



## **ALBERTA NON-GRID RISK SHARING POOL**

### **OCTOBER 2018 OPERATIONAL REPORT**

# **ACTUARIAL HIGHLIGHTS**

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**ACTUARIAL HIGHLIGHTS**  
**RSP ALBERTA NON-GRID**  
**OPERATIONAL REPORT**  
**OCTOBER 2018**

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## 1 Summary

### 1.1 Valuation Schedule (Fiscal Year 2018)

The October 2018 Operational Report incorporates the results of an updated valuation (as at September 30, 2018) – the impact of the implementation of the valuation is discussed in section 1.2. The table immediately below summarizes the implemented valuations and future scheduled valuations for fiscal year 2018.

ALBERTA NON-GRID RISK SHARING POOL FISCAL YEAR 2018 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2017 (completed)	1.76% mfad: 25 bp	Oct. 2017	updated valuation (roll forward): accident year 2017 loss ratio <u>increased</u> 2.9 points to 112.8%; discount rate <u>increased</u> by 56 basis points; no change to selected margins for adverse deviations
Dec. 31, 2017 (completed)	1.76% mfad: 25 bp	Mar. 2018	update valuation: accident year 2018 loss ratio <u>increased</u> 2.7 points to 108.5%; no change to selected discount rate; no change to selected margins for adverse deviations
Mar. 31, 2018 (completed)	1.93% mfad: 25 bp	May 2018	update valuation (roll forward): accident year 2018 loss ratio <u>increased</u> 2.7 points to 111.2%; discount rate <u>increased</u> by 17 basis points; no change to selected margins for adverse deviations
Jun. 30, 2018 (completed)	1.87% mfad 25 bp	Aug. 2018	updated valuation: accident year 2018 loss ratio <u>increased</u> 0.9 points to 112.1%; discount rate <u>decreased</u> by 6 basis points; selected margins for adverse deviations were updated
Sep. 30, 2018 (completed)	2.29% mfad 25 bp	Oct. 2018	updated valuation: accident year 2018 loss ratio <u>decreased</u> 2.8 points to 109.3%; discount rate <u>increased</u> by 42 basis points; no change to selected margins for adverse deviations

Under the proposed schedule for fiscal year 2018, the “off-half” valuation quarters ending March 31, 2018 and September 30, 2018 would not reflect a full valuation update of assumptions, but would rather “roll-forward” key assumptions from the previous valuation.

### 1.2 New Valuation

A valuation of the Alberta Non-Grid Risk Sharing Pool (“RSP”) as at September 30, 2018 has been completed since last month’s Operational Report and the results of that valuation have been incorporated into this month’s Report. The valuation was completed by the Facility Association’s internal actuarial group in conjunction with, and approved by, the Appointed Actuary, under the hybrid model for actuarial services. Additional detail will be provided in an “Actuarial Highlights – Quarterly Valuation” report which we anticipate will be posted to the FA website later in the fall.

The valuation implementation impact is summarized in the tables below.

*Summary of Impact (\$000s) of Implementing Result of Valuation as at September 30, 2018<sup>1</sup>*

AB Non-Grid	unfav / (fav) for the month and ytd					
	IMPACT in \$000s from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	(4,284)	(127)	(4,411)	(1,480)	-	(5,891)
CAY	(2,461)	(59)	(2,520)	(652)	-	(3,172)
Prem Def	(1,354)	111	(1,243)	(572)	-	(1,815)
<b>TOTAL</b>	<b>(8,099)</b>	<b>(75)</b>	<b>(8,174)</b>	<b>(2,704)</b>	<b>-</b>	<b>(10,878)</b>

As indicated in the table above, the incorporation of the new valuation had an estimated **\$10.9 million favourable impact** on the month's net result from operations, subtracting an estimated 12.4 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **127.3%**.

*Summary of Impact (% YTD EP) of Implementing Result of Valuation as at September 30, 2018*

AB Non-Grid	ytd EP 87,538 (actual)					
	IMPACT unfav / (fav) as % ytd EP from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	(4.9%)	(0.1%)	(5.0%)	(1.7%)	-	(6.7%)
CAY	(2.8%)	(0.1%)	(2.9%)	(0.7%)	-	(3.6%)
Prem Def	(1.5%)	0.1%	(1.4%)	(0.7%)	-	(2.1%)
<b>TOTAL</b>	<b>(9.3%)</b>	<b>(0.1%)</b>	<b>(9.3%)</b>	<b>(3.1%)</b>	<b>-</b>	<b>(12.4%)</b>

The impact of the nominal changes is shown in column [1] of the two preceding summary tables. The change in the selected nominal ultimates was favourable by \$8.1 million overall. This reflects the impact attributable to the changes in the selected ultimate loss ratios (i.e. for each accident year, it is the product of life-to-date earned premium for the accident year and the change in the selected ultimate loss ratio).

The prior accident years overall showed a \$4.3 million favourable nominal variance, which is attributed to favourable TPL development, particularly related to favourable case reserves reduction across multiple companies during the quarter. The overall favourable prior accident years impact is 3.2% of the prior accident years' nominal unpaid balance of \$136.0 million determined at the end of

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

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

last month (September 2018).

The current accident year and premium deficiency impacts are a result of the change in the selected loss ratios for accident year **2018** (down 2.8 points from 112.1% to **109.3%**) and **2019** (down 2.0 points from 109.1% to **107.1%**).

Accident year 2019 loss ratios were updated to reflect the impact of AIRB Bulletin 10/2018, dated October 31, 2018, increasing the current Grid rate level by +5% (effective January 1, 2019), assuming a partial increase in non-grid mandatory coverage rates and some risks previously transferred to the Alberta grid pool being transferred to the non-grid pool.

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

Column [2] recognizes that changing the nominal selections also changed the unpaid estimates (including changes to the relative mix by government line, which had an impact on the weighted-average MfADs). It also reflects the fact that we updated the projected emergence of claims payments, resulting in a change in the projected cash flows. These changes generated a favourable change of \$0.1 million in the actuarial present value adjustments, prior to any changes in the selected discount rate and/or MfADs.

Updated projected cash flows were reviewed against the selected risk-free yield curve, derived from Government of Canada benchmark bond yields monthly series using values for September 2018. Column [4] accounts for the change in the **discount rate** selected (increased 42 basis point to **2.29%**), indicating a favourable impact of \$2.7 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$2.1 million at October 2018 – this compares to the \$2.3 million change one would estimate as the impact by interpolation using the interest rate sensitivity table provided in last month’s Actuarial Highlights.

Column [5] accounts for any changes to selected MfADs. The selected **investment rate MfAD** was **left unchanged at 25 basis points** and the selected **claims development MfADs** at the coverage and accident year level were **left unchanged** as well. (Note: our usual practice is to review and update the claims development MfADs annually with the June 30 valuations. Based on discussion with the FA’s Actuarial Committee, the claims development MfADs for this RSP were revisited with the September 30, 2018 valuation, but were left unchanged from the selections made with the June 30, 2018 valuation.)

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

### 1.3 Appointed Actuary and Hybrid Actuarial Services Model

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

Facility Association operates under a “hybrid” model in relation to the management and provision of

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

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

These descriptions have been updated since last month's Highlights for updated references to the most recent valuation, that we do not believe the Saadati judgment will have a further impact on our valuation results, and to describe the release of Order 14/2018.

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.

In the **Alberta Treasury Board and Finance Notice 04-2018** (Clarification of Minor Injury Regulation), dated **May 17, 2018**, the Alberta Superintendent of Insurance advised that clarifying amendments have been made to the definition of minor injuries under the Minor Injury Regulation (MIR). With the most recent valuation (September 30, 2018), reform adjustments related to changes in the definition of minor injuries under the MIR, were included with the updated industry trend analysis (completed using industry data as at December 31, 2017), impacting the selection of ultimates.

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

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

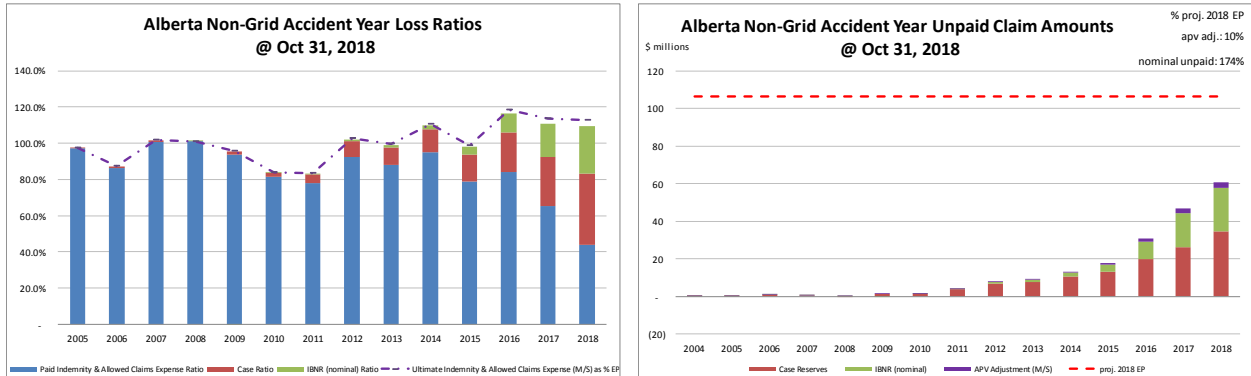
At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, and at this point we do not believe this judgment will have a further impact on our valuation results.

The **Minister of Treasury Board and Finance issued Ministerial Order 14/2018**, on **October 31, 2018**, which states unless otherwise directed by the Minister, the AIRB may not approve filings from insurers for cumulative rate increases on private passenger vehicles greater than +5.0% during the period between December 1, 2018 and August 31, 2019. At the current time, no adjustments have

been made to our valuation estimates or views based on this order.

### 1.5 Current Provision Summary

The charts immediately below show the current levels of claim liabilities<sup>2</sup> booked by accident year<sup>3</sup>. 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 2018 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 (\$10.1 million – see table immediately below) represents 10% of the earned premium projected for the full year 2018 (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	127,321	65.1%
ibnr	58,240	29.8%
M/S apv adjust.	10,072	5.1%
<b>M/S total</b>	<b>195,633</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 is in case reserves for this pool. Approximately 71% of the IBNR balance relates to accident years 2017 and 2018 (see Exhibit B). Approximately 87% of the M/S total

claim liabilities are related to accident years 2014-2018 inclusive (i.e. the most recent 5 accident years), and approximately 1% is related to accident years 2008 and prior (i.e. prior to the most recent 10 accident years).

The tables at the top of the next page summarize the premium liabilities and the total policy liabilities.

<sup>2</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.

<sup>3</sup>Accident year 2004 was an incomplete year and therefore has been excluded from the loss ratio chart.

premium liabilities (\$000s)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	60,547	88.1%	claim	185,561	70.2%
prem def/(dpac)	5,000	7.3%	premium	65,547	24.8%
M/S apv adjust.	3,168	4.6%	M/S apv adjust.	13,240	5.0%
M/S total	68,715	100.0%	M/S total	264,348	100.0%

## 2 Activity During the Month of October 2018

### 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>4</sup>.

*Alberta Non-Grid 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	-	-	1,679	(138)	(1,595)	76	83	(63)
2016	1	1	1,403	799	(1,281)	(860)	122	(61)
2017	(11)	(11)	742	(204)	(1,015)	(268)	(273)	(472)
2018	9,674	(27)	5,791	522	4,308	2,350	10,099	2,872
TOTAL	9,664	(37)	9,614	978	416	1,298	10,030	2,276

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (i.e. random variation). 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

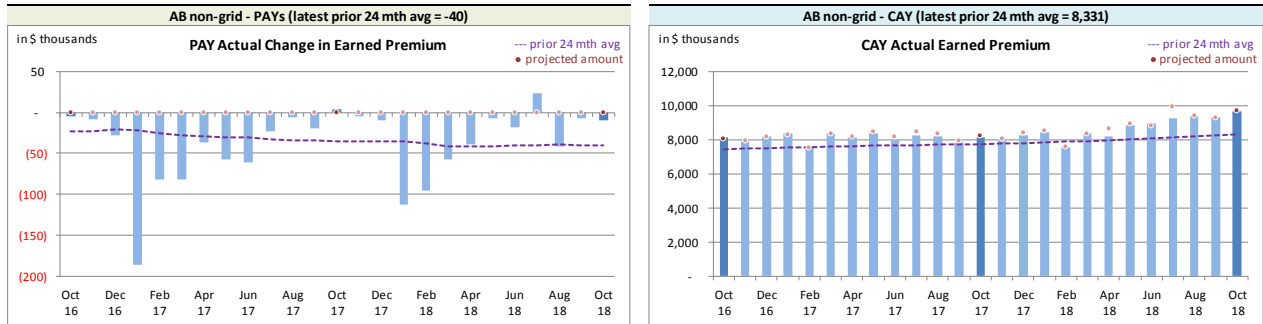
The charts at the top of the next page show actual **earned premium**<sup>5</sup> activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month's actual compares with the average amount of the preceding 24 calendar months.

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

<sup>5</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.



*Alberta non-Grid RSP Actual **Earned Premium** by Calendar Month*

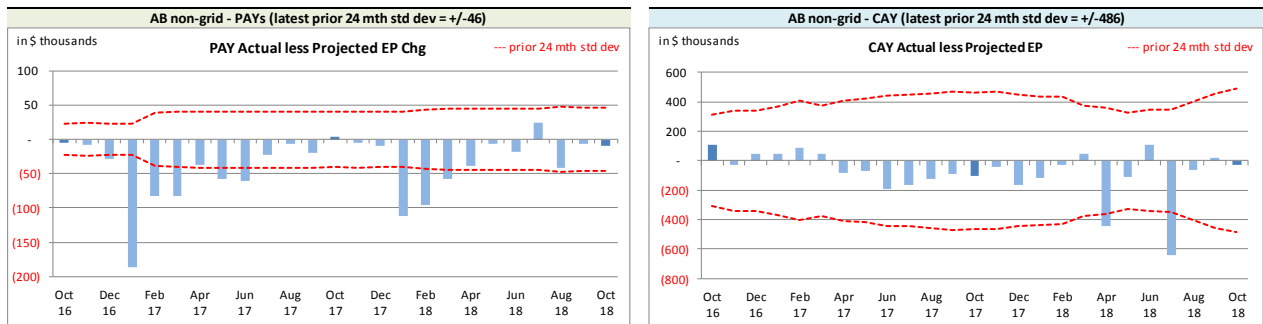


**Earned premium** changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels seem to occur at the beginning of each year.

We have noted and investigated the unusually high level of PAYs earned premium activity earlier in 2017 and through 2018, particularly with respect to one member. Management reviewed and was satisfied with the appropriateness of the 2017 transactions, and its investigation of the 2018 transactions confirmed the activity was correct and valid.

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.

*Alberta non-Grid 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)	(40)	8,331
std dev	46	486
A-P <> std dev	9	2
% <> std dev	36.0%	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 prior accident years' (PAYs) bias<sup>6</sup>, with actuals generally lower than projected, although the magnitude is not high relative to monthly

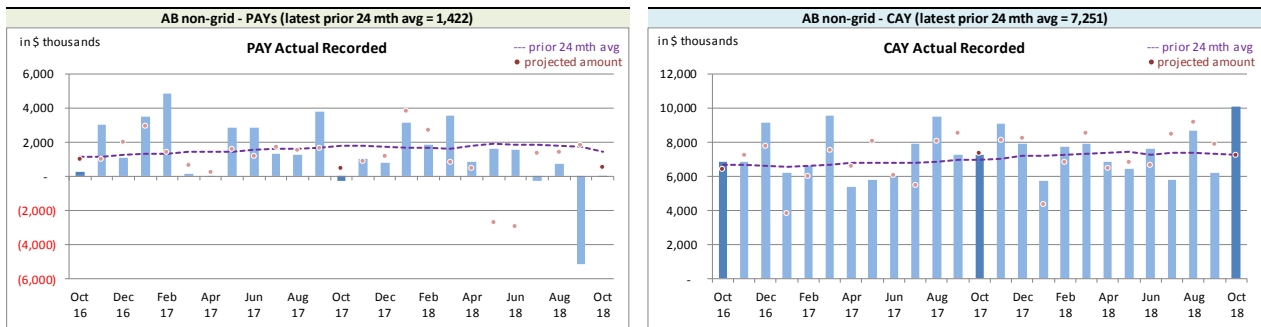
<sup>6</sup>The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

premium. In addition to the PAYS’ bias, the CAY has also shown bias<sup>7</sup> up until May 2018, with actuals being generally lower than projected, and we have modified our projections processes in response. 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

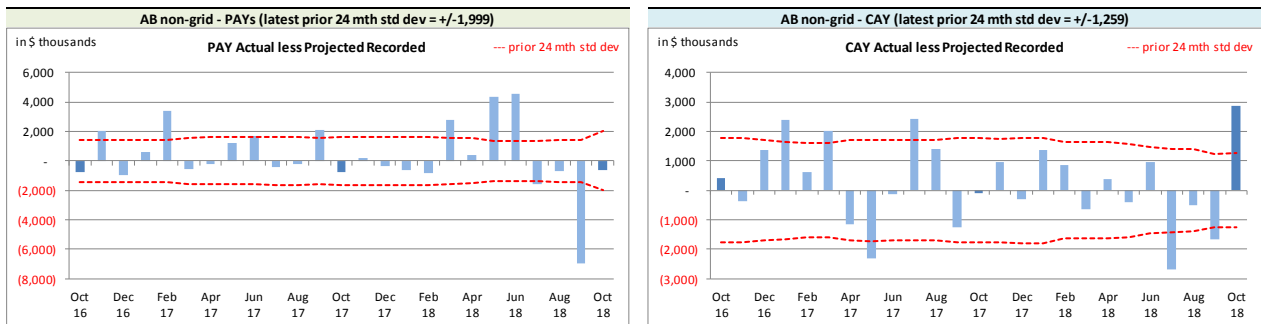
The charts immediately below show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

*Alberta non-Grid 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 to show how the variances from projection compare with historical standard deviations.

*Alberta non-Grid RSP Actual vs Projected Summary: **Recorded** Variances by Calendar Month*



On Latest \$ thousands			
	<b>Recorded</b>	PAYS	CAY
Mthly Avg Recorded (prior 24 mths)	1,422	1,422	7,251
std dev	1,999	1,999	1,259
A-P <> std dev	9	9	7
% <> std dev	36.0%	36.0%	28.0%
norm <> std dev	31.7%	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 36% 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

<sup>7</sup>We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (24 in this case) and 50% probability of success. The 24-month variances at May 2018 had only 6 months where the actuals was higher than projected, and as the 95% confidence range is 7 to 17, bias was indicated.

simply projecting the prior 24-month average amount (assuming it follows a normal distribution). We have implemented changes in an attempt to address this. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

The current accident year (CAY) **recorded** variances fell outside of one standard deviation 28% of the time over the last 25 calendar months (see table above), suggesting that the projection process has performed no better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

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

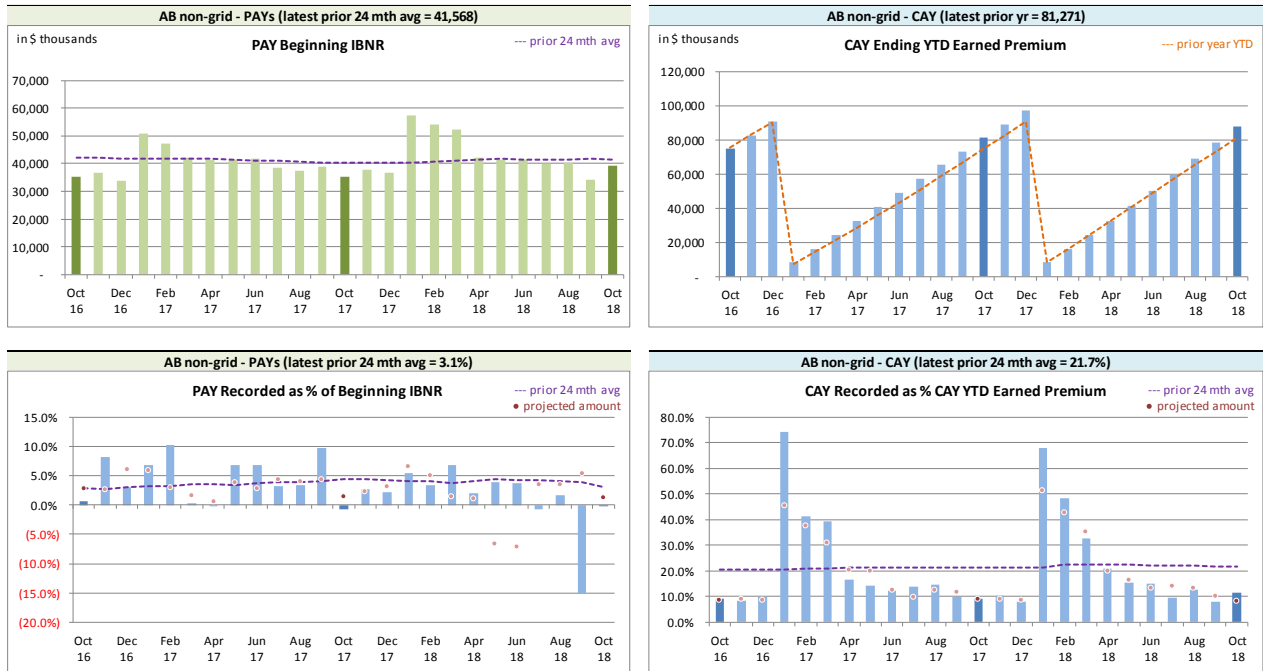
As noted in the last nine monthly Actuarial Highlights, FA management was notified on January 31, 2018 by a member of a potential recorded case reserve overstatement. Furthermore, during the March 31, 2018 valuation, FA management was advised of an additional and separate recorded case reserve understatement primarily due to incorrect reporting after FA's October 31, 2017 fiscal year end. During the month of September 2018, the member submitted correcting case reserve transactions for which provisions have been held since last year (and discussed further on in this section). The corrections were reasonably aligned with FA management's previously held provisions (which have now been released as a result).

With the latest valuation (September 30, 2018), as the corrections submitted in the month of September 2018 were largely in line with FA management's expectations, the associated provisions previously held by FA management have been removed as a result.

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.

*Alberta non-Grid RSP Levels that influence<sup>8</sup> Recorded activity by Calendar Month*



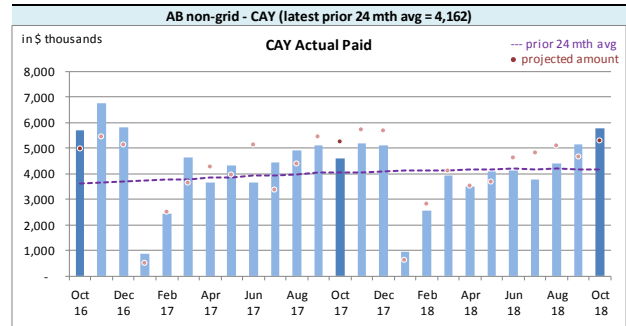
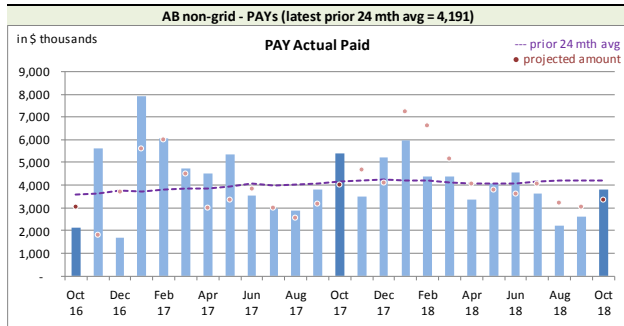
We track beginning prior accident years’ IBNR as **recorded** activity “comes out of” IBNR. Changes in the prior accident years’ beginning IBNR (see upper left chart above) occur for several possible reasons:

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

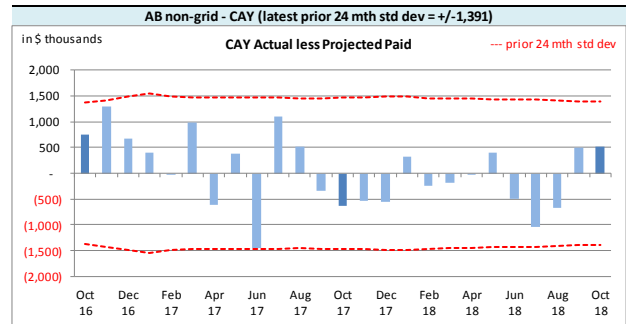
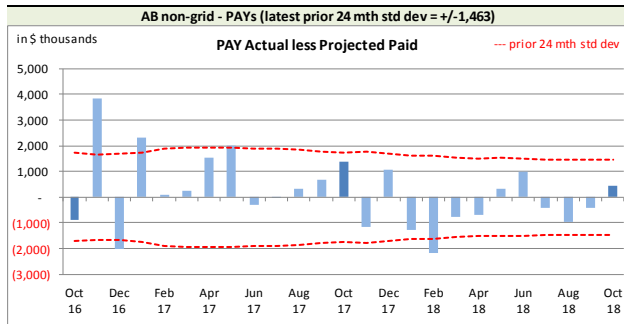
**2.1.c AvsP: Paid Indemnity & Allowed Claims Expense**

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.

<sup>8</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.

*Alberta non-Grid RSP Actual **Paid** activity by Calendar Month*


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

*Alberta non-Grid RSP Actual vs Projected Summary: **Paid** Variances by Calendar Month*


On Latest \$ thousands			
	<b>Paid</b>	PAYS	CAY
Mthly Avg Paid (prior 24 mths)		4,191	4,162
std dev		1,463	1,391
A-P <> std dev		5	-
% <> std dev		20.0%	0.0%
norm <> std dev		31.7%	31.7%

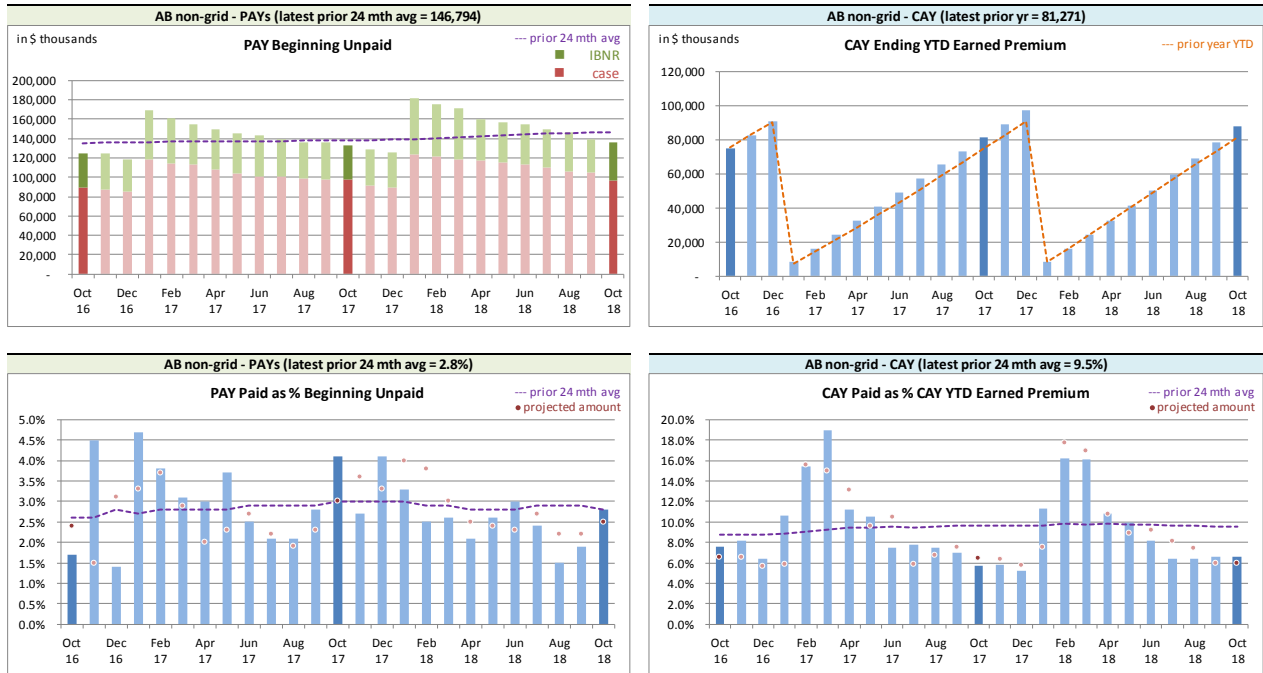
With respect to **paid** indemnity & allowed claims expense, 20% of the prior accident years’ (PAYS) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **paid** amounts (see table on left), suggesting the projection process has performed better than 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 lagging 24-month basis.

The current accident year (CAY) **paid** variances fell outside of one standard deviation 0% 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 lagging 24-month basis.

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

*Alberta non-Grid RSP Levels that influence<sup>9</sup> Paid activity by Calendar Month*



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

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

**2.2 Actuarial Provisions**

An “ultimate loss ratio matching method” (described in section 3) is used to determine the month’s IBNR<sup>10</sup>, 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 Operational Report and the associated one-month projections from last month’s Report.

<sup>9</sup>Our paid projections for the prior accident years are based on selected ratios of paid to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date paid to year-to-date selected ultimate indemnity (i.e. selected LR x earned premium). In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

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

*Alberta Non-Grid 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	7,660	(2,441)	(2,959)	(380)	5,419	(307)	10,120	(3,128)
2016	9,500	514	(1,784)	(275)	3,581	(23)	11,297	216
2017	17,957	(1,773)	(2,835)	(426)	5,492	(232)	20,614	(2,431)
2018	23,123	(5,363)	(3,578)	(542)	6,736	(204)	26,281	(6,109)
<b>TOTAL</b>	<b>58,240</b>	<b>(9,063)</b>	<b>(11,156)</b>	<b>(1,623)</b>	<b>21,228</b>	<b>(766)</b>	<b>68,312</b>	<b>(11,452)</b>

The IBNR provision is \$9.1 million lower than projected from last month, counterbalancing the recorded claims activity and adjusting for the earned premium variance impacts indicated in section 2.1, and due to the valuation implementation.

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

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

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

The table immediately 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 and due to the valuation implementation.

*Alberta Non-Grid 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:	5,000	(1,245)	3,168	(405)	8,168	(1,650)
balance as % unearned premium:	8.3%	(2.2%)	5.2%	(0.8%)	13.5%	(3.0%)
actual unearned premium:	60,547					
less projected:	933					

### 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>11</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 immediately below summarizes the calendar year-to-date results for indemnity & allowed claims expenses<sup>12</sup>, 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 109.8% rather than 109.3% (the valuation ultimate ratio for accident year 2018), 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 Alberta Non-Grid RSP Summary of Operations due to rounding.)

*Alberta Non-Grid 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	(14,487)	(16.5%)	(5,309)	(6.1%)	(19,796)	(22.6%)	(6,149)	(5.1%)
CAY	96,075	109.8%	3,158	3.6%	99,233	113.4%	7,998	(3.8%)
TOTAL	81,588	93.2%	(2,151)	(2.5%)	79,437	90.7%	1,848	(8.9%)

(“% EP” based on 2018 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 and the valuation implementation.

For the current accident year (CAY), changes in the year-to-date total reflects the additional month’s exposure and regular changes to actuarial present value adjustments as the year ages and due to the valuation implementation.

<sup>11</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>12</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.



## **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 Alberta Non-Grid 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 Sep. 2018	Actual Oct. 2018	Projected Nov. 2018	Projected Dec. 2018	Projected Dec. 2019
	2004	42	42	42	42	42
	2005	13	13	13	12	10
	2006	71	64	62	59	62
	2007	135	55	53	50	39
	2008	50	50	47	43	33
	2009	47	(36)	(32)	(25)	(8)
	2010	406	167	161	148	113
	2011	681	442	422	392	276
	2012	1,105	994	946	878	601
discount rate	2013	1,222	1,408	1,334	1,232	897
2.29%	2014	2,995	2,413	2,250	2,126	1,438
	2015	6,727	4,508	4,184	4,065	2,198
interest rate margin	2016	11,306	11,297	11,052	10,721	6,198
25 basis pts	2017	23,312	20,614	19,995	19,396	14,515
	2018	28,382	26,281	27,333	28,199	19,681
	2019	-	-	-	-	33,881
	<b>TOTAL</b>	<b>76,494</b>	<b>68,312</b>	<b>67,862</b>	<b>67,338</b>	<b>79,976</b>
	Change		(8,182)	(450)	(524)	

*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 Sep. 2018	Actual Oct. 2018	Projected Nov. 2018	Projected Dec. 2018	Projected Dec. 2019
	349.1%	2004	36	36	36	36	36
	97.4%	2005	5	5	5	5	5
	87.4%	2006	16	15	14	13	10
	101.7%	2007	89	19	18	16	13
	101.1%	2008	49	49	46	42	32
	95.4%	2009	(28)	(102)	(96)	(87)	(60)
	83.7%	2010	317	103	97	88	60
	83.3%	2011	452	267	251	228	159
	102.1%	2012	634	646	607	552	385
	99.0%	2013	758	1,047	984	895	624
	110.0%	2014	2,218	1,811	1,666	1,566	1,093
	98.0%	2015	5,701	3,764	3,463	3,359	1,605
	116.3%	2016	9,169	9,500	9,310	9,031	4,713
	110.7%	2017	19,929	17,957	17,418	16,895	12,455
	109.3%	2018	24,838	23,123	23,938	24,579	17,354
	107.1%	2019	-	-	-	-	29,801
		TOTAL	64,183	58,240	57,757	57,218	68,285
		Change		(5,943)	(483)	(539)	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Sep. 2018	Actual Oct. 2018	Projected Nov. 2018	Projected Dec. 2018	Projected Dec. 2019
Premium Liabilities					
(1) unearned premium (UP)	60,740	60,547	58,691	54,853	71,364
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	116.9%	113.5%	113.1%	112.8%	115.4%
(3) expected future costs {(1) x (2)}	70,994	68,715	66,409	61,862	82,382
(4) premium deficiency / (deferred policy acquisition cost)	10,254	8,168	7,718	7,009	11,018
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	110.9%	108.3%	107.9%	107.6%	110.1%
(6) expected future costs {(1) x (5)}	67,342	65,547	63,347	59,010	78,586
(7) premium deficiency / (deferred policy acquisition cost)	6,602	5,000	4,656	4,157	7,222

**EXHIBIT D**
**Projected Year-end Policy Liabilities**

The table below presents the projected policy liabilities as at December 31, 2018, broken down by component.

Alberta non-Grid ending 2018		Projected Balances as at Dec. 31, 2018 (\$000s)									
Acc Yr	nominal values			actuarial present value adjustments (apvs)						TOTAL	
	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs		
2004	26	36	62	-	-	6	-	6	6	68	
2005	70	5	75	-	-	7	-	7	7	82	
2006	717	13	730	(27)	3	73	(3)	70	46	776	
2007	543	16	559	(23)	3	56	(2)	54	34	593	
2008	(20)	42	22	(1)	-	2	-	2	1	23	
2009	1,251	(87)	1,164	(55)	6	116	(5)	111	62	1,226	
2010	1,313	88	1,401	(80)	8	140	(8)	132	60	1,461	
2011	3,541	228	3,769	(215)	23	377	(21)	356	164	3,933	
2012	6,417	552	6,969	(369)	35	697	(37)	660	326	7,295	
2013	7,281	895	8,176	(482)	49	818	(48)	770	337	8,513	
2014	10,148	1,566	11,714	(609)	59	1,171	(61)	1,110	560	12,274	
2015	12,921	3,359	16,280	(912)	81	1,628	(91)	1,537	706	16,986	
2016	18,487	9,031	27,518	(1,679)	165	3,412	(208)	3,204	1,690	29,208	
2017	24,777	16,895	41,672	(2,667)	292	5,209	(333)	4,876	2,501	44,173	
PAYs (sub-total):	87,472	32,639	120,111	(7,119)	724	13,712	(817)	12,895	6,500	126,611	
CAY (2018)	41,551	24,579	66,130	(4,100)	463	7,737	(480)	7,257	3,620	69,750	
claims liabilities:	129,023	57,218	186,241	(11,219)	1,187	21,449	(1,297)	20,152	10,120	196,361	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*	
premium liabilities:	54,853	4,157	59,010	(2,761)	294	5,581	(262)	5,319	2,852	61,862	
				*Total may not be sum of parts, as apvs apply to future costs within UPR							
policy liabilities:	245,251			(13,980)	1,481	27,030	(1,559)	25,471	12,972	258,223	

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, 2018 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Sep. 30,  
2018)

Accident Year	Third Party Liability Margins	Accident Benefits Margins	Other Coverages Margins	Total Margins
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%	9.2%	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%	8.6%	10.0%
2014	10.0%	10.0%	8.8%	10.0%
2015	10.0%	10.0%	10.0%	10.0%
2016	12.5%	10.0%	12.2%	12.4%
2017	12.5%	10.0%	12.5%	12.5%
2018	12.2%	10.0%	8.0%	11.7%
2019	11.8%	10.0%	5.2%	9.5%
prem liab	11.8%	10.0%	5.2%	9.5%

discount rate: 2.29%  
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, 2018 from the latest valuation date (projections in exhibits A to D are also to Dec. 31, 2018, but are based on more up-to-date information). We have included the most recent valuation selection (2.29%), the prior valuation assumption (1.87%) and the prior fiscal year end valuation assumption (1.76%) 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, 2018 projected Unpaid							
	1.29%	1.79%	2.29%	2.79%	3.29%	3.79%	1.87%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	756	749	743	737	732	726	748	750
2007	497	493	488	484	480	476	492	493
2008	9	9	9	9	9	9	9	9
2009	1,302	1,289	1,275	1,263	1,250	1,238	1,286	1,289
2010	1,432	1,414	1,396	1,379	1,362	1,345	1,411	1,415
2011	3,856	3,807	3,759	3,712	3,667	3,623	3,799	3,810
2012	7,725	7,634	7,545	7,459	7,375	7,293	7,619	7,640
2013	8,759	8,644	8,533	8,425	8,321	8,219	8,626	8,651
2014	12,446	12,300	12,160	12,023	11,890	11,760	12,278	12,309
2015	16,950	16,737	16,532	16,330	16,134	15,943	16,703	16,751
2016	30,695	30,273	29,870	29,476	29,090	28,719	30,207	30,300
2017	46,623	45,958	45,318	44,693	44,092	43,505	45,853	46,001
2018	70,297	69,334	68,401	67,499	66,624	65,778	69,181	69,396
<b>Total</b>	<b>201,347</b>	<b>198,641</b>	<b>196,029</b>	<b>193,489</b>	<b>191,026</b>	<b>188,634</b>	<b>198,212</b>	<b>198,814</b>
	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							
	1.29%	1.79%	2.29%	2.79%	3.29%	3.79%	1.87%	1.76%
Total	5,318	2,612	-	(2,540)	(5,003)	(7,395)	2,183	2,785
	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							
	1.29%	1.79%	2.29%	2.79%	3.29%	3.79%	1.87%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1.7%	0.8%	-	(0.8%)	(1.5%)	(2.3%)	0.7%	0.9%
2007	1.8%	1.0%	-	(0.8%)	(1.6%)	(2.5%)	0.8%	1.0%
2008	-	-	-	-	-	-	-	-
2009	2.1%	1.1%	-	(0.9%)	(2.0%)	(2.9%)	0.9%	1.1%
2010	2.6%	1.3%	-	(1.2%)	(2.4%)	(3.7%)	1.1%	1.4%
2011	2.6%	1.3%	-	(1.3%)	(2.4%)	(3.6%)	1.1%	1.4%
2012	2.4%	1.2%	-	(1.1%)	(2.3%)	(3.3%)	1.0%	1.3%
2013	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	1.1%	1.4%
2014	2.4%	1.2%	-	(1.1%)	(2.2%)	(3.3%)	1.0%	1.2%
2015	2.5%	1.2%	-	(1.2%)	(2.4%)	(3.6%)	1.0%	1.3%
2016	2.8%	1.3%	-	(1.3%)	(2.6%)	(3.9%)	1.1%	1.4%
2017	2.9%	1.4%	-	(1.4%)	(2.7%)	(4.0%)	1.2%	1.5%
2018	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.8%)	1.1%	1.5%
<b>Total</b>	<b>2.7%</b>	<b>1.3%</b>	<b>-</b>	<b>(1.3%)</b>	<b>(2.6%)</b>	<b>(3.8%)</b>	<b>1.1%</b>	<b>1.4%</b>
	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		Alberta Non-Grid						M/S IBNR - in \$000s
AccountCode Desc		IBNR - Discou						
AccYear	Values							Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change		
2004	42	-	-	-	-	-	42	
2005	13	-	-	-	-	-	13	
2006	71	(2)	1	(6)	(7)	(9.9%)	64	
2007	135	(4)	4	(80)	(80)	(59.3%)	55	
2008	50	(1)	1	-	-	-	50	
2009	47	(2)	(144)	63	(83)	(176.6%)	(36)	
2010	406	(8)	(60)	(171)	(239)	(58.9%)	167	
2011	681	(18)	(12)	(209)	(239)	(35.1%)	442	
2012	1,105	(31)	84	(164)	(111)	(10.0%)	994	
2013	1,222	(34)	231	(11)	186	15.2%	1,408	
2014	2,995	(69)	232	(745)	(582)	(19.4%)	2,413	
2015	6,727	(77)	(269)	(1,873)	(2,219)	(33.0%)	4,508	
2016	11,306	(225)	6	210	(9)	(0.1%)	11,297	
2017	23,312	(267)	474	(2,905)	(2,698)	(11.6%)	20,614	
2018	28,382	4,008	(2,937)	(3,172)	(2,101)	(7.4%)	26,281	
<b>Grand Total</b>	<b>76,494</b>	<b>3,270</b>	<b>(2,389)</b>	<b>(9,063)</b>	<b>(8,182)</b>	<b>(10.7%)</b>	<b>68,312</b>	



EXHIBIT G

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

RSP **Alberta Non-Grid**  
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			
2004	36	-	-	-	-	-	36
2005	5	-	-	-	-	-	5
2006	16	-	(1)	-	(1)	(6.3%)	15
2007	89	(2)	2	(70)	(70)	(78.7%)	19
2008	49	(1)	1	-	-	-	49
2009	(28)	1	(147)	72	(74)	264.3%	(102)
2010	317	(6)	(62)	(146)	(214)	(67.5%)	103
2011	452	(9)	(19)	(157)	(185)	(40.9%)	267
2012	634	(13)	102	(77)	12	1.9%	646
2013	758	(15)	223	81	289	38.1%	1,047
2014	2,218	(44)	225	(588)	(407)	(18.3%)	1,811
2015	5,701	(57)	(263)	(1,617)	(1,937)	(34.0%)	3,764
2016	9,169	(183)	63	451	331	3.6%	9,500
2017	19,929	(199)	460	(2,233)	(1,972)	(9.9%)	17,957
2018	24,838	3,648	(2,902)	(2,461)	(1,715)	(6.9%)	23,123
<b>Grand Total</b>	<b>64,183</b>	<b>3,120</b>	<b>(2,318)</b>	<b>(6,745)</b>	<b>(5,943)</b>	<b>(9.3%)</b>	<b>58,240</b>