A BUYING GUIDE FOR
UTILITIES

Conquering Today's Power Utility Challenges with Weather Services & Alert Solutions

aem

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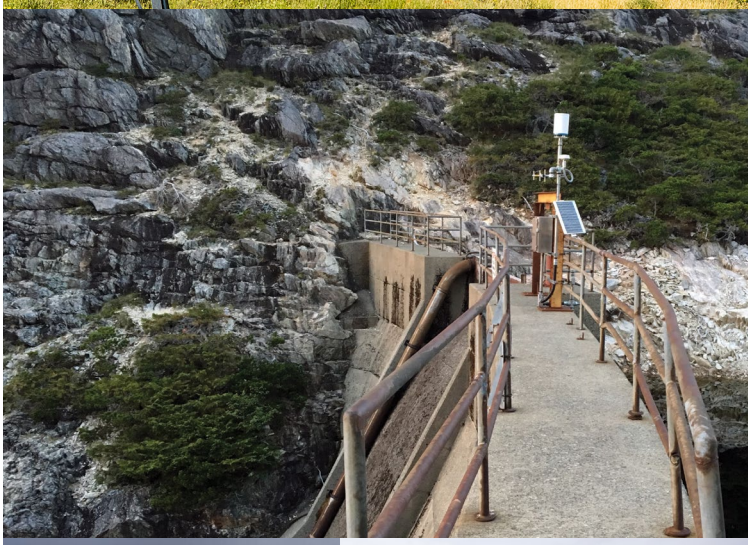
Introduction

At AEM, our goal is to empower organizations to survive – and thrive – in the face of escalating environmental risks. When it comes to energy utilities, that means helping the industry maximize operational continuity and safety, even as changing weather patterns make providing continuous service in a satisfying, profitable manner more difficult than ever.

We're extremely proud to have established a reputation as a go-to advisor and support system for future-facing energy providers who realize profits and reputation will be made or lost in the near future based on daily decisions around weather.

This guide is designed to illustrate how we help electric utilities increase weather-readiness by aligning solutions from our portfolio of brands with growing daily challenges.

If you have any questions about the content of this guide or what solutions to your weather risk management challenges might look like, you can **contact us to talk with a utility specialist**.



Challenge 1: Weather Forecasting & Intelligence

Understanding the challenge:

DEMAND GENERATION & SERVICE DELIVERY

Weather has evolved into *the* day-to-day challenge for many utilities across the U.S. and world. In many places, the old demand generation and outage prediction models are broken by evolving weather patterns and no longer provide the best possible business intelligence. Better forecasting and modeling based on a wider historic data set is required to protect profits and customer satisfaction.

SEVERE WEATHER EVENT RESILIENCE

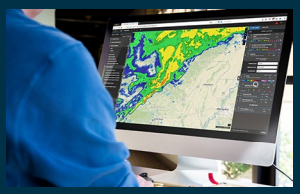
Major weather events like thunderstorms, winter storms, tropical storms, and floods can disrupt service delivery, threaten infrastructure, and endanger field service workers. A provider's ability to accurately predict the impact of a major weather event and provide relevant intelligence to support a swift and effective recovery is increasingly important as extreme weather events become more common.

What a solution looks like:

1. Your meteorologists and ops team get historic data for modeling
2. Your generation team optimizes supply to anticipate demand
3. You contact your meteorologist on demand as needed
4. Your services professional helps you plan for major weather event
5. You keep the public & employees safer while maximizing continuity

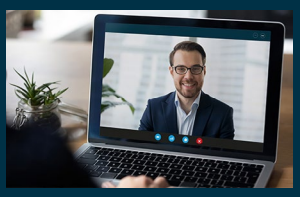
How AEM does it:

AEM's Meteorological Services Team provides 24/7 support to public and private customers across the U.S. and world. We provide each customer with a white glove experience that includes:



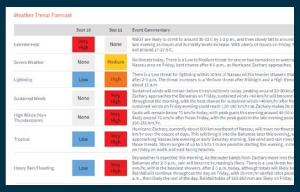
Access to more than 20 years of historic weather data for any location

Forecasts created for your specific work or service area(s)



24/7 on-call support for forecasting & interpretation

ENcast for demand forecasting with pinpoint accuracy



Tailored support before, during, and after major weather events

Challenge 2:
Field Crew Coordination

Understanding the challenge:

TRANSLATING DATA INTO ACTION

With the right weather intelligence and forecasting solution in place, you'll know what weather is headed your way, but that information is useless if you can't get it to the people for whom it is most relevant. In order to maximize field service crews' impact, response time, and ability to support customers, utilities need a strategy to get weather alerts in employees' hands in the right moment.

CREATING RELIABLE, REPEATABLE, CLEAR PROTOCOLS

Again, even the best data has minimal impact when people don't know what to do with it. In order for weather-responsive management to work, alerts on incoming conditions need to reach employees in a clear, highly digestible way that's tied to protocols and operating procedures from your safety plan. The less people need to think, the faster they can get to safety as needed and resume work when possible.

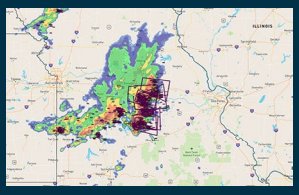
What a solution looks like:

1. You establish alerting limits for lightning proximity, wind speed, etc.
2. On-site and network-based monitoring and forecasts track incoming weather
3. Employees get weather alerts via text message at the right moment
4. Visible strobes and audible horns make alerts unmissable
5. Employees get an "all clear" message when it's safe to work

How AEM does it:

AEM's weather maps and software transform real-time data into a clear, actionable narrative that makes safety and operational continuity as simple as establishing limits and letting the weather tech do the communication for you.

ENcast® for high-accuracy hyperlocal forecasting



Sferic Maps® for storm tracking & visualization

Earth Networks Total Lightning Network® for intelligence

Sferic Connect app for automated employee alerts & all-clears

Sferic Siren to create audible/visible alarms

Challenge 3: Infrastructure Protection

Understanding the challenge:

THE GRID IS UNDER ATTACK FROM THE WEATHER

Any utility infrastructure created more than five years ago is not designed for today's (or especially tomorrow's) weather and climate realities. Wind speeds and temperatures are higher. Winter storms are icier and longer in many places. In order to protect equipment and keep the grid running in an efficient manner, providers will need to think more than ever about weather resilience.

INCREASING WEATHER IMPACT AWARENESS

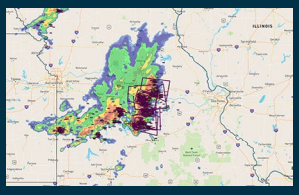
To guard grid infrastructure as effectively as possible, all utilities need to increase their understanding of how the weather at ground level actually translates into strain on generation, transmission, and delivery equipment and, subsequently, outages. That means tracking interplay between weather and key equipment to continuously improve awareness of the service area and enable better maintenance.

What a solution looks like:

1. We install weather & ice sensors in key locations
2. We build a visual monitoring dashboard for your team
3. Your team gets automated alerts about icy or weather-strained equipment
4. Your field service & operations teams lead a data-driven response
5. Infrastructure lasts longer and requires less reactive maintenance

How AEM does it:

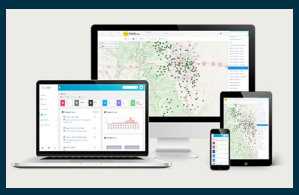
We help utilities understand where and when weather is impacting their infrastructure using a blend of real-time monitoring, documentation, and alerting that creates a clear narrative for risk management and service teams.



Sferic Maps for for storm tracking and visualization.

IceLoad sensor for monitoring towers, generation equipment, etc.

u[sonic] weather sensor for real-time multi-weather monitoring



Contrail® software for sensor/network data

Sferic Connect app for automated employee alerts & all-clears

Challenge 4:
Wildfire Mitigation

Understanding the challenge:

DETECTING FIRES IN YOUR SERVICE AREA

Wildfires are one of the biggest growing threats to utilities in terms of protecting the grid, satisfying customers, and maintaining a strong reputation in the community. To honor all those responsibilities, utilities (especially in the West) need to be more proactive than ever when it comes to understanding when and where wildfire risks exist and addressing them as quickly and decisively as possible.

SUPPORTING A DATA-POWERED RESPONSE

When wildfires do happen, it's important for area utilities to be able to step up as positive leaders who can help guide the response in a way that protects the interests and safety of their customers and community. In order to do that, providers need a rich understanding of wildfire risks and foundation of real-time and historic data that they can extend to other agencies to help inform fire response.

What a solution looks like:

1. We create a fire weather monitoring network for your service area
2. We install fire monitoring cameras in strategic locations
3. We build a highly visual, user-friendly wildfire dashboard for your team
4. You get real-time intelligence and alerts for high-risk areas
5. You can collaborate with local fire service agencies in an empowered way

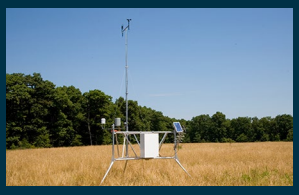
Our wildfire customers say...

"The ease of working with AEM was very attractive to us... Getting our network up and operational was a very quick process... The way that AEM is working to add additional technologies to their camera network and always looking to bring more things to the table is key for us.

— Pam Feuerstein,
COO
CORE Electric Cooperative

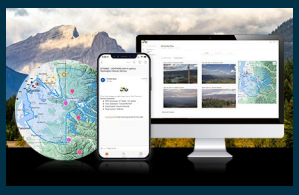
How AEM does it:

We help utilities become wildfire readiness leaders within their communities by providing the intelligence and data they need to understand fire risk day to day and identify small threats before they grow into major wildfires.

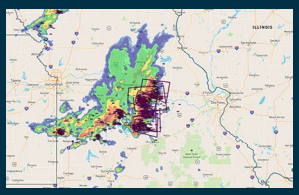


Remote Automated Weather Stations (RAWS) for ongoing monitoring

Wildfire PTZ Cameras for 360° point-tilt-zoom monitoring



SmartGT for digestible visual wildfire intelligence



Sferic Maps® for lightning tracking & visualization

Lightning sensors for monitoring of high-risk locations

Challenge 5: Renewable Transition Planning

Understanding the challenge:

PLANNING RENEWABLE ENERGY FARMS

Whether you're increasing solar or wind infrastructure, placing that equipment in the right location is key to getting the biggest return on investment and keeping your panels or windmills in good condition for years to come. Getting accurate, hyperlocal historic data for your service area is essential to maximizing the impact of your clean energy transition.

MONITORING RENEWABLE ENERGY SITES

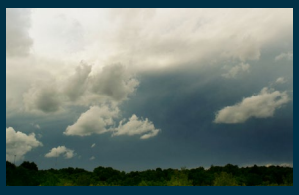
Once your windmills or solar farms are live, it's key to continuously monitor them – just like any other power infrastructure – to track strain, identify incidents where damage may have occurred, and optimize clean energy initiatives over time. In many U.S. states, having an on-site weather monitoring solution on solar farms is an issue of regulatory compliance.

What a solution looks like:

1. We install weather stations & sensors for site monitoring
2. You meet all compliance standards for renewable farm monitoring
3. You get real-time intelligence on weather & infrastructure strain
4. Your field service & ops team can provide responsive service
5. Your workers stay safe with reliable warnings for incoming weather

How AEM does it:

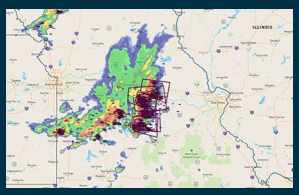
We help utilities increase their understanding of the connection between weather conditions and renewable energy to maximize their investments in clean energy resources and protect their generation equipment from the elements.



20+ years of hyperlocal historic weather data for any point in the U.S.

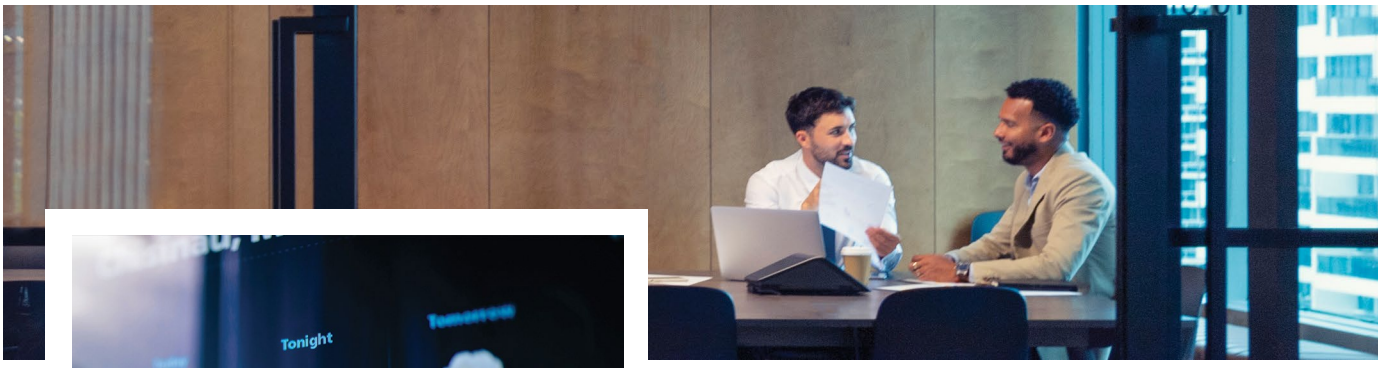
u[sonic] WS7 weather station for high-accuracy wind monitoring

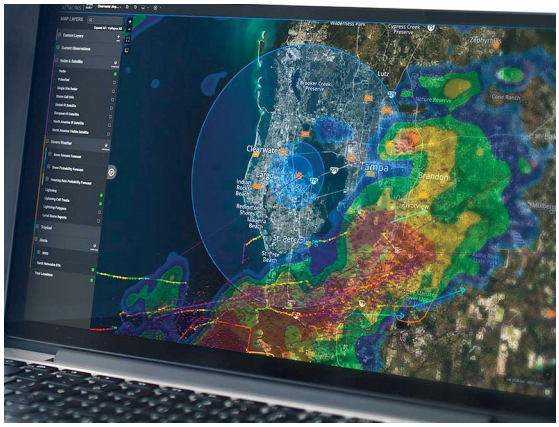
Photovoltaic Monitoring System for long-term solar farm monitoring



Sferic Maps® for lightning tracking & visualization

Lightning sensors for infrastructure monitoring





Work with a Weather Team that Understands Energy

If you're working at a utility and need to increase your forecasting capacity or rapidly modernize your approach to severe weather risk management, AEM is here to help. We're proud to empower utilities at every scale across the U.S., from the rural cooperatives to the big city investor-owned utilities, to survive – and thrive – in the face of escalating environmental risks.

AEM offers a full range of severe weather, flood, and wildfire risk management solutions, and we can serve as either an end-to-end weather services partner for any utility or help you fill a keep gap to address a specific challenge. Our team has been building weather monitoring networks for more than 25 years and specializes in building clear data narratives and alerting frameworks that turn those numbers into better day-to-day intelligence and decisive action when it matters most.

Our approach is backed by a dedicated, on-call meteorological services team and a global weather network that provides authentically hyperlocal weather insight – we never settle for approximations. If you'd like to get a taste of our expertise and see what the theory you've been reading about in this white paper would actually look like for your organization, you can contact us today for a free weather audit with our utilities team.

At the audit, we'll get to know you, your goals, and your current challenges. We will provide insights into what's working or not working about your current approach based on what we hear and can show you examples of solutions we've built for utilities like you. If you'd like to learn more about our network, data, or other services, we can walk you through a live demonstration as well.

Schedule a Weather Audit

More Resources for Utilities

WEATHER MANAGEMENT SOLUTIONS FOR POWER UTILITIES

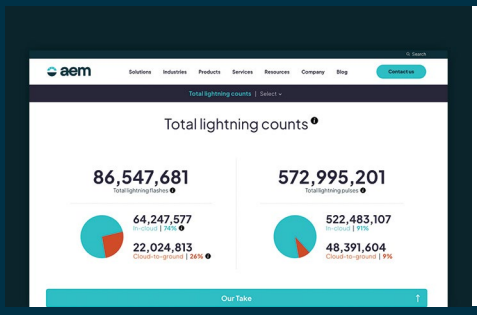
- Learn more about the solutions & technology explored in this guide
- Dive deeper into today's weather challenges & solution opportunities
- Get weather risk management planning tools that help you self-assess

WEATHER-READY PROFILE: CORE ELECTRIC COOPERATIVE

- Hear directly from an AEM utility customer
- Learn how CORE has strengthened weather & wildfire risk management
- See the advantage of working with AEM

HOW UTILITIES CAN CONQUER TODAY'S GROWING WEATHER CHALLENGES

- Get a distillation of our end-to-end POV on utilities
- See how you can protect infrastructure, employees, and customers
- Learn more about enhanced decision making and improved risk mitigation



2022 U.S. LIGHTNING REPORT

- See the power & potential of AEM's Earth Networks Total Lightning Network
- Get state- and county-level insights into lightning counts and density
- Connect with insights from our lightning research & development team

THE IMPORTANCE OF A DEDICATED WILDFIRE WEATHER NETWORK

- See how weather monitoring is your best defense against fires
- Get specific guidance on wildfire network design
- Learn more about increasing wildfire resiliency

ADDRESS

AEM
12410 Milestone Center Dr., Suite 300
Germantown, MD 20876

CONTACT US

Talk to a utilities specialist here