



ONTARIO RISK SHARING POOL

SEPTEMBER 2019 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS**RSP ONTARIO****OPERATIONAL REPORT****SEPTEMBER 2019**

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1 Summary

Key Points

- (a) Liam McFarlane has resigned as the Facility Association’s Appointed Actuary; Mr. Cosimo Pantaleo of Ernst & Young LLP has assumed the Appointed Actuary’s role (effective as of October 24, 2019), pending formal appointment by the Facility Association Board (expected at its December 12, 2019 meeting); and
- (b) There were no other specific issues or events warranting additional comment for this month – results were reasonably aligned with our expectations, other than higher-than-expected volume.

1.1 Valuation Schedule (Fiscal Year 2019)

The September 2019 Operational Report leverages actuarial assumptions consistent with last month (that is, it does not reflect the results of an updated valuation). The table below summarizes the implemented valuations and future scheduled valuations for fiscal year 2019.

ONTARIO RISK SHARING POOL FISCAL YEAR 2019 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2018 (completed)	2.22% mfad 25 bp	Oct. 2018	updated valuation (roll forward): accident year 2018 loss ratio <u>increased</u> 0.5 points to 127.0%; discount rate <u>increased</u> by 39 basis points; selected margins for adverse deviations were updated
Dec. 31, 2018 (completed)	1.88% mfad 25 bp	Mar. 2019	updated valuation: accident year 2019 loss ratio 127.1%; discount rate <u>decreased</u> by 34 basis points; no change to selected margins for adverse deviations
Mar. 31, 2019 (completed)	1.43% mfad 25 bp	May 2019	updated valuation (roll forward): accident year 2019 loss ratio <u>increased</u> 0.5 points to 127.6%; discount rate <u>decreased</u> by 45 basis points; no change to selected margins for adverse deviations
Jun. 30, 2019 (completed)	1.40% mfad 25 bp	Aug. 2019	updated valuation: accident year 2019 loss ratio <u>decreased</u> 4.6 points to 123.0%; discount rate <u>decreased</u> by 3 basis points; selected margins for adverse deviations were updated
Sep. 30, 2019		Oct. 2019	update valuation (roll forward)

Under the proposed schedule for fiscal year 2019, the “off-half” valuation quarters ending March 31, 2019 and September 30, 2019 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 was Facility Association's Appointed Actuary (effective as of June 1, 2013). Mr. McFarlane has resigned his Appointment to take on a role at a different organization. Mr. Cosimo Pantaleo of Ernst & Young LLP has assumed the Appointed Actuary's role (effective as of October 24, 2019), pending formal appointment by the Facility Association Board (expected at its December 12, 2019 meeting).

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 / Regulation¹

There have been no changes in these descriptions since last month's Highlights.

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.

Ontario Bill 15 (Fighting Fraud and Reducing Automobile Insurance Rates Act, 2014) was introduced into the Legislature by the Minister of Finance on July 15, 2014 and **received Royal Assent on November 20, 2014**. Bill 15 includes various amendments and provisions such as moving the Ontario Automobile Dispute Resolution System (DRS) for statutory accident benefits from the Financial Services Commission of Ontario to the Ministry of the Attorney General (Licence Appeal Tribunal), regulation of the Tow and Storage Industry (amendments to the Consumer Protection Act and Repair and Storage Liens Act), regulations related to licensing of insurance agents and adjusters, changes the applicable interest rate applied to overdue payments in the Statutory Accident Benefits Schedule (SABS), and changes to the prejudgment interest rate on general damages for non-pecuniary loss from the rate as set out in the Courts of Justice Act to rates linked to market conditions.

Ontario Bill 91 (Building Ontario Up Act (Budget Measures), 2015) was introduced into the Legislature by the Minister of Finance on April 23, 2015 and **received Royal Assent on June 4, 2015**. Bill 91 announced a number of amendments to regulations made under the Insurance Act, including: updating the Catastrophic Impairment Definition and changes to the standard benefit level under the Statutory Accident Benefits Schedule (SABS); restrictions on insurance premium increases and lowering of the maximum interest rate charged on monthly auto insurance premium payments; and adjustments to the monetary threshold beyond which the tort deductible does not apply to reflect inflation (adjustments to reflect inflation in the associated tort deductible were undertaken via an update to regulation 461/96). On August 26, 2015, the Ontario government filed Ontario regulations 250/15 and 251/15 implementing reforms set out in Bill 91. With the most recent valuation (June 30, 2019), reform adjustments (originally introduced with the September 30, 2015 valuation) specifically related to changes to the SABS impacting the bodily injury and accident benefits coverages, were included with the updated industry trend analysis (completed using industry data as at December 31, 2018), impacting the selection of ultimates.

¹This link is to a helpful guide on how bills become laws: <http://www.ontla.on.ca/lao/en/media/laointernet/pdf/bills-and-lawmaking-background-documents/how-bills-become-law-en.pdf>.

1.4 Harmonized Sales Tax Class Action - Ontario

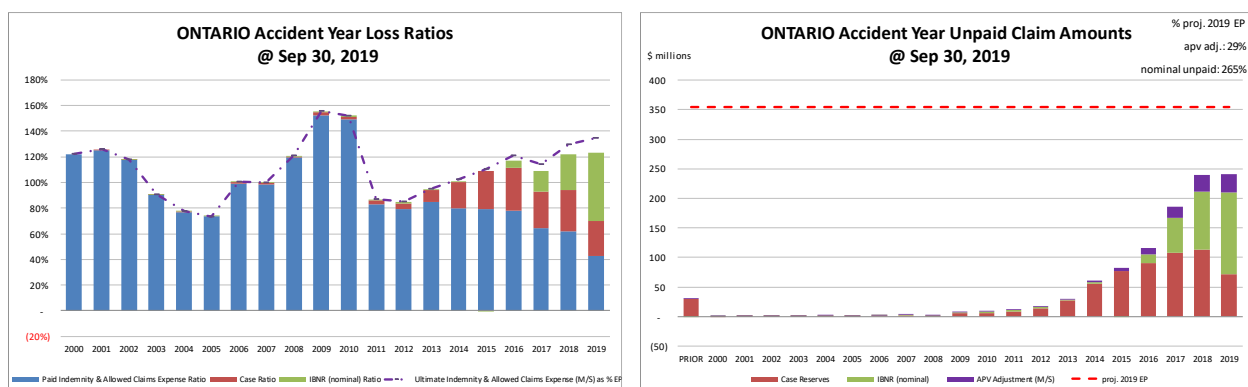
There have been no changes in these descriptions since last month's Highlights.

Since the end of October 2018, class action lawsuits have been brought against multiple insurers related to HST and limits / sub-limits of benefits per the Statutory Accident Benefits Schedule and FSCO's Professional Services Guideline as part of claims settlement practices in Ontario.

At the current time, no adjustments have been made to our valuation estimates, but in conjunction with FA's Appointed Actuary, FA management continues to review and consider the implications of the potential outcomes related to the class action lawsuits. Please contact Shawn Doherty at sdoherty@facilityassociation.com if you need further information.

1.5 Current Provision Summary

The charts below show the current levels of claim liabilities² booked by accident year³. 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 2019 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 provision for claims liabilities (\$1,040.5 million – see table at the top of the next page) represents 29% of the earned premium projected for the full year 2019 (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.

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.

³The loss ratio chart has been limited to show the most recent 20 accident years; the unpaid provision chart has been limited to show the most recent 20 accident years, and show all accident years older than 20 years collectively as "PRIOR".

claim liabilities (\$000s)

	amt	%
case	612,826	58.9%
ibnr	326,345	31.4%
M/S apv adjust.	101,345	9.7%
M/S total	1,040,516	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 RSP is in case reserves. Approximately 73% of the IBNR balance relates to accident years 2018 and 2019 (see Exhibit B). Approximately 83% of the M/S total claim

liabilities are related to accident years 2015-2019 inclusive (i.e. the most recent 5 accident years), and approximately 5% is related to accident years 2009 and prior (i.e. prior to the most recent 10 accident years).

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

premium liabilities (\$000s)

	amt	%
unearned prem	201,939	72.6%
prem def/(dpac)	49,488	17.8%
M/S apv adjust.	26,676	9.6%
M/S total	278,103	100.0%

policy liabilities (\$000s)

	amt	%
claim	939,171	71.2%
premium	251,427	19.1%
M/S apv adjust.	128,021	9.7%
M/S total	1,318,619	100.0%

2 Activity During the Month of September 2019

2.1 Recorded Premium and Claims Activity

The table below summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report⁴.

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

Table 01 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	(9)	(9)	7,402	(2,247)	(3,459)	4,822	3,943	2,575
2017	(5)	(5)	2,152	(1,229)	681	340	2,833	(889)
2018	(13)	(13)	2,902	756	(155)	(39)	2,747	717
2019	30,418	700	14,218	(1,166)	7,665	(227)	21,883	(1,393)
TOTAL	30,391	673	26,674	(3,886)	4,733	4,897	31,407	1,011

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

It is unusual to see actual earned premium transactions affecting prior accident years by this time in the calendar year – the prior accident years changes in the month reflect activity undertaken by a member reflecting recent audit findings.

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). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the

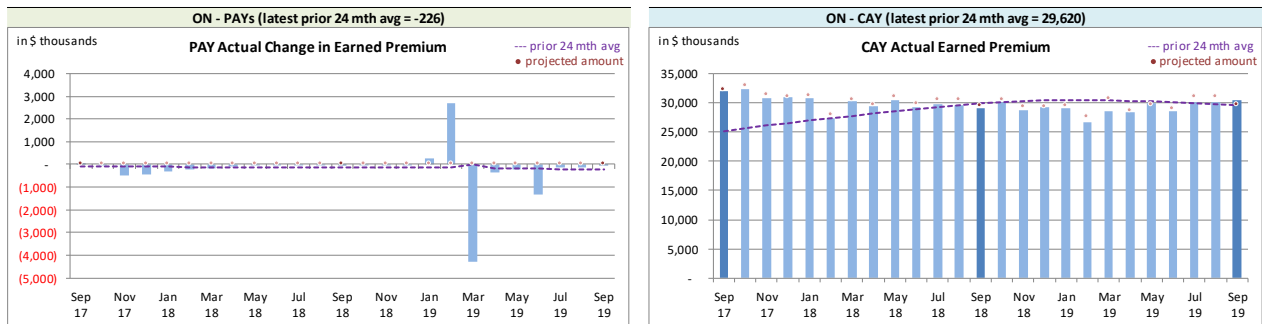
⁴There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

variance. Commentary from our review is provided in the sub-sections that follow.

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

The charts below show actual **earned premium**⁵ 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.

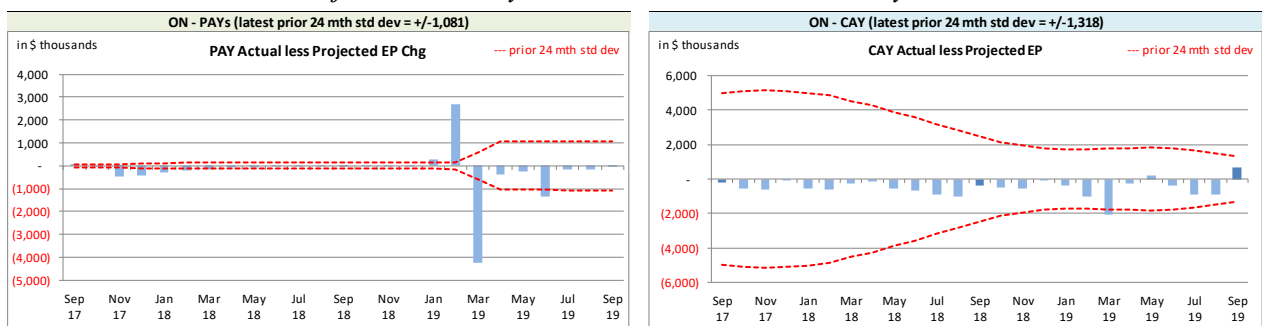
Ontario RSP Actual Earned Premium by Calendar Month



Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels (note the different scales in the charts above), although relatively high levels generally occur at the beginning of each year.

The associated variance between the actual changes and the projections from the previous month are shown in the charts 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.

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



⁵Premium 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.

On Latest \$ thousands		
Earned Premium	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)	(226)	29,620
std dev	1,081	1,318
A-P <> std dev	9	1
% <> std dev	36.0%	4.0%
norm <> std dev	31.7%	31.7%

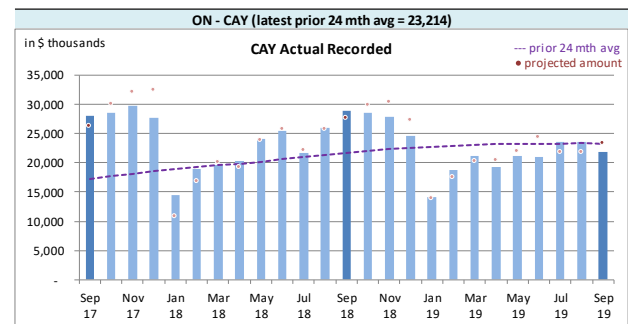
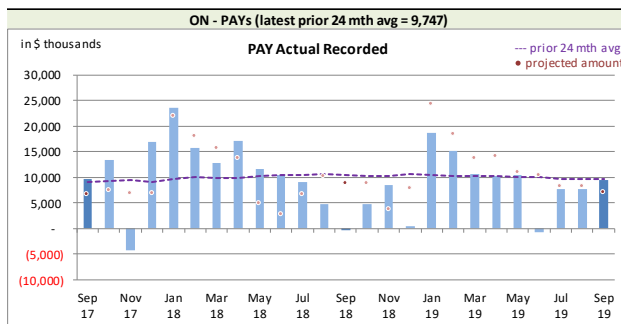
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁶, with actuals generally lower than projected, although the magnitude is not high relative to monthly

premium. In addition to the PAYs' bias, the CAY has also shown bias⁷, with actuals being generally lower than projected, and while we modified our projections processes in response, bias still exists. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority. Readers will also note the significant widening then tapering of the CAY standard deviation band, reflecting significant volume changes and the impact as those changes were earned.

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

The charts below 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.

Ontario RSP Actual **Recorded** by Calendar Month

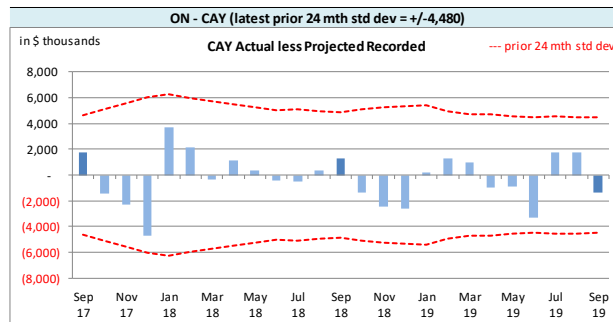
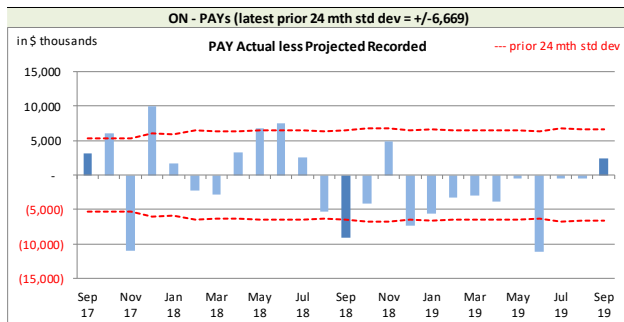


Recorded activity variances from the previous month's projections are shown in the charts at the top of the next page, including the "prior 24-month standard deviation" levels to show how the variances from projection compare with historical standard deviations.

⁶The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

⁷We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (25 in this case) and 50% probability of success. The rolling 25-month CAY variances at September 2019 has only 2 months where the actuals were higher than projected, and as the 95% confidence range is 8 to 17, bias continues to be indicated.

Ontario RSP Actual vs Projected Summary: **Recorded** Variances by Calendar Month



On Latest \$ thousands			
	Recorded	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)		9,747	23,214
std dev		6,669	4,480
A-P <> std dev		8	-
% <> std dev		32.0%	0.0%
norm <> std dev		31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense, 32% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **recorded** amounts (see table on left), suggesting the projection process has performed no better than simply projecting the prior 24-

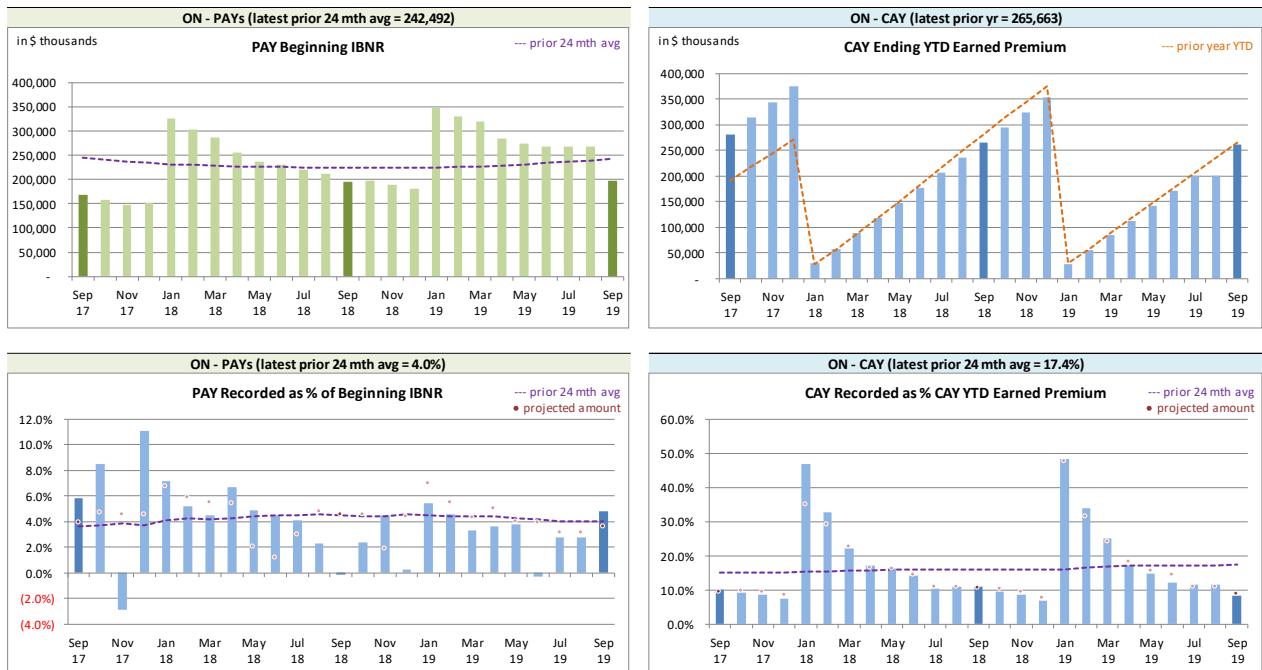
month average amount (assuming it follows a normal distribution). Bias has not been indicated at a 95% confidence level on a rolling 25-month basis (10 of 25 variances were positive), but on a lagging 12-month basis, bias is indicated (our projections tend to be too high and we are considering this for future projections).

The current accident year (CAY) **recorded** variances (right lower chart on previous page) fell outside of one standard deviation 4% of the time over the last 25 calendar months suggesting that the projection process has performed better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a rolling 25-month basis (10 of 25 variances were positive).

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 at the top of the next page related to levels influencing **recorded** activity. Note in particular the reduction in the level of PAY beginning IBNR over the months, 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).

Ontario RSP Levels that influence⁸ Recorded activity by Calendar Month



We track PAY beginning IBNR as **recorded** activity “comes out of” IBNR. Changes in the PAY beginning IBNR (see upper left chart above) occur for several possible reasons:

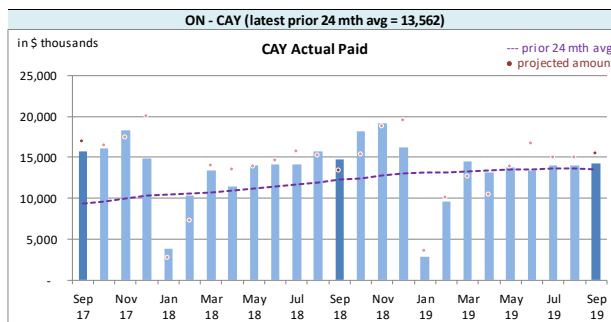
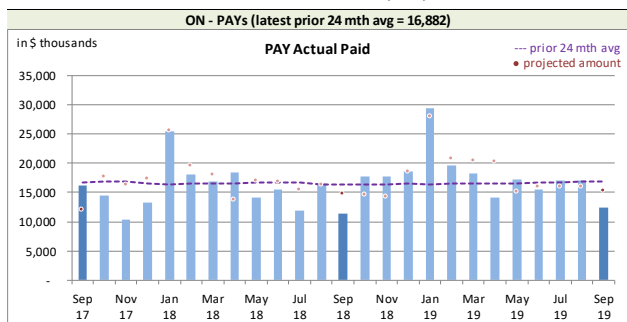
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate (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 at the top of the next page 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.

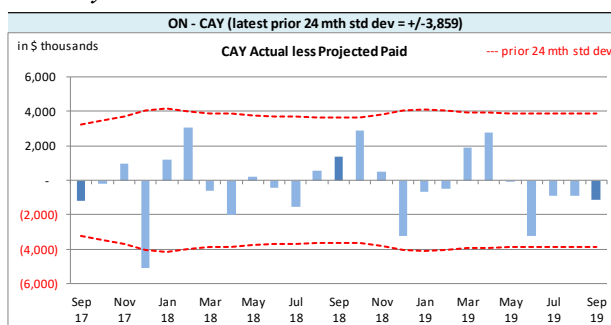
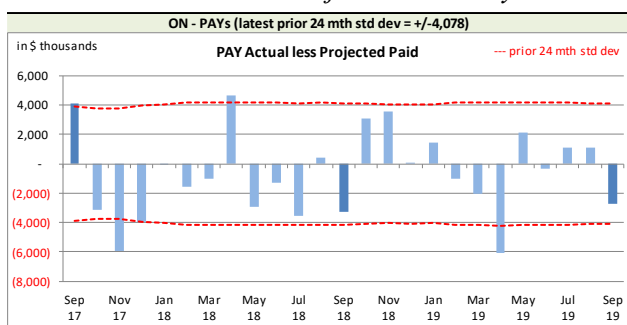
⁸Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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.

Ontario 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.

Ontario RSP Actual vs Projected Summary: **Paid** Variances by Calendar Month



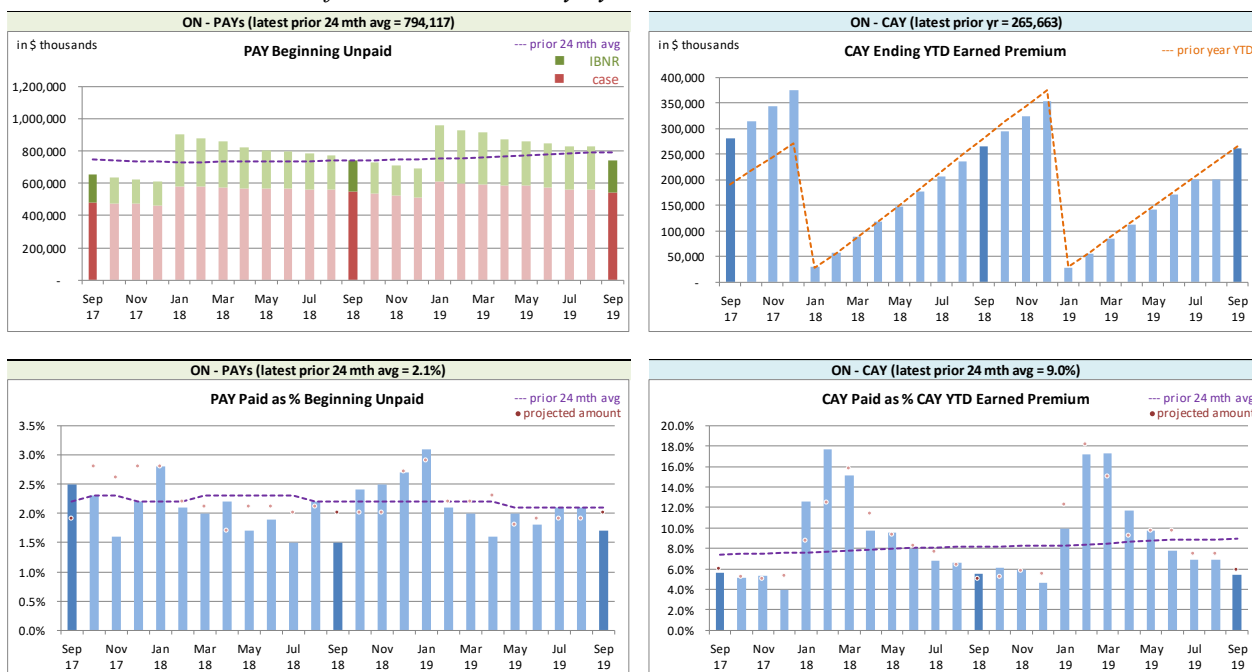
On Latest \$ thousands			
	Paid	PAYS	CAY
Mthly Avg Paid (prior 24 mths)		16,882	13,562
std dev		4,078	3,859
A-P <> std dev		4	1
% <> std dev		16.0%	4.0%
norm <> std dev		31.7%	31.7%

With respect to **paid** indemnity & allowed claims expense, 16% of the prior accident years' (PAYS) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **paid** amounts (see table on left), suggesting the projection process has performed better than simply projecting the prior 24-month average amount (assuming it follows a normal distribution). Bias has not been indicated at a 95% confidence level on a rolling 25-month basis (10 of 25 variances are positive).

The current accident year (CAY) **paid** variances fell outside of one standard deviation 4% of the time over the last 25 calendar months (see table above), suggesting the projection process has performed better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a rolling 25-month basis (10 of 25 variances are positive).

We have included, for reference, additional charts at the top of the next page related to levels influencing **paid** activity.

Ontario RSP Levels that influence⁹ Paid activity by Calendar Month



We track the PAY beginning unpaid balance (case and IBNR) as **paid** activity “comes out of” the unpaid balance. Changes in the PAY 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) is used to determine the month’s IBNR¹⁰, and factors are 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 projections and actuals were based on the applicable valuation.

The table at the top of the next page summarizes variances in provisions included in this month’s

⁹Our 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.

¹⁰For ease of discussion, “IBNR” is used in place of “provisions for incurred but not recorded (IBNR) and development”.

Operational Report and the associated one-month projections from last month's Report.

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

Table 02		actuarial present value adjustments					
Accident Year	IBNR		Discount Amount		Provisions for Adverse Deviations		IBNR + actuarial present value adjustments
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual Actual less Projected
Prior	30,152	(2,586)	(14,406)	(120)	38,602	237	54,348 (2,469)
2017	59,188	883	(6,007)	(44)	25,131	184	78,312 1,023
2018	98,724	(734)	(8,679)	32	36,804	(134)	126,849 (836)
2019	138,281	2,254	(9,054)	(87)	38,954	375	168,181 2,542
TOTAL	326,345	(183)	(38,146)	(219)	139,491	662	427,690 260

The IBNR provision is \$0.2 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.

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 below summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in this month's Operational Report and the one-month projections from last month's Report. This RSP is in a premium deficiency position (shown as a positive amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments increase the liability 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.

Ontario 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:	49,488	2,291	26,676	1,231	76,164	3,522
balance as % unearned premium:	24.5%	-	13.2%	-	37.7%	-
actual unearned premium:	201,939					
less projected:	9,288					

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 loss¹¹ 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 expenses¹², including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes 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 124.7% rather than 123.0% (the valuation ultimate ratio for accident year 2019), 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 Ontario RSP Summary of Operations due to rounding.)

Ontario 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	(73,324)	(28.4%)	(10,678)	(4.1%)	(84,002)	(32.6%)	(1,191)	3.8%
CAY	321,680	124.7%	29,900	11.6%	351,580	136.2%	40,708	(0.3%)
TOTAL	248,356	96.2%	19,222	7.4%	267,578	103.7%	39,517	3.5%

(“% EP” based on 2019 calendar year-to-date earned premium; ratios may not total due to rounding)

In general, prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments, except when valuations are implemented. The loss ratio change year-to-date in Table 04 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 (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

¹¹“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).

¹²Allowed 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.

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 presented in section 6, Exhibit B, refer to the estimates derived on the basis of various actuarial methodologies applied to the experience of the Ontario Risk Sharing Pool for the purposes of the most recent quarterly valuation. As discussed in section 3, IBNR 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

 IBNR + M/S actuarial present
 value adjustments

 discount rate
 1.40%

 interest rate margin
 25 basis pts

Amounts in \$000s					
Accident Year	Actual Aug. 2019	Actual Sep. 2019	Projected Oct. 2019	Projected Nov. 2019	Projected Dec. 2019
prior	1,470	1,414	1,361	1,311	1,277
2000	14	14	14	14	13
2001	48	48	47	46	45
2002	70	70	68	67	64
2003	148	153	151	149	143
2004	283	283	280	276	264
2005	312	304	300	297	283
2006	434	434	427	421	401
2007	701	738	730	720	686
2008	1,468	1,385	1,371	1,356	1,289
2009	2,135	1,810	1,789	1,768	1,682
2010	2,830	2,649	2,621	2,590	2,464
2011	2,104	2,240	2,210	2,182	2,079
2012	2,997	3,535	3,485	3,436	3,279
2013	4,340	3,582	3,516	3,452	3,309
2014	4,658	5,525	5,396	5,271	5,075
2015	7,083	4,668	4,557	4,432	4,235
2016	27,731	25,496	24,422	23,393	22,551
2017	81,398	78,312	74,970	71,785	69,098
2018	130,000	126,849	123,325	119,901	116,574
2019	149,356	168,181	185,121	200,748	215,695
TOTAL	419,580	427,690	436,161	443,615	450,506
Change		8,110	8,471	7,454	

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

EXHIBIT B
IBNR
TABLE EXHIBIT B

TABLE EXHIBIT B		Amounts in \$'000s					
IBNR	Ultimate	Accident	Actual	Actual	Projected	Projected	Projected
	Loss Ratio	Year	Aug. 2019	Sep. 2019	Oct. 2019	Nov. 2019	Dec. 2019
	-	prior	(401)	(450)	(447)	(444)	(423)
	122.0%	2000	13	13	13	13	12
	125.8%	2001	9	9	9	9	9
	117.9%	2002	63	63	62	61	58
	90.7%	2003	125	130	129	128	122
	77.7%	2004	227	227	225	223	212
	73.6%	2005	299	291	288	285	271
	100.3%	2006	364	364	360	356	338
	100.0%	2007	639	677	670	663	630
	120.8%	2008	1,415	1,336	1,323	1,310	1,244
	155.6%	2009	2,009	1,685	1,668	1,651	1,568
	152.0%	2010	2,622	2,443	2,419	2,395	2,275
	86.6%	2011	1,705	1,846	1,828	1,810	1,719
	84.7%	2012	2,257	2,804	2,776	2,748	2,611
	94.8%	2013	2,759	2,047	2,027	2,007	1,907
	101.0%	2014	862	1,819	1,801	1,783	1,694
	108.5%	2015	1,522	(716)	(666)	(633)	(627)
	117.1%	2016	17,617	15,564	14,786	14,047	13,485
	108.9%	2017	62,027	59,188	56,229	53,418	51,281
	121.8%	2018	101,488	98,724	95,762	92,889	90,102
	123.0%	2019	122,750	138,281	151,894	164,371	176,271
		TOTAL	320,371	326,345	333,156	339,090	344,759
		Change		5,974	6,811	5,934	

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

EXHIBIT C
Premium Liabilities
TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Aug. 2019	Actual Sep. 2019	Projected Oct. 2019	Projected Nov. 2019	Projected Dec. 2019
Premium Liabilities					
(1) unearned premium (UP)	186,905	201,939	203,550	202,037	195,579
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	137.4%	137.7%	138.0%	138.4%	138.7%
(3) expected future costs {(1) x (2)}	256,858	278,103	280,954	279,520	271,317
(4) premium deficiency / (deferred policy acquisition cost)	69,953	76,164	77,404	77,483	75,738
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	124.2%	124.5%	124.8%	125.1%	125.4%
(6) expected future costs {(1) x (5)}	232,221	251,427	254,006	252,710	245,294
(7) premium deficiency / (deferred policy acquisition cost)	45,316	49,488	50,456	50,673	49,715

EXHIBIT D
Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2019, broken down by component.

Ontario		Projected Balances as at Dec. 31, 2019 (\$000s)							
ending 2019		nominal values			actuarial present value adjustments (apvs)				
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs
prior	26,987	(423)	26,564	(1,053)	195	2,664	(106)	2,558	1,700
2000	-	12	12	-	-	1	-	1	1
2001	605	9	614	(27)	5	61	(3)	58	36
2002	55	58	113	(5)	1	11	(1)	10	6
2003	289	122	411	(22)	4	41	(2)	39	21
2004	954	212	1,166	(70)	12	117	(7)	110	52
2005	42	271	313	(21)	4	31	(2)	29	12
2006	1,741	338	2,079	(156)	27	208	(16)	192	63
2007	1,615	630	2,245	(182)	31	225	(18)	207	56
2008	954	1,244	2,198	(189)	33	220	(19)	201	45
2009	4,713	1,568	6,281	(553)	94	628	(55)	573	114
2010	5,314	2,275	7,589	(615)	106	759	(61)	698	189
2011	7,957	1,719	9,676	(658)	116	968	(66)	902	360
2012	12,569	2,611	15,180	(911)	152	1,518	(91)	1,427	668
2013	24,535	1,907	26,442	(1,322)	212	2,644	(132)	2,512	1,402
2014	51,069	1,694	52,763	(2,058)	369	5,276	(206)	5,070	3,381
2015	69,309	(627)	68,682	(2,198)	412	6,868	(220)	6,648	4,862
2016	82,961	13,485	96,446	(3,086)	482	12,056	(386)	11,670	9,066
2017	104,176	51,281	155,457	(5,596)	933	23,319	(839)	22,480	17,817
2018	109,129	90,102	199,231	(8,168)	1,395	34,666	(1,421)	33,245	26,472
PAYs (sub-total):	504,974	168,488	673,462	(26,890)	4,583	92,281	(3,651)	88,630	66,323
CAY (2019)	101,356	176,271	277,627	(11,938)	1,943	51,639	(2,220)	49,419	39,424
claims liabilities:	606,330	344,759	951,089	(38,828)	6,526	143,920	(5,871)	138,049	105,747
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs
premium liabilities:	195,579	49,715	245,294	(8,325)	1,469	34,036	(1,157)	32,879	26,023
*Total may not be sum of parts, as apvs apply to future costs within UPR									
policy liabilities:			1,196,383	(47,153)	7,995	177,956	(7,028)	170,928	131,770

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, 2019 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Jun. 30,
2019)

Accident Year	Third Party Liability Margins	Accident Benefits Margins	Other Coverages Margins	Total Margins
1993	10.0%	10.0%	10.0%	10.0%
1994	10.0%	10.0%	10.0%	10.0%
1995	10.0%	10.0%	10.0%	10.0%
1996	10.0%	10.0%	10.0%	10.0%
1997	10.0%	10.0%	10.0%	10.0%
1998	10.0%	10.0%	10.0%	10.0%
1999	10.0%	10.0%	10.0%	10.0%
2000	10.0%	10.0%	10.0%	10.0%
2001	10.0%	10.0%	10.0%	10.0%
2002	10.0%	10.0%	10.0%	10.0%
2003	10.0%	10.0%	10.0%	10.0%
2004	10.0%	10.0%	10.0%	10.0%
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%	10.0%	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%	8.1%	10.0%
2014	10.0%	10.0%	9.4%	10.0%
2015	10.0%	10.0%	9.6%	10.0%
2016	12.5%	12.5%	11.5%	12.5%
2017	15.0%	15.0%	15.0%	15.0%
2018	17.4%	17.5%	14.7%	17.4%
2019	18.4%	20.0%	6.1%	18.6%
2020	13.4%	20.0%	5.3%	13.9%
prem liab	13.4%	20.0%	5.3%	13.9%

discount rate: 1.40%
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, 2019 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2019, and are based on more up-to-date information). We have included the most recent valuation selection (1.43%), the prior valuation assumption (1.88%) and the prior fiscal year end valuation assumption (2.22%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

AY	Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2019 projected Unpaid							
	0.40%	0.90%	1.40%	1.90%	2.40%	2.90%	1.43%	2.22%
2002 & prior	30,233	29,795	29,370	28,955	28,548	28,154	29,343	28,695
2003	416	407	400	392	384	377	399	387
2004	1,295	1,266	1,239	1,212	1,186	1,161	1,237	1,195
2005	310	302	294	287	280	274	294	283
2006	2,335	2,270	2,208	2,149	2,091	2,036	2,204	2,112
2007	2,548	2,472	2,399	2,330	2,263	2,199	2,395	2,287
2008	3,093	2,994	2,900	2,811	2,725	2,644	2,894	2,756
2009	6,813	6,590	6,379	6,178	5,988	5,806	6,365	6,054
2010	7,882	7,646	7,422	7,209	7,009	6,818	7,408	7,080
2011	9,977	9,725	9,488	9,263	9,051	8,848	9,474	9,126
2012	16,951	16,570	16,212	15,869	15,547	15,239	16,188	15,660
2013	27,179	26,672	26,193	25,735	25,303	24,889	26,163	25,455
2014	48,718	48,026	47,362	46,733	46,133	45,554	47,325	46,343
2015	73,720	72,859	72,040	71,254	70,499	69,768	71,993	70,769
2016	105,816	104,571	103,371	102,204	101,089	100,003	103,291	101,478
2017	179,424	177,099	174,826	172,635	170,535	168,486	174,702	171,282
2018	235,555	231,988	228,570	225,238	222,043	218,923	228,350	223,154
2019	323,222	318,133	313,208	308,408	303,808	299,369	312,893	305,440
Total	1,075,487	1,059,385	1,043,881	1,028,862	1,014,482	1,000,548	1,042,918	1,019,556
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Dollar Impact Relative to Valuation Assumption							
	0.40%	0.90%	1.40%	1.90%	2.40%	2.90%	1.43%	2.22%
Total	31,606	15,504	-	(15,019)	(29,399)	(43,333)	(963)	(24,325)
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Percentage Impact Relative to Valuation Assumption							
	0.40%	0.90%	1.40%	1.90%	2.40%	2.90%	1.43%	2.22%
2002 & prior	2.9%	1.4%	-	(1.4%)	(2.8%)	(4.1%)	(0.1%)	(2.3%)
2003	4.0%	1.8%	-	(2.0%)	(4.0%)	(5.8%)	(0.3%)	(3.3%)
2004	4.5%	2.2%	-	(2.2%)	(4.3%)	(6.3%)	(0.2%)	(3.6%)
2005	5.4%	2.7%	-	(2.4%)	(4.8%)	(6.8%)	-	(3.7%)
2006	5.8%	2.8%	-	(2.7%)	(5.3%)	(7.8%)	(0.2%)	(4.3%)
2007	6.2%	3.0%	-	(2.9%)	(5.7%)	(8.3%)	(0.2%)	(4.7%)
2008	6.7%	3.2%	-	(3.1%)	(6.0%)	(8.8%)	(0.2%)	(5.0%)
2009	6.8%	3.3%	-	(3.2%)	(6.1%)	(9.0%)	(0.2%)	(5.1%)
2010	6.2%	3.0%	-	(2.9%)	(5.6%)	(8.1%)	(0.2%)	(4.6%)
2011	5.2%	2.5%	-	(2.4%)	(4.6%)	(6.7%)	(0.1%)	(3.8%)
2012	4.6%	2.2%	-	(2.1%)	(4.1%)	(6.0%)	(0.1%)	(3.4%)
2013	3.8%	1.8%	-	(1.7%)	(3.4%)	(5.0%)	(0.1%)	(2.8%)
2014	2.9%	1.4%	-	(1.3%)	(2.6%)	(3.8%)	(0.1%)	(2.2%)
2015	2.3%	1.1%	-	(1.1%)	(2.1%)	(3.2%)	(0.1%)	(1.8%)
2016	2.4%	1.2%	-	(1.1%)	(2.2%)	(3.3%)	(0.1%)	(1.8%)
2017	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.6%)	(0.1%)	(2.0%)
2018	3.1%	1.5%	-	(1.5%)	(2.9%)	(4.2%)	(0.1%)	(2.4%)
2019	3.2%	1.6%	-	(1.5%)	(3.0%)	(4.4%)	(0.1%)	(2.5%)
Total	3.0%	1.5%	-	(1.4%)	(2.8%)	(4.2%)	(0.1%)	(2.3%)
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	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 **Ontario**
AccountCode Desc **IBNR - Discounted**

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			
prior	1,470	(45)	(11)	-	(56)	(3.8%)	1,414
2000	14	-	-	-	-	-	14
2001	48	(1)	1	-	-	-	48
2002	70	(2)	2	-	-	-	70
2003	148	(4)	9	-	5	3.4%	153
2004	283	(6)	6	-	-	-	283
2005	312	(7)	(1)	-	(8)	(2.6%)	304
2006	434	(10)	10	-	-	-	434
2007	701	(15)	52	-	37	5.3%	738
2008	1,468	(30)	(53)	-	(83)	(5.7%)	1,385
2009	2,135	(45)	(280)	-	(325)	(15.2%)	1,810
2010	2,830	(58)	(123)	-	(181)	(6.4%)	2,649
2011	2,104	(46)	182	-	136	6.5%	2,240
2012	2,997	(66)	604	-	538	18.0%	3,535
2013	4,340	(103)	(655)	-	(758)	(17.5%)	3,582
2014	4,658	(130)	997	-	867	18.6%	5,525
2015	7,083	(181)	(2,234)	-	(2,415)	(34.1%)	4,668
2016	27,731	(1,260)	(975)	-	(2,235)	(8.1%)	25,496
2017	81,398	(4,109)	1,023	-	(3,086)	(3.8%)	78,312
2018	130,000	(2,315)	(836)	-	(3,151)	(2.4%)	126,849
2019	149,356	16,283	2,542	-	18,825	12.6%	168,181
Grand Total	419,580	7,850	260	-	8,110	1.9%	427,690

EXHIBIT G

Page 2 of 2

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

RSP
AccountCode Desc Ontario
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			
prior	(401)	10	(59)	-	(49)	12.2%	(450)
2000	13	-	-	-	-	-	13
2001	9	-	-	-	-	-	9
2002	63	(1)	1	-	-	-	63
2003	125	(3)	8	-	5	4.0%	130
2004	227	(5)	5	-	-	-	227
2005	299	(6)	(2)	-	(8)	(2.7%)	291
2006	364	(7)	7	-	-	-	364
2007	639	(13)	51	-	38	5.9%	677
2008	1,415	(28)	(51)	-	(79)	(5.6%)	1,336
2009	2,009	(40)	(284)	-	(324)	(16.1%)	1,685
2010	2,622	(52)	(127)	-	(179)	(6.8%)	2,443
2011	1,705	(34)	175	-	141	8.3%	1,846
2012	2,257	(45)	592	-	547	24.2%	2,804
2013	2,759	(55)	(657)	-	(712)	(25.8%)	2,047
2014	862	(17)	974	-	957	111.0%	1,819
2015	1,522	(15)	(2,223)	-	(2,238)	(147.0%)	(716)
2016	17,617	(1,057)	(996)	-	(2,053)	(11.7%)	15,564
2017	62,027	(3,722)	883	-	(2,839)	(4.6%)	59,188
2018	101,488	(2,030)	(734)	-	(2,764)	(2.7%)	98,724
2019	122,750	13,277	2,254	-	15,531	12.7%	138,281
Grand Total	320,371	6,157	(183)	-	5,974	1.9%	326,345