N.B. Pipe Trades Shared Risk Plan – December 31, 2014 Actuarial Valuation Results

February 5, 2016

Important Disclaimer

IMPORTANT DISCLAIMER

- Figures contained in this document are for information purposes only and should be, at all times, viewed as such
- Future revisions to these figures, possibly in significant and material ways, can and should be expected to occur as actual Plan experience is revealed in future actuarial valuations
- As such, the figures presented in this document are meant to represent a finite array of possible amounts from an infinite number of scenarios possible and is meant to provide information
- Slides are invalid unless a qualified Morneau Shepell representative is present to discuss the contained information

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Funding Policy Financial Position

- Funding policy valuation is required under the PBA
- The funding policy valuation funded status of the Shared Risk Plan ("SRP Plan") is determined by comparing the fair market value of the assets to the funding policy actuarial liabilities
- The funding policy actuarial liabilities are based on the benefits earned up to the valuation date assuming the SRP Plan continues indefinitely
- Liabilities are calculated using a discount rate of 5%, wherein future investment returns are expected to average above this 75% of the time and average below this only 25% of the time
- To the extent that returns are favorable, the financial position will improve, and vice versa

Funding Policy Financial Position

	December 31, 2014
	$
Market Value of Assets	
Fair market value of assets	344,500,000
Funding Policy Actuarial Liabilities	
Active members	153,300,000
Terminated vested members	24,900,000
Retired members and beneficiaries	207,100,000
Outstanding refunds	500,000
Total funding policy valuation actuarial liabilities	385,800,000
Funding policy valuation excess (unfunded liability)	(41,300,000)
Termination value funded ratio	89.3%

Funding Policy Financial Position

- The termination value funded ratio is used in the calculation of the “termination value” of any individual’s pension benefits
- This includes pension benefits paid out at termination of employment, death, marriage breakdown, or retirement (small amounts only), as the case may be, in accordance with the New Brunswick *Pension Benefits Act* (“PBA”)
- The purpose of the termination value funded ratio being used (currently 89.3%) is to help ensure that remaining Plan members benefits do not have a reduction in benefit security as a result of a payout (this, in turn, aids in providing equality between members)
- Members who receive payouts forego any Plan enhancements that may occur in the future

Funding Policy Financial Position

The table below provides the funding policy valuation normal cost, being the value of the pension benefits being earned in the twelve-month period after the valuation date

It compares the funding policy valuation normal cost to the level of member and employer contributions in order to determine the level of contributions being made to the SRP Plan in excess of the funding policy valuation normal cost

	As at December 31, 2014
	$
A. Employee contributions	710,000
B. Employer contributions	10,820,000
C. Funding policy valuation normal cost	9,640,000
D. Excess contributions (A. + B. – C.)	1,890,000

Funding Policy Financial Position

- The table below provides the 15-year open group funded ratio as calculated in accordance with the requirements of the PBA
- This ratio is used extensively in the Funding Policy to determine the actions to be undertaken by the Board of Trustees ("Board") under the funding policy deficit recovery plan and the funding policy excess utilization plan
- The 15-year open group funded ratio is calculated as follows:

	December 31, 2014
	$
A. Market value of assets	344,500,000
B. Present Value of Excess Contributions over next 15 years [calculated in accordance with Reg. 14(6)(c)]	77,200,000
C. Funding policy valuation actuarial liabilities	385,800,000
D. 15-Year Open Group Funded Ratio [(A. + B.) / C.]	109.3%

SRP Risk Managing Process

- The primary risk management goal is to achieve a 97.5% probability that base benefits will not be reduced over the 20 years following the valuation.
- The goal is measured by taking into account the following funding management plans:
  - The funding deficit recovery plan (**SRP Risk Sharing**) except for reduction in past or future base benefits, and
  - The funding excess utilization plan (**SRP Reward Sharing**) excluding permanent benefit changes

SRP Risk Managing Process

- For the purposes of meeting these goals, base benefits include future accruals and any contingent indexing provided based on the financial performance represented by each scenario tested
- If as a result, through the testing process, a scenario allows for indexing in a given future year, then this contingent indexing amount becomes part of the base benefits that is to be protected
- In other words, the base benefit is dynamically adjusted based on the stochastic results for each economic scenario tested

SRP Risk Managing Process

- The risk management goals are measured using an asset liability model with future economic scenarios developed using a stochastic process
- **What is a stochastic process?** In essence, a model is run with 2,000 alternative economic scenarios over 20 years, giving 40,000 different points. This exceeds the minimum requirements under the PBA of 1,000 economic scenarios
- For each of these scenarios and for each year, the financial position of the Plan is measured
- For each of these measurements, a decision consistent with the SRP Risk Sharing or the SRP Reward Sharing, as applicable, is modeled

SRP Risk Managing Process

- When modeling the SRP Risk Sharing actions over the 20-year period of each of the 2,000 economic scenarios, the SRP Risk Sharing plan is implemented in sequence until such time as the open group funded ratio of the plan reaches 100% or higher
- A benefit reduction scenario is recorded (for purposes of the primary risk management goal calculation) when a reduction in past base benefits is triggered at any point in the 20-year period of an economic scenario
- The primary risk management measure is therefore the proportion of those 2,000 scenarios that do not result in a benefit reduction scenario over a 20-year period
- In order to pass the primary risk management goal, at least 1,950 of those 2,000 scenarios must not trigger a benefit reduction scenario as described above at any point over the 20-year period

SRP Risk Managing Process

RESULTS OF STOCHASTIC ANALYSIS FOR THE VARIOUS RISK MANAGEMENT GOALS

Risk Management Goal	Minimum Requirement under PBA	Result for NB Pipe Trades SRP Plan as at December 31, 2014
Primary Goal [Regulation 7(1)] - There is at least a 97.5% probability that the past base benefits at the end of each year will not be reduced over a 20-year period	97.5%	100.00% PASSED
Secondary Goal 2 [Regulation 7(3)] -	NA	NA

Comparison to Previous Valuations

TERMINATION VALUE FUNDED RATIO

- When the SRP was implemented on December 31, 2012, the Termination Value Funded Ratio was 84.1%
- Since implementation, favorable investment returns of 6.5% in 2013 and 9.2% in 2014, along with other favorable experience gains, have improved the Termination Value Funded Ratio
- Investment returns over the assumed 5% aid the position
- As at December 31, 2013, the Termination Value Funded Ratio increased to 84.8%
- The Termination Value Funded Ratio further increased to 89.3% as at December 31, 2014, a 5.2% improvement since the implementation of the SRP

Comparison to Previous Valuations

15-YEAR OPEN GROUP FUNDED RATIO

- When the SRP was implemented on December 31, 2012, the 15-Year Open Group Funded Ratio was 105.6%
- Since implementation, favorable investment returns of 6.5% in 2013 and 9.2% in 2014, along with other favorable experience gains, have improved the 15-Year Open Group Funded Ratio
- Investment returns over the assumed 5% aid the position
- As at December 31, 2013, the 15-Year Open Group Funded Ratio remained at 105.6%
- However, the 15-Year Open Group Funded Ratio increased to 109.3% as at December 31, 2014, a 3.7% improvement since the implementation of the SRP

Comparison to Previous Valuations

SRP RISK MANAGEMENT "NON-REDUCTION" PROBABILITY

- When the SRP was implemented on December 31, 2012, the SRP Risk Management "Non-Reduction" Probability was 99.9%
- This decreased slightly as at December 31, 2013 to 99.6%
- Since then, the SRP Risk Management "Non-Reduction" Probability increased to 100.0% as at December 31, 2014
- However, due to changes in market conditions and model expected returns in 2015 / 2016, we actually expect the SRP Risk Management "Non-Reduction" Probability to decrease for December 31, 2015 (most likely to the 99.6% to 99.9% range)
- Please note that all of the above results are substantially above the minimum required SRP Risk Management "Non-Reduction" Probability of 97.5% required by the PBA

SRP Risk Sharing

- The SRP Risk Sharing plan must be implemented by the Board of Trustees if the open group funded ratio of the Plan falls below 100% for two successive plan year ends
- Once triggered, a report shall be provided to the Superintendent describing how the Board of Trustees is dealing with the underfunding of the Plan
- In addition, Plan Members, the Employers and the Unions shall be informed of the actions being taken and the effect and timing of these actions on the contributions and benefits

SRP Risk Sharing

- The SRP Risk Sharing plan shall consist of the following actions in the order of priority as listed below:
  - **Step 1:** Increase contributions, limit of 25% increase (this is in addition to the 5% per annum automatic contribution increases that forms the SRP); and
  - **Step 2:** Reduce base benefits on a proportionate basis for all Members regardless of membership status, including those currently receiving pensions from the Plan, in equal proportions, for past service
- The above actions shall be taken one by one and, when the primary risk management goal is met (97.5%), no further actions are required at the time

SRP Risk Sharing

- Further actions are triggered when the primary risk management goal cannot be achieved with the cumulative effect of all previous actions, such goal being measured annually and follow-up actions to take effect as per the timelines later in this presentation
- For example, if the SRP Risk Sharing plan is triggered, the Board of Trustees would implement step 1 first and conduct the primary risk management goal test
- If step 1 is sufficient to meet the primary risk management goal, no further action would be required at that time
- At the next annual review, the goals would be tested again and if not achieved, step 2 would be implemented in the same manner and under the same circumstances as step 1

SRP Risk Sharing

- The base benefit reduction in Step 2, if required, shall be such that both goals below are achieved:
  - 105% open group funding level; and
  - Primary risk management goal of a minimum of 97.5% probability that base benefits need not be further reduced over the next 20 years
- The measurement date is the Funding Policy valuation date that triggered the need for the action or actions taken under the SRP Risk Sharing plan

SRP Risk Sharing

The timing of the changes shall be as follows:

- For contribution increases under step 1, no later than 12 months following the date of the Funding Policy valuation report that triggered the need for contribution increases
- For step 2, no later than 18 months following the date of the Funding Policy valuation report that triggered the need for base benefit reductions

SRP Risk Sharing

Emergency Contribution Increases of up to 25%

- Plenty of warning before this would kick in (**below is only an example!!**)
- Not a risk of occurring until a funding ratio first falls below 100% - we would start to have hints of this in the fall before the valuation (say fall 2018, with first ratio below 100% as at January 1, 2019)
- Now looking for the second funding ratio being below 100% - we would monitor this during the year (say 2019, with more information once fall 2019 comes, with second ratio below 100% as at January 1, 2020)
- We now have 12 months before the ECI kicks in as at January 1, 2021, wherein warnings would have started back in the fall of 2018 (over 24 months of "watching and warning")

SRP Reward Sharing

- The SRP Reward Sharing plan describes the actions the Board of Trustees must take or consider when the open group funding level exceeds 105%
- If the open group funding level is at 105% or less, there are no actions that can be taken under the SRP Reward Sharing plan
- The amount available for utilization is as follows:
  - 0% of the excess funds that make up the difference between the open group funding level at the valuation date of 105% to a maximum of 120% (always zero); PLUS
  - 30% of the excess funds that make up the difference between 120% to a maximum of 140%; PLUS
  - 100% of the excess above 140%

SRP Reward Sharing

- Notwithstanding, the amount available for utilization for reversing any base benefit reductions is as follows:
  - 20% of the excess funds that make up the difference between the open group funding level at the valuation date of 105% to a maximum of 140%; PLUS
  - 100% of the excess above 140%
- The actions that can be taken depend on whether the base benefits have ever been reduced and such reduction not subsequently reversed and on the priority order set out on the next slide

SRP Reward Sharing

- If base benefits have been reduced, all excess available for utilization must first be used to reverse such base benefit reductions with respect to future payments after the date of reversal until all the previous reductions to base benefits have been eliminated
- If base benefits have never been reduced or after all previous reductions have been reversed for future payments, then the Board of Trustees shall take the actions outlined in the following slide with respect to the excess available for utilization

SRP Reward Sharing

- Such actions shall be taken in the following order of priority:
  - **Action 1:** Provide indexing of flat dollar amounts and pension benefits for current year at 0.8% per annum
  - **Action 2:** Provide indexing of accrued flat dollar amounts and pension benefits for any past years that were missed at 0.8% per annum
- If some residual excess remains available after providing maximum allowed increases under the ITA for actions 1 and 2 above, such excess shall remain in the fund as increased security against future potential downturns in experience

SRP Reward Sharing

- If all improvements for actions 1 and 2 have been made and the open group funded ratio is still in excess of 140%, then the following actions shall be taken:
  - **Action 3:** 30% of such amounts in excess of the 140% open group funded ratio shall be used to provide further contingent indexing of accrued flat dollar amounts and pension benefits
  - **Action 4:** Remaining 70% of such amounts in excess of the 140% open group funded ratio shall be used to:
    - Further increase benefits; and/or
    - Provide further benefit security by not spending on benefit enhancements

SRP Reward Sharing

- The level to which action 4 is utilized by the Board of Trustees is based on the full discretion of the Board of Trustees in power at the time such excess arises
- Notwithstanding the above, the percentage increase to accrued benefits or pensions in payment that may result from actions 1 to 4 shall be the same for all members and former members, subject to an individual limit of recovery of full CPI up to January 1st of the year that follows the valuation date or coincides with it if the date of the valuation is January 1st of the same year

SRP Reward Sharing

- If the open group funded ratio is above 140%, any and all base benefit reductions have been reversed and actions 1 and 2 have been provided, the Board of Trustees may consider Permanent Benefit Changes and / or amending the Plan by reducing contribution rates
- If all of the actions above still leave the Plan with contributions in excess of the ITA limits, then contributions are to be reduced accordingly until such ITA limits are no longer exceeded
- Each of the actions above can only be implemented after confirming that the primary risk management goal is achieved after the change is made
- The timing of the above actions shall be the first of the year that is 12 months after the date of the Funding Policy valuation report that triggered the actions

Summary

- In an SRP, deficits or surpluses are no longer an issue, but rather the funding position of the Plan instead dictates the level of risk sharing or reward sharing available to members
- The more favorable the funding position, the more available for benefit improvements and security
- In contrast, the less favorable the funding position, the higher the probability of increased contributions (up to a 25% increase maximum) and possible benefit reductions
- In reality, the biggest determinant of funding position is the investment returns in the long term
- The management of the SRP, in turn, is fully outlined in the SRP Shared Reward plan and the SRP Shared Risk plan and depends on the position of the SRP at any given time