



ALBERTA GRID RISK SHARING POOL

DECEMBER 2018 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS**RSP ALBERTA GRID****OPERATIONAL REPORT****DECEMBER 2018**

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2019)

The December 2018 Operational Report leverages actuarial assumptions consistent with last month (that is, it does not reflect the results of an updated valuation). The table immediately below summarizes the implemented valuations and future scheduled valuations for fiscal year 2019.

ALBERTA GRID RISK SHARING POOL FISCAL YEAR 2019 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2018 (completed)	2.28% mfad 25 bp	Oct. 2018	updated valuation (roll forward): accident year 2018 loss ratio <u>decreased</u> 2.0 points to 89.8%; discount rate <u>increased</u> by 41 basis points; no change to selected margins for adverse deviations
Dec. 31, 2018		Mar. 2019	update valuation:
Mar. 31, 2019		May 2019	update valuation (roll forward)
Jun. 30, 2019		Aug. 2019	update valuation
Sep. 30, 2019		Oct. 2019	update valuation (roll forward)

Under the proposed schedule for fiscal year 2019, the “off-half” valuation quarters ending March 31, 2019 and September 30, 2019 would not reflect a full valuation update of assumptions, but would rather “roll-forward” key assumptions from the previous valuation.

1.2 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.

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

There have been no changes in these descriptions since last month’s Highlights.

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.

In the **Alberta Treasury Board and Finance Notice 04-2018** (Clarification of Minor Injury Regulation), dated **May 17, 2018**, the Alberta Superintendent of Insurance advised that clarifying amendments have been made to the definition of minor injuries under the Minor Injury Regulation (MIR). With the **most recent** valuation (September 30, 2018), reform adjustments related to changes in the definition of minor injuries under the MIR, were included with the updated industry trend analysis (completed using industry data as at December 31, 2017), impacting the selection of ultimates.

The **Supreme Court of Canada** rendered its judgment on **Saadati v Moorhead (2017 SCC 28, rendered on Jun 2, 2017)**. Saadati was involved in a collision in July of 2005 in British Columbia and sued the at-fault driver for damages. According to the Supreme Court decision, *“The trial judge found that the ... accident caused S[aadati] psychological injuries, including personality change and cognitive difficulties. ...and awarded S[aadati] \$100,000 for non-pecuniary damages.”* The trial decision was appealed to the BC Court of Appeal where the trial’s \$100,000 non-pecuniary award was dismissed. The Supreme Court upheld the \$100,000 non-pecuniary award, determining:

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

At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, and at this point we do not believe this judgment will have a further impact on our valuation results.

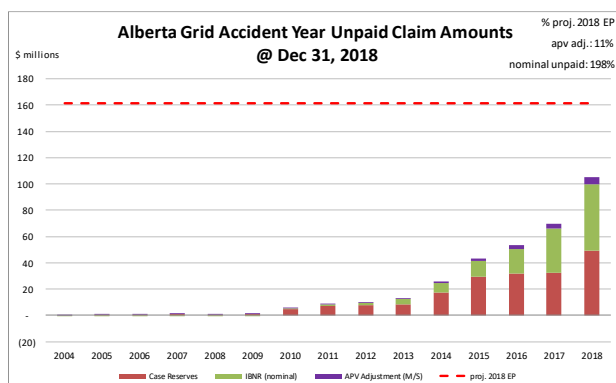
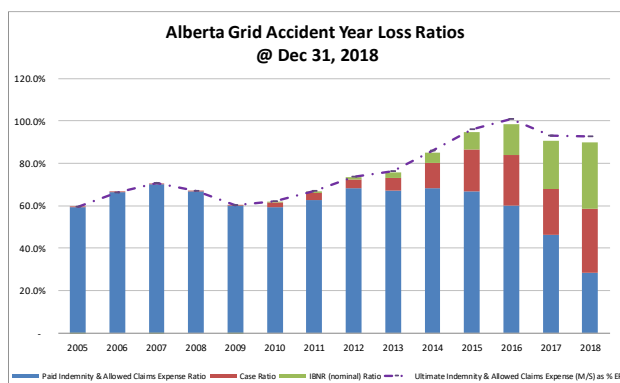
The **Minister of Treasury Board and Finance issued Ministerial Order 14/2018**, on **October 31, 2018**, which states unless otherwise directed by the Minister, the AIRB may not approve filings from insurers for cumulative rate increases on private passenger vehicles greater than +5.0% during the period between December 1, 2018 and August 31, 2019. At the current time, no adjustments have been made to our valuation estimates or views based on this order.

1.4 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities¹ booked by accident year². 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 amount of 2018 full year earned premium (the red hash-mark line) to provide some perspective.

¹Claim 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.

²Accident year 2004 was an incomplete year and therefore has been excluded from the loss ratio chart.



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

The current actuarial present value adjustments balance (\$17.4 million – see table immediately below) represents 11% of the earned premium for the full year 2018 (see the upper right corner of the right chart above). If our current estimates of the nominal unpaid amounts prove to match actual claims payments, the actuarial present value adjustments will be released into the net operating result over future periods.

claim liabilities (\$000s)

	amt	%
case	191,246	56.6%
ibnr	129,382	38.3%
M/S apv adjust.	17,381	5.1%
M/S total	338,009	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 65% of the IBNR balance relates to accident years 2017 and 2018 (see Exhibit B). Approximately 88% of the M/S

total claim liabilities are related to accident years 2014-2018 inclusive (i.e. the most recent 5 accident years), and approximately 1% is related to accident years 2008 and prior (i.e. prior to the most recent 10 accident years).

The tables immediately below summarize the premium liabilities and the total policy liabilities.

premium liabilities (\$000s)

	amt	%
unearned prem	88,454	107.0%
prem def/(dpac)	(9,349)	(11.3%)
M/S apv adjust.	3,536	4.3%
M/S total	82,641	100.0%

policy liabilities (\$000s)

	amt	%
claim	320,628	76.2%
premium	79,105	18.8%
M/S apv adjust.	20,917	5.0%
M/S total	420,650	100.0%

2 Activity During the Month of December 2018

2.1 Recorded Premium and Claims Activity

The table at the top of the next page summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report³.

³There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

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

Table 01 Accident Year	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	8	8	4,293	131	(4,201)	(781)	92	(650)
2016	1	1	1,248	214	(1,533)	(1,060)	(285)	(846)
2017	2	2	1,076	(267)	(626)	(311)	450	(578)
2018	13,775	(90)	4,212	(1,324)	5,617	1,102	9,829	(222)
TOTAL	13,786	(78)	10,829	(1,245)	(743)	(1,050)	10,086	(2,295)

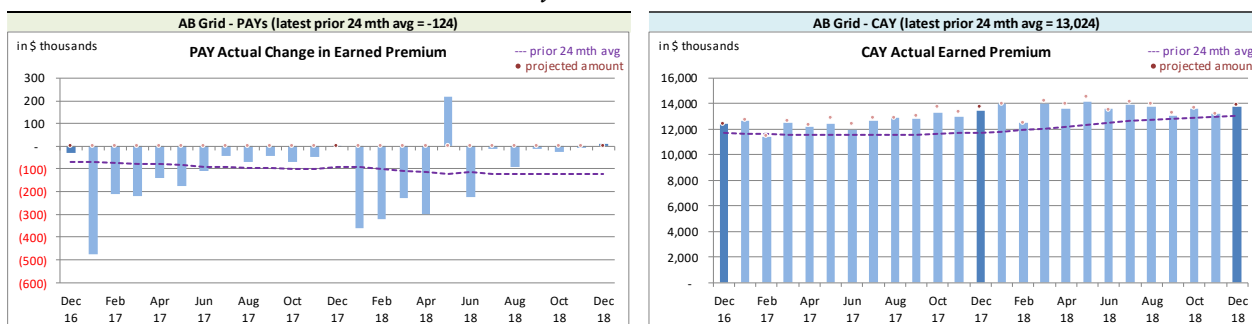
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

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

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

The charts immediately below show actual **earned premium**⁴ activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

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



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

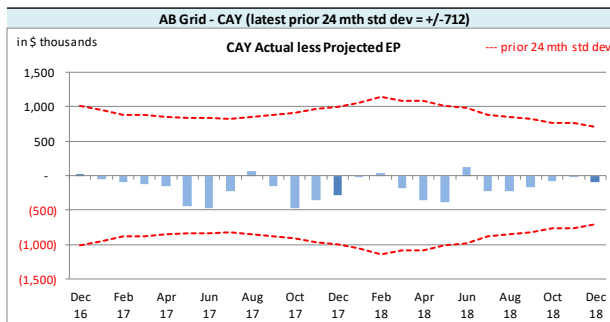
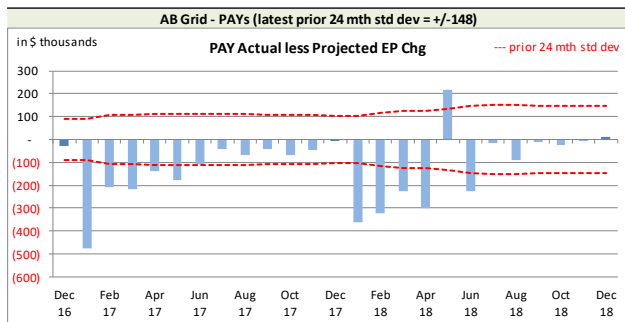
We have noted and have investigated the unusually high level of PAYs earned premium activity earlier in 2017 and January through August 2018, particularly with respect to one member. FA management reviewed the activity and determined the 2017 and 2018 transactions were correct and valid.

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

⁴Premium is earned on a daily basis based on the transaction term measured in days. As a result, months with 31 days earned relatively more than those with 30 days, and February earns the least.

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

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



On Latest \$ thousands		
Earned Premium	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)	(124)	13,024
std dev	148	712
A-P <> std dev	11	-
% <> std dev	44.0%	0.0%
norm <> std dev	31.7%	31.7%

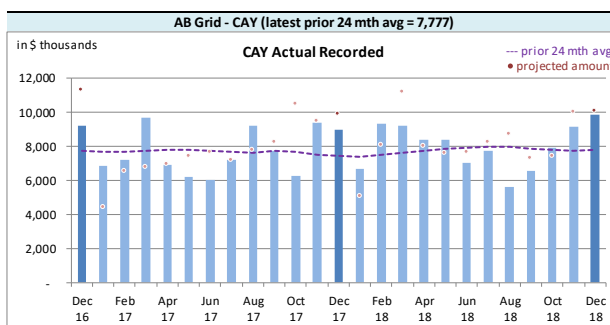
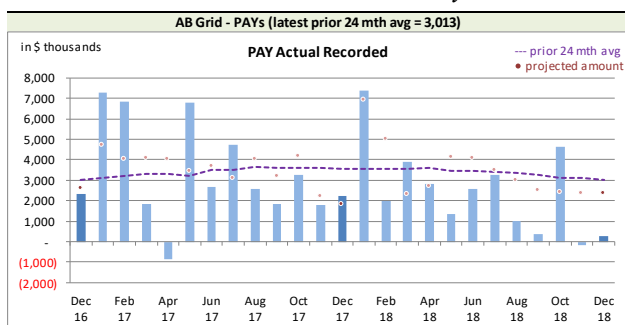
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁵, with actuals generally lower than projected, although the magnitude is not high relative to

monthly premium. In addition to the PAYs' bias, the CAY has also shown bias⁶, with actuals being generally lower than projected, and while we modified our projections processes in response, bias still exists. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

The charts immediately below show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

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

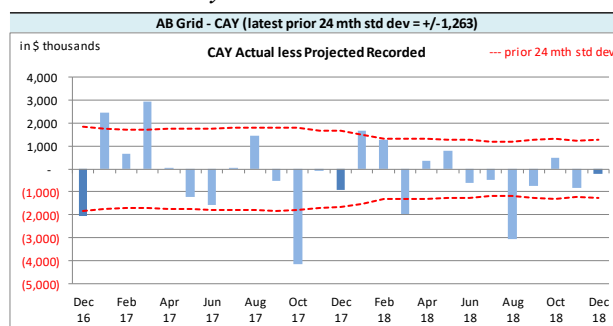
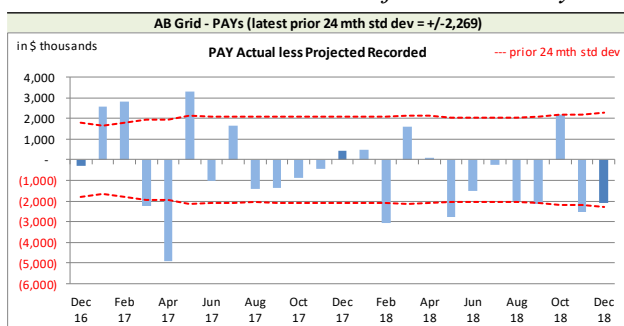


⁵The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

⁶We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (24 in this case) and 50% probability of success. The 24-month variances at December 2018 has only 3 months where the actuals were higher than projected, and as the 95% confidence range is 7 to 17, bias continues to be indicated.

Recorded activity variances from the previous month's projections are shown in the charts immediately below, including the "prior 24-month standard deviation" levels to show how the variances from projection compare with historical standard deviations.

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



On Latest \$ thousands		
	Recorded	
	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	3,013	7,777
std dev	2,269	1,263
A-P <> std dev	10	7
% <> std dev	40.0%	28.0%
norm <> std dev	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 40% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **recorded** amounts (see table on left), suggesting the projection process has performed worse than

simply projecting the prior 24-month average amount (assuming it follows a normal distribution). Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

The current accident year (CAY) **recorded** variances fell outside of one standard deviation 28% of the time over the last 25 calendar months (see table above), suggesting that the projection process has performed no better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

We note that there may be a change in the levels of CAY **recorded** and **paid** activity relative to year-to-date **earned premium**, as evidenced by the average of monthly ratios over the past several years shown in the table at the top of the next page. The table shows, in each row, the average monthly ratio for each calendar year. That is, each row in the table (as at Dec) provides the average of the 12 monthly-ratios (i.e. Jan-Dec) for that row's calendar year.

Alberta Grid RSP year-to-date CAY claims activity (ratio to EP)

CAY avg of mthly ratios for yr

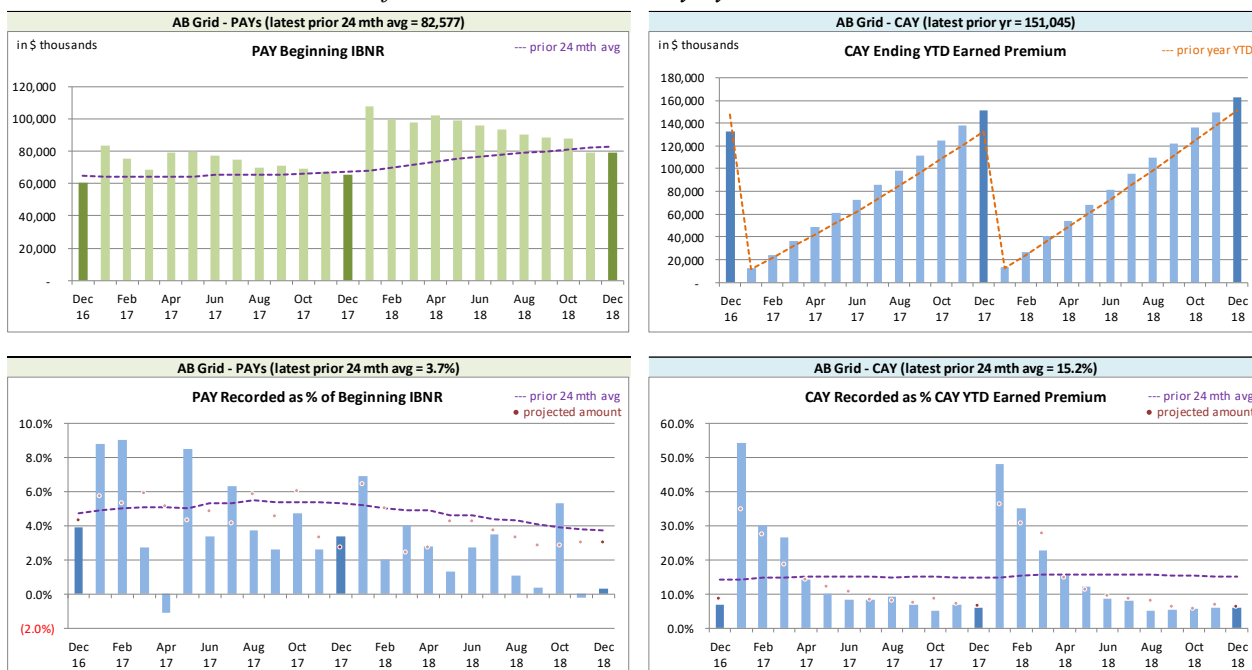
as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
Dec 2009	11.5%		4.4%	
Dec 2010	10.9%	(0.6%)	4.5%	0.1%
Dec 2011	12.8%	1.9%	4.8%	0.3%
Dec 2012	12.4%	(0.4%)	4.7%	(0.1%)
Dec 2013	12.6%	0.2%	4.8%	0.1%
Dec 2014	13.8%	1.2%	5.3%	0.5%
Dec 2015	14.4%	0.6%	5.5%	0.2%
Dec 2016	14.0%	(0.4%)	5.4%	(0.1%)
Dec 2017	15.5%	1.5%	5.6%	0.2%
Dec 2018	14.9%	(0.6%)	5.3%	(0.3%)

Both **recorded** and **paid** monthly average ratios for the 12-months at Dec. 2018 relative to Dec. 2009 have increased at an annual rate of almost 3% over and above any premium rate level increases. While the average of the 12 monthly ratios at December for 2018 was down from 2017, the December 12-month average ratios for calendar year 2018 remain at “elevated” levels for both **recorded** and **paid**. At this point, we are only monitoring, but the valuation team has been advised and is 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:

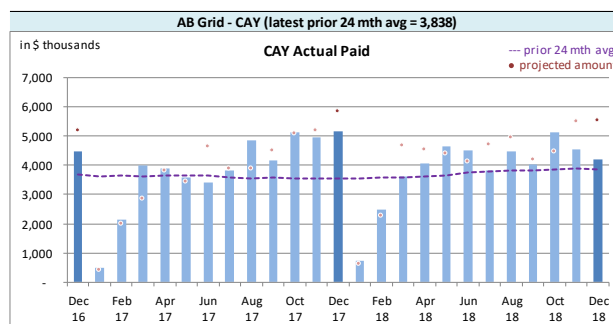
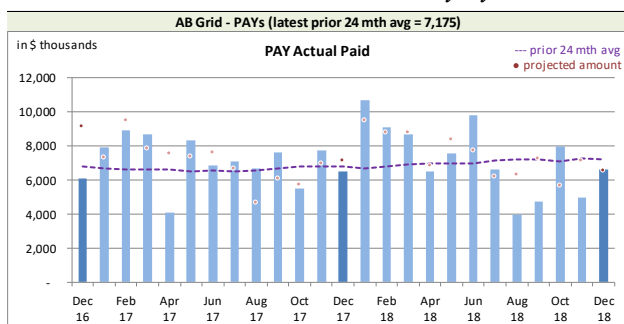
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years' ultimate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

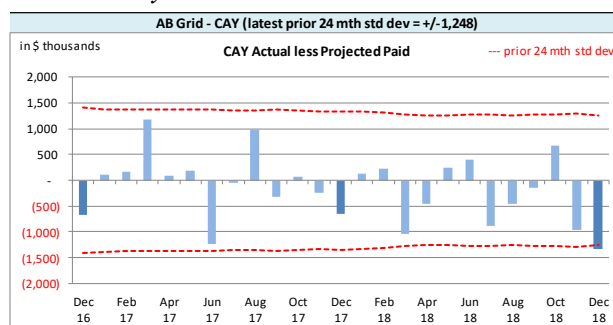
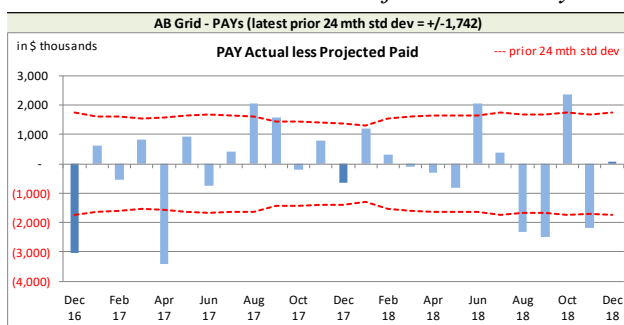
⁷Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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



Paid activity variances from the previous month's projections are shown in the charts immediately below, including the "prior 24-month standard deviation" levels to show how the variances from projection compare with historical standard deviations.

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



On Latest \$ thousands			
	Paid	PAYs	CAY
Mthly Avg Paid (prior 24 mths)		7,175	3,838
std dev		1,742	1,248
A-P <> std dev		9	1
% <> std dev		36.0%	4.0%
norm <> std dev		31.7%	31.7%

With respect to **paid** indemnity & allowed claims expense, 36% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **paid** amounts (see table on left), suggesting the projection process has performed no better than simply projecting the

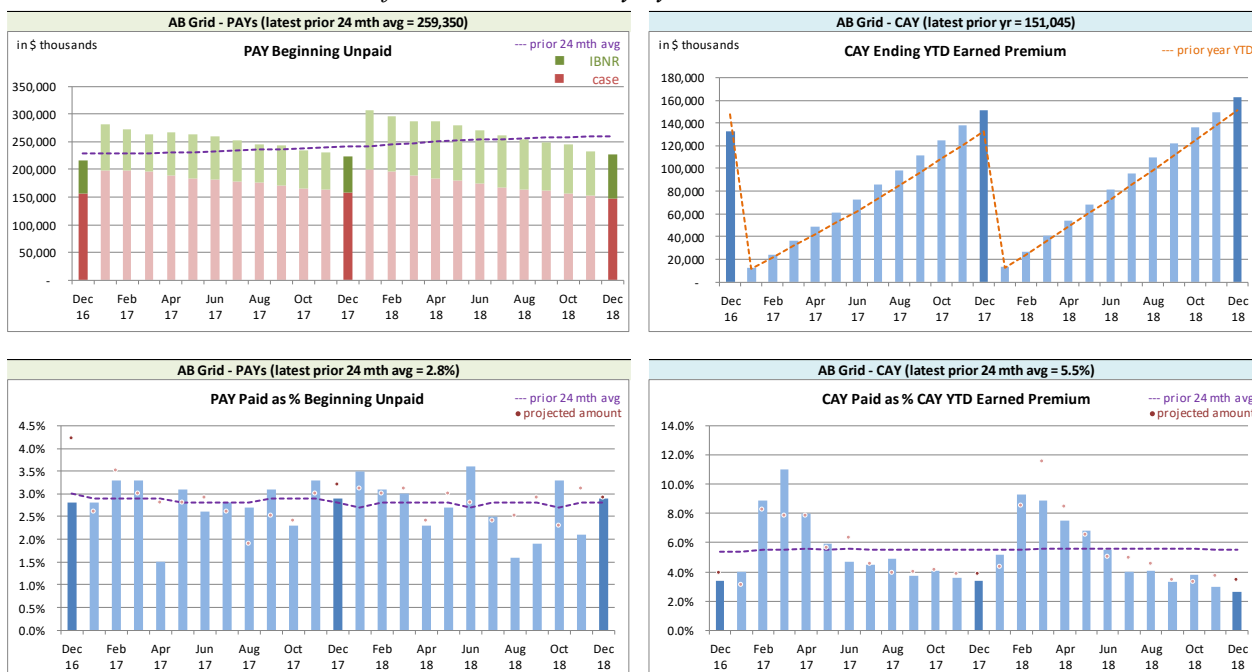
prior 24-month average amount (assuming it follows a normal distribution). Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

The current accident year (CAY) **paid** variances fell outside one standard deviation 4% of the time over the last 25 calendar months (see table above), suggesting the projection process has performed better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

The CAY **paid** variance (see right chart above) was outside of one standard deviation this month. The activity was reviewed and confirmed, with the variance attributed to process variance.

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 this month's 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		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 less Projected
Prior	25,957	655	(4,949)	(3)	10,446	(12)	31,454 640
2016	18,975	847	(3,078)	13	6,226	(27)	22,123 833
2017	33,809	579	(4,428)	(18)	8,171	32	37,552 593
2018	50,641	141	(6,803)	(84)	11,796	146	55,634 203
TOTAL	129,382	2,222	(19,258)	(92)	36,639	139	146,763 2,269

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.

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 this month's 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.

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:	(9,349)	(199)	3,536	79	(5,813)	(120)
balance as % unearned premium:	(10.6%)	-	4.0%	-	(6.6%)	-
actual unearned premium:	88,454					
less projected:	1,960					

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 90.5% rather than 89.8% (the valuation ultimate ratio for accident year 2018), 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	556	0.3%	(8,142)	(5.0%)	(7,586)	(4.7%)	(371)	0.2%
CAY	146,296	90.5%	4,993	3.1%	151,289	93.6%	12,777	(0.1%)
TOTAL	146,852	90.9%	(3,149)	(1.9%)	143,703	88.9%	12,406	0.1%

(“% EP” based on 2018 calendar year-to-date earned premium; ratios may not total due to rounding)

In general, prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments, except when valuations are implemented. The loss ratio change year-to-date in Table 04 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.

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.

5 Current Operational Report – Additional Exhibits

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

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.

Operational Report.

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

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

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

6 EXHIBITS

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

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

EXHIBIT A
IBNR for Member Sharing – includes Actuarial Present Value Adjustments
TABLE EXHIBIT A
**IBNR + M/S actuarial present
 value adjustments**

 discount rate
 2.28%

 interest rate margin
 25 basis pts

Amounts in \$000s					
Accident Year	Actual Nov. 2018	Actual Dec. 2018	Projected Jan. 2019	Projected Feb. 2019	Projected Dec. 2019
2004	(71)	(71)	(71)	(71)	(71)
2005	(152)	(156)	(151)	(151)	(151)
2006	(72)	(71)	(68)	(66)	(42)
2007	(225)	(233)	(230)	(220)	(137)
2008	(13)	24	25	25	17
2009	180	(117)	(111)	(106)	(66)
2010	688	801	784	756	493
2011	1,372	1,698	1,664	1,602	1,040
2012	2,492	2,467	2,397	2,307	1,491
2013	4,260	4,770	4,729	4,549	2,926
2014	9,121	8,382	8,372	8,051	5,181
2015	14,201	13,960	13,642	13,138	8,492
2016	21,915	22,123	21,916	21,328	15,556
2017	38,061	37,552	36,876	36,467	28,592
2018	52,686	55,634	50,830	48,703	40,343
2019	-	-	6,529	10,874	52,809
TOTAL	144,443	146,763	147,133	147,186	156,473
Change		2,320	370	53	

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

EXHIBIT B
IBNR
TABLE EXHIBIT B

TABLE EXHIBIT B		Amounts in \$000s					
IBNR	Ultimate	Accident	Actual	Actual	Projected	Projected	Projected
	Loss Ratio	Year	Nov. 2018	Dec. 2018	Jan. 2019	Feb. 2019	Dec. 2019
	51.6%	2004	(79)	(79)	(79)	(79)	(79)
	59.4%	2005	(194)	(198)	(198)	(198)	(198)
	66.3%	2006	(81)	(80)	(78)	(75)	(48)
	70.6%	2007	(300)	(300)	(294)	(282)	(179)
	67.1%	2008	(93)	(21)	(21)	(20)	(12)
	60.4%	2009	117	(158)	(155)	(149)	(94)
	61.9%	2010	375	489	479	460	292
	66.7%	2011	874	1,201	1,177	1,130	719
	73.5%	2012	1,874	1,875	1,837	1,764	1,123
	75.8%	2013	3,470	4,047	3,966	3,807	2,424
	85.2%	2014	7,847	7,139	6,996	6,716	4,274
	94.7%	2015	12,234	12,042	11,560	11,098	6,925
	98.6%	2016	18,689	18,975	18,406	17,854	12,747
	90.6%	2017	34,258	33,809	32,795	32,467	25,189
	89.8%	2018	48,100	50,641	46,083	44,240	36,880
	89.1%	2019	-	-	5,940	9,828	47,702
		TOTAL	127,091	129,382	128,414	128,561	137,665
		Change		2,291	(968)	147	

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

EXHIBIT C
Premium Liabilities
TABLE EXHIBIT C

	Amounts in \$000s				
Premium Liabilities	Actual Nov. 2018	Actual Dec. 2018	Projected Jan. 2019	Projected Feb. 2019	Projected Dec. 2019
(1) unearned premium (UP)	89,726	88,454	85,138	83,068	95,494
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	93.5%	93.4%	93.4%	93.4%	95.1%
(3) expected future costs {(1) x (2)}	83,925	82,641	79,538	77,624	90,806
(4) premium deficiency / (deferred policy acquisition cost)	(5,801)	(5,813)	(5,600)	(5,444)	(4,688)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	89.5%	89.4%	89.4%	89.4%	91.0%
(6) expected future costs {(1) x (5)}	80,334	79,105	76,135	74,303	86,919
(7) premium deficiency / (deferred policy acquisition cost)	(9,392)	(9,349)	(9,003)	(8,765)	(8,575)

EXHIBIT D
Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2019, broken down by component.

Alberta Grid ending 2019	Projected Balances as at Dec. 31, 2019 (\$000s)									
	nominal values			actuarial present value adjustments (apvs)						
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL
2004	-	(79)	(79)	-	-	8	-	8	8	(71)
2005	772	(198)	574	(10)	1	57	(1)	56	47	621
2006	129	(48)	81	(2)	-	8	-	8	6	87
2007	843	(179)	664	(25)	3	66	(2)	64	42	706
2008	465	(12)	453	(16)	2	45	(2)	43	29	482
2009	532	(94)	438	(16)	2	44	(2)	42	28	466
2010	3,058	292	3,350	(134)	13	335	(13)	322	201	3,551
2011	4,618	719	5,337	(213)	21	534	(21)	513	321	5,658
2012	5,012	1,123	6,135	(245)	25	613	(25)	588	368	6,503
2013	5,653	2,424	8,077	(307)	32	808	(31)	777	502	8,579
2014	11,401	4,274	15,675	(658)	63	1,568	(66)	1,502	907	16,582
2015	23,749	6,925	30,674	(1,503)	153	3,067	(150)	2,917	1,567	32,241
2016	27,249	12,747	39,996	(2,160)	240	4,999	(270)	4,729	2,809	42,805
2017	29,377	25,189	54,566	(3,329)	327	6,821	(416)	6,405	3,403	57,969
2018	30,987	36,880	67,867	(4,547)	475	8,076	(541)	7,535	3,463	71,330
PAYs (sub-total):	143,845	89,963	233,808	(13,165)	1,357	27,049	(1,540)	25,509	13,701	247,509
CAY (2019)	54,628	47,702	102,330	(6,958)	716	12,177	(828)	11,349	5,107	107,437
claims liabilities:	198,473	137,665	336,138	(20,123)	2,073	39,226	(2,368)	36,858	18,808	354,946
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	95,494	(8,575)	86,919	(5,110)	520	9,008	(531)	8,477	3,887	90,806
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:			423,057	(25,233)	2,593	48,234	(2,899)	45,335	22,695	445,752

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, 2018 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Sep. 30, 2018)

Accident Year	Third Party Liability Margins	Accident Benefits Margins	Other Coverages Margins	Total Margins
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%	10.0%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	8.5%	10.0%
2013	10.0%	10.0%	9.9%	10.0%
2014	10.0%	10.0%	10.0%	10.0%
2015	10.0%	10.0%	10.0%	10.0%
2016	12.5%	10.0%	12.5%	12.5%
2017	12.4%	10.0%	12.5%	12.5%
2018	12.2%	10.0%	8.2%	11.9%
2019	11.8%	10.0%	5.1%	10.4%
prem liab	11.8%	10.0%	5.1%	10.4%

discount rate: 2.28%
 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, 2018 from the latest valuation date (projections in exhibits A to D are also to Dec. 31, 2018, but are based on more up-to-date information). We have included the most recent valuation selection (2.28%), the prior valuation assumption (1.87%) and the prior fiscal year end valuation assumption (1.76%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

AY	Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2018 projected Unpaid							
	1.28%	1.78%	2.28%	2.78%	3.28%	3.78%	1.87%	1.76%
2004	-	-	-	-	-	-	-	-
2005	837	832	827	822	817	812	831	832
2006	255	253	251	249	247	245	252	253
2007	1,249	1,240	1,230	1,221	1,212	1,203	1,238	1,240
2008	1,192	1,182	1,173	1,163	1,154	1,146	1,180	1,182
2009	916	908	900	893	885	878	907	909
2010	5,995	5,943	5,891	5,840	5,791	5,742	5,933	5,945
2011	7,863	7,793	7,725	7,659	7,594	7,530	7,781	7,797
2012	10,131	10,046	9,962	9,880	9,800	9,722	10,030	10,049
2013	14,396	14,262	14,130	14,001	13,876	13,751	14,237	14,267
2014	26,583	26,298	26,014	25,739	25,473	25,209	26,245	26,309
2015	43,967	43,445	42,925	42,423	41,938	41,458	43,345	43,464
2016	55,220	54,473	53,736	53,024	52,332	51,654	54,338	54,500
2017	71,927	70,852	69,801	68,789	67,805	66,843	70,660	70,899
2018	104,823	103,231	101,676	100,169	98,718	97,302	102,946	103,299
Total	345,354	340,758	336,241	331,872	327,642	323,495	339,923	340,945
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Dollar Impact Relative to Valuation Assumption							
	1.28%	1.78%	2.28%	2.78%	3.28%	3.78%	1.87%	1.76%
Total	9,113	4,517	-	(4,369)	(8,599)	(12,746)	3,682	4,704
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Percentage Impact Relative to Valuation Assumption							
	1.28%	1.78%	2.28%	2.78%	3.28%	3.78%	1.87%	1.76%
2004	-	-	-	-	-	-	-	-
2005	1.2%	0.6%	-	(0.6%)	(1.2%)	(1.8%)	0.5%	0.6%
2006	1.6%	0.8%	-	(0.8%)	(1.6%)	(2.4%)	0.4%	0.8%
2007	1.5%	0.8%	-	(0.7%)	(1.5%)	(2.2%)	0.7%	0.8%
2008	1.6%	0.8%	-	(0.9%)	(1.6%)	(2.3%)	0.6%	0.8%
2009	1.8%	0.9%	-	(0.8%)	(1.7%)	(2.4%)	0.8%	1.0%
2010	1.8%	0.9%	-	(0.9%)	(1.7%)	(2.5%)	0.7%	0.9%
2011	1.8%	0.9%	-	(0.9%)	(1.7%)	(2.5%)	0.7%	0.9%
2012	1.7%	0.8%	-	(0.8%)	(1.6%)	(2.4%)	0.7%	0.9%
2013	1.9%	0.9%	-	(0.9%)	(1.8%)	(2.7%)	0.8%	1.0%
2014	2.2%	1.1%	-	(1.1%)	(2.1%)	(3.1%)	0.9%	1.1%
2015	2.4%	1.2%	-	(1.2%)	(2.3%)	(3.4%)	1.0%	1.3%
2016	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.9%)	1.1%	1.4%
2017	3.0%	1.5%	-	(1.4%)	(2.9%)	(4.2%)	1.2%	1.6%
2018	3.1%	1.5%	-	(1.5%)	(2.9%)	(4.3%)	1.2%	1.6%
Total	2.7%	1.3%	-	(1.3%)	(2.6%)	(3.8%)	1.1%	1.4%
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

EXHIBIT G

Page 1 of 2

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

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

M/S IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	(71)	-	-	-	-	-	(71)
2005	(152)	1	(5)	-	(4)	2.6%	(156)
2006	(72)	(1)	2	-	1	(1.4%)	(71)
2007	(225)	(2)	(6)	-	(8)	3.6%	(233)
2008	(13)	(2)	39	-	37	(284.6%)	24
2009	180	(4)	(293)	-	(297)	(165.0%)	(117)
2010	688	(16)	129	-	113	16.4%	801
2011	1,372	(28)	354	-	326	23.8%	1,698
2012	2,492	(44)	19	-	(25)	(1.0%)	2,467
2013	4,260	(68)	578	-	510	12.0%	4,770
2014	9,121	(378)	(361)	-	(739)	(8.1%)	8,382
2015	14,201	(425)	184	-	(241)	(1.7%)	13,960
2016	21,915	(625)	833	-	208	0.9%	22,123
2017	38,061	(1,102)	593	-	(509)	(1.3%)	37,552
2018	52,686	2,745	203	-	2,948	5.6%	55,634
Grand Total	144,443	51	2,269	-	2,320	1.6%	146,763

EXHIBIT G

Page 2 of 2

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

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

IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	(79)	-	-	-	-	-	(79)
2005	(194)	2	(6)	-	(4)	2.1%	(198)
2006	(81)	1	-	-	1	(1.2%)	(80)
2007	(300)	3	(3)	-	-	-	(300)
2008	(93)	1	71	-	72	(77.4%)	(21)
2009	117	(1)	(274)	-	(275)	(235.0%)	(158)
2010	375	(4)	118	-	114	30.4%	489
2011	874	(9)	336	-	327	37.4%	1,201
2012	1,874	(19)	20	-	1	0.1%	1,875
2013	3,470	(35)	612	-	577	16.6%	4,047
2014	7,847	(314)	(394)	-	(708)	(9.0%)	7,139
2015	12,234	(367)	175	-	(192)	(1.6%)	12,042
2016	18,689	(561)	847	-	286	1.5%	18,975
2017	34,258	(1,028)	579	-	(449)	(1.3%)	33,809
2018	48,100	2,400	141	-	2,541	5.3%	50,641
Grand Total	127,091	69	2,222	-	2,291	1.8%	129,382