

# **NEW BRUNSWICK RISK SHARING POOL**

## FEBRUARY 2016 OPERATIONAL REPORT

# **ACTUARIAL HIGHLIGHTS**

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## **ACTUARIAL HIGHLIGHTS**

## **RSP New Brunswick**

## OPERATIONAL REPORT FEBRUARY 2016

## TABLE OF CONTENTS

1	Sum	ımarv.		3
_			tion Schedule (Fiscal Year 2016)	
	1.2	Appo	inted Actuary and Hybrid Actuarial Services Model	3
	1.3	Consi	deration of Recent Legal Decisions and Changes in Legislation / Regulation	3
	1.4		nt Provision Summary	
2	Acti	vity Di	ring the Month of February 2016	5
_	2.1		ded Premium and Claims Activity	
		2.1.a	Actual vs. Projected (AvsP): Earned Premium	5
		2.1.b	AvsP: Recorded Indemnity & Allowed Claims Expense	
		2.1.c	AvsP: Paid Indemnity & Allowed Claims Expense	9
	2.2	Actua	rial Provisions	10
3	Ulti	mate L	oss Ratio Matching Method	12
4	Cale	endar Y	/ear-to-Date Results	12
5	Cur	rent O	perational Report – Additional Exhibits	13
6	EXI	HIBITS		13



#### 1 Summary

#### 1.1 Valuation Schedule (Fiscal Year 2016)

The February 2016 Operational Report leverages actuarial assumptions consistent with last month (that is, it does not reflect the results of an updated valuation). The table immediately below summarizes the implemented valuations and future scheduled valuations for fiscal year 2016.

	NEW BRUNSWICK RISK SHARING POOL FISCAL YEAR 2016 – SCHEDULE OF VALUATIONS									
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes							
Sep. 30, 2015 (completed)	0.73% mfad: 25 bp	Oct. 2015	updated valuation (roll forward): accident year 2015 loss ratio increased 0.6 points to 83.5%; discount rate decreased by 17 basis points; no change to selected margins for adverse deviations							
Dec. 31, 2015		Mar. 2016	update valuation:							
Mar. 31, 2016		May 2016	update valuation (roll forward):							
Jun. 30, 2016		Aug. 2016	update valuation:							
Sep. 30, 2016		Oct. 2016	update valuation (roll forward):							

Under the proposed schedule for fiscal year 2016, the "off-half" valuation quarters ending March 31, 2016 and September 30, 2016 would not reflect a full valuation update of assumptions, but would rather "roll-forward" key assumptions from the previous valuation.

#### 1.2 Appointed Actuary and Hybrid Actuarial Services Model

Liam McFarlane of Ernst & Young LLP is Facility Association's Appointed Actuary (effective as of June 1, 2013).

Facility Association operates under a "hybrid" model in relation to the management and provision of actuarial services. Under this model, actuarial services are performed by both Facility Association's internal staff and its external actuarial consulting firm. The hybrid model approach maximizes the efficiency of resource allocation while providing access to additional expertise and capacity as needed.

#### 1.3 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

Consideration and assessment of potential impacts of legal decisions and changes in legislation / regulation constitutes a regular part of the valuation process. Descriptions of some of the more recent changes are provided below.

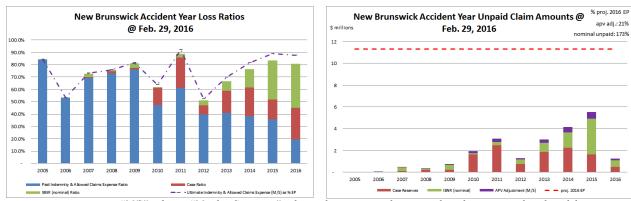
New Brunswick Regulation 2013-37 was filed by the Government of New Brunswick on



May 7, 2013, amending Regulation 2003-20 (Injury Regulation), made under the Insurance Act. The Regulation introduced a new Part 2 which applies to all injuries arising from motor vehicle accidents occurring on or after August 1, 2013. The new Part 2 re-defines "minor personal injury", raises the maximum non-pecuniary damages recoverable by those suffering a "minor personal injury", and sets out a process for annually indexing the monetary cap for inflation. At the June 30, 2015 valuation, reform adjustments (originally introduced with the June 30, 2014 valuation) were explicitly taken into account with the updated industry trend analysis (completed using industry data as at December 31, 2014), impacting the selection of ultimates.

#### 1.4 Current Provision Summary

The charts immediately below show the current levels of claim liabilities<sup>1</sup> booked by accident year. The left chart displays life-to-date payments, case reserves, IBNR, and the total including actuarial present value adjustments against accident year earned premium. The right chart shows the associated dollar amounts for the components of the claim liabilities and the current projected amount of 2016 full year earned premium (the red hash-mark line) to provide some perspective.



"M/S" refers to "Member Statement" values - that is, actuarial present value adjustments at the selected discount rate.

The current actuarial present value adjustments balance (\$2.3 million – see table immediately below) represents 21% of the earned premium projected for the full year 2016 (see the upper right corner of the right chart above). If our current estimates of the nominal unpaid amounts prove to match actual claims payments, the actuarial present value adjustments will be released into the net operating result over future periods.

lia	liabili	liabilities

amt	%
11,574	53.0%
7,935	36.4%
2,312	10.6%
21,821	100.0%
	7,935 2,312

The table to the left breaks down the Member Statement (M/S) claim liabilities total into component parts, showing that the majority of the claim liabilities is in case reserves for this pool. Approximately 49% of the IBNR balance relates to accident years 2015 and 2016 (see Exhibit B). Approximately 70% of the M/S

claim liabilities are related to accident years 2012-2016 inclusive (i.e. the most recent 5 accident years).

<sup>&</sup>lt;sup>1</sup>Claim liabilities refer to provision for unpaid indemnity and allowed claims expenses. Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this discussion.



The tables immediately below summarize the premium liabilities and the total policy liabilities.

premium liabilities (\$00	00s)		policy liabilities (\$000s)				
	amt	%		amt	%		
unearned prem	4,857	109.6%	claim	19,509	74.3%		
prem def/(dpac)	(805)	(18.2%)	premium	4,052	15.4%		
M/S apv adjust.	380	8.6%	M/S apv adjust.	2,692	10.3%		
M/S total	4.432	100.0%	M/S total	26.253	100.0%		

#### 2 Activity During the Month of February 2016

#### 2.1 Recorded Premium and Claims Activity

The table immediately below summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report<sup>2</sup>.

New Brunswick RSP Actual vs Projected Summary: Recorded Transaction Amounts (\$ thousands)

Table 01	Earned P	remium	Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
Accident	Actual	Actual less	Actual	Actual less	Actual	Actual less	Actual	Actual less
Year		Projected	Actual	Projected		Projected		Projected
Prior	-	-	175	(25)	(46)	<b>7</b> 9	128	53
2014	(0)	(0)	25	(49)	132	198	157	149
2015	(5)	(5)	74	49	30	38	104	87
2016	868	(18)	309	54	287	156	597	209
TOTAL	863	(23)	583	28	403	470	986	499

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural "process variance" (this is particularly true where volumes are low). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the variance. Commentary from our review is provided in the sub-sections that follow.

#### 2.1.a Actual vs. Projected (AvsP): Earned Premium

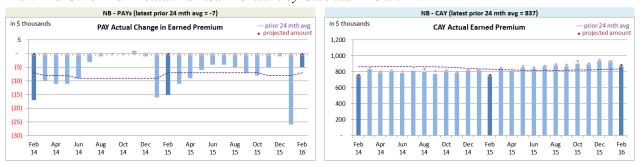
The charts at the top of the next page show actual **earned premium**<sup>3</sup> activity in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

<sup>&</sup>lt;sup>2</sup>There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

<sup>&</sup>lt;sup>3</sup>Premium is earned on a daily basis based on the transaction term measured in days. As a result, months with 31 days earned relatively more than those with 30 days, and February earns the least.



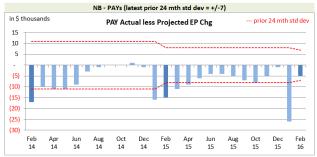




**Earned premium** changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels seem to occur in January each year.

The associated variance between the actual changes and the projections from the previous month are shown in the charts immediately below. **Earned premium** change projections are all attributed to the current accident year as the projection upload does not accept **earned premium** changes for other accident years. We do not see this limitation as being significant for our purposes, but it does mean that the actual less projection variance will equal the actual **earned premium** change in relation to prior accident years.

New Brunswick RSP Actual vs. Projected Summary: Earned Premium Variances by Calendar Month





On Latest \$ thousands						
Earned Premium	PAYs	CAY				
Mthly Avg EP Chg (prior 24 mths)	(7)	837				
std dev	7	51				
A-P <> std dev	6	1				
% <> std dev	24.0%	4.0%				
norm <> std dev	31.7%	31.7%				

We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated bias<sup>4</sup>, with actuals generally lower than our projections. However, the magnitude is not high relative to monthly premium, and the

variances are within the prior 24-month standard deviation more often than indicated by a normal distribution (see charts above). Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

#### 2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

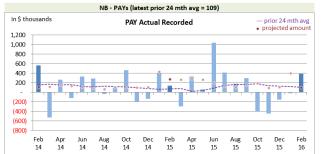
Actual **recorded** activity (paid and case reserve changes) over the last 25-month period are shown in

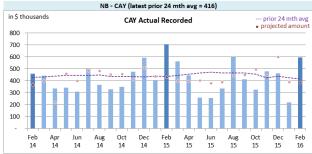
<sup>&</sup>lt;sup>4</sup>The prior accident years (PAYs) variances will show bias as the projection upload forces all earned premium projections to be attributed to the current accident year.



the charts immediately below, including the "prior 24-month average" level.

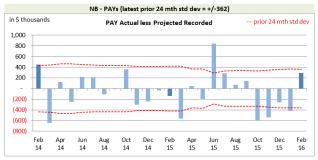
New Brunswick RSP Actual **Recorded** by Calendar Month

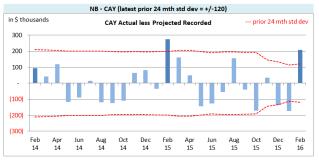




**Recorded** activity variances from the previous month's projections are shown in the charts immediately below, including the "prior 24-month standard deviation" levels.

New Brunswick RSP Actual vs Projected Summary: Recorded Variances by Calendar Month





On Latest \$ thousands						
Recorded	PAYs	CAY				
Mthly Avg Recorded (prior 24 mths)	109	416				
std dev	362	120				
A-P <> std dev	7	4				
% <> std dev	28.0%	16.0%				
norm <> std dev	31.7%	31.7%				

With respect to **recorded** indemnity & allowed claims expense activity, caution must be exercised in reviewing the variances as this is a small pool and single claim transactions that are normal course for the business may look "unusual" and generate relatively "significant" variances that in nominal value terms are not

that significant. That said, the prior accident years' (PAYs) **recorded** variances (left chart above) do not appear to have bias, although the 4 projections prior to this month have proven higher than actual. In each of those projections, actuals have been negative. At 28%, the percentage of months with variances beyond one standard deviation of the experience period activity suggests the projection process is little better than projections based simply on a 24-month average. However, 3 of the 7 variances beyond one standard deviation have occurred in relation to the last 5 projections. In addition, 5 of the 7 variances beyond one standard deviation have occurred in relation to actuals that were negative.

The current accident year (CAY) **recorded** variances (right chart above), with 16% of months with variances outside of one standard deviation, suggest the projection process is better than projecting simply on a 24-month average. We do not see evidence of bias in the variances, although 3 of the 4 variances beyond one standard deviation were in relation to our most recent 3 projections. However, it is notable that the standard deviation of the prior 24 months' activity has narrowed considerably in



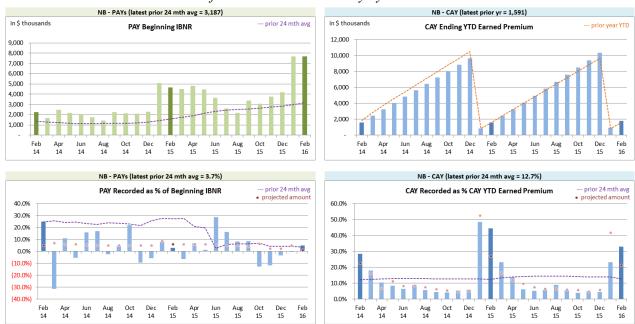
the most recent 3 periods (reduced by half).

The CAY **recorded** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed, with the variance attributed to process variance.

The method for establishing IBNR adjusts automatically for changes in **earned premium** and **recorded** claims activity level (see sections 2.2 and 3).

We have included, for reference, additional charts immediately below related to levels influencing **recorded** activity.

New Brunswick RSP Levels that influence<sup>5</sup> **Recorded** activity by Calendar Month



We track beginning prior accident years' IBNR as **recorded** activity "comes out of" IBNR. Changes in the prior accident years' beginning IBNR (see upper left chart above) occur for several possible reasons:

- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years' ultimate (will show up as a beginning IBNR change one month after the valuation is implemented, i.e. the change will generally show in April, June, September, and November).

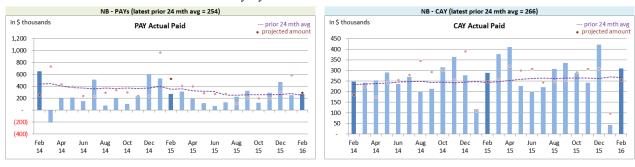
<sup>&</sup>lt;sup>5</sup>Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned premium), deriving year-to-date recorded as selected ultimate less IBNR. In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.



#### 2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

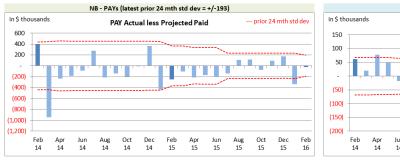
The charts immediately below show actual **paid** activity in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

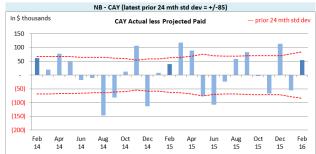
New Brunswick RSP Actual **Paid** activity by Calendar Month



The charts immediately below show the actual less projected **paid** variances for the last 25 calendar months, along with bands for the "prior 24-month standard deviations" to show how the variances from projection compare with historical standard deviations.

New Brunswick RSP Actual vs Projected Summary: Paid Variances by Calendar Month





On Latest \$ thousands					
Paid	PAYs	CAY			
Mthly Avg Paid (prior 24 mths)	254	266			
std dev	193	85			
A-P <> std dev	2	10			
% <> std dev	8.0%	40.0%			
norm <> std dev	31.7%	31.7%			

With respect to **paid** indemnity & allowed claims expense, caution must be exercised in reviewing the variances as this is a small pool, and single claim transactions that are normal course for the business may look "unusual" and generate relatively "significant" variances that in nominal value terms are not that significant.

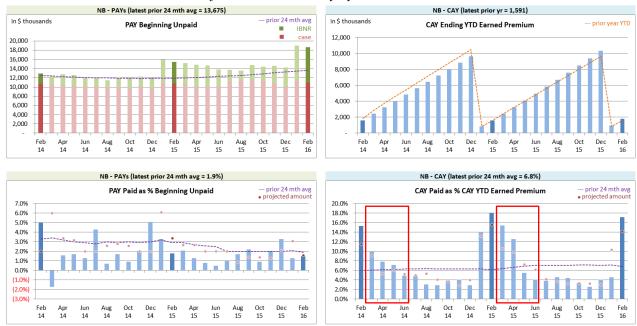
That said, the prior accident years' (PAYs) **paid** variances (left chart above) indicates some bias (actuals have tended to be lower than projections), but at 8%, the percentage of months with variances outside of the experience period's standard deviation suggests the projection process performs better than projecting simply on average values.

The current accident year (CAY) **paid** variances (right chart above) do not appear to show bias, but at 40%, the percentage of months with variances falling outside of the experience period's standard deviation suggests the projection process is performing worse than simply projecting a 24-month average.



We have included, for reference, additional charts immediately below related to levels influencing **paid** activity. We note that the "shape" of the CAY **paid** as % of CAY YTD **earned premium** for 2015 does differ from 2014 (we've highlighted Mar-Jun in the lower right chart). At this point, we have not made adjustments to our projection process explicitly for this, but we will continue to monitor.

New Brunswick RSP Levels that influence<sup>6</sup> Paid activity by Calendar Month



We track beginning prior accident years' unpaid balance (case and IBNR) as **paid** activity "comes out of' the unpaid balance. Changes in the prior accident years' beginning unpaid balance (see upper left chart above) occur for several possible reasons:

- to offset actual **paid** activity (may reduce case or IBNR or both);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years' ultimate (will show up as a beginning unpaid balance change one month after the valuation is implemented, i.e. the change will generally show in April, June, September, and November).

#### 2.2 Actuarial Provisions

An "ultimate loss ratio matching method" (described in section 3) was used to determine the month's IBNR<sup>7</sup>, and factors were applied to the nominal unpaid claims liability (case plus IBNR) to

<sup>&</sup>lt;sup>6</sup>Our paid projections for the prior accident years are based on selected ratios of paid to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date paid to year-to-date selected ultimate indemnity (i.e. selected LR x earned premium). In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

<sup>&</sup>lt;sup>7</sup>For ease of discussion, "IBNR" is used in place of "provisions for incurred but not recorded (IBNR) and development".



determine the discount amount (shown as a negative value to indicate its impact of reducing the liability) and the Provisions for Adverse Deviations. The loss ratios and the factors used to determine the current month's provisions and projections were based on the applicable valuation. The table immediately below summarizes variances in provisions included in the February 2016 Operational Report and the associated one-month projections from last month's Report.

New Brunswick RSP Actual vs Projected Summary: IBNR and APV Amounts (\$ thousands)

Table 02			actuarial present value adjustments					
	IBI	ND.	Discount Amount		Provisions for Adverse Deviations		IBNR + actuarial present	
	IDI	NIV.					value adjustments	
Accident	Actual	Actual less	Actual	Actual less	Actual	Actual less	Actual	Actual less
Year	Actual	Projected	Actual	Projected	Actual	Projected		Projected
Prior	2,571	(53)	(150)	(1)	1,286	3	3,707	(51)
2014	1,441	(149)	(77)	(1)	546	8	1,910	(142)
2015	3,281	(92)	(123)	1	702	(8)	3,860	(99)
2016	642	(223)	(29)	1	157	(11)	770	(233)
TOTAL	7,935	(517)	(379)	-	2,691	(8)	10,247	(525)

The IBNR provision is \$0.5 million lower than projected last month, counterbalancing the recorded claims activity and adjusting for the earned premium variance impacts indicated in section 2.1.

Exhibit G shows the accident year IBNR amount change from last month to this month broken down into:

- (i) the change projected last month;
- (ii) the additional change due to variances in earned premium (because we apply a loss ratio to earned premium in determining ultimate level) and/or recorded claims (as IBNR is calculated as ultimate less recorded) differences; and
- (iii) the additional change due to valuation implementation impacts (as applicable)

The variances associated with (ii) above are discussed in sections 2.1.a and 2.1.b.

The table at the top of the next page summarizes the variances in the provisions for deferred policy acquisition cost asset amounts (shown as negative values) included in the February 2016 Operational Report and the one-month projections from last month's Report. Note that this RSP is in a deferred policy acquisition cost asset position; actuarial present value adjustments have an impact on the asset value as the adjustments increase the expected future policy obligations (costs) associated with the unearned premium and therefore increase the write down of the asset value. The variances are mainly driven by unearned premium variance.



New Brunswick RSP Actual vs Projected Summary: Premium Deficiency / (DPAC) Amounts (\$ thousands)

Table 03		Premium Deficiency / (Deferred Policy Acquisition Costs)		actuarial present value adjustments		Premium Deficiency / (DPAC) including actuarial present value adjustments	
		Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
	balance:	(805)	9	380	(4)	(425)	5
ba	lance as % unearned premium:	(16.6%)	-	7.8%	-	(8.7%)	-

actual unearned premium: 4,857 less projected: (59)

#### 3 Ultimate Loss Ratio Matching Method

An "ultimate loss ratio matching method" continues to be applied to the current month and two projected months shown in the Operational Reports, with IBNR determined by accident year as follows:

- (a) Earned premium to-date
- (b) Ultimate loss<sup>8</sup> ratio per latest valuation
- (c) Estimated ultimate incurred = (a) x (b)
- (d) Recorded indemnity & allowed claims expense to-date
- (e) IBNR = (c) (d)

#### 4 Calendar Year-to-Date Results

The table below summarizes the calendar year-to-date results for indemnity & allowed claims expenses<sup>9</sup>, including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes not only the earned premium associated with the current accident year, but also earned premium adjustments related to prior accident years. Specifically, the current accident year (CAY) ratio in the table is 82.0% rather than 80.6% (the valuation ultimate ratio for accident year 2016), as the calendar year-to-date earned premium includes prior accident year earned premium adjustments. (Note that the ratios in this table may differ slightly from those shown in the New Brunswick RSP Summary of Operations due to rounding.)

New Brunswick RSP Calendar Year-to-Date Indemnity & Allowed Claims Expense Summary (\$ thousands)

Table 04	YTD Nominal Values		YTD actuarial present value adjustment		YTD Total		Change from Prior Month YTD	
	Amount	% EP	Amount	% EP	Amount	% EP	Amount	LR pts
PAYs	(27)	(1.5%)	(35)	(2.0%)	(62)	(3.5%)	(37)	(0.8%)
CAY	1,457	82.0%	128	7.2%	1,585	89.2%	747	(2.6%)
TOTAL	1,430	80.5%	93	5.2%	1,523	85.7%	709	(3.4%)

("% EP" based on 2016 calendar year-to-date earned premium; ratios may not total due to rounding)

<sup>&</sup>lt;sup>8</sup>"Loss" here refers to indemnity and allowed claims expenses, but does not include the claims expense allowance included in member company overall expense allowances ("Expense Allowance" in the Operational Report).

<sup>&</sup>lt;sup>9</sup>Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this analysis.



The prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments. The loss ratio change year-to-date reflects not only changes in the prior accident year levels, but also the increase in the calendar year-to-date earned premium with an additional month's earned premium.

For the current accident year, changes in the year-to-date total reflects the additional month's exposure and regular changes to actuarial present value adjustments as the year ages.

#### 5 Current Operational Report – Additional Exhibits

Section 6 provides exhibits pertaining to the actuarial provisions reflected in the current month's Operational Report.

IBNR (including actuarial present value adjustments) presented in section 6, Exhibit A, were derived on a discounted basis, and therefore reflect the time value of money and include an explicit provision for adverse deviations in accordance with accepted actuarial practice in Canada.

IBNR presented in section 6, Exhibit B, does NOT include any actuarial present value adjustments. The "Total IBNR" from this exhibit is shown in the Operational Report as "Undiscounted IBNR".

The ultimate loss ratios detailed in section 6, Exhibit B, refer to the estimates derived on the basis of various actuarial methodologies applied to the experience of the New Brunswick Risk Sharing Pool for the purposes of the most recent quarterly valuation. As discussed in section 3, IBNR reflected in the current month's Operational Report was derived as the difference between the estimated ultimate for the claims amount (i.e. earned premium x ultimate loss ratio) and the associated current recorded amounts (life-to-date payments plus current case reserves).

#### 6 EXHIBITS

The exhibits listed below are provided on the pages that follow:

EXHIBIT A IBNR for Member Sharing – includes Actuarial Present Value Adjustments

EXHIBIT B IBNR

EXHIBIT C Premium Liabilities

EXHIBIT D Projected Year-end Policy Liabilities

EXHIBIT E Discount Rate & Margins for Adverse Deviations

EXHIBIT F Interest Rate Sensitivity

EXHIBIT G Components of IBNR Change During Month



## **EXHIBIT A**

## IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A	Amounts in \$000s						
IBNR + M/S actuarial present	Accident	Actual	Actual	Projected	Projected	Projected	
value adjustments	Year	Jan. 2016	Feb. 2016	Mar. 2016	Apr. 2016	Dec. 2016	
	2005	3	3	3	3	3	
	2006	12	12	11	10	10	
	2007	384	377	364	347	243	
	2008	167	164	163	157	113	
	2009	507	540	538	515	357	
	2010	300	299	296	289	237	
discount rate	2011	639	615	611	592	463	
0.73%	2012	564	532	529	509	366	
	2013	1,278	1,165	1,154	1,111	812	
interest rate margin	2014	2,071	1,910	1,895	1,817	1,309	
25 basis pts	2015	3,979	3,860	3,840	3,738	2,601	
	2016	620	770	1,124	1,549	3,921	
	TOTAL	10,524	10,247	10,528	10,637	10,435	
	Change		(277)	281	109		

Please see Exhibit G, page 1 for Components of Change during Current Month



## **EXHIBIT B**

## **IBNR**

TABLE EXHIBIT B		Amounts in \$000s						
IBNR	Ultimate	Accident	Actual	Actual	Projected	Projected	Projected	
	Loss Ratio	Year	Jan. 2016	Feb. 2016	Mar. 2016	Apr. 2016	Dec. 2016	
	84.1%	2005	3	3	3	3	3	
	53.3%	2006	11	11	10	9	9	
	72.7%	2007	326	326	313	297	197	
	75.5%	2008	129	126	125	119	79	
	81.0%	2009	430	464	462	439	291	
	62.1%	2010	101	101	100	95	63	
	89.0%	2011	327	305	303	288	191	
	51.1%	2012	432	407	405	385	256	
	66.7%	2013	940	828	824	783	520	
	76.5%	2014	1,598	1,441	1,434	1,362	903	
	83.5%	2015	3,390	3,281	3,265	3,167	2,101	
	80.6%	2016	538	642	943	1,324	3,288	
		TOTAL	8,225	7,935	8,187	8,271	7,901	
	-	Change		(290)	252	84		

Please see Exhibit G, page 2 for Components of Change during Current Month



## EXHIBIT C

## Premium Liabilities

TABLE EXHIBIT C		Amount	s in \$000s		
	Actual	Actual	Projected	Projected	Projected
Premium Liabilities	Jan. 2016	Feb. 2016	Mar. 2016	Apr. 2016	Dec. 2016
(1) unearned premium (UP)	5,142	4,857	4,765	4,877	5,487
FOR MEMBER SHARING					
(2) expected future costs ratio {% o	f (1)} 91.4%	91.3%	91.3%	91.4%	92.8%
(3) expected future costs {(1) x (2)}	4,700	4,432	4,351	4,456	5,091
(4) premium deficiency / (deferred p	oolicy				
acquisition cost)	(442)	(425)	(414)	(421)	(396)
Excluding Actuarial Present Value Adju	stments				
(5) expected future costs ratio {% o	f (1)} 83.6%	83.4%	83.5%	83.5%	84.8%
(6) expected future costs {(1) x (5)}	4,297	4,052	3,978	4,074	4,654
(7) premium deficiency / (deferred p	oolicy				
acquisition cost)	(845)	(805)	(787)	(803)	(833)



## EXHIBIT D

## Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2016, broken down by component.

New Brunswick	Projected Balances as at Dec. 31, 2016 (\$000s)									
ending 2016		nominal values		actuar	actuarial present value adjustments (apvs)					
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs	TOTAL		
2005	_	3	3	-	-	-	-	3		
2006	2	9	11	-	-	1	1	12		
2007	192	197	389	(4)	2	48	46	435		
2008	217	79	296	(4)	1	37	34	330		
2009	294	291	585	(8)	2	72	66	651		
2010	1,469	63	1,532	(21)	8	187	174	1,706		
2011	2,238	191	2,429	(36)	12	296	272	2,701		
2012	763	256	1,019	(17)	6	121	110	1,129		
2013	1,810	520	2,330	(40)	14	318	292	2,622		
2014	2,280	903	3,183	(67)	22	451	406	3,589		
2015	2,153	2,101	4,254	(106)	38	568	500	4,754		
PAYs (sub-total):	11,418	4,613	16,031	(303)	105	2,099	1,901	17,932		
CAY (2016)	2,146	3,288	5,434	(141)	49	725	633	6,067		
claims liabilities:	13,564	7,901	21,465	(444)	154	2,824	2,534	23,999		
	Unearned Premium	Premium Defiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL		
premium liabilities:	5,487	(833)	4,654	(81)	27	491	437	5,091		
					*Total may n	ot be sum of parts,	as apvs apply to futur	e costs within UPI		
policy liabilities:			26,119	(525)	181	3,315	2,971	29,090		



#### **EXHIBIT E**

## Discount Rate & Margins for Adverse Deviations

The tables below present selected margins for adverse development by coverage (the total is a weighted average, based on the unpaid claims projection for December 31, 2015 from the valuation), followed by the selected discount rate and the associated margin for investment income.

		-		
Accident	Third Party	Accident	Other	Total
Year	Liability	Benefits	Coverages	TOtal
2005	12.5%	10.0%	12.5%	12.5%
2006	12.5%	10.0%	12.5%	12.3%
2007	12.5%	10.0%	12.5%	12.5%
2008	12.5%	10.0%	12.5%	12.4%
2009	12.5%	10.0%	12.5%	12.5%
2010	12.5%	10.0%	5.0%	12.4%
2011	12.5%	10.0%	12.5%	12.4%
2012	12.5%	10.0%	10.2%	12.1%
2013	15.0%	10.0%	14.9%	13.9%
2014	15.0%	10.0%	15.0%	14.5%
2015	14.8%	10.0%	6.1%	13.7%
2016	15.0%	10.0%	15.0%	15.0%
prem liab	13.4%	10.0%	5.1%	11.1%

discount rate: 0.73% margin (basis points): 25



#### **EXHIBIT F**

## **Interest Rate Sensitivity**

The tables below present sensitivity to the member statement claims liability as projected to Dec. 31, 2015 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2016 and based on more up-to-date information). We have included both the current valuation selection (0.73%) and the prior valuation assumption (0.90%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

	Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2015 projected Unpaid						aid	
AY	0.23%	0.73%	0.90%	1.23%	1.73%	2.23%	2.73%	3.23%
2005	4	4	4	4	4	4	4	4
2006	11	11	11	11	10	10	10	10
2007	562	557	555	552	548	544	539	535
2008	385	381	380	378	375	371	368	365
2009	779	771	769	764	757	750	743	736
2010	1,855	1,835	1,829	1,816	1,797	1,779	1,761	1,744
2011	3,148	3,110	3,098	3,074	3,039	3,004	2,970	2,937
2012	1,394	1,378	1,372	1,362	1,346	1,331	1,316	1,301
2013	3,060	3,016	3,002	2,975	2,934	2,894	2,855	2,817
2014	4,195	4,124	4,100	4,055	3,987	3,922	3,859	3,797
2015	5,677	5,575	5,541	5,477	5,381	5,289	5,200	5,113
Total	21,070	20,762	20,661	20,468	20,178	19,898	19,625	19,359
		valuation assumption	prior val assumption					
			Dollar Im	pact Relative to	Valuation Δss	umntion		
AY	0.23%	0.73%	0.90%	1.23%	1.73%	2.23%	2.73%	3.23%
Total	308	-	(101)	(294)	(584)	(864)	(1,137)	(1,403)
		valuation	prior val	(== -7	(== -7)	(== -7	(=,==+,	(-, ,
		assumption	assumption					
			Dorsontono	Inspect Deletine	to Valuation /	\		
	0.000/	0.700/		Impact Relative		•	0.700/	2.220/
AY	0.23%	0.73%	0.90%	1.23%	1.73%	2.23%	2.73%	3.23%
2005	-	-	-	-	-	-	-	-
2006	-				(9.1%)	(9.1%)	(9.1%)	(9.1%)
2007	0.9%	-	(0.4%)	(0.9%)	(1.6%)	(2.3%)	(3.2%)	(3.9%)
2008	1.0%		(0.3%)	(0.8%)	(1.6%)	(2.6%)	(3.4%)	(4.2%)
2009	1.0%	-	(0.3%)	(0.9%)	(1.8%)	(2.7%)	(3.6%)	(4.5%)
2010	1.1%		(0.3%)	(1.0%)	(2.1%)	(3.1%)	(4.0%)	(5.0%)
2011	1.2%	-	(0.4%)	(1.2%)	(2.3%)	(3.4%)	(4.5%)	(5.6%)
2012	1.2%		(0.4%)	(1.2%)	(2.3%)	(3.4%)	(4.5%)	(5.6%)
2013	1.5%	-	(0.5%)	(1.4%)	(2.7%)	(4.0%)	(5.3%)	(6.6%)
2014	1.7%		(0.6%)	(1.7%)	(3.3%)	(4.9%)	(6.4%)	(7.9%)
2015	1.8%	-	(0.6%)	(1.8%)	(3.5%)	(5.1%)	(6.7%)	(8.3%)
Total	1.5%	-	(0.5%)	(1.4%)	(2.8%)	(4.2%)	(5.5%)	(6.8%)
		valuation	prior val					
		assumption	assumption					



## **EXHIBIT G**

Page 1 of 2 Components of Member Statement IBNR (i.e. "Discounted") Change During Month

RSP	New Brunswic 🔻	
AccountCode Desc	IBNR - Discour - d	M/S IBNR - in \$000

	Values							
AccYear	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount	
2005	3	-	-	-	-	-	3	
2006	12	(1)	1	-	-	-	12	
2007	384	(16)	9	-	(7)	(1.8%)	377	
2008	167	(6)	3	-	(3)	(1.8%)	164	
2009	507	(24)	57	-	33	6.5%	540	
2010	300	(10)	9	-	(1)	(0.3%)	299	
2011	639	(22)	(2)	-	(24)	(3.8%)	615	
2012	564	(6)	(26)	-	(32)	(5.7%)	532	
2013	1,278	(11)	(102)	-	(113)	(8.8%)	1,165	
2014	2,071	(19)	(142)	-	(161)	(7.8%)	1,910	
2015	3,979	(20)	(99)	-	(119)	(3.0%)	3,860	
2016	620	383	(233)	-	150	24.2%	770	
Grand Total	10,524	248	(525)	-	(277)	(2.6%)	10,247	



## **EXHIBIT G**

Page 2 of 2

## Components of IBNR (i.e. "Undiscounted") Change During Month

RSP	New Brunswic	
AccountCode Desc	IBNR - Undiscc ₹ ted	IBNR - in \$000s

	Values						
AccYear	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
2005	3	-	-	-	-	-	3
2006	11	(1)	1	-	-	-	11
2007	326	(16)	16	-	-	-	326
2008	129	(6)	3	-	(3)	(2.3%)	126
2009	430	(22)	56	-	34	7.9%	464
2010	101	(5)	5	-	-	-	101
2011	327	(16)	(6)	-	(22)	(6.7%)	305
2012	432	(4)	(21)	-	(25)	(5.8%)	407
2013	940	(5)	(107)	-	(112)	(11.9%)	828
2014	1,598	(8)	(149)	-	(157)	(9.8%)	1,441
2015	3,390	(17)	(92)	-	(109)	(3.2%)	3,281
2016	538	327	(223)	-	104	19.3%	642
Grand Total	8,225	227	(517)	-	(290)	(3.5%)	7,935