



**ALBERTA GRID RISK SHARING POOL**

**JULY 2016 OPERATIONAL REPORT**

**ACTUARIAL HIGHLIGHTS**

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**ACTUARIAL HIGHLIGHTS**

**RSP ALBERTA GRID**

**OPERATIONAL REPORT**

**JULY 2016**

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**TABLE OF CONTENTS**

<b>1</b>	<b>Summary.....</b>	<b>3</b>
1.1	Valuation Schedule (Fiscal Year 2016).....	3
1.2	Appointed Actuary and Hybrid Actuarial Services Model.....	3
1.3	Consideration of Recent Legal Decisions and Changes in Legislation / Regulation .....	4
1.4	Current Provision Summary .....	4
<b>2</b>	<b>Activity During the Month of July 2016.....</b>	<b>5</b>
2.1	Recorded Premium and Claims Activity .....	5
2.1.a	Actual vs. Projected (AvsP): Earned Premium.....	5
2.1.b	AvsP: Recorded Indemnity & Allowed Claims Expense .....	7
2.1.c	AvsP: Paid Indemnity & Allowed Claims Expense .....	9
2.2	Actuarial Provisions.....	11
<b>3</b>	<b>Ultimate Loss Ratio Matching Method.....</b>	<b>12</b>
<b>4</b>	<b>Calendar Year-to-Date Results.....</b>	<b>12</b>
<b>5</b>	<b>Current Operational Report – Additional Exhibits .....</b>	<b>13</b>
<b>6</b>	<b>EXHIBITS .....</b>	<b>13</b>

## 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 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)	0.75% mfad: 25 bp	Oct. 2015	updated valuation (roll forward): accident year 2015 loss ratio increased 2.1 points to 75.7%; discount rate decreased by 18 basis points; no change to selected margins for adverse deviations
Dec. 31, 2015 (completed)	0.70% mfad: 25 bp	Mar. 2016	updated valuation: accident year 2015 loss ratio increased 8.3 points to 84.0%; accident year 2016 loss ratio increased 2.5 points to 73.7%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Mar. 31, 2016 (completed)	0.65% mfad: 25 bp	May 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 4.9 points to 78.6%; 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.

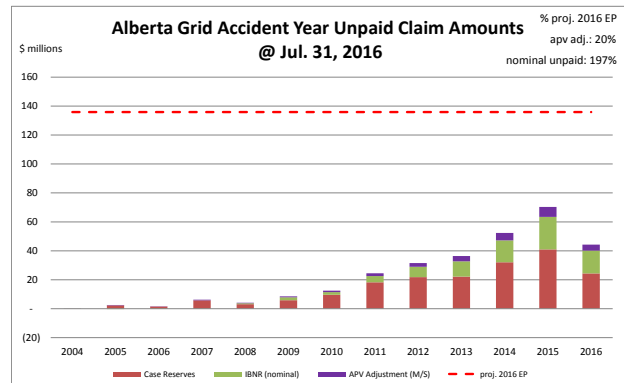
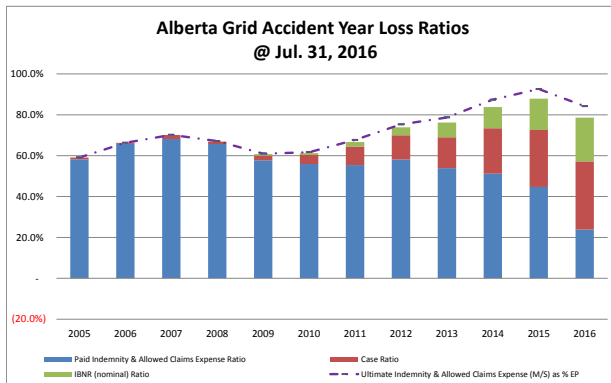
**1.3 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation**

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 liabilities<sup>1</sup> booked by accident year<sup>2</sup>. 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 (\$27.3 million – see table at the top of the next page) represents 20% 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 periods.

<sup>1</sup>Claim 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.

<sup>2</sup>Accident year 2004 was an incomplete year and therefore has been excluded from the loss ratio chart.

claim liabilities (\$000s)	amt	%
case	188,146	63.9%
ibnr	79,196	26.9%
M/S apv adjust.	27,297	9.3%
M/S total	294,639	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 2015 and 2016 (see Exhibit B). Approximately 80% of the M/S

total claim liabilities are related to accident years 2012-2016 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)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	71,632	116.9%	claim	267,342	75.1%
prem def/(dpac)	(15,295)	(25.0%)	premium	56,337	15.8%
M/S apv adjust.	4,956	8.1%	M/S apv adjust.	32,253	9.1%
M/S total	61,293	100.0%	M/S total	355,932	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 Report<sup>3</sup>.

*Alberta 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	4	4	3,092	(497)	(875)	1,868	2,218	1,372
2014	3	3	432	(759)	287	1,083	720	325
2015	(25)	(25)	1,538	238	(690)	377	847	614
2016	11,173	(452)	3,156	(964)	4,054	790	7,209	(174)
TOTAL	11,155	(470)	8,217	(1,982)	2,776	4,118	10,994	2,136

(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

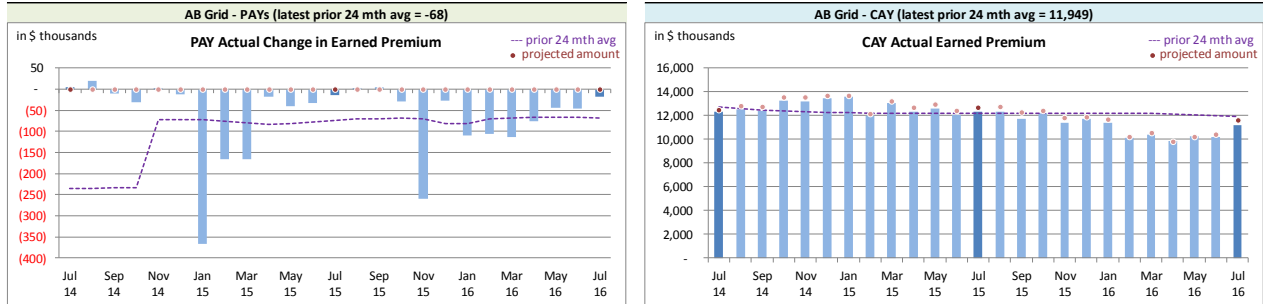
The charts at the top of the next page show actual **earned premium**<sup>4</sup> activity in each of the most

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

<sup>4</sup>Premium 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.

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.

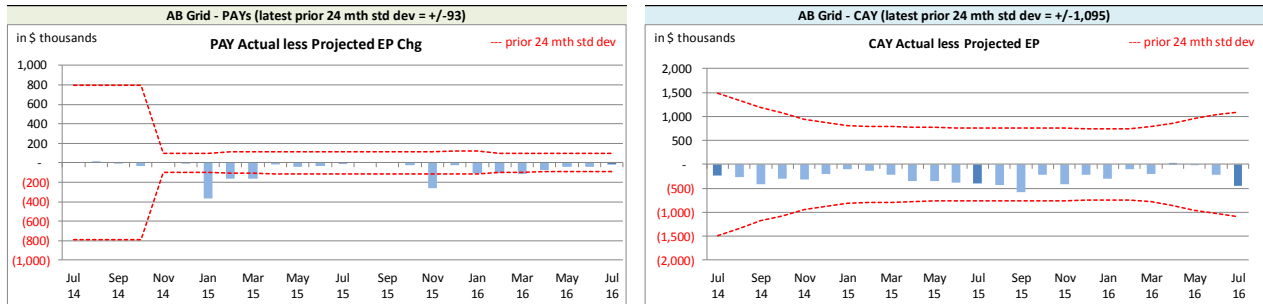
*Alberta Grid RSP Actual **Earned Premium** by Calendar Month*



**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.

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



On Latest \$ thousands			
<b>Earned Premium</b>	PAYs	CAY	
Mthly Avg EP Chg (prior 24 mths)	(68)	11,949	
std dev	93	1,095	
A-P <> std dev	6	-	
% <> std dev	24.0%	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 bias<sup>5</sup>, with actuals generally lower than projected. However, the magnitude is not 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 above). 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

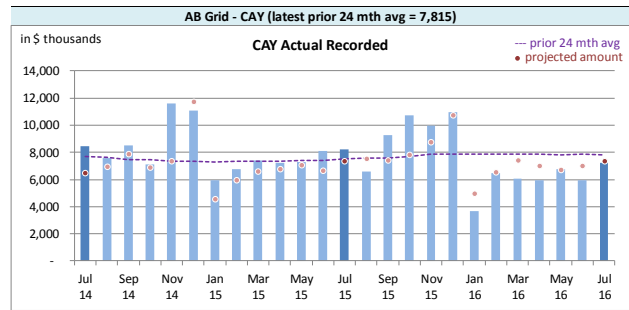
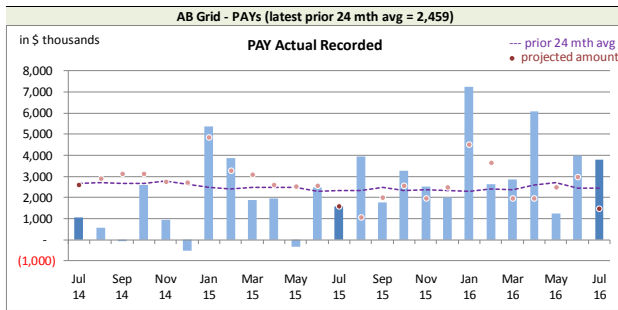
<sup>5</sup>The prior accident years (PAYs) variances will show bias as the projection upload forces all earned premium projections to be attributed to the current accident year.

approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

**2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense**

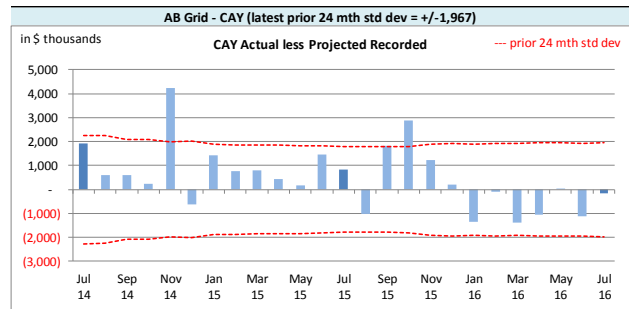
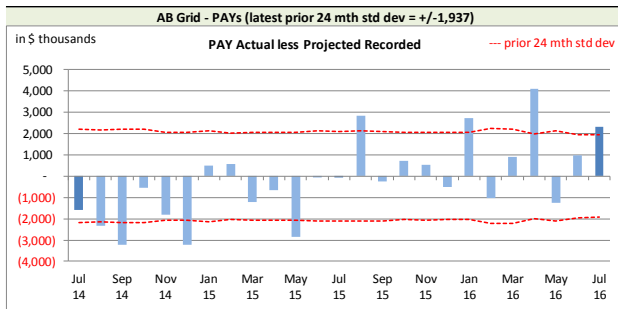
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period are shown in the charts immediately below, including the “prior 24-month average” level.

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



On Latest \$ thousands			
	<b>Recorded</b>	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)		2,459	7,815
std dev		1,937	1,967
A-P <> std dev		8	3
% <> std dev		32.0%	12.0%
norm <> std dev		31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 32% 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 slightly worse than simply

projecting from the prior 24-month average. There was evidence of bias during the latter half of 2014 and first half of 2015, although the larger variances tend to correspond to months with unusually low levels of recorded activity (this is also evident in the **recorded** to beginning IBNR ratios shown in the middle of the next page). For example, from July 2014 to December 2014 there were 5 months with PAYs recorded amounts of \$1 million or less, whereas the 19-month period following only saw 1 such month (these correspond to months where the **recorded** to beginning IBNR ratio is less than 2%). A similar pattern is not evident in **paid** activity, suggesting there may be changes in case reserve activity. We have not noticed 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.

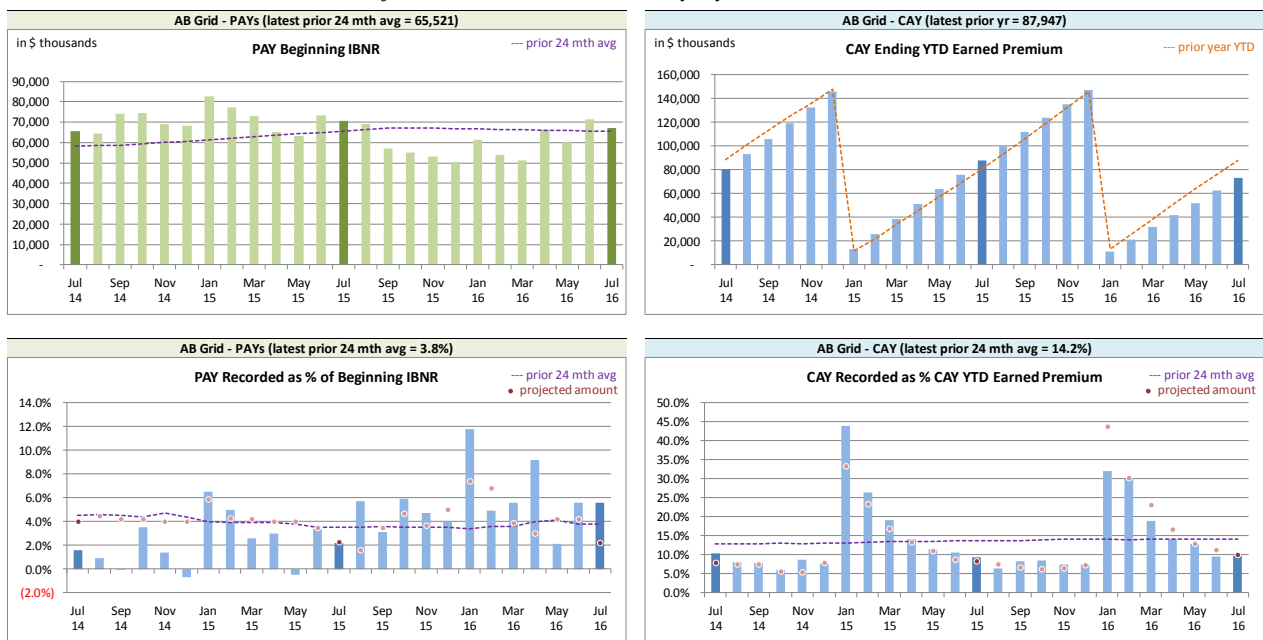
The PAY **paid** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed, with the variance attributed to process variance.

The current accident year (CAY) **recorded** variances (right chart at bottom of previous page) may be indicating bias (where actuals have tended to be higher than projections), although adjustments to the projection process may be addressing this (although perhaps “too well” – actuals now tend to be lower than projections). At 12%, the number of variances falling outside of one standard deviation of actual activity over the period is lower than indicated by the normal distribution, suggesting the projection process is better than simply projecting from the 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. 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 influence<sup>6</sup> 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);

<sup>6</sup>Our 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.

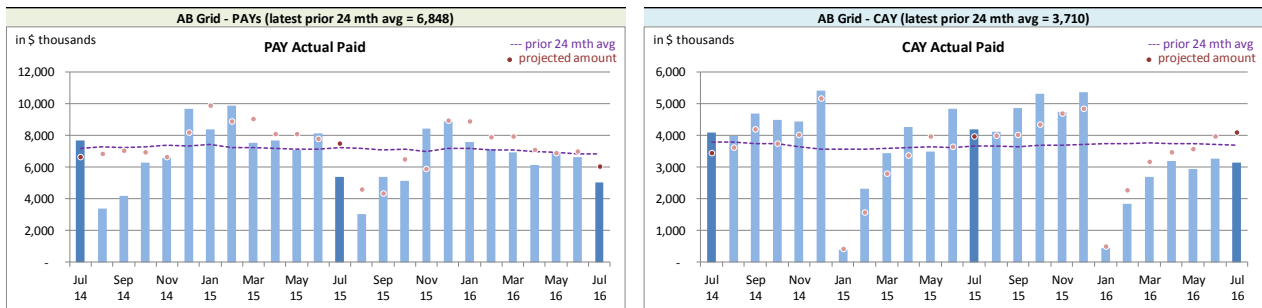


- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate (will show up as a beginning IBNR change one month after the valuation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

**2.1.c AvsP: Paid Indemnity & Allowed Claims Expense**

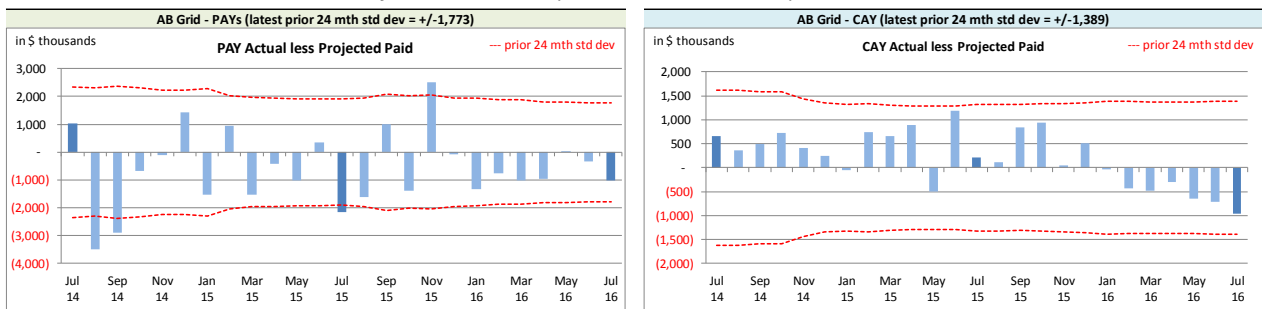
The charts immediately below show actual **paid** activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

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



On Latest \$ thousands		
Paid	PAYS	CAY
Mthly Avg Paid (prior 24 mths)	6,848	3,710
std dev	1,773	1,389
A-P <> std dev	4	-
% <> std dev	16.0%	0.0%
norm <> std dev	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 16% of the time, a lower percent than suggested by a normal distribution, indicating the projection process may be better than simply projecting

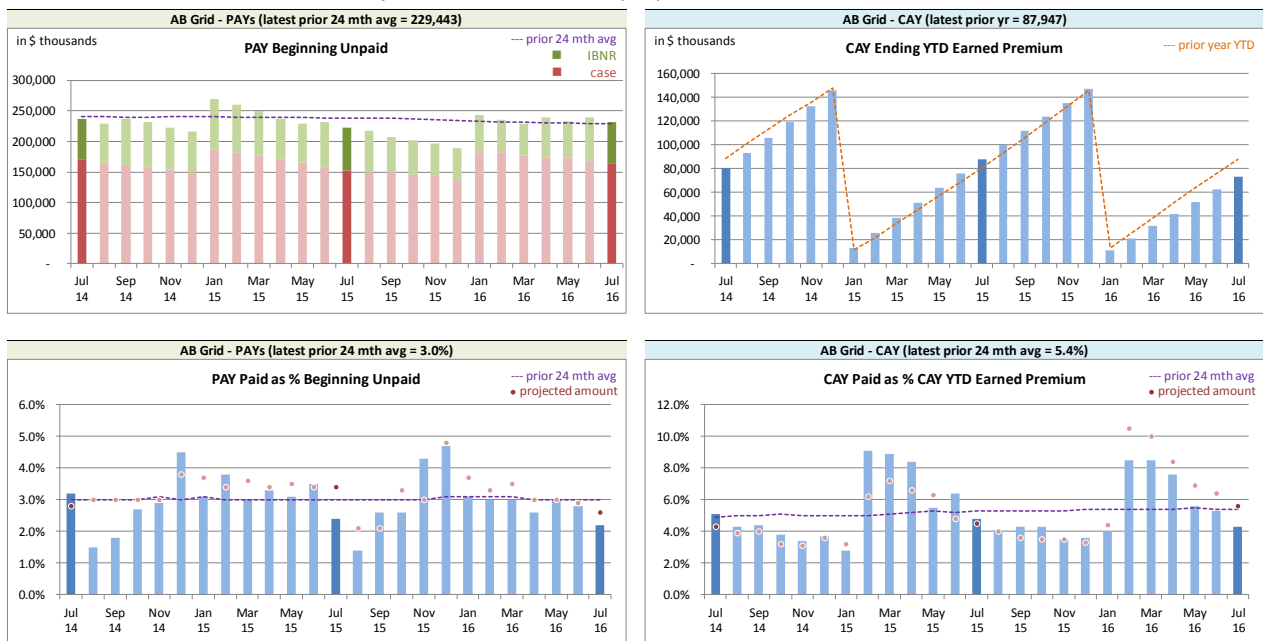
from the preceding 24-month average. However, there appears to be evidence of bias (actuals tend to be lower than projected) – as discussed with respect to **recorded** activity potentially showing bias

the other way (i.e. with actuals tending to be higher than projected) this bias divergence may suggest a change in case reserve activity relative to historical norms. We will continue to monitor.

The current accident year (CAY) **paid** variances (right chart at bottom of previous page) indicated bias through 2015 (where actuals tend to be higher than our projections), but efforts to address this may be generating bias the other way. The CAY **paid** variances 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. However, the CAY paid to ytd earned premium ratios as projected have been high in retrospect during 2016 and we are looking into this further.

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

*Alberta Grid RSP Levels that influence<sup>7</sup> 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

<sup>7</sup>Our 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 IBNR<sup>8</sup>, 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 July 2016 Operational Report and the associated 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	25,966	(1,370)	(1,854)	(7)	12,973	70	37,085	(1,307)
2014	15,063	(322)	(897)	(15)	6,073	98	20,239	(239)
2015	22,423	(637)	(1,332)	6	8,208	(34)	29,299	(665)
2016	15,744	(181)	(804)	(12)	4,930	75	19,870	(118)
<b>TOTAL</b>	<b>79,196</b>	<b>(2,510)</b>	<b>(4,887)</b>	<b>(28)</b>	<b>32,184</b>	<b>209</b>	<b>106,493</b>	<b>(2,329)</b>

The IBNR provision is \$2.5 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 at the top of the next page summarizes the variances in the provisions for 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 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.

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

*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:	(15,295)	191	4,956	(62)	(10,339)	129
balance as % unearned premium:	(21.4%)	-	6.9%	-	(14.4%)	-
actual unearned premium:	71,632					
less projected:	(895)					

### 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 loss<sup>9</sup> 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 expenses<sup>10</sup>, 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 79.1% rather than 78.6% (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 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	29,860	40.9%	(99)	(0.1%)	29,761	40.8%	(513)	(8.2%)
CAY	57,764	79.1%	4,126	5.7%	61,890	84.8%	9,360	(0.2%)
TOTAL	87,624	120.1%	4,027	5.5%	91,651	125.6%	8,848	(8.3%)

(“% EP” based on 2016 calendar year-to-date earned premium; ratios may not total due to rounding)

<sup>9</sup>“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).

<sup>10</sup>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 analysis.

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 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 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. 2016	Actual Jul. 2016	Projected Aug. 2016	Projected Sep. 2016	Projected Dec. 2016
		2004	(72)	(72)	(70)	(68)	(63)
		2005	(66)	(48)	(45)	(41)	(38)
		2006	76	3	4	5	6
		2007	398	428	421	413	378
		2008	996	1,002	975	949	866
		2009	2,364	2,655	2,579	2,508	2,289
		2010	3,174	2,893	2,817	2,737	2,480
discount rate		2011	6,774	6,285	6,116	5,952	5,397
0.65%		2012	10,532	9,684	9,431	9,174	8,326
		2013	15,402	14,255	13,902	13,521	12,315
interest rate margin		2014	21,003	20,239	19,584	19,145	17,218
25 basis pts		2015	30,339	29,299	28,108	27,582	24,195
		2016	17,719	19,870	23,141	25,337	37,547
		<b>TOTAL</b>	<b>108,639</b>	<b>106,493</b>	<b>106,963</b>	<b>107,214</b>	<b>110,916</b>
		Change		(2,146)	470	251	

*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
	51.6%	2004	(80)	(80)	(78)	(76)	(70)
	59.0%	2005	(264)	(242)	(235)	(228)	(208)
	66.3%	2006	(54)	(125)	(121)	(117)	(107)
	70.0%	2007	(139)	(93)	(90)	(87)	(79)
	67.0%	2008	651	660	640	621	566
	60.7%	2009	1,641	1,952	1,893	1,836	1,676
	61.2%	2010	2,059	1,877	1,821	1,766	1,612
	66.7%	2011	4,738	4,334	4,204	4,078	3,722
	73.9%	2012	7,955	7,124	6,910	6,703	6,118
	76.2%	2013	11,675	10,559	10,242	9,935	8,974
	83.8%	2014	15,780	15,063	14,460	14,098	12,468
	87.9%	2015	23,293	22,423	21,302	20,876	17,885
	78.6%	2016	14,171	15,744	18,428	20,050	30,557
		<b>TOTAL</b>	<b>81,426</b>	<b>79,196</b>	<b>79,376</b>	<b>79,455</b>	<b>83,114</b>
		Change		(2,230)	180	79	

*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)	68,395	71,632	76,717	81,582	85,644
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	85.6%	85.6%	85.5%	85.4%	85.2%
(3) expected future costs {(1) x (2)}	58,566	61,293	65,590	69,694	72,935
(4) premium deficiency / (deferred policy acquisition cost)	(9,829)	(10,339)	(11,127)	(11,888)	(12,709)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	78.7%	78.6%	78.6%	78.5%	78.3%
(6) expected future costs {(1) x (5)}	53,830	56,337	60,287	64,057	67,036
(7) premium deficiency / (deferred policy acquisition cost)	(14,565)	(15,295)	(16,430)	(17,525)	(18,608)



**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 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	Total apvs		
2004	-	(70)	(70)	-	-	7	7	(63)	
2005	2,056	(208)	1,848	(20)	7	183	170	2,018	
2006	1,323	(107)	1,216	(13)	5	121	113	1,329	
2007	5,056	(79)	4,977	(60)	25	492	457	5,434	
2008	2,740	566	3,306	(46)	20	326	300	3,606	
2009	5,179	1,676	6,855	(103)	41	675	613	7,468	
2010	8,221	1,612	9,833	(167)	69	966	868	10,701	
2011	15,657	3,722	19,379	(310)	116	1,869	1,675	21,054	
2012	18,862	6,118	24,980	(400)	150	2,458	2,208	27,188	
2013	20,623	8,974	29,597	(503)	207	3,637	3,341	32,938	
2014	30,856	12,468	43,324	(823)	303	5,270	4,750	48,074	
2015	40,331	17,885	58,216	(1,223)	466	7,067	6,310	64,526	
PAYs (sub-total):	150,904	52,557	203,461	(3,668)	1,409	23,071	20,812	224,273	
CAY (2016)	37,526	30,557	68,083	(1,362)	545	7,807	6,990	75,073	
<b>claims liabilities:</b>	<b>188,430</b>	<b>83,114</b>	<b>271,544</b>	<b>(5,030)</b>	<b>1,954</b>	<b>30,878</b>	<b>27,802</b>	<b>299,346</b>	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*	
<b>premium liabilities:</b>	85,644	(18,608)	67,036	(1,135)	401	6,633	5,899	72,935	
*Total may not be sum of parts, as apvs apply to future costs within UPR									
<b>policy liabilities:</b>			<b>338,580</b>	<b>(6,165)</b>	<b>2,355</b>	<b>37,511</b>	<b>33,701</b>	<b>372,281</b>	

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.

Accident Year	Selected Claims Development MfADs (Mar. 31, 2016)			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%	9.6%	10.0%
2009	10.0%	10.0%	5.1%	10.0%
2010	10.0%	10.0%	8.8%	10.0%
2011	10.0%	10.0%	8.2%	9.8%
2012	10.0%	10.0%	8.7%	10.0%
2013	12.5%	10.0%	11.5%	12.5%
2014	12.5%	10.0%	11.5%	12.4%
2015	12.4%	10.0%	12.5%	12.4%
2016	12.0%	10.0%	7.2%	11.7%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	11.8%	10.0%	5.2%	10.1%
			discount rate:	0.65%
			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 (0.65%), the prior valuation assumption (0.70%) and the prior fiscal year end valuation assumption (0.75%) 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	0.15%	0.65%	1.15%	1.65%	2.15%	2.65%	0.70%	0.75%
2004	-	-	-	-	-	-	-	-
2005	1,568	1,556	1,543	1,529	1,516	1,503	1,555	1,554
2006	1,694	1,683	1,669	1,655	1,642	1,628	1,681	1,680
2007	5,006	4,969	4,925	4,882	4,839	4,797	4,964	4,960
2008	4,444	4,405	4,360	4,315	4,271	4,228	4,401	4,396
2009	8,338	8,260	8,168	8,078	7,990	7,904	8,251	8,242
2010	11,557	11,435	11,291	11,149	11,011	10,877	11,421	11,406
2011	18,716	18,527	18,301	18,080	17,865	17,656	18,505	18,482
2012	26,775	26,511	26,199	25,894	25,595	25,305	26,481	26,448
2013	32,496	32,149	31,742	31,344	30,954	30,574	32,110	32,068
2014	48,452	47,861	47,168	46,490	45,833	45,194	47,790	47,719
2015	64,505	63,627	62,590	61,578	60,597	59,654	63,523	63,411
2016	67,145	66,306	65,322	64,363	63,428	62,530	66,212	66,104
<b>Total</b>	<b>290,696</b>	<b>287,289</b>	<b>283,278</b>	<b>279,357</b>	<b>275,541</b>	<b>271,850</b>	<b>286,894</b>	<b>286,470</b>
	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	0.15%	0.65%	1.15%	1.65%	2.15%	2.65%	0.70%	0.75%
<b>Total</b>	<b>3,407</b>	<b>-</b>	<b>(4,011)</b>	<b>(7,932)</b>	<b>(11,748)</b>	<b>(15,439)</b>	<b>(395)</b>	<b>(819)</b>
	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	0.15%	0.65%	1.15%	1.65%	2.15%	2.65%	0.70%	0.75%
2004	-	-	-	-	-	-	-	-
2005	0.8%	-	(0.8%)	(1.7%)	(2.6%)	(3.4%)	(0.1%)	(0.1%)
2006	0.7%	-	(0.8%)	(1.7%)	(2.4%)	(3.3%)	(0.1%)	(0.2%)
2007	0.7%	-	(0.9%)	(1.8%)	(2.6%)	(3.5%)	(0.1%)	(0.2%)
2008	0.9%	-	(1.0%)	(2.0%)	(3.0%)	(4.0%)	(0.1%)	(0.2%)
2009	0.9%	-	(1.1%)	(2.2%)	(3.3%)	(4.3%)	(0.1%)	(0.2%)
2010	1.1%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.1%)	(0.3%)
2011	1.0%	-	(1.2%)	(2.4%)	(3.6%)	(4.7%)	(0.1%)	(0.2%)
2012	1.0%	-	(1.2%)	(2.3%)	(3.5%)	(4.5%)	(0.1%)	(0.2%)
2013	1.1%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.1%)	(0.3%)
2014	1.2%	-	(1.4%)	(2.9%)	(4.2%)	(5.6%)	(0.1%)	(0.3%)
2015	1.4%	-	(1.6%)	(3.2%)	(4.8%)	(6.2%)	(0.2%)	(0.3%)
2016	1.3%	-	(1.5%)	(2.9%)	(4.3%)	(5.7%)	(0.1%)	(0.3%)
<b>Total</b>	<b>1.2%</b>	<b>-</b>	<b>(1.4%)</b>	<b>(2.8%)</b>	<b>(4.1%)</b>	<b>(5.4%)</b>	<b>(0.1%)</b>	<b>(0.3%)</b>
	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**  
AccountCode Desc **IBNR - Discour**

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	(72)	2	(2)	-	-	-	(72)
2005	(66)	2	16	-	18	(27.3%)	(48)
2006	76	(1)	(72)	-	(73)	(96.1%)	3
2007	398	(12)	42	-	30	7.5%	428
2008	996	(31)	37	-	6	0.6%	1,002
2009	2,364	(71)	362	-	291	12.3%	2,655
2010	3,174	(95)	(186)	-	(281)	(8.9%)	2,893
2011	6,774	(203)	(286)	-	(489)	(7.2%)	6,285
2012	10,532	(315)	(533)	-	(848)	(8.1%)	9,684
2013	15,402	(462)	(685)	-	(1,147)	(7.4%)	14,255
2014	21,003	(525)	(239)	-	(764)	(3.6%)	20,239
2015	30,339	(375)	(665)	-	(1,040)	(3.4%)	29,299
2016	17,719	2,269	(118)	-	2,151	12.1%	19,870
<b>Grand Total</b>	<b>108,639</b>	<b>183</b>	<b>(2,329)</b>	<b>-</b>	<b>(2,146)</b>	<b>(2.0%)</b>	<b>106,493</b>

EXHIBIT G

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

RSP		Alberta 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	(80)	2	(2)	-	-	-	(80)	
2005	(264)	8	14	-	22	(8.3%)	(242)	
2006	(54)	2	(73)	-	(71)	131.5%	(125)	
2007	(139)	4	42	-	46	(33.1%)	(93)	
2008	651	(20)	29	-	9	1.4%	660	
2009	1,641	(49)	360	-	311	19.0%	1,952	
2010	2,059	(62)	(120)	-	(182)	(8.8%)	1,877	
2011	4,738	(142)	(262)	-	(404)	(8.5%)	4,334	
2012	7,955	(239)	(592)	-	(831)	(10.4%)	7,124	
2013	11,675	(350)	(766)	-	(1,116)	(9.6%)	10,559	
2014	15,780	(395)	(322)	-	(717)	(4.5%)	15,063	
2015	23,293	(233)	(637)	-	(870)	(3.7%)	22,423	
2016	14,171	1,754	(181)	-	1,573	11.1%	15,744	
<b>Grand Total</b>	<b>81,426</b>	<b>280</b>	<b>(2,510)</b>	<b>-</b>	<b>(2,230)</b>	<b>(2.7%)</b>	<b>79,196</b>	