



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

**ACTUARIAL HIGHLIGHTS**  
**RSP ALBERTA NON-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 NON-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)	0.55% mfad: 25 bp	Oct. 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 7.2 points to 112.8%; discount rate decreased by 6 basis points; no change to selected margins for adverse deviations
Dec. 31, 2016 (completed)	1.08% mfad: 25 bp	Mar. 2017	updated valuation: accident year 2016 loss ratio increased 1.1 points to 113.9%; accident year 2017 loss ratio increased 5.0 points to 103.3%; discount rate increased by 53 basis points; no change to selected margins for adverse deviations
Mar. 31, 2017 (completed)	0.99% mfad: 25 bp	May 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 3.1 points to 106.4%; discount rate decreased by 9 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 Non-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 Non-Grid	unfav / (fav) for the month and ytd					
	IMPACT in \$000s from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	2,993	181	3,174	439	-	3,613
CAY	1,267	112	1,379	92	-	1,471
Prem Def	1,256	(13)	1,243	114	-	1,357
<b>TOTAL</b>	<b>5,516</b>	<b>280</b>	<b>5,796</b>	<b>645</b>	<b>-</b>	<b>6,441</b>

As indicated in the table above, the incorporation of the new valuation had an estimated **\$6.4 million unfavourable impact** on the month's net result from operations, adding an estimated 15.9 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **148.3%**.

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

AB Non-Grid	ytd EP 40,412 (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%	0.4%	7.9%	1.1%	-	8.9%
CAY	3.1%	0.3%	3.4%	0.2%	-	3.6%
Prem Def	3.1%	-	3.1%	0.3%	-	3.4%
<b>TOTAL</b>	<b>13.6%</b>	<b>0.7%</b>	<b>14.3%</b>	<b>1.6%</b>	<b>-</b>	<b>15.9%</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 \$5.5 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 \$3.0 million unfavourable variance, which is attributed to recorded activity process variance. This unfavourable change is 2.1% of the prior accident years' nominal unpaid balance of \$145.3 million determined at the end of last month (April 2017).

The current accident year and premium deficiency impacts are a result of the changes in the selected loss ratio for accident year **2017** (up 3.1 points from 103.3% to **106.4%**). There was no change to the selected loss ratio for accident year **2018** (remains at **105.7%**).

<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.

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 \$0.3 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 9 basis points to **0.99%**), indicating an unfavourable impact of \$0.6 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$0.5 million at May 2017 (projected \$0.6 million impact at December 31, 2017) – this compares to the \$0.5 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

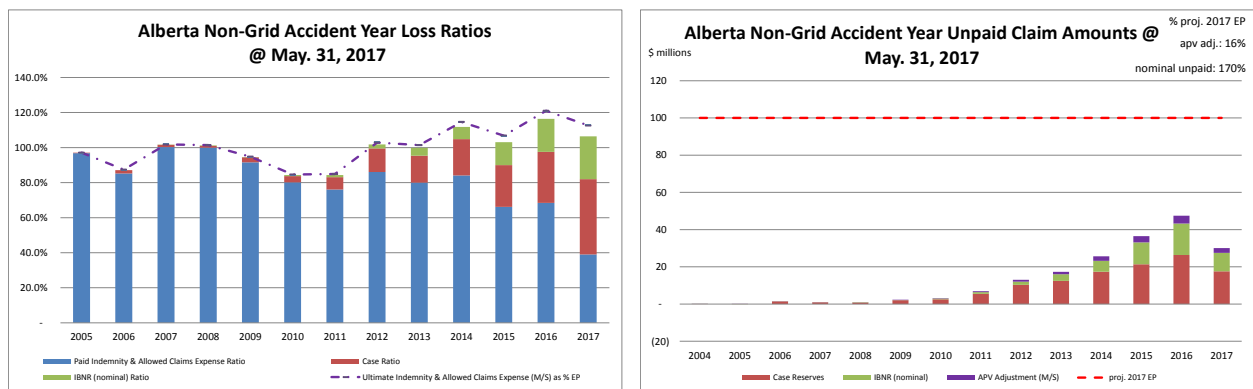
and sued the at-fault driver for damages. According to the Supreme Court decision, “*The trial judge found that the ... accident caused S psychological injuries, including personality change and cognitive difficulties. ...and awarded S \$100,000 for non-pecuniary damages.*” The trial decision was appealed 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 immediately below 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.



“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 (\$15.9 million – see table at the top of the next page) 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

<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.

operating result over future periods.

claim liabilities (\$000s)		
	amt	%
case	118,824	63.8%
ibnr	51,591	27.7%
M/S apv adjust.	15,860	8.5%
M/S total	186,275	100.0%

The table to the left breaks down the Member Statement (M/S) claim liabilities total into component parts, showing that the majority of the claim liabilities is in case reserves for this pool. Approximately 52% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 84% of the M/S total

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

The tables at the top of the next page summarize the premium liabilities and the total policy liabilities.

premium liabilities (\$000s)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	49,349	87.5%	claim	170,415	70.2%
prem def/(dpac)	3,328	5.9%	premium	52,677	21.7%
M/S apv adjust.	3,737	6.6%	M/S apv adjust.	19,597	8.1%
M/S total	56,414	100.0%	M/S total	242,689	100.0%

## 2 Activity During the Month of May 2017

### 2.1 Recorded Premium and Claims Activity

The table immediately below 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>.

*Alberta Non-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	2	2	3,227	1,828	(1,130)	(283)	2,097	1,545
2015	(3)	(3)	648	(5)	(354)	(137)	294	(142)
2016	(56)	(56)	1,473	193	(1,042)	(373)	431	(180)
2017	8,384	(71)	4,308	373	1,458	(2,681)	5,766	(2,308)
TOTAL	8,327	(128)	9,656	2,389	(1,068)	(3,474)	8,588	(1,086)

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

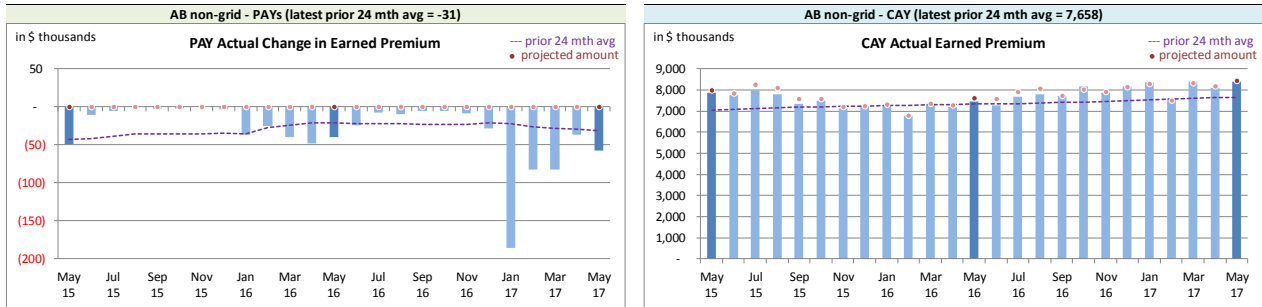
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural "process variance". Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the variance. Commentary from our review is provided in the sub-sections that follow.

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

### 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.

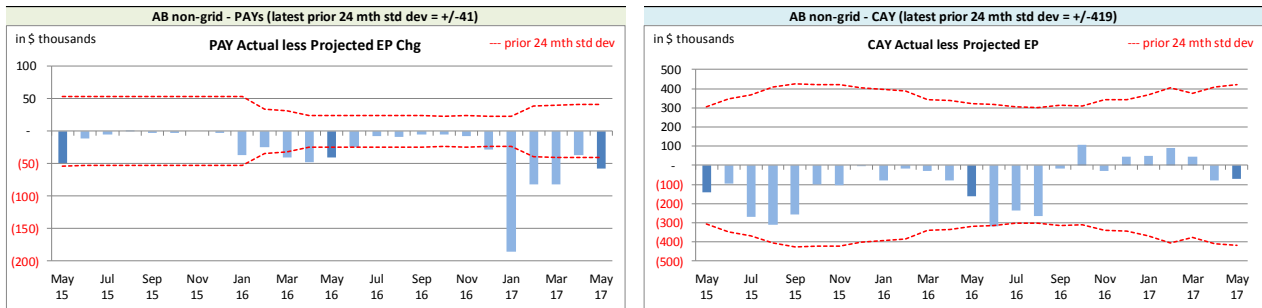
*Alberta non-Grid RSP Actual Earned Premium by Calendar Month*



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

The associated variance between the actual changes and the projections from the previous month are shown in the charts immediately below. **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.

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



On Latest \$ thousands			
<b>Earned Premium</b>	PAYS	CAY	
Mthly Avg EP Chg (prior 24 mths)	(31)	7,658	
std dev	41	419	
A-P <> std dev	8	1	
% <> std dev	32.0%	4.0%	
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

<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.

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

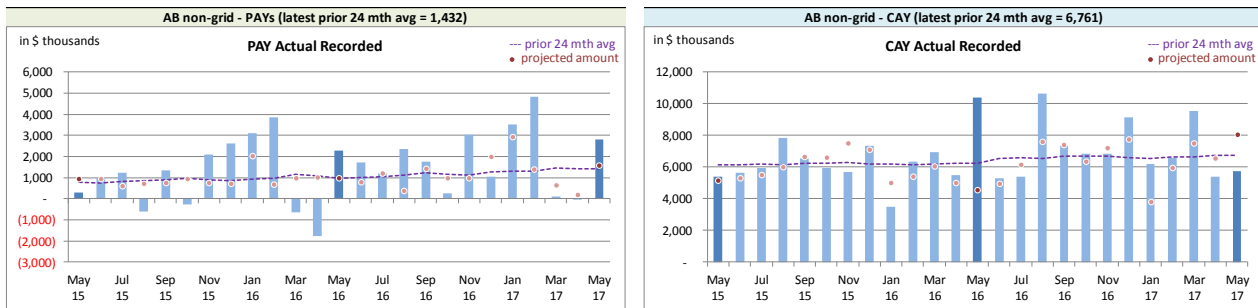


monthly premium. In addition to the PAYs’ bias, the CAY has also shown bias, with actuals being generally lower than projected. Starting with the August 2016 projections, we have modified our projections processes in an attempt to account for CAY bias. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

**2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense**

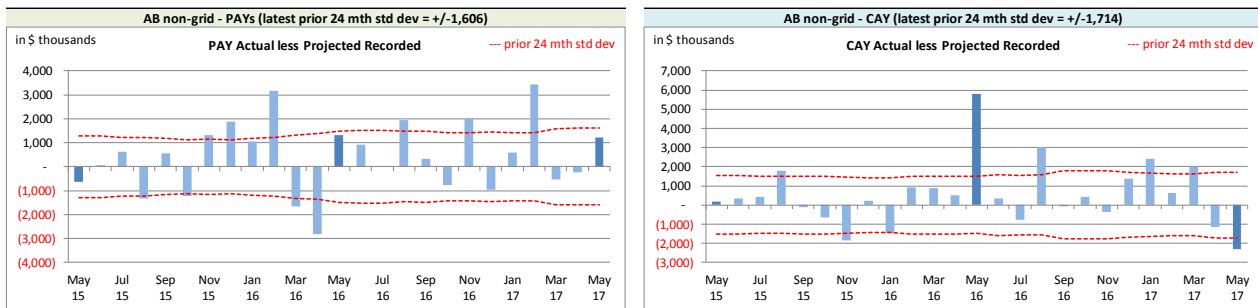
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period is shown in the charts immediately below, including the “prior 24-month average” level.

*Alberta non-Grid RSP Actual **Recorded** by Calendar Month*



**Recorded** activity variances from the previous month’s projections are shown in the charts immediately below, including the “prior 24-month standard deviation” levels.

*Alberta non-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)	1,432	6,761
std dev	1,606	1,714
A-P <> std dev	10	8
% <> std dev	40.0%	32.0%
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) fell outside of the experience period’s standard deviation, suggesting the projection process performs worse than a projection based simply on the 24-month average. We are looking

at options in an attempt to address this.

The current accident year (CAY) **recorded** variances (right chart above) have been greater than one standard deviation 32% of the time, suggesting that the projection process is no better than simply projecting the most recent prior 24-month average.

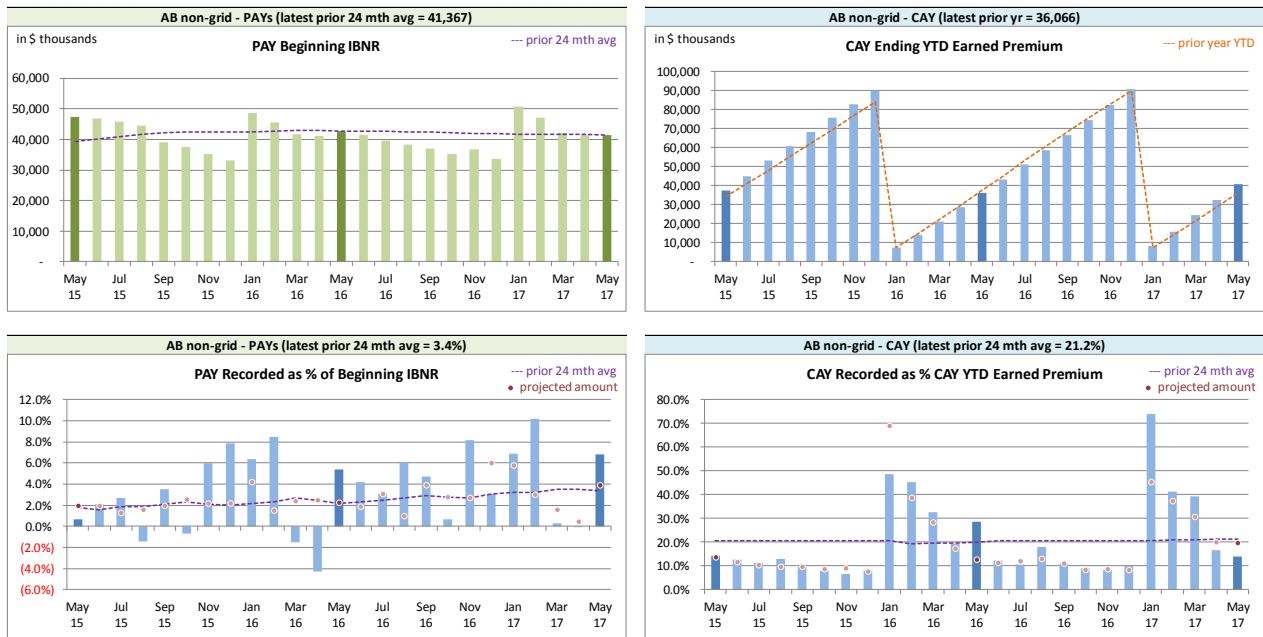
The CAYs **recorded** variance for the current month was outside the one standard deviation band.

The activity was reviewed and confirmed, with the variance attributed to process variance.

The 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 immediately below related to levels influencing **recorded** activity.

*Alberta non-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).

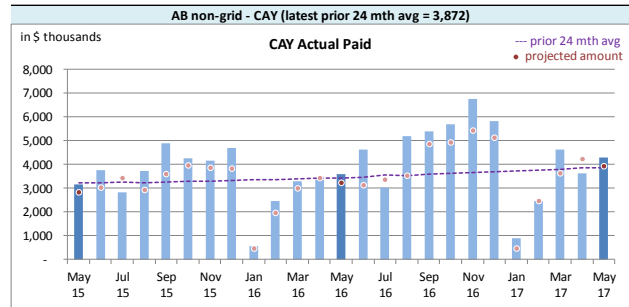
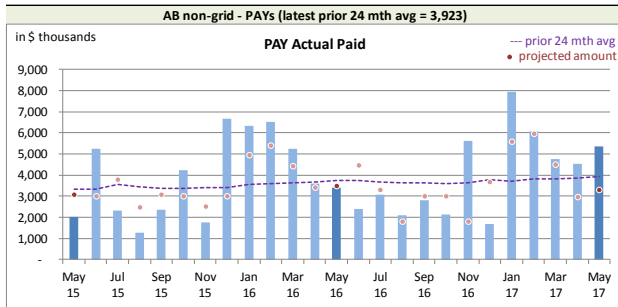
**2.1.c AvsP: Paid Indemnity & Allowed Claims Expense**

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

<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.

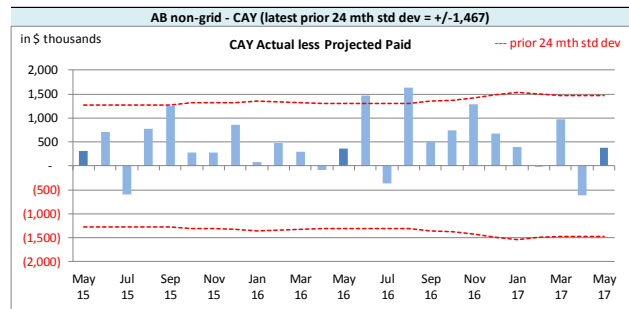
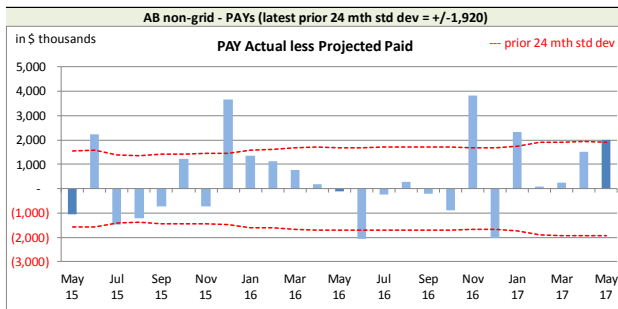
compares with the average amount of the preceding 24 calendar months.

*Alberta non-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 non-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)	3,923	3,872
std dev	1,920	1,467
A-P <> std dev	8	2
% <> std dev	32.0%	8.0%
norm <> std dev	31.7%	31.7%

With respect to **paid** indemnity & allowed claims expense, the prior accident years’ variances (left chart above) do not appear to have bias and the magnitude of the variances do not appear to be an issue. With 32% of prior accident years (PAYs) **paid** variances over the last 25 calendar months falling outside of one

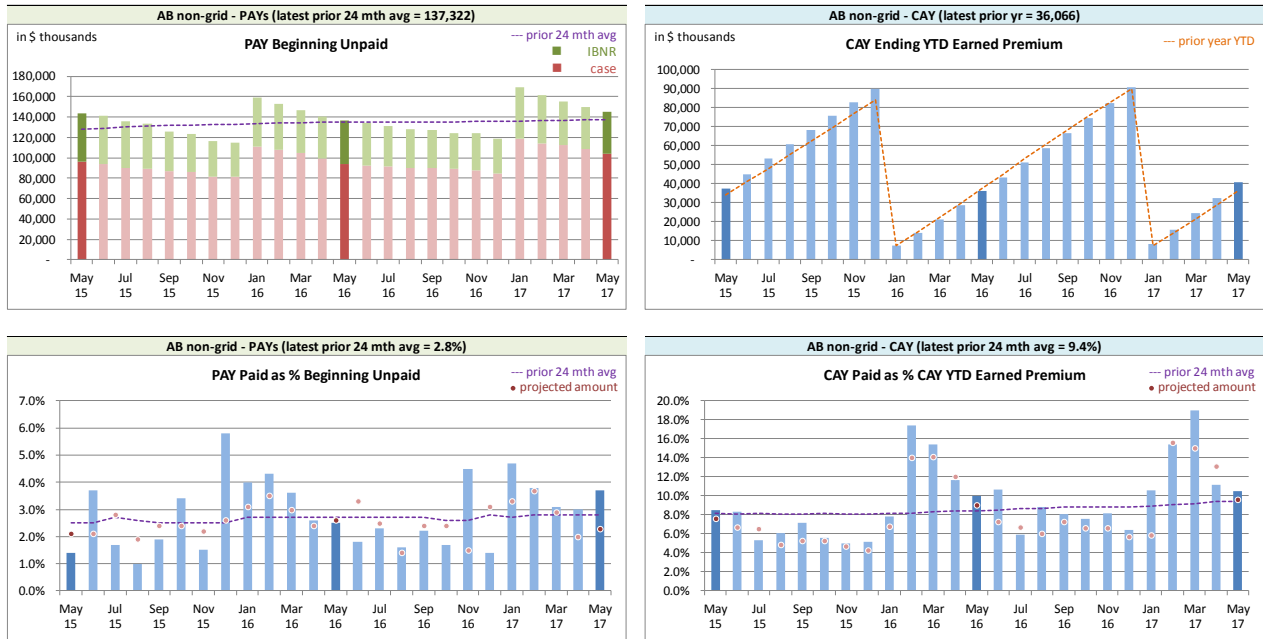
standard deviation, the projection process appears to have performed no better than simply projecting based on a 24-month average.

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.

With only 8% of the current accident year (CAY) **paid** variances falling outside of one standard deviation of the experience period activity, the projection process appears to perform better than simply projecting based on a 24-month average. However, there does appear to be evidence of bias (actuals tend to be higher than our projections) and we are considering options on how to address this.

We have included, for reference, additional charts at the top of the next page related to levels influencing **paid** activity.

*Alberta non-Grid RSP Levels that 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 Non-Grid RSP Actual vs Projected Summary: IBNR and APV Amounts (\$ thousands)*

Table 02		actuarial present value adjustments						
Accident Year	IBNR		Discount Amount		Provisions for Adverse Deviations		IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	12,919	(1,886)	(1,641)	195	7,475	(311)	18,753	(2,002)
2015	11,766	1,307	(962)	30	4,259	190	15,063	1,527
2016	16,937	2,284	(1,342)	65	5,548	262	21,143	2,611
2017	9,969	3,501	(799)	56	3,322	109	12,492	3,666
TOTAL	51,591	5,206	(4,744)	346	20,604	250	67,451	5,802

The IBNR provision is \$5.2 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 premium deficiency liability / (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 premium deficiency position (shown as a positive amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments increase the liability value as the adjustments increase the expected future policy obligations (costs) associated with the unearned premium. Variances are mainly driven by the unearned premium variance and due to the valuation implementation.

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

Table 03	Premium Deficiency / (Deferred Policy Acquisition Costs)		actuarial present value adjustments		Premium Deficiency / (DPAC) including actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
balance:	3,328	1,216	3,737	36	7,065	1,252
balance as % unearned premium:	6.7%	2.5%	7.6%	0.2%	14.3%	2.7%
actual unearned premium:	49,349					
less projected:	(894)					

### 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 107.6% rather than 106.4% (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 Non-Grid RSP Summary of Operations due to rounding.)

*Alberta Non-Grid RSP Calendar Year-to-Date Indemnity & Allowed Claims Expense Summary*  
 (\$ thousands)

Table 04	YTD Nominal Values		YTD actuarial present value adjustment		YTD Total		Change from Prior Month YTD	
	Amount	% EP	Amount	% EP	Amount	% EP	Amount	LR pts
PAYs	2,049	5.1%	(4,221)	(10.4%)	(2,172)	(5.4%)	3,053	10.9%
CAY	43,470	107.6%	2,523	6.2%	45,993	113.8%	10,515	3.2%
TOTAL	45,519	112.6%	(1,698)	(4.2%)	43,821	108.4%	13,569	14.1%

(“% 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 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

<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.

Operational Report.

IBNR (including actuarial present value adjustments) presented in section 6, Exhibit A, were derived on a discounted basis, and therefore reflect the time value of money and include an explicit provision for adverse deviations in accordance with accepted actuarial practice in Canada.

IBNR presented in section 6, Exhibit B, does NOT include any actuarial present value adjustments. The “Total IBNR” from this exhibit is shown in the Operational Report as “Undiscounted IBNR”.

The ultimate loss ratios detailed in section 6, Exhibit B, refer to the estimates derived on the basis of various actuarial methodologies applied to the experience of the Alberta Non-Grid Risk Sharing Pool for the purposes of the most recent quarterly valuation. As discussed in section 3, IBNR reflected in the current month’s Operational Report was derived as the difference between the estimated ultimate for the claims amount (i.e. earned premium x ultimate loss ratio) and the associated current recorded amounts (life-to-date payments plus current case reserves).

## **6 EXHIBITS**

The exhibits listed below are provided on the pages that follow:

- EXHIBIT A IBNR for Member Sharing – includes Actuarial Present Value Adjustments
- EXHIBIT B IBNR
- EXHIBIT C Premium Liabilities
- EXHIBIT D Projected Year-end Policy Liabilities
- EXHIBIT E Discount Rate & Margins for Adverse Deviations
- EXHIBIT F Interest Rate Sensitivity
- EXHIBIT G Components of IBNR Change During Month

## EXHIBIT A

## IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A

		Amounts in \$000s				
IBNR + M/S actuarial present value adjustments	Accident Year	Actual Apr. 2017	Actual May. 2017	Projected Jun. 2017	Projected Jul. 2017	Projected Dec. 2017
	2004	42	42	42	42	42
	2005	(480)	1	-	-	-
	2006	145	146	143	141	129
	2007	69	150	147	146	133
	2008	734	325	318	312	281
	2009	261	237	233	228	206
	2010	821	654	644	630	563
	2011	1,088	1,444	1,415	1,387	1,237
discount rate	2012	2,523	2,699	2,628	2,575	2,298
0.99%	2013	4,854	4,811	4,715	4,655	4,146
	2014	11,371	8,244	8,056	7,895	6,940
interest rate margin	2015	14,035	15,063	14,728	14,434	12,155
25 basis pts	2016	19,264	21,143	20,340	19,607	15,699
	2017	7,743	12,492	15,414	19,024	24,425
	<b>TOTAL</b>	<b>62,470</b>	<b>67,451</b>	<b>68,823</b>	<b>71,076</b>	<b>68,254</b>
	Change		4,981	1,372	2,253	

*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
	349.1%	2004	36	36	36	36	36
	97.1%	2005	(530)	(6)	(6)	(6)	(6)
	87.2%	2006	21	20	20	20	20
	101.7%	2007	(6)	67	66	65	60
	101.3%	2008	622	240	235	230	208
	94.6%	2009	51	60	59	58	53
	84.3%	2010	563	415	407	399	353
	84.3%	2011	624	939	920	902	799
	101.7%	2012	1,593	1,739	1,687	1,653	1,464
	99.8%	2013	3,605	3,553	3,482	3,447	3,053
	111.8%	2014	8,778	5,856	5,739	5,624	4,878
	103.1%	2015	10,895	11,766	11,531	11,300	9,351
	116.3%	2016	15,264	16,937	16,260	15,610	12,197
	106.4%	2017	5,808	9,969	12,566	15,646	19,237
		<b>TOTAL</b>	<b>47,324</b>	<b>51,591</b>	<b>53,002</b>	<b>54,984</b>	<b>51,703</b>
		Change		4,267	1,411	1,982	

*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)	48,628	49,349	50,480	51,074	50,275
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	111.4%	114.3%	114.3%	114.2%	113.7%
(3) expected future costs {(1) x (2)}	54,171	56,414	57,678	58,321	57,166
(4) premium deficiency / (deferred policy acquisition cost)	5,543	7,065	7,198	7,247	6,891
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	104.0%	106.7%	106.7%	106.6%	106.2%
(6) expected future costs {(1) x (5)}	50,593	52,677	53,858	54,459	53,379
(7) premium deficiency / (deferred policy acquisition cost)	1,965	3,328	3,378	3,385	3,104

**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 non-Grid ending 2017		Projected Balances as at Dec. 31, 2017 (\$000s)						
		nominal values			actuarial present value adjustments (apvs)			
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs	TOTAL
2004	26	36	62	-	-	6	6	68
2005	74	(6)	68	(1)	-	7	6	74
2006	1,240	20	1,260	(20)	5	124	109	1,369
2007	776	60	836	(13)	3	83	73	909
2008	661	208	869	(16)	4	85	73	942
2009	1,795	53	1,848	(39)	11	181	153	2,001
2010	2,245	353	2,598	(60)	16	254	210	2,808
2011	4,779	799	5,578	(139)	33	544	438	6,016
2012	9,007	1,464	10,471	(251)	63	1,022	834	11,305
2013	10,879	3,053	13,932	(362)	98	1,357	1,093	15,025
2014	15,193	4,878	20,071	(522)	140	2,444	2,062	22,133
2015	18,850	9,351	28,201	(818)	226	3,396	2,804	31,005
2016	23,856	12,197	36,053	(1,118)	288	4,332	3,502	39,555
<b>PAYs (sub-total):</b>	<b>89,381</b>	<b>32,466</b>	<b>121,847</b>	<b>(3,359)</b>	<b>887</b>	<b>13,835</b>	<b>11,363</b>	<b>133,210</b>
<b>CAY (2017)</b>	<b>37,405</b>	<b>19,237</b>	<b>56,642</b>	<b>(1,643)</b>	<b>396</b>	<b>6,435</b>	<b>5,188</b>	<b>61,830</b>
<b>claims liabilities:</b>	<b>126,786</b>	<b>51,703</b>	<b>178,489</b>	<b>(5,002)</b>	<b>1,283</b>	<b>20,270</b>	<b>16,551</b>	<b>195,040</b>
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
<b>premium liabilities:</b>	<b>50,275</b>	<b>3,104</b>	<b>53,379</b>	<b>(1,063)</b>	<b>266</b>	<b>4,584</b>	<b>3,787</b>	<b>57,166</b>
*Total may not be sum of parts, as apvs apply to future costs within UPR								
<b>policy liabilities:</b>			<b>231,868</b>	<b>(6,065)</b>	<b>1,549</b>	<b>24,854</b>	<b>20,338</b>	<b>252,206</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.

Selected Claims Development MfADs (Mar. 31, 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%	9.7%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	8.9%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	12.5%	10.0%	12.1%	12.5%
2015	12.5%	10.0%	12.3%	12.4%
2016	12.4%	10.0%	12.5%	12.4%
2017	12.1%	10.0%	7.8%	11.7%
2018	12.5%	10.0%	12.5%	12.5%
prem liab	11.8%	10.0%	5.1%	8.8%

discount rate:	0.99%
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 (0.99%), the prior valuation assumption (1.08%) and the prior fiscal year end valuation assumption (0.55%) 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	0.49%	0.99%	1.49%	1.99%	2.49%	2.99%	1.08%	0.55%
2004	-	-	-	-	-	-	-	-
2005	5	5	5	5	5	5	5	5
2006	1,008	1,000	992	984	976	968	998	1,007
2007	656	651	645	640	635	630	650	655
2008	706	699	693	687	681	675	698	705
2009	2,507	2,481	2,455	2,430	2,406	2,382	2,477	2,504
2010	2,554	2,524	2,495	2,467	2,440	2,413	2,519	2,550
2011	5,720	5,647	5,576	5,508	5,441	5,375	5,634	5,711
2012	10,410	10,283	10,157	10,037	9,920	9,805	10,260	10,394
2013	14,333	14,147	13,965	13,791	13,620	13,454	14,114	14,311
2014	23,910	23,600	23,297	23,005	22,719	22,442	23,544	23,874
2016	42,400	41,733	41,082	40,461	39,855	39,263	41,611	42,318
2017	65,158	64,193	63,247	62,339	61,459	60,602	64,015	65,038
<b>Total</b>	<b>201,258</b>	<b>198,390</b>	<b>195,587</b>	<b>192,896</b>	<b>190,276</b>	<b>187,723</b>	<b>197,870</b>	<b>200,905</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	0.49%	0.99%	1.49%	1.99%	2.49%	2.99%	1.08%	0.55%
<b>Total</b>	<b>2,868</b>	<b>-</b>	<b>(2,803)</b>	<b>(5,494)</b>	<b>(8,114)</b>	<b>(10,667)</b>	<b>(520)</b>	<b>2,515</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	0.49%	0.99%	1.49%	1.99%	2.49%	2.99%	1.08%	0.55%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	0.8%	-	(0.8%)	(1.6%)	(2.4%)	(3.2%)	(0.2%)	0.7%
2007	0.8%	-	(0.9%)	(1.7%)	(2.5%)	(3.2%)	(0.2%)	0.6%
2008	1.0%	-	(0.9%)	(1.7%)	(2.6%)	(3.4%)	(0.1%)	0.9%
2009	1.0%	-	(1.0%)	(2.1%)	(3.0%)	(4.0%)	(0.2%)	0.9%
2010	1.2%	-	(1.1%)	(2.3%)	(3.3%)	(4.4%)	(0.2%)	1.0%
2011	1.3%	-	(1.3%)	(2.5%)	(3.6%)	(4.8%)	(0.2%)	1.1%
2012	1.2%	-	(1.2%)	(2.4%)	(3.5%)	(4.6%)	(0.2%)	1.1%
2013	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.2%)	1.2%
2014	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.2%)	1.2%
2016	1.6%	-	(1.6%)	(3.0%)	(4.5%)	(5.9%)	(0.3%)	1.4%
2017	1.5%	-	(1.5%)	(2.9%)	(4.3%)	(5.6%)	(0.3%)	1.3%
<b>Total</b>	<b>1.4%</b>	<b>-</b>	<b>(1.4%)</b>	<b>(2.8%)</b>	<b>(4.1%)</b>	<b>(5.4%)</b>	<b>(0.3%)</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

Page 1 of 2

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

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

M/S IBNR - in \$000s

AccYear	Values				Sum of 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	42	-	-	-	-	-	42
2005	(480)	10	(10)	481	481	(100.2%)	1
2006	145	(2)	1	2	1	0.7%	146
2007	69	(1)	3	79	81	117.4%	150
2008	734	(14)	14	(409)	(409)	(55.7%)	325
2009	261	(5)	(255)	236	(24)	(9.2%)	237
2010	821	(16)	-	(151)	(167)	(20.3%)	654
2011	1,088	(22)	(60)	438	356	32.7%	1,444
2012	2,523	(50)	115	111	176	7.0%	2,699
2013	4,854	(169)	(12)	138	(43)	(0.9%)	4,811
2014	11,371	(404)	(1,504)	(1,219)	(3,127)	(27.5%)	8,244
2015	14,035	(499)	139	1,388	1,028	7.3%	15,063
2016	19,264	(732)	92	2,519	1,879	9.8%	21,143
2017	7,743	1,083	2,195	1,471	4,749	61.3%	12,492
<b>Grand Total</b>	<b>62,470</b>	<b>(821)</b>	<b>718</b>	<b>5,084</b>	<b>4,981</b>	<b>8.0%</b>	<b>67,451</b>

EXHIBIT G

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

RSP **Alberta Non-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	36	-	-	-	-	-	36
2005	(530)	11	(11)	524	524	(98.9%)	(6)
2006	21	-	(1)	-	(1)	(4.8%)	20
2007	(6)	-	2	71	73	(1,216.7%)	67
2008	622	(12)	12	(382)	(382)	(61.4%)	240
2009	51	(1)	(205)	215	9	17.6%	60
2010	563	(11)	9	(146)	(148)	(26.3%)	415
2011	624	(12)	(66)	393	315	50.5%	939
2012	1,593	(32)	100	78	146	9.2%	1,739
2013	3,605	(144)	11	81	(52)	(1.4%)	3,553
2014	8,778	(351)	(1,394)	(1,177)	(2,922)	(33.3%)	5,856
2015	10,895	(436)	139	1,168	871	8.0%	11,766
2016	15,264	(611)	116	2,168	1,673	11.0%	16,937
2017	5,808	660	2,234	1,267	4,161	71.6%	9,969
<b>Grand Total</b>	<b>47,324</b>	<b>(939)</b>	<b>946</b>	<b>4,260</b>	<b>4,267</b>	<b>9.0%</b>	<b>51,591</b>