TEXAS WINDSTORM INSURANCE ASSOCIATION

Texas Windstorm Insurance Association Commercial Property Rate Level Review

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Contents

INTRODUCTION

The Texas Windstorm Insurance Association (TWIA) has completed studies sufficient to support rate level indications for its commercial coverages. This report documents the procedures, methods, assumptions, data and results of this analysis.

DISTRIBUTION AND USE

This report was prepared for internal use by the management of TWIA and for the Board of Directors of TWIA. A complete copy of the report may be submitted to the Texas Department of Insurance (TDI or Department) for use in the approval of a rate change. Use of this report for other than the stated purpose may not be proper and must be preceded by written authorization.

RELIANCE UPON DATA

The following data and information used in this analysis were prepared by TWIA and are the responsibility of TWIA's management:

- TWIA losses and loss adjustment expenses
- TWIA written and earned premiums
- History of rate changes impacting TWIA commercial premium
- TWIA's statutory annual statements and insurance expense exhibits

At the time of this analysis, some of the data was unaudited. The data was reviewed for reasonableness and consistency, and the TWIA written premium and paid loss data provided for this analysis were reconciled to TWIA's annual statements.

In addition to TWIA's own data, insurance industry premium and loss data supplied by the TDI were utilized.

The results of four different hurricane simulation models are also included in the analysis. These four models were developed by Verisk Analytics (AIR), Risk Management Solutions (RMS), Impact Forecasting (IF) and Cotality RQE (RQE). All models utilized TWIA exposure data as of 11/30/2025. TWIA has not directly verified the accuracy of these simulation models, but has relied on documentation provided directly by the modeling firms and submission documentation provided to the Florida Commission on Hurricane Loss Projection Methodology to comply with Actuarial Standard of Practice #38, "Catastrophe Modeling (for All Practice Areas)".

LIMITATIONS

The indicated rate level change as shown in this report represents a reasonable estimate of the rate level necessary to cover TWIA's expected costs of providing commercial wind/hail coverage. The actual costs of providing commercial property coverage for a specific year may differ substantially from the indicated rate level range shown in this report. The possibility of this variability arises from the fact that the events covered by TWIA are inherently unpredictable from year to year. The indicated rate level is, however, the best estimate of the expected average annual cost of providing commercial wind/hail coverage.

This actuarial report provides professional insights and guidance to TWIA regarding TWIA's current rate levels; however, the final decision regarding implementation and actual rate level change is a Board decision subject to the approval requirements of the TDI.

The attached exhibits should be considered an integral part of this report.

EXECUTIVE SUMMARY

This section provides a brief summary of the key findings contained in the study:

1. The indicated total rate level change was estimated using a combination of two different methodologies for projecting the expected average annual hurricane loss portion of the indicated rate level. The indicated total rate level changes are shown in Exhibit 1 and the following table:

Hurricane Projection Methodology	Indicated Rate Change
Actual Experience and Models Combined	-4.0%
Actual Industry Experience	-8.0%
Hurricane Simulation Models (Verisk, RMS, IF, RQE)	-1.0%

   The indicated rate change shown is based on a combination of actual industry experience and hurricane simulation models. All methodologies rely on a long-term view of event frequency to develop the hurricane portion of the indicated rate level.

   The hurricane simulation models are widely used for catastrophe risk management and insurance ratemaking by the insurance industry. Versions of these simulation models have undergone verification and been approved by the Florida Commission on Hurricane Loss Projection Methodology.

2. The current rate indication is 9% lower than the corresponding indication from the prior TWIA commercial rate study. Details on the key differences between the current and prior rate indications are described in the Analysis section of this report.

3. The indicated rate changes presented in this report reflect a separate provision for contributions to funding and uncertainties in pricing hurricanes. The total funding and contingency provision is assumed to be equal to 5% of TWIA premium.

   The provision for reinsurance expense is 18.5% of TWIA premium, and it reflects the estimated net cost of purchasing catastrophe reinsurance (reinsurance premiums paid net of the expected reduction in TWIA retained losses). Catastrophe reinsurance provides TWIA with annually renewable protection against large storm losses.

ACTUARIAL ANALYSIS

Overview of Analysis

The goal of the rate level adequacy review is to compare the current rate level to TWIA's expected costs for providing commercial property insurance coverage. This comparison is achieved by estimating the projected loss, loss adjustment expense (LAE), and fixed expense ratio for a prospective accident year and then comparing this ratio to the "permissible" loss, LAE, and fixed expense ratio. The permissible ratio is the portion of premium remaining to pay loss, LAE, and fixed expenses after payment of TWIA variable expenses. If the projected ratio is higher than the permissible ratio, then a rate increase is indicated. If the projected ratio is lower than the permissible, then a rate decrease is indicated.

The steps employed to estimate the projected loss, LAE, and fixed expense ratio are as follows:

1. Adjust historical premium to the current rate level (to facilitate calculation of historical loss ratios at current rates).
2. Determine LAE factors to add projected LAE to projected loss.
3. Estimate the projected non-hurricane loss and LAE ratio.
4. Estimate the projected hurricane loss and LAE ratio.
5. Estimate the projected fixed expense ratio.
6. Sum the projected non-hurricane and hurricane loss ratios and the projected fixed expense ratio to obtain the projected total loss, LAE, and fixed expense ratio.

The steps employed to determine the permissible loss and LAE ratio are as follows:

(a) Analyze historical variable expense to premium ratios to estimate the projected total variable expense ratio.
(b) Subtract the projected total variable expense ratio from 1.00 to derive the permissible loss, LAE and fixed expense ratio.

Steps 1-6 and (a)-(b) are described in more detail in the remainder of this report.

Earned Premium at Current Rates

Historical TWIA written premium is adjusted to the current rate level and adjusted to an earned basis based on a uniform monthly earning assumption. Earned premium at current rates for prior years permits the calculation of historical loss ratios at the current rate level. Exhibit 9 shows the calculation of earned premium at current rates.

Loss Adjustment Expense Factors

In Exhibit 4, the historical ratio of LAE to loss is analyzed to develop LAE factors. Separate LAE factors are developed for hurricane and non-hurricane losses. The hurricane LAE factors are developed based on the LAE to loss ratio for years with hurricanes. The non-hurricane LAE factors are developed based on the ratio for the

last 10 years without hurricanes. TWIA statutory annual statement incurred loss and LAE data is utilized to derive these ratios.

For hurricane losses, the indicated LAE ratio of 0.169 is equal to the weighted average of the 13 hurricane years included in the analysis. For non-hurricane losses, the indicated ratio of 0.295 is equal to the weighted average of the most recent 10 non-hurricane years included in the analysis.

The development of these LAE factors is necessary to add LAE to the projected hurricane and non-hurricane loss ratios. The development of loss ratios is described in the following sections.

Projected Non-Hurricane Loss and LAE Ratio

Exhibit 2 shows the development of the projected non-hurricane loss and LAE ratio. The loss portion of this ratio is estimated by comparing the indicated ultimate non-hurricane loss for accident years 2016 - 2025 to the earned premium at current rates for the same years. The indicated ultimate non-hurricane loss for each year is based on actual paid loss as of 12/31/2025 and the implied paid loss development factors derived from TWIA statutory annual statement. LAE is then added to each year's ultimate loss through the non-hurricane LAE factor developed in Exhibit 4.

Implied paid loss development factors are derived from TWIA statutory annual statement loss and LAE data.

Each year's estimated ultimate loss and LAE is compared to the earned premium at present rates.

The resulting loss and LAE ratios are then trended forward based on the expected prospective inflation level. The net trend factor is equal to a loss trend offset by a premium trend. The loss trend is calculated using industry-wide construction cost and consumer price indices. The premium trend is derived from historical changes in average written premium at present rates. Both premiums and losses are trended to current levels by applying the actual historical changes in the appropriate data. Future premium and loss trends are selected based on all available and relevant data. The selected trends are estimates of the future trend between the current and prospective earned and accident dates, and they are not used to trend historical experience to current premium and loss levels.

The indicated loss and LAE ratio is the premium-weighted average loss ratio from the 2016 - 2025 accident period. Given the great variability among individual accident years, a premium weighted average across the most recent 10 years has been selected to achieve both high stability and credibility.

Projected Hurricane Loss and LAE Ratio

Two different methods are used to develop the projected hurricane loss and LAE ratios. The first method is based on insurance industry experience from the recent 56 years and meteorological hurricane experience from the recent 175 years. The other

method is based on hurricane simulation models. The "56/175-year" method is utilized because the Texas Insurance Code requires the consideration of a 30-year minimum experience period. The simulation method is utilized because it minimizes many of the weaknesses of the traditional method. These weaknesses include:

- A 56-year period is insufficient to measure long-term hurricane frequency.
- A 56-year period of insurance industry experience includes years where land use, population densities, construction techniques and materials, engineering techniques and building codes were different than today. These differences diminish the relevance of insurance data from several decades ago in evaluating today's commercial property rates.

The different methods were used because the actuarial methods used to project hurricane losses in rate indications are still evolving. Traditionally, actuarial methods had been based on insurance industry hurricane loss experience. This traditional method is well recognized as having its limits. For instance, historical results are not representative of future events in many areas, given that exposures change over time (i.e. property values, population movement, building codes and construction techniques, topography, etc.). Furthermore, on-leveling historical hurricane losses and premiums is very challenging due to lack of historical data. In recent decades after Hurricane Andrew, actuarial methods have incorporated the results of hurricane simulation models to minimize the weaknesses of the traditional approaches.

The method relying on actual industry hurricane experience is more of a traditional approach. Specifically, hurricane severity is calculated from 56 years of actual insurance industry premium and loss data, and hurricane frequency is based on 175 years of actual hurricane experience along Texas coastal lines. Severe hurricanes are relatively infrequent, so the limited number of years of actual industry experience may not be representative of the scope of potential hurricane occurrences. Also, the distribution of insured properties has changed dramatically over time with the increased population and building values along the Gulf Coast. The alternative method incorporates the results of hurricane simulation models and has the advantage of minimizing many of the theoretical weaknesses of traditional actuarial methodologies. The overall indication assigns equal weight to both the traditional hurricane projection methodology and the simulation model-based hurricane projection methodology.

For each of the two methods mentioned above, the projected hurricane loss ratio is estimated first. LAE is added to loss ratio using the hurricane LAE factor developed in Exhibit 4. Development of the projected hurricane loss ratio for the two methods is described as follows:

Actual 56/175-Year Industry Hurricane Experience

In Exhibit 6, the reported Texas insurance industry seacoast dwelling extended coverage premium and loss experience for the period 1970 through 2025 is used in the development of a projected hurricane loss ratio. Insurance industry loss ratios at

current rates are calculated using information provided by the TDI. For the years where sufficient detail is available (1983 - 2025), these loss ratios are adjusted to TWIA's rate level.

A projected hurricane loss ratio is developed from these 56 years of loss ratios by separating the 56 years into the 15 hurricane years and 41 non-hurricane years. The 41 non-hurricane years are used to develop an estimated non-hurricane loss ratio.

Hurricane loss ratios are then estimated by subtracting the non-hurricane loss ratio from the total loss ratio in each of the 15 hurricane years. An average per-hurricane loss ratio for hurricane years is calculated as the average of the 15-hurricane-year loss ratios.

The 56-year period that underlies the selected hurricane loss ratio has experienced significantly fewer hurricanes than the long-term average. The 56-year period represents all years for which TWIA has been provided industry data by TDI. Because the expected frequency of hurricanes is unrelated to the availability of insurance industry data, there is no reason to use only the most recent 56-year period to estimate the expected frequency of hurricane activity. Given the relatively infrequent occurrence of hurricanes, the largest possible experience period should be considered for hurricane frequency in order to obtain the most credible result. The selected hurricane frequency is therefore set equal to the 175-year historical hurricane frequency. As shown in Exhibit 6, Sheet 1, multiplying the selected loss ratio for hurricane years by the selected hurricane frequency yields a projected hurricane loss ratio of 37.8%.

Hurricane Simulation Models

The projected hurricane loss ratio is determined by averaging four different hurricane simulation models. The model versions utilized are Verisk Touchstone v13.0, RMS RiskLink v25.0, IF v18.0, and RQE v25.0. All four models were run using exposure data provided by TWIA as of 11/30/2025. This exposure data included location-level detail, physical characteristics of each risk, and all relevant coverages. All models were run using historical (long-term) event rates and both results include loss amplification (demand surge) and exclude storm surge and loss adjustment expenses. The Verisk and RMS models generated 4,749 and 9,774 unique events, respectively, with the following distribution of intensity ratings:

Saffir-Simpson Category	Verisk	RMS
Category 0	12.7%	45.7%
Category 1	36.3%	17.5%
Category 2	22.9%	12.4%
Category 3	19.0%	13.5%
Category 4	8.3%	10.5%

Category 5	0.8%	0.5%

Events shown as Category 0 include events with no U.S. landfall, Category 0 events making landfall or bypass in TX, and events making landfall or bypass in neighboring states or Mexico.

As shown in Exhibit 7, these models yield projected hurricane loss ratios of 57.5% for Verisk, 52.5% for RMS, 26.9% for IF and 34.0% for RQE. The average of these loss ratios is 42.7%.

Fixed Expenses and Variable Permissible Loss and LAE Ratio

Exhibit 10 shows the expense assumptions used to develop the projected fixed expense ratio and the variable permissible loss and LAE ratio. Fixed expenses include general expenses, Class 1 public security interest and principal repayment and the net cost of reinsurance (after modeled recoveries). Class 1 public security principals and interests were paid off on May 9, 2022 and the Class 1 public security repayment provision had been reduced to 0%. The sum of these projected expenses provides for a 23.9% fixed expense ratio. Variable expenses include commission, taxes, and CRTF Contribution & UW Contingency & Uncertainty. Subtracting these expenses from 100% yields a permissible loss and LAE ratio of 79.0%.

The 18.5% provision for reinsurance expense reflects the estimated net cost of purchasing reinsurance (reinsurance premiums net of the expected reduction in TWIA retained losses and expenses). TWIA's purchasing of reinsurance provides additional current year protection to TWIA, coastal policyholders and TWIA insurance members. Furthermore, TWIA's purchasing of reinsurance helps TWIA fulfill its statutory funding obligations.

Indicated Rate Change

Exhibit 1 summarizes the indicated rate change using a combination of the four hurricane loss ratio projection methods. The individual indications resulting from the use of each methodology are also shown for reference. The indicated rate change for each method is calculated by dividing the total projected loss, LAE, and fixed expense ratio by the variable permissible loss and LAE ratio. This method of calculating the indicated rate change assumes that TWIA's variable expenses vary proportionally with premium while the fixed expenses do not.

Data Reconciliation

Exhibit 11, Sheets 1 and 2 show a reconciliation of the TWIA premium and loss data used in this report (ratemaking data) to TWIA's annual statements. Sheet 1 reconciles paid loss data by accident year; Sheet 2 reconciles written premium data by calendar year.

Differences between the ratemaking paid loss data and the annual statement data for all accident years were reviewed, considered explainable and therefore deemed insignificant.

The written premium reconciliation shows the differences between the ratemaking written premium data and the annual statement data for calendar years 1994 - 2025. Differences of less than 1% exist for all recent years except 2010.

Key Differences Versus Prior Indications

The indicated rate change shown in this report is 9% lower than the comparable indication based on the prior (July 2025) study. The reasons for lower indications are summarized in the following table.

Rate Indication/Reason for Change	Impact of Change	Rate Indication
Previous Rate Indication (Combined Method)		**+5.0%**
Change in non-hurricane loss ratio	-0.5%	
Change in hurricane loss ratio	-0.3%	
Other changes	+0.5%	
Change in reinsurance expense ratio	-8.7%	
Current Rate Indication (Combined Method)		**-4.0%**

By its statutory design, as a residual market insurer, TWIA is unavoidably subject to adverse selections. The cumulative impact of the adverse selection is expected to be fully reflected in TWIA modeled hurricane loss ratios, but not in industry experience-based loss ratios.

SUMMARY OF EXHIBITS

Exhibit Number	Exhibit Title or Purpose
1	Summary of Indicated Rate Change
2	Projected Ultimate Non-Hurricane Loss & LAE Ratio
3	Premium and Loss Trend Analysis
4	Development of LAE Factor
5	Summary of Indicated Hurricane Loss & LAE Ratios
6	Development of Hurricane Loss Ratio – 56/175 Year Method
7	Hurricane Loss Ratio – All Models
8	Texas Hurricanes 1851 - 2025
9	Earned Premium at Present Rates
10	Fixed Expenses and Variable Permissible Loss & LAE Ratios
11	Reconciliation of Paid Loss and Premium Data to Annual Statement