



ALBERTA NON-GRID RISK SHARING POOL

MAY 2019 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS**RSP ALBERTA NON-GRID****OPERATIONAL REPORT****MAY 2019**

TABLE OF CONTENTS

1	Summary.....	2
1.1	Valuation Schedule (Fiscal Year 2019).....	2
1.2	New Valuation	2
1.3	Appointed Actuary and Hybrid Actuarial Services Model.....	4
1.4	Consideration of Recent Legal Decisions and Changes in Legislation / Regulation	4
1.5	Current Provision Summary	5
2	Activity During the Month of May 2019.....	6
2.1	Recorded Premium and Claims Activity	6
2.1.a	Actual vs. Projected (AvsP): Earned Premium.....	7
2.1.b	AvsP: Recorded Indemnity & Allowed Claims Expense	8
2.1.c	AvsP: Paid Indemnity & Allowed Claims Expense	10
2.2	Actuarial Provisions.....	12
3	Ultimate Loss Ratio Matching Method.....	14
4	Calendar Year-to-Date Results.....	14
5	Current Operational Report – Additional Exhibits	15
6	EXHIBITS	15

1 Summary

1.1 Valuation Schedule (Fiscal Year 2019)

The May 2019 Operational Report incorporates the results of an updated valuation (as at March 31, 2019) – 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 2019.

ALBERTA NON-GRID RISK SHARING POOL FISCAL YEAR 2019 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2018 (completed)	2.29% mfad 25 bp	Oct. 2018	updated valuation (roll forward): 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
Dec. 31, 2018 (completed)	1.93% mfad 25 bp	Mar. 2019	updated valuation: accident year 2019 loss ratio <u>increased</u> 1.4 points to 108.5%; discount rate <u>decreased</u> by 36 basis points; no change to selected margins for adverse deviations
Mar. 31, 2019 (completed)	1.46% mfad 25 bp	May 2019	updated valuation (roll forward): accident year 2019 loss ratio <u>increased</u> 0.2 points to 108.7%; discount rate <u>decreased</u> by 47 basis points; no change to selected margins for adverse deviations
Jun. 30, 2019		Aug. 2019	update valuation
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 New Valuation

A valuation of the Alberta Non-Grid Risk Sharing Pool (“RSP”) as at March 31, 2019 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 July 2019.

The valuation implementation impact is summarized in the tables on the next page.

Summary of Impact (\$000s) of Implementing Result of Valuation as at March 31, 2019¹

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	50	53	103	1,977	-	2,080
CAY	98	12	110	499	-	609
Prem Def	98	(48)	50	640	-	690
TOTAL	246	17	263	3,116	-	3,379

As indicated in the table above, the incorporation of the new valuation had an estimated **\$3.4 million unfavourable impact** on the month's net result from operations, adding an estimated 11.7 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **136.6%**.

Summary of Impact (% YTD EP) of Implementing Result of Valuation as at March 31, 2019

AB Non-Grid	ytd EP		28,768	(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	0.2%	0.2%	0.4%	6.9%	-	7.2%
CAY	0.3%	-	0.4%	1.7%	-	2.1%
Prem Def	0.3%	(0.2%)	0.2%	2.2%	-	2.4%
TOTAL	0.9%	0.1%	0.9%	10.8%	-	11.7%

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 unfavourable by \$0.2 million overall. This reflects the impact attributable to the changes in the selected ultimate loss ratios (i.e. for each accident year, it is the product of life-to-date earned premium for the accident year and the change in the selected ultimate loss ratio).

The prior accident years overall showed a \$0.1 million unfavourable nominal variance, which is attributed to process variance. The overall unfavourable prior accident years impact is 0.0% of the prior accident years' nominal unpaid balance of \$152.4 million determined at the end of last month (April 2019).

The current accident year and premium deficiency impacts are a result of the change in the selected loss ratios for accident year **2019** (up 0.2 points to **108.7%**) and **2020** (no change at **110.4%**).

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

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

The 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 an unfavourable change of \$17 thousand 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 March 2019. Column [4] accounts for the change in the **discount rate** selected (decreased 47 basis point to **1.46%**), indicating an unfavourable impact of \$3.1 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$2.5 million at May 2019 (projected \$2.8 million impact at December 31, 2019) – this compares to the \$2.7 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.

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 / Regulation²

There have been no changes in these descriptions since last month’s Highlights, other than updated current valuation date references.

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

²This 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>.

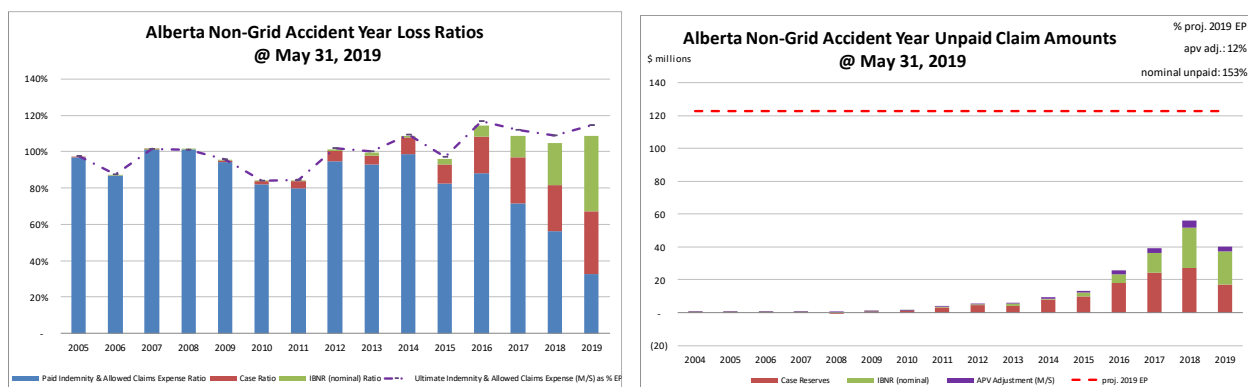
recent changes are provided below.

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 (March 31, 2019), 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 June 30, 2018), impacting the selection of ultimates.

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 explicit 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 liabilities³ booked by accident year⁴. 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 balance (\$15.2 million – see table at the top of the next page) represents 12% 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.

³Claim 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.

⁴Accident year 2004 was an incomplete year and therefore has been excluded from the loss ratio chart.

claim liabilities (\$000s)		
	amt	%
case	118,535	58.6%
ibnr	68,681	33.9%
M/S apv adjust.	15,231	7.5%
M/S total	202,447	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 65% of the IBNR balance relates to accident years 2018 and 2019 (see Exhibit B). Approximately 86% 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 1% is related to accident years 2009 and prior (i.e. prior to the most recent 10 accident years).

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

premium liabilities (\$000s)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	59,598	85.7%	claim	187,216	68.8%
prem def/(dpac)	5,680	8.2%	premium	65,278	24.0%
M/S apv adjust.	4,237	6.1%	M/S apv adjust.	19,468	7.2%
M/S total	69,515	100.0%	M/S total	271,962	100.0%

2 Activity During the Month of May 2019

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 Report⁵.

Alberta Non-Grid 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	(7)	(7)	1,177	(620)	(980)	133	197	(487)
2017	(17)	(17)	514	(204)	(290)	(127)	223	(332)
2018	(61)	(61)	776	(268)	(720)	82	57	(185)
2019	10,033	(151)	3,834	(794)	1,343	(373)	5,177	(1,167)
TOTAL	9,948	(235)	6,301	(1,886)	(647)	(285)	5,653	(2,172)

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

It is typically unusual to see actual earned premium transactions affecting accident years older than the first prior accident year, the changes in 2017 and prior accident years reflect activity undertaken by a member to remove risks from the RSP, reflecting recent audit findings.

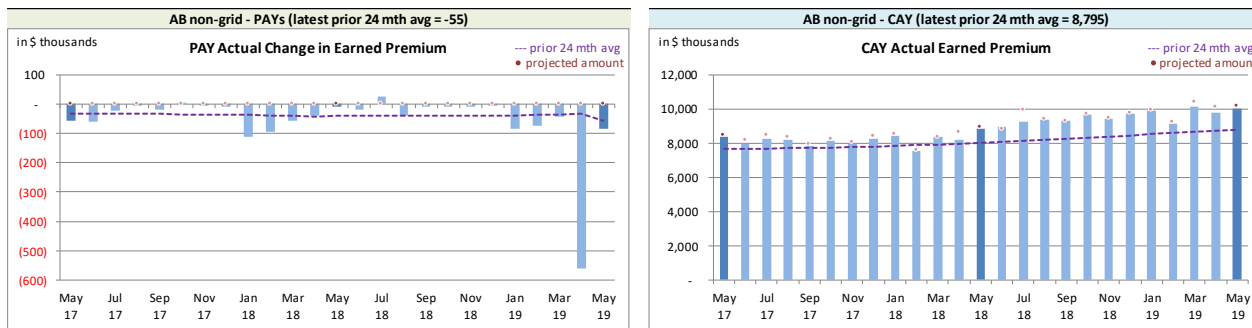
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural "process variance" (i.e. random variation). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of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

⁵There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

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

The charts immediately below show actual **earned premium**⁶ 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.

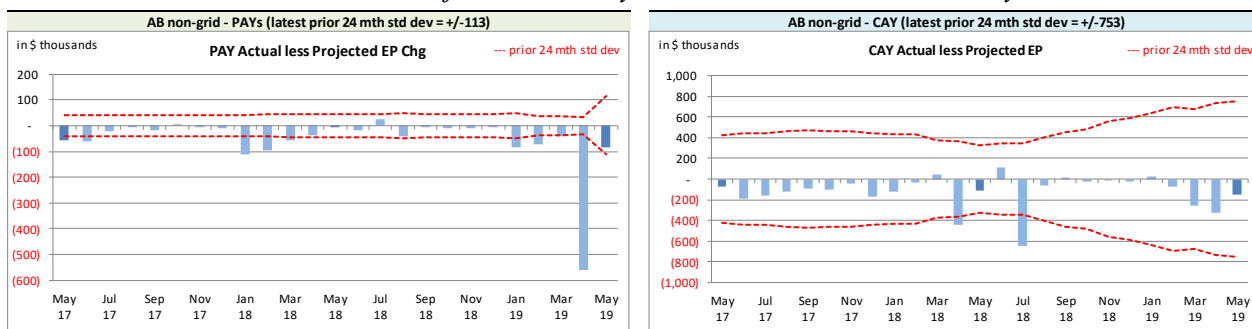
*Alberta non-Grid RSP Actual **Earned Premium** by Calendar Month*



Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels generally occur at the beginning of each year. As commented on earlier, this month’s variances are related to a member’s activity in relation to recent audit findings.

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*



⁶Premium 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)	(55)	8,795
std dev	113	753
A-P \diamond std dev	9	2
% \diamond std dev	36.0%	8.0%
norm \diamond std dev	31.7%	31.7%

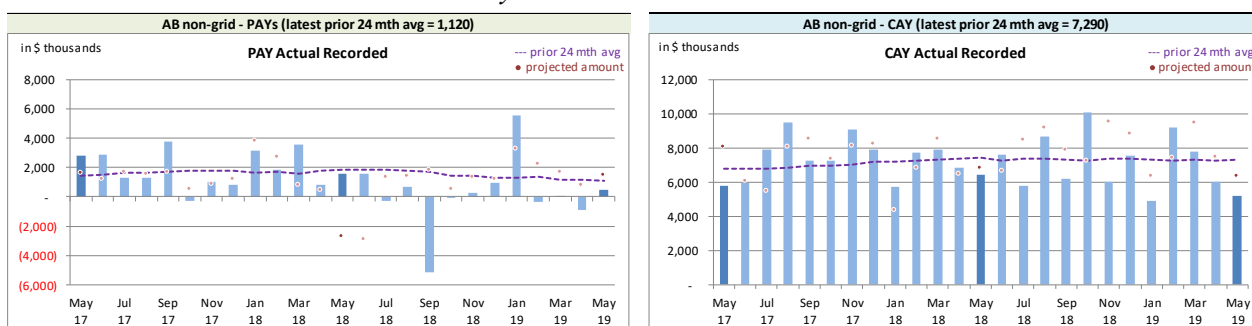
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁷, with actuals generally lower than projected, although the magnitude is not high relative to monthly

premium. In addition to the PAYs' bias, the CAY has also shown bias⁸, with actuals being generally lower than projected, modifications to our projections processes in response appears to have had a favourable impact, bias still exists. Over time, we may consider other projection approaches to narrow monthly variance levels, but it is not currently deemed a priority.

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

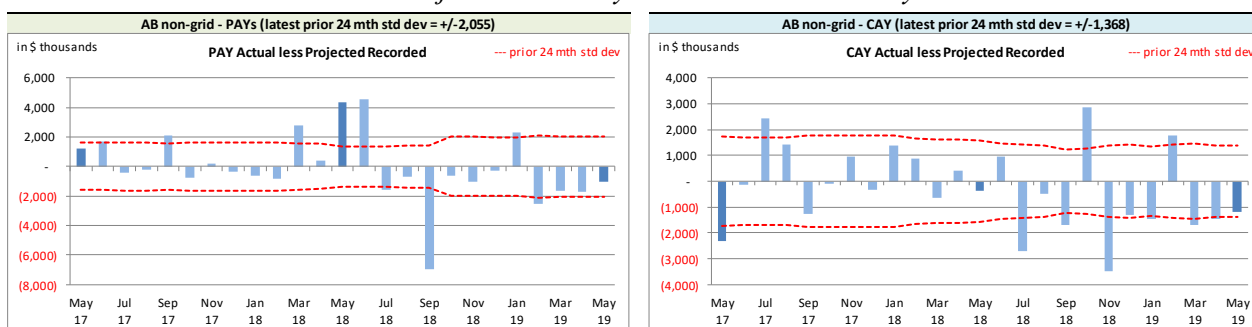
The charts immediately below show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

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



⁷The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

⁸We 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 2019 had only 4 months where the actuals was higher than projected, and as the 95% confidence range is 7 to 17, bias continues to be indicated.

On Latest \$ thousands			
	Recorded	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	1,120	7,290	
std dev	2,055	1,368	
A-P <> std dev	9	10	
% <> std dev	36.0%	40.0%	
norm <> std dev	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

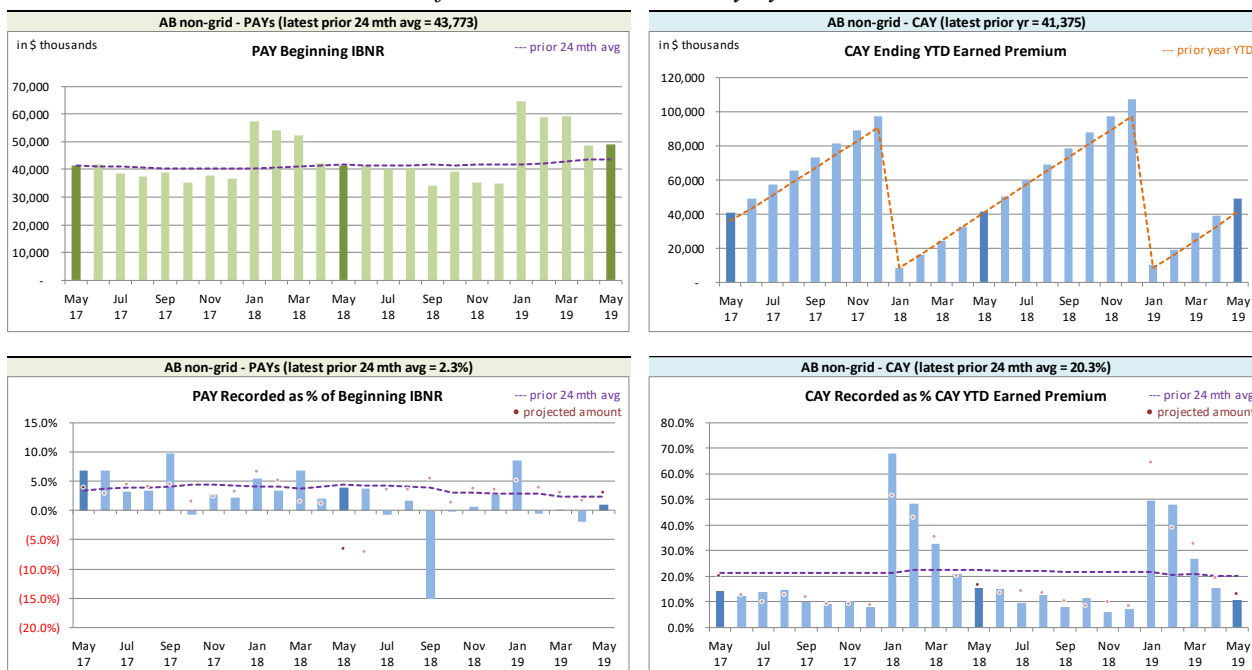
simply projecting the prior 24-month average amount (assuming it follows a normal distribution). We have implemented changes in an attempt to address this. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

The current accident year (CAY) **recorded** variances fell outside of one standard deviation 40% of the time over the last 25 calendar months (see table above), suggesting that the projection process has performed worse than simply projecting the prior 24-month average amount. We believe this result is in part related to volume increases, but management is considering ways of improving CAY variances. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

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 influence⁹ 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:

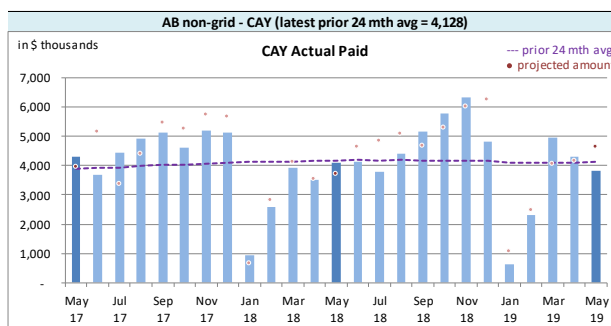
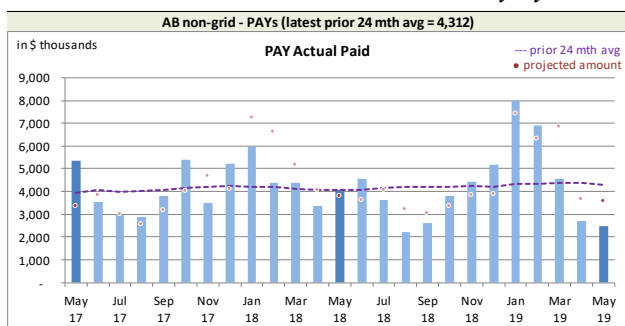
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years' ultimate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

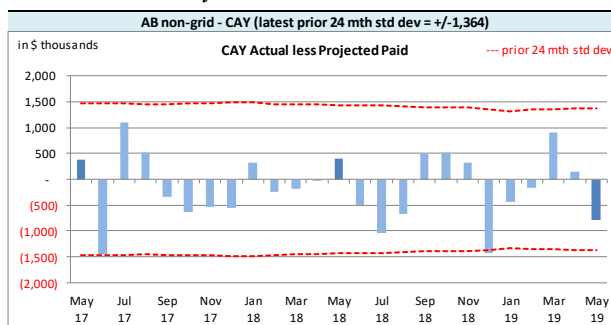
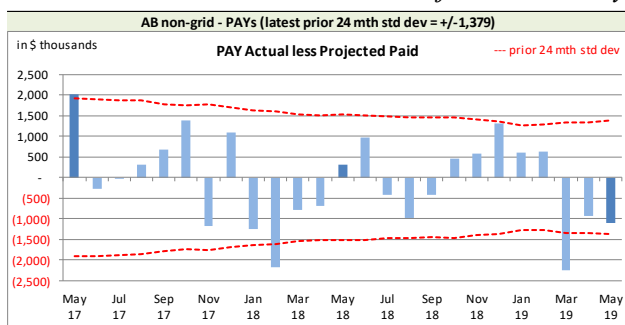
⁹Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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			
	Paid	PAYs	CAY
Mthly Avg Paid (prior 24 mths)		4,312	4,128
std dev		1,379	1,364
A-P <> std dev		3	1
% <> std dev		12.0%	4.0%
norm <> std dev		31.7%	31.7%

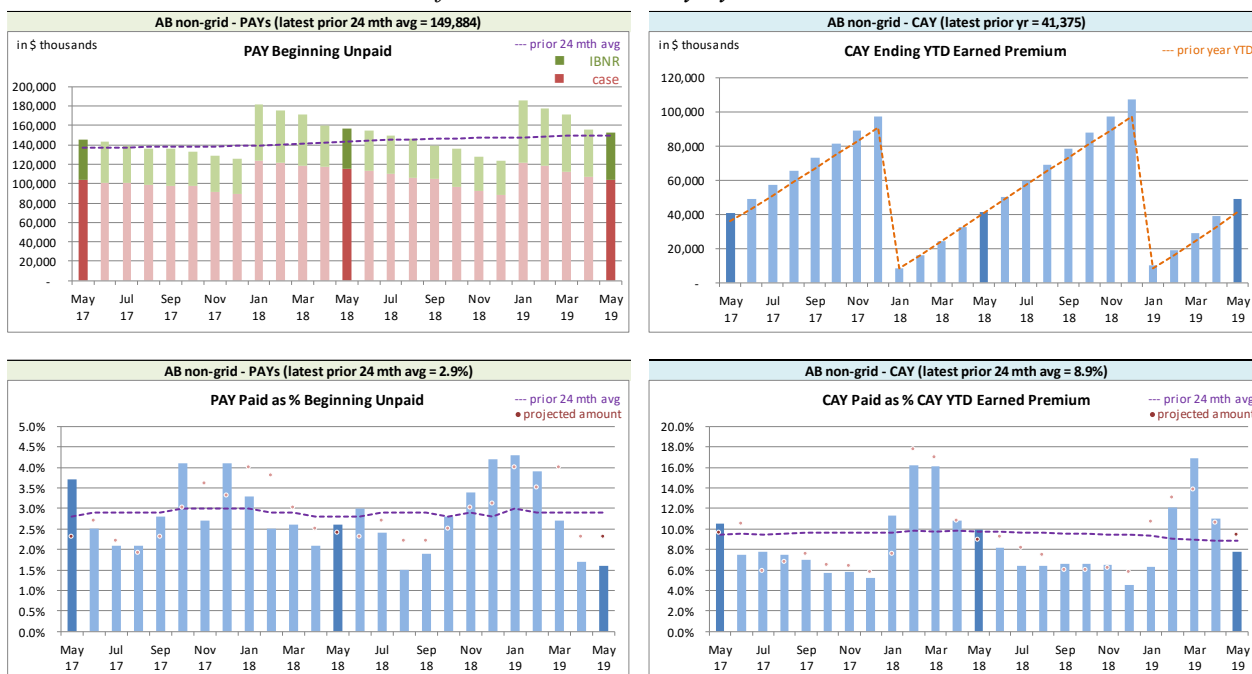
With respect to **paid** indemnity & allowed claims expense, 12% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **paid** amounts (see table on left), suggesting the projection process has performed better than 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 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 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 influence¹⁰ 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 IBNR¹¹, 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

¹⁰Our 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.

¹¹For ease of discussion, "IBNR" is used in place of "provisions for incurred but not recorded (IBNR) and development".

one-month projections from last month's Report.

Alberta Non-Grid 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	12,389	(563)	(2,255)	659	6,931	51	17,065 147
2017	11,629	1,088	(1,410)	419	4,559	179	14,778 1,686
2018	24,406	441	(2,067)	644	6,511	146	28,850 1,231
2019	20,257	1,101	(1,454)	447	4,416	106	23,219 1,654
TOTAL	68,681	2,067	(7,186)	2,169	22,417	482	83,912 4,718

The IBNR provision is \$2.1 million higher 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:	5,680	(1)	4,237	526	9,917	525
balance as % unearned premium:	9.5%	0.1%	7.1%	1.0%	16.6%	1.1%
actual unearned premium:	59,598					
less projected:	(1,046)					

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 loss¹² 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 expenses¹³, 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 110.6% rather than 108.7% (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 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	(11,192)	(23.2%)	2,134	4.4%	(9,058)	(18.8%)	1,816	9.6%
CAY	53,293	110.6%	2,962	6.1%	56,255	116.8%	11,959	0.9%
TOTAL	42,101	87.4%	5,096	10.6%	47,197	98.0%	13,775	10.6%

(“% 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, and due to 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.

¹²“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).

¹³Allowed 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

 IBNR + M/S actuarial present
 value adjustments

 discount rate
 1.46%

 interest rate margin
 25 basis pts

Amounts in \$000s					
Accident Year	Actual Apr. 2019	Actual May. 2019	Projected Jun. 2019	Projected Jul. 2019	Projected Dec. 2019
2004	42	42	42	42	42
2005	13	13	13	13	13
2006	483	483	455	445	385
2007	83	84	81	79	67
2008	63	64	60	58	49
2009	75	183	174	170	147
2010	225	152	146	144	123
2011	(109)	478	457	445	384
2012	1,750	1,093	1,039	1,016	875
2013	748	1,820	1,721	1,684	1,457
2014	2,145	1,397	1,329	1,297	1,119
2015	4,153	3,627	3,441	3,346	2,846
2016	8,048	7,629	7,256	7,059	5,909
2017	13,699	14,778	14,600	14,422	12,722
2018	27,935	28,850	28,251	27,925	26,398
2019	16,437	23,219	27,262	33,370	46,951
TOTAL	75,790	83,912	86,327	91,515	99,487
Change		8,122	2,415	5,188	

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	Apr. 2019	May. 2019	Jun. 2019	Jul. 2019	Dec. 2019
	349.1%	2004	36	36	36	36	36
	97.4%	2005	5	5	5	5	5
	87.5%	2006	448	445	418	410	355
	101.4%	2007	70	71	67	66	56
	101.1%	2008	60	61	57	56	47
	95.5%	2009	14	113	106	104	90
	83.8%	2010	140	58	55	54	46
	84.3%	2011	(280)	244	229	224	195
	101.5%	2012	1,398	723	680	666	576
	99.6%	2013	450	1,459	1,371	1,344	1,166
	108.8%	2014	1,650	825	775	759	657
	96.3%	2015	3,472	2,825	2,655	2,575	2,163
	114.4%	2016	6,173	5,524	5,193	5,037	4,099
	108.7%	2017	11,096	11,629	11,513	11,398	9,989
	104.7%	2018	24,207	24,406	23,918	23,679	22,519
	108.7%	2019	14,451	20,257	23,907	29,420	40,330
		TOTAL	63,390	68,681	70,985	75,833	82,329
		Change		5,291	2,304	4,848	

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

EXHIBIT C
Premium Liabilities
TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Apr. 2019	Actual May. 2019	Projected Jun. 2019	Projected Jul. 2019	Projected Dec. 2019
Premium Liabilities					
(1) unearned premium (UP)	58,268	59,598	63,867	66,072	73,868
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	115.3%	116.6%	116.8%	117.0%	118.1%
(3) expected future costs {(1) x (2)}	67,208	69,515	74,596	77,282	87,252
(4) premium deficiency / (deferred policy acquisition cost)	8,940	9,917	10,729	11,210	13,384
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	109.2%	109.5%	109.7%	109.8%	110.9%
(6) expected future costs {(1) x (5)}	63,647	65,278	70,049	72,572	81,935
(7) premium deficiency / (deferred policy acquisition cost)	5,379	5,680	6,182	6,500	8,067

EXHIBIT D
Projected Year-end Policy Liabilities

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

Alberta non-Grid		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	TOTAL
2004	26	36	62	-	-	6	-	6	6	68
2005	75	5	80	-	-	8	-	8	8	88
2006	17	355	372	(7)	1	37	(1)	36	30	402
2007	75	56	131	(3)	1	13	-	13	11	142
2008	(26)	47	21	-	-	2	-	2	2	23
2009	658	90	748	(20)	4	75	(2)	73	57	805
2010	1,071	46	1,117	(38)	7	112	(4)	108	77	1,194
2011	2,717	195	2,912	(111)	20	291	(11)	280	189	3,101
2012	3,644	576	4,220	(131)	21	422	(13)	409	299	4,519
2013	3,296	1,166	4,462	(165)	27	446	(17)	429	291	4,753
2014	6,296	657	6,953	(250)	42	695	(25)	670	462	7,415
2015	8,439	2,163	10,602	(392)	64	1,050	(39)	1,011	683	11,285
2016	16,172	4,099	20,271	(770)	142	2,534	(96)	2,438	1,810	22,081
2017	21,385	9,989	31,374	(1,224)	188	3,922	(153)	3,769	2,733	34,107
2018	22,567	22,519	45,086	(1,803)	271	5,636	(225)	5,411	3,879	48,965
PAYs (sub-total):	86,412	41,999	128,411	(4,914)	788	15,249	(586)	14,663	10,537	138,948
CAY (2019)	43,019	40,330	83,349	(3,251)	500	9,752	(380)	9,372	6,621	89,970
claims liabilities:	129,431	82,329	211,760	(8,165)	1,288	25,001	(966)	24,035	17,158	228,918
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	73,868	8,067	81,935	(2,447)	408	7,584	(228)	7,356	5,317	87,252
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:	293,695			(10,612)	1,696	32,585	(1,194)	31,391	22,475	316,170

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 (Mar. 31, 2019)

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%	10.0%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	5.0%	10.0%
2013	10.0%	10.0%	9.2%	10.0%
2014	10.0%	10.0%	8.5%	10.0%
2015	10.0%	10.0%	8.8%	9.9%
2016	12.5%	10.0%	12.5%	12.5%
2017	12.5%	10.0%	12.5%	12.5%
2018	12.4%	10.0%	12.5%	12.5%
2019	12.1%	10.0%	7.9%	11.7%
2020	11.9%	10.0%	5.2%	9.3%
prem liab	11.9%	10.0%	5.2%	9.3%

discount rate: 1.46%
 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 (1.46%), the prior valuation assumption (1.93%) and the prior fiscal year end valuation assumption (2.29%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2019 projected Unpaid								
AY	0.46%	0.96%	1.46%	1.96%	2.46%	2.96%	1.93%	2.29%
2004 & prior	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	640	636	632	628	624	620	628	625
2007	73	72	72	71	71	70	71	71
2008	-	-	-	-	-	-	-	-
2009	845	837	830	822	815	808	823	817
2010	1,185	1,171	1,158	1,144	1,131	1,118	1,145	1,136
2011	2,442	2,410	2,379	2,348	2,318	2,290	2,350	2,329
2012	4,154	4,110	4,067	4,024	3,984	3,943	4,027	3,997
2013	5,469	5,397	5,328	5,261	5,195	5,131	5,264	5,217
2014	7,398	7,304	7,212	7,123	7,035	6,951	7,128	7,065
2015	10,827	10,684	10,547	10,412	10,283	10,155	10,421	10,327
2016	21,405	21,122	20,847	20,581	20,322	20,071	20,598	20,410
2017	32,002	31,560	31,133	30,715	30,309	29,915	30,742	30,448
2018	50,616	49,901	49,213	48,541	47,890	47,259	48,585	48,108
2019	82,947	81,808	80,706	79,631	78,597	77,589	79,701	78,946
Total	220,003	217,012	214,124	211,301	208,574	205,920	211,483	209,496
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

Dollar Impact Relative to Valuation Assumption								
AY	0.46%	0.96%	1.46%	1.96%	2.46%	2.96%	1.93%	2.29%
Total	5,879	2,888	-	(2,823)	(5,550)	(8,204)	(2,641)	(4,628)
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

Percentage Impact Relative to Valuation Assumption								
AY	0.46%	0.96%	1.46%	1.96%	2.46%	2.96%	1.93%	2.29%
2004 & prior	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1.3%	0.6%	-	(0.6%)	(1.3%)	(1.9%)	(0.6%)	(1.1%)
2007	1.4%	-	-	(1.4%)	(1.4%)	(2.8%)	(1.4%)	(1.4%)
2008	-	-	-	-	-	-	-	-
2009	1.8%	0.8%	-	(1.0%)	(1.8%)	(2.7%)	(0.8%)	(1.6%)
2010	2.3%	1.1%	-	(1.2%)	(2.3%)	(3.5%)	(1.1%)	(1.9%)
2011	2.6%	1.3%	-	(1.3%)	(2.6%)	(3.7%)	(1.2%)	(2.1%)
2012	2.1%	1.1%	-	(1.1%)	(2.0%)	(3.0%)	(1.0%)	(1.7%)
2013	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(1.2%)	(2.1%)
2014	2.6%	1.3%	-	(1.2%)	(2.5%)	(3.6%)	(1.2%)	(2.0%)
2015	2.7%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(1.2%)	(2.1%)
2016	2.7%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(1.2%)	(2.1%)
2017	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.9%)	(1.3%)	(2.2%)
2018	2.9%	1.4%	-	(1.4%)	(2.7%)	(4.0%)	(1.3%)	(2.2%)
2019	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.9%)	(1.2%)	(2.2%)
Total	2.7%	1.3%	-	(1.3%)	(2.6%)	(3.8%)	(1.2%)	(2.2%)
	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
AccountCode Desc

Alberta Non-Grid
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			
2004	42	-	-	-	-	-	42
2005	13	-	-	-	-	-	13
2006	483	(10)	7	3	-	-	483
2007	83	(2)	2	1	1	1.2%	84
2008	63	(2)	3	-	1	1.6%	64
2009	75	(2)	102	8	108	144.0%	183
2010	225	(7)	(3)	(63)	(73)	(32.4%)	152
2011	(109)	-	(38)	625	587	(538.5%)	478
2012	1,750	(37)	(23)	(597)	(657)	(37.5%)	1,093
2013	748	(17)	772	317	1,072	143.3%	1,820
2014	2,145	(48)	(450)	(250)	(748)	(34.9%)	1,397
2015	4,153	(188)	78	(416)	(526)	(12.7%)	3,627
2016	8,048	(488)	73	(4)	(419)	(5.2%)	7,629
2017	13,699	(607)	326	1,360	1,079	7.9%	14,778
2018	27,935	(316)	135	1,096	915	3.3%	28,850
2019	16,437	5,128	1,045	609	6,782	41.3%	23,219
Grand Total	75,790	3,404	2,029	2,689	8,122	10.7%	83,912

EXHIBIT G

Page 2 of 2

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	448	(9)	6	-	(3)	(0.7%)	445
2007	70	(1)	2	-	1	1.4%	71
2008	60	(1)	2	-	1	1.7%	61
2009	14	-	99	-	99	707.1%	113
2010	140	(3)	(6)	(73)	(82)	(58.6%)	58
2011	(280)	6	(31)	549	524	(187.1%)	244
2012	1,398	(28)	(29)	(618)	(675)	(48.3%)	723
2013	450	(9)	775	243	1,009	224.2%	1,459
2014	1,650	(33)	(456)	(336)	(825)	(50.0%)	825
2015	3,472	(174)	65	(538)	(647)	(18.6%)	2,825
2016	6,173	(432)	54	(271)	(649)	(10.5%)	5,524
2017	11,096	(555)	313	775	533	4.8%	11,629
2018	24,207	(242)	122	319	199	0.8%	24,406
2019	14,451	4,705	1,003	98	5,806	40.2%	20,257
Grand Total	63,390	3,224	1,919	148	5,291	8.3%	68,681