TEXAS WINDSTORM INSURANCE ASSOCIATION

MEMORANDUM

DATE: October 20, 2025

TO: David Durden, General Manager

FROM: James Murphy, Chief Actuary | Vice President, Enterprise Analytics

RE: 2026 Funding – 50-Year Probable Maximum Loss

As a result of the passage of HB 3689, the Association is now required by statute to maintain total available loss funding in an amount not less than the Association's probable maximum loss (PML) for a catastrophe year with a one-in-50-year probability. Additionally, the Commissioner of Insurance may now adopt a method or approve the Association's method of determining the PML by February 1 of each year. In support of this, and in order to allow the Commissioner of Insurance the opportunity to review the Association's method, the TWIA Board of Directors has asked the Actuarial & Underwriting Committee for its recommendations in determining the 50-year PML for the 2026 hurricane season. To assist the Committee, I have prepared the following resolution template and information and attached reference exhibits to accompany a presentation by TWIA's catastrophe modeler, Aon. The attached exhibits include a timeline for the PML determination process and related statutory and regulatory requirements.

Template for Committee Recommendations for the 2026 Hurricane Season

1. The Committee recommends to average the results from the catastrophe models presented as a reference point for making the Board's determination of the 50-year PML using the following weighting: AIR __% RMS __% IF __% RQE __%.
2. The Committee recommends that the model results based on [near] [long] term assumptions are preferable.
3. The Committee recommends that the words, "total available loss funding" in statute contemplate [inclusion] [exclusion] of loss adjustment expenses in determining the probable maximum loss for the Association for a catastrophe year with a probability of one in fifty.

For reference, the resolutions regarding the 100-year PML passed by the TWIA Board for the 2025 hurricane season assigned 50% weight to the IF model and 25% weight to each of the RMS and RQE models, based on long-term frequency assumptions and including loss adjustment expenses.

TEXAS WINDSTORM INSURANCE ASSOCIATION

Additional Reference Information

Sec. 2210.453 of the Texas Insurance Code now requires that TWIA maintain total funding in an amount not less than the probable maximum loss for the Association for a catastrophe year with a probability of one in 50. It further provides that the Insurance Commissioner may adopt a method or approve the Association's method of determining the probability of one in 50 for Association risks and specifies that any adopted or approved method must be provided to the Association on or before February 1 of each year.

The Texas Administrative Code rules that govern this process have not yet been updated to reflect the change in law, but do require the Association to determine its probable maximum loss for the year and disclose it to the Commissioner not later than April 1. The determination and information must be disclosed each year, regardless of whether the Association requests a reinsurance assessment.

Current rules describe the information that must be disclosed regarding the methodology used to determine the probable maximum loss. This information has been provided in the attached summary. The rule can be found in its entirety online at the following link: Rule §5.4160.

In 2019, the Texas Legislature enacted statutory changes that require the Association to assess its member insurers to pay for any reinsurance it purchases in excess of the Association's statutory minimum funding level. Member assessments to pay for this excess reinsurance are distinct from member assessments to pay losses and would not affect the Association's ability to assess member companies for excess losses incurred. This provision has not been changed.

Sec. 2210.453(f) of the Texas Insurance Code prohibits the Association from purchasing reinsurance from an insurer or broker involved in the execution of a catastrophe model on which the Association relies in determining the probable maximum loss applicable for the period covered by the reinsurance. TWIA's reinsurance broker, Gallagher Re, has not been involved in the execution of any of the catastrophe models to be relied on by the Board in determining the probable maximum loss.

JM

Exhibit 1 – Expected Timetable for 2026 Hurricane Season

Timing	**Action**
November 2025	TWIA to determine methodology for calculating the one-in-50 year probable maximum loss for the 2026 hurricane season and submit to the Texas Department of Insurance for review
On or before February 1, 2026	The Insurance Commissioner shall provide any adopted or approved method to the Association
At the Association's first regular Board meeting (February 2026)	The Association must determine its one-in-50-year probable maximum loss for the calendar year. The Association must provide the information described in §5.4160(d) and make that information available to its members and the public.
After the first regular Board meeting but not later than April 1, 2026	The Association must disclose to the Commissioner its one-in-50 year probable maximum loss for the calendar year and the Association's method for determining that probable maximum loss.
No later than the second regular Board meeting (May 2026)	If the Association elects to purchase coverage for reinsurance or alternative risk transfer mechanisms in excess of the one-in-50-year probable maximum loss, then the Association must also obtain a quote for coverage that provides funding equal to the one in 50-year probable maximum loss. The Association must provide each of the following to its board and make this information available to its members and the public: (1) the reinsurance or alternative risk transfer mechanism premium quote for coverage that provides funding equal to the one in 50- year probable maximum loss. (2) the total deposit premiums for all reinsurance or alternative risk transfer mechanism coverage for the year. If, at the time of the second regular board meeting of the calendar year, deposit premiums described above are not known, then the Association must provide its best estimate of those premiums to the board and make the estimate available to its members.
Following disclosure to the Commissioner of the one-in-50-year probable maximum loss	The department (TDI) will post the one-in-50-year probable maximum loss on its website.
As soon as the Association knows the deposit premiums (May-June 2026)	As soon as the Association knows the deposit premiums described in subsection (g) of this section, the Association must provide them to the board and make them available to its members.

Within a reasonable time after it knows its total reinsurance costs	If the Association must assess its members under Insurance Code §2210.453(d)(1) then the Association must request the Commissioner's approval within a reasonable time after it knows its total reinsurance costs for that calendar year.
By the later of either: (A) 120 days after the date the Association receives the member premium data that TDI provides under §5.4162(f) for 2026; or (B) December 1	The Association must issue the assessment.
Within 30 days of receipt of notice of assessment	Each member must remit to the Association payment in full of its assessed amount of any assessment levied by the Association within 30 days of receipt of notice of assessment.

Exhibit 2

Sec. 2210.453. FUNDING LEVELS; REINSURANCE AND ALTERNATIVE RISK FINANCING MECHANISMS; REINSURANCE FROM CERTAIN INSURER OR BROKER PROHIBITED.

(a) The association may purchase reinsurance or use alternative risk financing mechanisms or both as necessary.

(b) The association shall maintain total available loss funding in an amount not less than the probable maximum loss for the association for a catastrophe year with a probability of one in 50. If necessary, the required funding level shall be achieved through the purchase of reinsurance or the use of alternative financing mechanisms, or both, to operate in addition to or in concert with the trust fund, public securities, financial instruments, financing arrangements, and assessments authorized by this chapter.

(c) The attachment point for reinsurance purchased under this section may not be less than the aggregate amount of all funding available to the association under Subchapters B-1 and B-2.

(d) The cost of the reinsurance purchased or alternative financing mechanisms used under this section in excess of the minimum funding level required by Subsection (b) shall be paid by assessments as provided by this subsection. The association, with the approval of the commissioner, shall notify each member of the association of the amount of the member's assessment under this subsection. The proportion of the cost to each insurer under this subsection shall be determined in the manner used to determine each insurer's participation in the association for the year under Section 2210.052.

(d-1) The commissioner may adopt a method or approve the association's method of determining the probability of one in 50 for association risks. The commissioner shall provide any adopted or approved method to the association on or before February 1 of each year.

(e) A member of the association may not recoup an assessment paid under Subsection (d) through a premium surcharge or tax credit.

(f) The association may not purchase reinsurance under this section from an insurer or broker involved in the execution of a catastrophe model on which the association relies in:

(1) determining the probable maximum loss applicable for the period covered by the reinsurance; or

(2) adopting rates under Section 2210.355.

Exhibit 3

Information Required to be Disclosed to the Commissioner pursuant to §5.4160(d)

In disclosing its method for determining its probable maximum loss, the association must include:

(1) the hurricane model or models it relied on, including the model vendors, the model names, and the versions of each model;

(2) the in-force date and the total amount of direct exposures in force for the policy data used as the input for each hurricane model the association relied on;

(3) all user-selected hurricane model input assumptions used with each hurricane model the association relied on;

(4) the probable maximum loss model output produced by each hurricane model the association relied on;

(5) if the association relied on more than one hurricane model, the methodology the association used to blend or average the hurricane model outputs, including all weighting factors used; and

(6) any adjustments the association or another party made to the probable maximum loss model outputs or the blended or averaged output, including any adjustments to include loss adjustment expenses.

Texas Windstorm Insurance Association

Actuarial & Underwriting Committee Meeting

Method of Determining the 2026 Catastrophe Year Probable Maximum Loss for the Association with a Probability of 1 in 50

October 23rd, 2025

Catastrophe Modeling based on November 30, 2024 data

Agenda

Section 1 – TWIA Modeled Loss Detail & Exposure Change
Section 2 – Defining the PML Weighting Selection

Appendix A – Hurricane Model Comparison
Appendix B – Catastrophe Modeling Overview
Appendix C - Disclaimers

1

TWIA Modeled Loss Detail & Exposure Change

Limit Change

Year-Over-Year Portfolio Summary

Portfolio Summary

County	8/31/2025	11/30/2024	% Change
	Limit	Limit	Limit
Jefferson	13,965,356,344	12,550,729,574	11.3%
Chambers	4,797,811,595	4,124,312,135	16.3%
Harris	2,232,036,415	2,208,057,000	1.1%
Galveston	46,142,774,490	42,222,475,935	9.3%
Brazoria	27,795,490,225	24,147,129,710	15.1%
Matagorda	2,383,138,955	2,166,297,290	10.0%
Calhoun	1,932,847,700	1,778,781,810	8.7%
Refugio	191,549,120	167,463,120	14.4%
Aransas	4,706,453,250	4,333,026,790	8.6%
San Patricio	4,188,287,430	3,806,051,240	10.0%
Nueces	23,668,689,970	22,064,453,945	7.3%
Kleberg	447,497,880	409,135,020	9.4%
Kenedy	9,834,600	8,840,800	11.2%
Willacy	171,996,130	159,218,610	8.0%
Cameron	5,325,525,270	5,147,825,790	3.5%
Total	**137,959,289,374**	**125,293,798,769**	**10.1%**

Portfolio changes vary by line

Line of Business % Growth Detail

County	Limit % Change			
	Commercial	Mobile Home	Residential	Total
Jefferson	-7.4%	18.9%	12.9%	11.3%
Chambers	-6.9%	25.6%	17.0%	16.3%
Harris	-59.0%	13.4%	7.6%	1.1%
Galveston	-5.3%	12.3%	10.7%	9.3%
Brazoria	-8.5%	18.0%	16.0%	15.1%
Matagorda	7.2%	12.0%	10.2%	10.0%
Calhoun	-4.4%	25.3%	10.2%	8.7%
Refugio	4.4%	5.7%	16.1%	14.4%
Aransas	-8.2%	28.7%	11.3%	8.6%
San Patricio	0.2%	35.9%	10.8%	10.0%
Nueces	-10.0%	16.3%	11.0%	7.3%
Kleberg	0.1%	19.1%	11.3%	9.4%
Kenedy	N/A	N/A	2.2%	11.2%
Willacy	-2.4%	-16.7%	10.3%	8.0%
Cameron	-4.2%	13.6%	7.9%	3.5%
Total	**-7.6%**	**19.2%**	**12.2%**	**10.1%**

TWIA's portfolio has grown 10.1% over term

- Portfolio remains driven by Residential exposure change **(+12.2%)** and modest decrease in Commercial exposure change **(-7.6%)**
- Mobile Home exposure seeing significant increases **(+19.2%)** but remains a small contributor overall
- **Galveston**, **Brazoria** and **Nueces** counties continue to account for majority of exposure **(70.7%)**
- Limits provided by risk from TWIA, not reflective of full replacement cost when values exceed limits

Hurricane Alternate Landfall Rate Approaches by Model

All models provide an alternate view of hurricane landfall rates. Each reflects a different perspective relative to the Long-Term historical average

Models	Verisk, Cotality	Moody's RMS	Impact Forecasting
Name	Warm Sea Surface Temperature (Verisk) or Near-Term Rates (Cotality)	Medium-Term Rates	Adjusted-Rate View
Perspective	Historical landfall rates in warm sea surface temperature years	5-year forward-looking view of landfall rates	Adjusts baseline event set to account for climate trends to present day
Based on	Target modeled landfall rates based on a subset of historical years in which sea surface temperature is warmer than average. "Warm years" vary by model.	Ensemble approach based on 13 statistical rate forecasting models reflecting different theories on drivers of hurricane activity	Based on research from Columbia University that considers the impact of hurricane landfall rates for the blended SSP2-4.5 and SSP3-7.0 climate perspectives
Loss Impact	Increase	Increase or Decrease	Increase
Strengths	Stable view of risk Rate adjustment is simple and transparent	Reflects current climate conditions and trends, accounting for potential changes in climate patterns	Accounts for physical and socio-economic drivers of climate observations
Considerations	Limited to historical data and past climatology; Does not consider changes in climate patterns	Methodology is complex and impact on loss due to rate change can be volatile	Reflects a neutral to conservative view towards any change in socioeconomic shifts towards sustainability

Model & Exposure Change Comparison – All Perils

Combined Hurricane (Long-Term) & Severe Conv. Storm AEP Gross Losses (excl. LAE)

Original Data In Force as of 11/30/2024 & Exposure Adjustment as of 8/31/2025

		AEP - All Perils (Long-Term/Standard)											
		Updated Model Version - 8/31/2025				Updated Model Version - 11/30/2024				Original Model Version - 11/30/2024			
Exceedence Probability	Return Period	Verisk v13	RMS v25	IF v18	RQE v25	Verisk v13	RMS v25	IF v18	RQE v25	Verisk v12	RMS v23	IF v18	RQE v23
0.01%	10000 yr	29,746.2	38,250.0	34,735.3	22,750.8	27,160.0	33,617.5	31,110.6	20,376.7	27,151.7	37,187.1	31,110.6	22,699.7
0.02%	5000 yr	29,686.0	31,327.7	28,028.2	20,045.2	27,141.1	28,809.0	25,699.8	18,380.0	26,393.5	31,271.8	25,699.8	20,514.6
0.10%	1000 yr	21,985.2	20,769.4	15,708.9	14,251.0	20,138.0	18,404.8	14,150.9	12,837.6	20,000.4	20,113.0	14,150.9	14,524.5
0.20%	500 yr	17,886.3	15,139.8	12,334.2	11,379.0	16,376.2	13,768.9	11,255.0	10,383.3	16,393.6	15,191.6	11,255.0	11,703.6
0.40%	250 yr	12,217.5	10,471.0	9,087.0	8,752.4	11,348.6	9,668.5	8,415.5	8,105.7	11,485.7	10,501.1	8,415.5	8,886.5
0.50%	200 yr	11,559.0	9,277.1	7,980.4	7,877.8	10,602.7	8,641.0	7,376.3	7,281.5	10,592.3	9,284.5	7,376.3	7,997.0
1.00%	100 yr	7,787.0	6,274.0	5,346.2	5,424.5	7,209.5	5,839.4	4,962.8	5,035.4	7,175.7	6,193.0	4,962.8	5,540.5
2.00%	**50 yr**	**4,665.9**	**3,874.7**	**3,346.6**	**3,284.1**	**4,288.3**	**3,575.4**	**3,081.9**	**3,024.4**	**4,252.8**	**3,740.9**	**3,081.9**	**3,248.2**
4.00%	25 yr	2,421.8	2,196.3	1,835.0	1,806.4	2,260.3	2,013.3	1,697.2	1,670.8	2,232.2	2,078.3	1,697.2	1,734.4
5.00%	20 yr	1,981.9	1,776.5	1,451.1	1,430.7	1,847.6	1,625.1	1,340.0	1,321.1	1,806.8	1,673.3	1,340.0	1,368.6
	Annual avg	**464.7**	**373.0**	**318.9**	**296.7**	**429.6**	**344.8**	**294.8**	**274.4**	**387.0**	**361.0**	**294.8**	**294.8**
	Std dev	**1,630.5**	**1,504.9**	**1,261.0**	**1,125.8**	**1,501.9**	**1,376.7**	**1,157.5**	**1,033.4**	**1,497.5**	**1,484.8**	**1,157.5**	**1,139.4**

US $ in Millions

Including Demand Surge, Excluding Storm Surge

Modeling Summary Guidance

- **Updated Model Version – 8/31/2025** features 11/30/2024 losses scale-adjusted by line of business (Residential and Commercial) PMLs in updated versions using following exposure adjustments:
  - Residential **(+12.2%)**
  - Commercial **(-7.6%)**
- Combined change including model version and exposure scaling yields average 50 yr. AEP PML of $3.8B, or an average increase of 5.7% and representing a range from low to high model of 1.4x
- Modeling for final selection of 50 yr. AEP PML will be based on 11/30/2025 in force exposures

Model & Exposure Change Comparison – All Perils

Combined Hurricane (Near-Term) & Severe Conv. Storm AEP Gross Losses (excl. LAE)

Original Data In Force as of 11/30/2024 & Exposure Adjustment as of 8/31/2025

		AEP - All Perils (Near-Term/WarmSST)											
		Updated Model Version - 8/31/2025				Updated Model Version - 11/30/2024				Original Model Version - 11/30/2024			
Exceedence Probability	Return Period	Verisk v13	RMS v25	IF v18	RQE v25	Verisk v13	RMS v25	IF v18	RQE v25	Verisk v12	RMS v23	IF v18	RQE v23
0.01%	10000 yr	29,746.2	36,610.6	34,180.2	19,706.1	27,160.0	34,365.3	31,640.1	18,241.7	27,168.8	37,336.7	31,640.1	20,823.9
0.02%	5000 yr	29,686.0	32,396.7	29,012.0	18,061.9	27,141.1	29,423.3	26,436.8	16,458.7	27,083.4	31,570.1	26,436.8	18,767.0
0.10%	1000 yr	22,256.0	20,487.1	15,677.4	14,573.2	20,525.1	19,089.3	14,532.5	13,509.0	20,000.4	20,542.2	14,532.5	15,442.2
0.20%	500 yr	18,464.1	15,388.0	12,608.7	11,777.9	16,928.0	14,475.1	11,708.2	10,936.7	16,705.7	15,615.7	11,708.2	12,470.8
0.40%	250 yr	13,128.3	10,972.1	9,385.0	9,300.3	12,109.8	10,219.1	8,698.7	8,620.2	12,079.3	10,862.8	8,698.7	9,579.6
0.50%	200 yr	11,916.0	9,820.2	8,383.9	8,489.8	10,939.5	9,136.7	7,748.3	7,846.1	10,775.7	9,599.3	7,748.3	8,676.2
1.00%	100 yr	8,552.6	6,661.7	5,716.2	5,894.8	7,873.3	6,257.4	5,315.2	5,481.3	7,832.1	6,433.8	5,315.2	6,042.6
2.00%	**50 yr**	**4,915.7**	**4,199.0**	**3,538.1**	**3,564.5**	**4,549.0**	**3,886.6**	**3,274.5**	**3,299.0**	**4,515.9**	**3,917.6**	**3,274.5**	**3,615.7**
4.00%	25 yr	2,637.8	2,395.9	1,975.3	1,976.4	2,477.6	2,224.0	1,844.4	1,845.4	2,436.0	2,195.8	1,844.4	1,935.1
5.00%	20 yr	2,148.7	1,960.3	1,586.1	1,593.6	2,005.6	1,810.5	1,472.7	1,479.6	1,973.3	1,778.7	1,472.7	1,547.5
	Annual avg	**491.1**	**407.0**	**339.4**	**324.3**	**454.0**	**380.4**	**315.5**	**301.4**	**411.4**	**383.7**	**315.5**	**328.4**
	Std dev	**1,690.6**	**1,547.6**	**1,298.8**	**1,184.2**	**1,557.1**	**1,448.2**	**1,205.7**	**1,099.4**	**1,552.3**	**1,525.2**	**1,205.7**	**1,226.2**

US $ in Millions

Including Demand Surge, Excluding Storm Surge

Modeling Summary Guidance

- **Updated Model Version – 8/31/2025** features 11/30/2024 losses scale-adjusted by line of business (Residential and Commercial) PMLs in updated versions using following exposure adjustments:
  - Residential **(+12.2%)**
  - Commercial **(-7.6%)**
- Combined change including Model Version and Exposure Scaling yields average 50 yr. AEP PML of $4.05B, or an average increase of 5.7% and representing a range from low to high model of 1.39x
- Near-Term 50 yr. AEP PML is an average of 6.9% greater than Long-Term

2

Defining the PML Weighting Selection

Model Choice

Who are the Modeling Firms?

Model Vendor	Model Vendor Ownership
RMS	Moody's Analytics
AIR	Verisk
cotality	Stone Point Capital
Impact Forecasting Powered by Aon	Aon

What's relevant to TWIA?

- Reinsurer and Capital Markets uptake favors Moody's and Verisk
- Regular hurricane model updates to maintain compliance with FCHLPM standards + some vendors are considering more meaningful enhancements
- Return period adjustment from 100 yr to 50 yr lends greater importance to SCS models – ex. spring 2024 Houston events

PML Statutory Selection

Data In Force as of 11/30/2024 (no exposure growth contemplated)

All Perils (Near-Term/Warm Sea Surface		
Model	**Weight**	**100yr PML - AEP**
Verisk v13	0%	7,873.3
RMS v25	25%	6,257.4
IF v18	50%	5,315.2
RQE v25	25%	5,481.3
Blend	**100%**	**5,592.3**
Blend w/ LAE	**100%**	**6,431.1**

All Perils (Long-Term/Standard)		
Model	**Weight**	**100yr PML - AEP**
Verisk v13	0%	7,209.5
RMS v25	25%	5,839.4
IF v18	50%	4,962.8
RQE v25	25%	5,035.4
Blend	**100%**	**5,200.1**
Blend w/ LAE	**100%**	**5,980.1**

All Perils (Near-Term/Warm Sea Surface		
Model	**Weight**	**50yr PML - AEP**
Verisk v13	0%	4,549.0
RMS v25	25%	3,886.6
IF v18	50%	3,274.5
RQE v25	25%	3,299.0
Blend	**100%**	**3,433.7**
Blend w/ LAE	**100%**	**3,948.7**

All Perils (Long-Term/Standard)		
Model	**Weight**	**50yr PML - AEP**
Verisk v13	0%	4,288.3
RMS v25	25%	3,575.4
IF v18	50%	3,081.9
RQE v25	25%	3,024.4
Blend	**100%**	**3,190.9**
Blend w/ LAE	**100%**	**3,669.5**

US $ in Millions

15% LAE utilized for all blend options

Including Demand Surge, Excluding Storm Surge

Current board selected weighting

Prior Blending Methods

- Treaty Year **2021**
  - 50% RMS
  - 50% Verisk
- Treaty Year **2022**
  - 25% RMS
  - 25% Verisk
  - 25% Cotality
  - 25% Impact Forecasting
- Treaty Year **2023**
  - 100% RMS
- Treaty Year **2024**
  - 75% RMS
  - 25% Verisk
- All blending methods utilized AEP Long-Term with 15% LAE

Blending Considerations

- Florida Hurricane Cat Fund employs a weighted approach for their blend of models, less weight to the highest and lowest models and more weight to the middle models
  - For example, 15% / 35% / 35% / 15%
- Giving equal weight to all available catastrophe models lends balance to each model's strengths and weaknesses
  - 50 yr AEP Long-Term Blend with LAE: $4,016.3m

Managing Tail Risk Tolerance

What is TVaR and how can it inform your coverage decisions?

Tail Value at Risk (TVaR) – Data In Force as of 11/30/2024 (no exposure growth contemplated

AEP - All Perils (Near-Term/Warm Sea Surface Temperature)

2025 Probability		Verisk Touchstone v13			RMS RiskLink v25			Impact Forecasting v18			Cotality RQE v25		
of Exceedence	Return Period	TVaR	VaR	TVaR Ratio	TVaR	VaR	TVaR Ratio	TVaR	VaR	TVaR Ratio	TVaR	VaR	TVaR Ratio
0.01%	10000 yr	27,160.0	27,160.0	1.00	41,506.9	34,365.3	1.21	40,055.7	31,640.1	1.27	23,008.3	20,823.9	1.10
0.02%	5000 yr	27,150.5	27,141.1	1.00	36,498.5	29,423.3	1.24	34,354.3	26,436.8	1.30	21,428.7	18,767.0	1.14
0.10%	1000 yr	23,023.1	20,525.1	1.12	25,708.3	19,089.3	1.35	21,718.8	14,532.5	1.49	16,778.2	13,509.0	1.24
0.20%	500 yr	20,613.5	16,928.0	1.22	21,117.1	14,475.1	1.46	17,387.5	11,708.2	1.49	14,412.3	10,936.7	1.32
0.40%	250 yr	17,527.2	12,109.8	1.45	16,562.8	10,219.1	1.62	13,685.9	8,698.7	1.57	12,020.4	8,620.2	1.39
0.50%	200 yr	16,283.8	10,939.5	1.49	15,179.8	9,136.7	1.66	12,589.8	7,748.3	1.62	11,260.2	7,846.1	1.44
1.00%	100 yr	12,793.9	7,873.3	1.62	11,336.5	6,257.4	1.81	9,467.7	5,315.2	1.78	8,874.0	5,481.3	1.62
2.00%	**50 yr**	**9,368.4**	**4,549.0**	**2.06**	**8,108.6**	**3,886.6**	**2.09**	**6,764.8**	**3,274.5**	**2.07**	**6,554.0**	**3,299.0**	**1.99**
4.00%	25 yr	6,347.6	2,477.6	2.56	5,507.5	2,224.0	2.48	4,604.6	1,844.4	2.50	4,495.6	1,845.4	2.44
5.00%	20 yr	5,521.1	2,005.6	2.75	4,807.0	1,810.5	2.66	4,012.8	1,472.7	2.72	3,926.7	1,479.6	2.65
	Annual avg	**454.0**	**454.0**	**0.0**	**380.4**	**380.4**	**0.0**	**315.5**	**315.5**	**0.0**	**301.4**	**301.4**	**0.0**
	Std dev	**1,557.1**	**1,557.1**	**0.0**	**1,448.2**	**1,448.2**	**0.0**	**1,205.7**	**1,205.7**	**0.0**	**1,099.4**	**1,099.4**	**0.0**

US $ in Millions

Including Demand Surge, Excluding Storm Surge

TVaR captures the size or severity of loss events once they reach the 50-year threshold.

- Average value of loss given that a loss at least as large as the selected EP return period loss has occurred
- Measures not only the probability of exceeding a certain loss level, but also the average severity of losses in the tail of the distribution
- Example: Verisk 50 yr return period loss equals $4,549.0m
  - TVaR is $9,368.4m (TVaR will always be greater or equal to return period loss)
- Interpretation
  - PML: There is a 2% annual probability of a loss exceeding $4.549.0m
  - TVaR: Given that at least a $4.549.0m loss occurs, the average severity will be $9,368.4m

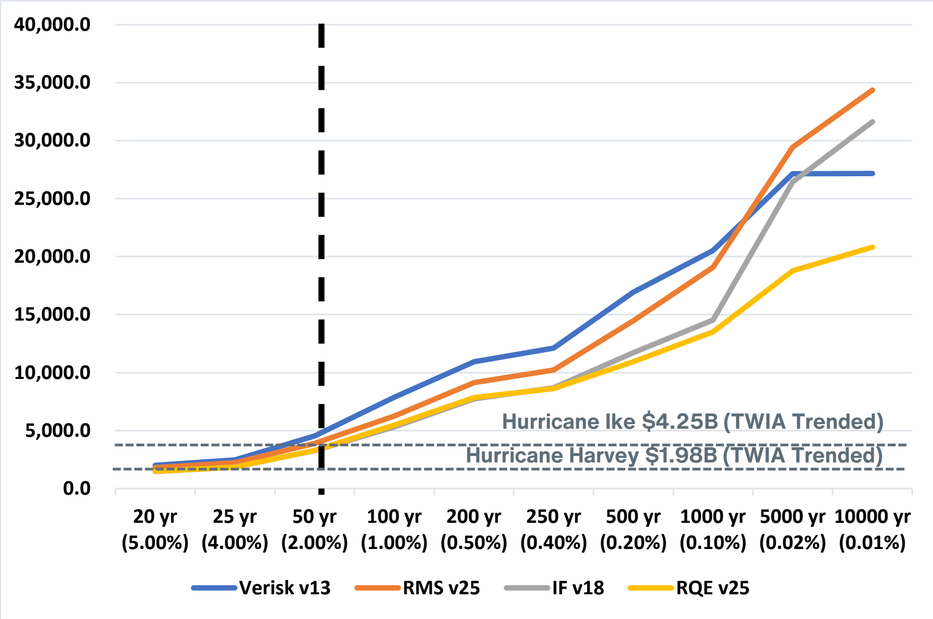
Historical Perspective

Data In Force as of 11/30/2024 (no exposure growth contemplated)

Variability in both loss magnitude and share indicated a need for more insightful view of historical experience and catastrophe models

TWIA Modeled OEP Losses

Hurricane Only, Near-Term/Warm Sea Surface Temperature



Trended TWIA losses indicate that the **cat program could be significantly to completely impacted** if events like Harvey and Ike were to occur again

Hurricane Ike

$4.249B
TWIA Trended Incurred (excl. 15% ALE)

$1.643B
Verisk v13 Recast

$1.133B
RMS v25 Recast

$19.434B
Trended PCS Industry Loss

22%
Estimated TWIA Share of Market Loss

Hurricane Harvey

$1.977B
TWIA Trended Incurred (excl. 15% ALE)

$2.468B
Verisk v13 Recast

$1.511B
RMS v25 Recast

$24.005B
Trended PCS Industry Loss

8%
Estimated TWIA Share of Market Loss

- **Recast modeled loss shows high degree of model variability and extreme event potential** if a storm similar to the 1900 Galveston hurricane were to occur again
- **TWIA market share of total PCS event loss carries significant variation**, indicating potential for outsized impact on the program

What if the 1900 Galveston Hurricane Occurred Again?

$9,865B
Verisk v13 Recast

$6,567B
RMS v25 Recast

Note: PCS losses are trended using CAS Collins & Lowe methodology through January 2025. PCS industry losses are based on Texas only and exclude auto loss. Trended TWIA losses excluded LAE calculated using markets share from original PCS events.

Model Performance/Model Miss

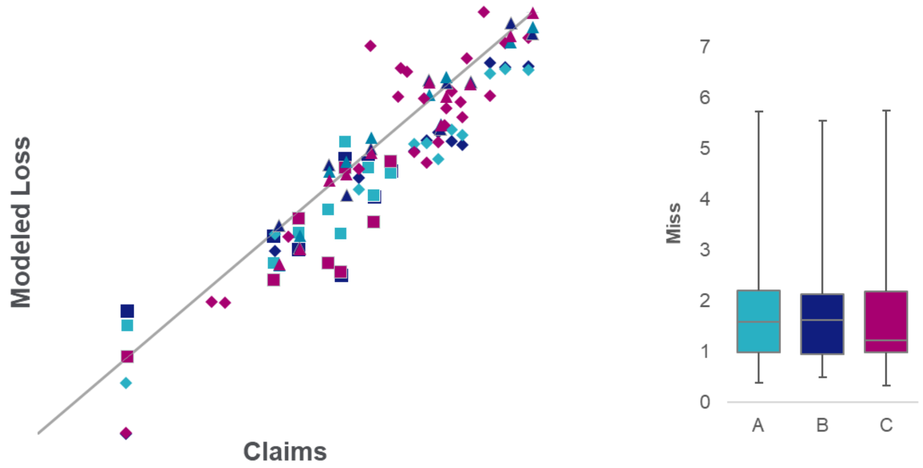
2024 Hurricane Model Performance Study

Overview

Models underestimated losses by **1.4x** on average across 3 model blend for Hurricanes from 2017 – 2022. This shows a general improvement for some models when compared to 2004 – 2022.

Non-modeled factors can include: Loss Adjustment Expenses, Insurance to value (ITV), Non-modeled perils & coverages, Coverage leakage, Hazard footprint discrepancies.

All US Landfalling Hurricanes from **2017 - 2022**



Peer Group		Model A	Model B	Model C	Blend
National Lines	Δ	1.1	1.2	1.1	1.2
Commercial E&S	□	1.6	1.5	2.0	1.7
Global	◊	2.2	2.4	1.7	2.0
Regionals	○	1.2	1.2	0.9	1.1
Industry Total		**1.4**	**1.5**	**1.2**	**1.4**

What is our Model Performance Study?

Model performance investigations help illustrate how and to what extent **models are not fully predictive**

Model performance estimates the **difference between actual observed loss and modeled loss (actual / modeled)** due in part to non-modeled factors and model uncertainty.

Aon conducts these studies for clients to determine **factors** that protect clients from insufficient reinsurance coverage due to **model uncertainty**

All US Landfalling Hurricanes from **2004 - 2022**

Peer Group		Model A	Model B	Model C	Blend
National Lines	Δ	1.6	1.3	1.3	1.4
Commercial E&S	□	1.5	1.3	1.3	1.4
Global	◊	2.1	2.3	1.6	1.9
Regionals	○	1.2	1.2	0.9	1.1
Industry Total		**1.6**	**1.5**	**1.3**	**1.4**

Moody's RMS v25 North Atlantic Hurricane Models

Scope of Model Update

Key Updates

- **Release**: Spring 2025
- **Key Model Updates**
  - Long-Term and Medium-Term Rates
  - Minor vulnerability changes are expected; client loss change will likely follow industry guidance
  - Changed mapping of ISO FIRE 3 (Non-Combustible) will reduce losses for portfolios with this exposure type
- **Expected Loss Guidance**
  - All U.S. Long-Term Rates: AAL change of -2% to +2%
  - All U.S. Medium-Term Rates: AAL change of +2% to +10%

Geocoding

- Updated postal code data to December 2023 vintage (from March 2022)
- Updated high-resolution geocoding

Hazard

All U.S.

- Updated Long-Term Rates (addition of the 2021-2022 seasons, plus reanalysis for 1966-1970)
- Updated Medium-Term Rates to cover 2025-2029 period
- Re-aggregation of ZIP Code-level and county-level wind hazard

Vulnerability & PLA

- Incorporation of $6 billion in new claims from recent events for validation, up to and including Idalia (2023)
- Mappings for ISO FIRE 3 (Non-combustible) have been updated from RMS 4B (light metal) to RMS 2 (Masonry), motivated by further evaluation of common exposure coding practices after Version 23
- Minor updates to Post-Event Loss Amplification (PLA) to reflect PLA factors for the five new historical reconstructions

Moody's RMS released an update to the North Atlantic Hurricane Model in Spring 2025. The update is limited in scope and impact compared to the previous model update, and TWIA model change follows RMS guidance

Verisk v13.0 U.S Severe Convective Storm Model

Scope of Update

Key Updates

- **Release**: June 2025
- **Key Model Updates**
  - All sub-perils updated to reflect new observational data through 2023
- **Catalog Updates**
  - Baseline Events:
    - Comparable to “Cat Only” event set from earlier versions, includes significant losses that meet state and/or US loss criteria
  - Expanded Events:
    - Comparable to “All Events” set from earlier versions, includes Baseline events + additional events that do not exceed loss criteria but do meet meteorological criteria

Hazard

Hail

- Improved physical representation of hail events, including improvements to hail swath placement in areas of sharp elevation transitions.
- Increased frequency across most hail-prone regions (decreases in West, Mid-Atlantic, Northeast)

Tornado

- Updated frequencies move tornado activity eastward

Wind

- Lower intensity events of recent years are causing frequency decreases and slight AAL decreases across most regions

Vulnerability

All Sub-Perils

- Updated building damage functions, including updates to unknowns
- Updated select secondary modifiers

Hail

- Secondary Modifiers: Updates to roof covering and roof year built
  - Enhancements to roof aging based on recent research, including roof covering-specific aging and deterioration impacts
  - Updates to the hail performance of hurricane wind-rated roof covering feature, resulting in smoother hail loss cost across states

Wind and tornado

- Updated manufactured homes damage functions for commercial risks
- Secondary Modifiers: 10-year roof aging bins updated - current as of 2025

Verisk released an update to it’s SCS modeling in June, 2025 with the update focused on hazard and vulnerability components, and TWIA model change aligns with expectation

Cotality (CoreLogic) RQE v25 North Atlantic Hurricane Model

Scope of Model Update

Key Updates

- **Release**: July 2025
- **Key Model Updates**
  - Storm landfall characteristics are updated to align with HURDAT 2 data through 2023
  - Relatively modest vulnerability changes—roof age and Florida building code updates

Hazard

- The stochastic hurricane database is updated to align with NHC HURDAT 2 through 2023 season
  - Landfall frequency by location and intensity are modified in RQE 25 based on HURDAT 2 data. Storm speed, direction, radius of maximum winds (RMAX), wind field shape, and inland filling are also modified. Total U.S.-wide landfall frequency changes by less than 0.1%
  - All-hurricane landfall frequencies increase by 1.9% in Florida and by 3.6% in South Carolina, while decreasing by between 0.9% and 2.0% in all other states including Texas
- Five events from 2024 (Beryl, Debby, Francine, Helene, and Milton) have been added to the historical event set, but they are not used in historical event frequency calculations

Vulnerability

- Roof Age and Condition Defaults have been updated reflect that roofs age as buildings age and their performance decreases over time
- Vulnerability has been adjusted to account for building code updates over the past two years

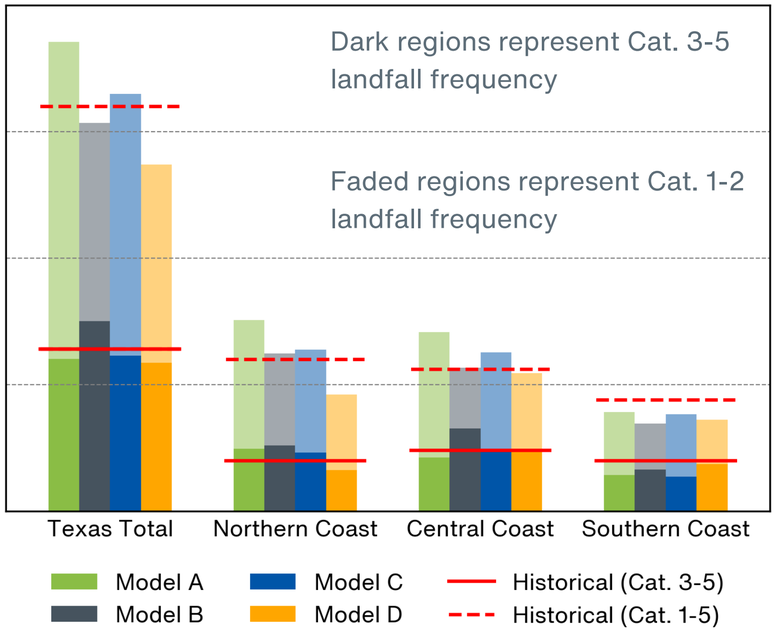
Changes to the North Atlantic Hurricane Model in RQE v25 are modest and driven by HURDAT-based changes to hurricane landfall frequencies, and TWIA model change aligns with expectations

Appendix A
Hurricane Model Comparison

Texas Statewide & Regional Landfall Rates

All four models have higher landfall rates on the northern and central coast compared to the southern coast, but regional and statewide rates differ substantially

Texas Near-Term Landfall Rate Per 100 Years by Region and Model



Note: Model vendors calibrate rates regionally and include varying degrees of "extension" into Mexico in order to capture the losses from events that do not make a direct landfall on Texas but still have an impact to losses. Modeled and historical rates shown here are only for direct landfalls on Texas.

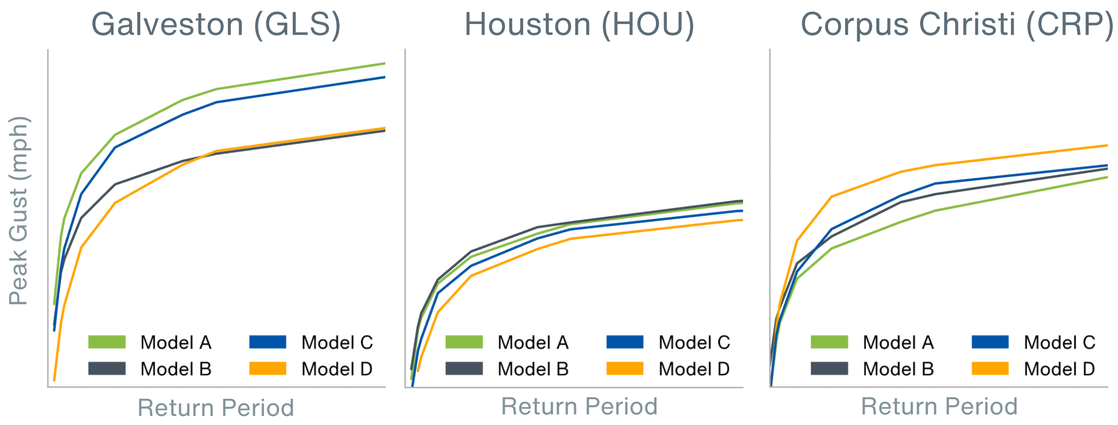
Texas Historical Landfalls 1900-2024

Landfall data from HURDAT2 (August 2025 Vintage)

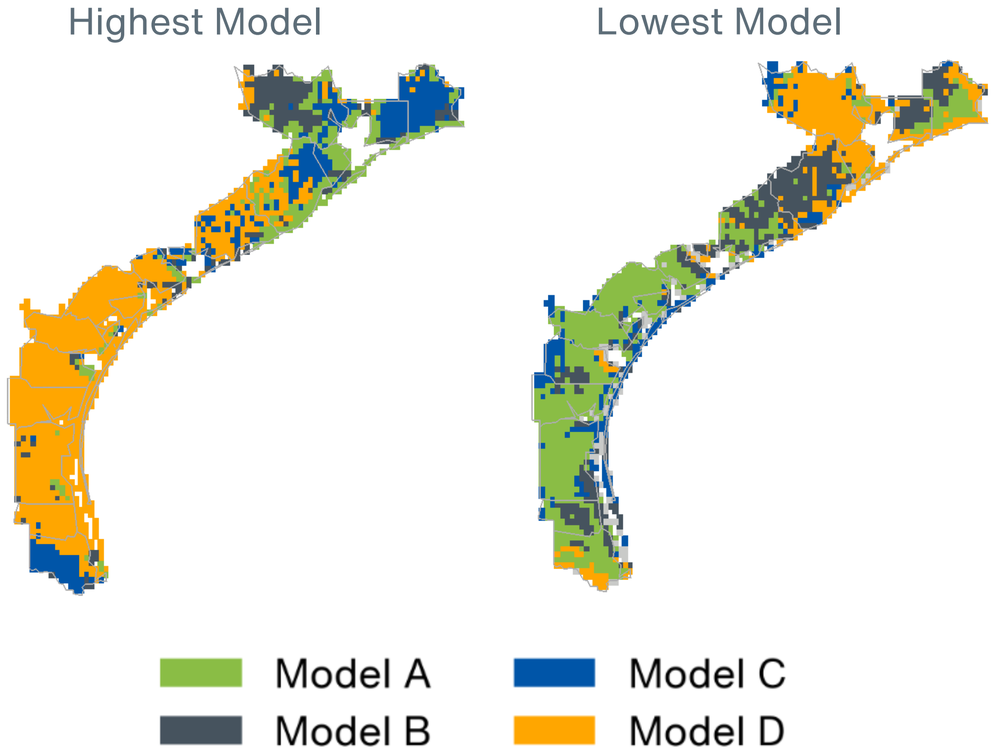
Hazard Return Period

In general, Model A has the highest hazard along the northern coast and the lowest hazard in South Texas. Model D has the highest hazard in South Texas and the lowest hazard in north Texas.

Peak Gust Hazard Curves



50-year hazard return period



Based on a 5 km grid and near-term rates. . Model A 1-minute sustained wind speeds have been converted to 3-second peak gust using a factor of 1.22. Model C 2-second gusts have been converted to 3-second gusts using a factor of 0.98654

Frequency of High Wind Gusts

Models A & C have a sharper coastal gradient, leading to inland drop-off of severe wind speeds. Model D has the highest frequency of modeled 170-mph wind gusts

Annual modeled frequency of any location in the TWIA counties experiencing an event with a 170-mph gust

Model A	Model B	Model C	Model D
1 in 52 years	1 in 134 years	1 in 61 years	1 in 20 years

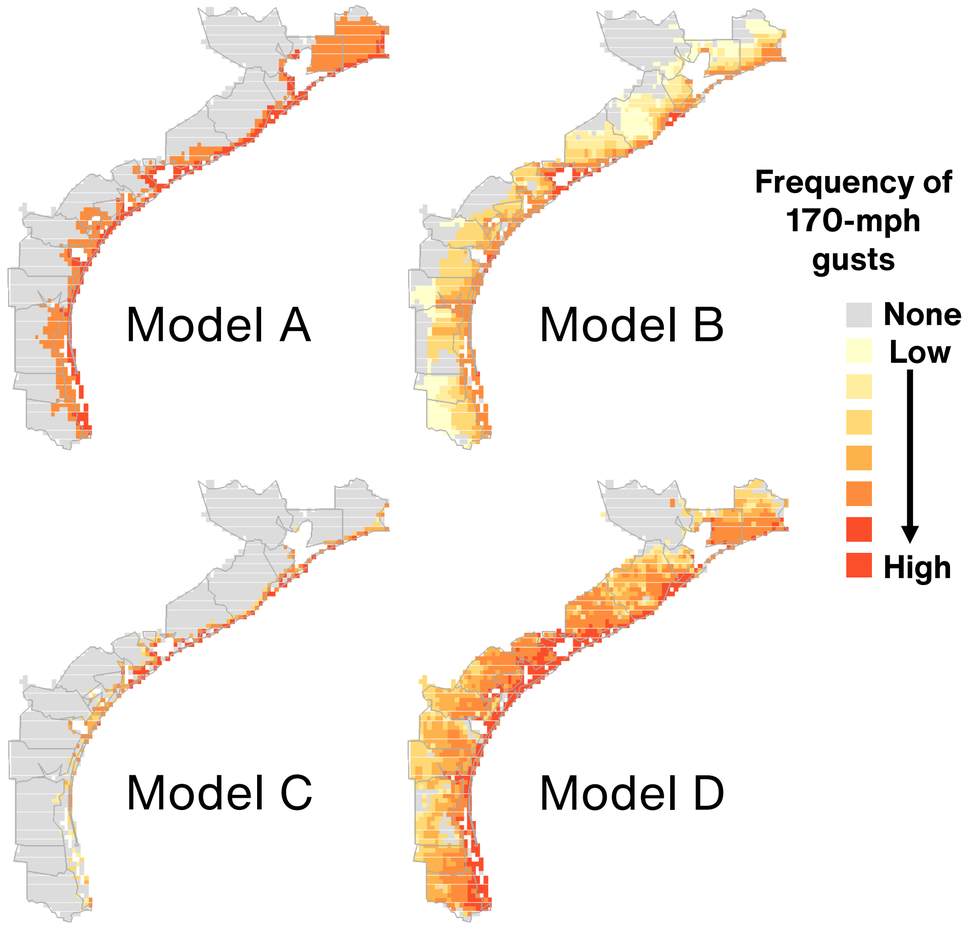
Modeled TWIA AAL from these events

Model A	Model B	Model C	Model D
31%	16%	18%	46%

- During 1900-2024, an estimated 2-3 hurricanes generated 170-mph wind gusts in Texas, corresponding to a historical return period of 42-63 years

Based on a 5 km grid and near-term rates. Model A 1-minute sustained wind speeds have been converted to 3-second peak gust using a factor of 1.22. Model C 2-second gusts have been converted to 3-second gusts using a factor of 0.98654

Frequency of Peak Gusts Over 170 mph



Geographical Correlation

Model A

Event Making Landfall in This County	Probability that Loss Will Occur in This County													
	Jefferson	Chambers	Harris	Galveston	Brazoria	Matagorda	Calhoun	Refugio	Aransas	San Patricio	Nueces	Kleberg	Kenedy	Willacy	Cameron
Jefferson	100%														
Chambers	99%	100%	69%	78%											
Galveston	70%	86%	93%	100%	62%										
Brazoria		70%	91%	96%	100%	77%									
Matagorda			58%	67%	71%	100%	78%								
Calhoun						83%	100%	68%	64%						
Aransas						55%	93%	96%	100%	78%	69%				
Nueces							75%	91%	98%	98%	100%				
Kleberg							56%	79%	86%	96%	99%	100%	79%	58%	
Willacy										55%	71%	75%	91%	100%	81%
Cameron													69%	96%	100%

Model B

Event Making Landfall in This County	Probability that Loss Will Occur in This County													
	Jefferson	Chambers	Harris	Galveston	Brazoria	Matagorda	Calhoun	Refugio	Aransas	San Patricio	Nueces	Kleberg	Kenedy	Willacy	Cameron
Jefferson	100%	81%	72%	74%											
Chambers	100%	100%	88%	100%	88%	88%	75%								
Galveston	76%	94%	97%	100%	84%	58%									
Brazoria	54%	77%	93%	99%	100%	90%	59%								
Matagorda			62%	70%	80%	100%	88%	63%	51%						
Calhoun					51%	88%	100%	96%	88%	79%	70%				
Aransas						69%	93%	100%	100%	97%	95%	71%			
Nueces						59%	82%	97%	98%	100%	100%	85%	66%	51%	
Kleberg							75%	86%	92%	97%	99%	100%	89%	66%	
Willacy										56%	66%	76%	98%	100%	91%
Cameron													73%	92%	100%

Key:	50% to 75%	75% to 99%	100%

Correlative probability of events extends beyond county borders

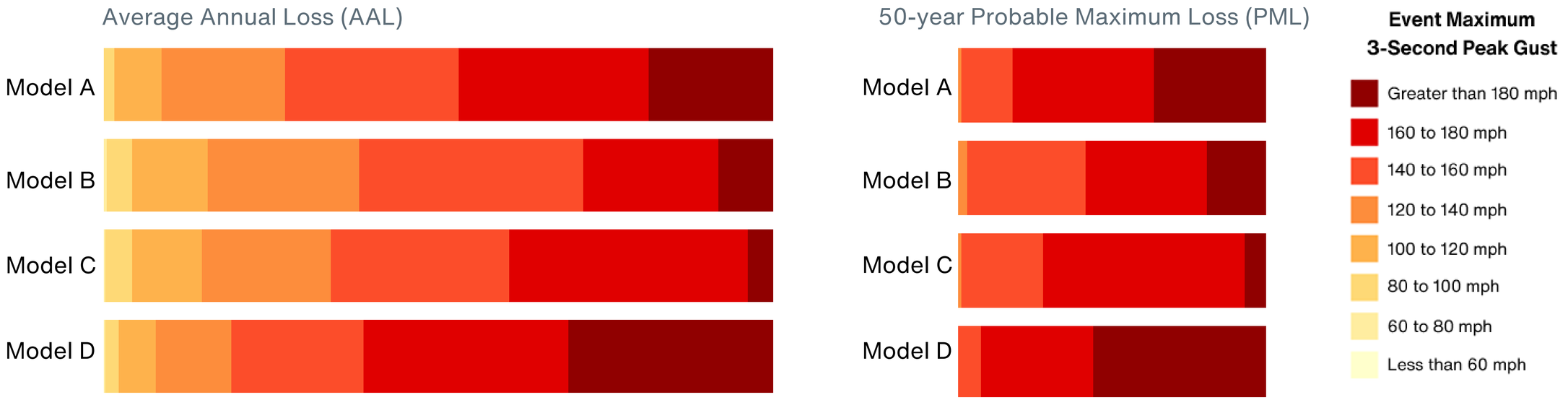
- Matrix highlights model vendor event overlap by county
- Correlation measured by % of events impacting multiple counties
  - Y axis represents event landfalling county
  - X axis represents the county impacted by that same event
- Highest correlation found in adjacent counties, with the trend typically decreasing with greater geographic separation
- Instances of correlation between northern and southern portions of the coast occur when event tracks generally follow coastline and have potential to impact all TWIA counties
- Harris, Refugio, San Patricio, Kenedy excluded as models assign landfall based on distinct coastal orientation

What Types of Events are Driving Losses in Each Model?

Maximum Peak Gust

Losses are more likely to be driven by events with very high (>160 mph) wind speeds in Models A and D

Dollar Contribution to AAL by Event Maximum Peak Gust



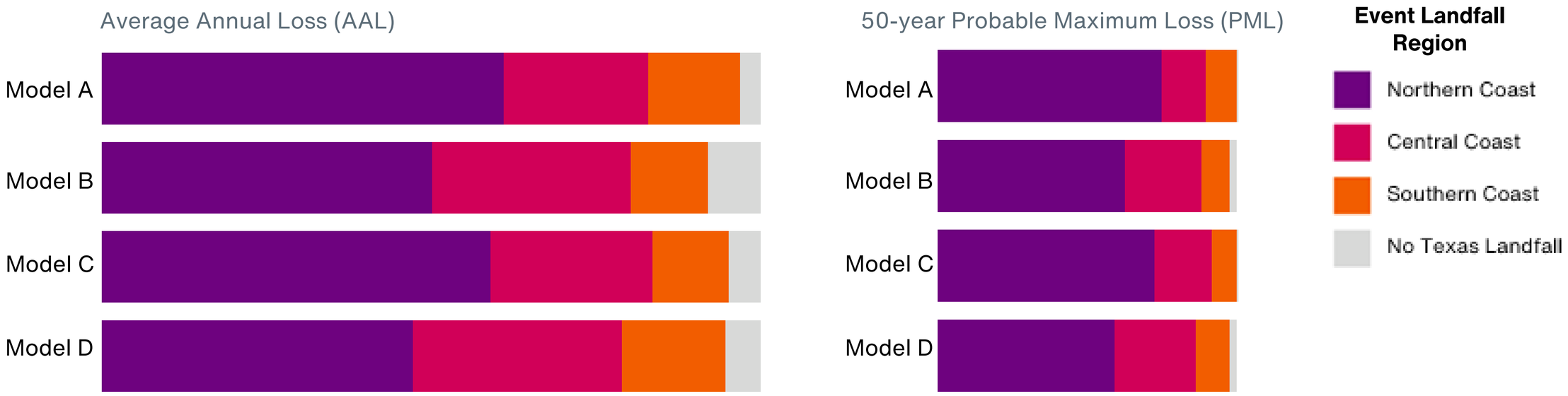
Based on TWIA exposure and near-term rates. Model A 1-minute sustained wind speeds have been converted to 3-second peak gust using a factor of 1.22. Model C 2-second gusts have been converted to 3-second gusts using a factor of 0.98654

What Types of Events are Driving Losses in Each Model?

Landfall Region

Losses are more likely to be driven by a landfall on the northern coast in Models A and C compared to Models B and D

Dollar Contribution to normalized AAL by event landfall region

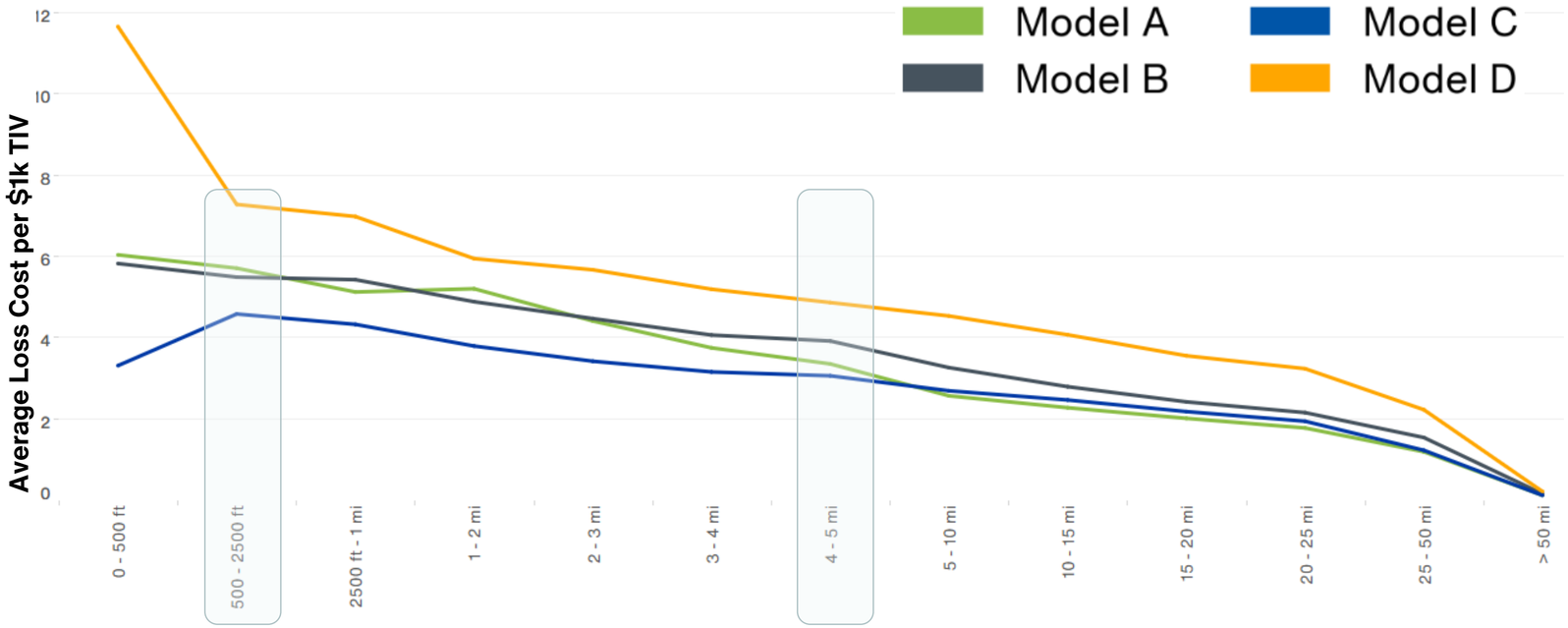


Based on TWIA exposure and near-term rates.

Hurricane Inland Loss Degradation by Model

Average Hurricane Loss Costs by Distance to Coast

Texas Single Family Residential



Loss costs are based on a single notional risk on a 5-km grid modeled as a **Single Family**, **Wood Frame**, **1 story** risk, built in **1985** with **2,000 sf** and $100K/$50K/$20K (A/C/D) coverage values. Losses include demand surge and exclude storm surge.

How does risk damageability change as a storm moves inland?

- After a hurricane makes landfall, its structure and strength is impacted by the elimination of its oceanic fuel source, changing atmospheric conditions, and topography
- Results in lower damageability for risks located further from the coast
- The change in loss cost with distance (or slope) is comparable between vendors, though actual loss costs vary
- Loss costs decrease significantly in the first five miles of the coast
  - A risk that is 500 to 2,500 feet from the coast has **30% to 40% higher loss costs** than a risk that is 4 to 5 miles from the coast

Texas Building Codes

How is TWIA different than the rest of the state?

Texas Building Code Adoption and Enforcement

- **Home rule state:** Does not require mandatory statewide code adoption
- **Incorporated cities:** All have adopted a building code; large percentage adopted 2012+ version of IRC
- **Unincorporated jurisdictions:** Many have no adopted code
- **2017 state law:** Requires builders in unincorporated areas of certain counties to provide an inspection report showing construction complies with the current code

Texas Windstorm Insurance Association (TWIA) exception

- Enhanced building code and inspection requirements
- Mitigates some deficiencies in unincorporated coastal areas

IBHS Rating Criteria

- Building Code Adoption (50%)
- Certification and Education of Building Officials (25%)
- Licensing of Contractors (25%)

IBHS Rating the States for TX: Low Score and Flat Between 2021 and 2024

Rank:	2021:	**#15**	out of #18	**Score:**	2021: **34** out of 100
	2024:	**#16**	out of #18		2024: **33** out of 100

Year Built by Model Vendor

Year Built Bands by Model Vendor for the State of Texas

Model C has multiple year built bands before 1995

All models use year built bands to differentiate key points in time when building code adoption and enforcement was impacted

Bands vary by model vendor and do not always align well with TWIA, which has more stringent building code adoption and enforcement requirements than the rest of the state

What Does this Mean for TWIA?

- Out-of-the-box view may not reflect the more stringent construction and inspection processes for risks insured by TWIA
- TWIA could consider a custom view of risk that better reflects the higher standard required by TWIA relative to the rest of the state
- This could be achieved through:
  - Different secondary modifier assumptions
  - Loss factor adjustments
  - Custom vulnerability curves
- Potential data modification or adjustments could be validated against detailed claims data

Texas Residential Hurricane Vulnerability by Year Built

TWIA Hurricane AAL by Year Built Band				
Year Built	**Model A**	**Model B**	**Model C**	**Model D**
Pre-1995	**69%**	**65%**	**65%**	**65%**
1995-2001	**9%**	**8%**	**9%**	**10%**
2002-2008	**9%**	**10%**	**11%**	**11%**
Post-2008	**13%**	**17%**	**16%**	**14%**

Based on near-term rates.

Includes demand surge. Excludes storm surge.

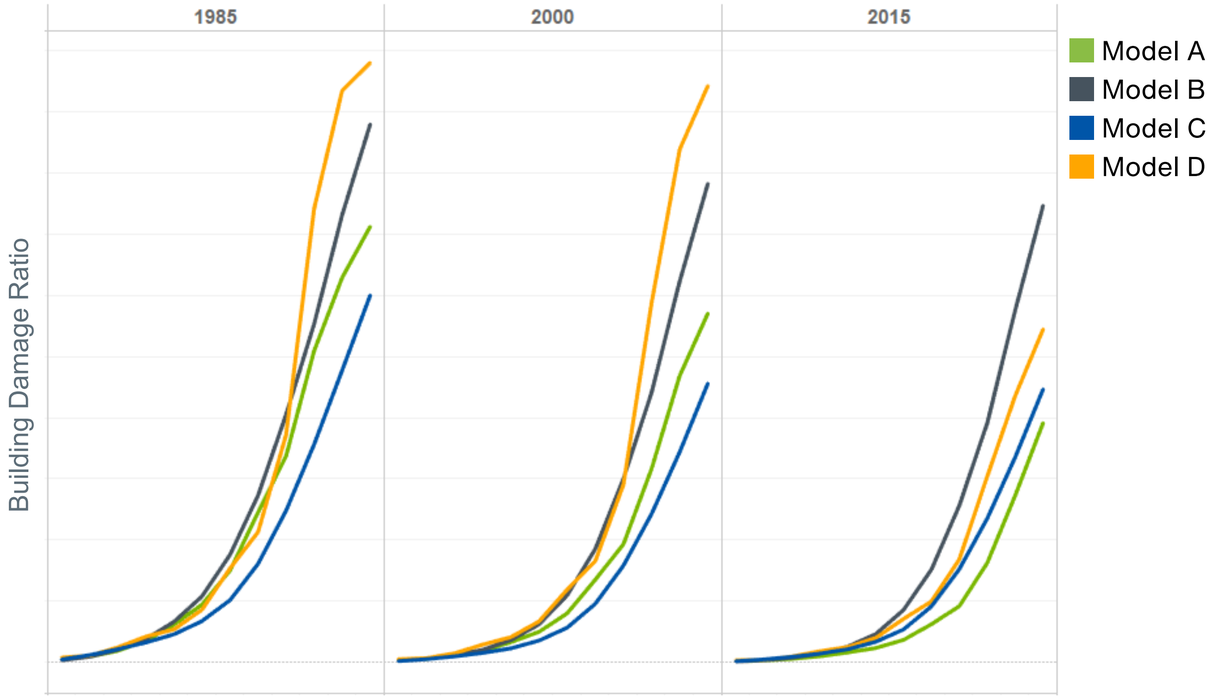
Vulnerability for Models A, B, and D are comparable for older risks, but Model B has the highest vulnerability for newer risks

Model C has the lowest vulnerability, except for newer risks, for which Model A is lowest

TWIA Exposure by Year Built for Single Family Risks

Single Family Wood Frame Building Vulnerability by Year Built

Galveston, 1 story, 2000 square feet



Appendix B
Catastrophe Modeling Overview

Why Do Catastrophe Models Exist?

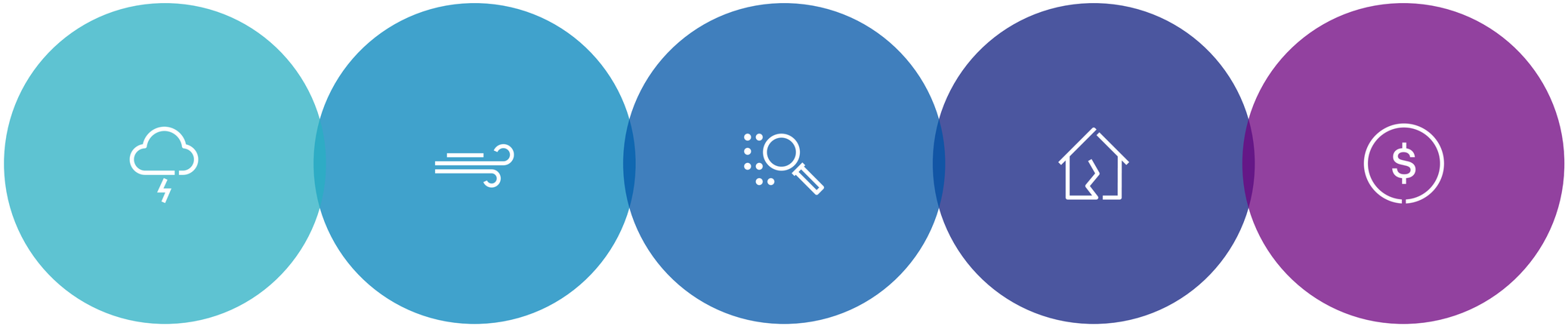
Catastrophe modeling is the process of using computer-assisted calculations to **estimate losses** that could be sustained due to catastrophic events such as hurricanes, earthquakes, floods, wildfires, and other natural or man-made disasters

- Lack of historical event information to accurately predict future losses
- Increasing development in disaster-prone areas

Photo from Texas Tribune post-disaster Rockport, TX for Hurricane Harvey (2017)

Catastrophic events have caused billions of dollars in insured losses, and catastrophe models are one tool that (re)insurers use to understand, quantify, and manage the risks associated with such events.

Catastrophe Modeling Framework



Generate Stochastic Events

- Where are future events likely to occur?
- How large or severe are they likely to be?
- How frequently are they likely to occur?

Assess Hazard

- How severe could the event be at a particular location?
- What event parameters affect the local intensity?

Apply Exposure

- How much exposure is there?
- Where is the exposure located?
- What are the physical attributes of the exposure?

Calculate Damage

- What is the relationship between the hazard and exposure?
- How much damage could there be?

Quantify Loss

- What is the monetary loss associated with the damage?
- Who is responsible for paying the loss?

Key Vulnerability Inputs Example: Hurricane

Occupancy

Why It Matters:

- Can provide some indication of external features like roof shape, extent of glazing, appurtenant features, etc.
- Contents for some occupancy classes are more vulnerable to water damage

How Important Is It?

Construction

Why It Matters:

- Most important at high wind speeds
- Roof/wall connection is particularly vulnerable
- Wood (most vulnerable) Masonry (less vulnerable) Steel and Concrete (best performing vulnerability)

How Important Is It?

Number of Stories

Why It Matters:

- Wind loads increase with story height
- Taller structures can result in more interior damage due to the “trickle down” effect
- Taller structures are better engineered

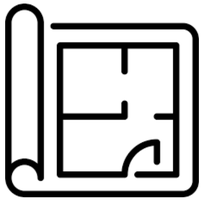
How Important Is It?

Year Built

Why It Matters:

- Year built bands capture changes to design wind speed maps in building codes
- Critically important to inform models of likely secondary modifiers when unknown

How Important Is It?



Floor Area

Why It Matters:

- Highest wind pressures occur on roof edge and corners
  - These areas represent a smaller part of the total roof as floor area is increased
- Impact varies by model vendor and type of risk

How Important Is It?

Understanding the Components of an EP Summary

Glossary of EP Summary Terms

Data In Force as of 11/30/2024 (no exposure growth contemplated)

Verisk v13 - All Perils (Long-Term/Standard)			
Exceedence Probability	Return Period	OEP	AEP
0.40%	250 yr	10,750.5	11,348.6
0.50%	200 yr	10,128.6	10,602.7
1.00%	100 yr	6,896.7	7,209.5
2.00%	**50 yr**	**3,942.5**	**4,288.3**
4.00%	25 yr	2,063.5	2,260.3
5.00%	20 yr	1,648.2	1,847.6
	Annual avg	**429.6**	**429.6**
	Std dev	**1,501.9**	**1,501.9**

Verisk v13 - All Perils (Long-Term/Standard)			
Exceedence Probability	Return Period	OEP - TVaR	AEP - TVaR
0.40%	250 yr	16,607.8	17,227.0
0.50%	200 yr	15,377.0	15,977.0
1.00%	100 yr	11,874.5	12,397.6
2.00%	**50 yr**	**8,488.7**	**8,959.9**
4.00%	25 yr	5,623.5	6,011.8
5.00%	20 yr	4,868.4	5,223.7
	Annual avg	**429.6**	**429.6**
	Std dev	**1,501.9**	**1,501.9**

1

Occurrence Exceedance Probability (OEP) versus Aggregate Exceedance Probability (AEP)

OEP is the probability that the single largest event loss in a year will exceed a loss threshold, while AEP is the probability aggregate event losses will exceed the threshold.

2

Probable Maximum Loss (PML): An estimate of the likelihood that a catastrophic loss will be met or exceeded.

The 50 yr return period is $3,942.5M. There is a 2% probability of having a loss of $3,942.5M or greater in a given year.

3

Average Annual Loss (AAL): A measure of overall catastrophe risk, a function of both severity and frequency of losses.

On average, you can expect to incur $429.6M of catastrophe loss in a given year.

4

Standard Deviation (Std Dev): A measure of uncertainty around the AAL.

5

Tail Value at Risk (TVaR): The expected financial loss based on the assumption that a specified return period loss threshold has been met.

There is a 2% probability of having a loss of $3,942.5M or greater. Given that the loss occurs, the average severity is $8,488.7M.

Appendix B
Disclaimers

Limitations Regarding Use of Catastrophe Models

This report includes information that is output from catastrophe models of AIR Worldwide Corporation (Verisk), CoreLogic (Cotality), Impact Forecasting, LLC (IF), and Risk Management Solutions, Inc. (RMS). The information from the models is provided by Aon Re, Inc. (Aon) under the terms of its license agreements with Verisk, CoreLogic, IF, and RMS.

The results in this report from Verisk, CoreLogic, IF, and RMS are the products of the exposures modeled, the financial assumptions made concerning insurance terms such as deductibles and limits, and the risk models that project the dollars of damage that may be caused by defined catastrophe perils. Aon recommends that the results from these models in this report not be relied upon in isolation when making decisions that may affect the underwriting appetite, rate adequacy or solvency of the company.

The Verisk, CoreLogic, IF, and RMS models are based on scientific data, mathematical and empirical models, and the experience of engineering, geological, meteorological and terrorism experts. Calibration of the models using actual loss experience is based on very sparse data, and material inaccuracies in these models are possible. The loss probabilities generated by the models are not predictive of future hurricanes, other windstorms, or earthquakes or other natural or man-made catastrophes, but provide estimates of the magnitude of losses that may occur in the event of such catastrophes.

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Additional Limitations of RMS

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