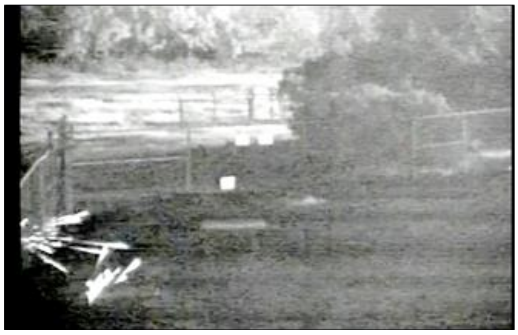
Protecting Critical Sites with Digital Radar

GroundAware® for event-based layered security for critical infrastructure

Key Features

- **Advanced detection** – Accurate alarming based on specified target types and actions in all weather and lighting conditions.
- **Situational awareness** – Ability to quickly convey critical details of a security event in intuitive map format.
- **Real-time information** – Location details on potential intrusions and intruders as events happen.
- **Autonomous control** – Automated steering of cameras to event locations and subsequent hands-free tracking of intruders.



Protecting the physical security of our nation's dispersed and vulnerable electrical grid is a serious challenge. Of particular concern are attacks on transformers due to the cost, size, complexity, and custom-built nature of these critical assets. As a result, electric utilities spend great resources on intelligence gathering, surveillance, hardening of facilities, incident mitigation, and service restoration.

Facing these realities, FERC issued an Order on Reliability Standards for Physical Security Measures in March 2014, which led to NERC standard CIP-014 addressing risks due to physical security threats and vulnerabilities. To meet this NERC regulation, utilities must evaluate threats and make changes to site-specific security plans to ensure critical sites will be protected against future threats.

For more than six years, the energy sector has been updating regional threats, as identified through the CIP-014 Threat and Vulnerability Assessment and implementing perimeter security systems at the most critical sites. Further, utilities are augmenting existing perimeter intrusion detection systems (PIDS) to detect and mitigate threats, including rifle fire and drones, well beyond fence lines.

"Electric infrastructure continues to be vulnerable to firearms attack."

Brian Harrell, Asst. Dir., Infrastructure Security, DHS Cybersecurity & Infrastructure Security Agency

GroundAware® radar systems are ideal solutions for utilities needing to enhance situational awareness, improve surveillance with minimal human involvement, and add value to existing PIDS investments. GroundAware is an extra layer of protection that helps address today's risks and mitigates outside-the-fence security concerns.

April 2013 surveillance footage shows sparks from bullets hitting substation equipment as multiple individuals conducted a "military-style raid" on the PG&E Metcalf Substation in San Jose, CA. Shane Harris, "'Military-Style' Raid on California Power Station Spooks U.S.," Foreign Policy, Dec. 28, 2013, complex.foreignpolicy.com/posts/2013/12/24/power-station-military-assault

What is GroundAware?

Observation Without Limits (OWL), a Dynetics business, leverages 50+ years of radar expertise to develop, manufacture, deliver, and support the family of GroundAware® 2D and 3D radar solutions for the defense and critical infrastructure sectors.

GroundAware is a surveillance solution developed and built on all new digital radar technology that allows for accurate remote monitoring and a quick response to physical security threats in real-time for critical sites. GroundAware facilitates an event-based, layered security approach for site security in which adversaries can be detected in real-time, tracked from long ranges, and instantly trigger pre-determined next steps for visual verification, deterrence, and interdiction that is fully integrated with other security systems, including cameras and access control, VMS, and PSIM systems.

GroundAware is different than traditional scanning radars because slower targets will require longer dwell time, which means GroundAware reduces revisit time and surveillance volume and provides valuable lead time and accuracy in threat detection. GroundAware's digital beamforming radar observes the entire sector under surveillance in one dwell, detecting intrusions and generating actionable information for deterrence and response to potential threats – all as they happen.

Added to these capabilities are GroundAware's geofencing capabilities, which enable users to easily position and configure alarm zones for alarming, notifications, deterrent actions, and responsive actions, such as auto-slewing cameras on targets. Alarms zones make it easy to focus surveillance in specific areas and on targets of actual concern to avoid false alarms.

Image shows humans tracked in dark conditions using thermal camera. GroundAware detected and tracked intruders, then slewed and guided cameras for real-time, simultaneous radar and visual surveillance.

GroundAware provides easy-to-use, intuitive visual information, along with automated alarms and notifications, for security operators charged with monitoring and protecting critical sites.

GroundAware products are available in 2D and 3D options for surveillance of ground-based and low-altitude airborne threats.

GA1360LH 2D radar system for advanced real-time perimeter intrusion detection, deterrence and response for small/mid-sized sites.

GroundAware GA1360LH is a 2D digital surveillance radar system ideally sized for small to mid-sized sites. The GA1360LH combines advanced digital beamforming radar technology, classification intelligence, reconfigurability, and easy integration with other security systems (such as video management and access control systems) to bring 360° of real-time, all-weather situational awareness for critical sites.

As the foundation for event-based layered security, GA1360LH enables automated detection, tracking, deterrence, and response to intrusions within a 1 km radius of critical sites.

Ideal applications for the GA1360LH include transmission substations, generation plants, and other sites targeted by thieves, vandals, and other bad actors.

GroundAware GA3360 is a powerful 3D radar system that is the ideal real-time perimeter surveillance solution for mid-sized sites, providing ground coverage for human and vehicle targets and low-altitude airspace coverage for drones. Added to the GA3360's advanced digital beamforming radar technology, classification intelligence, reconfigurability, and easy integration with other security systems is 3D capability that enables the system to detect, track, and differentiate airborne targets from those on the ground.

GA3360 enables automated detection, tracking, deterrence, and response to ground-based and airborne intrusions, including drones, within 3 km, and 360° field of view of critical sites.

Ideal applications of the GA3360 system include transmissions substations, power plants, and other vulnerable utility sites where longer range surveillance or dual-purpose ground and air coverage are customer requirements.

"Private industry does not own the airspace above generation facilities, above a transmission substation, above a water plant — so the overhead threat for attack is absolutely real today."

Brian Harrell, Asst. Dir., Infrastructure Security, DHS Cybersecurity & Infrastructure Security Agency

GA3360 is a new 3D radar system that provides critical sites with affordable real-time surveillance of perimeters versus both ground and low-altitude airspace threats.

Why GroundAware for critical sites?

GroundAware enables security operators to customize detection, cue-to-slew video surveillance, and notifications to only those targets that meet pre-determined alarm criteria. These alarm zones are user-configurable based on day, time of day, size, location, target direction, and target classification (human, vehicle, animal, aircraft, and drone.

GroundAware also enables users to draw "silent zones" to demarcate areas in which the radar will neither track nor alarm on targets. These silent zones permit security operators to avoid alarming on common targets that raise no security concerns, and another means of eliminating nuisance alarms.

With GroundAware working in the background, adversaries are detected and tracked in real-time. If the adversary meets alarm criteria, GroundAware automatically prompts operators of intrusions within the VMS and instantaneously cues and slews cameras to track the intruder. At the same time, other intruder data – classification, heading, speed, etc. – are sent to the VMS.

One of the most significant advantages of GroundAware is it will alert security operators before the threats enter your critical site, all while automatically tracking the target and collecting the vital video images. Having video feeds of threats before they enter the site will enable the critical infrastructure owners to answers all the crucial questions. Where did the individual travel around the site? What did they do while outside the site? What were they holding or leave behind? And finally, a detailed description of the individual how was outside the site. When a security event occurs without a proper outside the fence technology in place, all these questions go unanswered, and that is the real value GroundAware offers by offering a proven solution for outside the fence tracking and detection.

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OBSERVATION WITHOUT LIMITS