Intelligent Camera Solutions

for Wildfire Risk Management

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Get a more complete picture of wildfire risk

As wildfires escalate in both frequency and intensity worldwide, the challenges facing fire professionals, land management agencies, and energy utilities are evolving rapidly.

As a result, intelligent cameras have emerged as indispensable components of effective wildfire risk management strategies that protect property and save lives.

Amid the influx of new technologies like artificial intelligence (AI), it's essential to have a trusted partner who can guide you through the dynamic landscape of wildfire camera solutions and deliver a future-proof solution customized to your evolving needs. With over 40 years of innovation and expertise in wildfire risk management solutions, AEM is here to help.

> "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

Flexible end-to-end wildfire camera solution from a trusted partner

At AEM, we understand that strengthening wildfire resilience requires a comprehensive approach. From advanced hardware to expert insights, our flexible end-to-end wildfire camera solutions are designed to scale with your changing needs and adapt easily to new technologies. This ensures better situational awareness, increased confidence in decision-making, and faster response times for organizations combating wildfires.

HD PTZ and fixed camera technology

AEM Elements™ 360 decision support application

AI-powered smoke detection

Multi-source ignition detection and verification

Network design and installation

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High-definition wildfire cameras

Whether you are monitoring a specific location or need sweeping 360-degree views, AEM offers a complete line of HD cameras to build your network.

Pan-Tilt-Zoom (PTZ) Cameras

Monitor the entire viewshed and easily respond to dynamic monitoring needs with a PTZ camera.

- Motorized pan, tilt, and zoom functions for 360-degree visibility
- Zoom in to capture detailed views of active fires and high-risk locations
- Automated guard tours and programmable positions for enhanced monitoring

Fixed Camera

Observe power lines, vegetation, and critical infrastructure with a fixed camera.

- Stationary lens with a fixed field of view
- Suitable for specific, unchanging points of interest

Choosing your wildfire camera

Selecting the right camera hardware requires careful consideration. Key questions to consider when selecting the right hardware for your application include:

- ☑ What is the coverage area I want to monitor?
- ☑ Where will I install my camera?
- ☑ How will I power my camera?
- ☑ How will I capture and retrieve images and how often?

AEM offers flexible camera configurations for any use case, including:

1. REMOTE OR WUI LOCATIONS WITH POWER

- AC powered PTZ camera with cellular or ethernet/fiber communications
- Easily self-install or AEM professional install on existing infrastructure
- Optional battery back-up for increased reliability

2. REMOTE LOCATIONS WITH NO POWER

- DC powered PTZ camera with solar panels for operation
- Mount to existing infrastructure or set up a utility pole at desired location
- More complex installation which may require AEM support

3. ENHANCED RAWS MONITORING

- Fixed DC camera added to RAWS with cellular or satellite communications
- Visibility of fuels on the ground to augment fire weather data
- Capture images on a schedule (daily, hourly, etc.)

Unlock the full potential of your wildfire camera network

elements 360

Cameras provide more than imagery to know what is happening in the moment. They provide visual data to make decisions. The **AEM Elements 360** decision support application combines real-time camera data with other fire weather information, delivering a powerful way to plan, prepare, detect, and respond more efficiently and more confidently to dangerous wildfires.

KEY FEATURES

A custom dashboard to conveniently monitor all camera images in one centralized location, streamlining situational awareness.

Efficient sharing of images and information across agencies, fostering more effective collaboration and coordination during wildfire events.

Seamless integration of data from multiple sources for more complete insights to increase confidence in decisions.
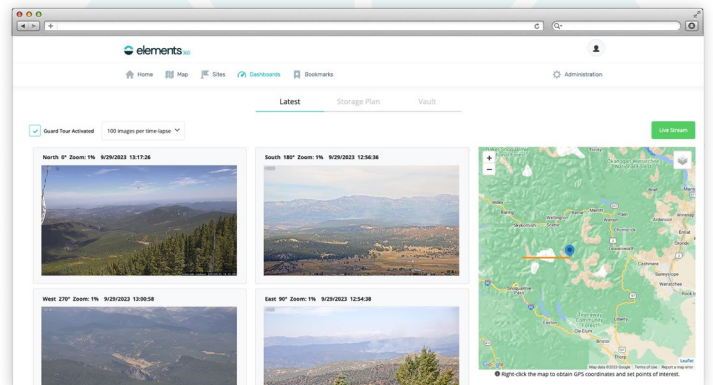
Customizable rules-based alerts provide timely notifications when conditions change, enabling proactive decision-making.

SmartGT for PTZ cameras

SmartGT uses intelligent camera guard tour technology to proactively watch high-risk wildfire locations, for the earliest detection and quickest response.

- Add areas of concern to your guard tour and view images within seconds of capture for true real-time situational awareness.

- Collect and display images together by azimuth for easy interpretation by the human eye.

- Save images and time-lapses to your vault for historical record and forensic analysis.

Harness the power of AI to accelerate ignition detection

AEM Elements 360 with AI Smoke Detection empowers your PTZ camera to continuously scan for wildfires around the clock. Using deep learning AI algorithms, it swiftly identifies smoke patterns to confirm and locate threats with unparalleled accuracy. In as little as one minute after detection, AEM Elements 360 dispatches critical alerts to key decision-makers, enabling faster detection and swift intervention of wildfires before they escalate.
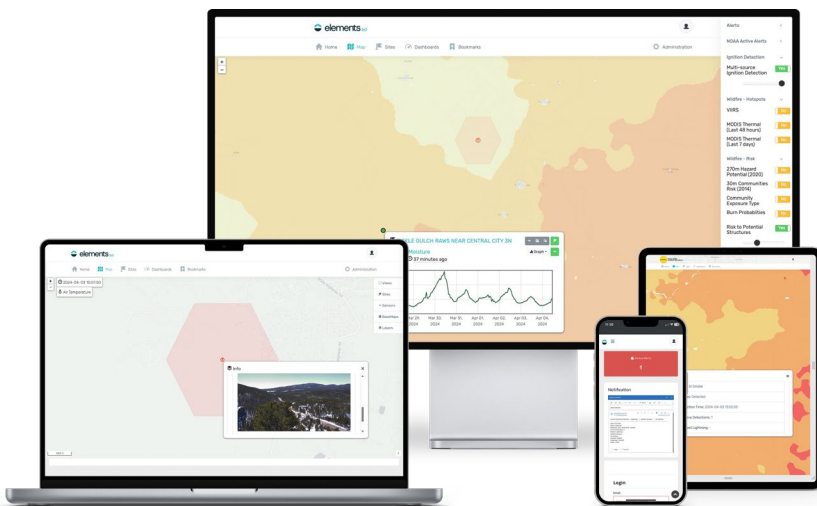
< 1 minute	**99%**	**24/7**
Detection efficiency	Location accuracy	Surveillance

Location estimation and direction

View map display with directional smoke information, including cardinal direction and degrees, alongside the location estimation GPS coordinates.

Event information

Analyze AI smoke detection information with other detection sources, such as nearby lightning strikes and satellite hotspots.

Real-time alerts

Customize rules to trigger an immediate detection alert and prompt key personnel to act via text message and email.

Response status

Acknowledge an alert has been seen and share response status to improve coordination across colleagues, agencies, and communities.

Weather information

Overlay real-time and forecast fire weather data for deeper insights to inform response and resource allocation.

Night detection

Use infrared (IR) cameras to enable round the clock visual monitoring and timely detections any time of day.

Multi-dimensional insights boost confidence and speed response

The most effective wildfire detection solution connects multiple, independent data sources to pinpoint high-risk areas and cross-check ignitions. AEM's approach offers a flexible and scalable solution tailored to the needs of your organization and community so you can quickly and confidently confirm ignitions.
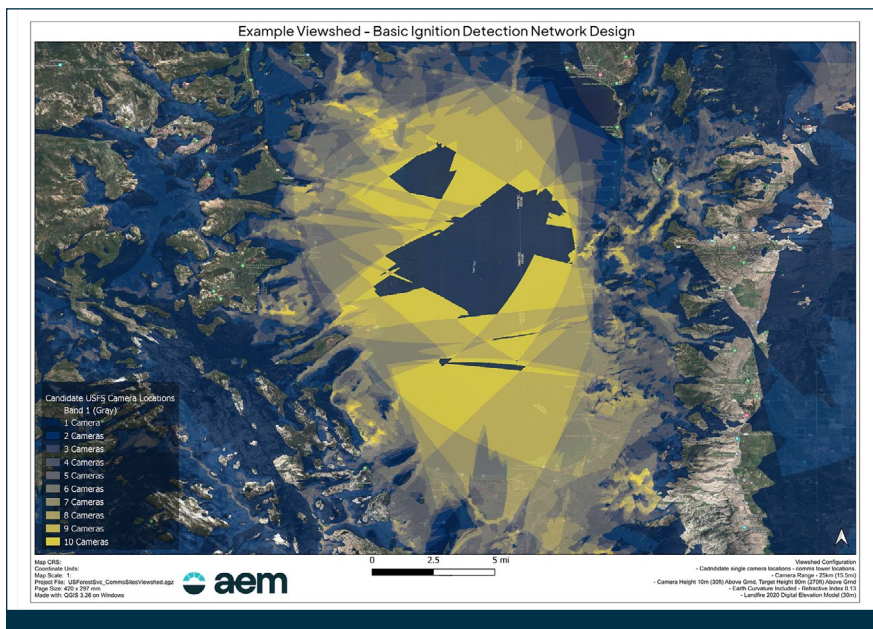
With AEM Elements 360 you can easily verify ignitions with any of the following data:

- **AI smoke detection**
- **Earth Networks Total Lightning Network® data**
- **Satellite hotspots**
- **Air quality data**
- **Real-time fire weather station data**
- **ENcast® forecast data**
- **...and more**

40+ years of wildfire expertise

At AEM, our wildfire services team provides the expertise you need to optimize your camera network and keep it up and running when you need it most.

Professional Services and Network Design

Example Viewshed – Basic Ignition Detection Network Design

✓ Viewshed analysis

Our advanced viewshed analysis maps visual coverage areas and identifies potential blind spots that might require ground-based detectors, like air quality sensors.

✓ Detection optimization

We combine our viewshed analysis with national fire risk layers and historical fire events to maximize the likelihood of detection by sighting cameras.

✓ Fire weather anaysis

Using historical weather data our fire weather analysis identifies extreme conditions and potential fire spread directions to proactively inform planning and response strategies.

Field Services

Professional installation

From site assessment to equipment setup, our team of skilled installation technicians handles every aspect of camera installation with precision and professionalism, adhering to industry best practices and safety standards.

Maintenance services

Keep your wildfire camera network working precisely the way it should. Our experienced field technicians can keep your equipment expertly maintained to minimize downtime.

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Let's start a conversation

At AEM, we understand that every agency's camera needs are unique to their wildfire risk management strategies and their region's climate and geography. That's why our team of wildfire solutions experts is here to help you craft an end-to-end camera network solution that works for your team, your needs, and your budget.

To learn more about how we can help you maximize situational awareness and increase efficiency of response in the face of growing wildfire risks, **be sure to contact AEM today** so we can start a conversation about solution alignment for your needs.

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