



**ALBERTA GRID RISK SHARING POOL**

**MAY 2017 OPERATIONAL REPORT**

**ACTUARIAL HIGHLIGHTS**

Related Bulletin: [F17-044 Alberta RSPs May 2017 Operational Reports](#)

Related Quarterly Valuation Highlights:

[Actuarial Quarterly Valuation Highlights Risk Sharing Pools as at March 31, 2017](#)

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**ACTUARIAL HIGHLIGHTS**  
**RSP ALBERTA GRID**  
**OPERATIONAL REPORT**  
**MAY 2017**

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## 1 Summary

### 1.1 Valuation Schedule (Fiscal Year 2017)

The May 2017 Operational Report incorporates the results of an updated valuation (as at March 31, 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		Aug. 2017	update valuation:
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 March 31, 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 at the top of the next page.

*Summary of Impact (\$000s) of Implementing Result of Valuation as at March 31, 2017<sup>1</sup>*

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	4,416	337	4,753	668	-	5,421
CAY	1,406	126	1,532	125	-	1,657
Prem Def	1,395	(8)	1,387	141	-	1,528
<b>TOTAL</b>	<b>7,217</b>	<b>455</b>	<b>7,672</b>	<b>934</b>	<b>-</b>	<b>8,606</b>

As indicated in the table above, the incorporation of the new valuation had an estimated **\$8.6 million unfavourable impact** on the month's net result from operations, adding an estimated 14.4 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **150.4%**.

*Summary of Impact (% YTD EP) of Implementing Result of Valuation as at March 31, 2017*

AB Grid	ytd EP	59,891	(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	7.4%	0.6%	7.9%	1.1%	-	9.1%
CAY	2.3%	0.2%	2.6%	0.2%	-	2.8%
Prem Def	2.3%	-	2.3%	0.2%	-	2.6%
<b>TOTAL</b>	<b>12.1%</b>	<b>0.8%</b>	<b>12.8%</b>	<b>1.6%</b>	<b>-</b>	<b>14.4%</b>

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 \$7.2 million overall. This reflects the impact attributable to the change in the selected ultimate loss ratio (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 \$4.4 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) 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 1.7% of the prior accident years’

<sup>1</sup> 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.

nominal unpaid balance of \$263.6 million determined at the end of last month (April 2017).

The current accident year and premium deficiency impacts are a result of changes in the selected loss ratio for accident year **2017** (up 2.3 points from 84.2% to **86.5%**). There was no change to the selected loss ratio for accident year **2018** (remains at **86.1%**).

The impacts related to actuarial present value (“apv”) adjustments are split into the impact prior to any change in the selected discount rate and margin changes (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 margins (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 margins for adverse deviations or “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 \$0.5 million in the actuarial present value adjustments, prior to any changes in the selected discount rate and/or MfADs.

Claims payment emergence patterns were updated and cash flows were reviewed against the selected risk-free yield curve, derived from Government of Canada benchmark bond yields monthly series using values for March 2017. Column [4] accounts for the change in the **discount rate** selected (decreased 8 basis points to **0.98%**), indicating an unfavourable impact of \$0.9 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$0.8 million at May 2017 (projected \$0.8 million impact at December 31, 2017) – this compares to the \$0.8 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 outlined in section 1.4. For this valuation, no specific adjustments have been made.

### **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 (the addition of a discussion on the recent Supreme Court decision on Saadati v. Moorhead is new this month; we have also removed discussion related to Alberta Bill 39 as being now 3 years since receiving Royal Assent).

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 psychological injuries, including personality change and cognitive difficulties. ...and awarded S \$100,000 for non-pecuniary damages.”* The trial decision was appealed to the BC Court of Appeal where the trial’s \$100,000 non-pecuniary award was dismissed. The Supreme Court upheld the \$100,000 non-pecuniary award, determining:

- *“A finding of legally compensable mental injury need not rest, in whole or in part, on the claimant proving a recognized psychiatric injury.”*
- *“...a trier of fact adjudicating a claim of mental injury is not concerned with diagnosis, but with symptoms and their effects.”*
- *“Expert evidence can assist in determining whether or not a mental injury has been shown, but where psychiatric diagnosis is unavailable, it remains open to a trier of fact to find on other evidence adduced by the claimant that he or she has proven on a balance of probabilities the occurrence of mental injury.”*

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

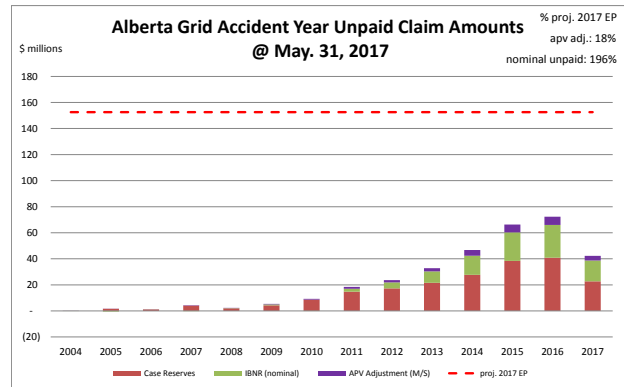
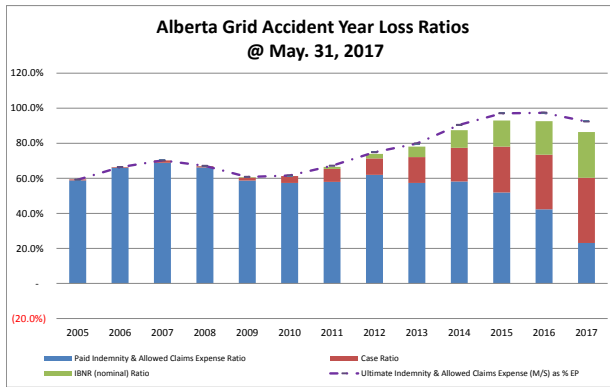
### 1.5 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities<sup>2</sup> booked by accident year<sup>3</sup>. 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.

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

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



“M/S” refers to “Member Statement” values – that is, actuarial present value adjustments at the selected discount rate.

The current actuarial present value adjustments balance (\$27.8 million – see table immediately below) represents 18% 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	205,068	62.9%
ibnr	93,216	28.6%
M/S apv adjust.	27,761	8.5%
<b>M/S total</b>	<b>326,045</b>	<b>100.0%</b>

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 44% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 80% 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	73,993	107.0%
prem def/(dpac)	(9,828)	(14.2%)
M/S apv adjust.	4,967	7.2%
<b>M/S total</b>	<b>69,132</b>	<b>100.0%</b>

policy liabilities (\$000s)

	amt	%
claim	298,284	75.5%
premium	64,165	16.2%
M/S apv adjust.	32,728	8.3%
<b>M/S total</b>	<b>395,177</b>	<b>100.0%</b>

## 2 Activity During the Month of May 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 Report<sup>4</sup>.

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

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

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	1	1	4,832	1,195	(608)	2,607	4,224	3,802
2015	(4)	(4)	1,758	(58)	224	1,369	1,981	1,310
2016	(174)	(174)	1,702	(202)	(1,136)	(1,592)	566	(1,794)
2017	12,432	(442)	3,595	185	2,610	(1,391)	6,206	(1,206)
TOTAL	12,255	(618)	11,887	1,120	1,090	993	12,976	2,112

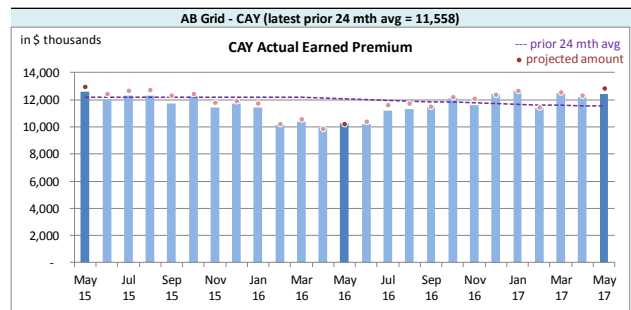
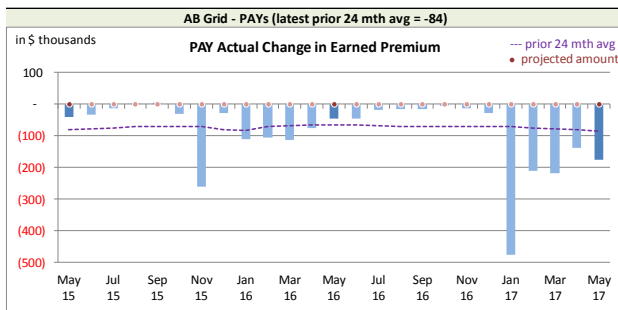
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance”. 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**<sup>5</sup> 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*



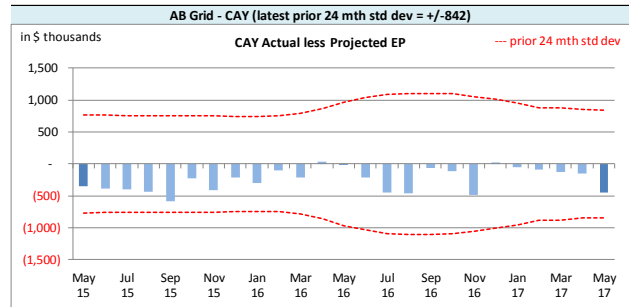
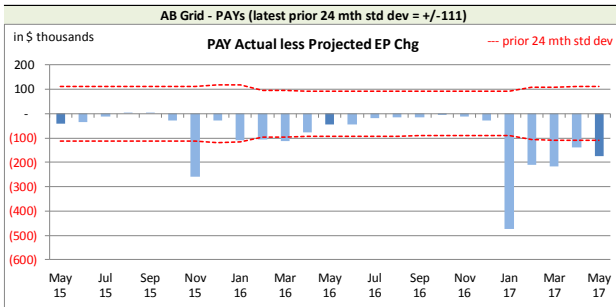
**Earned premium** changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels seem to occur at the beginning of each year.

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** change in relation to prior accident years.

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



*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)	(84)	11,558
std dev	111	842
A-P <> std dev	8	-
% <> std dev	32.0%	0.0%
norm <> std dev	31.7%	31.7%

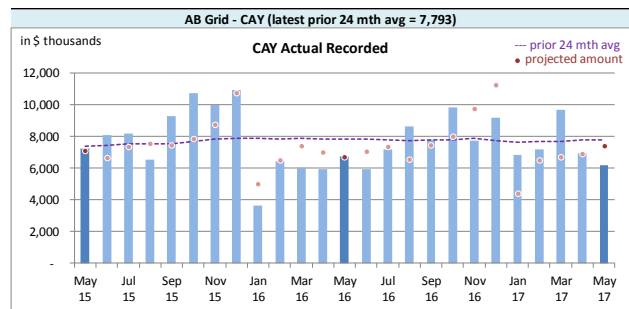
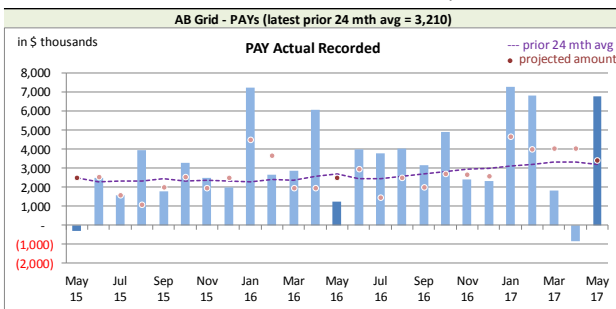
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years’ (PAYs) bias<sup>6</sup>, with actuals generally lower than projected. However, the magnitude is not high relative to

monthly premium, and the variances are within the prior 24-month standard deviation more often than indicated by a normal distribution (see table above). 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**

Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period are shown in the charts immediately below, including the “prior 24-month average” level.

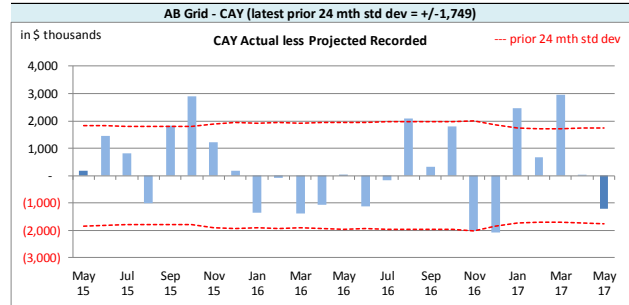
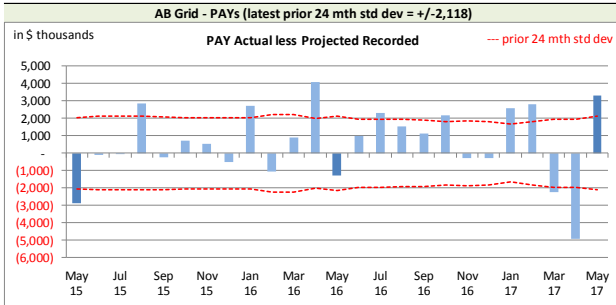
*Alberta Grid RSP Actual Recorded by Calendar Month*



**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.

<sup>6</sup>The 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			
	<b>Recorded</b>	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	3,210	7,793	
std dev	2,118	1,749	
A-P <> std dev	11	7	
% <> std dev	44.0%	28.0%	
norm <> std dev	31.7%	31.7%	

With respect to **recorded** indemnity & allowed claims expense activity, 44% 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 PAYs’ **recorded** variance for the current month was outside the one standard deviation band. Last month’s investigation uncovered a member company had been converting claims to a new system and in the process of transferring the claims, some case reserves that had been taken down were not reinstated before the end of the month, artificially lowering the recorded activity for the month. Our updated projections from last month did not properly reflect the full extent of the remediation and was therefore below the actual amount, creating a projection variance outside of the one standard deviation band.

The current accident year (CAY) **recorded** variances (right chart above) seemed to be indicating bias in 2015 (where actuals tended to be higher than projections). Adjustments to the projection process appear to have addressed this issue. However, as CAY **recorded** variances have been greater than one standard deviation 28% of the time; the projection process appears to perform little 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 May) provides the average of the 5 monthly ratios (i.e. Jan-May) 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

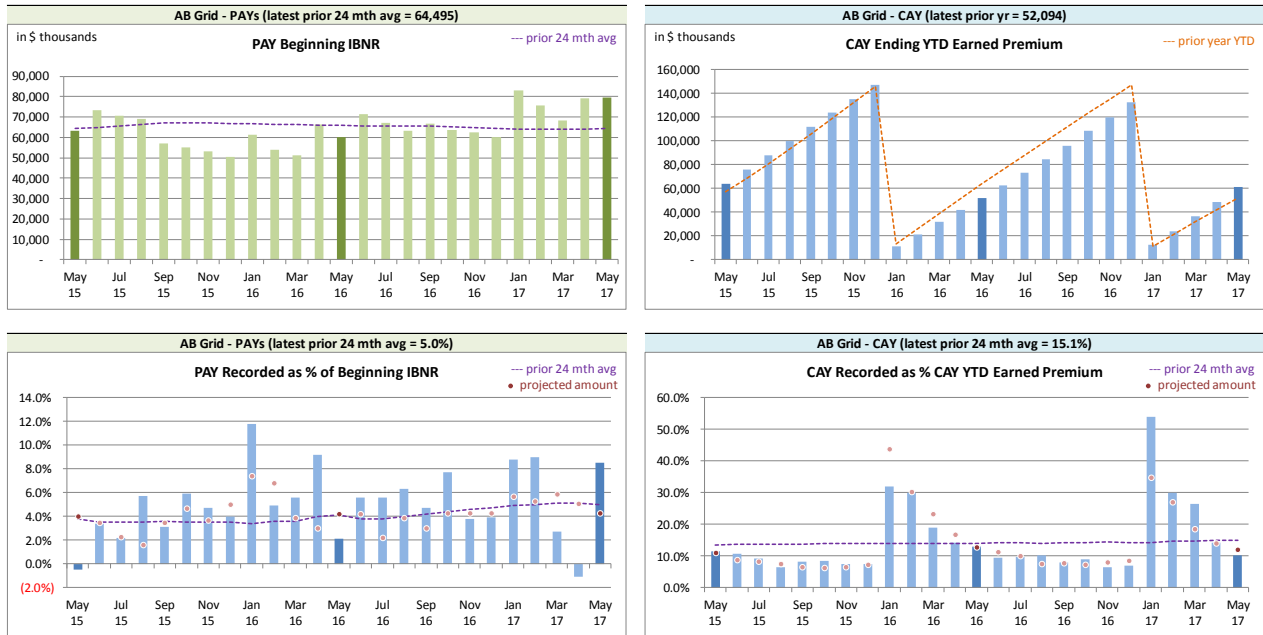
as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
May 2009	19.3%		5.5%	
May 2010	17.1%	(2.2%)	5.7%	0.2%
May 2011	22.0%	4.9%	6.1%	0.4%
May 2012	19.4%	(2.6%)	5.9%	(0.2%)
May 2013	20.6%	1.2%	6.0%	0.1%
May 2014	21.3%	0.7%	6.6%	0.6%
May 2015	23.0%	1.7%	6.9%	0.3%
May 2016	21.6%	(1.4%)	6.8%	(0.1%)
May 2017	27.0%	5.4%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

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, five months into 2017, the 5-month average ratios for calendar year 2017 are at the highest levels in the May 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 influence<sup>7</sup> 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:

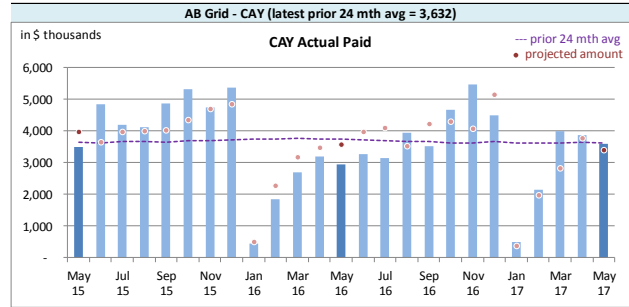
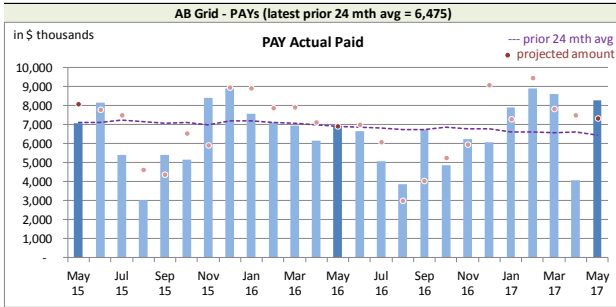
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

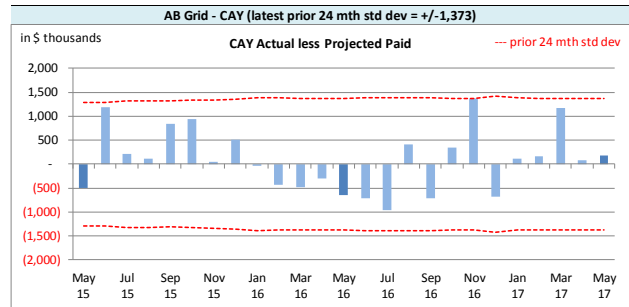
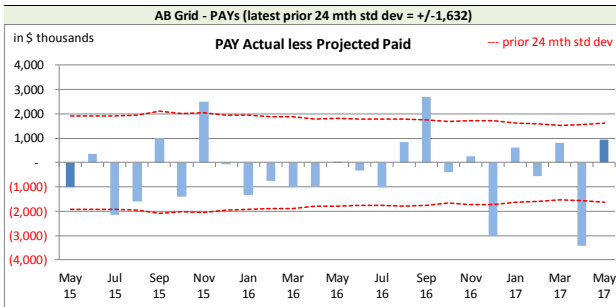
<sup>7</sup>Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned premium), deriving year-to-date recorded as selected ultimate less IBNR. In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

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



The charts immediately below show the actual less projected **paid** variances for the last 25 calendar months, along with bands for the “prior 24-month standard deviations” 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		
<b>Paid</b>	PAYs	CAY
Mthly Avg Paid (prior 24 mths)	6,475	3,632
std dev	1,632	1,373
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 better than simply projecting

from the preceding 24-month average. However, there appears to be evidence of bias (actuals tend to be lower than projected) – as discussed with respect to **recorded** activity potentially showing bias the other way (i.e. with actuals tending to be higher than projected), this bias divergence may suggest a change in case reserve activity relative to historical norms. We have taken measures to try and eliminate the bias and for now they seem to be successful. We will continue to monitor.

The current accident year (CAY) **paid** variances (right chart above) indicated bias through 2015 (where actuals tend to be higher than our projections), but efforts to address this may have generated bias the other way. The CAY **paid** variances 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 influence<sup>8</sup> Paid activity by Calendar Month*



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

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

**2.2 Actuarial Provisions**

An “ultimate loss ratio matching method” (described in section 3) is used to determine the month’s IBNR<sup>9</sup>, and factors are applied to the nominal unpaid claims liability (case plus IBNR) to determine the discount amount (shown as a negative value to indicate its impact of reducing the liability) and the Provisions for Adverse Deviations. The loss ratios and the factors used to determine the projections and actuals were based on the applicable valuation. The table at the top of the next page summarizes variances in provisions included in the May 2017 Operational Report and the associated one-month projections from last month’s Report.

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

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

*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	30,332	(5,178)	(3,094)	253	14,874	(184)	42,112	(5,109)
2015	21,848	153	(1,687)	134	7,743	219	27,904	506
2016	25,064	5,968	(2,045)	49	8,389	461	31,408	6,478
2017	15,972	2,239	(1,162)	50	4,743	151	19,553	2,440
<b>TOTAL</b>	<b>93,216</b>	<b>3,182</b>	<b>(7,988)</b>	<b>486</b>	<b>35,749</b>	<b>647</b>	<b>120,977</b>	<b>4,315</b>

The IBNR provision is \$3.2 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 May 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:	(9,828)	1,787	4,967	(37)	(4,861)	1,750
balance as % unearned premium:	(13.3%)	1.9%	6.7%	0.1%	(6.6%)	2.0%
actual unearned premium:	73,993					
less projected:	(2,578)					

### 3 Ultimate Loss Ratio Matching Method

An “ultimate loss ratio matching method” continues to be applied to the current month and two

projected months shown in the Operational Reports, with IBNR determined by accident year as follows:

- (a) Earned premium to-date
- (b) Ultimate loss<sup>10</sup> 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 expenses<sup>11</sup>, 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 88.3% rather than 86.5% (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	15,903	26.6%	(4,923)	(8.2%)	10,980	18.3%	4,512	4.7%
CAY	52,857	88.3%	3,581	6.0%	56,438	94.2%	12,738	2.5%
TOTAL	68,760	114.8%	(1,342)	(2.2%)	67,418	112.6%	17,249	7.3%

(“% 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 the 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 due to the valuation implementation.

For the current accident year (CAY), changes in the year-to-date total reflects the additional month’s exposure and regular changes to actuarial present value adjustments as the year ages and due to the valuation implementation.

#### 5 Current Operational Report – Additional Exhibits

Section 6 provides exhibits pertaining to the actuarial provisions reflected in the current month’s Operational Report.

<sup>10</sup>“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).

<sup>11</sup>Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this analysis.



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 Apr. 2017	Actual May. 2017	Projected Jun. 2017	Projected Jul. 2017	Projected Dec. 2017
	2004	(72)	(72)	(72)	(72)	(72)
	2005	341	(418)	(405)	(398)	(345)
	2006	(119)	101	98	95	82
	2007	552	79	76	71	60
	2008	1,197	462	447	438	378
	2009	1,157	1,120	1,087	1,061	918
	2010	2,299	585	566	548	471
	2011	4,762	3,579	3,471	3,390	2,930
discount rate	2012	8,194	6,349	6,131	5,991	5,197
0.98%	2013	11,267	11,249	10,911	10,693	9,299
	2014	18,388	19,078	18,358	17,948	15,894
interest rate margin	2015	28,246	27,904	26,630	25,474	22,308
25 basis pts	2016	27,471	31,408	29,714	28,177	24,067
	2017	13,021	19,553	23,218	27,166	38,282
	<b>TOTAL</b>	<b>116,704</b>	<b>120,977</b>	<b>120,230</b>	<b>120,582</b>	<b>119,469</b>
	Change		4,273	(747)	352	

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

**EXHIBIT B**
**IBNR**

TABLE EXHIBIT B

Amounts in \$000s

IBNR	Ultimate Loss Ratio	Accident Year	Actual Apr. 2017	Actual May. 2017	Projected Jun. 2017	Projected Jul. 2017	Projected Dec. 2017
	51.6%	2004	(80)	(80)	(80)	(80)	(80)
	59.2%	2005	208	(512)	(497)	(487)	(423)
	66.4%	2006	(195)	3	3	3	3
	70.1%	2007	202	(248)	(241)	(236)	(204)
	67.0%	2008	969	276	268	263	228
	60.6%	2009	735	711	690	676	587
	61.3%	2010	1,612	(95)	(92)	(90)	(78)
	66.5%	2011	3,349	2,224	2,157	2,114	1,834
	73.9%	2012	6,279	4,583	4,400	4,312	3,741
	78.1%	2013	8,812	8,796	8,532	8,361	7,255
	87.5%	2014	14,041	14,674	14,087	13,805	12,225
	93.0%	2015	22,366	21,848	20,756	19,718	17,105
	92.6%	2016	21,456	25,064	23,560	22,146	18,617
	86.5%	2017	10,304	15,972	19,074	22,317	30,595
		<b>TOTAL</b>	<b>90,058</b>	<b>93,216</b>	<b>92,617</b>	<b>92,822</b>	<b>91,405</b>
		Change		3,158	(599)	205	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Apr. 2017	Actual May. 2017	Projected Jun. 2017	Projected Jul. 2017	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	72,026	73,993	77,540	79,773	78,782
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	91.2%	93.4%	93.4%	93.4%	93.1%
(3) expected future costs {(1) x (2)}	65,699	69,132	72,418	74,473	73,327
(4) premium deficiency / (deferred policy acquisition cost)	(6,327)	(4,861)	(5,122)	(5,300)	(5,455)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	84.7%	86.7%	86.7%	86.6%	86.4%
(6) expected future costs {(1) x (5)}	61,001	64,165	67,216	69,123	68,061
(7) premium deficiency / (deferred policy acquisition cost)	(11,025)	(9,828)	(10,324)	(10,650)	(10,721)

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	development PfAD	Total apvs		
2004	-	(80)	(80)	-	-	8	8	(72)	
2005	1,315	(423)	892	(14)	4	88	78	970	
2006	926	3	929	(16)	4	91	79	1,008	
2007	3,262	(204)	3,058	(49)	12	301	264	3,322	
2008	1,534	228	1,762	(30)	7	173	150	1,912	
2009	3,448	587	4,035	(85)	20	396	331	4,366	
2010	6,976	(78)	6,898	(172)	48	673	549	7,447	
2011	11,928	1,834	13,762	(330)	83	1,343	1,096	14,858	
2012	14,305	3,741	18,046	(415)	108	1,763	1,456	19,502	
2013	18,046	7,255	25,301	(557)	127	2,474	2,044	27,345	
2014	23,097	12,225	35,322	(883)	247	4,305	3,669	38,991	
2015	34,663	17,105	51,768	(1,449)	362	6,290	5,203	56,971	
2016	38,038	18,617	56,655	(1,756)	453	6,753	5,450	62,105	
PAYs (sub-total):	157,538	60,810	218,348	(5,756)	1,475	24,658	20,377	238,725	
CAY (2017)	52,544	30,595	83,139	(2,494)	665	9,516	7,687	90,826	
<b>claims liabilities:</b>	<b>210,082</b>	<b>91,405</b>	<b>301,487</b>	<b>(8,250)</b>	<b>2,140</b>	<b>34,174</b>	<b>28,064</b>	<b>329,551</b>	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*	
<b>premium liabilities:</b>	78,782	(10,721)	68,061	(1,628)	407	6,487	5,266	73,327	
*Total may not be sum of parts, as apvs apply to future costs within UPR									
<b>policy liabilities:</b>			<b>369,548</b>	<b>(9,878)</b>	<b>2,547</b>	<b>40,661</b>	<b>33,330</b>	<b>402,878</b>	

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.

Accident Year	Selected Claims Development MfADs (Mar. 30, 2017)			Total
	Third Party Liability	Accident Benefits	Other Coverages	
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%	9.6%	10.0%
2011	10.0%	10.0%	9.9%	10.0%
2012	10.0%	10.0%	9.7%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	12.5%	10.0%	12.5%	12.5%
2015	12.5%	10.0%	12.5%	12.5%
2016	12.4%	10.0%	9.7%	12.3%
2017	12.1%	10.0%	7.2%	11.8%
2018	12.5%	10.0%	12.5%	12.5%
prem liab	11.8%	10.0%	5.2%	9.8%

discount rate: 0.98%  
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 (0.98%), the prior valuation assumption (1.06%) 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

Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2017 projected Unpaid								
AY	0.48%	0.98%	1.48%	1.98%	2.48%	2.98%	1.06%	0.54%
2004	-	-	-	-	-	-	-	-
2005	1,242	1,231	1,221	1,212	1,202	1,192	1,230	1,240
2006	864	856	848	841	834	827	855	863
2007	2,933	2,909	2,885	2,862	2,839	2,816	2,905	2,930
2008	1,776	1,760	1,744	1,729	1,714	1,699	1,757	1,774
2009	4,872	4,819	4,769	4,719	4,670	4,622	4,811	4,865
2010	7,788	7,688	7,593	7,499	7,408	7,318	7,673	7,775
2011	12,962	12,802	12,646	12,494	12,346	12,202	12,776	12,943
2012	18,563	18,347	18,138	17,935	17,737	17,544	18,314	18,536
2013	25,675	25,381	25,096	24,816	24,547	24,283	25,334	25,640
2014	40,665	40,146	39,647	39,163	38,688	38,227	40,065	40,600
2016	62,588	61,589	60,628	59,697	58,787	57,911	61,436	62,466
2017	102,151	100,575	99,050	97,574	96,156	94,762	100,331	101,958
<b>Total</b>	<b>340,301</b>	<b>335,478</b>	<b>330,818</b>	<b>326,290</b>	<b>321,902</b>	<b>317,626</b>	<b>334,723</b>	<b>339,707</b>
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

Dollar Impact Relative to Valuation Assumption								
AY	0.48%	0.98%	1.48%	1.98%	2.48%	2.98%	1.06%	0.54%
<b>Total</b>	<b>4,823</b>	<b>-</b>	<b>(4,660)</b>	<b>(9,188)</b>	<b>(13,576)</b>	<b>(17,852)</b>	<b>(755)</b>	<b>4,229</b>
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

Percentage Impact Relative to Valuation Assumption								
AY	0.48%	0.98%	1.48%	1.98%	2.48%	2.98%	1.06%	0.54%
2004	-	-	-	-	-	-	-	-
2005	0.9%	-	(0.8%)	(1.5%)	(2.4%)	(3.2%)	(0.1%)	0.7%
2006	0.9%	-	(0.9%)	(1.8%)	(2.6%)	(3.4%)	(0.1%)	0.8%
2007	0.8%	-	(0.8%)	(1.6%)	(2.4%)	(3.2%)	(0.1%)	0.7%
2008	0.9%	-	(0.9%)	(1.8%)	(2.6%)	(3.5%)	(0.2%)	0.8%
2009	1.1%	-	(1.0%)	(2.1%)	(3.1%)	(4.1%)	(0.2%)	1.0%
2010	1.3%	-	(1.2%)	(2.5%)	(3.6%)	(4.8%)	(0.2%)	1.1%
2011	1.2%	-	(1.2%)	(2.4%)	(3.6%)	(4.7%)	(0.2%)	1.1%
2012	1.2%	-	(1.1%)	(2.2%)	(3.3%)	(4.4%)	(0.2%)	1.0%
2013	1.2%	-	(1.1%)	(2.2%)	(3.3%)	(4.3%)	(0.2%)	1.0%
2014	1.3%	-	(1.2%)	(2.4%)	(3.6%)	(4.8%)	(0.2%)	1.1%
2016	1.6%	-	(1.6%)	(3.1%)	(4.5%)	(6.0%)	(0.2%)	1.4%
2017	1.6%	-	(1.5%)	(3.0%)	(4.4%)	(5.8%)	(0.2%)	1.4%
<b>Total</b>	<b>1.4%</b>	<b>-</b>	<b>(1.4%)</b>	<b>(2.7%)</b>	<b>(4.0%)</b>	<b>(5.3%)</b>	<b>(0.2%)</b>	<b>1.3%</b>
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

EXHIBIT G

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

RSP **Alberta Grid**  
AccountCode Desc **IBNR - Discour**

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	341	(7)	(753)	1	(759)	(222.6%)	(418)
2006	(119)	(2)	(103)	325	220	(184.9%)	101
2007	552	(12)	(131)	(330)	(473)	(85.7%)	79
2008	1,197	(18)	(101)	(616)	(735)	(61.4%)	462
2009	1,157	(20)	(22)	5	(37)	(3.2%)	1,120
2010	2,299	(37)	(1,696)	19	(1,714)	(74.6%)	585
2011	4,762	(76)	(496)	(611)	(1,183)	(24.8%)	3,579
2012	8,194	(165)	(738)	(942)	(1,845)	(22.5%)	6,349
2013	11,267	(138)	83	37	(18)	(0.2%)	11,249
2014	18,388	(270)	74	886	690	3.8%	19,078
2015	28,246	(848)	(1,307)	1,813	(342)	(1.2%)	27,904
2016	27,471	(2,541)	1,644	4,834	3,937	14.3%	31,408
2017	13,021	4,092	783	1,657	6,532	50.2%	19,553
<b>Grand Total</b>	<b>116,704</b>	<b>(42)</b>	<b>(2,763)</b>	<b>7,078</b>	<b>4,273</b>	<b>3.7%</b>	<b>120,977</b>



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 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	208	(2)	(718)	-	(720)	(346.2%)	(512)
2006	(195)	2	(102)	298	198	(101.5%)	3
2007	202	(2)	(140)	(308)	(450)	(222.8%)	(248)
2008	969	(10)	(107)	(576)	(693)	(71.5%)	276
2009	735	(7)	(17)	-	(24)	(3.3%)	711
2010	1,612	(16)	(1,691)	-	(1,707)	(105.9%)	(95)
2011	3,349	(33)	(491)	(601)	(1,125)	(33.6%)	2,224
2012	6,279	(126)	(654)	(916)	(1,696)	(27.0%)	4,583
2013	8,812	(88)	72	-	(16)	(0.2%)	8,796
2014	14,041	(140)	50	723	633	4.5%	14,674
2015	22,366	(671)	(1,314)	1,467	(518)	(2.3%)	21,848
2016	21,456	(2,360)	1,639	4,329	3,608	16.8%	25,064
2017	10,304	3,429	833	1,406	5,668	55.0%	15,972
<b>Grand Total</b>	<b>90,058</b>	<b>(24)</b>	<b>(2,640)</b>	<b>5,822</b>	<b>3,158</b>	<b>3.5%</b>	<b>93,216</b>