

PENNSYLVANIA COMPENSATION RATING BUREAU

Indicated Change in Loss Costs

Page 1 presents the overall indicated change in loss costs.

Derivation of the indemnity and medical trend factors and trended loss ratios shown on page 1 is presented on page 2. Severity ratios, defined herein as loss ratios adjusted by dividing out the frequency component, for both indemnity and medical, have been fitted using a seven point exponential curve. Severity trend factors are calculated by fitting severity ratios to curves using a least squares regression analysis and comparing the fitted values at 4/1/17 to the fitted values at the midpoints of the latest three available policy years. Frequency trend factors are derived on page 3. The resulting severity and frequency trend factors are then applied to the latest three available policy year loss ratios to generate projected ultimate trended loss ratios.

As described in Exhibit 8, staff has selected an annual frequency trend of -4.5%. Page 3 shows the derivation of overall frequency trend factors for each of the latest three available policy years.

Due to the impact of House Bill 1846 of 2014 (HB1846), medical severity trend is separated between pre-HB1846 and post-HB1846 trends. The difference between the two trend rates is a reduction of 0.2 point in medical trend reflecting the evaluation of HB1846's ongoing effect on medical costs after 1/1/2015. (HB1846 became effective on 12/26/2014. The PCRБ used the 1/1/2015 date, for convenience, as an approximation in its evaluation of savings for the law.)

In addition, staff is also taking into account the impact of direct savings attributable to HB1846, which is shown on page 1 as 0.9908.

INDICATED CHANGE IN LOSS COSTS

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
(1) Policy Year 2011 Ratio of Loss to Expected Loss	0.5105	0.5966	1.1071
(2) Policy Year 2012 Ratio of Loss to Expected Loss	0.4849	0.5635	1.0484
(3) Policy Year 2013 Ratio of Loss to Expected Loss	0.4990	0.5827	1.0817
(4) Average (Midpoint = 1/1/2013)	0.4981	0.5809	1.0790
(5) Policy Year 2011 Ratio Trended to 4/1/2017 +	0.4337	0.5701	1.0038
(6) Policy Year 2012 Ratio Trended to 4/1/2017 +	0.4249	0.5428	0.9677
(7) Policy Year 2013 Ratio Trended to 4/1/2017 +	0.4511	0.5656	1.0167
(8) Average at 4/1/2017	0.4366	0.5595	0.9961
(9) House Bill 1846 Adjustment	1.0000	0.9908	
(10) Indicated Change in Loss Costs	0.4366	0.5544	0.9910

CHANGES IN MANUAL LOSS COST LEVEL BY INDUSTRY GROUP

	<u>Mfg.</u>	<u>Cont.</u>	<u>Other</u>	<u>Total</u>
(11) Current Collectible Premium Ratio	1.0389	1.1002	0.9995	
(12) Anticipated Collectible Premium Ratio	1.0357	1.1081	0.9960	
(13) Final Indicated Change in Manual Loss Cost Level (10T) * (12) / (11)	0.9879	0.9981	0.9875	0.9897

+ Refer to pages 12.2 and 12.3.

DETERMINATION OF TREND

INDEMNITY

Policy Year	2007	2008	2009	2010	2011	2012	2013
Actual Loss Ratio	0.5889	0.5704	0.5427	0.5356	0.5105	0.4849	0.4990
Normalized Frequency	0.7347	0.6782	0.6552	0.6458	0.6032	0.5648	0.5527
Severity Loss Ratio	0.8016	0.8410	0.8283	0.8294	0.8463	0.8585	0.9028
x	1	2	3	4	5	6	7
y	0.8016	0.8410	0.8283	0.8294	0.8463	0.8585	0.9028

7 Point Exponential Regression: $y = 0.794442 * 1.015090 ^ x$

Policy Year	Severity Trend Factor (1)	# of years to 4/1/17 (2)	Severity Trend to 4/1/17 (3) = (1) ^ (2)	Frequency Trend Factor (4) #
2011	1.0151	5.2500	1.0819	0.7853
2012	1.0151	4.2500	1.0658	0.8223
2013	1.0151	3.2500	1.0499	0.8610

Trended Loss Ratio

Policy Year	Actual Loss Ratio (5)	Combined Trend Factor (6) = (3) * (4)	Trended Loss Ratio (7) = (5) * (6)
2011	0.5105	0.8496	0.4337
2012	0.4849	0.8764	0.4249
2013	0.4990	0.9040	0.4511

MEDICAL

Policy Year	2007	2008	2009	2010	2011	2012	2013
Actual Loss Ratio	0.6202	0.5870	0.5761	0.5993	0.5966	0.5635	0.5827
Normalized Frequency	0.7347	0.6782	0.6552	0.6458	0.6032	0.5648	0.5527
Severity Loss Ratio	0.8442	0.8655	0.8793	0.9280	0.9891	0.9977	1.0543
x	1	2	3	4	5	6	7
y	0.8442	0.8655	0.8793	0.9280	0.9891	0.9977	1.0543

7 Point Exponential Regression: $y = 0.801804 * 1.038905 ^ x$

Selected Annual Severity Trend to 1/1/15 = 3.89%

HB1846 Adjustment to Annual Severity Trend from 1/1/15 and later = -0.19%

Selected Annual Severity Trend from 1/1/15 and later = 3.70%

Policy Year	Severity Trend Factor to 1/1/15 (1)	# of years to 1/1/15 (2)	Severity Trend to 1/1/15 (3) = (1) ^ (2)	Severity Trend Factor from 1/1/15 to 4/1/17 (4)	# of years from 1/1/15 to 4/1/17 (5)	Severity Trend from 1/1/15 to 4/1/17 (6) = (4) ^ (5)	Frequency Trend Factor (7) #
2011	1.0389	3.0000	1.1213	1.0370	2.2500	1.0852	0.7853
2012	1.0389	2.0000	1.0793	1.0370	2.2500	1.0852	0.8223
2013	1.0389	1.0000	1.0389	1.0370	2.2500	1.0852	0.8610

Trended Loss Ratio

Policy Year	Actual Loss Ratio (8)	Combined Trend Factor (9) = (3)*(6)*(7)	Trended Loss Ratio (10) = (8) * (9)
2011	0.5966	0.9556	0.5701
2012	0.5635	0.9631	0.5428
2013	0.5827	0.9707	0.5656

See page 12.3

DETERMINATION OF TREND

Claim Frequency

Policy Year Frequency per \$1 million of Expected Losses
{1 = PY 2002, 12 = PY 2013}

Policy Year	Claim Frequency	Normalized Frequency
2002	26.54	1.0000
2003	24.34	0.9171
2004	23.09	0.8700
2005	21.44	0.8078
2006	20.71	0.7803
2007	19.50	0.7347
2008	18.00	0.6782
2009	17.39	0.6552
2010	17.14	0.6458
2011	16.01	0.6032
2012	14.99	0.5648
2013	14.67	0.5527

Policy Year	2007	2008	2009	2010	2011	2012	2013
x	1	2	3	4	5	6	7
y	0.7347	0.6782	0.6552	0.6458	0.6032	0.5648	0.5527

7 Point Exponential Regression: $y = 0.759698 * 0.954545 ^ x$

SELECTED FREQUENCY TREND FACTOR

-4.5%

Policy Year	Frequency Trend Factor (1)	# of years to 4/1/17 (2)	Frequency Trend to 4/1/17 (3) = (1)^(2)
2011	0.9550	5.2500	0.7853
2012	0.9550	4.2500	0.8223
2013	0.9550	3.2500	0.8610