



ALBERTA GRID RISK SHARING POOL

OCTOBER 2016 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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Related Quarterly Valuation Highlights:

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

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ACTUARIAL HIGHLIGHTS
RSP ALBERTA GRID
OPERATIONAL REPORT
OCTOBER 2016

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2016)

The October 2016 Operational Report incorporates the results of an updated valuation (as at September 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 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)	0.75% mfad: 25 bp	Oct. 2015	updated valuation (roll forward): accident year 2015 loss ratio increased 2.1 points to 75.7%; discount rate decreased by 18 basis points; no change to selected margins for adverse deviations
Dec. 31, 2015 (completed)	0.70% mfad: 25 bp	Mar. 2016	updated valuation: accident year 2015 loss ratio increased 8.3 points to 84.0%; accident year 2016 loss ratio increased 2.5 points to 73.7%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Mar. 31, 2016 (completed)	0.65% mfad: 25 bp	May 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 4.9 points to 78.6%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Jun. 30, 2016 (completed)	0.60% mfad: 25 bp	Aug. 2016	updated valuation: accident year 2016 loss ratio increased 2.9 points to 81.5%; discount rate decreased by 5 basis points; selected claims development margins for adverse deviations were updated
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

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 Grid Risk Sharing Pool (“RSP”) as at September 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 September 30, 2016¹

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	4,082	429	4,511	340	-	4,851
CAY	2,168	225	2,393	127	-	2,520
Prem Def	(1,383)	(248)	(1,631)	136	-	(1,495)
TOTAL	4,867	406	5,273	603	-	5,876

As indicated in the table above, the incorporation of the new valuation had an estimated **\$5.9 million unfavourable impact** on the month’s net result from operations, adding an estimated 5.4 points (see table immediately below) to the **year-to-date Combined Operating Ratio** to end at **167.1%**.

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

AB Grid	ytd EP 107,845 (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	3.8%	0.4%	4.2%	0.3%	-	4.5%
CAY	2.0%	0.2%	2.2%	0.1%	-	2.3%
Prem Def	(1.3%)	(0.2%)	(1.5%)	0.1%	-	(1.4%)
TOTAL	4.5%	0.4%	4.9%	0.6%	-	5.4%

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 \$4.9 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 \$4.1 million unfavourable variance, as recorded claims activity continues to show unfavourable actual experience relative to recorded activity projected

¹ In these tables, “PAYs” refers to prior accident years, “CAY” refers to the current accident year, and “Prem Def” refers to the provision for premium deficiency or the deferred policy acquisition asset (as applicable). “Nominal” refers to changes excluding any actuarial present value adjustments, whereas “apv adj.” refers to actuarial present value adjustments.

The columns under the heading “ults & payout patterns” reflect the impact of changes in the valuation selected ultimates and claims payment patterns (i.e. based on unchanged selection of discount rates and margins for adverse deviation). The column “dsct rate” reflects the impact of the change in the selected discount rate and the column “margins” reflects the impact of any changes in selected margins for adverse deviations.

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 1.8% of the prior accident years’ nominal unpaid balance of \$223.8 million determined at the end of last month (September 2016).

The current accident year and premium deficiency impacts are a result of changes in the selected loss ratios for accident years **2016** (up 2.0 points from 81.5% to **83.5%**) and **2017** (down 3.4 points from 81.1% to **77.7%**).

The impacts related to actuarial present value adjustments (“APVs”) 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 \$0.4 million in the actuarial present value adjustments, prior to any changes in the selected discount rate and/or MfADs.

Claims payment emergence patterns were updated and cash flows were reviewed against the selected risk-free yield curve, derived from Government of Canada benchmark bond yields monthly series using values for September 2016. Column [4] accounts for the change in the **discount rate** selected (decreased 6 basis points to **0.54%**), 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 October 2016 (projected \$0.5 million impact at December 31, 2016) – this compares to the \$0.4 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.

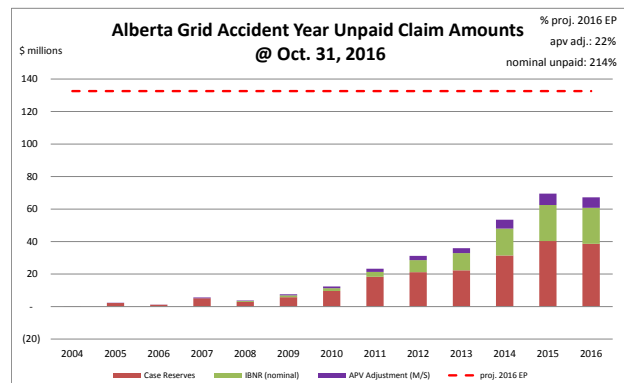
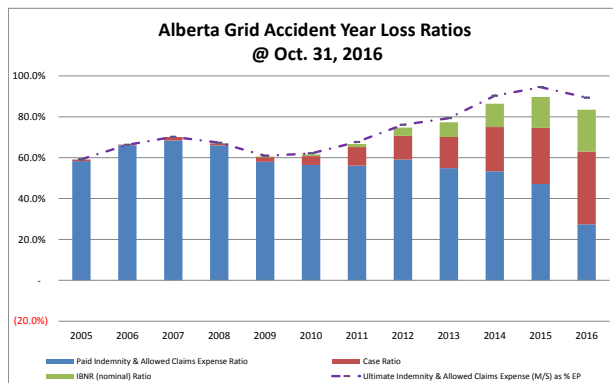
1.4 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

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.

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 liabilities² booked by accident year³. The left chart displays life-to-date payments, case reserves, IBNR, and the total including actuarial present value adjustments against accident year earned premium. The right chart shows the associated dollar amounts for the components of the claim liabilities and the current projected amount of 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 (\$29.3 million – see table at the top of the next page) represents 22% 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 periods.

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

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

claim liabilities (\$000s)	amt	%
case	198,904	63.5%
ibnr	84,889	27.1%
M/S apv adjust.	29,282	9.4%
M/S total	313,075	100.0%

The table to the left breaks down the Member Statement (M/S) claim liabilities total into component parts, showing that the majority of the claim liabilities for this pool is in case reserves. Approximately 52% of the IBNR balance relates to accident years 2015 and 2016 (see Exhibit B). Approximately 82% 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	82,255	114.9%	claim	283,793	73.8%
prem def/(dpac)	(16,664)	(23.3%)	premium	65,591	17.1%
M/S apv adjust.	5,986	8.4%	M/S apv adjust.	35,268	9.2%
M/S total	71,577	100.0%	M/S total	384,652	100.0%

2 Activity During the Month of October 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 Report⁴.

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	3	3	2,538	(541)	733	3,037	3,271	2,496
2014	(2)	(2)	1,134	180	(770)	(434)	365	(253)
2015	(7)	(7)	1,202	(48)	71	(15)	1,272	(64)
2016	12,133	(109)	4,666	350	5,162	1,463	9,828	1,813
TOTAL	12,127	(115)	9,539	(60)	5,196	4,051	14,736	3,991

(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

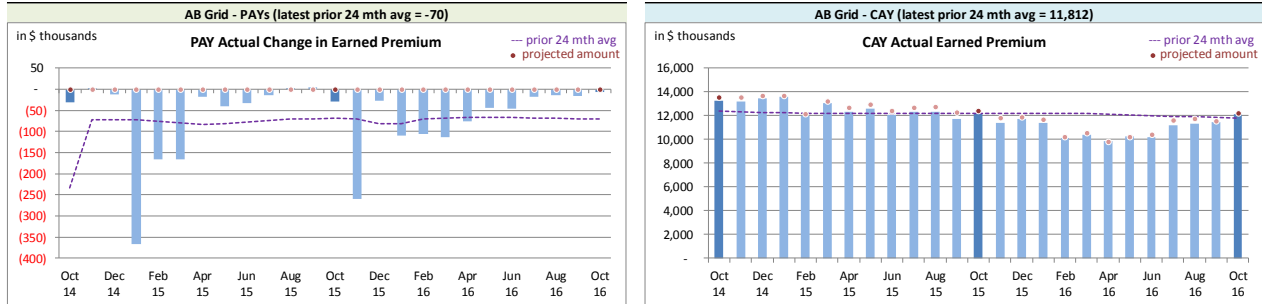
The charts at the top of the next page show actual **earned premium**⁵ activity in each of the most

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

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

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.

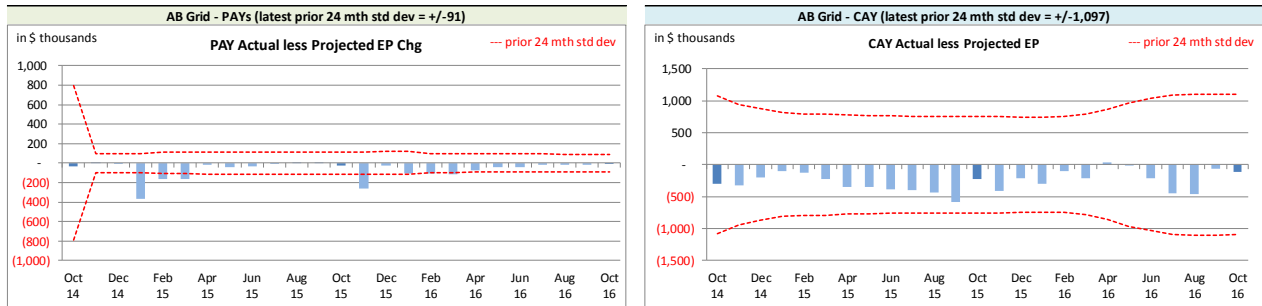
*Alberta Grid RSP Actual **Earned Premium** by Calendar Month*



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 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 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)	(70)	11,812	
std dev	91	1,097	
A-P <> std dev	6	-	
% <> std dev	24.0%	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 bias⁶, 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). Starting with the August 2016 projections, we have modified our projections processes in an attempt to account for bias in the current process. Over time, we may

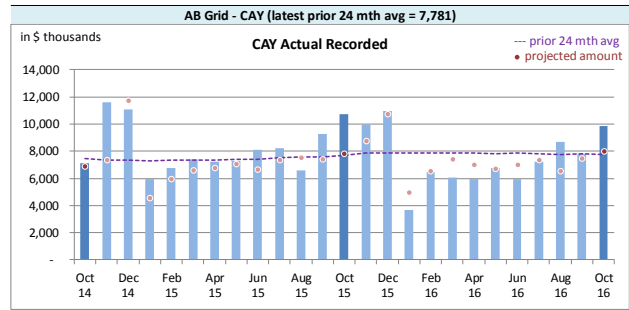
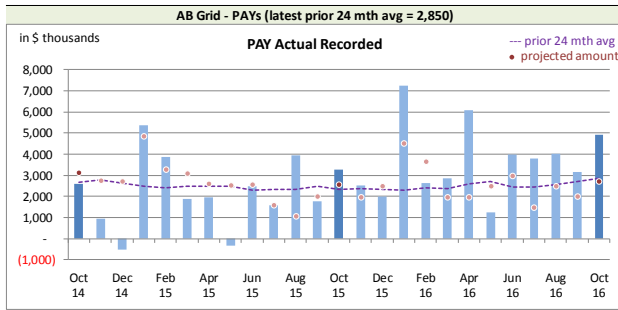
⁶The prior accident years (PAYS) variances will show bias as the projection upload forces all earned premium projections to be attributed to the current accident year.

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

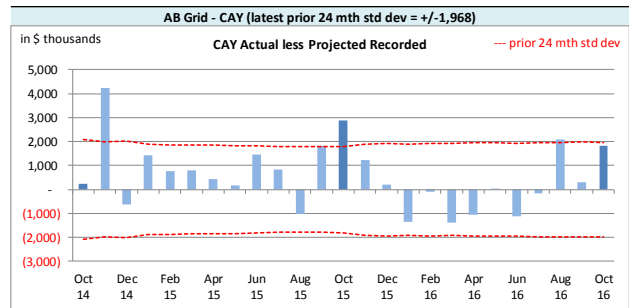
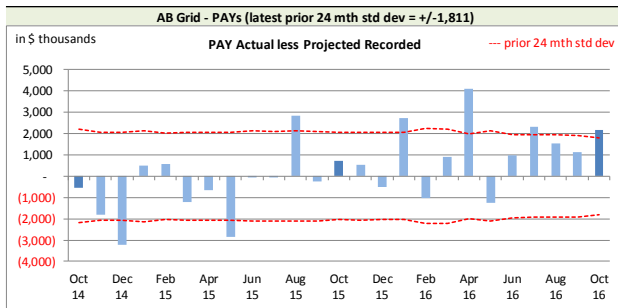
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period are shown in the charts immediately below, including the “prior 24-month average” level.

Alberta Grid RSP Actual Recorded by Calendar Month



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

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



On Latest \$ thousands			
	Recorded	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	2,850	2,850	7,781
std dev	1,811	1,811	1,968
A-P <> std dev	7	7	4
% <> std dev	28.0%	28.0%	16.0%
norm <> std dev	31.7%	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 28% 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 not much better than

simply projecting from the prior 24-month average. There may be evidence of bias in the projections as 11 of the last 15 months have had actuals higher than projections. A similar pattern is not evident in the **paid** activity where projections have generally been higher than actuals over the same 15 month period, suggesting there may be changes in case reserve activity. We have not noticed 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 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 at bottom of previous page) may be indicating bias (where actuals have tended to be higher than projections), although adjustments to the projection process may be addressing this. At 16%, the number of variances falling outside of one standard deviation of actual activity over the period is lower than indicated by the normal distribution, suggesting the projection process is better than simply projecting from the 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, particularly between 2013 and 2014:

CAY avg of mthly ratios for yr

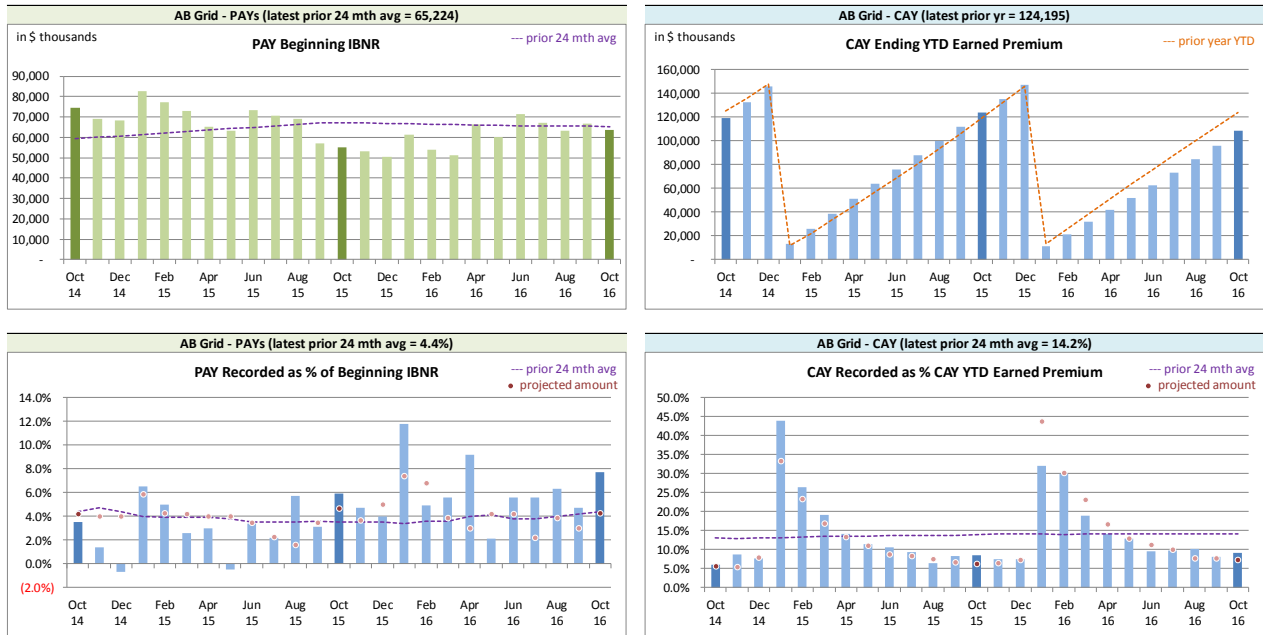
as at	Rec'd	Paid
Oct 2009	12.8%	4.7%
Oct 2010	12.0%	4.7%
Oct 2011	14.2%	5.1%
Oct 2012	13.6%	5.0%
Oct 2013	13.7%	5.2%
Oct 2014	14.9%	5.6%
Oct 2015	15.8%	5.9%
Oct 2016	15.5%	5.7%

Both **recorded** and **paid** ratios for Oct 2016 relative to Oct 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.

The method for establishing IBNR adjusts automatically for changes in **earned premium** and **recorded** claims activity level (see sections 2.2 and 3).

We have included, for reference, additional charts at the top of the next page related to levels influencing **recorded** activity. Note in particular the changes in the level of PAY beginning IBNR over the months, as a response to valuations and showing up as a beginning IBNR change one month after the valuation is implemented (i.e. April, June, September, and November).

Alberta Grid RSP Levels that influence⁷ Recorded activity by Calendar Month



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

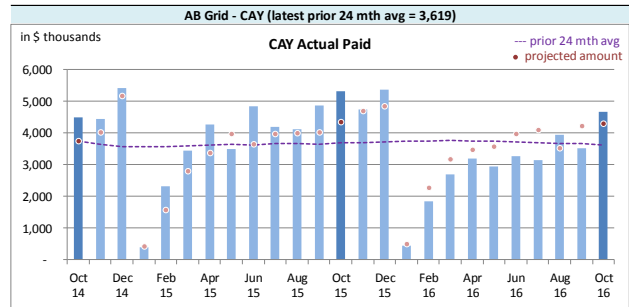
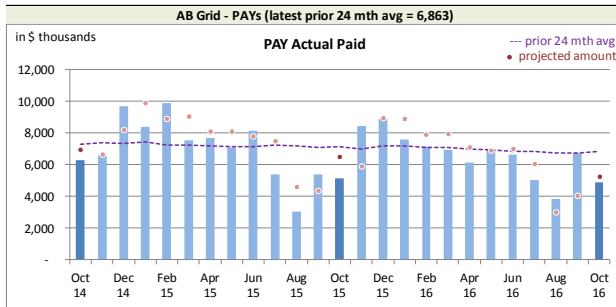
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

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

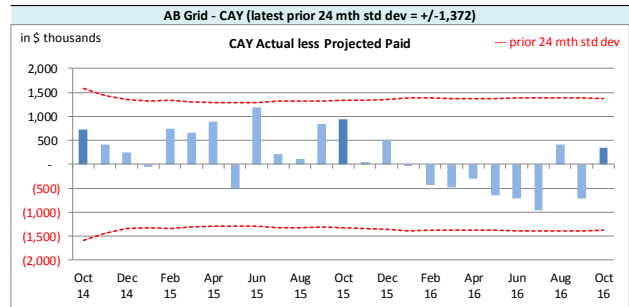
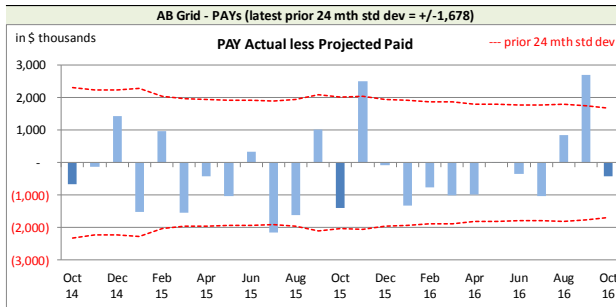
⁷Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned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

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



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		
Paid	PAYs	CAY
Mthly Avg Paid (prior 24 mths)	6,863	3,619
std dev	1,678	1,372
A-P <> std dev	3	-
% <> std dev	12.0%	0.0%
norm <> std dev	31.7%	31.7%

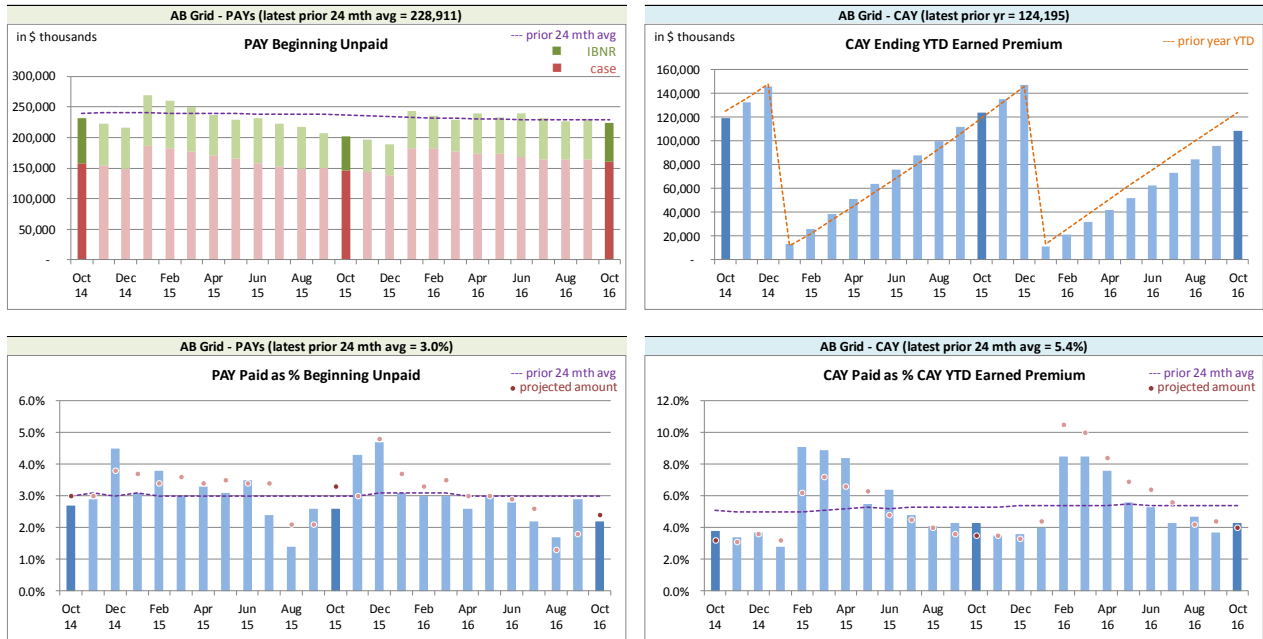
With respect to **paid** indemnity & allowed claims expense, the prior accident years’ (PAYs) variances (left chart above) have fallen outside one standard deviation of the overall period 12% of the time, a lower percent than suggested by a normal distribution, indicating the projection process may be 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 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. However, the CAY paid to ytd earned premium ratios as projected have been high in retrospect during 2016 and we are looking into this further.

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

Alberta Grid RSP Levels that influence⁸ Paid activity by Calendar Month



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

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

2.2 Actuarial Provisions

An “ultimate loss ratio matching method” (described in section 3) is used to determine the month’s IBNR⁹, and factors are applied to the nominal unpaid claims liability (case plus IBNR) to determine the discount amount (shown as a negative value to indicate its impact of reducing the liability) and the Provisions for Adverse Deviations. The loss ratios and the factors used to determine the projections and actuals were based on the applicable valuation. The table at the top of the next page summarizes variances in provisions included in the October 2016 Operational Report and the associated one-month projections from last month’s Report.

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

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

Alberta 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	23,994	(1,032)	(1,472)	142	11,793	182	34,315	(708)
2014	16,534	1,698	(768)	73	6,240	129	22,006	1,900
2015	22,165	1,232	(1,125)	100	8,170	174	29,210	1,506
2016	22,196	266	(1,034)	29	7,478	278	28,640	573
TOTAL	84,889	2,164	(4,399)	344	33,681	763	114,171	3,271

The IBNR provision is \$2.2 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 immediately below summarizes the variances in the provisions for deferred policy acquisition cost asset included in the October 2016 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)

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:	(16,664)	(1,247)	5,986	(162)	(10,678)	(1,409)
balance as % unearned premium:	(20.3%)	(1.7%)	7.3%	(0.1%)	(13.0%)	(1.8%)
actual unearned premium:	82,255					
less projected:	(680)					

3 Ultimate Loss Ratio Matching Method

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

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

- (a) Earned premium to-date
- (b) Ultimate loss¹⁰ ratio per latest valuation
- (c) Estimated ultimate incurred = (a) x (b)
- (d) Recorded indemnity & allowed claims expense to-date
- (e) IBNR = (c) – (d)

4 Calendar Year-to-Date Results

The table below summarizes the calendar year-to-date results for indemnity & allowed claims expenses¹¹, including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes earned premium associated with the current accident year but also earned premium adjustments related to prior accident years. Specifically, the current accident year (CAY) ratio in the table is 83.9% rather than 83.5% (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 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	41,178	38.2%	(432)	(0.4%)	40,746	37.8%	4,349	(0.2%)
CAY	90,507	83.9%	6,444	6.0%	96,951	89.9%	12,950	2.1%
TOTAL	131,685	122.1%	6,012	5.6%	137,697	127.7%	17,299	1.9%

(“% 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.

¹⁰“Loss” here refers to indemnity and allowed claims expenses, but does not include the claims expense allowance included in member company overall expense allowances (“Expense Allowance” in the Operational Report).

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

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

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

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

6 EXHIBITS

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

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

EXHIBIT A
IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A

		Amounts in \$000s				
IBNR + M/S actuarial present value adjustments	Accident Year	Actual Sep. 2016	Actual Oct. 2016	Projected Nov. 2016	Projected Dec. 2016	Projected Dec. 2017
	2004	(72)	(72)	(70)	(68)	(51)
	2005	227	170	165	161	121
	2006	(44)	(50)	(49)	(47)	(39)
	2007	730	231	223	217	144
	2008	688	914	886	859	620
	2009	1,927	1,799	1,751	1,698	1,221
	2010	2,200	2,713	2,632	2,547	1,825
discount rate 0.54%	2011	5,741	4,970	4,821	4,647	3,328
	2012	10,660	10,015	9,713	9,372	6,773
	2013	14,022	13,625	13,202	12,804	9,314
interest rate margin 25 basis pts	2014	20,833	22,006	21,152	20,385	14,623
	2015	29,178	29,210	27,815	26,597	18,308
	2016	25,518	28,640	29,618	30,499	17,280
	2017	-	-	-	-	44,178
	TOTAL	111,608	114,171	111,859	109,671	117,645
	Change		2,563	(2,312)	(2,188)	

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

EXHIBIT B
IBNR

TABLE EXHIBIT B

Amounts in \$000s

IBNR	Ultimate Loss Ratio	Accident Year	Actual Sep. 2016	Actual Oct. 2016	Projected Nov. 2016	Projected Dec. 2016	Projected Dec. 2017
	51.6%	2004	(80)	(80)	(78)	(76)	(56)
	59.1%	2005	23	(32)	(31)	(30)	(20)
	66.3%	2006	(137)	(143)	(139)	(135)	(99)
	70.0%	2007	203	(233)	(226)	(219)	(159)
	67.2%	2008	382	595	577	560	409
	60.7%	2009	1,291	1,162	1,127	1,093	797
	61.6%	2010	1,224	1,676	1,626	1,577	1,150
	66.7%	2011	3,800	3,016	2,926	2,838	2,073
	74.7%	2012	8,005	7,392	7,170	6,955	5,079
	77.3%	2013	11,090	10,641	10,322	10,012	7,312
	86.5%	2014	15,454	16,534	15,790	15,237	10,899
	89.7%	2015	22,269	22,165	20,946	20,003	13,025
	83.5%	2016	19,968	22,196	22,537	22,782	11,561
	77.9%	2017	-	-	-	-	34,923
		TOTAL	83,492	84,889	82,547	80,597	86,894
		Change		1,397	(2,342)	(1,950)	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Sep. 2016	Actual Oct. 2016	Projected Nov. 2016	Projected Dec. 2016	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	79,402	82,255	84,174	84,148	83,995
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	88.9%	87.0%	86.2%	85.3%	86.6%
(3) expected future costs {(1) x (2)}	70,591	71,577	72,574	71,813	72,702
(4) premium deficiency / (deferred policy acquisition cost)	(8,811)	(10,678)	(11,600)	(12,335)	(11,293)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	81.5%	79.7%	79.0%	78.2%	79.3%
(6) expected future costs {(1) x (5)}	64,701	65,591	66,503	65,806	66,621
(7) premium deficiency / (deferred policy acquisition cost)	(14,701)	(16,664)	(17,671)	(18,342)	(17,374)

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 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	Total apvs		
2004	-	(76)	(76)	-	-	8	8	(68)	
2005	2,055	(30)	2,025	(20)	10	201	191	2,216	
2006	1,064	(135)	929	(8)	4	92	88	1,017	
2007	4,858	(219)	4,639	(46)	23	459	436	5,075	
2008	2,666	560	3,226	(39)	19	319	299	3,525	
2009	5,494	1,093	6,587	(79)	33	651	605	7,192	
2010	9,016	1,577	10,593	(148)	74	1,044	970	11,563	
2011	16,901	2,838	19,739	(257)	118	1,948	1,809	21,548	
2012	19,401	6,955	26,356	(343)	158	2,602	2,417	28,773	
2013	20,810	10,012	30,822	(432)	185	3,039	2,792	33,614	
2014	29,924	15,237	45,161	(723)	316	5,555	5,148	50,309	
2015	38,485	20,003	58,488	(1,053)	468	7,179	6,594	65,082	
PAYs (sub-total):	150,674	57,815	208,489	(3,148)	1,408	23,097	21,357	229,846	
CAY (2016)	50,009	22,782	72,791	(1,237)	582	8,372	7,717	80,508	
claims liabilities:	200,683	80,597	281,280	(4,385)	1,990	31,469	29,074	310,354	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*	
premium liabilities:	84,148	(18,342)	65,806	(918)	459	6,466	6,007	71,813	
*Total may not be sum of parts, as apvs apply to future costs within UPR									
policy liabilities:			347,086	(5,303)	2,449	37,935	35,081	382,167	

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 (Sep. 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%	9.6%	10.0%
2009	10.0%	10.0%	5.1%	10.0%
2010	10.0%	10.0%	9.2%	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%	12.5%	12.5%
2015	12.4%	10.0%	12.5%	12.5%
2016	12.0%	10.0%	6.9%	11.7%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	11.7%	10.0%	5.2%	10.0%

discount rate:	0.54%
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 (0.54%), the prior valuation assumption (0.60%) and the prior fiscal year end valuation assumption (0.75%) 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	0.04%	0.54%	1.04%	1.54%	2.04%	2.54%	0.60%	0.75%
2004	-	-	-	-	-	-	-	-
2005	2,052	2,041	2,023	2,005	1,988	1,971	2,039	2,033
2006	1,106	1,100	1,091	1,082	1,073	1,065	1,099	1,096
2007	5,339	5,309	5,262	5,216	5,171	5,126	5,304	5,290
2008	3,689	3,664	3,626	3,588	3,550	3,514	3,660	3,648
2009	7,381	7,329	7,245	7,164	7,084	7,007	7,318	7,293
2010	11,488	11,398	11,255	11,115	10,978	10,846	11,381	11,337
2011	21,001	20,844	20,594	20,352	20,115	19,884	20,815	20,738
2012	29,151	28,934	28,587	28,252	27,925	27,607	28,893	28,786
2013	33,611	33,341	32,908	32,490	32,082	31,685	33,287	33,157
2014	52,207	51,719	50,949	50,208	49,489	48,792	51,624	51,392
2015	67,306	66,606	65,514	64,464	63,438	62,444	66,473	66,138
2016	78,859	78,096	76,912	75,758	74,642	73,569	77,958	77,590
Total	313,190	310,381	305,966	301,694	297,535	293,510	309,851	308,498
	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	0.04%	0.54%	1.04%	1.54%	2.04%	2.54%	0.60%	0.75%
Total	2,809	-	(4,415)	(8,687)	(12,846)	(16,871)	(530)	(1,883)
	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	0.04%	0.54%	1.04%	1.54%	2.04%	2.54%	0.60%	0.75%
2004	-	-	-	-	-	-	-	-
2005	0.5%	-	(0.9%)	(1.8%)	(2.6%)	(3.4%)	(0.1%)	(0.4%)
2006	0.5%	-	(0.8%)	(1.6%)	(2.5%)	(3.2%)	(0.1%)	(0.4%)
2007	0.6%	-	(0.9%)	(1.8%)	(2.6%)	(3.4%)	(0.1%)	(0.4%)
2008	0.7%	-	(1.0%)	(2.1%)	(3.1%)	(4.1%)	(0.1%)	(0.4%)
2009	0.7%	-	(1.1%)	(2.3%)	(3.3%)	(4.4%)	(0.2%)	(0.5%)
2010	0.8%	-	(1.3%)	(2.5%)	(3.7%)	(4.8%)	(0.1%)	(0.5%)
2011	0.8%	-	(1.2%)	(2.4%)	(3.5%)	(4.6%)	(0.1%)	(0.5%)
2012	0.7%	-	(1.2%)	(2.4%)	(3.5%)	(4.6%)	(0.1%)	(0.5%)
2013	0.8%	-	(1.3%)	(2.6%)	(3.8%)	(5.0%)	(0.2%)	(0.6%)
2014	0.9%	-	(1.5%)	(2.9%)	(4.3%)	(5.7%)	(0.2%)	(0.6%)
2015	1.1%	-	(1.6%)	(3.2%)	(4.8%)	(6.2%)	(0.2%)	(0.7%)
2016	1.0%	-	(1.5%)	(3.0%)	(4.4%)	(5.8%)	(0.2%)	(0.6%)
Total	0.9%	-	(1.4%)	(2.8%)	(4.1%)	(5.4%)	(0.2%)	(0.6%)
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

EXHIBIT G

Page 1 of 2

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

RSP **Alberta Grid**
AccountCode Desc **IBNR - 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)	2	(2)	-	-	-	(72)
2005	227	(6)	(53)	2	(57)	(25.1%)	170
2006	(44)	1	(8)	1	(6)	13.6%	(50)
2007	730	(22)	(147)	(330)	(499)	(68.4%)	231
2008	688	(21)	(71)	318	226	32.8%	914
2009	1,927	(58)	(79)	9	(128)	(6.6%)	1,799
2010	2,200	(67)	(160)	740	513	23.3%	2,713
2011	5,741	(172)	(843)	244	(771)	(13.4%)	4,970
2012	10,660	(321)	(556)	232	(645)	(6.1%)	10,015
2013	14,022	(392)	(526)	521	(397)	(2.8%)	13,625
2014	20,833	(727)	229	1,671	1,173	5.6%	22,006
2015	29,178	(1,474)	63	1,443	32	0.1%	29,210
2016	25,518	2,549	(1,947)	2,520	3,122	12.2%	28,640
Grand Total	111,608	(708)	(4,100)	7,371	2,563	2.3%	114,171

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)	2	(2)	-	-	-	(80)
2005	23	(1)	(54)	-	(55)	(239.1%)	(32)
2006	(137)	4	(10)	-	(6)	4.4%	(143)
2007	203	(6)	(122)	(308)	(436)	(214.8%)	(233)
2008	382	(11)	(63)	287	213	55.8%	595
2009	1,291	(39)	(90)	-	(129)	(10.0%)	1,162
2010	1,224	(37)	(168)	657	452	36.9%	1,676
2011	3,800	(114)	(870)	200	(784)	(20.6%)	3,016
2012	8,005	(240)	(557)	184	(613)	(7.7%)	7,392
2013	11,090	(333)	(557)	441	(449)	(4.0%)	10,641
2014	15,454	(618)	251	1,447	1,080	7.0%	16,534
2015	22,269	(1,336)	58	1,174	(104)	(0.5%)	22,165
2016	19,968	1,962	(1,902)	2,168	2,228	11.2%	22,196
Grand Total	83,492	(767)	(4,086)	6,250	1,397	1.7%	84,889