



ALBERTA NON-GRID RISK SHARING POOL

JULY 2016 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS
RSP ALBERTA NON-GRID
OPERATIONAL REPORT
JULY 2016

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2016)

The July 2016 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 2016.

ALBERTA NON-GRID RISK SHARING POOL FISCAL YEAR 2016 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2015 (completed)	0.78% mfad: 25 bp	Oct. 2015	updated valuation (roll forward): accident year 2015 loss ratio increased 1.5 points to 101.4%; discount rate decreased by 19 basis points; no change to selected margins for adverse deviations
Dec. 31, 2015 (completed)	0.73% mfad: 25 bp	Mar. 2016	updated valuation: accident year 2015 loss ratio decreased 1.2 points to 100.2%; accident year 2016 loss ratio increased 0.2 points to 95.6%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Mar. 31, 2016 (completed)	0.68% mfad: 25 bp	May 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 0.1 points to 95.7%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Jun. 30, 2016		Aug. 2016	update valuation:
Sep. 30, 2016		Oct. 2016	update valuation (roll forward):

Under the proposed schedule for fiscal year 2016, the “off-half” valuation quarters ending March 31, 2016 and September 30, 2016 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.

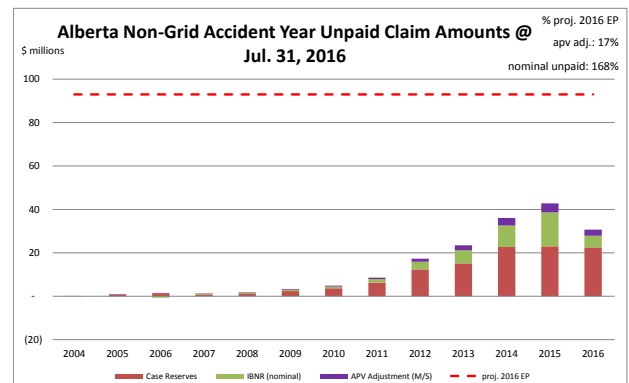
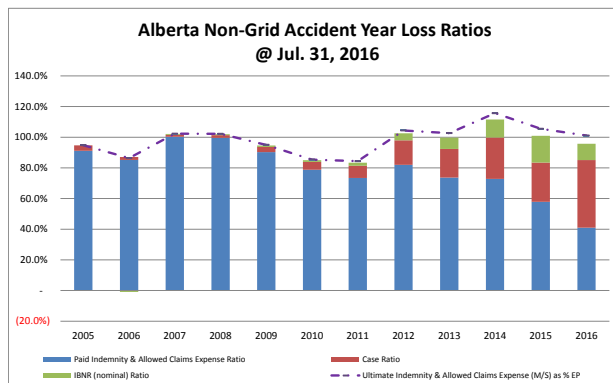
1.3 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

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.

Alberta Bill 39 (Enhancing Consumer Protection in Auto Insurance Act) was introduced into the Legislature by the Minister of Finance on November 6, 2013, and received Royal Assent on December 11, 2013. Bill 39 includes various amendments and provisions such as allowing for both mandatory and optional auto insurance premiums to be regulated by the independent Automobile Insurance Rate Board (AIRB), the introduction of an Insurer file and approve system for premium adjustments instead of an annual industry-wide rate adjustment, improved access to health care after a collision and strengthened Insurance Company solvency requirements. No specific adjustments have been made to the current valuation assumptions based on Bill 39.

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 2016 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 (\$15.9 million – see table at top of next page) represents 17% of the earned premium projected for the full year 2016 (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 period.

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.

claim liabilities (\$000s)	amt	%
case	112,610	65.4%
ibnr	43,732	25.4%
M/S apv adjust.	15,941	9.3%
M/S total	172,283	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 48% of the IBNR balance relates to accident years 2015 and 2016 (see Exhibit B). Approximately 87% of the M/S total

claim liabilities are related to accident years 2012-2016 inclusive (i.e. the most recent 5 accident years).

The IBNR level for accident year 2016 (being unusually low for its age) reflects the unusually high level of recorded activity during the month of May 2016 as evident in the CAY recorded activity chart in section 2.1.b (the loss ratio matching approach taken to book results adjusts IBNR automatically for recorded activity differences with expected results).

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

premium liabilities (\$000s)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	49,013	96.4%	claim	156,342	70.1%
prem def/(dpac)	(1,897)	(3.7%)	premium	47,116	21.1%
M/S apv adjust.	3,738	7.4%	M/S apv adjust.	19,679	8.8%
M/S total	50,854	100.0%	M/S total	223,137	100.0%

2 Activity During the Month of July 2016

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)

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	1,685	396	(936)	84	749	480
2014	0	0	655	(9)	(499)	(137)	156	(146)
2015	(7)	(7)	737	(641)	(430)	309	307	(332)
2016	7,674	(238)	3,035	(361)	2,359	(415)	5,394	(776)
TOTAL	7,667	(245)	6,112	(615)	494	(159)	6,606	(774)

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

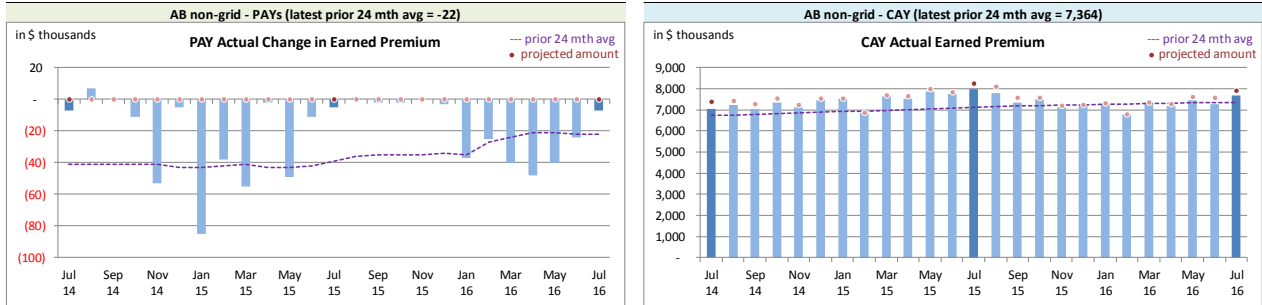
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural "process variance". Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the variance. Commentary 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.

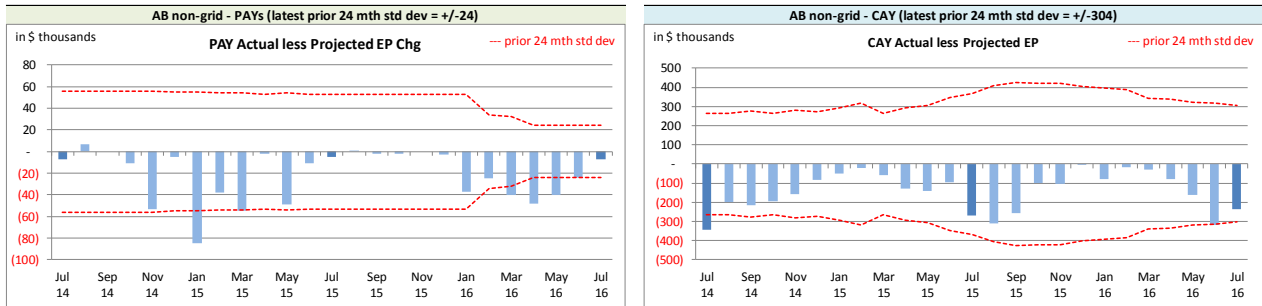
Alberta non-Grid RSP Actual Earned Premium by Calendar Month



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.

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



On Latest \$ thousands			
Earned Premium	PAYs	CAY	
Mthly Avg EP Chg (prior 24 mths)	(22)	7,364	
std dev	24	304	
A-P <> std dev	5	2	
% <> std dev	20.0%	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 bias⁵, with actuals generally lower than projected. However, the magnitude is not

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.

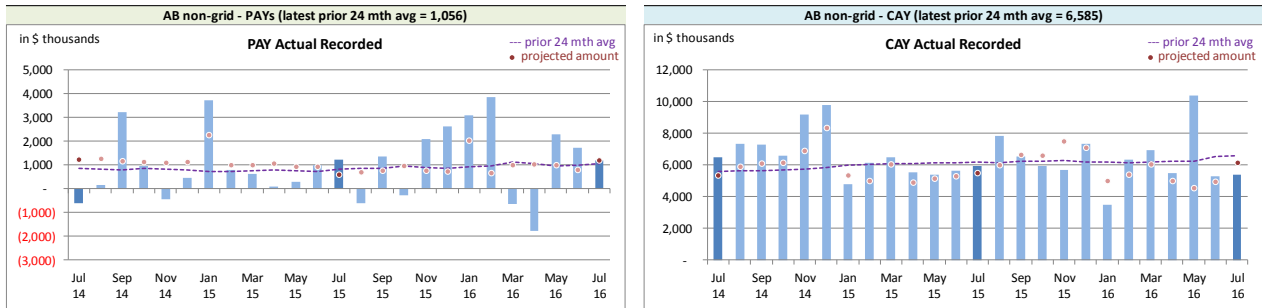
⁵The prior accident years (PAYs) variances will show bias as the projection upload forces all earned premium projections to be attributed to the current accident year.

high relative to monthly premium, and the variances are within the prior 24-month standard deviation more often than indicated by a normal distribution (see table at bottom of previous page). We are in process of modifying our projections processes in an attempt to account for bias in the current process. 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

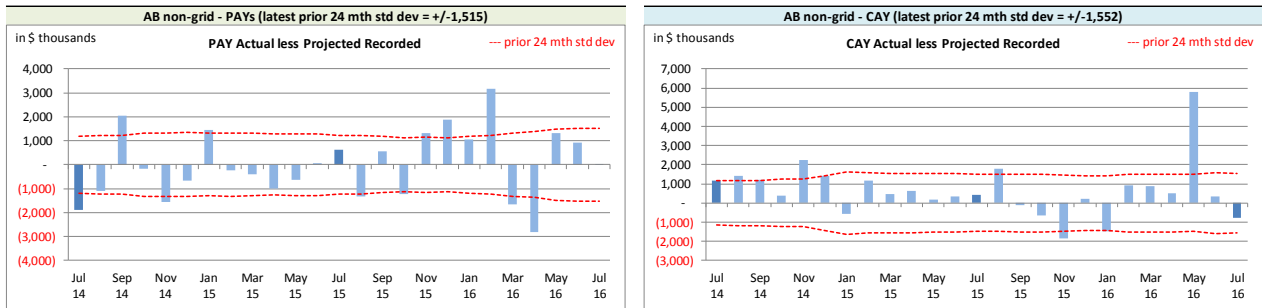
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period is shown in the charts immediately below, including the “prior 24-month average” level.

*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.

*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)	1,056	6,585
std dev	1,515	1,552
A-P <> std dev	11	7
% <> std dev	44.0%	28.0%
norm <> std dev	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 44% of the prior accident years’ (PAYs) variances (left chart above) fell outside of the experience period’s standard deviation, suggesting the projection process performs worse than a projection based simply on the 24-month average. We are

looking at options in an attempt to address this.

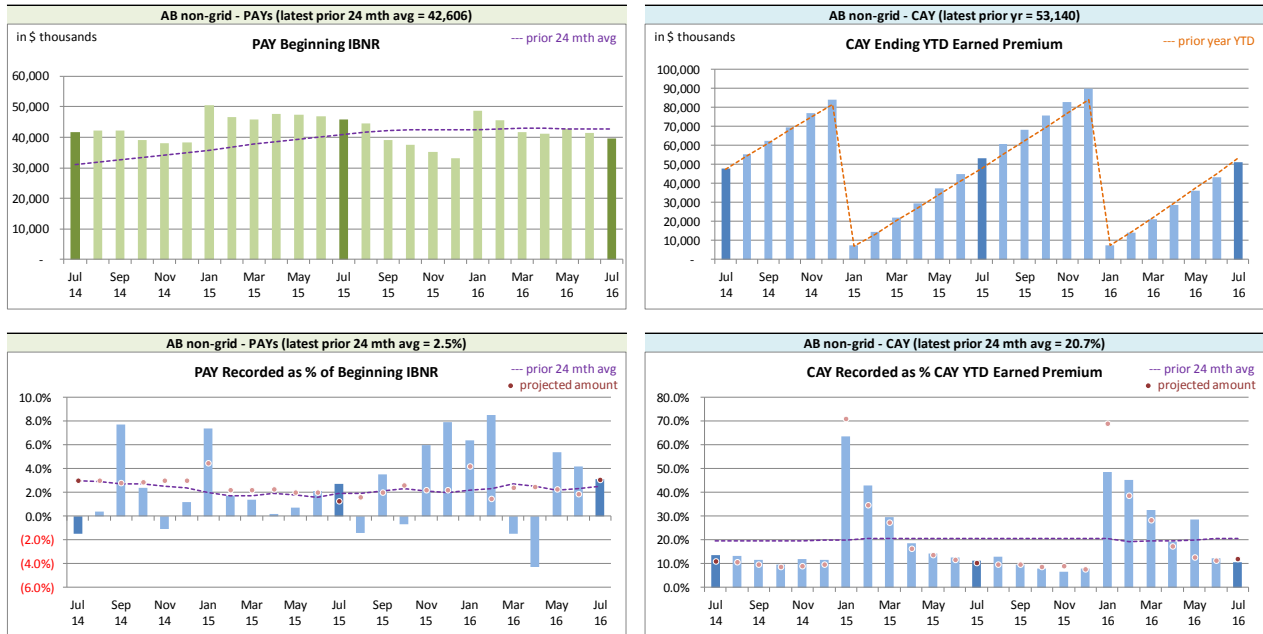
The current accident year (CAY) **recorded** variances (right chart above) have been greater than one standard deviation 28% of the time, suggesting that the projection process is not much better than simply projecting the most recent prior 24-month average. There was evidence of bias in the projection process from the middle of 2014 to the middle of 2015 (actuals tended to be higher than

our projections). Measures taken in an effort to address this bias seem to have been successful (although perhaps too successful, potentially creating bias the other way – we are monitoring).

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:

- 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).

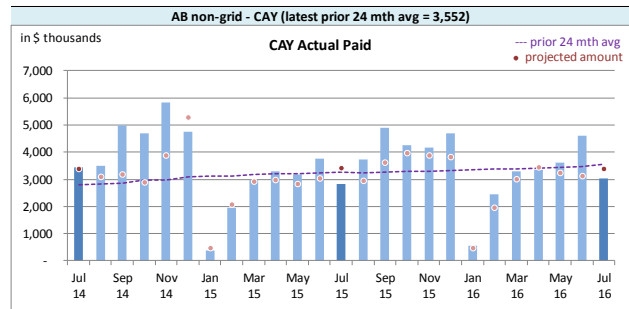
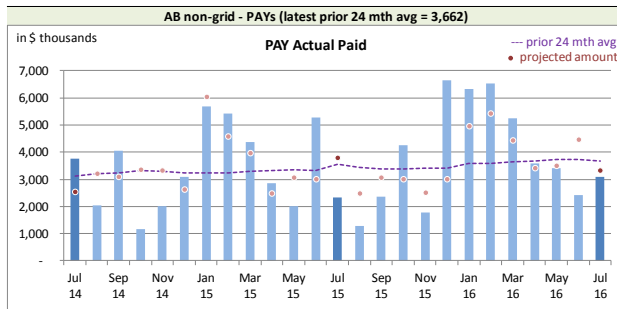
2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

The charts immediately below show actual **paid** activity in each of the most recent 25 calendar

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.

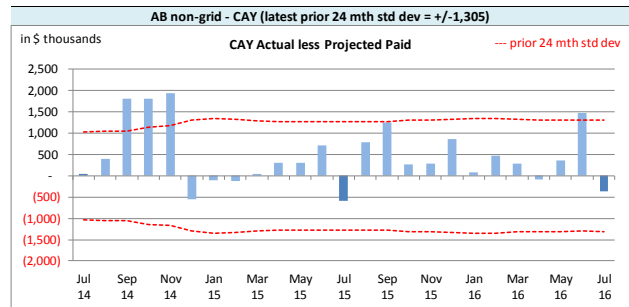
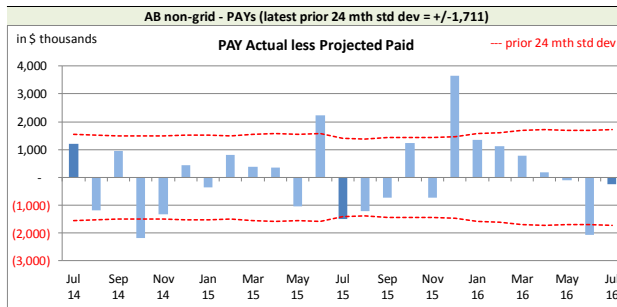
months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months. The prior 24-month average payment for both the prior accident years and current accident year appear to be increasing but as of this point, we have not investigated to confirm or identify any particular cause, although a review of the ratios used for the projections is not showing a similar trend, suggesting that the increases are volume related.

*Alberta non-Grid RSP Actual **Paid** activity by Calendar Month*



The charts immediately below show the actual less projected **paid** variances for the last 25 calendar months, along with bands for the “prior 24-month standard deviations” 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)	3,662	3,552
std dev	1,711	1,305
A-P <> std dev	5	4
% <> std dev	20.0%	16.0%
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 appears to have performed better than simply projecting based on a 24-month average.

With only 16% of the current accident year (CAY) **paid** variances falling outside of one standard deviation of the experience period activity, the projection process appears to perform better than simply projecting based on a 24-month average. However, there does appear to be evidence of bias (actuals tend to be higher than our projections).

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 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 at the top of the next page summarizes variances in provisions included in the July 2016 Operational Report and the associated one-month projections from last month’s Report.

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.

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

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	12,760	(480)	(997)	11	6,493	(57)	18,256	(526)
2014	9,904	147	(684)	(1)	4,212	1	13,432	147
2015	15,664	324	(888)	(14)	5,027	82	19,803	392
2016	5,404	548	(586)	(3)	3,364	16	8,182	561
TOTAL	43,732	539	(3,155)	(7)	19,096	42	59,673	574

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 below summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in the July 2016 Operational Report and the one-month projections from last month's Report. This RSP is in a deferred policy acquisition cost asset position (shown as a negative value) before actuarial present value adjustments and in a premium deficiency position (shown as a positive value) after actuarial present value adjustments. Actuarial present value adjustments increase the expected future policy obligations (costs) associated with the unearned premium and cause the write down of the asset value and the creation of the liability. The variances indicated are due to 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:	(1,897)	5	3,738	(8)	1,841	(3)
balance as % unearned premium:	(3.9%)	-	7.6%	-	3.8%	-
actual unearned premium:	49,013					
less projected:	(114)					

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 below 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 96.1% rather than 95.7% (the valuation ultimate ratio for accident year 2016), 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	(491)	(1.0%)	(2,082)	(4.1%)	(2,573)	(5.1%)	(334)	0.1%
CAY	48,822	96.1%	2,778	5.5%	51,600	101.6%	7,773	-
TOTAL	48,331	95.1%	696	1.4%	49,027	96.5%	7,439	0.1%

(“% EP” based on 2016 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, 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

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.

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. 2016	Actual Jul. 2016	Projected Aug. 2016	Projected Sep. 2016	Projected Dec. 2016
	2004	42	42	41	40	37
	2005	28	26	25	25	24
	2006	(563)	(564)	(553)	(541)	(510)
	2007	537	531	521	511	481
	2008	658	622	614	602	566
	2009	937	933	921	903	848
	2010	1,414	1,184	1,169	1,146	1,077
discount rate	2011	2,154	2,296	2,265	2,228	2,098
0.68%	2012	5,102	4,912	4,838	4,759	4,446
	2013	8,871	8,274	8,180	8,015	7,400
interest rate margin	2014	13,660	13,432	13,282	13,015	12,007
25 basis pts	2015	20,197	19,803	19,604	18,416	16,295
	2016	5,803	8,182	8,677	9,727	20,486
	TOTAL	58,840	59,673	59,584	58,846	65,255
	Change		833	(89)	(738)	

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. 2016	Actual Jul. 2016	Projected Aug. 2016	Projected Sep. 2016	Projected Dec. 2016
	349.1%	2004	36	36	35	34	31
	94.5%	2005	(48)	(50)	(49)	(48)	(45)
	86.3%	2006	(636)	(637)	(624)	(612)	(576)
	102.1%	2007	421	416	408	400	376
	102.0%	2008	489	459	454	445	418
	94.6%	2009	657	658	651	638	600
	84.9%	2010	1,015	789	781	765	720
	83.5%	2011	1,459	1,606	1,590	1,566	1,474
	102.6%	2012	3,692	3,524	3,471	3,419	3,185
	99.8%	2013	6,424	5,959	5,899	5,781	5,275
	111.5%	2014	10,059	9,904	9,805	9,609	8,769
	100.9%	2015	15,979	15,664	15,507	14,422	12,613
	95.7%	2016	3,454	5,404	5,484	6,245	15,603
		TOTAL	43,001	43,732	43,412	42,664	48,443
		Change		731	(320)	(748)	

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. 2016	Actual Jul. 2016	Projected Aug. 2016	Projected Sep. 2016	Projected Dec. 2016
Premium Liabilities					
(1) unearned premium (UP)	47,081	49,013	51,166	52,971	53,953
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	103.8%	103.8%	103.7%	103.7%	103.6%
(3) expected future costs {(1) x (2)}	48,859	50,854	53,076	54,935	55,902
(4) premium deficiency / (deferred policy acquisition cost)	1,778	1,841	1,910	1,964	1,949
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	96.1%	96.1%	96.1%	96.1%	96.0%
(6) expected future costs {(1) x (5)}	45,268	47,116	49,174	50,897	51,794
(7) premium deficiency / (deferred policy acquisition cost)	(1,813)	(1,897)	(1,992)	(2,074)	(2,159)

EXHIBIT D
Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2016, broken down by component.

Alberta non-Grid ending 2016	Projected Balances as at Dec. 31, 2016 (\$000s)							
	nominal values			actuarial present value adjustments (apvs)				TOTAL
	Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	
2004	27	31	58	-	-	6	6	64
2005	795	(45)	750	(8)	3	74	69	819
2006	1,298	(576)	722	(8)	3	71	66	788
2007	771	376	1,147	(14)	5	114	105	1,252
2008	1,229	418	1,647	(25)	10	163	148	1,795
2009	2,173	600	2,773	(39)	14	273	248	3,021
2010	3,325	720	4,045	(61)	20	398	357	4,402
2011	5,663	1,474	7,137	(121)	43	702	624	7,761
2012	11,262	3,185	14,447	(246)	87	1,420	1,261	15,708
2013	14,126	5,275	19,401	(388)	155	2,358	2,125	21,526
2014	21,112	8,769	29,881	(628)	239	3,627	3,238	33,119
2015	21,766	12,613	34,379	(791)	275	4,198	3,682	38,061
PAYs (sub-total):	83,547	32,840	116,387	(2,329)	854	13,404	11,929	128,316
CAY (2016)	33,435	15,603	49,038	(1,030)	392	5,521	4,883	53,921
claims liabilities:	116,982	48,443	165,425	(3,359)	1,246	18,925	16,812	182,237
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
premium liabilities:	53,953	(2,159)	51,794	(721)	257	4,572	4,108	55,902
*Total may not be sum of parts, as apvs apply to future costs within UPR								
policy liabilities:			217,219	(4,080)	1,503	23,497	20,920	238,139

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, 2016 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Mar. 31, 2016)				
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%	5.0%	10.0%
2009	10.0%	10.0%	5.1%	10.0%
2010	10.0%	10.0%	9.7%	10.0%
2011	10.0%	10.0%	9.9%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	12.5%	10.0%	12.5%	12.4%
2014	12.5%	10.0%	12.3%	12.4%
2015	12.4%	10.0%	12.5%	12.5%
2016	12.1%	10.0%	7.3%	11.5%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	11.7%	10.0%	5.2%	9.0%

discount rate: 0.68%
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, 2016 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2016 and based on more up-to-date information). We have included both the current valuation selection (0.68%), the prior valuation assumption (0.73%) and the prior fiscal year end valuation assumption (0.78%) 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, 2016 projected Unpaid								
AY	0.18%	0.68%	1.18%	1.68%	2.18%	2.68%	0.73%	0.78%
2004	-	-	-	-	-	-	-	-
2005	555	551	547	542	538	534	551	550
2006	660	655	649	644	639	634	654	654
2007	1,037	1,029	1,020	1,011	1,002	993	1,028	1,027
2008	1,805	1,788	1,769	1,750	1,732	1,714	1,786	1,784
2009	2,599	2,575	2,549	2,523	2,497	2,472	2,573	2,570
2010	4,057	4,017	3,973	3,930	3,889	3,848	4,013	4,009
2011	7,434	7,354	7,264	7,177	7,093	7,010	7,345	7,336
2012	17,524	17,330	17,108	16,895	16,690	16,487	17,305	17,284
2013	21,822	21,544	21,234	20,936	20,646	20,362	21,512	21,483
2014	32,997	32,549	32,047	31,564	31,091	30,637	32,495	32,448
2015	39,325	38,743	38,095	37,468	36,865	36,277	38,677	38,613
2016	53,515	52,800	52,005	51,236	50,494	49,775	52,719	52,638
Total	183,330	180,935	178,260	175,676	173,176	170,743	180,658	180,396
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

Dollar Impact Relative to Valuation Assumption								
AY	0.18%	0.68%	1.18%	1.68%	2.18%	2.68%	0.73%	0.78%
Total	2,395	-	(2,675)	(5,259)	(7,759)	(10,192)	(277)	(539)
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	prior val assumption	prior fyr end assumption

Percentage Impact Relative to Valuation Assumption								
AY	0.18%	0.68%	1.18%	1.68%	2.18%	2.68%	0.73%	0.78%
2004	-	-	-	-	-	-	-	-
2005	0.7%	-	(0.7%)	(1.6%)	(2.4%)	(3.1%)	-	(0.2%)
2006	0.8%	-	(0.9%)	(1.7%)	(2.4%)	(3.2%)	(0.2%)	(0.2%)
2007	0.8%	-	(0.9%)	(1.7%)	(2.6%)	(3.5%)	(0.1%)	(0.2%)
2008	1.0%	-	(1.1%)	(2.1%)	(3.1%)	(4.1%)	(0.1%)	(0.2%)
2009	0.9%	-	(1.0%)	(2.0%)	(3.0%)	(4.0%)	(0.1%)	(0.2%)
2010	1.0%	-	(1.1%)	(2.2%)	(3.2%)	(4.2%)	(0.1%)	(0.2%)
2011	1.1%	-	(1.2%)	(2.4%)	(3.5%)	(4.7%)	(0.1%)	(0.2%)
2012	1.1%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.1%)	(0.3%)
2013	1.3%	-	(1.4%)	(2.8%)	(4.2%)	(5.5%)	(0.1%)	(0.3%)
2014	1.4%	-	(1.5%)	(3.0%)	(4.5%)	(5.9%)	(0.2%)	(0.3%)
2015	1.5%	-	(1.7%)	(3.3%)	(4.8%)	(6.4%)	(0.2%)	(0.3%)
2016	1.4%	-	(1.5%)	(3.0%)	(4.4%)	(5.7%)	(0.2%)	(0.3%)
Total	1.3%	-	(1.5%)	(2.9%)	(4.3%)	(5.6%)	(0.2%)	(0.3%)
	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	curr + 200bp	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**
AccountCode Desc **IBNR - Discounted**

M/S IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	42	(1)	1	-	-	-	42
2005	28	-	(2)	-	(2)	(7.1%)	26
2006	(563)	11	(12)	-	(1)	0.2%	(564)
2007	537	(11)	5	-	(6)	(1.1%)	531
2008	658	(13)	(23)	-	(36)	(5.5%)	622
2009	937	(20)	16	-	(4)	(0.4%)	933
2010	1,414	(28)	(202)	-	(230)	(16.3%)	1,184
2011	2,154	(43)	185	-	142	6.6%	2,296
2012	5,102	(102)	(88)	-	(190)	(3.7%)	4,912
2013	8,871	(191)	(406)	-	(597)	(6.7%)	8,274
2014	13,660	(375)	147	-	(228)	(1.7%)	13,432
2015	20,197	(786)	392	-	(394)	(2.0%)	19,803
2016	5,803	1,818	561	-	2,379	41.0%	8,182
Grand Total	58,840	259	574	-	833	1.4%	59,673

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	(1)	1	-	-	-	36	
2005	(48)	1	(3)	-	(2)	4.2%	(50)	
2006	(636)	13	(14)	-	(1)	0.2%	(637)	
2007	421	(8)	3	-	(5)	(1.2%)	416	
2008	489	(10)	(20)	-	(30)	(6.1%)	459	
2009	657	(13)	14	-	1	0.2%	658	
2010	1,015	(20)	(206)	-	(226)	(22.3%)	789	
2011	1,459	(29)	176	-	147	10.1%	1,606	
2012	3,692	(74)	(94)	-	(168)	(4.6%)	3,524	
2013	6,424	(128)	(337)	-	(465)	(7.2%)	5,959	
2014	10,059	(302)	147	-	(155)	(1.5%)	9,904	
2015	15,979	(639)	324	-	(315)	(2.0%)	15,664	
2016	3,454	1,402	548	-	1,950	56.5%	5,404	
Grand Total	43,001	192	539	-	731	1.7%	43,732	