



# **ALBERTA NON-GRID RISK SHARING POOL**

## **JULY 2017 OPERATIONAL REPORT**

# **ACTUARIAL HIGHLIGHTS**

Related Bulletin: [F17-063 Alberta RSPs July 2017 Operational Reports](#)

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**ACTUARIAL HIGHLIGHTS**  
**RSP ALBERTA NON-GRID**  
**OPERATIONAL REPORT**  
**JULY 2017**

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## 1 Summary

### 1.1 Valuation Schedule (Fiscal Year 2017)

The July 2017 Operational Report leverages actuarial assumptions consistent with last month (that is, it does not reflect the results of an updated valuation). The table immediately below summarizes the implemented valuations and future scheduled valuations for fiscal year 2017.

ALBERTA NON-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)	0.55% mfad: 25 bp	Oct. 2016	updated valuation (roll forward): accident year 2016 loss ratio increased 7.2 points to 112.8%; discount rate decreased by 6 basis points; no change to selected margins for adverse deviations
Dec. 31, 2016 (completed)	1.08% mfad: 25 bp	Mar. 2017	updated valuation: accident year 2016 loss ratio increased 1.1 points to 113.9%; accident year 2017 loss ratio increased 5.0 points to 103.3%; discount rate increased by 53 basis points; no change to selected margins for adverse deviations
Mar. 31, 2017 (completed)	0.99% mfad: 25 bp	May 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 3.1 points to 106.4%; discount rate decreased by 9 basis points; no change to selected margins for adverse deviations
Jun. 30, 2017		Aug. 2017	update valuation:
Sep. 30, 2017		Oct. 2017	update valuation (roll forward):

Under the proposed schedule for fiscal year 2017, the “off-half” valuation quarters ending March 31, 2017 and September 30, 2017 would not reflect a full valuation update of assumptions, but would rather “roll-forward” key assumptions from the previous valuation.

### 1.2 Appointed Actuary and Hybrid Actuarial Services Model

Liam McFarlane of Ernst & Young LLP is Facility Association’s Appointed Actuary (effective as of June 1, 2013).

Facility Association operates under a “hybrid” model in relation to the management and provision of actuarial services. Under this model, actuarial services are performed by both Facility Association’s internal staff and its external actuarial consulting firm. The hybrid model approach maximizes the efficiency of resource allocation while providing access to additional expertise and capacity as needed.

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

Consideration and assessment of potential impacts of legal decisions and changes in legislation / regulation constitutes a regular part of the valuation process. Descriptions of some of the more recent changes are provided below (there have been no changes in these descriptions since last month's Highlights, other than a minor editorial change in the Saadati v. Moorhead narrative).

The **Supreme Court of Canada** rendered its judgment on **Saadati v Moorhead (2017 SCC 28, rendered on Jun 2, 2017)**. Saadati was involved in a collision in July of 2005 in British Columbia and sued the at-fault driver for damages. According to the Supreme Court decision, *“The trial judge found that the ... accident caused S[aadati] psychological injuries, including personality change and cognitive difficulties. ...and awarded S[aadati] \$100,000 for non-pecuniary damages.”* The trial decision was appealed to the BC Court of Appeal where the trial's \$100,000 non-pecuniary award was dismissed. The Supreme Court upheld the \$100,000 non-pecuniary award, determining:

- *“A finding of legally compensable mental injury need not rest, in whole or in part, on the claimant proving a recognized psychiatric injury.”*
- *“...a trier of fact adjudicating a claim of mental injury is not concerned with diagnosis, but with symptoms and their effects.”*
- *“Expert evidence can assist in determining whether or not a mental injury has been shown, but where psychiatric diagnosis is unavailable, it remains open to a trier of fact to find on other evidence adduced by the claimant that he or she has proven on a balance of probabilities the occurrence of mental injury.”*

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

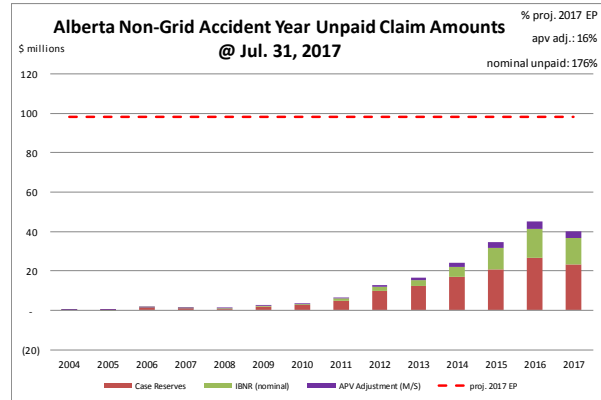
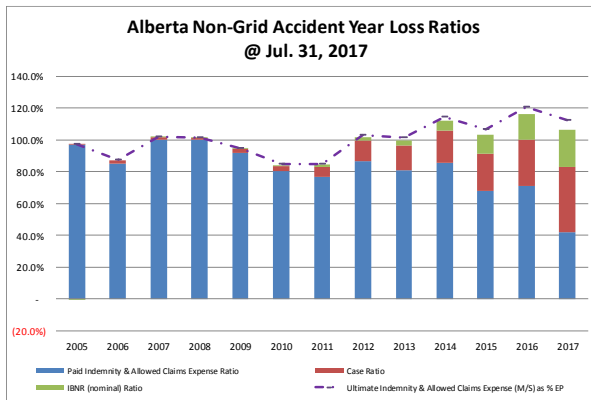
### 1.4 Current Provision Summary

The charts at the top of the next page show the current levels of claim 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.

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<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.



*“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 (\$16.1 million – see table immediately below) represents 16% 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	122,139	64.6%
ibnr	50,790	26.9%
M/S apv adjust.	16,068	8.5%
<b>M/S total</b>	<b>188,997</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 is in case reserves for this pool. Approximately 55% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 85% of the M/S total claim liabilities

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

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

premium liabilities (\$000s)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	49,136	87.6%	claim	172,929	70.6%
prem def/(dpac)	3,257	5.8%	premium	52,393	21.4%
M/S apv adjust.	3,716	6.6%	M/S apv adjust.	19,784	8.1%
<b>M/S total</b>	<b>56,109</b>	<b>100.0%</b>	<b>M/S total</b>	<b>245,106</b>	<b>100.0%</b>

## 2 Activity During the Month of July 2017

### 2.1 Recorded Premium and Claims Activity

The table at the top of the next page summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month’s Operational Report<sup>3</sup>.

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

*Alberta Non-Grid RSP Actual vs Projected Summary: Recorded Transaction Amounts (\$ thousands)*

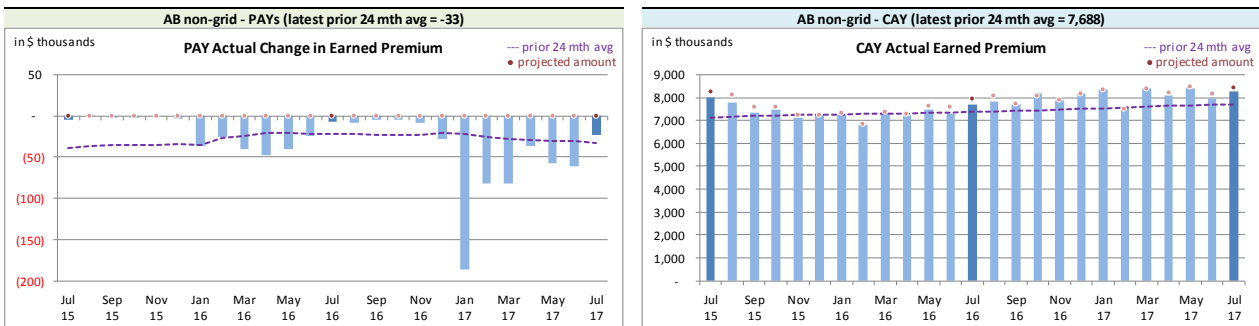
Table 01 Accident Year	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	0	0	955	(563)	(721)	587	234	24
2015	2	2	1,189	537	(747)	(660)	441	(124)
2016	(26)	(26)	835	(4)	(221)	(299)	615	(302)
2017	8,270	(165)	4,448	1,093	3,431	1,335	7,879	2,428
TOTAL	8,246	(188)	7,427	1,063	1,743	963	9,169	2,026

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance”. Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the variance. Commentary from our review is provided in the sub-sections that follow.

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

The charts immediately below show actual **earned premium**<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.

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


**Earned premium** changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels seem to occur at the beginning of each year.

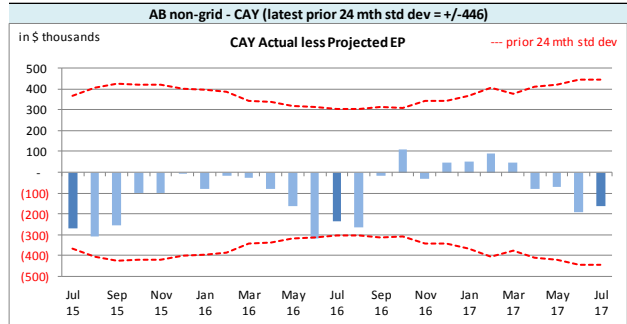
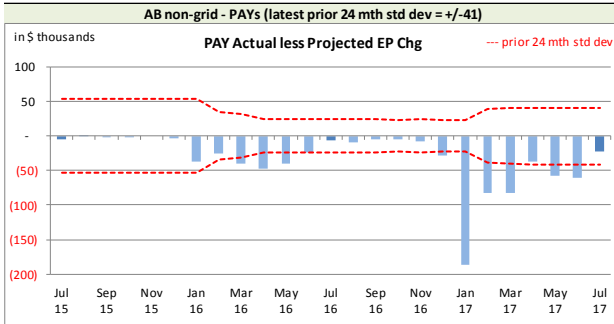
We have noted and have been investigating the unusually high level of PAYs earned premium activity so far in 2017, particularly with respect to one member and we are in discussions with that member to better understand the causes of the changes.

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

<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.

change in relation to prior accident years.

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



On Latest \$ thousands		
Earned Premium	PAYS	CAY
Mthly Avg EP Chg (prior 24 mths)	(33)	7,688
std dev	41	446
A-P <> std dev	9	1
% <> std dev	36.0%	4.0%
norm <> std dev	31.7%	31.7%

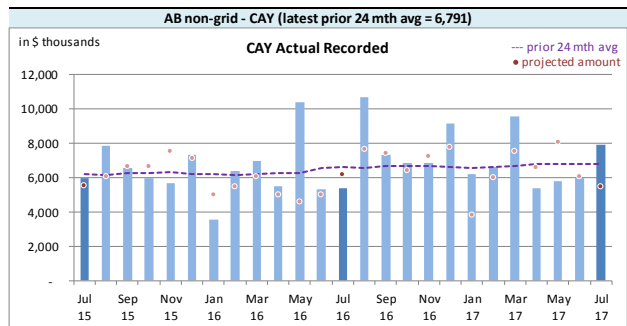
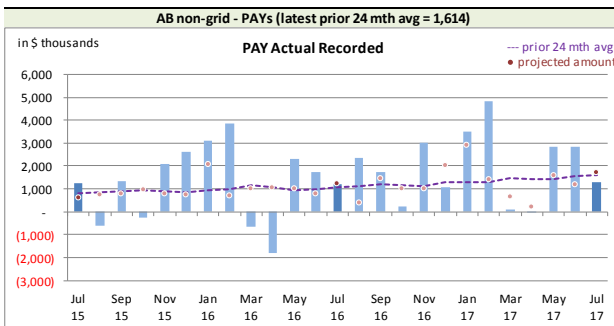
We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' bias<sup>5</sup>, with actuals generally lower than projected. However, the magnitude is not high relative to

monthly premium. In addition to the PAYS' bias, the CAY has also shown bias, with actuals being generally lower than projected. Starting with the August 2016 projections, we have modified our 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.

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

The charts immediately below show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

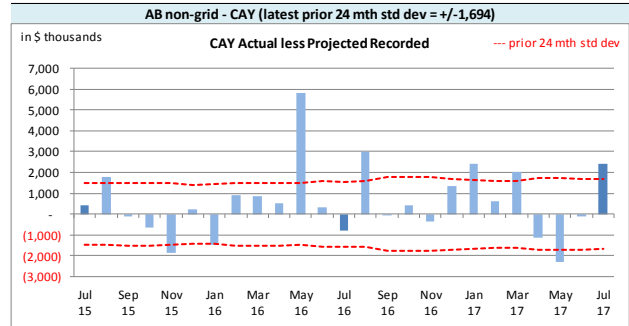
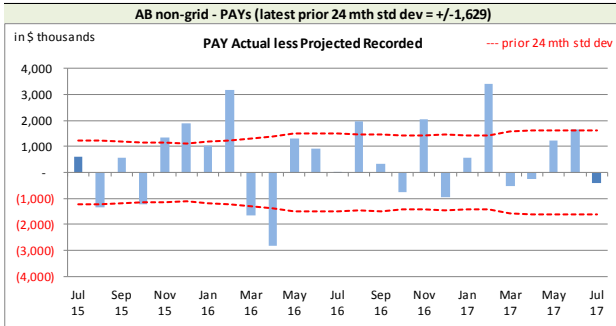
*Alberta non-Grid RSP Actual **Recorded** by Calendar Month*



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

<sup>5</sup>The PAYS' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

*Alberta non-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)		1,614	6,791
std dev		1,629	1,694
A-P <> std dev		11	9
% <> std dev		44.0%	36.0%
norm <> std dev		31.7%	31.7%

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

at options in an attempt to address this.

The current accident year (CAY) **recorded** variances (right chart above) have been greater than one standard deviation 36% of the time, suggesting that the projection process is no better than simply projecting the most recent prior 24-month average.

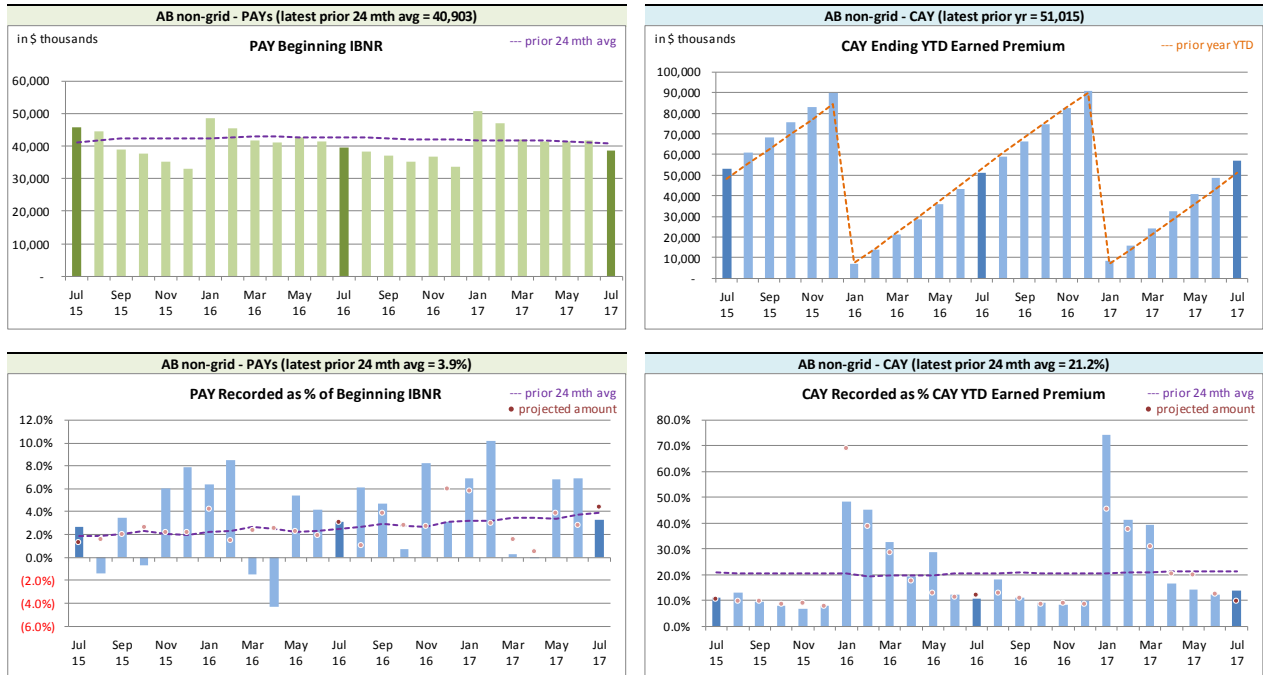
The CAYs **recorded** variance for the current month was outside the one standard deviation band. The activity was reviewed and confirmed, with the variance attributed to process variance.

The 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.



*Alberta non-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:

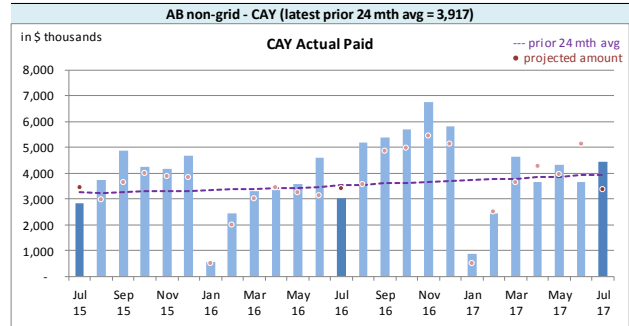
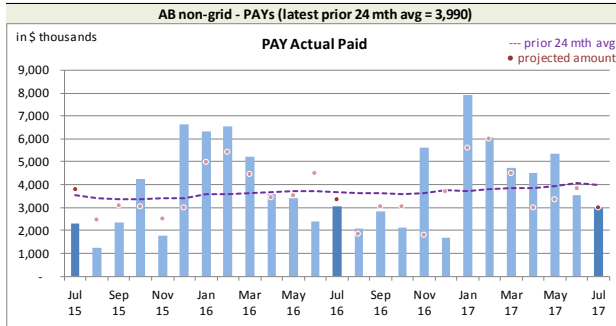
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate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

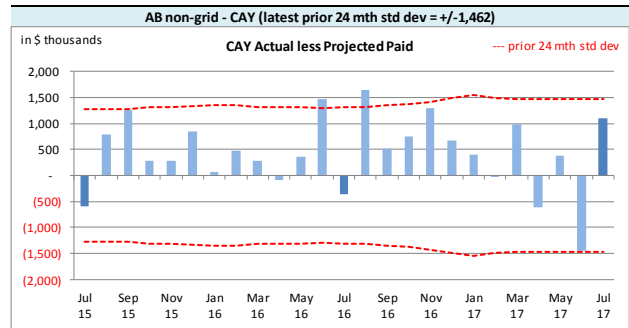
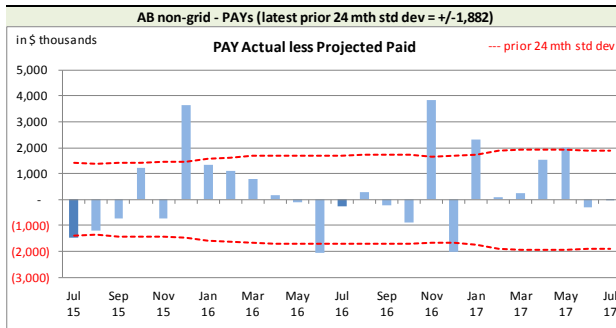
<sup>6</sup>Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR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



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

*Alberta non-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)		3,990	3,917
std dev		1,882	1,462
A-P <> std dev		7	2
% <> std dev		28.0%	8.0%
norm <> std dev		31.7%	31.7%

With respect to **paid** indemnity & allowed claims expense, the prior accident years’ variances (left chart above) do not appear to have bias and the magnitude of the variances do not appear to be an issue. With 28% of prior accident years (PAYs) **paid** variances over the last 25 calendar months falling outside of one standard deviation,

the projection process appears to have performed little better than simply projecting based on a 24-month average.

With only 8% of the current accident year (CAY) **paid** variances falling outside of one standard deviation of the experience period activity, the projection process appears to perform better than simply projecting based on a 24-month average. However, there does appear to be evidence of bias (actuals tend to be higher than our projections) and we are considering options on how to address this.

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

*Alberta non-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 July 2017 Operational Report and the associated

<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”.

one-month projections from last month's Report.

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

Table 02

Accident Year	IBNR		actuarial present value adjustments				IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Discount Amount		Provisions for Adverse Deviations		Actual	Actual less Projected
			Actual	Actual less Projected	Actual	Actual less Projected		
Prior	11,869	(26)	(1,573)	(11)	7,165	60	17,461	23
2015	10,862	126	(911)	16	4,034	(70)	13,985	72
2016	14,642	272	(1,274)	1	5,267	(4)	18,635	269
2017	13,417	(2,602)	(1,064)	36	4,424	(153)	16,777	(2,719)
TOTAL	50,790	(2,230)	(4,822)	42	20,890	(167)	66,858	(2,355)

The IBNR provision is \$2.2 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 premium deficiency liability / (deferred policy acquisition cost asset) included in the July 2017 Operational Report and the one-month projections from last month's Report. This RSP is in a premium deficiency position (shown as a positive amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments increase the liability 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 Non-Grid RSP Actual vs Projected Summary: Premium Deficiency / (DPAC) Amounts (\$ thousands)*

Table 03

	Premium Deficiency / (Deferred Policy Acquisition Costs)		actuarial present value adjustments		Premium Deficiency / (DPAC) including actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
balance:	3,257	(94)	3,716	(107)	6,973	(201)
balance as % unearned premium:	6.6%	-	7.6%	-	14.2%	-
actual unearned premium:	49,136					
less projected:	(1,425)					

### 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 107.4% rather than 106.4% (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 Non-Grid RSP Summary of Operations due to rounding.)

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

Table 04	YTD Nominal Values		YTD actuarial present value adjustment		YTD Total		Change from Prior Month YTD	
	Amount	% EP	Amount	% EP	Amount	% EP	Amount	LR pts
PAYs	1,948	3.4%	(4,850)	(8.6%)	(2,902)	(5.1%)	(323)	0.2%
CAY	60,735	107.4%	3,360	5.9%	64,095	113.3%	9,198	(0.3%)
TOTAL	62,682	110.8%	(1,490)	(2.6%)	61,192	108.2%	8,875	(0.1%)

(“% EP” based on 2017 calendar year-to-date earned premium; ratios may not total due to rounding)

The prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments. The loss ratio change year-to-date reflects not only changes in the prior accident year levels, but also the increase in the calendar year-to-date earned premium with an additional month’s earned premium.

For the current accident year (CAY), changes in the year-to-date total reflects the additional month’s exposure and regular changes to actuarial present value adjustments as the year.

<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.

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

## **6 EXHIBITS**

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

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

EXHIBIT A

IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A

		Amounts in \$000s				
IBNR + M/S actuarial present value adjustments	Accident Year	Actual Jun. 2017	Actual Jul. 2017	Projected Aug. 2017	Projected Sep. 2017	Projected Dec. 2017
	2004	42	42	42	42	42
	2005	(31)	(31)	(30)	(29)	(26)
	2006	146	145	142	141	132
	2007	150	149	146	144	136
	2008	325	325	318	312	293
	2009	286	305	297	290	274
	2010	694	691	676	663	615
	2011	1,606	1,590	1,558	1,527	1,417
discount rate	2012	2,649	2,810	2,753	2,699	2,505
0.99%	2013	4,311	4,052	3,984	3,847	3,571
	2014	7,608	7,383	7,132	6,868	6,285
interest rate margin	2015	14,543	13,985	13,489	12,981	11,511
25 basis pts	2016	19,365	18,635	17,822	17,011	14,784
	2017	15,458	16,777	17,960	20,151	25,095
	<b>TOTAL</b>	<b>67,152</b>	<b>66,858</b>	<b>66,289</b>	<b>66,647</b>	<b>66,634</b>
	Change		(294)	(569)	358	

*Please see Exhibit G, page 1 for Components of Change during Current Month*

EXHIBIT B

IBNR

TABLE EXHIBIT B

Amounts in \$000s

IBNR	Ultimate Loss Ratio	Accident Year	Actual Jun. 2017	Actual Jul. 2017	Projected Aug. 2017	Projected Sep. 2017	Projected Dec. 2017
	349.1%	2004	36	36	36	36	36
	97.1%	2005	(34)	(34)	(33)	(32)	(29)
	87.2%	2006	20	20	20	20	20
	101.7%	2007	67	66	65	64	61
	101.3%	2008	240	240	235	230	216
	94.6%	2009	110	128	125	122	116
	84.3%	2010	455	452	443	434	400
	84.3%	2011	1,129	1,114	1,092	1,070	987
	101.7%	2012	1,699	1,873	1,836	1,799	1,659
	99.8%	2013	3,102	2,850	2,793	2,681	2,472
	111.8%	2014	5,281	5,124	4,919	4,722	4,265
	103.1%	2015	11,301	10,862	10,428	10,011	8,761
	116.3%	2016	15,287	14,642	13,910	13,214	11,321
	106.4%	2017	12,497	13,417	14,194	16,071	19,950
		<b>TOTAL</b>	<b>51,190</b>	<b>50,790</b>	<b>50,063</b>	<b>50,442</b>	<b>50,235</b>
		Change		(400)	(727)	379	

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



## EXHIBIT C

## Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Jun. 2017	Actual Jul. 2017	Projected Aug. 2017	Projected Sep. 2017	Projected Dec. 2017
Premium Liabilities					
(1) unearned premium (UP)	49,643	49,136	50,115	51,293	50,022
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	114.3%	114.2%	114.1%	114.0%	113.7%
(3) expected future costs {(1) x (2)}	56,722	56,109	57,188	58,487	56,878
(4) premium deficiency / (deferred policy acquisition cost)	7,079	6,973	7,073	7,194	6,856
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	106.7%	106.6%	106.6%	106.5%	106.2%
(6) expected future costs {(1) x (5)}	52,966	52,393	53,400	54,612	53,111
(7) premium deficiency / (deferred policy acquisition cost)	3,323	3,257	3,285	3,319	3,089

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 non-Grid		Projected Balances as at Dec. 31, 2017 (\$000s)						
ending 2017		nominal values			actuarial present value adjustments (apvs)			
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	development PfAD	Total apvs	TOTAL
2004	26	36	62	-	-	6	6	68
2005	65	(29)	36	(1)	-	4	3	39
2006	1,284	20	1,304	(21)	5	128	112	1,416
2007	807	61	868	(14)	3	86	75	943
2008	689	216	905	(16)	5	88	77	982
2009	1,799	116	1,915	(40)	11	187	158	2,073
2010	2,274	400	2,674	(62)	16	261	215	2,889
2011	4,495	987	5,482	(137)	33	534	430	5,912
2012	8,975	1,659	10,634	(255)	64	1,037	846	11,480
2013	11,537	2,472	14,009	(364)	98	1,365	1,099	15,108
2014	15,391	4,265	19,656	(511)	138	2,393	2,020	21,676
2015	18,919	8,761	27,680	(803)	221	3,332	2,750	30,430
2016	24,322	11,321	35,643	(1,105)	285	4,283	3,463	39,106
PAYs (sub-total):	90,583	30,285	120,868	(3,329)	879	13,704	11,254	132,122
CAY (2017)	36,224	19,950	56,174	(1,629)	393	6,381	5,145	61,319
<b>claims liabilities:</b>	<b>126,807</b>	<b>50,235</b>	<b>177,042</b>	<b>(4,958)</b>	<b>1,272</b>	<b>20,085</b>	<b>16,399</b>	<b>193,441</b>
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	development PfAD	Total apvs	TOTAL*
<b>premium liabilities:</b>	50,022	3,089	53,111	(1,057)	264	4,560	3,767	56,878
*Total may not be sum of parts, as apvs apply to future costs within UPR								
<b>policy liabilities:</b>			<b>230,153</b>	<b>(6,015)</b>	<b>1,536</b>	<b>24,645</b>	<b>20,166</b>	<b>250,319</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, 2017 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Mar. 31, 2017)				
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%	10.0%	10.0%
2009	10.0%	10.0%	10.0%	10.0%
2010	10.0%	10.0%	9.7%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	8.9%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	12.5%	10.0%	12.1%	12.5%
2015	12.5%	10.0%	12.3%	12.4%
2016	12.4%	10.0%	12.5%	12.4%
2017	12.1%	10.0%	7.8%	11.7%
2018	12.5%	10.0%	12.5%	12.5%
prem liab	11.8%	10.0%	5.1%	8.8%

discount rate: 0.99%  
margin (basis points): 25

**EXHIBIT F**

**Interest Rate Sensitivity**

The tables below present sensitivity to the member statement claims liability as projected to Dec. 31, 2017 from the latest valuation date (projections in exhibits A to D are also to Dec. 31, 2017, but are based on more up-to-date information). We have included the current valuation selection (0.99%), the prior valuation assumption (1.08%) and the prior fiscal year end valuation assumption (0.55%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2017 projected Unpaid								
AY	0.49%	0.99%	1.49%	1.99%	2.49%	2.99%	1.08%	0.55%
2004	-	-	-	-	-	-	-	-
2005	5	5	5	5	5	5	5	5
2006	1,008	1,000	992	984	976	968	998	1,007
2007	656	651	645	640	635	630	650	655
2008	706	699	693	687	681	675	698	705
2009	2,507	2,481	2,455	2,430	2,406	2,382	2,477	2,504
2010	2,554	2,524	2,495	2,467	2,440	2,413	2,519	2,550
2011	5,720	5,647	5,576	5,508	5,441	5,375	5,634	5,711
2012	10,410	10,283	10,157	10,037	9,920	9,805	10,260	10,394
2013	14,333	14,147	13,965	13,791	13,620	13,454	14,114	14,311
2014	23,910	23,600	23,297	23,005	22,719	22,442	23,544	23,874
2016	42,400	41,733	41,082	40,461	39,855	39,263	41,611	42,318
2017	65,158	64,193	63,247	62,339	61,459	60,602	64,015	65,038
<b>Total</b>	<b>201,258</b>	<b>198,390</b>	<b>195,587</b>	<b>192,896</b>	<b>190,276</b>	<b>187,723</b>	<b>197,870</b>	<b>200,905</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	0.49%	0.99%	1.49%	1.99%	2.49%	2.99%	1.08%	0.55%
<b>Total</b>	<b>2,868</b>	<b>-</b>	<b>(2,803)</b>	<b>(5,494)</b>	<b>(8,114)</b>	<b>(10,667)</b>	<b>(520)</b>	<b>2,515</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	0.49%	0.99%	1.49%	1.99%	2.49%	2.99%	1.08%	0.55%
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	0.8%	-	(0.8%)	(1.6%)	(2.4%)	(3.2%)	(0.2%)	0.7%
2007	0.8%	-	(0.9%)	(1.7%)	(2.5%)	(3.2%)	(0.2%)	0.6%
2008	1.0%	-	(0.9%)	(1.7%)	(2.6%)	(3.4%)	(0.1%)	0.9%
2009	1.0%	-	(1.0%)	(2.1%)	(3.0%)	(4.0%)	(0.2%)	0.9%
2010	1.2%	-	(1.1%)	(2.3%)	(3.3%)	(4.4%)	(0.2%)	1.0%
2011	1.3%	-	(1.3%)	(2.5%)	(3.6%)	(4.8%)	(0.2%)	1.1%
2012	1.2%	-	(1.2%)	(2.4%)	(3.5%)	(4.6%)	(0.2%)	1.1%
2013	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.2%)	1.2%
2014	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(4.9%)	(0.2%)	1.2%
2016	1.6%	-	(1.6%)	(3.0%)	(4.5%)	(5.9%)	(0.3%)	1.4%
2017	1.5%	-	(1.5%)	(2.9%)	(4.3%)	(5.6%)	(0.3%)	1.3%
<b>Total</b>	<b>1.4%</b>	<b>-</b>	<b>(1.4%)</b>	<b>(2.8%)</b>	<b>(4.1%)</b>	<b>(5.4%)</b>	<b>(0.3%)</b>	<b>1.3%</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 Non-Grid						M/S IBNR - in \$000s
AccountCode Desc		IBNR - Discou						
AccYear	Values							
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount	
2004	42	-	-	-	-	-	42	
2005	(31)	1	(1)	-	-	-	(31)	
2006	146	(3)	2	-	(1)	(0.7%)	145	
2007	150	(3)	2	-	(1)	(0.7%)	149	
2008	325	(7)	7	-	-	-	325	
2009	286	(6)	25	-	19	6.6%	305	
2010	694	(15)	12	-	(3)	(0.4%)	691	
2011	1,606	(32)	16	-	(16)	(1.0%)	1,590	
2012	2,649	(53)	214	-	161	6.1%	2,810	
2013	4,311	(55)	(204)	-	(259)	(6.0%)	4,052	
2014	7,608	(175)	(50)	-	(225)	(3.0%)	7,383	
2015	14,543	(630)	72	-	(558)	(3.8%)	13,985	
2016	19,365	(999)	269	-	(730)	(3.8%)	18,635	
2017	15,458	4,038	(2,719)	-	1,319	8.5%	16,777	
<b>Grand Total</b>	<b>67,152</b>	<b>2,061</b>	<b>(2,355)</b>	<b>-</b>	<b>(294)</b>	<b>(0.4%)</b>	<b>66,858</b>	

EXHIBIT G

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

RSP		Alberta Non-Grid						IBNR - in \$000s
AccountCode Desc		IBNR - Undiscounted						
AccYear	Values							Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change		
2004	36	-	-	-	-	-	36	
2005	(34)	1	(1)	-	-	-	(34)	
2006	20	-	-	-	-	-	20	
2007	67	(1)	-	-	(1)	(1.5%)	66	
2008	240	(5)	5	-	-	-	240	
2009	110	(2)	20	-	18	16.4%	128	
2010	455	(9)	6	-	(3)	(0.7%)	452	
2011	1,129	(23)	8	-	(15)	(1.3%)	1,114	
2012	1,699	(34)	208	-	174	10.2%	1,873	
2013	3,102	(31)	(221)	-	(252)	(8.1%)	2,850	
2014	5,281	(106)	(51)	-	(157)	(3.0%)	5,124	
2015	11,301	(565)	126	-	(439)	(3.9%)	10,862	
2016	15,287	(917)	272	-	(645)	(4.2%)	14,642	
2017	12,497	3,522	(2,602)	-	920	7.4%	13,417	
<b>Grand Total</b>	<b>51,190</b>	<b>1,830</b>	<b>(2,230)</b>	<b>-</b>	<b>(400)</b>	<b>(0.8%)</b>	<b>50,790</b>	