

**Texas Windstorm Insurance Association
Residential Property - Wind & Hail
2023 Rate Level Review**

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

Table of Contents

Tab label	Main Heading	Sub-heading	Exhibit	Sheet
1	Summary of Indicated Rate Change	By Method for Projecting Hurricane Loss & LAE	Exhibit 1	
2.1	Projected Ultimate Non-Hurricane Loss & LAE Ratio	All Territory Weighted Average	Exhibit 2	Sheet 1
2.2a	Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 1 -- Territory 8 (Galveston County)	Exhibit 2	Sheet 2a
2.2b	Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 1 -- Territory 9 (Nueces County)	Exhibit 2	Sheet 2b
2.2c	Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 2	Sheet 2c
2.2d	Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 2 -- (Territories 1)	Exhibit 2	Sheet 2d
2.3a	Projected Ultimate Non-Hurricane Loss	Tier 1 -- Territory 8 (Galveston County)	Exhibit 2	Sheet 3a
2.3b	Projected Ultimate Non-Hurricane Loss	Tier 1 -- Territory 9 (Nueces County)	Exhibit 2	Sheet 3b
2.3c	Projected Ultimate Non-Hurricane Loss	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 2	Sheet 3c
2.3d	Projected Ultimate Non-Hurricane Loss	Tier 2 -- (Territories 1)	Exhibit 2	Sheet 3d
2.4a	Summary of TWIA Historical Paid Loss as of 12/31/22	Tier 1 -- Territory 8 (Galveston County)	Exhibit 2	Sheet 4a
2.4b	Summary of TWIA Historical Paid Loss as of 12/31/22	Tier 1 -- Territory 9 (Nueces County)	Exhibit 2	Sheet 4b
2.4c	Summary of TWIA Historical Paid Loss as of 12/31/22	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 2	Sheet 4c
2.4d	Summary of TWIA Historical Paid Loss as of 12/31/22	Tier 2 -- (Territories 1)	Exhibit 2	Sheet 4d
trend 2.5	Calculation of Net Trend Factors		Exhibit 2	Sheet 5
ldf 3.1a	Paid Loss Development Factors	Statewide Industry Extended Coverage Dwelling Paid Loss	Exhibit 3	Sheet 1
ldf 3.1b	Incurred Loss Development Factors	Statewide Industry Extended Coverage Dwelling Incurred Loss	Exhibit 3	Sheet 1
3.2 premium trend	Premium Trend Analysis	TWIA Residential Earned Premium at Present Rates	Exhibit 3	Sheet 2
3.3a	Loss Trend Analysis	Summary of Indices and Calculation of Prospective Loss Costs	Exhibit 3	Sheet 3a
3.3b	Loss Trend Analysis	Boeckh Residential Construction Index Trend (Statewide)	Exhibit 3	Sheet 3b
3.3c	Loss Trend Analysis	Boeckh Residential Construction Index Trend (Coastal)	Exhibit 3	Sheet 3c
3.3d	Loss Trend Analysis	Modified Consumer Price Index - External Trend	Exhibit 3	Sheet 3d
4.1	Development of LAE factor Using TWIA Commercial + Residential Experience		Exhibit 4	Sheet 1
4.2	Ultimate Loss (TWIA All Lines)		Exhibit 4	Sheet 2
4.3AS loss Dev	Incurred Loss Development Factors	TWIA Schedule P Incurred Loss (Including IBNR)	Exhibit 4	Sheet 3
4.4	Ultimate LAE (TWIA All Lines)		Exhibit 4	Sheet 4
4.5AS LAE Dev	Incurred ALAE Development Factors	TWIA Schedule P Incurred ALAE (Including IBNR)	Exhibit 4	Sheet 5
5	Summary of Indicated Hurricane Loss & LAE Ratios		Exhibit 5	
6.1	Industry Experience -- Residential Extended Coverage	1966 - 2022 -- Hurricane Years Only	Exhibit 6	Sheet 1
6.2	Industry Experience -- Residential Extended Coverage	1966 - 2022	Exhibit 6	Sheet 2
6.3	Industry Experience -- Residential Extended Coverage			
6.4	Industry Experience -- Residential Extended Coverage	Tier 1 -- Territory 8 (Galveston County)	Exhibit 6	Sheet 4
6.5	Industry Experience -- Residential Extended Coverage	Tier 1 -- Territory 9 (Nueces County)	Exhibit 6	Sheet 5
6.6	Industry Experience -- Residential Extended Coverage	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 6	Sheet 6
6.7	Industry Experience -- Residential Extended Coverage	Tier 2 -- (Territories 1 and 11)	Exhibit 6	Sheet 7
7.1	Hurricane Loss Ratio -- Verisk (AIR) Model		Exhibit 7	Sheet 1
7.2	Hurricane Loss Ratio -- RMS Model		Exhibit 7	Sheet 2
7.3	Hurricane Loss Ratio -- Impact Forecasting Model		Exhibit 7	Sheet 3
7.4	Hurricane Loss Ratio -- CoreLogic RQE Model		Exhibit 7	Sheet 4
8.1	Verisk (AIR) Simulated Hurricane Results		Exhibit 8	Sheet 1
8.2	RMS Simulated Hurricane Results		Exhibit 8	Sheet 2
8.3	Impact Forecasting Simulated Hurricane Results		Exhibit 8	Sheet 3
8.4	CoreLogic RQE Simulated Hurricane Results		Exhibit 8	Sheet 4
9	Texas Hurricanes 1850 - 2022		Exhibit 9	
10.1a	Calculation of TWIA Earned Premium at Present Rate Level	Tier 1 -- Territory 8 (Galveston County)	Exhibit 10	Sheet 1a
10.1b	Calculation of TWIA Earned Premium at Present Rate Level	Tier 1 -- Territory 9 (Nueces County)	Exhibit 10	Sheet 1b
10.1c	Calculation of TWIA Earned Premium at Present Rate Level	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 10	Sheet 1c
10.1d	Calculation of TWIA Earned Premium at Present Rate Level	Tier 2 -- (Territories 1 and 11)	Exhibit 10	Sheet 1d
10.2	Calculation of TWIA Earned Premium at Present Rate Level		Exhibit 10	Sheet 2
11.1	Fixed Expenses and Variable Permissible Loss & LAE Ratios		Exhibit 11	Sheet 1
11.2	Development of Reinsurer Expense	Using Average of Verisk and RMS Hurricane Models	Exhibit 11	Sheet 2
12	Reconciliation of Premium Data to Annual Statement		Exhibit 12	

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Summary of Indicated Rate Change
By Method for Projecting Hurricane Loss & LAE

Hurricane Projection Method	Indicated Loss & LAE Ratio				Permissible LLAE Ratio	2023
	Hurricane	Non-Hurricane	Fixed Expenses	Total		Indicated Rate Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Using Experience and Models	46.1%	15.4%	31.0%	92.5%	77.1%	20%
Using Actual Industry Experience	39.2%	15.4%	31.0%	85.6%	77.1%	+11%
Verisk	59.8%	15.4%	31.0%	106.2%	77.1%	+38%
RMS	51.2%	15.4%	31.0%	97.6%	77.1%	+27%
Impact Forecasting	58.3%	15.4%	31.0%	104.7%	77.1%	+36%
CoreLogic RQE Model	42.3%	15.4%	31.0%	88.7%	77.1%	+15%
Average of All Models	53.0%	15.4%	31.0%	99.4%	77.1%	+29%

Notes:

- (2) Exhibit 5
- (3) Exhibit 2, Sheet 1
- (4) Exhibit 11, Sheet 1
- (5) = (2) + (3) + (4)
- (6) Exhibit 11, Sheet 1
- (7) = (5) / (6) - 1

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
 Projected Ultimate Non-Hurricane Loss & LAE Ratio
 All Territory Weighted Average

Territory	2022 Written Premium		Indicated Non-Hurricane Loss & LAE Ratio
	Amount	Share	
(1)	(2)	(3)	(4)
Tier 1 - Territory 8	153,225,534	35.3%	16.6%
Tier 1 - Territory 9	73,555,395	17.0%	8.8%
Tier 1 - Territory 10	201,284,518	46.4%	16.7%
Tier 2	5,682,642	1.3%	25.1%
Total / Average	433,748,089	100.0%	15.4%

Notes:

- (2) TWIA data
- (3) = (2) / (2) Total
- (4) Exhibit 2, Sheet 2a - Sheet 2d

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

Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience
Tier 1 -- Territory 8 (Galveston County)

Accident Year Ending 9/30/xx	Ultimate Non-Hurricane Loss	LAE Factor	Net Trend Factor	Projected Non-Hurricane Loss & LAE	Earned Premium at Current TWIA Rate Level	Indicated Non-Hurricane Loss & LAE Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2013	54,080,358	0.289	1.298	90,483,037	138,523,122	65.3%
2014	520,624	0.289	1.256	842,882	141,396,555	0.6%
2015	17,443,601	0.289	1.240	27,881,154	143,824,430	19.4%
2016	10,985,881	0.289	1.245	17,630,197	140,103,503	12.6%
2017	2,709,595	0.289	1.224	4,275,026	133,016,924	3.2%
2018	2,556,787	0.289	1.189	3,918,585	121,376,251	3.2%
2019	4,871,160	0.289	1.173	7,365,179	114,641,201	6.4%
2020	5,635,093	0.289	1.184	8,600,144	113,445,809	7.6%
2021	24,992,438	0.289	1.124	36,209,944	117,940,724	30.7%
2022	12,576,718	0.289	1.064	17,248,918	129,461,860	13.3%
Total	136,372,255			214,455,066	1,293,730,379	16.6%

Notes:

- (2) Exhibit 2, Sheet 3a
- (3) Exhibit 4, Sheet 1
- (4) Exhibit 2 Sheet 5
- (5) = (2) * [1 + (3)] * (4)
- (6) Exhibit 10, Sheet 1a
- (7) = (5) / (6)

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

Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience
Tier 1 -- Territory 9 (Nueces County)

Accident Year Ending 9/30/xx	Ultimate Non-Hurricane Loss	LAE Factor	Net Trend Factor	Projected Non-Hurricane Loss & LAE	Earned Premium at Current TWIA Rate Level	Indicated Non-Hurricane Loss & LAE Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2013	6,175,709	0.289	1.298	10,332,715	75,089,375	13.8%
2014	1,618,066	0.289	1.256	2,619,623	78,255,381	3.3%
2015	9,461,279	0.289	1.240	15,122,530	81,529,229	18.5%
2016	9,531,194	0.289	1.245	15,295,708	80,522,915	19.0%
2017	7,641,292	0.289	1.224	12,055,941	76,211,725	15.8%
2018	1,116,250	0.289	1.189	1,710,788	68,808,541	2.5%
2019	828,374	0.289	1.173	1,252,499	62,864,123	2.0%
2020	485,320	0.289	1.184	740,684	60,369,447	1.2%
2021	697,333	0.289	1.124	1,010,321	59,850,735	1.7%
2022	1,236,862	0.289	1.064	1,696,351	62,591,785	2.7%
Total	38,791,679			61,837,160	706,093,256	8.8%

Notes:

- (2) Exhibit 2, Sheet 3b
- (3) Exhibit 4, Sheet 1
- (4) Exhibit 2 Sheet 5
- (5) = (2) * [1 + (3)] * (4)
- (6) Exhibit 10, Sheet 1b
- (7) = (5) / (6)

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

Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience
Tier 1 -- Territory 10 (Other Tier 1)

Accident Year Ending 9/30/xx	Ultimate Non-Hurricane Loss	LAE Factor	Net Trend Factor	Projected Non-Hurricane Loss & LAE	Earned Premium at Current TWIA Rate Level	Indicated Non-Hurricane Loss & LAE Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2013	4,829,039	0.289	1.298	8,079,571	226,480,562	3.6%
2014	2,847,173	0.289	1.256	4,609,528	233,107,124	2.0%
2015	86,469,178	0.289	1.240	138,208,875	237,999,667	58.1%
2016	12,167,890	0.289	1.245	19,527,091	227,183,607	8.6%
2017	21,818,214	0.289	1.224	34,423,382	207,881,527	16.6%
2018	6,778,774	0.289	1.189	10,389,291	179,645,974	5.8%
2019	10,161,148	0.289	1.173	15,363,625	159,579,121	9.6%
2020	21,949,573	0.289	1.184	33,498,912	148,714,964	22.5%
2021	29,754,681	0.289	1.124	43,109,653	147,041,832	29.3%
2022	11,057,752	0.289	1.064	15,165,663	157,257,092	9.6%
Total	207,833,422			322,375,591	1,924,891,470	16.7%

Notes:

- (2) Exhibit 2, Sheet 3c
- (3) Exhibit 4, Sheet 1
- (4) Exhibit 2 Sheet 5
- (5) = (2) * [1 + (3)] * (4)
- (6) Exhibit 10, Sheet 1c
- (7) = (5) / (6)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience

Tier 2 -- (Territories 1)

Accident Year Ending 9/30/xx	Ultimate Non-Hurricane Loss	LAE Factor	Net Trend Factor	Projected Non-Hurricane Loss & LAE	Earned Premium at Current TWIA Rate Level	Indicated Non-Hurricane Loss & LAE Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2013	502,759	0.289	1.298	841,177	4,802,386	17.5%
2014	30,748	0.289	1.256	49,781	4,882,886	1.0%
2015	339,352	0.289	1.240	542,407	4,986,385	10.9%
2016	446,449	0.289	1.245	716,464	5,015,200	14.3%
2017	481,121	0.289	1.224	759,082	4,890,478	15.5%
2018	283,274	0.289	1.189	434,152	4,631,462	9.4%
2019	2,720,409	0.289	1.173	4,113,250	4,510,864	91.2%
2020	457,991	0.289	1.184	698,975	4,586,202	15.2%
2021	1,974,239	0.289	1.124	2,860,349	4,749,377	60.2%
2022	788,776	0.289	1.064	1,081,803	5,048,518	21.4%
Total	8,025,118			12,097,440	48,103,758	25.1%

Notes:

(2) Exhibit 2, Sheet 3d

(3) Exhibit 4, Sheet 1

(4) Exhibit 2 Sheet 5

(5) = (2) * [1 + (3)] * (4)

(6) Exhibit 10, Sheet 1d

(7) = (5) / (6)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
 Projected Ultimate Non-Hurricane Loss
 Tier 1 -- Territory 8 (Galveston County)

Accident Year	TWIA Non-Hurricane Paid Loss	Development Factor	Ultimate Non-Hurricane Loss
(1)	(2)	(3)	(4)
2013	54,080,358	1.000	54,080,358
2014	520,624	1.000	520,624
2015	17,443,601	1.000	17,443,601
2016	10,985,881	1.000	10,985,881
2017	2,709,595	1.000	2,709,595
2018	2,551,684	1.002	2,556,787
2019	4,837,299	1.007	4,871,160
2020	5,535,455	1.018	5,635,093
2021	23,779,675	1.051	24,992,438
2022	10,183,577	1.235	12,576,718
Total	132,627,749		136,372,255

Notes:

- (2) Exhibit 2, Sheet 4a, as of 12/31/22
- (3) Exhibit 3, Sheet 1
- (4) = (2) * (3)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
 Projected Ultimate Non-Hurricane Loss
 Tier 1 -- Territory 9 (Nueces County)

Accident Year	TWIA Non-Hurricane Paid Loss	Development Factor	Ultimate Non-Hurricane Loss
(1)	(2)	(3)	(4)
2013	6,175,709	1.000	6,175,709
2014	1,618,066	1.000	1,618,066
2015	9,461,279	1.000	9,461,279
2016	9,531,194	1.000	9,531,194
2017	7,641,292	1.000	7,641,292
2018	1,114,022	1.002	1,116,250
2019	822,616	1.007	828,374
2020	476,739	1.018	485,320
2021	663,495	1.051	697,333
2022	1,001,508	1.235	1,236,862
Total	38,505,920		38,791,679

Notes:

- (2) Exhibit 2, Sheet 4b, as of 12/31/22
- (3) Exhibit 3, Sheet 1
- (4) = (2) * (3)

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

Projected Ultimate Non-Hurricane Loss
Tier 1 -- Territory 10 (Other Tier 1)

Accident Year	TWIA Non-Hurricane Paid Loss	Development Factor	Ultimate Non-Hurricane Loss
(1)	(2)	(3)	(4)
2013	4,829,039	1.000	4,829,039
2014	2,847,173	1.000	2,847,173
2015	86,469,178	1.000	86,469,178
2016	12,167,890	1.000	12,167,890
2017	21,818,214	1.000	21,818,214
2018	6,765,244	1.002	6,778,774
2019	10,090,514	1.007	10,161,148
2020	21,561,467	1.018	21,949,573
2021	28,310,829	1.051	29,754,681
2022	8,953,645	1.235	11,057,752
Total	203,813,193		207,833,422

Notes:

- (2) Exhibit 2, Sheet 4c, as of 12/31/22
- (3) Exhibit 3, Sheet 1
- (4) = (2) * (3)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
 Projected Ultimate Non-Hurricane Loss
 Tier 2 -- (Territories 1)

Accident Year	TWIA Non-Hurricane Paid Loss	Development Factor	Ultimate Non-Hurricane Loss
(1)	(2)	(3)	(4)
2013	502,759	1.000	502,759
2014	30,748	1.000	30,748
2015	339,352	1.000	339,352
2016	446,449	1.000	446,449
2017	481,121	1.000	481,121
2018	282,709	1.002	283,274
2019	2,701,499	1.007	2,720,409
2020	449,893	1.018	457,991
2021	1,878,439	1.051	1,974,239
2022	638,685	1.235	788,776
Total	7,751,654		8,025,118

Notes:

- (2) Exhibit 2, Sheet 4d, as of 12/31/22
- (3) Exhibit 3, Sheet 1
- (4) = (2) * (3)

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

Summary of TWIA Historical Paid Loss as of 12/31/22
Tier 1 -- Territory 8 (Galveston County)

Accident Year	Paid Loss Excluding Expense			Total
	(1)	(2)	(3)	
2013		54,080,358	0	54,080,358
2014		520,624	0	520,624
2015		17,443,601	0	17,443,601
2016		10,985,881	0	10,985,881
2017		2,709,595	35,485,978	38,195,573
2018		2,551,684	0	2,551,684
2019		4,837,299	0	4,837,299
2020		5,535,455	30,724	5,566,179
2021		23,779,675	381,777	24,161,452
2022		10,183,577	0	10,183,577
Total		132,627,749	35,898,479	168,526,228

Notes:

(2),(3) Provided by TDI. Accident years ending 9/30/xx

(4) = (2) + (3)

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

Summary of TWIA Historical Paid Loss as of 12/31/22
Tier 1 -- Territory 9 (Nueces County)

Accident Year	Paid Loss Excluding Expense			Total
	(1)	(2)	(3)	
2013		6,175,709	0	6,175,709
2014		1,618,066	0	1,618,066
2015		9,461,279	0	9,461,279
2016		9,531,194	0	9,531,194
2017		7,641,292	250,116,298	257,757,590
2018		1,114,022	0	1,114,022
2019		822,616	0	822,616
2020		476,739	1,723,848	2,200,587
2021		663,495	0	663,495
2022		1,001,508	0	1,001,508
Total		38,505,920	251,840,146	290,346,066

Notes:

- (2),(3) Provided by TDI. Accident years ending 9/30/xx
- (4) = (2) + (3)

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

Summary of TWIA Historical Paid Loss as of 12/31/22
Tier 1 -- Territory 10 (Other Tier 1)

Accident Year	Paid Loss Excluding Expense			Total
	(1)	(2)	(3)	
2013		4,829,039	0	4,829,039
2014		2,847,173	0	2,847,173
2015		86,469,178	0	86,469,178
2016		12,167,890	0	12,167,890
2017		21,818,214	627,420,328	649,238,542
2018		6,765,244	0	6,765,244
2019		10,090,514	0	10,090,514
2020		21,561,467	6,908,852	28,470,319
2021		28,310,829	16,840,037	45,150,866
2022		8,953,645	0	8,953,645
Total		203,813,193	651,169,217	854,982,410

Notes:

(2) (3) Provided by TDI. Accident years ending 9/30/xx

(4) = (2) + (3)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Summary of TWIA Historical Paid Loss as of 12/31/22

Tier 2 -- (Territories 1)

Accident Year	Paid Loss Excluding Expense			Total
	Non-Hurricane	Hurricane		
	(1)	(2)	(3)	
2013	502,759	0	0	502,759
2014	30,748	0	0	30,748
2015	339,352	0	0	339,352
2016	446,449	0	0	446,449
2017	481,121	3,459,572	0	3,940,693
2018	282,709	0	0	282,709
2019	2,701,499	0	0	2,701,499
2020	449,893	6,672	0	456,565
2021	1,878,439	15,380	0	1,893,819
2022	638,685	0	0	638,685
Total	7,751,654	3,481,624	0	11,233,278

Notes:

(2) (3) Provided by TDI. Accident years ending 9/30/xx

(4) = (2) + (3)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Calculation of Net Trend Factors

Year / Quarter	Average Written premium Per house year At present rates		
(1)	(2)	(3) Current Average Earned Date	7/1/2022
2014 / 3	1,732.45	(4) Current Average Accident Date	7/1/2022
2015 / 3	1,747.67	(5) Prospective Average Earned / Accident Date	1/1/2025
2016 / 3	1,751.17	(6) Premium Trend Length	2.500
2017 / 3	1,738.90	(7) Loss Trend Length	2.500
2018 / 3	1,743.25	(8) Selected Premium Trend	3.2%
2019 / 3	1,771.01	(9) Selected Loss Trend	5.8%
2020 / 3	1,785.14		
2021 / 3	1,847.23		
2022 / 3	2,026.06		

Accident Year	Current Premium Trend	Current Loss Trend	Prospective Premium Trend	Prospective Loss Trend	Net Trend Factor
(10)	(11)	(12)	(13)	(14)	(15)
2013	1.169	1.426	1.082	1.151	1.298
2014	1.169	1.380	1.082	1.151	1.256
2015	1.159	1.351	1.082	1.151	1.240
2016	1.157	1.354	1.082	1.151	1.245
2017	1.165	1.340	1.082	1.151	1.224
2018	1.162	1.298	1.082	1.151	1.189
2019	1.144	1.261	1.082	1.151	1.173
2020	1.135	1.263	1.082	1.151	1.184
2021	1.097	1.158	1.082	1.151	1.124
2022	1.000	1.000	1.082	1.151	1.064

Notes:

- (2) Exhibit 3, Sheet 2 (6)
- (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 2
- (9) Exhibit 3, Sheet 3a
- (11) = (2) Indexed to 2022 / 3
- (12) Exhibit 3, Sheet 3a
- (13) = [1 + (8)] ^ (6)
- (14) = [1 + (9)] ^ (7)
- (15) = [(12) * (14)] / [(11) * (13)]

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

Exhibit 3
 Sheet 1

Paid Loss Development Factors
 Statewide Industry Extended Coverage Dwelling Paid Loss

		<u>Months of Development</u>									
Accident Year		15	27	39	51	63	75	87	99	111	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		
2013	49	124,050	143,359	151,995	154,466	156,218	156,541	156,580	156,628	156,632	
2014	53	151,510	178,253	187,490	191,068	191,825	192,297	192,389	192,425	192,453	
2015	57	173,851	200,069	206,343	208,327	209,063	209,156	209,260	209,321		
2016	61	486,124	553,332	561,570	563,809	564,583	565,035	565,138			
2017	65	634,033	775,472	803,501	815,757	822,750	824,364				
2018	69	181,011	217,042	220,050	220,820	221,179					
2019	73	276,104	316,560	323,297	325,080						
2020	77	322,634	384,173	395,560							
2021	81	401,856	481,850								
2022	85	242,149									

		<u>Development Factors</u>								
Accident Year		15 - 27	27 - 39	39 - 51	51 - 63	63 - 75	75 - 87	87 - 99	99 - 111	111 - Ult
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
2013		1.156	1.060	1.016	1.011	1.002	1.000	1.000	1.000	
2014		1.177	1.052	1.019	1.004	1.002	1.000	1.000	1.000	
2015		1.151	1.031	1.010	1.004	1.000	1.000	1.000		
2016		1.138	1.015	1.004	1.001	1.001	1.000			
2017		1.223	1.036	1.015	1.009	1.002				
2018		1.199	1.014	1.003	1.002					
2019		1.147	1.021	1.006						
2020		1.191	1.030							
2021		1.199								

Average		1.176	1.032	1.010	1.005	1.002	1.000	1.000	1.000	
Avg 5 Year		1.192	1.023	1.008	1.004	1.002	1.000	1.000	1.000	
Prior		1.171	1.052	1.017	1.008	1.003	1.001	1.000	1.000	1.000
Selected		1.176	1.032	1.010	1.005	1.002	1.000	1.000	1.000	1.000
Selected Cumulative		1.235	1.051	1.018	1.007	1.002	1.000	1.000	1.000	1.000

Notes:
 Provided by TICO. Accident years ending 9/30/xx

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

Exhibit 3
 Sheet 1

Incurred Loss Development Factors
 Statewide Industry Extended Coverage Dwelling Incurred Loss

Accident Year	<u>Months of Development</u>									
	15	27	39	51	63	75	87	99	111	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
2013	127,453	147,009	154,930	155,922	156,569	156,577	156,580	156,628	156,632	
2014	157,426	183,366	190,278	191,866	192,056	192,342	192,403	192,425	192,453	
2015	183,266	204,239	208,541	209,008	209,335	209,189	209,282	209,327		
2016	498,092	556,120	562,298	564,014	564,747	565,099	565,153			
2017	665,247	791,814	816,792	822,536	825,860	825,665				
2018	186,500	218,189	220,721	221,225	221,217					
2019	283,698	318,858	324,431	325,278						
2020	338,256	390,286	397,988							
2021	421,926	487,623								
2022	251,772									

Accident Year	<u>Development Factors</u>									
	15 - 27	27 - 39	39 - 51	51 - 63	63 - 75	75 - 87	87 - 99	99 - 111	111 - Ult	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
2013	1.153	1.054	1.006	1.004	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.165	1.038	1.008	1.001	1.001	1.000	1.000	1.000	1.000	
2015	1.114	1.021	1.002	1.002	0.999	1.000	1.000			
2016	1.117	1.011	1.003	1.001	1.001	1.000				
2017	1.190	1.032	1.007	1.004	1.000					
2018	1.170	1.012	1.002	1.000						
2019	1.124	1.017	1.003							
2020	1.154	1.020								
2021	1.156									

Average	1.149	1.026	1.005	1.002	1.000	1.000	1.000	1.000	1.000	1.000
Avg 5 Year	1.159	1.018	1.003	1.002	1.000	1.000	1.000	1.000	1.000	
Prior	1.151	1.047	1.009	1.004	1.001	1.000	1.000	1.000	1.000	1.000
Selected	1.149	1.026	1.005	1.002	1.000	1.000	1.000	1.000	1.000	1.000
Selected Cumulative	1.187	1.033	1.007	1.002	1.000	1.000	1.000	1.000	1.000	1.000

Notes:
 Provided by TICO. Accident years ending 9/30/xx

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

Rate Level Review

Premium Trend Analysis

TWIA Residential Earned Premium at Present Rates

Year / Quarter	Exposure Written	Written Premium	On-Level Factors	Written Premium at Present Rates	Average Written Premium at Present Rates Quarterly	Average Written Premium at Present Rates Four Quarter Ending	Exponential Fitted Trends			
							All-Year	5-Year	4-Year	3-Year
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2013 / 2	82,182	108,632,729	1.276	138,645,949	1,687					
2013 / 3	83,114	111,540,208	1.276	142,356,711	1,713					
2013 / 4	60,544	81,734,680	1.276	104,316,465	1,723					
2014 / 1	55,592	77,867,785	1.216	94,648,779	1,703	1,705	1688.9			
2014 / 2	79,155	111,616,003	1.216	135,669,949	1,714	1,713	1693.1			
2014 / 3	89,874	128,096,479	1.216	155,702,071	1,732	1,719	1697.3			
2014 / 4	60,646	86,711,448	1.216	105,398,307	1,738	1,723	1701.4			
2015 / 1	57,651	85,327,979	1.158	98,777,802	1,713	1,725	1705.6			
2015 / 2	82,158	122,581,230	1.158	141,903,096	1,727	1,728	1709.8			
2015 / 3	84,402	127,421,809	1.158	147,506,672	1,748	1,733	1714.0			
2015 / 4	57,308	87,342,988	1.158	101,110,426	1,764	1,738	1718.2			
2016 / 1	54,113	84,557,230	1.103	93,224,346	1,723	1,740	1722.5			
2016 / 2	79,991	125,845,764	1.103	138,744,955	1,735	1,742	1726.7			
2016 / 3	77,932	123,784,247	1.103	136,472,132	1,751	1,743	1730.9			
2016 / 4	51,030	81,959,449	1.103	90,360,293	1,771	1,744	1735.2			
2017 / 1	50,991	79,037,984	1.103	87,139,377	1,709	1,742	1739.5			
2017 / 2	73,614	114,547,681	1.103	126,288,818	1,716	1,736	1743.7			
2017 / 3	68,864	108,614,623	1.103	119,747,622	1,739	1,732	1748.0			
2017 / 4	45,960	73,697,340	1.103	81,251,317	1,768	1,731	1752.3			
2018 / 1	44,101	71,679,332	1.050	75,263,299	1,707	1,731	1756.6	1692.7		
2018 / 2	63,851	104,163,394	1.050	109,371,564	1,713	1,731	1761.0	1702.6		
2018 / 3	61,408	101,951,681	1.050	107,049,265	1,743	1,732	1765.3	1712.6		
2018 / 4	40,418	68,300,637	1.050	71,715,669	1,774	1,732	1769.6	1722.6		
2019 / 1	39,758	65,036,872	1.050	68,288,716	1,718	1,735	1774.0	1732.7	1704.5	
2019 / 2	60,805	99,948,528	1.050	104,945,954	1,726	1,739	1778.3	1742.9	1717.4	
2019 / 3	57,547	97,063,357	1.050	101,916,525	1,771	1,747	1782.7	1753.1	1730.5	
2019 / 4	38,375	65,697,652	1.050	68,982,535	1,798	1,751	1787.1	1763.3	1743.6	
2020 / 1	38,302	63,498,682	1.050	66,673,616	1,741	1,756	1791.5	1773.7	1756.9	1725.2
2020 / 2	59,374	98,472,763	1.050	103,396,401	1,741	1,761	1795.9	1784.1	1770.2	1742.9
2020 / 3	57,963	98,544,861	1.050	103,472,104	1,785	1,765	1800.3	1794.5	1783.6	1760.7
2020 / 4	37,911	65,820,531	1.050	69,111,558	1,823	1,770	1804.7	1805.0	1797.2	1778.8
2021 / 1	39,057	66,582,420	1.050	69,911,541	1,790	1,780	1809.2	1815.6	1810.8	1797.0
2021 / 2	60,541	103,031,428	1.050	108,182,999	1,787	1,794	1813.6	1826.2	1824.6	1815.4
2021 / 3	59,878	105,341,091	1.050	110,608,146	1,847	1,813	1818.1	1836.9	1838.4	1834.1
2021 / 4	39,807	72,365,308	1.050	75,983,573	1,909	1,830	1822.5	1847.7	1852.4	1852.8
2022 / 1	40,733	76,134,863	1.000	76,134,863	1,869	1,846	1827.0	1858.5	1866.5	1871.8
2022 / 2	61,794	116,935,905	1.000	116,935,905	1,892	1,878	1831.5	1869.4	1880.6	1891.0
2022 / 3	79,530	161,132,745	1.000	161,132,745	2,026	1,939	1836.0	1880.3	1894.9	1910.4
2022 / 4	43,628	92,639,740	1.000	92,639,740	2,123	1,980	1840.5	1891.3	1909.3	1930.0

(14) Average Annual Change							1.0%	2.4%	3.1%	4.2%
(15) Correlation Coefficient							60.0%	79.1%	83.5%	87.6%
(16) Selected Premium Trend										3.2%

Notes: (2) Provided by TWIA (7) annualized average written premium
 (3) Provided by TWIA (8) - (11) = (6) fitted to an exponential distribution
 (4) Cumulative effect of annual rate changes (14) Fitted average annual change
 (5) = (3) * (4) (15) Evaluates the predictability of the fitted curve
 (6) = (5) / (2) (16) Selected based on judgment

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Loss Trend Analysis

Summary of Indices and Calculation of Prospective Loss Costs

Calendar Year	Statewide	Coastal	Modified	Weighted
Ending	Boeckh	Boeckh	CPI	Average
9/30/xx	(1)	(2)	(4)	(5)
2013	1.471	1.505	1.187	1.426
2014	1.426	1.448	1.176	1.380
2015	1.390	1.414	1.161	1.351
2016	1.399	1.424	1.144	1.354
2017	1.384	1.408	1.136	1.340
2018	1.334	1.354	1.128	1.298
2019	1.303	1.313	1.104	1.261
2020	1.294	1.309	1.126	1.263
2021	1.158	1.178	1.096	1.158
2022	1.000	1.000	1.000	1.000

Factors to Adjust For Prospective Loss Costs

(6) Fitted Trend	6.7%	6.9%	2.3%	5.8%
(7) Cost Factor	1.195	1.201	1.065	1.168

Notes:

- (2) = Exhibit 3, Sheet 3b trended forward to 9/30/2022
- (3) = Exhibit 3, Sheet 3c trended forward to 9/30/2022
- (4) = Exhibit 3, Sheet 3d
- (5) = 25% CPI and 75% Boeckh (most appropriate available by year)
- (6) = (2) - (5) fitted to an exponential curve using 5 years' data
- (7) = $[1 + (6)]^{2.75}$ (trended from 4/1/2022 to 1/1/2025)

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

Loss Trend Analysis

Boeckh Residential Construction Index Trend (Statewide)

Calendar Year Ending	Texas Statewide Index	Fitted Trends		5 Years		4 Years		3 Years	
		All Years Linear	Exponential	Linear	Exponential	Linear	Exponential	Linear	Exponential
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
3/31/2013	2155.46	2055.53	2090.75						
6/30/2013	2172.56	2076.30	2107.64						
9/30/2013	2188.33	2097.07	2124.67						
12/31/2013	2202.66	2117.83	2141.83						
3/31/2014	2219.67	2138.60	2159.14						
6/30/2014	2239.01	2159.37	2176.59						
9/30/2014	2257.42	2180.13	2194.17						
12/31/2014	2275.56	2200.90	2211.90						
3/31/2015	2293.59	2221.66	2229.77						
6/30/2015	2307.55	2242.43	2247.79						
9/30/2015	2316.02	2263.20	2265.95						
12/31/2015	2319.90	2283.96	2284.26						
3/31/2016	2316.44	2304.73	2302.72						
6/30/2016	2308.41	2325.50	2321.32						
9/30/2016	2301.26	2346.26	2340.08						
12/31/2016	2296.54	2367.03	2358.98						
3/31/2017	2299.40	2387.80	2378.05						
6/30/2017	2309.77	2408.56	2397.26						
9/30/2017	2326.30	2429.33	2416.63						
12/31/2017	2343.81	2450.10	2436.15						
3/31/2018	2363.74	2470.86	2455.84	2222.44	2255.97				
6/30/2018	2386.99	2491.63	2475.68	2267.28	2293.02				
9/30/2018	2413.52	2512.40	2495.68	2312.13	2330.67				
12/31/2018	2441.12	2533.16	2515.85	2356.98	2368.94				
3/31/2019	2461.69	2553.93	2536.18	2401.82	2407.84	2273.31	2305.17		
6/30/2019	2471.52	2574.70	2556.67	2446.67	2447.38	2331.57	2353.70		
9/30/2019	2471.05	2595.46	2577.33	2491.52	2487.57	2389.83	2403.25		
12/31/2019	2468.86	2616.23	2598.15	2536.36	2528.42	2448.09	2453.84		
3/31/2020	2469.80	2636.99	2619.14	2581.21	2569.94	2506.35	2505.50	2327.29	2355.12
6/30/2020	2476.69	2657.76	2640.31	2626.06	2612.14	2564.61	2558.24	2411.59	2426.45
9/30/2020	2488.05	2678.53	2661.64	2670.90	2655.03	2622.87	2612.10	2495.88	2499.94
12/31/2020	2516.35	2699.29	2683.14	2715.75	2698.63	2681.13	2667.08	2580.18	2575.65
3/31/2021	2553.06	2720.06	2704.82	2760.59	2742.95	2739.39	2723.23	2664.48	2653.66
6/30/2021	2627.36	2740.83	2726.68	2805.44	2787.99	2797.65	2780.56	2748.77	2734.03
9/30/2021	2779.01	2761.59	2748.71	2850.29	2833.77	2855.91	2839.09	2833.07	2816.84
12/31/2021	2895.04	2782.36	2770.92	2895.13	2880.30	2914.17	2898.86	2917.37	2902.15
3/31/2022	3016.95	2803.13	2793.31	2939.98	2927.60	2972.43	2959.89	3001.66	2990.05
6/30/2022	3153.96	2823.89	2815.88	2984.83	2975.68	3030.69	3022.20	3085.96	3080.61
9/30/2022	3218.93	2844.66	2838.63	3029.67	3024.54	3088.95	3085.82	3170.26	3173.91
12/31/2022	3295.87	2865.43	2861.56	3074.52	3074.21	3147.21	3150.78	3254.55	3270.04
Annual Trend		2.9%	3.3%	5.8%	6.7%	7.4%	8.7%	10.4%	12.7%
R-Squared		0.723	0.768	0.784	0.805	0.826	0.839	0.937	0.945

Notes:

- (2) = Average Index for Austin, Corpus Christi, Dallas, El Paso, Fort Worth, Houston, Odessa, and San Antonio
- (3) - (10) = (2) fitted to linear and exponential distributions

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

Loss Trend Analysis
 Boeckh Residential Construction Index Trend (Coastal)

Calendar Year Ending	Texas Coastal Index	Fitted Trends		5 Years		4 Years		3 Years	
		All Years Linear	Exponential	Linear	Exponential	Linear	Exponential	Linear	Exponential
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
3/31/2013	2157.74	2055.40	2093.96						
6/30/2013	2175.63	2077.36	2111.67						
9/30/2013	2189.62	2099.33	2129.54						
12/31/2013	2203.37	2121.30	2147.55						
3/31/2014	2227.71	2143.27	2165.72						
6/30/2014	2252.63	2165.24	2184.04						
9/30/2014	2275.00	2187.21	2202.52						
12/31/2014	2296.77	2209.17	2221.15						
3/31/2015	2310.58	2231.14	2239.94						
6/30/2015	2322.52	2253.11	2258.89						
9/30/2015	2330.38	2275.08	2278.00						
12/31/2015	2333.26	2297.05	2297.27						
3/31/2016	2328.65	2319.01	2316.70						
6/30/2016	2320.80	2340.98	2336.30						
9/30/2016	2313.59	2362.95	2356.06						
12/31/2016	2308.17	2384.92	2375.99						
3/31/2017	2311.24	2406.89	2396.09						
6/30/2017	2323.79	2428.86	2416.36						
9/30/2017	2340.80	2450.82	2436.80						
12/31/2017	2360.09	2472.79	2457.42						
3/31/2018	2380.33	2494.76	2478.21	2237.75	2274.14				
6/30/2018	2404.16	2516.73	2499.17	2284.66	2312.62				
9/30/2018	2433.32	2538.70	2520.31	2331.58	2351.75				
12/31/2018	2467.60	2560.66	2541.63	2378.49	2391.55				
3/31/2019	2494.19	2582.63	2563.13	2425.40	2432.01	2295.22	2329.77		
6/30/2019	2508.16	2604.60	2584.82	2472.32	2473.17	2355.72	2379.83		
9/30/2019	2510.44	2626.57	2606.68	2519.23	2515.02	2416.22	2430.96		
12/31/2019	2504.07	2648.54	2628.73	2566.15	2557.57	2476.71	2483.19		
3/31/2020	2502.47	2670.50	2650.97	2613.06	2600.85	2537.21	2536.54	2341.24	2372.40
6/30/2020	2502.92	2692.47	2673.40	2659.98	2644.86	2597.71	2591.04	2430.20	2447.04
9/30/2020	2516.54	2714.44	2696.01	2706.89	2689.62	2658.21	2646.71	2519.17	2524.03
12/31/2020	2539.13	2736.41	2718.82	2753.81	2735.13	2718.71	2703.57	2608.13	2603.44
3/31/2021	2571.26	2758.38	2741.82	2800.72	2781.41	2779.20	2761.66	2697.09	2685.35
6/30/2021	2653.60	2780.35	2765.01	2847.64	2828.48	2839.70	2820.99	2786.05	2769.84
9/30/2021	2797.97	2802.31	2788.40	2894.55	2876.34	2900.20	2881.60	2875.02	2856.99
12/31/2021	2933.79	2824.28	2811.99	2941.46	2925.01	2960.70	2943.52	2963.98	2946.88
3/31/2022	3069.11	2846.25	2835.78	2988.38	2974.51	3021.20	3006.76	3052.94	3039.60
6/30/2022	3213.70	2868.22	2859.77	3035.29	3024.84	3081.70	3071.36	3141.91	3135.23
9/30/2022	3295.13	2890.19	2883.96	3082.21	3076.02	3142.19	3137.35	3230.87	3233.87
12/31/2022	3370.80	2912.15	2908.36	3129.12	3128.08	3202.69	3204.75	3319.83	3335.62
Annual Trend		3.0%	3.4%	6.0%	6.9%	7.6%	8.9%	10.7%	13.2%
R-Squared		0.724	0.772	0.775	0.798	0.808	0.821	0.928	0.936

Notes:
 (2) = Average Index for Corpus Christi and Houston
 (3) - (10) = (2) fitted to linear and exponential distributions

Residential Property - Wind & Hail

Rate Level Review

Loss Trend Analysis

Modified Consumer Price Index - External Trend

Calendar Year Ending	Modified CPI	Fitted Trends		5 Years		4 Years		3 Years	
		All Years Linear	Exponential	Linear	Exponential	Linear	Exponential	Linear	Exponential
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
9/30/2012	184.57	182.06	182.52						
12/31/2012	185.03	182.71	183.12						
3/31/2013	185.38	183.36	183.72						
6/30/2013	185.51	184.01	184.32						
9/30/2013	185.82	184.66	184.92						
12/31/2013	186.03	185.31	185.53						
3/31/2014	186.43	185.96	186.14						
6/30/2014	186.87	186.61	186.75						
9/30/2014	187.59	187.25	187.36						
12/31/2014	188.62	187.90	187.97						
3/31/2015	189.46	188.55	188.59						
6/30/2015	189.59	189.20	189.21						
9/30/2015	190.03	189.85	189.83						
12/31/2015	190.50	190.50	190.45						
3/31/2016	190.95	191.15	191.07						
6/30/2016	192.03	191.80	191.70						
9/30/2016	192.82	192.45	192.33						
12/31/2016	193.56	193.10	192.96						
3/31/2017	193.85	193.75	193.59						
6/30/2017	194.07	194.40	194.22						
9/30/2017	194.14	195.05	194.86						
12/31/2017	194.10	195.70	195.50						
3/31/2018	194.71	196.35	196.14	190.64	191.04				
6/30/2018	195.27	197.00	196.78	191.83	192.14				
9/30/2018	195.59	197.65	197.42	193.02	193.25				
12/31/2018	196.20	198.30	198.07	194.21	194.36				
3/31/2019	197.06	198.95	198.72	195.40	195.48	191.91	192.30		
6/30/2019	198.22	199.60	199.37	196.59	196.61	193.47	193.74		
9/30/2019	199.74	200.25	200.03	197.78	197.74	195.02	195.20		
12/31/2019	200.26	200.90	200.68	198.97	198.88	196.58	196.66		
3/31/2020	199.74	201.55	201.34	200.16	200.03	198.13	198.13	190.89	191.33
6/30/2020	197.71	202.20	202.00	201.35	201.18	199.69	199.62	193.48	193.73
9/30/2020	195.95	202.85	202.66	202.55	202.34	201.24	201.11	196.08	196.16
12/31/2020	194.81	203.50	203.32	203.74	203.51	202.80	202.62	198.67	198.62
3/31/2021	194.38	204.15	203.99	204.93	204.68	204.35	204.13	201.27	201.12
6/30/2021	197.57	204.80	204.66	206.12	205.86	205.91	205.66	203.86	203.64
9/30/2021	201.27	205.45	205.33	207.31	207.05	207.47	207.20	206.46	206.20
12/31/2021	206.73	206.10	206.00	208.50	208.24	209.02	208.76	209.06	208.79
3/31/2022	213.00	206.75	206.68	209.69	209.44	210.58	210.32	211.65	211.41
6/30/2022	217.20	207.40	207.35	210.88	210.65	212.13	211.90	214.25	214.06
9/30/2022	220.58	208.05	208.03	212.07	211.87	213.69	213.48	216.84	216.75
12/31/2022	223.01	208.70	208.71	213.26	213.09	215.24	215.08	219.44	219.47
Annual Trend		1.2%	1.3%	2.2%	2.3%	2.9%	3.0%	4.7%	5.1%
R-Squared		0.753	0.774	0.600	0.602	0.606	0.603	0.782	0.781

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
Residential Property - Wind & Hail
Rate Level Review

Development of LAE factor Using TWIA Commercial + Residential Experience

Accident Year	Projected Ultimate Loss	Projected 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	7,009	6,817	0.973	
2015	138,818	40,123	0.289	
2016	28,442	15,396	0.541	
2017	1,410,640	281,574	0.200	H
2018	12,095	6,773	0.560	
2019	17,639	9,456	0.536	
2020	64,380	29,955	0.465	H
2021	69,196	29,966	0.433	H
2022	28,078	12,360	0.440	
All Years Total	5,220,634	903,126	0.173	
Hurricane Years Total	4,636,820	735,274	0.159	
Non-Hurricane Years				
Total	583,814	167,852	0.288	
10 Year	484,486	139,969	0.289	

Notes:

- (2) Exhibit 4, Sheet 2
- (3) Exhibit 4, Sheet 4
- (4) = (3) / (2)
- (5) "H" indicates hurricane year

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Ultimate Loss (TWIA All Lines)

Accident Year	Incurred Loss at 12/31/22	Development Factor	Indicated Ultimate Loss
(1)	(2)	(3)	(4)
1980			12,911
1981			2,512
1982			796
1983			148,999
1984			999
1985			512
1986			881
1987			1,897
1988			1,160
1989			12,296
1990			335
1991			1,217
1992			489
1993			3,375
1994			679
1995			2,977
1996			1,166
1997			2,964
1998			22,401
1999			8,773
2000			6,227
2001			24,605
2002			5,167
2003			155,001
2004			5,167
2005			154,981
2006			4,276
2007			15,745
2008			2,583,017
2009			10,407
2010			18,005
2011			96,073
2012	67,492	1.000	67,492
2013	70,835	1.000	70,835
2014	7,009	1.000	7,009
2015	138,818	1.000	138,818
2016	28,442	1.000	28,442
2017	1,412,052	0.999	1,410,640
2018	12,107	0.999	12,095
2019	17,871	0.987	17,639
2020	65,493	0.983	64,380
2021	70,898	0.976	69,196
2022	28,768	0.976	28,078

Notes:

- (2) Exhibit 4, Sheet 3
- (3) Exhibit 4, Sheet 3
- (4) 2012 - 2022: (2) * (3); 1980 - 2011: from prior TWIA annual statements

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Incurred Loss Development Factors

TWIA Schedule P Incurred Loss (Including IBNR)

Accident Year	<u>Months of Development</u>							
	12 (1)	24 (2)	36 (3)	48 (4)	60 (5)	72 (6)	84 (7)	(8)
2013		77,204	75,204	72,860	71,823	71,286	71,068	70,835
2014		6,739	7,854	7,298	7,261	7,068	7,012	7,009
2015		147,927	139,955	140,459	139,777	138,801	138,733	138,818
2016		31,292	29,612	28,908	28,523	28,457	28,456	28,442
2017		1,278,467	1,373,877	1,445,588	1,447,150	1,421,854	1,412,052	
2018		13,197	12,326	12,193	12,069	12,107		
2019		18,155	17,949	17,624	17,871			
2020		87,095	64,821	65,493				
2021		61,907	70,898					
2022		28,768						

Accident Year	<u>Development Factors</u>							
	12 - 24 (1)	24 - 36 (2)	36 - 48 (3)	48 - 60 (4)	60 - 72 (5)	72 - 84 (6)	84 - Ult (7)	(8)
2013		0.974	0.969	0.986	0.993	0.997	0.997	
2014		1.165	0.929	0.995	0.973	0.992	1.000	
2015		0.946	1.004	0.995	0.993	1.000	1.001	
2016		0.946	0.976	0.987	0.998	1.000	1.000	
2017		1.075	1.052	1.001	0.983	0.993		
2018		0.934	0.989	0.990	1.003			
2019		0.989	0.982	1.014				
2020		0.744	1.010					
2021		1.145						

Average		0.991	0.989	0.995	0.990	0.996	0.999	
Avg x hi / lo		1.001	0.988	0.994	0.991	0.997	1.000	
Avg 3 Year		0.959	0.994	1.002	0.994	0.998	1.000	
Avg 5 Year		0.977	1.002	0.997	0.990	0.996	0.999	
Prior		1.000	0.993	0.993	0.990	1.000	0.999	1.000
Selected		1.000	0.993	0.996	0.991	0.997	0.999	1.000
Cumulative		0.976	0.976	0.983	0.987	0.996	0.999	1.000

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Ultimate LAE (TWIA All Lines)

Accident Year	Inurred ALAE at 12/31/22	Development Factor	Indicated Ultimate ALAE	Inurred ULAE	Inurred LAE	
(1)	(2)	(3)	(4)	(5)	(6)	
1980					1,318	
1981					543	
1982					565	
1983					9,127	
1984					324	
1985					297	
1986				270	235	505
1987				652	404	1,056
1988				235	122	357
1989				2,727	801	3,528
1990				119	106	225
1991				403	326	729
1992				270	284	554
1993				806	569	1,375
1994				192	315	507
1995				698	205	903
1996				355	227	582
1997				892	451	1,343
1998				3,920	812	4,732
1999				1,757	631	2,388
2000				1,209	676	1,885
2001				1,207	673	1,880
2002				3,643	1,583	5,226
2003				3,239	1,883	5,122
2004				844	627	1,471
2005				15,229	5,006	20,235
2006				860	250	1,110
2007				2,489	2,452	4,941
2008		99,668	1.000	99,668	246,947	346,615
2009		223	1.000	223	1,996	2,219
2010		323	1.000	323	3,951	4,274
2011		725	1.000	725	14,383	15,108
2012		869	1.000	869	14,964	15,833
2013		901	1.000	901	12,928	13,829
2014		1,018	1.000	1,018	5,799	6,817
2015		2,973	1.000	2,973	37,150	40,123
2016		511	1.000	511	14,885	15,396
2017		17,429	0.988	17,220	264,354	281,574
2018		385	0.959	369	6,404	6,773
2019		665	0.952	633	8,823	9,456
2020		2,652	0.945	2,506	27,449	29,955
2021		2,244	1.225	2,749	27,217	29,966
2022		584	1.838	1,073	11,287	12,360

Notes:

- (2) Exhibit 4, Sheet 5
- (3) Exhibit 4, Sheet 5
- (2) Exhibit 4, Sheet 5
- (5) From TWIA's annual statements
- (4) 2008 - 2022: (2) * (3); 1986 - 2007: from TWIA's annual statements

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Incurred ALAE Development Factors

TWIA Schedule P Incurred ALAE (Including IBNR)

Accident Year	<u>Months of Development</u>							
	12	24	36	48	60	72	84	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2012		516	679	719	632	917	880	869
2013		802	806	715	1,089	991	971	901
2014		516	493	1,085	1,266	1,077	1,028	1,018
2015		973	1,818	2,355	2,749	2,944	2,838	2,973
2016		412	678	746	571	542	524	511
2017		891	16,490	21,865	21,700	17,745	17,429	
2018		301	361	352	319	385		
2019		48	471	706	665			
2020		295	1,654	2,652				
2021		776	2,244					
2022		584						

Accident Year	<u>Development Factors</u>						
	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - Ult
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2012		1.316	1.059	0.879	1.451	0.960	0.988
2013		1.005	0.887	1.523	0.910	0.980	0.928
2014		0.955	2.201	1.167	0.851	0.955	0.990
2015		1.868	1.295	1.167	1.071	0.964	1.048
2016		1.646	1.100	0.765	0.949	0.967	0.975
2017		18.507	1.326	0.992	0.818	0.982	
2018		1.199	0.975	0.906	1.207		
2019		9.813	1.499	0.942			
2020		5.607	1.603				
2021		2.892					

Average		4.48	1.33	1.04	1.04	0.97	0.99	
Avg x hi / lo		3.17	1.27	1.01	1.00	0.97	0.98	
Avg 3 Year		6.10	1.36	0.95	0.99	0.97	1.00	
Avg 5 Year		7.60	1.30	0.95	0.98	0.97	0.99	
Prior		1.50	1.19	1.06	1.01	0.99	0.98	1.00
Selected		1.50	1.30	0.99	0.99	0.97	0.99	1.00
Cumulative		1.84	1.23	0.95	0.95	0.96	0.99	1.00

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

Basis for Hurricane Loss Ratio	(1)	Indicated Loss Ratio (2)	LAE Factor (3)	Indicated Loss & LAE Ratio (4)
Industry Experience		33.8%	0.159	39.2%
<u>Hurricane Models</u>				
Verisk Model		51.6%	0.159	59.8%
RMS Model		44.2%	0.159	51.2%
IF Model		50.3%	0.159	58.3%
CoreLogic RQE Model		36.5%	0.159	42.3%
Average of Models		45.7%	0.159	53.0%

Notes:

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

(3) Exhibit 4, Sheet 1

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

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Industry Experience -- Residential Extended Coverage

1966 - 2022 -- Hurricane Years Only

Accident Year	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)	Net Trend Factor (5)
1968	29,244,163	1	38.2%	28.2%	
1970	29,832,151	1	69.7%	59.7%	
1971	29,729,368	1	76.5%	66.5%	
1980	50,494,372	1	74.8%	64.8%	
1983	64,842,240	1	512.1%	502.1%	
1986	82,608,316	1	10.9%	0.9%	
1989	99,401,872	2	7.6%	0.0%	
1999	183,849,422	1	8.3%	0.0%	
2003	287,399,325	1	15.9%	5.9%	1.38
2005	300,497,688	1	93.9%	83.9%	1.25
2007	408,391,222	1	4.8%	0.0%	1.49
2008	510,823,568	2	400.8%	195.4%	1.45
2017	587,946,262	1	206.9%	196.9%	1.22
2020	527,999,009	3	13.1%	1.0%	1.18
2021	540,678,351	1	25.4%	15.4%	1.12
Simple Average Loss Ratio for Hurricane Years			103.9%	81.4%	
(6)	Selected Non-Hurricane Loss Ratio		10.0%		
(7a)	Average Hurricane Loss Ratio per Hurricane Before Trending		81.4%		
(7b)	Selected Avg Hurr Loss Ratio Per Hurricane Before Trending		81.4%		
(8)	Historical Hurricane Frequency				
	57-Year (1/1/1966 - 12/31/2022)		0.333	(1 Hurricane Every 3.0 years)	
	172-Year (1/1/1851 - 12/31/2022)		0.395	(1 Hurricane Every 2.5 years)	
	Selected Frequency		0.395	(1 Hurricane Every 2.5 years)	
(9)	Selected Net Trending Factor		1.050		
(10)	Indicated Hurricane Loss Ratio Before Trending		32.2%		
(11)	Selected Hurricane Loss Ratio After Trending		33.8%		

Notes:

- (1) Exhibit 6, Sheet 2. Accident years ending 9/30/xx
- (3) Exhibit 6, Sheet 2. Accident years ending 9/30/xx
- (4) = MAX((3)-(5),0)/(2)
- (5) Derived from current and previous year's Exhibit 2, Sheet 5
- (6) Exhibit 6, Sheet 2
- (7a) = Average of (4)
- (7b) = Selected
- (8) Exhibit 9
- (9) Selected Net Trend Factor based on (5)
- (10) = (7b) * (8) Selected
- (11) = (9) * (10)

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

Industry Experience -- Residential Extended Coverage
1966 - 2022

Accident Year	Earned Premium	Earned Premium at CMR	Earned Premium at Current TWIA Rate Level	Incurred Losses	Incurred Loss Ratio	Hurricane Indicator
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1966		13,011,528	29,309,032	1,178,131	4.0%	
1967		13,130,860	29,577,832	663,024	2.2%	
1968		12,982,730	29,244,163	11,171,683	38.2%	H
1969		12,499,176	28,154,937	3,218,757	11.4%	
1970		13,243,763	29,832,151	20,786,468	69.7%	H
1971	10,640,335	13,198,133	29,729,368	22,731,206	76.5%	H
1972	12,302,040	13,902,740	31,316,526	2,242,093	7.2%	
1973	12,935,382	12,724,690	28,662,917	4,933,261	17.2%	
1974	12,794,652	11,637,700	26,214,425	2,293,219	8.7%	
1975	13,633,616	12,392,309	27,914,214	3,062,897	11.0%	
1976	17,088,846	13,884,831	31,276,185	1,522,489	4.9%	
1977	23,643,216	17,474,220	39,361,439	972,383	2.5%	
1978	28,157,329	19,320,941	43,521,259	1,449,823	3.3%	
1979	32,867,536	21,563,567	48,572,871	3,940,899	8.1%	
1980	32,179,994	22,416,603	50,494,372		74.8%	H
1981	30,817,037	29,693,419	66,885,716		3.2%	
1982	28,140,159	32,398,474	72,978,970		2.3%	
1983	28,786,234		64,842,240		512.1%	H
1984	20,078,668		45,228,072		14.2%	
1985	30,043,452		67,674,180		6.0%	
1986	36,673,352		82,608,316		10.9%	H
1987	41,598,709		93,702,899		2.7%	
1988	45,044,392		104,280,007		11.5%	
1989	41,745,774		99,401,872		7.6%	H
1990	40,384,195		94,692,054		19.1%	
1991	46,237,137		94,920,886		90.6%	
1992	44,512,572		112,660,893		6.4%	
1993	50,741,120		177,222,041		7.7%	
1994	57,584,585		177,917,398		4.1%	
1995	60,740,049		166,814,882		6.4%	
1996	71,865,572		177,632,754		3.6%	
1997	79,154,547		195,649,179		4.5%	
1998	80,238,260		198,129,701		20.5%	
1999	71,026,552		183,849,422		8.3%	H
2000	75,114,174		195,990,800		4.9%	
2001	74,726,401		171,328,385		6.5%	
2002	86,289,350		182,396,099		16.5%	
2003	112,200,741		287,399,325		15.9%	H
2004	123,050,217		301,248,390		1.3%	
2005	135,380,924		300,497,688		93.9%	H
2006	154,699,767		315,106,220		1.8%	
2007	219,914,305		408,391,222		4.8%	H
2008	289,558,186		510,823,568		400.8%	H
2009	327,305,758		523,612,213		1.8%	
2010	355,219,215		525,014,221		3.6%	
2011	370,875,863		535,185,593		17.4%	
2012	406,981,851		558,518,821		12.7%	
2013	440,952,159		576,580,096		16.7%	
2014	477,983,216		595,916,373		2.1%	
2015	517,579,765		614,018,014		23.3%	
2016	541,982,800		612,270,556		8.1%	
2017	533,284,592		587,946,262		206.9%	H
2018	516,732,311		555,772,073		3.3%	
2019	509,685,524		535,169,800		6.4%	
2020	502,856,199		527,999,009		13.1%	H
2021	514,931,763		540,678,351		25.4%	H
2022	562,899,256		575,534,981		8.5%	
Total / Average	8,951,859,649	285,475,684	13,229,540,203		34.7%	
Average of Non-Hurricane Years Selected					10.0%	

Notes: (2), (3) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2022
(4) 1983 - 2022: Sum of Exhibit 6, Sheet 4 - Sheet 7, (4); 1966 - 1982: (3) * 2.3
(5) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2010
(6) 1983 - 2022: Exhibit 6, Sheet 3; 1966 - 1982: (5) / (4)
(7) "H" indicates occurrence of hurricane(s) during the time period (years ending 9/30/xx)

Accident Year	<u>Loss Ratios by Territory / Tier</u>				Weighted Loss Ratio	Dev Wtd Loss Ratio	
	Territory 8	Territory 9	Territory 10	Tier 2			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1983		1222.4%	7.2%	165.5%	168.7%	512.1%	512.1%
1984		3.7%	6.8%	24.2%	38.5%	14.2%	14.2%
1985		1.9%	8.3%	8.1%	12.8%	6.0%	6.0%
1986		1.2%	2.8%	21.2%	14.1%	10.9%	10.9%
1987		0.6%	4.1%	3.7%	7.4%	2.7%	2.7%
1988		5.5%	6.8%	17.9%	7.2%	11.5%	11.5%
1989		6.0%	6.2%	9.1%	16.8%	7.6%	7.6%
1990		32.2%	11.6%	11.8%	23.8%	19.1%	19.1%
1991		74.5%	16.4%	131.9%	19.6%	90.6%	90.6%
1992		1.2%	11.8%	8.0%	18.1%	6.4%	6.4%
1993		9.3%	8.3%	6.0%	16.1%	7.7%	7.7%
1994		1.9%	4.9%	5.4%	6.4%	4.1%	4.1%
1995		2.7%	8.2%	8.2%	21.5%	6.4%	6.4%
1996		1.4%	5.0%	4.6%	9.5%	3.6%	3.6%
1997		1.8%	4.2%	6.6%	8.1%	4.5%	4.5%
1998		18.6%	10.5%	25.8%	9.9%	20.5%	20.5%
1999		2.0%	17.2%	9.8%	9.9%	8.3%	8.3%
2000		0.8%	2.2%	8.8%	10.0%	4.9%	4.9%
2001		4.8%	6.8%	7.0%	31.2%	6.5%	6.5%
2002		23.2%	5.5%	15.7%	10.1%	16.5%	16.5%
2003		4.0%	6.5%	28.7%	8.1%	15.9%	15.9%
2004		1.0%	1.5%	1.5%	3.1%	1.3%	1.3%
2005		42.3%	2.2%	168.5%	30.7%	93.9%	93.9%
2006		0.9%	1.5%	2.5%	4.4%	1.8%	1.8%
2007		2.5%	1.5%	7.8%	4.6%	4.8%	4.8%
2008		649.5%	2.1%	357.5%	391.2%	400.8%	400.8%
2009		2.7%	0.8%	1.2%	8.8%	1.8%	1.8%
2010		1.1%	5.3%	4.6%	10.4%	3.6%	3.6%
2011		1.0%	26.0%	27.0%	5.7%	17.4%	17.4%
2012		7.9%	27.5%	9.1%	81.0%	12.7%	12.7%
2013		38.8%	8.7%	2.7%	18.7%	16.7%	16.7%
2014		0.5%	2.3%	2.9%	16.8%	2.1%	2.1%
2015		12.1%	11.6%	35.8%	33.4%	23.3%	23.3%
2016		7.9%	12.1%	6.1%	34.4%	8.1%	8.1%
2017		29.5%	326.0%	302.6%	58.1%	206.9%	206.9%
2018		2.4%	2.0%	4.3%	9.9%	3.3%	3.3%
2019		5.2%	1.7%	8.3%	31.0%	6.4%	6.4%
2020		5.4%	3.9%	21.2%	44.1%	13.0%	13.1%
2021		24.7%	2.2%	32.3%	42.7%	24.6%	25.4%
2022		8.5%	2.2%	7.9%	15.5%	7.2%	8.5%
Average		56.6%	15.1%	38.3%	32.8%	40.7%	40.8%

TWIA 2022 Written Premium by Territory / Tier

	Territory 8	Territory 9	Territory 10	Tier 2	Total
(8) Amount	153,225,534	73,555,395	201,284,518	5,682,642	433,748,089
(9) % Share	35.3%	17.0%	46.4%	1.3%	100.0%

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) * loss development factors from Exhibit 3.1b
- (8) Provided by TWIA
- (9) = (8) / (8) Total

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Industry Experience -- Residential Extended Coverage

Tier 1 -- Territory 8 (Galveston County)

Accident Year	Earned Premium	Factor to TWIA Rate Level	Earned Premium at Current TWIA Rate Level	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)
1983	4,317,605	2.253	9,725,593	118,889,570	1222.4%
1984	3,512,853	2.253	7,912,854	292,543	3.7%
1985	6,066,870	2.253	13,665,888	265,705	1.9%
1986	6,846,710	2.253	15,422,512	187,218	1.2%
1987	7,738,740	2.253	17,431,848	111,242	0.6%
1988	8,043,378	2.315	18,620,820	1,026,666	5.5%
1989	8,149,957	2.381	19,406,059	1,163,813	6.0%
1990	7,816,199	2.345	18,327,267	5,908,943	32.2%
1991	8,645,208	2.053	17,747,872	13,225,287	74.5%
1992	5,826,467	2.531	14,746,731	180,484	1.2%
1993	5,825,916	3.493	20,348,008	1,900,088	9.3%
1994	6,996,874	3.090	21,618,035	420,038	1.9%
1995	8,737,576	2.746	23,996,650	644,169	2.7%
1996	11,652,672	2.472	28,802,335	406,004	1.4%
1997	12,573,252	2.472	31,077,765	573,343	1.8%
1998	13,838,930	2.469	34,172,016	6,371,206	18.6%
1999	14,103,814	2.588	36,507,166	742,130	2.0%
2000	15,784,218	2.609	41,184,790	324,948	0.8%
2001	17,776,666	2.293	40,757,315	1,947,817	4.8%
2002	20,514,469	2.114	43,362,931	10,059,284	23.2%
2003	25,868,450	2.561	66,261,372	2,672,918	4.0%
2004	30,357,860	2.448	74,321,335	731,759	1.0%
2005	36,780,457	2.220	81,639,584	34,527,644	42.3%
2006	43,562,211	2.037	88,731,379	813,430	0.9%
2007	59,282,257	1.857	110,089,943	2,757,645	2.5%
2008	73,789,694	1.764	130,175,960	845,467,368	649.5%
2009	81,999,709	1.600	131,180,244	3,581,024	2.7%
2010	89,665,314	1.478	132,525,390	1,451,547	1.1%
2011	93,230,854	1.443	134,535,069	1,329,886	1.0%
2012	99,629,727	1.372	136,726,189	10,756,644	7.9%
2013	107,104,250	1.308	140,047,344	54,338,085	38.8%
2014	114,784,032	1.247	143,104,782	691,708	0.5%
2015	122,782,019	1.186	145,659,426	17,666,484	12.1%
2016	127,007,324	1.130	143,478,437	11,304,310	7.9%
2017	126,002,753	1.102	138,918,035	41,034,379	29.5%
2018	122,707,170	1.076	131,977,848	3,153,959	2.4%
2019	121,980,686	1.050	128,079,720	6,641,205	5.2%
2020	121,816,746	1.050	127,907,583	6,949,873	5.4%
2021	126,003,547	1.050	132,303,724	32,699,314	24.7%
2022	138,253,006	1.022	141,356,451	11,988,985	8.5%
Total	2,057,376,440		2,933,854,270	1,255,198,665	42.8%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2022

(3) 1987 and prior judgementally selected; 1988 - 2022 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2022; 2008 IKE incurred loss was adjusted down by \$206,858,309 to incorporate the statutory limitations on litigation cost that House Bill 3 provides

(6) = (5) / (4)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Industry Experience -- Residential Extended Coverage

Tier 1 -- Territory 9 (Nueces County)

Accident Year	Earned Premium	Factor to TWIA Rate Level	Earned Premium at Current TWIA Rate Level	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)
1983	2,331,938	2.253	5,252,792	377,010	7.2%
1984	1,632,317	2.253	3,676,865	249,086	6.8%
1985	2,505,564	2.253	5,643,892	467,721	8.3%
1986	2,977,992	2.253	6,708,056	189,449	2.8%
1987	3,639,667	2.253	8,198,508	335,212	4.1%
1988	3,971,251	2.315	9,193,644	626,491	6.8%
1989	3,702,536	2.381	8,816,198	550,215	6.2%
1990	3,519,306	2.345	8,251,998	955,271	11.6%
1991	4,065,190	2.053	8,345,487	1,367,254	16.4%
1992	3,907,712	2.531	9,890,381	1,170,578	11.8%
1993	4,552,395	3.493	15,900,017	1,312,776	8.3%
1994	5,710,806	3.090	17,644,510	856,369	4.9%
1995	6,908,552	2.746	18,973,465	1,552,987	8.2%
1996	8,568,168	2.472	21,178,253	1,061,115	5.0%
1997	8,425,344	2.472	20,825,231	882,561	4.2%
1998	8,803,621	2.469	21,738,493	2,289,890	10.5%
1999	8,465,256	2.588	21,911,980	3,778,386	17.2%
2000	8,437,094	2.609	22,014,391	485,581	2.2%
2001	8,894,552	2.293	20,392,915	1,394,445	6.8%
2002	10,534,795	2.114	22,268,165	1,227,528	5.5%
2003	13,881,847	2.561	35,557,996	2,295,803	6.5%
2004	15,458,506	2.448	37,845,119	569,877	1.5%
2005	17,471,646	2.220	38,780,864	872,451	2.2%
2006	19,888,512	2.037	40,510,687	621,501	1.5%
2007	29,704,042	1.857	55,161,805	833,793	1.5%
2008	40,565,108	1.764	71,562,864	1,468,028	2.1%
2009	46,363,445	1.600	74,170,605	615,469	0.8%
2010	51,529,115	1.478	76,160,064	4,059,049	5.3%
2011	52,931,755	1.443	76,382,196	19,845,538	26.0%
2012	56,334,273	1.372	77,309,963	21,291,155	27.5%
2013	60,101,696	1.308	78,587,758	6,825,640	8.7%
2014	65,642,137	1.247	81,838,071	1,914,066	2.3%
2015	72,124,134	1.186	85,562,691	9,924,249	11.6%
2016	76,436,084	1.130	86,348,799	10,445,691	12.1%
2017	77,008,517	1.102	84,901,890	276,798,860	326.0%
2018	77,031,486	1.076	82,851,309	1,671,170	2.0%
2019	76,506,580	1.050	80,331,909	1,360,278	1.7%
2020	73,290,165	1.050	76,954,673	3,038,623	3.9%
2021	71,903,454	1.050	75,498,627	1,673,228	2.2%
2022	74,981,923	1.022	76,665,086	1,665,134	2.2%
Total	1,180,708,480		1,669,808,215	388,919,528	23.3%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2022

(3) 1987 and prior judgementally selected; 1988 - 2022 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2022

(6) = (5) / (4)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Industry Experience -- Residential Extended Coverage

Tier 1 -- Territory 10 (Other Tier 1)

Accident Year	Earned Premium	Factor to TWIA Rate Level	Earned Premium at Current TWIA Rate Level	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)
1983	5,888,781	2.253	13,264,735	21,953,626	165.5%
1984	3,924,651	2.253	8,840,447	2,135,063	24.2%
1985	5,808,825	2.253	13,084,631	1,055,065	8.1%
1986	6,993,722	2.253	15,753,663	3,338,312	21.2%
1987	7,677,374	2.253	17,293,618	634,637	3.7%
1988	8,284,768	2.315	19,179,650	3,434,130	17.9%
1989	7,733,295	2.381	18,413,935	1,670,422	9.1%
1990	7,568,146	2.345	17,745,638	2,095,151	11.8%
1991	8,287,605	2.053	17,013,744	22,444,044	131.9%
1992	8,059,407	2.531	20,398,281	1,625,108	8.0%
1993	8,448,603	3.493	29,508,193	1,776,572	6.0%
1994	9,743,293	3.090	30,103,566	1,637,915	5.4%
1995	10,745,995	2.746	29,512,519	2,416,675	8.2%
1996	13,294,968	2.472	32,861,658	1,520,229	4.6%
1997	15,708,220	2.472	38,826,580	2,569,544	6.6%
1998	16,168,136	2.469	39,923,448	10,312,506	25.8%
1999	14,452,667	2.588	37,410,157	3,655,754	9.8%
2000	14,453,385	2.609	37,712,329	3,332,580	8.8%
2001	15,173,521	2.293	34,788,975	2,426,814	7.0%
2002	17,843,905	2.114	37,717,965	5,925,066	15.7%
2003	23,423,208	2.561	59,997,948	17,213,668	28.7%
2004	27,306,202	2.448	66,850,344	990,613	1.5%
2005	31,012,304	2.220	68,836,328	115,989,785	168.5%
2006	36,545,725	2.037	74,439,577	1,842,548	2.5%
2007	69,945,120	1.857	129,891,382	10,105,722	7.8%
2008	110,187,567	1.764	194,387,204	694,890,836	357.5%
2009	128,275,387	1.600	205,210,442	2,522,159	1.2%
2010	143,236,007	1.478	211,702,908	9,656,553	4.6%
2011	151,387,931	1.443	218,457,570	59,069,922	27.0%
2012	170,159,709	1.372	233,517,539	21,200,719	9.1%
2013	183,495,510	1.308	239,935,006	6,485,250	2.7%
2014	197,640,983	1.247	246,405,091	7,234,983	2.9%
2015	212,320,998	1.186	251,881,790	90,056,094	35.8%
2016	218,795,204	1.130	247,169,949	15,024,455	6.1%
2017	212,533,686	1.102	234,318,389	709,089,561	302.6%
2018	201,509,514	1.076	216,733,806	9,319,007	4.3%
2019	194,433,202	1.050	204,154,862	16,890,317	8.3%
2020	186,265,421	1.050	195,578,692	41,545,151	21.2%
2021	186,593,305	1.050	195,922,970	63,330,648	32.3%
2022	199,270,321	1.022	203,743,457	16,153,550	7.9%
Total	3,090,596,572		4,208,488,983	2,004,570,754	47.6%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2022

(3) 1987 and prior judgementally selected; 1988 - 2022 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2022

(6) = (5) / (4)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Industry Experience -- Residential Extended Coverage

Tier 2 -- (Territories 1 and 11)

Accident Year	Earned Premium	Factor to TWIA Rate Level	Earned Premium at Current TWIA Rate Level	Incurred Loss	Incurred Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)
1983	16,247,909	2.253	36,599,121	61,752,490	168.7%
1984	11,008,847	2.253	24,797,906	9,535,536	38.5%
1985	15,662,193	2.253	35,279,770	4,532,749	12.8%
1986	19,854,927	2.253	44,724,085	6,306,903	14.1%
1987	22,542,928	2.253	50,778,924	3,739,010	7.4%
1988	24,744,994	2.315	57,285,893	4,139,098	7.2%
1989	22,159,987	2.381	52,765,680	8,884,751	16.8%
1990	21,480,544	2.345	50,367,151	11,997,188	23.8%
1991	25,239,134	2.053	51,813,783	10,178,608	19.6%
1992	26,718,987	2.531	67,625,500	12,221,034	18.1%
1993	31,914,206	3.493	111,465,824	17,910,197	16.1%
1994	35,133,612	3.090	108,551,287	6,968,697	6.4%
1995	34,347,927	2.746	94,332,248	20,240,594	21.5%
1996	38,349,764	2.472	94,790,509	9,046,495	9.5%
1997	42,447,731	2.472	104,919,603	8,514,675	8.1%
1998	41,427,572	2.469	102,295,744	10,127,907	9.9%
1999	34,004,815	2.588	88,020,119	8,680,187	9.9%
2000	36,439,477	2.609	95,079,289	9,518,422	10.0%
2001	32,881,662	2.293	75,389,180	23,547,404	31.2%
2002	37,396,181	2.114	79,047,038	7,950,367	10.1%
2003	49,027,236	2.561	125,582,010	10,177,909	8.1%
2004	49,927,649	2.448	122,231,592	3,738,542	3.1%
2005	50,116,517	2.220	111,240,912	34,201,898	30.7%
2006	54,703,319	2.037	111,424,577	4,909,932	4.4%
2007	60,982,886	1.857	113,248,092	5,242,698	4.6%
2008	65,015,817	1.764	114,697,540	448,708,417	391.2%
2009	70,667,217	1.600	113,050,922	9,952,501	8.8%
2010	70,788,779	1.478	104,625,859	10,829,031	10.4%
2011	73,325,323	1.443	105,810,759	5,993,038	5.7%
2012	80,858,142	1.372	110,965,130	89,893,832	81.0%
2013	90,250,703	1.308	118,009,988	22,056,019	18.7%
2014	99,916,064	1.247	124,568,429	20,930,082	16.8%
2015	110,352,614	1.186	130,914,107	43,780,541	33.4%
2016	119,744,188	1.130	135,273,371	46,501,649	34.4%
2017	117,739,636	1.102	129,807,949	75,434,678	58.1%
2018	115,484,141	1.076	124,209,110	12,333,855	9.9%
2019	116,765,056	1.050	122,603,309	37,956,617	31.0%
2020	121,483,867	1.050	127,558,060	56,245,172	44.1%
2021	130,431,457	1.050	136,953,030	58,517,997	42.7%
2022	150,394,006	1.022	153,769,987	23,902,247	15.5%
Total	2,367,978,013		3,862,473,385	1,277,098,967	33.1%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2022

(3) 1987 and prior judgementally selected; 1988 - 2022 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2022

(6) = (5) / (4)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Hurricane Loss Ratio -- Verisk (AIR) Model

County	TWIA Insured Values (000s) as of 11/30/22	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	2,475,201	2.360	5,841,474
Brazoria	13,688,806	1.719	23,531,058
Calhoun	1,212,565	2.916	3,535,840
Cameron	2,283,932	1.912	4,366,878
Chambers	2,255,711	1.471	3,318,151
Galveston	26,167,208	3.827	100,141,905
Harris	1,426,609	3.949	5,633,679
Jefferson	7,993,376	1.933	15,451,196
Kenedy	6,619	0.825	5,461
Kleberg	214,169	0.895	191,681
Matagorda	1,428,537	2.493	3,561,343
Nueces	12,421,794	2.598	32,271,821
Refugio	98,111	1.537	150,797
San Patricio	2,363,472	2.023	4,781,304
Willacy	89,901	2.172	195,265
Total	74,126,011	2.738	202,977,853
(5) In-Force Premium as of 11/30/22 at Present Rates			393,557,911
(6) Indicated Hurricane Loss Ratio			51.6%

Notes:

- (2) Provided by TWIA
- (3) Exhibit 8, Sheet 1
- (4) = (2) * (3)
- (5) Provided by TWIA
- (6) = (4) Total / (5)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Hurricane Loss Ratio -- RMS Model

County	TWIA Insured Values (000s) as of 11/30/22	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	2,475,201	2.182	5,400,889
Brazoria	13,688,806	1.712	23,435,236
Calhoun	1,212,565	3.447	4,179,712
Cameron	2,283,932	2.317	5,291,870
Chambers	2,255,711	1.509	3,403,868
Galveston	26,167,208	2.953	77,271,765
Harris	1,426,609	2.866	4,088,661
Jefferson	7,993,376	1.819	14,539,951
Kenedy	6,619	1.422	9,412
Kleberg	214,169	1.449	310,331
Matagorda	1,428,537	2.768	3,954,190
Nueces	12,421,794	2.163	26,868,340
Refugio	98,111	2.059	202,011
San Patricio	2,363,472	2.017	4,767,123
Willacy	89,901	2.699	242,643
Total	74,126,011	2.347	173,966,002
(5) In-Force Premium as of 11/30/22 at Present Rates			393,557,911
(6) Indicated Hurricane Loss Ratio			44.2%

Notes:

- (2) Provided by TWIA
- (3) Exhibit 8, Sheet 2
- (4) = (2) * (3)
- (5) Provided by TWIA
- (6) = (4) Total / (5)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Hurricane Loss Ratio -- Impact Forecasting Model

County	TWIA Insured Values (000s) as of 11/30/22	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	2,475,201	2.443	6,046,916
Brazoria	13,688,806	2.645	36,206,892
Calhoun	1,212,565	3.824	4,636,849
Cameron	2,283,932	3.431	7,836,171
Chambers	2,255,711	2.171	4,897,149
Galveston	26,167,208	2.821	73,817,694
Harris	1,426,609	2.249	3,208,444
Jefferson	7,993,376	2.059	16,458,361
Kenedy	6,619	2.396	15,859
Kleberg	214,169	2.210	473,313
Matagorda	1,428,537	4.402	6,288,420
Nueces	12,421,794	2.490	30,930,267
Refugio	98,111	2.713	266,175
San Patricio	2,363,472	2.699	6,379,011
Willacy	89,901	3.640	327,240
Total	74,126,011	2.668	197,788,761
(5) In-Force Premium as of 11/30/22 at Present Rates			393,557,911
(6) Indicated Hurricane Loss Ratio			50.3%

Notes:

- (2) Provided by TWIA
- (3) Exhibit 8, Sheet 3
- (4) = (2) * (3)
- (5) Provided by TWIA
- (6) = (4) Total / (5)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Hurricane Loss Ratio -- CoreLogic RQE Model

County	TWIA Insured Values (000s) as of 11/30/22	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	2,475,201	1.882	4,658,328
Brazoria	13,688,806	1.478	20,232,055
Calhoun	1,212,565	2.973	3,604,956
Cameron	2,283,932	1.415	3,231,764
Chambers	2,255,711	1.403	3,164,763
Galveston	26,167,208	2.275	59,530,398
Harris	1,426,609	2.880	4,108,634
Jefferson	7,993,376	2.256	18,033,056
Kenedy	6,619	0.845	5,593
Kleberg	214,169	0.957	204,960
Matagorda	1,428,537	2.401	3,429,917
Nueces	12,421,794	1.554	19,303,468
Refugio	98,111	1.751	171,792
San Patricio	2,363,472	1.632	3,857,186
Willacy	89,901	1.948	175,127
Total	74,126,011	1.939	143,711,997
(5) In-Force Premium as of 11/30/22 at Present Rates			393,557,911
(6) Indicated Hurricane Loss Ratio			36.5%

Notes:

- (2) Provided by TWIA
- (3) Exhibit 8, Sheet 4
- (4) = (2) * (3)
- (5) Provided by TWIA
- (6) = (4) Total / (5)

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

Verisk (AIR) Simulated Hurricane Results

County	TWIA Insured Values (000s) as of 11/30/22	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	2,475,201	5,840,355	2.360
Brazoria	13,688,806	23,528,567	1.719
Calhoun	1,212,565	3,536,029	2.916
Cameron	2,283,932	4,366,879	1.912
Chambers	2,255,711	3,319,232	1.471
Galveston	26,167,208	100,143,933	3.827
Harris	1,426,609	5,633,409	3.949
Jefferson	7,993,376	15,449,884	1.933
Kenedy	6,619	5,460	0.825
Kleberg	214,169	191,680	0.895
Matagorda	1,428,537	3,560,748	2.493
Nueces	12,421,794	32,271,944	2.598
Refugio	98,111	150,789	1.537
San Patricio	2,363,472	4,782,482	2.023
Willacy	89,901	195,294	2.172
Total	74,126,011	202,976,685	2.738

Notes:

- (2) Provided by TWIA and Geo-coded by Verisk
- (3) Provided by Verisk Using Historical Event Frequencies and Excluding Storm Surge
- (4) = (3) / (2)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
RMS Simulated Hurricane Results

County	TWIA Insured Values (000s) as of 11/30/22	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	2,475,201	5,401,141	2.182
Brazoria	13,688,806	23,433,197	1.712
Calhoun	1,212,565	4,180,204	3.447
Cameron	2,283,932	5,292,049	2.317
Chambers	2,255,711	3,404,106	1.509
Galveston	26,167,208	77,282,030	2.953
Harris	1,426,609	4,089,336	2.866
Jefferson	7,993,376	14,539,596	1.819
Kenedy	6,619	9,414	1.422
Kleberg	214,169	310,343	1.449
Matagorda	1,428,537	3,954,888	2.768
Nueces	12,421,794	26,868,594	2.163
Refugio	98,111	202,039	2.059
San Patricio	2,363,472	4,766,823	2.017
Willacy	89,901	242,626	2.699
Total	74,126,011	173,976,386	2.347

Notes:

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

(3) Provided by RMS Using Historical Event Frequencies and Excluding Storm Surge

(4) = (3) / (2)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Impact Forecasting Simulated Hurricane Results

Exhibit 8
Sheet 3

County	TWIA Insured Values (000s) as of 11/30/22	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	2,475,201	6,046,811	2.443
Brazoria	13,688,806	36,202,871	2.645
Calhoun	1,212,565	4,636,818	3.824
Cameron	2,283,932	7,835,832	3.431
Chambers	2,255,711	4,898,000	2.171
Galveston	26,167,208	73,826,235	2.821
Harris	1,426,609	3,208,658	2.249
Jefferson	7,993,376	16,459,753	2.059
Kenedy	6,619	15,860	2.396
Kleberg	214,169	473,265	2.210
Matagorda	1,428,537	6,289,060	4.402
Nueces	12,421,794	30,932,617	2.490
Refugio	98,111	266,152	2.713
San Patricio	2,363,472	6,379,644	2.699
Willacy	89,901	327,239	3.640
Total	74,126,011	197,798,815	2.668

Notes:

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

(3) Provided by Impact Forecasting Using Historical Event Frequencies and Excluding Storm Surge

(4) = (3) / (2)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
CoreLogic RQE Simulated Hurricane Results

Exhibit 8
Sheet 4

County	TWIA Insured Values (000s) as of 11/30/22	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	2,475,201	4,659,298	1.882
Brazoria	13,688,806	20,225,266	1.478
Calhoun	1,212,565	3,605,286	2.973
Cameron	2,283,932	3,231,371	1.415
Chambers	2,255,711	3,163,714	1.403
Galveston	26,167,208	59,526,500	2.275
Harris	1,426,609	4,108,699	2.880
Jefferson	7,993,376	18,033,611	2.256
Kenedy	6,619	5,592	0.845
Kleberg	214,169	204,937	0.957
Matagorda	1,428,537	3,429,435	2.401
Nueces	12,421,794	19,301,804	1.554
Refugio	98,111	171,821	1.751
San Patricio	2,363,472	3,857,318	1.632
Willacy	89,901	175,141	1.948
Total	74,126,011	143,699,793	1.939

Notes:

- (2) Provided by TWIA and Geo-coded by CoreLogic RQE
- (3) Provided by CoreLogic RQE Using Historical Event Frequencies and Excluding Storm Surge
- (4) = (3) / (2)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Texas Hurricanes 1850 - 2022

<u>Landfall</u>			<u>Landfall</u>		
Year	Month	Name	Year	Month	Name
(1)	(2)		(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
1919	Sep		2017	Aug	Harvey
1921	Jun		2020	Jul	Hanna
1929	Jun		2020	Aug	Laura
1932	Aug	"Freeport"	2020	Oct	Delta
1933	Aug		2021	Sep	Nicholas

Frequency	Date Period	Hurricanes	Period	Annual Frequency
57-Year	1/1/1966 - 12/31/2022	19	57	0.333
172-Year	1/1/1851 - 12/31/2022	68	172	0.395

Notes:

(1), (2) from NOAA Technical Memorandum NWS-NHC-6, updated with actual experience through 2022

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

Calculation of TWIA Earned Premium at Present Rate Level
 Tier 1 -- Territory 8 (Galveston County)

Year	TWIA Earned Premium	Factor to Current Rate Level	Earned Premium at Current Rate Level
(1)	(2)	(3)	(4)
2013	105,941,027	1.308	138,523,122
2014	113,521,698	1.246	141,396,555
2015	121,221,015	1.186	143,824,430
2016	123,942,872	1.130	140,103,503
2017	120,650,271	1.103	133,016,924
2018	112,717,188	1.077	121,376,251
2019	109,182,096	1.050	114,641,201
2020	108,043,628	1.050	113,445,809
2021	112,324,499	1.050	117,940,724
2022	126,572,677	1.023	129,461,860
Total	1,154,116,971		1,293,730,379

Notes:

- (2) Provided by TWIA
- (3) Provided by TWIA
- (4) = (2) * (3)

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

Calculation of TWIA Earned Premium at Present Rate Level
 Tier 1 -- Territory 9 (Nueces County)

Year	TWIA Earned Premium	Factor to Current Rate Level	Earned Premium at Current Rate Level
(1)	(2)	(3)	(4)
2013	57,427,564	1.308	75,089,375
2014	62,828,148	1.246	78,255,381
2015	68,716,114	1.186	81,529,229
2016	71,234,774	1.130	80,522,915
2017	69,126,281	1.103	76,211,725
2018	63,899,693	1.077	68,808,541
2019	59,870,593	1.050	62,864,123
2020	57,494,711	1.050	60,369,447
2021	57,000,700	1.050	59,850,735
2022	61,194,933	1.023	62,591,785
Total	628,793,511		706,093,256

Notes:

- (2) Provided by TWIA
- (3) Provided by TWIA
- (4) = (2) * (3)

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

Calculation of TWIA Earned Premium at Present Rate Level
Tier 1 -- Territory 10 (Other Tier 1)

Year	TWIA Earned Premium	Factor to Current Rate Level	Earned Premium at Current Rate Level
(1)	(2)	(3)	(4)
2013	173,209,952	1.308	226,480,562
2014	187,152,484	1.246	233,107,124
2015	200,595,693	1.186	237,999,667
2016	200,978,477	1.130	227,183,607
2017	188,554,673	1.103	207,881,527
2018	166,829,909	1.077	179,645,974
2019	151,980,115	1.050	159,579,121
2020	141,633,299	1.050	148,714,964
2021	140,039,840	1.050	147,041,832
2022	153,747,607	1.023	157,257,092
Total	1,704,722,049		1,924,891,470

Notes:

- (2) Provided by TWIA
- (3) Provided by TWIA
- (4) = (2) * (3)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Calculation of TWIA Earned Premium at Present Rate Level

Tier 2 -- (Territories 1 and 11)

Year	TWIA Earned Premium	Factor to Current Rate Level	Earned Premium at Current Rate Level
(1)	(2)	(3)	(4)
2013	3,672,814	1.308	4,802,386
2014	3,920,276	1.246	4,882,886
2015	4,202,726	1.186	4,986,385
2016	4,436,708	1.130	5,015,200
2017	4,435,808	1.103	4,890,478
2018	4,301,050	1.077	4,631,462
2019	4,296,061	1.050	4,510,864
2020	4,367,811	1.050	4,586,202
2021	4,523,216	1.050	4,749,377
2022	4,935,851	1.023	5,048,518
Total	43,092,321		48,103,758

Notes:

(2) Provided by TWIA

(3) Provided by TWIA

(4) = (2) * (3)

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

Calculation of TWIA Earned Premium at Present Rate Level

Year	Earned Premium at Manual Rates	Factor to Current Rate Level	Earned Premium at Current Rate Level
(1)	(2)	(3)	(4)
2008	219,412,771	1.732	380,025,401
2009	250,693,788	1.574	394,502,010
2010	273,154,916	1.478	403,683,330
2011	292,239,327	1.441	421,219,887
2012	323,323,869	1.373	443,840,208
2013	346,955,938	1.308	453,662,015
2014	372,022,089	1.246	463,370,816
2015	403,803,905	1.186	479,098,995
2016	405,934,590	1.130	458,863,484
2017	376,421,384	1.103	415,004,576
2018	341,468,875	1.077	367,700,905
2019	322,259,386	1.050	338,372,355
2020	311,420,426	1.050	326,991,447
2021	319,441,102	1.050	335,413,157
2022	369,077,295	1.023	377,501,954
Total	4,927,629,661		6,059,250,541

Notes:

- (2) Provided by TWIA
- (3) Based on historical rate changes
- (4) = (2) * (3)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Fixed Expenses and Variable Permissible Loss & LAE Ratios

Expense Category	2020	2021	2022	Selected
(1) Direct Written Premium	\$369,600,488	\$395,112,773	\$518,299,032	
(2) Direct Earned Premium	\$369,179,093	\$378,504,197	\$443,490,204	
(3) Commission				
\$ Amount	\$59,103,153	\$63,161,029	\$82,854,389	
% of DWP	16.0%	16.0%	16.0%	16.0%
(4) Other Acquisition				
\$ Amount	\$0	\$0	\$0	
% of DWP	0.0%	0.0%	0.0%	0.0%
(5) General Expense				
Unadjusted \$ Amount	\$31,624,678	\$29,979,903	\$35,578,580	
Adjustments				
Contribution to Statutory Fund	\$0	\$0	\$0	
Adjusted \$ Amount	31,624,678	29,979,903	35,578,580	
% of DWP	8.6%	7.6%	6.9%	7.5%
(6) Taxes, Licenses & Fees				
\$ Amount	\$6,904,349	\$7,364,210	\$9,499,183	
% of DWP	1.9%	1.9%	1.8%	1.9%
(7) Reinsurance Expense				23.5%
(8) Outstanding Class 1 Public Security Repayment				0.0%
(9) Total Fixed Expenses				31.0%
(10) Total Variable Expenses				17.9%
(11) CRTF Contribution & UW Contingency & Uncertainty				5.0%
(12) Permissible Loss, LAE and Fixed Expense Ratio				77.1%

Notes:

- (1) - (6) From TWIA's Statutory Annual Statements and Insurance Expense Exhibits
- (7) Exhibit 11, Sheet 2
- (8) Outstanding principal paid off in 2022
- (9) = (5) + (7) + (8)
- (10) = (3) + (4) + (6)
- (11) CRTF contribution selected judgmentally
- (12) = 100% - (10) - (11)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Development of Reinsurer Expense

Using Average of Verisk and RMS Hurricane Models

Exhibit 11

Sheet 2

	Combined	Residential	Commercial
(1) 2023 - 2024 Reinsurance Premium	189,725,117	154,114,999	35,610,118
(2a) Average Annual Loss by Reinsurance Layer (Verisk) 100% of \$2243M XS \$2265M	41,761,157	33,855,119	7,906,039
Total	41,761,157	33,855,119	7,906,039
(2b) Average Annual Loss by Reinsurance Layer (RMS) 100% of \$2243M XS \$2265M	28,675,634	23,361,165	5,314,470
Total	28,675,634	23,361,165	5,314,470
(2c) Selected Total Average Annual Loss	35,218,396	28,608,142	6,610,254
(3) Annual Exposure Growth	19.7%	19.7%	19.7%
(4) Prospective Average Annual Loss	42,158,011	34,245,238	7,912,773
(5) Net Cost of Reinsurance	140,863,982	114,424,768	26,439,215
(6) TWIA 2022 Earned Premium at Present Rates	455,161,457	377,501,954	77,659,503
(7) 2023 - 2024 TWIA Prospective Earned Premium at Present Rates	587,283,942	487,081,742	100,202,199
(8) Indicated Reinsurance Expense %	24.0%	23.5%	26.4%

Notes:

(1) From TWIA reinsurance contract effective 6/1/2023 through 5/31/2024

(2a) Provided by Aon, based on Verisk model using TWIA exposures as of 11/30/2022

(2b) Provided by Aon, based on RMS model using TWIA exposures as of 11/30/2022

(2c) Selected equal to the average of the modeled average annual losses

(3) Selected based on projections communicated to reinsurers

(4) = (2c) * [(1+ (3)) ^ 1.000] (projected exposure growth from 11/30/2022 to 12/1/2023)

(5) = (1) - (4) * 1.159. 1.159 is the LAE loading.

(6) = Commercial Exhibit 10, Sheet 1 + Residential Exhibit 10, Sheet 2, calendar year ending 12/31/2022

(7) = (6) adjusted for exposure growth trend * [(1+ (3)) ^ 1.417] (projected exposure growth from 7/1/2022 to 12/1/2023)

(8) = (5) / (7)

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Reconciliation of Premium Data to Annual Statement

Calendar Year	TWIA Provided Written Premium			Annual Statement Gross	
	Commercial	Residential	Total	Written Premium	Difference
(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
Total	1,766,939,550	5,838,076,896	7,605,016,446	7,600,411,738	4,604,708

Notes:

(2), (3) Provided by TWIA, as of 12/31/2022

(4) = (2) + (3)

(5) Based on TWIA Annual Statements

(6) = (4) - (5)