

MANITOBA PUBLIC INSURANCE

Round 3 Information Requests

2016 GRA

September 18, 2015

Public Utilities Board

Consumers' Association of Canada (Manitoba)

Manitoba Public Insurance
2016 GRA Round 3 Interrogatories
September 18, 2015

PUB (MPI) 2016 GRA Information Requests

PUB (MPI) 3-1

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	8-9, 14
Topic:	RSR		
Sub Topic:	Financial Information		
Issue:	DCAT Report		

Preamble: MPI states:

"We were unable to arrive at an estimate for the probability level of an adverse scenario *including* Management and Regulatory action with a starting Total Equity balance of \$366 million. However, we can approximate that that such an adverse scenario would be expected to occur at a frequency of less than 1-in-200 years...

...None of our 5000 simulations resulted in a Total Equity balance of less than zero over the forecast period under these conditions. This implies that the MCT-based upper capital target should be sufficient to cover virtually all plausible risk scenarios based on the conditions and assumptions utilized in this DCAT report."

MPI has recommended a four year time horizon to require adverse scenario capital levels at or above zero.

Question:

- a) Please provide the probability level of a combined adverse scenario including Management and Regulatory Action related to each of a 50%, 65% and 80% MCT level.
- b) Please provide the results of the combined adverse scenario including Management Regulatory action assuming such actions commence in 2017/18.
- c) Please provide the analysis requested in (a) using the scenario requested in (b).
- d) Please provide the rationale for why the Corporation chose a time horizon of four years.
- e) Please provide the combined adverse scenario including Management and Regulatory Action assuming a two year time horizon.

Rationale for Question:

To understand the impact of using alternative MCT targets in setting the equity target.

PUB (MPI) 3-2

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	12
Topic:	RSR		
Sub Topic:			
Issue:	DCAT		

Preamble: “7. For the Inflation scenario, change the scenario to include up front recognition of the full impact of inflation on future claim and expense payments, and to include consideration of any correlation between inflation and interest rate movements. **MPI: The Corporation does not support such an approach to modeling as it is not considered a realistic reflection of how the Corporation’s financial results would be impacted under such a scenario.**

The Chief Actuary does not intend to include such modeling in the DCAT report.”

Question:

Please provide a DCAT inflation scenario reflecting an upfront recognition of inflation in future claims and expense payments, and to include any correlation between interest and inflation movement

Rationale for Question:

To understand the impact of inflation and interest rates on the DCAT results.

PUB (MPI) 3-3

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	14, 55
Topic:	RSR		
Sub Topic:	Interest Rate Scenario		
Issue:	Impact of ALM on DCAT Results		

Preamble: MPI States:

"The impact of the new ALM strategy is included in the base and adverse scenarios of this DCAT report. Also, the Interest Rate adverse scenario in the DCAT report provides a comparison of the simulated results with and without the assumed ALM implementation, which should assist the reader to understand the impact of these changes."

The results of the analysis are provided on page 55 of the DCAT Report.

Question:

- a) Using the results of the interest rate decline scenarios with and without the implementation of the ALM program, please indicate the implied level of the total equity lower target limit with and without the ALM program.

- b) Please provide an exhibit comparable to page 55 of the DCAT Report for the combined adverse scenario with Management and Regulatory Actions.

Rationale for Question:

To understand the impact of ALM on the modelled risk of the Corporation.

CAC (MPI) 2016 GRA Information Requests**CAC (MPI) 3-1**

Volume:	Volume II, RSR.1, RSR Appendix A PDF Page 2 and 4	Page No.:	3
Topic:	Rate Stabilization Reserve		
Sub Topic:	Accounting Treatment for the RSR		
Issue:	The International Financial Reporting Standards (IFRS) do not specifically provide guidance on how to report or present rate stabilization reserve account values on a company's public financial statements.		

Preamble: On page 3 of RSR.1 it states "There are no specific IFRS standards that deal with the treatment of rate stabilization reserves. In the absence of specific accounting standards, the Corporation has flexibility in how it reflects information on its RSR."

On RSR Appendix A, PDF page 2 it states "5. Accounting standards preclude the RSR rebuilding fee going directly into retained earnings. 7. There is no evidence on the record, one way or the other, as to whether consumers understand the purpose or the function of either the RSR or Retained Earnings."

On RSR Appendix A, PDF Page 4 it states "As it relates to the statement of operations presentation, under the current accounting rules there is not the ability to have an RSR charge not flow through the statement of operations."

Question:

- a) Please place on the record, the results of any MPI survey or focus group over the last 3 years which test consumers' understanding of the RSR or consumer viewpoints on the appropriate magnitude of the RSR.
- b) Please confirm, based on current accounting rules, that the PUB Board could rule on how to account for the RSR and Retained Earnings for rate setting purposes to provide greater understanding and appreciation to consumers of the purpose, use

and function of the RSR and Retained Earnings. If this cannot be confirmed, please provide a detailed explanation and reasoning.

- c) Please explain the steps the Corporation would undertake in order to appropriate retained earnings to a specific capital reserve, such as the RSR.

Rationale for Question:

To clarify and understand the accounting treatments. It may be in the public interest to provide clarification on the use, purpose and function of the RSR and Retained Earnings.

CAC (MPI) 3-2

Volume:	Volume II, RSR, Appendix B	Page No.:	3
Topic:	Rate Stabilization Reserve		
Sub Topic:	Determination and accounting of the RSR amount		
Issue:	Is there a difference in accounting for and meaning of the Rate Stabilization Reserve compared to equity and retained earnings for basic insurance?		

Preamble: On page 3 of Volume II, RSR (RSR Discussion Paper, Kopstein Report to 2015) it states "The Rate Stabilization Reserve (RSR) is the amount of assets the Corporation has in excess of its liabilities in the Basic line of business."

Question:

- a) Please confirm that MPI does not, for Basic Insurance, draw a distinction among the accounting terms equity, retained earnings and Rate Stabilization Reserve—in other words, these accounting terms have the same meaning and the funds, if any, in these accounts can be used for the same purpose as it relates to Basic Insurance operations. If this cannot be confirmed please provide a definition for each account term and its operational use relating to Basic Insurance.
- b) Please elaborate and explain which accounting term in a) above would best describe the equity of MPI's Basic Insurance operations in today's environment.

Rationale for Question:

To clarify accounting terminology for Basic Insurance operations relating to the difference between assets and liabilities.

CAC (MPI) 3-3

Volume:	Volume II, RSR, Appendix B	Page No.:	4, 22
Topic:	Rate Stabilization Reserve		
Sub Topic:	Purpose and use of RSR funds		
Issue:	There appears to be confusion relating to the purpose and use of RSR Funds		

Preamble: In the Conclusion it states “Predictable and stable rates are important to Manitobans. The purpose of the Rate Stabilization Reserve “is to protect motorists from rate increases made necessary by unexpected events and losses arising from non-recurring events or factors”. This purpose has not changed since its inception and there is no reason to change that purpose now.”

On page 4 it states “In reality, the forecasting of income and expenses is not 100% accurate; and, as a result, in any given year the Corporation will end up with either more or less money than it had forecast. When unexpected events or losses occur, the Corporation does not generate, in that year, the money it requires to meet the liabilities it incurred in that year. As such, the Corporation is required to spend money it did not bring in during the fiscal year. The Corporation has, since the inception of the RSR, used it to pay for these expenses.”

Question:

- a) Please define “unexpected events or losses”.
- b) Please identify if and when the RSR, since its inception to to-date, has been used to fund an unexpected event that was forecasted to occur once in 40 years.
- c) Please confirm that, since inception to to-date, the Basic Insurance RSR has been used to fund differences between annual forecasting and actual results.

- d) Based on the chart on page 5 of the report, please provide the detailed amounts (net income/ (loss), for each year, from 1998 to 2014 for forecast and actual. Please calculate the average annual difference between forecast and actual for years 1998 to 2014, including and excluding 2010 and 2011.
- e) Please explain the significant difference between actual and forecast for years 2010 and 2011.

Rationale for Question:

To clarify the purpose and use of the RSR funds. To obtain a sense for consumers of the historic magnitude of investment variations.

CAC (MPI) 3-4

Volume:	Volume II, RSR, Appendix B	Page No.:	17
Topic:	Rate Stabilization Reserve		
Sub Topic:	Moneys reclaimed by the government		
Issue:	To clarify moneys contributed and reclaimed by the government impacting Basic Insurance RSR.		

Preamble: On page 17 it states "e) In the mid-1990, government reclaimed in excess of \$50 million previously contributed to MPI to offset reinsurance assumed losses;"

Question:

Please explain how the government contributed and reclaimed (was there an actual payment from and to the government) in excess of \$50 million relating to reinsurance assumed losses and how did this transaction impact the Basic Insurance RSR.

Rationale for Question:

To clarify the government's reinsurance assumed losses transaction and the financial impact on Basic Insurance RSR.

CAC (MPI) 3-5

Volume:	2016 Rate Application Rate Stabilization Reserve - RSR	Page No.:	4
Topic:	Rate Stabilization Reserve		
Sub Topic:	The Corporation's Position on the RSR		
Issue:			

Preamble: "Given the nature of the industry and the difficulty in predicting operating results, the RSR is often used from more than just offsetting extreme, one-time events, but rather absorbing the variances from plan each year . . . [T]he Corporation considers that the purpose is met pursuant to the manner in which the RSR is utilized and its accounting treatment is appropriate as indicated by the Corporation's external auditors."

Question:

- a) Please explain how MPI distinguishes between extreme one-time events and other demands on operating expenditures which would be covered by funds from the RSR.
- b) Please explain what criteria are used to determine that MPI has met the purpose of the RSR to restrict the usage of its funds to situations involving "unexpected events and losses arising from non-recurring events or factors."

Rationale for Question:

To clarify the Corporation's position.

CAC (MPI) 3-6

Volume:	2016 Rate Application Rate Stabilization Reserve – RSR 1.2.1	Page No.:	5
Topic:	RSR Methodology		
Sub Topic:			
Issue:			

Preamble: “The Corporation is proposing to use two separate and distinct actuarially accepted industry standard methodologies for establishing the lower and upper targets of the RSR range.”

Question:

- a) Please confirm that the methodologies that determine the minimum and maximum of the proposed RSR range are unrelated and therefore inconsistent. If this cannot be confirmed, please explain why not.

- b) Please explain why MPI thinks that it is necessary to adopt inconsistent methodologies to determine the range of the RSR

CAC (MPI) 3-7

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	8-9
Topic:	Upper (Maximum) Total Equity Target		
Sub Topic:			
Issue:			

Preamble: “Based on the year end 2014/15 results, a 100% MCT score is equivalent to an upper target of \$366 million . . . Although the upper Total Equity target is not a direct output from this DCAT report, the Chief Actuary has agreed to provide the *implied* probability level of an adverse event that would cause a reduction in Total Equity equivalent to the proposed MCT-based upper target . . .

[W]e can approximate that such an adverse scenario would be expected to occur at a frequency of less than 1-in-200 years. We made this conclusion by applying the assumed maximum 5.0% per year rate increase to policy years 2017/18 through 2019/20 in all of our Combined scenario simulations. None of our 5000 simulations resulted in a Total-Equity balance of less than zero over the forecast period under these conditions.”

Question:

- a) Please confirm that the absence of a negative Total Equity balance in 5000 simulations implies that, in the absence of any other evidence, the adverse scenario is likely to occur at a frequency of less than 1-in-5000 years.
- b) Please confirm that a 1-in-5000 years event is far less frequent than the upper standard of 1-in-200 years in the DCAT report.
- c) Please confirm that a 1-in-5000 year event corresponds to an adverse event beyond the 99.9998 (1-1/5000) percent tail of the probability distribution of events.

Rationale for Question:

To properly characterize the upper bound of the proposed RSR target.

CAC (MPI) 3-8

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	26
Topic:	Economic Assumptions in the Base Scenario		
Sub Topic:			
Issue:			

Preamble: “Projected Manitoba and Canadian Consumer Price Inflation (CPI) are forecasted at . . . 2.4% and 2.3% respectively in 2016/17. Thereafter, both CPI forecasts are projected at 2.0% per year.”

Question:

- a) Please confirm that these inflation rates are applied to the adverse scenarios.
- b) If these inflation rates are not implied to the adverse scenarios, please indicate what inflation rates are applied to the interest rate and combined scenarios.

Rationale for Question:

To clarify the assumptions employed.

CAC (MPI) 3-9

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	35
Topic:	Equity Decline Scenario, Selected Adverse Scenarios by Percentile and Return Period (Cumulative)		
Sub Topic:			
Issue:			

Question:

- a) Please confirm that the change in returns from the third to the fourth year is larger than in any other year (first to second year or second to third year), i.e. +14.5% for the 0.5th percentile, +12.6% for the 1st percentile, etc..
- b) Please indicate whether the change in return from the third to fourth year constitutes a significant rebound in equity returns associated with an adverse equity decline

Rationale for Question:

To examine the validity of the equity scenario.

CAC (MPI) 3-10

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	39
Topic:	Equity Decline Scenario, Results with Management and Regulatory Action		
Sub Topic:			
Issue:			

Preamble: “The most adverse 1-in-40 probability level scenario after management action is the three-year scenario.”

Question:

- a) Please confirm that the three-year scenario ignores the performance of equities from year three to year four.
- b) Please confirm that the rebound in equity returns from an adverse equity decline is largest from year three to year four.

Rationale for Question:

To test the validity of the equity scenario.

CAC (MPI) 3-11

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	39
Topic:	Equity Decline Scenario, Results with Management and Regulatory Action		
Sub Topic:			
Issue:			

Preamble: “The most adverse 1-in-40 probability level scenario after management action is the three-year scenario.”

Question:

- a) Please confirm that all other adverse scenarios (the high loss, interest rate decline and combined scenarios) are based on a four-year scenario
- b) Please justify the inconsistency in choosing a three-year scenario for the equity decline scenario rather than the four-year scenario chosen for all other adverse scenarios.

Rationale for Question:

To understand the MPI rationale for deviating from its practice.

CAC (MPI) 3-12

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	46,49
Topic:	Interest Rate Decline Scenario, Interest Rate Floor Assumption		
Sub Topic:			
Issue:			

Preamble: P.46: “The methodology for setting the interest rate floor has not changed; however, the floor has been lowered from 1.68% in last year’s report to 1.25% in this year’s report.”

P.49: “The interest rate floor of 1.25% is based on the lowest monthly GoC 10 year bond yield from 1989 to present.”

Question:

- a) Please explain why **monthly** rates are used to calculate the interest rate floor for scenarios that are **annually** based, i.e. 2016/17 through 2019/20 fiscal years
- b) Please provide the annual (12-month) and the four-year (48-month) minimum 10-year GoC yield between 1989 and the present.

- c) Please confirm that a 1.25% interest rate floor implies a -1.15% real interest rate (1.25% less 2.4% projected for Manitoba) for 2016/17 and a -0.75% real interest rate (1.25% less 2% projected) for 2017/18 through 2019/20 in the adverse interest rate and combined scenarios.
- d) Please indicate when **negative** real interest rates (interest rates below the rate of inflation of CPI) were last observed in Canada for one year and for four years.

Rationale for Question:

To examine the plausibility and probability of the scenario.

CAC (MPI) 3-13

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	50
Topic:	Interest Rate Decline Scenario, (1-40 Year Scenarios Without and With 1.25% Floor)		
Sub Topic:			
Issue:			

Question:

- a) Please confirm that the graphs of interest rate movements with and without the interest rate floor differ for all years (1-4), i.e. the interest rate floor is an effective constraint on interest rate movements in all years (from 2016 to 2020).
- b) Please explain how, in the presence of the interest rate floor, the interest rate decline scenarios can still be described as 1-in-40 year events.

Rationale for Question:

To examine the probability claims alleged for the interest rate scenario.

CAC (MPI) 3-14

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	57
Topic:	Combined Scenario, Scenario Justification		
Sub Topic:			
Issue:			

Preamble: “The interest rate ‘floor’ methodology . . . was again used when modeling interest rates.”

Question:

- a) Please confirm that a 1.25% interest rate floor implies a -1.15% real interest rate (1.25% less 2.4% projected for Manitoba) for 2016/17 and a -0.75% real interest rate for 2017/18 through 2019/20 in the adverse interest rate and combined scenarios.

- b) Please explain how the presence of the interest rate floor in the combined scenario affects the results for the Combined Scenario Total Equity (p.58).

Rationale for Question:

To examine the plausibility and probability of the combined scenario.

CAC (MPI) 3-15

Volume:	DCAT Report	Page No.:	27 and 32
Topic:	Investment split between equities and fixed income and its impact on the adverse scenarios		
Sub Topic:			
Issue:	The investment mix		

Preamble: The target asset allocation was changed from 60% fixed income/20% equities/20% alternatives to 70% fixed income/15% equities/15% alternatives. The Interest Rate Decline and Equity Decline scenarios have the most adverse impact on total equity other than the combined scenario.

Question:

- a) Has the Corporation completed an analysis of the impact of further reducing the allocation to equities in favor of fixed income on both the adverse scenario results and the amount of investment income?
- b) If so, please provide this analysis. If not, would the Corporation consider this type of analysis in order to perhaps reduce the impact of the Equity Decline and Interest Rate Decline adverse scenarios?

Rationale for Question:

To see if the adverse nature of the Equity Decline and Interest Rate Decline scenarios can be reduced for the Corporation.

CAC (MPI) 3-16

Volume:	DCAT Report	Page No.:	47
Topic:	Interest Rate Base Forecast		
Sub Topic:			
Issue:	Base forecast for Interest rates seems high		

Preamble: The base forecast for interest rates seems high given how much lower the actual interest rates compared to forecast were from 2008 to 2015.

Question:

Does the Corporation feel that their base forecast for interest rates shown on Page 47 of the DCAT report are realistic given the history shown on the graph on the same page?

Rationale for Question:

To ensure the base forecast is reasonable.

CAC (MPI) 3-17

Volume:	DCAT Report	Page No.:	35
Topic:	Equity Decline Selected Adverse Scenarios		
Sub Topic:			
Issue:	Equity Decline seems unrealistic		

Preamble: The historical period used to determine the selected adverse scenarios is 59 years. The selected adverse scenario seems unlikely to occur, thereby making it implausible.

Question:

In the historical data used in the selection of the equity decline adverse scenarios please give the year and data where the adverse scenario chosen, shown on page 35 of the DCAT report, actually occurred or where the actual situation was worse.

Rationale for Question:

To ensure the adverse scenario is plausible.

CAC (MPI) 3-18

Volume:	DCAT Report	Page No.:	37
Topic:	Equity Decline Adverse Scenarios – Impairment Rules		
Sub Topic:			
Issue:	Impairment rule seems harsh		

Preamble: The conditions given for impairment seem harsh, causing the adverse scenario to be more adverse than would be the case with more lenient impairment rules.

Question:

The impairment rules given for the Equity Decline adverse scenario on page 37 are much harsher than most private companies would use. Please quantify the impact if there was no second rule and the first rule was changed to read:

1. If the market value falls below 70% of book value at fiscal year end, impairment is recognized.

Rationale for Question:

To find out what the impact is of the impairment rules on the results of the Equity Decline adverse scenario.

CAC (MPI) 3-19

Volume:	DCAT Report	Page No.:	42 and 43
Topic:	High Loss Ratio Scenarios – Four year scenarios are most adverse		
Sub Topic:			
Issue:	Clarity on Results		

Preamble: It would seem intuitive that a four year scenario would be more adverse than a one year scenario because the simulations of ultimate loss costs would of course show worse experience over four years.

Question:

The most adverse high loss ratio scenarios are the four year scenarios as shown on page 42 and 43 of the DCAT report.

- a) This would be intuitive because the simulations of ultimate loss costs would be worse over four years, rather than one. Does the Corporation agree that this is intuitive, given an understanding of simulations?
- b) Given the thought above does the Corporation feel that four year scenarios are plausible for the High Loss Ratio adverse scenarios?

Rationale for Question:

To ensure understanding of the high loss ratio adverse scenarios and question the use of four year scenarios for this risk.

CAC (MPI) 3-20

Volume:	DCAT Report	Page No.:	56 and 57
Topic:	Combined scenario – correlation between equity returns and interest rate movements		
Sub Topic:			
Issue:	Clarity on Assumptions		

Preamble: The most recent 10 years of data were used to determine the correlation between equity returns and interest rate movements while other assumptions (equity declines and interest rate declines) have been made with data from 1956 to present.

Question:

Page 56 and 57 of the DCAT report indicate that the most recent 10 years of data were used to determine the correlation between equity returns and interest rate movements while other assumptions (equity declines and interest rate declines) have been made with data from 1956 to present.

Why does the Corporation feel that the 10 years of history is a better indicator of correlation between equity returns and interest rate movements? The correlation between equity returns and interest rate movements is widely felt to be positive in the longer term (over 1 one year), which is shown in the results using 1956 to present data.

Rationale for Question:

To understand the reason for the use of a shorter time period in the determination of the correlation assumption between equity returns and interest rate movements.

CAC (MPI) 3-21

Volume:	DCAT Report	Page No.:	59
Topic:	Combined scenario – Difference in Assumptions to independent scenarios		
Sub Topic:			
Issue:	Clarity on Assumptions		

Preamble: Page 59 of the DCAT report indicates that the assumptions used for Loss Ratios, Equity Returns and Interest Rates are different from the independent adverse scenarios.

Question:

Page 59 of the DCAT report indicates that the assumptions used for Loss Ratios, Equity Returns and Interest Rates are different from the independent adverse scenarios. Why is this the case?

Rationale for Question:

To understand the reason for the use of different assumptions.

CAC (MPI) 3-22

Volume:	RSR	Page No.:	4
Topic:	Rate Stabilization Reserve		
Sub Topic:			
Issue:	Clarity on the Purpose of the RSR		

Preamble: The purpose of the RSR has been stated several times by both the Board and MPI. The statement quoted in the question below could indicate the Corporation wishes to change the stated purpose of the RSR.

Board Order No. 151/13 (as well as several other Orders) states:

“The stated purpose of the Rate Stabilization Reserve (RSR) is to protect motorists from rate increases made necessary by unexpected events and losses arising from nonrecurring events or factors.” (Page 33)

Page 4 of the RSR section states “And as stated in the November 18, 2014 letter from PWC (attached as Appendix A); “Given the nature of the industry and the difficulty in predicting operating results, the RSR is often used for more than just extreme, one-time events, but rather absorbing the variances from plan each year.””

Question:

Is the Corporation suggesting that they would like to change the stated purpose of the RSR? If so, please explain the rationale?

Rationale for Question:

To clarify the purpose of the RSR.

PUB (MPI)

PUB (MPI) 3-1

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	8-9, 14
Topic:	RSR		
Sub Topic:	Financial Information		
Issue:	DCAT Report		

Preamble: MPI states:

"We were unable to arrive at an estimate for the probability level of an adverse scenario *including* Management and Regulatory action with a starting Total Equity balance of \$366 million. However, we can approximate that that such an adverse scenario would be expected to occur at a frequency of less than 1-in-200 years...

...None of our 5000 simulations resulted in a Total Equity balance of less than zero over the forecast period under these conditions. This implies that the MCT-based upper capital target should be sufficient to cover virtually all plausible risk scenarios based on the conditions and assumptions utilized in this DCAT report."

MPI has recommended a four year time horizon to require adverse scenario capital levels at or above zero.

Question:

- a) Please provide the probability level of a combined adverse scenario including Management and Regulatory Action related to each of a 50%, 65% and 80% MCT level.
- b) Please provide the results of the combined adverse scenario including Management Regulatory action assuming such actions commence in 2017/18.
- c) Please provide the analysis requested in (a) using the scenario requested in (b).

- d) Please provide the rationale for why the Corporation chose a time horizon of four years.
- e) Please provide the combined adverse scenario including Management and Regulatory Action assuming a two year time horizon.

Rationale for Question:

To understand the impact of using alternative MCT targets in setting the equity target.

RESPONSE:

- a) In order to have consistency between scenarios, three different levels of management action were assumed and applied across all scenarios. Currently the DCAT model is not capable of applying dynamic management action to all of the simulated scenarios.

The following represents the approximate probability levels of the 4-year Combined scenarios that would deplete Total Equity by the end of the fourth year under the three levels of management action.

Probability Levels of 4-Year Combined Scenarios

MCT level as of 2015/16	No Management Action	2.5% in 2017/18 - 2019/20	5.0% in 2017/18 - 2019/20
80%	1-in-16	1-in-186	N/A*
65%	1-in-8	1-in-65	1-in-715
50%	1-in-5	1-in-28	1-in-228

*Only one scenario of the 5000 simulated results in a negative Total Equity balance.

- b) The Combined scenario includes management action that occurs in 2017/18. This is outlined on page 60 of the 2015 DCAT Report.
- c) The analysis in part (a) includes management action in 2017/18.

d) The following was taken directly from the DCAT collaborative process discussions, where Mr. Johnston stated: "The design of the forecast period for DCAT adverse scenarios, and MPI's recommended approach for determining capital requirements, was based on the actuarial standards of practice, which state (2520.16): '... the forecast period would be sufficiently long to capture the effect of its adversity and the ability of management to react. The forecast period for a typical life insurer would not be less than five fiscal years. The forecast period for a typical property and casualty insurer would not be less than three fiscal years.' Given the long term nature of our PIPP liabilities and the nature of our regulatory process (which requires at least a 2-3 year period of time to adequately respond to adverse events), I am of the opinion that MPI Basic is definitely not a typical property and casualty insurer. For this reason, we believe a four year time horizon is appropriate for the assessment of our capital requirements. This is the time horizon that is used in the DCAT report and is the methodology MPI is recommending for determining our minimum capital requirements."

e) The response to this part will be filed at a later date in the near future.

PUB (MPI) 3-2

Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	12
Topic:	RSR		
Sub Topic:			
Issue:	DCAT		

Preamble: “7. For the Inflation scenario, change the scenario to include up front recognition of the full impact of inflation on future claim and expense payments, and to include consideration of any correlation between inflation and interest rate movements. **MPI: The Corporation does not support such an approach to modeling as it is not considered a realistic reflection of how the Corporation’s financial results would be impacted under such a scenario. The Chief Actuary does not intend to include such modeling in the DCAT report.”**

Question:

Please provide a DCAT inflation scenario reflecting an upfront recognition of inflation in future claims and expense payments, and to include any correlation between interest and inflation movement

Rationale for Question:

To understand the impact of inflation and interest rates on the DCAT results.

RESPONSE:

On page 64 of the 2015 DCAT report the Corporation provided a table showing historical average inflation rates and standard deviations for two historical periods (1915-1991 and 1992-present). This table is reproduced below.

Period	Mean	Standard Deviation
1915-1991	3.6%	5.4%
1992-2014	1.8%	0.7%

In previous GRA hearings the Corporation, the PUB, and the CAC debated the appropriate historical period to use for inflation modeling. Based on these discussions, the Corporation agreed with CAC that modeling inflation based only on the 1992-2014 historical period was most appropriate. Once this assumption was made, the inflation scenario was no longer considered a significant risk to the future financial condition of Basic in the DCAT report.

The Corporation recognizes that other actuaries may use significantly higher inflation assumptions in their adverse scenarios, and as a result, produce much more adverse financial outcomes from these scenarios. However, the Corporation believes that stakeholders (including the Corporation) have settled on the approach described above. The Corporation did not receive any recommended changes to the inflation modeling assumptions during the DCAT collaborative process (other than to run the “upfront recognition” scenario proposed in this question).

As stated in the 2015 DCAT, based on a 1992-2014 historical period, a 1-in-40 year inflation scenario represents a 4 year average inflation rate of only 2.6% per year, which is barely distinguishable from the base scenario inflation rates.

In regards to the correlation between inflation and interest rates, this relationship would appear to have little relevance during the 1992-2014 period, as inflation essentially held steady at approximately 2.0% per year over the period, while interest rates have experienced significant declines in recent years. The data supports this hypothesis, as the observed correlation between GOC 10 year bond rates and Canadian CPI was -0.048 during this period, indicating that there was

virtually no relationship between these variables (based purely on the data). Even at record low interest rates, actual and projected inflation rates continue to track at close to 2.0% per year.

The DCAT modeling of very minor differences in assumed inflation is problematic as it is unclear how the impact of relatively constant inflation rates over the past several decades have directly impacted premium, claims, expense, and asset return trends. For example, consider the ultimate claims incurred forecast for 2016/17 to 2019/20 accident years, which is shown below (data is from page 50 of Claims Incurred)

Total Basic Ultimate Incurred (\$000)

Accident Year	Ultimate	Annual % Change
2016/17	687,522	4.43%
2017/18	718,281	4.47%
2018/19	750,758	4.52%
2019/20	778,345	3.67%

Since the GRA forecast is based on a historical period that includes average CPI inflation of approximately 2.0% per year, we can assume that this 2.0% inflation rate is embedded in the historical trends used to make the claims forecast. Assume now that CPI inflation increases to 2.6% per year for the 2016/17 to 2019/20 period, and as a result, the assumed annual growth rates in ultimate costs increase by 0.6% per year (i.e. 2.6% minus 2.0%). The resulting forecast and comparison to the GRA forecast is shown below.

Total Basic Ultimate Incurred (\$000) at Assumed 2.6% CPI Inflation Rate

Accident Year	Revised Ultimates	Revised Annual Change	GRA Ultimate	Difference
2016/17	691,472	5.03%	687,522	3,950
2017/18	726,530	5.07%	718,281	8,249
2018/19	763,728	5.12%	750,758	12,970
2019/20	796,339	4.27%	778,345	17,994

The above table is clearly an approximation; however, two observations can be made from these results as it relates to the DCAT modeling. Firstly, the Corporation's claims forecasts will respond almost immediately to higher severity rates, as the previous year's average severity is generally the base severity for the following year's forecast (e.g. when collision severity increased significantly in 2013/14 it caused the entire collision forecast to increase because of the higher base severity). Therefore, the nature of claims severity increases means that management action is faster than other adverse scenarios, as the Corporation will immediately adjust its claims forecasts for the higher observed severity and apply for break-even rates in the following GRA.

Secondly, the rationale for "upfront recognition of inflation in future claims" would not seem logical, as this is clearly not how higher inflation would impact Basic financial results or the Corporation's ability to respond to such scenarios.

To summarize, (i) the logic of modeling upfront recognition of all future inflation impacts is not well understood by the Corporation, (ii) the 1992-2014 historical period used as the basis for inflation modeling does not result in material financial impacts over the forecast period, especially when management action is assumed, (iii) the Corporation has no record of alternate historical periods or alternate modeling methodologies being proposed as part of the DCAT collaborative process or technical conferences (other than the proposal to use upfront recognition). If higher inflation assumptions were assumed in the DCAT modeling (e.g. 5.0% per year), then inflation would certainly be one of the most adverse scenarios, but that is not the case for the Basic DCAT.

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Volume:	2016 Rate Application Rate Stabilization Reserve – DCAT Report	Page No.:	14, 55
Topic:	RSR		
Sub Topic:	Interest Rate Scenario		
Issue:	Impact of ALM on DCAT Results		

Preamble: MPI States:

"The impact of the new ALM strategy is included in the base and adverse scenarios of this DCAT report. Also, the Interest Rate adverse scenario in the DCAT report provides a comparison of the simulated results with and without the assumed ALM implementation, which should assist the reader to understand the impact of these changes."

The results of the analysis are provided on page 55 of the DCAT Report.

Question:

- a) Using the results of the interest rate decline scenarios with and without the implementation of the ALM program, please indicate the implied level of the total equity lower target limit with and without the ALM program.
- b) Please provide an exhibit comparable to page 55 of the DCAT Report for the combined adverse scenario with Management and Regulatory Actions.

Rationale for Question:

To understand the impact of ALM on the modelled risk of the Corporation.

RESPONSE:

- a) Without the ALM program, the Total Equity lower target limit of the Combined scenario would be \$30 million higher. A minimum of \$242 million in Total Equity is required at the start of the 2016/17 fiscal year (or the end of the 2015/16 fiscal year) in order for all adverse scenarios to maintain a positive Total Equity balance over the forecast period without the implementation of the ALM program.
- b) Below are the tables on page 55 of the DCAT Report using the Combined scenario.

EXCLUDING ALM: Combined Scenario (in millions)

	2015/16	2016/17	2017/18	2018/19	2019/20
Earned Revenues	\$883	\$935	\$980	\$1,027	\$1,076
Total Claims Costs	\$723	\$934	\$980	\$1,060	\$1,022
Expenses	\$136	\$142	\$147	\$154	\$157
Investment Income	\$13	\$75	\$70	\$66	\$42
Net Income	\$37	(\$66)	(\$77)	(\$121)	(\$61)
Retained Earnings	\$215	\$149	\$71	(\$50)	(\$111)
Total Equity	\$247	\$153	\$53	(\$87)	(\$146)
MCT Ratio	52.6%	21.7%	-7.3%	-42.6%	-57.2%

EXCLUDING ALM: Combined Scenario with Management Action (in millions)

	2015/16	2016/17	2017/18	2018/19	2019/20
Rate Changes	3.40%	0.00%	3.00%	4.00%	0.00%
Cumulative RSR Fee	0.00%	0.00%	0.00%	0.00%	0.00%
Earned Revenues	\$883	\$935	\$995	\$1,078	\$1,148
Total Claims Costs	\$723	\$934	\$969	\$1,044	\$1,024
Expenses	\$136	\$142	\$148	\$156	\$162
Investment Income	\$13	\$75	\$71	\$66	\$43
Net Income	\$37	(\$66)	(\$51)	(\$56)	\$5
Retained Earnings	\$215	\$149	\$98	\$42	\$47
Total Equity	\$247	\$153	\$80	\$4	\$12
MCT Ratio	52.6%	21.7%	-0.5%	-19.9%	-19.8%

Comparison of Combined Scenarios with and without ALM

	2015/16	2016/17	2017/18	2018/19	2019/20
Total Equity incl ALM	\$262	\$181	\$116	\$51	\$70
Total Equity excl ALM	\$247	\$153	\$80	\$4	\$12
Change	\$16	\$27	\$36	\$46	\$58
Net Income incl ALM	\$43	(\$56)	(\$42)	(\$45)	\$21
Net Income excl ALM	\$37	(\$66)	(\$51)	(\$56)	\$5
Change	\$6	\$11	\$9	\$11	\$15