



ALBERTA GRID RISK SHARING POOL

JULY 2017 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS

RSP ALBERTA GRID

OPERATIONAL REPORT

JULY 2017

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2017)

The July 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 2017.

ALBERTA GRID RISK SHARING POOL FISCAL YEAR 2017 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2016 (completed)	0.54% mfad: 25 bp	Oct. 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 2.0 points to 83.5%; discount rate decreased by 6 basis points; no change to selected margins for adverse deviations
Dec. 31, 2016 (completed)	1.06% mfad: 25 bp	Mar. 2017	updated valuation: accident year 2016 loss ratio increased 5.8 points to 89.3%; accident year 2017 loss ratio increased 6.3 points to 84.2%; discount rate increased by 52 basis points; no change to selected margins for adverse deviations
Mar. 31, 2017 (completed)	0.98% mfad: 25 bp	May 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 2.3 points to 86.5%; discount rate decreased by 8 basis points; no change to selected margins for adverse deviations
Jun. 30, 2017		Aug. 2017	update valuation:
Sep. 30, 2017		Oct. 2017	update valuation (roll forward):

Under the proposed schedule for fiscal year 2017, the “off-half” valuation quarters ending March 31, 2017 and September 30, 2017 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 changes in these descriptions since last month's Highlights, other than a minor editorial change in the Saadati v. Moorhead narrative).

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."*

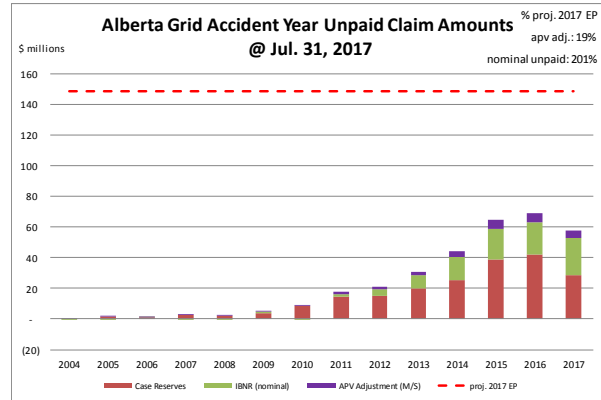
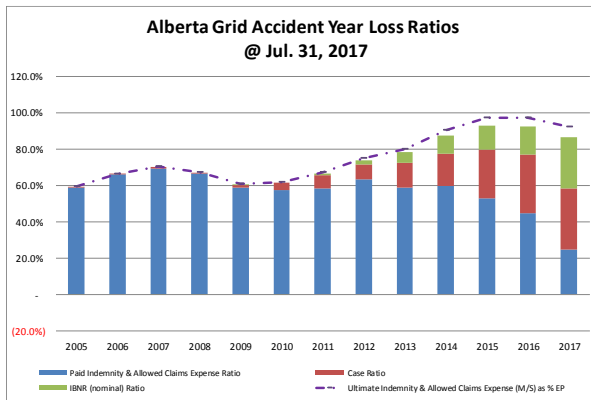
At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

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 2017 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 (\$27.8 million – see table immediately below) represents 19% of the earned premium projected for the full year 2017 (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	204,554	62.7%
ibnr	93,728	28.7%
M/S apv adjust.	27,795	8.5%
M/S total	326,077	100.0%

The table to the left breaks down the Member Statement (M/S) claim liabilities total into component parts, showing that the majority of the claim liabilities for this pool is in case reserves. Approximately 48% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 82% of the M/S total claim

liabilities are related to accident years 2013-2017 inclusive (i.e. the most recent 5 accident years).

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

premium liabilities (\$000s)	amt	%
unearned prem	77,821	107.1%
prem def/(dpac)	(10,393)	(14.3%)
M/S apv adjust.	5,218	7.2%
M/S total	72,646	100.0%

policy liabilities (\$000s)	amt	%
claim	298,282	74.8%
premium	67,428	16.9%
M/S apv adjust.	33,013	8.3%
M/S total	398,723	100.0%

2 Activity During the Month of July 2017

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 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	4,642	1,079	(4,166)	(1,197)	476	(118)
2015	15	15	726	(1,059)	1,073	1,778	1,799	719
2016	(59)	(59)	1,697	402	737	638	2,433	1,039
2017	12,637	(230)	3,822	(49)	3,364	82	7,185	33
TOTAL	12,594	(273)	10,887	373	1,007	1,300	11,894	1,674

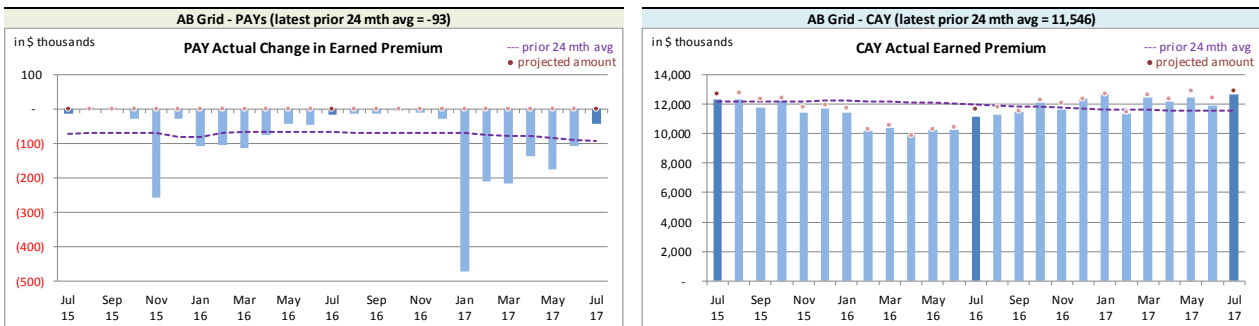
(Recorded transaction amounts exclude IBNR & other actuarial provisions)

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.

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 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.

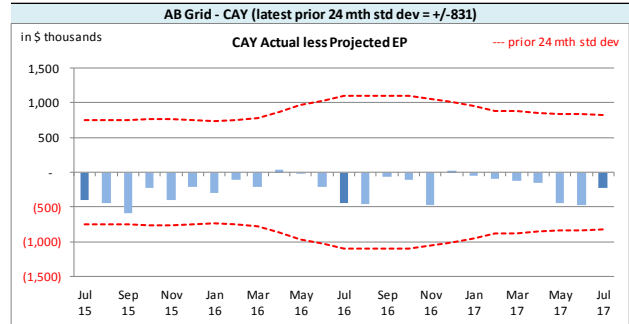
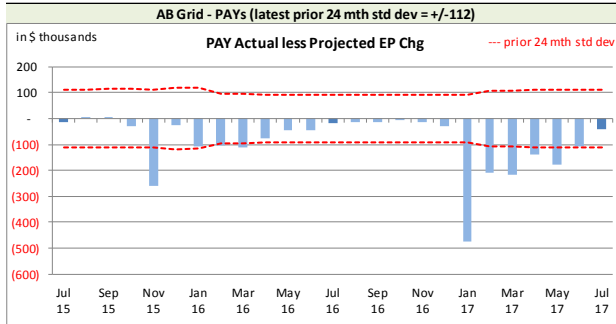
We have noted and have been investigating the unusually high level of PAYs earned premium activity so far in 2017, particularly with respect to one member and we are in discussions with that member to better understand the causes of the changes.

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

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.

change in relation to prior accident years.

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



On Latest \$ thousands		
Earned Premium	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)	(93)	11,546
std dev	112	831
A-P <> std dev	8	-
% <> std dev	32.0%	0.0%
norm <> std dev	31.7%	31.7%

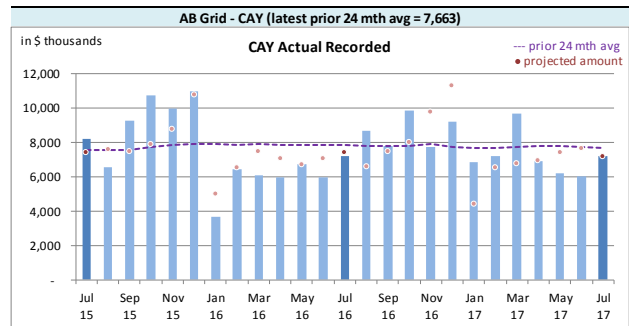
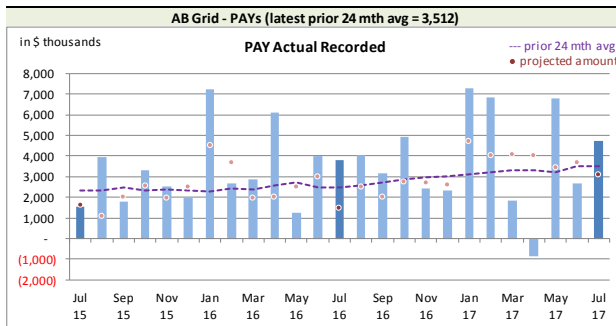
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁵, with actuals generally lower than projected. However, the magnitude is 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. Starting with the August 2016 projections, we have modified our projection processes in an attempt to account for CAY bias. 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.

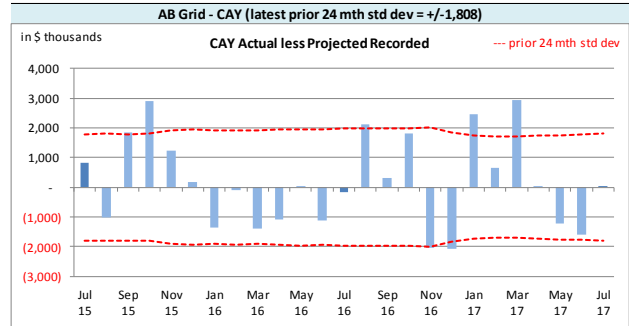
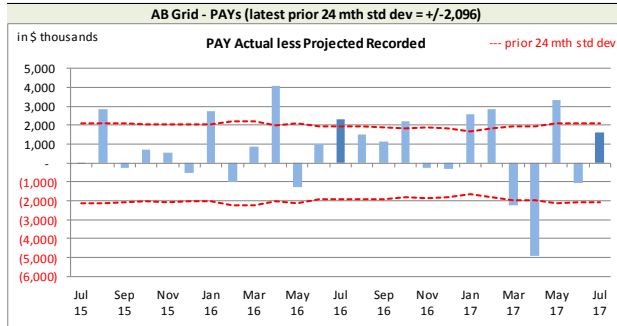
Alberta Grid RSP Actual Recorded by Calendar Month



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

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

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



On Latest \$ thousands		
Recorded	PAYS	CAY
Mthly Avg Recorded (prior 24 mths)	3,512	7,663
std dev	2,096	1,808
A-P <> std dev	10	7
% <> std dev	40.0%	28.0%
norm <> std dev	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 40% of the prior accident years’ (PAYS) variances (left chart above) over the last 25 months have fallen outside of one standard deviation of the actual **recorded** amounts, suggesting the projection process is performing worse than simply

projecting from the prior 24-month average. From the end of 2015 until the end of 2016 there may have been evidence of bias in the projections with actuals being higher than projections. A similar pattern was not evident in the **paid** activity where actuals have generally been lower than projections over the same timeframe, suggesting there may be changes in case reserve activity. We have not identified the same potential “case reserve” effect for the Alberta non-Grid RSP (there, both **recorded** and **paid** activity appear to be moving in tandem). This has also been noted by the valuation team and investigation continues.

The current accident year (CAY) **recorded** variances (right chart above), have been greater than one standard deviation 28% of the time, which suggests that the projection process appears to perform little better than simply projecting the most recent prior 24-month average.

We note that there may be a change in the levels of CAY **recorded** and **paid** activity relative to year-to-date **earned premium**, as evidenced by the average of monthly ratios over the past several years shown in the tables at the top of the next page. These tables show, in each row, the average monthly ratio for each calendar year. That is, each row in the left table (as at Dec) provides the average of the 12 monthly-ratios (i.e. Jan, Feb, ... Dec) for that row’s calendar year, whereas each row in the right table (as at July) provides the average of the 7 monthly ratios (i.e. Jan-July) for that row’s calendar year.

CAY avg of mthly ratios for yr

as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
Dec 2009	11.5%		4.4%	
Dec 2010	10.9%	(0.6%)	4.5%	0.1%
Dec 2011	12.8%	1.9%	4.8%	0.3%
Dec 2012	12.4%	(0.4%)	4.7%	(0.1%)
Dec 2013	12.6%	0.2%	4.8%	0.1%
Dec 2014	13.8%	1.2%	5.3%	0.5%
Dec 2015	14.4%	0.6%	5.5%	0.2%
Dec 2016	14.0%	(0.4%)	5.4%	(0.1%)

CAY avg of mthly ratios for yr

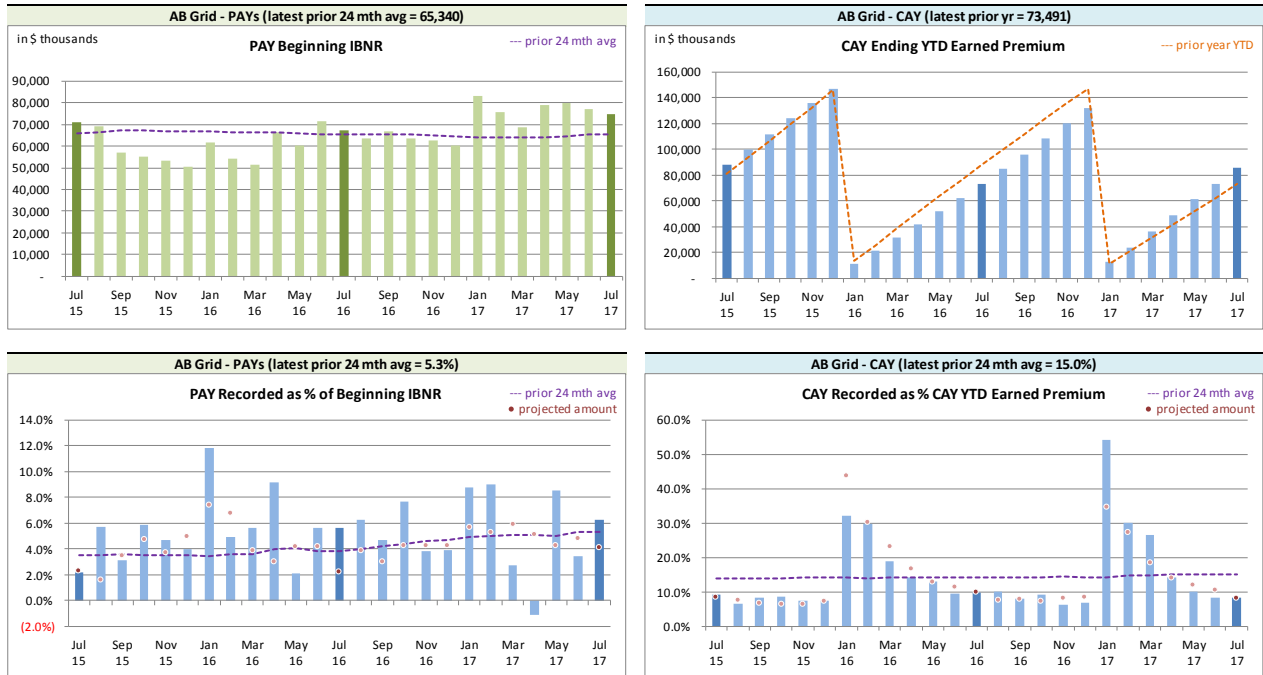
as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
Jul 2009	15.7%		5.1%	
Jul 2010	14.4%	(1.3%)	5.2%	0.1%
Jul 2011	17.9%	3.5%	5.8%	0.6%
Jul 2012	16.3%	(1.6%)	5.4%	(0.4%)
Jul 2013	17.0%	0.7%	5.7%	0.3%
Jul 2014	18.1%	1.1%	6.2%	0.5%
Jul 2015	19.3%	1.2%	6.6%	0.4%
Jul 2016	18.2%	(1.1%)	6.3%	(0.3%)
Jul 2017	21.7%	3.5%	6.7%	0.4%

Both **recorded** and **paid** ratios for Dec. 2016 relative to Dec. 2009 have increased at an annual rate of almost 3% over and above any premium rate level increases. At this point, we are only monitoring, but the valuation team has been advised and are taking this information into consideration. Further, while the average of the 12 monthly ratios at December for 2016 was down from 2015, they were still the second highest ratios overall, and the 7-month average ratios for calendar year 2017 are at the highest levels in the July table for both **recorded** and **paid**.

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

We have included, for reference, additional charts at the top of the next page related to levels influencing **recorded** activity. Note in particular the changes in the level of PAY beginning IBNR over the months, as a response to valuations and showing up as a beginning IBNR change one month after the valuation is implemented (i.e. April, June, September, and November).

Alberta Grid RSP Levels that 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:

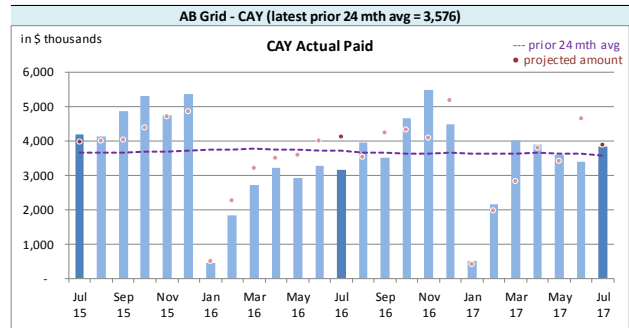
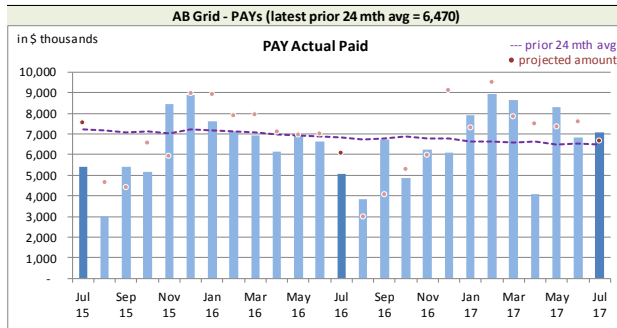
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

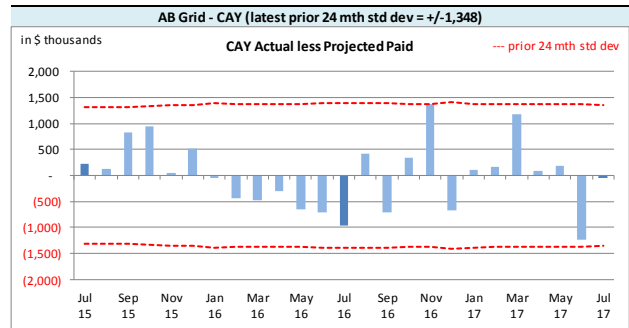
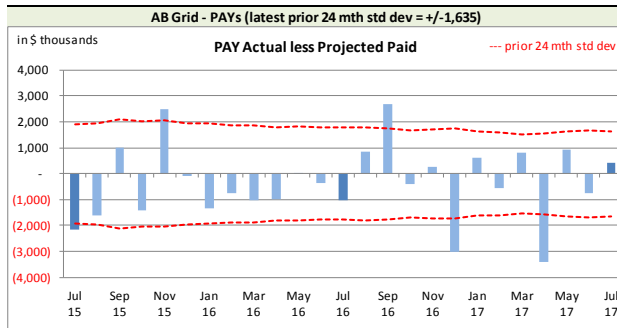
⁶Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned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

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



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

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



On Latest \$ thousands			
	Paid	PAYS	CAY
Mthly Avg Paid (prior 24 mths)	6,470	6,470	3,576
std dev	1,635	1,635	1,348
A-P <> std dev	5	5	-
% <> std dev	20.0%	20.0%	0.0%
norm <> std dev	31.7%	31.7%	31.7%

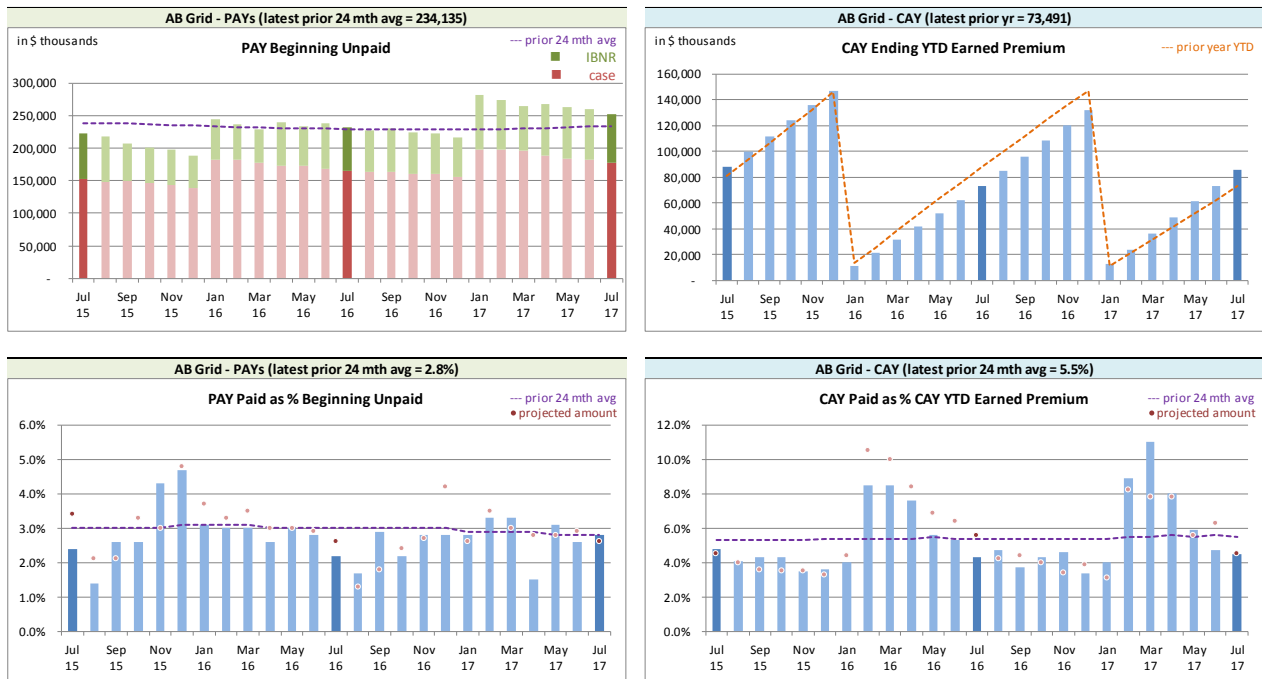
With respect to **paid** indemnity & allowed claims expense, the prior accident years’ (PAYS) variances (left chart above) have fallen outside one standard deviation of the overall period 20% of the time, a lower percent than suggested by a normal distribution, indicating the projection process may be better than simply projecting

from the preceding 24-month average.

The current accident year (CAY) **paid** variances (right chart above) have **not** fallen outside one standard deviation of the overall period, suggesting the projection process is better than simply projecting from the preceding 24-month average.

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

Alberta 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 2017 Operational Report and the associated

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”.

one-month projections from last month's Report.

Alberta 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	29,178	119	(2,880)	18	13,833	(96)	40,131	41
2015	19,811	(705)	(1,646)	(30)	7,552	137	25,717	(598)
2016	20,751	(1,094)	(1,953)	14	8,012	(58)	26,810	(1,138)
2017	23,988	(232)	(1,582)	5	6,459	(19)	28,865	(246)
TOTAL	93,728	(1,912)	(8,061)	7	35,856	(36)	121,523	(1,941)

The IBNR provision is \$1.9 million lower 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 deferred policy acquisition cost asset included in the July 2017 Operational Report and the one-month projections from last month's Report. This RSP is in a deferred policy acquisition cost asset position (shown as a negative amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments decrease the asset value as the adjustments increase the expected future policy obligations (costs) associated with the unearned premium. The variances noted are mainly driven by the unearned premium variance.

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

Table 03

	Premium Deficiency / (Deferred Policy Acquisition Costs)		actuarial present value adjustments		Premium Deficiency / (DPAC) including actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
balance:	(10,393)	169	5,218	(85)	(5,175)	84
balance as % unearned premium:	(13.4%)	-	6.7%	(0.1%)	(6.7%)	(0.1%)
actual unearned premium:	77,821					
less projected:	(1,264)					

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 87.9% rather than 86.5% (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 Grid RSP Summary of Operations due to rounding.)

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

Table 04	YTD Nominal Values		YTD actuarial present value adjustment		YTD Total		Change from Prior Month YTD	
	Amount	% EP	Amount	% EP	Amount	% EP	Amount	LR pts
PAYs	15,765	18.7%	(6,185)	(7.3%)	9,580	11.4%	(679)	(2.9%)
CAY	74,096	87.9%	4,877	5.8%	78,973	93.7%	11,588	(0.3%)
TOTAL	89,861	106.6%	(1,308)	(1.6%)	88,553	105.0%	10,910	(3.3%)

(“% 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.

5 Current Operational Report – Additional Exhibits

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

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.

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

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

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

6 EXHIBITS

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

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

EXHIBIT A
IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A

		Amounts in \$000s					
IBNR + M/S actuarial present value adjustments		Accident Year	Actual Jun. 2017	Actual Jul. 2017	Projected Aug. 2017	Projected Sep. 2017	Projected Dec. 2017
	2004		(72)	(72)	(72)	(72)	(72)
	2005		(454)	(477)	(464)	(455)	(415)
	2006		289	229	222	217	198
	2007		58	11	11	7	6
	2008		350	(91)	(88)	(89)	(81)
	2009		1,123	1,105	1,073	1,048	956
	2010		525	330	327	313	286
	2011		3,091	3,242	3,158	3,081	2,812
discount rate	2012		6,097	5,836	5,677	5,548	5,077
0.98%	2013		10,965	11,003	10,696	10,484	9,588
	2014		19,032	19,015	18,231	17,445	16,212
interest rate margin	2015		27,574	25,717	24,212	23,175	21,423
25 basis pts	2016		29,467	26,810	25,236	23,901	21,741
	2017		24,462	28,865	32,894	36,097	30,006
	TOTAL		122,507	121,523	121,113	120,700	107,737
	Change			(984)	(410)	(413)	

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. 2017	Actual Jul. 2017	Projected Aug. 2017	Projected Sep. 2017	Projected Dec. 2017
	51.6%	2004	(80)	(80)	(80)	(80)	(80)
	59.2%	2005	(535)	(556)	(539)	(528)	(482)
	66.4%	2006	206	146	142	139	127
	70.1%	2007	(269)	(224)	(217)	(213)	(195)
	67.0%	2008	167	(260)	(252)	(247)	(226)
	60.6%	2009	735	728	706	692	631
	61.3%	2010	(150)	(332)	(322)	(316)	(289)
	66.5%	2011	1,774	1,940	1,882	1,844	1,683
	73.9%	2012	4,430	4,282	4,154	4,071	3,716
	78.1%	2013	8,608	8,704	8,443	8,274	7,551
	87.5%	2014	14,767	14,830	14,088	13,384	12,468
	93.0%	2015	21,596	19,811	18,424	17,503	16,138
	92.6%	2016	23,239	20,751	19,298	18,140	16,377
	86.5%	2017	20,243	23,988	27,348	29,930	22,692
		TOTAL	94,731	93,728	93,075	92,593	80,111
		Change		(1,003)	(653)	(482)	

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. 2017	Actual Jul. 2017	Projected Aug. 2017	Projected Sep. 2017	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	76,458	77,821	80,351	82,446	79,184
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	93.4%	93.3%	93.3%	93.3%	93.1%
(3) expected future costs {(1) x (2)}	71,405	72,646	74,969	76,886	73,704
(4) premium deficiency / (deferred policy acquisition cost)	(5,053)	(5,175)	(5,382)	(5,560)	(5,480)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	86.7%	86.6%	86.6%	86.6%	86.4%
(6) expected future costs {(1) x (5)}	66,277	67,428	69,585	71,363	68,408
(7) premium deficiency / (deferred policy acquisition cost)	(10,181)	(10,393)	(10,766)	(11,083)	(10,776)

EXHIBIT D
Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2017, broken down by component.

Alberta Grid ending 2017		Projected Balances as at Dec. 31, 2017 (\$000s)						
		nominal values			actuarial present value adjustments (apvs)			
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs	TOTAL
2004	-	(80)	(80)	-	-	8	8	(72)
2005	1,250	(482)	768	(12)	3	76	67	835
2006	703	127	830	(14)	3	82	71	901
2007	2,525	(195)	2,330	(37)	9	229	201	2,531
2008	1,924	(226)	1,698	(29)	7	167	145	1,843
2009	3,332	631	3,963	(83)	20	388	325	4,288
2010	7,515	(289)	7,226	(181)	51	705	575	7,801
2011	12,497	1,683	14,180	(340)	85	1,384	1,129	15,309
2012	13,158	3,716	16,874	(388)	101	1,648	1,361	18,235
2013	17,654	7,551	25,205	(555)	126	2,466	2,037	27,242
2014	23,577	12,468	36,045	(901)	252	4,393	3,744	39,789
2015	36,448	16,138	52,586	(1,472)	368	6,389	5,285	57,871
2016	39,397	16,377	55,774	(1,729)	446	6,647	5,364	61,138
PAYs (sub-total):	159,980	57,419	217,399	(5,741)	1,471	24,582	20,312	237,711
CAY (2017)	56,407	22,692	79,099	(2,373)	633	9,054	7,314	86,413
claims liabilities:	216,387	80,111	296,498	(8,114)	2,104	33,636	27,626	324,124
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
premium liabilities:	79,184	(10,776)	68,408	(1,636)	410	6,522	5,296	73,704
*Total may not be sum of parts, as apvs apply to future costs within UPR								
policy liabilities:			364,906	(9,750)	2,514	40,158	32,922	397,828

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.

Accident Year	Selected Claims Development MfADs (Mar. 30, 2017)			Total
	Third Party Liability	Accident Benefits	Other Coverages	
2004	10.0%	10.0%	10.0%	10.0%
2005	10.0%	10.0%	10.0%	10.0%
2006	10.0%	10.0%	10.0%	10.0%
2007	10.0%	10.0%	10.0%	10.0%
2008	10.0%	10.0%	10.0%	10.0%
2009	10.0%	10.0%	10.0%	10.0%
2010	10.0%	10.0%	9.6%	10.0%
2011	10.0%	10.0%	9.9%	10.0%
2012	10.0%	10.0%	9.7%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	12.5%	10.0%	12.5%	12.5%
2015	12.5%	10.0%	12.5%	12.5%
2016	12.4%	10.0%	9.7%	12.3%
2017	12.1%	10.0%	7.2%	11.8%
2018	12.5%	10.0%	12.5%	12.5%
prem liab	11.8%	10.0%	5.2%	9.8%

discount rate: 0.98%
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 also to Dec. 31, 2017, but are based on more up-to-date information). We have included the current valuation selection (0.98%), the prior valuation assumption (1.06%) and the prior fiscal year end valuation assumption (0.54%) 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	0.48%	0.98%	1.48%	1.98%	2.48%	2.98%	1.06%	0.54%
2004	-	-	-	-	-	-	-	-
2005	1,242	1,231	1,221	1,212	1,202	1,192	1,230	1,240
2006	864	856	848	841	834	827	855	863
2007	2,933	2,909	2,885	2,862	2,839	2,816	2,905	2,930
2008	1,776	1,760	1,744	1,729	1,714	1,699	1,757	1,774
2009	4,872	4,819	4,769	4,719	4,670	4,622	4,811	4,865
2010	7,788	7,688	7,593	7,499	7,408	7,318	7,673	7,775
2011	12,962	12,802	12,646	12,494	12,346	12,202	12,776	12,943
2012	18,563	18,347	18,138	17,935	17,737	17,544	18,314	18,536
2013	25,675	25,381	25,096	24,816	24,547	24,283	25,334	25,640
2014	40,665	40,146	39,647	39,163	38,688	38,227	40,065	40,600
2016	62,588	61,589	60,628	59,697	58,787	57,911	61,436	62,466
2017	102,151	100,575	99,050	97,574	96,156	94,762	100,331	101,958
Total	340,301	335,478	330,818	326,290	321,902	317,626	334,723	339,707
	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	0.48%	0.98%	1.48%	1.98%	2.48%	2.98%	1.06%	0.54%
Total	4,823	-	(4,660)	(9,188)	(13,576)	(17,852)	(755)	4,229
	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	0.48%	0.98%	1.48%	1.98%	2.48%	2.98%	1.06%	0.54%
2004	-	-	-	-	-	-	-	-
2005	0.9%	-	(0.8%)	(1.5%)	(2.4%)	(3.2%)	(0.1%)	0.7%
2006	0.9%	-	(0.9%)	(1.8%)	(2.6%)	(3.4%)	(0.1%)	0.8%
2007	0.8%	-	(0.8%)	(1.6%)	(2.4%)	(3.2%)	(0.1%)	0.7%
2008	0.9%	-	(0.9%)	(1.8%)	(2.6%)	(3.5%)	(0.2%)	0.8%
2009	1.1%	-	(1.0%)	(2.1%)	(3.1%)	(4.1%)	(0.2%)	1.0%
2010	1.3%	-	(1.2%)	(2.5%)	(3.6%)	(4.8%)	(0.2%)	1.1%
2011	1.2%	-	(1.2%)	(2.4%)	(3.6%)	(4.7%)	(0.2%)	1.1%
2012	1.2%	-	(1.1%)	(2.2%)	(3.3%)	(4.4%)	(0.2%)	1.0%
2013	1.2%	-	(1.1%)	(2.2%)	(3.3%)	(4.3%)	(0.2%)	1.0%
2014	1.3%	-	(1.2%)	(2.4%)	(3.6%)	(4.8%)	(0.2%)	1.1%
2016	1.6%	-	(1.6%)	(3.1%)	(4.5%)	(6.0%)	(0.2%)	1.4%
2017	1.6%	-	(1.5%)	(3.0%)	(4.4%)	(5.8%)	(0.2%)	1.4%
Total	1.4%	-	(1.4%)	(2.7%)	(4.0%)	(5.3%)	(0.2%)	1.3%
	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 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	(72)	-	-	-	-	-	(72)	
2005	(454)	9	(32)	-	(23)	5.1%	(477)	
2006	289	(7)	(53)	-	(60)	(20.8%)	229	
2007	58	(6)	(41)	-	(47)	(81.0%)	11	
2008	350	(8)	(433)	-	(441)	(126.0%)	(91)	
2009	1,123	(28)	10	-	(18)	(1.6%)	1,105	
2010	525	(17)	(178)	-	(195)	(37.1%)	330	
2011	3,091	(75)	226	-	151	4.9%	3,242	
2012	6,097	(140)	(121)	-	(261)	(4.3%)	5,836	
2013	10,965	(220)	258	-	38	0.3%	11,003	
2014	19,032	(422)	405	-	(17)	(0.1%)	19,015	
2015	27,574	(1,259)	(598)	-	(1,857)	(6.7%)	25,717	
2016	29,467	(1,519)	(1,138)	-	(2,657)	(9.0%)	26,810	
2017	24,462	4,649	(246)	-	4,403	18.0%	28,865	
Grand Total	122,507	957	(1,941)	-	(984)	(0.8%)	121,523	

EXHIBIT G

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

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

IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2004	(80)	-	-	-	-	-	(80)
2005	(535)	11	(32)	-	(21)	3.9%	(556)
2006	206	(4)	(56)	-	(60)	(29.1%)	146
2007	(269)	5	40	-	45	(16.7%)	(224)
2008	167	(3)	(424)	-	(427)	(255.7%)	(260)
2009	735	(15)	8	-	(7)	(1.0%)	728
2010	(150)	3	(185)	-	(182)	121.3%	(332)
2011	1,774	(35)	201	-	166	9.4%	1,940
2012	4,430	(89)	(59)	-	(148)	(3.3%)	4,282
2013	8,608	(172)	268	-	96	1.1%	8,704
2014	14,767	(295)	358	-	63	0.4%	14,830
2015	21,596	(1,080)	(705)	-	(1,785)	(8.3%)	19,811
2016	23,239	(1,394)	(1,094)	-	(2,488)	(10.7%)	20,751
2017	20,243	3,977	(232)	-	3,745	18.5%	23,988
Grand Total	94,731	909	(1,912)	-	(1,003)	(1.1%)	93,728