



ALBERTA NON-GRID RISK SHARING POOL

JULY 2018 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS
RSP ALBERTA NON-GRID
OPERATIONAL REPORT
JULY 2018

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2018)

The July 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 2018.

ALBERTA NON-GRID RISK SHARING POOL FISCAL YEAR 2018 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2017 (completed)	1.76% mfad: 25 bp	Oct. 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 2.9 points to 112.8%; discount rate increased by 56 basis points; no change to selected margins for adverse deviations
Dec. 31, 2017 (completed)	1.76% mfad: 25 bp	Mar. 2018	update valuation: accident year 2018 loss ratio increased 2.7 points to 108.5%; no change to selected discount rate; no change to selected margins for adverse deviations
Mar. 31, 2018 (completed)	1.93% mfad: 25 bp	May 2018	update valuation (roll forward): accident year 2018 loss ratio increased 2.7 points to 111.2%; discount rate increased by 17 basis points; no change to selected margins for adverse deviations
Jun. 30, 2018		Aug. 2018	update valuation:
Sep. 30, 2018		Oct. 2018	update valuation (roll forward):

Under the proposed schedule for fiscal year 2018, the “off-half” valuation quarters ending March 31, 2018 and September 30, 2018 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). At the current time, no adjustments have been made to our valuation estimates or views based on these amendments, but we are reviewing the impact with FA's Appointed Actuary.

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.*"

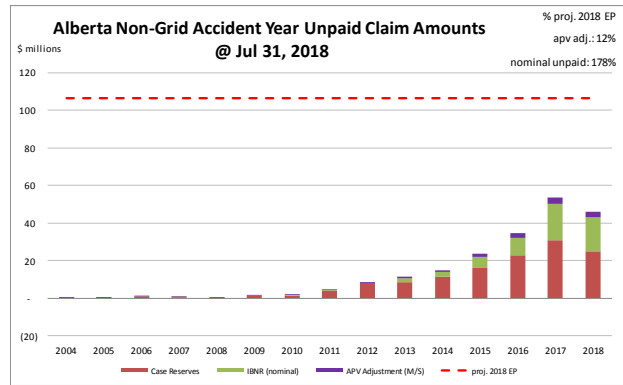
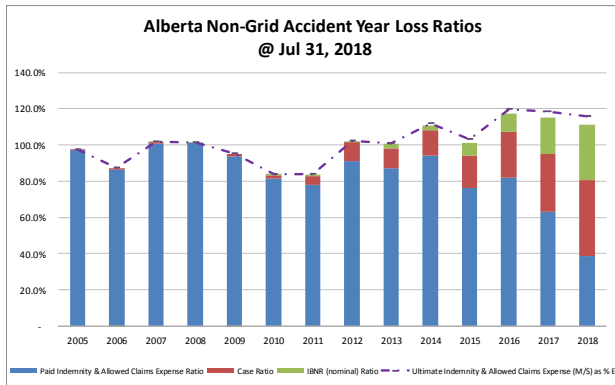
At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

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 projected 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 (\$12.4 million – see table immediately below) represents 12% of the earned premium projected 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	130,953	64.9%
ibnr	58,432	29.0%
M/S apv adjust.	12,378	6.1%
M/S total	201,763	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 is in case reserves for this pool. Approximately 64% of the IBNR balance relates to accident years 2017 and 2018 (see Exhibit B). Approximately 86% 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	58,884	85.2%
prem def/(dpac)	6,771	9.8%
M/S apv adjust.	3,493	5.1%
M/S total	69,148	100.0%

policy liabilities (\$'000s)	amt	%
claim	189,385	69.9%
premium	65,655	24.2%
M/S apv adjust.	15,871	5.9%
M/S total	270,911	100.0%

2 Activity During the Month of July 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 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	1	1	2,054	6	(2,610)	(1,040)	(556)	(1,034)
2016	18	18	968	(27)	(499)	207	468	179
2017	5	5	632	(388)	(807)	(362)	(175)	(750)
2018	9,262	(643)	3,788	(1,046)	1,994	(1,643)	5,782	(2,689)
TOTAL	9,287	(619)	7,442	(1,456)	(1,922)	(2,838)	5,520	(4,294)

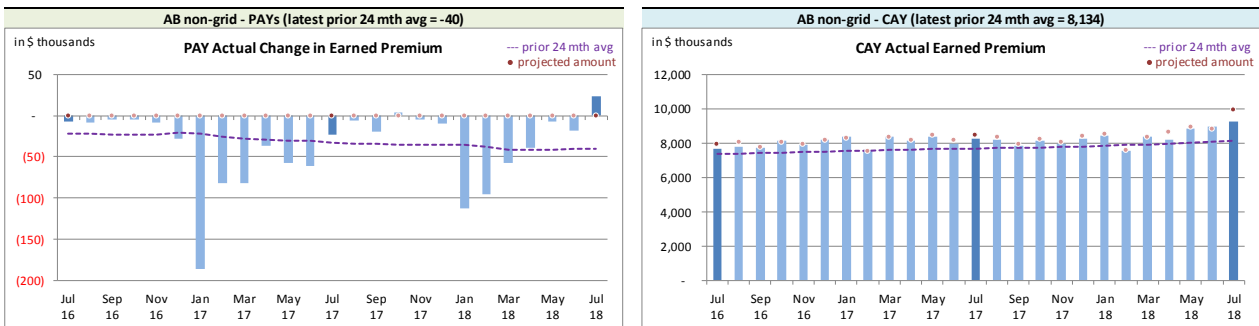
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

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



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

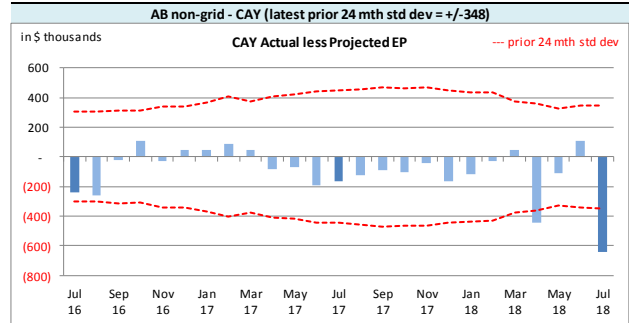
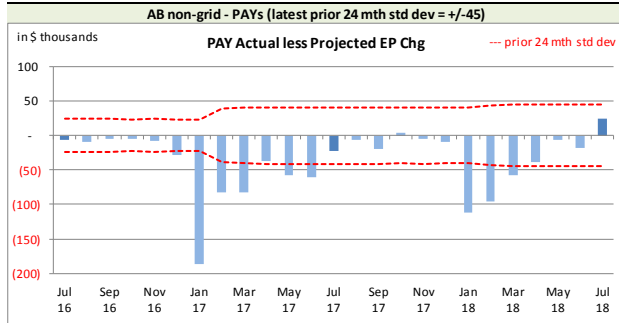
We have noted and investigated the unusually high level of PAYs earned premium activity earlier in 2017 and January through July 2018, particularly with respect to one member. Management reviewed and was satisfied with the appropriateness of the 2017 transactions, but continues its investigation of the 2018 transactions.

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,

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 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)	(40)	8,134
std dev	45	348
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' 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 up until May 2018, with actuals being generally lower than projected, and we have modified our projections processes in response. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority. This month's projection variance has also been exacerbated by written premium variances, where our projections, based on information provided by one of the large RSP users, have been proven to be too high.

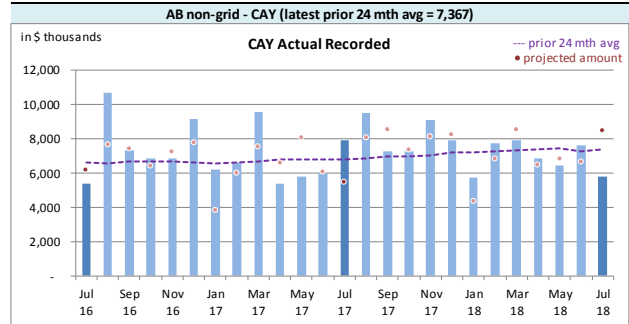
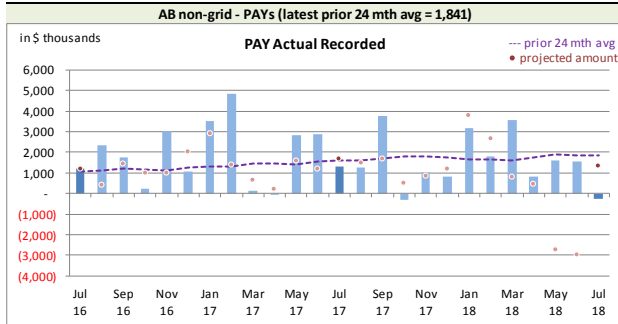
2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

The charts at the top of the next page 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.

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

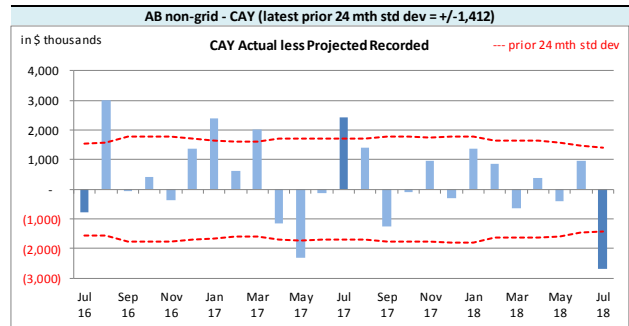
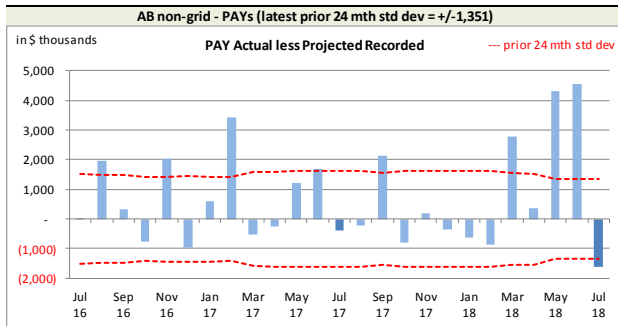
⁶We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (24 in this case) and 50% probability of success. The 24-month variances at May 2018 had only 6 months where the actuals was higher than projected, and as the 95% confidence range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

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



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

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



On Latest \$ thousands			
	Recorded	PAYS	CAY
Mthly Avg Recorded (prior 24 mths)	1,841	1,841	7,367
std dev	1,351	1,351	1,412
A-P <> std dev	9	9	6
% <> std dev	36.0%	36.0%	24.0%
norm <> std dev	31.7%	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 36% of the prior accident years’ (PAYs) variances (left chart above) fell outside of the experience period’s standard deviation, suggesting the projection process has performed no better than a projection based simply on the 24-month average. We have

implemented changes in an attempt to address this. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

The PAY **recorded** variance was outside of one standard deviation. The activity was reviewed and confirmed, with the variance attributed to process variance.

As first noted in the May 2018 Actuarial Highlights, the PAY projected **recorded** activity was adjusted for the months of May and June 2018 to account for a member correction in recorded case reserve overstatement. The May and June 2018 PAY **recorded** variances were outside of one standard deviation driven by adjustments made to the recorded projection, as FA expected corrections in recorded case reserve overstatement to happen during these months, as previously advised by the member (see following sections for more details). As the corrections did not go through as expected, the PAY **recorded** activity was higher than the projected by more than one standard deviation. The member is still engaged in a process to correct the reported levels.

The current accident year (CAY) **recorded** variances (right bottom chart on the previous page) have been greater than one standard deviation 24% of the time, suggesting that the projection process has performed better than simply projecting the most recent prior 24-month average. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

The CAY **recorded** variance was outside of one standard deviation. The activity was reviewed and confirmed, with the variance attributed to process variance.

As noted in the last six monthly Actuarial Highlights, FA management was notified on January 31, 2018 by a member of a potential recorded case reserve overstatement. Furthermore, during the latest valuation, FA management was advised of an additional and separate recorded case reserve understatement primarily due to incorrect reporting after FA’s October 31, 2017 fiscal year end. Management investigated and estimated the overall overstatement for the Alberta non-Grid RSP as at March 31, 2018 as indicated in the table below.

Estimated case reserve overstatement as at Mar 31, 2018

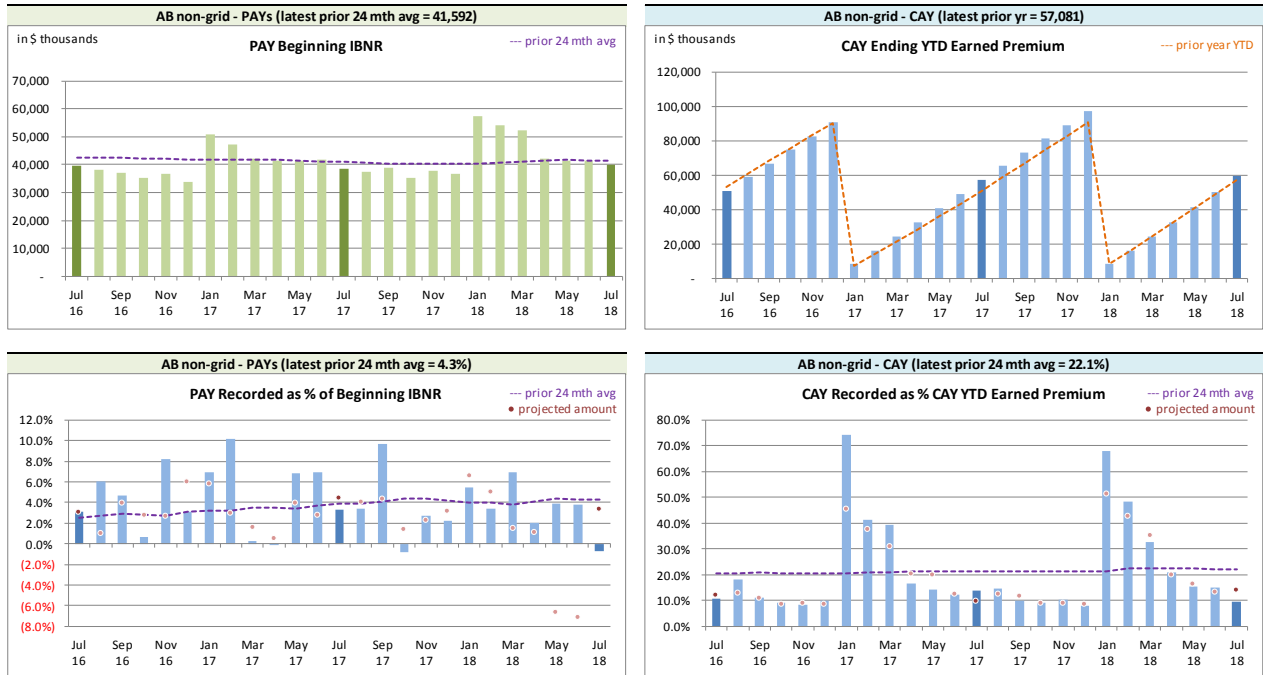
overstatement / (understatement)	
Accident Year	Total Case Reserve Overstatement (\$'000s)
2010	(171)
2011	(239)
2012	-
2013	(92)
2014	(104)
2015	518
2016	2,554
2017	2,529
Total	4,995

With this valuation, prior accident years’ ultimates selections have taken into account the member’s overstatement (both the original amount as notified, and the subsequent amount, with the combination of the two being summarized in the table above). The member is still engaged in a process to correct the reported levels but we currently do not have a timeline on when this issue will be resolved.

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 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:

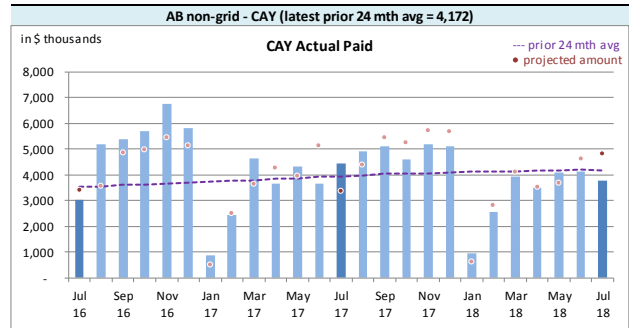
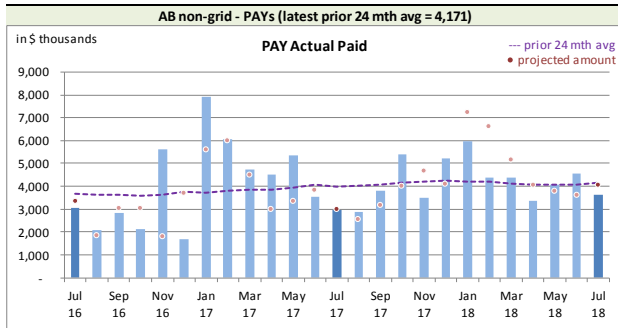
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

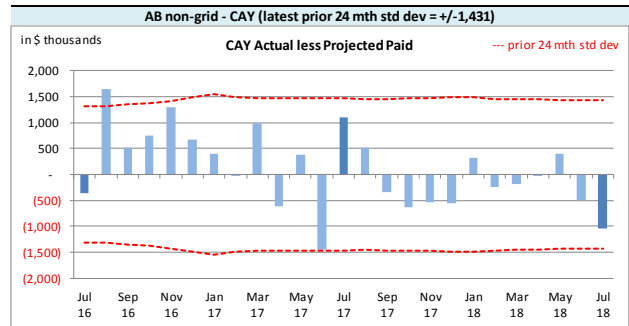
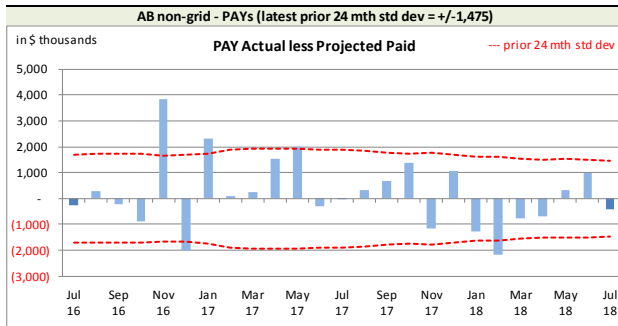
⁷Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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 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)	4,171	4,172	
std dev	1,475	1,431	
A-P <> std dev	5	1	
% <> std dev	20.0%	4.0%	
norm <> std dev	31.7%	31.7%	

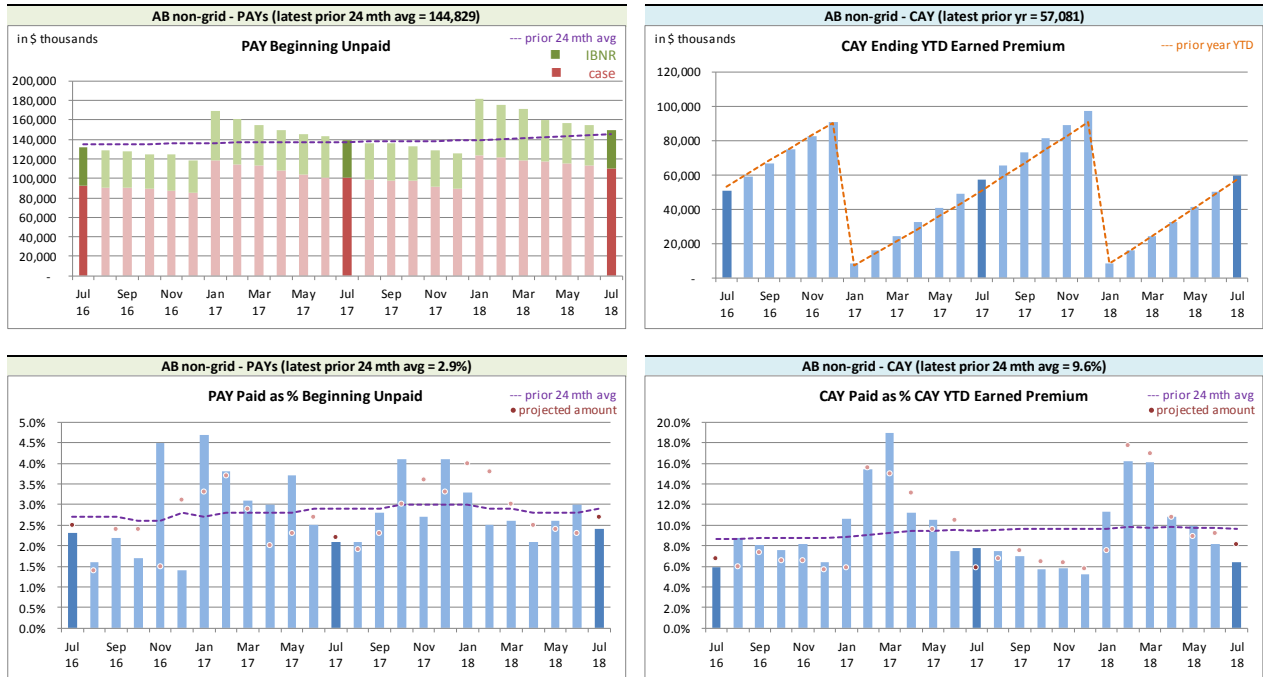
With respect to **paid** indemnity & allowed claims expense, the prior accident years’ variances (left chart above) do not appear to have bias and the magnitude of the variances do not appear to be an issue. With 20% of prior accident years (PAYs) **paid** variances over the last 25 calendar months falling outside of one standard deviation,

the projection process has performed better than simply projecting based on a 24-month average. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

With only 4% of the current accident year (CAY) **paid** variances falling outside of one standard deviation of the experience period activity, the projection process has performed better than simply projecting based on a 24-month average. While no bias has been indicated at a 95% confidence level on a lagging 24-month basis this month, it was indicated for each month from November 2015 through to September 2017. We made adjustments to our projection process to reflect this, and they appear to have been somewhat successful.

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 influence⁸ Paid activity by Calendar Month



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

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

2.2 Actuarial Provisions

An “ultimate loss ratio matching method” (described in section 3) is used to determine the month’s IBNR⁹, and factors are applied to the nominal unpaid claims liability (case plus IBNR) to determine the discount amount (shown as a negative value to indicate its impact of reducing the liability) and the Provisions for Adverse Deviations. The loss ratios and the factors used to determine the projections and actuals were based on the applicable valuation. The table at the top of the next page summarizes variances in provisions included in the July 2018 Operational Report and the associated

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”.

one-month projections from last month's Report.

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

Table 02

Accident Year	IBNR		actuarial present value adjustments				IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Discount Amount		Provisions for Adverse Deviations		Actual	Actual less Projected
			Actual	Actual less Projected	Actual	Actual less Projected		
Prior	11,652	1,033	(2,949)	(2)	6,929	9	15,632	1,040
2016	9,176	(159)	(1,707)	(2)	3,946	6	11,415	(155)
2017	19,355	757	(2,770)	(21)	6,208	49	22,793	785
2018	18,249	1,974	(2,293)	(18)	5,014	38	20,970	1,994
TOTAL	58,432	3,605	(9,719)	(43)	22,097	102	70,810	3,664

The IBNR provision is \$3.6 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 below summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in the July 2018 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:	6,771	(690)	3,493	(360)	10,264	(1,050)
balance as % unearned premium:	11.5%	-	5.9%	-	17.4%	-
actual unearned premium:	58,884					
less projected:	(6,051)					

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 111.8% rather than 111.2% (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 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	(4,889)	(8.2%)	(2,566)	(4.3%)	(7,455)	(12.6%)	(204)	1.9%
CAY	66,262	111.8%	2,721	4.6%	68,983	116.4%	10,708	(0.2%)
TOTAL	61,372	103.5%	155	0.3%	61,527	103.8%	10,504	1.7%

(“% 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.

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.

5 Current Operational Report – Additional Exhibits

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

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

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

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

6 EXHIBITS

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

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

EXHIBIT A

IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A

		Amounts in \$000s					
IBNR + M/S actuarial present value adjustments		Accident Year	Actual Jun. 2018	Actual Jul. 2018	Projected Aug. 2018	Projected Sep. 2018	Projected Dec. 2018
	2004		42	42	42	42	42
	2005		13	13	13	13	12
	2006		(91)	(88)	(89)	(90)	(73)
	2007		133	133	131	128	109
	2008		130	131	130	128	108
	2009		(48)	(48)	(50)	(50)	(39)
	2010		407	508	501	494	419
	2011		848	845	833	820	700
	2012		613	554	538	525	463
discount rate	2013		2,753	2,623	2,587	2,549	2,164
1.93%	2014		2,940	3,192	3,103	2,971	2,509
	2015		7,461	7,727	7,272	6,901	6,261
interest rate margin	2016		11,928	11,415	11,094	10,695	10,068
25 basis pts	2017		22,653	22,793	22,143	21,478	20,358
	2018		16,044	20,970	22,627	25,059	31,453
	TOTAL		65,826	70,810	70,875	71,663	74,554
	Change			4,984	65	788	

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 Jun. 2018	Actual Jul. 2018	Projected Aug. 2018	Projected Sep. 2018	Projected Dec. 2018
	349.1%	2004	36	36	36	36	36
	97.4%	2005	5	5	5	5	5
	87.2%	2006	(136)	(133)	(132)	(131)	(109)
	101.8%	2007	87	87	86	85	71
	101.2%	2008	123	124	123	122	103
	95.1%	2009	(115)	(115)	(114)	(113)	(95)
	83.9%	2010	311	413	409	405	339
	83.5%	2011	618	615	609	603	506
	101.7%	2012	108	105	104	103	86
	100.4%	2013	2,202	2,076	2,055	2,034	1,704
	110.9%	2014	2,146	2,419	2,346	2,229	1,832
	101.0%	2015	5,712	6,020	5,599	5,263	4,750
	117.4%	2016	9,624	9,176	8,901	8,545	8,125
	115.0%	2017	19,173	19,355	18,774	18,211	17,314
	111.2%	2018	13,732	18,249	19,566	21,689	27,340
		TOTAL	53,626	58,432	58,367	59,086	62,007
		Change		4,806	(65)	719	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Jun. 2018	Actual Jul. 2018	Projected Aug. 2018	Projected Sep. 2018	Projected Dec. 2018
Premium Liabilities					
(1) unearned premium (UP)	59,162	58,884	58,666	58,426	57,182
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	117.5%	117.4%	117.4%	117.3%	117.1%
(3) expected future costs {(1) x (2)}	69,504	69,148	68,864	68,547	66,957
(4) premium deficiency / (deferred policy acquisition cost)	10,342	10,264	10,198	10,121	9,775
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	111.5%	111.5%	111.5%	111.4%	111.2%
(6) expected future costs {(1) x (5)}	65,991	65,655	65,384	65,083	63,574
(7) premium deficiency / (deferred policy acquisition cost)	6,829	6,771	6,718	6,657	6,392

EXHIBIT D

Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2018, broken down by component.

Alberta non-Grid ending 2018		Projected Balances as at Dec. 31, 2018 (\$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	26	36	62	-	-	6	-	6	6	68
2005	63	5	68	-	-	7	-	7	7	75
2006	644	(109)	535	(17)	2	53	(2)	51	36	571
2007	502	71	573	(19)	2	57	(2)	55	38	611
2008	(20)	103	83	(3)	-	8	-	8	5	88
2009	976	(95)	881	(33)	4	88	(3)	85	56	937
2010	1,050	339	1,389	(61)	8	139	(6)	133	80	1,469
2011	3,213	506	3,719	(182)	22	372	(18)	354	194	3,913
2012	6,716	86	6,802	(313)	41	680	(31)	649	377	7,179
2013	7,329	1,704	9,033	(452)	54	903	(45)	858	460	9,493
2014	10,368	1,832	12,200	(549)	61	1,220	(55)	1,165	677	12,877
2015	14,829	4,750	19,579	(920)	117	2,428	(114)	2,314	1,511	21,090
2016	19,824	8,125	27,949	(1,481)	168	3,438	(182)	3,256	1,943	29,892
2017	27,294	17,314	44,608	(2,453)	312	5,487	(302)	5,185	3,044	47,652
PAYs (sub-total):	92,814	34,667	127,481	(6,483)	791	14,886	(760)	14,126	8,434	135,915
CAY (2018)	38,038	27,340	65,378	(3,465)	458	7,518	(398)	7,120	4,113	69,491
claims liabilities:	130,852	62,007	192,859	(9,948)	1,249	22,404	(1,158)	21,246	12,547	205,406
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	57,182	6,392	63,574	(2,469)	317	5,760	(225)	5,535	3,383	66,957
policy liabilities:			256,433	(12,417)	1,566	28,164	(1,383)	26,781	15,930	272,363

*Total may not be sum of parts, as apvs apply to future costs within UPR

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 (Mar. 31, 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%	10.0%	10.0%
2013	10.0%	10.0%	9.4%	10.0%
2014	10.0%	10.0%	8.8%	10.0%
2015	12.5%	10.0%	10.5%	12.4%
2016	12.5%	10.0%	9.9%	12.3%
2017	12.4%	10.0%	11.2%	12.3%
2018	12.1%	10.0%	7.1%	11.5%
2019	11.8%	10.0%	5.3%	9.1%
prem liab	11.8%	10.0%	5.3%	9.1%

discount rate: 1.93%
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 (1.93%), the prior valuation assumption (1.76%) 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							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	1.76%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1,034	1,026	1,018	1,009	1,001	993	1,020	1,020
2007	371	368	365	362	358	355	366	366
2008	141	140	139	137	136	135	139	139
2009	1,268	1,255	1,244	1,232	1,220	1,209	1,248	1,248
2010	1,959	1,936	1,914	1,893	1,872	1,851	1,922	1,922
2011	3,340	3,297	3,254	3,213	3,173	3,133	3,269	3,269
2012	6,871	6,788	6,708	6,629	6,552	6,477	6,735	6,735
2013	9,873	9,742	9,616	9,491	9,371	9,253	9,658	9,658
2014	13,567	13,405	13,249	13,095	12,946	12,801	13,302	13,302
2015	21,761	21,488	21,228	20,968	20,720	20,476	21,316	21,316
2016	32,782	32,320	31,876	31,438	31,016	30,604	32,025	32,025
2017	49,590	48,862	48,168	47,485	46,828	46,181	48,401	48,401
2018	79,055	77,944	76,877	75,828	74,828	73,845	77,234	77,234
Total	221,612	218,571	215,656	212,780	210,021	207,313	216,635	216,635
	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							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	1.76%	1.76%
Total	5,956	2,915	-	(2,876)	(5,635)	(8,343)	979	979
	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							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	1.76%	1.76%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1.6%	0.8%	-	(0.9%)	(1.7%)	(2.5%)	0.2%	0.2%
2007	1.6%	0.8%	-	(0.8%)	(1.9%)	(2.7%)	0.3%	0.3%
2008	1.4%	0.7%	-	(1.4%)	(2.2%)	(2.9%)	-	-
2009	1.9%	0.9%	-	(1.0%)	(1.9%)	(2.8%)	0.3%	0.3%
2010	2.4%	1.1%	-	(1.1%)	(2.2%)	(3.3%)	0.4%	0.4%
2011	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	0.5%	0.5%
2012	2.4%	1.2%	-	(1.2%)	(2.3%)	(3.4%)	0.4%	0.4%
2013	2.7%	1.3%	-	(1.3%)	(2.5%)	(3.8%)	0.4%	0.4%
2014	2.4%	1.2%	-	(1.2%)	(2.3%)	(3.4%)	0.4%	0.4%
2015	2.5%	1.2%	-	(1.2%)	(2.4%)	(3.5%)	0.4%	0.4%
2016	2.8%	1.4%	-	(1.4%)	(2.7%)	(4.0%)	0.5%	0.5%
2017	3.0%	1.4%	-	(1.4%)	(2.8%)	(4.1%)	0.5%	0.5%
2018	2.8%	1.4%	-	(1.4%)	(2.7%)	(3.9%)	0.5%	0.5%
Total	2.8%	1.4%	-	(1.3%)	(2.6%)	(3.9%)	0.5%	0.5%
	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 Non-Grid						M/S IBNR - in \$000s
AccountCode Desc		IBNR - Discou						
AccYear	Values							
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount	
2004	42	-	-	-	-	-	42	
2005	13	-	-	-	-	-	13	
2006	(91)	1	2	-	3	(3.3%)	(88)	
2007	133	(3)	3	-	-	-	133	
2008	130	(2)	3	-	1	0.8%	131	
2009	(48)	(1)	1	-	-	-	(48)	
2010	407	(9)	110	-	101	24.8%	508	
2011	848	(18)	15	-	(3)	(0.4%)	845	
2012	613	(17)	(42)	-	(59)	(9.6%)	554	
2013	2,753	(59)	(71)	-	(130)	(4.7%)	2,623	
2014	2,940	(145)	397	-	252	8.6%	3,192	
2015	7,461	(356)	622	-	266	3.6%	7,727	
2016	11,928	(358)	(155)	-	(513)	(4.3%)	11,415	
2017	22,653	(645)	785	-	140	0.6%	22,793	
2018	16,044	2,932	1,994	-	4,926	30.7%	20,970	
Grand Total	65,826	1,320	3,664	-	4,984	7.6%	70,810	

EXHIBIT G

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

RSP		Alberta Non-Grid						IBNR - in \$000s
AccountCode Desc		IBNR - Undiscounted						
AccYear	Values							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	Sum of Total Change	Sum of % Total Change		
2004	36	-	-	-	-	-	36	
2005	5	-	-	-	-	-	5	
2006	(136)	3	-	-	3	(2.2%)	(133)	
2007	87	(2)	2	-	-	-	87	
2008	123	(2)	3	-	1	0.8%	124	
2009	(115)	2	(2)	-	-	-	(115)	
2010	311	(6)	108	-	102	32.8%	413	
2011	618	(12)	9	-	(3)	(0.5%)	615	
2012	108	(2)	(1)	-	(3)	(2.8%)	105	
2013	2,202	(44)	(82)	-	(126)	(5.7%)	2,076	
2014	2,146	(129)	402	-	273	12.7%	2,419	
2015	5,712	(286)	594	-	308	5.4%	6,020	
2016	9,624	(289)	(159)	-	(448)	(4.7%)	9,176	
2017	19,173	(575)	757	-	182	0.9%	19,355	
2018	13,732	2,543	1,974	-	4,517	32.9%	18,249	
Grand Total	53,626	1,201	3,605	-	4,806	9.0%	58,432	