



**NOVA SCOTIA RISK SHARING POOL**

**FEBRUARY 2017 OPERATIONAL REPORT**

**ACTUARIAL HIGHLIGHTS**

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**ACTUARIAL HIGHLIGHTS**

**RSP NOVA SCOTIA**

**OPERATIONAL REPORT**

**FEBRUARY 2017**

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## 1 Summary

### 1.1 Valuation Schedule (Fiscal Year 2017)

The February 2017 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 2017.

NOVA SCOTIA RISK SHARING POOL FISCAL YEAR 2017 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2016 (completed)	0.51% mfad: 25 bp	Oct. 2016	updated valuation (roll forward): accident year 2016 loss ratio remained at 94.8%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Dec. 31, 2016		Mar. 2017	update valuation:
Mar. 31, 2017		May 2017	update valuation (roll forward):
Jun. 30, 2017		Aug. 2017	update valuation:
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 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

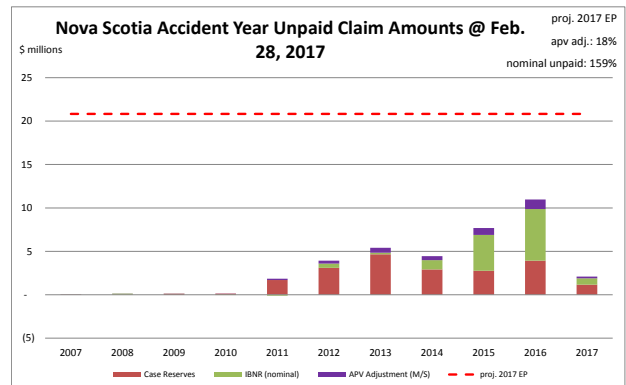
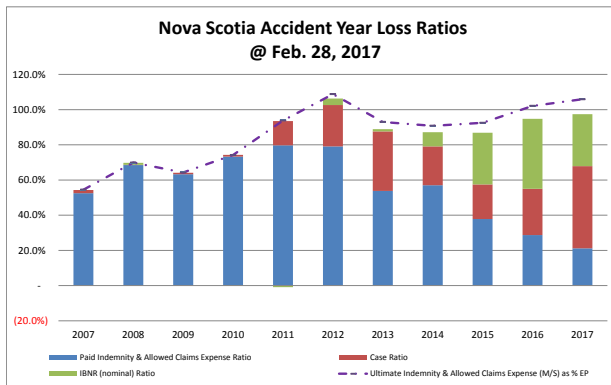
Consideration and assessment of potential impacts of legal decisions and changes in legislation / regulation constitutes a regular part of the valuation process. Descriptions of some of the more recent changes are provided below (there have been no changes in these descriptions since last month’s Highlights).

**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 most recent valuation (September 30, 2016), 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 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 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 (\$3.6 million – see table immediately below) represents 18% 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	20,526	55.9%
ibnr	12,552	34.2%
M/S apv adjust.	3,648	9.9%
<b>M/S total</b>	<b>36,726</b>	<b>100.0%</b>

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 53% of the IBNR balance relates to accident years 2016 and 2017

<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.

(see Exhibit B). Approximately 83% of the M/S total 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	7,117	91.8%	claim	33,078	74.4%
prem def/(dpac)	(50)	(0.6%)	premium	7,067	15.9%
M/S apv adjust.	685	8.8%	M/S apv adjust.	4,333	9.7%
M/S total	7,752	100.0%	M/S total	44,478	100.0%

## 2 Activity During the Month of February 2017

### 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>.

*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	(8)	(8)	243	97	(132)	(25)	111	72
2015	(4)	(4)	21	(83)	117	114	138	31
2016	(29)	(29)	129	(72)	86	132	215	60
2017	1,176	(100)	313	112	371	(225)	684	(114)
TOTAL	1,136	(140)	706	54	443	(4)	1,149	50

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

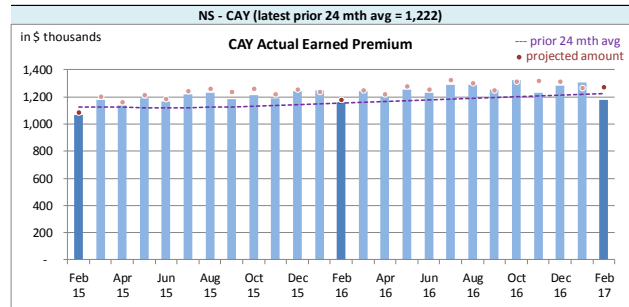
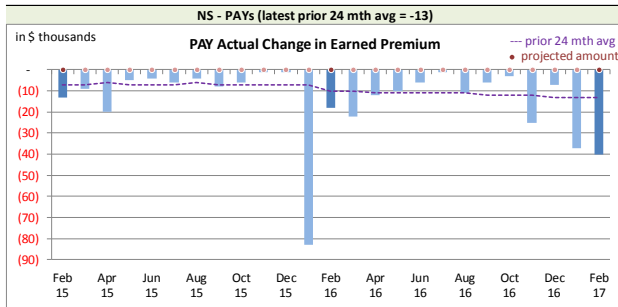
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (this is particularly true where volumes are low). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways 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.

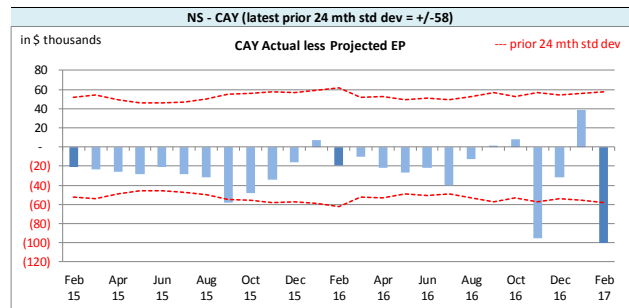
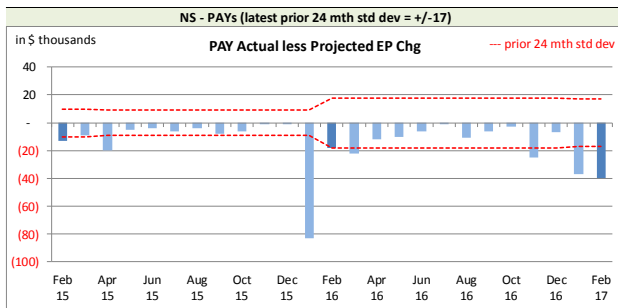
<sup>2</sup>There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

<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.

*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		
<b>Earned Premium</b>	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)	(13)	1,222
std dev	17	58
A-P <> std dev	7	3
% <> std dev	28.0%	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' bias<sup>4</sup>, with actuals generally lower than projected. However, the magnitude is not high relative to monthly

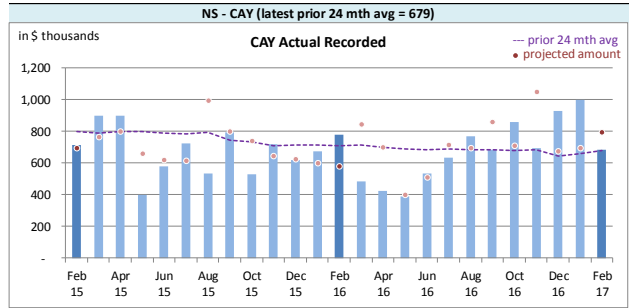
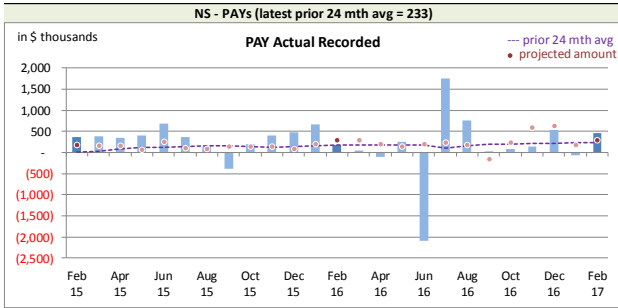
premium, and the variances are within the prior 24-month standard deviation more often than indicated by a normal distribution (see table above). In addition to the prior accident years' bias, the CAY has also shown bias, with actuals being generally lower than projected. Starting with the August 2016 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.

<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.

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

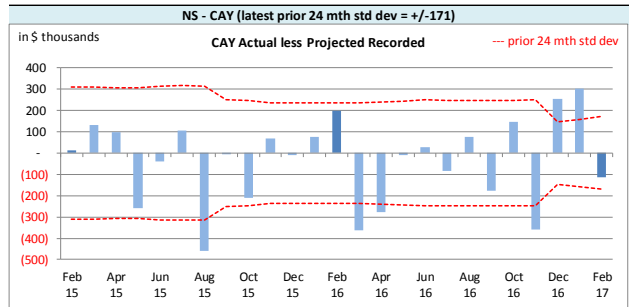
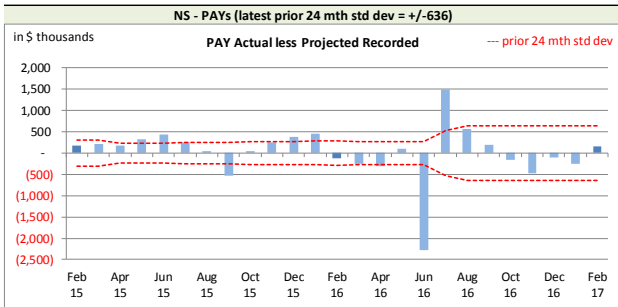
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period are shown in the charts immediately below, including the “prior 24-month average” level.

*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)		233	679
std dev		636	171
A-P <> std dev		9	6
% <> std dev		36.0%	24.0%
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.

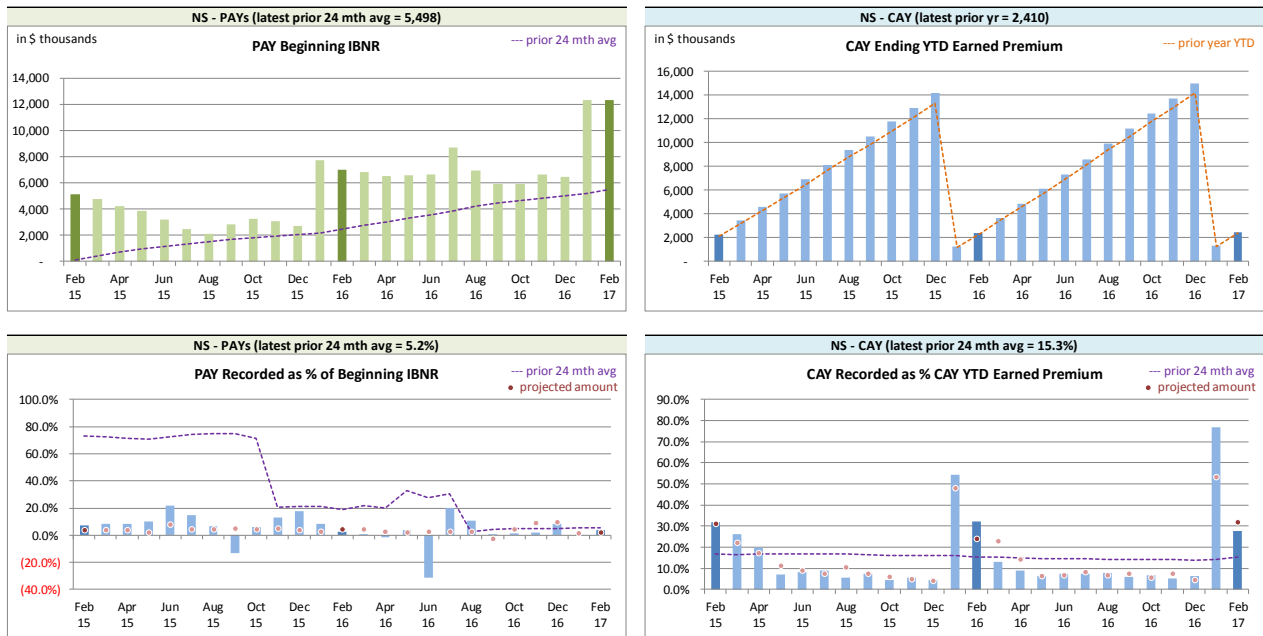
As noted for the past few months, a member is in the process of completing a comprehensive review of their open claims transactions as reported to the FA RSP system. Our review over the three months July-September 2016 noted that correcting transactions were posted to reverse claim closures (and associated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

The current accident year (CAY) **recorded** variances (right chart at bottom of previous page), with 24% of months with variances in excess of a 24-month standard deviation suggests the projection process performs better than simply projecting based on a 24-month average. We do not see evidence of bias in the variances.

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. 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 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 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

<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.

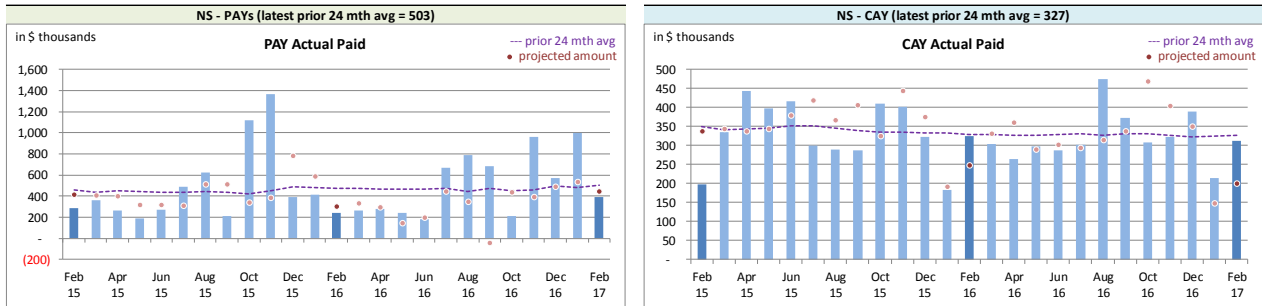


month after the valuation is implemented, i.e. the change will generally show in April, June, September, and November).

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

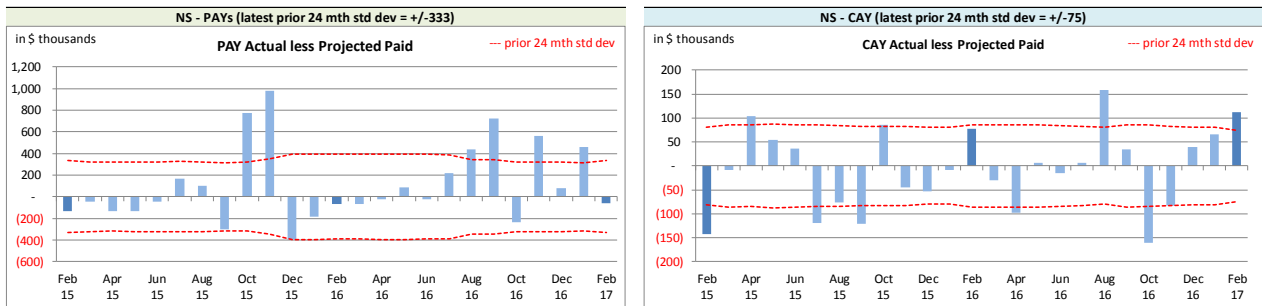
The charts immediately below show actual **paid** activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

*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			
	<b>Paid</b>	PAYS	CAY
Mthly Avg Paid (prior 24 mths)		503	327
std dev		333	75
A-P <> std dev		7	9
% <> std dev		28.0%	36.0%
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 (see 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 current accident year (CAY) **paid** variances (right chart above) do not appear to indicate bias. Toward the end of 2015 and the beginning of 2016, it seemed that bias may have been creeping into

the projections (with actuals higher than the projections), however, corrective measures were taken and any potential bias seems to be gone.

The CAY **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 immediately below related to levels influencing **paid** activity. Both case and IBNR increases contribute to the increase of PAYs beginning unpaid. This is somewhat expected, given the maturity level of the RSP.

*Nova Scotia 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).

<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.

## 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 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 2017 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)*

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	1,750	(79)	(160)	1	1,710	(11)	3,300	(89)
2015	4,126	(34)	(83)	(1)	873	10	4,916	(25)
2016	5,943	(87)	(148)	(1)	1,246	6	7,041	(82)
2017	733	16	(30)	4	240	(27)	943	(7)
<b>TOTAL</b>	<b>12,552</b>	<b>(184)</b>	<b>(421)</b>	<b>3</b>	<b>4,069</b>	<b>(22)</b>	<b>16,200</b>	<b>(203)</b>

The IBNR provision is \$184 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)

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 premium deficiency liability / (deferred policy acquisition cost asset) included in the February 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 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 mainly due to the unearned premium variance.

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

*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:	(50)	4	685	(109)	635	(105)
balance as % unearned premium:	(0.7%)	-	9.6%	(0.1%)	8.9%	(0.1%)
actual unearned premium:	7,117					
less projected:	(1,140)					

### 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 100.6% rather than 97.5% (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 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	(71)	(3.0%)	(135)	(5.6%)	(206)	(8.6%)	(83)	1.1%
CAY	2,418	100.6%	210	8.7%	2,628	109.3%	1,239	(0.2%)
TOTAL	2,347	97.6%	75	3.1%	2,422	100.7%	1,156	0.9%

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

<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>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 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.

## **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 Jan. 2017	Actual Feb. 2017	Projected Mar. 2017	Projected Apr. 2017	Projected Dec. 2017
	2007	5	5	5	5	5
	2008	153	142	139	136	119
	2009	18	18	18	18	17
	2010	(13)	(17)	(16)	(15)	(15)
	2011	36	41	40	42	47
discount rate	2012	825	824	810	797	700
0.51%	2013	815	749	739	729	661
	2014	1,605	1,538	1,507	1,481	1,283
interest rate margin	2015	5,060	4,916	4,821	4,732	3,813
25 basis pts	2016	7,301	7,041	6,900	6,802	4,551
	2017	388	943	1,802	2,718	3,341
	<b>TOTAL</b>	<b>16,193</b>	<b>16,200</b>	<b>16,765</b>	<b>17,445</b>	<b>14,522</b>
	Change		7	565	680	

*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. 2017	Feb. 2017	Mar. 2017	Apr. 2017	Dec. 2017
	54.3%	2007	1	1	1	1	1
	69.8%	2008	130	129	126	123	107
	64.2%	2009	7	7	7	7	7
	74.1%	2010	(23)	(27)	(26)	(25)	(24)
	92.6%	2011	(117)	(108)	(106)	(104)	(88)
	106.3%	2012	492	490	480	470	400
	88.9%	2013	249	185	181	177	152
	87.3%	2014	1,129	1,073	1,046	1,025	871
	86.9%	2015	4,267	4,126	4,043	3,962	3,170
	94.8%	2016	6,185	5,943	5,824	5,737	3,845
	97.5%	2017	271	733	1,479	2,271	1,937
		<b>TOTAL</b>	<b>12,591</b>	<b>12,552</b>	<b>13,055</b>	<b>13,644</b>	<b>10,378</b>
		Change		(39)	503	589	

*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 Jan. 2017	Actual Feb. 2017	Projected Mar. 2017	Projected Apr. 2017	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	7,358	7,117	8,113	9,327	16,384
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	108.9%	108.9%	109.1%	109.3%	111.6%
(3) expected future costs {(1) x (2)}	8,010	7,752	8,848	10,190	18,283
(4) premium deficiency / (deferred policy acquisition cost)	652	635	735	863	1,899
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	99.3%	99.3%	99.4%	99.6%	101.7%
(6) expected future costs {(1) x (5)}	7,303	7,067	8,068	9,291	16,670
(7) premium deficiency / (deferred policy acquisition cost)	(55)	(50)	(45)	(36)	286



EXHIBIT D

Projected Year-end Policy Liabilities

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

Nova Scotia		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
2007	37	1	38	-	-	4	4	42
2008	24	107	131	(1)	-	13	12	143
2009	107	7	114	(1)	-	11	10	124
2010	125	(24)	101	(1)	-	10	9	110
2011	1,514	(88)	1,426	(14)	7	142	135	1,561
2012	2,844	400	3,244	(36)	16	320	300	3,544
2013	4,226	152	4,378	(53)	26	536	509	4,887
2014	2,660	871	3,531	(39)	18	433	412	3,943
2015	2,437	3,170	5,607	(67)	34	676	643	6,250
2016	2,508	3,845	6,353	(95)	44	757	706	7,059
<b>PAYs (sub-total):</b>	<b>16,482</b>	<b>8,441</b>	<b>24,923</b>	<b>(307)</b>	<b>145</b>	<b>2,902</b>	<b>2,740</b>	<b>27,663</b>
<b>CAY (2017)</b>	<b>10,702</b>	<b>1,937</b>	<b>12,639</b>	<b>(202)</b>	<b>101</b>	<b>1,505</b>	<b>1,404</b>	<b>14,043</b>
<b>claims liabilities:</b>	<b>27,184</b>	<b>10,378</b>	<b>37,562</b>	<b>(509)</b>	<b>246</b>	<b>4,407</b>	<b>4,144</b>	<b>41,706</b>
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PFAD	development PFAD	Total apvs	TOTAL*
<b>premium liabilities:</b>	16,384	286	16,670	(230)	114	1,729	1,613	18,283
<b>policy liabilities:</b>			<b>54,232</b>	<b>(739)</b>	<b>360</b>	<b>6,136</b>	<b>5,757</b>	<b>59,989</b>

\*Total may not be sum of parts, as apvs apply to future costs within UPR

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.

Selected Claims Development MfADs (Sep. 30, 2016)				
Accident Year	Third Party Liability	Accident Benefits	Other Coverages	Total
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%	11.5%	12.4%
2014	12.5%	10.0%	12.5%	12.4%
2015	12.5%	10.0%	8.9%	12.2%
2016	12.4%	10.0%	8.9%	12.1%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	12.0%	10.0%	5.2%	10.7%

discount rate:	0.51%
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, 2017 and based on more up-to-date information). We have included both the current valuation selection (0.51%), the prior valuation assumption (0.56%) 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	0.01%	0.51%	1.01%	1.51%	2.01%	2.51%	0.56%	0.70%
2007	31	31	31	31	31	30	31	31
2008	202	201	200	199	198	197	201	201
2009	122	121	121	120	119	118	121	121
2010	282	280	278	275	273	270	280	279
2011	2,310	2,295	2,270	2,245	2,221	2,197	2,293	2,285
2012	3,958	3,932	3,888	3,845	3,803	3,762	3,928	3,916
2013	5,210	5,178	5,123	5,068	5,016	4,965	5,173	5,157
2014	5,073	5,039	4,979	4,921	4,865	4,810	5,033	5,016
2015	7,596	7,532	7,423	7,315	7,212	7,111	7,522	7,491
2016	11,090	10,988	10,813	10,641	10,476	10,316	10,970	10,921
<b>Total</b>	<b>35,874</b>	<b>35,597</b>	<b>35,126</b>	<b>34,660</b>	<b>34,214</b>	<b>33,776</b>	<b>35,552</b>	<b>35,418</b>
	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	0.01%	0.51%	1.01%	1.51%	2.01%	2.51%	0.56%	0.70%
<b>Total</b>	<b>277</b>	<b>-</b>	<b>(471)</b>	<b>(937)</b>	<b>(1,383)</b>	<b>(1,821)</b>	<b>(45)</b>	<b>(179)</b>
	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	0.01%	0.51%	1.01%	1.51%	2.01%	2.51%	0.56%	0.70%
2007	-	-	-	-	-	(3.2%)	-	-
2008	0.5%	-	(0.5%)	(1.0%)	(1.5%)	(2.0%)	-	-
2009	0.8%	-	-	(0.8%)	(1.7%)	(2.5%)	-	-
2010	0.7%	-	(0.7%)	(1.8%)	(2.5%)	(3.6%)	-	(0.4%)
2011	0.7%	-	(1.1%)	(2.2%)	(3.2%)	(4.3%)	(0.1%)	(0.4%)
2012	0.7%	-	(1.1%)	(2.2%)	(3.3%)	(4.3%)	(0.1%)	(0.4%)
2013	0.6%	-	(1.1%)	(2.1%)	(3.1%)	(4.1%)	(0.1%)	(0.4%)
2014	0.7%	-	(1.2%)	(2.3%)	(3.5%)	(4.5%)	(0.1%)	(0.5%)
2015	0.8%	-	(1.4%)	(2.9%)	(4.2%)	(5.6%)	(0.1%)	(0.5%)
2016	0.9%	-	(1.6%)	(3.2%)	(4.7%)	(6.1%)	(0.2%)	(0.6%)
<b>Total</b>	<b>0.8%</b>	<b>-</b>	<b>(1.3%)</b>	<b>(2.6%)</b>	<b>(3.9%)</b>	<b>(5.1%)</b>	<b>(0.1%)</b>	<b>(0.5%)</b>
	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 Nova Scotia  
AccountCode Desc IBNR - Discour

M/S 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	5	-	-	-	-	-	5
2008	153	(4)	(7)	-	(11)	(7.2%)	142
2009	18	-	-	-	-	-	18
2010	(13)	-	(4)	-	(4)	30.8%	(17)
2011	36	-	5	-	5	13.9%	41
2012	825	(12)	11	-	(1)	(0.1%)	824
2013	815	(11)	(55)	-	(66)	(8.1%)	749
2014	1,605	(28)	(39)	-	(67)	(4.2%)	1,538
2015	5,060	(119)	(25)	-	(144)	(2.8%)	4,916
2016	7,301	(178)	(82)	-	(260)	(3.6%)	7,041
2017	388	562	(7)	-	555	143.0%	943
<b>Grand Total</b>	<b>16,193</b>	<b>210</b>	<b>(203)</b>	<b>-</b>	<b>7</b>	<b>-</b>	<b>16,200</b>

EXHIBIT G

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

RSP		Nova Scotia						IBNR - in \$000s
AccountCode Desc		IBNR - Undiscounted						
AccYear	Values			Sum of Change Due to Valuation Implementation	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					
2007	1	-	-	-	-	-	1	
2008	130	(3)	2	-	(1)	(0.8%)	129	
2009	7	-	-	-	-	-	7	
2010	(23)	-	(4)	-	(4)	17.4%	(27)	
2011	(117)	2	7	-	9	(7.7%)	(108)	
2012	492	(10)	8	-	(2)	(0.4%)	490	
2013	249	(5)	(59)	-	(64)	(25.7%)	185	
2014	1,129	(23)	(33)	-	(56)	(5.0%)	1,073	
2015	4,267	(107)	(34)	-	(141)	(3.3%)	4,126	
2016	6,185	(155)	(87)	-	(242)	(3.9%)	5,943	
2017	271	446	16	-	462	170.5%	733	
<b>Grand Total</b>	<b>12,591</b>	<b>145</b>	<b>(184)</b>	<b>-</b>	<b>(39)</b>	<b>(0.3%)</b>	<b>12,552</b>	