

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

Table of Contents

Main Heading	Sub-heading	Exhibit	Sheet
Summary of Indicated Rate Change	By Method for Projecting Hurricane Loss & LAE	Exhibit 1	
Projected Ultimate Non-Hurricane Loss & LAE Ratio	All Territory Weighted Average	Exhibit 2	Sheet 1
Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 1 -- Territory 8 (Galveston County)	Exhibit 2	Sheet 2a
Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 1 -- Territory 9 (Nueces County)	Exhibit 2	Sheet 2b
Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 2	Sheet 2c
Projected Ultimate Non-Hurricane Loss & LAE Ratio based on TWIA experience	Tier 2 -- (Territories 1)	Exhibit 2	Sheet 2d
Projected Ultimate Non-Hurricane Loss	Tier 1 -- Territory 8 (Galveston County)	Exhibit 2	Sheet 3a
Projected Ultimate Non-Hurricane Loss	Tier 1 -- Territory 9 (Nueces County)	Exhibit 2	Sheet 3b
Projected Ultimate Non-Hurricane Loss	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 2	Sheet 3c
Projected Ultimate Non-Hurricane Loss	Tier 2 -- (Territories 1)	Exhibit 2	Sheet 3d
Summary of TWIA Historical Paid Loss as of 12/31/21	Tier 1 -- Territory 8 (Galveston County)	Exhibit 2	Sheet 4a
Summary of TWIA Historical Paid Loss as of 12/31/21	Tier 1 -- Territory 9 (Nueces County)	Exhibit 2	Sheet 4b
Summary of TWIA Historical Paid Loss as of 12/31/21	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 2	Sheet 4c
Summary of TWIA Historical Paid Loss as of 12/31/21	Tier 2 -- (Territories 1)	Exhibit 2	Sheet 4d
Calculation of Net Trend Factors		Exhibit 2	Sheet 5
Paid Loss Development Factors	Statewide Industry Extended Coverage Dwelling Paid Loss	Exhibit 3	Sheet 1
Incurred Loss Development Factors	Statewide Industry Extended Coverage Dwelling Incurred Loss	Exhibit 3	Sheet 1
Premium Trend Analysis	TWIA Residential Earned Premium at Present Rates	Exhibit 3	Sheet 2
Loss Trend Analysis	Summary of Indices and Calculation of Prospective Loss Costs	Exhibit 3	Sheet 3a
Loss Trend Analysis	Boeckh Residential Construction Index Trend (Statewide)	Exhibit 3	Sheet 3b
Loss Trend Analysis	Boeckh Residential Construction Index Trend (Coastal)	Exhibit 3	Sheet 3c
Loss Trend Analysis	Modified Consumer Price Index - External Trend	Exhibit 3	Sheet 3d
Development of LAE factor Using TWIA Commercial + Residential Experience		Exhibit 4	Sheet 1
Ultimate Loss (TWIA All Lines)		Exhibit 4	Sheet 2
Incurred Loss Development Factors	TWIA Schedule P Incurred Loss (Including IBNR)	Exhibit 4	Sheet 3
Ultimate LAE (TWIA All Lines)		Exhibit 4	Sheet 4
Incurred ALAE Development Factors	TWIA Schedule P Incurred ALAE (Including IBNR)	Exhibit 4	Sheet 5
Summary of Indicated Hurricane Loss & LAE Ratios		Exhibit 5	
Industry Experience -- Residential Extended Coverage	1966 - 2021 -- Hurricane Years Only	Exhibit 6	Sheet 1
Industry Experience -- Residential Extended Coverage	1966 - 2021	Exhibit 6	Sheet 2
Industry Experience -- Residential Extended Coverage			
Industry Experience -- Residential Extended Coverage	Tier 1 -- Territory 8 (Galveston County)	Exhibit 6	Sheet 4
Industry Experience -- Residential Extended Coverage	Tier 1 -- Territory 9 (Nueces County)	Exhibit 6	Sheet 5
Industry Experience -- Residential Extended Coverage	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 6	Sheet 6
Industry Experience -- Residential Extended Coverage	Tier 2 -- (Territories 1 and 11)	Exhibit 6	Sheet 7
Hurricane Loss Ratio -- AIR Model		Exhibit 7	Sheet 1
Hurricane Loss Ratio -- RMS Model		Exhibit 7	Sheet 2
Hurricane Loss Ratio -- Impact Forecasting Model		Exhibit 7	Sheet 3
Hurricane Loss Ratio -- CoreLogic RQE Model		Exhibit 7	Sheet 4
AIR Simulated Hurricane Results		Exhibit 8	Sheet 1
RMS Simulated Hurricane Results		Exhibit 8	Sheet 2
Impact Forecasting Simulated Hurricane Results		Exhibit 8	Sheet 3
CoreLogic RQE Simulated Hurricane Results		Exhibit 8	Sheet 4
Texas Hurricanes 1850 - 2021		Exhibit 9	
Calculation of TWIA Earned Premium at Present Rate Level	Tier 1 -- Territory 8 (Galveston County)	Exhibit 10	Sheet 1a
Calculation of TWIA Earned Premium at Present Rate Level	Tier 1 -- Territory 9 (Nueces County)	Exhibit 10	Sheet 1b
Calculation of TWIA Earned Premium at Present Rate Level	Tier 1 -- Territory 10 (Other Tier 1)	Exhibit 10	Sheet 1c
Calculation of TWIA Earned Premium at Present Rate Level	Tier 2 -- (Territories 1 and 11)	Exhibit 10	Sheet 1d
Calculation of TWIA Earned Premium at Present Rate Level		Exhibit 10	Sheet 2
Fixed Expenses and Variable Permissible Loss & LAE Ratios		Exhibit 11	Sheet 1
Development of Reinsurer Expense	Using Average of AIR and RMS Hurricane Models	Exhibit 11	Sheet 2
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	Indicated Rate Change	Proposed Rate Change
	Hurricane	Non-Hurricane	Fixed Expenses	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Using Experience and Models	46.5%	14.7%	27.3%	88.4%	77.1%	15.0%	
Using Actual Industry Experience	40.2%	14.7%	27.3%	82.2%	77.1%	+7%	
Average of All Models	52.7%	14.7%	27.3%	94.7%	77.1%	+23%	

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

(8) Selected

Texas Windstorm Insurance Association

Residential Property - Wind & Hail

Rate Level Review

Projected Ultimate Non-Hurricane Loss & LAE Ratio

All Territory Weighted Average

Exhibit 2

Sheet 1

Territory	2021 Written Premium		Indicated Non-Hurricane Loss & LAE Ratio
	Amount	Share	
(1)	(2)	(3)	(4)
Tier 1 - Territory 8	121,498,534	36.4%	14.8%
Tier 1 - Territory 9	59,500,283	17.8%	12.2%
Tier 1 - Territory 10	147,624,220	44.3%	15.5%
Tier 2	4,775,030	1.4%	21.1%
Total / Average	333,398,067	100.0%	14.7%

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)
2012	10,634,874	0.278	1.219	16,567,879	135,360,527	12.2%
2013	54,085,975	0.278	1.186	81,978,545	138,523,122	59.2%
2014	520,624	0.278	1.163	773,811	141,396,555	0.5%
2015	17,443,601	0.278	1.148	25,592,275	143,824,430	17.8%
2016	10,996,867	0.278	1.152	16,190,203	140,103,503	11.6%
2017	2,716,787	0.278	1.133	3,933,837	133,016,924	3.0%
2018	2,536,877	0.278	1.100	3,566,342	121,376,251	2.9%
2019	4,833,521	0.278	1.086	6,708,482	114,641,201	5.9%
2020	5,823,899	0.278	1.097	8,164,908	113,445,809	7.2%
2021	21,701,518	0.278	1.041	28,871,656	117,940,724	24.5%
Total	131,294,543			192,347,938	1,299,629,046	14.8%

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)
2012	20,630,853	0.278	1.219	32,140,435	73,910,838	43.5%
2013	6,175,709	0.278	1.186	9,360,572	75,089,375	12.5%
2014	1,618,066	0.278	1.163	2,404,954	78,255,381	3.1%
2015	9,461,279	0.278	1.148	13,881,059	81,529,229	17.0%
2016	9,540,725	0.278	1.152	14,046,390	80,522,915	17.4%
2017	7,671,857	0.278	1.133	11,108,649	76,211,725	14.6%
2018	1,151,679	0.278	1.100	1,619,030	68,808,541	2.4%
2019	846,472	0.278	1.086	1,174,825	62,864,123	1.9%
2020	489,234	0.278	1.097	685,889	60,369,447	1.1%
2021	629,814	0.278	1.041	837,903	59,850,735	1.4%
Total	58,215,688			87,259,706	717,412,309	12.2%

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)
2012	18,946,421	0.278	1.219	29,516,288	219,681,849	13.4%
2013	4,829,039	0.278	1.186	7,319,413	226,480,562	3.2%
2014	2,847,173	0.278	1.163	4,231,793	233,107,124	1.8%
2015	86,469,178	0.278	1.148	126,862,736	237,999,667	53.3%
2016	12,180,058	0.278	1.152	17,932,163	227,183,607	7.9%
2017	21,905,487	0.278	1.133	31,718,576	207,881,527	15.3%
2018	6,834,523	0.278	1.100	9,607,972	179,645,974	5.3%
2019	10,279,319	0.278	1.086	14,266,749	159,579,121	8.9%
2020	22,449,512	0.278	1.097	31,473,453	148,714,964	21.2%
2021	26,879,278	0.278	1.041	35,760,138	147,041,832	24.3%
Total	213,619,988			308,689,281	1,987,316,227	15.5%

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)
2012	259,290	0.278	1.219	403,943	4,521,911	8.9%
2013	502,759	0.278	1.186	762,036	4,802,386	15.9%
2014	30,748	0.278	1.163	45,701	4,882,886	0.9%
2015	339,352	0.278	1.148	497,878	4,986,385	10.0%
2016	446,895	0.278	1.152	657,944	5,015,200	13.1%
2017	483,045	0.278	1.133	699,437	4,890,478	14.3%
2018	286,102	0.278	1.100	402,202	4,631,462	8.7%
2019	2,717,064	0.278	1.086	3,771,035	4,510,864	83.6%
2020	483,604	0.278	1.097	677,996	4,586,202	14.8%
2021	1,593,605	0.278	1.041	2,120,129	4,749,377	44.6%
Total	7,142,464			10,038,301	47,577,151	21.1%

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)
2012	10,634,874	1.000	10,634,874
2013	54,085,975	1.000	54,085,975
2014	520,624	1.000	520,624
2015	17,443,601	1.000	17,443,601
2016	10,985,881	1.001	10,996,867
2017	2,705,963	1.004	2,716,787
2018	2,506,795	1.012	2,536,877
2019	4,697,299	1.029	4,833,521
2020	5,382,531	1.082	5,823,899
2021	17,128,270	1.267	21,701,518
Total	126,091,813		131,294,543

Notes:

- (2) Exhibit 2, Sheet 4a, as of 12/31/21
- (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)
2012	20,630,853	1.000	20,630,853
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	1.001	9,540,725
2017	7,641,292	1.004	7,671,857
2018	1,138,023	1.012	1,151,679
2019	822,616	1.029	846,472
2020	452,157	1.082	489,234
2021	497,091	1.267	629,814
Total	57,968,280		58,215,688

Notes:

- (2) Exhibit 2, Sheet 4b, as of 12/31/21
- (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)
2012	18,946,421	1.000	18,946,421
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	1.001	12,180,058
2017	21,818,214	1.004	21,905,487
2018	6,753,481	1.012	6,834,523
2019	9,989,620	1.029	10,279,319
2020	20,748,163	1.082	22,449,512
2021	21,214,900	1.267	26,879,278
Total	205,784,079		213,619,988

Notes:

- (2) Exhibit 2, Sheet 4c, as of 12/31/21
- (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)
2012	259,290	1.000	259,290
2013	502,759	1.000	502,759
2014	30,748	1.000	30,748
2015	339,352	1.000	339,352
2016	446,449	1.001	446,895
2017	481,121	1.004	483,045
2018	282,709	1.012	286,102
2019	2,640,490	1.029	2,717,064
2020	446,954	1.082	483,604
2021	1,257,778	1.267	1,593,605
Total	6,687,650		7,142,464

Notes:

- (2) Exhibit 2, Sheet 4d, as of 12/31/21
- (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 12/31/21
Tier 1 -- Territory 8 (Galveston County)

Accident Year	<u>Paid Loss Excluding Expense</u>		
	Non-Hurricane	Hurricane	Total
(1)	(2)	(3)	(4)
2012	10,634,874	0	10,634,874
2013	54,085,975	0	54,085,975
2014	520,624	0	520,624
2015	17,443,601	0	17,443,601
2016	10,985,881	0	10,985,881
2017	2,705,963	35,158,860	37,864,823
2018	2,506,795	0	2,506,795
2019	4,697,299	0	4,697,299
2020	5,382,531	28,567	5,411,098
2021	17,128,270	361,331	17,489,601
Total	126,091,813	35,548,758	161,640,571

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 12/31/21
Tier 1 -- Territory 9 (Nueces County)

Accident Year	Paid Loss Excluding Expense			Total
	Non-Hurricane	Hurricane		
(1)	(2)	(3)	(4)	
2012	20,630,853	0	20,630,853	
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	249,537,780	257,179,072	
2018	1,138,023	0	1,138,023	
2019	822,616	0	822,616	
2020	452,157	1,627,147	2,079,304	
2021	497,091	0	497,091	
Total	57,968,280	251,164,927	309,133,207	

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 12/31/21
 Tier 1 -- Territory 10 (Other Tier 1)

Accident Year	Paid Loss Excluding Expense			Total
	(1)	(2)	(3)	
2012		18,946,421	0	18,946,421
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	626,453,113	648,271,327
2018		6,753,481	0	6,753,481
2019		9,989,620	0	9,989,620
2020		20,748,163	6,548,044	27,296,207
2021		21,214,900	15,952,667	37,167,567
Total		205,784,079	648,953,824	854,737,903

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 12/31/21
Tier 2 -- (Territories 1)

Accident Year	Paid Loss Excluding Expense			Total
	(1)	(2)	(3)	
2012		259,290	0	259,290
2013		502,759	0	502,759
2014		30,748	0	30,748
2015		339,352	0	339,352
2016		446,449	0	446,449
2017		481,121	3,457,072	3,938,193
2018		282,709	0	282,709
2019		2,640,490	0	2,640,490
2020		446,954	6,672	453,626
2021		1,257,778	15,380	1,273,158
Total		6,687,650	3,479,124	10,166,774

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	7/1/2021
		(4) Current Average Accident Date	7/1/2021
		(5) Prospective Average Earned / Accident Date	1/1/2024
		(6) Premium Trend Length	2.500
		(7) Loss Trend Length	2.500
		(8) Selected Premium Trend	1.4%
		(9) Selected Loss Trend	3.0%
2013 / 3	1,712.79		
2014 / 3	1,732.45		
2015 / 3	1,747.67		
2016 / 3	1,751.17		
2017 / 3	1,738.90		
2018 / 3	1,743.25		
2019 / 3	1,771.01		
2020 / 3	1,785.14		
2021 / 3	1,847.23		

Accident Year	Current Premium Trend	Current Loss Trend	Prospective Premium Trend	Prospective Loss Trend	Net Trend Factor
(10)	(11)	(12)	(13)	(14)	(15)
2012	1.078	1.263	1.035	1.077	1.219
2013	1.078	1.229	1.035	1.077	1.186
2014	1.066	1.191	1.035	1.077	1.163
2015	1.057	1.166	1.035	1.077	1.148
2016	1.055	1.168	1.035	1.077	1.152
2017	1.062	1.156	1.035	1.077	1.133
2018	1.060	1.120	1.035	1.077	1.100
2019	1.043	1.088	1.035	1.077	1.086
2020	1.035	1.091	1.035	1.077	1.097
2021	1.000	1.000	1.035	1.077	1.041

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 2021 / 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

Paid Loss Development Factors
Statewide Industry Extended Coverage Dwelling Paid Loss

Accident Year	<u>Months of Development</u>									
	15 (1)	27 (2)	39 (3)	51 (4)	63 (5)	75 (6)	87 (7)	99 (8)	111 (9)	111 (10)
2012		162,844	196,788	232,373	242,523	245,227	246,785	247,419	247,577	247,574
2013		124,050	143,359	151,995	154,466	156,218	156,541	156,580	156,628	156,632
2014		151,510	178,253	187,490	191,068	191,825	192,297	192,389	192,425	
2015		173,851	200,069	206,343	208,327	209,063	209,156	209,260		
2016		486,124	553,332	561,570	563,809	564,583	565,035			
2017		634,033	775,472	803,501	815,757	822,750				
2018		181,011	217,042	220,050	220,820					
2019		276,104	316,560	323,294						
2020		322,634	384,159							
2021		401,805								

Accident Year	<u>Development Factors</u>									
	15 - 27 (1)	27 - 39 (2)	39 - 51 (3)	51 - 63 (4)	63 - 75 (5)	75 - 87 (6)	87 - 99 (7)	99 - 111 (8)	111 - Ult (9)	111 - Ult (10)
2012		1.208	1.181	1.044	1.011	1.006	1.003	1.001	1.000	
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		
2015		1.151	1.031	1.010	1.004	1.000	1.000			
2016		1.138	1.015	1.004	1.001	1.001				
2017		1.223	1.036	1.015	1.009					
2018		1.199	1.014	1.003						
2019		1.147	1.021							
2020		1.191								

Average		1.177	1.051	1.016	1.007	1.002	1.001	1.000	1.000	
Avg 5 Year		1.180	1.024	1.010	1.006	1.002	1.001	1.000	1.000	
Prior		1.166	1.052	1.018	1.009	1.003	1.001	1.000	1.000	1.000
Selected		1.171	1.052	1.017	1.008	1.003	1.001	1.000	1.000	1.000
Selected Cumulative		1.267	1.082	1.029	1.012	1.004	1.001	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

Incurred Loss Development Factors
Statewide Industry Extended Coverage Dwelling Incurred Loss

Accident Year	<u>Months of Development</u>									
	15 (1)	27 (2)	39 (3)	51 (4)	63 (5)	75 (6)	87 (7)	99 (8)	111 (9)	111 (10)
2012		170,023	203,480	240,439	246,180	247,027	247,422	247,520	247,594	247,574
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	
2015		183,266	204,239	208,541	209,008	209,335	209,189	209,282		
2016		498,092	556,120	562,298	564,014	564,747	565,099			
2017		665,247	791,814	816,792	822,536	825,860				
2018		186,500	218,189	220,721	221,225					
2019		283,698	318,858	324,428						
2020		338,256	390,272							
2021		421,876								

Accident Year	<u>Development Factors</u>									
	15 - 27 (1)	27 - 39 (2)	39 - 51 (3)	51 - 63 (4)	63 - 75 (5)	75 - 87 (6)	87 - 99 (7)	99 - 111 (8)	111 - Ult (9)	111 - Ult (10)
2012		1.197	1.182	1.024	1.003	1.002	1.000	1.000	1.000	1.000
2013		1.153	1.054	1.006	1.004	1.000	1.000	1.000	1.000	
2014		1.165	1.038	1.008	1.001	1.001	1.000	1.000		
2015		1.114	1.021	1.002	1.002	0.999	1.000			
2016		1.117	1.011	1.003	1.001	1.001				
2017		1.190	1.032	1.007	1.004					
2018		1.170	1.012	1.002						
2019		1.124	1.017							
2020		1.154								

Average		1.154	1.046	1.008	1.003	1.001	1.000	1.000	1.000	1.000
Avg 5 Year		1.151	1.019	1.005	1.002	1.001	1.000	1.000	1.000	
Prior		1.149	1.047	1.011	1.005	1.001	1.000	1.000	1.000	1.000
Selected		1.151	1.047	1.009	1.004	1.001	1.000	1.000	1.000	1.000
Selected Cumulative		1.221	1.061	1.014	1.005	1.001	1.000	1.000	1.000	1.000

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

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	Average	Exponential Fitted Trends			
					Written Premium at Present Rates Quarterly	Written Premium at Present Rates Four Quarter Ending	All-Year	5-Year	4-Year	3-Year
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2012 / 2	77,155	96,214,511	1.340	128,936,647	1,671					
2012 / 3	89,431	112,131,482	1.340	150,266,910	1,680					
2012 / 4	54,952	70,018,382	1.340	93,831,328	1,708					
2013 / 1	54,742	71,740,155	1.276	91,560,637	1,673	1,682	1695.1			
2013 / 2	82,182	108,632,729	1.276	138,645,949	1,687	1,686	1697.6			
2013 / 3	83,114	111,540,208	1.276	142,356,711	1,713	1,696	1700.1			
2013 / 4	60,544	81,734,680	1.276	104,316,465	1,723	1,700	1702.7			
2014 / 1	55,592	77,867,785	1.216	94,648,779	1,703	1,705	1705.2			
2014 / 2	79,155	111,616,003	1.216	135,669,949	1,714	1,713	1707.7			
2014 / 3	89,874	128,096,479	1.216	155,702,071	1,732	1,719	1710.2			
2014 / 4	60,646	86,711,448	1.216	105,398,307	1,738	1,723	1712.7			
2015 / 1	57,651	85,327,979	1.158	98,777,802	1,713	1,725	1715.2			
2015 / 2	82,158	122,581,230	1.158	141,903,096	1,727	1,728	1717.8			
2015 / 3	84,402	127,421,809	1.158	147,506,672	1,748	1,733	1720.3			
2015 / 4	57,308	87,342,988	1.158	101,110,426	1,764	1,738	1722.8			
2016 / 1	54,113	84,557,230	1.103	93,224,346	1,723	1,740	1725.4			
2016 / 2	79,991	125,845,764	1.103	138,744,955	1,735	1,742	1727.9			
2016 / 3	77,932	123,784,247	1.103	136,472,132	1,751	1,743	1730.5			
2016 / 4	51,030	81,959,449	1.103	90,360,293	1,771	1,744	1733.0			
2017 / 1	50,991	79,037,984	1.103	87,139,377	1,709	1,742	1735.6	1715.6		
2017 / 2	73,614	114,547,681	1.103	126,288,818	1,716	1,736	1738.1	1719.7		
2017 / 3	68,864	108,614,623	1.103	119,747,622	1,739	1,732	1740.7	1723.9		
2017 / 4	45,960	73,697,340	1.103	81,251,317	1,768	1,731	1743.3	1728.0		
2018 / 1	44,101	71,679,332	1.050	75,263,299	1,707	1,731	1745.8	1732.2	1716.1	
2018 / 2	63,851	104,163,394	1.050	109,371,564	1,713	1,731	1748.4	1736.4	1721.9	
2018 / 3	61,408	101,951,681	1.050	107,049,265	1,743	1,732	1751.0	1740.6	1727.8	
2018 / 4	40,418	68,300,637	1.050	71,715,669	1,774	1,732	1753.6	1744.8	1733.7	
2019 / 1	39,758	65,036,872	1.050	68,288,716	1,718	1,735	1756.2	1749.0	1739.6	1727.9
2019 / 2	60,805	99,948,528	1.050	104,945,954	1,726	1,739	1758.7	1753.2	1745.5	1735.5
2019 / 3	57,547	97,063,357	1.050	101,916,525	1,771	1,747	1761.3	1757.4	1751.4	1743.1
2019 / 4	38,375	65,697,652	1.050	68,982,535	1,798	1,751	1763.9	1761.7	1757.4	1750.8
2020 / 1	38,302	63,498,682	1.050	66,673,616	1,741	1,756	1766.5	1765.9	1763.3	1758.4
2020 / 2	59,374	98,472,763	1.050	103,396,401	1,741	1,761	1769.1	1770.2	1769.3	1766.2
2020 / 3	57,963	98,544,861	1.050	103,472,104	1,785	1,765	1771.7	1774.4	1775.3	1773.9
2020 / 4	37,911	65,820,531	1.050	69,111,558	1,823	1,770	1774.4	1778.7	1781.4	1781.7
2021 / 1	39,057	66,582,420	1.050	69,911,541	1,790	1,780	1777.0	1783.0	1787.4	1789.5
2021 / 2	60,541	103,031,428	1.050	108,182,999	1,787	1,794	1779.6	1787.3	1793.5	1797.4
2021 / 3	59,878	105,341,091	1.050	110,608,146	1,847	1,813	1782.2	1791.6	1799.6	1805.2
2021 / 4	39,807	72,365,308	1.050	75,983,573	1,909	1,830	1784.8	1796.0	1805.7	1813.2

(14) Average Annual Change	0.6%	1.0%	1.4%	1.8%
(15) Correlation Coefficient	76.5%	75.8%	88.6%	92.2%
(16) Selected Premium Trend				1.4%

Notes: (2) Provided by TWIA
(3) Provided by TWIA
(4) Cumulative effect of annual rate changes
(5) = (3) * (4)
(6) = (5) / (2)
(7) annualized average written premium
(8) - (11) = (6) fitted to an exponential distribution
(14) Fitted average annual change
(15) Evaluates the predictability of the fitted curve
(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)
2012	1.310	1.321	1.090	1.263
2013	1.270	1.278	1.083	1.229
2014	1.231	1.230	1.073	1.191
2015	1.200	1.201	1.059	1.166
2016	1.208	1.209	1.044	1.168
2017	1.195	1.195	1.037	1.156
2018	1.151	1.150	1.029	1.120
2019	1.125	1.115	1.008	1.088
2020	1.117	1.112	1.027	1.091
2021	1.000	1.000	1.000	1.000

Factors to Adjust For Prospective Loss Costs

(6) Fitted Trend	3.6%	3.7%	0.7%	3.0%
(7) Cost Factor	1.102	1.105	1.019	1.085

Notes:

- (2) = Exhibit 3, Sheet 3b trended forward to 9/30/2021
- (3) = Exhibit 3, Sheet 3c trended forward to 9/30/2021
- (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 4/1/2021 to 1/1/2024)

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)
3/31/2012	2092.69	2088.93	2101.17						
6/30/2012	2103.68	2102.57	2113.21						
9/30/2012	2121.46	2116.20	2125.32						
12/31/2012	2139.97	2129.83	2137.51						
3/31/2013	2155.46	2143.47	2149.76						
6/30/2013	2172.56	2157.10	2162.08						
9/30/2013	2188.33	2170.73	2174.48						
12/31/2013	2202.66	2184.37	2186.94						
3/31/2014	2219.67	2198.00	2199.48						
6/30/2014	2239.01	2211.63	2212.09						
9/30/2014	2257.42	2225.27	2224.77						
12/31/2014	2275.56	2238.90	2237.52						
3/31/2015	2293.59	2252.53	2250.35						
6/30/2015	2307.55	2266.17	2263.25						
9/30/2015	2316.02	2279.80	2276.22						
12/31/2015	2319.90	2293.43	2289.27						
3/31/2016	2316.44	2307.07	2302.39						
6/30/2016	2308.41	2320.70	2315.59						
9/30/2016	2301.26	2334.33	2328.86						
12/31/2016	2296.54	2347.97	2342.21						
3/31/2017	2299.40	2361.60	2355.64	2265.83	2274.64				
6/30/2017	2309.77	2375.23	2369.14	2288.18	2294.86				
9/30/2017	2326.30	2388.87	2382.73	2310.53	2315.25				
12/31/2017	2343.81	2402.50	2396.38	2332.88	2335.83				
3/31/2018	2363.74	2416.13	2410.12	2355.23	2356.59	2331.25	2339.04		
6/30/2018	2386.99	2429.77	2423.94	2377.58	2377.53	2356.12	2361.67		
9/30/2018	2413.52	2443.40	2437.83	2399.93	2398.66	2380.98	2384.53		
12/31/2018	2441.12	2457.03	2451.81	2422.28	2419.97	2405.85	2407.61		
3/31/2019	2461.69	2470.66	2465.86	2444.63	2441.48	2430.71	2430.91	2379.61	2387.09
6/30/2019	2471.52	2484.30	2480.00	2466.98	2463.17	2455.58	2454.44	2411.78	2416.45
9/30/2019	2471.05	2497.93	2494.21	2489.33	2485.06	2480.44	2478.19	2443.95	2446.18
12/31/2019	2468.86	2511.56	2508.51	2511.68	2507.15	2505.31	2502.18	2476.12	2476.27
3/31/2020	2469.80	2525.20	2522.89	2534.03	2529.43	2530.17	2526.40	2508.29	2506.73
6/30/2020	2476.69	2538.83	2537.35	2556.38	2551.91	2555.04	2550.85	2540.46	2537.57
9/30/2020	2488.05	2552.46	2551.90	2578.73	2574.59	2579.91	2575.54	2572.63	2568.78
12/31/2020	2516.35	2566.10	2566.53	2601.08	2597.46	2604.77	2600.46	2604.79	2600.38
3/31/2021	2553.06	2579.73	2581.24	2623.43	2620.55	2629.64	2625.63	2636.96	2632.37
6/30/2021	2627.36	2593.36	2596.03	2645.78	2643.84	2654.50	2651.04	2669.13	2664.75
9/30/2021	2779.01	2607.00	2610.92	2668.13	2667.33	2679.37	2676.70	2701.30	2697.53
12/31/2021	2895.04	2620.63	2625.88	2690.48	2691.03	2704.23	2702.61	2733.47	2730.71
Annual Trend		2.1%	2.3%	3.3%	3.6%	3.7%	3.9%	4.7%	5.0%
R-Squared		0.862	0.889	0.786	0.812	0.710	0.731	0.671	0.683

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)
3/31/2012	2089.96	2089.00	2102.18						
6/30/2012	2099.33	2103.48	2114.91						
9/30/2012	2118.82	2117.95	2127.71						
12/31/2012	2139.88	2132.43	2140.59						
3/31/2013	2157.74	2146.90	2153.55						
6/30/2013	2175.63	2161.38	2166.59						
9/30/2013	2189.62	2175.85	2179.71						
12/31/2013	2203.37	2190.32	2192.90						
3/31/2014	2227.71	2204.80	2206.18						
6/30/2014	2252.63	2219.27	2219.53						
9/30/2014	2275.00	2233.75	2232.97						
12/31/2014	2296.77	2248.22	2246.49						
3/31/2015	2310.58	2262.70	2260.09						
6/30/2015	2322.52	2277.17	2273.77						
9/30/2015	2330.38	2291.65	2287.54						
12/31/2015	2333.26	2306.12	2301.39						
3/31/2016	2328.65	2320.60	2315.32						
6/30/2016	2320.80	2335.07	2329.34						
9/30/2016	2313.59	2349.55	2343.44						
12/31/2016	2308.17	2364.02	2357.62						
3/31/2017	2311.24	2378.49	2371.90	2282.95	2291.88				
6/30/2017	2323.79	2392.97	2386.26	2306.09	2312.80				
9/30/2017	2340.80	2407.44	2400.70	2329.23	2333.91				
12/31/2017	2360.09	2421.92	2415.24	2352.37	2355.21				
3/31/2018	2380.33	2436.39	2429.86	2375.52	2376.71	2356.29	2363.97		
6/30/2018	2404.16	2450.87	2444.57	2398.66	2398.41	2381.45	2386.90		
9/30/2018	2433.32	2465.34	2459.37	2421.80	2420.30	2406.61	2410.05		
12/31/2018	2467.60	2479.82	2474.26	2444.94	2442.40	2431.77	2433.43		
3/31/2019	2494.19	2494.29	2489.23	2468.08	2464.69	2456.93	2457.03	2414.95	2422.22
6/30/2019	2508.16	2508.77	2504.30	2491.22	2487.19	2482.09	2480.86	2446.09	2450.67
9/30/2019	2510.44	2523.24	2519.47	2514.36	2509.90	2507.25	2504.92	2477.23	2479.45
12/31/2019	2504.07	2537.72	2534.72	2537.51	2532.81	2532.42	2529.22	2508.37	2508.57
3/31/2020	2502.47	2552.19	2550.06	2560.65	2555.93	2557.58	2553.75	2539.50	2538.03
6/30/2020	2502.92	2566.66	2565.50	2583.79	2579.26	2582.74	2578.52	2570.64	2567.84
9/30/2020	2516.54	2581.14	2581.03	2606.93	2602.81	2607.90	2603.53	2601.78	2598.00
12/31/2020	2539.13	2595.61	2596.66	2630.07	2626.56	2633.06	2628.78	2632.92	2628.51
3/31/2021	2571.26	2610.09	2612.38	2653.21	2650.54	2658.22	2654.27	2664.06	2659.38
6/30/2021	2653.60	2624.56	2628.19	2676.36	2674.74	2683.39	2680.02	2695.20	2690.62
9/30/2021	2797.97	2639.04	2644.10	2699.50	2699.15	2708.55	2706.01	2726.34	2722.22
12/31/2021	2933.79	2653.51	2660.11	2722.64	2723.79	2733.71	2732.26	2757.47	2754.19
Annual Trend		2.2%	2.4%	3.4%	3.7%	3.7%	3.9%	4.5%	4.8%
R-Squared		0.873	0.897	0.795	0.820	0.707	0.729	0.635	0.646

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

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)
9/30/2011	180.52	182.36	182.49						
12/31/2011	181.55	182.82	182.94						
3/31/2012	182.78	183.29	183.38						
6/30/2012	183.87	183.76	183.83						
9/30/2012	184.57	184.22	184.28						
12/31/2012	185.03	184.69	184.73						
3/31/2013	185.38	185.16	185.18						
6/30/2013	185.51	185.62	185.63						
9/30/2013	185.82	186.09	186.08						
12/31/2013	186.03	186.56	186.54						
3/31/2014	186.43	187.02	186.99						
6/30/2014	186.87	187.49	187.45						
9/30/2014	187.59	187.96	187.90						
12/31/2014	188.62	188.42	188.36						
3/31/2015	189.46	188.89	188.82						
6/30/2015	189.59	189.36	189.28						
9/30/2015	190.03	189.82	189.74						
12/31/2015	190.50	190.29	190.21						
3/31/2016	190.95	190.76	190.67						
6/30/2016	192.03	191.23	191.13						
9/30/2016	192.82	191.69	191.60						
12/31/2016	193.56	192.16	192.07						
3/31/2017	193.85	192.63	192.54	193.69	193.72				
6/30/2017	194.07	193.09	193.01	194.04	194.07				
9/30/2017	194.14	193.56	193.48	194.40	194.42				
12/31/2017	194.10	194.03	193.95	194.76	194.76				
3/31/2018	194.71	194.49	194.42	195.11	195.11	195.29	195.31		
6/30/2018	195.27	194.96	194.90	195.47	195.46	195.63	195.64		
9/30/2018	195.59	195.43	195.37	195.82	195.81	195.97	195.97		
12/31/2018	196.20	195.89	195.85	196.18	196.16	196.30	196.31		
3/31/2019	197.06	196.36	196.32	196.53	196.52	196.64	196.64	197.22	197.24
6/30/2019	198.22	196.83	196.80	196.89	196.87	196.98	196.97	197.48	197.49
9/30/2019	199.74	197.29	197.28	197.25	197.22	197.32	197.30	197.73	197.73
12/31/2019	200.26	197.76	197.76	197.60	197.57	197.66	197.63	197.98	197.98
3/31/2020	199.74	198.23	198.25	197.96	197.93	197.99	197.97	198.24	198.23
6/30/2020	197.71	198.69	198.73	198.31	198.28	198.33	198.30	198.49	198.47
9/30/2020	195.95	199.16	199.21	198.67	198.64	198.67	198.64	198.75	198.72
12/31/2020	194.81	199.63	199.70	199.02	198.99	199.01	198.97	199.00	198.96
3/31/2021	194.38	200.10	200.19	199.38	199.35	199.35	199.31	199.26	199.21
6/30/2021	197.57	200.56	200.68	199.74	199.71	199.69	199.65	199.51	199.46
9/30/2021	201.27	201.03	201.17	200.09	200.06	200.02	199.98	199.76	199.71
12/31/2021	206.73	201.50	201.66	200.45	200.42	200.36	200.32	200.02	199.96
Annual Trend		0.9%	1.0%	0.7%	0.7%	0.7%	0.7%	0.5%	0.5%
R-Squared		0.909	0.912	0.422	0.424	0.253	0.252	0.076	0.072

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	70,874	13,839	0.195	
2014	7,012	6,825	0.973	
2015	138,780	39,990	0.288	
2016	28,428	15,398	0.542	
2017	1,420,232	281,401	0.198	H
2018	11,936	6,663	0.558	
2019	17,307	9,357	0.541	
2020	63,200	28,028	0.443	H
2021	60,359	22,171	0.367	H
All Years Total	5,191,630	880,549	0.170	
Hurricane Years Total	4,636,395	725,379	0.156	
Non-Hurricane Years				
Total	555,235	155,170	0.279	
10 Year	466,314	129,506	0.278	

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 12/31/21	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	70,874	1.000	70,874
2014	7,012	1.000	7,012
2015	138,780	1.000	138,780
2016	28,456	0.999	28,428
2017	1,421,854	0.999	1,420,232
2018	12,069	0.989	11,936
2019	17,624	0.982	17,307
2020	64,821	0.975	63,200
2021	61,907	0.975	60,359

Notes:

- (2) Exhibit 4, Sheet 3
- (3) Exhibit 4, Sheet 3
- (4) 2012 - 2021: (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)
2012		62,722	69,764	67,287	66,724	66,328	67,658	67,492
2013		77,204	75,204	72,860	71,823	71,286	71,068	70,874
2014		6,739	7,854	7,298	7,261	7,068	7,012	7,012
2015		147,927	139,955	140,459	139,777	138,801	138,733	138,780
2016		31,292	29,612	28,908	28,523	28,457	28,456	
2017		1,278,467	1,373,877	1,445,588	1,447,150	1,421,854		
2018		13,197	12,326	12,193	12,069			
2019		18,155	17,949	17,624				
2020		87,095	64,821					
2021		61,907						

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)
2012		1.112	0.964	0.992	0.994	1.020	0.998	
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	1.000	
2016		0.946	0.976	0.987	0.998	1.000		
2017		1.075	1.052	1.001	0.983			
2018		0.934	0.989	0.990				
2019		0.989	0.982					
2020		0.744						

Average		0.987	0.983	0.992	0.989	1.002	0.999	
Avg x hi / lo		0.997	0.981	0.992	0.991	0.999	0.999	
Avg 3 Year		0.889	1.008	0.993	0.991	0.997	0.999	
Avg 5 Year		0.938	1.001	0.994	0.988	1.002	0.999	
Prior		1.005	0.991	0.993	0.990	0.999	0.998	1.000
Selected		1.000	0.993	0.993	0.990	1.000	0.999	1.000
Cumulative		0.975	0.975	0.982	0.989	0.999	0.999	1.000

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

Accident Year	Incurred ALAE at 12/31/21	Development Factor	Indicated Ultimate ALAE	Incurred ULAE	Incurred LAE
(1)	(2)	(3)	(4)	(5)	(6)
1980					1,318
1981					543
1982					565
1983					9,127
1984					324
1985					297
1986				270	505
1987				652	1,056
1988				235	357
1989				2,727	3,528
1990				119	225
1991				403	729
1992				270	554
1993				806	1,375
1994				192	507
1995				698	903
1996				355	582
1997				892	1,343
1998				3,920	4,732
1999				1,757	2,388
2000				1,209	1,885
2001				1,207	1,880
2002				3,643	5,226
2003				3,239	5,122
2004				844	1,471
2005				15,229	20,235
2006				860	1,110
2007				2,489	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	12,938	13,839
2014	1,028	1.000	1,028	5,797	6,825
2015	2,847	1.000	2,847	37,143	39,990
2016	524	0.980	514	14,884	15,398
2017	17,745	0.957	16,982	264,419	281,401
2018	319	0.920	293	6,370	6,663
2019	706	0.930	657	8,700	9,357
2020	1,654	1.142	1,889	26,139	28,028
2021	776	1.713	1,329	20,842	22,171

Notes:

- (2) Exhibit 4, Sheet 5
- (3) Exhibit 4, Sheet 5
- (3) Exhibit 4, Sheet 5
- (5) From TWIA's annual statements
- (5) 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 (1)	24 (2)	36 (3)	48 (4)	60 (5)	72 (6)	84 (7)	(8)
2011		515	592	609	682	629	745	725
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	1,028
2015		973	1,818	2,355	2,749	2,944	2,838	2,847
2016		412	678	746	571	542	524	
2017		891	16,490	21,865	21,700	17,745		
2018		301	361	352	319			
2019		48	471	706				
2020		295	1,654					
2021		776						

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)
2011		1.150	1.029	1.120	0.922	1.184	0.973
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	1.000
2015		1.868	1.295	1.167	1.071	0.964	1.003
2016		1.646	1.100	0.765	0.949	0.967	
2017		18.507	1.326	0.992	0.818		
2018		1.199	0.975	0.906			
2019		9.813	1.499				
2020		5.607					

Average		4.31	1.26	1.07	1.00	1.00	0.98	
Avg x hi / lo		2.95	1.18	1.04	0.94	0.97	0.99	
Avg 3 Year		5.54	1.27	0.89	0.95	0.96	0.98	
Avg 5 Year		7.35	1.24	1.00	0.92	0.96	0.98	
Prior		1.50	1.19	1.06	1.01	0.99	0.98	1.00
Selected		1.50	1.23	1.01	0.96	0.98	0.98	1.00
Cumulative		1.71	1.14	0.93	0.92	0.96	0.98	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	Indicated Loss Ratio (1)	LAE Factor (3)	Indicated Loss & LAE Ratio (4)
Industry Experience	34.8%	0.156	40.2%
<u>Hurricane Models</u>			
AIR Model	50.4%	0.156	58.3%
RMS Model	42.1%	0.156	48.7%
IF Model	51.0%	0.156	59.0%
CoreLogic RQE Model	38.9%	0.156	45.0%
Average of Models	45.6%	0.156	52.7%

Notes:

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

(3) Exhibit 4, Sheet 1

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

Rate Level Review

Industry Experience -- Residential Extended Coverage

1966 - 2021 -- 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%	28.3%	
1970	29,832,151	1	69.7%	59.8%	
1971	29,729,368	1	76.5%	66.6%	
1980	50,494,372	1	74.8%	64.9%	
1983	64,842,240	1	522.4%	512.5%	
1986	82,608,316	1	10.5%	0.6%	
1989	99,401,872	2	7.6%	0.0%	
1999	183,849,422	1	8.3%	0.0%	
2003	237,166,897	1	18.7%	8.8%	1.26
2005	261,099,035	1	104.6%	94.7%	1.14
2007	403,864,589	1	4.7%	0.0%	1.38
2008	501,518,052	2	408.3%	199.2%	1.35
2017	587,946,262	1	204.7%	194.8%	1.13
2020	527,999,009	3	13.4%	1.2%	1.10
2021	540,684,513	1	25.6%	15.7%	1.04
Simple Average Loss Ratio for Hurricane Years			105.9%	83.1%	
(6)	Selected Non-Hurricane Loss Ratio		9.9%		
(7) a	Average Hurricane Loss Ratio per Hurricane Before Trending		83.1%		
(7) b	Selected Avg Hurr Loss Ratio Per Hurricane Before Trending		83.1%		
(8)	Historical Hurricane Frequency				
	(a) 56-Year (1/1/1966 - 12/31/2021)		0.339 (1 Hurricane Every 2.9 years)		
	(a) 171-Year (1/1/1851 - 12/31/2021)		0.398 (1 Hurricane Every 2.5 years)		
	Selected Frequency		0.398 (1 Hurricane Every 2.5 years)		
(9)	Indicated Hurricane Loss Ratio Before Trending		33.1%		
(10)	Selected Hurricane Loss Ratio After Trending		34.8%		

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
- (7) a= Average of (4)
- (7) b = Selected
- (8) Exhibit 9
- (9) = (7) b * (8) Selected
- (10) = (9)*Selected Net Trending Factor of 1.05, 1.05 is judgementally selected based on Net Trend Factor(5)

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

Industry Experience -- Residential Extended Coverage
1966 - 2021

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		522.4%	H
1984	20,078,668		45,228,072		13.8%	
1985	30,043,452		67,674,180		5.9%	
1986	36,673,352		82,608,316		10.5%	H
1987	41,598,709		93,702,899		2.7%	
1988	45,044,392		104,280,007		11.2%	
1989	41,745,774		99,401,872		7.6%	H
1990	40,384,195		94,692,054		19.4%	
1991	46,237,137		94,920,886		88.8%	
1992	44,512,572		112,660,893		6.3%	
1993	50,741,120		177,222,041		7.8%	
1994	57,584,585		177,917,398		4.0%	
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		4.4%	
1998	80,238,260		198,129,701		20.2%	
1999	71,026,552		183,849,422		8.3%	H
2000	75,114,174		195,990,800		4.7%	
2001	74,726,401		171,328,385		6.5%	
2002	86,289,350		182,396,099		16.5%	
2003	112,200,741		237,166,897		18.7%	H
2004	123,050,217		248,017,395		1.6%	
2005	135,380,924		261,099,035		104.6%	H
2006	154,699,767		297,641,804		1.9%	
2007	219,914,305		403,864,589		4.7%	H
2008	289,558,186		501,518,052		408.3%	H
2009	327,305,758		515,061,744		1.8%	
2010	355,219,215		524,962,456		3.5%	
2011	370,875,863		534,562,855		17.1%	
2012	406,981,851		558,681,023		13.0%	
2013	440,952,159		576,566,713		17.2%	
2014	477,983,216		595,350,329		2.1%	
2015	517,579,765		614,090,012		22.8%	
2016	541,982,800		612,650,713		8.2%	
2017	533,284,592		587,946,262		204.7%	H
2018	516,732,311		556,428,278		3.3%	
2019	509,685,524		535,169,800		6.3%	
2020	502,856,199		527,999,009		13.4%	H
2021	514,937,632		540,684,513		25.6%	H
Total / Average	8,388,966,262	285,475,684	12,471,318,908		35.6%	
Average of Non-Hurricane Years Selected					9.9%	
Average of Non-Hurricane Years Selected					9.9%	

Notes: (2), (3) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2021
(4) 1983 - 2021: 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 - 2021: Exhibit 6, Sheet 3; 1966 - 1982: (5) / (4)
(7) "H" indicates occurrence of hurricane(s) during the time period (years ending 9/30/xx)

Industry Experience -- Residential Extended Coverage

Accident Year	<u>Loss Ratios by Territory / Tier</u>					Weighted Loss Ratio	Wtd Devel'd 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%	522.4%	522.4%
1984		3.7%	6.8%	24.2%	38.5%	13.8%	13.8%
1985		1.9%	8.3%	8.1%	12.8%	5.9%	5.9%
1986		1.2%	2.8%	21.2%	14.1%	10.5%	10.5%
1987		0.6%	4.1%	3.7%	7.4%	2.7%	2.7%
1988		5.5%	6.8%	17.9%	7.2%	11.2%	11.2%
1989		6.0%	6.2%	9.1%	16.8%	7.6%	7.6%
1990		32.2%	11.6%	11.8%	23.8%	19.4%	19.4%
1991		74.5%	16.4%	131.9%	19.6%	88.8%	88.8%
1992		1.2%	11.8%	8.0%	18.1%	6.3%	6.3%
1993		9.3%	8.3%	6.0%	16.1%	7.8%	7.8%
1994		1.9%	4.9%	5.4%	6.4%	4.0%	4.0%
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%	4.4%	4.4%
1998		18.6%	10.5%	25.8%	9.9%	20.2%	20.2%
1999		2.0%	17.2%	9.8%	9.9%	8.3%	8.3%
2000		0.8%	2.2%	8.8%	10.0%	4.7%	4.7%
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		4.9%	7.8%	34.8%	9.8%	18.7%	18.7%
2004		1.2%	1.8%	1.8%	3.7%	1.6%	1.6%
2005		48.7%	2.6%	193.9%	35.4%	104.6%	104.6%
2006		1.0%	1.6%	2.6%	4.7%	1.9%	1.9%
2007		2.5%	1.5%	7.9%	4.7%	4.7%	4.7%
2008		661.5%	2.1%	364.0%	398.5%	408.3%	408.3%
2009		2.8%	0.8%	1.2%	8.9%	1.8%	1.8%
2010		1.1%	5.3%	4.6%	10.4%	3.5%	3.5%
2011		1.0%	26.0%	27.1%	5.7%	17.1%	17.1%
2012		7.9%	27.5%	9.1%	81.0%	13.0%	13.0%
2013		38.8%	8.7%	2.7%	18.7%	17.2%	17.2%
2014		0.5%	2.3%	2.9%	16.8%	2.1%	2.1%
2015		12.1%	11.6%	35.7%	33.5%	22.8%	22.8%
2016		7.9%	12.1%	6.1%	34.4%	8.2%	8.2%
2017		29.7%	327.5%	303.6%	58.1%	204.5%	204.7%
2018		2.4%	2.1%	4.4%	10.0%	3.3%	3.3%
2019		5.1%	1.7%	8.2%	30.8%	6.2%	6.3%
2020		5.5%	3.9%	20.9%	41.7%	12.6%	13.4%
2021		20.1%	1.9%	29.0%	37.8%	21.0%	25.6%
Average		58.2%	15.5%	40.0%	33.4%	42.2%	42.3%

TWIA 2021 Written Premium by Territory / Tier

	Territory 8	Territory 9	Territory 10	Tier 2	Total
(8) Amount	121,498,534	59,500,283	147,624,220	4,775,030	333,398,067
(9) % Share	36.4%	17.9%	44.3%	1.4%	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	2.114	54,680,031	2,672,918	4.9%
2004	30,357,860	2.016	61,188,656	731,759	1.2%
2005	36,780,457	1.929	70,935,709	34,527,644	48.7%
2006	43,562,211	1.924	83,813,540	813,430	1.0%
2007	59,282,257	1.836	108,869,700	2,757,645	2.5%
2008	73,789,694	1.732	127,804,584	845,466,768	661.5%
2009	81,999,709	1.574	129,038,100	3,581,024	2.8%
2010	89,665,314	1.478	132,512,323	1,451,547	1.1%
2011	93,230,854	1.441	134,378,525	1,329,886	1.0%
2012	99,629,727	1.373	136,765,897	10,756,644	7.9%
2013	107,104,250	1.308	140,044,093	54,343,702	38.8%
2014	114,784,032	1.246	142,968,851	691,708	0.5%
2015	122,782,019	1.186	145,676,506	17,666,484	12.1%
2016	127,007,324	1.130	143,567,522	11,307,700	7.9%
2017	126,002,753	1.103	138,918,035	41,202,051	29.7%
2018	122,707,170	1.077	132,133,675	3,173,488	2.4%
2019	121,980,686	1.050	128,079,720	6,575,515	5.1%
2020	121,816,746	1.050	127,907,583	7,014,707	5.5%
2021	126,003,604	1.050	132,303,784	26,615,728	20.1%
Total	1,919,123,491		2,746,421,289	1,237,320,846	45.1%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2021

(3) 1987 and prior judgementally selected; 1988 - 2021 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2021; 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	2.114	29,343,073	2,295,803	7.8%
2004	15,458,506	2.016	31,157,835	569,877	1.8%
2005	17,471,646	1.929	33,696,253	872,451	2.6%
2006	19,888,512	1.924	38,265,427	621,501	1.6%
2007	29,704,042	1.836	54,550,388	833,793	1.5%
2008	40,565,108	1.732	70,259,226	1,468,028	2.1%
2009	46,363,445	1.574	72,959,416	615,469	0.8%
2010	51,529,115	1.478	76,152,555	4,059,049	5.3%
2011	52,931,755	1.441	76,293,318	19,845,538	26.0%
2012	56,334,273	1.373	77,332,415	21,291,155	27.5%
2013	60,101,696	1.308	78,585,934	6,825,640	8.7%
2014	65,642,137	1.246	81,760,335	1,914,066	2.3%
2015	72,124,134	1.186	85,572,724	9,924,249	11.6%
2016	76,436,084	1.130	86,402,412	10,446,690	12.1%
2017	77,008,517	1.103	84,901,890	278,027,548	327.5%
2018	77,031,486	1.077	82,949,133	1,715,171	2.1%
2019	76,506,580	1.050	80,331,909	1,359,080	1.7%
2020	73,290,165	1.050	76,954,673	3,030,413	3.9%
2021	71,903,454	1.050	75,498,627	1,460,970	1.9%
Total	1,105,726,557		1,569,792,783	388,306,416	24.7%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2021

(3) 1987 and prior judgementally selected; 1988 - 2021 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2021

(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	2.114	49,511,345	17,213,668	34.8%
2004	27,306,202	2.016	55,037,799	990,613	1.8%
2005	31,012,304	1.929	59,811,105	115,989,785	193.9%
2006	36,545,725	1.924	70,313,845	1,842,548	2.6%
2007	69,945,120	1.836	128,451,658	10,105,722	7.9%
2008	110,187,567	1.732	190,846,112	694,640,836	364.0%
2009	128,275,387	1.574	201,859,402	2,522,159	1.2%
2010	143,236,007	1.478	211,682,034	9,656,553	4.6%
2011	151,387,931	1.441	218,203,374	59,069,922	27.1%
2012	170,159,709	1.373	233,585,355	21,196,895	9.1%
2013	183,495,510	1.308	239,929,437	6,485,250	2.7%
2014	197,640,983	1.246	246,171,037	7,234,983	2.9%
2015	212,320,998	1.186	251,911,325	90,056,094	35.7%
2016	218,795,204	1.130	247,323,416	15,013,827	6.1%
2017	212,533,686	1.103	234,318,389	711,304,289	303.6%
2018	201,509,514	1.077	216,989,706	9,562,329	4.4%
2019	194,433,202	1.050	204,154,862	16,737,398	8.2%
2020	186,265,421	1.050	195,578,692	40,866,516	20.9%
2021	186,593,127	1.050	195,922,783	56,745,728	29.0%
Total	2,891,326,073		3,960,955,407	1,983,194,328	50.1%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2021

(3) 1987 and prior judgementally selected; 1988 - 2021 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2021

(6) = (5) / (4)

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	2.114	103,632,448	10,177,909	9.8%
2004	49,927,649	2.016	100,633,105	3,738,542	3.7%
2005	50,116,517	1.929	96,655,968	34,201,898	35.4%
2006	54,703,319	1.924	105,248,992	4,909,932	4.7%
2007	60,982,886	1.836	111,992,843	5,242,698	4.7%
2008	65,015,817	1.732	112,608,130	448,708,416	398.5%
2009	70,667,217	1.574	111,204,827	9,952,501	8.9%
2010	70,788,779	1.478	104,615,544	10,829,031	10.4%
2011	73,325,323	1.441	105,687,638	5,993,038	5.7%
2012	80,858,142	1.373	110,997,356	89,893,832	81.0%
2013	90,250,703	1.308	118,007,249	22,056,019	18.7%
2014	99,916,064	1.246	124,450,105	20,930,082	16.8%
2015	110,352,614	1.186	130,929,458	43,798,404	33.5%
2016	119,744,188	1.130	135,357,362	46,505,613	34.4%
2017	117,739,636	1.103	129,807,949	75,451,978	58.1%
2018	115,484,141	1.077	124,355,765	12,400,120	10.0%
2019	116,765,056	1.050	122,603,309	37,802,737	30.8%
2020	121,483,867	1.050	127,558,060	53,200,604	41.7%
2021	130,437,447	1.050	136,959,319	51,835,915	37.8%
Total	2,217,589,997		3,639,234,079	1,243,421,581	34.2%

Notes:

(2) Provided by TDI. Accident years ending 9/30/xx as of 12/31/2021

(3) 1987 and prior judgementally selected; 1988 - 2021 based on TWIA on-level factors

(4) = (2) * (3)

(5) Provided by TDI. Accidn't yrs ending 9/30/xx as of 12/31/2021

(6) = (5) / (4)

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

Hurricane Loss Ratio -- AIR Model

County	TWIA Insured Values (000s) as of 11/30/21	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	1,804,688	2.521	4,549,618
Brazoria	9,887,460	1.770	17,500,804
Calhoun	997,241	3.029	3,020,643
Cameron	2,014,726	1.869	3,765,523
Chambers	1,530,357	1.592	2,436,328
Galveston	21,261,039	3.961	84,214,975
Harris	1,237,804	3.898	4,824,960
Jefferson	6,298,584	2.013	12,679,050
Kenedy	2,663	1.133	3,017
Kleberg	165,520	0.928	153,603
Matagorda	1,206,001	2.436	2,937,818
Nueces	10,451,060	2.608	27,256,364
Refugio	78,471	1.513	118,727
San Patricio	1,670,749	1.946	3,251,278
Willacy	76,049	2.183	166,015
Total	58,682,412	2.844	166,878,723
(5) Inforce-Premium as of 11/30/21 at Present Rates			330,828,116
(6) Indicated Hurricane Loss Ratio			50.4%

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 11/30/21	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	1,804,688	2.148	3,876,470
Brazoria	9,887,460	1.727	17,075,643
Calhoun	997,241	3.397	3,387,628
Cameron	2,014,726	2.233	4,498,883
Chambers	1,530,357	1.518	2,323,082
Galveston	21,261,039	3.006	63,910,683
Harris	1,237,804	2.804	3,470,802
Jefferson	6,298,584	1.804	11,362,646
Kenedy	2,663	2.021	5,382
Kleberg	165,520	1.481	245,135
Matagorda	1,206,001	2.770	3,340,623
Nueces	10,451,060	2.103	21,978,579
Refugio	78,471	2.030	159,296
San Patricio	1,670,749	1.962	3,278,010
Willacy	76,049	2.771	210,732
Total	58,682,412	2.371	139,123,594
(5) Inforce-Premium as of 11/30/21 at Present Rates			330,828,116
(6) Indicated Hurricane Loss Ratio			42.1%

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 11/30/21	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	1,804,688	2.507	4,524,353
Brazoria	9,887,460	2.941	29,079,020
Calhoun	997,241	4.000	3,988,964
Cameron	2,014,726	3.606	7,265,102
Chambers	1,530,357	2.460	3,764,678
Galveston	21,261,039	3.034	64,505,992
Harris	1,237,804	2.434	3,012,815
Jefferson	6,298,584	2.189	13,787,600
Kenedy	2,663	3.190	8,495
Kleberg	165,520	2.448	405,193
Matagorda	1,206,001	4.692	5,658,557
Nueces	10,451,060	2.624	27,423,581
Refugio	78,471	2.727	213,990
San Patricio	1,670,749	2.898	4,841,831
Willacy	76,049	3.945	300,013
Total	58,682,412	2.876	168,780,184
(5) Inforce-Premium as of 11/30/21 at Present Rates			330,828,116
(6) Indicated Hurricane Loss Ratio			51.0%

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 11/30/21	Modeled Loss Cost	Expected Annual Hurricane Loss
(1)	(2)	(3)	(4)
Aransas	1,804,688	2.132	3,847,595
Brazoria	9,887,460	1.747	17,273,393
Calhoun	997,241	3.303	3,293,887
Cameron	2,014,726	1.495	3,012,015
Chambers	1,530,357	1.854	2,837,282
Galveston	21,261,039	2.565	54,534,565
Harris	1,237,804	3.040	3,762,924
Jefferson	6,298,584	2.549	16,055,091
Kenedy	2,663	1.540	4,101
Kleberg	165,520	1.114	184,389
Matagorda	1,206,001	2.500	3,015,003
Nueces	10,451,060	1.699	17,756,351
Refugio	78,471	1.878	147,369
San Patricio	1,670,749	1.694	2,830,249
Willacy	76,049	2.069	157,345
Total	58,682,412	2.193	128,711,559
(5) Inforce-Premium as of 11/30/21 at Present Rates			330,828,116
(6) Indicated Hurricane Loss Ratio			38.9%

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

AIR Simulated Hurricane Results

County	TWIA Insured Values (000s) as of 11/30/21	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	1,804,688	4,548,899	2.521
Brazoria	9,887,460	17,498,175	1.770
Calhoun	997,241	3,020,663	3.029
Cameron	2,014,726	3,765,874	1.869
Chambers	1,530,357	2,435,980	1.592
Galveston	21,261,039	84,217,490	3.961
Harris	1,237,804	4,825,067	3.898
Jefferson	6,298,584	12,681,345	2.013
Kenedy	2,663	3,016	1.133
Kleberg	165,520	153,623	0.928
Matagorda	1,206,001	2,937,946	2.436
Nueces	10,451,060	27,255,590	2.608
Refugio	78,471	118,742	1.513
San Patricio	1,670,749	3,250,485	1.946
Willacy	76,049	166,050	2.183
Total	58,682,412	166,878,945	2.844

Notes:

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

(3) Provided by AIR

(4) = (3) / (2)

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

Exhibit 8
Sheet 2

County	TWIA Insured Values (000s) as of 11/30/21	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	1,804,688	3,876,812	2.148
Brazoria	9,887,460	17,070,756	1.727
Calhoun	997,241	3,387,962	3.397
Cameron	2,014,726	4,499,729	2.233
Chambers	1,530,357	2,323,305	1.518
Galveston	21,261,039	63,906,221	3.006
Harris	1,237,804	3,471,033	2.804
Jefferson	6,298,584	11,365,592	1.804
Kenedy	2,663	5,383	2.021
Kleberg	165,520	245,177	1.481
Matagorda	1,206,001	3,340,120	2.770
Nueces	10,451,060	21,978,028	2.103
Refugio	78,471	159,263	2.030
San Patricio	1,670,749	3,277,660	1.962
Willacy	76,049	210,725	2.771
Total	58,682,412	139,117,766	2.371

Notes:

- (2) Provided by TWIA and Geo-coded by RMS
- (3) Provided by RMS
- (4) = (3) / (2)

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

County	TWIA Insured Values (000s) as of 11/30/21	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	1,804,688	4,524,708	2.507
Brazoria	9,887,460	29,078,956	2.941
Calhoun	997,241	3,988,657	4.000
Cameron	2,014,726	7,265,829	3.606
Chambers	1,530,357	3,764,721	2.460
Galveston	21,261,039	64,508,914	3.034
Harris	1,237,804	3,012,546	2.434
Jefferson	6,298,584	13,787,096	2.189
Kenedy	2,663	8,494	3.190
Kleberg	165,520	405,248	2.448
Matagorda	1,206,001	5,658,861	4.692
Nueces	10,451,060	27,423,273	2.624
Refugio	78,471	213,970	2.727
San Patricio	1,670,749	4,842,555	2.898
Willacy	76,049	299,989	3.945
Total	58,682,412	168,783,817	2.876

Notes:

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

(3) Provided by Impact Forecasting

(4) = (3) / (2)

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

County	TWIA Insured Values (000s) as of 11/30/21	Average Annual Modeled Loss	Modeled Loss Cost
(1)	(2)	(3)	(4)
Aransas	1,804,688	3,847,034	2.132
Brazoria	9,887,460	17,275,617	1.747
Calhoun	997,241	3,294,081	3.303
Cameron	2,014,726	3,012,603	1.495
Chambers	1,530,357	2,837,065	1.854
Galveston	21,261,039	54,544,033	2.565
Harris	1,237,804	3,763,066	3.040
Jefferson	6,298,584	16,053,377	2.549
Kenedy	2,663	4,101	1.540
Kleberg	165,520	184,363	1.114
Matagorda	1,206,001	3,015,156	2.500
Nueces	10,451,060	17,753,371	1.699
Refugio	78,471	147,346	1.878
San Patricio	1,670,749	2,829,773	1.694
Willacy	76,049	157,372	2.069
Total	58,682,412	128,718,358	2.193

Notes:

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

(3) Provided by CoreLogic RQE

(4) = (3) / (2)

Texas Windstorm Insurance Association
Residential Property - Wind & Hail
Rate Level Review
Texas Hurricanes 1850 - 2021

<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
56-Year	1/1/1966 - 12/31/2021	19	56	0.339
171-Year	1/1/1851 - 12/31/2021	68	171	0.398

Notes:

(1), (2) from NOAA Technical Memorandum NWS-NHC-6, updated with actual experience through 2021

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)
2012	98,605,959	1.373	135,360,527
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
Total	1,126,150,253		1,299,629,046

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)
2012	53,841,760	1.373	73,910,838
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
Total	621,440,338		717,412,309

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)
2012	160,031,435	1.373	219,681,849
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
Total	1,711,005,877		1,987,316,227

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)
2012	3,294,072	1.373	4,521,911
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
Total	41,450,542		47,577,151

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
Total	4,558,552,366		5,681,748,587

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	2019	2020	2021	Selected
(1) Direct Written Premium	\$372,016,601	\$369,600,488	\$395,112,773	
(2) Direct Earned Premium	\$381,571,182	\$369,179,093	\$378,504,197	
(3) Commission				
\$ Amount	\$59,474,929	\$59,103,153	\$63,161,029	
% 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	\$31,461,936	\$31,624,678	\$29,979,903	
Adjustments				
Contribution to Statutory Fund	\$0	\$0	\$0	
Adjusted \$ Amount	31,461,936	31,624,678	29,979,903	
% of DWP	8.5%	8.6%	7.6%	8.2%
(6) Taxes, Licenses & Fees				
\$ Amount	\$7,024,246	\$6,904,349	\$7,364,210	
% of DWP	1.9%	1.9%	1.9%	1.9%
(7) Reinsurance Expense				19.1%
(8) Outstanding Class 1 Public Security Repayment				0.0%
(9) Total Fixed Expenses				27.3%
(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 Class 1 Public Security issued in 2014, Security depleted due to Hurricane Harvey; Outstanding principles have been paid off in 2022

(9) = (5) + (7) + (8)

(10) = (3) + (4) + (6)

(11) CRTF contribution selected judgmentally

(12) = 100% - (10) - (11)

	Combined	Residential	Commercial
(1) 2022 - 2023 Reinsurance Premium	116,631,547	97,295,616	19,335,931
(2a) Average Annual Loss by Reinsurance Layer (AIR) 100% of \$2036M XS \$2200M	30,831,902	25,851,654	4,980,248
Total	30,831,902	25,851,654	4,980,248
(2b) Average Annual Loss by Reinsurance Layer (RMS) 100% of \$2036M XS \$2200M	19,211,333	15,895,091	3,316,242
Total	19,211,333	15,895,091	3,316,242
(2c) Selected Total Average Annual Loss	25,021,617	20,873,372	4,148,245
(3) Annual Exposure Growth	8.0%	8.0%	8.0%
(4) Prospective Average Annual Loss	27,023,347	22,543,242	4,480,105
(5) Net Cost of Reinsurance	85,554,698	71,370,888	14,183,810
(6) TWIA 2021 Earned Premium at Present Rates	400,352,299	335,413,157	64,939,142
(7) 2022 - 2023 TWIA Prospective Earned Premium at Present Rates	446,481,829	374,060,247	72,421,582
(8) Indicated Reinsurance Expense %	19.2%	19.1%	19.6%

Notes:

(1) From TWIA reinsurance contract effective 6/1/2022 through 5/31/2023

(2a) Provided by AON, based on AIR model using TWIA exposures as of 11/30/2021

(2b) Provided by AON, based on RMS model using TWIA exposures as of 11/30/2021

(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 11/30/2021 to 12/1/2022)

(5) = (1) - (4)*1.15, 1.15 is the loading for loss adjustment factor

(6) = Commercial Exhibit 10, Sheet 1 + Residential Exhibit 10, Sheet 2, calendar year ending 12/31/2021

(7) = (6) adjusted for exposure growth trend * [(1+ (3)) ^ 1.417] (projected exposure growth from 7/1/2021 to 12/1/2022)

(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)
Total	1,678,155,423	5,408,413,828	7,086,569,251	7,082,112,706	4,456,545

Notes:

- (2), (3) Provided by TWIA, as of 12/31/2021
- (4) = (2) + (3)
- (5) Based on TWIA Annual Statements
- (6) = (4) - (5)