



ALBERTA NON-GRID RISK SHARING POOL

FEBRUARY 2019 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

Related Bulletin: [F19-022 Alberta RSPs February 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 NON-GRID****OPERATIONAL REPORT****FEBRUARY 2019**

TABLE OF CONTENTS

1	Summary.....	2
1.1	Valuation Schedule (Fiscal Year 2019).....	2
1.2	Appointed Actuary and Hybrid Actuarial Services Model.....	2
1.3	Consideration of Recent Legal Decisions and Changes in Legislation / Regulation	2
1.4	Current Provision Summary	3
2	Activity During the Month of February 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

1.1 Valuation Schedule (Fiscal Year 2019)

The February 2019 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 NON-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)	2.29% mfad 25 bp	Oct. 2018	updated valuation: accident year 2018 loss ratio decreased 2.8 points to 109.3%; discount rate increased by 42 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 / Regulation¹

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

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>.

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 June 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.

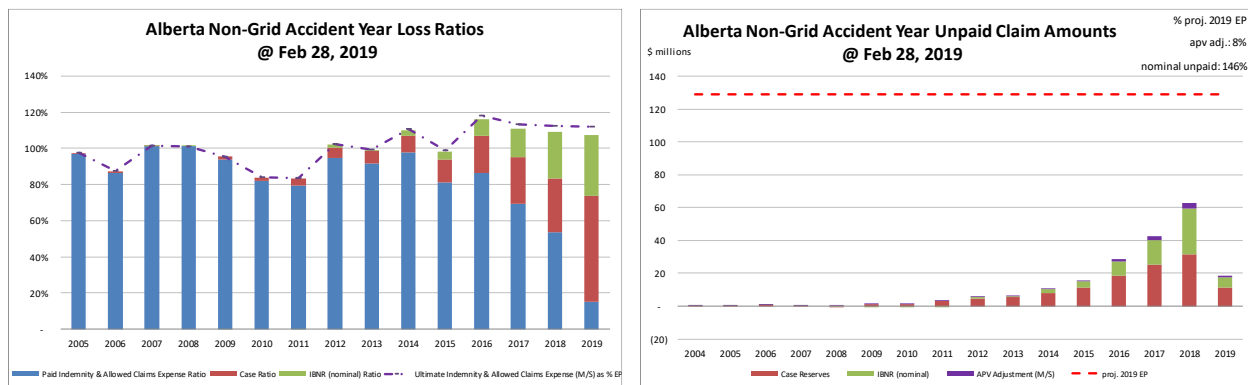
1.4 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities² booked by accident year³. The left chart displays life-to-date payments, case reserves, IBNR, and the total including

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.

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.



"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 (\$10.4 million – see table immediately below) represents 8% of the earned premium projected for the full year 2019 (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	122,797	61.8%
ibnr	65,394	32.9%
M/S apv adjust.	10,419	5.2%
M/S total	198,610	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 52% of the IBNR balance relates to accident years 2018 and 2019 (see Exhibit B). Approximately 85% 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 immediately below summarize the premium liabilities and the total policy liabilities.

premium liabilities (\$000s)

	amt	%
unearned prem	58,673	88.6%
prem def/(dpac)	4,510	6.8%
M/S apv adjust.	3,052	4.6%
M/S total	66,235	100.0%

policy liabilities (\$000s)

	amt	%
claim	188,191	71.1%
premium	63,183	23.9%
M/S apv adjust.	13,471	5.1%
M/S total	264,845	100.0%

2 Activity During the Month of February 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.

Alberta Non-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	0	0	3,175	1,668	(3,742)	(2,880)	(567)	(1,212)
2017	(2)	(2)	1,034	621	26	(43)	1,060	578
2018	(73)	(73)	2,695	(1,672)	(3,504)	(222)	(810)	(1,895)
2019	9,146	(72)	2,310	(162)	6,865	1,942	9,175	1,780
TOTAL	9,072	(147)	9,214	455	(355)	(1,203)	8,859	(748)

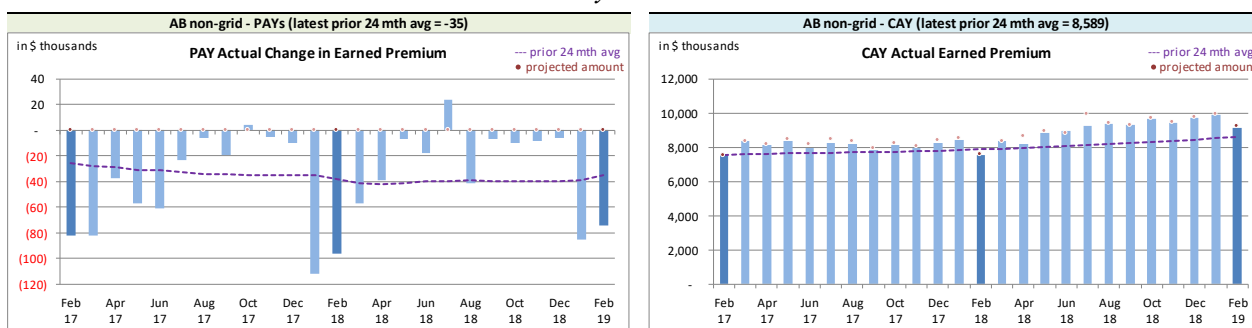
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

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



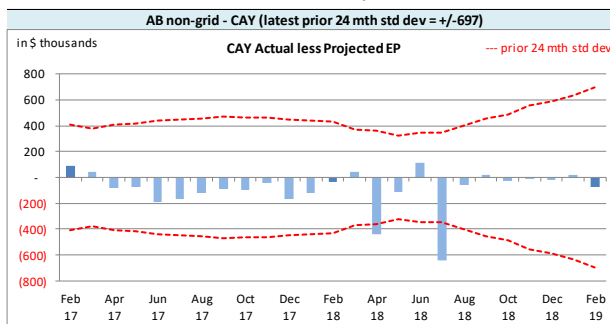
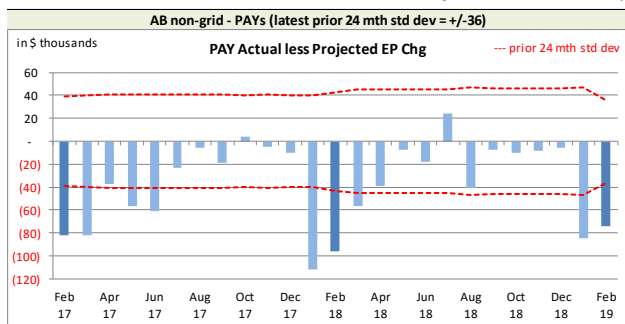
Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels generally occur at the beginning of each year.

The associated variance between the actual changes and the projections from the previous month are shown in the charts 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 prior accident years.

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.

Alberta non-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)	(35)	8,589
std dev	36	697
A-P <> std dev	9	2
% <> std dev	36.0%	8.0%
norm <> std dev	31.7%	31.7%

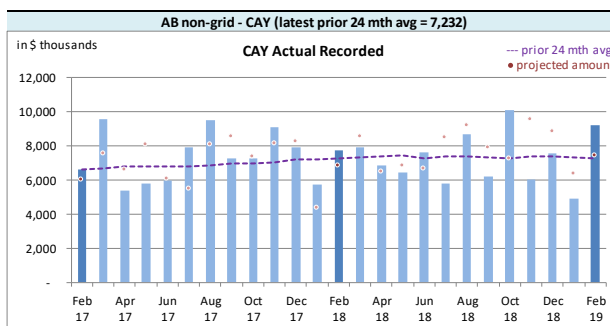
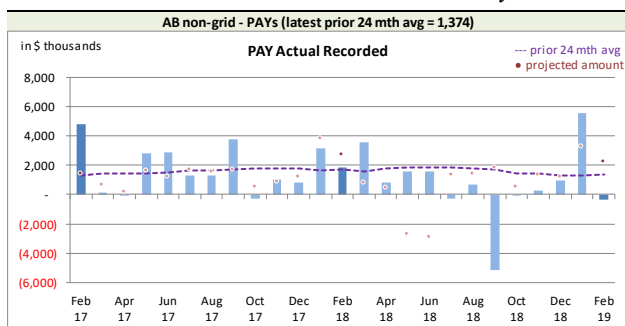
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁶, with actuals generally lower than projected, although the magnitude is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

monthly premium. The CAY has not shown bias⁷, although actuals have been generally lower than projected. (We were seeing indicators of CAY bias and the modifications to our projections processes in response appears to have had a favourable impact.) Over time, we may consider other projection approaches to narrow monthly variance levels, 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.

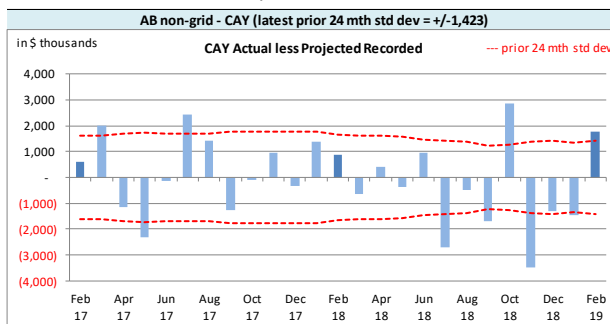
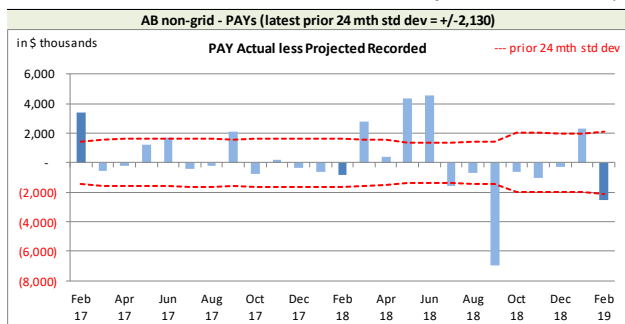
Alberta non-Grid RSP Actual **Recorded** by Calendar Month



Recorded activity variances from the previous month’s projections are shown in the charts at the top of the next page, including the “prior 24-month standard deviation” levels to show how the variances from projection compare with historical standard deviations.

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 (24 in this case) and 50% probability of success. The 24-month variances at February 2019 had only 6 months where the actuals was higher than projected, and as the 95% confidence range is 7 to 17, bias was not indicated.

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


On Latest \$ thousands		
	Recorded	
Mthly Avg Recorded (prior 24 mths)	PAYs 1,374	CAY 7,232
std dev	2,130	1,423
A-P <> std dev	10	9
% <> std dev	40.0%	36.0%
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 no better than

simply projecting the prior 24-month average amount (assuming it follows a normal distribution). We have implemented changes in an attempt to address this. Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

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

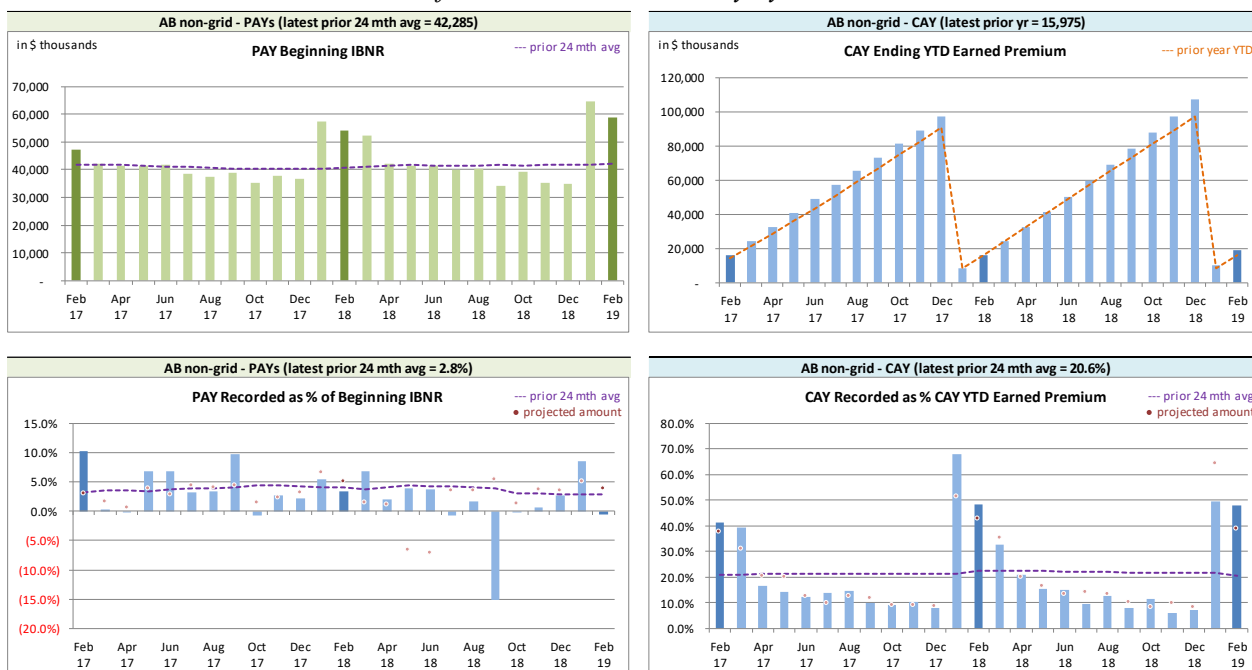
The current accident year (CAY) **recorded** variances fell outside of one standard deviation 36% of the time over the last 25 calendar months (see table above), suggesting that the projection process has performed no better than simply projecting the prior 24-month average amount. Bias has not been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

The CAY **recorded** variance (see right chart above) was outside of one standard deviation. 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.

Alberta non-Grid RSP Levels that influence⁸ 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:

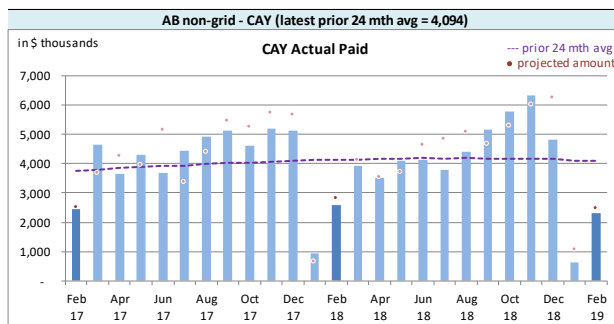
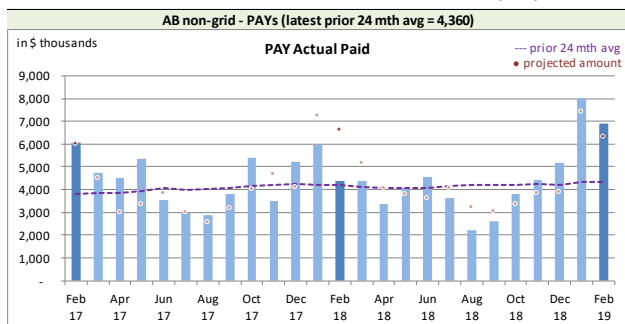
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years' ultimate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

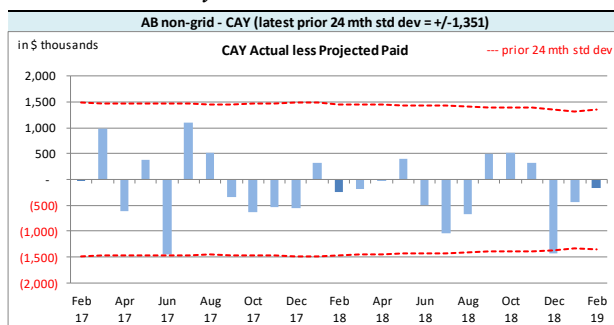
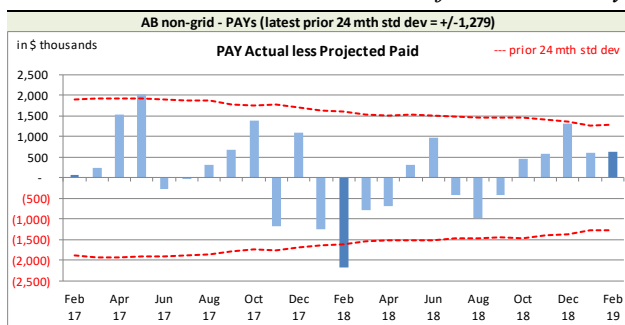
⁸Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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 non-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 non-Grid RSP Actual vs Projected Summary: **Paid** Variances by Calendar Month



On Latest \$ thousands			
	Paid	PAYs	CAY
Mthly Avg Paid (prior 24 mths)		4,360	4,094
std dev		1,279	1,351
A-P <> std dev		2	1
% <> std dev		8.0%	4.0%
norm <> std dev		31.7%	31.7%

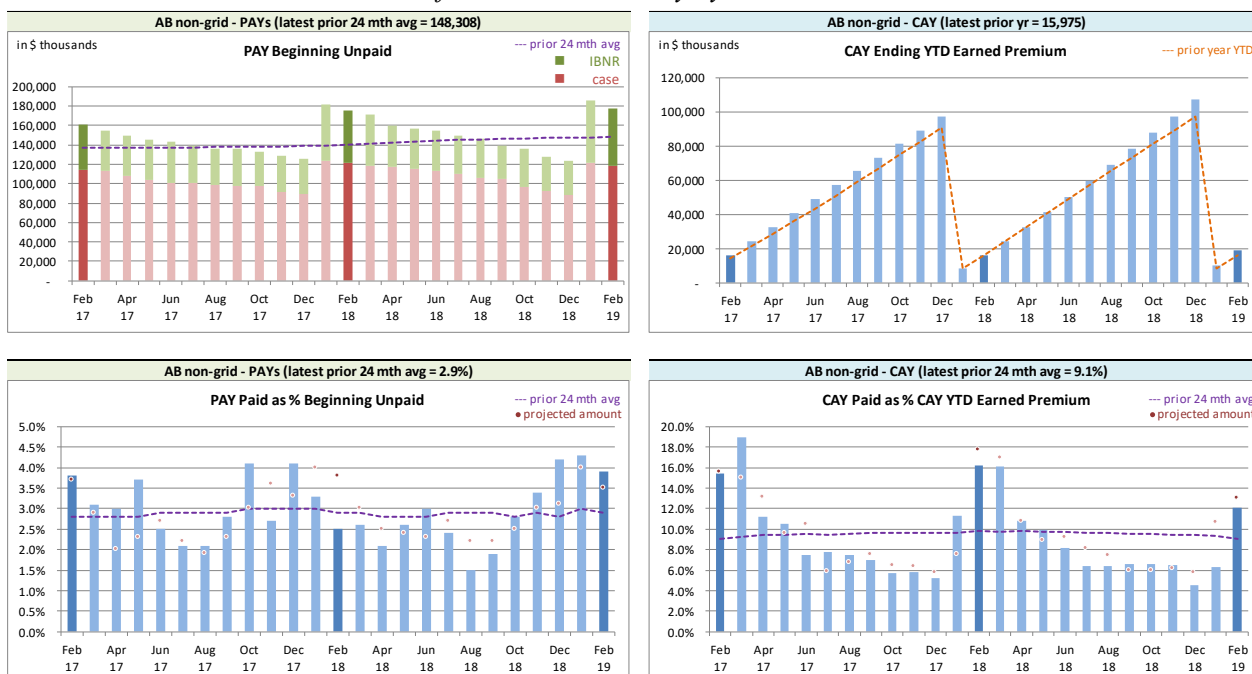
With respect to **paid** indemnity & allowed claims expense, 8% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **paid** amounts (see table on left), suggesting the projection process has performed better than 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 of 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.

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

Alberta non-Grid RSP Levels that influence⁹ 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 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 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

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”.

one-month projections from last month's Report.

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

Table 02		actuarial present value adjustments					
Accident Year	IBNR		Discount Amount		Provisions for Adverse Deviations		IBNR + actuarial present value adjustments
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual Actual less Projected
Prior	16,194	1,214	(3,859)	87	7,676	(173)	20,011 1,128
2017	15,014	(580)	(2,458)	38	4,972	(77)	17,528 (619)
2018	27,843	1,815	(3,815)	(101)	6,946	185	30,974 1,899
2019	6,343	(1,858)	(1,084)	(5)	2,041	8	7,300 (1,855)
TOTAL	65,394	591	(11,216)	19	21,635	(57)	75,813 553

The IBNR provision is \$0.6 million higher than projected from last month, counterbalancing the recorded claims activity and adjusting for the earned premium variance impacts indicated in section 2.1.

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 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 premium deficiency position (shown as a positive amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments increase the liability value as the adjustments increase the expected future policy obligations (costs) associated with the unearned premium. The variances noted are mainly driven by the unearned premium variance.

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

Table 03		Premium Deficiency / (Deferred Policy Acquisition Costs)		actuarial present value adjustments		Premium Deficiency / (DPAC) including actuarial present value adjustments	
		Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
	balance:	4,510	(55)	3,052	(37)	7,562	(92)
	balance as % unearned premium:	7.7%	-	5.2%	-	12.9%	-
	actual unearned premium:	58,673					
	less projected:	(717)					

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 below 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 108.0% rather than 107.1% (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 Non-Grid RSP Summary of Operations due to rounding.)

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

Table 04	YTD Nominal Values		YTD actuarial present value adjustment		YTD Total		Change from Prior Month YTD	
	Amount	% EP	Amount	% EP	Amount	% EP	Amount	LR pts
PAYs	(171)	(0.9%)	(673)	(3.6%)	(844)	(4.5%)	(451)	(0.5%)
CAY	20,425	108.0%	957	5.1%	21,382	113.1%	10,204	(0.5%)
TOTAL	20,254	107.1%	284	1.5%	20,538	108.6%	9,753	(1.0%)

(“% 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.

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.

5 Current Operational Report – Additional Exhibits

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

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

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

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

6 EXHIBITS

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

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

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

 discount rate
 2.29%

 interest rate margin
 25 basis pts

Amounts in \$000s					
Accident Year	Actual Jan. 2019	Actual Feb. 2019	Projected Mar. 2019	Projected Apr. 2019	Projected Dec. 2019
2004	42	42	42	42	42
2005	13	13	13	13	13
2006	54	54	53	52	42
2007	280	305	300	297	232
2008	62	62	60	59	45
2009	(101)	(110)	(110)	(109)	(84)
2010	33	64	61	59	44
2011	236	12	9	7	5
2012	1,025	1,500	1,480	1,464	1,133
2013	504	448	438	430	335
2014	2,710	2,827	2,791	2,758	2,137
2015	4,680	4,578	4,371	4,269	2,829
2016	10,065	10,216	9,724	9,416	6,663
2017	18,655	17,528	16,676	16,152	13,339
2018	30,390	30,974	30,538	30,175	27,379
2019	6,271	7,300	9,328	14,252	37,588
TOTAL	74,919	75,813	75,774	79,336	91,742
Change		894	(39)	3,562	

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 Loss Ratio	Accident Year	Actual Jan. 2019	Actual Feb. 2019	Projected Mar. 2019	Projected Apr. 2019	Projected Dec. 2019
	349.1%	2004	36	36	36	36	36
	97.4%	2005	5	5	5	5	5
	87.4%	2006	3	3	3	3	3
	101.7%	2007	252	280	277	274	214
	101.1%	2008	60	60	59	58	44
	95.4%	2009	(180)	(180)	(178)	(176)	(136)
	83.7%	2010	(43)	(7)	(7)	(7)	(7)
	83.3%	2011	97	(120)	(119)	(118)	(91)
	102.1%	2012	760	1,252	1,239	1,227	950
	99.0%	2013	166	171	169	167	130
	110.0%	2014	2,287	2,409	2,385	2,361	1,828
	98.0%	2015	3,948	3,858	3,665	3,592	2,272
	116.3%	2016	8,234	8,427	8,006	7,766	5,302
	110.7%	2017	16,076	15,014	14,263	13,835	11,408
	109.3%	2018	27,113	27,843	27,565	27,289	24,926
	107.1%	2019	5,723	6,343	7,982	12,511	33,263
		TOTAL	64,537	65,394	65,350	68,823	80,147
		Change		857	(44)	3,473	

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 Jan. 2019	Actual Feb. 2019	Projected Mar. 2019	Projected Apr. 2019	Projected Dec. 2019
(1) unearned premium (UP)	58,196	58,673	60,345	62,678	72,978
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	112.8%	112.9%	113.0%	113.1%	115.4%
(3) expected future costs {(1) x (2)}	65,665	66,235	68,185	70,908	84,245
(4) premium deficiency / (deferred policy acquisition cost)	7,469	7,562	7,840	8,230	11,267
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	107.6%	107.7%	107.8%	107.9%	110.1%
(6) expected future costs {(1) x (5)}	62,640	63,183	65,043	67,640	80,363
(7) premium deficiency / (deferred policy acquisition cost)	4,444	4,510	4,698	4,962	7,385

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 non-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
2005	75	5	80	-	-	8	-	8	8	88
2006	575	3	578	(19)	2	58	(2)	56	39	617
2007	63	214	277	(10)	1	28	(1)	27	18	295
2008	(26)	44	18	(1)	-	2	-	2	1	19
2009	954	(136)	818	(30)	3	82	(3)	79	52	870
2010	979	(7)	972	(46)	5	97	(5)	92	51	1,023
2011	2,330	(91)	2,239	(128)	13	224	(13)	211	96	2,335
2012	3,288	950	4,238	(242)	25	424	(24)	400	183	4,421
2013	4,236	130	4,366	(231)	22	437	(23)	414	205	4,571
2014	5,672	1,828	7,500	(442)	45	750	(44)	706	309	7,809
2015	9,412	2,272	11,684	(608)	58	1,168	(61)	1,107	557	12,241
2016	15,293	5,302	20,595	(1,153)	103	2,554	(143)	2,411	1,361	21,956
2017	19,543	11,408	30,951	(1,888)	186	3,869	(236)	3,633	1,931	32,882
2018	21,802	24,926	46,728	(2,991)	327	5,467	(350)	5,117	2,453	49,181
PAYs (sub-total):	84,222	46,884	131,106	(7,789)	790	15,174	(905)	14,269	7,270	138,376
CAY (2019)	45,736	33,263	78,999	(4,898)	553	9,243	(573)	8,670	4,325	83,324
claims liabilities:	129,958	80,147	210,105	(12,687)	1,343	24,417	(1,478)	22,939	11,595	221,700
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	72,978	7,385	80,363	(3,759)	400	7,598	(357)	7,241	3,882	84,245
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:			290,468	(16,446)	1,743	32,015	(1,835)	30,180	15,477	305,945

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%	9.2%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	10.0%	10.0%	8.6%	10.0%
2014	10.0%	10.0%	8.8%	10.0%
2015	10.0%	10.0%	10.0%	10.0%
2016	12.5%	10.0%	12.2%	12.4%
2017	12.5%	10.0%	12.5%	12.5%
2018	12.2%	10.0%	8.0%	11.7%
2019	11.8%	10.0%	5.2%	9.5%
prem liab	11.8%	10.0%	5.2%	9.5%

discount rate: 2.29%
 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 to Dec. 31, 2019, and are based on more up-to-date information). We have included the most recent valuation selection (2.29%), 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

Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2018 projected Unpaid								
AY	1.29%	1.79%	2.29%	2.79%	3.29%	3.79%	1.87%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	756	749	743	737	732	726	748	750
2007	497	493	488	484	480	476	492	493
2008	9	9	9	9	9	9	9	9
2009	1,302	1,289	1,275	1,263	1,250	1,238	1,286	1,289
2010	1,432	1,414	1,396	1,379	1,362	1,345	1,411	1,415
2011	3,856	3,807	3,759	3,712	3,667	3,623	3,799	3,810
2012	7,725	7,634	7,545	7,459	7,375	7,293	7,619	7,640
2013	8,759	8,644	8,533	8,425	8,321	8,219	8,626	8,651
2014	12,446	12,300	12,160	12,023	11,890	11,760	12,278	12,309
2015	16,950	16,737	16,532	16,330	16,134	15,943	16,703	16,751
2016	30,695	30,273	29,870	29,476	29,090	28,719	30,207	30,300
2017	46,623	45,958	45,318	44,693	44,092	43,505	45,853	46,001
2018	70,297	69,334	68,401	67,499	66,624	65,778	69,181	69,396
Total	201,347	198,641	196,029	193,489	191,026	188,634	198,212	198,814
	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	1.29%	1.79%	2.29%	2.79%	3.29%	3.79%	1.87%	1.76%
Total	5,318	2,612	-	(2,540)	(5,003)	(7,395)	2,183	2,785
	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	1.29%	1.79%	2.29%	2.79%	3.29%	3.79%	1.87%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1.7%	0.8%	-	(0.8%)	(1.5%)	(2.3%)	0.7%	0.9%
2007	1.8%	1.0%	-	(0.8%)	(1.6%)	(2.5%)	0.8%	1.0%
2008	-	-	-	-	-	-	-	-
2009	2.1%	1.1%	-	(0.9%)	(2.0%)	(2.9%)	0.9%	1.1%
2010	2.6%	1.3%	-	(1.2%)	(2.4%)	(3.7%)	1.1%	1.4%
2011	2.6%	1.3%	-	(1.3%)	(2.4%)	(3.6%)	1.1%	1.4%
2012	2.4%	1.2%	-	(1.1%)	(2.3%)	(3.3%)	1.0%	1.3%
2013	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	1.1%	1.4%
2014	2.4%	1.2%	-	(1.1%)	(2.2%)	(3.3%)	1.0%	1.2%
2015	2.5%	1.2%	-	(1.2%)	(2.4%)	(3.6%)	1.0%	1.3%
2016	2.8%	1.3%	-	(1.3%)	(2.6%)	(3.9%)	1.1%	1.4%
2017	2.9%	1.4%	-	(1.4%)	(2.7%)	(4.0%)	1.2%	1.5%
2018	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.8%)	1.1%	1.5%
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
AccountCode Desc

Alberta Non-Grid
IBNR - Discounted

M/S IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	42	-	-	-	-	-	42
2005	13	-	-	-	-	-	13
2006	54	(1)	1	-	-	-	54
2007	280	(4)	29	-	25	8.9%	305
2008	62	(2)	2	-	-	-	62
2009	(101)	-	(9)	-	(9)	8.9%	(110)
2010	33	(2)	33	-	31	93.9%	64
2011	236	(6)	(218)	-	(224)	(94.9%)	12
2012	1,025	(17)	492	-	475	46.3%	1,500
2013	504	(12)	(44)	-	(56)	(11.1%)	448
2014	2,710	(34)	151	-	117	4.3%	2,827
2015	4,680	(211)	109	-	(102)	(2.2%)	4,578
2016	10,065	(431)	582	-	151	1.5%	10,216
2017	18,655	(508)	(619)	-	(1,127)	(6.0%)	17,528
2018	30,390	(1,315)	1,899	-	584	1.9%	30,974
2019	6,271	2,884	(1,855)	-	1,029	16.4%	7,300
Grand Total	74,919	341	553	-	894	1.2%	75,813

EXHIBIT G

Page 2 of 2

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

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

IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	36	-	-	-	-	-	36
2005	5	-	-	-	-	-	5
2006	3	-	-	-	-	-	3
2007	252	(3)	31	-	28	11.1%	280
2008	60	(1)	1	-	-	-	60
2009	(180)	2	(2)	-	-	-	(180)
2010	(43)	-	36	-	36	(83.7%)	(7)
2011	97	(1)	(216)	-	(217)	(223.7%)	(120)
2012	760	(8)	500	-	492	64.7%	1,252
2013	166	(2)	7	-	5	3.0%	171
2014	2,287	(23)	145	-	122	5.3%	2,409
2015	3,948	(197)	107	-	(90)	(2.3%)	3,858
2016	8,234	(412)	605	-	193	2.3%	8,427
2017	16,076	(482)	(580)	-	(1,062)	(6.6%)	15,014
2018	27,113	(1,085)	1,815	-	730	2.7%	27,843
2019	5,723	2,478	(1,858)	-	620	10.8%	6,343
Grand Total	64,537	266	591	-	857	1.3%	65,394