



## **ALBERTA NON-GRID RISK SHARING POOL**

### **AUGUST 2016 OPERATIONAL REPORT**

# **ACTUARIAL HIGHLIGHTS**

Related Bulletin: [F16-071 Alberta RSPs August 2016 Operational Reports](#)

Related Quarterly Valuation Highlights:

[Actuarial Quarterly Valuation Highlights Risk Sharing Pools as at June 30, 2016](#)

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**ACTUARIAL HIGHLIGHTS**  
**RSP ALBERTA NON-GRID**  
**OPERATIONAL REPORT**  
**AUGUST 2016**

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## 1 Summary

### 1.1 Valuation Schedule (Fiscal Year 2016)

The August 2016 Operational Report incorporates the results of an updated valuation (as at June 30, 2016) – 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 2016.

ALBERTA NON-GRID RISK SHARING POOL FISCAL YEAR 2016 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2015 (completed)	0.78% mfad: 25 bp	Oct. 2015	updated valuation (roll forward): accident year 2015 loss ratio increased 1.5 points to 101.4%; discount rate decreased by 19 basis points; no change to selected margins for adverse deviations
Dec. 31, 2015 (completed)	0.73% mfad: 25 bp	Mar. 2016	updated valuation: accident year 2015 loss ratio decreased 1.2 points to 100.2%; accident year 2016 loss ratio increased 0.2 points to 95.6%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Mar. 31, 2016 (completed)	0.68% mfad: 25 bp	May 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 0.1 points to 95.7%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Jun. 30, 2016 (completed)	0.61% mfad: 25 bp	Aug. 2016	updated valuation: accident year 2016 loss ratio increased 9.9 points to 105.6%; discount rate decreased by 7 basis points; selected claims development margins for adverse deviations were updated
Sep. 30, 2016		Oct. 2016	update valuation (roll forward):

Under the proposed schedule for fiscal year 2016, the “off-half” valuation quarters ending March 31, 2016 and September 30, 2016 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 June 30, 2016 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 immediately below.

*Summary of Impact (\$000s) of Implementing Result of Valuation as at June 30, 2016<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 [1]	apv adj. [2]	sub-tot [3]	apv adj. [4]	apv adj. [5]	TOTAL [6]
PAYs	1,026	182	1,208	259	(493)	974
CAY	5,823	515	6,338	80	-	6,418
Prem Def	4,053	325	4,378	56	-	4,434
<b>TOTAL</b>	<b>10,902</b>	<b>1,022</b>	<b>11,924</b>	<b>395</b>	<b>(493)</b>	<b>11,826</b>

As indicated in the table above, the incorporation of the new valuation had an estimated **\$11.8 million unfavourable impact** on the month’s net result from operations, adding an estimated 20.2 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **153.9%**.

*Summary of Impact (% YTD EP) of Implementing Result of Valuation as at June 30, 2016*

AB Non-Grid	ytd EP 58,587 (actual)					
	IMPACT unfav / (fav) as % ytd EP from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal [1]	apv adj. [2]	sub-tot [3]	apv adj. [4]	apv adj. [5]	TOTAL [6]
PAYs	1.8%	0.3%	2.1%	0.4%	(0.8%)	1.7%
CAY	9.9%	0.9%	10.8%	0.1%	-	11.0%
Prem Def	6.9%	0.6%	7.5%	0.1%	-	7.6%
<b>TOTAL</b>	<b>18.6%</b>	<b>1.7%</b>	<b>20.4%</b>	<b>0.7%</b>	<b>(0.8%)</b>	<b>20.2%</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 \$10.9 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 \$1.0 million unfavourable variance, which is attributed to recorded activity process variance. This unfavourable change is 0.8% of the prior accident years’ nominal unpaid balance of \$128.4 million determined at the end of last month (July 2016). It is

<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.

interesting to note that we are not seeing the prior accident year deterioration “phenomena” in this RSP that we are seeing occur in the Alberta Grid RSP.

The current accident year and premium deficiency impacts are a result of the changes in the selected loss ratios for accident years **2016** (up 9.9 points from 95.7% to **105.6%**) and **2017** (up 5.9 points from 95.8% to **101.7%**).

The impacts related to actuarial present value 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 \$1.0 million in the actuarial present value adjustments, prior to any changes in the selected discount rate and/or MfADs.

Claims payment emergence patterns were updated and cash flows were reviewed against the selected risk-free yield curve, derived from Government of Canada benchmark bond yields monthly series using values for June 2016. Column [4] accounts for the change in the **discount rate** selected (decreased 7 basis points to **0.61%**), indicating an unfavourable impact of \$0.4 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$0.3 million at August 2016 (projected \$0.4 million impact at December 31, 2016) – this compares to the \$0.3 million change one would estimate as the impact by interpolation using the interest rate sensitivity table provided in last month’s Actuarial Highlights.

Column [5] accounts for any changes to selected MfADs. The selected **investment rate MfAD** was **left unchanged at 25 basis points**. However, selected **claims development MfADs were updated** for some accident years and coverages, resulting in an estimated **overall favourable impact of \$0.5 million**.

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**

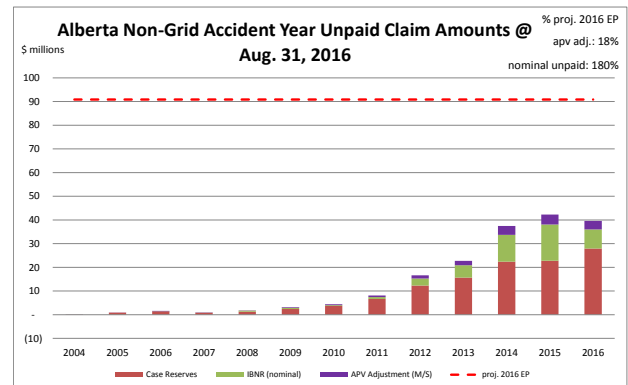
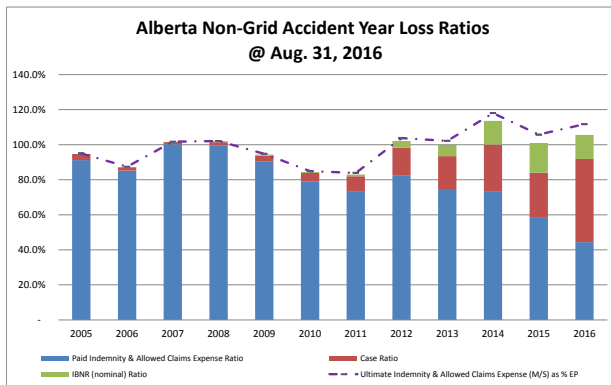
Consideration and assessment of potential impacts of legal decisions and changes in legislation /

regulation constitutes a regular part of the valuation process. Descriptions of some of the more recent changes are provided below.

**Alberta Bill 39** (Enhancing Consumer Protection in Auto Insurance Act) was introduced into the Legislature by the Minister of Finance on November 6, 2013, and received Royal Assent on December 11, 2013. Bill 39 includes various amendments and provisions such as allowing for both mandatory and optional auto insurance premiums to be regulated by the independent Automobile Insurance Rate Board (AIRB), the introduction of an Insurer file and approve system for premium adjustments instead of an annual industry-wide rate adjustment, improved access to health care after a collision and strengthened Insurance Company solvency requirements. No specific adjustments have been made to the current valuation assumptions based on Bill 39.

### 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 2016 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 (\$16.5 million – see table below) represents 18% of the earned premium projected for the full year 2016 (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 period.

claim liabilities (\$000s)	amt	%
case	118,323	65.8%
ibnr	45,026	25.0%
M/S apv adjust.	16,489	9.2%
<b>M/S total</b>	<b>179,838</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 is in case reserves for this pool. Approximately 52% of the IBNR balance relates to accident years 2015 and 2016 (see

<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.

Exhibit B). Approximately 88% of the M/S total claim liabilities are related to accident years 2012-2016 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)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	49,187	88.7%	claim	163,349	69.4%
prem def/(dpac)	2,139	3.9%	premium	51,326	21.8%
M/S apv adjust.	4,130	7.4%	M/S apv adjust.	20,619	8.8%
M/S total	55,456	100.0%	M/S total	235,294	100.0%

## 2 Activity During the Month of August 2016

### 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	(0)	(0)	768	(190)	710	1,524	1,478	1,334
2014	(0)	(0)	605	117	(262)	127	343	244
2015	(8)	(8)	735	349	(198)	31	537	380
2016	7,802	(263)	5,192	1,638	5,463	1,380	10,656	3,018
TOTAL	7,794	(272)	7,300	1,913	5,713	3,062	13,013	4,975

(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.

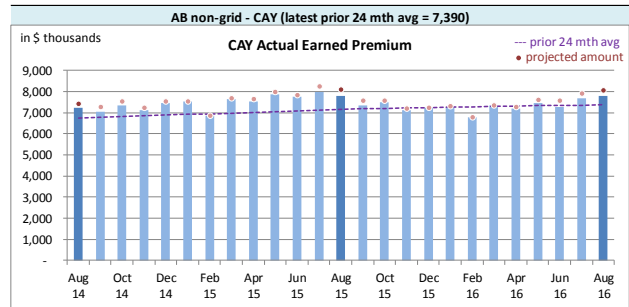
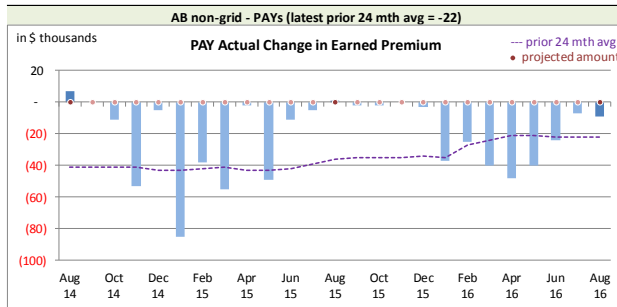
#### 2.1.a Actual vs. Projected (AvsP): Earned Premium

The charts at the top of the next page 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.

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

<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.

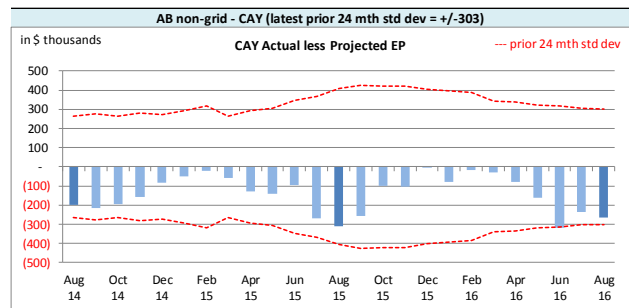
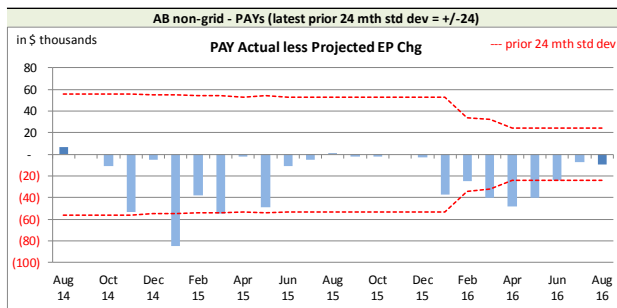
*Alberta non-Grid RSP Actual Earned Premium by Calendar Month*



**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)	(22)	7,390	
std dev	24	303	
A-P <> std dev	5	1	
% <> std dev	20.0%	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 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 at bottom of previous page). We are in the process of modifying our projections processes in an attempt to account for bias in the current process. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

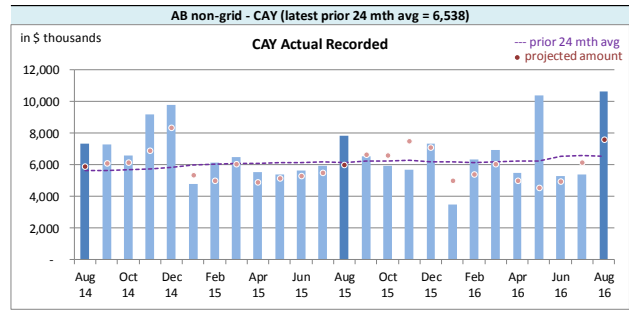
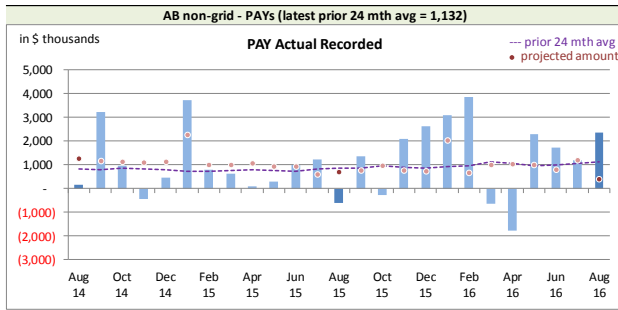
<sup>6</sup>The prior accident years (PAYs) variances will show bias as the projection upload forces all earned premium projections to be attributed to the current accident year.



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

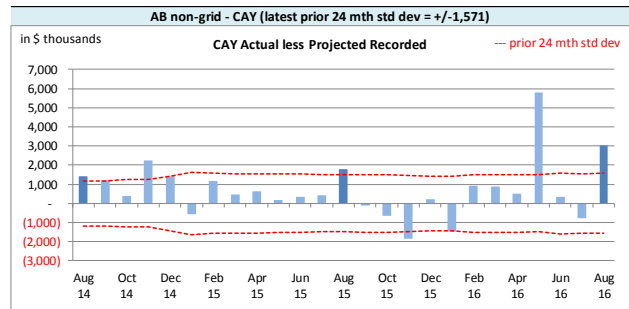
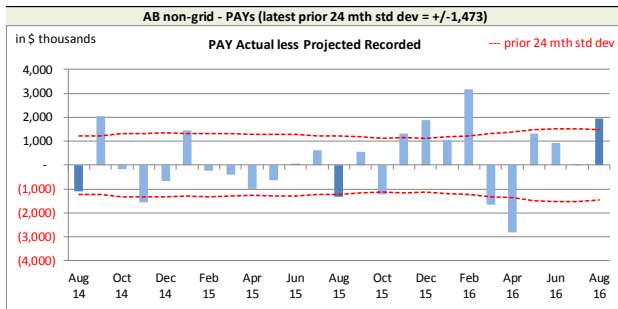
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period is shown in the charts immediately below, including the “prior 24-month average” level.

*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>	
Mthly Avg Recorded (prior 24 mths)	1,132	6,538
std dev	1,473	1,571
A-P <> std dev	11	8
% <> std dev	44.0%	32.0%
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) 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 PAY **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 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. There was evidence of bias in the projection process from the middle of 2014 to the middle of 2015 (actuals tended to be higher than our projections). Measures taken in an effort to address this bias seem to have been successful (although perhaps too successful, potentially creating bias the other way – we are monitoring).

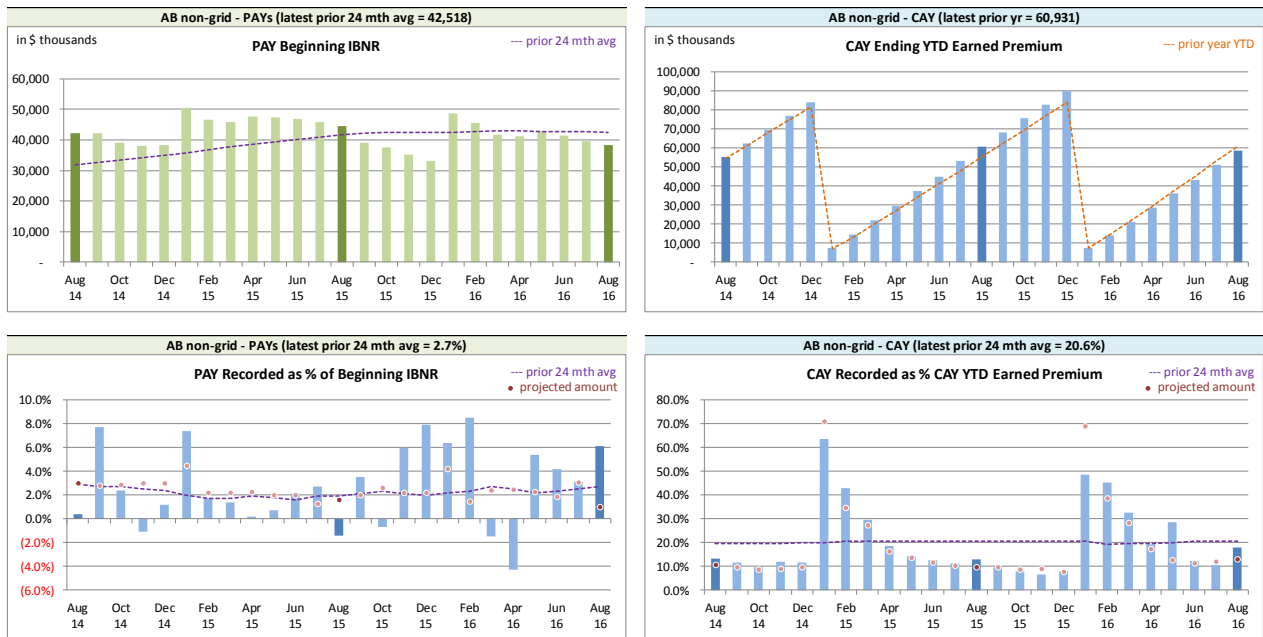
The CAY **recorded** variance for the current month was outside the one standard deviation band. The

activity was reviewed and confirmed, with the variance attributed to process variance. We were able to confirm that the activity was through comprehensive coverage, but were not able to confirm the degree to which the claims activity related to the Fort McMurray wild fires as opposed to hail storm activity.

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:

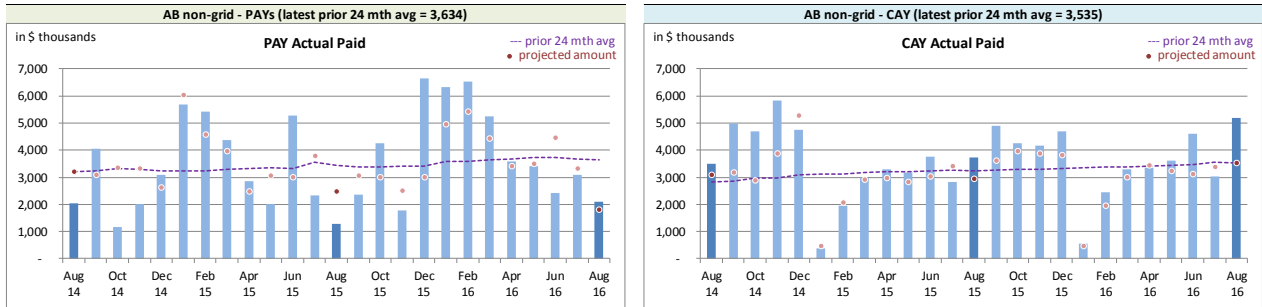
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

<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.

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

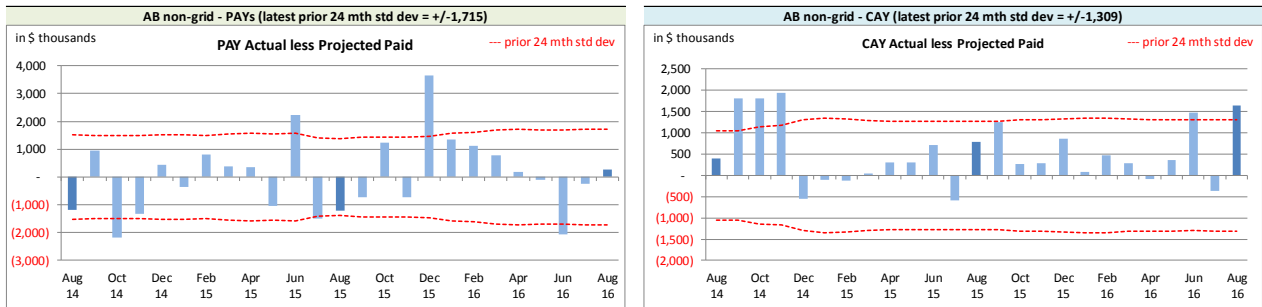
The charts immediately below show actual **paid** activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

*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)	3,634	3,535
std dev	1,715	1,309
A-P <> std dev	5	5
% <> std dev	20.0%	20.0%
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 20% of prior accident years (PAYS) **paid** variances over the last 25 calendar months falling outside of one

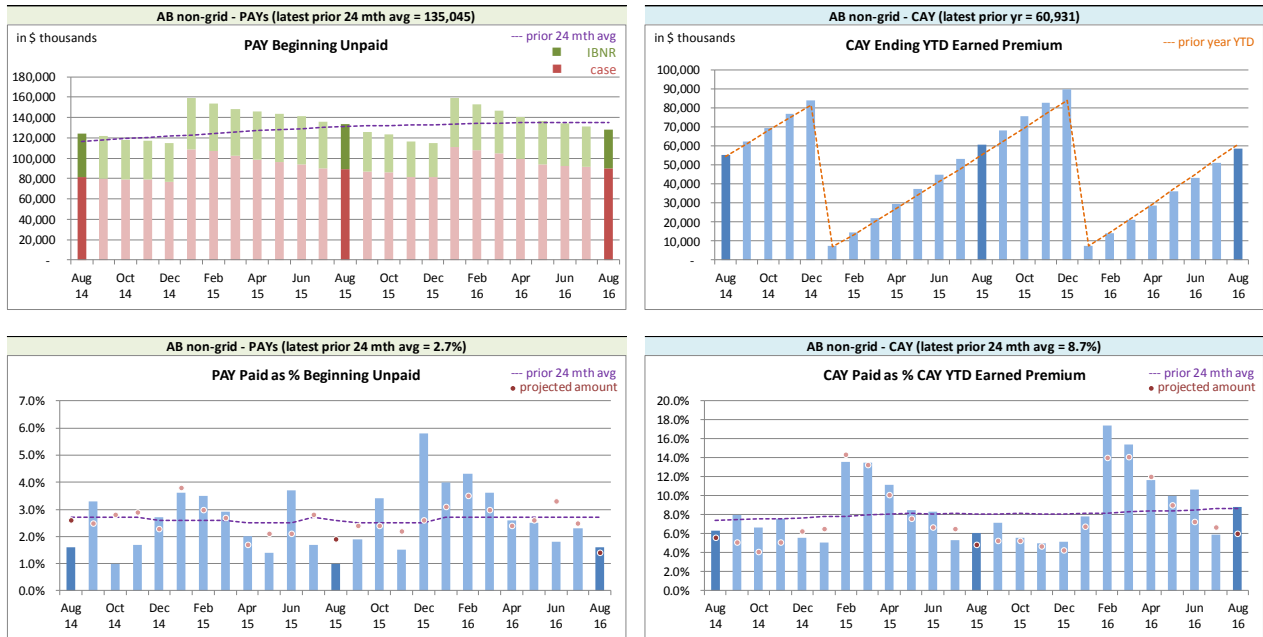
standard deviation, the projection process appears to have performed better than simply projecting based on a 24-month average.

With only 20% 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).

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

We have included, for reference, additional charts immediately below 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

<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”.

projections and actuals were based on the applicable valuation. The table immediately below summarizes variances in provisions included in the August 2016 Operational Report and the associated one-month projections from last month’s Report.

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

Table 02

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	10,363	(2,253)	(873)	109	5,822	(565)	15,312	(2,709)
2014	11,326	1,521	(607)	66	4,342	192	15,061	1,779
2015	15,299	(208)	(761)	119	4,968	(9)	19,506	(98)
2016	8,038	2,554	(648)	25	4,246	380	11,636	2,959
TOTAL	45,026	1,614	(2,889)	319	19,378	(2)	61,515	1,931

The IBNR provision is \$1.6 million higher than projected from last month, counterbalancing the recorded claims activity and adjusting for the earned premium variance impacts indicated in section 2.1, and due to the valuation implementation.

Exhibit G shows the accident year IBNR amount change from last month to this month broken down into:

- (i) the change projected last month;
- (ii) the additional change due to variances in earned premium (because we apply a loss ratio to earned premium in determining ultimate level) and/or recorded claims (as IBNR is calculated as ultimate less recorded) differences; and
- (iii) the additional change due to valuation implementation impacts (as applicable)

The variances associated with (ii) above are discussed in sections 2.1.a and 2.1.b.

The table at the top of the next page summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in the August 2016 Operational Report and the one-month projections from last month’s Report. This RSP is in a premium deficiency position (shown as a positive value) both 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. The variances indicated are due to 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:	2,139	4,131	4,130	228	6,269	4,359
balance as % unearned premium:	4.3%	8.2%	8.4%	0.8%	12.7%	9.0%
actual unearned premium:	49,187					
less projected:		(1,979)				

### 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 at the top of the next page 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 106.0% rather than 105.6% (the valuation ultimate ratio for accident year 2016), 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.)

<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.

*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	526	0.9%	(2,354)	(4.0%)	(1,828)	(3.1%)	745	2.0%
CAY	62,112	106.0%	3,598	6.1%	65,710	112.2%	14,110	10.6%
TOTAL	62,638	106.9%	1,244	2.1%	63,882	109.0%	14,855	12.5%

(“% EP” based on 2016 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, changes in the year-to-date total reflects the additional month’s exposure and regular changes to actuarial present value adjustments as the year ages and due to the valuation implementation.

## **5 Current Operational Report – Additional Exhibits**

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

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

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

The ultimate loss ratios 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 Jul. 2016	Actual Aug. 2016	Projected Sep. 2016	Projected Oct. 2016	Projected Dec. 2016
	2004	42	42	41	40	38
	2005	26	76	75	74	70
	2006	(564)	164	161	158	150
	2007	531	145	141	139	134
	2008	622	585	572	561	540
	2009	933	768	752	738	708
	2010	1,184	739	725	710	682
discount rate	2011	2,296	1,453	1,427	1,399	1,344
0.61%	2012	4,912	4,277	4,206	4,121	3,929
	2013	8,274	7,063	6,965	6,827	6,426
interest rate margin	2014	13,432	15,061	14,758	14,446	13,591
25 basis pts	2015	19,803	19,506	18,308	17,617	15,913
	2016	8,182	11,636	12,711	15,290	28,175
	<b>TOTAL</b>	<b>59,673</b>	<b>61,515</b>	<b>60,842</b>	<b>62,120</b>	<b>71,700</b>
	Change		1,842	(673)	1,278	

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

**EXHIBIT B**
**IBNR**

TABLE EXHIBIT B

Amounts in \$000s

IBNR	Ultimate Loss Ratio	Accident Year	Actual Jul. 2016	Actual Aug. 2016	Projected Sep. 2016	Projected Oct. 2016	Projected Dec. 2016
	349.1%	2004	36	36	35	34	32
	94.7%	2005	(50)	(3)	(3)	(3)	(3)
	87.2%	2006	(637)	28	27	26	24
	101.6%	2007	416	60	59	58	56
	101.9%	2008	459	430	421	413	397
	94.4%	2009	658	503	493	483	464
	84.4%	2010	789	378	370	363	349
	83.0%	2011	1,606	785	773	758	728
	102.1%	2012	3,524	2,927	2,883	2,825	2,685
	99.9%	2013	5,959	5,219	5,167	5,064	4,716
	113.6%	2014	9,904	11,326	11,099	10,877	10,129
	101.1%	2015	15,664	15,299	14,228	13,659	12,189
	105.6%	2016	5,404	8,038	8,784	10,979	22,599
		<b>TOTAL</b>	<b>43,732</b>	<b>45,026</b>	<b>44,336</b>	<b>45,536</b>	<b>54,365</b>
		Change		1,294	(690)	1,200	

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

## EXHIBIT C

## Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Jul. 2016	Actual Aug. 2016	Projected Sep. 2016	Projected Oct. 2016	Projected Dec. 2016
Premium Liabilities					
(1) unearned premium (UP)	49,013	49,187	50,156	50,725	48,102
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	103.8%	112.7%	112.3%	111.8%	110.6%
(3) expected future costs {(1) x (2)}	50,854	55,456	56,324	56,699	53,179
(4) premium deficiency / (deferred policy acquisition cost)	1,841	6,269	6,168	5,974	5,077
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	96.1%	104.3%	103.9%	103.5%	102.3%
(6) expected future costs {(1) x (5)}	47,116	51,326	52,132	52,478	49,219
(7) premium deficiency / (deferred policy acquisition cost)	(1,897)	2,139	1,976	1,753	1,117

EXHIBIT D

Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2016, broken down by component.

Alberta non-Grid ending 2016	Projected Balances as at Dec. 31, 2016 (\$000s)							
	nominal values			actuarial present value adjustments (apvs)				TOTAL
	Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	
2004	26	32	58	-	-	6	6	64
2005	796	(3)	793	(8)	3	78	73	866
2006	1,326	24	1,350	(13)	5	134	126	1,476
2007	785	56	841	(9)	4	83	78	919
2008	1,171	397	1,568	(20)	8	155	143	1,711
2009	2,231	464	2,695	(35)	13	266	244	2,939
2010	3,376	349	3,725	(56)	22	367	333	4,058
2011	6,159	728	6,887	(110)	48	678	616	7,503
2012	11,393	2,685	14,078	(225)	84	1,385	1,244	15,322
2013	14,646	4,716	19,362	(329)	136	1,903	1,710	21,072
2014	21,128	10,129	31,257	(563)	219	3,806	3,462	34,719
2015	21,508	12,189	33,697	(674)	270	4,128	3,724	37,421
PAYs (sub-total):	84,545	31,766	116,311	(2,042)	812	12,989	11,759	128,070
CAY (2016)	33,178	22,599	55,777	(1,004)	390	6,190	5,576	61,353
<b>claims liabilities:</b>	<b>117,723</b>	<b>54,365</b>	<b>172,088</b>	<b>(3,046)</b>	<b>1,202</b>	<b>19,179</b>	<b>17,335</b>	<b>189,423</b>
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
<b>premium liabilities:</b>	48,102	1,117	49,219	(637)	245	4,352	3,960	53,179
*Total may not be sum of parts, as apvs apply to future costs within UPR								
<b>policy liabilities:</b>	<b>221,307</b>			<b>(3,683)</b>	<b>1,447</b>	<b>23,531</b>	<b>21,295</b>	<b>242,602</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, 2016 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Jun. 30, 2016)				
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%	5.0%	10.0%
2009	10.0%	10.0%	5.7%	10.0%
2010	10.0%	10.0%	5.0%	10.0%
2011	10.0%	10.0%	9.9%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	12.5%	10.0%	11.3%	12.4%
2015	12.5%	10.0%	12.5%	12.5%
2016	12.1%	10.0%	6.0%	11.3%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	11.8%	10.0%	5.2%	9.0%

discount rate:	0.61%
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, 2016 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2016 and based on more up-to-date information). We have included both the current valuation selection (0.61%), the prior valuation assumption (0.68%) and the prior fiscal year end valuation assumption (0.78%) 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, 2016 projected Unpaid								
AY	0.11%	0.61%	1.11%	1.61%	2.11%	2.61%	0.68%	0.78%
2004	-	-	-	-	-	-	-	-
2005	664	660	655	650	645	639	659	658
2006	1,263	1,255	1,245	1,234	1,224	1,214	1,254	1,251
2007	758	753	746	740	733	727	752	750
2008	1,633	1,620	1,603	1,586	1,569	1,553	1,617	1,614
2009	2,760	2,737	2,708	2,679	2,651	2,624	2,733	2,727
2010	3,921	3,886	3,840	3,796	3,752	3,709	3,880	3,871
2011	6,835	6,769	6,681	6,596	6,513	6,432	6,756	6,739
2012	14,563	14,420	14,233	14,051	13,873	13,700	14,394	14,356
2013	22,117	21,885	21,586	21,294	21,009	20,735	21,843	21,784
2014	34,101	33,714	33,213	32,727	32,256	31,795	33,645	33,543
2015	41,322	40,819	40,174	39,544	38,930	38,339	40,730	40,599
2016	63,027	62,320	61,409	60,523	59,659	58,830	62,193	62,007
<b>Total</b>	<b>192,964</b>	<b>190,838</b>	<b>188,093</b>	<b>185,420</b>	<b>182,814</b>	<b>180,297</b>	<b>190,456</b>	<b>189,899</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	0.11%	0.61%	1.11%	1.61%	2.11%	2.61%	0.68%	0.78%
<b>Total</b>	2,126	-	(2,745)	(5,418)	(8,024)	(10,541)	(382)	(939)
	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	0.11%	0.61%	1.11%	1.61%	2.11%	2.61%	0.68%	0.78%
2004	-	-	-	-	-	-	-	-
2005	0.6%	-	(0.8%)	(1.5%)	(2.3%)	(3.2%)	(0.2%)	(0.3%)
2006	0.6%	-	(0.8%)	(1.7%)	(2.5%)	(3.3%)	(0.1%)	(0.3%)
2007	0.7%	-	(0.9%)	(1.7%)	(2.7%)	(3.5%)	(0.1%)	(0.4%)
2008	0.8%	-	(1.0%)	(2.1%)	(3.1%)	(4.1%)	(0.2%)	(0.4%)
2009	0.8%	-	(1.1%)	(2.1%)	(3.1%)	(4.1%)	(0.1%)	(0.4%)
2010	0.9%	-	(1.2%)	(2.3%)	(3.4%)	(4.6%)	(0.2%)	(0.4%)
2011	1.0%	-	(1.3%)	(2.6%)	(3.8%)	(5.0%)	(0.2%)	(0.4%)
2012	1.0%	-	(1.3%)	(2.6%)	(3.8%)	(5.0%)	(0.2%)	(0.4%)
2013	1.1%	-	(1.4%)	(2.7%)	(4.0%)	(5.3%)	(0.2%)	(0.5%)
2014	1.1%	-	(1.5%)	(2.9%)	(4.3%)	(5.7%)	(0.2%)	(0.5%)
2015	1.2%	-	(1.6%)	(3.1%)	(4.6%)	(6.1%)	(0.2%)	(0.5%)
2016	1.1%	-	(1.5%)	(2.9%)	(4.3%)	(5.6%)	(0.2%)	(0.5%)
<b>Total</b>	<b>1.1%</b>	<b>-</b>	<b>(1.4%)</b>	<b>(2.8%)</b>	<b>(4.2%)</b>	<b>(5.5%)</b>	<b>(0.2%)</b>	<b>(0.5%)</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	(1)	1	-	-	-	42
2005	26	(1)	(4)	55	50	192.3%	76
2006	(564)	11	(11)	728	728	(129.1%)	164
2007	531	(10)	5	(381)	(386)	(72.7%)	145
2008	622	(8)	51	(80)	(37)	(5.9%)	585
2009	933	(12)	1	(154)	(165)	(17.7%)	768
2010	1,184	(15)	(37)	(393)	(445)	(37.6%)	739
2011	2,296	(31)	(402)	(410)	(843)	(36.7%)	1,453
2012	4,912	(74)	(159)	(402)	(635)	(12.9%)	4,277
2013	8,274	(94)	(764)	(353)	(1,211)	(14.6%)	7,063
2014	13,432	(150)	(257)	2,036	1,629	12.1%	15,061
2015	19,803	(199)	(426)	328	(297)	(1.5%)	19,506
2016	8,182	495	(3,459)	6,418	3,454	42.2%	11,636
<b>Grand Total</b>	<b>59,673</b>	<b>(89)</b>	<b>(5,461)</b>	<b>7,392</b>	<b>1,842</b>	<b>3.1%</b>	<b>61,515</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	(1)	1	-	-	-	36
2005	(50)	1	(4)	50	47	(94.0%)	(3)
2006	(637)	13	(13)	665	665	(104.4%)	28
2007	416	(8)	4	(352)	(356)	(85.6%)	60
2008	459	(5)	52	(76)	(29)	(6.3%)	430
2009	658	(7)	(4)	(144)	(155)	(23.6%)	503
2010	789	(8)	(38)	(365)	(411)	(52.1%)	378
2011	1,606	(16)	(413)	(392)	(821)	(51.1%)	785
2012	3,524	(53)	(158)	(386)	(597)	(16.9%)	2,927
2013	5,959	(60)	(761)	81	(740)	(12.4%)	5,219
2014	9,904	(99)	(244)	1,765	1,422	14.4%	11,326
2015	15,664	(157)	(388)	180	(365)	(2.3%)	15,299
2016	5,404	80	(3,269)	5,823	2,634	48.7%	8,038
<b>Grand Total</b>	<b>43,732</b>	<b>(320)</b>	<b>(5,235)</b>	<b>6,849</b>	<b>1,294</b>	<b>3.0%</b>	<b>45,026</b>