



NEW BRUNSWICK RISK SHARING POOL

AUGUST 2017 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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Related Quarterly Valuation Highlights:

[Actuarial Quarterly Valuation Highlights Risk Sharing Pools as at June 30, 2017](#)

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ACTUARIAL HIGHLIGHTS
RSP NEW BRUNSWICK
OPERATIONAL REPORT
AUGUST 2017

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2017)

The August 2017 Operational Report incorporates the results of an updated valuation (as at June 30, 2017) – the impact of the implementation of the valuation is discussed in section 1.2. The table immediately below summarizes the implemented valuations and future scheduled valuations for fiscal year 2017.

NEW BRUNSWICK RISK SHARING POOL FISCAL YEAR 2017 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2016 (completed)	0.52% mfad: 25 bp	Oct. 2016	updated valuation (roll forward): accident year 2016 loss ratio decreased 1.3 points to 74.3%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Dec. 31, 2016 (completed)	1.04% mfad: 25 bp	Mar. 2017	updated valuation: accident year 2016 loss ratio decreased 3.5 points to 70.8%; accident year 2017 loss ratio decreased 2.9 points to 74.2%; discount rate increased by 52 basis points; no change to selected margins for adverse deviations
Mar. 31, 2017 (completed)	0.95% mfad: 25 bp	May 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 1.0 points to 75.2; discount rate decreased by 9 basis points; no change to selected margins for adverse deviations
Jun. 30, 2017	1.17% mfad: 25 bp	Aug. 2017	updated valuation: accident year 2017 loss ratio decreased 2.8 points to 72.4%; discount rate increased by 22 basis points; selected margins for adverse deviations were updated
Sep. 30, 2017		Oct. 2017	update valuation (roll forward):

Under the proposed schedule for fiscal year 2017, the “off-half” valuation quarters ending March 31, 2017 and September 30, 2017 would not reflect a full valuation update of assumptions, but would rather “roll-forward” key assumptions from the previous valuation.

1.2 New Valuation

A valuation of the New Brunswick Risk Sharing Pool (“RSP”) as at June 30, 2017 has been completed since last month’s Operational Report and the results of that valuation have been incorporated into this month’s Report. The valuation was completed by the Facility Association’s internal actuarial group in conjunction with, and approved by, the appointed actuary, under the hybrid model for actuarial services. Additional detail will be provided in an “Actuarial Highlights – Quarterly Valuation” report to be posted to the FA website at the same time as this report.

The valuation implementation impact is summarized in the tables below.

Summary of Impact (\$000s) of Implementing Result of Valuation as at June 30, 2017¹

NB	unfav / (fav) for the month and ytd					
	IMPACT in \$000s from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	(330)	(46)	(376)	(82)	(46)	(504)
CAY	(194)	(27)	(221)	(21)	-	(242)
Prem Def	(177)	(22)	(199)	(26)	-	(225)
TOTAL	(701)	(95)	(796)	(129)	(46)	(971)

As indicated in the table above, the incorporation of the new valuation had an estimated **\$1.0 million favourable impact** on the month’s net result from operations, subtracting an estimated 14.4 points (see table immediately below) from the **year-to-date Combined Operating Ratio** to end at **77.8%**.

Summary of Impact (% YTD EP) of Implementing Result of Valuation as at June 30, 2017

NB	ytd EP 6,747 (actual)					
	IMPACT unfav / (fav) as % ytd EP from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	(4.9%)	(0.7%)	(5.6%)	(1.2%)	(0.7%)	(7.5%)
CAY	(2.9%)	(0.4%)	(3.3%)	(0.3%)	-	(3.6%)
Prem Def	(2.6%)	(0.3%)	(2.9%)	(0.4%)	-	(3.3%)
TOTAL	(10.4%)	(1.4%)	(11.8%)	(1.9%)	(0.7%)	(14.4%)

The impact of the nominal changes is shown in column [1] of the two preceding summary tables. The change in the selected nominal ultimates was favourable by \$0.7 million overall. This reflects the impact attributable to the changes in the selected ultimate loss ratios (i.e. for each accident year, it is the product of life-to-date earned premium for the accident year and the change in the selected ultimate loss ratio).

The prior accident years overall showed a \$0.3 million favourable variance, which is attributed to recorded activity process variance (i.e. random variation). This favourable change is 2.2% of the prior accident years’ nominal unpaid balance of \$15.1 million determined at the end of last month (July 2017). As a smaller pool, it is subject to higher levels of process variance, driving volatility in

¹In these tables, “PAYs” refers to prior accident years, “CAY” refers to the current accident year, and “Prem Def” refers to the provision for premium deficiency or the deferred policy acquisition asset (as applicable). “Nominal” refers to changes excluding any actuarial present value adjustments, whereas “apv adj.” refers to actuarial present value adjustments.

The columns under the heading “ults & payout patterns” reflect the impact of changes in the valuation selected ultimates and claims payment patterns (i.e. based on unchanged selection of discount rates and margins for adverse deviation). The column “dsct rate” reflects the impact of the change in the selected discount rate and the column “margins” reflects the impact of any changes in selected margins for adverse deviations.

the ultimate selection.

The current accident year and premium deficiency impacts are a result of the changes in the selected loss ratios for accident year **2017** (down 2.8 points from 75.2% to **72.4%**) and **2018** (down 2.9 points from 75.0% to **72.1%**). These changes reflect various updated assumptions, but are not beyond what we would “expect” in terms of point movements of estimated “mean” loss ratios, based on our view that , as a smaller pool, one would expect more volatility around projections of current and future expected loss ratios.

The impacts related to actuarial present value (“apv”) adjustments are split into the impact prior to any change in the selected discount rate and selected margins for adverse deviations or “MfADs” (at the level they were selected i.e. coverage and accident half-year), the impact of then updating the discount rate, and finally the impact of any changes to the MfADs (at the level they were selected). The changes in actuarial present value adjustments are shown in the summary tables in columns [2], [4], and [5].

Column [2] recognizes that changing the nominal selections also changed the unpaid estimates (including changes to the relative mix by government line, which has an impact on the weighted-average MfADs). It also reflects the fact that we updated the projected emergence of claims payments, resulting in a change in the projected cash flows. These changes generated a favourable change of \$95 thousand in the actuarial present value adjustments, prior to any changes in the selected discount rate and/or MfADs.

Claims payment emergence patterns were updated and cash flows were reviewed against the selected risk-free yield curve, derived from Government of Canada benchmark bond yields monthly series using values for June 2017. Column [4] accounts for the change in the **discount rate** selected (increased 22 basis points to **1.17%**), indicating a favourable impact of \$0.1 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$0.1 million at August 2017 (projected \$0.1 million impact at December 31, 2017) – this compares to the \$0.1 million change one would estimate as the impact by interpolation using the interest rate sensitivity table provided in last month’s Actuarial Highlights.

Column [5] accounts for any changes to selected MfADs. The selected **investment rate MfAD** was **left unchanged at 25 basis points**. However, the selected **claims development MfADs** were updated for some accident years and coverages, resulting in an estimated overall favourable impact of \$46 thousand.

Consideration was given to recent legal decisions and changes in legislation / regulation as outlined in section 1.4.

1.3 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.

1.4 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 (there have been no changes in these descriptions since last month's Highlights).

The **Supreme Court of Canada** rendered its judgment on **Saadati v Moorhead (2017 SCC 28, rendered on Jun 2, 2017)**. Saadati was involved in a collision in July of 2005 in British Columbia and sued the at-fault driver for damages. According to the Supreme Court decision, *“The trial judge found that the ... accident caused S[aadati] psychological injuries, including personality change and cognitive difficulties. ...and awarded S[aadati] \$100,000 for non-pecuniary damages.”* The trial decision was appealed to the BC Court of Appeal where the trial's \$100,000 non-pecuniary award was dismissed. The Supreme Court upheld the \$100,000 non-pecuniary award, determining:

- *“A finding of legally compensable mental injury need not rest, in whole or in part, on the claimant proving a recognized psychiatric injury.”*
- *“...a trier of fact adjudicating a claim of mental injury is not concerned with diagnosis, but with symptoms and their effects.”*
- *“Expert evidence can assist in determining whether or not a mental injury has been shown, but where psychiatric diagnosis is unavailable, it remains open to a trier of fact to find on other evidence adduced by the claimant that he or she has proven on a balance of probabilities the occurrence of mental injury.”*

At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

1.5 Harmonized Sales Tax

In the fiscal 2016-17 provincial budget released February 2, 2016, the New Brunswick Finance Minister announced a 2 percentage point increase in the provincial component of the harmonized sales tax (“HST”) **effective July 1st, 2016** increasing the combined HST rate in the province from 13% to 15%.

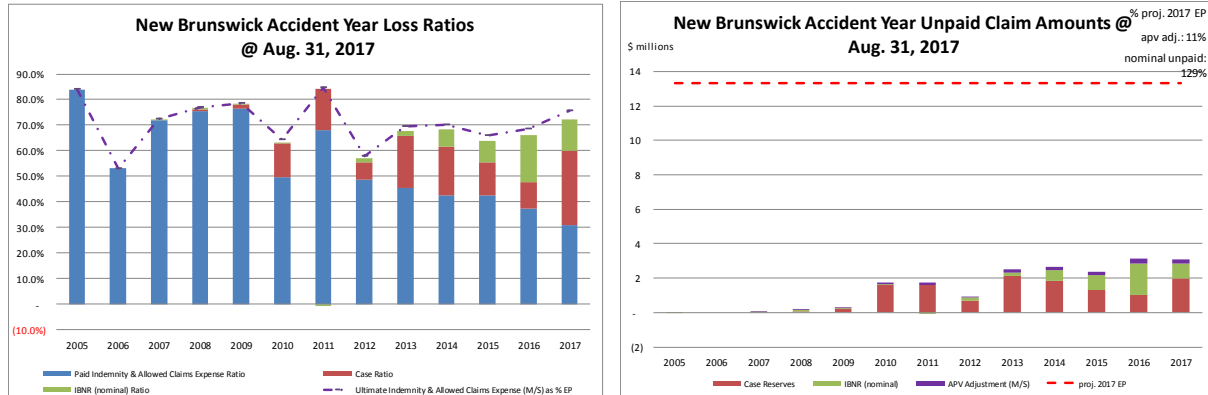
An adjustment for the HST rate increase was included in the updated loss cost trend structures selected using NB PPV Industry 2016-2 data, impacting the selected a priori loss ratios, however, no specific adjustments have been made to the valuation assumptions from the current valuation (June 30, 2017).

1.6 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities² 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

²Claim 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.

amount of 2017 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 (\$1.4 million – see table immediately below) represents 11% of the earned premium projected for the full year 2017 (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.

claim liabilities (\$000s)	amt	%
case	12,487	67.2%
ibnr	4,688	25.2%
M/S apv adjust.	1,398	7.5%
M/S total	18,573	100.0%

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 58% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 74% of the M/S claim liabilities are

related to accident years 2013-2017 inclusive (i.e. the most recent 5 accident years).

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

premium liabilities (\$000s)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	6,220	125.3%	claim	17,175	73.0%
prem def/(dpac)	(1,567)	(31.6%)	premium	4,653	19.8%
M/S apv adjust.	312	6.3%	M/S apv adjust.	1,710	7.3%
M/S total	4,965	100.0%	M/S total	23,538	100.0%

2 Activity During the Month of August 2017

2.1 Recorded Premium and Claims Activity

The table at the top of the next page summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report³.

³There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

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

Accident Year	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	-	-	453	360	(367)	(293)	86	67
2015	(3)	(3)	23	(1)	1	(7)	24	(8)
2016	(28)	(28)	11	(89)	35	41	46	(48)
2017	915	(52)	401	98	395	148	797	246
TOTAL	885	(83)	889	368	65	(110)	953	258

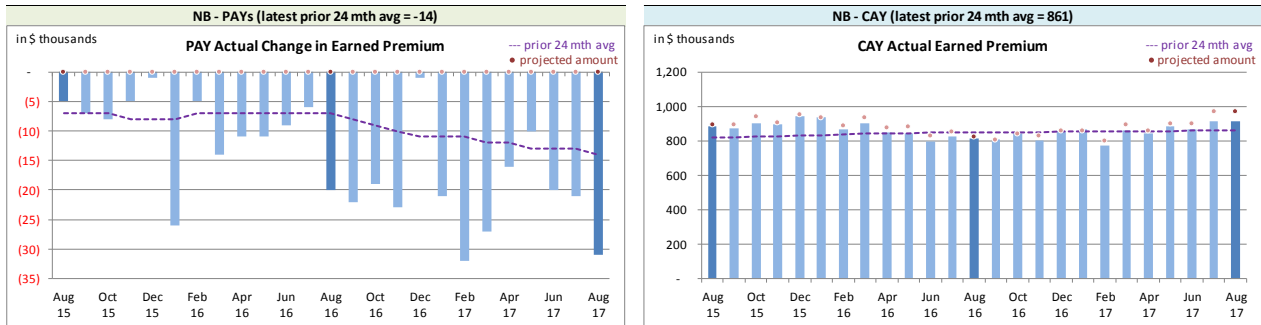
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (i.e. random variation), and this is particularly true where volumes are low as found in this RSP. 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 tables immediately below show actual **earned premium**⁴ 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 **Earned Premium** by Calendar Month



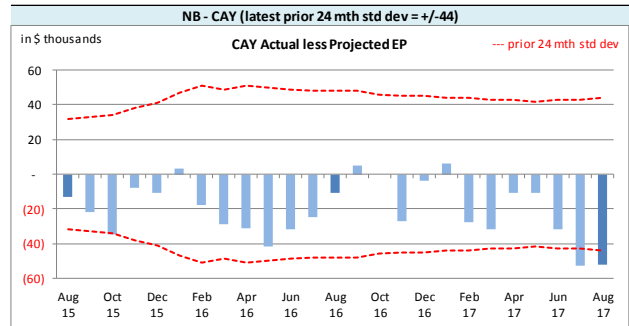
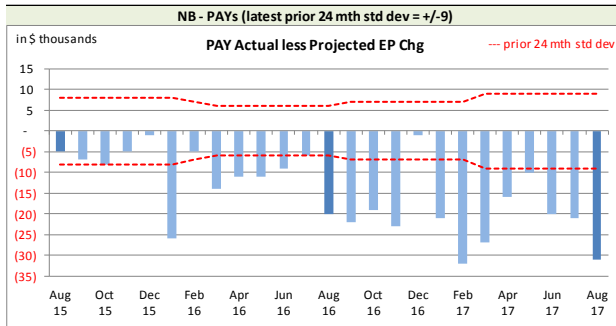
Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels seem to occur in January each year. The heightened prior accident years’ activity for recent months is related to ineligible risks being removed from the RSP based on findings of the FA internal audit team with respect to recent audits.

The associated variance between the actual changes and the projections from the previous month are shown in the charts at the top of the next page. **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**

⁴Premium 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.

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)	(14)	861
std dev	9	44
A-P <> std dev	17	3
% <> std dev	68.0%	12.0%
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 prior accident years' (PAYs) bias⁵, with actuals generally lower than our projections. However, the magnitude is not high relative to

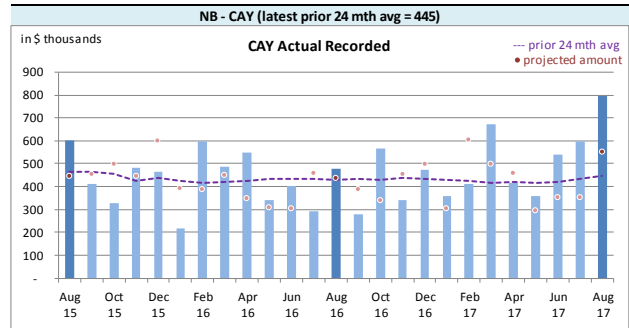
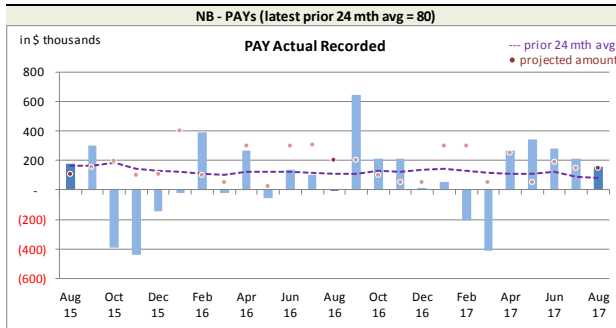
monthly premium, and the CAY variances are within the prior 24-month standard deviation more often than indicated by a normal distribution (see left table above). In addition to the PAYs' bias, the CAY has also shown bias, with actuals being generally lower than projected. Starting with the August 2016 projections, we have modified our projections processes in an attempt to account for CAY bias. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority. Projection variances have also been exacerbated by written premium variances, where our projections, based on information provided by larger RSP users, have been proven to be too high (last month variance of \$449 thousand, this month of \$336 thousand).

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

The charts at the top of the next page show actual **recorded** activity (**paid** and case reserve changes), 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.

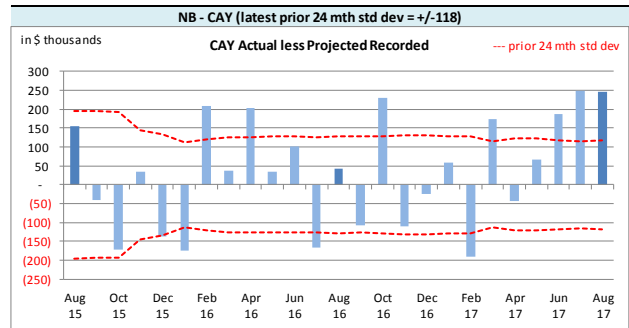
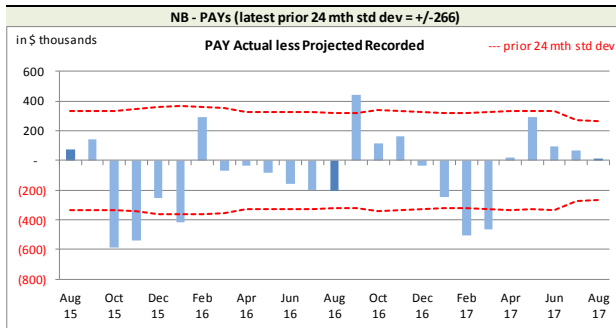
⁵The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

New Brunswick RSP Actual Recorded by Calendar Month



Recorded activity variances from the previous month’s projections are shown in the charts below, including the “prior 24-month standard deviation” levels to show how the variances from projection compare with historical standard deviations.

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



On Latest \$ thousands			
	Recorded	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	80	445	
std dev	266	118	
A-P <> std dev	6	11	
% <> std dev	24.0%	44.0%	
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. The prior accident years’ (PAYs) **recorded** variances (left chart above) have fallen outside one standard deviation of the overall period 24% of the time, indicating the projection process performs better than simply projecting from the preceding 24-month average.

The current accident year (CAY) **recorded** variances (right chart above), with 44% outside of one standard deviation, suggests the projection process is performing worse than projecting simply on a 24-month average, and we note that CAY variances have been outside of the band in each of the last 3 months, and for 6 of the last 12 months.

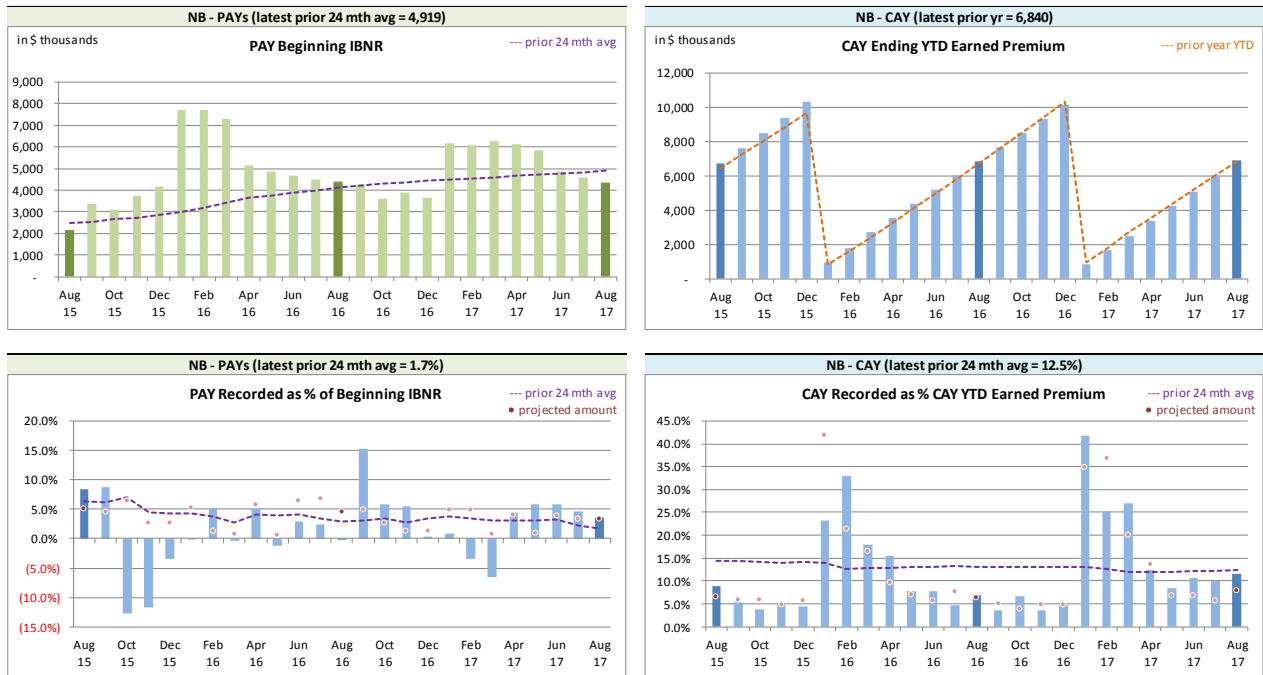
The CAYs **recorded** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed, with the variance attributed to process variance, but we are considering the adequacy of our projections and the potential that recording patterns may be changing.

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. Note in particular the increase in the level of PAYs beginning IBNR over the months. Part of this will be as a response to valuations and showing up as a beginning IBNR change one month after the valuation is implemented (i.e. April, June, September, and November).

New Brunswick RSP Levels that influence⁶ 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).

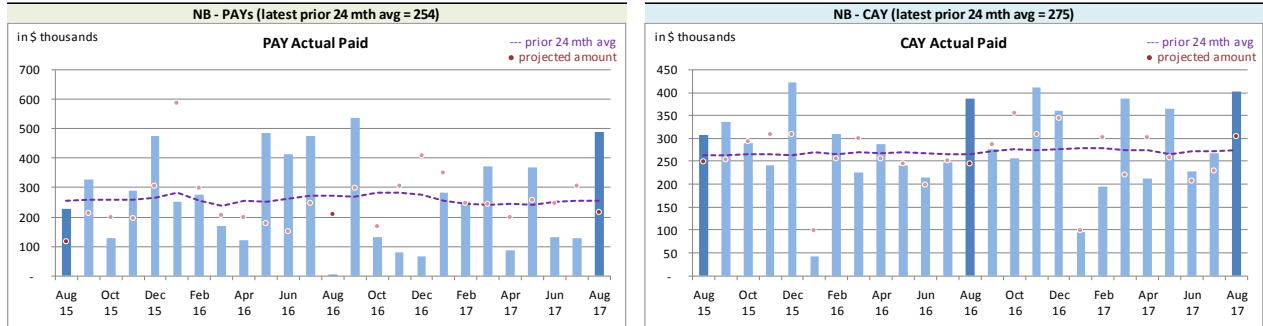
2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

The charts immediately below show actual **paid** activity in each of the most recent 25 calendar

⁶Our 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.

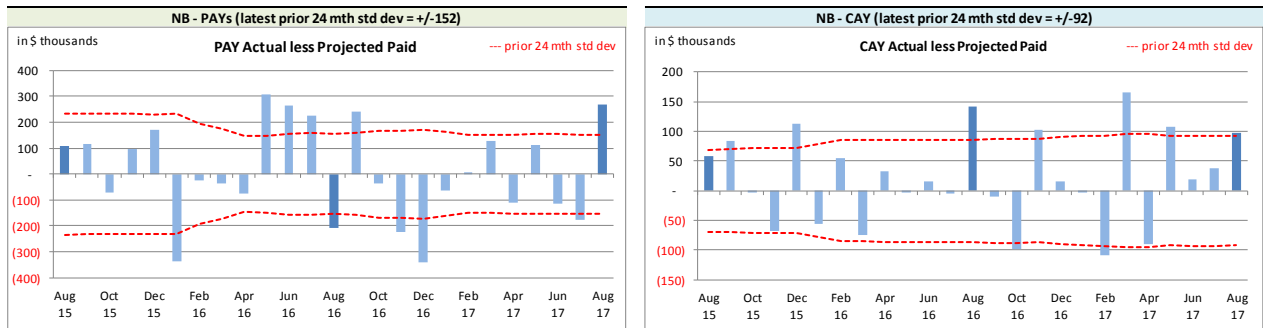
months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

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



Paid activity variances from the previous month’s projections are shown in the charts below, including the “prior 24-month standard deviation” levels 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	275
std dev	152	92
A-P <> std dev	10	9
% <> std dev	40.0%	36.0%
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) do not seem to indicate bias. At 40%, the percentage of months with variances outside of the experience period’s standard deviation suggests the projection process performs worse than projecting simply on average values.

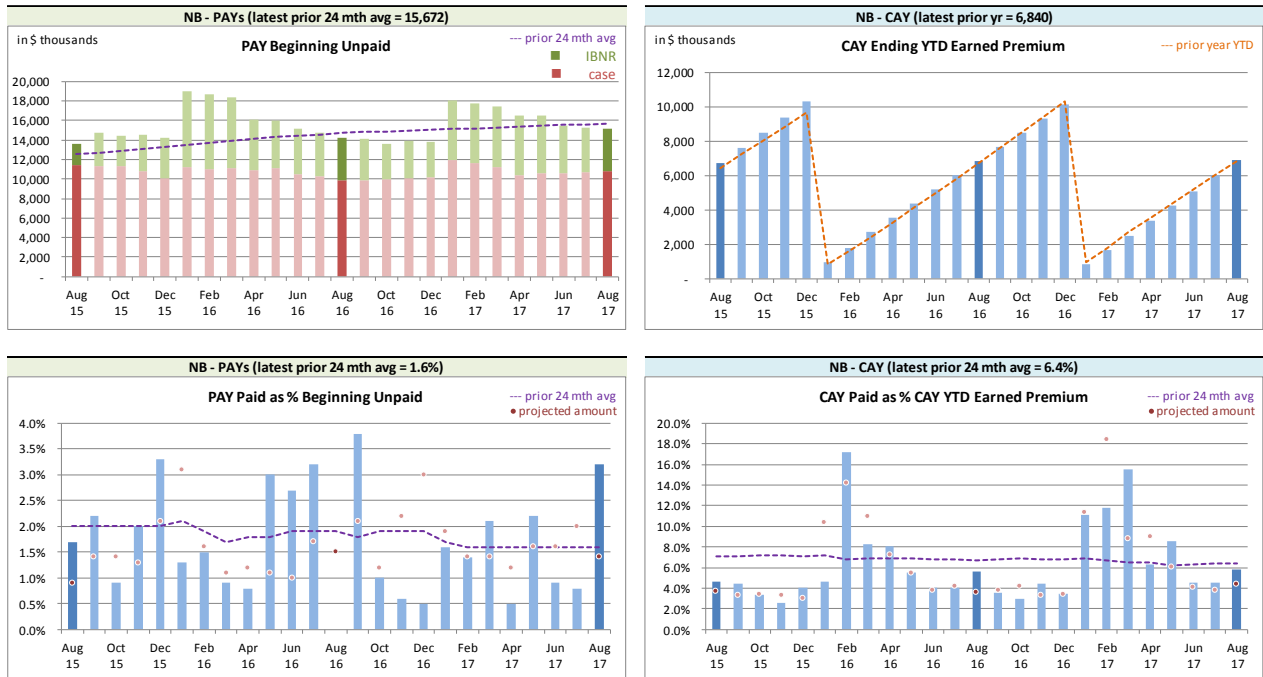
The PAYs **paid** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed, with the variance attributed to process variance.

The current accident year (CAY) **paid** variances (right chart above) do not appear to show bias, but at 36%, the percentage of months with variances falling outside of the experience period’s standard deviation suggests the projection process is performing no better than simply projecting a 24-month average.

The CAYs **paid** 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.

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

New Brunswick RSP Levels that influence⁷ 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 IBNR⁸, and factors were applied to the nominal unpaid claims liability (case plus IBNR) to

⁷Our 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.

⁸For 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 below summarizes variances in provisions included in the August 2017 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

Accident Year	IBNR		actuarial present value adjustments				IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Discount Amount		Provisions for Adverse Deviations		Actual	Actual less Projected
			Actual	Actual less Projected	Actual	Actual less Projected		
Prior	1,120	206	(219)	(37)	950	(59)	1,851	110
2015	869	(157)	(72)	(11)	272	(23)	1,069	(191)
2016	1,840	(411)	(112)	(12)	354	(52)	2,082	(475)
2017	859	(479)	(117)	(12)	342	(49)	1,084	(540)
TOTAL	4,688	(841)	(520)	(72)	1,918	(183)	6,086	(1,096)

The IBNR provision is \$0.8 million lower than projected from last month, counterbalancing the recorded claims activity and adjusting for the earned premium variance impacts indicated in section 2.1, and due to the valuation implementation.

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 included in the August 2017 Operational Report and the one-month projections from last month’s Report. This RSP is in a deferred policy acquisition cost asset position (shown as a negative amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments decrease the asset value as the adjustments increase the expected future policy obligations (costs) associated with the unearned premium. The variances noted are mainly driven by the unearned premium variance and due to the valuation implementation.

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:	(1,567)	(120)	312	(62)	(1,255)	(182)
balance as % unearned premium:	(25.2%)	(2.8%)	5.0%	(0.8%)	(20.2%)	(3.6%)
actual unearned premium:	6,220					
less projected:	(253)					

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 loss⁹ 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 at the top of the next page summarizes the calendar year-to-date results for indemnity & allowed claims expenses¹⁰, 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 74.3% rather than 72.4% (the valuation ultimate ratio for accident year 2017), 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.)

⁹“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).

¹⁰Allowed 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.

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	(1,619)	(24.0%)	(676)	(10.0%)	(2,295)	(34.0%)	(566)	(4.5%)
CAY	5,014	74.3%	225	3.3%	5,239	77.6%	473	(3.7%)
TOTAL	3,395	50.3%	(451)	(6.7%)	2,944	43.6%	(93)	(8.2%)

(“% EP” based on 2017 calendar year-to-date earned premium; ratios may not total due to rounding)

The prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments and due to valuation implementation. 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 and the valuation implementation.

For the current accident year (CAY), 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 and due to the valuation implementation.

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 value adjustments	Accident Year	Actual Jul. 2017	Actual Aug. 2017	Projected Sep. 2017	Projected Oct. 2017	Projected Dec. 2017
	2005	(2)	(2)	(2)	(2)	(2)
	2006	-	-	-	-	-
	2007	49	34	33	32	30
	2008	(64)	78	77	76	74
	2009	70	83	82	81	78
	2010	(22)	182	179	177	172
	2011	129	61	60	60	60
discount rate	2012	102	238	234	230	223
1.17%	2013	736	361	349	344	333
	2014	772	816	765	752	723
interest rate margin	2015	1,294	1,069	1,000	969	924
25 basis pts	2016	2,660	2,082	1,941	1,868	1,779
	2017	1,408	1,084	1,232	1,361	1,586
	TOTAL	7,132	6,086	5,950	5,948	5,980
	Change		(1,046)	(136)	(2)	

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

EXHIBIT B

IBNR

TABLE EXHIBIT B

Amounts in \$000s

IBNR	Ultimate Loss Ratio	Accident Year	Actual Jul. 2017	Actual Aug. 2017	Projected Sep. 2017	Projected Oct. 2017	Projected Dec. 2017
	84.0%	2005	(2)	(2)	(2)	(2)	(2)
	53.2%	2006	-	-	-	-	-
	72.3%	2007	45	32	31	30	28
	76.8%	2008	(91)	66	65	64	62
	78.5%	2009	49	62	61	60	58
	63.3%	2010	(150)	48	47	46	44
	83.4%	2011	(4)	(64)	(63)	(62)	(60)
	57.2%	2012	42	170	167	164	158
	67.7%	2013	510	180	171	168	162
	68.3%	2014	534	628	584	572	550
	64.0%	2015	1,058	869	808	784	753
	66.1%	2016	2,345	1,840	1,711	1,643	1,578
	72.4%	2017	1,161	859	986	1,089	1,270
		TOTAL	5,497	4,688	4,566	4,556	4,601
		Change		(809)	(122)	(10)	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Jul. 2017	Actual Aug. 2017	Projected Sep. 2017	Projected Oct. 2017	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	5,757	6,220	6,820	7,543	7,756
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	83.5%	79.8%	79.8%	79.7%	79.7%
(3) expected future costs {(1) x (2)}	4,805	4,965	5,443	6,014	6,180
(4) premium deficiency / (deferred policy acquisition cost)	(952)	(1,255)	(1,377)	(1,529)	(1,576)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	77.7%	74.8%	74.8%	74.7%	74.7%
(6) expected future costs {(1) x (5)}	4,472	4,653	5,100	5,637	5,791
(7) premium deficiency / (deferred policy acquisition cost)	(1,285)	(1,567)	(1,720)	(1,906)	(1,965)

EXHIBIT D

Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2017, broken down by component.

New Brunswick		Projected Balances as at Dec. 31, 2017 (\$000s)						
ending 2017		nominal values			actuarial present value adjustments (apvs)			
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs	TOTAL
2005	-	(2)	(2)	-	-	-	-	(2)
2006	-	-	-	-	-	-	-	-
2007	4	28	32	(1)	-	3	2	34
2008	79	62	141	(2)	-	14	12	153
2009	186	58	244	(5)	1	24	20	264
2010	1,521	44	1,565	(33)	8	153	128	1,693
2011	1,537	(60)	1,477	(31)	6	145	120	1,597
2012	675	158	833	(19)	3	81	65	898
2013	2,050	162	2,212	(55)	11	215	171	2,383
2014	1,706	550	2,256	(61)	14	220	173	2,429
2015	1,101	753	1,854	(61)	13	219	171	2,025
2016	807	1,578	2,385	(93)	19	275	201	2,586
PAYs (sub-total):	9,666	3,331	12,997	(361)	75	1,349	1,063	14,060
CAY (2017)	2,777	1,270	4,047	(166)	36	446	316	4,363
claims liabilities:	12,443	4,601	17,044	(527)	111	1,795	1,379	18,423
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
premium liabilities:	7,756	(1,965)	5,791	(146)	28	507	389	6,180
*Total may not be sum of parts, as apvs apply to future costs within UPR								
policy liabilities:			22,835	(673)	139	2,302	1,768	24,603

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, 2017 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Jun. 30, 2017)

Accident Year	Third Party Liability	Accident Benefits	Other Coverages	Total
2005	10.0%	10.0%	10.0%	10.0%
2006	10.0%	10.0%	10.0%	10.0%
2007	10.0%	10.0%	10.0%	10.0%
2008	10.0%	10.0%	10.0%	10.0%
2009	10.0%	10.0%	10.0%	10.0%
2010	10.0%	10.0%	5.0%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	10.0%	10.0%	8.0%	10.0%
2015	12.5%	10.0%	10.8%	12.2%
2016	12.5%	10.0%	8.8%	12.0%
2017	12.3%	10.0%	5.9%	11.5%
2018	11.7%	10.0%	5.1%	9.3%
prem liab	11.7%	10.0%	5.1%	9.3%

discount rate: 1.17%
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, 2017 from the latest valuation date (projections in exhibits A to D are also to Dec. 31, 2017, but are based on more up-to-date information). We have included both the current valuation selection (1.17%), the prior valuation assumption (0.95%) and the prior fiscal year end valuation assumption (0.52%) 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, 2017 projected Unpaid								
AY	0.67%	1.17%	1.67%	2.17%	2.67%	3.17%	0.95%	0.52%
2005	-	-	-	-	-	-	-	-
2006	2	2	2	2	2	2	2	2
2007	29	29	29	28	28	28	29	29
2008	401	398	395	392	389	386	399	402
2009	207	205	204	202	201	199	206	208
2010	1,341	1,329	1,318	1,306	1,295	1,284	1,334	1,345
2011	1,341	1,329	1,317	1,305	1,294	1,283	1,334	1,345
2012	828	820	812	803	796	788	823	831
2013	2,089	2,066	2,044	2,023	2,002	1,981	2,076	2,096
2014	2,358	2,330	2,304	2,277	2,252	2,227	2,342	2,366
2016	3,015	2,965	2,915	2,868	2,821	2,776	2,987	3,031
2017	4,785	4,701	4,620	4,541	4,465	4,391	4,738	4,811
Total	18,728	18,473	18,226	17,981	17,748	17,518	18,583	18,809
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

Dollar Impact Relative to Valuation Assumption								
AY	0.67%	1.17%	1.67%	2.17%	2.67%	3.17%	0.95%	0.52%
Total	255	-	(247)	(492)	(725)	(955)	110	336
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

Percentage Impact Relative to Valuation Assumption								
AY	0.67%	1.17%	1.67%	2.17%	2.67%	3.17%	0.95%	0.52%
2005	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-
2007	-	-	-	(3.4%)	(3.4%)	(3.4%)	-	-
2008	0.8%	-	(0.8%)	(1.5%)	(2.3%)	(3.0%)	0.3%	1.0%
2009	1.0%	-	(0.5%)	(1.5%)	(2.0%)	(2.9%)	0.5%	1.5%
2010	0.9%	-	(0.8%)	(1.7%)	(2.6%)	(3.4%)	0.4%	1.2%
2011	0.9%	-	(0.9%)	(1.8%)	(2.6%)	(3.5%)	0.4%	1.2%
2012	1.0%	-	(1.0%)	(2.1%)	(2.9%)	(3.9%)	0.4%	1.3%
2013	1.1%	-	(1.1%)	(2.1%)	(3.1%)	(4.1%)	0.5%	1.5%
2014	1.2%	-	(1.1%)	(2.3%)	(3.3%)	(4.4%)	0.5%	1.5%
2016	1.7%	-	(1.7%)	(3.3%)	(4.9%)	(6.4%)	0.7%	2.2%
2017	1.8%	-	(1.7%)	(3.4%)	(5.0%)	(6.6%)	0.8%	2.3%
Total	1.4%	-	(1.3%)	(2.7%)	(3.9%)	(5.2%)	0.6%	1.8%
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

EXHIBIT G

Page 1 of 2

Components of Member Statement IBNR (i.e. “Discounted”) Change During Month

RSP		New Brunswick						M/S IBNR - in \$000s
AccountCode Desc		IBNR - Discou						
AccYear	Values							
	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	(2)	-	-	-	-	-	(2)	
2006	-	-	-	-	-	-	-	
2007	49	(1)	1	(15)	(15)	(30.6%)	34	
2008	(64)	1	(39)	180	142	(221.9%)	78	
2009	70	(1)	-	14	13	18.6%	83	
2010	(22)	2	(11)	213	204	(927.3%)	182	
2011	129	(1)	(30)	(37)	(68)	(52.7%)	61	
2012	102	(2)	(10)	148	136	133.3%	238	
2013	736	(13)	44	(406)	(375)	(51.0%)	361	
2014	772	(14)	(47)	105	44	5.7%	816	
2015	1,294	(34)	6	(197)	(225)	(17.4%)	1,069	
2016	2,660	(103)	34	(509)	(578)	(21.7%)	2,082	
2017	1,408	216	(298)	(242)	(324)	(23.0%)	1,084	
Grand Total	7,132	50	(350)	(746)	(1,046)	(14.7%)	6,086	

EXHIBIT G

Components of IBNR (i.e. “Undiscounted”) Change During Month

RSP		New Brunswi						IBNR - in \$000s
AccountCode Desc		IBNR - Undisc						
AccYear	Values							Sum of Current Month Final Amount
	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		
2005	(2)	-	-	-	-	-	(2)	
2006	-	-	-	-	-	-	-	
2007	45	(1)	1	(13)	(13)	(28.9%)	32	
2008	(91)	2	(16)	171	157	(172.5%)	66	
2009	49	(1)	-	14	13	26.5%	62	
2010	(150)	3	(8)	203	198	(132.0%)	48	
2011	(4)	-	(30)	(30)	(60)	1,500.0%	(64)	
2012	42	(1)	(11)	140	128	304.8%	170	
2013	510	(10)	44	(364)	(330)	(64.7%)	180	
2014	534	(11)	(47)	152	94	17.6%	628	
2015	1,058	(32)	6	(163)	(189)	(17.9%)	869	
2016	2,345	(94)	29	(440)	(505)	(21.5%)	1,840	
2017	1,161	177	(285)	(194)	(302)	(26.0%)	859	
Grand Total	5,497	32	(317)	(524)	(809)	(14.7%)	4,688	