



ALBERTA NON-GRID RISK SHARING POOL

MAY 2018 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS
RSP ALBERTA NON-GRID
OPERATIONAL REPORT
MAY 2018

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2018)

The May 2018 Operational Report incorporates the results of an updated valuation (as at March 31, 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 increased 2.9 points to 112.8%; discount rate increased 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 increased 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 increased 2.7 points to 111.2%; discount rate increased by 17 basis points; no change to selected margins for adverse deviations
Jun. 30, 2018		Aug. 2018	update valuation:
Sep. 30, 2018		Oct. 2018	update valuation (roll forward):

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 March 31, 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 in July.

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, 2018¹

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	1,818	68	1,886	(719)	-	1,167
CAY	1,117	47	1,164	(139)	-	1,025
Prem Def	1,223	(49)	1,174	(205)	-	969
TOTAL	4,158	66	4,224	(1,063)	-	3,161

As indicated in the table above, the incorporation of the new valuation had an estimated **\$3.2 million unfavourable impact** on the month's net result from operations, adding an estimated 7.7 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **144.3%**.

Summary of Impact (% YTD EP) of Implementing Result of Valuation as at March 31, 2018

AB Non-Grid	ytd EP 41,065 (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	4.4%	0.2%	4.6%	(1.8%)	-	2.8%
CAY	2.7%	0.1%	2.8%	(0.3%)	-	2.5%
Prem Def	3.0%	(0.1%)	2.9%	(0.5%)	-	2.4%
TOTAL	10.1%	0.2%	10.3%	(2.6%)	-	7.7%

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 \$4.2 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 \$1.8 million unfavourable nominal variance, which is attributed to unfavourable claims development partially offset by a favourable case reserves correction by a member. This overall unfavourable prior accident years impact is 1.2% of the prior accident years' nominal unpaid balance of \$156.6 million determined at the end of last month (April 2018).

The current accident year and premium deficiency impacts are a result of the change in the selected loss ratio for accident year **2018** (up 2.7 points from 108.5% to **111.2%**) while **2019** remained

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.

unchanged at **110.7%**.

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.

Claims payment emergence patterns were updated and 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 2018. Column [4] accounts for the change in the **discount rate** selected (increased 17 basis point to **1.93%**), indicating a favourable impact of \$1.1 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$0.9 million at May 2018 – this compares to the \$0.9 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 / Regulation

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

Consideration and assessment of potential impacts of legal decisions and changes in legislation / regulation constitutes a regular part of the valuation process. Descriptions of some of the more recent changes are provided below.

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). At the current time, no adjustments have been made to our valuation estimates or views based on these amendments, but we are reviewing the impact with FA's Appointed Actuary.

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.”*

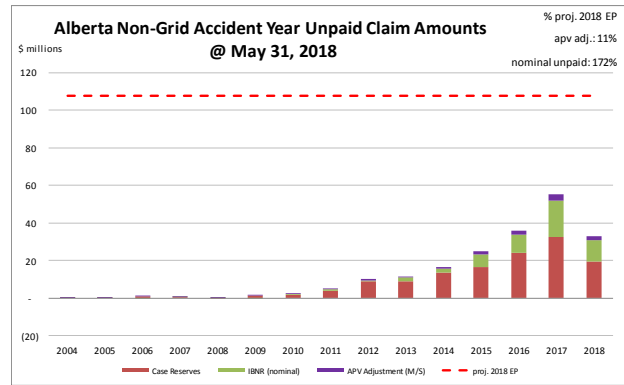
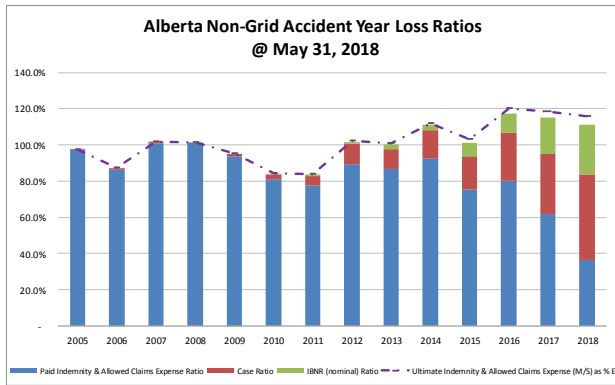
At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

1.5 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities² booked by accident year³. The left chart displays life-to-date payments, case reserves, IBNR, and the total including actuarial present value adjustments against accident year earned premium. The right chart shows the associated dollar amounts for the components of the claim liabilities and the current projected amount of 2018 full year earned premium (the red hash-mark line) to provide some perspective.

²Claim liabilities refer to provision for unpaid indemnity and allowed claims expenses. Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this discussion.

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



"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 (\$12.1 million – see table immediately below) represents 11% 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	132,412	67.1%
ibnr	52,870	26.8%
M/S apv adjust.	12,116	6.1%
M/S total	197,398	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 is in case reserves for this pool. Approximately 58% of the IBNR balance relates to accident years 2017 and 2018 (see Exhibit B). Approximately 84% 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 immediately below summarize the premium liabilities and the total policy liabilities.

premium liabilities (\$000s)

	amt	%
unearned prem	56,501	85.1%
prem def/(dpac)	6,543	9.9%
M/S apv adjust.	3,355	5.1%
M/S total	66,399	100.0%

policy liabilities (\$000s)

	amt	%
claim	185,282	70.2%
premium	63,044	23.9%
M/S apv adjust.	15,471	5.9%
M/S total	263,797	100.0%

2 Activity During the Month of May 2018

2.1 Recorded Premium and Claims Activity

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

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

Alberta Non-Grid RSP Actual vs Projected Summary: Recorded Transaction Amounts (\$ thousands)

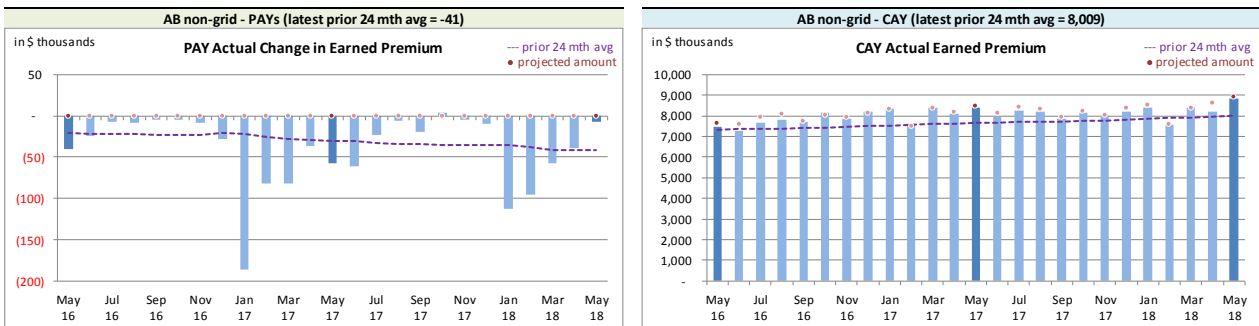
Table 01 Accident Year	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	2	2	1,979	(69)	(1,036)	62	943	(7)
2016	18	18	1,273	580	(276)	1,635	997	2,215
2017	(27)	(27)	822	(202)	(1,164)	2,316	(341)	2,115
2018	8,817	(109)	4,093	398	2,357	(785)	6,451	(387)
TOTAL	8,810	(116)	8,168	707	(119)	3,228	8,049	3,935

(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 immediately below show actual **earned premium**⁵ activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

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.

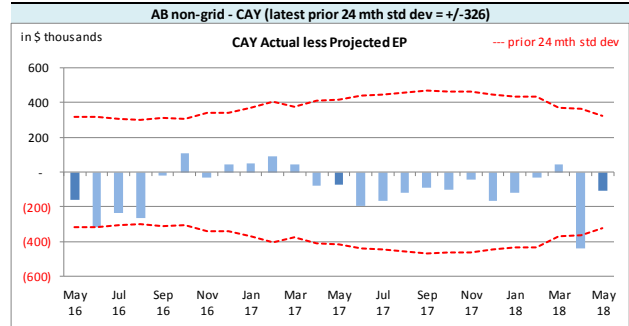
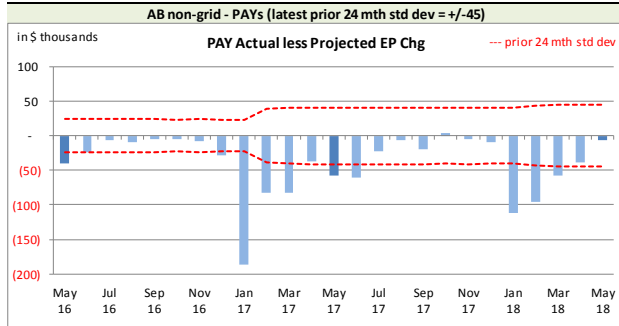
We have noted and investigated the unusually high level of PAYs earned premium activity earlier in 2017 and January through April 2018, particularly with respect to one member. Management reviewed and was satisfied with the appropriateness of the 2017 transactions, but continues its investigation of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

The associated variance between the actual changes and the projections from the previous month are shown in the charts at the top of the next page. **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,

⁵Premium is earned on a daily basis based on the transaction term measured in days. As a result, months with 31 days earned relatively more than those with 30 days, and February earns the least.

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		
Earned Premium	PAYS	CAY
Mthly Avg EP Chg (prior 24 mths)	(41)	8,009
std dev	45	326
A-P <> std dev	10	2
% <> std dev	40.0%	8.0%
norm <> std dev	31.7%	31.7%

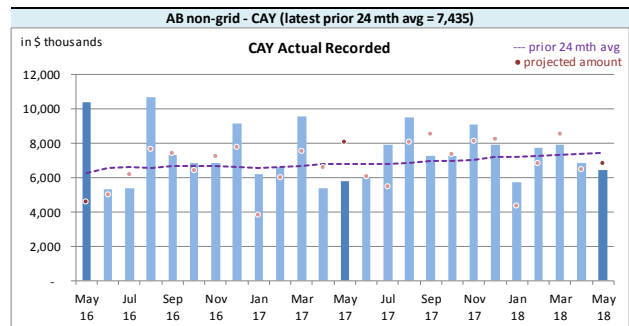
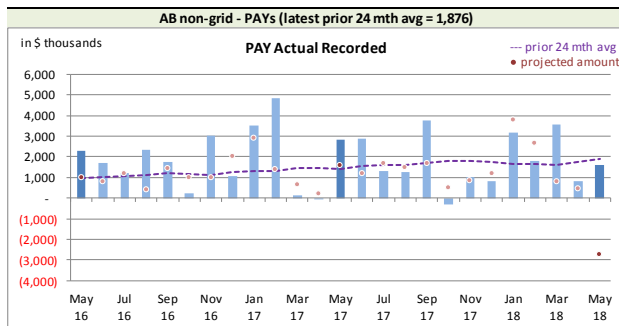
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years’ (PAYS) bias⁶, with actuals generally lower than projected, although the magnitude is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

premium. In addition to the PAYS’ bias, the CAY has also shown bias⁷, with actuals being generally lower than projected, and 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 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*

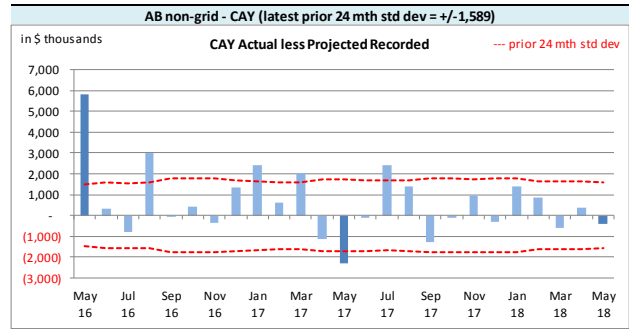
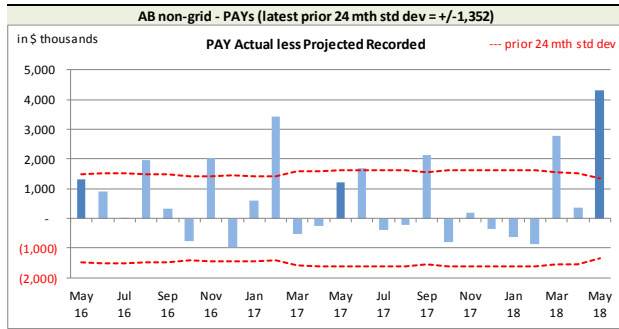


⁶The PAYS’ variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

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

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			
	Recorded	PAYS	CAY
Mthly Avg Recorded (prior 24 mths)	1,876	1,876	7,435
std dev	1,352	1,352	1,589
A-P <> std dev	7	7	6
% <> std dev	28.0%	28.0%	24.0%
norm <> std dev	31.7%	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 28% of the prior accident years’ (PAYs) variances (left chart above) fell outside of the experience period’s standard deviation, suggesting the projection process has performed no better than a projection based simply on the 24-month average. We have

implemented changes in an attempt to address this. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

The PAY **recorded** variance was outside of one standard deviation driven by an adjustment made to the recorded projection for the month of May, as FA expected a correction in recorded case reserve overstatement, as advised by a member (see following sections for more details). As the correction did not go through during the month, the PAY **recorded** activity was significantly higher than the projected. Based on discussions with the member, the case reserves correction is now expected to go through next month, and our recorded projections for June have been adjusted accordingly.

During the month, a member company (not the same member related to the preceding paragraph) advised of missing claims transactions related to a claim conversion issue initially noted in the April 2017 RSP Actuarial Highlights. During discussions with the member, FA management was advised the missing claims (affecting prior accident years only), had been re-submitted and therefore included in the results for this month (May 2018). This correction was not anticipated and hence was not included in last month’s projection.

The current accident year (CAY) **recorded** variances (right chart above) have been greater than one standard deviation 24% of the time, suggesting that the projection process has performed better than simply projecting the most recent prior 24-month average. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

As noted in the last four month’s Actuarial Highlights, FA management was notified on January 31, 2018 by a member of a potential recorded case reserve overstatement. Furthermore, during the latest 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.

Management investigated and estimated the overall overstatement for the Alberta non-Grid RSP as at March 31, 2018 as indicated in the table immediately below.

Estimated case reserve overstatement as at Mar 31, 2018

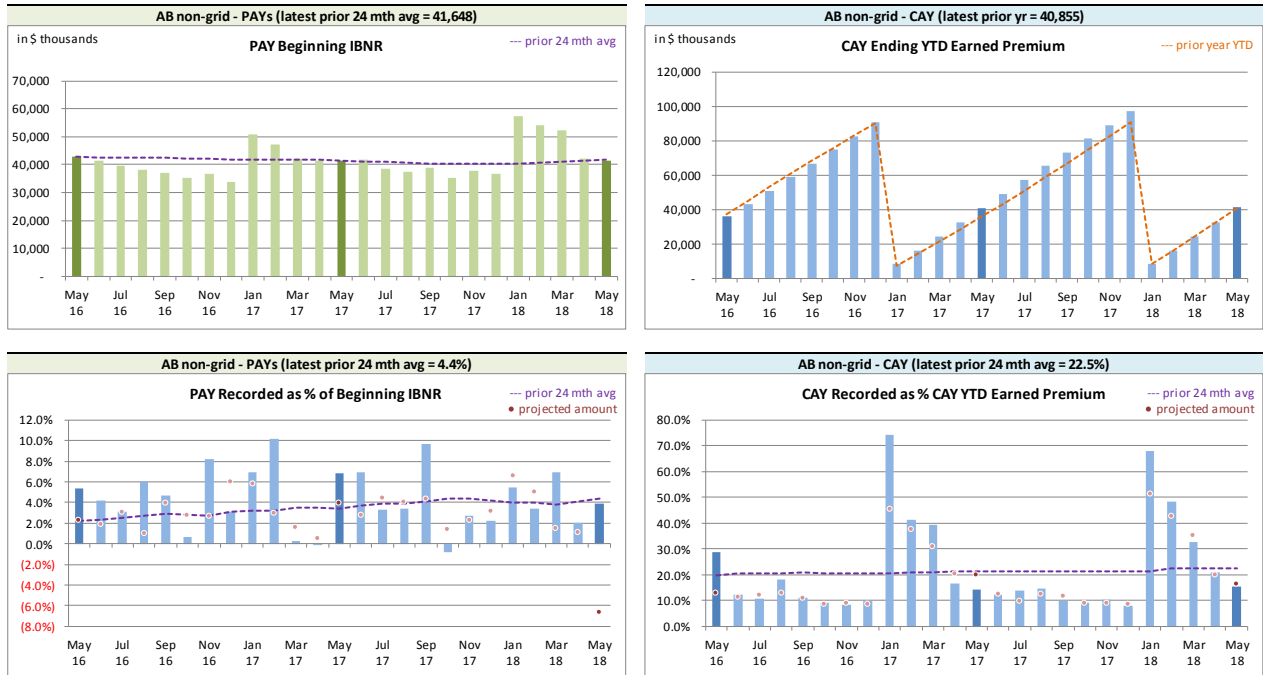
overstatement / (understatement)	
Accident Year	Total Case Reserve Adjustment (\$'000s)
2010	(171)
2011	(239)
2012	-
2013	(92)
2014	(104)
2015	518
2016	2,554
2017	2,529
Total	4,995

With this valuation, prior accident years' ultimates selections have taken into account the member's overstatement (both the original amount as notified, and the subsequent amount, with the combination of the two being summarized in the table above). FA management is working with the member on a process to correct the reported levels, and we currently anticipate that this may be partially completed in time for the 2018 Q2 valuation.

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 influence⁸ 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:

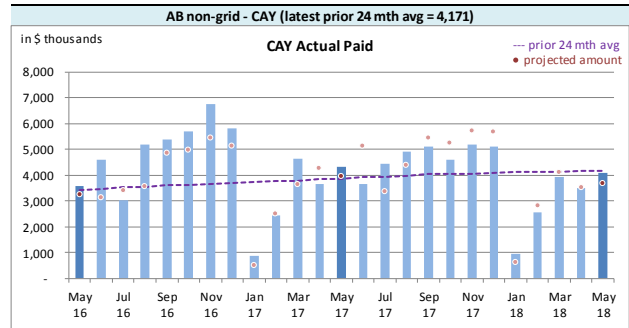
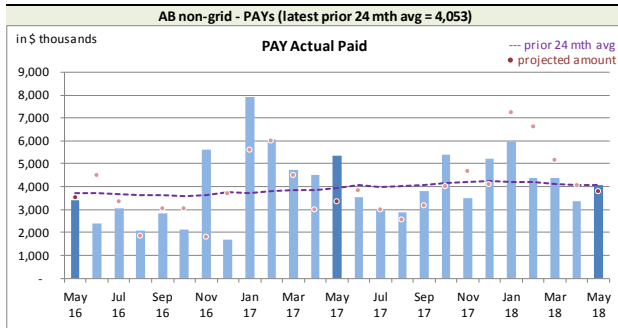
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

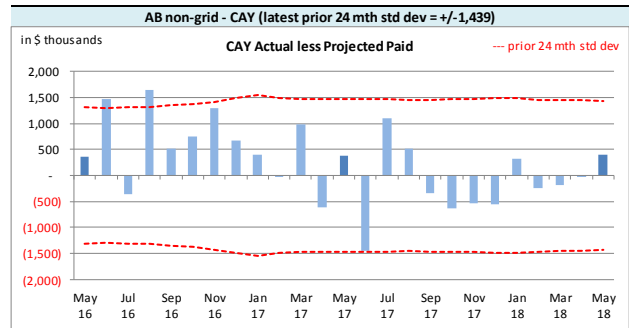
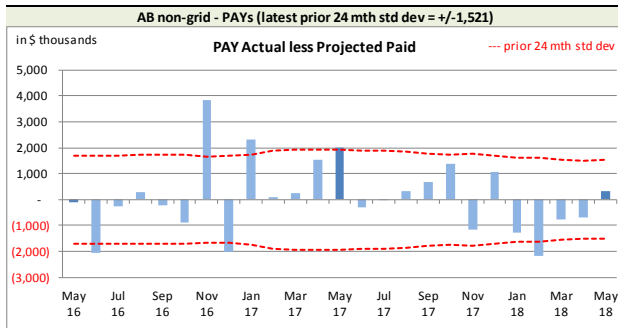
⁸Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned premium), deriving year-to-date recorded as selected ultimate less IBNR. In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

*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)		4,053	4,171
std dev		1,521	1,439
A-P <> std dev		6	2
% <> std dev		24.0%	8.0%
norm <> std dev		31.7%	31.7%

With respect to **paid** indemnity & allowed claims expense, the prior accident years’ variances (left chart above) do not appear to have bias and the magnitude of the variances do not appear to be an issue. With 24% of prior accident years (PAYS) **paid** variances over the last 25 calendar months falling outside of one standard deviation,

the projection process has performed better than simply projecting based on a 24-month average. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

With only 8% of the current accident year (CAY) **paid** variances falling outside of one standard deviation of the experience period activity, the projection process has performed better than simply projecting based on a 24-month average. While no bias has been indicated at a 95% confidence level on a lagging 24-month basis this month, it was indicated for each month from November 2015 through to September 2017. We made adjustments to our projection process to reflect this, and they appear to have been somewhat successful.

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 influence⁹ 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 IBNR¹⁰, and factors are applied to the nominal unpaid claims liability (case plus IBNR) to determine the discount amount (shown as a negative value to indicate its impact of reducing the liability) and the Provisions for Adverse Deviations. The loss ratios and the factors used to determine the projections and actuals were based on the applicable valuation. The table at the top of the next page summarizes variances in provisions included in the May 2018 Operational Report and the associated

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

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

one-month projections from last month’s Report.

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	12,640	10	(3,192)	(283)	7,485	(32)	16,933	(305)
2016	9,538	(1,832)	(1,788)	(125)	4,131	(76)	11,881	(2,033)
2017	19,314	(688)	(2,849)	(240)	6,383	88	22,848	(840)
2018	11,378	1,386	(1,640)	(153)	3,586	27	13,324	1,260
TOTAL	52,870	(1,124)	(9,469)	(801)	21,585	7	64,986	(1,918)

The IBNR provision is \$1.1 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 below summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in the May 2018 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 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:	6,543	1,099	3,355	(337)	9,898	762
balance as % unearned premium:	11.6%	2.2%	5.9%	(0.5%)	17.5%	1.7%
actual unearned premium:	56,501					
less projected:	(1,278)					

3 Ultimate Loss Ratio Matching Method

An “ultimate loss ratio matching method” continues to be applied to the current month and two projected months shown in the Operational Reports, with IBNR determined by accident year as follows:

- (a) Earned premium to-date
- (b) Ultimate loss¹¹ ratio per latest valuation
- (c) Estimated ultimate incurred = (a) x (b)
- (d) Recorded indemnity & allowed claims expense to-date
- (e) IBNR = (c) – (d)

4 Calendar Year-to-Date Results

The table below summarizes the calendar year-to-date results for indemnity & allowed claims expenses¹², including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes earned premium associated with the current accident year but also earned premium adjustments related to prior accident years. Specifically, the current accident year (CAY) ratio in the table is 112.0% rather than 111.2% (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	(4,896)	(11.9%)	(2,053)	(5.0%)	(6,949)	(16.9%)	886	7.4%
CAY	46,009	112.0%	1,946	4.7%	47,955	116.8%	10,967	2.1%
TOTAL	41,113	100.1%	(107)	(0.3%)	41,006	99.9%	11,853	9.5%

(“% 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.

¹¹“Loss” here refers to indemnity and allowed claims expenses, but does not include the claims expense allowance included in member company overall expense allowances (“Expense Allowance” in the Operational Report).

¹²Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this analysis.

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 Apr 2018	Actual May 2018	Projected Jun 2018	Projected Jul 2018	Projected Dec 2018
	2004	42	42	42	42	42
	2005	13	13	13	13	11
	2006	(89)	(91)	(88)	(87)	(71)
	2007	132	133	129	126	102
	2008	24	130	125	122	102
	2009	(276)	18	18	17	16
	2010	646	451	436	427	353
	2011	896	955	921	900	744
	2012	1,193	1,109	1,076	1,050	872
discount rate	2013	2,521	2,729	2,631	2,574	2,124
1.93%	2014	4,513	3,097	2,835	2,698	2,143
	2015	8,705	8,347	7,721	7,370	5,996
interest rate margin	2016	12,747	11,881	13,075	12,706	11,228
25 basis pts	2017	21,307	22,848	25,446	24,938	22,537
	2018	8,808	13,324	16,847	19,301	28,884
	TOTAL	61,182	64,986	71,227	72,197	75,083
	Change		3,804	6,241	970	

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 Apr 2018	Actual May 2018	Projected Jun 2018	Projected Jul 2018	Projected Dec 2018
	349.1%	2004	36	36	36	36	36
	97.4%	2005	5	5	5	5	5
	87.2%	2006	(136)	(136)	(131)	(128)	(106)
	101.8%	2007	84	87	84	82	66
	101.2%	2008	10	123	118	116	96
	95.1%	2009	(361)	(54)	(52)	(51)	(41)
	83.9%	2010	489	325	312	306	251
	83.5%	2011	644	714	685	671	551
	101.7%	2012	614	584	561	550	451
	100.4%	2013	1,863	2,168	2,081	2,039	1,675
	110.9%	2014	3,536	2,228	1,983	1,864	1,411
	101.0%	2015	6,796	6,560	5,970	5,671	4,476
	117.4%	2016	10,152	9,538	10,778	10,455	9,256
	115.0%	2017	17,546	19,314	22,018	21,578	19,501
	111.2%	2018	7,145	11,378	14,574	16,662	24,713
		TOTAL	48,423	52,870	59,022	59,856	62,341
		Change		4,447	6,152	834	

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 2018	Actual May 2018	Projected Jun 2018	Projected Jul 2018	Projected Dec 2018
Premium Liabilities					
(1) unearned premium (UP)	50,080	56,501	58,677	58,728	63,874
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	115.6%	117.5%	117.5%	117.4%	117.1%
(3) expected future costs {(1) x (2)}	57,894	66,399	68,933	68,966	74,796
(4) premium deficiency / (deferred policy acquisition cost)	7,814	9,898	10,256	10,238	10,922
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	109.2%	111.6%	111.5%	111.5%	111.2%
(6) expected future costs {(1) x (5)}	54,700	63,044	65,449	65,482	71,016
(7) premium deficiency / (deferred policy acquisition cost)	4,620	6,543	6,772	6,754	7,142

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	59	5	64	-	-	6	-	6	6	70	
2006	614	(106)	508	(16)	2	51	(2)	49	35	543	
2007	478	66	544	(18)	2	54	(2)	52	36	580	
2008	(17)	96	79	(2)	-	8	-	8	6	85	
2009	928	(41)	887	(33)	4	89	(3)	86	57	944	
2010	1,510	251	1,761	(77)	11	176	(8)	168	102	1,863	
2011	3,148	551	3,699	(181)	22	370	(18)	352	193	3,892	
2012	7,137	451	7,588	(349)	46	759	(35)	724	421	8,009	
2013	7,130	1,675	8,805	(440)	53	880	(44)	836	449	9,254	
2014	11,769	1,411	13,180	(593)	66	1,318	(59)	1,259	732	13,912	
2015	15,215	4,476	19,691	(925)	118	2,442	(115)	2,327	1,520	21,211	
2016	19,136	9,256	28,392	(1,505)	170	3,492	(185)	3,307	1,972	30,364	
2017	24,998	19,501	44,499	(2,447)	311	5,473	(301)	5,172	3,036	47,535	
PAYs (sub-total):	92,131	37,628	129,759	(6,586)	805	15,124	(772)	14,352	8,571	138,330	
CAY (2018)	41,589	24,713	66,302	(3,514)	464	7,625	(404)	7,221	4,171	70,473	
claims liabilities:	133,720	62,341	196,061	(10,100)	1,269	22,749	(1,176)	21,573	12,742	208,803	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*	
premium liabilities:	63,874	7,142	71,016	(2,758)	354	6,435	(251)	6,184	3,780	74,796	
policy liabilities:			267,077	(12,858)	1,623	29,184	(1,427)	27,757	16,522	283,599	

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

EXHIBIT E

Discount Rate & Margins for Adverse Deviations

The tables below present selected margins for adverse development by coverage (the total is a weighted average, based on the unpaid claims projection for December 31, 2018 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Mar. 31, 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%	10.0%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	10.0%	10.0%	9.4%	10.0%
2014	10.0%	10.0%	8.8%	10.0%
2015	12.5%	10.0%	10.5%	12.4%
2016	12.5%	10.0%	9.9%	12.3%
2017	12.4%	10.0%	11.2%	12.3%
2018	12.1%	10.0%	7.1%	11.5%
2019	11.8%	10.0%	5.3%	9.1%
prem liab	11.8%	10.0%	5.3%	9.1%

discount rate: 1.93%
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 (1.93%), the prior valuation assumption (1.76%) 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							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	1.76%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1,034	1,026	1,018	1,009	1,001	993	1,020	1,020
2007	371	368	365	362	358	355	366	366
2008	141	140	139	137	136	135	139	139
2009	1,268	1,255	1,244	1,232	1,220	1,209	1,248	1,248
2010	1,959	1,936	1,914	1,893	1,872	1,851	1,922	1,922
2011	3,340	3,297	3,254	3,213	3,173	3,133	3,269	3,269
2012	6,871	6,788	6,708	6,629	6,552	6,477	6,735	6,735
2013	9,873	9,742	9,616	9,491	9,371	9,253	9,658	9,658
2014	13,567	13,405	13,249	13,095	12,946	12,801	13,302	13,302
2015	21,761	21,488	21,228	20,968	20,720	20,476	21,316	21,316
2016	32,782	32,320	31,876	31,438	31,016	30,604	32,025	32,025
2017	49,590	48,862	48,168	47,485	46,828	46,181	48,401	48,401
2018	79,055	77,944	76,877	75,828	74,828	73,845	77,234	77,234
Total	221,612	218,571	215,656	212,780	210,021	207,313	216,635	216,635
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Dollar Impact Relative to Valuation Assumption							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	1.76%	1.76%
Total	5,956	2,915	-	(2,876)	(5,635)	(8,343)	979	979
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Percentage Impact Relative to Valuation Assumption							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	1.76%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1.6%	0.8%	-	(0.9%)	(1.7%)	(2.5%)	0.2%	0.2%
2007	1.6%	0.8%	-	(0.8%)	(1.9%)	(2.7%)	0.3%	0.3%
2008	1.4%	0.7%	-	(1.4%)	(2.2%)	(2.9%)	-	-
2009	1.9%	0.9%	-	(1.0%)	(1.9%)	(2.8%)	0.3%	0.3%
2010	2.4%	1.1%	-	(1.1%)	(2.2%)	(3.3%)	0.4%	0.4%
2011	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	0.5%	0.5%
2012	2.4%	1.2%	-	(1.2%)	(2.3%)	(3.4%)	0.4%	0.4%
2013	2.7%	1.3%	-	(1.3%)	(2.5%)	(3.8%)	0.4%	0.4%
2014	2.4%	1.2%	-	(1.2%)	(2.3%)	(3.4%)	0.4%	0.4%
2015	2.5%	1.2%	-	(1.2%)	(2.4%)	(3.5%)	0.4%	0.4%
2016	2.8%	1.4%	-	(1.4%)	(2.7%)	(4.0%)	0.5%	0.5%
2017	3.0%	1.4%	-	(1.4%)	(2.8%)	(4.1%)	0.5%	0.5%
2018	2.8%	1.4%	-	(1.4%)	(2.7%)	(3.9%)	0.5%	0.5%
Total	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.9%)	0.5%	0.5%
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

EXHIBIT G

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

RSP **Alberta Non-Grid**
AccountCode Desc **IBNR - Discounted**

M/S IBNR - in \$000s

AccYear	Values			Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances				
2004	42	-	-	-	-	-	42
2005	13	-	-	-	-	-	13
2006	(89)	7	(7)	(2)	(2)	2.2%	(91)
2007	132	(7)	10	(2)	1	0.8%	133
2008	24	(2)	108	-	106	441.7%	130
2009	(276)	23	120	151	294	(106.5%)	18
2010	646	(38)	9	(166)	(195)	(30.2%)	451
2011	896	(53)	45	67	59	6.6%	955
2012	1,193	(60)	182	(206)	(84)	(7.0%)	1,109
2013	2,521	(150)	248	110	208	8.3%	2,729
2014	4,513	(357)	(886)	(173)	(1,416)	(31.4%)	3,097
2015	8,705	(445)	191	(104)	(358)	(4.1%)	8,347
2016	12,747	1,167	(2,234)	201	(866)	(6.8%)	11,881
2017	21,307	2,381	(2,131)	1,291	1,541	7.2%	22,848
2018	8,808	3,256	235	1,025	4,516	51.3%	13,324
Grand Total	61,182	5,722	(4,110)	2,192	3,804	6.2%	64,986

EXHIBIT G

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

RSP		Alberta Non-Grid						IBNR - in \$000s
AccountCode Desc		IBNR - Undiscounted						
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	36	-	-	-	-	-	36	
2005	5	-	-	-	-	-	5	
2006	(136)	10	(10)	-	-	-	(136)	
2007	84	(6)	9	-	3	3.6%	87	
2008	10	(1)	114	-	113	1,130.0%	123	
2009	(361)	25	138	144	307	(85.0%)	(54)	
2010	489	(34)	16	(146)	(164)	(33.5%)	325	
2011	644	(45)	37	78	70	10.9%	714	
2012	614	(43)	167	(154)	(30)	(4.9%)	584	
2013	1,863	(130)	273	162	305	16.4%	2,168	
2014	3,536	(318)	(906)	(84)	(1,308)	(37.0%)	2,228	
2015	6,796	(408)	172	-	(236)	(3.5%)	6,560	
2016	10,152	1,218	(2,193)	361	(614)	(6.0%)	9,538	
2017	17,546	2,456	(2,145)	1,457	1,768	10.1%	19,314	
2018	7,145	2,847	269	1,117	4,233	59.2%	11,378	
Grand Total	48,423	5,571	(4,059)	2,935	4,447	9.2%	52,870	