



ALBERTA GRID RISK SHARING POOL

OCTOBER 2017 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS
RSP ALBERTA GRID
OPERATIONAL REPORT
OCTOBER 2017

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2017)

The October 2017 Operational Report incorporates the results of an updated valuation (as at September 30, 2017) – 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 2017.

ALBERTA GRID RISK SHARING POOL FISCAL YEAR 2017 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2016 (completed)	0.54% mfad: 25 bp	Oct. 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 2.0 points to 83.5%; discount rate decreased by 6 basis points; no change to selected margins for adverse deviations
Dec. 31, 2016 (completed)	1.06% mfad: 25 bp	Mar. 2017	updated valuation: accident year 2016 loss ratio increased 5.8 points to 89.3%; accident year 2017 loss ratio increased 6.3 points to 84.2%; discount rate increased by 52 basis points; no change to selected margins for adverse deviations
Mar. 31, 2017 (completed)	0.98% mfad: 25 bp	May 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 2.3 points to 86.5%; discount rate decreased by 8 basis points; no change to selected margins for adverse deviations
Jun. 30, 2017 (completed)	1.19% mfad: 25 bp	Aug. 2017	updated valuation: accident year 2017 loss ratio increased 3.7 points to 90.2%; discount rate increased by 21 basis points; selected margins for adverse deviations were updated
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

Under the proposed schedule for fiscal year 2017, the “off-half” valuation quarters ending March 31, 2017 and September 30, 2017 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 September 30, 2017 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 early December.

The valuation implementation impact is summarized in the tables below.

Summary of Impact (\$000s) of Implementing Result of Valuation as at September 30, 2017¹

AB 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	1,493	192	1,685	(3,790)	-	(2,105)
CAY	(374)	(31)	(405)	(1,446)	-	(1,851)
Prem Def	(2,804)	(42)	(2,846)	(1,230)	-	(4,076)
TOTAL	(1,685)	119	(1,566)	(6,466)	-	(8,032)

As indicated in the table above, the incorporation of the new valuation had an estimated **\$8.0 million favourable impact** on the month’s net result from operations, subtracting an estimated 6.5 points (see table immediately below) from the **year-to-date Combined Operating Ratio** to end at **137.2%**.

Summary of Impact (% YTD EP) of Implementing Result of Valuation as at September 30, 2017

AB Grid	ytd EP 123,127 (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	1.2%	0.2%	1.4%	(3.1%)	-	(1.7%)
CAY	(0.3%)	-	(0.3%)	(1.2%)	-	(1.5%)
Prem Def	(2.3%)	-	(2.3%)	(1.0%)	-	(3.3%)
TOTAL	(1.4%)	0.1%	(1.3%)	(5.3%)	-	(6.5%)

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 \$1.7 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 \$1.5 million unfavourable variance as recorded claims activity continues to show unfavourable actual experience relative to recorded activity projected

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.

from the previous valuation, particularly with respect to bodily injury (within third party liability) recorded activity). This unfavourable impact is 0.6% of the prior accident years' nominal unpaid balance of \$235.1 million determined at the end of last month (September 2017).

The current accident year and premium deficiency impacts are a result of the change in the selected loss ratio for accident year **2017** (down 0.3 point from 90.2% to **89.9%**) and **2018** (down 4.1 points from 89.9% to **85.8%**).

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

Column [2] recognizes that changing the nominal selections also changed the unpaid estimates (including changes to the relative mix by government line, which had an impact on the weighted-average MfADs). It also reflects the fact that we updated the projected emergence of claims payments, resulting in a change in the projected cash flows. These changes generated an unfavourable change of \$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 September 2017. Column [4] accounts for the change in the **discount rate** selected (increased 57 basis points to **1.76%**), indicating a favourable impact of \$6.5 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$5.2 million at October 2017 (projected \$5.3 million impact at December 31, 2017) – this compares to the \$5.3 million change one would estimate as the impact by interpolation using the interest rate sensitivity table provided in last month's Actuarial Highlights.

Column [5] accounts for any changes to selected MfADs. The selected **investment rate MfAD** was **left unchanged at 25 basis points** and the selected **claims development MfADs** at the coverage and accident year level were **left unchanged** as well.

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

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 (there have been no changes in these descriptions since last month's Highlights).

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.”*

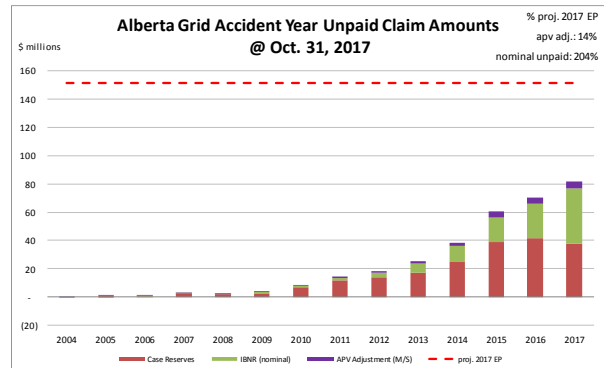
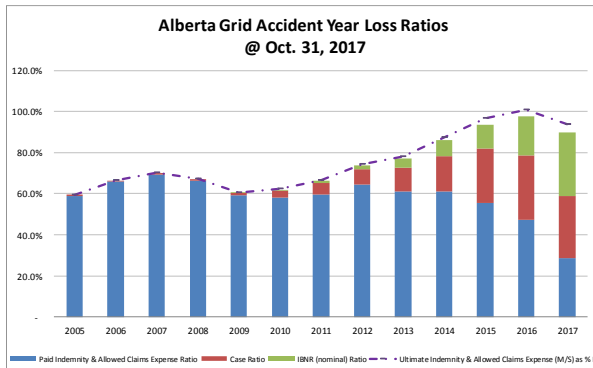
At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

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 2017 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 (\$20.6 million – see table immediately below) represents 14% of the earned premium projected for the full year 2017 (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	201,447	61.4%
ibnr	106,177	32.4%
M/S apv adjust.	20,569	6.3%
M/S total	328,193	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 60% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 84% of the M/S total claim

liabilities are related to accident years 2013–2017 inclusive (i.e. the most recent 5 accident years).

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

premium liabilities (\$000s)	amt	%
unearned prem	91,739	108.2%
prem def/(dpac)	(11,708)	(13.8%)
M/S apv adjust.	4,747	5.6%
M/S total	84,778	100.0%

policy liabilities (\$000s)	amt	%
claim	307,624	74.5%
premium	80,031	19.4%
M/S apv adjust.	25,316	6.1%
M/S total	412,971	100.0%

2 Activity During the Month of October 2017

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

Accident Year	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	(23)	(23)	3,408	767	(2,367)	(1,059)	1,041	(292)
2015	(18)	(18)	1,173	68	269	193	1,442	261
2016	(30)	(30)	921	(1,026)	(150)	158	771	(868)
2017	13,251	(468)	5,138	61	1,145	(4,216)	6,283	(4,155)
TOTAL	13,181	(538)	10,640	(130)	(1,104)	(4,925)	9,535	(5,055)

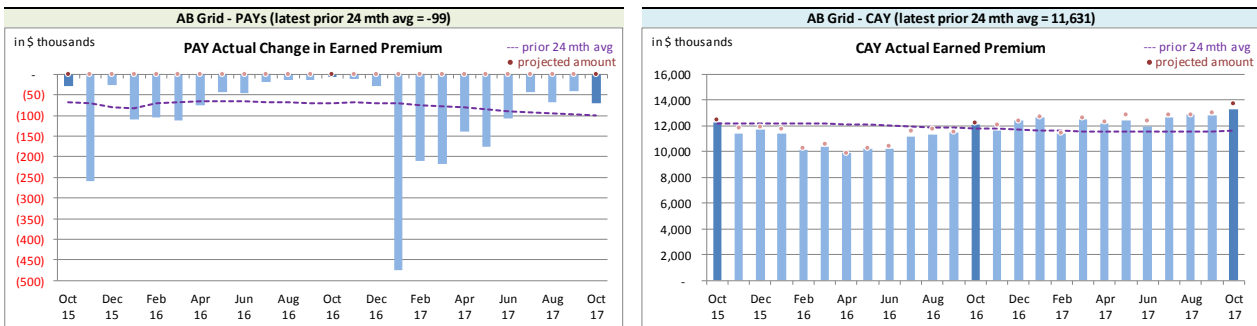
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

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.

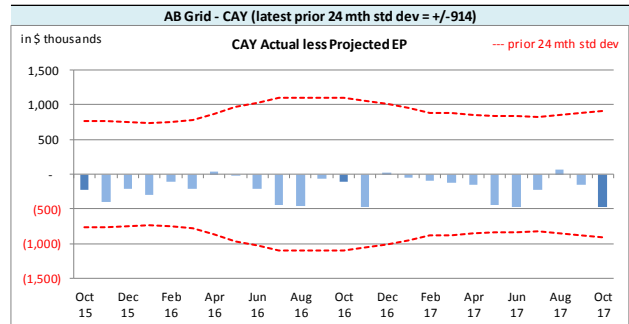
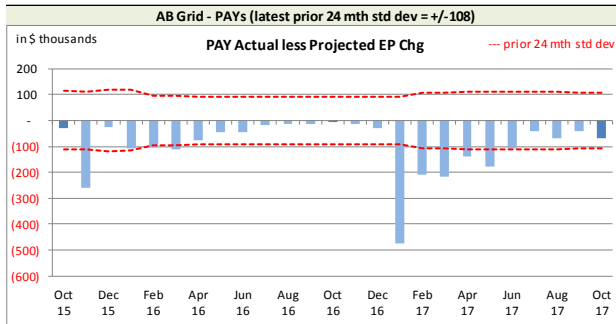
We have noted and have been investigating the unusually high level of PAYs earned premium activity earlier in 2017, particularly with respect to one member and we are in discussions with that member to better understand the causes of the changes.

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, but it does mean that the actual less projection variance will equal the actual **earned premium**

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.

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)	(99)	11,631
std dev	108	914
A-P <> std dev	8	-
% <> std dev	32.0%	0.0%
norm <> std dev	31.7%	31.7%

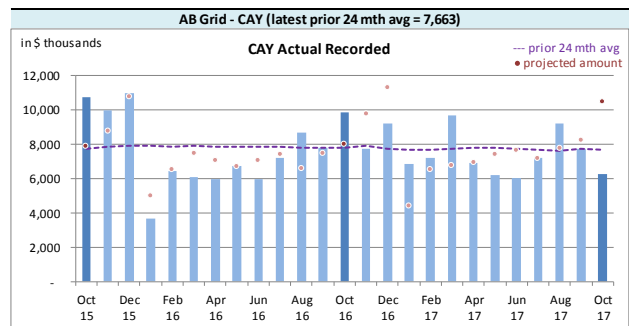
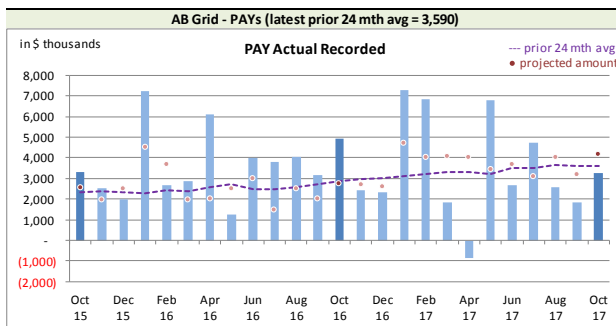
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁶, with actuals generally lower than projected. However, the magnitude is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

premium. In addition to the PAYs' bias, the CAY has also shown bias, with actuals being generally lower than projected. Starting with the August 2016 projections, we have modified our projection processes in an attempt to account for CAY bias. 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.

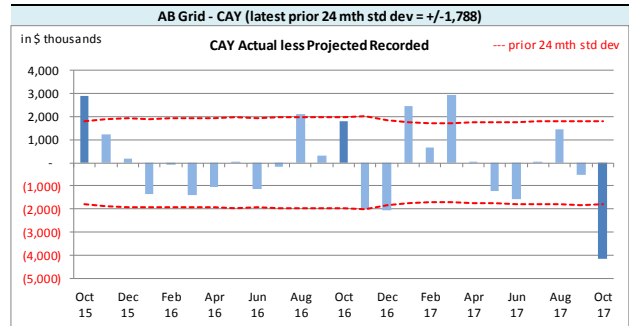
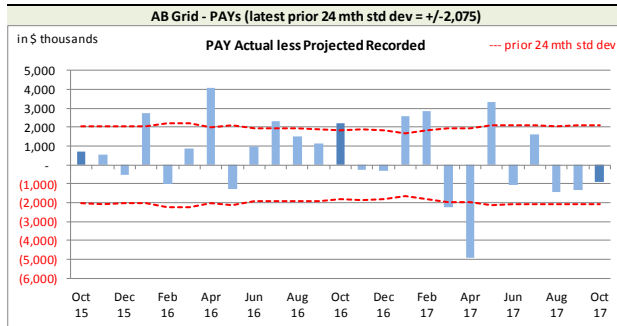
Alberta Grid RSP Actual Recorded by Calendar Month



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

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

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



On Latest \$ thousands		
Recorded	PAYS	CAY
Mthly Avg Recorded (prior 24 mths)	3,590	7,663
std dev	2,075	1,788
A-P <> std dev	9	7
% <> std dev	36.0%	28.0%
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 is performing no better than simply

projecting from the prior 24-month average. From the end of 2015 until the end of 2016 there may have been evidence of bias in the projections with actuals being higher than projections. A similar pattern was not evident in the **paid** activity where actuals have generally been lower than projections over the same timeframe, suggesting there may be changes in case reserve activity. We have not identified the same potential “case reserve” effect for the Alberta non-Grid RSP (there, both **recorded** and **paid** activity appear to be moving in tandem). This has also been noted by the valuation team and investigation continues.

The current accident year (CAY) **recorded** variances (right chart above), have been greater than one standard deviation 28% of the time, which suggests that the projection process appears to perform no better than simply projecting the most recent prior 24-month average.

The CAY **recorded** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed.

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 October) provides the average of the 9 monthly ratios (i.e. Jan-Oct) for that row’s calendar year.

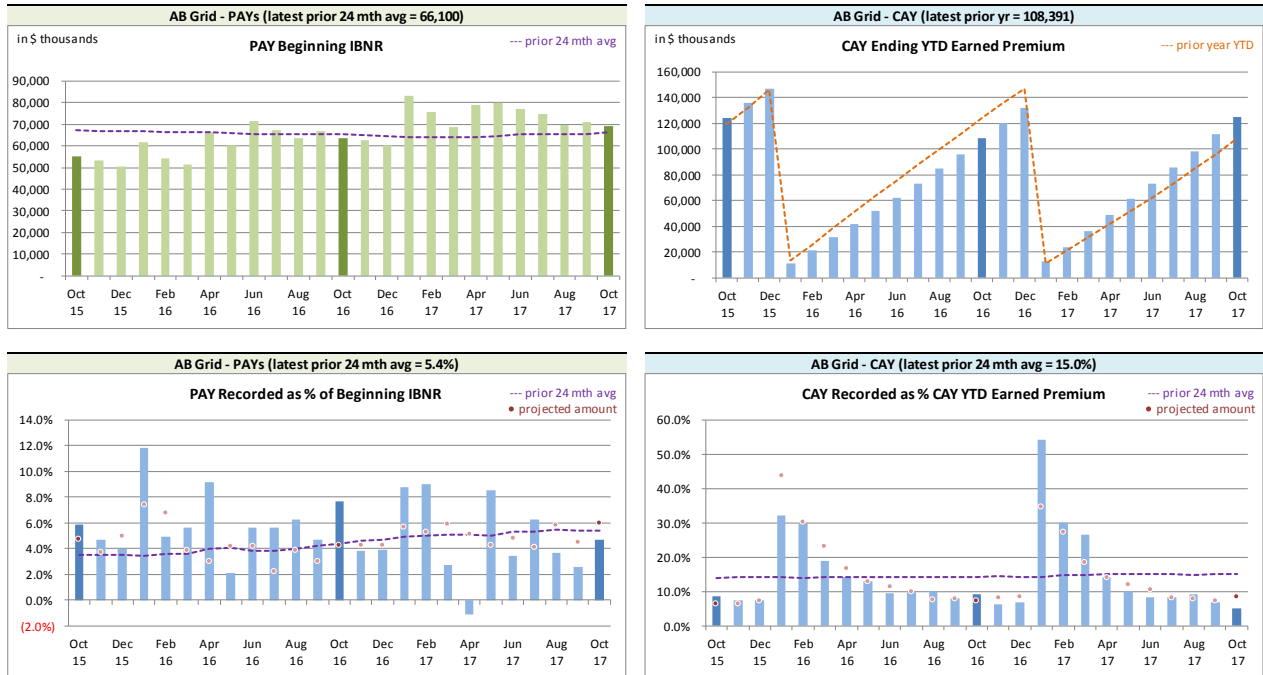
CAY avg of mthly ratios for yr					CAY avg of mthly ratios for yr				
as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg	as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
Dec 2009	11.5%		4.4%		Oct 2009	12.8%		4.7%	
Dec 2010	10.9%	(0.6%)	4.5%	0.1%	Oct 2010	12.0%	(0.8%)	4.7%	0.0%
Dec 2011	12.8%	1.9%	4.8%	0.3%	Oct 2011	14.2%	2.2%	5.1%	0.4%
Dec 2012	12.4%	(0.4%)	4.7%	(0.1%)	Oct 2012	13.6%	(0.6%)	5.0%	(0.1%)
Dec 2013	12.6%	0.2%	4.8%	0.1%	Oct 2013	13.7%	0.1%	5.2%	0.2%
Dec 2014	13.8%	1.2%	5.3%	0.5%	Oct 2014	14.9%	1.2%	5.6%	0.4%
Dec 2015	14.4%	0.6%	5.5%	0.2%	Oct 2015	15.8%	0.9%	5.9%	0.3%
Dec 2016	14.0%	(0.4%)	5.4%	(0.1%)	Oct 2016	15.5%	(0.3%)	5.7%	(0.2%)
					Oct 2017	17.3%	1.8%	6.0%	0.3%

Both **recorded** and **paid** ratios for Dec. 2016 relative to Dec. 2009 have increased at an annual rate of almost 3% over and above any premium rate level increases. At this point, we are only monitoring, but the valuation team has been advised and are taking this information into consideration. Further, while the average of the 12 monthly ratios at December for 2016 was down from 2015, they were still the second highest ratios overall, and the 10-month average ratios for calendar year 2017 are at the highest levels in the October table for both **recorded** and **paid**.

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 influence⁷ 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:

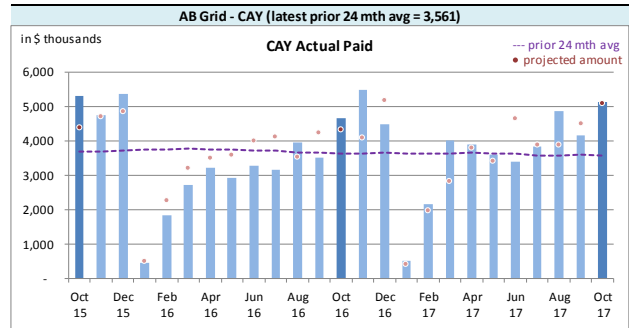
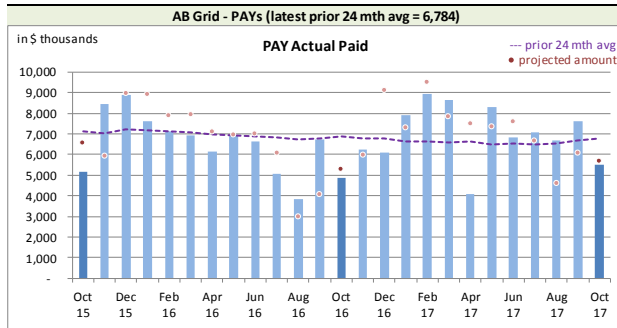
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

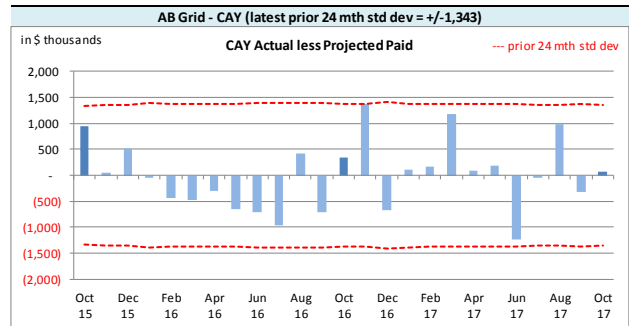
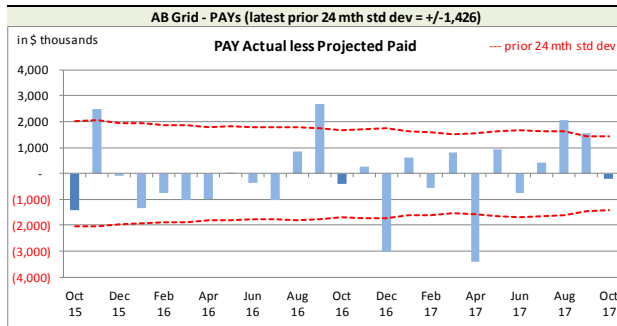
⁷Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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 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)		6,784	3,561
std dev		1,426	1,343
A-P <> std dev		6	-
% <> std dev		24.0%	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 24% of the time, a lower percent than suggested by a normal distribution, indicating the projection process may be performing better than simply

projecting from the preceding 24-month average.

The PAYs **paid** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed, with the variance attributed to process variance.

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 is better than simply projecting from the preceding 24-month average.

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 influence⁸ 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 IBNR⁹, 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 October 2017 Operational Report and the

⁸Our 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.

⁹For ease of discussion, “IBNR” is used in place of “provisions for incurred but not recorded (IBNR) and development”.

associated one-month projections from last month's Report.

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

Table 02

Accident Year	actuarial present value adjustments							
	IBNR		Discount Amount		Provisions for Adverse Deviations		IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	25,335	(2,248)	(4,416)	(1,287)	11,078	(524)	31,997	(4,059)
2015	17,470	1,777	(2,805)	(911)	7,054	147	21,719	1,013
2016	24,578	2,804	(3,625)	(1,233)	8,250	237	29,203	1,808
2017	38,794	3,358	(4,058)	(1,194)	9,091	(325)	43,827	1,839
TOTAL	106,177	5,691	(14,904)	(4,625)	35,473	(465)	126,746	601

The IBNR provision is \$5.7 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 below summarizes the variances in the provisions for deferred policy acquisition cost asset included in the October 2017 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:	(11,708)	(2,683)	4,747	(1,338)	(6,961)	(4,021)
balance as % unearned premium:	(12.8%)	(3.1%)	5.2%	(1.3%)	(7.6%)	(4.4%)
actual unearned premium:	91,739					
less projected:	(1,039)					

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 loss¹⁰ 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 expenses¹¹, 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 91.0% rather than 89.9% (the valuation ultimate ratio for accident year 2017), 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.)

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	21,086	17.1%	(13,567)	(11.0%)	7,519	6.1%	(2,618)	(3.1%)
CAY	112,056	91.0%	5,033	4.1%	117,089	95.1%	10,676	(1.7%)
TOTAL	133,142	108.1%	(8,534)	(6.9%)	124,608	101.2%	8,057	(4.8%)

(“% EP” based on 2017 calendar year-to-date earned premium; ratios may not total due to rounding)

The prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments and due to valuation implementation. The loss ratio change year-to-date 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.

¹⁰“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).

¹¹Allowed 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 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

		Amounts in \$000s				
IBNR + M/S actuarial present value adjustments	Accident Year	Actual Sep. 2017	Actual Oct. 2017	Projected Nov. 2017	Projected Dec. 2017	Projected Dec. 2018
	2004	(72)	(72)	(66)	(66)	(39)
	2005	337	35	34	30	34
	2006	(234)	160	150	146	89
	2007	266	257	242	229	141
	2008	(143)	160	152	144	98
	2009	1,439	1,187	1,109	1,086	663
	2010	1,477	1,578	1,478	1,440	897
	2011	4,199	2,741	2,566	2,500	1,468
discount rate	2012	5,222	4,558	4,261	4,166	2,488
1.76%	2013	9,447	8,036	7,649	7,219	4,342
	2014	15,656	13,357	12,843	12,458	7,632
interest rate margin	2015	21,989	21,719	21,458	21,029	14,391
25 basis pts	2016	29,207	29,203	28,374	27,568	21,179
	2017	39,434	43,827	46,777	49,601	34,114
	2018	-	-	-	-	51,458
	TOTAL	128,224	126,746	127,027	127,550	138,955
	Change		(1,478)	281	523	

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

EXHIBIT B

IBNR

TABLE EXHIBIT B

Amounts in \$000s

IBNR	Ultimate Loss Ratio	Accident Year	Actual Sep. 2017	Actual Oct. 2017	Projected Nov. 2017	Projected Dec. 2017	Projected Dec. 2018
	51.6%	2004	(80)	(80)	(74)	(73)	(44)
	59.3%	2005	237	(33)	(31)	(31)	(19)
	66.4%	2006	(282)	104	97	96	55
	70.2%	2007	32	65	60	59	34
	67.1%	2008	(297)	8	7	7	7
	60.6%	2009	1,117	957	890	881	517
	62.0%	2010	882	1,104	1,027	1,017	597
	66.2%	2011	3,051	1,881	1,749	1,732	1,016
	73.9%	2012	3,830	3,443	3,202	3,170	1,858
	77.1%	2013	7,528	6,567	6,239	5,865	3,438
	86.0%	2014	12,898	11,319	10,866	10,540	6,062
	93.7%	2015	16,874	17,470	17,295	16,949	10,924
	97.4%	2016	23,413	24,578	23,841	23,126	17,229
	89.9%	2017	33,499	38,794	41,298	43,677	30,130
	85.8%	2018	-	-	-	-	44,734
		TOTAL	102,702	106,177	106,466	107,015	116,538
		Change		3,475	289	549	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Sep. 2017	Actual Oct. 2017	Projected Nov. 2017	Projected Dec. 2017	Projected Dec. 2018
Premium Liabilities					
(1) unearned premium (UP)	88,492	91,739	93,191	91,466	94,055
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	96.9%	92.4%	91.8%	91.2%	92.9%
(3) expected future costs {(1) x (2)}	85,739	84,778	85,584	83,431	87,408
(4) premium deficiency / (deferred policy acquisition cost)	(2,753)	(6,961)	(7,607)	(8,035)	(6,647)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	90.3%	87.2%	86.7%	86.1%	87.7%
(6) expected future costs {(1) x (5)}	79,933	80,031	80,792	78,760	82,516
(7) premium deficiency / (deferred policy acquisition cost)	(8,559)	(11,708)	(12,399)	(12,706)	(11,539)

EXHIBIT D

Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2017, broken down by component.

Alberta Grid ending 2017		Projected Balances as at Dec. 31, 2017 (\$000s)								
		nominal values			actuarial present value adjustments (apvs)					TOTAL
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	Total apvs		
2004	2	(73)	(71)	-	-	7	-	7	(64)	
2005	861	(31)	830	(23)	3	83	(2)	61	891	
2006	618	96	714	(22)	3	71	(2)	50	764	
2007	2,312	59	2,371	(69)	9	237	(7)	170	2,541	
2008	1,938	7	1,945	(60)	8	195	(6)	137	2,082	
2009	2,370	881	3,251	(124)	16	325	(12)	205	3,456	
2010	6,336	1,017	7,353	(324)	44	735	(32)	423	7,776	
2011	10,430	1,732	12,162	(474)	73	1,216	(47)	768	12,930	
2012	12,319	3,170	15,489	(573)	77	1,549	(57)	996	16,485	
2013	15,939	5,865	21,804	(850)	109	2,180	(85)	1,354	23,158	
2014	23,408	10,540	33,948	(1,528)	204	3,395	(153)	1,918	35,866	
2015	36,922	16,949	53,871	(2,694)	377	6,734	(337)	4,080	57,951	
2016	40,178	23,126	63,304	(3,482)	506	7,850	(432)	4,442	67,746	
PAYs (sub-total):	153,633	63,338	216,971	(10,223)	1,429	24,577	(1,172)	14,611	231,582	
CAY (2017)	46,407	43,677	90,084	(4,774)	631	10,630	(563)	5,924	96,008	
claims liabilities:	200,040	107,015	307,055	(14,997)	2,060	35,207	(1,735)	20,535	327,590	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	Total apvs	TOTAL*	
premium liabilities:	91,466	(12,706)	78,760	(3,454)	471	8,007	(353)	4,671	83,431	
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:			385,815	(18,451)	2,531	43,214	(2,088)	25,206	411,021	

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, 2017 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Sep. 30, 2017)

Accident Year	Third Party Liability	Accident Benefits	Other Coverages	Total
2004	10.0%	10.0%	10.0%	10.0%
2005	10.0%	10.0%	10.0%	10.0%
2006	10.0%	10.0%	10.0%	10.0%
2007	10.0%	10.0%	10.0%	10.0%
2008	10.0%	10.0%	10.0%	10.0%
2009	10.0%	10.0%	10.0%	10.0%
2010	10.0%	10.0%	9.5%	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	12.4%	10.0%	12.5%	12.4%
2017	12.1%	10.0%	6.6%	11.8%
2018	11.7%	10.0%	5.1%	10.2%
prem liab	11.7%	10.0%	5.1%	10.2%

discount rate: 1.76%
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, 2017 from the latest valuation date (projections in exhibits A to D are also to Dec. 31, 2017, but are based on more up-to-date information). We have included the most recent valuation selection (1.76%), the prior valuation assumption (1.19%) and the prior fiscal year end valuation assumption (0.54%) 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, 2017 projected Unpaid							
	0.76%	1.26%	1.76%	2.26%	2.76%	3.26%	1.19%	0.54%
2004	-	-	-	-	-	-	-	-
2005	1,013	1,005	997	989	981	973	1,006	1,017
2006	816	808	801	794	787	781	809	819
2007	2,643	2,621	2,600	2,579	2,558	2,538	2,624	2,652
2008	2,171	2,151	2,132	2,114	2,096	2,078	2,154	2,179
2009	4,192	4,145	4,101	4,056	4,012	3,970	4,152	4,213
2010	7,825	7,725	7,630	7,536	7,443	7,354	7,740	7,869
2011	13,101	12,954	12,812	12,673	12,538	12,406	12,976	13,167
2012	18,028	17,833	17,646	17,461	17,282	17,109	17,861	18,114
2013	23,977	23,704	23,441	23,181	22,930	22,686	23,742	24,099
2014	37,300	36,812	36,346	35,886	35,442	35,007	36,882	37,518
2016	69,422	68,308	67,244	66,204	65,196	64,219	68,465	69,921
2017	98,708	97,174	95,711	94,274	92,883	91,547	97,391	99,400
Total	338,311	333,482	328,875	324,338	319,946	315,703	334,168	340,470
	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							
	0.76%	1.26%	1.76%	2.26%	2.76%	3.26%	1.19%	0.54%
Total	9,436	4,607	-	(4,537)	(8,929)	(13,172)	5,293	11,595
	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							
	0.76%	1.26%	1.76%	2.26%	2.76%	3.26%	1.19%	0.54%
2004	-	-	-	-	-	-	-	-
2005	1.6%	0.8%	-	(0.8%)	(1.6%)	(2.4%)	0.9%	2.0%
2006	1.9%	0.9%	-	(0.9%)	(1.7%)	(2.5%)	1.0%	2.2%
2007	1.7%	0.8%	-	(0.8%)	(1.6%)	(2.4%)	0.9%	2.0%
2008	1.8%	0.9%	-	(0.8%)	(1.7%)	(2.5%)	1.0%	2.2%
2009	2.2%	1.1%	-	(1.1%)	(2.2%)	(3.2%)	1.2%	2.7%
2010	2.6%	1.2%	-	(1.2%)	(2.5%)	(3.6%)	1.4%	3.1%
2011	2.3%	1.1%	-	(1.1%)	(2.1%)	(3.2%)	1.3%	2.8%
2012	2.2%	1.1%	-	(1.0%)	(2.1%)	(3.0%)	1.2%	2.7%
2013	2.3%	1.1%	-	(1.1%)	(2.2%)	(3.2%)	1.3%	2.8%
2014	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	1.5%	3.2%
2016	3.2%	1.6%	-	(1.5%)	(3.0%)	(4.5%)	1.8%	4.0%
2017	3.1%	1.5%	-	(1.5%)	(3.0%)	(4.4%)	1.8%	3.9%
Total	2.9%	1.4%	-	(1.4%)	(2.7%)	(4.0%)	1.6%	3.5%
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

EXHIBIT G

Page 1 of 2

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

RSP **Alberta Grid**
AccountCode Desc **IBNR - Discou** M/S IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	(72)	-	-	-	-	-	(72)
2005	337	(10)	8	(300)	(302)	(89.6%)	35
2006	(234)	6	73	315	394	(168.4%)	160
2007	266	(7)	27	(29)	(9)	(3.4%)	257
2008	(143)	3	13	287	303	(211.9%)	160
2009	1,439	(45)	120	(327)	(252)	(17.5%)	1,187
2010	1,477	(44)	38	107	101	6.8%	1,578
2011	4,199	(127)	142	(1,473)	(1,458)	(34.7%)	2,741
2012	5,222	(144)	(310)	(210)	(664)	(12.7%)	4,558
2013	9,447	(340)	55	(1,126)	(1,411)	(14.9%)	8,036
2014	15,656	(830)	55	(1,524)	(2,299)	(14.7%)	13,357
2015	21,989	(1,283)	(284)	1,297	(270)	(1.2%)	21,719
2016	29,207	(1,812)	930	878	(4)	-	29,203
2017	39,434	2,554	3,690	(1,851)	4,393	11.1%	43,827
Grand Total	128,224	(2,079)	4,557	(3,956)	(1,478)	(1.2%)	126,746

EXHIBIT G

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

RSP **Alberta Grid**

AccountCode Desc **IBNR - Undiscounted**

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	(80)	-	-	-	-	-	(80)
2005	237	(7)	5	(268)	(270)	(113.9%)	(33)
2006	(282)	8	79	299	386	(136.9%)	104
2007	32	(1)	34	-	33	103.1%	65
2008	(297)	9	8	288	305	(102.7%)	8
2009	1,117	(34)	133	(259)	(160)	(14.3%)	957
2010	882	(26)	29	219	222	25.2%	1,104
2011	3,051	(92)	123	(1,201)	(1,170)	(38.3%)	1,881
2012	3,830	(115)	(272)	-	(387)	(10.1%)	3,443
2013	7,528	(301)	75	(735)	(961)	(12.8%)	6,567
2014	12,898	(774)	63	(868)	(1,579)	(12.2%)	11,319
2015	16,874	(1,181)	(277)	2,054	596	3.5%	17,470
2016	23,413	(1,639)	840	1,964	1,165	5.0%	24,578
2017	33,499	1,937	3,732	(374)	5,295	15.8%	38,794
Grand Total	102,702	(2,216)	4,572	1,119	3,475	3.4%	106,177