



ALBERTA NON-GRID RISK SHARING POOL

DECEMBER 2017 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS
RSP ALBERTA NON-GRID
OPERATIONAL REPORT
DECEMBER 2017

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2018)

The December 2017 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		Mar. 2018	update valuation:
Mar. 31, 2018		May 2018	update valuation (roll forward):
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

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

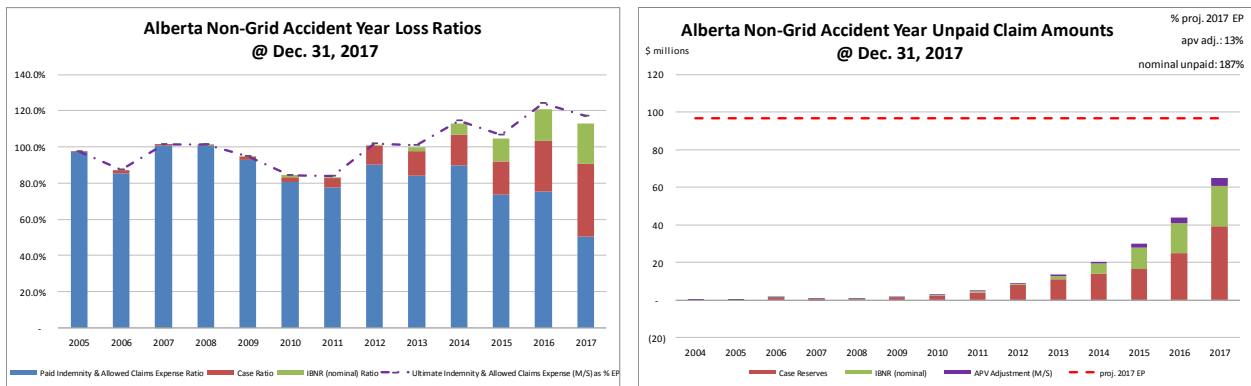
The **Supreme Court of Canada** rendered its judgment on **Saadati v Moorhead (2017 SCC 28, rendered on Jun 2, 2017)**. Saadati was involved in a collision in July of 2005 in British Columbia and sued the at-fault driver for damages. According to the Supreme Court decision, *“The trial judge found that 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 immediately below 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 2017 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 (\$12.2 million – see table at the top of the next page) represents 13% of the earned premium projected for the full year 2017 (the upper right corner of the right chart above). If our current estimates of the nominal unpaid amounts prove to

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.

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	124,026	64.1%
ibnr	57,376	29.6%
M/S apv adjust.	12,223	6.3%
M/S total	193,625	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 65% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 89% of the M/S total

claim liabilities are related to accident years 2013-2017 inclusive (i.e. the most recent 5 accident years), and approximately 1% is related to accident years 2007 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)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	50,192	89.0%	claim	181,402	72.6%
prem def/(dpac)	3,152	5.6%	premium	53,344	21.3%
M/S apv adjust.	3,050	5.4%	M/S apv adjust.	15,273	6.1%
M/S total	56,394	100.0%	M/S total	250,019	100.0%

2 Activity During the Month of December 2017

2.1 Recorded Premium and Claims Activity

The table immediately below summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report³.

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)	3,448	1,442	(2,806)	(1,272)	642	170
2015	(1)	(1)	1,104	238	(1,310)	(665)	(206)	(427)
2016	(8)	(8)	649	(595)	(279)	485	369	(111)
2017	8,225	(167)	5,116	(554)	2,809	240	7,925	(314)
TOTAL	8,216	(177)	10,316	530	(1,587)	(1,213)	8,729	(682)

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

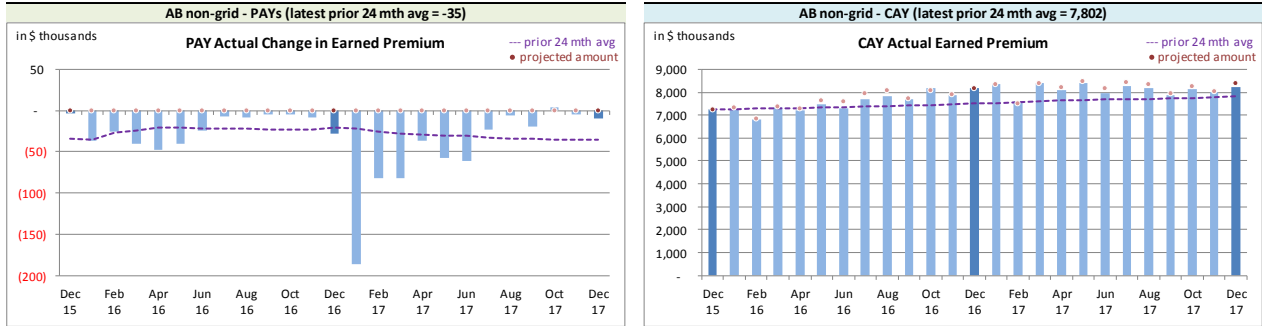
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (i.e. random variation). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of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

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

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

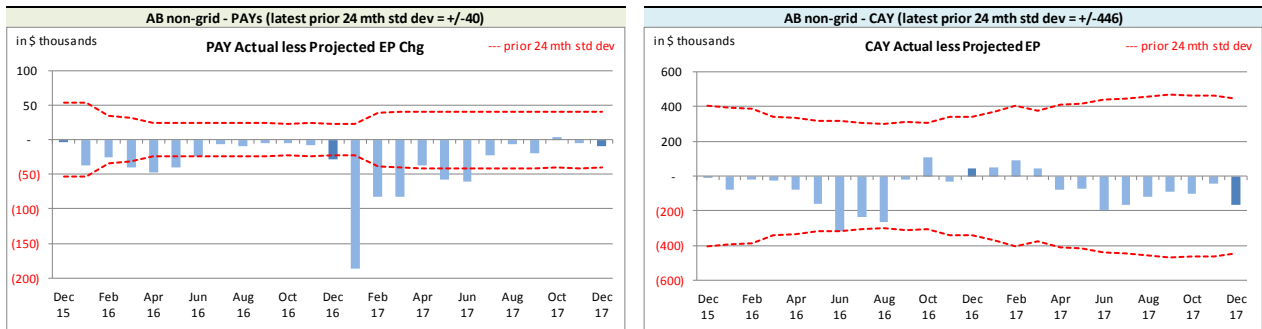


Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels seem to occur at the beginning of each year.

We have noted and have investigated the unusually high level of PAYs earned premium activity earlier in 2017, particularly with respect to one member and management is satisfied the transactions were appropriate.

The associated variance between the actual changes and the projections from the previous month are shown in the charts immediately below. **Earned premium** change projections are all attributed to the current accident year as the projection upload does not accept **earned premium** changes for other accident years. We do not see this limitation as being significant for our purposes, but it does mean that the actual less projection variance will equal the actual **earned premium** change in relation to prior accident years.

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



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.

On Latest \$ thousands		
Earned Premium	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)	(35)	7,802
std dev	40	446
A-P <> std dev	9	1
% <> std dev	36.0%	4.0%
norm <> std dev	31.7%	31.7%

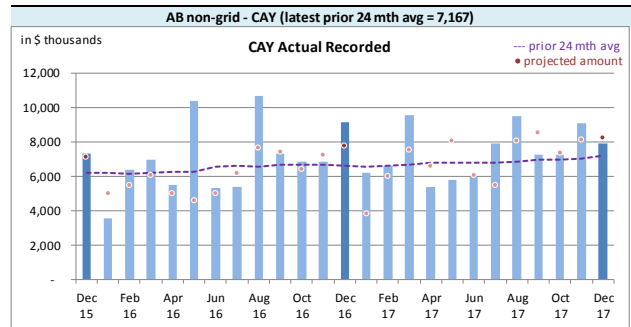
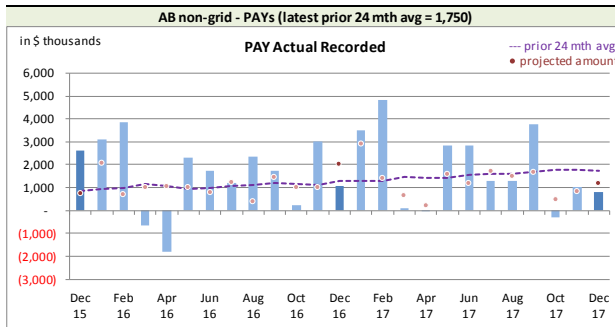
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years’ (PAYs) bias⁵, with actuals generally lower than projected. However, the magnitude is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

premium. In addition to the PAYs’ bias, the CAY has also shown bias, with actuals being generally lower than projected, and we have modified our projections processes in response. (We note bias again post April 2017, which we are reviewing.) Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

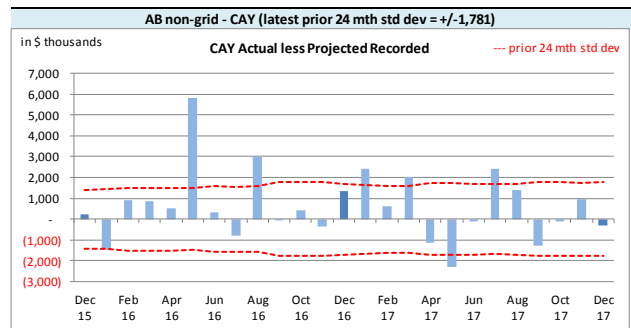
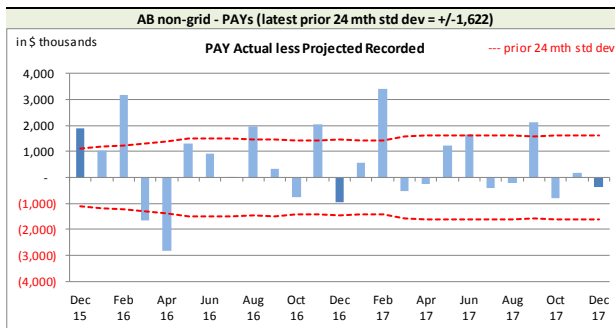
The charts immediately below show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

Alberta 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



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

On Latest \$ thousands			
Recorded	PAYs	CAY	
Mthly Avg Recorded (prior 24 mths)	1,750	7,167	
std dev	1,622	1,781	
A-P <> std dev	9	7	
% <> std dev	36.0%	28.0%	
norm <> std dev	31.7%	31.7%	

With respect to **recorded** indemnity & allowed claims expense activity, 36% of the prior accident years’ (PAYs) variances (left chart at the bottom of the previous page) fell outside of the experience period’s standard deviation, suggesting the projection process has performed no better than a projection based simply on the

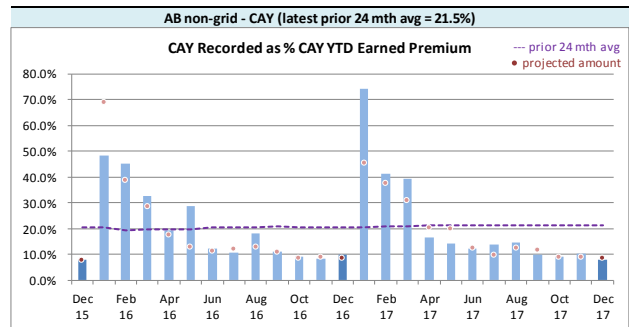
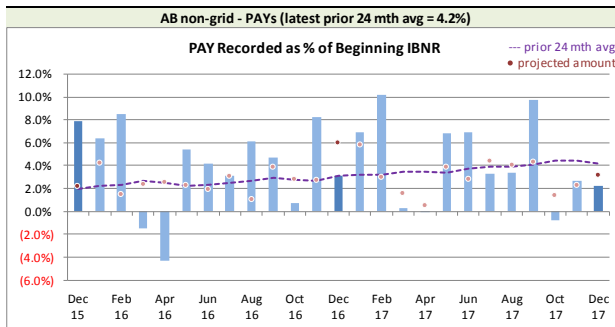
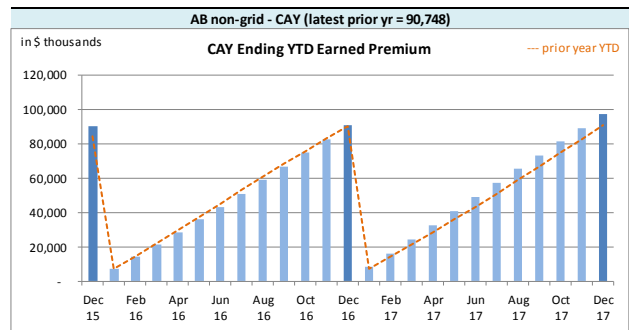
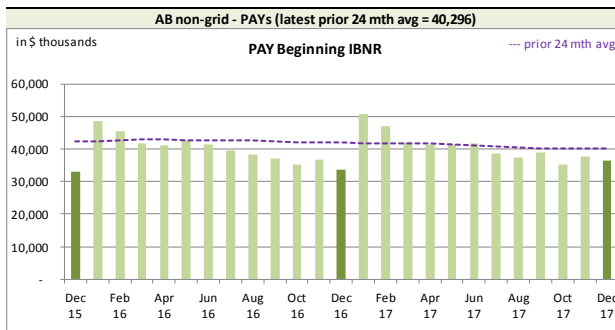
24-month average. We have implemented changes in an attempt to address this.

The current accident year (CAY) **recorded** variances (right chart at the bottom of the previous page) have been greater than one standard deviation 28% of the time, suggesting that the projection process has performed no better than simply projecting the most recent prior 24-month average.

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 immediately below related to levels influencing **recorded** activity.

Alberta non-Grid RSP Levels that influence⁶ 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:

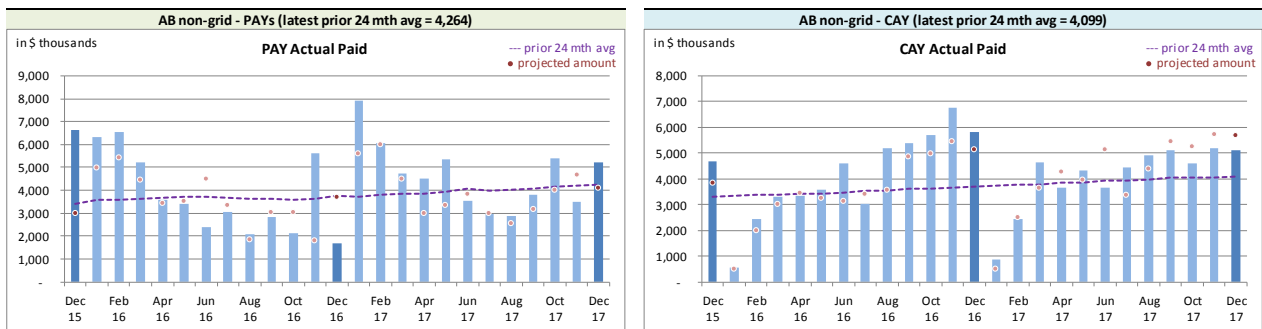
⁶Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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.

- 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

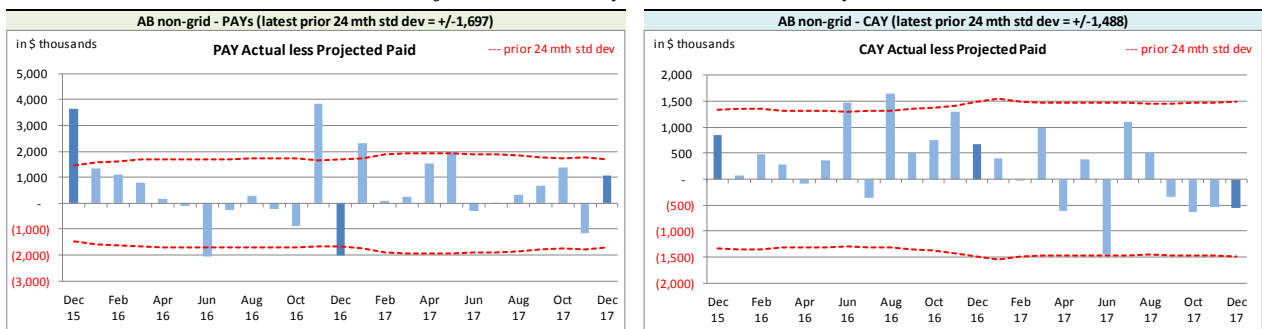
The charts immediately below show actual **paid** activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

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



On Latest \$ thousands		
Paid	PAYS	CAY
Mthly Avg Paid (prior 24 mths)	4,264	4,099
std dev	1,697	1,488
A-P <> std dev	6	2
% <> std dev	24.0%	8.0%
norm <> std dev	31.7%	31.7%

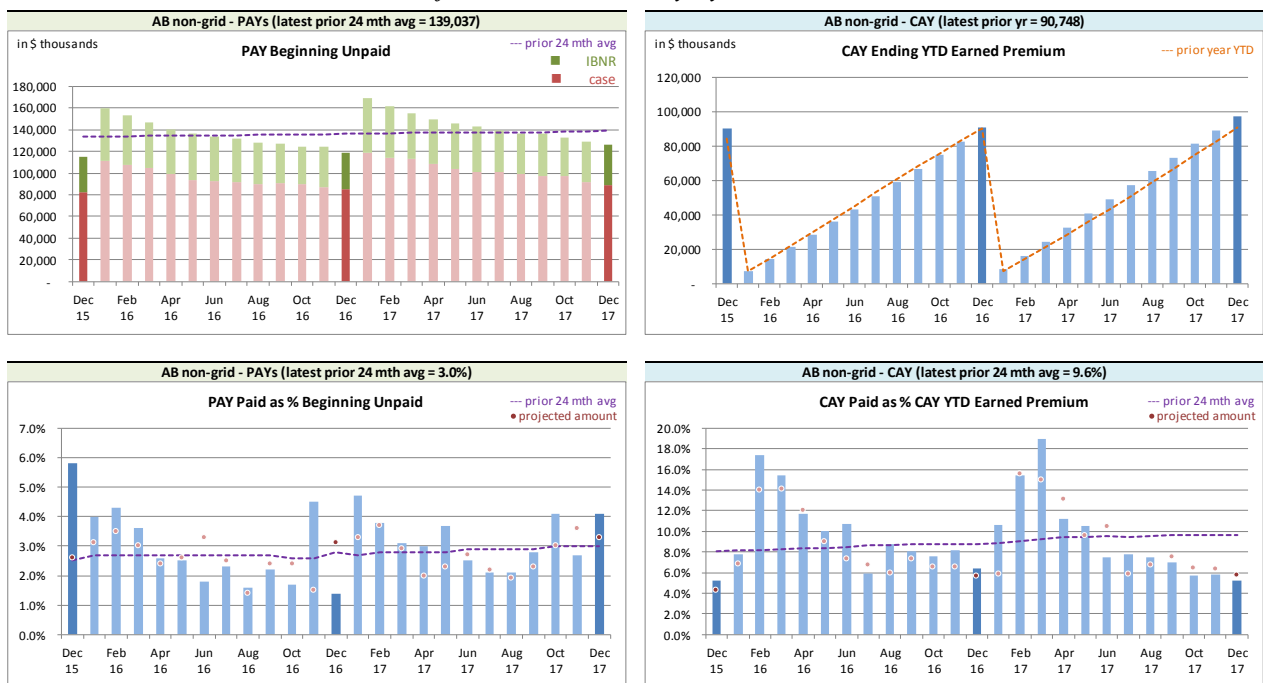
With respect to **paid** indemnity & allowed claims expense, the prior accident years’ variances (left chart above) do not appear to have bias and the magnitude of the variances do not appear to be an issue. With 24% of prior accident years (PAYS) **paid** variances over the last 25 calendar

months falling outside of one standard deviation, the projection process has performed better than simply projecting based on a 24-month average.

With only 8% 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. However, there does appear to have been evidence of bias (actuals tend to be higher than our projections) and we have made adjustments to reflect this that appear to be somewhat successful in recent months.

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

Alberta non-Grid RSP Levels that influence⁷ 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

⁷Our 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.

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 IBNR⁸, 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 immediately below summarizes variances in provisions included in the December 2017 Operational Report and the associated 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	8,861	(170)	(2,208)	62	5,272	(144)	11,925	(252)
2015	11,273	426	(1,333)	11	3,445	(29)	13,385	408
2016	15,638	102	(2,122)	(31)	5,083	73	18,599	144
2017	21,604	125	(3,108)	(18)	7,194	43	25,690	150
TOTAL	57,376	483	(8,771)	24	20,994	(57)	69,599	450

The IBNR provision is \$0.5 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 the December 2017 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

⁸For ease of discussion, “IBNR” is used in place of “provisions for incurred but not recorded (IBNR) and development”.

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:	3,152	(48)	3,050	(46)	6,202	(94)
balance as % unearned premium:	6.3%	-	6.1%	-	12.4%	-
actual unearned premium:	50,192					
less projected:	(761)					

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 loss⁹ 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 expenses¹⁰, 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 113.4% rather than 112.8% (the valuation ultimate ratio for accident year 2017), 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.)

⁹“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).

¹⁰Allowed 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 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	6,938	7.2%	(9,421)	(9.7%)	(2,483)	(2.6%)	(343)	(0.2%)
CAY	109,960	113.4%	4,086	4.2%	114,046	117.7%	9,558	(0.1%)
TOTAL	116,898	120.6%	(5,335)	(5.5%)	111,563	115.1%	9,214	(0.3%)

(“% EP” based on 2017 calendar year-to-date earned premium; ratios may not total due to rounding)

The prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments. The loss ratio change year-to-date reflects not only changes in the prior accident year levels, but also the increase in the calendar year-to-date earned premium with an additional month’s earned premium.

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 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 Nov. 2017	Actual Dec. 2017	Projected Jan. 2018	Projected Feb. 2018	Projected Dec. 2018
	2004		42	42	41	40	26
	2005		13	13	13	12	9
	2006		122	122	157	149	109
	2007		(19)	(92)	(89)	(86)	(56)
	2008		122	99	97	93	63
	2009		407	308	311	296	204
	2010		832	815	809	776	527
	2011		914	909	901	862	592
discount rate	2012		1,390	700	676	644	458
1.76%	2013		2,682	2,609	2,585	2,473	1,693
	2014		6,265	6,400	6,178	5,746	3,067
interest rate margin	2015		13,263	13,385	13,067	12,719	7,639
25 basis pts	2016		19,024	18,599	18,397	18,059	13,463
	2017		24,057	25,690	22,451	20,691	16,274
	2018		-	-	5,249	7,406	19,501
	TOTAL		69,114	69,599	70,843	69,880	63,569
	Change			485	1,244	(963)	

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 Nov. 2017	Actual Dec. 2017	Projected Jan. 2018	Projected Feb. 2018	Projected Dec. 2018
	349.1%	2004	36	36	35	34	22
	97.4%	2005	5	5	5	5	4
	87.2%	2006	16	16	16	15	11
	101.5%	2007	(65)	(127)	(124)	(119)	(80)
	101.2%	2008	93	72	71	68	44
	94.9%	2009	302	213	209	201	134
	84.3%	2010	662	652	639	613	409
	83.4%	2011	647	645	632	607	406
	101.1%	2012	874	202	198	190	125
	100.1%	2013	1,872	1,882	1,844	1,770	1,181
	112.9%	2014	5,061	5,265	5,107	4,698	2,236
	104.3%	2015	11,068	11,273	10,822	10,497	5,824
	120.6%	2016	16,016	15,638	15,325	15,018	10,953
	112.8%	2017	20,251	21,604	18,795	17,291	13,554
	105.8%	2018	-	-	4,687	6,446	15,614
		TOTAL	56,838	57,376	58,261	57,334	50,437
		Change		538	885	(927)	

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

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Nov. 2017	Actual Dec. 2017	Projected Jan. 2018	Projected Feb. 2018	Projected Dec. 2018
Premium Liabilities					
(1) unearned premium (UP)	51,191	50,192	49,519	49,288	49,779
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	113.5%	112.4%	112.4%	112.4%	115.1%
(3) expected future costs {(1) x (2)}	58,115	56,394	55,645	55,407	57,294
(4) premium deficiency / (deferred policy acquisition cost)	6,924	6,202	6,126	6,119	7,515
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	107.4%	106.3%	106.3%	106.3%	108.9%
(6) expected future costs {(1) x (5)}	54,973	53,344	52,636	52,410	54,195
(7) premium deficiency / (deferred policy acquisition cost)	3,782	3,152	3,117	3,122	4,416

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)									
Acc Yr	nominal values			actuarial present value adjustments (apvs)						TOTAL	
	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs		
2004	20	22	42	-	-	4	-	4	4	46	
2005	51	4	55	-	-	5	-	5	5	60	
2006	964	11	975	-	-	98	-	98	98	1,073	
2007	408	(80)	328	(9)	1	33	(1)	32	24	352	
2008	213	44	257	(7)	1	26	(1)	25	19	276	
2009	868	134	1,002	(31)	4	100	(3)	97	70	1,072	
2010	1,428	409	1,837	(68)	9	184	(7)	177	118	1,955	
2011	2,704	406	3,110	(128)	16	311	(13)	298	186	3,296	
2012	5,632	125	5,757	(253)	35	576	(25)	551	333	6,090	
2013	7,562	1,181	8,743	(376)	52	874	(38)	836	512	9,255	
2014	12,478	2,236	14,714	(662)	88	1,471	(66)	1,405	831	15,545	
2015	16,410	5,824	22,234	(956)	133	2,757	(119)	2,638	1,815	24,049	
2016	22,058	10,953	33,011	(1,585)	198	4,093	(196)	3,897	2,510	35,521	
2017	27,708	13,554	41,262	(2,146)	289	4,828	(251)	4,577	2,720	43,982	
PAYs (sub-total):	98,504	34,823	133,327	(6,221)	826	15,360	(720)	14,640	9,245	142,572	
CAY (2018)	42,380	15,614	57,994	(2,958)	406	6,785	(346)	6,439	3,887	61,881	
claims liabilities:	140,884	50,437	191,321	(9,179)	1,232	22,145	(1,066)	21,079	13,132	204,453	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*	
premium liabilities:	49,779	4,416	54,195	(2,050)	270	5,072	(193)	4,879	3,099	57,294	
*Total may not be sum of parts, as apvs apply to future costs within UPR											
policy liabilities:			245,516	(11,229)	1,502	27,217	(1,259)	25,958	16,231	261,747	

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, 2017 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Sep. 30, 2017)

Accident Year	Third Party Liability	Accident Benefits	Other Coverages	Total
2004	10.0%	10.0%	10.0%	10.0%
2005	10.0%	10.0%	10.0%	10.0%
2006	10.0%	10.0%	10.0%	10.0%
2007	10.0%	10.0%	10.0%	10.0%
2008	10.0%	10.0%	10.0%	10.0%
2009	10.0%	10.0%	10.0%	10.0%
2010	10.0%	10.0%	6.0%	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%	9.8%	10.0%
2014	10.0%	10.0%	9.3%	10.0%
2015	12.5%	10.0%	11.1%	12.4%
2016	12.5%	10.0%	12.5%	12.4%
2017	12.1%	10.0%	8.2%	11.7%
2018	11.8%	10.0%	5.2%	9.4%
prem liab	11.8%	10.0%	5.2%	9.4%

discount rate: 1.76%
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, 2017 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2018, and are based on more up-to-date information). We have included the most recent valuation selection (1.76%), the prior valuation assumption (1.20%) and the prior fiscal year end valuation assumption (0.55%) 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, 2017 projected Unpaid								
AY	0.76%	1.26%	1.76%	2.26%	2.76%	3.26%	1.20%	0.55%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1,330	1,319	1,309	1,298	1,288	1,278	1,320	1,334
2007	692	687	681	676	670	665	687	695
2008	370	367	364	360	357	354	367	372
2009	2,162	2,139	2,117	2,095	2,073	2,052	2,142	2,172
2010	2,754	2,721	2,689	2,657	2,627	2,597	2,725	2,768
2011	5,094	5,029	4,966	4,905	4,845	4,788	5,037	5,121
2012	10,645	10,513	10,385	10,260	10,139	10,022	10,528	10,701
2013	13,576	13,397	13,226	13,058	12,894	12,737	13,419	13,651
2014	22,289	22,009	21,739	21,473	21,217	20,968	22,042	22,408
2016	45,362	44,669	44,007	43,356	42,725	42,118	44,752	45,654
2017	66,776	65,786	64,842	63,923	63,032	62,176	65,905	67,193
Total	202,862	199,998	197,258	194,571	191,966	189,459	200,337	204,068
	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	0.76%	1.26%	1.76%	2.26%	2.76%	3.26%	1.20%	0.55%
Total	5,604	2,740	-	(2,687)	(5,292)	(7,799)	3,079	6,810
	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	0.76%	1.26%	1.76%	2.26%	2.76%	3.26%	1.20%	0.55%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	1.6%	0.8%	-	(0.8%)	(1.6%)	(2.4%)	0.8%	1.9%
2007	1.6%	0.9%	-	(0.7%)	(1.6%)	(2.3%)	0.9%	2.1%
2008	1.6%	0.8%	-	(1.1%)	(1.9%)	(2.7%)	0.8%	2.2%
2009	2.1%	1.0%	-	(1.0%)	(2.1%)	(3.1%)	1.2%	2.6%
2010	2.4%	1.2%	-	(1.2%)	(2.3%)	(3.4%)	1.3%	2.9%
2011	2.6%	1.3%	-	(1.2%)	(2.4%)	(3.6%)	1.4%	3.1%
2012	2.5%	1.2%	-	(1.2%)	(2.4%)	(3.5%)	1.4%	3.0%
2013	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	1.5%	3.2%
2014	2.5%	1.2%	-	(1.2%)	(2.4%)	(3.5%)	1.4%	3.1%
2016	3.1%	1.5%	-	(1.5%)	(2.9%)	(4.3%)	1.7%	3.7%
2017	3.0%	1.5%	-	(1.4%)	(2.8%)	(4.1%)	1.6%	3.6%
Total	2.8%	1.4%	-	(1.4%)	(2.7%)	(4.0%)	1.6%	3.5%
	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	(1)	1	-	-	-	42	
2005	13	-	-	-	-	-	13	
2006	122	(6)	6	-	-	-	122	
2007	(19)	-	(73)	-	(73)	384.2%	(92)	
2008	122	(6)	(17)	-	(23)	(18.9%)	99	
2009	407	(16)	(83)	-	(99)	(24.3%)	308	
2010	832	(33)	16	-	(17)	(2.0%)	815	
2011	914	(37)	32	-	(5)	(0.5%)	909	
2012	1,390	(55)	(635)	-	(690)	(49.6%)	700	
2013	2,682	(200)	127	-	(73)	(2.7%)	2,609	
2014	6,265	(239)	374	-	135	2.2%	6,400	
2015	13,263	(286)	408	-	122	0.9%	13,385	
2016	19,024	(569)	144	-	(425)	(2.2%)	18,599	
2017	24,057	1,483	150	-	1,633	6.8%	25,690	
Grand Total	69,114	35	450	-	485	0.7%	69,599	

EXHIBIT G

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

RSP **Alberta Non-Grid**
AccountCode Desc **IBNR - Undiscounted** IBNR - in \$000s

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	36	(1)	1	-	-	-	36
2005	5	-	-	-	-	-	5
2006	16	(1)	1	-	-	-	16
2007	(65)	3	(65)	-	(62)	95.4%	(127)
2008	93	(4)	(17)	-	(21)	(22.6%)	72
2009	302	(12)	(77)	-	(89)	(29.5%)	213
2010	662	(26)	16	-	(10)	(1.5%)	652
2011	647	(26)	24	-	(2)	(0.3%)	645
2012	874	(35)	(637)	-	(672)	(76.9%)	202
2013	1,872	(168)	178	-	10	0.5%	1,882
2014	5,061	(202)	406	-	204	4.0%	5,265
2015	11,068	(221)	426	-	205	1.9%	11,273
2016	16,016	(480)	102	-	(378)	(2.4%)	15,638
2017	20,251	1,228	125	-	1,353	6.7%	21,604
Grand Total	56,838	55	483	-	538	0.9%	57,376