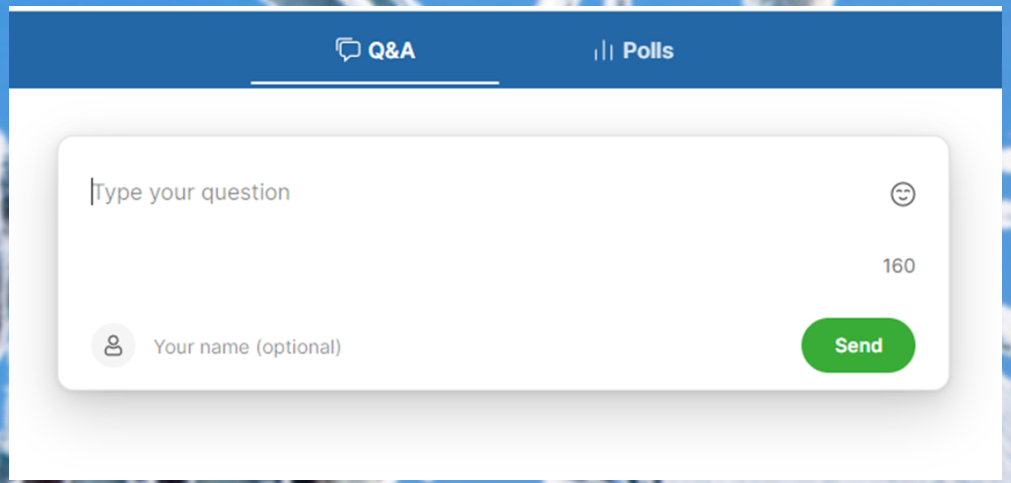
# Texas RE
# Winter Weatherization Workshop

October 1, 2025

## AGENDA

- Kick-off and Instructions
- Executive Welcome
- Standards Update
- Compliance Approaches & Findings Panel
- Cold Weather Implementation
- Gas-Electric Coordination Panel
- 2025-26 Winter Weather Forecast and Historical Extremes Review

To submit questions during the workshop, please visit **slido.com** and enter today's participant code: **TXRE**



# Welcome & Instructions

**Matthew Barbour**
Texas RE
Communications & Training Manager

# Antitrust Admonition

**Because this event brings together market participants who may be viewed as actual or potential competitors, we must be mindful to conduct it in a manner that is consistent with the antitrust and competition laws. Participants should not disclose non-public, proprietary, or competitively sensitive information.**

**Attendees should exercise independent judgment and avoid even the appearance of discussions of agreements or concerted actions that may be viewed as restraining competition. Any questions on Texas RE's Antitrust Compliance Corporate Policy may be directed to Texas RE's General Counsel.**

# Questions

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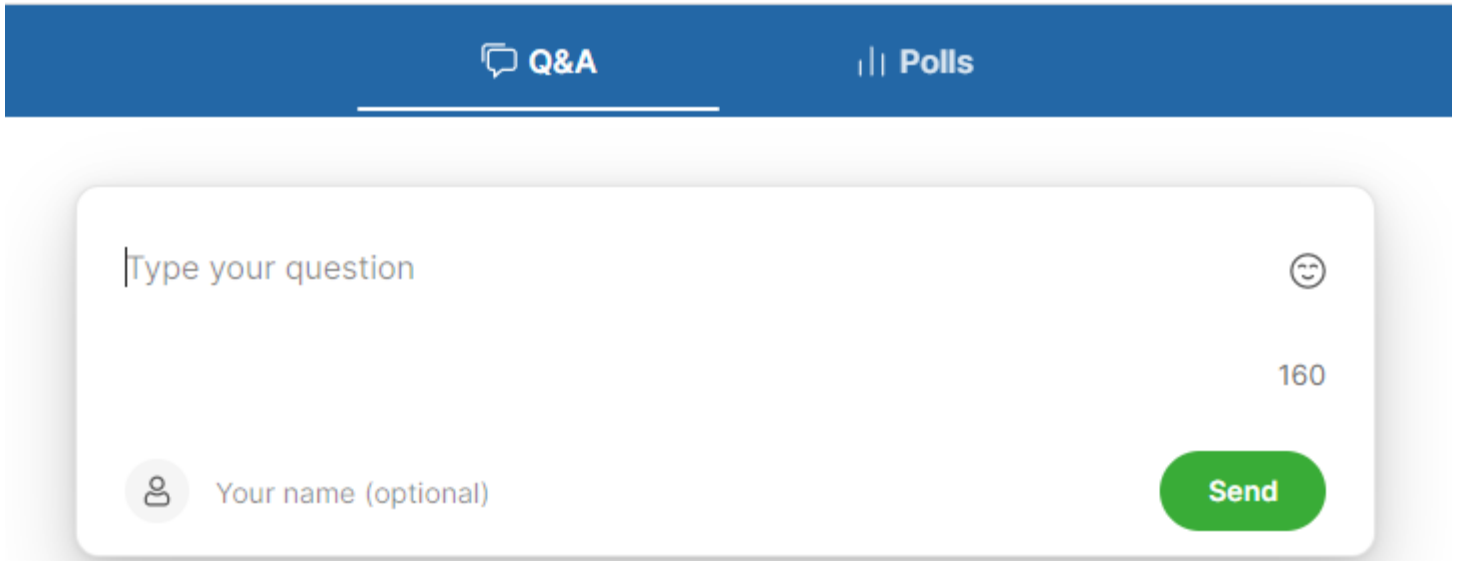
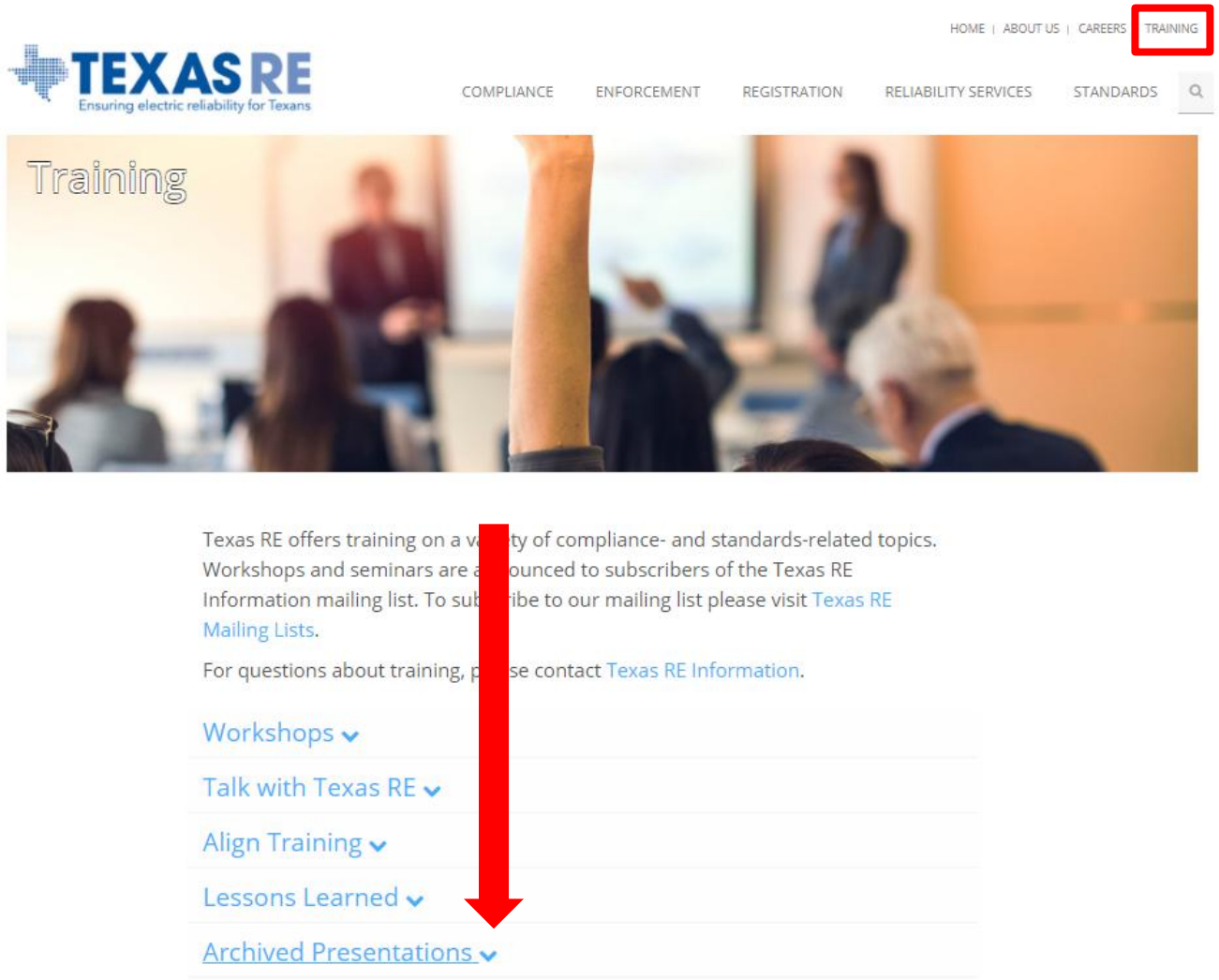


# Training Page




## Workshops

Women's Leadership in Grid Reliability and Security Conference | Recording

Understanding New Generator Obligations | Recording

### Fall Standards, Security, and Reliability Workshop

2024 Fall Standards, Security, and Reliability Workshop | Recording

### Spring Standards, Security, and Reliability Workshop

2025 Spring Standards, Security, and Reliability Workshop | Recording

### Cyber and Physical Security Workshop

2024 Cyber and Physical Security Workshop | Keynote | Panels: Critical Infrastructure, Threat Assessment, Grid Technologies, Security Posture

### Evolving Grid Workshop

2025 Evolving Grid Workshop | Keynote: Jim Robb | Keynote: Michael Webber
Panels: Large Loads, Integrating Emerging Technologies, Expanding Security Challenges, Transmission Planning

### Winter Weatherization Workshop

Winter Weatherization Workshop

### Reliability 101 & 201

# Upcoming Texas RE Events


**October 14, 2025**

IBR Registration and Applicable Standards


**October 20, 2025**

PUCT Cybersecurity Program


**November 5, 2025**

Fall Standards, Security, & Reliability Workshop

# Social Media

/texas-reliability-entity-inc

@Texas_RE_Inc

/TexasReliabilityEntity

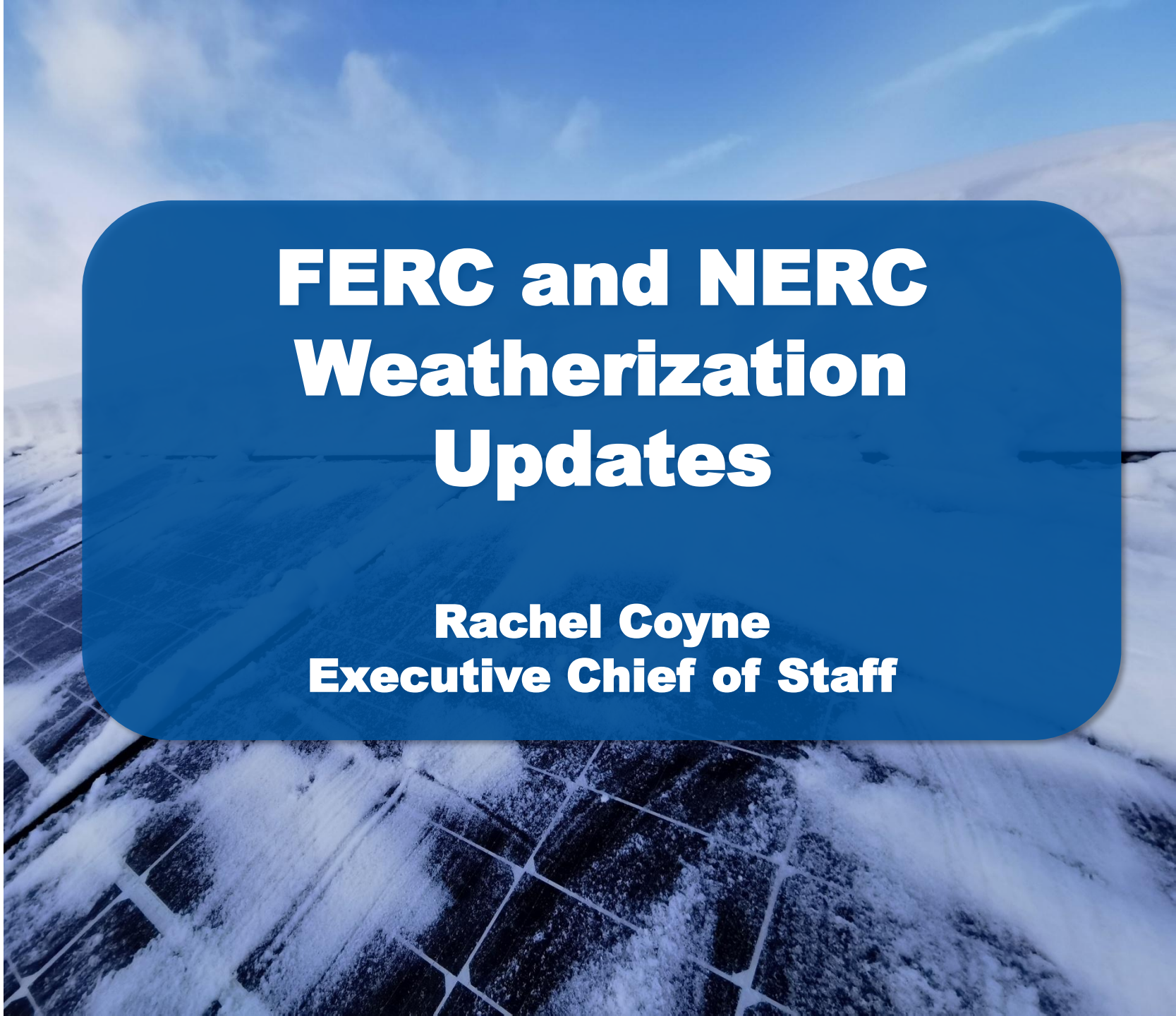
# Executive Welcome

**Joseph Younger**
Texas RE
Vice President & Chief Operating Officer

TEXAS RE

# FERC and NERC Weatherization Updates

Rachel Coyne
Executive Chief of Staff



# Agenda

- History and Timeline
- EOP-011-4 and Implementation Dates
- EOP-012-2 and Implementation Dates
- EOP-012-3 and Implementation Dates
- Transmission System Planning Performance Requirements for Extreme Weather

# Events

## 2011 Southwest Cold Weather Event

- Generators were not winterized
- 2012—NERC submitted SAR to create mandatory winterization standard
- Operating Committee created a Reliability Guideline: Generating Unit Readiness
- Standards Committee rejected the SAR

## 2014 Polar Vortex

- Unplanned generation outages and derates

## 2018 South Central U.S. Cold Weather Event

- Failure to properly prepare or winterize the generation facilities for cold temperatures

## 2021 Winter Storm Uri

- Failure to properly prepare or winterize the generation facilities for cold temperatures

## 2022 Winter Storm Elliott

- Largest controlled firm shed in the Eastern Interconnection

## 2024 Winter Storm Heather

- Challenges highlighted need to implement recommendations from Uri and Elliott

# Timeline

Time

- **February 2021:** Winter Storm Uri
- **August 24, 2021:** Order approving EOP-011-2, IRO-010-4, and TOP-003-5
- **November 2021:** Joint Inquiry on February 2021 Cold Weather Outages in Texas and South Central U.S.
- **February 16, 2023**: Order Approving EOP-011-3 and EOP-012-1
- **June 27, 2024:** Order Approving EOP-011-4 and EOP-012-2
- **October 1, 2024:** Effective Date EOP-011-4 and EOP-012-2
- **September 18, 2025:** FERC Order Approving EOP-012-3
- **October 1, 2025:** Effective Date of EOP-012-3

# June 27, 2024, FERC Order

## Approved EOP-012-2 and definitions, EOP-011-4 implementation plan

## Five directives

- Revise definition of Generator Cold Weather Constraint and clarify requirements for declared constraints
- Periodic review of Generator Cold Weather Constraint declarations
- Revisions to Corrective Action Plan (CAP) implementation timelines
- NERC to receive and review validity of Generator Cold Weather Constraints
- Extensions of Corrective Action Plans are pre-approved and operating limitations communicated

# NERC Reliability Standard EOP-011-4

**Title:** Emergency Operations

**Purpose:** To address the effects of operating Emergencies by ensuring each Transmission Operator and Balancing Authority has developed plan(s) to mitigate operating Emergencies and that those plans are implemented and coordinated within the Reliability Coordinator Area as specified within the requirements.

**Applicability:**

- Balancing Authority
- Reliability Coordination
- Transmission Operator
- Distribution Provide (see specific criteria)
- UFLS-Only Distribution Provider (see specific criteria)
- Transmission Owner (see specific criteria)

# EOP-011-4 Implementation Dates

| Effective Date: | 1st day of first calendar quarter six months following regulatory approval | | 10/1/2024 | |
|---|---|---|---|---|
| | | | | |
| **Requirement** | | **Implementation Plan** | **Compliance Date** | **Notes** |
| Part 1.2.5 | Compliant by | 30 months after the Effective Date | 10/1/2024 | Manual load shed - 10/1/2024 effective date<br>UVLS and UFLS - 4/1/2027 effective date |
| Part 1.2.5.1 | Compliant by | Effective Date | 10/1/2024 | |
| Part 1.2.5.2 | Compliant by | Effective Date | 10/1/2024 | Manual load shed - 10/1/2024 effective date<br>UVLS and UFLS - 4/1/2027 effective date |
| Part 1.2.5.3 | Compliant by | Effective Date | 10/1/2024 | |
| Part 1.2.5.4 | Compliant by | Effective Date | 10/1/2024 | |
| Part 1.2.5.5 | Compliant by | 30 months after the Effective Date | 4/1/2027 | |
| Part 2.2.8 | Compliant by | 30 months after the Effective Date | 4/1/2027 | |
| Part 2.2.9 | Compliant by | 30 months after the Effective Date | 10/1/2024 | Manual load shed - 10/1/2024 effective date<br>UVLS and UFLS - 4/1/2027 effective date |
| R8 | Compliant by | 30 months after the Effective Date | 4/1/2027 | |

# NERC Reliability Standard EOP-012-2

## Title:

Extreme Cold Weather Preparedness and Operations

## Purpose:

To address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units

## Applicability:

- Generator Owner
- Generator Operator
- Certain Facilities (see specific criteria)

## Definitions:

- Generator Cold Weather Critical Component
- Fixed Fuel Supply Component
- Generator Cold Weather Reliability Event
- Generator Cold Weather Constraint
- Extreme Cold Weather Temperature

# EOP-012-2 Implementation Plan Dates

| | | |
|---|---|---|
| **Effective Date of EOP-012-2** | The first day of the first calendar quarter that is three months after the effective date of the applicable governmental authority's order approving the Standard | **10/1/2024** |
| | | |
| **Requirement** | **Implementation Plan** | **Compliance Date** |
| R1 | EOP-012-2 Effective Date | 10/1/2024 (initial performance) |
| R2 | EOP-012-2 Effective Date | 10/1/2024 |
| R3 | 12 months after the effective date of EOP-012-2 | 10/1/2025 |
| R4 | EOP-012-2 Effective Date | 10/1/2024 |
| R5 | EOP-012-2 Effective Date | 10/1/2024 |
| R6 | EOP-012-2 Effective Date | 10/1/2024 |
| R7 | EOP-012-2 Effective Date | 10/1/2024 |
| R8 | EOP-012-2 Effective Date | 10/1/2024 |

# September 18, 2025, FERC Order Approving EOP-012-3

Approves EOP-012-3, VRFs, and VSLs

Generator Cold Weather Constraint Declaration

R1 Abeyance Period

# EOP-012-3

## Improves Reliability

- Generator Cold Weather Constraint declarations submitted to its CEA for validation timely
- Generator Cold Weather Reliability Event CAPs are completed prior to the first day of the first December following the event and entities have a shorter timeframe (12 months) to review similar equipment with potential risk to identified freezing issues
- CAP extension approval process
- Discrete list of Generator Cold Weather Constraints (known and case-by-case) identified for generator owners along with a preapproval process for all declared constraints
- Shorter timeframe (36 months) required to review the validity of declared constraints and a process to implement freeze protection measures for declared constraints that are no longer valid

# EOP-012-3 Implementation Plan

| Effective Date of EOP-012-3 | October 1, 2025, per FERC Order | 10/1/2025 |
|---|---|---|
| **Requirement** | **Implementation Plan** | **Compliance Date** |
| R1 | Effective date of EOP-012-2 in accordance with that implementation plan. | 10/1/2029 |
| R2 | For generating units for which the Generator Owner (GO) first contractually committed to design criteria relevant to this Requirement before June 29, 2023, and which enter commercial operation between October 1, 2027, and March 31, 2028, the GO shall comply with Requirement R2 relating to implementing required capability by no later than April 1, 2028. | 4/1/2028 |
| R2 | If declaring a Generator Cold Weather Constraint. | Timeline in R8 |
| R3 | Entities beginning commercial operation after the effective date of EOP-012-3 shall become compliant with Requirement R3 no later than the commercial operations date for the applicable unit. | |
| R8 | Entities shall review all Generator Cold Weather Constraints previously declared under Reliability Standard EOP-012-2 for compliance with Reliability Standard EOP-012-3 Attachment 1 by the effective date. Each entity shall submit any previously declared Generator Cold Weather Constraints to the Compliance Enforcement Authority (CEA) no later than 45 days following the effective date of Reliability Standard EOP-012-3. Newly declared Generator Cold Weather Constraints shall be submitted in accordance with the timelines specified in Requirement R8. | |
| R9 | 36 calendar months following validation by the CEA. | |

# FERC Directives

**NERC to submit anonymized data on:**

- Number of submitted Generator Cold Weather Constraint declarations
- Number of approved declarations
- Aggregate MVA of approved declarations
- Summary of rationale for approved declarations

# FERC Directives

## NERC to submit narrative analysis on the following:

- Whether Reliability Coordinators (RCs), Transmission Operators (TOPs), and Balancing Authorities (Bas) are timely notified of Generator Cold Weather Constraint declarations and corrective action plan extensions
- Reliability impacts, if any, of allowing generators 36 months to correct known freeze related issues
- Whether Generator Cold Weather Constraint declaration approval process is consistently interpreted and applied by the CEAs in a timely manner, whether the declaration criteria in Attachment 1 is adequately defined and clear, and the reliability impact on the Bulk Power System (BPS) due to declarations from each criterion in Attachment 1 and from approved CAP extensions

## Filings should start no later than October 2026 and end October 2034

# NERC Extreme Cold Weather Temperature Reporting

**February 2023—Order directing NERC to develop a plan to collect data on winterization of generating units and to submit an annual informational filing on the analysis of the data**

**February 2024—NERC filed it's work plan, focused on data collected through Rules of Procedure Section 1600 cold weather generator data request**

- Any NERC-registered GO must report by May 15 of each year
- Report details on operating temperatures, constraints, and CAPs to address operational issues during cold weather

**Cold Weather Generator Data Request page on NERC's website**

# Transmission System Planning Performance Requirements for Extreme Weather

# Transmission System Planning Performance Requirements for Extreme Weather

## FERC Issued Order No. 896 on June 15, 2023

- Around 30 directives
- Regulatory deadline: December 15, 2024

# TPL-008-1 Status

**June 15, 2023: FERC Issued Order No. 896 (with directives)**

**February 20, 2025: FERC Approved TPL-008-1**

**April 1, 2026: Effective Date of TPL-008-1**

# TPL-008-1: Transmission System Planning Performance Requirements for Extreme Temperature Events

## TPL-008-1 Requirements

- (1) Development of benchmark planning cases based on major prior extreme heat and cold weather events and/or meteorological projections
- (2) Planning for extreme heat and cold weather events using steady state and transient stability analysis expanded to cover a range of extreme weather scenarios
- (3) Development of Corrective Action Plans that mitigate any instances where performance requirements for extreme heat and cold weather events are not met

# TPL-008-1 Implementation Plan

| Effective Date | | First day of first calendar quarter 12 months after the effective date | 4/1/2026 |
|---|---|---|---|
| **Requirement** | | **Implementation Plan** | **Compliance Date** |
| R1 | Compliant by | upon effective date | 4/1/2026 |
| R2 | Compliant by | 24 months after effective date | 4/1/2028 |
| R3 | Compliant by | 24 months after effective date | 4/1/2028 |
| R4 | Compliant by | 24 months after effective date | 4/1/2028 |
| R5 | Compliant by | 24 months after effective date | 4/1/2028 |
| R6 | Compliant by | 24 months after effective date | 4/1/2028 |
| R7 | Compliant by | 48 months after effective date | 4/1/2030 |
| R8 | Compliant by | 48 months after effective date | 4/1/2030 |
| R9 | Compliant by | 48 months after effective date | 4/1/2030 |
| R10 | Compliant by | 48 months after effective date | 4/1/2030 |
| R11 | Compliant by | 48 months after effective date | 4/1/2030 |

| **Extreme Temperature Assessment** | Initial Performance | No later than 48 months after effective date | 4/1/2030 |
|---|---|---|---|
| | Subsequent Assessments | No later than 5 years following the previous assessment | |

# Ongoing Project 2023-07 Transmission System Planning Performance Requirements for Extreme Weather

**Purpose of SAR:** Address the transmission planning reliability gaps that do not expressly require Transmission Planners and Planning Coordinators to consider

- (1) Normal and extreme weather
- (2) Gas-electric interdependencies
- (3) DER in their transmission planning assessments in the long-term planning horizon

**SAR Public Comment Period:** 6/13/2025 – 7/23/2025

**Low Priority Project**

# Recap

**EOP-011-4 was effective 10/1/2024**

**EOP-012-3 effective 10/1/2025,**

**replaces EOP-012-2**

**TPL-008-1 effective 4/1/2026**

## Additional Information

- **October 23, 2025**
  NSRF: EOP-012-3 by Texas RE
- **November 13, 2025**
  Talk with Texas RE: TPL-008-1 by drafting team member

# Follow Standards Activities

- ❑ NERC Standards Balloting and Commenting Webpage
- ❑ One-Stop-Shop
- ❑ Subscribe to NERC Standards Mailing List
  - NERC helpdesk: https://support.nerc.net/
  - Weekly Standards, Compliance, & Enforcement Bulletin
  - Industry Webinars
- ❑ Standards Committee nominations close on October 13, 2025, elections from October 22-31, 2025
- ❑ NERC Standards Review Forum (NSRF)

# Resources

- February 2021 Cold Weather Outages Report
- June 27, 2024, FERC Order
- September 18, 2025, FERC Order
- NERC Reliability Standard EOP-012-3
- Cold Weather Generator Data Request
- FERC Order No. 896
- NERC Reliability Standard TPL-008-1
- Project 2023-07 Project Page


TEXAS RE
Ensuring electric reliability for Texans

# Compliance Approaches & Findings Panel

**Blair Giffin**
Texas RE

**David Kezell**
ERCOT

**Therese Harris**
PUCT

**Kiel Lyons**
NERC

**Michael Kuhl**
SERC

# Texas RE
# Winter Weatherization Workshop

**Return: 11:00 a.m.**

## AGENDA

- Kick-off and Instructions
- Executive Welcome
- Standards Update
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- **Cold Weather Implementation**
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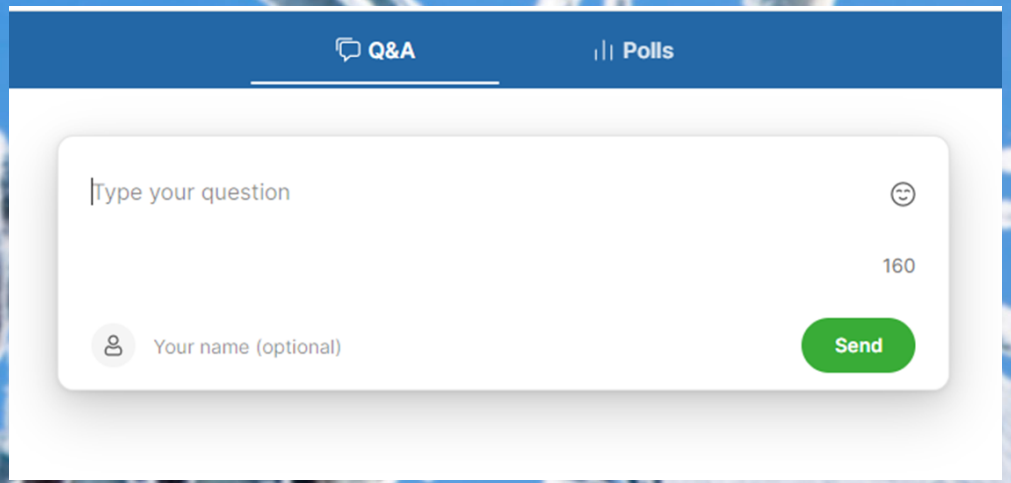


# Cold Weather Implementation

## A Transmission Perspective

Daniel Marr, VP, Transmission System Operations

LCRA Transmission Services Corporation

# LCRA Provides Vital Services

## WATER

862 river miles, chain of dams

## GENERATION

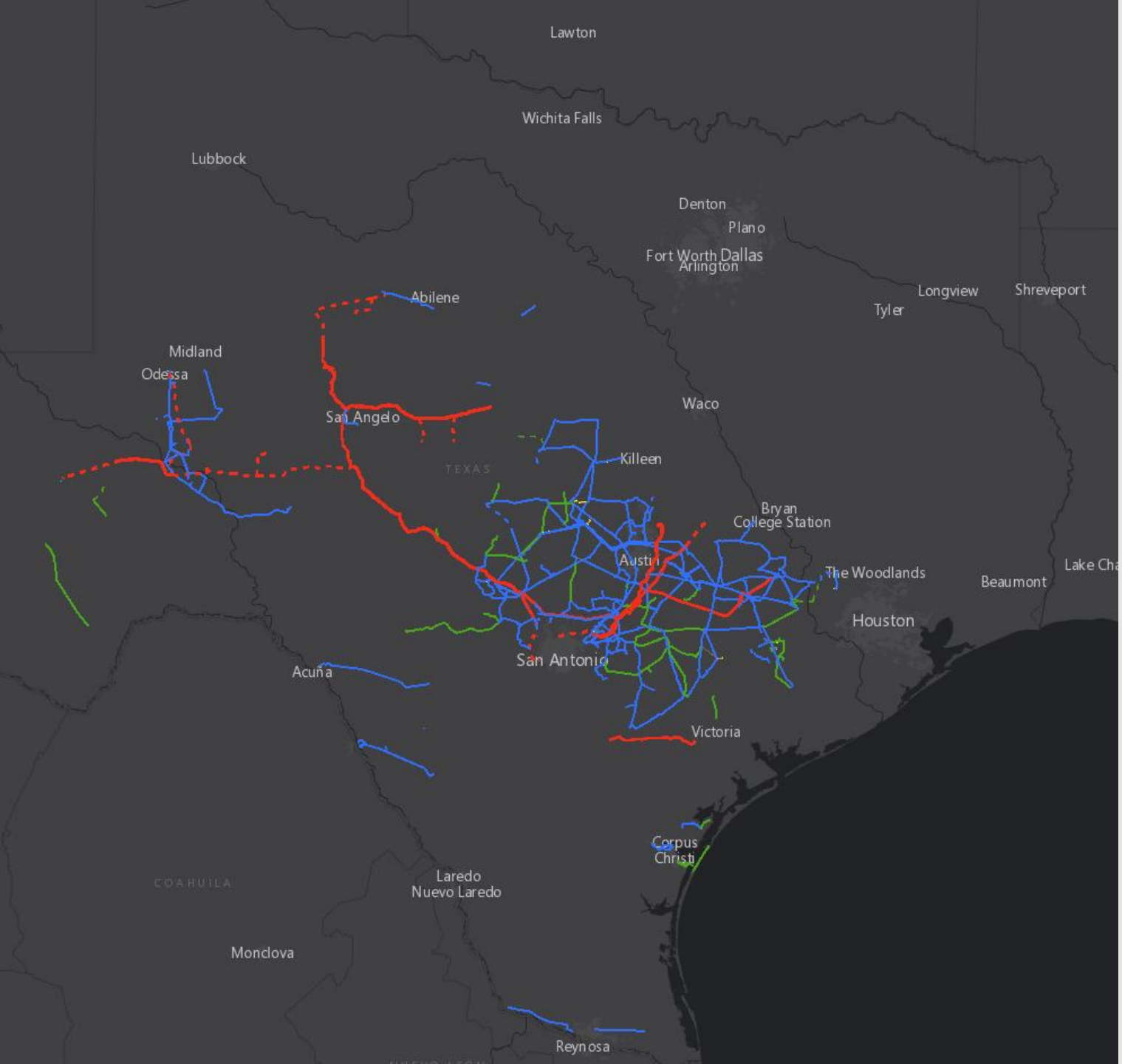
About 3,570 megawatts of power (own or have rights) for cities and cooperatives

## TRANSMISSION

5,000+ circuit miles of line and other assets in about 80 counties

## PARKS

40+ parks, community services

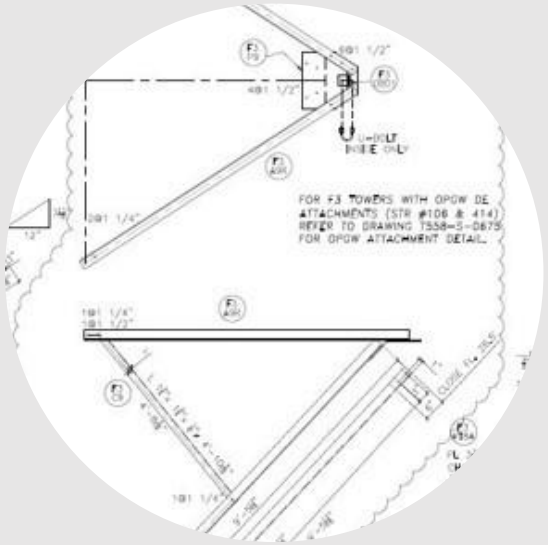



# LCRA TSC's Transmission System

# Winter Preparations – Timelines

- Long-Term and Ongoing Efforts
- Seasonal Focus
- Event Preparation
- Response
- Lessons Learned

# Long-Term and Ongoing Efforts




## ENGINEERING STANDARDS

Informed by industry and experience

## PROACTIVE PROJECTS

TL overhaul cycle storm hardening

## LINE & ROW MAINTENANCE

UAS-assisted patrols 1-2 years
Vegetation 3 years

## DRILLS, PLANS & EXERCISES

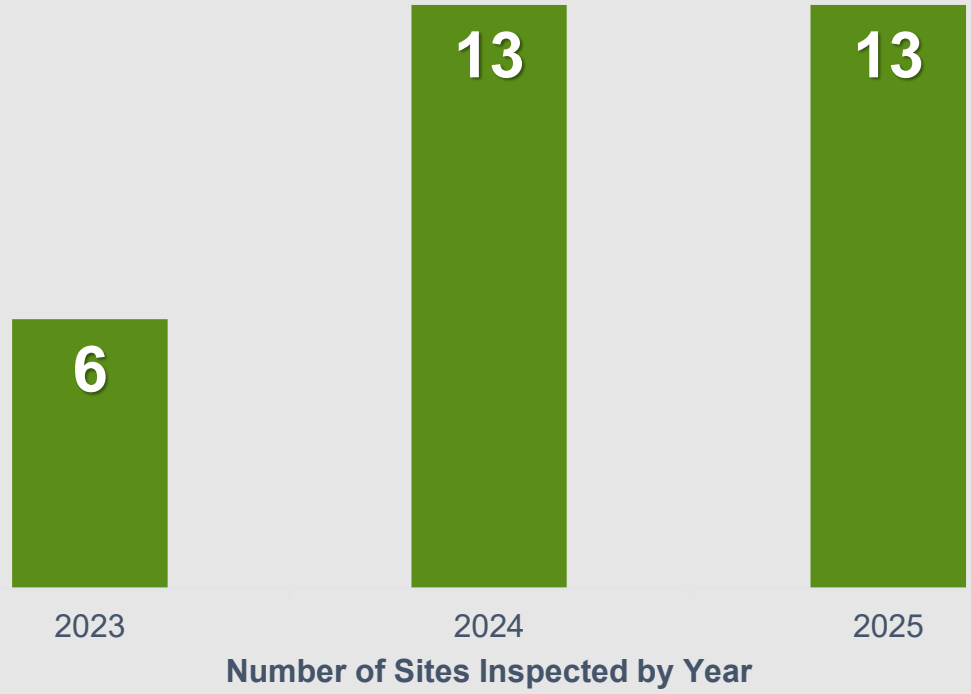
Annual enterprise-wide and team-specific

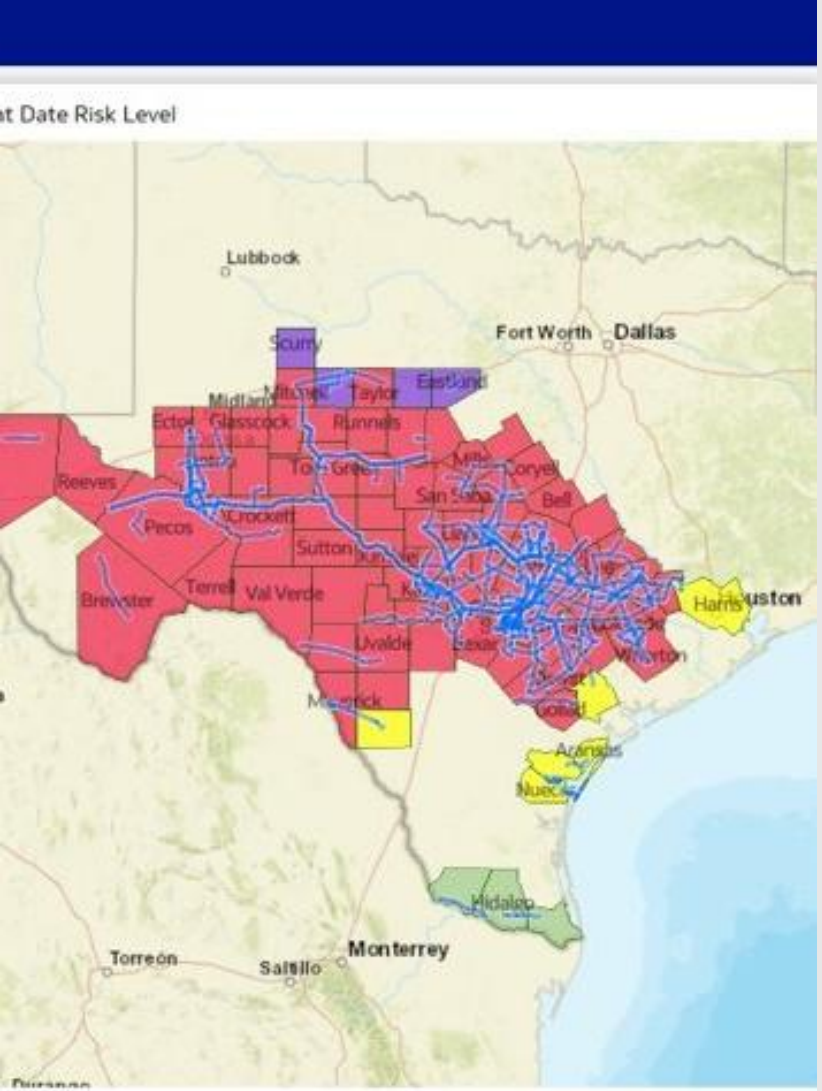
# Seasonal Focus

- **Monthly substation inspections with focus on cold weather critical components:**
  - Compressed gas readings
  - Oil levels
  - Cabinet heaters
- **Cold weather staff response equipment**
  - Tire chains, block heaters, cold weather PPE
- **Cold weather preparedness training**

# ERCOT Winter Weatherization Inspections

- **On-site visits to LCRA TSC substations**
- **Inspection includes cold weather critical components**
- **Positive feedback:**
  - Well-organized documentation
  - Knowledgeable staff
  - Equipment in good working order





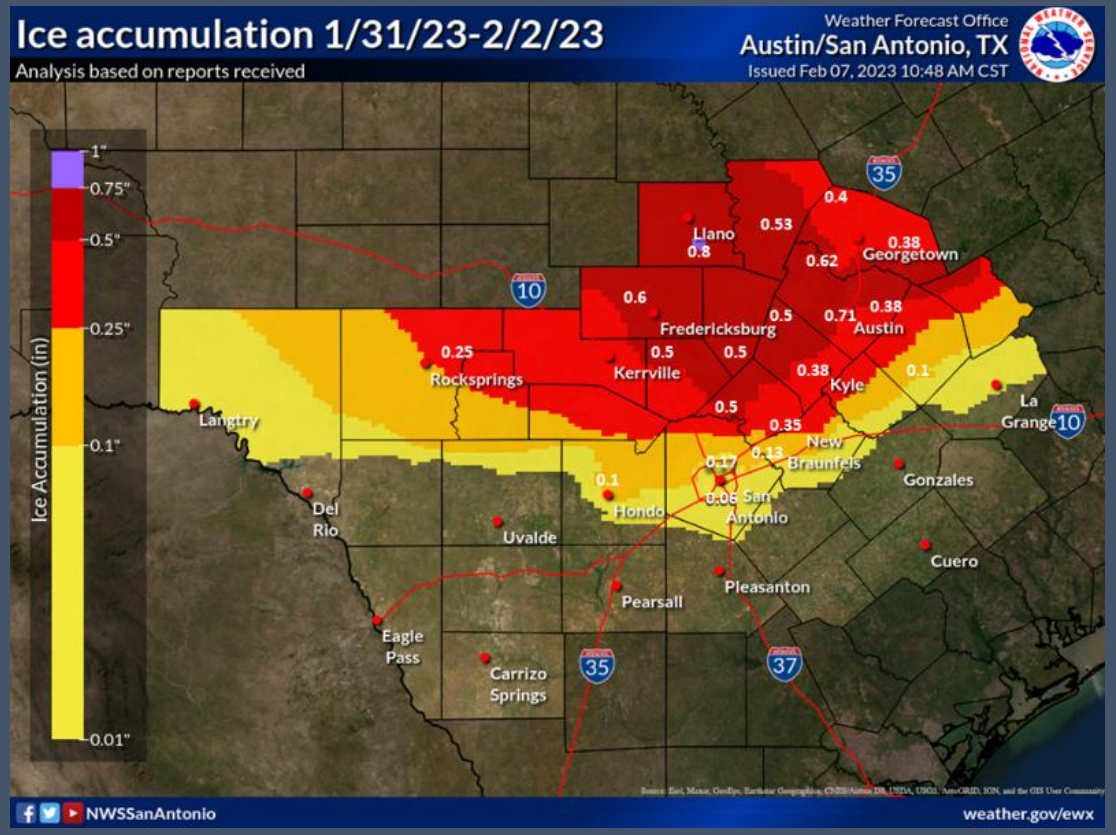


# Event Preparations

- **LCRA TSC Incident Management Team**
  - Departmental incident checklists
  - Meeting cadence
  - Management team structure/roles (NIMS)
  - Enterprise support
- **Common operating picture**
- **Pre-stage equipment & personnel**

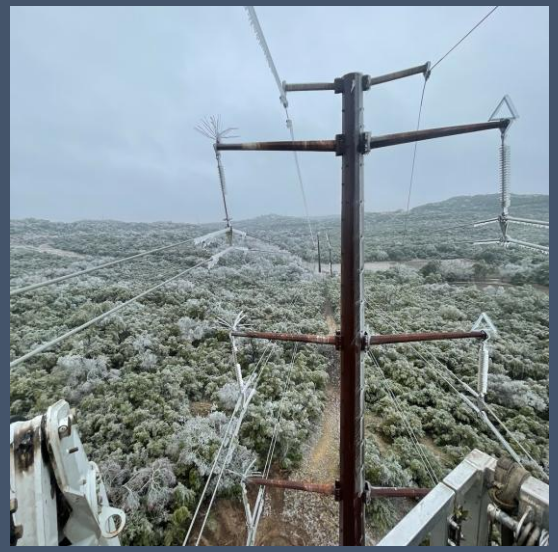
# Winter Storm Mara

## January 31, 2023 – February 2, 2023




- [1/29/23] Activate LCRA TSC IMT
- [1/30/23] Pre-Stage Response Teams
- Event Response / Restoration
  - [1/31/23]
  - [2/1/23]
  - [2/2/23]
  - [2/3/23]
- [2/4/23] LCRA TSC Return to Normal Operations

# System Impacts



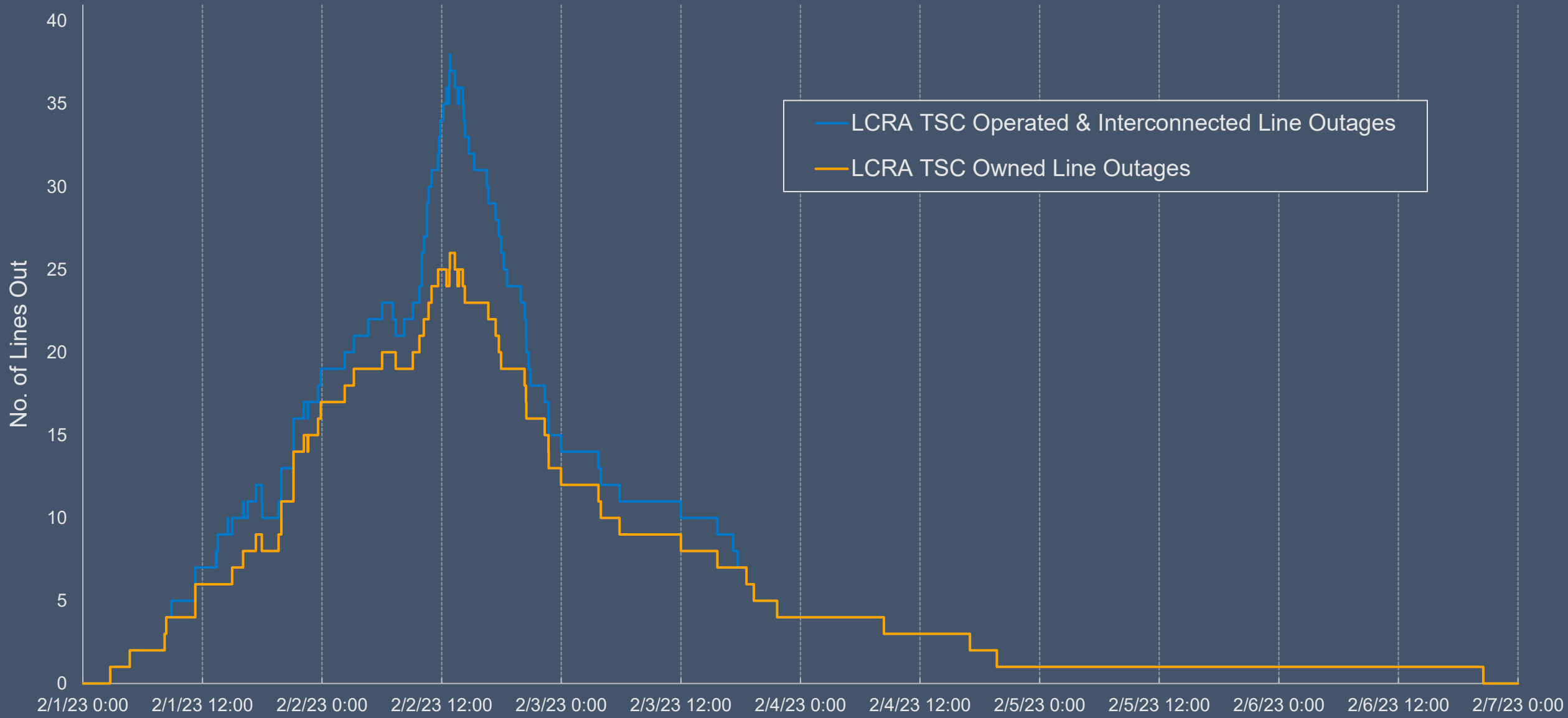
Highly Concentrated

1” Radial Ice Accumulation

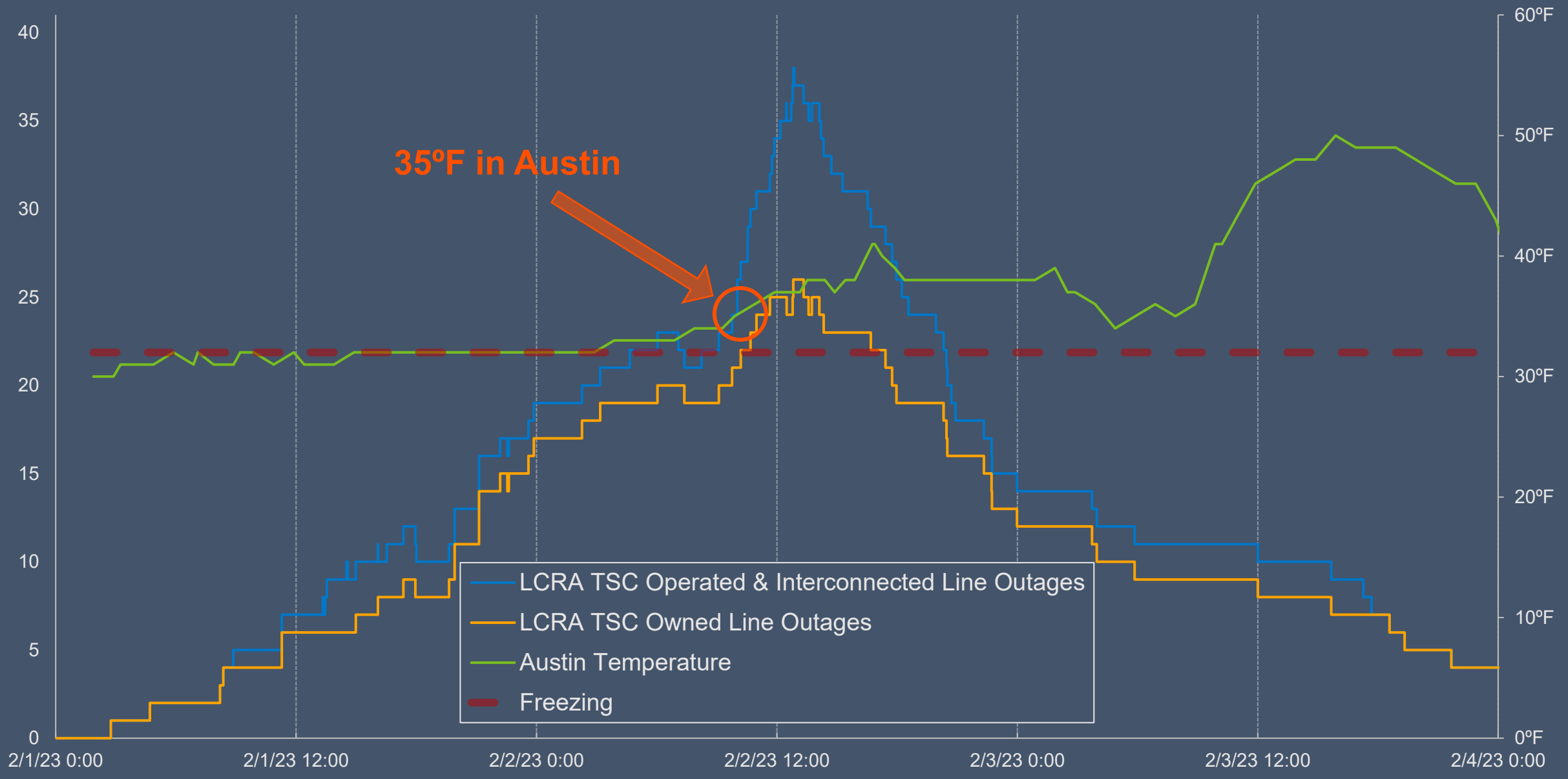
Challenging Conditions


Static Support Damage

# Line Outages During Mara

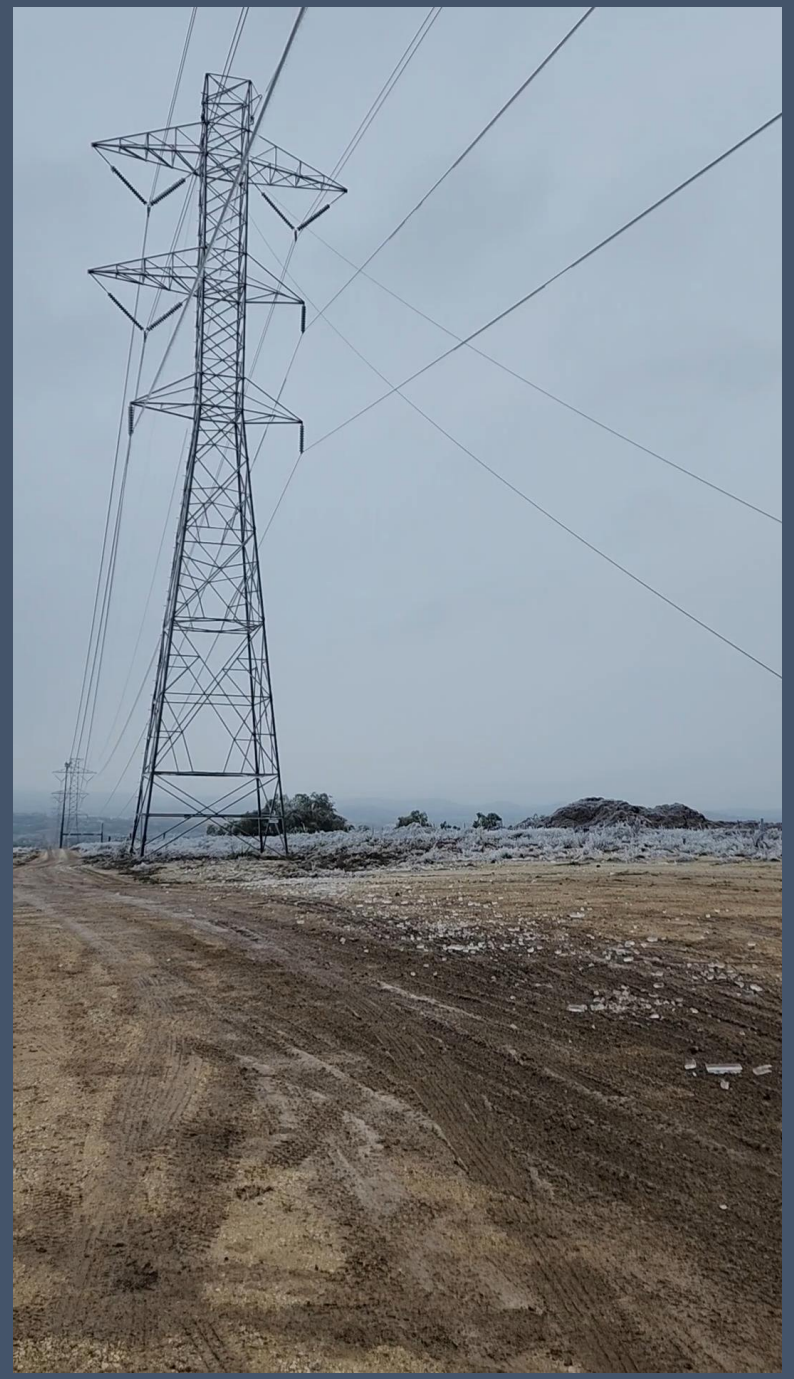


# Increased Outage Rate



# Ice Shedding

- Created sudden jump rope-like movement on static wires
- Led to tower failure or contact with conductor



# Lessons Learned

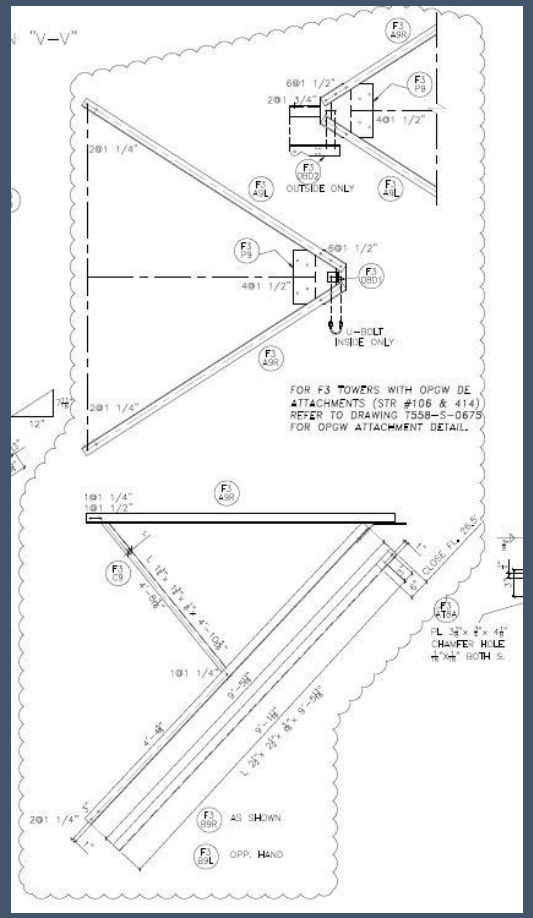
## Engineering Design Standards

- **NESC Heavy (w/overload factors)**
  - 0.846” ice
  - 54 mph wind

+

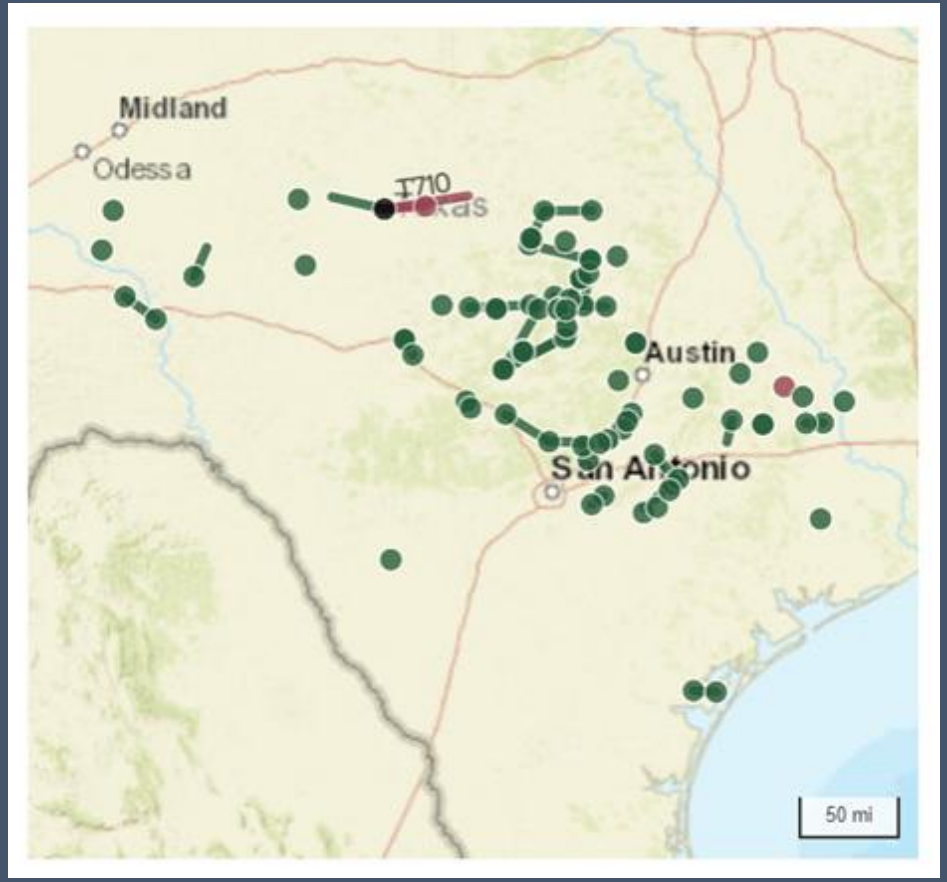
- **ASCE 74 MRI**
  - 1.125” ice
  - 40 mph wind

- **Structure arm geometry key component of load studies**
  - Tubular vs. Lattice tower arms
  - Strength capacity differences
- **Leveraging additional design basis (ASCE) in concert with operational experience**



# Lessons Learned

- Outage management system maturation
- Central location to track and summarize LCRA TSC's assessment and response
- Geospatial outage display
- IMT roles created to monitor and validate data




LCRA
ENERGY • WATER • COMMUNITY SERVICES

# Gas-Electric Coordination Panel

**Evan Shuvo**
Texas RE

**Gilbert Herrera**
RRC

**Robert Clark**
FERC

**Tom Coleman**
Argonne National Lab

**Gerad Freeman**
NERC

# Texas RE
# Winter Weatherization Workshop

**Return: 12:45 p.m.**

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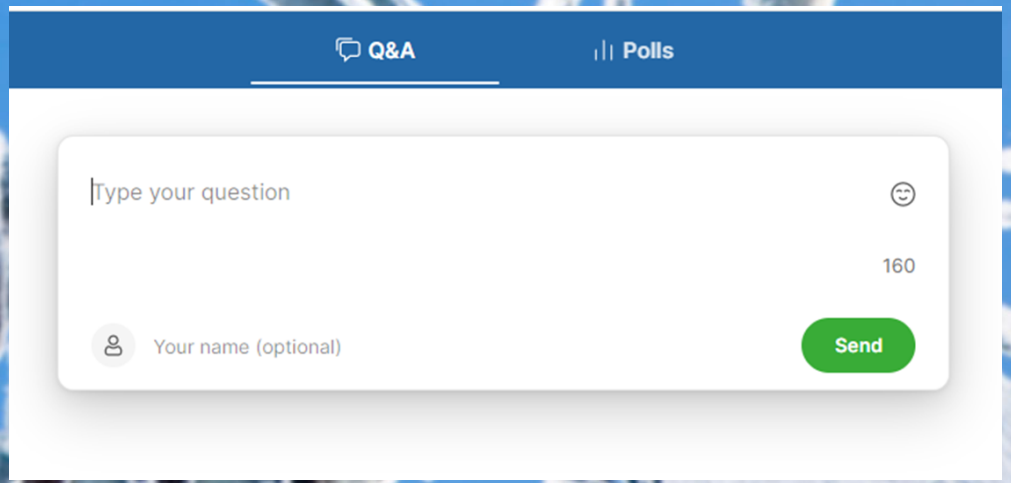


# 2025-26 Preliminary Winter Weather Outlook

Chris Coleman
ERCOT Supervisor of Operational Forecasting

Winter Weatherization Workshop
October 1, 2025

# Agenda

- Updating the summer
- Quick look at fall
- Review of last winter (and other recent winters)
- Expectations for the upcoming winter

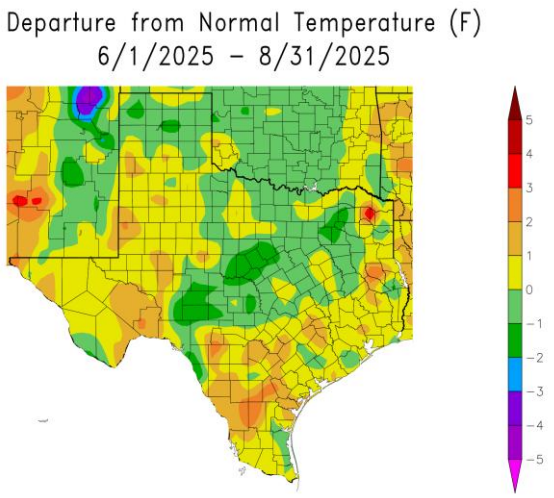
# Updating Summer 2025

- **June-August 2025** was the **33rd hottest** on record for Texas (since 1895, based on **mean** temperatures). This (barely) ranks in the **hottest quarter** of all historical summers – but was significantly cooler than the previous three summers
- Jun-Aug 2025 ranked 9th hottest out of the past 15 years (since 2011)
- 2021 remains the mildest since 2007

**Texas Average Temperature**
June-August

| Period | Average Temperature | Rank (out of 131) |
|---|---|---|
| June-August 2025 | 82.3°F | 99* |
| June-August 2024 | 84.0°F | 126* |
| June-August 2023 | 85.4°F | 130 |
| June-August 2022 | 84.8°F | 129 |
| June-August 2021 | 81.0°F | 50* |
| June-August 2020 | 83.4°F | 122 |
| June-August 2019 | 82.6°F | 107* |
| June-August 2018 | 83.8°F | 124 |
| June-August 2017 | 81.6°F | 70* |
| June-August 2016 | 82.3°F | 99* |
| June-August 2015 | 81.9°F | 84* |
| June-August 2014 | 81.6°F | 70* |
| June-August 2013 | 82.1°F | 90* |
| June-August 2012 | 83.2°F | 120* |
| June-August 2011 | 86.8°F | 131 |

| | Jun-Aug |
|---|---|
| 1 | 2011 |
| 2 | 2023 |
| 3 | 2022 |
| 4 | 2024 |
| 5 | 2018 |
| 6 | 2020 |
| 7 | 2012 |
| 8 | 2019 |
| 9 | 2025 |
| 9 | 2016 |
| 11 | 2013 |
| 12 | 2015 |
| 13 | 2017 |
| 13 | 2014 |
| 15 | 2021 |

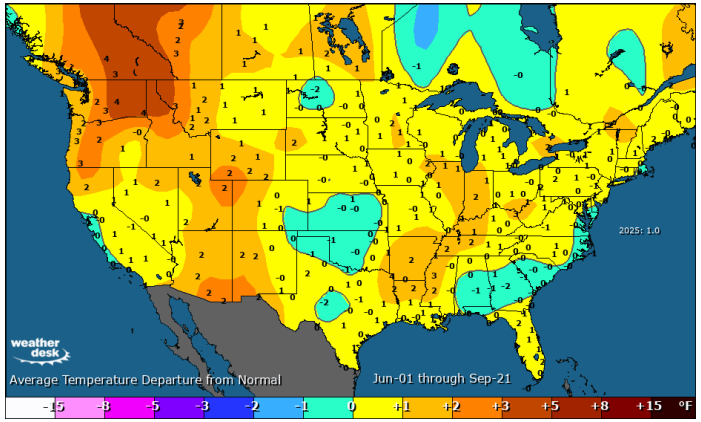



Generated 9/20/2025 using provisional data.

ACIS Web Services

**100-degree days (through 9/26/25):**

- Dallas: **7** days. (2024: 23)
- Houston: **8** days. (2024: 9)
- Austin: **22** days. (2024: 32)
- San Antonio: **20** days. (2024: 25)
- Midland: **29** days (2024: 31)
- McAllen: **55** days (2024: 54)



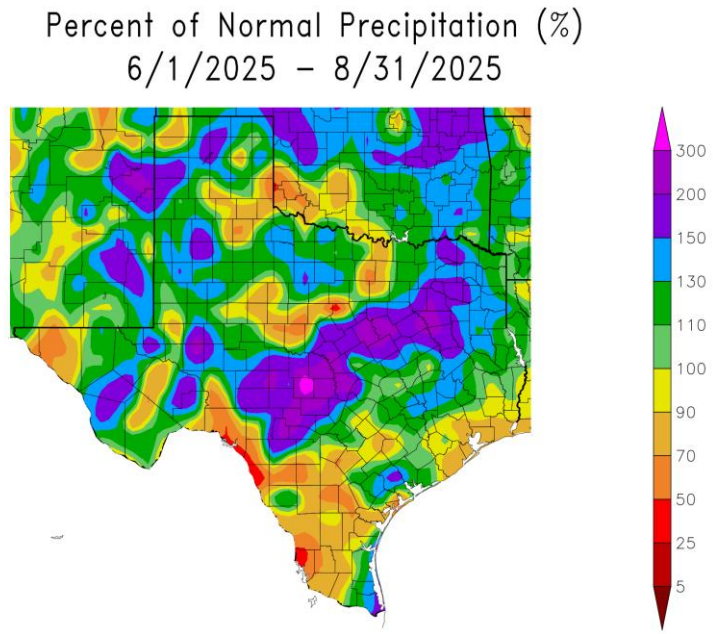
# Updating Summer 2025

- **June-August 2025** was the **22nd wettest** on record for Texas. It was the wettest since 2021 and 4th wettest Jun-Aug period since 2011

**Texas Precipitation**
June-August

| Period | Precipitation | Rank (out of 131) |
|---|---|---|
| June-August 2025 | 9.79" | 110 |
| June-August 2024 | 7.84" | 76 |
| June-August 2023 | 4.21" | 7 |
| June-August 2022 | 6.77" | 46 |
| June-August 2021 | 10.84" | 122 |
| June-August 2020 | 5.75" | 24 |
| June-August 2019 | 6.98" | 54 |
| June-August 2018 | 6.81" | 48* |
| June-August 2017 | 12.57" | 130 |
| June-August 2016 | 10.01" | 113 |
| June-August 2015 | 7.00" | 55 |
| June-August 2014 | 7.32" | 64 |
| June-August 2013 | 6.84" | 50* |
| June-August 2012 | 6.40" | 36 |
| June-August 2011 | 2.46" | 1 |

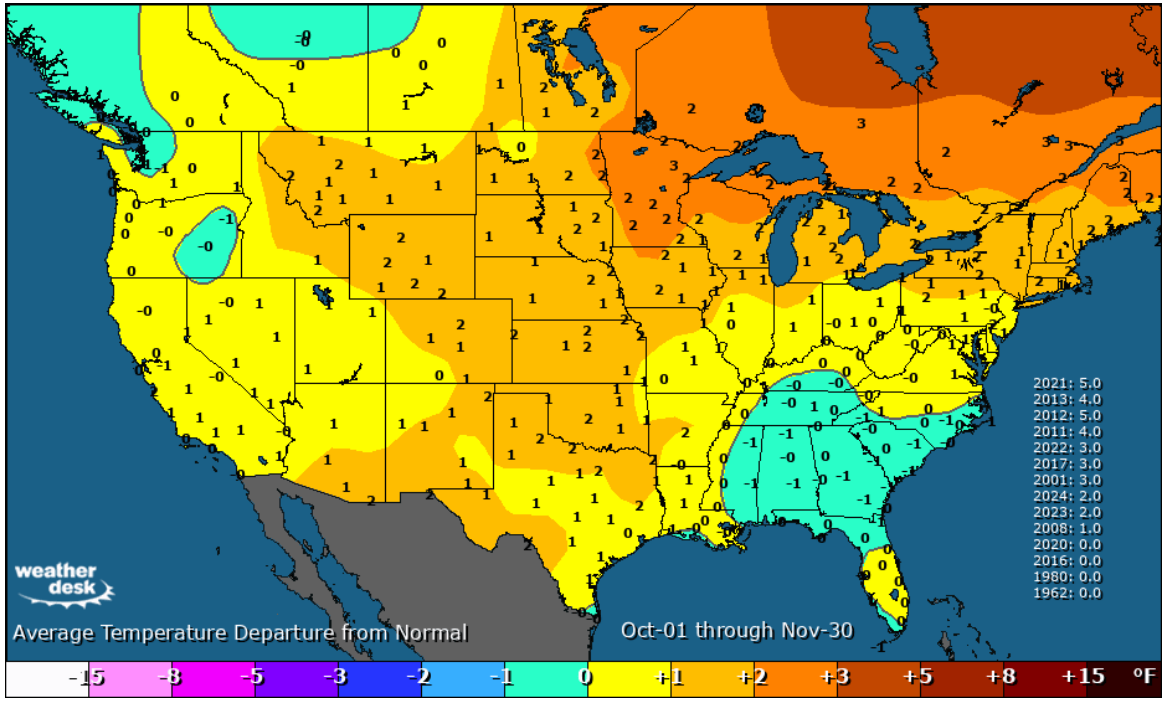
| | Date | Value | Anomaly | temp rank |
|---|---|---|---|---|
| 1 | 2007 | 13.62 | 6.22 | 116 |
| 2 | 2017 | 12.57 | 5.17 | 62 |
| 3 | 2004 | 12.21 | 4.81 | 120 |
| 4 | 1919 | 11.89 | 4.49 | 128 |
| 5 | 1941 | 11.35 | 3.95 | 115 |
| 6 | 1960 | 11.03 | 3.63 | 69 |
| 7 | 1920 | 11 | 3.6 | 124 |
| 8 | 1961 | 10.92 | 3.52 | 129 |
| 9 | 1981 | 10.87 | 3.47 | 89 |
| 10 | 2021 | 10.84 | 3.44 | 80 |
| 11 | 1906 | 10.74 | 3.34 | 120 |
| 12 | 1996 | 10.7 | 3.3 | 56 |
| 13 | 1973 | 10.6 | 3.2 | 125 |
| 14 | 1895 | 10.36 | 2.96 | 112 |
| 15 | 1991 | 10.25 | 2.85 | 106 |
| 16 | 1979 | 10.16 | 2.76 | 116 |
| 17 | 1942 | 10.12 | 2.72 | 98 |
| 18 | 1959 | 10.1 | 2.7 | 97 |
| 19 | 2016 | 10.01 | 2.61 | 33 |
| 20 | 1903 | 9.96 | 2.56 | 130 |
| 21 | 1971 | 9.92 | 2.52 | 112 |
| 22 | 2025 | 9.79 | 2.39 | 33 |
| 23 | 1898 | 9.72 | 2.32 | 104 |
| 24 | 1987 | 9.69 | 2.29 | 109 |
| 25 | 1914 | 9.57 | 2.17 | 83 |
| 26 | 1940 | 9.56 | 2.16 | 116 |
| 27 | 1915 | 9.37 | 1.97 | 106 |
| 28 | 1899 | 9.35 | 1.95 | 48 |
| 29 | 1900 | 9.33 | 1.93 | 77 |
| 30 | 1921 | 9.2 | 1.8 | 80 |

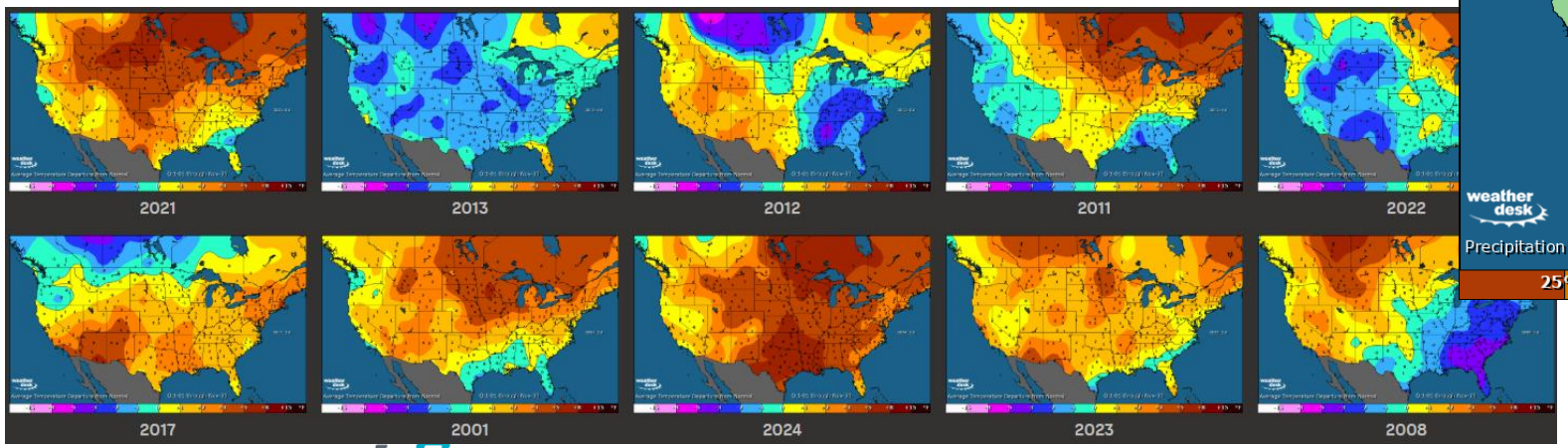


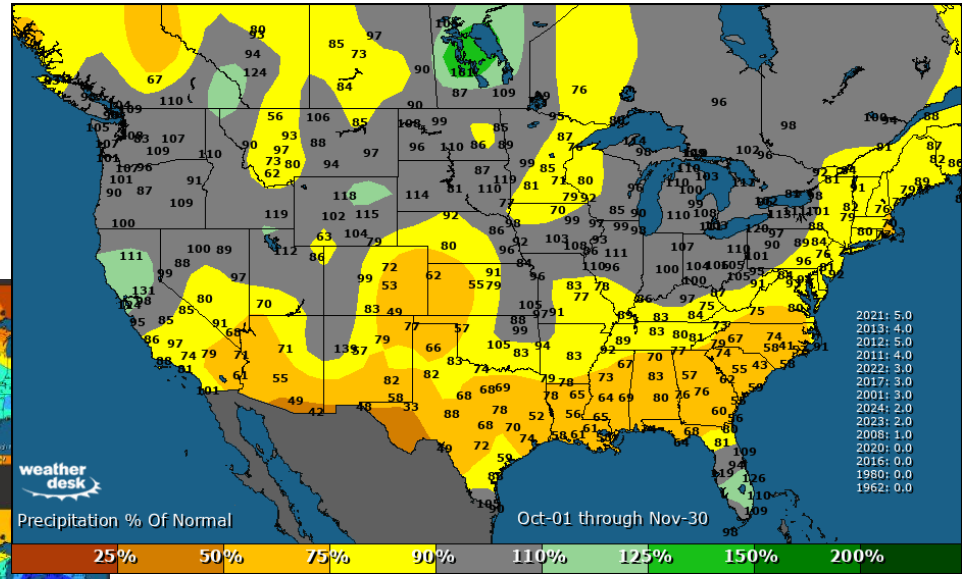

- Among the 30 wettest Jun-Aug periods for Texas (1895-current). 2025 and 2016 were by far the hottest, tied as the 33rd hottest out of 131 years. The average temperature rank of the 30 wettest Jun-Aug periods is 96th hottest.
- Last year, June through August was the hottest recorded for Texas in a summer with above normal precipitation (not as wet as 2025 but still above normal)
- Historically, a wet summer has equated to a mild (below normal) summer. The past two summers have bucked this trend

# Quick Look at Fall Weather

- The forecast for this fall (Oct-Nov) is above normal temperatures and below normal precipitation
- 7 of 10 analogs support above normal temperatures (including the top two, 2021 and 2012)
- Last fall was the warmest on record for Texas. Oct-Nov 2025 will be hard-pressed to top last year but top 20 warmest is certainly possible



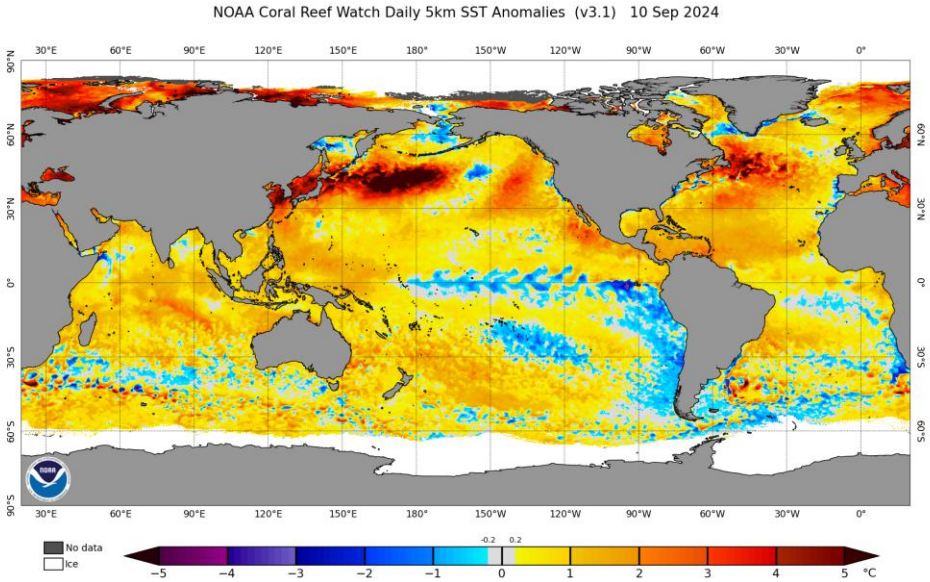



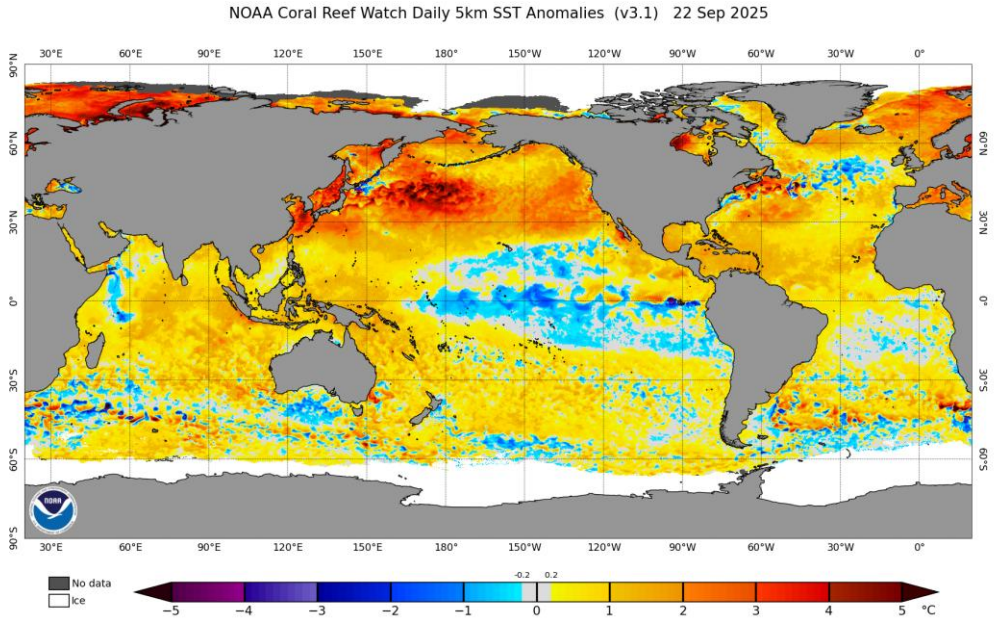



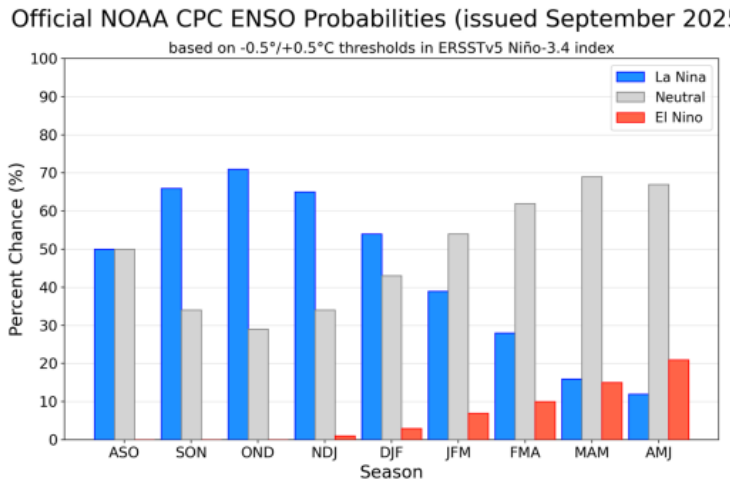

- The late-summer trend drier is likely to continue through the fall season
- Drought expected to increase

# La Niña

| | Nino 4 | Nino 3.4 | Nino 3 | Nino 1+2 |
|---|---|---|---|---|
| 9/15/2025 | -0.3 | -0.5 | -0.5 | -0.2 |
| 9/22/2025 | -0.3 | -0.4 | -0.4 | 0.0 |



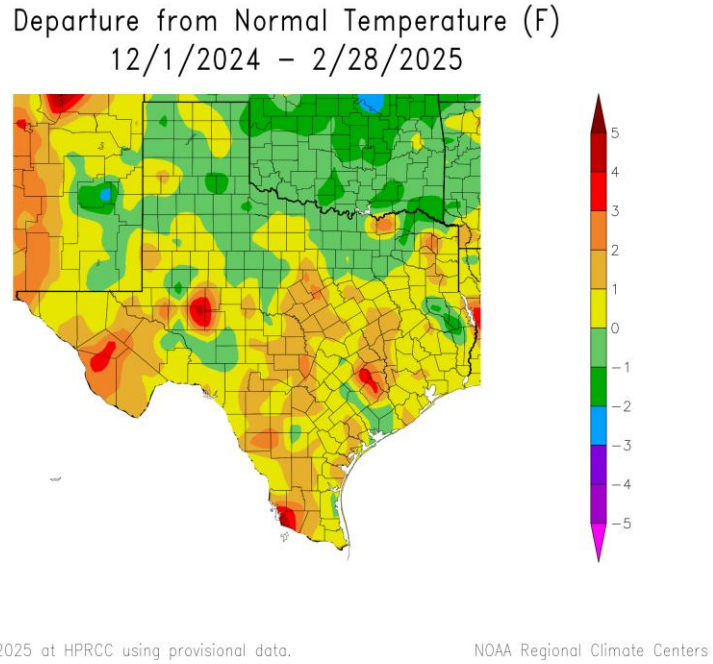




- Likely to see a La Niña in place for the upcoming winter (probably starting in the fall season)
- Could be a bit stronger signal than last winter
- This would mark 5 of the past 6 winters under the influence of La Niña

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | | 0.5 | 0.6 | 0.5 | 0.3 | 0.0 | -0.2 | -0.4 | -0.6 | -0.9 | -1.2 | -1.3 | -1.2 |
| 2021 | | -1.1 | -0.9 | -0.8 | -0.7 | -0.5 | -0.4 | -0.4 | -0.5 | -0.7 | -0.8 | -1.0 | -1.0 |
| 2022 | | -1.0 | -0.9 | -1.0 | -1.1 | -1.0 | -0.9 | -0.8 | -0.9 | -1.0 | -1.0 | -0.9 | -0.8 |
| 2023 | | -0.7 | -0.4 | -0.1 | 0.1 | 0.5 | 0.8 | 1.1 | 1.3 | 1.5 | 1.8 | 1.9 | 2.0 |
| 2024 | | 1.8 | 1.5 | 1.1 | 0.7 | 0.4 | 0.2 | 0.1 | -0.1 | -0.2 | -0.2 | -0.4 | -0.5 |
| 2025 | | -0.6 | -0.4 | -0.2 | -0.1 | -0.1 | -0.1 | -0.2 | (-0.3) | | | | |
| | | DJF | JFM | FMA | MAM | AMJ | MJJ | JJA | JAS | ASO | SON | OND | NDJ |

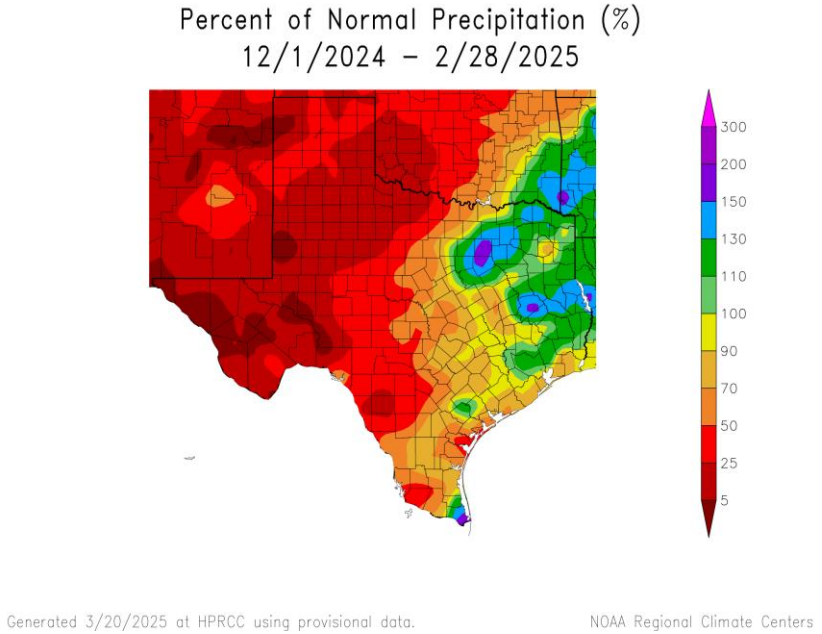
# Reviewing Last Winter




Temperature anomaly

## ERCOT winter (Dec 1 – Feb 28)

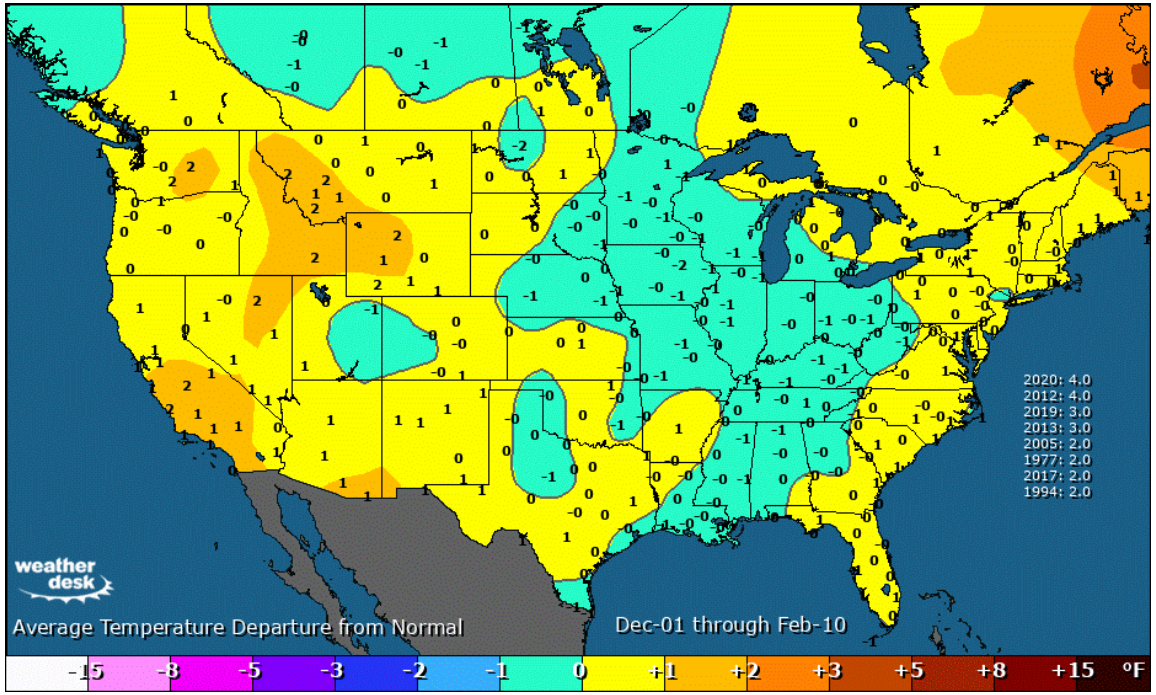
- Last winter was the **28th warmest** on record (130 historical winters)
- ERCOT's new winter peak record was set on 2/20/25. DFW fell to 12°, Houston was 27°, Austin was 18°, while San Antonio recorded a low of 21°. The LRGV saw lows in the mid-30s, while Lubbock dropped to 10°. This was not as cold as the prior winter's peak
- Southeast Texas had an extreme snow event on Jan 20-21, 2025
- Last winter was the **48th driest** on record (130 historical winters). This was much drier than the prior winter, which was the 104th driest (wettest winter in over a decade)



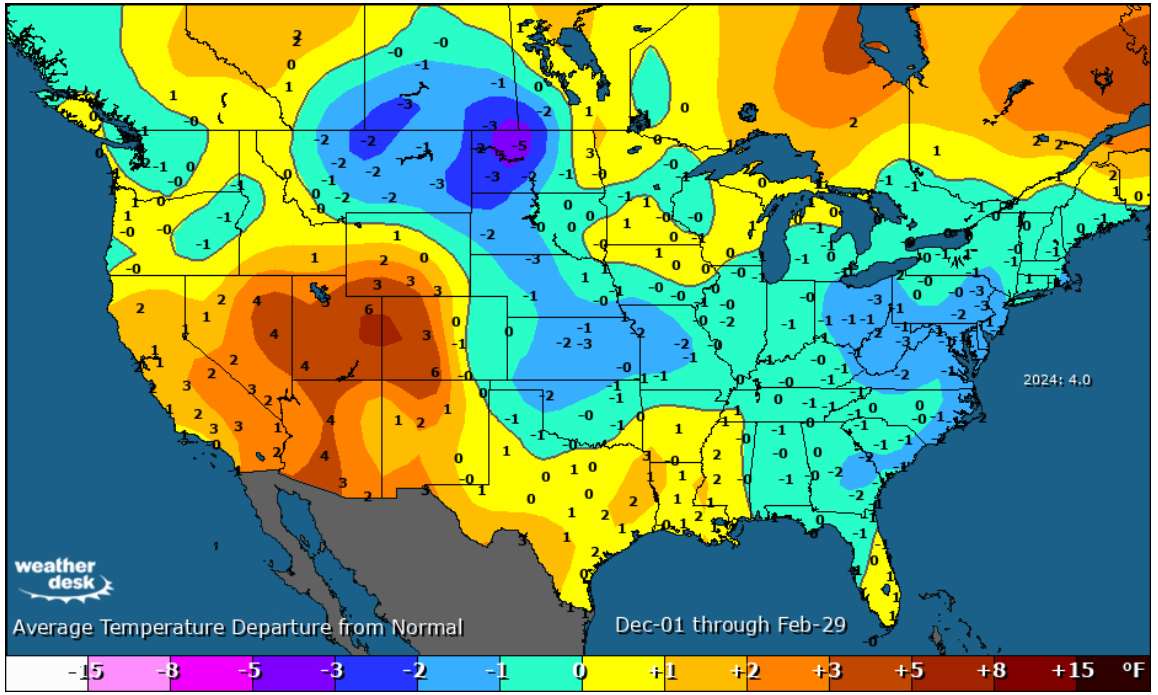

Precipitation anomaly

# Verification of Last Year's Preliminary Winter Temperature Outlook

**Analog weighted consensus: 2020-21, 2012-13, 2019-20, 2013-14, 2005-06, 1977-78, 2017-18, 1994-95**




Preliminary Forecast




Actual Anomalies

# Mean Temperature Ranking of Recent Texas Winters (130 historical winters)

| Austin coldest: | | |
|---|---|---|
| **18° on 2/20** | **2024-25** | **102nd coldest (28th warmest)** |
| **16° on 1/15, 1/17** | **2023-24** | **119th** |
| **15° on 12/23** | **2022-23** | **125th** |
| **21° on 2/4** | **2021-22** | **111th** |
| 7° on 2/16 | 2020-21 | 42nd (Uri) |
| 30° on 12/19 | **2019-20** | **114th** |
| 32° on 12/11 and 1/4 | 2018-19 | 94th |
| **18° on 1/17** | 2017-18 | 76th |
| 19° on 1/7 | **2016-17** | **130th coldest (warmest winter on record)** |
| 31° on 1/23 | **2015-16** | **121st** |
| 23° on 1/8 | 2014-15 | 68th |
| **22° on 1/6, 1/7** | 2013-14 | **30th** |
| **27° on 12/26** | **2012-13** | **111th** |
| **27° on 12/7** | 2011-12 | 99th |

Since 2001, only 3 winters have ranked in the coldest third (1-43) of historical winters (2020-21, 2013-14, and 2009-10)

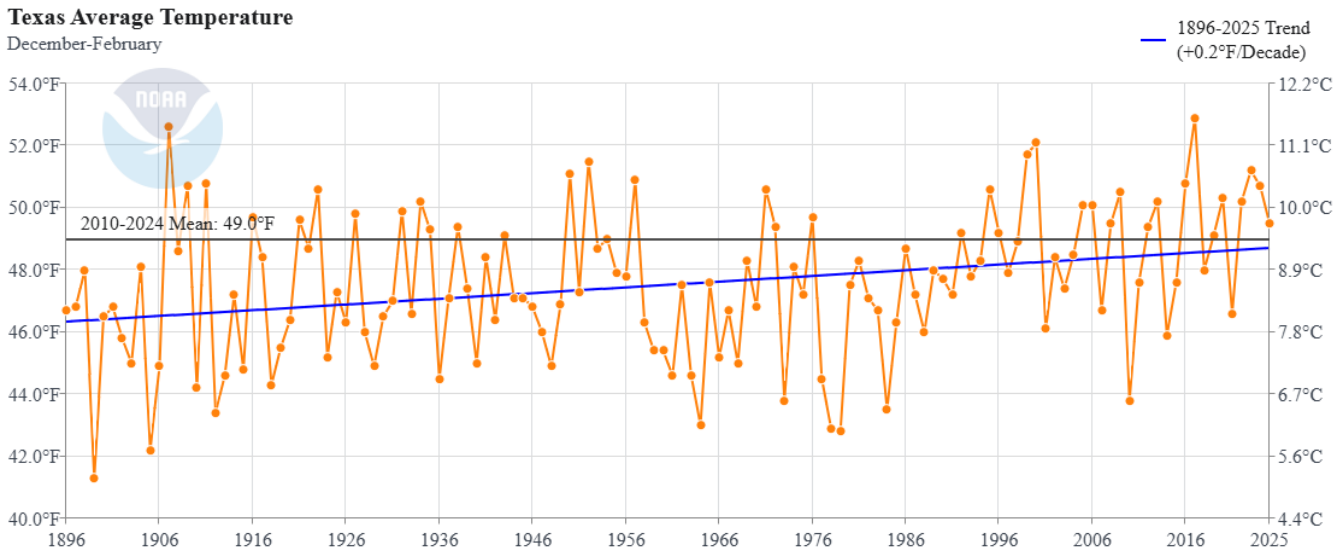
Since 1998, 4 of 5 second-year La Niña events have been warmer than the first year



**Bold** = winter 2025-26 matches, **Bold** = top 4 analogs

# Seasonal Rankings – what is normal?

- ❑ "Normal" may not be the best way to express seasonal temperatures
- ❑ As Texas keeps having many more above normal temperature seasons, it keeps raising the bar for what is "normal"
- ❑ **We commonly use a 15-year normal (2010-2024). Applying that normal to all historical winters (1895-2025) results in only 37 of 130 winters coming in above normal**
- ❑ This is why I'll oftentimes give all-time rankings and comparisons with recent years (in addition to or instead of "normal")

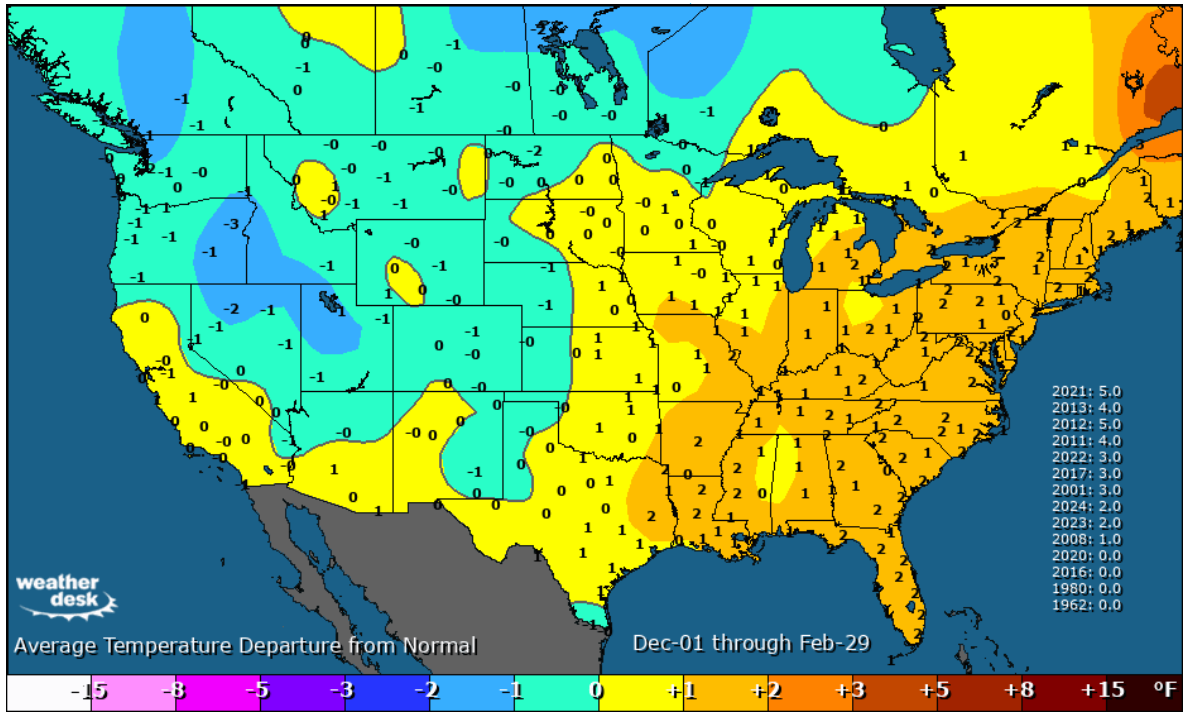




Count of above normal winters:
1895-1971 (77 years): 16
1998-2025 (28 years): 16

# Preliminary Winter 2025-26 Temperature Outlook

**Analog weighted consensus: 2021-22, 2012-13, 2013-14, 2011-12, 2022-23, 2017-18, 2001-02, 2024-25, 2023-24, 2008-09**

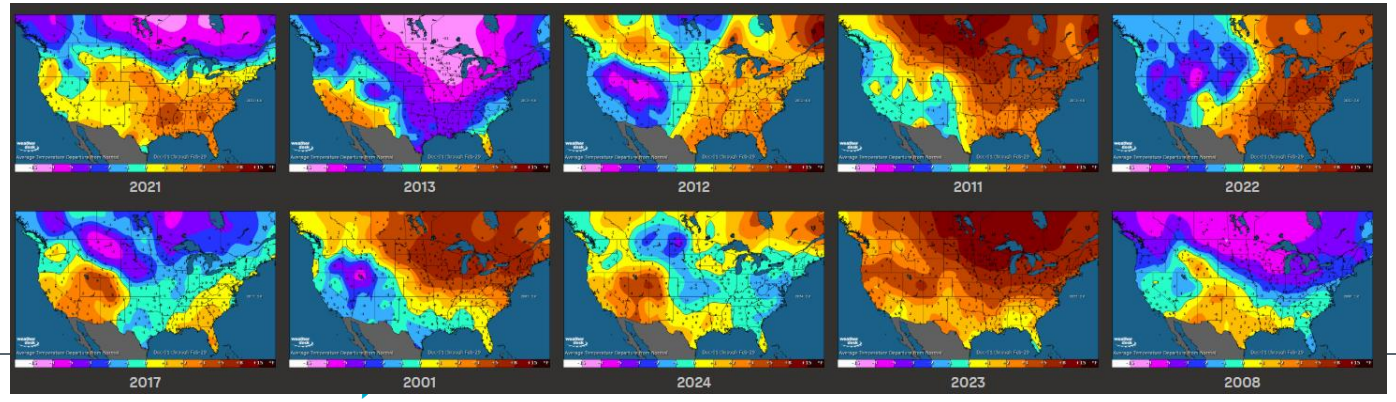



## Coldest temps for DFW

**2020-21**: 19°
**2012-13**: 22°
**2013-14**: 15°
**2011-12**: 22°
2022-23: 11°
2017-18: 13°
2001-02: 14°
2024-25: 12°
2023-24: 11°
2008-09: 20°

The all-time historical average coldest day is 14°
**Bold** years are the top 4 analogs

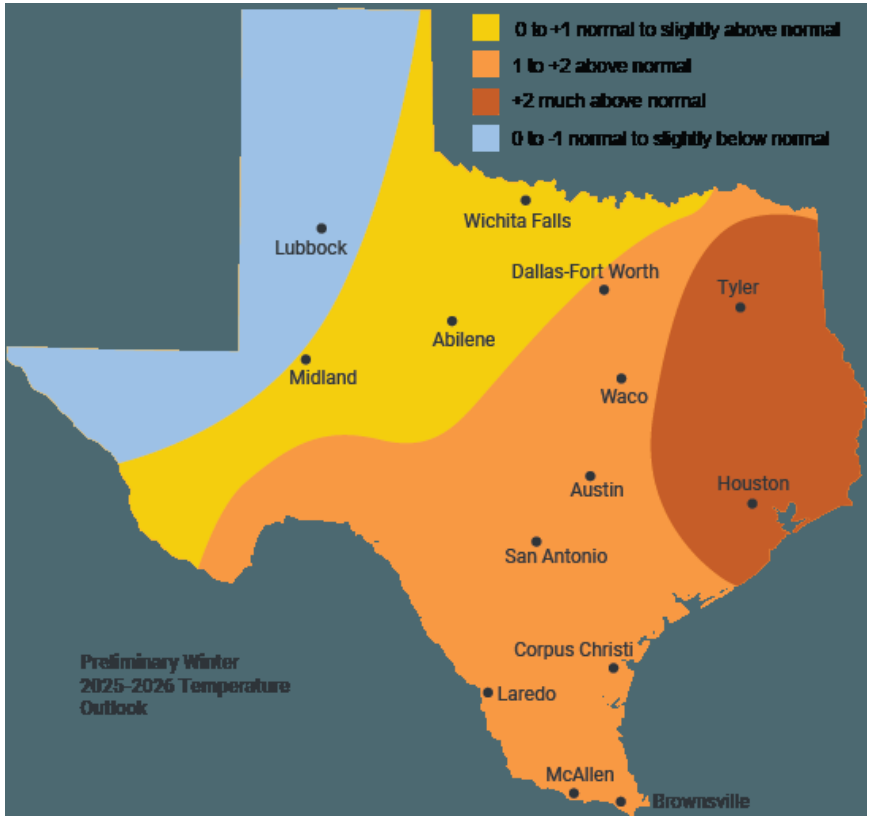
Historically similar years (analogs) suggest this winter may not have an extreme to the level of the past 3 winters – but it's high risk to rely upon a long-range forecast to pick up on a single event



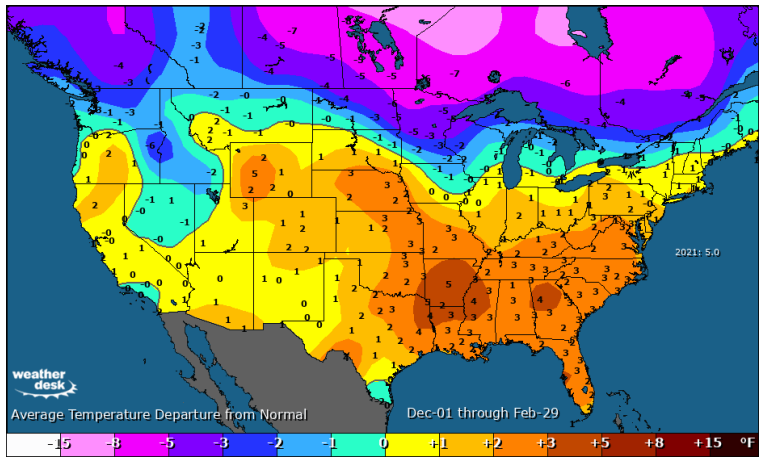

| Weather Zone | 95th Percentile Minimum Temperature | 99th Percentile Minimum Temperature | February 2021 Minimum Temperature Percentile Rank |
|---|---|---|---|
| North | -4° | -12° | 95th |
| North Central | 1° | -7° | 98th |
| West | -4° | -9° | 95th |
| Far West | -1° | -11° | 96th |
| East | 1° | -6° | 99th |
| Coast | 11° | 5° | 93rd |
| South Central | 7° | -2° | 95th |
| Southern | 17° | 11° | 95th |
| Valley | 21° | 13° | 94th |
| Panhandle | -11° | -16° | 95th |

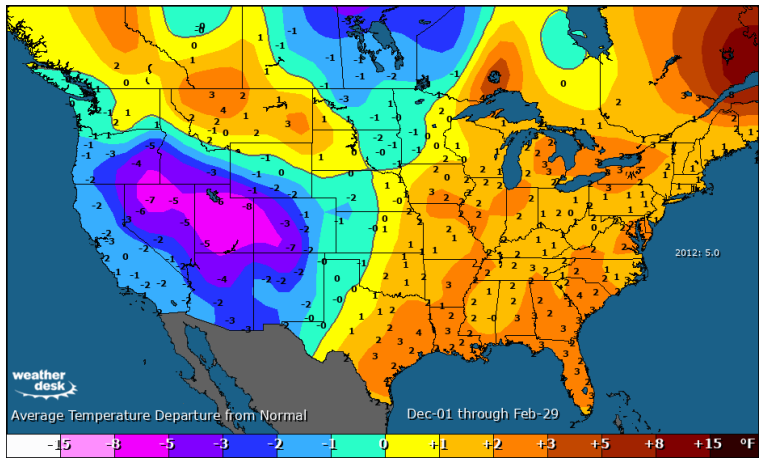
*Table 1: Historical Minimum Temperature Data*

# Preliminary Winter 2025-26 Temperature Outlook




Official Preliminary Forecast




Top two analogs

The winter is forecasted to see above normal temperatures across most of Texas

This is an average across three months and doesn't dismiss the potential for a period of extreme cold

Good chance the polar vortex results in Arctic air impacting the U.S. at some point(s) this winter. Early indicators point toward the western half of the U.S. being more prone to cold air this winter. TBD if or how much this impacts Texas

Overall, less support for extreme cold impacting ERCOT than last winter – but not no support

If the winter is minus a significant cold event, good chance this winter is warmer than last

# Precipitation Ranking of Recent Texas Winters (130 historical winters)

| | |
|---|---|
| **2024-25** | 48th driest (L) |
| **2023-24** | **105th** (E) |
| 2022-23 | 45th (L) |
| **2021-22** | **10th (L)** |
| 2020-21 | 59th (L) |
| 2019-20 | 67th (E) |
| 2018-19 | 92nd (E) |
| 2017-18 | 76th (L) |
| **2016-17** | **99th (L)** |
| 2015-16 | 60th (E) |
| 2014-15 | 75th (E) |
| 2013-14 | **12th (N)** |
| 2012-13 | 64th (N) |
| **2011-12** | **121st (L)** |

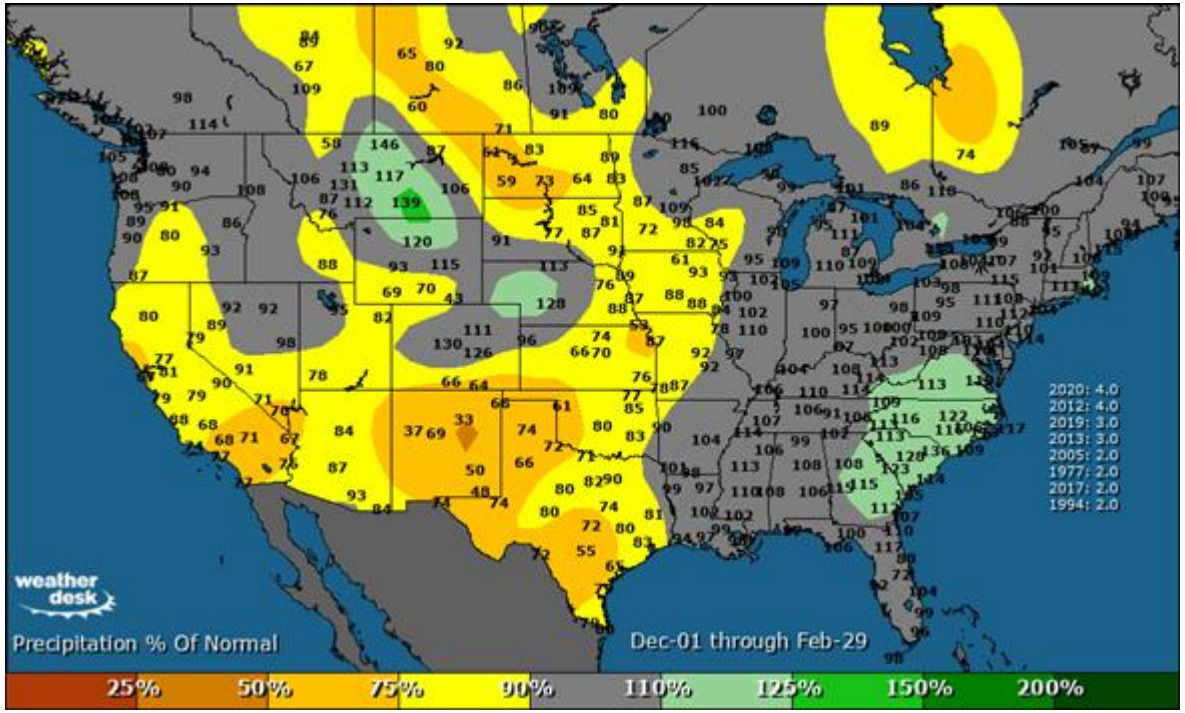
Since 2018, 4 La Niña winters and 3 El Niño. The 4 La Niña winters were the 4 driest

Since 1998, 4 of 5 second-year La Niña events have been drier than the first year

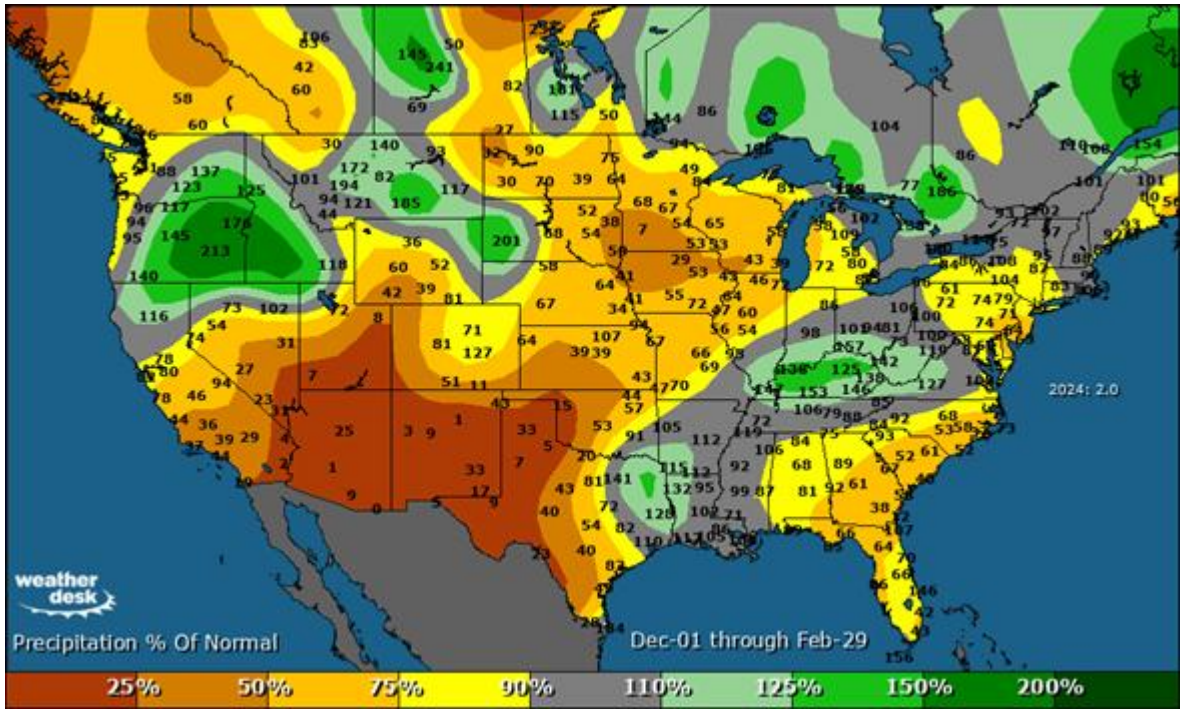
(E) = El Niño, (L) = La Niña, (N) = neutral

# Verification of Last Year's Preliminary Winter Precipitation Outlook

**Analog weighted consensus: 2020-21, 2012-13, 2019-20, 2013-14, 2005-06, 1977-78, 2017-18, 1994-95**



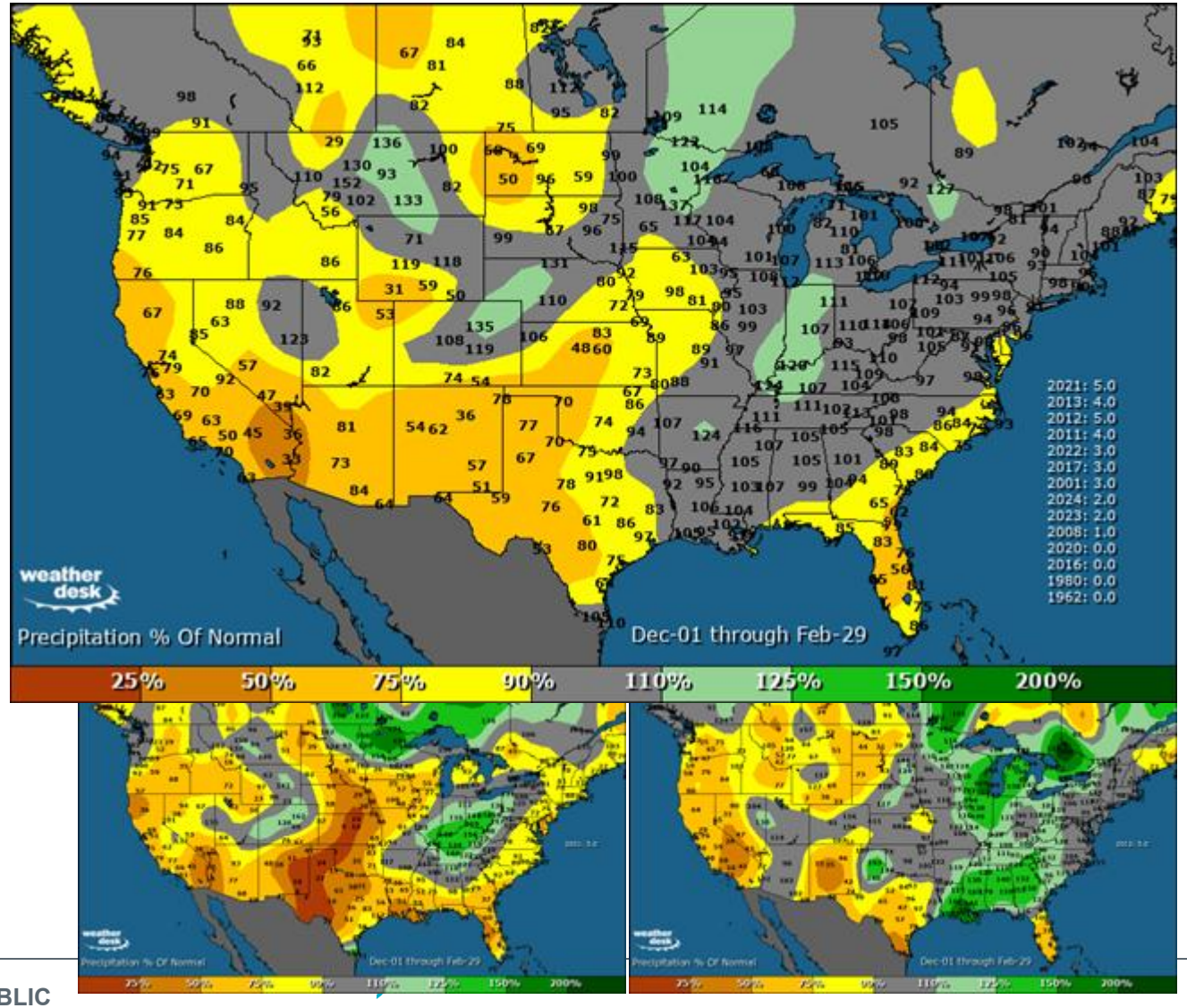

Preliminary Forecast




Actual Anomalies

# Preliminary Winter 2025-26 Precipitation Outlook

**Analog weighted consensus: 2021-22, 2012-13, 2013-14, 2011-12, 2022-23, 2017-18, 2001-02, 2024-25, 2023-24, 2008-09**




## Snowfall for Dallas-Fort Worth

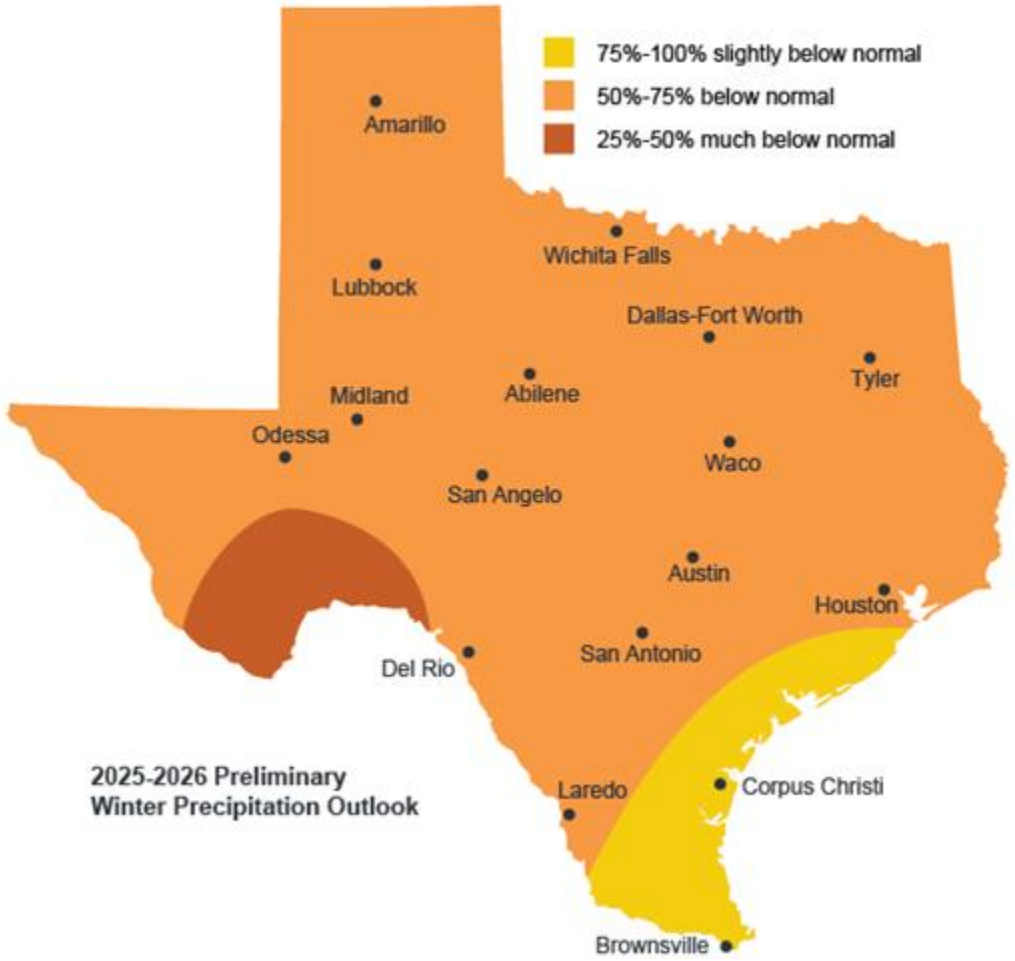
2021-22: 1.7”
2012-13: 0.8”
2013-14: 2.9”
2011-12: 0.3”
2022-23: 1.3”
2017-18: trace
2001-02: 3.8”
2024-25: 2.6”
2023-24: 1.5”
2008-09: 0.2”

(17.6” is the winter record)

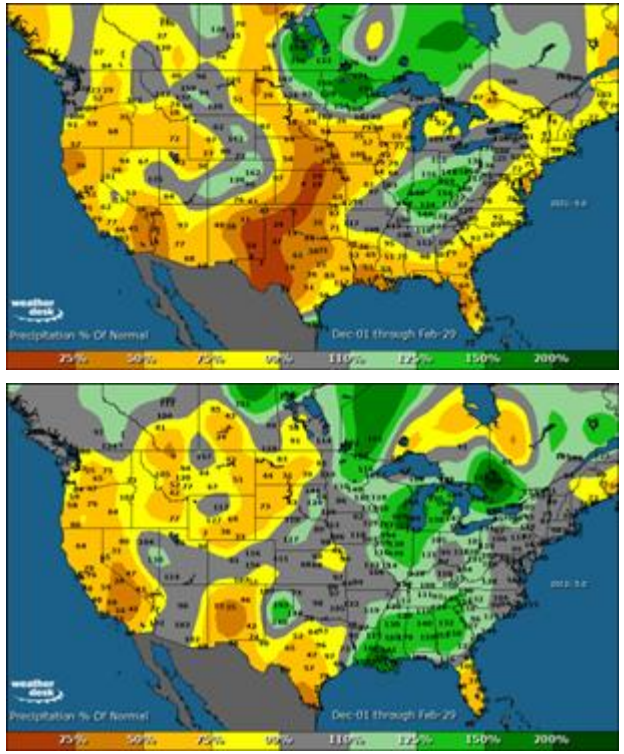
**The analogs point even more heavily toward a dry winter than a warm winter**

Good chance for DFW to see some measurable snowfall this coming winter (1-2” is a reasonable very early estimate)

# Preliminary Winter 2025-26 Precipitation Outlook




Official Preliminary Forecast



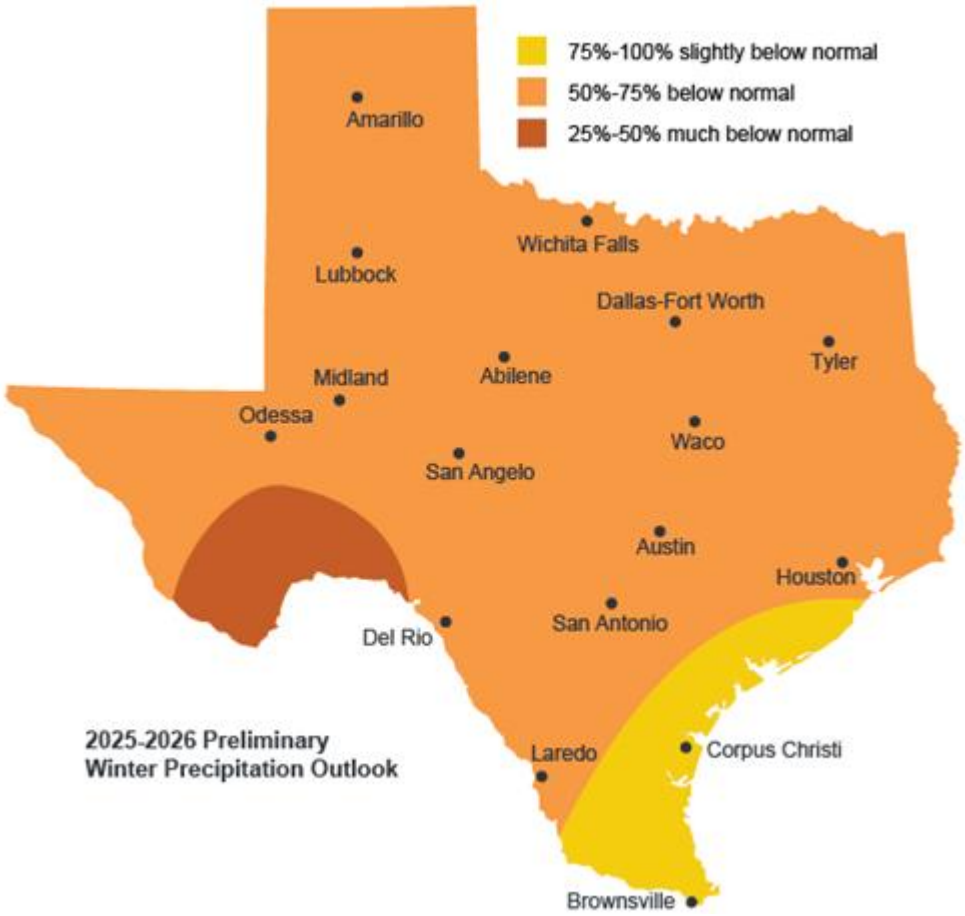
Top two analogs

The 2025-26 winter is forecasted to see below normal precipitation across almost all of Texas

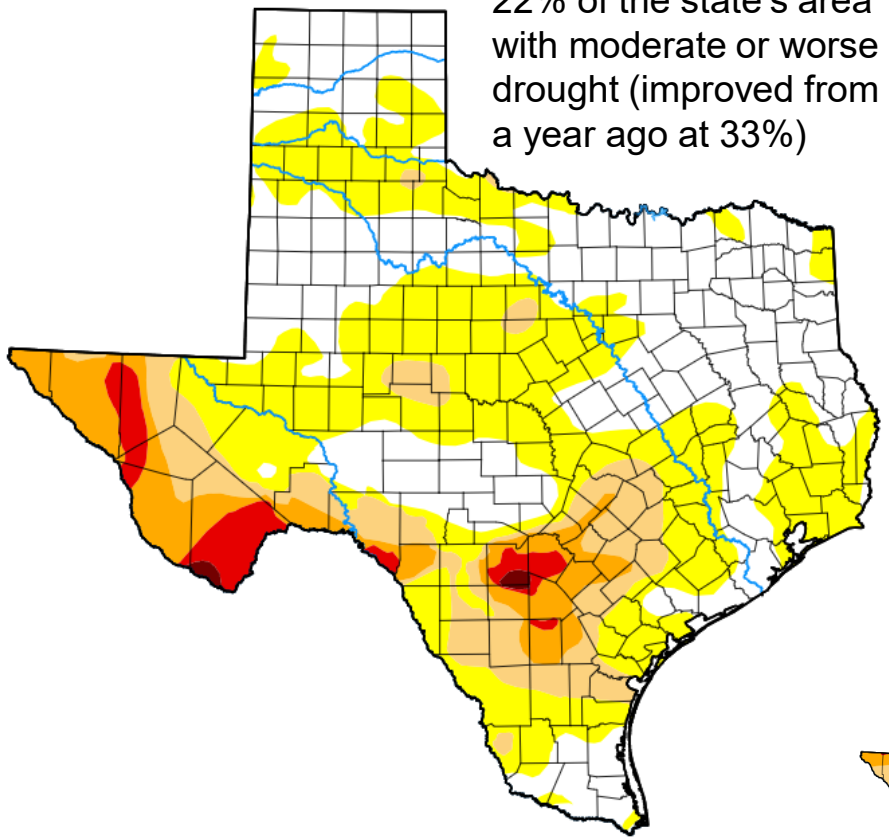
La Niña (especially second-year events) show strong support for a dry winter

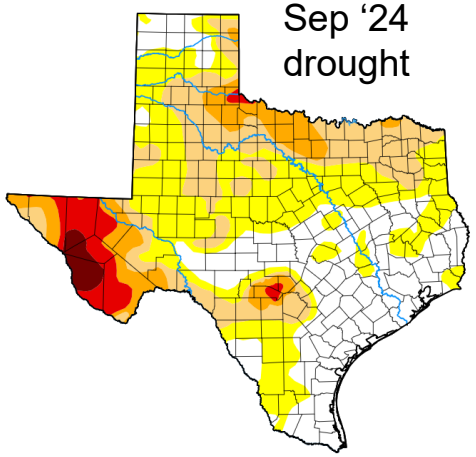
This winter is likely to be drier than last winter (which was also drier than normal)

# Winter 2025-26 Precipitation Outlook vs Drought




Current Drought:
22% of the state's area with moderate or worse drought (improved from a year ago at 33%)





Sep '24 drought

The winter precipitation outlook supports increasing drought

# Preliminary 2025-26 Winter Weather Outlook Summary

- The preliminary winter forecast suggests a mostly mild and dry winter in Texas (above normal temperatures, below normal precipitation)
- 4 of the past 5 second-year La Nina events were warmer and drier than the first year
- While this winter's forecast does not currently show as much potential for an extreme event as last winter (and most recent winters), it would be premature to write off an extreme event. Long-range forecasts are not designed to pick up on single events
- There is support for the polar vortex to have some impact on North America this winter. Preliminarily, the western half of the continent shows higher potential for Arctic outbreaks
- 2013-14 winter is a secondary analog worth monitoring, as the polar vortex had high impacts on Texas (frequent strong cold fronts, though not extreme)
- Fairly high confidence in a relatively dry winter (and drier than last winter)
- Signs point toward increasing drought this fall and winter

- There is not a strong correlation between the winter temperature anomaly and period(s) of extreme cold
- **Every winter should be accompanied by a mindset for a period of extreme cold**

The final winter forecast will be published in November

# Wrap-Up

Thank you for coming!

You will receive a short survey via e-mail. Please complete it to help Texas RE develop future outreach.