

**2012 CAS RATEMAKING SEMINAR  
BASIC RATEMAKING WORKSHOP**

DETERMINATION OF AN OVERALL INDICATION  
INTERACTIVE EXERCISES



## DATA CATAGORIZATION

### POLICY PREMIUM INFORMATION

Policy Effective Date	7/1/2011
Policy Term	Annual
Policy Premium	\$1,000

### POLICY LOSS ACTIVITY

Accident Date	12/15/2011
Reserve Amount (est. on date of accident)	\$5,000
Date of Payment	2/15/2012
Amount of Payment	\$3,000

### CALENDAR YEAR

2011 Written Premium	
2011 Earned Premium	
2011 Incurred Loss @ 12/31/2011	
2011 Incurred Loss @ 12/31/2012	
2012 Incurred Loss	

### POLICY YEAR

2011 Written Premium	
2011 Earned Premium	
2011 Incurred Loss @ 12/31/2011	
2011 Incurred Loss @ 12/31/2012	
2012 Incurred Loss	

### ACCIDENT YEAR

2011 Written Premium	
2011 Earned Premium	
2011 Incurred Loss @ 12/31/2011	
2011 Incurred Loss @ 12/31/2012	
2012 Incurred Loss	

## DATA CATAGORIZATION

### POLICY PREMIUM INFORMATION

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Policy Term	Annual
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Amount of Payment	\$3,000

### CALENDAR YEAR

2011 Written Premium	\$1,000	
2011 Earned Premium	\$500	1/2 of Coverage in-force in 2011
2011 Incurred Loss @ 12/31/2011	\$5,000	2011 Payments + 2011 Changes in Reserves: 0 + (+5,000)
2011 Incurred Loss @ 12/31/2012	\$5,000	Fixed at 2011 Year End
2012 Incurred Loss	-\$2,000	2012 Payments + 2012 Changes in Reserves: 3,000 + (-5,000)

### POLICY YEAR

2011 Written Premium	\$1,000	
2011 Earned Premium	\$1,000	
2011 Incurred Loss @ 12/31/2011	\$5,000	Payments on Policies Effective in 2011 + Changes in Reserves for Policies Effective in 2011: 0 + (+5,000)
2011 Incurred Loss @ 12/31/2012	\$3,000	Payments on Policies Effective in 2011 + Changes in Reserves for Policies Effective in 2011: 3,000 + (5,000 - 5,000)
2012 Incurred Loss	0	Will Never Be Any

### ACCIDENT YEAR

2011 Written Premium	\$1,000	**Same as CY
2011 Earned Premium	\$500	
2011 Incurred Loss @ 12/31/2011	\$5,000	Payments on Accidents Occurring in 2011 + Changes in Reserves for Accidents Occurring in 2011: 0 + (+5,000)
2011 Incurred Loss @ 12/31/2012	\$3,000	Payments on Accidents Occurring in 2011 + Changes in Reserves for Accidents Occurring in 2011: 3,000 + (5,000 - 5,000)
2012 Incurred Loss	0	None, Since No Accidents for this Policy occurred in 2012

**INSURANCE COMPANY**  
**Private Passenger Auto**  
**STATE X**

Determination of Statewide Rate Level Indication - Loss Ratio Method  
Comprehensive

1 Indicated Loss and Loss Adjustment Expense Ratio	57.5%
2 Indicated Provision for Fixed Expense	20.0%
3 Variable Permissible Loss Ratio	77.2%
4 Indicated Rate Level Change $\{ [(1)+(2)] / (3) \} - 1.0$	0.4 %

**INSURANCE COMPANY**  
**Private Passenger Auto**  
**STATE X**

**COMPREHENSIVE**

Development of Loss and LAE Ratio

(1)	(3)	(4)	(5) = (3)*(1+(4))	(6)	(7) = (5)*(1+(6))	(8)	(9) = (7)*(8)		(11)	
Fiscal Year Ending	Accident Year Non-Cat Ult. Loss + ALAE	Catastrophe Factor	Accident Year Ult. Loss + ALAE	ULAE Provision	Ultimate Loss and LAE	Trend Factor	Projected Ult. Loss + LAE	Projected Earned Premium @ CRL	Loss and LAE Ratio	Experience Year Weights
12/31/2010	\$9,177,124	0.158	\$10,627,109	0.150	\$12,221,176	1.102	\$13,468,671	\$23,716,490	56.8%	35%
12/31/2011	\$8,750,683	0.158	\$10,133,290	0.150	\$11,653,284	1.092	\$12,730,780	\$21,997,818	57.9%	65%
Indicated Loss and LAE Ratio									57.5%	

Development of Provision for Fixed Expense

(1)	(2)	(3)	(4) = (1)+(2)+(3)	(7)	(8) = (6)*(7)
License + Fees	Other Acquisition	General	Fixed Expense Ratio	Trend Factor	Projected Fixed Expense Ratio
0.1%	4.9%	5.4%	10.4%	1.087	20.0%

Development of Projected Average Earned Premium @ CRL

(1)	(3)	(4)	(5) = (3)*(4)	(6) = (5)/(2)
Fiscal Year Ending	Earned Premium at CRL	Trend Factor	Projected Earned Premium @ CRL	Projected Average Earned Premium @ CRL
12/31/2010	\$19,565,248	1.101	\$21,541,100	\$23,716,490
12/31/2011	\$19,252,582	1.069	\$20,579,475	\$21,997,818

Variable Permissible Loss Ratio

(1)	(2)	(3)	(4) = (1)+(2)+(3)	(5) = 1 - (4)
Commissions	Taxes	UW Profit	Variable Expense Ratio	Variable PLR
15.0%	2.8%	5.0%	22.8%	77.2%

**INSURANCE COMPANY**  
**Private Passenger Auto**  
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**Calculation of Loss Development Factors**  
**Comprehensive**

<u>Fiscal Accident</u> <u>Year Ending</u>	<u>Incurred Loss</u>				
	<u>@12 Months</u>	<u>@24 Months</u>	<u>@36 Months</u>	<u>@48 Months</u>	<u>@60 Months</u>
12/31/2006	7,478,144	7,523,188	7,528,572	7,527,823	7,527,583
12/31/2007	7,976,481	8,034,730	8,043,895	8,043,111	8,046,213
12/31/2008	8,053,403	8,112,672	8,124,400	8,120,534	
12/31/2009	9,697,478	9,737,963	9,739,417		
12/31/2010	9,102,321	9,169,647			
12/31/2011	8,687,507				

<u>Development</u>	<u>Link Ratios</u>			
	<u>12-24</u>	<u>24-36</u>	<u>36-48</u>	<u>48-60</u>
4th Prior				
3rd Prior				
2nd Prior				
1st Prior				
Latest				
<b>Straight Average</b>				

<b>Loss Development Factor:</b>	<u>12-ULT</u>	<u>24-ULT</u>

<u>Fiscal Accident</u> <u>Year Ending</u>	<u>Incurred</u> <u>Loss &amp; ALAE</u>	<u>Factor</u> <u>to Ultimate</u>	<u>Ultimate</u> <u>Loss &amp; ALAE</u>
12/31/2010	9,169,647		
12/31/2011	8,687,507		



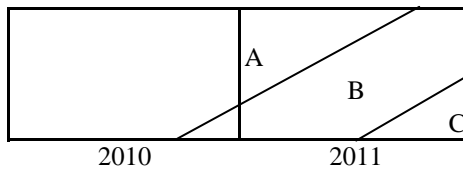


**INSURANCE COMPANY**  
**Private Passenger Auto**  
**STATE X**

**Calculation of Earned Premium @ CRL**

Rate History

<u>Date</u>	<u>%Change</u>
9/15/2010	5.0%
7/1/2011	7.0%



<u>Area</u>	<u>% of 2011</u>	<u>Rate Index</u>	
A			
B			
C			2011 FCRL
2011			

2011 Earned Premium      \$17,935,560  
2011 Earned Premium @ CRL     

<u>Area</u>	<u>% of 2010</u>	<u>Rate Index</u>	
A			
B			
2010			2010 FCRL

2010 Earned Premium      \$16,272,086  
2010 Earned Premium @ CRL



**INSURANCE COMPANY**  
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**Calculation of Trend Factors**

Annual Policy Term

	<u>From</u>	<u>To</u>
Rates In Effect for Policies Written	10/1/2012	9/30/2013
Exposure Period	10/1/2012	9/30/2014

Projection Date

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Loss Trend Factor Calculation

	<u>2010</u>	<u>2011</u>
Midpoint of Experience Period		
Midpoint of Most Recent Year Experience Period		
Projection Date		
Trend Period		
Projection Period		

	<u>Frequency</u>	<u>Severity</u>	<u>Pure Premium</u>
Selected Historical Annual Trend	-3.0%	4.0%	0.9%
Selected Prospective Annual Trend	0.0%	4.0%	4.0%

	<u>2010</u>	<u>2011</u>
Loss Trend Factor		

Fixed Expense Trend Factor Calculation

	<u>From</u>	<u>To</u>
Experience Period	1/1/2009	12/31/2011

Midpoint of Experience Period	
Projection Date	
Trend Period	

Selected Historical Annual Trend	2.6%
Fixed Expense Trend Factor	

Premium Trend Factor Calculation

	<u>2010</u>	<u>2011</u>
Midpoint of Experience Period		
Projection Date		
Trend Period		

Selected Historical Annual Trend	3.0%	3.0%
Fixed Expense Trend Factor		

**INSURANCE COMPANY**  
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**STATE X**

**Calculation of Trend Factors**

Annual Policy Term		
	<u>From</u>	<u>To</u>
Rates In Effect for Policies Written	10/1/2012	9/30/2013
Exposure Period	10/1/2012	9/30/2014
Projection Date	10/1/2013	

Loss Trend Factor Calculation

	<u>2010</u>	<u>2011</u>	
Midpoint of Experience Period	7/1/2010	7/1/2011	
Midpoint of Most Recent Year Experience Period	7/1/2011	7/1/2011	
Projection Date	10/1/2013	10/1/2013	
Trend Period	1.00	0.00	
Projection Period	2.25	2.25	
	<u>Frequency</u>	<u>Severity</u>	<u>Pure Premium</u>
Selected Historical Annual Trend	-3.0%	4.0%	0.9%
Selected Prospective Annual Trend	0.0%	4.0%	4.0%
	<u>2010</u>	<u>2011</u>	
Loss Trend Factor	1.1021      1.0925		

Fixed Expense Trend Factor Calculation

	<u>From</u>	<u>To</u>
Experience Period	1/1/2009	12/31/2011
Midpoint of Experience Period	7/1/2010	
Projection Date	10/1/2013	
Trend Period	3.25	
Selected Historical Annual Trend	2.6%	
Fixed Expense Trend Factor	1.087	

Premium Trend Factor Calculation

	<u>2010</u>	<u>2011</u>
Midpoint of Experience Period	7/1/2010	7/1/2011
Projection Date	10/1/2013	10/1/2013
Trend Period	3.25	2.25
Selected Historical Annual Trend	3.0%	
Fixed Expense Trend Factor	1.101      1.069	

**INSURANCE COMPANY**  
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**STATE X**

Determination of Statewide Rate Level Indication - Pure Premium Method  
Comprehensive

1 Indicated Provision for Loss and Loss Adjustment Expense	\$66
2 Indicated Provision for Fixed Expense	\$14
3 Variable Permissible Loss Ratio	77.2%
4 Indicated Average Premium [ (1) + (2) ] / [ (3) ]	\$104
5 Projected Average Earned Premium at Current Rate Level	\$103
6 Indicated Rate Level Change [ (4) / (5) - 1.0 ]	0.4 %

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**COMPREHENSIVE**

Development of Provision for Loss and LAE

(1)	(2)	(3)	(4)	(5) = (3)*(1+(4))	(6)	(7) = (5)*(1+(6))	(8)	(9) = (7)*(8)	(10) = (9)/(2)	(11)
Fiscal Year Ending	Earned Exposure	Accident Year Non-Cat Ult. Loss + ALAE	Catastrophe Factor	Accident Year Ult. Loss + ALAE	ULAE Provision	Ultimate Loss and LAE	Trend Factor	Projected Ult. Loss + LAE	Projected Pure Premium	Experience Year Weights
12/31/2010	193,370	\$9,177,124	0.158	\$10,627,109	0.150	\$12,221,176	1.102	\$13,468,671	\$70	35%
12/31/2011	199,284	\$8,750,683	0.158	\$10,133,290	0.150	\$11,653,284	1.092	\$12,730,780	\$64	65%
Indicated Provision for Loss and LAE									\$66	

Development of Provision for Fixed Expense

(1)	(2)	(3)	(4) = (1)+(2)+(3)	(5)	(6) = (4)*(5)	(7)	(8) = (6)*(7)
License + Fees	Other Acquisition	General	Fixed Expense Ratio	3Yr Average Earned Premium	Dollar Provision for Fixed Expense	Trend Factor	Indicated Provision for Fixed Expense
0.1%	4.9%	5.4%	10.4%	\$125.37	\$13.04	1.087	\$14

Development of Projected Average Earned Premium @ CRL

(1)	(2)	(3)	(4)	(5) = (3)*(4)	(6) = (5)/(2)
Fiscal Year Ending	Earned Exposure	Earned Premium at CRL	Trend Factor	Projected Earned Premium @ CRL	Projected Average Earned Premium @ CRL
12/31/2011	199,284	\$19,252,582	1.069	\$20,579,475	\$103

Variable Permissible Loss Ratio

(1)	(2)	(3)	(4) = (1)+(2)+(3)	(5) = 1 - (4)
Commissions	Taxes	UW Profit	Variable Expense Ratio	Variable PLR
15.0%	2.8%	5.0%	22.8%	77.2%