LIGHTNING SAFETY IN TELECOMMUNICATIONS

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Lightning is a persistent and often underestimated source of loss for our telecommunications industry. While commonly associated with severe thunderstorms, lightning can strike miles from rainfall, occur during short-lived storm cells, and cause significant damage without any warning. For telecommunications insurance clients, lightning presents high-severity, frequent claims, and low-predictability exposure that affects physical assets, network continuity, and worker safety.

Recent lightning events across the United States reinforce the importance of disciplined lightning risk management. Although lightning cannot be prevented, losses can often be reduced through infrastructure protection, operational controls, and adherence to established safety guidance.

Recent Lightning Events Highlight Telecom Exposure

Just a couple of weeks ago, on Valentine's Day, February 14, 2026, a lightning strike caused a wind turbine near Breckenridge, Texas, to catch fire and suffer structural failure during thunderstorms. Local officials confirmed lightning as the cause, noting that the turbine's height and exposure contributed to this loss. While the incident did not involve injuries, it illustrates a key loss-control lesson for telecommunications: tall, isolated structures in open terrain are inherently vulnerable to lightning.

Telecommunications towers, rooftop installations, and microwave sites share many of the same risk characteristics as wind turbines. They are elevated, frequently located in exposed areas, and designed with conductive components that can channel lightning energy into sensitive equipment if grounding or surge protection is compromised.

Lightning has also caused widespread secondary losses here in North Texas, close to where I live. During severe storms in October 2025, multiple structure fires were confirmed to have been started by lightning strikes, resulting in significant property damage and emergency response activity. While these fires involved residential properties, similar strike patterns can affect telecom shelters, equipment huts, data rooms, and co-located facilities – particularly where surge protection is degraded, or maintenance has not been regularly adhered to as it should. From a human-impact standpoint, the National Weather Service reported 20 lightning fatalities here in the United States in 2025. Florida led the pack with 3, Oklahoma, Colorado, Georgia, Ohio, New Jersey, and North Carolina all had 2 deaths, and Missouri, Louisiana, Wisconsin, Puerto Rico, Mississippi, and Texas, ending 2025 with 1 lightning death each.

Why Lightning Remains a High-Loss Driver for Telecom

Lightning is inherently unpredictable. The NOAA (National Oceanic and Atmospheric Administration) emphasizes that there is no truly safe outdoor space when thunderstorms are present and that lightning frequently occurs outside heavy-rain areas.

Lightning energy can also travel through conductive pathways far beyond the point of a strike. As we are all aware, and as the CDC (Centers for Disease Control and Prevention) stresses, lightning can move through electrical wiring and building systems alike. This means that, for telecommunications networks, the same principle applies to power feeds, grounding systems, coaxial cables, fiber-optic pathways with metallic components, and even potentially backhaul connections.

As a result, lightning losses are often not limited to visible strike damage. Knowing lightning has such devastating potential, telecommunications companies and cooperatives must be aware of typical lightning events to be prepared.

Claims frequently involve:

Failure of radios, switches, power supplies, and rectifiers

Damage to backup power systems and monitoring equipment

Service outages leading to (SLA) Service Level Agreement penalties or customer claims

Losses to customer-premises equipment connected to the network

Extended restoration costs due to access restrictions during storms

These secondary impacts can significantly increase claim severity, even when initial physical damage appears limited.

Claims-Prevention Focus for Telecommunications Policyholders

Loss-control experience proves early action is the most effective lightning-risk reduction measure. Of course, weather monitoring is an essential aspect that must be considered. NOAA guidance stresses responding at the first sound of thunder, not when heavy rain or severe conditions become visible. For telecommunications clients, this guidance has direct operational implications.

Tower climbing, rooftop access, line work, and outdoor maintenance activities should be suspended immediately when thunderstorms approach. Delays of even a few minutes can expose workers and assets to unnecessary risk.

The Occupational Safety and Health Administration (OSHA) recognizes lightning as a serious hazard for outdoor workers and emphasizes the importance of formal safety protocols for exposed work environments. Clear procedures not only reduce injury risk but also help limit liability and workers' compensation exposure. Policyholders who show structured lightning risk management with records, training, and procedures are less likely to have frequent or severe lightning claims.

Loss-Control Best Practices for Policyholders

The following checklist outlines practical measures telecommunications insurance clients can use to reduce lightning-related losses and support claims prevention. These items should be incorporated into routine maintenance programs, safety planning, and business continuity efforts.

1. Site and Infrastructure Protection

Verify that all towers, rooftops, shelters, and equipment cabinets have properly installed and maintained grounding and bonding systems.

Inspect surge protection devices (SPDs) on power, RF, and data lines for signs of degradation or end-of-life conditions.

Confirm grounding continuity and bonding for co-located tenants, as shared grounding deficiencies can increase exposure.

Ensure backup power systems, including generators and battery strings, are properly grounded and protected against surge events.

2. Operations and Maintenance Controls

Suspend non-essential tower, rooftops, and outdoor work when thunderstorms are forecast or when thunder is heard, consistent with NOAA guidance.

Have supervisor, dispatch, and/or customer service reps avoid dispatching technicians to exposed or elevated sites during active lightning conditions.

Conduct post-storm inspections of high-exposure sites and document findings following significant lightning events.

3. Worker Safety and Training

Implement clear lightning safety procedures for field personnel that align with OSHA recommendations for outdoor work.

Require workers to seek enclosed shelter immediately when thunderstorms approach and to remain sheltered until conditions fully clear.

Train your employees on how to recognize that thunder alone indicates lightning risk, even in the absence of heavy rain.

If they can hear thunder, the storm is close enough to produce lightning that can strike.

The Math: Sound travels at 750 mph. That is about 1 mile every 5 seconds. Count the seconds between the flash of the lightning and the sound of the thunder, then divide by 5 to get the distance. So, 10 seconds would equal 2 miles away. Just remember, if you can hear it, it can strike you.

4. Business Continuity and Claims Preparedness

Identify and map high-exposure locations, such as isolated towers, elevated terrain, and rural sites, for prioritized protection.

Incorporate lightning scenarios into business continuity and disaster recovery planning, including outage response and restoration sequencing.

Maintain records of grounding tests, surge protection maintenance, and safety training to support potential claims evaluation.

Recent lightning events across the United States demonstrate that lightning remains a significant and ongoing loss driver for telecommunications operations. While lightning cannot be controlled, its impact can often be mitigated through disciplined infrastructure protection, operational planning, and adherence to proven safety guidance.

For telecommunications insurance clients, proactive lightning risk management is a critical element of loss control and claims prevention. By strengthening grounding and surge protection, enforcing safety protocols, and planning for lightning exposure, policyholders can reduce service disruptions, protect personnel, and limit financial loss when storms do occur.

Lightning events may be brief, but their operational and financial consequences can be long-lasting. Preparedness remains the strongest defense. From a non-work perspective, according to Insurers Information Institute, in 2024, U.S. insurers paid approximately $1.04 billion for roughly 55,500 homeowner claims.

Sources

NOAA, National Oceanic and Atmospheric Administration, Lightning Safety, https://www.noaa.gov/jetstream/lightning/lightning-safety
CDC, Centers for Disease Control and Prevention, Lightning Safety Guidelines, https://www.cdc.gov/lightning/safety/index.html
National Weather Service, Lightning Fatalities in 2025, https://www.weather.gov/safety/lightning-fatalities
OSHA, Occupational Safety and Health Administration, Lightning Safety When Working Outdoors, https://www.osha.gov/sites/default/files/publications/OSHA3863.pdf
FOX Weather, Texas lightning-caused wind turbine fire, https://www.foxweather.com/weather-news/lightning-strike-causes-wind-turbine-fire-texas