



NOVA SCOTIA RISK SHARING POOL

SEPTEMBER 2016 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

Related Bulletin: [F16-083 Nova Scotia RSP September 2016 Operational Report](#)

For your convenience, bookmarks have been added to this document. To view them, please click on the BOOKMARK tab at the left.

Should you require any further information, please call Norm Seeney, Vice President, Finance & Member Services at (416) 644-4914.

ACTUARIAL HIGHLIGHTS

RSP NOVA SCOTIA

OPERATIONAL REPORT

SEPTEMBER 2016

TABLE OF CONTENTS

1	Summary.....	3
1.1	Valuation Schedule (Fiscal Year 2016).....	3
1.2	Appointed Actuary and Hybrid Actuarial Services Model.....	3
1.3	Consideration of Recent Legal Decisions and Changes in Legislation / Regulation	4
1.4	Current Provision Summary	4
2	Activity During the Month of September 2016.....	5
2.1	Recorded Premium and Claims Activity	5
2.1.a	Actual vs. Projected (AvsP): Earned Premium.....	6
2.1.b	AvsP: Recorded Indemnity & Allowed Claims Expense	7
2.1.c	AvsP: Paid Indemnity & Allowed Claims Expense	9
2.2	Actuarial Provisions.....	11
3	Ultimate Loss Ratio Matching Method.....	12
4	Calendar Year-to-Date Results.....	12
5	Current Operational Report – Additional Exhibits	13
6	EXHIBITS	14

1 Summary

1.1 Valuation Schedule (Fiscal Year 2016)

The September 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.

NOVA SCOTIA RISK SHARING POOL FISCAL YEAR 2016 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2015 (completed)	0.70% mfad: 25 bp	Oct. 2015	updated valuation (roll forward): accident year 2015 loss ratio decreased 2.2 points to 95.1%; discount rate decreased by 20 basis points; no change to selected margins for adverse deviations
Dec. 31, 2015 (completed)	0.64% mfad: 25 bp	Mar. 2016	updated valuation: accident year 2015 loss ratio decreased 4.9 points to 90.2%; accident year 2016 loss ratio decreased 5.1 points to 94.7%; discount rate decreased by 6 basis points; no change to selected margins for adverse deviations
Mar. 31, 2016 (completed)	0.61% mfad: 25 bp	May 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 0.5 points to 95.2%; discount rate decreased by 3 basis points; no change to selected margins for adverse deviations
Jun. 30, 2016 (completed)	0.56% mfad: 25 bp	Aug. 2016	updated valuation: accident year 2016 loss ratio decreased 0.4 points to 94.8%; discount rate decreased by 5 basis points; selected claims development margins for adverse deviations were updated
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.

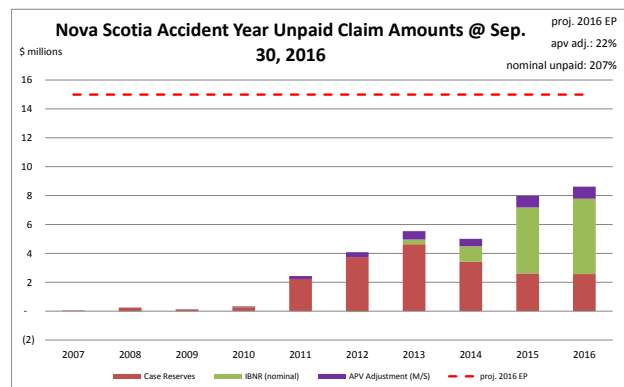
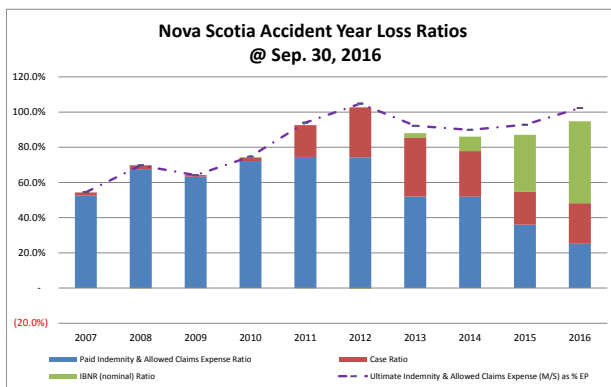
1.3 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

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.

Nova Scotia Bill 86, known as the “**Fair Auto Insurance Reforms**” (FAIR) was introduced on November 9, 2011. FAIR was implemented in two phases. Regulations related to FAIR Phase I (effective April 1, 2012) was published in the Royal Gazette Part 11, on January 13, 2012. These include provisions for enhanced mandatory benefits under Section B (these include medical, rehabilitation, funeral, death and loss of income benefits), prohibiting premium increases if no claim is made, assistance for volunteer Fire Departments, and periodic review of Auto Insurance Law. FAIR Phase II (effective April 1, 2013) includes provisions for diagnostic and treatment protocols for minor injuries, introduction of direct compensation for property damage, and limited liability and new priority of pay rules for rental companies. With the current 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, 2015), impacting the selection of ultimates.

1.4 Current Provision Summary

The charts immediately below show the current levels of claim liabilities¹ 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 (\$3.3 million – see table at the top of the next page) represents 22% 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

¹Claim 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.

operating result over future periods.

claim liabilities (\$000s)

	amt	%
case	19,871	57.9%
ibnr	11,103	32.4%
M/S apv adjust.	3,334	9.7%
M/S total	34,308	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 for this pool is in case reserves. Approximately 88% of the IBNR balance relates to accident years 2015 and 2016 (see Exhibit B). Approximately 91% of the M/S total claim

liabilities are related to accident years 2012-2016 inclusive (i.e. the most recent 5 accident years) – this is a relatively high percentage, reflecting the relatively recent start time for this pool (2007).

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

premium liabilities (\$000s)

	amt	%
unearned prem	8,917	93.0%
prem def/(dpac)	(159)	(1.7%)
M/S apv adjust.	828	8.6%
M/S total	9,586	100.0%

policy liabilities (\$000s)

	amt	%
claim	30,974	70.6%
premium	8,758	20.0%
M/S apv adjust.	4,162	9.5%
M/S total	43,894	100.0%

2 Activity During the Month of September 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 Report².

Nova Scotia 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	-	-	541	303	(649)	(413)	(107)	(109)
2014	(1)	(1)	82	105	105	101	187	206
2015	(5)	(5)	59	313	(105)	(223)	(47)	89
2016	1,254	1	373	35	312	(213)	685	(178)
TOTAL	1,248	(5)	1,055	756	(337)	(747)	718	9

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

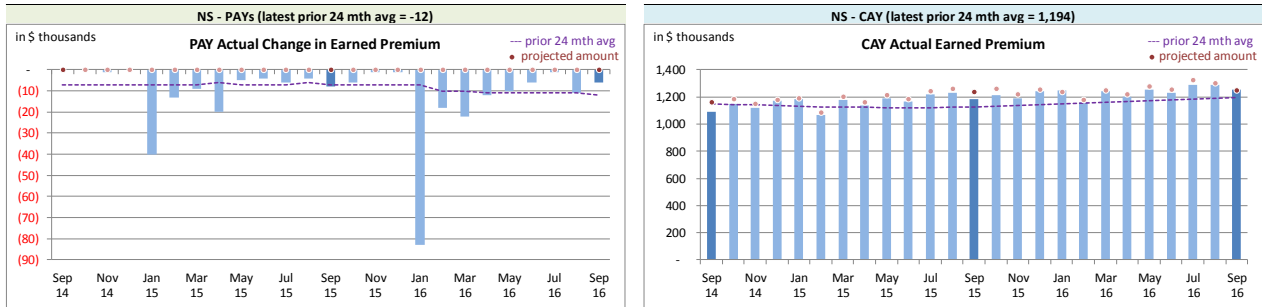
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (this is particularly true where volumes are low). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways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

²There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

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

The charts immediately below show actual **earned premium**³ 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.

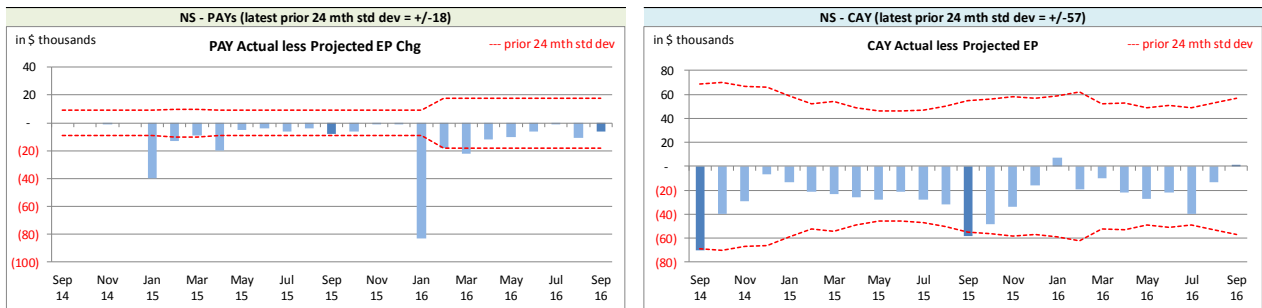
Nova Scotia RSP Actual Earned Premium by Calendar Month



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 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.

Nova Scotia 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)	(12)	1,194
std dev	18	57
A-P <> std dev	5	2
% <> std dev	20.0%	8.0%
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 bias⁴, with actuals generally lower than projected. However, the magnitude is not high relative to monthly premium, and the variances

³Premium 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.

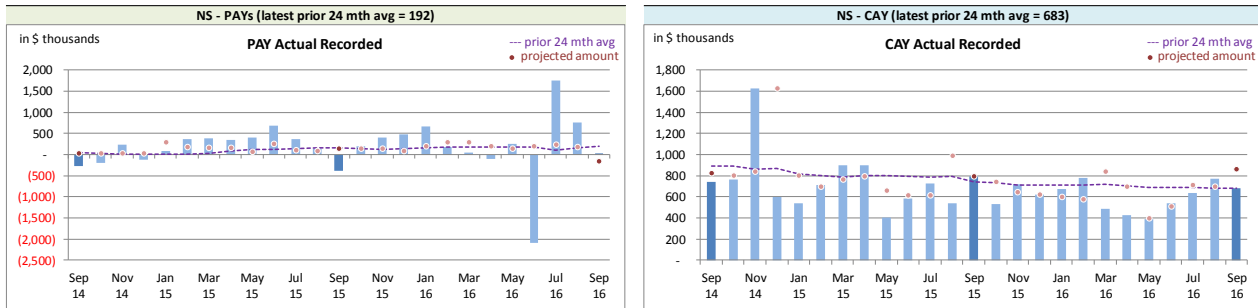
⁴The prior accident years (PAYS) variances will show bias as the projection upload forces all earned premium projections to be attributed to the current accident year.

are within the prior 24-month standard deviation more often than indicated by a normal distribution (see table above). Starting with the August 2016 projections, we have modified our projection processes in an attempt to account for bias in the current process. 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

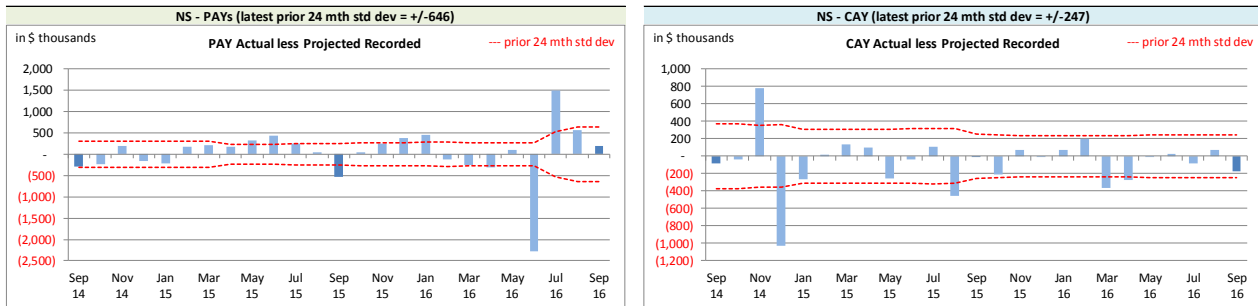
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period are shown in the charts immediately below, including the “prior 24-month average” level.

Nova Scotia 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.

Nova Scotia RSP Actual vs Projected Summary: Recorded Variances by Calendar Month



On Latest \$ thousands			
Recorded	PAYs	CAY	
Mthly Avg Recorded (prior 24 mths)	192	683	
std dev	646	247	
A-P <> std dev	9	5	
% <> std dev	36.0%	20.0%	
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, for prior accident years’ (PAYs) **recorded** variances (left chart above), the percentage of months (36%) with variances in excess of one standard deviation suggests the projection process performs slightly worse than simply projecting based on a 24-month average. We have also noticed that 13 of the last 20 months have shown PAY **recorded** activity in the \$300 thousand plus level, whereas this would be considered unusual prior to 2015. This is creating repeated variances outside the one-standard deviation band (9 of the last 17 months are outside of

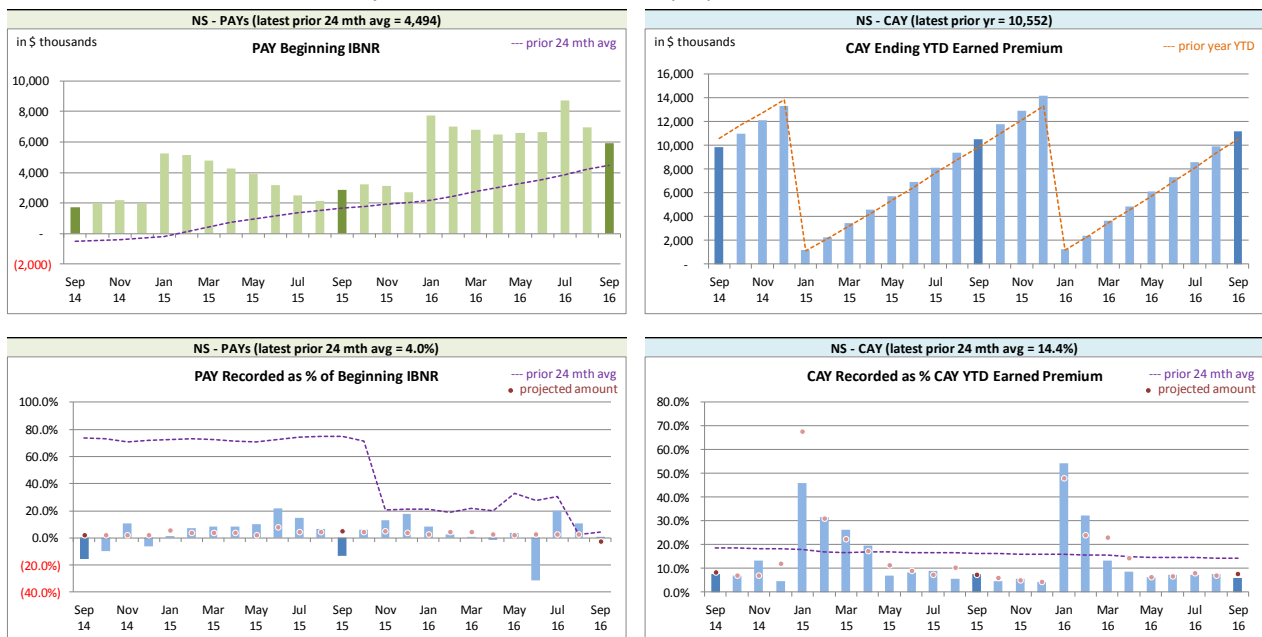
this band). We believe part of the increase is related to the normal “maturation” of the RSP, which was not fully reflected in the projections until recently.

As noted for the past few months, a member is in the process of completing a comprehensive review of their open claims transactions as reported to the FA RSP system. Our review over the last two months (July and August 2016) noted that correcting transactions were posted to reverse claim closures (and associated case reserve takedowns) posted by this member during the prior month (June 2016). Correcting transactions to reverse the prior claim closures continued to be posted in the current month (September 2016). Our investigation and discussion with the member, in conjunction with review by the FA internal audit team, continues to ensure our records are accurate in relation to their own records on their RSP claims portfolio.

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 PAY beginning IBNR. 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), and part will also reflect the maturity level of the RSP.

Nova Scotia RSP Levels that influence⁵ 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:

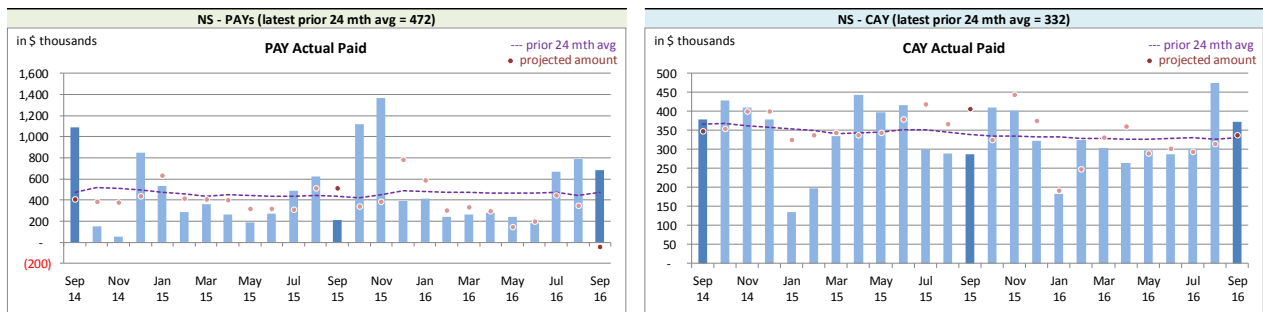
⁵Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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.

- 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

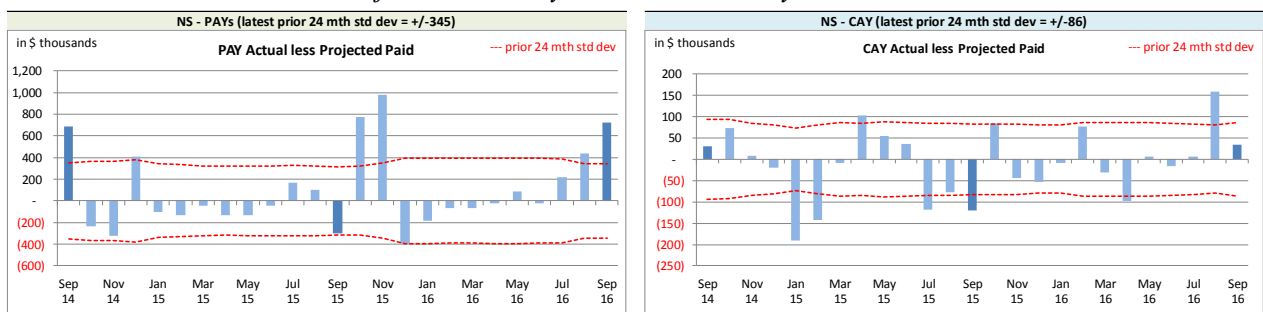
The charts immediately below show actual **paid** activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

Nova Scotia RSP Actual Paid by activity 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.

Nova Scotia RSP Actual vs Projected Summary: Paid Variances by Calendar Month



On Latest \$ thousands			
Paid	PAYS	CAY	
Mthly Avg Paid (prior 24 mths)	472	332	
std dev	345	86	
A-P <> std dev	7	8	
% <> std dev	28.0%	32.0%	
norm <> std dev	31.7%	31.7%	

With respect to **paid** 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.

With 28% of months with prior accident years (PAYS) **paid** variances in excess of a prior 24-month

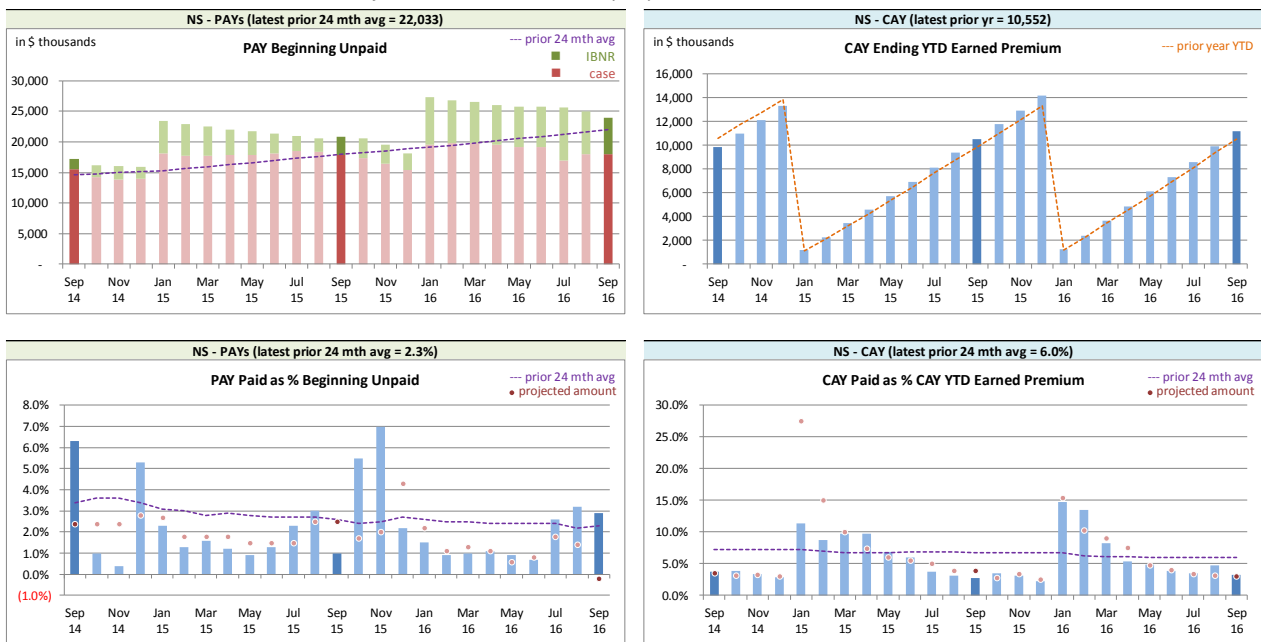
standard deviation (left chart above), this suggests the projection process has performed not much better than one based simply on a 24-month average. We do not see evidence of bias in the projections.

The PAY **paid** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed, with the variance in part attributed to a sizeable duplicate claims transaction processed erroneously as part of the aforementioned claims review being conducted by a member company.

The current accident year (CAY) **paid** variances (right chart in the middle of the previous page) do not appear to indicate bias. However, at 32%, the percentage of months with variances in excess of a prior 24-month standard deviation suggests the projection process performs no better than projections based simply on a 24-month average. We also note that actuals have been lower than projected for 9 of the last 15 months (and 3 of those months had a variance outside of a standard deviation). For these months, actuals have been lower than the corresponding months in the prior year, and we also note that the key ratio we use (**paid to ytd earned premium**) has also been “unusually” low. We continue to monitor and look for ways to improve projections.

We have included, for reference, additional charts immediately below related to levels influencing **paid** activity. Both case and IBNR increases contribute to the increase of PAY beginning unpaid. This is somewhat expected, given the maturity level of the RSP.

Nova Scotia RSP Levels that influence⁶ Paid activity by Calendar Month



⁶Our 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.

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 IBNR⁷, and factors were applied to the nominal unpaid claims liability (case plus IBNR) to 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 September 2016 Operational Report and the associated one-month projections from last month’s Report.

Nova Scotia RSP Actual vs Projected Summary: IBNR and APV Amounts (\$ thousands)

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	252	109	(143)	4	1,319	(29)	1,428	84
2014	1,075	(207)	(58)	2	572	(14)	1,589	(219)
2015	4,568	(94)	(115)	5	920	(41)	5,373	(130)
2016	5,208	178	(140)	1	979	(5)	6,047	174
TOTAL	11,103	(14)	(456)	12	3,790	(89)	14,437	(91)

The IBNR provision is \$14 thousand 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)

⁷For ease of discussion, “IBNR” is used in place of “provisions for incurred but not recorded (IBNR) and development”.

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

The table immediately below summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in the September 2016 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 value) before actuarial present value adjustments and in a premium deficiency position (shown as a positive value) after actuarial present value adjustments. Actuarial present value adjustments increase the expected future policy obligations (costs) associated with the unearned premium and cause the write down of the asset value and the creation of the liability. The variances indicated are due to the unearned premium variance.

Nova Scotia 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:	(159)	(6)	828	24	669	18
balance as % unearned premium:	(1.8%)	-	9.3%	-	7.5%	-
actual unearned premium:	8,917					
less projected:	235					

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 loss⁸ 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 expenses⁹, 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 96.3% rather than 94.8% (the valuation ultimate ratio for accident year 2016), as the calendar year-to-date earned premium includes prior accident

⁸“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).

⁹Allowed 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.

year earned premium adjustments. (Note that the ratios in this table may differ slightly from those shown in the Nova Scotia RSP Summary of Operations due to rounding.)

Nova Scotia 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	(364)	(3.3%)	(998)	(9.1%)	(1,362)	(12.4%)	(76)	0.8%
CAY	10,590	96.3%	839	7.6%	11,429	103.9%	1,276	(0.2%)
TOTAL	10,226	92.9%	(159)	(1.4%)	10,067	91.5%	1,200	0.6%

(“% EP” based on 2016 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. 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 Nova Scotia 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 Aug. 2016	Actual Sep. 2016	Projected Oct. 2016	Projected Nov. 2016	Projected Dec. 2016
	2007	5	5	5	5	4
	2008	(12)	(13)	(13)	(12)	(11)
	2009	(12)	(12)	(12)	(11)	(12)
	2010	90	90	88	85	84
discount rate	2011	223	181	177	174	170
0.56%	2012	143	271	266	263	259
	2013	937	906	885	848	830
interest rate margin	2014	1,787	1,589	1,543	1,450	1,415
25 basis pts	2015	5,338	5,373	5,150	4,633	4,456
	2016	5,456	6,047	6,663	7,001	4,408
	TOTAL	13,955	14,437	14,752	14,436	11,603
	Change		482	315	(316)	

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 Aug. 2016	Actual Sep. 2016	Projected Oct. 2016	Projected Nov. 2016	Projected Dec. 2016
	54.3%	2007	1	1	1	1	1
	69.5%	2008	(32)	(33)	(32)	(31)	(30)
	64.0%	2009	(21)	(21)	(21)	(20)	(20)
	74.5%	2010	59	59	58	55	54
	92.4%	2011	15	(21)	(21)	(20)	(20)
	102.2%	2012	(238)	(66)	(65)	(60)	(59)
	88.0%	2013	361	333	323	297	291
	86.0%	2014	1,263	1,075	1,037	954	935
	87.1%	2015	4,526	4,568	4,362	3,860	3,706
	94.8%	2016	4,704	5,208	5,740	5,992	3,378
		TOTAL	10,638	11,103	11,382	11,028	8,236
		Change		465	279	(354)	

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

EXHIBIT C

Discount Rate & Margins for Adverse Deviations

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Aug. 2016	Actual Sep. 2016	Projected Oct. 2016	Projected Nov. 2016	Projected Dec. 2016
Premium Liabilities					
(1) unearned premium (UP)	8,594	8,917	8,757	9,316	9,369
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	107.2%	107.5%	107.9%	108.3%	108.7%
(3) expected future costs {(1) x (2)}	9,213	9,586	9,450	10,089	10,185
(4) premium deficiency / (deferred policy acquisition cost)	619	669	693	773	816
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	97.9%	98.2%	98.6%	99.0%	99.3%
(6) expected future costs {(1) x (5)}	8,417	8,758	8,633	9,218	9,306
(7) premium deficiency / (deferred policy acquisition cost)	(177)	(159)	(124)	(98)	(63)

EXHIBIT D
Projected Year-end Policy Liabilities

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

Nova Scotia ending 2016		Projected Balances as at Dec. 31, 2016 (\$000s)						
		nominal values			actuarial present value adjustments (apvs)			
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs	TOTAL
2007	34	1	35	-	-	3	3	38
2008	215	(30)	185	(1)	1	19	19	204
2009	115	(20)	95	(1)	-	9	8	103
2010	259	54	313	(3)	2	31	30	343
2011	2,099	(20)	2,079	(27)	12	205	190	2,269
2012	3,522	(59)	3,463	(45)	21	342	318	3,781
2013	4,381	291	4,672	(56)	23	572	539	5,211
2014	3,271	935	4,206	(55)	25	510	480	4,686
2015	2,986	3,706	6,692	(107)	47	810	750	7,442
PAYs (sub-total):	16,882	4,858	21,740	(295)	131	2,501	2,337	24,077
CAY (2016)	6,180	3,378	9,558	(172)	76	1,126	1,030	10,588
claims liabilities:	23,062	8,236	31,298	(467)	207	3,627	3,367	34,665
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
premium liabilities:	9,369	(63)	9,306	(146)	64	961	879	10,185
*Total may not be sum of parts, as apvs apply to future costs within UPR								
policy liabilities:			40,604	(613)	271	4,588	4,246	44,850

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, 2016 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Accident Year	Selected Claims Development MfADs (Jun. 30, 2016)			Total
	Third Party Liability	Accident Benefits	Other Coverages	
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%	10.0%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	12.5%	10.0%	12.0%	12.4%
2014	12.5%	10.0%	10.7%	12.3%
2015	12.5%	10.0%	12.5%	12.3%
2016	12.4%	10.0%	7.1%	12.0%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	12.0%	10.0%	5.1%	10.7%

discount rate:	0.56%
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, 2016 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 (0.56%), the prior valuation assumption (0.61%) and the prior fiscal year end valuation assumption (0.70%) 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, 2016 projected Unpaid								
AY	0.06%	0.56%	1.06%	1.56%	2.06%	2.56%	0.61%	0.70%
2007	25	25	25	25	25	25	25	25
2008	337	336	334	332	330	329	335	335
2009	113	112	111	110	110	109	112	112
2010	343	341	338	335	332	329	341	340
2011	2,217	2,200	2,176	2,152	2,128	2,105	2,198	2,193
2012	3,789	3,761	3,718	3,677	3,637	3,597	3,756	3,749
2013	5,024	4,988	4,934	4,882	4,831	4,781	4,982	4,973
2014	4,804	4,766	4,709	4,655	4,602	4,549	4,760	4,750
2015	7,575	7,502	7,392	7,285	7,182	7,081	7,490	7,470
2016	10,694	10,581	10,413	10,250	10,092	9,938	10,564	10,534
Total	34,921	34,612	34,150	33,703	33,269	32,843	34,563	34,481
	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	0.06%	0.56%	1.06%	1.56%	2.06%	2.56%	0.61%	0.70%
Total	309	-	(462)	(909)	(1,343)	(1,769)	(49)	(131)
	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	0.06%	0.56%	1.06%	1.56%	2.06%	2.56%	0.61%	0.70%
2007	-	-	-	-	-	-	-	-
2008	0.3%	-	(0.6%)	(1.2%)	(1.8%)	(2.1%)	(0.3%)	(0.3%)
2009	0.9%	-	(0.9%)	(1.8%)	(1.8%)	(2.7%)	-	-
2010	0.6%	-	(0.9%)	(1.8%)	(2.6%)	(3.5%)	-	(0.3%)
2011	0.8%	-	(1.1%)	(2.2%)	(3.3%)	(4.3%)	(0.1%)	(0.3%)
2012	0.7%	-	(1.1%)	(2.2%)	(3.3%)	(4.4%)	(0.1%)	(0.3%)
2013	0.7%	-	(1.1%)	(2.1%)	(3.1%)	(4.1%)	(0.1%)	(0.3%)
2014	0.8%	-	(1.2%)	(2.3%)	(3.4%)	(4.6%)	(0.1%)	(0.3%)
2015	1.0%	-	(1.5%)	(2.9%)	(4.3%)	(5.6%)	(0.2%)	(0.4%)
2016	1.1%	-	(1.6%)	(3.1%)	(4.6%)	(6.1%)	(0.2%)	(0.4%)
Total	0.9%	-	(1.3%)	(2.6%)	(3.9%)	(5.1%)	(0.1%)	(0.4%)
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

6.1.a.1 EXHIBIT G

Page 1 of 2

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

RSP Nova Scotia
AccountCode Desc IBNR - Discour

M/S IBNR - in \$000s

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
2007	5	-	-	-	-	-	5
2008	(12)	-	(1)	-	(1)	8.3%	(13)
2009	(12)	-	-	-	-	-	(12)
2010	90	(1)	1	-	-	-	90
2011	223	(6)	(36)	-	(42)	(18.8%)	181
2012	143	(7)	135	-	128	89.5%	271
2013	937	(16)	(15)	-	(31)	(3.3%)	906
2014	1,787	21	(219)	-	(198)	(11.1%)	1,589
2015	5,338	165	(130)	-	35	0.7%	5,373
2016	5,456	417	174	-	591	10.8%	6,047
Grand Total	13,955	573	(91)	-	482	3.5%	14,437

6.1.a.2 EXHIBIT G

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

RSP Nova Scotia
AccountCode Desc IBNR - Undiscounted

IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	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			
2007	1	-	-	-	-	-	1
2008	(32)	1	(2)	-	(1)	3.1%	(33)
2009	(21)	-	-	-	-	-	(21)
2010	59	(1)	1	-	-	-	59
2011	15	-	(36)	-	(36)	(240.0%)	(21)
2012	(238)	2	170	-	172	(72.3%)	(66)
2013	361	(4)	(24)	-	(28)	(7.8%)	333
2014	1,263	19	(207)	-	(188)	(14.9%)	1,075
2015	4,526	136	(94)	-	42	0.9%	4,568
2016	4,704	326	178	-	504	10.7%	5,208
Grand Total	10,638	479	(14)	-	465	4.4%	11,103