ALBERTA GRID RISK SHARING POOL

MAY 2018 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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FACILITY Association

ACTUARIAL HIGHLIGHTS

RSP ALBERTA 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 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 decreased 0.3 points to 89.9%; discount rate increased by 57 basis points; no change to selected margins for adverse deviations
Dec. 31, 2017 (completed)	1.75% mfad: 25 bp	Mar. 2018	update valuation: accident year 2018 loss ratio increased 4.9 points to 90.7%; discount rate decreased by 1 basis point; no change to selected margins for adverse deviations
Mar. 31, 2018 (completed)	1.92% mfad: 25 bp	May 2018	update valuation (roll forward): accident year 2018 loss ratio increased 1.2 points to 91.9%; 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 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, 2018[1]

AB Grid	unfav / (fav) for the month and ytd					
	IMPACT in $000s from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal [1]	apv adj. [2]	sub-tot [3]	apv adj. [4]	apv adj. [5]	TOTAL [6]
PAYs	(1,783)	(215)	(1,998)	(1,211)	-	(3,209)
CAY	817	55	872	(263)	-	609
Prem Def	809	(24)	785	(330)	-	455
TOTAL	(157)	(184)	(341)	(1,804)	-	(2,145)

As indicated in the table above, the incorporation of the new valuation had an estimated ***$2.1 million favourable impact*** on the month's net result from operations, subtracting an estimated 3.2 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **139.2%.**

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

AB Grid	ytd EP 67,152 (actual)					
	IMPACT unfav / (fav) as % ytd EP from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal [1]	apv adj. [2]	sub-tot [3]	apv adj. [4]	apv adj. [5]	TOTAL [6]
PAYs	(2.7%)	(0.3%)	(3.0%)	(1.8%)	-	(4.8%)
CAY	1.2%	0.1%	1.3%	(0.4%)	-	0.9%
Prem Def	1.2%	-	1.2%	(0.5%)	-	0.7%
TOTAL	(0.2%)	(0.3%)	(0.5%)	(2.7%)	-	(3.2%)

The impact of the nominal changes is shown in column [1] of the two preceding summary tables. The change in the selected nominal ultimates was favourable by $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 $1.8 million favourable nominal variance driven by a favourable case reserves correction by a member partially offset by older accident year bodily injury recorded activity which continues to show unfavourable actual experience relative to recorded activity projected from the previous valuation (note that we are not seeing the same level of adverse bodily injury recorded activity in the Non-Grid RSP, nor in the FARM results for Alberta). This favourable impact is 0.6% of the prior accident years' nominal unpaid balance of $279.8 million determined at the end of last month (April 2018).

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

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

The current accident year and premium deficiency impacts are a result of the change in the selected loss ratio for accident year **2018** (up 1.2 points from 90.7% to **91.9%**) while **2019** remained unchanged at **92.2%**.

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 $0.2 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 **1.92%**), indicating a favourable impact of $1.8 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was $1.5 million at May 2018 – this compares to the $1.6 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 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*."

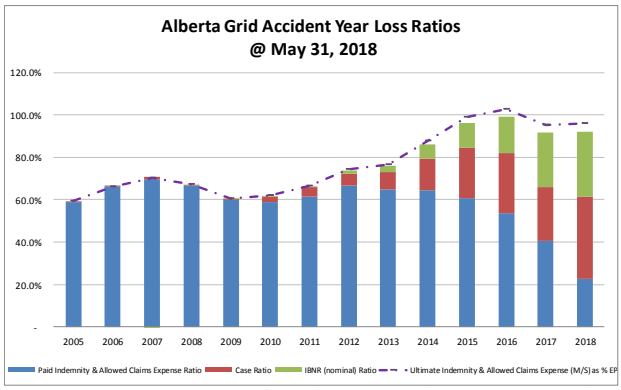
At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

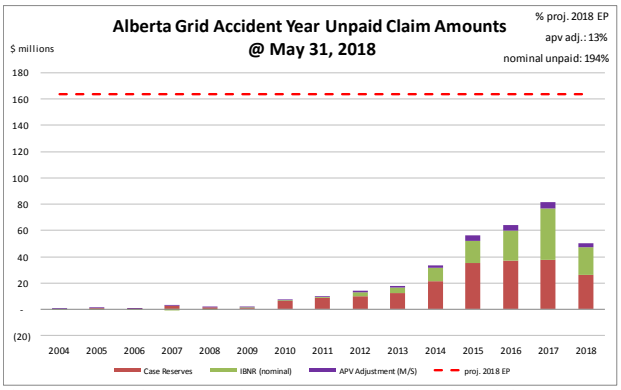
1.5 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities[2] booked by accident year[3]. 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.

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

[3]Accident 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 ($21.9 million – see table immediately below) represents 13% 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	200,896	59.2%
ibnr	116,863	34.4%
M/S apv adjust.	21,878	6.4%
M/S total	339,637	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 pool is in case reserves. Approximately 51% 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	81,722	102.7%
prem def/(dpac)	(6,315)	(7.9%)
M/S apv adjust.	4,152	5.2%
M/S total	79,559	100.0%

policy liabilities ($000s)

	amt	%
claim	317,759	75.8%
premium	75,407	18.0%
M/S apv adjust.	26,030	6.2%
M/S total	419,196	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 Report[4].

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

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

Table 01	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
Accident Year	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	42	42	4,463	(239)	(3,259)	(281)	1,204	(520)
2016	176	176	1,156	(76)	(812)	(777)	344	(853)
2017	1	1	1,916	(490)	(2,130)	(935)	(213)	(1,424)
2018	14,110	(384)	4,647	245	3,737	563	8,384	807
TOTAL	14,329	(165)	12,182	(560)	(2,464)	(1,430)	9,718	(1,991)

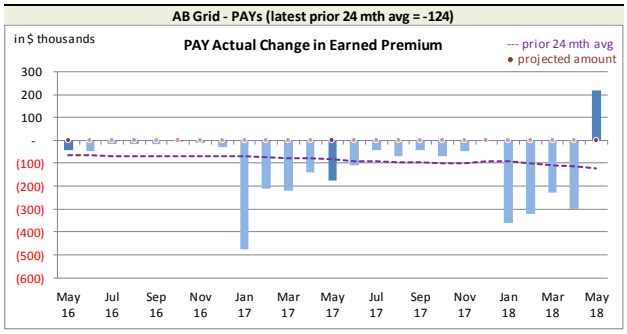
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

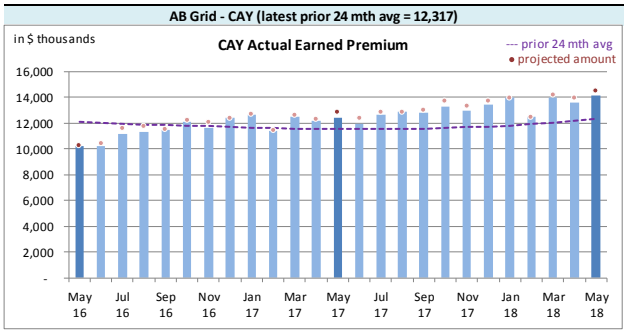
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural "process variance" (i.e. random variation). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of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

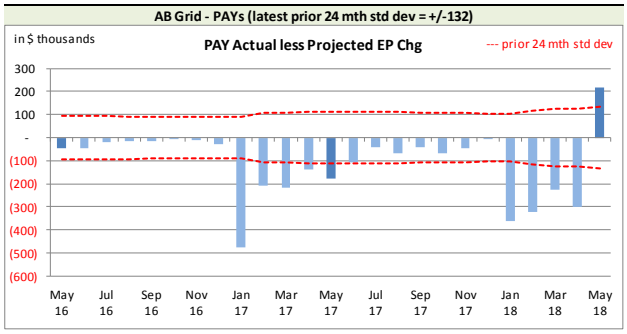
We have noted and have investigated the unusually high level of PAYs earned premium activity earlier in 2017 and January through May 2018, particularly with respect to one member. FA management reviewed and was satisfied with the appropriateness of the 2017 transactions, but continues its investigation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

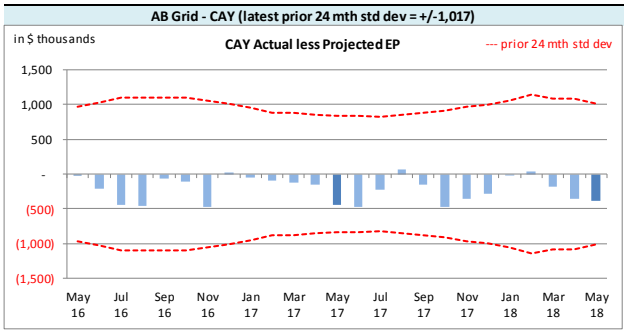
The associated variances between the actual changes and the projections from the previous month are shown in the charts at the top of the next page. **Earned premium** change projections are all attributed to the current accident year as the projection upload does not accept earned premium changes for other accident years. We do not see this limitation as being significant for our purposes,

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

but it does mean that the actual less projection variance will equal the actual **earned premium** change in relation to prior accident years.

Alberta Grid RSP Actual vs. Projected Summary: ***Earned Premium*** *Variances by Calendar Month*





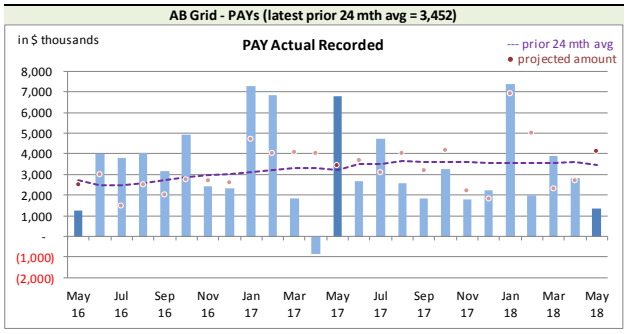
On Latest $ thousands		
Earned Premium	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)	(124)	12,317
std dev	132	1,017
A-P <> std dev	10	-
% <> std dev	40.0%	0.0%
norm <> std dev	31.7%	31.7%

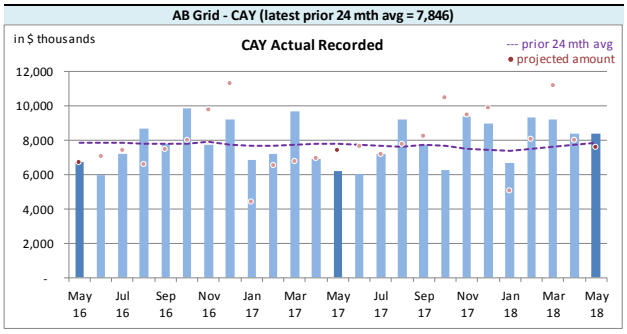
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias[6], with actuals generally lower than projected, although the magnitude is not high relative to monthly premium. In addition to the PAYs' bias, the CAY has also shown bias[7], with actuals being generally lower than projected, and we modified our projections processes in response, but bias still exists. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

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 Grid RSP Actual **Recorded** *by Calendar Month*



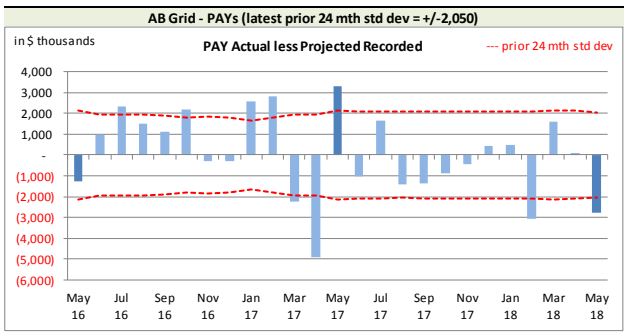


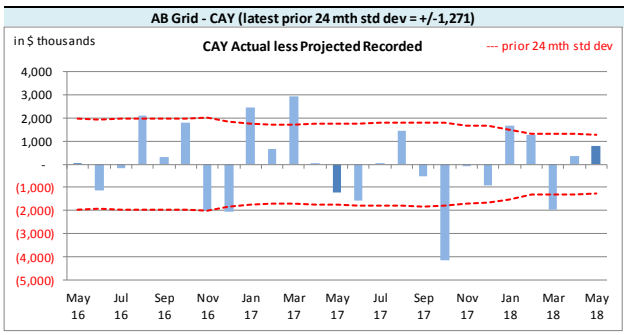
[6]The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

[7]We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (24 in this case) and 50% probability of success. The 24-month variances at May 2018 has only 3 months where the actuals were 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 Grid RSP Actual vs Projected Summary: **Recorded** Variances by Calendar Month*





On Latest $ thousands		
Recorded	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	3,452	7,846
std dev	2,050	1,271
A-P <> std dev	9	8
% <> std dev	36.0%	32.0%
norm <> std dev	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 36% of the prior accident years' (PAYs) variances (left chart above) over the last 25 months have fallen outside of one standard deviation of the actual **recorded** amounts, suggesting the projection process has performed no better than simply projecting from the prior 24-month average. 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. The activity was reviewed and confirmed, with the favourable variance attributed to a combination of process variance and a poor projection partially offset by a member reinstating missing claims (see details below).

During the month, a member company 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 32% of the time, which suggests that the projection process has performed no 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.

We note that there may be a change in the levels of CAY **recorded** and **paid** activity relative to year-to-date **earned premium**, as evidenced by the average of monthly ratios over the past several years shown in the tables at the top of the next page. These tables show, in each row, the average monthly ratio for each calendar year. That is, each row in the left table (as at Dec) provides the average of the 12 monthly-ratios (i.e. Jan, Feb, ... Dec) for that row's calendar year, whereas each row in the right table (as at May) provides the average of the 5 monthly ratios (i.e. Jan-May) for that row's calendar year.

Alberta Grid RSP year-to-date CAY claims activity (ratio to EP)

CAY avg of mthly ratios for yr

as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
Dec 2009	11.5%		4.4%	
Dec 2010	10.9%	(0.6%)	4.5%	0.1%
Dec 2011	12.8%	1.9%	4.8%	0.3%
Dec 2012	12.4%	(0.4%)	4.7%	(0.1%)
Dec 2013	12.6%	0.2%	4.8%	0.1%
Dec 2014	13.8%	1.2%	5.3%	0.5%
Dec 2015	14.4%	0.6%	5.5%	0.2%
Dec 2016	14.0%	(0.4%)	5.4%	(0.1%)
Dec 2017	15.5%	1.5%	5.6%	0.2%

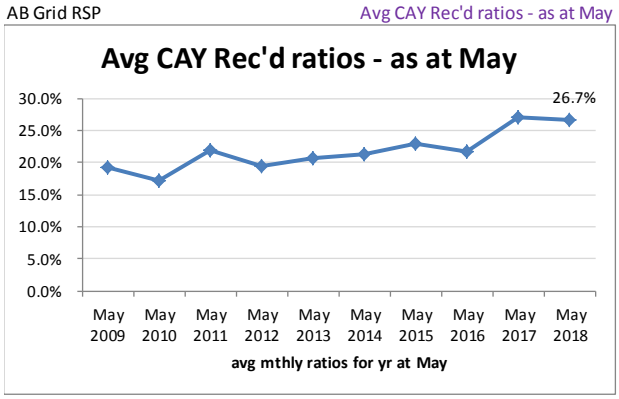
CAY avg of mthly ratios for yr

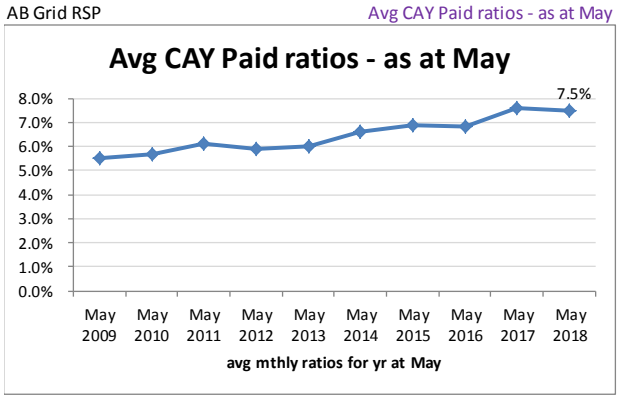
as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
May 2009	19.3%		5.5%	
May 2010	17.1%	(2.2%)	5.7%	0.2%
May 2011	22.0%	4.9%	6.1%	0.4%
May 2012	19.4%	(2.6%)	5.9%	(0.2%)
May 2013	20.6%	1.2%	6.0%	0.1%
May 2014	21.3%	0.7%	6.6%	0.6%
May 2015	23.0%	1.7%	6.9%	0.3%
May 2016	21.6%	(1.4%)	6.8%	(0.1%)
May 2017	27.0%	5.4%	7.6%	0.8%
May 2018	26.7%	(0.3%)	7.5%	(0.1%)

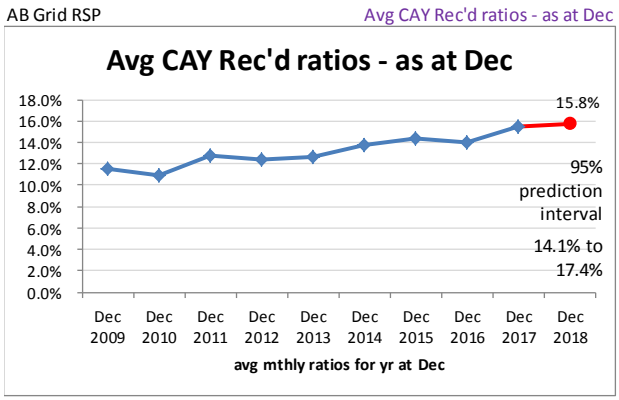
Both **recorded** and **paid** monthly average ratios for the 12-months at Dec. 2017 relative to Dec. 2009 have increased at an annual rate of almost 4% over and above any premium rate level increases. At this point, we are only monitoring, but the valuation team has been advised and is taking this information into consideration. Further, while the average of the 12 monthly ratios at December for 2016 was down from 2015, the December 12-month average ratios for calendar year 2017 were at the highest level for both **recorded** and **paid**.

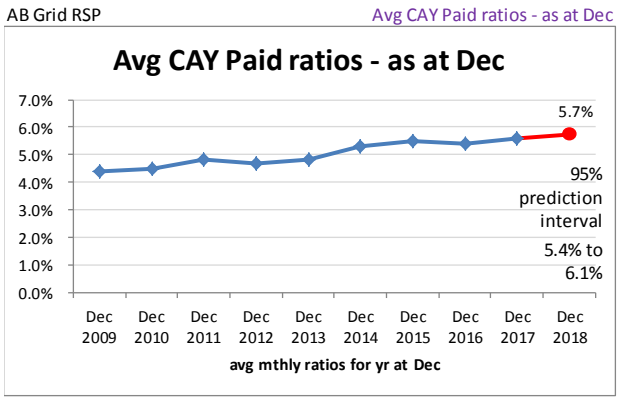
As can be seen in the right table above, (average of 5 months to May of each year), both the **recorded** and **paid** ratios were the second highest ratios in the last 10 years, though down from 2017 (the highest **recorded** and **paid** ratios). While we acknowledge that these average ratios are more volatile earlier in the year due to smaller year-to-date earned premium levels, there has been strong (over 95%) correlation between the ytd monthly average ratios at May each year and the corresponding monthly average ratios at December, suggesting the monthly average ratios for 2018 at May (that is, the average of the 5 monthly ratios Jan 2018 to May 2018) are predictive of where the 2018 monthly average ratios will be at year-end (that is, the 12 monthly ratios Jan 2018 – Dec 2018). Using simple regression, we forecast the average of the 12 monthly ratios for calendar year 2018 (i.e. the average of the monthly ratios for Jan 2018 – Dec 2018) will be 15.8% (95% prediction interval of 14.1% to 17.4%) for recorded and 5.7% (95% prediction interval of 5.4% to 6.1%) for paid. The results are presented in charts at the top of the next page.

Alberta Grid RSP average of monthly CAY claims activity ratios to EP







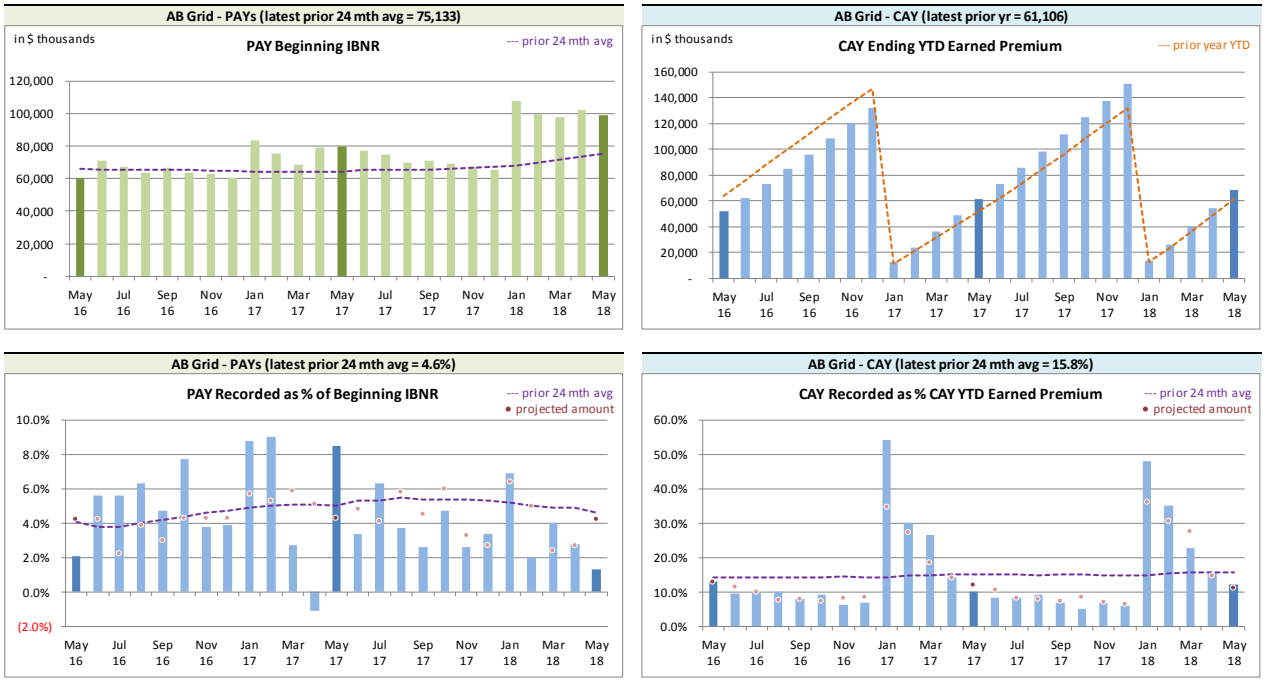


We are taking this information into consideration as part of our projection process.

The method for establishing IBNR adjusts automatically for changes in **earned premium** and **recorded** claims activity level (see sections 2.2 and 3).

We have included, for reference, additional charts at the top of the next page related to levels influencing **recorded** activity. Note in particular the changes in the level of PAY beginning IBNR over the months, as a response to valuations and showing up as a beginning IBNR change one month after the valuation is implemented (i.e. April, June, September, and November).

Alberta Grid RSP Levels that influence[8] ***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:

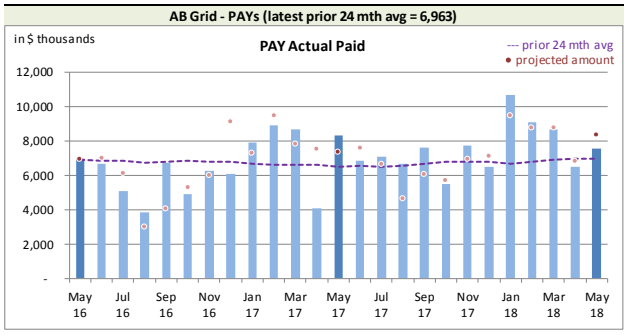
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years' ultimate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

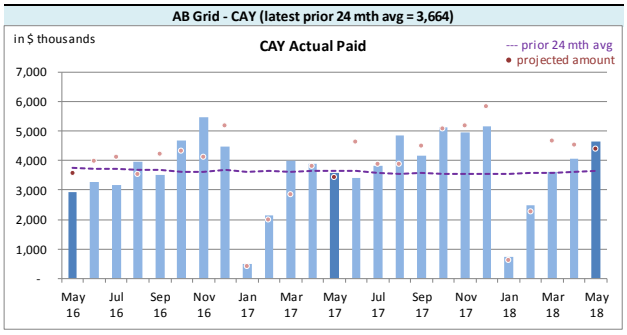
2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

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.

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

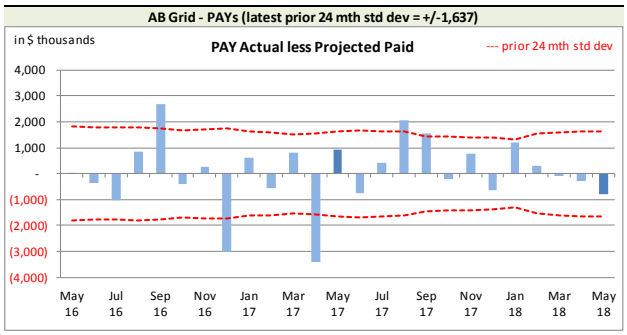
*Alberta Grid RSP Actual **Paid** activity by Calendar Month*

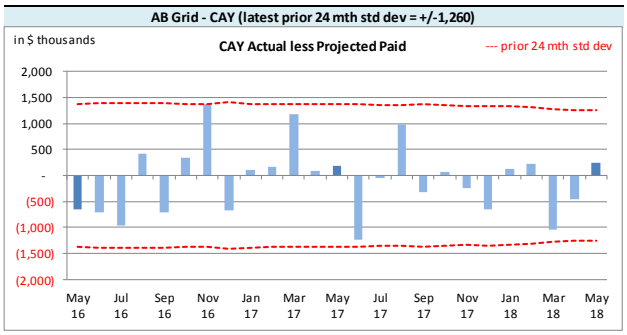




Paid activity variances from the previous month's projections are shown in the charts immediately below, including the "prior 24-month standard deviation" levels to show how the variances from projection compare with historical standard deviations.

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





On Latest $ thousands		
Paid	PAYs	CAY
Mthly Avg Paid (prior 24 mths)	6,963	3,664
std dev	1,637	1,260
A-P <> std dev	5	-
% <> std dev	20.0%	0.0%
norm <> std dev	31.7%	31.7%

With respect to **paid** indemnity & allowed claims expense, the prior accident years' (PAYs) variances (left chart above) have fallen outside one standard deviation of the overall period 20% of the time, suggesting the projection process has performed better than simply projecting from the preceding 24-month average. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

The current accident year (CAY) **paid** variances (right chart above) have **not** fallen outside one standard deviation of the overall period, suggesting the projection process has performed better than simply projecting from the preceding 24-month average. No bias has 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 Grid RSP Levels that influence[9] ***Paid*** *activity by Calendar Month*

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

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

2.2 Actuarial Provisions

An "ultimate loss ratio matching method" (described in section 3) is used to determine the month's IBNR[10], 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

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

[10]For 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 Grid RSP Actual vs Projected Summary: IBNR and APV Amounts ($ thousands)

Table 02

	IBNR		actuarial present value adjustments: Discount Amount		Provisions for Adverse Deviations		IBNR + actuarial present value adjustments	
Accident Year	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	34,429	1,345	(5,378)	(528)	14,829	77	43,880	894
2016	22,854	112	(3,046)	(208)	7,443	(113)	27,251	(209)
2017	38,915	(224)	(4,292)	(246)	9,437	(328)	44,060	(798)
2018	20,665	(338)	(2,683)	(247)	5,568	(1)	23,550	(586)
TOTAL	116,863	895	(15,399)	(1,229)	37,277	(365)	138,741	(699)

The IBNR provision is $0.9 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 at the top of the next page summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in the May 2018 Operational Report and the one-month projections from last month's Report. This RSP is in a deferred policy acquisition cost asset position (shown as a negative amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments decrease the asset 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 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:	(6,315)	1,144	4,152	(567)	(2,163)	577
balance as % unearned premium:	(7.7%)	1.0%	5.1%	(0.4%)	(2.6%)	0.6%
actual unearned premium:	81,722					
less projected:	(3,877)					

3 Ultimate Loss Ratio Matching Method

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

(a) Earned premium to-date
(b) Ultimate loss[11] 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 at the top of the next page summarizes the calendar year-to-date results for indemnity & allowed claims expenses[12], 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 93.2% rather than 91.9% (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 Grid RSP Summary of Operations due to rounding.)

[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).

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

Alberta 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	6,123	9.1%	(1,537)	(2.3%)	4,586	6.8%	(3,528)	(8.6%)
CAY	62,608	93.2%	2,885	4.3%	65,493	97.5%	13,952	(0.1%)
TOTAL	68,731	102.4%	1,348	2.0%	70,079	104.4%	10,424	(8.5%)

("% 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.

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 presented in section 6, Exhibit B, refer to the estimates derived on the basis of various actuarial methodologies applied to the experience of the Alberta 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	Amounts in $000s					
	Accident Year	Actual Apr 2018	Actual May 2018	Projected Jun 2018	Projected Jul 2018	Projected Dec 2018
	2004	(72)	(71)	(71)	(71)	(71)
	2005	24	21	19	18	18
	2006	(140)	(121)	(116)	(114)	(84)
	2007	(811)	(969)	(919)	(903)	(668)
	2008	112	103	99	93	77
	2009	273	613	581	568	431
	2010	1,304	1,048	996	966	755
	2011	1,577	777	739	712	575
	2012	4,019	3,904	3,708	3,616	2,768
discount rate	2013	6,580	5,674	5,391	5,263	4,012
1.92%	2014	11,677	11,830	11,198	10,694	8,455
	2015	20,511	21,071	19,972	19,253	16,098
interest rate margin	2016	28,754	27,251	26,249	24,847	21,483
25 basis pts	2017	46,245	44,060	42,738	41,128	36,508
	2018	17,982	23,550	28,804	34,270	45,356
	TOTAL	138,035	138,741	139,388	140,340	135,713
	Change		706	647	952	

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
51.6%	2004	(80)	(79)	(79)	(79)	(79)
59.3%	2005	(45)	(45)	(43)	(42)	(32)
66.3%	2006	(148)	(129)	(123)	(121)	(90)
70.3%	2007	(954)	(1,084)	(1,030)	(1,009)	(755)
67.1%	2008	2	(2)	(2)	(2)	(2)
60.5%	2009	159	516	490	480	359
61.9%	2010	825	606	576	564	423
66.1%	2011	861	187	178	174	131
73.9%	2012	3,055	3,010	2,859	2,802	2,097
76.0%	2013	5,392	4,586	4,357	4,270	3,195
86.3%	2014	9,601	9,911	9,316	8,850	6,921
96.1%	2015	16,140	16,952	15,935	15,298	12,594
99.4%	2016	23,939	22,854	21,940	20,624	17,704
91.7%	2017	40,350	38,915	37,748	36,238	32,088
91.9%	2018	15,434	20,665	25,414	30,356	39,412
	TOTAL	114,531	116,863	117,536	118,403	113,966
	Change		2,332	673	867	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C — Amounts in $000s

Premium Liabilities	Actual Apr 2018	Actual May 2018	Projected Jun 2018	Projected Jul 2018	Projected Dec 2018
(1) unearned premium (UP)	82,301	81,722	83,393	83,250	79,553
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	96.7%	97.4%	97.4%	97.4%	97.6%
(3) expected future costs {(1) x (2)}	79,574	79,559	81,207	81,092	77,655
(4) premium deficiency / (deferred policy acquisition cost)	(2,727)	(2,163)	(2,186)	(2,158)	(1,898)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	91.2%	92.3%	92.3%	92.3%	92.5%
(6) expected future costs {(1) x (5)}	75,041	75,407	76,969	76,860	73,602
(7) premium deficiency / (deferred policy acquisition cost)	(7,260)	(6,315)	(6,424)	(6,390)	(5,951)

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 Grid	Projected Balances as at Dec. 31, 2018 ($000s)									
ending 2018	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	-	(79)	(79)	-	-	8	-	8	8	(71)
2005	673	(32)	641	(15)	2	64	(1)	63	50	691
2006	169	(90)	79	(2)	-	8	-	8	6	85
2007	1,965	(755)	1,210	(35)	5	121	(4)	117	87	1,297
2008	1,134	(2)	1,132	(35)	5	113	(4)	109	79	1,211
2009	684	359	1,043	(33)	4	104	(3)	101	72	1,115
2010	4,553	423	4,976	(169)	20	498	(17)	481	332	5,308
2011	6,651	131	6,782	(244)	34	678	(24)	654	444	7,226
2012	7,812	2,097	9,909	(327)	40	991	(33)	958	671	10,580
2013	9,289	3,195	12,484	(437)	50	1,248	(44)	1,204	817	13,301
2014	18,234	6,921	25,155	(1,006)	126	2,515	(101)	2,414	1,534	26,689
2015	31,611	12,594	44,205	(2,033)	265	5,526	(254)	5,272	3,504	47,709
2016	33,615	17,704	51,319	(2,617)	308	6,415	(327)	6,088	3,779	55,098
2017	33,772	32,088	65,860	(3,688)	461	8,101	(454)	7,647	4,420	70,280
PAYs (sub-total):	150,162	74,554	224,716	(10,641)	1,320	26,390	(1,266)	25,124	15,803	240,519
CAY (2018)	57,601	39,412	97,013	(5,530)	679	11,448	(653)	10,795	5,944	102,957
claims liabilities:	207,763	113,966	321,729	(16,171)	1,999	37,838	(1,919)	35,919	21,747	343,476
	Unearned Premium	Premium Defiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	79,553	(5,951)	73,602	(3,447)	440	7,408	(348)	7,060	4,053	77,655
										*Total may not be sum of parts, as apvs apply to future costs within UPR
policy liabilities:			**395,331**	**(19,618)**	**2,439**	**45,246**	**(2,267)**	**42,979**	**25,800**	**421,131**

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	Accident Benefits	Other Coverages	Total
	Margins	Margins	Margins	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%	9.9%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	10.0%	10.0%	10.0%	10.0%
2015	12.5%	10.0%	12.5%	12.5%
2016	12.5%	10.0%	12.5%	12.5%
2017	12.4%	10.0%	12.0%	12.3%
2018	12.1%	10.0%	7.0%	11.8%
2019	11.8%	10.0%	5.1%	10.1%
prem liab	11.8%	10.0%	5.1%	10.1%

discount rate:	1.92%
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 (1.92%), the prior valuation assumption (1.75%) 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

	Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2018 projected Unpaid							
AY	0.92%	1.42%	1.92%	2.42%	2.92%	3.42%	1.75%	1.76%
2004	-	-	-	-	-	-	-	-
2005	741	737	732	728	724	719	734	734
2006	231	229	227	225	224	222	228	228
2007	1,521	1,510	1,498	1,487	1,476	1,465	1,502	1,502
2008	981	973	965	958	950	942	968	968
2009	1,378	1,366	1,355	1,344	1,333	1,322	1,359	1,358
2010	5,358	5,309	5,262	5,216	5,170	5,126	5,278	5,278
2011	7,248	7,180	7,112	7,047	6,983	6,919	7,135	7,134
2012	10,447	10,356	10,268	10,182	10,097	10,014	10,298	10,297
2013	14,153	14,022	13,893	13,767	13,645	13,524	13,936	13,934
2014	28,146	27,850	27,561	27,283	27,006	26,739	27,660	27,656
2015	48,042	47,460	46,889	46,337	45,796	45,274	47,080	47,072
2016	56,869	56,098	55,342	54,607	53,893	53,198	55,594	55,583
2017	72,937	71,849	70,785	69,751	68,748	67,773	71,136	71,121
2018	115,901	114,137	112,428	110,772	109,167	107,610	113,006	112,969
Total	363,953	359,076	354,317	349,704	345,212	340,847	355,914	355,834
	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	0.92%	1.42%	1.92%	2.42%	2.92%	3.42%	1.75%	1.76%
Total	9,636	4,759	-	(4,613)	(9,105)	(13,470)	1,597	1,517
	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	0.92%	1.42%	1.92%	2.42%	2.92%	3.42%	1.75%	1.76%
2004	-	-	-	-	-	-	-	-
2005	1.2%	0.7%	-	(0.5%)	(1.1%)	(1.8%)	0.3%	0.3%
2006	1.8%	0.9%	-	(0.9%)	(1.3%)	(2.2%)	0.4%	0.4%
2007	1.5%	0.8%	-	(0.7%)	(1.5%)	(2.2%)	0.3%	0.3%
2008	1.7%	0.8%	-	(0.7%)	(1.6%)	(2.4%)	0.3%	0.3%
2009	1.7%	0.8%	-	(0.8%)	(1.6%)	(2.4%)	0.3%	0.2%
2010	1.8%	0.9%	-	(0.9%)	(1.7%)	(2.6%)	0.3%	0.3%
2011	1.9%	1.0%	-	(0.9%)	(1.8%)	(2.7%)	0.3%	0.3%
2012	1.7%	0.9%	-	(0.8%)	(1.7%)	(2.5%)	0.3%	0.3%
2013	1.9%	0.9%	-	(0.9%)	(1.8%)	(2.7%)	0.3%	0.3%
2014	2.1%	1.0%	-	(1.0%)	(2.0%)	(3.0%)	0.4%	0.3%
2015	2.5%	1.2%	-	(1.2%)	(2.3%)	(3.4%)	0.4%	0.4%
2016	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.9%)	0.5%	0.4%
2017	3.0%	1.5%	-	(1.5%)	(2.9%)	(4.3%)	0.5%	0.5%
2018	3.1%	1.5%	-	(1.5%)	(2.9%)	(4.3%)	0.5%	0.5%
Total	2.7%	1.3%	-	(1.3%)	(2.6%)	(3.8%)	0.5%	0.4%
	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 Grid
AccountCode Desc	IBNR - Discou d

M/S IBNR - in $000s

AccYear	Values 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	Sum of Current Month Final Amount
2004	(72)	-	1	-	1	(1.4%)	(71)
2005	24	(3)	2	(2)	(3)	(12.5%)	21
2006	(140)	3	16	-	19	(13.6%)	(121)
2007	(811)	21	(174)	(5)	(158)	19.5%	(969)
2008	112	(6)	1	(4)	(9)	(8.0%)	103
2009	273	(10)	76	274	340	124.5%	613
2010	1,304	(49)	49	(256)	(256)	(19.6%)	1,048
2011	1,577	(63)	(920)	183	(800)	(50.7%)	777
2012	4,019	(140)	266	(241)	(115)	(2.9%)	3,904
2013	6,580	(221)	(160)	(525)	(906)	(13.8%)	5,674
2014	11,677	(544)	374	323	153	1.3%	11,830
2015	20,511	(1,056)	1,055	561	560	2.7%	21,071
2016	28,754	(1,294)	1,049	(1,258)	(1,503)	(5.2%)	27,251
2017	46,245	(1,387)	1,461	(2,259)	(2,185)	(4.7%)	44,060
2018	17,982	6,154	(1,195)	609	5,568	31.0%	23,550
Grand Total	**138,035**	**1,405**	**1,901**	**(2,600)**	**706**	**0.5%**	**138,741**

EXHIBIT G

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

RSP	Alberta Grid
AccountCode Desc	IBNR - Undisc…nted

IBNR - in $000s

	Values						
AccYear	**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**	**Sum of Current Month Final Amount**
2004	(80)	-	1	-	1	(1.3%)	(79)
2005	(45)	1	(1)	-	-	-	(45)
2006	(148)	4	15	-	19	(12.8%)	(129)
2007	(954)	29	(159)	-	(130)	13.6%	(1,084)
2008	2	-	(4)	-	(4)	(200.0%)	(2)
2009	159	(5)	103	259	357	224.5%	516
2010	825	(25)	25	(219)	(219)	(26.5%)	606
2011	861	(26)	(848)	200	(674)	(78.3%)	187
2012	3,055	(92)	231	(184)	(45)	(1.5%)	3,010
2013	5,392	(162)	(204)	(440)	(806)	(14.9%)	4,586
2014	9,601	(480)	356	434	310	3.2%	9,911
2015	16,140	(968)	1,047	733	812	5.0%	16,952
2016	23,939	(1,197)	1,029	(917)	(1,085)	(4.5%)	22,854
2017	40,350	(1,211)	1,425	(1,649)	(1,435)	(3.6%)	38,915
2018	15,434	5,569	(1,155)	817	5,231	33.9%	20,665
Grand Total	**114,531**	**1,437**	**1,861**	**(966)**	**2,332**	**2.0%**	**116,863**