ERCOT Trending Topics

TOPIC: WEATHERIZATION

Weather Emergency Preparedness Rule
Weatherization Inspections: Winter and Summer
Certified Weatherization Inspector (CWI) Certification

In this ERCOT Trending Topic, we explain what weatherization is, why it matters, and how ERCOT's weatherization program with its associated inspections of generation and transmission facilities plays a critical role in keeping the grid reliable during both winter and summer seasons

FACTS:

Background

In February 2021, during Winter Storm Uri, Texas experienced freezing temperatures for more than 100 consecutive hours. Many power plants and natural gas facilities were unable to generate or deliver energy or gas due to the extreme cold and freezing precipitation, resulting in a prolonged period of customer outages. Following the storm, the Texas Legislature passed Senate Bill 3, which mandated the Public Utility Commission of Texas (PUCT) to require the weatherization of power facilities — including generation and transmission — and the Texas Railroad Commission (RRC) to require the weatherization of natural gas infrastructure in the ERCOT Region.

The PUCT Weather Emergency Preparedness Rule (16 TAC § 25.55) initially established winter weather emergency standards for generation and transmission facilities in the ERCOT Region. Later, summer standards were adopted.

The **Weather Emergency Preparedness Rule** was developed in two phases:

- Phase I: Adopted October 19, 2021. Established the first phase of winter weather emergency preparedness standards for generation and transmission facilities.
- Phase II: Adopted September 29, 2022. In addition to the Phase I winter weather emergency preparedness standards, Phase II added summer weather standards for generation and transmission facilities. Most parts of Phase II were effective upon adoption; however, several provisions were effective “beginning in 2023.”

What are the summer and winter inspection requirements for facilities?

Effective from June 1 and December 1, 2023, generation and transmission facilities have been required to implement measures to ensure continuous operation during extreme hot and cold temperatures in the summer and winter seasons, respectively. In winter, facilities are expected to operate down to a specific wind-chill temperature, which varies by ERCOT weather zone region.

In summer, these same facilities are expected to operate up to

- The higher of the maximum ambient (surrounding air or environment) temperature at which they have experienced sustained operations, or
- The summer temperature: 95th percentile maximum average 72-hour temperature, per the **rule requirements**

Temperature requirements vary per ERCOT-specific weather-zone region. Examples of these temperature requirements are shown in the chart below.

	Lubbock (Panhandle)	Austin (South Central)
Winter: Wind-Chill Temperature	-17.6°F	8.4°F
Summer: Ambient (varies) or Summer Temperature	90.3°F	92.3°F

During summer, for the majority of the facilities in the ERCOT Region, the maximum ambient temperature at which the facilities have sustained operations governs. Facilities are also required to create a list of hot- and cold-weather critical components by those indicated dates. At a minimum, generation and transmission facilities must meet the following summer or winter requirements.

Summer Requirements

Effective June 1, 2023

FACILITIES MUST:

- Prepare for sustained operation during the greater of maximum temperature the resource has experienced or the 95th percentile maximum average 72-hour temperatures for their weather zone
- Document a list of hot-weather critical components for their site

Winter Requirements

Effective December 1, 2023

FACILITIES MUST:

- Prepare for sustained operation at the established 95th percentile minimum average 72-hour wind-chill temperatures for their weather zone
- Document a list of cold-weather critical components for their site

Why is weatherization important for grid reliability?

Effective weatherization of power generation and transmission facilities is crucial for system reliability during both summer and winter seasons in Texas. With significant electric demand (Load) growth on the ERCOT System, it is vital that ERCOT's power facilities' infrastructure components are protected and prepared to operate reliably during the summer and winter months when extreme weather conditions can cause electrical demand to peak.

Weatherization of generation and transmission facilities is similar to what someone may do to prepare and protect their home during summer or winter seasons. For summer or winter, this may include checking the heating, ventilation, and air conditioning (HVAC) system, insulating pipes and garage doors, and sealing any cracks around pipes and windows, and doors. These actions are a form of weatherization preparedness.

Under the Weather Emergency Preparedness Rule, facilities are required to create lists of **cold-weather critical components (CWCCs)** prior to the beginning of the winter season and **hot-weather critical components (HWCCs)** prior to the beginning of the summer season. Each critical component on the list must be protected adequately for the rigors of the season, maintained, and monitored to ensure that it remains in working condition.

When does ERCOT inspect facilities?

Most inspections of facilities occur during the winter season (December–February) and the summer season (June–September). Facilities must maintain seasonal preparation measures throughout the winter and summer.

- **Summer inspections:** By June 1 each year, a facility must complete summer-weather emergency preparation measures.
- **Winter inspections:** By December 1 each year, a facility must complete winter-weather emergency preparation measures.

Who performs weatherization inspections?

ERCOT has in-house weatherization inspectors who work with Market Participants to inspect power facilities to ensure that they meet PUCT rule requirements and can reliably provide generation and transmission services during extreme conditions. ERCOT has developed a Certified Weatherization Inspector (CWI) program, which requires staff to develop a deep understanding of weatherization principles, techniques, and standards to support ERCOT's winter and summer preparedness inspections. ERCOT also supplements its internal staff with contracted support when necessary.

How many facilities has ERCOT inspected?

Since its inception in December 2021, the Weatherization Inspection Program successfully met the original PUCT rule requirements for the required 1,800 inspections within a three-year period. As of April 2026, ERCOT has completed 4,588 weatherization inspections of generation and transmission facilities, as shown in the chart below.

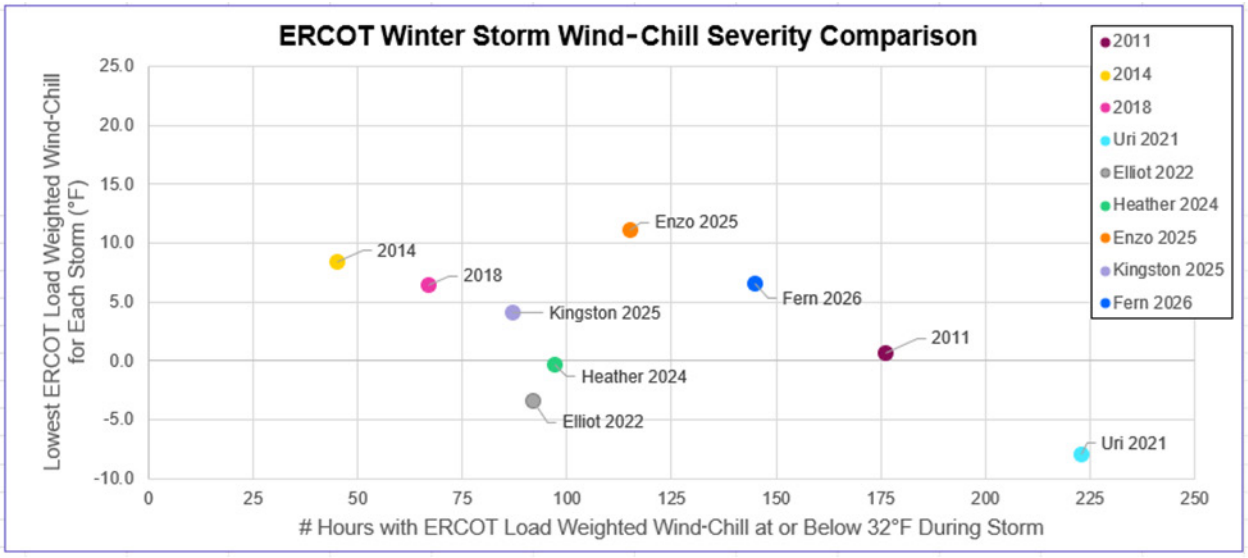
Generation Facilities	Generation Facilities	Total Weatherization Inspections
2,990	1,598	4,588

What does ERCOT do to comply with the Weather Emergency Preparedness Rule?
ERCOT must:

- Provide the PUCT with semiannual reports of submissions of Market Participant Declarations of Weather Preparedness
- Develop and maintain checklists for inspections
- Prescribe a form for declarations of weather preparedness
- Inspect Market Participants' facilities to determine compliance — every resource at least once in a three-year period, and 10% of transmission facilities at least once in a three-year period
- Provide inspection reports and establish cure periods for deficiencies
- Report Market Participants who have not corrected deficiencies within the cure period to the PUCT
- File a historical weather study every five years, with the next due no later than November 1, 2026

How have Texas winter storms compared in severity?
Winter Storm Uri was the most severe and most impactful winter storm that ERCOT has experienced in decades. A 2011 winter storm was also severe and, like Uri, resulted in temporary, controlled power outages across the ERCOT Region. Their relative severity can be seen by their lower right positions on the wind chill severity comparison chart below.

This graphic shows the comparison between various winter storms with the number of hours with wind chill at or below 32°F and the lowest wind-chill value observed during the storm.



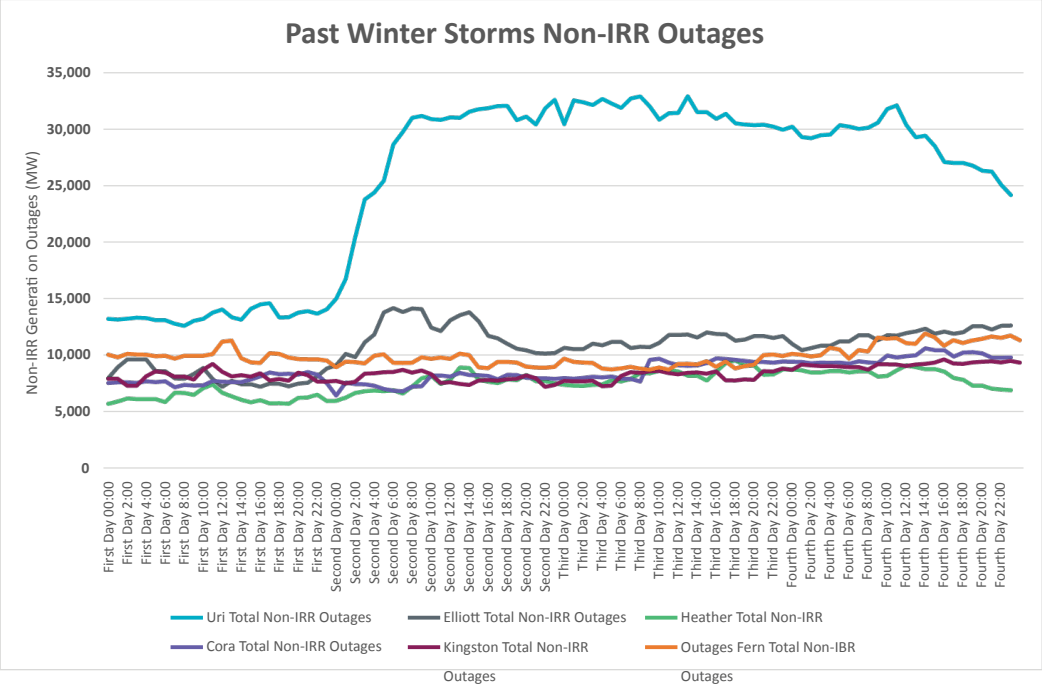
The graphic shows that Winter Storm Fern in 2026 had significantly cold conditions for longer than any other post-Uri storm. Several winter storms since Winter Storm Uri included long periods of very low wind chills, but ERCOT was able to keep the grid stable without directing controlled outages. Also of significant note, two of the three storms with wind chills below 0°F — Winter Storm Elliott in 2022 and Winter Storm Heather in 2024 — occurred after Winter Storm Uri, demonstrating the grid's improved reliability during extreme cold.

How do weatherization inspections benefit the grid during extreme weather?

ERCOT uses a risk-based approach — identifying, assessing, and prioritizing — to conduct weatherization inspections of generation and transmission facilities.

These inspections are critical to support grid reliability during winter and summer seasons. The benefits of the weatherization standard have been demonstrated through the grid's strong performance during winter storms Texas experienced between 2022 and 2026. For example, since the creation of weatherization inspections, ERCOT has recorded generally consistent outages at Non-Intermittent Renewable Resources (Non-IRR).

Non-IRRs are power plants that operators can control and dispatch at any time to meet electricity needs. Unlike intermittent resources such as wind and solar — which only generate power when the wind blows or the sun shines — Non-IRRs like natural gas- and coal-powered units can produce power on demand, on a reliable, scheduled basis and are therefore highly critical to reliable system operation. During the post-16 TAC § 25.55 winter storms, outages at Non-IRR plants remained at a consistently low level. During Winter Storm Heather in 2024, outages at these plants were lower than during Winter Storm Elliott in 2022 and Winter Storm Uri in 2021, as seen in the graph below. Most recently, Winter Storm Fern in 2026 continued this encouraging trend, with Non-IRR outages tracking very close to — or below — those of Winter Storm Elliott.



Since 2021, the ERCOT grid has not experienced any reliability impacts during winter storms. This strong performance is attributable to the many reforms and improvements made since 2021, including weatherization, which has made a positive impact on grid reliability.

What is ERCOT's approach to inspecting transmission facilities?

ERCOT inspects equipment within the fence lines of substations and switchyards. Typically, that equipment includes transformers, breakers, and electronic equipment that supports the operation of the transmission facility. This would include HVAC systems, control cabinet heaters, and seals on cabinets. ERCOT does not inspect transmission lines per se, just the equipment within the transmission substation/switchyard facility. In determining which facilities to inspect, ERCOT considers factors such as criticality for electric grid reliability, having vulnerabilities associated with extreme weather, having experienced a forced outage or other failure related to previous weather emergency conditions, and length of time since last inspection. ERCOT also ensures that adequate records are maintained that demonstrate compliance with various parts of the rule.

What is ERCOT's approach to inspecting generation resources?

ERCOT ensures that rule provisions are met by reviewing records and inspecting weather emergency preparation measures that protect critical equipment that could fail during extreme weather conditions. Wind breaks, insulation, enclosures, heat tracing, and other measures are checked to ensure sustained operation during extreme weather conditions. ERCOT inspects each generation resource at least once every three years but may inspect resources more frequently if they are critical for grid operation, have had compliance deficiencies, or have experienced a forced outage or other failure related to previous extreme weather conditions.

How does ERCOT manage inspections of natural gas-fired generation wellheads?

While ERCOT does not inspect natural gas extraction, transmission, or distribution systems, reliable delivery of fuel is essential to support gas-fired generation. Freeze-related disruptions — whether at wellheads, compressor stations, or elsewhere in the delivery system — can reduce gas supply and affect power plant operations. The PUCT has strengthened generation and transmission weatherization requirements, and ERCOT continues to conduct inspections to help mitigate cold-weather risks on the electric side of the system.

ERCOT also coordinates with the Texas Railroad Commission (the organization that inspects the bulk natural gas system in Texas) and Market Participants to share information and support weatherization practices for all infrastructure that contributes to electric power generation and delivery.

What happens if facilities are not compliant?

Under the Weather Emergency Preparedness Rule, if a generation or transmission facility does not meet weatherization-inspection requirements, ERCOT will provide a cure period during which the facility must remedy each deficiency. If the facility cannot remedy a deficiency within the cure period, ERCOT will report the entity to the PUCT, which will determine next steps as part of the PUCT enforcement process.

What's next?

Continued diligence in complying with rule provisions and applying best practices will deliver greater reliability when it is needed most. Learn more about ERCOT's **winter weather readiness** and **summer weather readiness**.