



ALBERTA GRID RISK SHARING POOL

SEPTEMBER 2019 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

Related Bulletin: [F19-079 Alberta RSPs September 2019 Operational Reports](#)

For your convenience, bookmarks have been added to this document. To view them, please click on the BOOKMARK tab at the left.

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

ACTUARIAL HIGHLIGHTS**RSP ALBERTA GRID****OPERATIONAL REPORT****SEPTEMBER 2019**

TABLE OF CONTENTS

1	Summary.....	2
1.1	Valuation Schedule (Fiscal Year 2019).....	2
1.2	Appointed Actuary and Hybrid Actuarial Services Model.....	3
1.3	Consideration of Recent Legal Decisions and Changes in Legislation / Regulation	3
1.4	Current Provision Summary	3
2	Activity During the Month of September 2019	4
2.1	Recorded Premium and Claims Activity	4
2.1.a	Actual vs. Projected (AvsP): Earned Premium.....	5
2.1.b	AvsP: Recorded Indemnity & Allowed Claims Expense	6
2.1.c	AvsP: Paid Indemnity & Allowed Claims Expense	8
2.2	Actuarial Provisions.....	10
3	Ultimate Loss Ratio Matching Method.....	12
4	Calendar Year-to-Date Results.....	12
5	Current Operational Report – Additional Exhibits	13
6	EXHIBITS	13

1 Summary

Key Points

- (a) Liam McFarlane has resigned as the Facility Association’s Appointed Actuary; Mr. Cosimo Pantaleo of Ernst & Young LLP has assumed the Appointed Actuary’s role (effective as of October 24, 2019), pending formal appointment by the Facility Association Board (expected at its December 12, 2019 meeting); and
- (b) There were no other specific issues or events warranting additional comment for this month – results were reasonably aligned with our expectations, although we did conclude that our projection for the current accident year paid levels from last month was a poor one.

1.1 Valuation Schedule (Fiscal Year 2019)

The September 2019 Operational Report leverages actuarial assumptions consistent with last month (that is, it does not reflect the results of an updated valuation). The table 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 (completed)	1.93% mfad 25 bp	Mar. 2019	updated valuation: accident year 2019 loss ratio <u>decreased</u> 0.3 points to 88.8%; discount rate <u>decreased</u> by 35 basis points; no change to selected margins for adverse deviations
Mar. 31, 2019 (completed)	1.44% mfad 25 bp	May 2019	updated valuation (roll forward): accident year 2019 loss ratio <u>increased</u> 0.9 points to 89.7%; discount rate <u>decreased</u> by 49 basis points; no change to selected margins for adverse deviations
Jun. 30, 2019 (completed)	1.41% mfad 25 bp	Aug. 2019	updated valuation: accident year 2019 loss ratio <u>decreased</u> 2.9 points to 86.8%; discount rate <u>decreased</u> by 3 basis points; selected margins for adverse deviations were updated
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 was Facility Association's Appointed Actuary (effective as of June 1, 2013). Mr. McFarlane has resigned his Appointment to take on a role at a different organization. Mr. Cosimo Pantaleo of Ernst & Young LLP has assumed the Appointed Actuary's role (effective as of October 24, 2019), pending formal appointment by the Facility Association Board (expected at its December 12, 2019 meeting).

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 / Regulation¹

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 (June 30, 2019), 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, 2018), impacting the selection of ultimates.

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. **This order lapsed in August 2019.** At the current time, no explicit adjustments have been made to our valuation estimates or views based on this order.

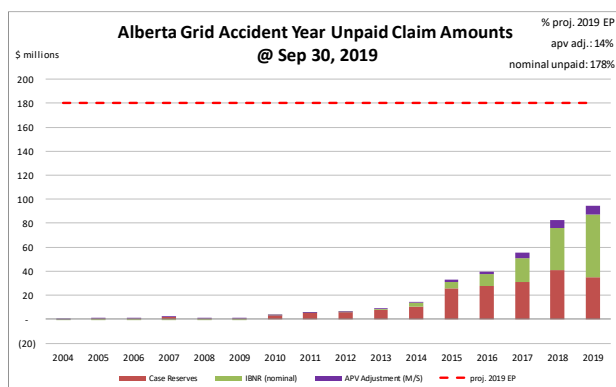
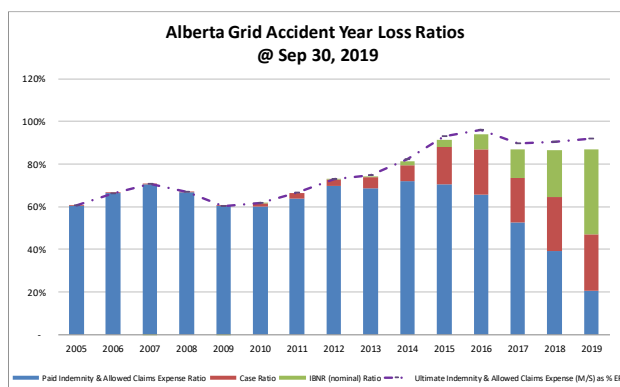
1.4 Current Provision Summary

The charts at the top of the next page show the current levels of claim 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 2019 full year earned premium (the red hash-mark line) to provide some perspective.

¹This link is to a helpful guide on how bills become laws: <http://www.ontla.on.ca/lao/en/media/laointernet/pdf/bills-and-lawmaking-background-documents/how-bills-become-law-en.pdf>.

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.



"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 (\$25.8 million – see table below) represents 14% of the earned premium projected for the full year 2019 (see the upper right corner of the right chart at the bottom of the previous page). 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	196,264	56.5%
ibnr	125,191	36.0%
M/S apv adjust.	25,816	7.4%
M/S total	347,271	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 RSP is in case reserves. Approximately 70% of the IBNR balance relates to accident years 2018 and 2019 (see Exhibit B). Approximately 88% of the M/S total claim

liabilities are related to accident years 2015-2019 inclusive (i.e. the most recent 5 accident years), and approximately 1% is related to accident years 2009 and prior (i.e. prior to the most recent 10 accident years).

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

premium liabilities (\$000s)

	amt	%
unearned prem	201,939	72.6%
prem def/(dpac)	49,488	17.8%
M/S apv adjust.	26,676	9.6%
M/S total	278,103	100.0%

policy liabilities (\$000s)

	amt	%
claim	321,455	71.2%
premium	97,255	21.6%
M/S apv adjust.	32,518	7.2%
M/S total	451,228	100.0%

2 Activity During the Month of September 2019

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 Report⁴.

⁴There 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	15	15	5,025	2,747	(4,220)	(2,682)	806	66
2017	(23)	(23)	1,042	4	(954)	(515)	88	(511)
2018	(13)	(13)	936	(608)	(475)	713	461	105
2019	15,788	(292)	3,628	(2,155)	4,073	476	7,701	(1,679)
TOTAL	15,767	(313)	10,631	(12)	(1,575)	(2,007)	9,056	(2,019)

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

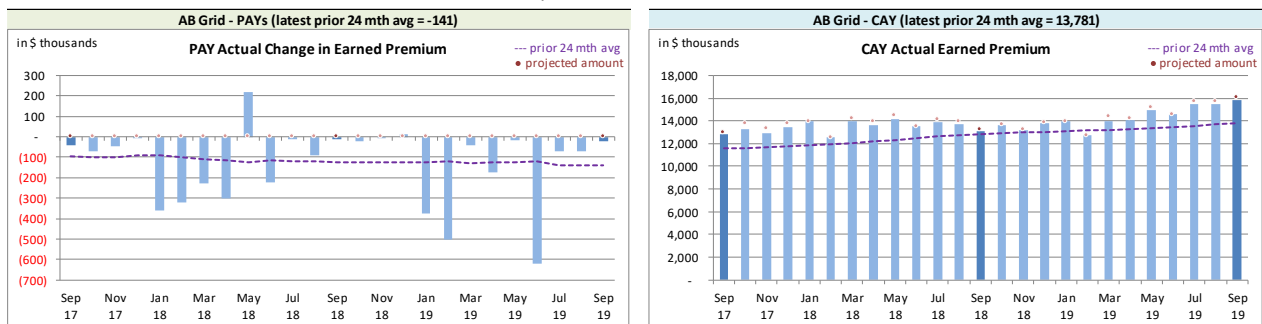
It is unusual to see actual earned premium transactions affecting prior accident years by this time in the calendar year – the prior accident years changes in the month reflect activity undertaken by a member reflecting recent audit findings.

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 below show actual **earned premium**⁵ 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



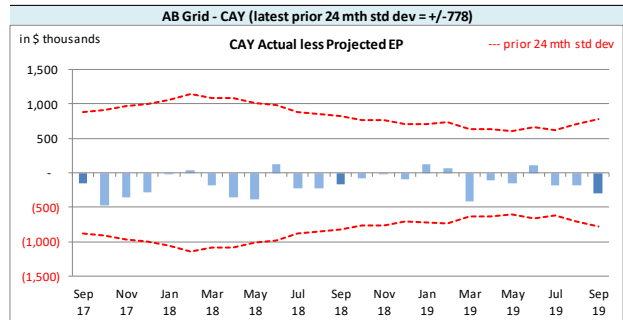
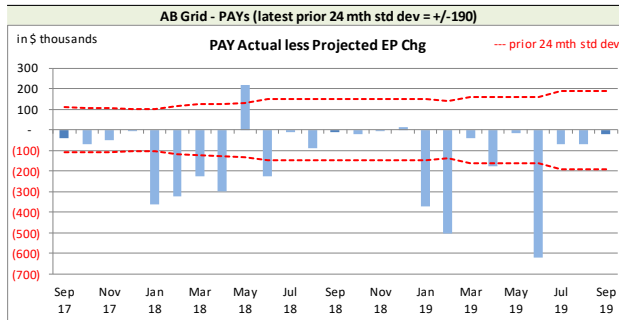
Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels generally occur at the beginning of each year.

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, but it does mean that the actual less projection variance will equal the actual **earned premium** change in relation to

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.

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)	(141)	13,781	
std dev	190	778	
A-P <> std dev	10	-	
% <> std dev	40.0%	0.0%	
norm <> std dev	31.7%	31.7%	

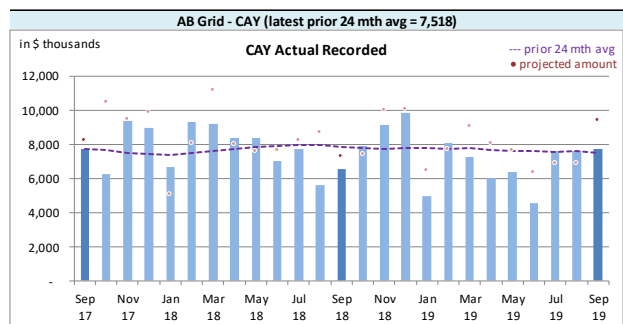
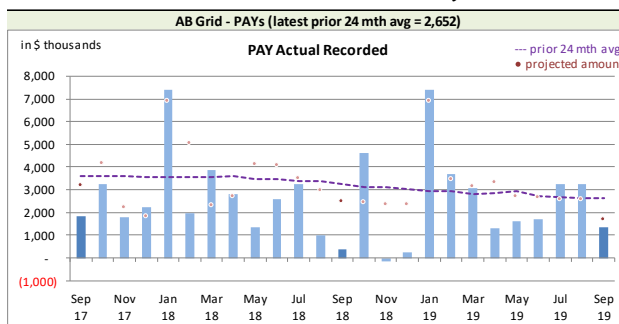
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁶, with actuals generally lower than projected, although the magnitude is not high relative to monthly

premium. In addition to the PAYs' bias, the CAY has also shown bias⁷, 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 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

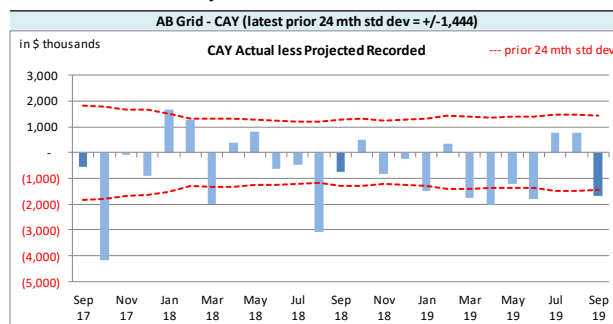
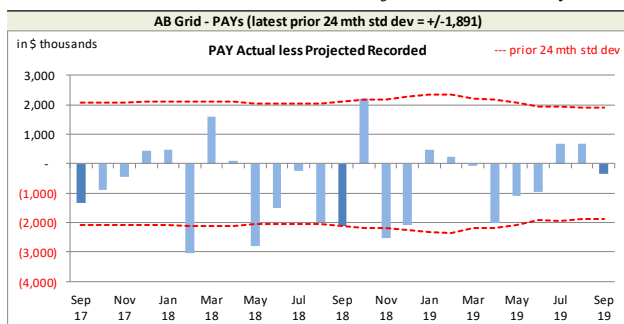


⁶The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

⁷We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (25 in this case) and 50% probability of success. The rolling 25-month CAY variances at September 2019 has only 5 months where the actuals were higher than projected, and as the 95% confidence range is 8 to 17, bias continues to be indicated.

Recorded activity variances from the previous month’s projections are shown in the charts 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	
Mthly Avg Recorded (prior 24 mths)	2,652	7,518
std dev	1,891	1,444
A-P <> std dev	5	9
% <> std dev	20.0%	36.0%
norm <> std dev	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 20% 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 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 rolling 25-month basis (9 of 25 variances were positive).

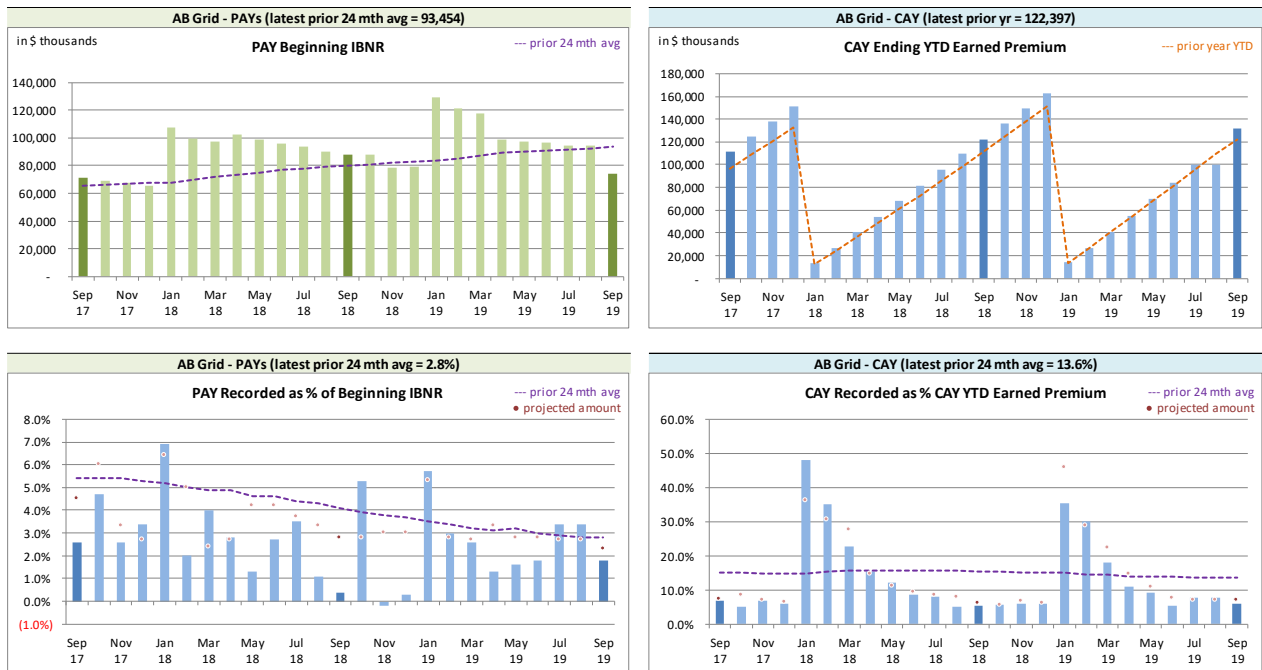
The current accident year (CAY) **recorded** variances fell outside of one standard deviation 36% of the time over the last 25 calendar months (see table above), suggesting that the projection process has performed no better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis (8 of 25 variances were positive).

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

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

We have included, for reference, additional charts 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 influence⁸ Recorded activity by Calendar Month



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

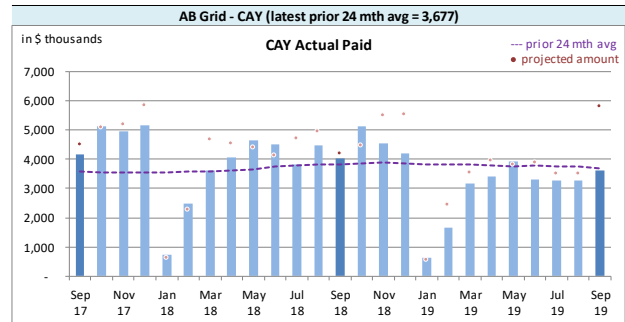
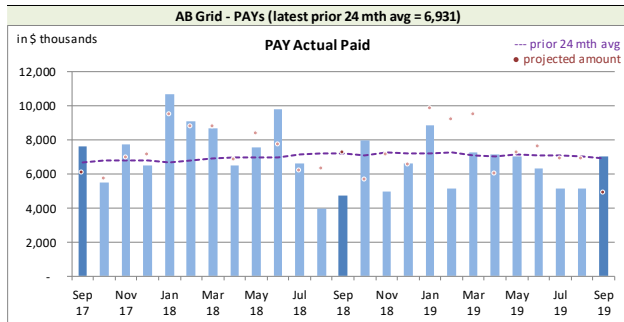
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

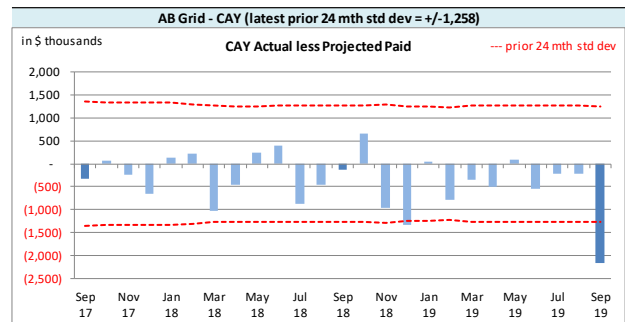
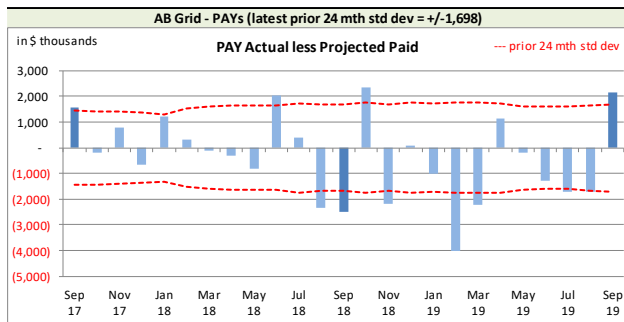
⁸Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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 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)		6,931	3,677
std dev		1,698	1,258
A-P <> std dev		11	2
% <> std dev		44.0%	8.0%
norm <> std dev		31.7%	31.7%

With respect to **paid** indemnity & allowed claims expense, 44% 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 worse than simply projecting the prior 24-month average

amount (assuming it follows a normal distribution), and we are actively looking into the projection process for means of improving this result. Bias has not been indicated at a 95% confidence level on a rolling 25-month basis (10 of 25 variances are positive).

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

The current accident year (CAY) **paid** variances fell outside one standard deviation 8% 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 rolling 25-month basis (8 of 25 variances are positive).

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

We have included, for reference, additional charts below related to levels influencing **paid** activity.

Alberta Grid RSP Levels that influence⁹ Paid activity by Calendar Month



We track the PAY beginning unpaid balance (case and IBNR) as **paid** activity “comes out of” the unpaid balance. Changes in the PAY 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 IBNR¹⁰, 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

⁹Our 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.

¹⁰For ease of discussion, “IBNR” is used in place of “provisions for incurred but not recorded (IBNR) and development”.

and actuals were based on the applicable valuation.

The table below summarizes variances in provisions included in this month's Operational Report and the associated one-month projections from last month's Report.

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

Table 02

Accident Year	actuarial present value adjustments							
	IBNR		Discount Amount		Provisions for Adverse Deviations		IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	17,844	(57)	(3,264)	67	10,988	(258)	25,568	(248)
2017	19,848	490	(1,932)	1	6,471	(3)	24,387	488
2018	35,141	(115)	(3,127)	(24)	9,677	75	41,691	(64)
2019	52,358	1,426	(3,583)	(78)	10,586	231	59,361	1,579
TOTAL	125,191	1,744	(11,906)	(34)	37,722	45	151,007	1,755

The IBNR provision is \$1.7 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 at the top of the next page 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:	(12,337)	136	6,702	(83)	(5,635)	53
balance as % unearned premium:	(11.3%)	(0.1%)	6.1%	0.1%	(5.1%)	-
actual unearned premium:	109,592					
less projected:	(1,344)					

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 loss¹¹ 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 expenses¹², including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes earned premium associated with the current accident year but also earned premium adjustments related to prior accident years. Specifically, the current accident year (CAY) ratio in the table is 88.0% rather than 86.8% (the valuation ultimate ratio for accident year 2019), 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.)

¹¹“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).

¹²Allowed 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 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	(29,912)	(23.1%)	1,432	1.1%	(28,480)	(22.0%)	(558)	2.5%
CAY	114,201	88.0%	7,003	5.4%	121,204	93.4%	14,512	(0.2%)
TOTAL	84,289	65.0%	8,435	6.5%	92,724	71.5%	13,954	2.4%

(*“% EP” based on 2019 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 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
 1.41%

 interest rate margin
 25 basis pts

Amounts in \$000s					
Accident Year	Actual Aug. 2019	Actual Sep. 2019	Projected Oct. 2019	Projected Nov. 2019	Projected Dec. 2019
2004	(71)	(71)	(68)	(65)	(64)
2005	24	15	14	14	12
2006	(95)	(99)	(95)	(91)	(91)
2007	(38)	(354)	(338)	(319)	(321)
2008	41	44	43	42	39
2009	(47)	(378)	(362)	(344)	(340)
2010	385	380	368	351	336
2011	557	472	457	438	416
2012	742	711	687	658	629
2013	1,424	1,340	1,294	1,236	1,194
2014	4,111	4,014	3,864	3,681	3,598
2015	7,545	7,337	7,065	6,783	6,464
2016	12,147	12,157	11,722	11,185	11,002
2017	24,590	24,387	23,502	23,032	22,529
2018	42,244	41,691	40,506	39,356	37,907
2019	52,550	59,361	66,451	73,412	80,381
TOTAL	146,109	151,007	155,110	159,369	163,691
Change		4,898	4,103	4,259	

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 Aug. 2019	Actual Sep. 2019	Projected Oct. 2019	Projected Nov. 2019	Projected Dec. 2019
51.6%	2004	(79)	(79)	(76)	(72)	(71)
60.5%	2005	(33)	(24)	(23)	(22)	(22)
66.3%	2006	(105)	(109)	(105)	(100)	(99)
70.8%	2007	(171)	(455)	(437)	(415)	(411)
67.1%	2008	(13)	(10)	(10)	(9)	(9)
60.4%	2009	(92)	(391)	(375)	(356)	(352)
61.5%	2010	144	139	133	126	125
66.3%	2011	51	76	73	69	68
72.8%	2012	258	252	242	230	228
74.4%	2013	763	699	671	637	631
81.4%	2014	3,080	3,009	2,889	2,745	2,718
91.6%	2015	5,322	5,143	4,937	4,740	4,503
94.2%	2016	9,516	9,594	9,210	8,749	8,662
86.8%	2017	19,957	19,848	19,054	18,673	18,300
86.5%	2018	35,612	35,141	34,087	33,064	31,741
86.8%	2019	46,355	52,358	58,663	64,879	71,135
	TOTAL	120,565	125,191	128,933	132,938	137,147
	Change		4,626	3,742	4,005	

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

EXHIBIT C
Premium Liabilities
TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Aug. 2019	Actual Sep. 2019	Projected Oct. 2019	Projected Nov. 2019	Projected Dec. 2019
Premium Liabilities					
(1) unearned premium (UP)	103,787	109,592	112,965	114,091	112,549
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	94.5%	94.9%	95.2%	95.6%	96.0%
(3) expected future costs {(1) x (2)}	98,104	103,957	107,571	109,073	108,067
(4) premium deficiency / (deferred policy acquisition cost)	(5,683)	(5,635)	(5,394)	(5,018)	(4,482)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	88.4%	88.7%	89.1%	89.4%	89.8%
(6) expected future costs {(1) x (5)}	91,779	97,255	100,638	102,042	101,102
(7) premium deficiency / (deferred policy acquisition cost)	(12,008)	(12,337)	(12,327)	(12,049)	(11,447)

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		Projected Balances as at Dec. 31, 2019 (\$000s)								
ending 2019		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	1	(71)	(70)	-	-	7	-	7	7	(63)
2005	387	(22)	365	(4)	1	37	-	37	34	399
2006	202	(99)	103	(2)	-	10	-	10	8	111
2007	1,517	(411)	1,106	(23)	4	111	(2)	109	90	1,196
2008	612	(9)	603	(13)	2	60	(1)	59	48	651
2009	255	(352)	(97)	2	-	10	-	10	12	(85)
2010	2,598	125	2,723	(65)	11	272	(7)	265	211	2,934
2011	4,468	68	4,536	(113)	18	454	(11)	443	348	4,884
2012	4,872	228	5,100	(117)	20	510	(12)	498	401	5,501
2013	6,726	631	7,357	(191)	37	736	(19)	717	563	7,920
2014	9,317	2,718	12,035	(349)	60	1,204	(35)	1,169	880	12,915
2015	23,203	4,503	27,706	(887)	166	2,771	(89)	2,682	1,961	29,667
2016	25,435	8,662	34,097	(1,159)	205	3,410	(116)	3,294	2,340	36,437
2017	29,075	18,300	47,375	(1,800)	332	5,922	(225)	5,697	4,229	51,604
2018	40,049	31,741	71,790	(2,943)	503	8,974	(368)	8,606	6,166	77,956
PAYs (sub-total):	148,717	66,012	214,729	(7,664)	1,359	24,488	(885)	23,603	17,298	232,027
CAY (2019)	44,261	71,135	115,396	(4,731)	808	13,732	(563)	13,169	9,246	124,642
claims liabilities:	192,978	137,147	330,125	(12,395)	2,167	38,220	(1,448)	36,772	26,544	356,669
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	112,549	(11,447)	101,102	(3,727)	604	10,476	(388)	10,088	6,965	108,067
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:			431,227	(16,122)	2,771	48,696	(1,836)	46,860	33,509	464,736

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, 2019 from the valuation), followed by the selected discount rate and the associated margin for investment income.

**Selected Claims Development MfADs (Jun. 30,
 2019)**

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%	8.7%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	10.0%	10.0%	9.9%	10.0%
2015	10.0%	10.0%	9.3%	10.0%
2016	10.0%	10.0%	10.0%	10.0%
2017	12.5%	10.0%	12.5%	12.5%
2018	12.5%	10.0%	12.5%	12.5%
2019	12.1%	10.0%	6.9%	11.9%
2020	11.9%	10.0%	5.1%	10.4%
prem liab	11.9%	10.0%	5.1%	10.4%

discount rate: 1.41%
 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, 2019 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2019, and are based on more up-to-date information). We have included the most recent valuation selection (1.44%), the prior valuation assumption (1.93%) and the prior fiscal year end valuation assumption (2.28%) 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, 2019 projected Unpaid								
AY	0.41%	0.91%	1.41%	1.91%	2.41%	2.91%	1.44%	2.28%
2004	-	-	-	-	-	-	-	-
2005	602	600	598	596	594	592	598	595
2006	209	207	206	205	204	202	206	204
2007	1,399	1,389	1,379	1,369	1,359	1,349	1,378	1,361
2008	605	600	595	591	586	581	595	587
2009	609	604	598	593	588	583	598	589
2010	3,171	3,143	3,116	3,090	3,064	3,039	3,115	3,071
2011	5,011	4,966	4,922	4,879	4,837	4,796	4,920	4,848
2012	5,920	5,871	5,823	5,776	5,729	5,685	5,820	5,741
2013	7,863	7,791	7,720	7,652	7,584	7,518	7,717	7,602
2014	13,853	13,708	13,566	13,427	13,290	13,158	13,557	13,325
2015	29,012	28,675	28,351	28,034	27,724	27,424	28,331	27,805
2016	38,146	37,679	37,225	36,787	36,354	35,935	37,202	36,465
2017	51,420	50,715	50,035	49,379	48,727	48,102	50,001	48,898
2018	81,217	80,012	78,851	77,733	76,622	75,559	78,784	76,910
2019	118,232	116,448	114,731	113,067	111,430	109,866	114,633	111,854
Total	357,269	352,408	347,716	343,178	338,692	334,389	347,455	339,855
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

Dollar Impact Relative to Valuation Assumption								
AY	0.41%	0.91%	1.41%	1.91%	2.41%	2.91%	1.44%	2.28%
Total	9,553	4,692	-	(4,538)	(9,024)	(13,327)	(261)	(7,861)
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

Percentage Impact Relative to Valuation Assumption								
AY	0.41%	0.91%	1.41%	1.91%	2.41%	2.91%	1.44%	2.28%
2004	-	-	-	-	-	-	-	-
2005	0.7%	0.3%	-	(0.3%)	(0.7%)	(1.0%)	-	(0.5%)
2006	1.5%	0.5%	-	(0.5%)	(1.0%)	(1.9%)	-	(1.0%)
2007	1.5%	0.7%	-	(0.7%)	(1.5%)	(2.2%)	(0.1%)	(1.3%)
2008	1.7%	0.8%	-	(0.7%)	(1.5%)	(2.4%)	-	(1.3%)
2009	1.8%	1.0%	-	(0.8%)	(1.7%)	(2.5%)	-	(1.5%)
2010	1.8%	0.9%	-	(0.8%)	(1.7%)	(2.5%)	(0.0%)	(1.4%)
2011	1.8%	0.9%	-	(0.9%)	(1.7%)	(2.6%)	(0.0%)	(1.5%)
2012	1.7%	0.8%	-	(0.8%)	(1.6%)	(2.4%)	(0.1%)	(1.4%)
2013	1.9%	0.9%	-	(0.9%)	(1.8%)	(2.6%)	(0.0%)	(1.5%)
2014	2.1%	1.0%	-	(1.0%)	(2.0%)	(3.0%)	(0.1%)	(1.8%)
2015	2.3%	1.1%	-	(1.1%)	(2.2%)	(3.3%)	(0.1%)	(1.9%)
2016	2.5%	1.2%	-	(1.2%)	(2.3%)	(3.5%)	(0.1%)	(2.0%)
2017	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.9%)	(0.1%)	(2.3%)
2018	3.0%	1.5%	-	(1.4%)	(2.8%)	(4.2%)	(0.1%)	(2.5%)
2019	3.1%	1.5%	-	(1.5%)	(2.9%)	(4.2%)	(0.1%)	(2.5%)
Total	2.7%	1.3%	-	(1.3%)	(2.6%)	(3.8%)	(0.1%)	(2.3%)
	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 - 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	(71)	4	(4)	-	-	-	(71)
2005	24	-	(9)	-	(9)	(37.5%)	15
2006	(95)	5	(9)	-	(4)	4.2%	(99)
2007	(38)	4	(320)	-	(316)	831.6%	(354)
2008	41	-	3	-	3	7.3%	44
2009	(47)	3	(334)	-	(331)	704.3%	(378)
2010	385	(13)	8	-	(5)	(1.3%)	380
2011	557	(18)	(67)	-	(85)	(15.3%)	472
2012	742	(28)	(3)	-	(31)	(4.2%)	711
2013	1,424	(58)	(26)	-	(84)	(5.9%)	1,340
2014	4,111	(186)	89	-	(97)	(2.4%)	4,014
2015	7,545	(310)	102	-	(208)	(2.8%)	7,337
2016	12,147	(312)	322	-	10	0.1%	12,157
2017	24,590	(691)	488	-	(203)	(0.8%)	24,387
2018	42,244	(489)	(64)	-	(553)	(1.3%)	41,691
2019	52,550	5,232	1,579	-	6,811	13.0%	59,361
Grand Total	146,109	3,143	1,755	-	4,898	3.4%	151,007

EXHIBIT G

Page 2 of 2

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

RSP
AccountCode Desc **Alberta Grid**
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)	4	(4)	-	-	-	(79)
2005	(33)	2	7	-	9	(27.3%)	(24)
2006	(105)	5	(9)	-	(4)	3.8%	(109)
2007	(171)	9	(293)	-	(284)	166.1%	(455)
2008	(13)	1	2	-	3	(23.1%)	(10)
2009	(92)	5	(304)	-	(299)	325.0%	(391)
2010	144	(7)	2	-	(5)	(3.5%)	139
2011	51	(3)	28	-	25	49.0%	76
2012	258	(13)	7	-	(6)	(2.3%)	252
2013	763	(38)	(26)	-	(64)	(8.4%)	699
2014	3,080	(154)	83	-	(71)	(2.3%)	3,009
2015	5,322	(266)	87	-	(179)	(3.4%)	5,143
2016	9,516	(285)	363	-	78	0.8%	9,594
2017	19,957	(599)	490	-	(109)	(0.5%)	19,848
2018	35,612	(356)	(115)	-	(471)	(1.3%)	35,141
2019	46,355	4,577	1,426	-	6,003	13.0%	52,358
Grand Total	120,565	2,882	1,744	-	4,626	3.8%	125,191