

**Texas Windstorm Insurance Association  
Commercial Property - Wind & Hail  
2024 Rate Level Review**

**Texas Windstorm Insurance Association  
Commercial Property - Wind & Hail  
Rate Level Review**

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Summary of Indicated Rate Change

By Method for Projecting Hurricane Loss & LAE

All Territories Combined

Hurricane Projection Method	Indicated Loss & LAE Ratio			Fixed Expenses	Total	Permissible LLAE Ratio	2024
	Hurricane	Non-Hurricane					Indicated Rate Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7)
Using Experience and Models	51.8%	4.6%	55.6%	112.0%	77.2%	45.0%	
Using Actual Industry Experience	48.4%	4.6%	55.6%	108.6%	77.2%	41.0%	
Verisk	72.7%	4.6%	55.6%	132.9%	77.2%	72.0%	
RMS	67.3%	4.6%	55.6%	127.5%	77.2%	65.0%	
Impact Forecasting	32.1%	4.6%	55.6%	92.3%	77.2%	20.0%	
CoreLogic RQE	48.2%	4.6%	55.6%	108.4%	77.2%	40.0%	
Average of All Models	55.1%	4.6%	55.6%	115.3%	77.2%	49.4%	

Notes:

(2) Exhibit 5

(3) Exhibit 2, Sheet 1

(4) Exhibit 10, Sheet 1

(5) = (2) + (3) + (4)

(6) Exhibit 10, Sheet 1

(7) = (5) / (6) - 1

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**

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Projected Ultimate Non-Hurricane Loss & LAE Ratio  
 All Territories Combined

Accident Year Ending 12/31	Ultimate Non-Hurricane Loss	LAE Factor	Net Trend Factor	Projected Non-Hurricane Loss & LAE	Earned Premium at Current Rate Level	Indicated Non-Hurricane Loss & LAE Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2014	1,056,281	0.290	0.957	1,304,011	135,603,583	1.0%
2015	18,737,038	0.290	0.940	22,720,532	120,726,959	18.8%
2016	2,551,122	0.290	0.937	3,083,618	105,842,224	2.9%
2017	2,011,705	0.290	0.890	2,309,639	87,703,816	2.6%
2018	251,565	0.290	0.872	282,980	73,508,956	0.4%
2019	953,957	0.290	0.876	1,078,010	65,530,795	1.6%
2020	857,896	0.290	0.938	1,038,071	62,711,660	1.7%
2021	832,836	0.290	0.851	914,279	64,939,142	1.4%
2022	1,575,058	0.290	0.860	1,747,369	77,659,503	2.3%
2023	5,616,151	0.290	0.986	7,143,407	109,473,433	6.5%
<b>Total</b>	<b>34,443,609</b>			<b>41,621,916</b>	<b>903,700,071</b>	<b>4.6%</b>

Notes:

- (2) Exhibit 2, Sheet 2
- (3) Exhibit 4
- (4) = Exhibit 2, Sheet 4
- (5) = (2) \* [1 + (3)] \* (4)
- (6) Exhibit 9, Sheet 1
- (7) = (5) / (6)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**  
 Projected Ultimate Non-Hurricane Loss  
 All Territories Combined

Accident Year Ending 12/31	Schedule P Direct & Assumed Paid Loss	Schedule P Direct & Assumed Ultimate Loss	Schedule P Implied Development Factor	TWIA Non-Hurricane Paid Loss	Ultimate Non-Hurricane Loss
(1)	(2)	(3)	(4)	(5)	(6)
2014	7,871,000	7,871,000	1.000	1,056,281	1,056,281
2015	138,697,000	138,836,000	1.001	18,718,279	18,737,038
2016	28,422,000	28,422,000	1.000	2,551,122	2,551,122
2017	1,402,282,000	1,410,332,000	1.006	2,000,222	2,011,705
2018	12,097,000	12,107,000	1.001	251,357	251,565
2019	17,606,000	17,832,000	1.013	941,867	953,957
2020	64,031,000	65,043,000	1.016	844,548	857,896
2021	64,894,000	67,732,000	1.044	797,940	832,836
2022	27,771,000	30,224,000	1.088	1,447,225	1,575,058
2023	57,766,000	76,706,000	1.328	4,229,429	5,616,151
<b>Total</b>				<b>32,838,270</b>	<b>34,443,609</b>

Notes:

- (2) Based on TWIA 2023 Annual Statement
- (3) Based on TWIA 2023 Annual Statement
- (4) = (3) / (2)
- (5) Exhibit 2, Sheet 3, as of 12/31/23
- (6) = (4) \* (5)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
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Summary of TWIA Historical Paid Loss as of 12/31/23  
All Territories Combined

Accident Year Ending 12/31	Paid Loss Excluding Expense		
	Non-Hurricane (1)	Hurricane (2)	Total (3)
2014	1,056,281	0	1,056,281
2015	18,718,279	0	18,718,279
2016	2,551,122	0	2,551,122
2017	2,000,222	466,680,914	468,681,136
2018	251,357	0	251,357
2019	941,867	0	941,867
2020	844,548	6,288,010	7,132,559
2021	797,940	7,267,566	8,065,506
2022	1,447,225	0	1,447,225
2023	4,229,429	0	4,229,429
<b>Total</b>	<b>32,838,270</b>	<b>480,236,490</b>	<b>513,074,761</b>

Notes:

(2), (3) Provided by TWIA

(4) = (2) + (3)

**Texas Windstorm Insurance Association**  
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Calculation of Net Trend Factors

Year / Quarter	Average Written Premium At Present Rates		
(1)	(2)		
		(3) Current Average Earned Date	7/1/2023
2014 / 4	4,610.68	(4) Current Average Accident Date	7/1/2023
2015 / 4	4,595.35	(5) Prospective Average Earned / Accident Date	1/1/2026
2016 / 4	4,581.38	(6) Premium Trend Length	2.500
2017 / 4	4,426.00	(7) Loss Trend Length	2.500
2018 / 4	4,497.78	(8) Selected Premium Trend	10.0%
2019 / 4	4,601.77	(9) Selected Loss Trend	9.4%
2020 / 4	4,930.85		
2021 / 4	5,052.90		
2022 / 4	5,864.06		
2023 / 4	6,826.29		

Accident Year Ending 12/31	Current Premium Trend	Current Loss Trend	Prospective Premium Trend	Prospective Loss Trend	Net Trend Factor
(10)	(11)	(12)	(13)	(14)	(15)
2014	1.481	1.436	1.269	1.252	0.957
2015	1.485	1.415	1.269	1.252	0.940
2016	1.490	1.416	1.269	1.252	0.937
2017	1.542	1.392	1.269	1.252	0.890
2018	1.518	1.342	1.269	1.252	0.872
2019	1.483	1.318	1.269	1.252	0.876
2020	1.384	1.317	1.269	1.252	0.938
2021	1.351	1.165	1.269	1.252	0.851
2022	1.164	1.015	1.269	1.252	0.860
2023	1.000	1.000	1.269	1.252	0.986

Notes:

- (2) Average written premium per exposure at present rates from Exhibit 3, Sheet 1, Column (7)
- (3) Latest Year / Quarter Ending Date - 6 Months
- (4) Latest Accident Year Ending Date - 6 Months
- (5) Rate Effective Date + 12 Months
- (6) = (5) - (3)
- (7) = (5) - (4)
- (8) Exhibit 3, Sheet 1
- (9) Exhibit 3, Sheet 2a
- (11) = (2) Indexed to 2023 / 4
- (12) Exhibit 3, Sheet 2a
- (13) = [1 + (8)] ^ (6)
- (14) = [1 + (9)] ^ (7)
- (15) = [(12) \* (14)] / [(11) \* (13)]

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Premium Trend Analysis

TWIA Commercial Written Premium at Present Rates (WPPR)

Year / Quarter	Exposure Written	Written Premium	On-Level Factors	Written Premium at Present Rates	Quarterly Average WPPR	Annualized Average WPPR	Exponential Fitted Trends			
							All-Year	5-Year	4-Year	3-Year
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2014 / 2	8,964	35,219,745	1.256	44,251,073	4,937					
2014 / 3	8,292	29,887,118	1.237	36,962,324	4,458					
2014 / 4	6,088	21,627,063	1.222	26,418,431	4,339	4,611				
2015 / 1	6,464	24,808,373	1.209	29,989,092	4,639	4,617	4,176			
2015 / 2	7,870	33,339,199	1.195	39,846,309	5,063	4,639	4,214			
2015 / 3	7,657	28,055,666	1.177	33,012,506	4,311	4,604	4,253			
2015 / 4	4,802	17,430,504	1.163	20,275,304	4,222	4,595	4,292			
2016 / 1	5,512	22,487,925	1.151	25,890,562	4,697	4,606	4,331			
2016 / 2	6,522	28,623,450	1.138	32,569,345	4,994	4,562	4,371			
2016 / 3	6,507	25,417,054	1.120	28,466,060	4,375	4,592	4,411			
2016 / 4	4,047	14,955,154	1.107	16,558,181	4,091	4,581	4,452			
2017 / 1	4,263	17,482,209	1.103	19,274,135	4,521	4,539	4,493			
2017 / 2	5,717	25,224,489	1.103	27,809,999	4,864	4,486	4,534			
2017 / 3	5,172	19,050,031	1.103	21,002,659	4,061	4,409	4,576			
2017 / 4	3,489	13,077,837	1.103	14,418,315	4,133	4,426	4,618			
2018 / 1	3,663	15,807,970	1.096	17,331,059	4,731	4,465	4,660			
2018 / 2	5,108	22,862,777	1.084	24,773,451	4,850	4,447	4,703			
2018 / 3	4,612	17,927,115	1.066	19,118,289	4,145	4,483	4,746			
2018 / 4	3,109	12,284,401	1.055	12,954,588	4,167	4,498	4,790			
2019 / 1	2,933	14,759,154	1.050	15,497,112	5,284	4,590	4,834	4,262		
2019 / 2	4,431	20,959,587	1.050	22,007,566	4,967	4,612	4,878	4,353		
2019 / 3	3,993	14,943,999	1.050	15,691,199	3,930	4,573	4,923	4,447		
2019 / 4	2,966	12,109,737	1.050	12,715,224	4,287	4,602	4,969	4,543		
2020 / 1	2,719	14,566,185	1.050	15,294,494	5,625	4,657	5,014	4,640	4,408	
2020 / 2	3,982	18,776,705	1.050	19,715,540	4,951	4,642	5,060	4,740	4,527	
2020 / 3	3,970	15,951,658	1.050	16,749,241	4,219	4,728	5,107	4,842	4,650	
2020 / 4	2,710	13,543,203	1.050	14,220,363	5,247	4,931	5,154	4,946	4,775	
2021 / 1	2,521	12,672,604	1.050	13,306,234	5,278	4,854	5,201	5,052	4,904	4,656
2021 / 2	4,228	20,348,072	1.050	21,365,476	5,053	4,888	5,249	5,161	5,037	4,818
2021 / 3	3,892	16,793,147	1.050	17,632,804	4,531	4,983	5,297	5,271	5,173	4,985
2021 / 4	3,112	16,369,478	1.050	17,187,952	5,523	5,053	5,346	5,385	5,312	5,158
2022 / 1	2,725	15,396,927	1.044	16,079,017	5,901	5,178	5,395	5,500	5,456	5,338
2022 / 2	4,642	25,560,832	1.032	26,371,194	5,681	5,377	5,445	5,619	5,603	5,523
2022 / 3	5,337	29,199,819	1.015	29,644,617	5,555	5,645	5,495	5,739	5,755	5,715
2022 / 4	3,496	22,787,093	1.005	22,903,023	6,551	5,864	5,545	5,863	5,910	5,913
2023 / 1	3,273	22,499,113	1.000	22,499,113	6,874	6,056	5,596	5,989	6,070	6,118
2023 / 2	6,379	44,485,048	1.000	44,485,048	6,974	6,466	5,648	6,117	6,234	6,331
2023 / 3	6,029	38,901,087	1.000	38,901,087	6,452	6,716	5,700	6,249	6,402	6,551
2023 / 4	4,278	30,360,734	1.000	30,360,734	7,097	6,826	5,752	6,383	6,575	6,778
(14) Average Annual Change							3.7%	8.9%	11.3%	14.6%
(15) Correlation Coefficient							60.8%	87.9%	92.4%	96.8%
(16) Selected Premium Trend										10.0%

- Notes:
- (2) Provided by TWIA. Exposures written on inception
  - (3) Provided by TWIA. Premium written on inception
  - (4) Factors to bring written premium to current rate level
  - (5) = (3) \* (4)
  - (6) = (5) / (2). WPPR = Written Premium at Present Rates
  - (7) Four-quarter rolling average written premium
  - (8) - (11) = (7) Fitted to an exponential distribution
  - (14) Fitted average annual change
  - (15) Evaluates the predictability of the fitted curve
  - (16) Selected based on judgment, with weight given to 3-year, 4-year, and 5-year exponential fitted trends



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Loss Trend Analysis

Summary of Indices and Calculation of Prospective Loss Costs

Accident Year Ending 12/31/xx	Commercial Statewide Boeckh	Coastal Boeckh	Residential Statewide Boeckh	Coastal Boeckh	Modified CPI	Weighted Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2014	1.507	1.510	1.465	1.483	1.214	1.436
2015	1.481	1.486	1.428	1.448	1.202	1.415
2016	1.490	1.494	1.437	1.458	1.183	1.416
2017	1.454	1.462	1.422	1.441	1.180	1.392
2018	1.395	1.400	1.370	1.386	1.168	1.342
2019	1.377	1.376	1.338	1.344	1.144	1.318
2020	1.357	1.363	1.329	1.344	1.177	1.317
2021	1.182	1.183	1.190	1.206	1.109	1.165
2022	1.011	1.010	1.028	1.024	1.028	1.015
2023	1.000	1.000	1.000	1.000	1.000	1.000

Factors to Adjust For Prospective Loss Costs

(8) Fitted Trend	9.4%	9.4%	8.6%	8.8%	3.8%	9.4%
(9) Cost Factor	1.251	1.253	1.229	1.235	1.098	1.252

Notes:

- (2) = Exhibit 3, Sheet 2b trended forward to 12/31/2023
- (3) = Exhibit 3, Sheet 2c trended forward to 12/31/2023
- (4) = Residential Exhibit 3, Sheet 3b trended forward to 12/31/2023
- (5) = Residential Exhibit 3, Sheet 3c trended forward to 12/31/2023
- (6) = Exhibit 3, Sheet 2d
- (7) = 25% CPI and 75% Coastal Boeckh (most appropriate available by year)
- (8) = (2) - (7) fitted to an exponential curve using 5 years' data
- (9) = [1 + (8)] ^ 2.5 (trended from 7/1/2023 to 1/1/2026)

**Texas Windstorm Insurance Association**  
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Loss Trend Analysis

Boeckh Commercial Construction Index Trend (Statewide)

Calendar Quarter Ending	Texas Statewide Index	Fitted Trends	
		All Years	
(1)	(2)	Linear (3)	Exponential (4)
3/31/2014	2,304.98	2,087.98	2,154.54
6/30/2014	2,324.51	2,119.28	2,178.37
9/30/2014	2,342.40	2,150.58	2,202.46
12/31/2014	2,361.39	2,181.88	2,226.81
3/31/2015	2,379.64	2,213.19	2,251.44
6/30/2015	2,391.89	2,244.49	2,276.34
9/30/2015	2,400.24	2,275.79	2,301.51
12/31/2015	2,403.37	2,307.10	2,326.96
3/31/2016	2,400.69	2,338.40	2,352.70
6/30/2016	2,394.98	2,369.70	2,378.71
9/30/2016	2,390.57	2,401.00	2,405.02
12/31/2016	2,389.60	2,432.31	2,431.62
3/31/2017	2,395.84	2,463.61	2,458.51
6/30/2017	2,409.29	2,494.91	2,485.70
9/30/2017	2,428.19	2,526.21	2,513.19
12/31/2017	2,447.13	2,557.52	2,540.98
3/31/2018	2,467.62	2,588.82	2,569.08
6/30/2018	2,492.08	2,620.12	2,597.49
9/30/2018	2,519.99	2,651.43	2,626.21
12/31/2018	2,550.97	2,682.73	2,655.26
3/31/2019	2,575.51	2,714.03	2,684.62
6/30/2019	2,587.32	2,745.33	2,714.31
9/30/2019	2,588.55	2,776.64	2,744.33
12/31/2019	2,585.77	2,807.94	2,774.68
3/31/2020	2,584.18	2,839.24	2,805.36
6/30/2020	2,589.24	2,870.55	2,836.39
9/30/2020	2,598.17	2,901.85	2,867.75
12/31/2020	2,623.42	2,933.15	2,899.47
3/31/2021	2,660.79	2,964.45	2,931.53
6/30/2021	2,730.54	2,995.76	2,963.95
9/30/2021	2,882.44	3,027.06	2,996.73
12/31/2021	3,012.33	3,058.36	3,029.87
3/31/2022	3,155.72	3,089.67	3,063.38
6/30/2022	3,322.43	3,120.97	3,097.25
9/30/2022	3,419.52	3,152.27	3,131.50
12/31/2022	3,520.27	3,183.57	3,166.14
3/31/2023	3,583.60	3,214.88	3,201.15
6/30/2023	3,587.21	3,246.18	3,236.55
9/30/2023	3,573.54	3,277.48	3,272.34
12/31/2023	3,559.31	3,308.78	3,308.53
Annual Trend		3.8%	9.4%
R-Squared		0.764	0.799

Notes:

(2) = Average index for Austin, Corpus Christi, Dallas, El Paso, Fort Worth, Houston, Odessa, and San Antonio

(3) - (4) = (2) Fitted to linear and exponential distributions

**Texas Windstorm Insurance Association**  
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Loss Trend Analysis

Boeckh Commercial Construction Index Trend (Coastal)

Calendar Quarter Ending	Texas Coastal Index	Fitted Trends	
		All Years	
(1)	(2)	Linear (3)	Exponential (4)
3/31/2014	2,329.15	2,110.59	2,179.70
6/30/2014	2,353.62	2,142.72	2,204.07
9/30/2014	2,374.44	2,174.84	2,228.71
12/31/2014	2,395.71	2,206.97	2,253.63
3/31/2015	2,409.86	2,239.09	2,278.83
6/30/2015	2,421.50	2,271.22	2,304.31
9/30/2015	2,430.55	2,303.35	2,330.07
12/31/2015	2,434.85	2,335.47	2,356.12
3/31/2016	2,433.96	2,367.60	2,382.46
6/30/2016	2,429.70	2,399.72	2,409.10
9/30/2016	2,424.83	2,431.85	2,436.03
12/31/2016	2,421.70	2,463.98	2,463.27
3/31/2017	2,425.33	2,496.10	2,490.81
6/30/2017	2,438.02	2,528.23	2,518.66
9/30/2017	2,455.03	2,560.35	2,546.82
12/31/2017	2,475.40	2,592.48	2,575.29
3/31/2018	2,496.18	2,624.61	2,604.09
6/30/2018	2,520.29	2,656.73	2,633.20
9/30/2018	2,549.30	2,688.86	2,662.64
12/31/2018	2,583.57	2,720.98	2,692.41
3/31/2019	2,614.42	2,753.11	2,722.51
6/30/2019	2,628.88	2,785.24	2,752.95
9/30/2019	2,633.85	2,817.36	2,783.73
12/31/2019	2,629.02	2,849.49	2,814.86
3/31/2020	2,623.35	2,881.61	2,846.33
6/30/2020	2,625.15	2,913.74	2,878.15
9/30/2020	2,631.56	2,945.87	2,910.33
12/31/2020	2,654.35	2,977.99	2,942.87
3/31/2021	2,690.33	3,010.12	2,975.77
6/30/2021	2,764.28	3,042.24	3,009.04
9/30/2021	2,915.84	3,074.37	3,042.68
12/31/2021	3,057.75	3,106.50	3,076.70
3/31/2022	3,206.67	3,138.62	3,111.10
6/30/2022	3,377.15	3,170.75	3,145.88
9/30/2022	3,483.95	3,202.87	3,181.06
12/31/2022	3,583.57	3,235.00	3,216.62
3/31/2023	3,650.29	3,267.13	3,252.59
6/30/2023	3,653.27	3,299.25	3,288.95
9/30/2023	3,637.00	3,331.38	3,325.72
12/31/2023	3,618.23	3,363.50	3,362.91
Annual Trend		4.0%	9.4%
R-Squared		0.761	0.797

Notes:

- (2) = Average index for Corpus Christi and Houston
- (3) - (4) = (2) Fitted to linear and exponential distributions

Rate Level Review

Loss Trend Analysis

Modified Consumer Price Index - External Trend

Calendar Quarter Ending	Modified CPI	Fitted Trends								
		All Years		5 Years		4 Years		3 Years		
		Linear	Exponential	Linear	Exponential	Linear	Exponential	Linear	Exponential	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
9/30/2013	185.82	181.09	181.97							
12/31/2013	186.03	181.99	182.77							
3/31/2014	186.43	182.88	183.57							
6/30/2014	186.87	183.77	184.37							
9/30/2014	187.59	184.66	185.18							
12/31/2014	188.62	185.55	185.99							
3/31/2015	189.46	186.45	186.80							
6/30/2015	189.59	187.34	187.62							
9/30/2015	190.03	188.23	188.44							
12/31/2015	190.50	189.12	189.27							
3/31/2016	190.95	190.01	190.10							
6/30/2016	192.03	190.91	190.93							
9/30/2016	192.82	191.80	191.76							
12/31/2016	193.56	192.69	192.60							
3/31/2017	193.85	193.58	193.44							
6/30/2017	194.07	194.47	194.29							
9/30/2017	194.14	195.37	195.14							
12/31/2017	194.10	196.26	195.99							
3/31/2018	194.71	197.15	196.85							
6/30/2018	195.27	198.04	197.71							
9/30/2018	195.59	198.94	198.58							
12/31/2018	196.20	199.83	199.45							
3/31/2019	196.98	200.72	200.32	189.60	190.32					
6/30/2019	198.12	201.61	201.20	191.57	192.10					
9/30/2019	199.66	202.50	202.08	193.53	193.89					
12/31/2019	200.22	203.40	202.96	195.50	195.71					
3/31/2020	199.62	204.29	203.85	197.47	197.54	190.36	191.00			
6/30/2020	197.58	205.18	204.74	199.44	199.38	193.07	193.46			
9/30/2020	195.82	206.07	205.64	201.40	201.25	195.78	195.96			
12/31/2020	194.70	206.96	206.54	203.37	203.13	198.49	198.49			
3/31/2021	194.20	207.86	207.44	205.34	205.03	201.20	201.05	196.43	196.72	
6/30/2021	197.36	208.75	208.35	207.31	206.94	203.90	203.64	199.86	199.91	
9/30/2021	201.11	209.64	209.26	209.27	208.88	206.61	206.26	203.28	203.15	
12/31/2021	206.60	210.53	210.17	211.24	210.83	209.32	208.92	206.70	206.44	
3/31/2022	212.80	211.43	211.09	213.21	212.80	212.03	211.62	210.12	209.79	
6/30/2022	217.05	212.32	212.02	215.18	214.79	214.74	214.34	213.55	213.19	
9/30/2022	220.34	213.21	212.94	217.14	216.80	217.45	217.11	216.97	216.65	
12/31/2022	222.83	214.10	213.88	219.11	218.83	220.16	219.91	220.39	220.16	
3/31/2023	225.57	214.99	214.81	221.08	220.87	222.87	222.74	223.81	223.73	
6/30/2023	227.25	215.89	215.75	223.05	222.94	225.58	225.62	227.24	227.35	
9/30/2023	228.92	216.78	216.70	225.01	225.02	228.28	228.52	230.66	231.04	
12/31/2023	229.07	217.67	217.64	226.98	227.12	230.99	231.47	234.08	234.79	
Annual Trend		1.6%	1.8%	3.5%	3.8%	4.7%	5.3%	5.8%	6.6%	
R-Squared		0.754	0.772	0.794	0.791	0.897	0.894	0.952	0.945	

Notes:

(2) = Weighted average of CPI for Lodging, Apparel, Furnishings, and Medical Care

(3) - (10) = (2) Fitted to linear and exponential distributions

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**

Development of LAE Factor Using TWIA Commercial + Residential Experience

Accident Year Ending 12/31	Ultimate Loss	Ultimate LAE	Ultimate LAE to Loss Ratio	Hurricane Indicator
(1)	(2)	(3)	(4)	(5)
1980	12,911	1,318	0.102	H
1981	2,512	543	0.216	
1982	796	565	0.710	
1983	148,999	9,127	0.061	H
1984	999	324	0.324	
1985	512	297	0.580	
1986	881	505	0.573	H
1987	1,897	1,056	0.557	
1988	1,160	357	0.308	
1989	12,296	3,528	0.287	H
1990	335	225	0.672	
1991	1,217	729	0.599	
1992	489	554	1.133	
1993	3,375	1,375	0.407	
1994	679	507	0.747	
1995	2,977	903	0.303	
1996	1,166	582	0.499	
1997	2,964	1,343	0.453	
1998	22,401	4,732	0.211	
1999	8,773	2,388	0.272	H
2000	6,227	1,885	0.303	
2001	24,605	1,880	0.076	
2002	5,167	5,226	1.011	
2003	155,001	5,122	0.033	H
2004	5,167	1,471	0.285	
2005	154,981	20,235	0.131	H
2006	4,276	1,110	0.260	
2007	15,745	4,941	0.314	H
2008	2,583,017	346,615	0.134	H
2009	10,407	2,219	0.213	
2010	18,005	4,274	0.237	
2011	96,073	15,108	0.157	
2012	67,492	15,833	0.235	
2013	70,835	13,829	0.195	
2014	7,871	6,928	0.880	
2015	138,836	40,141	0.289	
2016	28,422	15,387	0.541	
2017	1,410,332	278,430	0.197	H
2018	12,107	6,802	0.562	
2019	17,832	9,429	0.529	
2020	65,043	30,047	0.462	H
2021	67,732	28,881	0.426	H
2022	30,224	12,361	0.409	
2023	76,706	22,433	0.292	
All Years Total	5,299,442	921,545	0.174	
Hurricane Years Total	4,635,711	731,137	0.158	
Non-Hurricane Years				
Total	663,731	190,408	0.287	
10 Year	546,398	158,251	0.290	

Notes:

- (2) - (3) 2014 - 2023: from most recent TWIA annual statement; 1980 - 2013: from prior TWIA annual statements
- (4) = (3) / (2)
- (5) "H" indicates hurricane year

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**  
Summary of Indicated Hurricane Loss & LAE Ratios

Basis for Hurricane Loss Ratio	Indicated Loss Ratio	LAE Factor	Indicated Loss & LAE Ratio
(1)	(2)	(3)	(4)
Industry Experience	41.8%	0.158	48.4%
<u>Hurricane Models</u>			
Verisk	62.8%	0.158	72.7%
RMS	58.1%	0.158	67.3%
Impact Forecasting	27.7%	0.158	32.1%
CoreLogic RQE	41.6%	0.158	48.2%
Average of Models	47.6%	0.158	55.1%

Notes:

(2) Exhibit 6, Sheet 1 & Exhibit 7, Sheet 1 - Sheet 4

(3) Exhibit 4

(4) = (2) \* [1 + (3)]

**Texas Windstorm Insurance Association**

**Commercial Property - Wind & Hail**

**Rate Level Review**

Industry Experience -- Commercial Extended Coverage

Hurricane Years Only

Exhibit 6

Sheet 1

Accident Year Ending	Earned Premium at Current TWIA Rate Level (1)	Number of Hurricanes During the Year (2)	Hurricane Year Incurred Loss Ratio (3)	Per Hurricane Loss Ratio (4)
1970	53,332,058	1	43.3%	34.1%
1971	57,612,751	1	97.0%	87.8%
1980	64,012,158	1	60.0%	50.8%
1983	37,553,182	1	318.3%	309.1%
1986	48,392,653	1	8.6%	0.0%
1989	76,691,720	2	6.0%	0.0%
1999	175,855,164	1	8.7%	0.0%
2003	210,743,808	1	22.2%	13.0%
2005	265,866,745	1	166.9%	157.7%
2007	345,796,968	1	17.4%	8.2%
2008	313,442,675	2	408.1%	199.5%
2017	210,335,580	1	608.9%	599.7%
2020	199,739,105	3	14.4%	1.7%
2021	208,276,978	1	14.6%	5.4%
Simple Average Loss Ratio Per Hurricane Year			128.2%	104.8%
(5)	Selected Non-Hurricane Loss Ratio		9.2%	
(6)	Average Hurricane Loss Ratio Per Hurricane		104.8%	
(7)	Historical Hurricane Frequency 173-Year (1/1/1851 - 12/31/2023)		0.399 (1 Hurricane Every 2.5 years)	
(8)	Indicated Hurricane Loss Ratio		41.8%	

Notes:

(1) Exhibit 6, Sheet 2. 1999 year ending 12/31/99; all other accident years ending 9/30/xx

(3) Exhibit 6, Sheet 2. 1999 year ending 12/31/99; all other accident years ending 9/30/xx

(4) = MAX [(3)-(5),0]/(2)

(5) Exhibit 6, Sheet 2

(6) = Average of (4)

(7) Exhibit 8

(8) = (6) \* (7)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**

Industry Experience -- Commercial Extended Coverage  
Non-Hurricane Loss Ratio

Accident Year Ending	Earned Premium	Earned Premium at 1992 CMR	Earned Premium at Current Rates	Incurred Losses	Incurred Loss Ratio	Hurricane Indicator
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970	10,874,210	18,835,352	53,332,058	23,092,142	43.3%	H
1971	13,340,143	20,347,170	57,612,751	55,893,676	97.0%	H
1972	18,906,678	24,314,307	68,845,649	8,704,522	12.6%	
1973	21,737,541	23,257,532	65,853,404	3,837,493	5.8%	
1974	22,348,193	22,844,661	64,684,365	2,193,087	3.4%	
1975	24,396,629	24,958,305	70,669,121	3,943,412	5.6%	
1976	26,795,934	24,109,943	68,266,995	2,218,115	3.2%	
1977	30,910,821	27,119,226	76,787,741	1,898,346	2.5%	
1978	32,709,599	26,415,338	74,794,691	2,535,872	3.4%	
1979	31,306,685	24,514,306	69,411,943	4,535,147	6.5%	
1980	28,751,765	22,607,257	64,012,158	38,431,071	60.0%	H
1981	24,129,384	21,398,588	60,589,828	4,272,728	7.1%	
1982	18,505,004	17,523,231	49,616,804		3.4%	
1983	12,680,397	13,262,706	37,553,182		318.3%	H
1984	12,736,031	14,992,627	42,451,431		8.2%	
1985	15,169,575	16,422,895	46,501,216		4.0%	
1986	21,130,682	17,090,896	48,392,653		8.6%	H
1987	31,114,529	26,771,157	75,802,188		1.6%	
1988	25,065,531	24,117,319	68,287,879		8.5%	
1989	24,167,085	27,085,314	76,691,720		6.0%	H
1990	19,677,404	23,041,233	65,240,956		84.3%	
1991	21,794,680	25,534,881	72,301,688		57.9%	
1992	23,737,753	26,950,473	76,309,919		1.5%	
1993	21,990,182		71,537,276		5.2%	
1994	16,604,950		54,018,329		8.7%	
1995	32,374,229		105,318,098		19.8%	
1996	55,367,089		180,117,233		2.5%	
1997	53,196,024		173,054,441		3.6%	
1998	53,986,058		178,299,022		14.2%	
1999	52,435,243		175,855,164		8.7%	H
2000	41,739,697		133,956,823		7.3%	
2001	42,330,042		127,689,113		5.5%	
2002	69,156,402		199,609,188		14.4%	
2003	78,368,305		210,743,808		22.2%	H
2004	112,957,791		276,540,371		1.8%	
2005	119,598,806		265,866,745		166.9%	H
2006	148,019,940		299,356,477		2.0%	
2007	186,207,969		345,796,968		17.4%	H
2008	177,673,659		313,442,675		408.1%	H
2009	185,204,697		296,283,945		2.7%	
2010	193,721,394		286,320,340		4.0%	
2011	192,278,480		277,463,924		16.4%	
2012	209,676,871		287,748,652		17.8%	
2013	224,380,012		293,394,751		5.7%	
2014	240,932,886		300,378,437		1.6%	
2015	234,154,974		277,783,990		13.9%	
2016	218,004,121		246,276,273		4.4%	
2017	190,780,571		210,335,580		608.9%	H
2018	189,174,478		203,466,843		1.7%	
2019	185,428,363		194,699,781		4.2%	
2020	190,227,719		199,739,105		14.4%	H
2021	198,359,027		208,276,978		14.6%	H
2022	236,108,223		241,408,280		6.0%	
2023	300,674,308		300,674,308		19.6%	
Total / Average	4,963,098,763		8,389,463,259		40.7%	
Average of Non-Hurricane Years					9.8%	
Average of Non-Hurricane Years Excluding 1991 Selected					8.6%	
					9.2%	

Notes: (2) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2023 are year ending 12/31/xx as of 12/31/23  
(3) Provided by TDI (1992 MR = 1992 manual rates)  
(4) 1993 - 2023: Sum of Exhibit 6, Sheet 4 - 7, (5); 1970 - 1992: (3) \* 2.831,1992 on-level factor to bring industry premium to TWIA current rate level  
(5) Provided by TDI. 1970 - 1982 are year ending 9/30/xx as of 12/31/99; 1983 - 2023 are year ending 12/31/xx as of 12/31/23  
(6) 1983 - 2023: Exhibit 6, Sheet 3; 1970 - 1982: (5) / (4)  
(7) "H" indicates hurricane year



Rate Level Review

Industry Experience -- Commercial Extended Coverage

Summary by Territory

Accident Year Ending	Loss Ratios by Territory / Tier				Weighted Loss Ratio	Developed Weighted Loss Ratio
	Territory 8	Territory 9	Territory 10	Tier 2		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1983	961.4%	4.1%	44.7%	161.1%	318.3%	318.3%
1984	8.2%	4.1%	10.6%	15.4%	8.2%	8.2%
1985	4.0%	2.7%	4.7%	8.6%	4.0%	4.0%
1986	3.2%	1.1%	17.4%	13.6%	8.6%	8.6%
1987	0.5%	1.8%	2.2%	3.3%	1.6%	1.6%
1988	12.6%	3.7%	8.8%	5.2%	8.5%	8.5%
1989	14.6%	1.9%	2.1%	5.9%	6.0%	6.0%
1990	257.7%	2.7%	9.7%	7.4%	84.3%	84.3%
1991	23.3%	23.0%	109.3%	5.0%	57.9%	57.9%
1992	0.8%	1.1%	2.3%	4.1%	1.5%	1.5%
1993	12.9%	1.7%	1.7%	5.4%	5.2%	5.2%
1994	0.3%	3.5%	18.7%	7.5%	8.7%	8.7%
1995	7.4%	9.8%	35.8%	19.6%	19.8%	19.8%
1996	1.4%	2.7%	3.0%	6.3%	2.5%	2.5%
1997	5.0%	1.9%	3.4%	8.6%	3.6%	3.6%
1998	19.7%	13.1%	10.9%	8.6%	14.2%	14.2%
1999	2.6%	12.0%	11.1%	8.5%	8.7%	8.7%
2000	2.0%	1.9%	13.2%	56.1%	7.3%	7.3%
2001	6.7%	3.0%	5.4%	27.3%	5.5%	5.5%
2002	11.1%	29.8%	6.8%	9.2%	14.4%	14.4%
2003	2.2%	7.9%	46.6%	29.5%	22.2%	22.2%
2004	2.7%	0.6%	1.9%	3.0%	1.8%	1.8%
2005	63.4%	1.6%	359.9%	48.4%	166.9%	166.9%
2006	2.2%	1.0%	2.5%	5.6%	2.0%	2.0%
2007	1.5%	53.8%	5.6%	9.4%	17.4%	17.4%
2008	665.8%	34.6%	458.8%	465.7%	408.1%	408.1%
2009	2.4%	4.5%	1.5%	9.2%	2.7%	2.7%
2010	1.4%	4.4%	5.8%	3.2%	4.0%	4.0%
2011	3.7%	28.8%	17.7%	18.4%	16.4%	16.4%
2012	18.0%	22.9%	14.5%	10.0%	17.8%	17.8%
2013	13.6%	4.0%	0.9%	6.8%	5.7%	5.7%
2014	0.5%	3.2%	1.2%	4.3%	1.6%	1.6%
2015	11.5%	4.1%	21.4%	13.4%	13.5%	13.9%
2016	0.8%	8.4%	3.6%	30.0%	4.4%	4.4%
2017	76.6%	1181.9%	444.9%	125.0%	525.7%	608.9%
2018	0.3%	2.0%	1.8%	13.8%	1.6%	1.7%
2019	1.1%	0.9%	6.5%	17.1%	3.5%	4.2%
2020	2.5%	8.5%	15.5%	25.4%	9.7%	14.4%
2021	20.3%	0.3%	8.1%	23.3%	10.0%	14.6%
2022	2.4%	1.0%	4.1%	11.2%	2.8%	6.0%
2023	0.8%	2.5%	7.3%	10.2%	4.0%	19.6%
Average	54.9%	36.6%	42.7%	31.0%	44.6%	47.4%

TWIA 2023 Written Premium by Territory / Tier

	Territory 8	Territory 9	Territory 10	Tier 2	Total
(8) Amount	40,162,381	35,190,436	52,865,719	1,944,202	130,162,738
(9) % Share	30.86%	27.04%	40.62%	1.49%	100.00%

Notes:

- (2) Exhibit 6, Sheet 4
- (3) Exhibit 6, Sheet 5
- (4) Exhibit 6, Sheet 6
- (5) Exhibit 6, Sheet 7

- (6) = Weighted average of (2) to (5), using (9)
- (7) = (6) \* implied loss development factors from annual statement
- (8) Provided by TWIA
- (9) = (8) / (8) Total

**Texas Windstorm Insurance Association**

**Commercial Property - Wind & Hail**

**Rate Level Review**

Industry Experience -- Commercial Extended Coverage

Tier 1 -- Territory 8 (Galveston County)

Accident Year Ending	Earned Premium	Earned Premium at 1992 MR	TWIA Factor to Current Rate Level	Earned Premium at Current Rates	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1983	913,865	968,224	3.829	2,741,514	26,357,425	961.4%
1984	1,195,339	1,366,667	3.511	3,869,700	318,455	8.2%
1985	2,581,481	2,777,593	2.879	7,864,719	314,878	4.0%
1986	3,013,362	2,349,181	2.050	6,651,676	211,282	3.2%
1987	3,004,153	2,585,122	1.994	7,319,740	37,480	0.5%
1988	2,905,355	2,728,206	2.147	7,724,880	969,836	12.6%
1989	2,825,114	3,015,974	2.385	8,539,692	1,244,199	14.6%
1990	2,303,321	2,474,141	2.506	7,005,499	18,053,460	257.7%
1991	2,203,500	2,080,579	2.491	5,891,133	1,371,244	23.3%
1992	2,352,391	2,012,473	2.831	5,698,292	46,331	0.8%
1993	2,406,016		3.253	7,827,122	1,005,945	12.9%
1994	2,807,090		3.253	9,131,874	28,034	0.3%
1995	2,645,757		3.253	8,607,034	635,625	7.4%
1996	5,519,716		3.253	17,956,443	249,644	1.4%
1997	5,461,636		3.253	17,767,500	886,485	5.0%
1998	6,133,105		3.303	20,255,723	3,994,564	19.7%
1999	6,706,028		3.354	22,490,401	575,316	2.6%
2000	4,997,201		3.209	16,037,710	320,131	2.0%
2001	4,785,262		3.017	14,434,804	962,576	6.7%
2002	8,206,069		2.886	23,685,541	2,632,325	11.1%
2003	8,793,047		2.689	23,645,786	529,845	2.2%
2004	12,425,339		2.448	30,419,397	830,387	2.7%
2005	13,839,253		2.220	30,718,239	19,469,845	63.4%
2006	18,414,310		2.037	37,507,901	812,370	2.2%
2007	24,924,710		1.857	46,286,360	710,669	1.5%
2008	24,970,117		1.764	44,050,988	293,310,706	665.8%
2009	29,363,002		1.600	46,973,895	1,140,669	2.4%
2010	31,708,901		1.478	46,865,775	669,882	1.4%
2011	31,323,614		1.443	45,200,965	1,675,264	3.7%
2012	35,165,008		1.372	48,258,464	8,709,842	18.0%
2013	37,582,814		1.308	49,142,525	6,670,061	13.6%
2014	38,347,378		1.247	47,808,855	258,179	0.5%
2015	36,872,004		1.186	43,742,194	5,027,267	11.5%
2016	36,252,372		1.130	40,953,809	331,694	0.8%
2017	32,364,563		1.102	35,681,931	27,347,012	76.6%
2018	32,179,195		1.076	34,610,373	110,422	0.3%
2019	32,106,423		1.050	33,711,744	369,052	1.1%
2020	32,767,876		1.050	34,406,270	870,161	2.5%
2021	33,150,139		1.050	34,807,646	7,049,722	20.3%
2022	41,125,034		1.022	42,048,191	1,000,709	2.4%
2023	50,188,953		1.000	50,188,953	382,252	0.8%
<b>Total</b>	<b>706,829,813</b>			<b>1,068,531,257</b>	<b>437,491,245</b>	<b>40.9%</b>

Notes:

- (2) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2023 are year ending 12/31/xx as of 12/31/23
- (3) Provided by TDI (1992 MR = 1992 manual rates)
- (4) Represents 8/1/80 through 6/30/23 rate changes for TWIA; factors assume uniform earning of written premium and that TWIA premium represents 80.4% of industry data in Tier 1 -- Territory 8
- (5) = (3) x 2.831 for 1983 - 1992; (2) x (4) for 1993 - 2023
- (6) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2011 are year ending 12/31/xx as of 12/31/19  
2011 - 2023 are year ending 12/31/xx as of 12/31/23; 2008 IKE incurred loss was adjusted down by \$99,433,917
- (7) = (6) / (5)

**Texas Windstorm Insurance Association**

**Commercial Property - Wind & Hail**

**Rate Level Review**

Industry Experience -- Commercial Extended Coverage

Tier 1 -- Territory 9 (Nueces County)

Accident Year Ending	Earned Premium	Earned Premium at 1992 MR	TWIA Factor to Current Rate Level	Earned Premium at Current Rates	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1983	745,985	820,826	3.829	2,324,158	96,051	4.1%
1984	558,639	652,809	3.511	1,848,420	76,481	4.1%
1985	1,235,059	1,383,103	2.879	3,916,238	106,148	2.7%
1986	2,228,911	1,849,840	2.050	5,237,798	56,387	1.1%
1987	2,381,538	2,086,940	1.994	5,909,144	105,275	1.8%
1988	1,796,653	1,719,227	2.147	4,867,969	181,414	3.7%
1989	1,632,453	1,826,430	2.385	5,171,513	98,116	1.9%
1990	1,429,526	1,769,972	2.506	5,011,653	135,678	2.7%
1991	1,390,109	1,555,310	2.491	4,403,840	1,013,636	23.0%
1992	1,571,433	1,629,721	2.831	4,614,534	49,512	1.1%
1993	1,587,772		3.253	5,165,254	86,000	1.7%
1994	2,203,514		3.253	7,168,353	254,088	3.5%
1995	2,669,951		3.253	8,685,741	854,753	9.8%
1996	5,639,923		3.253	18,347,494	502,177	2.7%
1997	3,183,758		3.253	10,357,230	199,390	1.9%
1998	3,613,310		3.303	11,933,630	1,561,275	13.1%
1999	6,808,428		3.354	22,833,826	2,735,082	12.0%
2000	5,167,158		3.209	16,583,160	317,804	1.9%
2001	4,763,324		3.017	14,368,628	431,244	3.0%
2002	8,479,915		2.886	24,475,954	7,300,265	29.8%
2003	9,934,549		2.689	26,715,452	2,122,879	7.9%
2004	14,597,450		2.448	35,737,103	212,644	0.6%
2005	16,137,249		2.220	35,818,976	566,758	1.6%
2006	21,249,313		2.037	43,282,487	434,362	1.0%
2007	27,752,523		1.857	51,537,742	27,752,523	53.8%
2008	27,990,909		1.764	49,380,113	17,103,924	34.6%
2009	29,085,395		1.600	46,529,790	2,074,340	4.5%
2010	27,439,364		1.478	40,555,397	1,768,194	4.4%
2011	25,580,489		1.443	36,913,454	10,619,019	28.8%
2012	26,761,300		1.372	36,725,691	8,409,391	22.9%
2013	27,964,798		1.308	36,566,202	1,468,876	4.0%
2014	28,148,014		1.247	35,092,995	1,110,819	3.2%
2015	26,771,800		1.186	31,760,066	1,289,267	4.1%
2016	22,867,664		1.130	25,833,287	2,164,326	8.4%
2017	19,215,442		1.102	21,185,025	250,393,484	1181.9%
2018	18,331,424		1.076	19,716,386	387,950	2.0%
2019	16,405,992		1.050	17,226,292	147,300	0.9%
2020	16,076,264		1.050	16,880,077	1,441,041	8.5%
2021	17,132,906		1.050	17,989,551	53,835	0.3%
2022	23,463,692		1.022	23,990,395	237,342	1.0%
2023	35,525,342		1.000	35,525,342	882,298	2.5%
<b>Total</b>	<b>537,519,238</b>			<b>868,186,360</b>	<b>346,801,348</b>	<b>39.9%</b>

Notes:

- (2) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2023 are year ending 12/31/xx as of 12/31/23
- (3) Provided by TDI (1992 MR = 1992 manual rates)
- (4) Represents 8/1/80 through 6/30/23 rate changes for TWIA; factors assume uniform earning of written premium and that TWIA premium represents 83.0% of industry data in Tier 1 -- Territory 9
- (5) = (3) x (4) for 1983 - 1992; (2) x (4) for 1993 - 2023
- (6) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2011 are year ending 12/31/xx as of 12/31/19  
2012 - 2023 are year ending 12/31/xx as of 12/31/23
- (7) = (6) / (5)

**Texas Windstorm Insurance Association**

**Commercial Property - Wind & Hail**

**Rate Level Review**

Industry Experience -- Commercial Extended Coverage

Tier 1 -- Territory 10 (Other Tier 1)

Accident Year Ending	Earned Premium	Earned Premium at 1992 MR	TWIA Factor to Current Rate Level	Earned Premium at Current Rates	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1983	3,769,988	4,139,464	3.829	11,720,839	5,242,728	44.7%
1984	4,835,650	5,883,059	3.511	16,657,806	1,759,233	10.6%
1985	3,637,366	3,997,227	2.879	11,318,097	534,724	4.7%
1986	4,787,352	3,948,102	2.050	11,179,000	1,943,819	17.4%
1987	5,996,981	5,352,970	1.994	15,156,866	338,938	2.2%
1988	5,872,305	5,768,621	2.147	16,333,776	1,442,599	8.8%
1989	5,125,436	5,918,163	2.385	16,757,203	349,413	2.1%
1990	3,842,130	4,624,825	2.506	13,095,133	1,263,817	9.7%
1991	4,253,902	4,765,878	2.491	13,494,522	14,752,702	109.3%
1992	4,034,147	4,187,015	2.831	11,855,479	276,158	2.3%
1993	4,540,606		3.253	14,771,255	245,603	1.7%
1994	5,145,260		3.253	16,738,283	3,130,886	18.7%
1995	9,324,050		3.253	30,332,497	10,852,486	35.8%
1996	15,331,047		3.253	49,874,137	1,478,175	3.0%
1997	17,116,368		3.253	55,682,047	1,911,482	3.4%
1998	17,623,413		3.303	58,204,607	6,340,723	10.9%
1999	15,019,386		3.354	50,371,400	5,614,569	11.1%
2000	11,756,138		3.209	37,729,428	4,969,254	13.2%
2001	11,140,104		3.017	33,604,266	1,824,700	5.4%
2002	20,528,832		2.886	59,253,278	4,053,342	6.8%
2003	23,885,668		2.689	64,232,047	29,908,218	46.6%
2004	31,412,192		2.448	76,902,524	1,462,655	1.9%
2005	34,104,704		2.220	75,700,360	272,418,664	359.9%
2006	46,246,638		2.037	94,199,258	2,315,133	2.5%
2007	71,922,575		1.857	133,563,609	7,479,422	5.6%
2008	66,558,177		1.764	117,418,492	538,764,477	458.8%
2009	64,583,344		1.600	103,318,157	1,576,316	1.5%
2010	63,606,679		1.478	94,010,711	5,423,427	5.8%
2011	63,551,427		1.443	91,706,718	16,247,025	17.7%
2012	68,482,322		1.372	93,981,257	13,608,787	14.5%
2013	71,237,559		1.308	93,148,787	882,597	0.9%
2014	68,174,178		1.247	84,994,844	996,584	1.2%
2015	62,527,205		1.186	74,177,611	15,894,931	21.4%
2016	57,364,072		1.130	64,803,407	2,363,193	3.6%
2017	45,752,402		1.102	50,442,023	224,437,428	444.9%
2018	42,451,251		1.076	45,658,495	805,050	1.8%
2019	40,593,983		1.050	42,623,682	2,761,830	6.5%
2020	40,880,312		1.050	42,924,328	6,669,659	15.5%
2021	41,224,994		1.050	43,286,244	3,488,124	8.1%
2022	48,496,297		1.022	49,584,921	2,042,676	4.1%
2023	70,862,455		1.000	70,862,455	5,189,022	7.3%
<b>Total</b>	<b>1,297,598,895</b>			<b>2,151,669,849</b>	<b>1,223,060,569</b>	<b>56.8%</b>

Notes:

(2) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2023 are year ending 12/31/xx as of 12/31/23

(3) Provided by TDI (1992 MR = 1992 manual rates)

(4) Represents 8/1/80 through 6/30/23 rate changes for TWIA; factors assume uniform earning of written premium and that TWIA premium represents 62.7% of industry data in Tier 1 -- Territory 10

(5) = (3) x (4) for 1983 - 1992; (2) x (4) for 1993 - 2023

(6) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2011 are year ending 12/31/xx as of 12/31/19  
2012 - 2023 are year ending 12/31/xx as of 12/31/23

(7) = (6) / (5)

Industry experience is for EC, where wind and hail related loss is predominant

**Texas Windstorm Insurance Association**

**Commercial Property - Wind & Hail**

**Rate Level Review**

Industry Experience -- Commercial Extended Coverage

Tier 2 (Territories 1 and 11)

Accident Year Ending	Earned Premium	Earned Premium at 1992 MR	TWIA Factor to Current Rate Level	Earned Premium at Current Rates	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1983	7,250,559	7,334,192	3.829	20,766,671	33,451,768	161.1%
1984	6,146,403	7,090,092	3.511	20,075,505	3,096,573	15.4%
1985	7,715,669	8,264,972	2.879	23,402,162	2,019,280	8.6%
1986	11,101,057	8,943,773	2.050	25,324,179	3,439,343	13.6%
1987	19,731,857	16,746,125	1.994	47,416,438	1,552,595	3.3%
1988	14,491,218	13,901,265	2.147	39,361,254	2,041,063	5.2%
1989	14,584,082	16,324,747	2.385	46,223,312	2,746,147	5.9%
1990	12,102,427	14,172,295	2.506	40,128,672	2,967,816	7.4%
1991	13,947,169	17,133,114	2.491	48,512,193	2,440,246	5.0%
1992	15,779,782	19,121,264	2.831	54,141,614	2,232,412	4.1%
1993	13,455,788		3.253	43,773,645	2,357,383	5.4%
1994	6,449,086		3.253	20,979,819	1,579,205	7.5%
1995	17,734,471		3.253	57,692,826	11,314,057	19.6%
1996	28,876,403		3.253	93,939,159	5,938,855	6.3%
1997	27,434,262		3.253	89,247,664	7,691,121	8.6%
1998	26,616,230		3.303	87,905,062	7,574,576	8.6%
1999	23,901,401		3.354	80,159,537	6,821,707	8.5%
2000	19,819,200		3.209	63,606,525	35,670,537	56.1%
2001	21,641,352		3.017	65,281,415	17,852,673	27.3%
2002	31,941,586		2.886	92,194,415	8,461,924	9.2%
2003	35,755,041		2.689	96,150,523	28,411,179	29.5%
2004	54,522,810		2.448	133,481,347	3,982,223	3.0%
2005	55,697,704		2.220	123,629,170	59,821,556	48.4%
2006	61,057,252		2.037	124,366,831	6,946,289	5.6%
2007	61,608,161		1.857	114,409,257	10,794,322	9.4%
2008	58,154,456		1.764	102,593,082	477,796,637	465.7%
2009	62,172,956		1.600	99,462,103	9,127,735	9.2%
2010	70,966,450		1.478	104,888,457	3,378,802	3.2%
2011	71,822,950		1.443	103,642,787	19,035,462	18.4%
2012	79,268,241		1.372	108,783,240	10,920,914	10.0%
2013	87,594,841		1.308	114,537,237	7,837,537	6.8%
2014	106,263,316		1.247	132,481,743	5,735,588	4.3%
2015	107,983,965		1.186	128,104,119	17,102,994	13.4%
2016	101,520,013		1.130	114,685,770	34,371,973	30.0%
2017	93,448,164		1.102	103,026,601	128,790,753	125.0%
2018	96,212,608		1.076	103,481,589	14,268,532	13.8%
2019	96,321,965		1.050	101,138,063	17,258,166	17.1%
2020	100,503,267		1.050	105,528,430	26,805,567	25.4%
2021	106,850,988		1.050	112,193,537	26,116,610	23.3%
2022	123,023,200		1.022	125,784,773	14,112,407	11.2%
2023	144,097,558		1.000	144,097,558	14,768,794	10.2%
<b>Total</b>	<b>2,115,565,908</b>			<b>3,456,598,285</b>	<b>1,098,633,321</b>	<b>31.8%</b>

Notes:

- (2) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2023 are year ending 12/31/xx as of 12/31/23
- (3) Provided by TDI (1992 MR = 1992 manual rates)
- (4) Represents 8/1/80 through 6/30/23 rate changes for TWIA; factors assume uniform earning of written premium and that TWIA premium represents 0.8% of industry data in Tier 2
- (5) = (3) x (4) for 1983 - 1992; (2) x (4) for 1993 - 2023
- (6) Provided by TDI. 1983 - 1995 are year ending 9/30/xx as of 12/31/99; 1996 - 2011 are year ending 12/31/xx as of 12/31/19  
2012 - 2023 are year ending 12/31/xx as of 12/31/23
- (7) = (6) / (5)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**

Hurricane Loss Ratio -- Verisk (AIR) Model

Model Version: Verisk Touchstone 10.0 Tropical Cyclone (TC) and Severe Thunderstorm (ST)

County	TWIA Insured Values (000s) as of 11/30/23	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	536,224	4.352	2,333,855
Brazoria	878,166	3.565	3,130,624
Calhoun	165,659	4.179	692,358
Cameron	1,848,471	5.261	9,725,583
Chambers	96,387	2.919	281,311
Galveston	3,751,783	10.912	40,938,680
Harris	229,714	4.266	980,008
Jefferson	1,018,540	2.820	2,872,626
Kenedy	0	0.000	0
Kleberg	70,660	1.678	118,576
Matagorda	154,472	4.203	649,206
Nueces	3,830,431	4.731	18,120,523
Refugio	21,460	1.874	40,218
San Patricio	250,473	2.863	717,082
Willacy	25,499	2.766	70,522
<b>Total</b>	<b>12,877,939</b>	<b>6.264</b>	<b>80,671,171</b>
(5) In-Force Premium as of 11/30/23 at Present Rates			128,411,458
(6) Indicated Hurricane Loss Ratio			62.8%

Notes:

(2) Provided by TWIA and geo-coded by Verisk

(3) = (4) / (2)

(4) Provided by Verisk using Verisk Touchstone v10 (versus Verisk Touchstone v9 for prior year results)

(5) Provided by TWIA

(6) = (4) Total / (5)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**

Hurricane Loss Ratio -- RMS Model

Model Version: RMS RiskLink 23.0 Windstorm/Hurricane and Convective Storm (WS/CS)

County	TWIA Insured Values (000s) as of 11/30/23	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	536,224	4.873	2,613,093
Brazoria	878,166	4.157	3,650,301
Calhoun	165,659	6.113	1,012,736
Cameron	1,848,471	6.019	11,126,686
Chambers	96,387	3.607	347,693
Galveston	3,751,783	8.091	30,357,430
Harris	229,714	3.870	888,897
Jefferson	1,018,540	3.043	3,099,586
Kenedy	0	0.000	0
Kleberg	70,660	2.616	184,852
Matagorda	154,472	5.262	812,892
Nueces	3,830,431	5.043	19,314,998
Refugio	21,460	3.923	84,178
San Patricio	250,473	4.089	1,024,171
Willacy	25,499	3.947	100,648
<b>Total</b>	<b>12,877,939</b>	<b>5.794</b>	<b>74,618,160</b>
(5) In-Force Premium as of 11/30/23 at Present Rates			128,411,458
(6) Indicated Hurricane Loss Ratio			58.1%

Notes:

(2) Provided by TWIA and geo-coded by RMS

(3) = (4) / (2)

(4) Provided by RMS using RMS RiskLink v23 (versus RMS RiskLink v21 for prior year results)

(5) Provided by TWIA

(6) = (4) Total / (5)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**

Hurricane Loss Ratio -- Impact Forecasting Model

Model Version: Impact Forecasting ELEMENTS 18.0 Atlantic Tropical Cyclone and Severe Convective Storm

County	TWIA Insured Values (000s) as of 11/30/23	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	536,224	3.245	1,740,156
Brazoria	878,166	1.990	1,747,723
Calhoun	165,659	2.657	440,205
Cameron	1,848,471	3.078	5,690,416
Chambers	96,387	1.724	166,146
Galveston	3,751,783	2.876	10,789,403
Harris	229,714	1.099	252,485
Jefferson	1,018,540	1.184	1,206,234
Kenedy	0	0.000	0
Kleberg	70,660	1.792	126,620
Matagorda	154,472	2.963	457,652
Nueces	3,830,431	3.170	12,140,578
Refugio	21,460	3.390	72,746
San Patricio	250,473	2.401	601,471
Willacy	25,499	3.059	78,003
<b>Total</b>	<b>12,877,939</b>	<b>2.757</b>	<b>35,509,837</b>
(5) In-Force Premium as of 11/30/23 at Present Rates			128,411,458
(6) Indicated Hurricane Loss Ratio			27.7%

Notes:

(2) Provided by TWIA and geo-coded by Impact Forecasting

(3) = (4) / (2)

(4) Provided by Impact Forecasting using Impact Forecasting v18 (versus Impact Forecasting v15 for prior year results)

(5) Provided by TWIA

(6) = (4) Total / (5)



**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**

Hurricane Loss Ratio -- CoreLogic RQE Model

Model Version: CoreLogic Risk Quantification & Engineering (RQE) v23 North Atlantic Hurricane (HU) and Severe Convective Storm (SCS)

County	TWIA Insured Values (000s) as of 11/30/23	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	536,224	3.775	2,024,417
Brazoria	878,166	3.077	2,701,722
Calhoun	165,659	3.633	601,784
Cameron	1,848,471	3.658	6,762,260
Chambers	96,387	2.914	280,879
Galveston	3,751,783	5.936	22,269,291
Harris	229,714	3.644	837,176
Jefferson	1,018,540	3.653	3,720,931
Kenedy	0	0.000	0
Kleberg	70,660	2.179	153,992
Matagorda	154,472	3.971	613,465
Nueces	3,830,431	3.326	12,740,417
Refugio	21,460	2.478	53,180
San Patricio	250,473	2.421	606,443
Willacy	25,499	2.785	71,026
<b>Total</b>	<b>12,877,939</b>	<b>4.149</b>	<b>53,436,982</b>
(5) In-Force Premium as of 11/30/23 at Present Rates			128,411,458
(6) Indicated Hurricane Loss Ratio			41.6%

Notes:

(2) Provided by TWIA and geo-coded by CoreLogic RQE

(3) = (4) / (2)

(4) Provided by CoreLogic RQE using CoreLogic RQE v23 (versus CoreLogic RQE v21 for prior year results)

(5) Provided by TWIA

(6) = (4) Total / (5)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**  
Texas Hurricanes 1850 - 2023

<u>Landfall</u>			<u>Landfall</u>		
<u>Year</u>	<u>Month</u>	<u>Name</u>	<u>Year</u>	<u>Month</u>	<u>Name</u>
(1)	(1)	(2)	(1)	(1)	(2)
1851	Jun		1933	Sep	
1854	Jun		1934	Jul	
1854	Sep	"Matagorda"	1936	Jun	
1865	Sep	"Sabine River-Lake Calcasieu"	1940	Aug	
1866	Jul		1941	Sep	
1867	Oct	"Galveston"	1942	Aug	
1869	Aug	"Lower Texas Coast"	1942	Aug	
1875	Sep		1943	Jul	
1879	Aug		1945	Aug	
1880	Aug		1947	Aug	
1882	Sep		1949	Oct	
1886	Jun		1957	Jun	Audrey
1886	Aug	"Indianola"	1959	Jul	Debra
1886	Sep		1961	Sep	Carla
1886	Oct		1963	Sep	Cindy
1887	Sep		1967	Sep	Beulah
1888	Jun		1970	Aug	Celia
1891	Jul		1971	Sep	Fern
1895	Aug		1980	Aug	Allen
1897	Sep		1983	Aug	Alicia
1900	Sep	"Galveston"	1986	Jun	Bonnie
1909	Jun		1989	Aug	Chantal
1909	Jul	"Velasco"	1989	Oct	Jerry
1909	Aug		1999	Aug	Bret
1910	Sep		2003	Jul	Claudette
1912	Oct		2005	Sep	Rita
1913	Jun		2007	Sep	Humberto
1915	Aug	"Galveston"	2008	Jul	Dolly
1916	Aug		2008	Sep	Ike
1918	Aug		2017	Aug	Harvey
1919	Sep		2020	Jul	Hanna
1921	Jun		2020	Aug	Laura
1929	Jun		2020	Oct	Delta
1932	Aug	"Freeport"	2021	Sep	Nicholas
1933	July				

<u>Frequency</u>	<u>Date Period</u>	<u>Hurricanes</u>	<u>Period</u>	<u>Annual Frequency</u>
173-Year	1/1/1851 - 12/31/2023	69	173	0.399

Notes:

(1), (2) from NOAA Technical Memorandum NWS-NHC-6, updated with actual experience through 2023

**Texas Windstorm Insurance Association**

**Commercial Property - Wind & Hail**

**Rate Level Review**

Calculation of Earned Premium at Present Rate Level

All Territories Combined

Accident Year Ending 12/31	TWIA Written Premium	Factor to Current Rate Level	Written Premium at Current Rate Level	Earned Premium at Current Rate Level
(1)	(2)	(3)	(4)	(5)
1994	10,672,677	3.253	34,718,218	34,718,218
1995	12,865,905	3.253	41,852,789	38,285,504
1996	15,640,660	3.253	50,879,067	46,365,928
1997	16,536,186	3.253	53,792,213	52,335,640
1998	16,558,977	3.353	55,522,250	54,657,232
1999	17,394,142	3.353	58,322,558	56,922,404
2000	17,332,561	3.077	53,332,290	55,827,424
2001	17,544,251	2.958	51,895,894	52,614,092
2002	24,013,525	2.818	67,670,113	59,783,004
2003	29,220,514	2.562	74,862,957	71,266,535
2004	31,009,323	2.329	72,220,713	73,541,835
2005	35,740,174	2.117	75,661,948	73,941,331
2006	76,847,840	1.964	150,929,158	113,295,553
2007	110,951,718	1.800	199,713,092	175,321,125
2008	98,036,118	1.715	168,131,943	183,922,518
2009	111,269,573	1.494	166,236,742	167,184,343
2010	102,174,680	1.477	150,912,002	158,574,372
2011	100,017,021	1.407	140,723,949	145,817,976
2012	110,524,397	1.340	148,102,691	144,413,320
2013	112,904,624	1.276	144,066,300	146,084,496
2014	104,642,688	1.215	127,140,866	135,603,583
2015	98,715,934	1.158	114,313,052	120,726,959
2016	88,278,690	1.103	97,371,395	105,842,224
2017	70,749,081	1.103	78,036,236	87,703,816
2018	65,696,833	1.050	68,981,675	73,508,956
2019	59,123,729	1.050	62,079,915	65,530,795
2020	60,327,052	1.050	63,343,405	62,711,660
2021	63,366,551	1.050	66,534,879	64,939,142
2022	88,784,127	1.000	88,784,127	77,659,503
2023	130,162,738	1.000	130,162,738	109,473,433
Total	1,897,102,288		2,856,295,175	2,808,572,921

Notes:

(2) Provided by TWIA

(3) Exhibit 9, Sheet 2

(4) = (2) \* (3) (calculated on a monthly basis)

(5) Calculated from (4), using annual uniform earning assumption for 2002 and prior and monthly for 2003 and after

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**  
 Calculation of On-Level Premium Factors

Year	Rate Level in Effect			Cumulative Rate Level				# Months				Average Rate Level	Factor to Current Rate Level	
	Applicable Rates			E.O.Y.	B.O.Y.			E.O.Y.	B.O.Y.					E.O.Y.
(1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1980	Prior			8/1/1980	1.000			1.175	7.0			5.0	1.073	4.869
1981	8/1/1980			9/1/1981	1.175			1.132	8.0			4.0	1.161	4.500
1982	9/1/1981			9/1/1982	1.132			1.428	8.0			4.0	1.231	4.244
1983	9/1/1982			10/10/1983	1.428			1.514	9.3			2.7	1.447	3.610
1984	10/10/1983			10/10/1983	1.514			1.514	12.0			0.0	1.514	3.451
1985	10/10/1983	3/1/1985	3/15/1985	11/15/1985	1.514	1.892	2.428	2.651	2.0	0.5	8.0	1.5	2.281	2.290
1986	11/15/1985			11/15/1985	2.651			2.651	12.0			0.0	2.651	1.971
1987	11/15/1985			7/1/1987	2.651			2.407	6.0			6.0	2.529	2.066
1988	7/1/1987			11/1/1988	2.407			2.075	10.0			2.0	2.352	2.221
1989	11/1/1988			11/1/1988	2.075			2.075	12.0			0.0	2.075	2.518
1990	11/1/1988			3/1/1990	2.075			2.104	2.0			10.0	2.099	2.489
1991	3/1/1990			4/1/1991	2.104			2.083	3.0			9.0	2.088	2.502
1992	1/1/1992			1/1/1992	1.606			1.606	12.0			0.0	1.606	3.253
1993	1/1/1992			10/1/1993	1.606			1.606	9.0			3.0	1.606	3.253
1994	10/1/1993			10/1/1993	1.606			1.606	12.0			0.0	1.606	3.253
1995	10/1/1993			10/1/1993	1.606			1.606	12.0			0.0	1.606	3.253
1996	10/1/1993			10/1/1993	1.606			1.606	12.0			0.0	1.606	3.253
1997	10/1/1993			10/1/1993	1.606			1.606	12.0			0.0	1.606	3.253
1998	1/1/1998			1/1/1998	1.558			1.558	12.0			0.0	1.558	3.353
1999	1/1/1998			1/1/1998	1.558			1.558	12.0			0.0	1.558	3.353
2000	1/1/2000			1/1/2000	1.698			1.698	12.0			0.0	1.698	3.077
2001	1/1/2001			1/1/2001	1.766			1.766	12.0			0.0	1.766	2.958
2002	1/1/2002			1/1/2002	1.854			1.854	12.0			0.0	1.854	2.818
2003	1/1/2003			1/1/2003	2.039			2.039	12.0			0.0	2.039	2.562
2004	1/1/2004			1/1/2004	2.243			2.243	12.0			0.0	2.243	2.329
2005	1/1/2005			1/1/2005	2.468			2.468	12.0			0.0	2.468	2.117
2006	1/1/2006			9/1/2006	2.591			2.798	8.0			4.0	2.660	1.964
2007	1/1/2007			1/1/2007	2.902			2.902	12.0			0.0	2.902	1.800
2008	1/1/2007			2/1/2008	2.902			3.059	1.0			11.0	3.046	1.715
2009	2/1/2008			2/1/2009	3.059			3.536	1.0			11.0	3.496	1.494
2010	2/1/2009			2/1/2009	3.536			3.536	12.0			0.0	3.536	1.477
2011	1/1/2011			1/1/2011	3.713			3.713	12.0			0.0	3.713	1.407
2012	1/1/2012			1/1/2012	3.898			3.898	12.0			0.0	3.898	1.340
2013	1/1/2013			1/1/2013	4.093			4.093	12.0			0.0	4.093	1.276
2014	1/1/2014			1/1/2014	4.298			4.298	12.0			0.0	4.298	1.215
2015	1/1/2015			1/1/2016	4.513			4.513	12.0			0.0	4.513	1.158
2016	1/1/2016			1/1/2017	4.738			4.738	12.0			0.0	4.738	1.103
2017	1/1/2017			1/1/2018	4.738			4.738	12.0			0.0	4.738	1.103
2018	1/1/2018			1/1/2019	4.975			4.975	12.0			0.0	4.975	1.050
2019	1/1/2019			1/1/2020	4.975			4.975	12.0			0.0	4.975	1.050
2020	1/1/2020			1/1/2021	4.975			4.975	12.0			0.0	4.975	1.050
2021	1/1/2021			1/1/2022	4.975			4.975	12.0			0.0	4.975	1.050
2022	1/1/2022			1/1/2023	5.224			5.224	12.0			0.0	5.224	1.000
2023	1/1/2023			1/1/2024	5.224			5.224	12.0			0.0	5.224	1.000
Current								5.224				5.224		1.000

Notes:

- (1) - (4) Rates in effect and beginning and end of year (B.O.Y. and E.O.Y.)  
 For each year except 1985, 2006, and 2008 the B.O.Y. and E.O.Y. rates are the only rates applicable  
 For 1985 and 2006, there were additional rate changes  
 For 2008, the rate change took effect mid-year
- (5) - (8) Based on Exhibit 9, Sheet 3
- (9) - (12) Number of months that each of the rates were effective
- (13) = Weighted average of (5) - (8) using (9) - (12) as weights
- (14) = Current (13) / (13)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**  
History of Rate Level Changes

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Effective Date	Rate Change	Cumulative Rate Level
(1)	(2)	(3)
Prior		1.000
8/1/80	17.5%	1.175
9/1/81	-3.7%	1.132
9/1/82	26.2%	1.428
10/10/83	6.0%	1.514
3/1/85	25.0%	1.892
3/15/85	28.3%	2.428
11/15/85	9.2%	2.651
7/1/87	-9.2%	2.407
11/1/88	-13.8%	2.075
3/1/90	1.4%	2.104
4/1/91	-1.0%	2.083
1/1/92	-22.9%	1.606
10/1/93	0.0%	1.606
1/1/98	-3.0%	1.558
1/1/00	9.0%	1.698
1/1/01	4.0%	1.766
1/1/02	5.0%	1.854
1/1/03	10.0%	2.039
1/1/04	10.0%	2.243
1/1/05	10.0%	2.468
1/1/06	5.0%	2.591
9/1/06	8.0%	2.798
1/1/07	3.7%	2.902
2/1/08	5.4%	3.059
2/1/09	15.6%	3.536
1/1/11	5.0%	3.713
1/1/12	5.0%	3.898
1/1/13	5.0%	4.093
1/1/14	5.0%	4.298
1/1/15	5.0%	4.513
1/1/16	5.0%	4.738
1/1/17	0.0%	4.738
1/1/18	5.0%	4.975
1/1/19	0.0%	4.975
1/1/20	0.0%	4.975
1/1/21	0.0%	4.975
1/1/22	5.0%	5.224
1/1/23	0.0%	5.224
1/1/24	0.0%	5.224

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Notes:

- (2) Provided by TWIA, excludes 1/1/92 refund on in-force policies
- (3) = Cumulation of (2)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**  
Expenses and Permissible Loss & LAE Ratios

Expense Category	2021	2022	2023	Projected 2024	Selected
(1) Direct Written Premium	395,112,773	518,299,032	653,043,231	815,861,000	
(2) Direct Earned Premium	378,504,197	443,490,204	589,353,024	743,860,000	
(3) Commission					
\$ Amount	63,161,029	82,854,389	104,392,398	130,538,000	
% of DWP	16.0%	16.0%	16.0%	16.0%	16.0%
(4) Other Acquisition					
\$ Amount	\$0	\$0	\$0	\$0	
% of DWP	0.0%	0.0%	0.0%	0.0%	0.0%
(5) General Expense					
Unadjusted \$ Amount	29,979,903	35,578,580	36,234,634	40,243,000	
Adjustments					
Contribution to Statutory Fund	0	0	0	0	
Adjusted \$ Amount	29,979,903	35,578,580	36,234,634	40,243,000	
% of DWP	7.6%	6.9%	5.5%	4.9%	5.2%
(6) Taxes, Licenses & Fees					
\$ Amount	7,364,210	9,499,183	11,379,394	14,889,000	
% of DWP	1.9%	1.8%	1.7%	1.8%	1.8%
(7) Reinsurance Expense					50.4%
(8) Outstanding Class 1 Public Security Repayment					0.0%
(9) Total Fixed Expenses					55.6%
(10) Total Variable Expenses					17.8%
(11) CRTF Contribution & UW Contingency & Uncertainty					5.0%
(12) Permissible Loss, LAE, and Fixed Expense Ratio					77.2%

Notes:

- (1) - (6) From TWIA's Statutory Annual Statements and Insurance Expense Exhibits. 2024 figures are projected
- (7) Exhibit 10, Sheet 2
- (8) Outstanding principal paid off in 2023
- (9) = (5) + (7) + (8)
- (10) = (3) + (4) + (6)
- (11) CRTF contribution selected judgmentally
- (12) = 100% - (10) - (11)

**Texas Windstorm Insurance Association**

**Commercial Property - Wind & Hail**

**Rate Level Review**

Development of Reinsurer Expense

Using Average of Verisk and RMS Hurricane Models

	Combined	Residential	Commercial
(1) 2024 - 2025 Reinsurance Premium	370,310,168	288,590,979	81,719,188
(2a) Average Annual Loss by Reinsurance Layer (Verisk)			
100% of \$4050M XS \$2450M	74,647,712	58,850,299	15,797,414
Total	74,647,712	58,850,299	15,797,414
(2b) Average Annual Loss by Reinsurance Layer (RMS)			
100% of \$4050M XS \$2450M	58,200,781	44,681,498	13,519,283
Total	58,200,781	44,681,498	13,519,283
(2c) Selected Total Average Annual Loss	66,424,247	51,765,898	14,658,349
(3) Net Cost of Reinsurance	293,390,890	228,646,069	64,744,821
(4) TWIA In-Force Premium as of 11/30/23 at Present Rates	648,004,892	519,593,434	128,411,458
(5) Indicated Reinsurance Expense %	45.3%	44.0%	50.4%

Notes:

(1) From TWIA reinsurance contract effective 6/1/2024 through 5/31/2025

(2a) Provided by Aon, based on Verisk model using TWIA exposures as of 11/30/2023

(2b) Provided by Aon, based on RMS model using TWIA exposures as of 11/30/2023

(2c) Selected to be equal to the average of the RMS and Verisk catastrophe models

(3) = (1) - (2c) \* 1.158. 1.158 is the LAE loading.

(4) Exhibit 7, Sheet 1

(5) = (3) / (4)

**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**

Reconciliation of Paid Loss Data to Schedule P

Calendar Year	TWIA Provided Paid Loss			Schedule P	Difference
	Commercial & Farm	Residential	Total	Direct & Assumed Paid Loss	
(1)	(2)	(3)	(4)	(5)	(6)
2014	1,056,281	6,098,077	7,154,358	7,871,000	(716,642)
2015	18,718,279	120,286,469	139,004,748	138,697,000	307,748
2016	2,551,122	25,645,895	28,197,017	28,422,000	(224,983)
2017	468,681,136	933,998,619	1,402,679,755	1,402,282,000	397,755
2018	251,357	11,862,645	12,114,002	12,097,000	17,002
2019	941,867	16,664,642	17,606,509	17,606,000	509
2020	7,132,559	57,024,577	64,157,136	64,031,000	126,136
2021	8,065,506	57,925,111	65,990,617	64,894,000	1,096,617
2022	1,447,225	25,299,995	26,747,220	27,771,000	(1,023,780)
2023	4,229,429	53,433,453	57,662,882	57,766,000	(103,118)
<b>Total</b>	<b>508,845,332</b>	<b>1,254,806,030</b>	<b>1,763,651,362</b>	<b>1,821,437,000</b>	<b>(122,756)</b>

Notes:

- (2), (3) Provided by TWIA, as of 12/31/2023
- (4) = (2) + (3)
- (5) Based on TWIA 2023 Annual Statement
- (6) = (4) - (5)



**Texas Windstorm Insurance Association**  
**Commercial Property - Wind & Hail**  
**Rate Level Review**  
Reconciliation of Premium Data to Annual Statement

Calendar Year	TWIA Provided Written Premium			Annual Statement Gross Written Premium	Difference
	Commercial	Residential	Total		
(1)	(2)	(3)	(4)	(5)	(6)
1994	10,672,677	15,758,330	26,431,007	26,510,501	(79,494)
1995	12,865,905	19,259,265	32,125,170	32,419,287	(294,117)
1996	15,640,660	24,504,127	40,144,787	40,358,575	(213,788)
1997	16,536,186	25,783,455	42,319,641	42,462,844	(143,203)
1998	16,558,977	27,833,800	44,392,777	44,410,914	(18,137)
1999	17,394,142	27,168,992	44,563,134	44,581,218	(18,084)
2000	17,332,561	29,762,296	47,094,857	48,012,426	(917,569)
2001	17,544,251	36,220,623	53,764,874	54,630,727	(865,853)
2002	24,013,525	48,856,422	72,869,947	72,967,831	(97,884)
2003	29,220,514	58,573,191	87,793,705	87,987,279	(193,574)
2004	31,009,323	71,292,702	102,302,025	102,384,351	(82,326)
2005	35,740,174	78,094,458	113,834,632	113,927,701	(93,069)
2006	76,847,840	119,658,576	196,506,416	196,833,235	(326,819)
2007	110,951,718	203,561,196	314,512,914	315,139,307	(626,393)
2008	98,036,118	232,925,990	330,962,108	331,057,645	(95,537)
2009	111,269,573	269,535,059	380,804,632	382,342,402	(1,537,770)
2010	102,174,680	278,116,922	380,291,602	385,549,582	(5,257,980)
2011	100,017,021	307,494,236	407,511,257	403,748,164	3,763,093
2012	110,524,397	335,795,725	446,320,122	443,479,701	2,840,421
2013	112,904,624	360,838,081	473,742,705	472,739,474	1,003,231
2014	104,642,688	389,333,918	493,976,606	494,036,010	(59,404)
2015	98,715,934	407,969,846	506,685,780	503,824,316	2,861,464
2016	88,278,690	399,074,847	487,353,537	487,353,537	-
2017	70,749,081	352,368,052	423,117,133	423,074,138	42,995
2018	65,696,833	331,676,957	397,373,790	395,551,679	1,822,111
2019	59,123,729	314,907,159	374,030,888	372,016,601	2,014,287
2020	60,327,052	310,312,753	370,639,805	369,600,488	1,039,317
2021	63,366,551	331,736,850	395,103,401	395,112,773	(9,372)
2022	88,784,127	429,663,068	518,447,195	518,299,032	148,163
2023	130,162,738	522,931,821	653,094,559	653,043,231	51,328
<b>Total</b>	<b>1,897,102,288</b>	<b>6,361,008,717</b>	<b>8,258,111,005</b>	<b>8,253,454,969</b>	<b>4,656,036</b>

Notes:

- (2), (3) Provided by TWIA, as of 12/31/2023
- (4) = (2) + (3)
- (5) Based on TWIA Annual Statements
- (6) = (4) - (5)