



ALBERTA GRID RISK SHARING POOL

AUGUST 2017 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

Related Bulletin: [F17-075 Alberta RSPs August 2017 Operational Reports](#)

Related Quarterly Valuation Highlights:

[Actuarial Quarterly Valuation Highlights Risk Sharing Pools as at June 30, 2017](#)

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Should you require any further information, please call Shawn Doherty, Senior Vice President Actuarial & CFO at (416) 644-4968.

ACTUARIAL HIGHLIGHTS
RSP ALBERTA GRID
OPERATIONAL REPORT
AUGUST 2017

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2017)

The August 2017 Operational Report incorporates the results of an updated valuation (as at June 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	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		Oct. 2017	update valuation (roll forward):

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 June 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 to be posted to the FA website at the same time as this report.

The valuation implementation impact is summarized in the tables below.

Summary of Impact (\$000s) of Implementing Result of Valuation as at June 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	3,979	338	4,317	(1,528)	(941)	1,848
CAY	3,647	275	3,922	(428)	-	3,494
Prem Def	3,078	301	3,379	(413)	-	2,966
TOTAL	10,704	914	11,618	(2,369)	(941)	8,308

As indicated in the table above, the incorporation of the new valuation had an estimated **\$8.3 million unfavourable impact** on the month’s net result from operations, adding an estimated 8.6 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **147.5%**.

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

AB Grid	ytd EP 97,130 (actual)					
	IMPACT unfav / (fav) as % ytd EP from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	4.1%	0.3%	4.4%	(1.6%)	(1.0%)	1.9%
CAY	3.8%	0.3%	4.0%	(0.4%)	-	3.6%
Prem Def	3.2%	0.3%	3.5%	(0.4%)	-	3.1%
TOTAL	11.0%	0.9%	12.0%	(2.4%)	(1.0%)	8.6%

The impact of the nominal changes is shown in column [1] of the two preceding summary tables. The change in the selected nominal ultimates was unfavourable by \$10.7 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 \$4.0 million unfavourable variance, as recorded claims activity continues to show unfavourable actual experience relative to recorded activity projected from the previous valuation, particularly with respect to bodily injury (within third party liability)

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.

recorded activity (we are not seeing paid activity AvsP variances in the quarterly valuation, suggesting recorded activity AvsP variances may be related to case reserve strengthening, as we are seeing it across accident years). It is interesting to note that we are not seeing this “phenomena” occurring in the Alberta non-Grid RSP. The unfavourable impact is 1.6% of the prior accident years’ nominal unpaid balance of \$245.5 million determined at the end of last month (July 2017).

The current accident year and premium deficiency impacts are a result of changes in the selected loss ratios for accident year **2017** (up 3.7 points from 86.5% to **90.2%**) and **2018** (up 3.8 points from 86.1% to **89.9%**). These changes reflect various updated assumptions, and are beyond what we would “expect” in terms of point movements of estimated “mean” loss ratios, as the updated assumptions reflect the impact of continued unfavourable recorded activity variances.

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 \$0.9 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 June 2017. Column [4] accounts for the change in the **discount rate** selected (increased 21 basis points to **1.19%**), indicating a favourable impact of \$2.4 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$2.0 million at August 2017 (projected \$2.0 million impact at December 31, 2017) – this compares to the \$2.0 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**. However, the selected **claims development MfADs** were updated for some accident years and coverages, resulting in an estimated overall favourable impact of \$0.9 million.

Consideration was given to recent legal decisions and changes in legislation / regulation as 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.”*

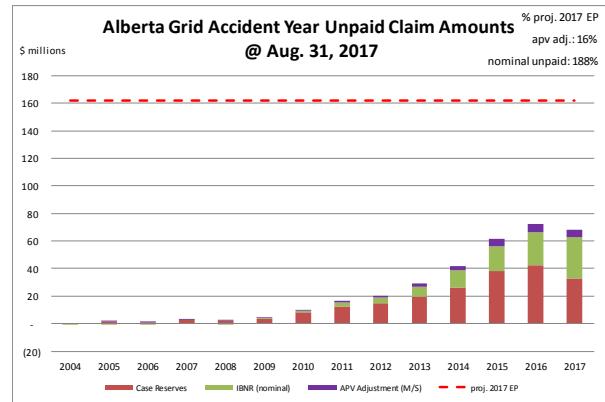
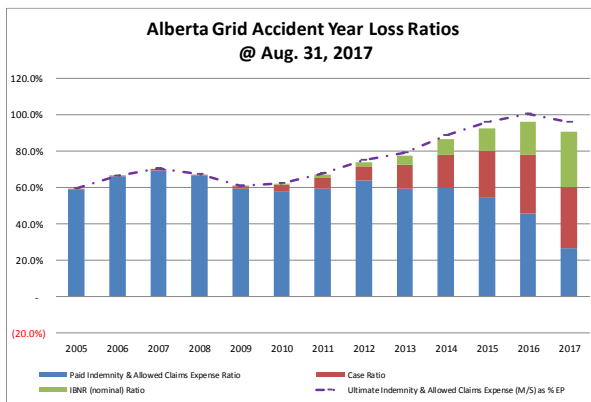
At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

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 (\$25.5 million – see table immediately below) represents 16% 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	204,805	61.9%
ibnr	100,681	30.4%
M/S apv adjust.	25,505	7.7%
M/S total	330,991	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 53% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 82% 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	81,791	103.2%
prem def/(dpac)	(7,883)	(9.9%)
M/S apv adjust.	5,369	6.8%
M/S total	79,277	100.0%

policy liabilities (\$000s)	amt	%
claim	305,486	74.5%
premium	73,908	18.0%
M/S apv adjust.	30,874	7.5%
M/S total	410,268	100.0%

2 Activity During the Month of August 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)

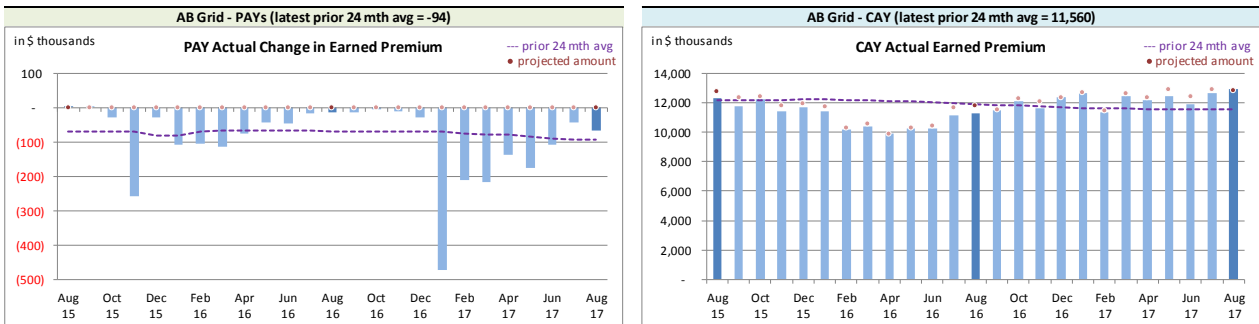
Accident Year	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	(8)	(8)	4,014	1,829	(3,484)	(2,472)	530	(643)
2015	(3)	(3)	1,556	381	(588)	(800)	968	(419)
2016	(57)	(57)	1,089	(171)	10	(183)	1,099	(354)
2017	12,894	63	4,855	986	4,314	445	9,169	1,430
TOTAL	12,826	(4)	11,515	3,025	251	(3,011)	11,766	14

(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.

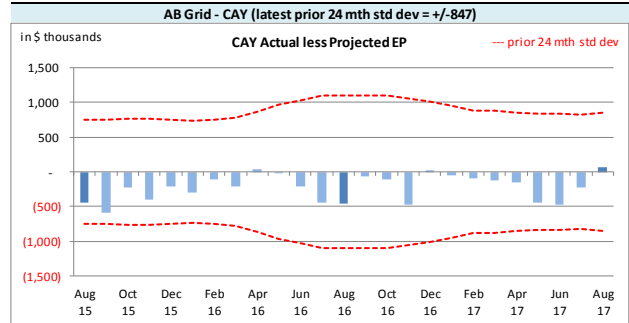
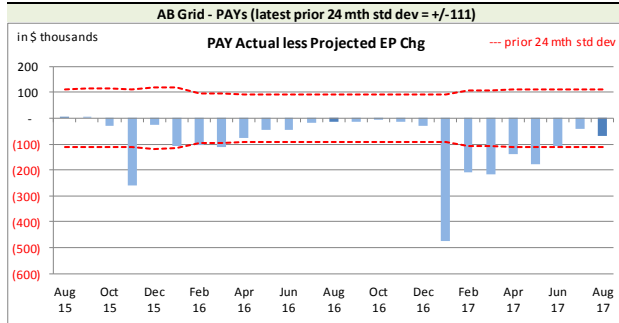
We have noted and have been investigating the unusually high level of PAYs earned premium activity so far in 2017, particularly with respect to one member and we are in discussions with that member to better understand the causes of the changes (our current understanding is that these changes relate to premium corrections at a policyholder level).

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

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

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

Alberta 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)	(94)	11,560
std dev	111	847
A-P <> std dev	8	-
% <> std dev	32.0%	0.0%
norm <> std dev	31.7%	31.7%

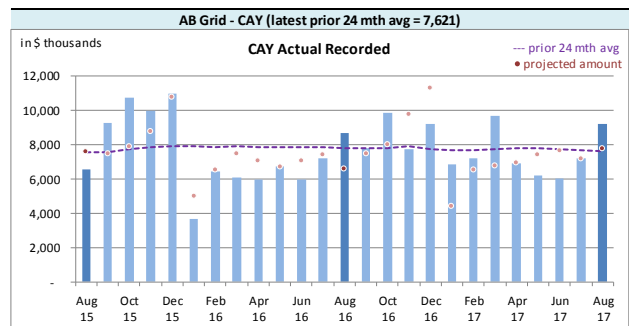
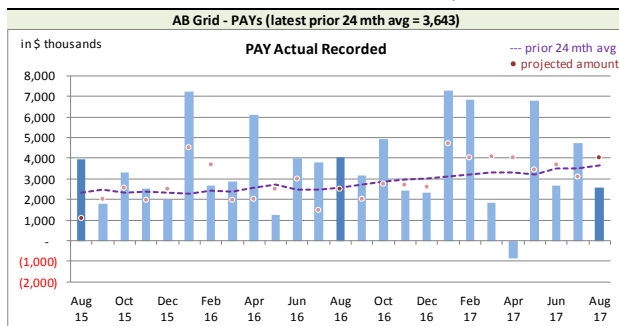
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYS) bias⁶, with actuals generally lower than projected. However, the magnitude is 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 projections 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.

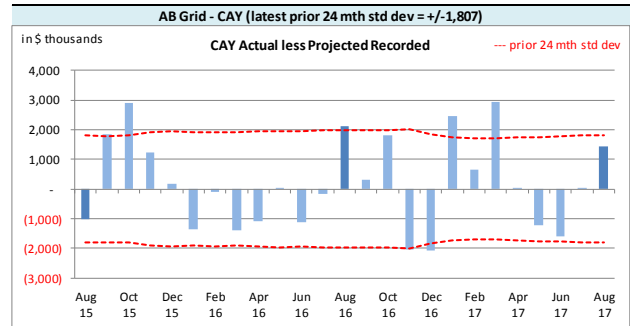
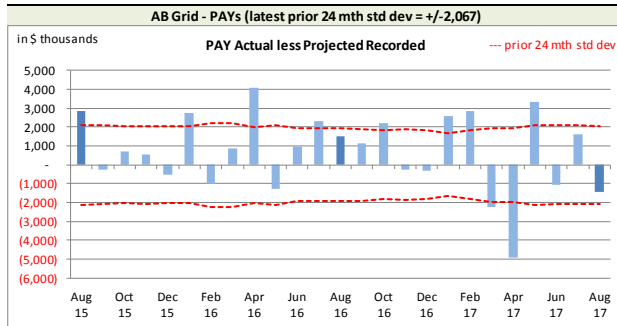
Alberta Grid RSP Actual Recorded by Calendar Month



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)	3,643	7,621
std dev	2,067	1,807
A-P <> std dev	10	7
% <> std dev	40.0%	28.0%
norm <> std dev	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 40% 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 worse 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.

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 August) provides the average of the 8 monthly ratios (i.e. Jan-August) for that row’s calendar year.

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%)

CAY avg of mthly ratios for yr

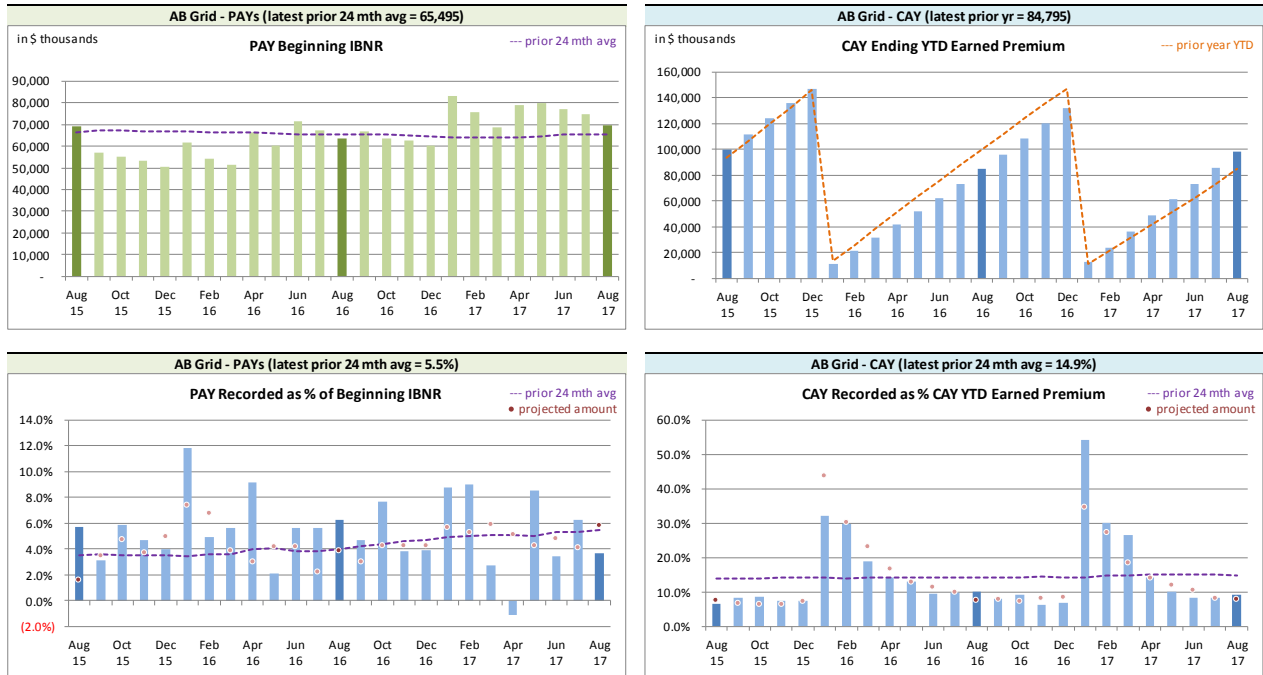
as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
Aug 2009	14.8%		5.1%	
Aug 2010	13.4%	(1.4%)	5.1%	0.0%
Aug 2011	16.6%	3.2%	5.6%	0.5%
Aug 2012	15.4%	(1.2%)	5.3%	(0.3%)
Aug 2013	15.7%	0.3%	5.5%	0.2%
Aug 2014	16.9%	1.2%	6.0%	0.5%
Aug 2015	17.7%	0.8%	6.3%	0.3%
Aug 2016	17.2%	(0.5%)	6.1%	(0.2%)
Aug 2017	20.1%	2.9%	6.5%	0.4%

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 8-month average ratios for calendar year 2017 are at the highest levels in the August 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:

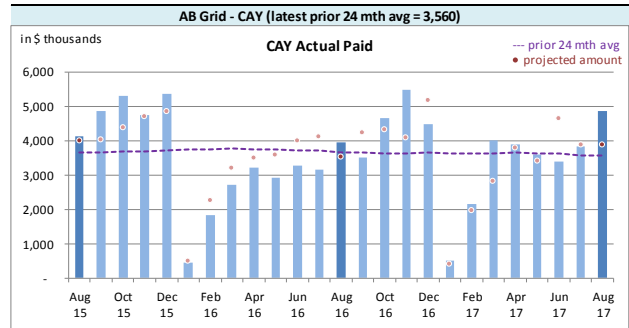
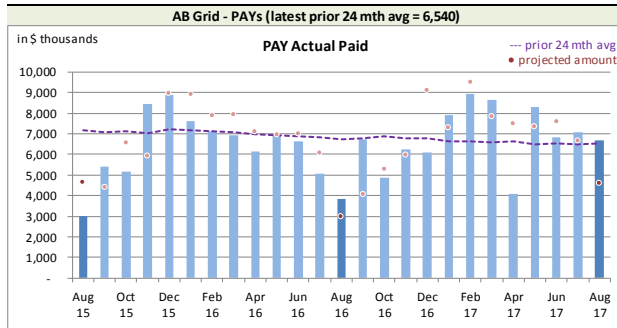
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

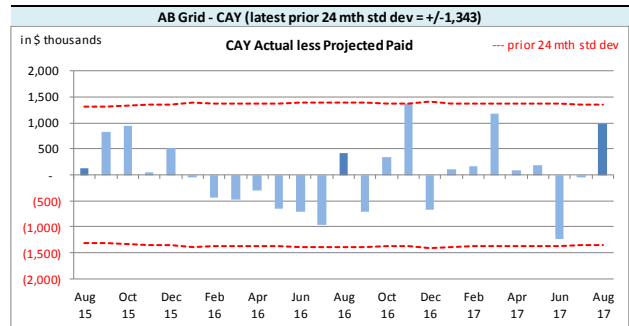
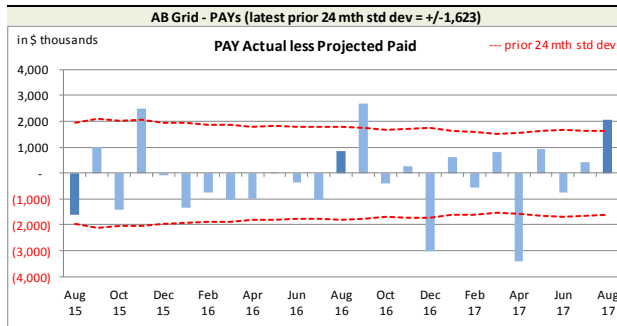
⁷Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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)	6,540	3,560	
std dev	1,623	1,343	
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, a lower percent than suggested by a normal distribution, indicating the projection process may be performing better than simply

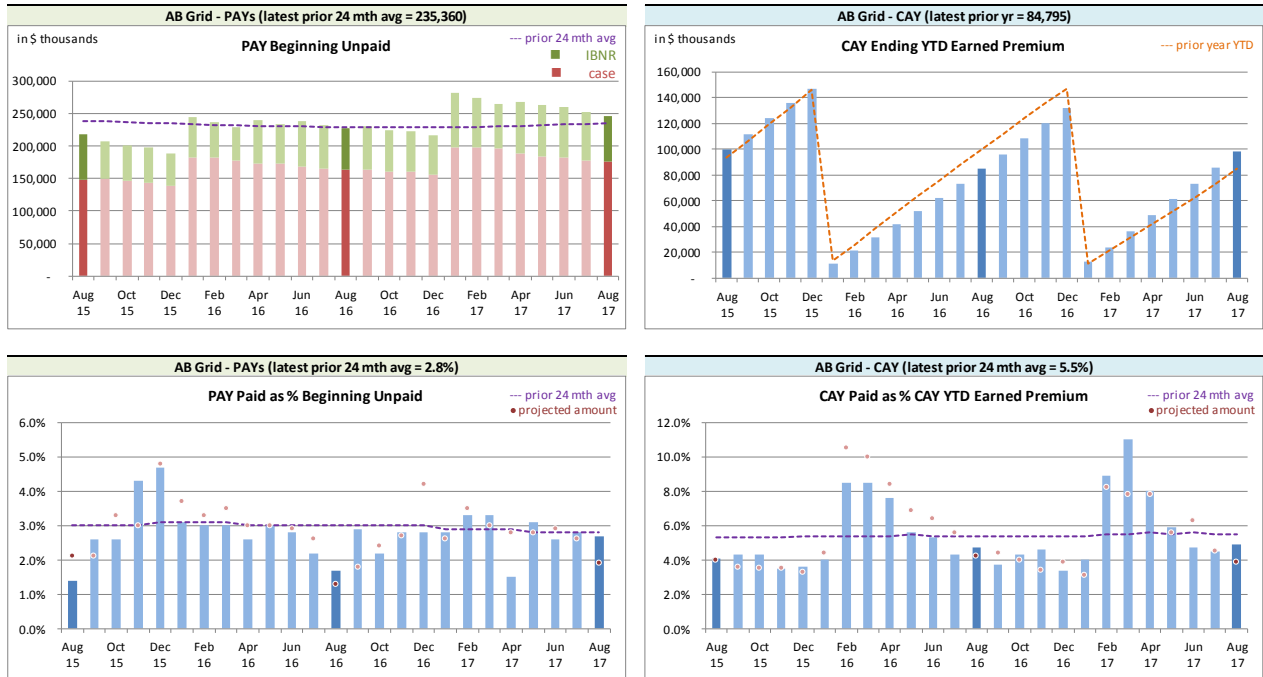
projecting from the preceding 24-month average.

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 August 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)

Accident Year	IBNR		actuarial present value adjustments				IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Discount Amount		Provisions for Adverse Deviations		Actual	Actual less Projected
			Actual	Actual less Projected	Actual	Actual less Projected		
Prior	29,327	1,322	(3,350)	(518)	12,438	(1,160)	38,415	(356)
2015	17,813	(611)	(1,967)	(354)	7,170	(231)	23,016	(1,196)
2016	23,922	4,624	(2,515)	(601)	8,423	571	29,830	4,594
2017	29,619	2,271	(2,320)	(521)	7,626	281	34,925	2,031
TOTAL	100,681	7,606	(10,152)	(1,994)	35,657	(539)	126,186	5,073

The IBNR provision is \$7.6 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 August 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 the valuation implementation.

Alberta Grid RSP Actual vs Projected Summary: Premium Deficiency / (DPAC) Amounts (\$ thousands)

	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:	(7,883)	2,883	5,369	(15)	(2,514)	2,868
balance as % unearned premium:	(9.6%)	3.8%	6.6%	(0.2%)	(3.1%)	3.6%
actual unearned premium:	81,791					
less projected:	1,441					

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 91.5% rather than 90.2% (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	19,684	20.3%	(8,904)	(9.2%)	10,780	11.1%	1,200	(0.3%)
CAY	88,896	91.5%	5,306	5.5%	94,202	97.0%	15,229	3.3%
TOTAL	108,580	111.8%	(3,598)	(3.7%)	104,982	108.1%	16,429	3.1%

(“% 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 Jul. 2017	Actual Aug. 2017	Projected Sep. 2017	Projected Oct. 2017	Projected Dec. 2017
	2004		(72)	(72)	(72)	(72)	(72)
	2005		(477)	89	85	83	79
	2006		229	(157)	(155)	(150)	(141)
	2007		11	332	323	313	296
	2008		(91)	(110)	(110)	(108)	(102)
	2009		1,105	1,277	1,248	1,211	1,140
	2010		330	1,741	1,699	1,647	1,550
	2011		3,242	4,053	3,959	3,840	3,614
discount rate	2012		5,836	5,850	5,718	5,561	5,232
1.19%	2013		11,003	9,728	9,534	9,192	8,649
	2014		19,015	15,684	15,113	14,318	13,698
interest rate margin	2015		25,717	23,016	22,022	20,735	18,905
25 basis pts	2016		26,810	29,830	28,220	26,473	23,710
	2017		28,865	34,925	39,023	41,774	45,766
	TOTAL		121,523	126,186	126,607	124,817	122,324
	Change			4,663	421	(1,790)	

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 Jul. 2017	Actual Aug. 2017	Projected Sep. 2017	Projected Oct. 2017	Projected Dec. 2017
	51.6%	2004	(80)	(80)	(80)	(80)	(80)
	59.4%	2005	(556)	(29)	(28)	(27)	(25)
	66.3%	2006	146	(205)	(201)	(195)	(183)
	70.2%	2007	(224)	82	80	78	74
	67.0%	2008	(260)	(270)	(265)	(257)	(242)
	60.7%	2009	728	951	932	904	851
	61.9%	2010	(332)	1,075	1,053	1,021	960
	66.8%	2011	1,940	2,881	2,823	2,738	2,576
	73.9%	2012	4,282	4,398	4,310	4,181	3,934
	77.6%	2013	8,704	7,670	7,517	7,216	6,790
	86.6%	2014	14,830	12,854	12,340	11,600	11,141
	92.3%	2015	19,811	17,813	16,922	15,737	14,202
	95.9%	2016	20,751	23,922	22,487	20,913	18,479
	90.2%	2017	23,988	29,619	33,104	35,285	38,348
		TOTAL	93,728	100,681	100,994	99,114	96,825
		Change		6,953	313	(1,880)	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Jul. 2017	Actual Aug. 2017	Projected Sep. 2017	Projected Oct. 2017	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	77,821	81,791	88,095	92,266	92,711
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	93.3%	96.9%	96.9%	96.8%	96.7%
(3) expected future costs {(1) x (2)}	72,646	79,277	85,342	89,347	89,697
(4) premium deficiency / (deferred policy acquisition cost)	(5,175)	(2,514)	(2,753)	(2,919)	(3,014)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	86.6%	90.4%	90.3%	90.3%	90.2%
(6) expected future costs {(1) x (5)}	67,428	73,908	79,560	83,294	83,619
(7) premium deficiency / (deferred policy acquisition cost)	(10,393)	(7,883)	(8,535)	(8,972)	(9,092)

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		Projected Balances as at Dec. 31, 2017 (\$000s)						
ending 2017		nominal values			actuarial present value adjustments (apvs)			
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs	TOTAL
2004	-	(80)	(80)	-	-	8	8	(72)
2005	1,280	(25)	1,255	(24)	5	123	104	1,359
2006	706	(183)	523	(11)	2	51	42	565
2007	2,594	74	2,668	(53)	13	262	222	2,890
2008	1,982	(242)	1,740	(37)	7	170	140	1,880
2009	2,927	851	3,778	(98)	19	368	289	4,067
2010	7,116	960	8,076	(242)	48	784	590	8,666
2011	11,004	2,576	13,580	(353)	68	1,323	1,038	14,618
2012	13,056	3,934	16,990	(442)	85	1,655	1,298	18,288
2013	17,583	6,790	24,373	(658)	146	2,371	1,859	26,232
2014	23,943	11,141	35,084	(1,088)	246	3,399	2,557	37,641
2015	36,571	14,202	50,773	(1,777)	355	6,125	4,703	55,476
2016	40,106	18,479	58,585	(2,226)	469	6,988	5,231	63,816
PAYs (sub-total):	158,868	58,477	217,345	(7,009)	1,463	23,627	18,081	235,426
CAY (2017)	49,304	38,348	87,652	(3,243)	701	9,960	7,418	95,070
claims liabilities:	208,172	96,825	304,997	(10,252)	2,164	33,587	25,499	330,496
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
premium liabilities:	92,711	(9,092)	83,619	(2,584)	584	8,078	6,078	89,697
*Total may not be sum of parts, as apvs apply to future costs within UPR								
policy liabilities:			388,616	(12,836)	2,748	41,665	31,577	420,193

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 (Jun. 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%	9.7%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	10.0%	10.0%	10.0%	10.0%
2015	12.4%	10.0%	12.5%	12.5%
2016	12.4%	10.0%	11.4%	12.4%
2017	12.1%	10.0%	7.1%	11.8%
2018	11.8%	10.0%	5.1%	10.0%
prem liab	11.8%	10.0%	5.1%	10.0%

discount rate: 1.19%
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 current valuation selection (1.19%), the prior valuation assumption (0.98%) 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							
	0.69%	1.19%	1.69%	2.19%	2.69%	3.19%	0.98%	0.54%
2004	-	-	-	-	-	-	-	-
2005	1,381	1,370	1,359	1,348	1,338	1,328	1,375	1,385
2006	630	624	619	613	608	603	627	632
2007	3,362	3,334	3,307	3,281	3,255	3,229	3,346	3,370
2008	1,856	1,839	1,823	1,807	1,792	1,777	1,846	1,861
2009	5,262	5,203	5,146	5,090	5,036	4,983	5,227	5,280
2010	8,202	8,099	7,998	7,899	7,804	7,710	8,142	8,234
2011	14,190	14,033	13,878	13,728	13,583	13,440	14,097	14,239
2012	18,799	18,592	18,389	18,192	18,002	17,814	18,677	18,863
2013	26,204	25,908	25,617	25,335	25,060	24,790	26,032	26,298
2014	38,401	37,901	37,416	36,940	36,481	36,032	38,108	38,557
2016	67,912	66,828	65,777	64,759	63,779	62,815	67,282	68,250
2017	96,311	94,824	93,384	91,981	90,633	89,318	95,450	96,779
Total	340,448	335,641	330,972	326,429	322,053	317,759	337,648	341,947
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

AY	Dollar Impact Relative to Valuation Assumption							
	0.69%	1.19%	1.69%	2.19%	2.69%	3.19%	0.98%	0.54%
Total	4,807	-	(4,669)	(9,212)	(13,588)	(17,882)	2,007	6,306
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

AY	Percentage Impact Relative to Valuation Assumption							
	0.69%	1.19%	1.69%	2.19%	2.69%	3.19%	0.98%	0.54%
2004	-	-	-	-	-	-	-	-
2005	0.8%	-	(0.8%)	(1.6%)	(2.3%)	(3.1%)	0.4%	1.1%
2006	1.0%	-	(0.8%)	(1.8%)	(2.6%)	(3.4%)	0.5%	1.3%
2007	0.8%	-	(0.8%)	(1.6%)	(2.4%)	(3.1%)	0.4%	1.1%
2008	0.9%	-	(0.9%)	(1.7%)	(2.6%)	(3.4%)	0.4%	1.2%
2009	1.1%	-	(1.1%)	(2.2%)	(3.2%)	(4.2%)	0.5%	1.5%
2010	1.3%	-	(1.2%)	(2.5%)	(3.6%)	(4.8%)	0.5%	1.7%
2011	1.1%	-	(1.1%)	(2.2%)	(3.2%)	(4.2%)	0.5%	1.5%
2012	1.1%	-	(1.1%)	(2.2%)	(3.2%)	(4.2%)	0.5%	1.5%
2013	1.1%	-	(1.1%)	(2.2%)	(3.3%)	(4.3%)	0.5%	1.5%
2014	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	0.5%	1.7%
2016	1.6%	-	(1.6%)	(3.1%)	(4.6%)	(6.0%)	0.7%	2.1%
2017	1.6%	-	(1.5%)	(3.0%)	(4.4%)	(5.8%)	0.7%	2.1%
Total	1.4%	-	(1.4%)	(2.7%)	(4.0%)	(5.3%)	0.6%	1.9%
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	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	(477)	13	(25)	578	566	(118.7%)	89
2006	229	(7)	(52)	(327)	(386)	(168.6%)	(157)
2007	11	-	(3)	324	321	2,918.2%	332
2008	(91)	3	(13)	(9)	(19)	20.9%	(110)
2009	1,105	(32)	(53)	257	172	15.6%	1,277
2010	330	(3)	55	1,359	1,411	427.6%	1,741
2011	3,242	(84)	296	599	811	25.0%	4,053
2012	5,836	(159)	254	(81)	14	0.2%	5,850
2013	11,003	(307)	(53)	(915)	(1,275)	(11.6%)	9,728
2014	19,015	(784)	94	(2,641)	(3,331)	(17.5%)	15,684
2015	25,717	(1,505)	380	(1,576)	(2,701)	(10.5%)	23,016
2016	26,810	(1,574)	314	4,280	3,020	11.3%	29,830
2017	28,865	4,029	(1,463)	3,494	6,060	21.0%	34,925
Grand Total	121,523	(410)	(269)	5,342	4,663	3.8%	126,186

EXHIBIT G

Page 2 of 2

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

RSP **Alberta Grid**

AccountCode Desc **IBNR - Undiscounted** IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	(80)	-	-	-	-	-	(80)
2005	(556)	17	(27)	537	527	(94.8%)	(29)
2006	146	(4)	(48)	(299)	(351)	(240.4%)	(205)
2007	(224)	7	(10)	309	306	(136.6%)	82
2008	(260)	8	(18)	-	(10)	3.8%	(270)
2009	728	(22)	(15)	260	223	30.6%	951
2010	(332)	10	83	1,314	1,407	(423.8%)	1,075
2011	1,940	(58)	399	600	941	48.5%	2,881
2012	4,282	(128)	244	-	116	2.7%	4,398
2013	8,704	(261)	(39)	(734)	(1,034)	(11.9%)	7,670
2014	14,830	(742)	68	(1,302)	(1,976)	(13.3%)	12,854
2015	19,811	(1,387)	417	(1,028)	(1,998)	(10.1%)	17,813
2016	20,751	(1,453)	302	4,322	3,171	15.3%	23,922
2017	23,988	3,360	(1,376)	3,647	5,631	23.5%	29,619
Grand Total	93,728	(653)	(20)	7,626	6,953	7.4%	100,681