



**2023 Initial Winter Weather
Readiness Workshop**

for

**Generation Resources and Transmission
Service Providers**

ERCOT and PUCT Staff

July 28, 2023

Antitrust Admonition

ANTITRUST ADMONITION

ERCOT strictly prohibits market participants and their employees participating in ERCOT activities from using that participation as a forum for engaging in practices or communications that violate the antitrust laws. The ERCOT Board has approved guidelines for those attending ERCOT meetings. If you do not have a copy of the Guidelines, please review the document:

https://www.ercot.com/files/docs/2022/07/14/Antitrust_Admonition_and_Disclaimer_June_2016_update_.pdf

Please remember your on-going obligation to comply with all applicable laws, including antitrust laws.

Disclaimer

- Slides may contain paraphrased summaries of requirements
- In case of conflict between information in presentation and Rule, ***the Rule prevails***

Beginning in 2023, . . .

- Parts of Weather Emergency Preparedness rule became/become effective in 2023:
 - Summer (Effective 6/1/23)
 - Implement **additional** weather emergency preparation measures **reasonably expected to ensure sustained operation during greater of:**
 - (1) **maximum ambient temperature at which facility experienced sustained operations**
or
 - (2) **95th percentile maximum average 72-hour temperature in ERCOT weather study** for facility's weather zone
 - Create **list of all hot weather critical components**, review annually prior to beginning of summer, and update as necessary
 - Winter (Effective 12/1/23)
 - Implement **additional** weather emergency preparation measures **reasonably expected to ensure sustained operation at 95th percentile minimum average 72-hour wind chill value in ERCOT weather study** for facility's weather zone
 - Create **list of all cold weather critical components**, review annually prior to beginning of winter, and update as necessary
- ERCOT historical weather study can be found at <https://interchange.puc.texas.gov/search/documents/?controlNumber=52691&itemNumber=6>

Recent Interpretation of wind chill temperature

- ERCOT issued notice of interpretation of Rule 25.55 (June 23, 2023)
- MPs expressed concerns
- Open Meeting (June 29, 2023) → Commissioners asked ERCOT to clarify interpretation
- ERCOT clarification letter (July 13, 2023)
 - Discussed at next Open Meeting (July 20, 2023)
 - Commission accepted interpretation
 - PUC staff issued memo memorializing interpretation that includes ERCOT letter

<https://interchange.puc.texas.gov/search/documents/?controlNumber=54444&itemNumber=44>

- Workshop goal = share info before winter 2023-2024 and answer questions

Interpretation Letter

- Based on discussions at Open Meeting (June 29, 2023)
- Interprets 16 Texas Administrative Code § 25.55(c)(1)(B) and (f)(1)(B)
 - Establishes temperature standard for facilities in winter weather
 - Clarifies ERCOT’s June 23, 2023 filing (Item 34 in Project #54444)
- Explains how ERCOT will use Wind Chill values in Table 72 of ERCOT weather study (Project #52691) to evaluate adequacy of cold weather design criteria and may be used to establish minimum standard of cold weather design criteria for new facilities

Weather Zone	95th Percentile Minimum Average 72-hour Wind Chill
North	-5.0°
North Central	-0.5°
West	0.3°
Far West	1.3°
East	4.4°
Coast	18.1°
South Central	8.4°
Southern	16.3°
Valley	20.0°
Panhandle	-17.6°

Interpretation Letter (cont'd)

ERCOT will use chart values as follows:

- Determine Adequacy of Winter Weather Emergency Preparation Measures
 - MPs provide temps + wind speeds in current equipment design and calculate associated Wind Chill value using formula in NOAA/NWS Wind Chill Chart:

$$\text{Wind Chill (}^{\circ}\text{F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

(T = temperature and V = wind speed for equipment design)

- If *design* Wind Chill value ($^{\circ}\text{F}$) is \leq chart value, presumption - *subject to confirmation during inspection* - facility meets Rule
- If *design* Wind Chill value ($^{\circ}\text{F}$) $>$ chart value, presumption facility does *not* meet Rule and MP must implement **additional** weather emergency preparation measures to reasonably ensure sustained operations at or above chart value

Interpretation Letter (cont'd)

Example 1:

- MP facility in East weather zone (chart value = 4.4°) designed/constructed to 15°F + 10 mph wind speed
 - Calculated Wind Chill value (2.66°F) *lower than* chart value
- ERCOT will *presume* no need for *additional* weather emergency preparation measures to reasonably expect sustained operation at chart value

Example 2:

- Same facility but designed/constructed to 15°F + 5 mph wind speed
 - Calculated Wind Chill value (7.11°F) *higher than* chart value
- ERCOT will presume facility needs *additional* weather emergency preparation measures to reasonably ensure sustained operation at chart value

Interpretation Letter (cont'd)

- Two new columns added to Declaration of Preparedness Appendix A
 - MP must submit temperature and wind speed for *current* facility design (*original* design or *subsequent* redesign)
 - Example Appendix A for generation entities shows additional columns (TSP form will be similar)

Interpretation Letter (cont'd)

- If entity does not have (or cannot identify) *current* cold weather design basis for existing facility, it must assess weather emergency preparation measures to determine what, *if any*, additional measures it must perform to reasonably expect sustained operation at chart value
- During inspections, ERCOT may request records to establish compliance
 - Will also continue established inspection practices to evaluate compliance with other Rule requirements
- ERCOT encourages MPs to select conservative cold weather design criteria significantly exceeding standards in chart values for ***new*** facilities

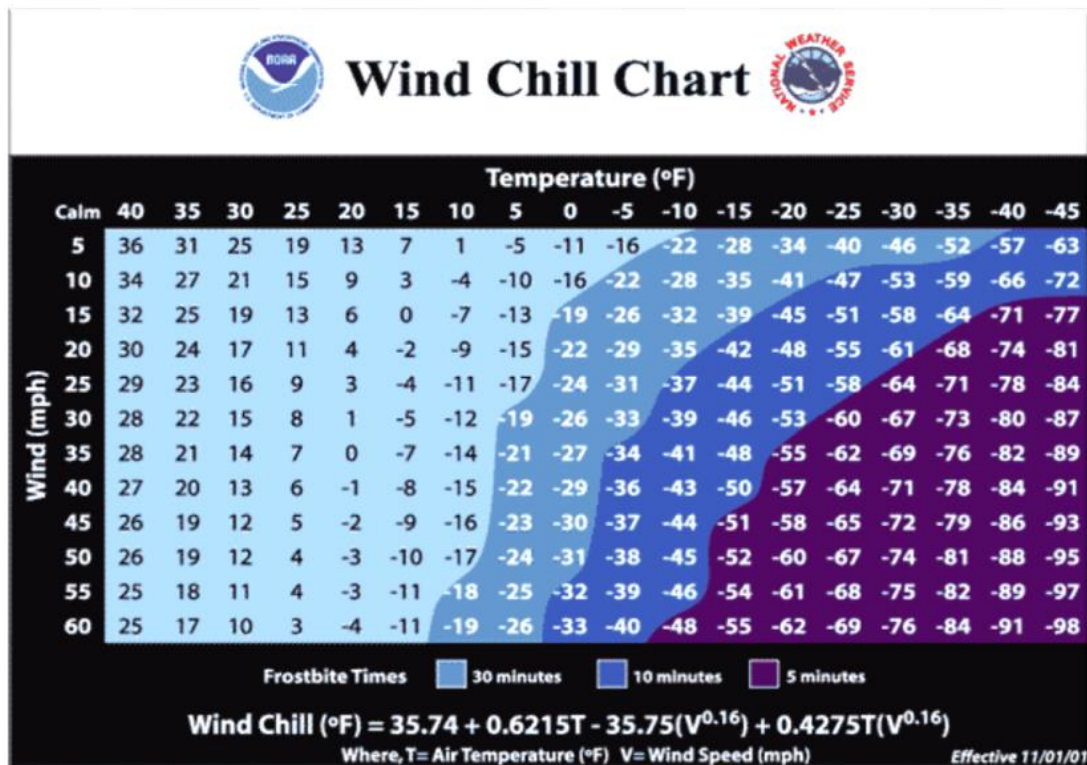
Interpretation Letter (cont'd)

Evaluation of Failures when Actual Temperature Exceeds Chart Value

- If facility has weather-related failure when *ambient temperature* > chart value, ERCOT will evaluate circumstances
 - May inspect facility to determine if MP failed to meet requirements
 - Evaluation will consider wind chill values calculated from *actual* temperatures and wind speeds at/near facility at time of failure
 - If *actual* calculated wind chill value at time of failure \leq chart value **and** MP applied **and** maintained weather emergency preparation measures, ERCOT will not consider that failure out of compliance w/ Rule
 - If *actual* calculated wind chill value at/near facility at time of failure > chart value, ERCOT may determine weather emergency preparation measures were inadequate for sustained operation at chart value
 - ERCOT will assign cure period to remedy deficiency

Interpretation Letter (cont'd)

- Clarified interpretation enhances system reliability during cold weather and avoids “double-count” chilling effect of wind at low temperatures
- Also provides clear expectations for: (i) MPs when providing preparedness declarations and (ii) ERCOT when performing evaluations



Interpretation Letter (Attachment 2)

Instructions:

- Every row requires a response.
- Existing rows cannot be deleted.
- Rows can be added by right-clicking on the row number and selecting "Insert".

Appendix A: Winter - Generation Entity Declaration of Weatherization Preparedness

Generation Entity: <generation_entity>

Generation Resource	If a Resource is not covered by this declaration, please indicate the reason below.	Design Basis Cold Temperature (°F)	Design Basis Wind Speed (mph)	Minimum Experienced Ambient Temperature (°F)	Activities to Complete the Requirements of 16 TAC §25.55(c)(1)	Comments



New columns for Design Basis Cold Temperature (°F) and Wind Speed (mph)

PUCT Memo

Kathleen Jackson
Interim Chair

Will McAdams
Commissioner

Lori Cobos
Commissioner

Jimmy Glotfelty
Commissioner



Greg Abbott
Governor

Thomas J. Gleeson
Executive Director

Public Utility Commission of Texas

TO: Woody Rickerson, ERCOT

FROM: Barksdale English, Division of Compliance and Enforcement

DATE: 20 July 2023

RE: July 20, 2023 Open Meeting – Item #26

Project No. 54444 – *CY 2023 Reports of the Electric Reliability Council of Texas*. Implementation of Wind Chill Values under 16 Tex. Admin. Code § 25.55

PUCT Memo (cont'd)

Today, the commissioners voted to direct Commission Staff to file a memorandum that summarizes their deliberation and decision related to ERCOT's proposed plan to implement the wind chill value weather preparation standard contained in 16 Texas Administrative Code (TAC) § 25.55(c)(1)(B) and (f)(1)(B). The commissioners unanimously supported the concepts and implementation plan laid out in your July 13, 2023 memorandum¹ and directed ERCOT to implement that plan for the upcoming winter season beginning December 1, 2023.

Based on your memorandum and today's discussion, the commissioners directed ERCOT to:

- (1) require each generation entity and transmission service provider to file with its declaration of winter weather preparedness the ambient temperature and wind speed design values for each resource or facility under that entity's control;²

¹ Project No. 54444, AIS Item No. 40 (Jul. 13, 2023).

² If a generation entity or transmission service provider does not have access to original or current design criteria for ambient temperature or wind speed, the entity must devise those values based on the entity's experience operating the resource or facility.

PUCT Memo (cont'd)

Project No. 544444

PUCT Direction on Wind Chill Values

Page 2 of 2

- (2) assess, in part, a resource's or facility's winter weather preparedness on the 95th percentile, minimum average 72-hour wind chill values included in ERCOT's 2021 weather study as Table 72;³
- (3) inspect documents verifying the design criteria and the entity's efforts to prepare its resource or facility to that design criteria, as needed; and
- (4) evaluate actual temperature and wind speed experienced at a resource or facility that suffers an outage or deration during winter weather conditions, as described by the rule.

Attached to this memorandum is your July 13, 2023 memo for ease of reference. Should you have any questions, please do not hesitate to contact me.

Key Points

- PUC Weather Emergency Preparedness Rule is having beneficial effect on system reliability
- Widespread implementation of measures to comply with Rule demonstrates that compliance levels are generally high
- Collaborative discussions during inspections have resulted in increased understanding and many simple and nearly immediate remedial actions
- Using cure periods effectively drives quick solutions to compliance deficiencies
- Continued diligence implementing winter/summer preparation measures, maintaining them through seasons, and creating good compliance records is critical to success of program
- ERCOT letter and PUC memo intended to facilitate compliance w/ 16 TAC §25.55