



TEXAS WINDSTORM
INSURANCE ASSOCIATION



TWIA Board of Directors

Rate Adequacy Analysis

August 6, 2019

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Actuarial Principles

Casualty Actuarial Society Statement of Principles

1. A rate is an estimate of the expected value of future costs
2. A rate provides for all costs associated with the transfer of risk
3. A rate provides for the costs associated with an individual risk transfer
4. A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer

Statutory Language

- **The association shall function in such a manner as to not be a direct competitor in the private market**
- **Rates must be reasonable, adequate, not unfairly discriminatory, and nonconfiscatory as to any class of insurer**

Rate Filings

Annual Rate Filing

- Rates must be filed by August 15 each year
- Rates that increase by 5% or less overall are deemed approved
- Rates that increase by more than 5% but not more than 10% are deemed approved unless disapproved by October 15
- Rates may not increase or decrease by more than 10% without specific findings by TDI

Additional Rate Filings

- Additional rate filings can be made at any time
- Rates are deemed approved unless disapproved within 30 days

Other Rating Structures

- **Base Premium**
 - Amount of insurance, construction class, commercial class code
- **Optional Coverages**
 - Deductibles, endorsements
- **Credits and Surcharges**
 - Building code credits
 - WPI-8 waiver

Overview of Rate Adequacy Analysis

- **The Association employs the “Loss Ratio Method” to determine rate level indications.**
 - This approach compares the estimated percentage of each premium dollar needed to cover future losses, loss adjustment expense and other fixed expenses for a prospective accident year to the amount of each premium dollar that is available to pay for such costs (referred to as the permissible loss ratio).
 - This relationship is defined as:

$$\text{Indicated Rate} = \frac{\text{Change Factor} \times (\text{Loss \& LAE Ratio} + \text{Fixed Expense Ratio})}{(1.0 - \text{Variable Expense Ratio} - \text{Target UW Profit})}$$

Overview of Rate Adequacy Analysis

- **The Loss and LAE Ratio include a provision for:**
 - Hurricane losses
 - Non-Hurricane Losses
- **Fixed Expense Ratio includes:**
 - General operating expenses
 - The net cost of reinsurance (total premiums less expected average annual recoveries)
 - Debt service outstanding pre-event Class 1 Public securities
 - Note: Previously considered part of provision for contribution to CRTF . Now that proceeds of Series 2014 Bonds have been used for Hurricane Harvey, debt service is considered a fixed expense
- **Variable Expense includes:**
 - Commissions, taxes, licenses and fees.
 - Provisions for CRTF and contingencies

Historical Rate Changes

Since 1988

- Cumulative increase of over 100%
- Average annual increase of 2.4%

Since 2006

- Cumulative increase of over 80%
- Average annual increase of 4.8%

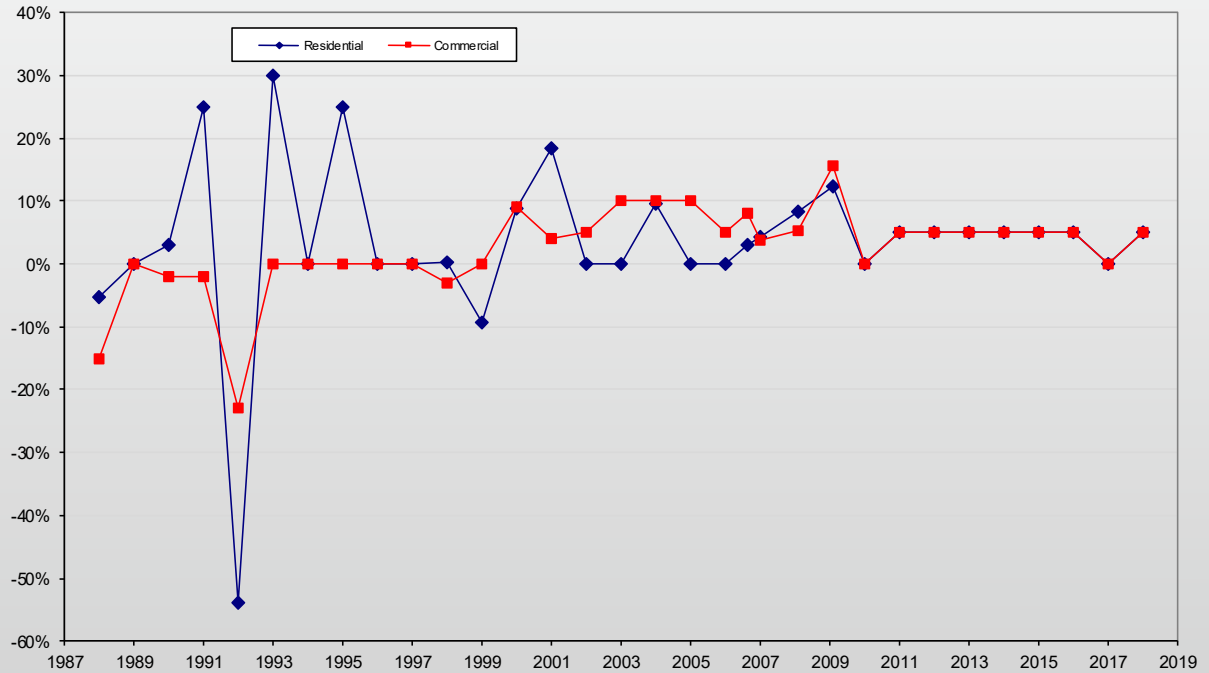
Year	Residential	Commercial
2007	+ 4.2%	+ 3.7%
2008	+ 8.2%	+ 5.4%
2009	+ 12.3%	+ 15.6%
2010	0.0%	0.0%
2011	+ 5.0%	+ 5.0%
2012	+ 5.0%	+ 5.0%
2013	+ 5.0%	+ 5.0%
2014	+ 5.0%	+ 5.0%
2015	+ 5.0%	+ 5.0%
2016	+ 5.0%	+ 5.0%
2017	+ 0.0%	+0.0%
2018	+5.0%	+5.0%
2019	0.0%	0.0%

Historical Rate Changes

History of Rate Changes

Year	Residential	Commercial
1988	-5.4%	-15.0%
1989	0.0%	0.0%
1990	3.1%	-2.1%
1991	25.0%	-2.0%
1992	-54.0%	-22.9%
1993	30.0%	0.0%
1994	0.0%	0.0%
1995	25.0%	0.0%
1996	0.0%	0.0%
1997	0.0%	0.0%
1998	0.2%	-3.0%
1999	-9.4%	0.0%
2000	8.7%	9.0%
2001	18.5%	4.0%
2002	0.0%	5.0%
2003	0.0%	10.0%
2004	9.6%	10.0%
2005	0.0%	10.0%
2006	0.0%	5.0%
2006 (Sep)	3.1%	8.0%
2007	4.2%	3.7%
2008 (Feb)	8.2%	5.4%
2009 (Feb)	12.3%	15.6%
2010	0.0%	0.0%
2011	5.0%	5.0%
2012	5.0%	5.0%
2013	5.0%	5.0%
2014	5.0%	5.0%
2015	5.0%	5.0%
2016	5.0%	5.0%
2017	0.0%	0.0%
2018	5.0%	5.0%
2019	0.0%	0.0%

Incremental Rate Changes



Notes

- 1992 - Elimination of 400% beach / 25% inland surcharges
- 1993 - Addition of 30% to residential benchmark rates
- 2002 - Separation of residential rates from benchmark rates

Since 1988

Cumulative Change	114.5%	94.8%
Annual Average	2.4%	2.1%

Since 2006

Cumulative Change	83.7%	101.6%
Annual Average	4.8%	5.5%

Rate Adequacy Conclusions

Rate Element	Residential		Commercial	
	2018 Review	2019 Review	2018 Review	2019 Review
█ (1) Non-Hurricane Provision	15.4%	14.2%	9.1%	9.3%
Hurricane Provision				
█ (2) Experience	41.5%	42.2%	55.1%	56.9%
█ (3) Modeled	50.8%	51.9%	57.5%	59.7%
█ (4) Combined	46.2%	47.1%	56.3%	58.3%
Fixed Expenses				
█ (5) Operating	5.7%	6.2%	5.7%	6.2%
█ (6) Reinsurance	16.0%	16.6%	16.0%	16.6%
█ (7) Outstanding Class I Bond Repayment	18.6%	25.1%	18.6%	25.1%
	40.3%	47.9%	40.3%	47.9%
Total Hurricane and Non-Hurricane LR plus Fixed	101.8%	109.1%	105.7%	115.5%
Variable Expenses				
█ (8) Commission	16.0%	16.0%	16.0%	16.0%
█ (9) Taxes and Fees	2.0%	2.0%	2.0%	2.0%
█ (10) Funding Contribution	5.0%	5.0%	5.0%	5.0%
Total Variable Expenses	23.0%	23.0%	23.0%	23.0%
█ (11) Overall Rate Indication	32.3%	41.7%	37.3%	50.0%

Impact of Alternative Rate Increases - Residential

Rate Element	Residential Rate Increases							
	0.0%	2.5%	5.0%	7.5%	10.0%	12.5%	15.0% ...	41.7%
(1) Non-Hurricane Provision	14.2%	13.9%	13.5%	13.2%	12.9%	12.6%	12.3%	10.0%
Hurricane Provision								
(2) Experience	42.2%	41.2%	40.2%	39.3%	38.4%	37.5%	36.7%	29.8%
(3) Modeled	51.9%	50.6%	49.4%	48.3%	47.2%	46.1%	45.1%	36.6%
(4) Combined	47.1%	45.9%	44.8%	43.8%	42.8%	41.8%	40.9%	33.2%
Fixed Expenses								
(5) Operating	6.2%	6.0%	5.9%	5.8%	5.6%	5.5%	5.4%	4.4%
(6) Reinsurance	16.6%	16.2%	15.8%	15.4%	15.1%	14.7%	14.4%	11.7%
(7) Outstanding Class I Bond Repayment	25.1%	24.5%	23.9%	23.3%	22.8%	22.3%	21.8%	17.7%
	47.9%	46.7%	45.6%	44.6%	43.5%	42.6%	41.6%	33.8%
Total Hurricane and Non-Hurricane LR plus Fixed	109.1%	106.5%	103.9%	101.5%	99.2%	97.0%	94.9%	77.0%
Variable Expenses								
(8) Commission	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%
(9) Taxes and Fees	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
(10) Funding Contribution	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total Variable Expenses	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
(11) Overall Rate Indication	41.7%	38.3%	35.0%	31.9%	28.9%	26.0%	23.3%	0.0%

Impact of Alternative Rate Increases - Commercial

Rate Element	Commercial Rate Increase							
	0.0%	2.5%	5.0%	7.5%	10.0%	12.5%	15.0%	50.0%
█ (1) Non-Hurricane Provision	9.3%	9.1%	8.9%	8.7%	8.5%	8.3%	8.1%	6.2%
Hurricane Provision								
█ (2) Experience	56.9%	55.5%	54.2%	52.9%	51.7%	50.6%	49.5%	37.9%
█ (3) Modeled	59.7%	58.2%	56.9%	55.5%	54.3%	53.1%	51.9%	39.8%
█ (4) Combined	58.3%	56.9%	55.5%	54.2%	53.0%	51.8%	50.7%	38.9%
Fixed Expenses								
█ (5) Operating	6.2%	6.0%	5.9%	5.8%	5.6%	5.5%	5.4%	4.1%
█ (6) Reinsurance	16.6%	16.2%	15.8%	15.4%	15.1%	14.7%	14.4%	11.1%
█ (7) Outstanding Class I Bond Repayment	25.1%	24.5%	23.9%	23.3%	22.8%	22.3%	21.8%	16.7%
	47.9%	46.7%	45.6%	44.6%	43.5%	42.6%	41.6%	31.9%
Total Hurricane and Non-Hurricane LR plus Fixed	115.5%	112.7%	110.0%	107.4%	105.0%	102.7%	100.4%	77.0%
Variable Expenses								
█ (8) Commission	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%
█ (9) Taxes and Fees	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
█ (10) Funding Contribution & Contingency	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total Variable Expenses	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
█ (11) Overall Rate Indication	50.0%	38.3%	35.0%	31.9%	28.9%	26.0%	23.3%	0.0%