



**ALBERTA GRID RISK SHARING POOL**

**SEPTEMBER 2016 OPERATIONAL REPORT**

**ACTUARIAL HIGHLIGHTS**

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**ACTUARIAL HIGHLIGHTS**

**RSP ALBERTA GRID**

**OPERATIONAL REPORT**

**SEPTEMBER 2016**

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## 1 Summary

### 1.1 Valuation Schedule (Fiscal Year 2016)

The September 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) mfad: 25 bp	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 (completed)	0.60% mfad: 25 bp	Aug. 2016	updated valuation: accident year 2016 loss ratio increased 2.9 points to 81.5%; discount rate decreased by 5 basis points; selected claims development margins for adverse deviations were updated
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.

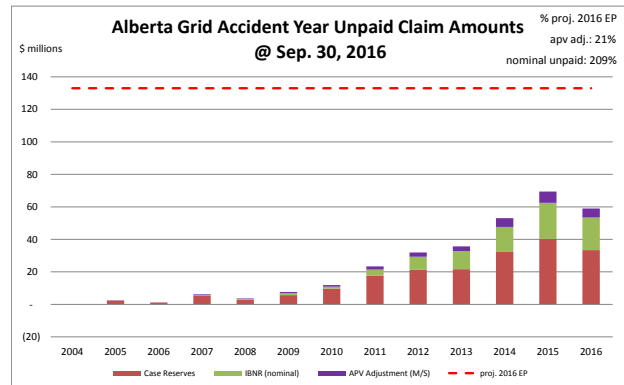
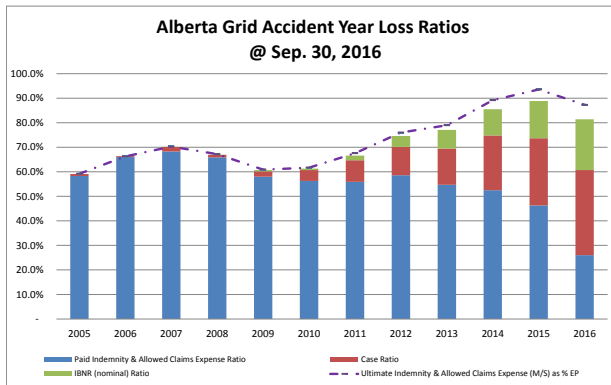
### 1.3 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

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 (\$28.1 million – see table at the top of the next page) represents 21% 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	193,708	63.4%
ibnr	83,492	27.3%
M/S apv adjust.	28,116	9.2%
<b>M/S total</b>	<b>305,316</b>	<b>100.0%</b>

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 51% of the IBNR balance relates to accident years 2015 and 2016 (see Exhibit B). Approximately 82% 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	79,402	112.5%	claim	277,200	73.7%
prem def/(dpac)	(14,701)	(20.8%)	premium	64,701	17.2%
M/S apv adjust.	5,890	8.3%	M/S apv adjust.	34,006	9.0%
<b>M/S total</b>	<b>70,591</b>	<b>100.0%</b>	<b>M/S total</b>	<b>375,907</b>	<b>100.0%</b>

## 2 Activity During the Month of September 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	3	3	4,282	1,926	(3,125)	(1,578)	1,157	348
2014	(1)	(1)	1,276	541	225	536	1,502	1,078
2015	(17)	(17)	1,189	233	(702)	(543)	486	(311)
2016	11,463	(67)	3,523	(708)	4,276	1,018	7,799	310
<b>TOTAL</b>	<b>11,449</b>	<b>(82)</b>	<b>10,270</b>	<b>1,992</b>	<b>674</b>	<b>(567)</b>	<b>10,944</b>	<b>1,424</b>

(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

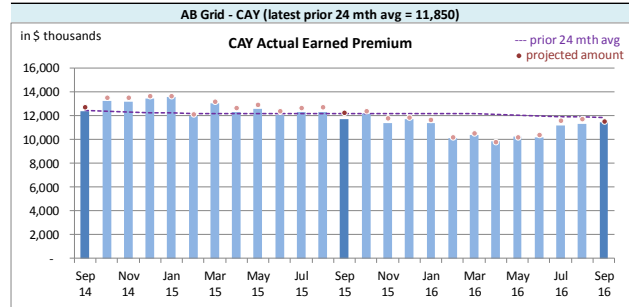
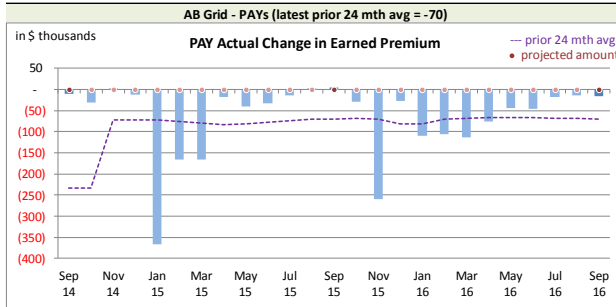
The charts at the top of the next page show actual **earned premium**<sup>4</sup> activity in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual

<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.

compares with the average amount of the preceding 24 calendar months.

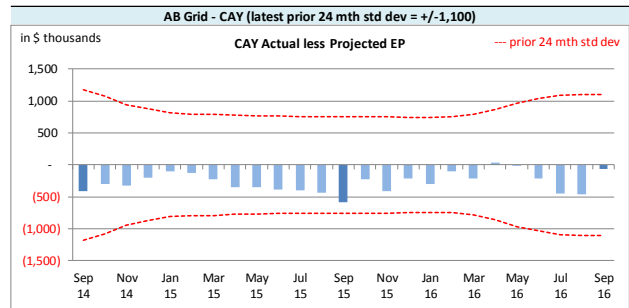
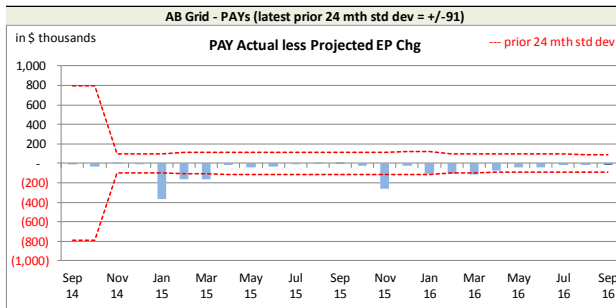
*Alberta Grid RSP Actual Earned Premium by Calendar Month*



**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)	(70)	11,850	
std dev	91	1,100	
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). Starting with the August 2016 projections, we have modified 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

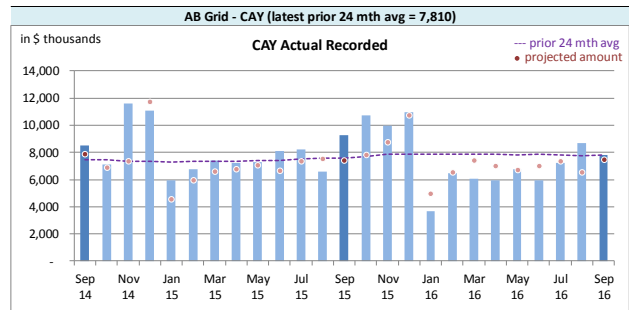
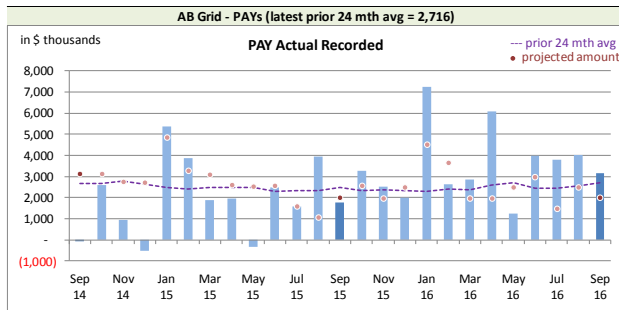
<sup>5</sup>The prior accident years (PAYs) variances will show bias as the projection upload forces all earned premium projections to be attributed to the current accident year.

deemed a priority.

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

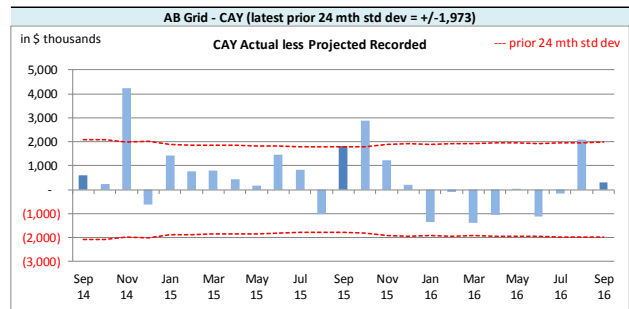
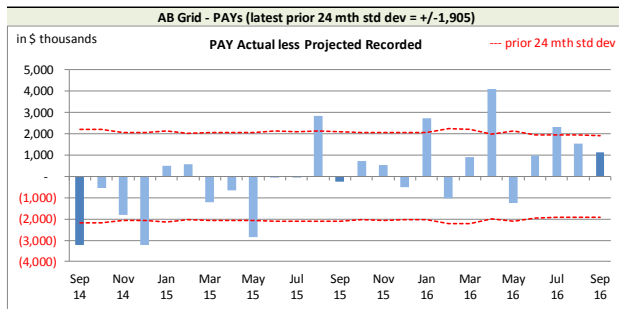
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period are shown in the charts immediately below, including the “prior 24-month average” level.

*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)	2,716	7,810	7,810
std dev	1,905	1,973	1,973
A-P <> std dev	7	4	4
% <> std dev	28.0%	16.0%	16.0%
norm <> std dev	31.7%	31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, 28% 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 not much better than

simply projecting from the prior 24-month average. There may be evidence of bias in the projections as 10 of the last 14 months have had actuals higher than projections. A similar pattern is not evident in the **paid** activity where projections have generally been higher than actuals over the same 14 month period, 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 current accident year (CAY) **recorded** variances (right chart above) may be indicating bias (where actuals have tended to be higher than projections), although adjustments to the projection

process may be addressing this. At 16%, 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.

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, particularly between 2013 and 2014:

CAY avg of mthly ratios for yr

as at	Rec'd	Paid
Sep 2009	13.7%	4.9%
Sep 2010	12.6%	4.9%
Sep 2011	15.2%	5.4%
Sep 2012	14.3%	5.1%
Sep 2013	14.5%	5.3%
Sep 2014	15.9%	5.8%
Sep 2015	16.6%	6.0%
Sep 2016	16.2%	5.8%

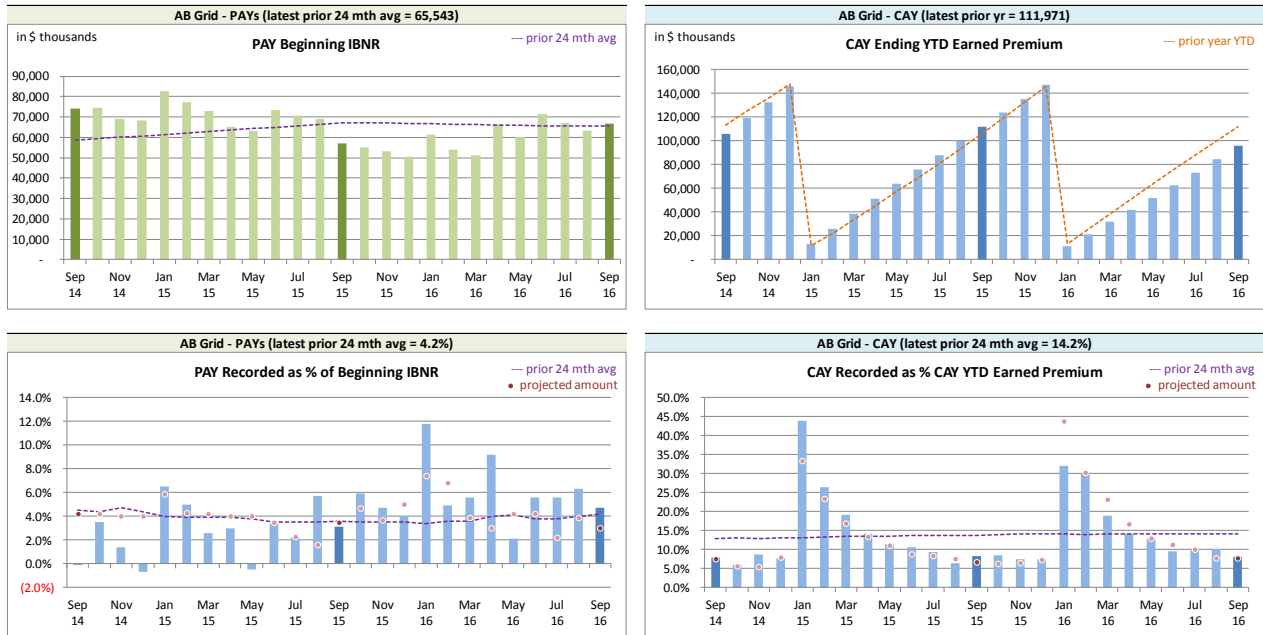
At this point, we are only monitoring, but the valuation team has been advised and are taking this information into consideration.

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 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:

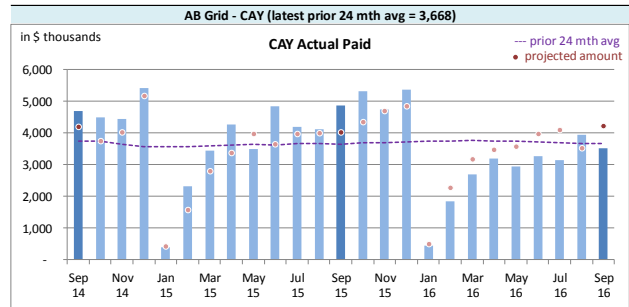
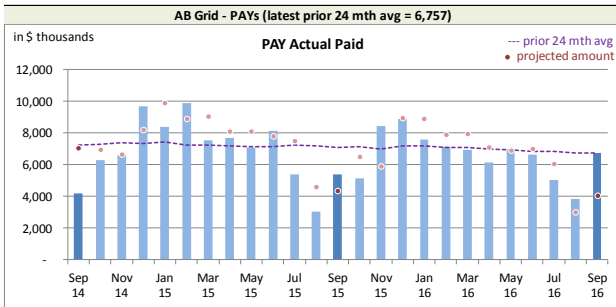
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

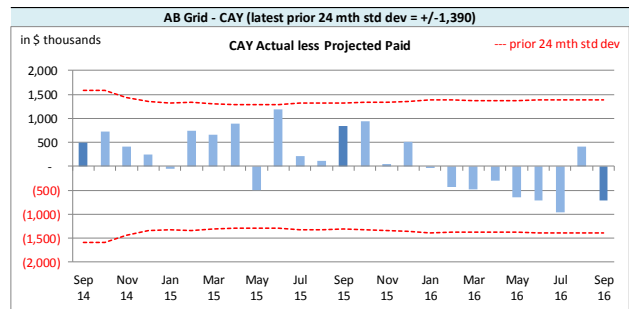
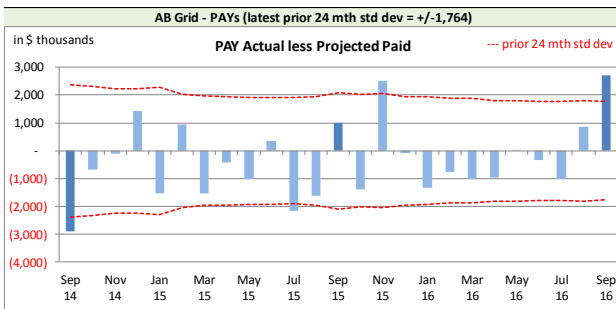
<sup>6</sup>Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR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

*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		
<b>Paid</b>	PAYs	CAY
Mthly Avg Paid (prior 24 mths)	6,757	3,668
std dev	1,764	1,390
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

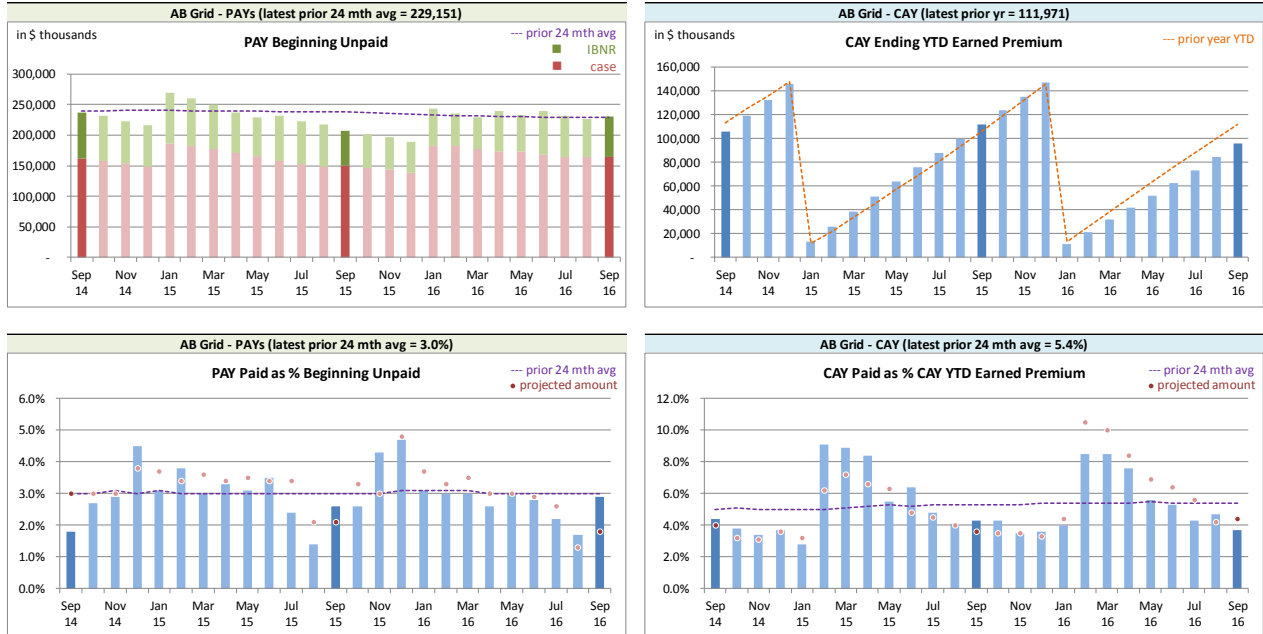
from the preceding 24-month average. However, there appears to be evidence of bias (actuals tend to be lower than projected) – as discussed with respect to **recorded** activity potentially showing bias the other way (i.e. with actuals tending to be higher than projected) this bias divergence may suggest a change in case reserve activity relative to historical norms. We will continue to monitor.

The 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) **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 have generated 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 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

<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.

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

projections and actuals were based on the applicable valuation. The table immediately below summarizes variances in provisions included in the September 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	25,801	(344)	(1,658)	26	11,936	(200)	36,079	(518)
2014	15,454	(1,078)	(858)	10	6,237	(69)	20,833	(1,137)
2015	22,269	295	(1,250)	5	8,159	(32)	29,178	268
2016	19,968	(365)	(961)	(11)	6,511	81	25,518	(295)
<b>TOTAL</b>	<b>83,492</b>	<b>(1,492)</b>	<b>(4,727)</b>	<b>30</b>	<b>32,843</b>	<b>(220)</b>	<b>111,608</b>	<b>(1,682)</b>

The IBNR provision is \$1.5 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 September 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.

*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:	(14,701)	(11)	5,890	6	(8,811)	(5)
balance as % unearned premium:	(18.5%)	-	7.4%	-	(11.1%)	-
actual unearned premium:	79,402					
less projected:	108					

### 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 82.0% rather than 81.5% (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	37,102	38.8%	(704)	(0.7%)	36,398	38.0%	(676)	(6.0%)
CAY	78,451	82.0%	5,550	5.8%	84,001	87.8%	9,948	(0.1%)
TOTAL	115,552	120.7%	4,846	5.1%	120,398	125.8%	9,272	(6.1%)

(“% 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 Aug. 2016	Actual Sep. 2016	Projected Oct. 2016	Projected Nov. 2016	Projected Dec. 2016
	2004	(72)	(72)	(70)	(68)	(67)
	2005	247	227	221	212	206
	2006	59	(44)	(43)	(40)	(39)
	2007	711	730	708	687	666
	2008	1,183	688	667	647	627
	2009	1,961	1,927	1,869	1,813	1,757
	2010	2,244	2,200	2,133	2,070	1,989
discount rate 0.60%	2011	6,071	5,741	5,569	5,401	5,202
	2012	10,874	10,660	10,339	10,028	9,678
	2013	14,341	14,022	13,630	13,206	12,811
interest rate margin 25 basis pts	2014	22,478	20,833	20,106	19,481	18,896
	2015	29,814	29,178	27,704	26,521	25,725
	2016	23,369	25,518	28,067	29,872	39,329
	<b>TOTAL</b>	<b>113,280</b>	<b>111,608</b>	<b>110,900</b>	<b>109,830</b>	<b>116,780</b>
	Change		(1,672)	(708)	(1,070)	

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 Aug. 2016	Actual Sep. 2016	Projected Oct. 2016	Projected Nov. 2016	Projected Dec. 2016
	51.6%	2004	(80)	(80)	(78)	(76)	(74)
	59.1%	2005	27	23	22	21	20
	66.3%	2006	(55)	(137)	(133)	(129)	(125)
	70.1%	2007	181	203	197	191	185
	67.1%	2008	835	382	371	360	349
	60.7%	2009	1,252	1,291	1,252	1,214	1,178
	61.3%	2010	1,206	1,224	1,187	1,151	1,116
	66.6%	2011	4,059	3,800	3,686	3,575	3,468
	74.6%	2012	8,169	8,005	7,765	7,532	7,306
	77.0%	2013	11,360	11,090	10,757	10,434	10,121
	85.5%	2014	16,956	15,454	14,836	14,317	13,887
	88.9%	2015	22,771	22,269	20,933	19,886	19,289
	81.5%	2016	18,425	19,968	21,930	23,133	32,095
		<b>TOTAL</b>	<b>85,106</b>	<b>83,492</b>	<b>82,725</b>	<b>81,609</b>	<b>88,815</b>
		Change		(1,614)	(767)	(1,116)	

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



## EXHIBIT C

## Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Aug. 2016	Actual Sep. 2016	Projected Oct. 2016	Projected Nov. 2016	Projected Dec. 2016
Premium Liabilities					
(1) unearned premium (UP)	74,921	79,402	82,935	84,702	84,590
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	89.0%	88.9%	88.8%	88.8%	88.7%
(3) expected future costs {(1) x (2)}	66,651	70,591	73,666	75,177	75,009
(4) premium deficiency / (deferred policy acquisition cost)	(8,270)	(8,811)	(9,269)	(9,525)	(9,581)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	81.5%	81.5%	81.4%	81.3%	81.3%
(6) expected future costs {(1) x (5)}	61,090	64,701	67,518	68,903	68,748
(7) premium deficiency / (deferred policy acquisition cost)	(13,831)	(14,701)	(15,417)	(15,799)	(15,842)

**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	-	(74)	(74)	-	-	7	7	(67)	
2005	1,981	20	2,001	(22)	10	198	186	2,187	
2006	1,043	(125)	918	(9)	4	91	86	1,004	
2007	4,995	185	5,180	(57)	26	512	481	5,661	
2008	2,690	349	3,039	(40)	18	300	278	3,317	
2009	5,225	1,178	6,403	(90)	38	631	579	6,982	
2010	8,635	1,116	9,751	(146)	59	960	873	10,624	
2011	15,704	3,468	19,172	(288)	134	1,888	1,734	20,906	
2012	18,880	7,306	26,186	(367)	157	2,582	2,372	28,558	
2013	19,958	10,121	30,079	(481)	211	2,960	2,690	32,769	
2014	30,542	13,887	44,429	(800)	355	5,454	5,009	49,438	
2015	38,955	19,289	58,244	(1,165)	466	7,135	6,436	64,680	
<b>PAYs (sub-total):</b>	<b>148,608</b>	<b>56,720</b>	<b>205,328</b>	<b>(3,465)</b>	<b>1,478</b>	<b>22,718</b>	<b>20,731</b>	<b>226,059</b>	
<b>CAY (2016)</b>	<b>37,536</b>	<b>32,095</b>	<b>69,631</b>	<b>(1,253)</b>	<b>487</b>	<b>8,000</b>	<b>7,234</b>	<b>76,865</b>	
<b>claims liabilities:</b>	<b>186,144</b>	<b>88,815</b>	<b>274,959</b>	<b>(4,718)</b>	<b>1,965</b>	<b>30,718</b>	<b>27,965</b>	<b>302,924</b>	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*	
<b>premium liabilities:</b>	<b>84,590</b>	<b>(15,842)</b>	<b>68,748</b>	<b>(1,096)</b>	<b>480</b>	<b>6,877</b>	<b>6,261</b>	<b>75,009</b>	
*Total may not be sum of parts, as apvs apply to future costs within UPR									
<b>policy liabilities:</b>			<b>343,707</b>	<b>(5,814)</b>	<b>2,445</b>	<b>37,595</b>	<b>34,226</b>	<b>377,933</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.

Selected Claims Development MfADs (Jun. 30, 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%	9.7%	10.0%
2009	10.0%	10.0%	5.1%	10.0%
2010	10.0%	10.0%	9.2%	10.0%
2011	10.0%	10.0%	9.9%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	12.5%	10.0%	12.5%	12.5%
2015	12.4%	10.0%	12.5%	12.5%
2016	12.0%	10.0%	6.7%	11.7%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	11.8%	10.0%	5.1%	10.2%

discount rate: 0.60%  
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 (0.60%), the prior valuation assumption (0.65%) 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	0.10%	0.60%	1.10%	1.60%	2.10%	2.60%	0.65%	0.75%
2004	-	-	-	-	-	-	-	-
2005	1,979	1,967	1,949	1,932	1,916	1,899	1,965	1,961
2006	1,281	1,273	1,262	1,252	1,242	1,232	1,272	1,270
2007	5,257	5,223	5,176	5,131	5,087	5,043	5,218	5,209
2008	3,760	3,730	3,691	3,653	3,615	3,578	3,726	3,718
2009	7,922	7,856	7,766	7,678	7,593	7,510	7,846	7,828
2010	11,557	11,450	11,304	11,163	11,026	10,892	11,434	11,406
2011	20,336	20,155	19,914	19,679	19,451	19,228	20,130	20,082
2012	28,315	28,067	27,732	27,408	27,094	26,786	28,030	27,964
2013	33,793	33,471	33,041	32,623	32,217	31,820	33,427	33,341
2014	50,828	50,273	49,532	48,813	48,116	47,439	50,197	50,047
2015	66,475	65,668	64,594	63,560	62,559	61,588	65,560	65,338
2016	77,170	76,309	75,151	74,039	72,963	71,922	76,183	75,950
<b>Total</b>	<b>308,673</b>	<b>305,442</b>	<b>301,112</b>	<b>296,931</b>	<b>292,879</b>	<b>288,937</b>	<b>304,988</b>	<b>304,114</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	0.10%	0.60%	1.10%	1.60%	2.10%	2.60%	0.65%	0.75%
<b>Total</b>	<b>3,231</b>	<b>-</b>	<b>(4,330)</b>	<b>(8,511)</b>	<b>(12,563)</b>	<b>(16,505)</b>	<b>(454)</b>	<b>(1,328)</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	0.10%	0.60%	1.10%	1.60%	2.10%	2.60%	0.65%	0.75%
2004	-	-	-	-	-	-	-	-
2005	0.6%	-	(0.9%)	(1.8%)	(2.6%)	(3.5%)	(0.1%)	(0.3%)
2006	0.6%	-	(0.9%)	(1.6%)	(2.4%)	(3.2%)	(0.1%)	(0.2%)
2007	0.7%	-	(0.9%)	(1.8%)	(2.6%)	(3.4%)	(0.1%)	(0.3%)
2008	0.8%	-	(1.0%)	(2.1%)	(3.1%)	(4.1%)	(0.1%)	(0.3%)
2009	0.8%	-	(1.1%)	(2.3%)	(3.3%)	(4.4%)	(0.1%)	(0.4%)
2010	0.9%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.1%)	(0.4%)
2011	0.9%	-	(1.2%)	(2.4%)	(3.5%)	(4.6%)	(0.1%)	(0.4%)
2012	0.9%	-	(1.2%)	(2.3%)	(3.5%)	(4.6%)	(0.1%)	(0.4%)
2013	1.0%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.1%)	(0.4%)
2014	1.1%	-	(1.5%)	(2.9%)	(4.3%)	(5.6%)	(0.2%)	(0.4%)
2015	1.2%	-	(1.6%)	(3.2%)	(4.7%)	(6.2%)	(0.2%)	(0.5%)
2016	1.1%	-	(1.5%)	(3.0%)	(4.4%)	(5.7%)	(0.2%)	(0.5%)
<b>Total</b>	<b>1.1%</b>	<b>-</b>	<b>(1.4%)</b>	<b>(2.8%)</b>	<b>(4.1%)</b>	<b>(5.4%)</b>	<b>(0.1%)</b>	<b>(0.4%)</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	247	(5)	(15)	-	(20)	(8.1%)	227
2006	59	-	(103)	-	(103)	(174.6%)	(44)
2007	711	(15)	34	-	19	2.7%	730
2008	1,183	(32)	(463)	-	(495)	(41.8%)	688
2009	1,961	(52)	18	-	(34)	(1.7%)	1,927
2010	2,244	(57)	13	-	(44)	(2.0%)	2,200
2011	6,071	(164)	(166)	-	(330)	(5.4%)	5,741
2012	10,874	(298)	84	-	(214)	(2.0%)	10,660
2013	14,341	(401)	82	-	(319)	(2.2%)	14,022
2014	22,478	(508)	(1,137)	-	(1,645)	(7.3%)	20,833
2015	29,814	(904)	268	-	(636)	(2.1%)	29,178
2016	23,369	2,444	(295)	-	2,149	9.2%	25,518
<b>Grand Total</b>	<b>113,280</b>	<b>10</b>	<b>(1,682)</b>	<b>-</b>	<b>(1,672)</b>	<b>(1.5%)</b>	<b>111,608</b>

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)	2	(2)	-	-	-	(80)
2005	27	(1)	(3)	-	(4)	(14.8%)	23
2006	(55)	2	(84)	-	(82)	149.1%	(137)
2007	181	(5)	27	-	22	12.2%	203
2008	835	(25)	(428)	-	(453)	(54.3%)	382
2009	1,252	(38)	77	-	39	3.1%	1,291
2010	1,206	(36)	54	-	18	1.5%	1,224
2011	4,059	(122)	(137)	-	(259)	(6.4%)	3,800
2012	8,169	(245)	81	-	(164)	(2.0%)	8,005
2013	11,360	(341)	71	-	(270)	(2.4%)	11,090
2014	16,956	(424)	(1,078)	-	(1,502)	(8.9%)	15,454
2015	22,771	(797)	295	-	(502)	(2.2%)	22,269
2016	18,425	1,908	(365)	-	1,543	8.4%	19,968
<b>Grand Total</b>	<b>85,106</b>	<b>(122)</b>	<b>(1,492)</b>	<b>-</b>	<b>(1,614)</b>	<b>(1.9%)</b>	<b>83,492</b>