



**ALBERTA GRID RISK SHARING POOL**

**FEBRUARY 2017 OPERATIONAL REPORT**

**ACTUARIAL HIGHLIGHTS**

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**ACTUARIAL HIGHLIGHTS**

**RSP ALBERTA GRID**

**OPERATIONAL REPORT**

**FEBRUARY 2017**

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## 1 Summary

### 1.1 Valuation Schedule (Fiscal Year 2017)

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

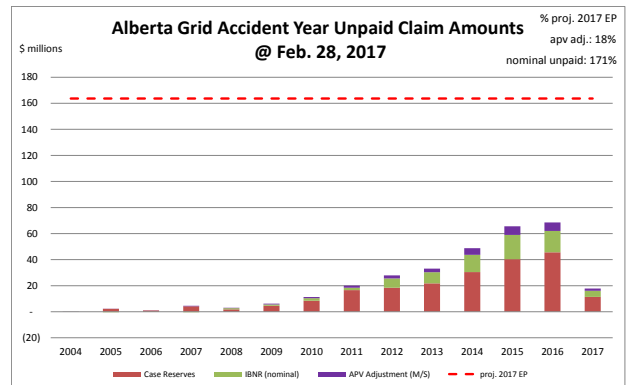
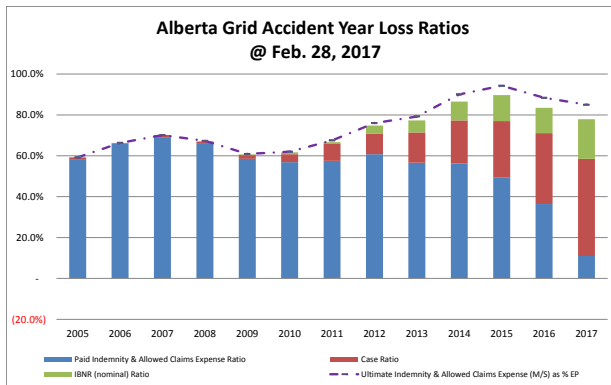
### 1.3 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

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).

**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 most recent valuation (September 30, 2016) 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 2017 full year earned premium (the red hash-mark line) to provide some perspective.



*“M/S” refers to “Member Statement” values – that is, actuarial present value adjustments at the selected discount rate.*

The current actuarial present value adjustments balance (\$29.1 million – see table immediately below) represents 18% 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	206,991	66.9%
ibnr	73,191	23.7%
M/S apv adjust.	29,138	9.4%
<b>M/S total</b>	<b>309,320</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 29% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 76% of the M/S

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

<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.

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	73,341	117.2%	claim	280,182	75.3%
prem def/(dpac)	(15,981)	(25.5%)	premium	57,360	15.4%
M/S apv adjust.	5,235	8.4%	M/S apv adjust.	34,373	9.2%
M/S total	62,595	100.0%	M/S total	371,915	100.0%

## 2 Activity During the Month of February 2017

### 2.1 Recorded Premium and Claims Activity

The table immediately below summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational 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	4,035	(705)	(1,992)	1,535	2,043	830
2015	0	0	982	(1,115)	406	1,303	1,389	189
2016	(212)	(212)	3,909	1,266	(513)	538	3,396	1,804
2017	11,375	(89)	2,143	168	5,066	497	7,210	665
TOTAL	11,166	(298)	11,070	(386)	2,967	3,873	14,037	3,487

(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.

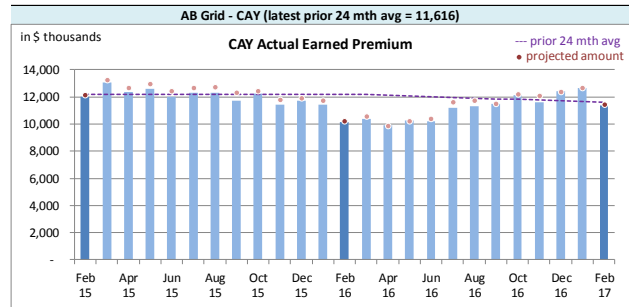
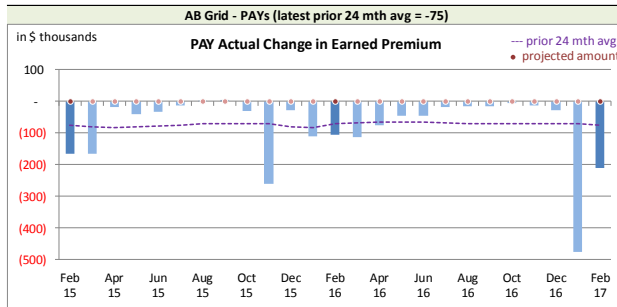
#### 2.1.a Actual vs. Projected (AvsP): Earned Premium

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

<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.

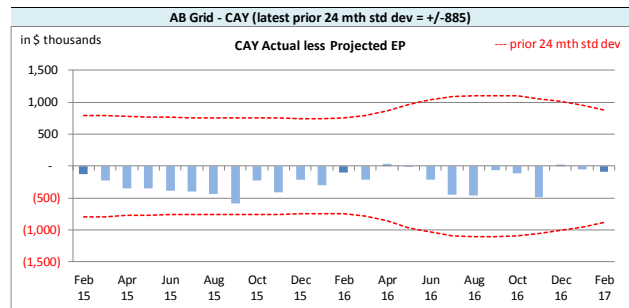
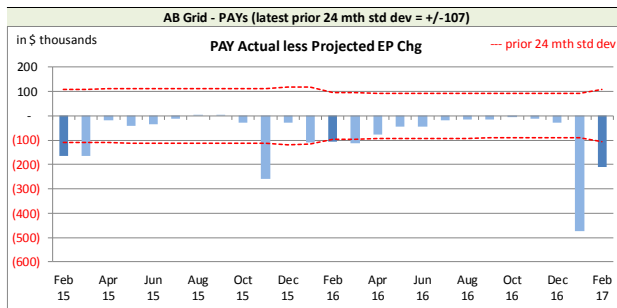
*Alberta Grid RSP Actual Earned Premium by Calendar Month*



**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)	(75)	11,616	
std dev	107	885	
A-P <> std dev	7	-	
% <> std dev	28.0%	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' bias<sup>5</sup>, with actuals generally lower than projected. However, the magnitude is not high relative to monthly

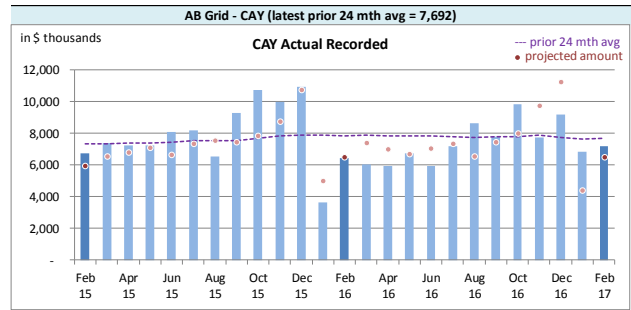
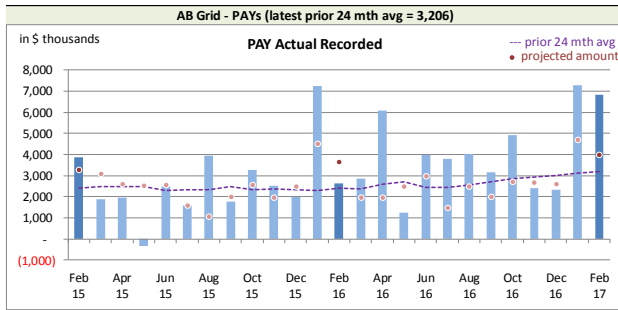
premium, and the variances are within the prior 24-month standard deviation more often than indicated by a normal distribution (see table above). In addition to the prior accident years' bias, the CAY has also shown bias, with actuals being generally lower than projected. Starting with the August 2016 projections, we have modified our projections 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.

<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.

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

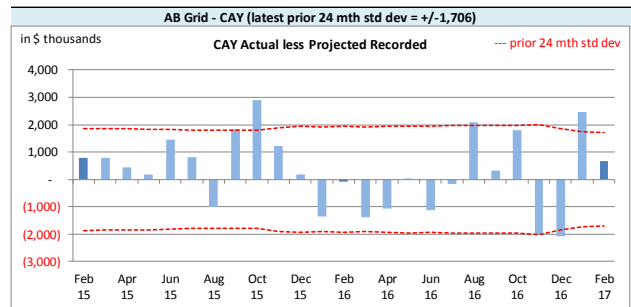
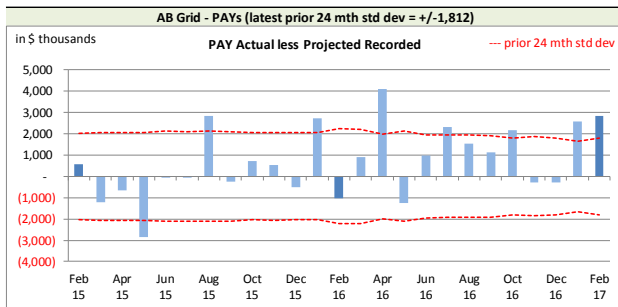
Actual **recorded** activity (**paid** and case reserve changes) over the last 25-month period are shown in the charts immediately below, including the “prior 24-month average” level.

*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)	3,206	3,206	7,692
std dev	1,812	1,812	1,706
A-P <> std dev	8	8	6
% <> std dev	32.0%	32.0%	24.0%
norm <> std dev	31.7%	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 no better than simply

projecting from the prior 24-month average. There may be evidence of bias in the projections as 13 of the last 19 months have had actuals higher than projections. A similar pattern is not evident in the **paid** activity where actuals have generally been lower than projections over the same 19 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 PAYs **recorded** variance for the current month was outside the one standard deviation band. Notwithstanding the prior discussion on possible changes to case reserve activity, the PAYs activity was reviewed and confirmed, with the variance attributed to process variance.

The current accident year (CAY) **recorded** variances (right chart in the middle of the 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. At 24%, 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 shown in the tables below. 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 Feb) provides the average of the 2 monthly ratios (i.e. Jan and Feb) for that row's calendar year.

CAY avg of mthly ratios for yr					CAY avg of mthly ratios for yr				
as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg	as at	Rec'd	yr-on-yr chg	Paid	yr-on-yr chg
Dec 2009	11.5%		4.4%		Feb 2009	28.3%		4.5%	
Dec 2010	10.9%	(0.6%)	4.5%	0.1%	Feb 2010	25.4%	(2.9%)	5.3%	0.8%
Dec 2011	12.8%	1.9%	4.8%	0.3%	Feb 2011	31.6%	6.2%	4.9%	(0.4%)
Dec 2012	12.4%	(0.4%)	4.7%	(0.1%)	Feb 2012	28.6%	(3.0%)	5.2%	0.3%
Dec 2013	12.6%	0.2%	4.8%	0.1%	Feb 2013	31.2%	2.6%	4.9%	(0.3%)
Dec 2014	13.8%	1.2%	5.3%	0.5%	Feb 2014	30.7%	(0.5%)	5.4%	0.5%
Dec 2015	14.4%	0.6%	5.5%	0.2%	Feb 2015	35.2%	4.5%	6.0%	0.6%
Dec 2016	14.0%	(0.4%)	5.4%	(0.1%)	Feb 2016	31.0%	(4.2%)	6.3%	0.3%
					Feb 2017	42.1%	11.1%	6.5%	0.2%

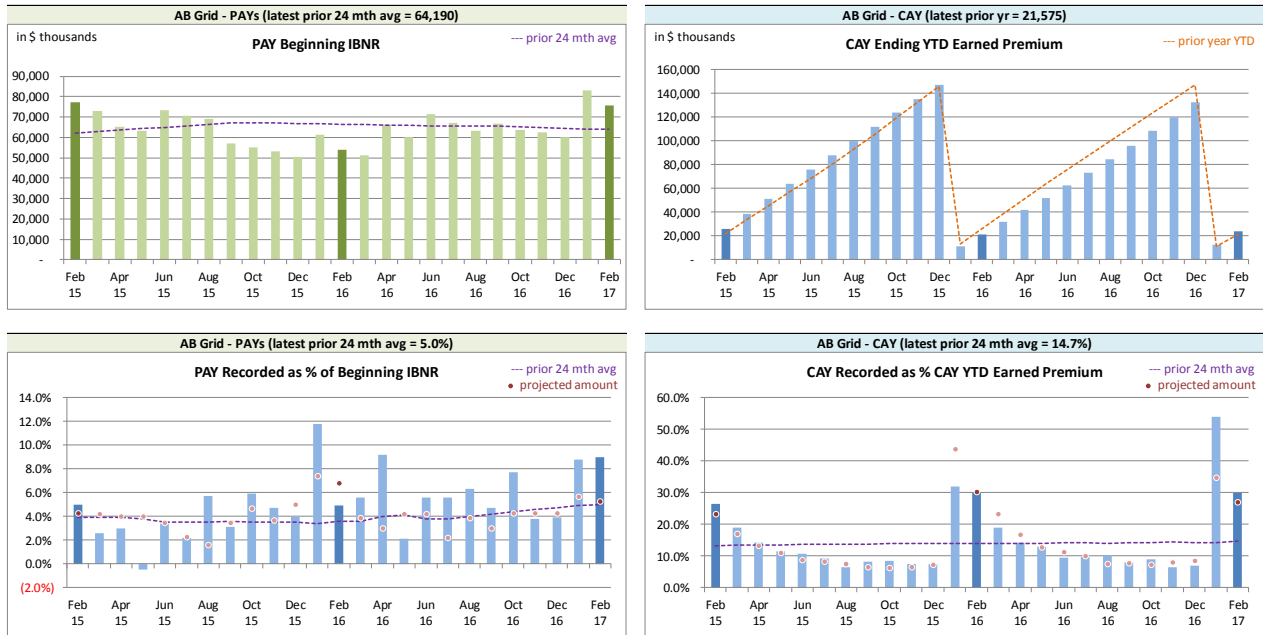
Both **recorded** and **paid** ratios for Dec. 2016 relative to Dec. 2009 have increased at an annual rate of almost 3% over and above any premium rate level increases. At this point, we are only monitoring, but the valuation team has been advised and are taking this information into consideration. Further, while the average of the 12 monthly ratios at December for 2016 were down from 2015, they were still the second highest ratios overall, and, two months into 2017, the 2-month average ratios for calendar year 2017 are at the highest levels in the Feb 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 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:

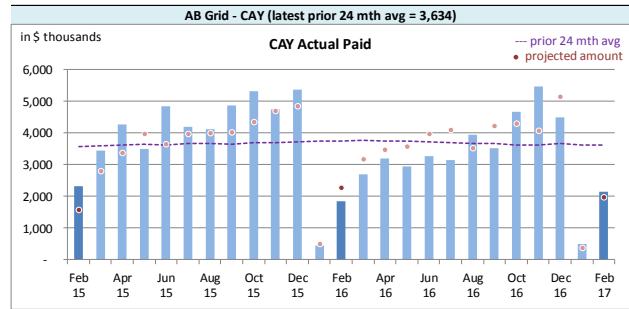
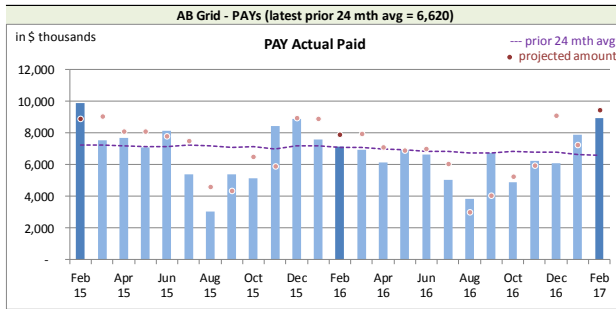
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

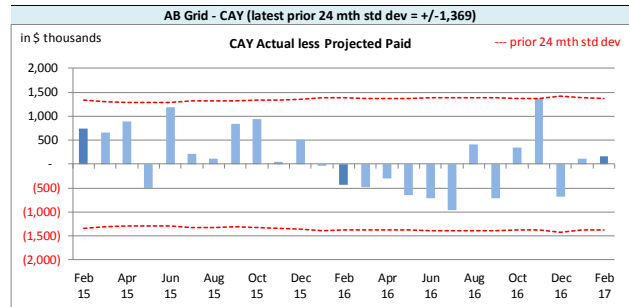
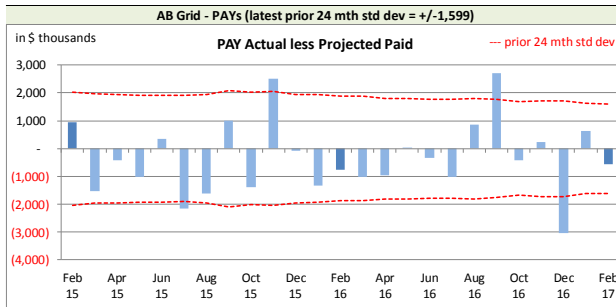
<sup>6</sup>Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR 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)		6,620	3,634
std dev		1,599	1,369
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 above) 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 at the top of the next page 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 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 February 2017 Operational Report and the associated one-month projections from last month’s Report.

<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”.

*Alberta Grid RSP Actual vs Projected Summary: IBNR and APV Amounts (\$ thousands)*

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	33,603	(827)	(1,859)	(9)	16,073	98	47,817	(738)
2015	18,606	(189)	(943)	(18)	7,659	144	25,322	(63)
2016	16,322	(1,981)	(1,116)	26	7,619	(178)	22,825	(2,133)
2017	4,660	(734)	(273)	4	1,978	(30)	6,365	(760)
<b>TOTAL</b>	<b>73,191</b>	<b>(3,731)</b>	<b>(4,191)</b>	<b>3</b>	<b>33,329</b>	<b>34</b>	<b>102,329</b>	<b>(3,694)</b>

The IBNR provision is \$3.7 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 February 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)*

	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:	(15,981)	467	5,235	(151)	(10,746)	316
balance as % unearned premium:	(21.8%)	-	7.1%	-	(14.7%)	-
actual unearned premium:	73,341					
less projected:	(2,148)					

### 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 80.2% rather than 77.9% (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	(570)	(2.4%)	(1,670)	(7.2%)	(2,240)	(9.6%)	(1,100)	(0.2%)
CAY	18,726	80.2%	1,705	7.3%	20,431	87.5%	9,574	(1.6%)
TOTAL	18,156	77.7%	35	0.1%	18,191	77.9%	8,473	(1.8%)

(“% 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 CAY, changes in the year-to-date total reflects the additional month’s exposure and regular changes to actuarial present value adjustments as the year ages.

#### 5 Current Operational Report – Additional Exhibits

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

IBNR (including actuarial present value adjustments) presented in section 6, Exhibit A, were derived on a discounted basis, and therefore reflect the time value of money and include an explicit provision

<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.

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 Jan. 2017	Actual Feb. 2017	Projected Mar. 2017	Projected Apr. 2017	Projected Dec. 2017
	2004	(72)	(72)	(72)	(72)	(72)
	2005	(116)	(246)	(243)	(236)	(198)
	2006	(12)	7	6	4	-
	2007	(342)	(92)	(95)	(92)	(84)
	2008	823	1,177	1,152	1,117	902
	2009	1,739	1,571	1,534	1,489	1,199
	2010	3,249	2,821	2,755	2,672	2,152
	2011	4,431	3,508	3,421	3,328	2,663
discount rate	2012	9,610	9,438	9,226	8,960	7,261
0.54%	2013	11,695	11,374	10,861	10,371	8,423
	2014	19,236	18,331	17,357	16,213	13,200
interest rate margin	2015	26,824	25,322	23,820	22,240	17,957
25 basis pts	2016	26,827	22,825	21,358	19,665	14,708
	2017	4,001	6,365	10,177	14,049	31,118
	<b>TOTAL</b>	<b>107,893</b>	<b>102,329</b>	<b>101,257</b>	<b>99,708</b>	<b>99,229</b>
	Change		(5,564)	(1,072)	(1,549)	

*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 Jan. 2017	Actual Feb. 2017	Projected Mar. 2017	Projected Apr. 2017	Projected Dec. 2017
	51.6%	2004	(80)	(80)	(80)	(80)	(80)
	59.1%	2005	(293)	(423)	(415)	(403)	(329)
	66.3%	2006	(101)	(82)	(80)	(78)	(64)
	70.0%	2007	(708)	(444)	(435)	(422)	(344)
	67.2%	2008	560	915	897	870	709
	60.7%	2009	1,163	1,048	1,027	996	813
	61.6%	2010	2,283	1,870	1,833	1,778	1,452
	66.7%	2011	2,623	1,824	1,788	1,734	1,415
	74.7%	2012	7,215	7,094	6,952	6,743	5,506
	77.3%	2013	8,854	8,591	8,161	7,753	6,329
	86.5%	2014	14,127	13,290	12,493	11,494	9,385
	89.7%	2015	19,995	18,606	17,304	15,920	12,470
	83.5%	2016	19,895	16,322	15,016	13,514	9,584
	77.9%	2017	3,009	4,660	7,733	10,925	23,044
		<b>TOTAL</b>	<b>78,542</b>	<b>73,191</b>	<b>72,194</b>	<b>70,744</b>	<b>69,890</b>
		Change		(5,351)	(997)	(1,450)	

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



## EXHIBIT C

## Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Jan. 2017	Actual Feb. 2017	Projected Mar. 2017	Projected Apr. 2017	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	76,486	73,341	72,811	74,746	81,698
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	85.3%	85.3%	85.4%	85.4%	86.5%
(3) expected future costs {(1) x (2)}	65,268	62,595	62,171	63,870	70,683
(4) premium deficiency / (deferred policy acquisition cost)	(11,218)	(10,746)	(10,640)	(10,876)	(11,015)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	78.2%	78.2%	78.2%	78.3%	79.3%
(6) expected future costs {(1) x (5)}	59,809	57,360	56,972	58,528	64,771
(7) premium deficiency / (deferred policy acquisition cost)	(16,677)	(15,981)	(15,839)	(16,218)	(16,927)

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)				TOTAL
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs		
2004	-	(80)	(80)	-	-	8	8	(72)	
2005	1,635	(329)	1,306	-	-	131	131	1,437	
2006	757	(64)	693	(7)	3	68	64	757	
2007	3,100	(344)	2,756	(25)	11	274	260	3,016	
2008	1,350	709	2,059	(21)	10	204	193	2,252	
2009	3,348	813	4,161	(50)	25	411	386	4,547	
2010	6,179	1,452	7,631	(92)	38	754	700	8,331	
2011	12,211	1,415	13,626	(191)	95	1,344	1,248	14,874	
2012	13,635	5,506	19,141	(249)	115	1,889	1,755	20,896	
2013	16,514	6,329	22,843	(297)	137	2,254	2,094	24,937	
2014	23,708	9,385	33,093	(463)	199	4,079	3,815	36,908	
2015	35,656	12,470	48,126	(770)	337	5,920	5,487	53,613	
2016	39,263	9,584	48,847	(879)	391	5,612	5,124	53,971	
<b>PAYs (sub-total):</b>	157,356	46,846	204,202	(3,044)	1,361	22,948	21,265	225,467	
<b>CAY (2017)</b>	53,130	23,044	76,174	(1,295)	609	8,760	8,074	84,248	
<b>claims liabilities:</b>	210,486	69,890	280,376	(4,339)	1,970	31,708	29,339	309,715	
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*	
<b>premium liabilities:</b>	81,698	(16,927)	64,771	(903)	452	6,363	5,912	70,683	
*Total may not be sum of parts, as apvs apply to future costs within UPR									
<b>policy liabilities:</b>			345,147	(5,242)	2,422	38,071	35,251	380,398	

**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 (Sep. 30, 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%	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%	6.9%	11.7%
2017	12.5%	10.0%	12.5%	12.5%
prem liab	11.7%	10.0%	5.2%	10.0%

discount rate:	0.54%
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, 2017 and based on more up-to-date information). We have included both the current valuation selection (0.54%), the prior valuation assumption (0.60%) 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	0.04%	0.54%	1.04%	1.54%	2.04%	2.54%	0.60%	0.75%
2004	-	-	-	-	-	-	-	-
2005	2,052	2,041	2,023	2,005	1,988	1,971	2,039	2,033
2006	1,106	1,100	1,091	1,082	1,073	1,065	1,099	1,096
2007	5,339	5,309	5,262	5,216	5,171	5,126	5,304	5,290
2008	3,689	3,664	3,626	3,588	3,550	3,514	3,660	3,648
2009	7,381	7,329	7,245	7,164	7,084	7,007	7,318	7,293
2010	11,488	11,398	11,255	11,115	10,978	10,846	11,381	11,337
2011	21,001	20,844	20,594	20,352	20,115	19,884	20,815	20,738
2012	29,151	28,934	28,587	28,252	27,925	27,607	28,893	28,786
2013	33,611	33,341	32,908	32,490	32,082	31,685	33,287	33,157
2014	52,207	51,719	50,949	50,208	49,489	48,792	51,624	51,392
2015	67,306	66,606	65,514	64,464	63,438	62,444	66,473	66,138
2016	78,859	78,096	76,912	75,758	74,642	73,569	77,958	77,590
<b>Total</b>	<b>313,190</b>	<b>310,381</b>	<b>305,966</b>	<b>301,694</b>	<b>297,535</b>	<b>293,510</b>	<b>309,851</b>	<b>308,498</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	0.04%	0.54%	1.04%	1.54%	2.04%	2.54%	0.60%	0.75%
<b>Total</b>	<b>2,809</b>	<b>-</b>	<b>(4,415)</b>	<b>(8,687)</b>	<b>(12,846)</b>	<b>(16,871)</b>	<b>(530)</b>	<b>(1,883)</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	0.04%	0.54%	1.04%	1.54%	2.04%	2.54%	0.60%	0.75%
2004	-	-	-	-	-	-	-	-
2005	0.5%	-	(0.9%)	(1.8%)	(2.6%)	(3.4%)	(0.1%)	(0.4%)
2006	0.5%	-	(0.8%)	(1.6%)	(2.5%)	(3.2%)	(0.1%)	(0.4%)
2007	0.6%	-	(0.9%)	(1.8%)	(2.6%)	(3.4%)	(0.1%)	(0.4%)
2008	0.7%	-	(1.0%)	(2.1%)	(3.1%)	(4.1%)	(0.1%)	(0.4%)
2009	0.7%	-	(1.1%)	(2.3%)	(3.3%)	(4.4%)	(0.2%)	(0.5%)
2010	0.8%	-	(1.3%)	(2.5%)	(3.7%)	(4.8%)	(0.1%)	(0.5%)
2011	0.8%	-	(1.2%)	(2.4%)	(3.5%)	(4.6%)	(0.1%)	(0.5%)
2012	0.7%	-	(1.2%)	(2.4%)	(3.5%)	(4.6%)	(0.1%)	(0.5%)
2013	0.8%	-	(1.3%)	(2.6%)	(3.8%)	(5.0%)	(0.2%)	(0.6%)
2014	0.9%	-	(1.5%)	(2.9%)	(4.3%)	(5.7%)	(0.2%)	(0.6%)
2015	1.1%	-	(1.6%)	(3.2%)	(4.8%)	(6.2%)	(0.2%)	(0.7%)
2016	1.0%	-	(1.5%)	(3.0%)	(4.4%)	(5.8%)	(0.2%)	(0.6%)
<b>Total</b>	<b>0.9%</b>	<b>-</b>	<b>(1.4%)</b>	<b>(2.8%)</b>	<b>(4.1%)</b>	<b>(5.4%)</b>	<b>(0.2%)</b>	<b>(0.6%)</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)	-	-	-	-	-	(72)
2005	(116)	4	(134)	-	(130)	112.1%	(246)
2006	(12)	-	19	-	19	(158.3%)	7
2007	(342)	9	241	-	250	(73.1%)	(92)
2008	823	(25)	379	-	354	43.0%	1,177
2009	1,739	(53)	(115)	-	(168)	(9.7%)	1,571
2010	3,249	(96)	(332)	-	(428)	(13.2%)	2,821
2011	4,431	(143)	(780)	-	(923)	(20.8%)	3,508
2012	9,610	(287)	115	-	(172)	(1.8%)	9,438
2013	11,695	(352)	31	-	(321)	(2.7%)	11,374
2014	19,236	(743)	(162)	-	(905)	(4.7%)	18,331
2015	26,824	(1,439)	(63)	-	(1,502)	(5.6%)	25,322
2016	26,827	(1,869)	(2,133)	-	(4,002)	(14.9%)	22,825
2017	4,001	3,124	(760)	-	2,364	59.1%	6,365
<b>Grand Total</b>	<b>107,893</b>	<b>(1,870)</b>	<b>(3,694)</b>	<b>-</b>	<b>(5,564)</b>	<b>(5.2%)</b>	<b>102,329</b>

EXHIBIT G

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

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

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	(293)	9	(139)	-	(130)	44.4%	(423)
2006	(101)	3	16	-	19	(18.8%)	(82)
2007	(708)	21	243	-	264	(37.3%)	(444)
2008	560	(17)	372	-	355	63.4%	915
2009	1,163	(35)	(80)	-	(115)	(9.9%)	1,048
2010	2,283	(68)	(345)	-	(413)	(18.1%)	1,870
2011	2,623	(79)	(720)	-	(799)	(30.5%)	1,824
2012	7,215	(216)	95	-	(121)	(1.7%)	7,094
2013	8,854	(266)	3	-	(263)	(3.0%)	8,591
2014	14,127	(565)	(272)	-	(837)	(5.9%)	13,290
2015	19,995	(1,200)	(189)	-	(1,389)	(6.9%)	18,606
2016	19,895	(1,592)	(1,981)	-	(3,573)	(18.0%)	16,322
2017	3,009	2,385	(734)	-	1,651	54.9%	4,660
<b>Grand Total</b>	<b>78,542</b>	<b>(1,620)</b>	<b>(3,731)</b>	<b>-</b>	<b>(5,351)</b>	<b>(6.8%)</b>	<b>73,191</b>