their benefits or contribution levels. Appendix C outlines some of the more recent changes that jurisdictions across Canada and around the world are making or have proposed to make.

Some of the changes made in other jurisdictions include:

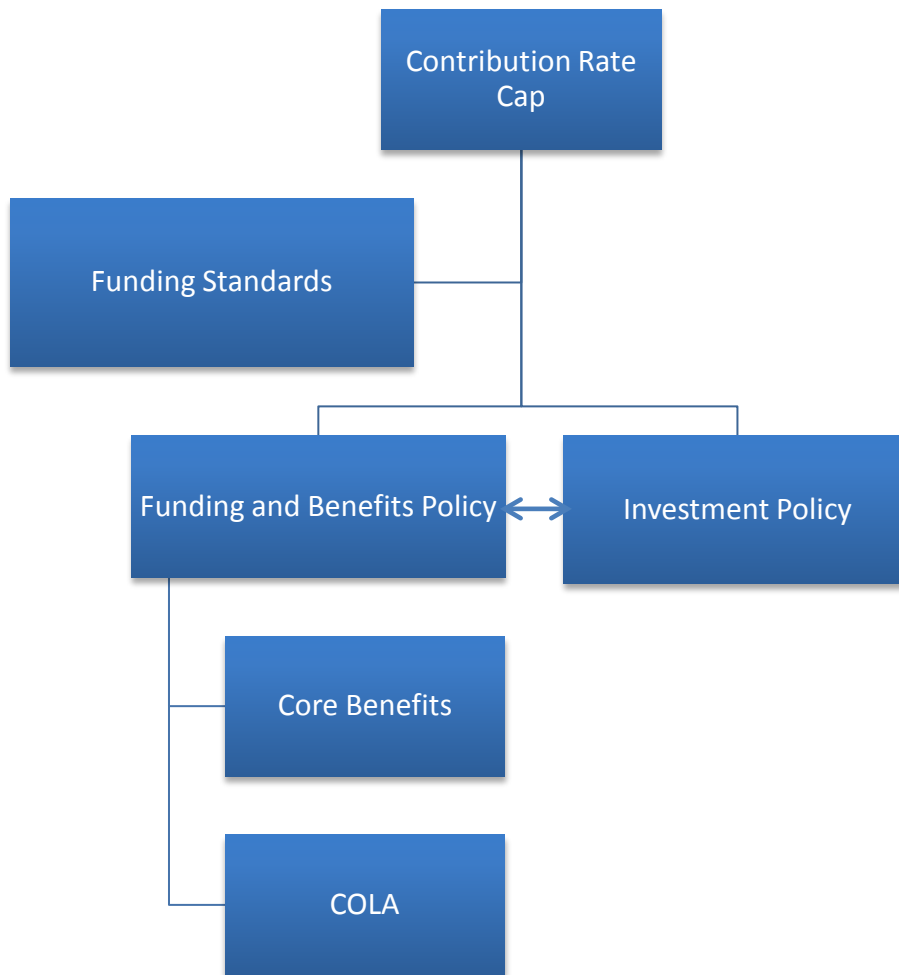
- Reducing COLA, or providing contingent COLA
 - New Brunswick; Ontario Municipal Employees Retirement System (OMERS); Ontario Teachers Pension Plan (OTPP)
- Increasing retirement dates or removing early retirement subsidies
 - New Brunswick; Federal Public Service Superannuation Act (PSSA); OMERS

- Limiting contribution rates and / or increasing contribution rates
 - New Brunswick; PSSA; OMERS; OTPP; Healthcare of Ontario Pension Plan (HOOPP); Ontario Public Service Employees Union plan (OPSEU); Colleges of Applied Arts and Technology Pension Plan (CAAT)
- Changing from highest average salaries to career average salaries
 - New Brunswick

Factors/ Risk Mitigation

In order to ensure proper due diligence and risk mitigation, the sponsors of the Alberta public sector pension plans (employees and employers, or organizations representing them) will have to develop, implement and adhere to a number of policies. In particular, the sponsors will set a funding and benefits policy for the plans. This policy will have to reflect the level of contributions that are made to the plan, and must include the upper limit of contributions that may be made to the plan as a result of the contribution rate cap. Consequently, the funding and benefits policy will have to outline, in advance, the principles and guiding actions that will be taken to put the plans' funding and benefits back into equilibrium if an upper limit of contributions has been reached. It must be emphasized that the contribution cap will not result in the plans becoming more and more under-funded: the *Employment Pension Plans Act* (EPPA) funding standards, which require the proper funding of benefit promises, must be met. As well, policies will need to address in advance actions to be taken to handle surplus funds.

Until 2021, benefit improvements will be restricted to the restoration of previously foregone benefits with respect to post 2015 service. From the year 2021 onward, however, the plan sponsors will have full control of benefits subject to the plan's meeting the funding requirements of the EPPA. The following graphic shows the interrelationship of these elements.



Funding and Benefits Policy

The funding and benefits policy would establish the optimal level of funding and the level of security around the core benefits that the plans want to provide, including COLA targeted at 60 per cent of the Alberta inflation rate. It would outline the actions to be taken if the plan’s invested assets are less than the liabilities or if the contribution cap will be reached.

The benefits portion of the policy would establish the level of security or percentage likelihood that the core benefits and target COLA would be paid. For example, the sponsors may establish a target of 95 per cent likelihood that core benefits would not be reduced over a 20-year period.

Once the benefits portion of the policy has been developed, it would then set the framework for the development of the funding portion of the policy. The funding portion would outline the optimal level of funding for the plan, and would include factors such as actuarial assumptions and use of *margins* involved in achieving the funding target. The funding policy would then dictate the contribution rates (subject to the overall cap) and outline rules for dealing with actuarial gains / surplus and deficits.

The funding and benefits policy is closely inter-related with, and is constrained by, the upper limit set by the contribution rate cap and the lower limit set by the funding standards in the EPPA that are designed to achieve a level of certainty through proper funding of benefits.

Considerations in developing the funding and benefit policy are outlined in Appendix D.

Investment Policy

It would be the role of the expert board of trustees to implement the funding and benefits policy. A key task, to be performed by the trustees, in conjunction with the plan sponsors, is setting an investment policy that is aligned with the funding and benefit policy. A plan's investment policy would take into account the funding and benefits policy when determining the appropriate amount of risk and subsequent asset allocation that a plan would undertake. The plan sponsors would articulate their investment philosophy, and the overall level of risk that they are comfortable with, given the plan's characteristics and investment restrictions that would apply to the plan. The trustees would then develop an investment policy that is acceptable to the plan sponsors. However, unlike changes in the funding and benefits policy, adjustments to the investment policy will take time to implement and execute. As a result, changes in the investment strategy, or asset allocation / mix will not impact the plan's returns in the short term.

Once these policies have been developed, the framework of the contribution rate cap and its implications on the plan's benefits and investments become better understood.

Modelling

In order to understand the inherent risks of the plans, and the impact these risks have on the plan's funding and benefit provisions, *stochastic modelling* of the plans would need to be undertaken to determine under which scenarios or outcomes a contribution cap could be breached, necessitating actions to bring the plan costs back within the contribution cap. Modelling would be necessary to demonstrate that the desired benefit levels are achievable with a high degree of certainty. This information is crucial to enable the plan sponsors to develop their funding and benefits policy and the trustees to develop the plan's investment policy. It would enable the plan's sponsors and trustees to identify the underlying risks of the plan and potential outcomes which cause stresses to the plans and result in the need for actions.

The various parameters (*discount rate*, level of *margin*, target probability that core benefits will not be reduced, target probability that COLA would be paid, asset allocation policy, surplus/actuarial gains thresholds) are brought together in a stochastic model to determine if the desired benefits will be realized.

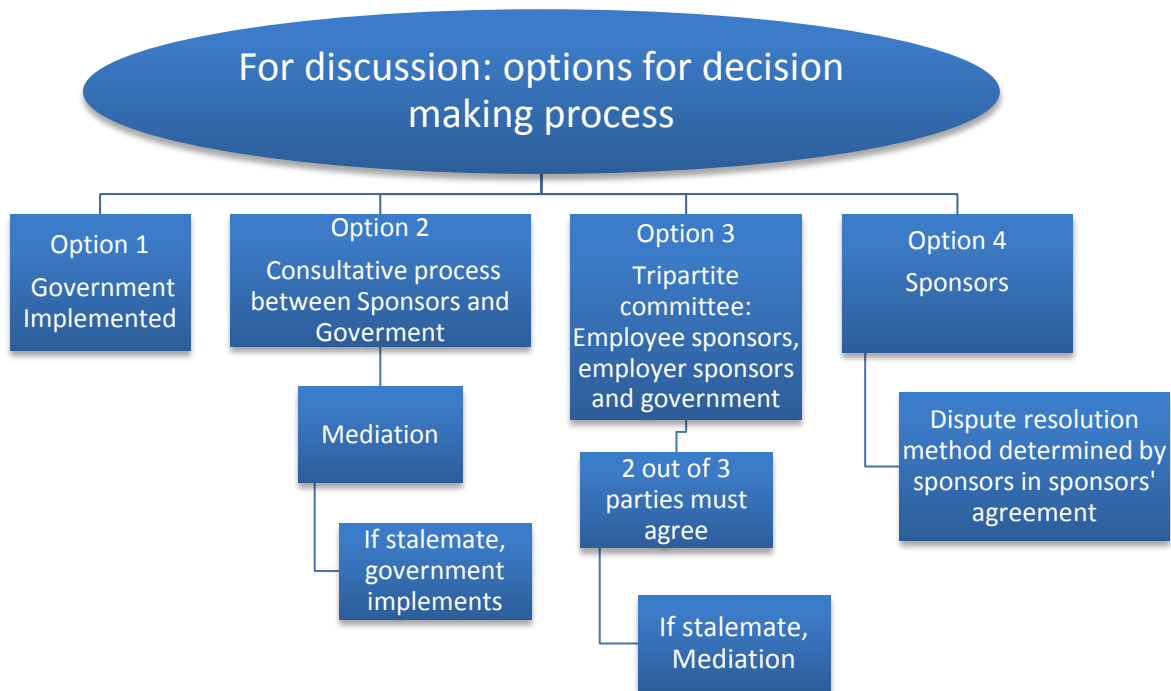
The modelling would be done under an *open group* approach. It would involve stochastic simulations of potential investment returns and then provide for the projection of assets and liabilities of the plan. The results can then be analyzed to determine the impact on plan contributions, COLA, core benefit changes and the probabilities that the desired level of benefits will be achieved. The analysis would show the results given different levels of *margins*. This analysis would allow the sponsors to determine under which scenarios the plans could be expected to operate with the best outcomes and minimum likelihood of core benefit reductions and would determine the probabilities of requiring various actions. The stochastic modelling would have to demonstrate that the proposed surplus thresholds, operating in conjunction with the other parameters, would be adequate to ensure that the desired level of certainty of delivery of pension benefits and COLA will be achieved.

Process

Outlined above are the policies and decision-making process plan sponsors must complete to achieve a better understanding of the implications of a contribution cap on plan benefits and funding. The Board of Trustees will have to support this process by assigning the plan's actuary to undertake the analytical tasks necessary to inform the sponsors' decision making. Because the trustees' investment policy must be aligned with the funding and benefits policy, setting the two policies will likely be an iterative process between the two governance bodies.

Likewise, the options for establishing a contribution cap involve consultation to varying degrees depending on the option, where plan sponsors would establish their viewpoints with respect to any absolute ceiling on contributions and acceptable *margins* and provide feedback. The establishment of a dispute resolution process is an element in each.

Below are four options for approaches that can be taken in arriving at the contribution rate cap. Regardless of approach taken, it is critical for success that stochastic modelling demonstrates an adequate assurance that the benefits will be provided and the funding is reasonable. Note that different options may be more suitable for different plans.



Option 1

Under option 1, the Government of Alberta would be solely responsible for implementing the contribution rate cap. A cap would be set for each plan. Plan sponsors would be asked to provide their recommendations and feedback. After receiving the recommendations and feedback, Government would proceed to implement the contribution rate cap via a regulation amendment. At reasonable intervals, the same process would be used to review the cap and potentially re-set it.

Option 2

Under option 2, after Government has received the recommendations and feedback from the plan sponsors, a consultative process between plan sponsor and Government would be undertaken in developing a contribution rate cap for the plans. A cap would be developed for each plan. If the consultative process results in a stalemate, mediation would be used to resolve the impasse. If mediation does not result in an agreement, Government would proceed with implementing the contribution rate cap via regulation amendment.

Option 3

Under option 3, after Government has received the recommendations and feedback from the plan sponsors, a tripartite committee composed of the employee plan sponsors, employer plan sponsors and Government would try to come to an agreement on the contribution rate cap for each plan. An agreement by two out of the three parties would be needed to implement the contribution rate cap. During the transition period, prior to joint sponsorship, option 1 would apply.

Option 4

Under option 4, the sponsors of a plan would be responsible for establishing the contribution rate cap. Prior to engaging in a discussion with respect to the contribution rate cap, the sponsors would have to agree on a dispute resolution process. The dispute resolution process would be a part of the sponsor's agreement (drafted and signed by the sponsors). This would ensure that the sponsors could agree to a contribution rate cap either on their own or through the application of the dispute resolution process.

Approach

Based on a scan of what is happening with other plans and in other jurisdictions, as well as internal analysis, a contribution cap for pension plans can be set in a number of ways. Two possible approaches are either as a percentage of pensionable earnings or a multiple of the current service cost, a third being a combination of the two.

Option 1: Percentage of pensionable earnings

Establishing a cap as a percentage of pensionable earnings is easy to understand. This approach can take into account a total compensation philosophy, public sector fiscal conditions and overall plan considerations. Each plan would have a unique cap to take into account the unique characteristics of the plan. The cap would be reviewed periodically to take into account changing circumstances in the future. Although the cap would not be directly dependent on a plan's actuarial assumptions, the Board of Trustees would have to demonstrate that the cap has not been breached using appropriate actuarial assumptions to the satisfaction of the Superintendent.

Examples developed by current plan boards (based on their plan characteristics but not adopted as their official policies):

- LAPP: sustainable plan will ideally have the following elements: ... total contribution rates not exceeding 25 per cent of pay (<http://www.lapp.ca/sustain/boards-statement-of-intention.jsp>)
- SFPP: funding policy indicates that contributions are to be kept below 30 per cent of pay

Option 2: Multiple of current service cost

A cap developed based on a multiple of the current service cost (for example, 125 per cent of current service cost) is more difficult to understand and would be dependent on a set of actuarial assumptions. However, it would automatically take into account a plan’s unique characteristics as well as changing economic circumstances. This approach would allow an explicit buffer around the current service cost to enable the contribution level to absorb all or a portion of emerging losses. It would also avoid any particular cap or “maximum” cost becoming the effective “minimum” cost.

Option 3: Combination of 1 and 2

An alternative method could combine both of the above approaches. For example, the contribution rate cap could be 125 per cent of the current service cost to a maximum of 25 per cent of pay.

Example

	Option 1	Option 2	Option 3
If Current Service Cost Equals:	18%	18%	18%
And Contribution Cap Formula is:	Fixed Percentage of Salary	Percentage of Current Service Cost: 125% of current service cost	Combination of Options 1 and 2: 125% of current service cost, but not more than 22% of salary
The Contribution Cap is:	22%	22.5%	22%

Contribution Cap – January 1, 2016 forward

The contribution cap will apply to and need to be determined for, service after December 31, 2015.

A balance sheet outlining the liabilities, unfunded liability amortizations and current service cost at December 31, 2015 will be required. The potential impact of the contribution rate cap on benefits earned after 2015 would mean that the actuarial valuations will have to separately calculate liabilities in respect of benefits for post 2015 service and pre 2016 service (service to December 31, 2015) with any unfunded liability amortizations in respect of service prior to January 1, 2016 not taken into consideration for the contribution cap. Subsequent valuation results would then keep this separation with any unfunded liability amortization allocation for benefits earned on post 2015 service and any potential surpluses allocated appropriately.

Appendix E outlines hypothetical valuation scenarios as at December 31, 2015 and extending forward to 2021 and 2027.

Feedback / Recommendations

In arriving at the contribution rate cap, which will be embodied in regulation, the Government wants to receive feedback from the plan sponsors on the major aspects of the contribution cap, in particular:

1. Which process should be used for setting the contribution rate cap?
 - Option 1: Government implemented;
 - Option 2: Consultative process between government and the sponsors, with mediation but eventual government setting;
 - Option 3: Employee sponsors, employer sponsor and government tripartite decision
 - Option 4: Sponsors determine cap and dispute resolution mechanism

2. Whether the cap should be set as:
 - a percentage of pay;
 - a multiple of current service cost; or
 - a multiple of current service cost, to a maximum percentage of pay.

3. If you have any views on what the level of the contribution cap should be initially, the government would be interested in hearing them.

4. Are there other processes in arriving at a contribution rate cap or alternate models (in particular, see Appendix C for examples) that would be preferable?

5. How often should the cap be reviewed? What would trigger a review: a fixed interval between review or criteria signalling the need for a review? What criteria?

Plan sponsors are invited to provide their feedback and recommendations on the form of and the process for establishing a contribution cap. The consultation period related to this paper will close on July 31, 2014. After this date, the Government of Alberta will implement the necessary rules governing the contribution rate cap into regulation. Depending on the option, this may include enshrining the numerical contribution rate cap in the regulation, or only the rules of the decision making process.

Appendix A - Glossary

Board of Trustees - an expert board appointed by the Plan Sponsors who will ensure that the pension plan is administered and assets invested in the best interest of plan beneficiaries.

Deferred vested member – a member of a pension plan who has terminated employment but retains a right to a pension benefit

Defined benefit pension plan – a pension plan where the pension entitlement is a pension for the life of the member, and possibly the member’s spouse, typically based on a formula incorporating service, salary, and a unit of benefit. In most public sector plans the unit of benefit is a percentage of salary averaged over a specified period.

Discount rate - the interest rate used to determine the liabilities of a pension plan, which are the actuarial present value of all benefits earned to the valuation date, to be paid in the future

Highest average earnings pension plan – a defined benefit pension plan where the pension entitlement is based on a formula incorporating a member’s final or highest average salary. The highest / final average is typically the average of three or five consecutive years.

Margin – a safety net built into an assumption to provide a cushion against future adverse events. This is typically done by making a “provision for adverse deviation” by lowering the discount rate, which would result in a higher liability and increased current service cost.

Plan Sponsors – the major employee and employer stakeholders that are named by the government to be sponsors of the pension plan and are signatories in the Sponsors Agreement. E.g. the employee sponsors would be unions or similar groups representing members of the plan. Large employers or organizations representing groups of employers could be employer sponsors.

Open group modelling – pension plan liability projection where new members are assumed to enter the pension plan indefinitely and assumptions are made as to the demographic information for the new entrants such as number, gender and age.

Reserve – an actual or notional amount of assets dedicated for a particular purpose, such as providing cost of living adjustments or as a safety net for future adverse events. Can be accomplished through the use of margins in actuarial assumptions or the allocation of a percentage of contributions.

Stochastic modelling – a projection model using random number generation to forecast a large number (typically 1,000 or more) equally likely scenarios of future investment returns based on expected asset class returns, standard deviations of asset class returns and correlation between asset class returns. Stochastic modelling enables the development of the frequency distribution of asset and liabilities in each year of the projection and permits testing and calibration of the various parameters.

Appendix B – Key Plan Provisions for LAPP, PSPP and SFPP

Provisions for Service Before January 1, 2016

Plan	Pension Formula ¹	Bridge	Final Average Earnings ²	Normal Form ³	Early Retirement Eligibility Date	Earliest Unreduced Retirement Date (EURD)	Early Retirement Reduction	COLA
LAPP	1.4 / 2.0	No	5	G5	Age 55	Age 55 and 85 Factor	3% per year from EURD	60% of AB CPI
PSPP	1.4 / 2.0	No	5	G5	Age 55	Age 55 and 85 Factor	3% per year from EURD	60% of AB CPI
SFPP	1.4 / 2.0	Yes	5	G5 / J & S 65%	Age 55 or 25 years of service	Age 55 or 25 years of service	n/a	60% of AB CPI / ad hoc ⁴

¹ Unit of benefit expressed as a per cent of salary per year of service

² On highest average earnings up to Average YMPE / On highest average Earnings in excess of average YMPE

³ without pension partner normal form / with pension partner normal form: "G5" means a pension for the life of the member, guaranteed 5 years

⁴ for service after December 31, 2000

Provisions for Service From January 1, 2016

Plan	Pension Formula ¹	Bridge	Final Average Earnings ²	Normal Form ³	Early Retirement Eligibility Date	Earliest Unreduced Retirement Date (EURD)	Early Retirement Reduction	COLA
LAPP	1.4 / 2.0	No	5	G5	Age 55	Age 60 and 90 Factor	5% per year from EURD	Target 60% of AB CPI
PSPP	1.4 / 2.0	No	5	G5	Age 55	Age 60 and 90 Factor	5% per year from EURD	Target 60% of AB CPI
SFPP	1.4 / 2.0	Yes	5	G5 / J & S 65%	Age 55 or 25 years of service	Age 55 or 25 years of service	n/a	60% of AB CPI / ad hoc ⁴

¹ Unit of benefit expressed as a per cent of salary per year of service

² On highest average earnings up to Average YMPE / On highest average Earnings in excess of average YMPE

³ without pension partner normal form / with pension partner normal form "G5" means a pension for the life of the member, guaranteed 5 years

⁴ for service after December 31, 2000

Appendix C – Changes in Other Jurisdictions

New Brunswick

In May 2012, New Brunswick announced the Shared Risk Pension Plan. The Shared Risk Plan has 3 key elements:

- a design that splits the benefit into highly secure base benefits and moderately secure ancillary benefits
- protocols (pre-defined responses) to change future benefits, contributions and asset allocations in response to changes in the plan's financial condition
- a contribution corridor where if contributions are at the upper end of the corridor there must be benefit reductions
- risk management regulatory framework

As of January 1, 2014 a number of plans have converted to Shared Risk Pension Plans. The plans now cover 70 per cent of members of provincially sponsored pension plans. Some of the plans that have converted include the Public Service Superannuation Plan; the City of Saint John; the City of Fredericton and two hospital pension plans.

Ontario Municipal Employees Retirement System (OMERS)

In 2010, OMERS announced a number of changes to their contributions and benefits, including:

- contribution rate increases that were phased in over three years from 2011 to 2013
- no pre-retirement COLA, early retirement subsidies or bridge benefit for members who leave prior to early retirement age for service from January 1, 2013;
- An agreement between sponsors that sets a maximum total annual contribution rate (employees and employers combined) of up to 19.5 per cent of salaries. If a higher rate is indicated, benefit reductions will be put into place on a temporary or permanent basis by the OMERS Sponsors Corporation.

Ontario Teachers' Pension Plan (OTPP)

The OTPP announced a number of changes to the cost of living adjustments for their plan. The changes impacted service from 2010 forward and are outlined below:

- Inflation protection (COLA) for service after 2013 will range from 0 to 100 per cent of the Consumer Price Index (CPI) depending of the plan's funding status
- Current retirees will receive slightly smaller annual inflation increases (for service before 2010: 100 per cent COLA, service from 2010 to 2013: 50-100 per cent COLA and service after 2013: 0-100 per cent COLA)
- The current agreement limits teacher contributions on salary above the YMPE to 15 per cent. Currently teachers contribute 10.4 per cent up to the YMPE and 12 per cent above which is matched by the employer. If the maximum contribution rate is reached, benefit reductions are triggered.

Other Ontario Public Sector Pension Plans

On October 23, 2012 the Ontario government announced a five-year agreement with each of the following three public sector plans:

- The Healthcare of Ontario Pension Plan (HOOPP);
- The Ontario Public Service Employees Union Pension Plan (OPSEU)
- The Colleges of Applied Arts and Technology Pension Plan (CAAT)

The 2012 Budget announced by the Ontario government on March 27, 2012 stated that the province intended to introduce legislation for Ontario's jointly sponsored pension plans as a means of making those plans sustainable and affordable for member as well as Ontario taxpayers. The legislation would involve measures to address benefits and contribution levels, as well as pooling of assets and investment management functions. Before the legislation was introduced, the government committed to consulting with the pension plan sponsors / boards.

In May 2012, the government entered into consultation with HOOPP, OPSEU, CAAT and OTPP on the proposed legislation. The consultation resulted in agreements with all but the OTPP for the period December 30, 2012 to December 30, 2017. The key points of agreement are:

1. If the plan experiences a new funding shortfall during the five-year window, employer contributions cannot be increased. Instead, benefits must be reduced. The reduction must be effective during the term of the agreement and no later than two years from the valuation date.
2. An exception will be made if a benefit reduction in excess of 20 per cent is required, in which case a contribution increase may be made in order to limit the benefit reduction to 20 per cent.
3. Any benefit reductions necessary to address a new deficit during that period would apply to future benefits only, not those that have already been accrued. Current retirees would not be affected.
4. The three-year valuation cycle will be changed during the term of the agreement to a four-year valuation cycle (for purposes of filing with the province).
5. For HOOPP, the employer cost will remain equal to 126 per cent of the employee contribution. For OPSEU and CAAT, employees and employers currently each pay 50 per cent of the cost and that will remain the same.
6. The pension funds will not be transferred to a large pool of public funds.

The above measures will commence with actuarial valuations dated December 31, 2012.

As a result of the agreement, these three plans will be exempted from any legislative changes for jointly sponsored pension plans.

Federal Public Service Superannuation Act

In the 2012 federal budget, the Government announced proposed changes to the federal Public Service Superannuation Plan. The aim was to “ensure that pension plans for public servants are sustainable, fair and financially responsible.”

Prior provisions under the Public Service Superannuation Act

- The normal retirement age is 60 and unreduced early retirement is available after age 55 with 30 years of service.
- Employee contributions are capped at 40 per cent of the total cost of current service.
- For 2012 employee contributions were approximately 36 per cent of the current service cost

New provisions under the Public Service Superannuation Act

- For employees hired on January 1, 2013, normal retirement age will rise to age 65 and unreduced early retirement will change to age 60 with 30 years of service.
- Contributions will move towards a 50/50 cost sharing, to be phased in by 2017 for both existing and new employees.

On April 24, 2014, the federal Government announced the launch of extensive consultations on a potential federal framework for Target Benefit Plans. The plans would be a sustainable and flexible pension option available to federally regulated private sector and Crown corporation plan sponsors, employees and retirees under the Pension Benefits Standards Act. This approach is intended to preserve and increase the number of employers that can offer employees an affordable workplace pension plan that has a predictable pension in retirement.

Rhode Island

In Rhode Island, after a city of 19,000 people declared bankruptcy and cut pensions for retirees by over 50 per cent due to the size of the city’s pension liabilities, the state government decided to overhaul the state’s pension system. In November 2011, the state legislature passed reforms to the Rhode Island state pension plans impacting state employees, teachers and municipal employees. The changes include:

- suspending cost of living adjustments until the pension plan is 80 per cent funded;
- delaying retirement (originally a retirement age of 67 was proposed but that was moved to age 65); and
- moving members into a hybrid scheme, where workers keep their defined benefits that have already been accrued but for future service move into a defined contribution plan (members with 20 or more years of service can remain in the *defined benefit plan*)

United Kingdom

The Hutton Commission in the United Kingdom recommended employer contribution caps on those plans that are funded by municipalities and regional governments.

Appendix D – Funding and Benefits Policy Considerations

The following is provided to assist sponsors in understanding some of the factors and examples that can be considered in developing a Benefits and Funding Policy.

Benefits Portion of Funding and Benefits Policy

Factors that should be considered and some examples of policy choices would include:

- a. Percentage likelihood that the core benefit does not need to be reduced:
 - i. reasonable percentage 90 per cent to 100 per cent
- b. The order of actions that might be taken when an actuarial valuation reveals that invested assets will be less than liabilities or the contribution cap will be reached:
 - i. Reduction of the *reserve* or *margin* (if applicable)
 - ii. Increase in contribution rates up to the level of the contribution cap (if applicable)
 - iii. Postponement or reduction of future COLA
 1. All plan members, only pensioners, future pensioners
 - iv. Reduction or elimination of ancillary benefits for future service
 1. Early retirement date;
 2. Early retirement reduction;
 3. Pre-retirement death benefit; or
 4. Termination benefits
 - v. Reduction in the core benefit level for future service, subject to predetermined maximum reduction
 - vi. Reduction in accrued benefits
- c. The order of actions that might be taken when sufficient actuarial gains or surplus have been built up:
 - i. Increasing accrued benefits to restore reduced accrued benefits to target levels
 - ii. Restore any past foregone COLA;
 - iii. Application of emerging surplus to rebuild surplus;
 - iv. Re-building or building of *reserve* funds;
 - v. Reduction in contribution rates

With respect to COLA, the target would likely be set at the same level for all members (*actives*, *deferred vested members* and pensioners). The COLA would be explicitly funded and the expectation would be that there is a good probability it would be paid each year. The factors that should be considered in developing the policy and some examples of policy choices that could be made would be:

- d. the percentage likelihood that COLA would be provided each year:
 - i. a reasonable percentage would be 50 per cent to 100 per cent
- e. The order of actions to be taken when COLA cannot be provided:
 - i. Postponement or reduction of future COLA
 1. All plan members or only current pensioners or only future pensioners

- ii. Reduction of the COLA *reserve* or in the percentage likelihood that COLA would be provided
- f. The order of actions to be taken when the contribution cap will be breached:
 - i. Postponement or reduction of future COLA
 - 1. All plan members, only current pensioners, future pensioners
 - ii. Reduction of the COLA *reserve* or reduction in the percentage likelihood that COLA would be provided
- g. The order of actions to be taken when sufficient surplus or actuarial gains have been built up:
 - i. Surplus threshold that must be reached before any benefit restorations can be implemented;
 - ii. Portion of surplus in excess of the surplus thresholds that can be used for COLA restorations;
 - iii. Granting of COLA for previous years to target levels
 - 1. All plan members or only current pensioners
 - iv. Increase in the COLA *reserve* or in the percentage likelihood that COLA would be provided
 - v. Increase COLA (after 2021)

Funding Portion of Funding and Benefits Policy

The benefit portion of the policy sets the framework for the development of the funding portion of the policy. The funding target would represent the plan's ratio of assets over liabilities in respect of post 2015 service.

- Assets include the present value of unfunded liability contributions.
- Liabilities are based on a *discount rate* with a level of *margin*.

The level of *margin* may be subject to some standards under the EPPA to ensure that the *margins* are realistic and provide a reasonable probability that benefits will be delivered.

The optimal level for a funding target would have to be set by the sponsors. Do the sponsors wish to have a 100 per cent funding target or would some lower level (such as 95 per cent) be satisfactory? Or would they consider a target in excess of 100 per cent? The choice made depends on the sponsors' judgements about the costs and risks contributors are able to bear and the level of benefit security to be provided.

Implicit in the development of a funding target would be the development of a *discount rate* assumption and the *margin* requirements around it.

A typical *margin* assumption to the best estimate *discount rate* is outlined below:

<u>Margin</u>	<u>Reduction from Best Estimate Discount Rate</u>
Minimum	(0.25 per cent - 0.5 per cent)
Normal	(0.75 per cent - 1.0 per cent)
Maximum	(1.25 per cent - 1.5 per cent)

For example, assuming a best estimate discount rate of 6.5 per cent, a normal margin discount rate would be 6.5 per cent less 0.75 per cent or 5.75 per cent.

Appendix E– Hypothetical Valuation Results

Hypothetical Results as at December 31, 2015

Funded Position

Assets	\$11,163
Liabilities	<u>10,809</u>
Surplus / (Deficit)	\$ 354

Note: Plan is in a surplus position, so no unfunded liability amortization payments in respect of the prior three year (January 1, 2013 to December 31, 2015) will be required

Contributions for January 1, 2016 to December 31, 2018

	<u>Pre 2016 Service</u>	<u>Post 2015 Service</u>	<u>Total</u>
Current Service Cost	n/a	13.5%	13.5%
Unfunded Liability Payments	<u>9.9%</u>	<u>0.0%</u>	<u>9.9%</u>
Total	9.9%	13.5%	23.4%

If the contribution rate cap is set at 25.0 per cent of pay, the post 2015 contribution rate is below the contribution cap

Hypothetical Results as at December 31, 2021

Funded Position

	<u>Pre 2016 Service</u>	<u>Post 2015 Service</u>	<u>Total</u>
Assets	\$15,392	\$2,068	\$17,460
Liabilities	<u>15,333</u>	<u>2,128</u>	<u>17,461</u>
Surplus / (Deficit)	\$ 59	\$ (60)	\$ (1)

Note: The plan has unfunded liability for post 2015 service. Amortization payments will be required.

Contributions for January 1, 2022 to December 31, 2024

	<u>Pre 2016 Service</u>	<u>Post 2015 Service</u>	<u>Total</u>
Current Service Cost	n/a	15.5%	15.5%
Unfunded Liability Payments	<u>5.1%</u>	<u>7.5%</u>	<u>12.6%</u>
Total	5.1%	23.0%	28.1%

If the contribution rate cap is set at 25.0 per cent of pay, the post 2015 contribution rate of 23.0 per cent is below the contribution cap. However, it is approaching the cap and the Board of Trustees will be monitoring the plan closely.

Hypothetical Results as at December 31, 2027 – Initial

Funded Position

	<u>Pre 2016 Service</u>	<u>Post 2015 Service</u>	<u>Total</u>
Assets	\$21,834	\$2,851	\$24,685
Liabilities	<u>21,750</u>	<u>3,019</u>	<u>24,769</u>
Surplus / (Deficit)	\$ 84	\$ (168)	\$ (84)

Note: Plan has unfunded liability post 2015 service. Amortization payments will be required.

Contributions for January 1, 2028 to December 31, 2030

	<u>Pre 2016 Service</u>	<u>Post 2015 Service</u>	<u>Total</u>
Current Service Cost	n/a	16.5%	16.5%
Unfunded Liability Payments	<u>2.1%</u>	<u>9.5%</u>	<u>11.6%</u>
Total	2.1%	26.0%	28.1%

If the contribution rate cap is set at 25.0 per cent of pay, the contribution rate exceeds contribution rate cap. Action must be taken to ensure contribution rate is below the cap.

Potential actions are:

- Loosening of margins in assumptions within limits imposed by the funding and benefits policy. Results in a potential reduction in the current service cost of 2.5 per cent if margins contained in the actuarial assumptions are reduced to minimum acceptable limits.
- Postponing cost of living payments for the following year. Results in a decrease in the liability of \$10 and corresponding decrease in the unfunded liability payments of 1.0 per cent

The Board of Trustees decide to partially loosen the margins and only pay a 30 per cent of inflation cost of living adjustment for the following year, reducing the contribution rate by 1.6 per cent and thus being below the contribution rate cap. This creates the following final results:

Hypothetical Results as at December 31, 2027 - Final

Funded Position

	<u>Pre 2016 Service</u>	<u>Post 2015 Service</u>	<u>Total</u>
Assets	\$21,834	\$2,851	\$24,685
Liabilities	<u>21,750</u>	<u>3,009</u>	<u>24,759</u>
Surplus / (Deficit)	\$ 84	\$ (158)	\$ (74)

Contributions for January 1, 2028 to December 31, 2030

	<u>Pre 2016 Service</u>	<u>Post 2015 Service</u>	<u>Total</u>
Current Service Cost	n/a	15.8%	15.8%
Unfunded Liability Payments	<u>2.1%</u>	<u>8.6%</u>	<u>10.7%</u>
Total	2.1%	24.4%	26.5%

Contributions for post 2015 service are below the contribution rate cap of 25 per cent.