

case study



Innovative Security Installation Arms Remote Power Plant with First Virtual “Iron Dome”

According to a National Security Telecommunications Advisory Committee report, the top threat to the nation's power grid is physical destruction. Many of the 55,000 U.S. substations have some form of security, but are not able to deter, detect and communicate to the national standard. Recently Honeywell, SpotterRF Radar, security integrator 4PC and the Security Group of Burns & McDonnell designed a powerful solution for an electrical generation and transmission facility that features state-of-the-art generators in the nation.

Honeywell



Due to security concerns, the facility requested to remain anonymous but wanted to share the lessons learned to help protect other utilities across the U.S.

The Situation:

Protecting a wide range of differing assets requires a layered approach with a combination of scalable and sustainably integrated solutions. Typically, unmanned plants operate in secluded locations, and were configured for efficient power generation in mind rather than security. Chain link fences have become antiquated in a modern world of heightened access, leaving the sites vulnerable to attack. Today's critical

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*Coby Hayes
CEO and founder of 4PC*

infrastructure must be fortified against not only intrusion via foot and road vehicles, but from drones as well.

Following an attack on a substation in California in 2013, the North American

Electric Reliability Corporation (NERC) increased its security standards. When these standards are not met, noncompliance penalties can range up to \$1 million per day.

The Solution:

The resulting installation integrates active surveillance with intelligent video analytics, video management, access control, and perimeter intrusion detection and fire. Honeywell's Pro-Watch® central management solution for intrusion and access control handles all alarms and system messages. Its ability to integrate seamlessly with all the security components used in the project made it the clear choice as the foundation for the installation. The MAXPRO® VMS video management system offers operator-friendly video analytics, assessment and visual confirmation of alarms. Notifier fire panels were incorporated using the Honeywell Software Development Kit (HSDK), and HD IP video cameras with thermal capabilities provide full-color, detailed perspective of scenes in real-time. Map-based Vindicator touchscreen keypads strategically placed throughout the

site offer instant assessment of the site's secure status to guards and operators, and the Vindicator V3 Intrusion Detection System extends protection of the perimeter hundreds of meters past the fence line. This marks the first time this particular combination of Honeywell technologies has ever been deployed together as a full solution.

“We worked with the station's design team to help create a sustainable early warning system that can operate independently,” said Brad Davis, Program Manager, Honeywell. “Given the remote location of the site and the challenges that resulted from that solitude, we knew we had to do more than just reinforce the fence line.”

Honeywell collaborated with Utah-based SpotterRF, integrating their award-winning active radar technology with Honeywell's V3 Intrusion Detection System for protection of the perimeter and beyond. The technology provides intelligent intrusion detection for advanced notification of threats, which frees up time for more effective response. With a range of 350 meters, the appliance blankets the surrounding 20 acres with complete coverage—

while using less power than a 10 watt lightbulb. Integrated behavioral filters detect moving targets, automatically analyze behavior, and instantly cue cameras to that spot using GPS coordinates for pinpoint accuracy.

Thermal capabilities of the HD cameras can determine if movement belongs to a live individual who might present a threat—or simply another of the man-sized tumbleweeds that are routinely thrown against the fence by the wind.

“The radar device itself weighs less than two pounds,” said Logan Harris, CEO of SpotterRF, “so its small size allows it to be installed almost anywhere. It also has the ability to look up and down and sideways, which is something standard spinning radars can’t do.”

The system also actively monitors the surrounding skies. And the use of thermal imaging along with the intelligent video analytics enables accurate visual detection 24/7—at night, in fog, during inclement weather, and even behind obstructions.

The Products

- Pro-Watch® Corporate Edition
- MAXPRO® VMS
- HD IP cameras
- Vindicator® Intrusion Detection System
- Notifier

Pro-Watch® Corporate Edition



MAXPRO® VMS



HD IP cameras



Vindicator®
Intrusion Detection System



Together, these components paint a powerful picture and create a virtual “iron dome” of protection over the site to detect, deny, and deter any unauthorized activity.

“This station is the first of its kind in many respects,” said Coby Hayes, CEO and founder of 4PC, the security integrator on the project. “With this level of leading-edge technology, it’s critical that service from the

manufacturer be part of the solution. From the very beginning of this project, Honeywell provided capabilities that stretched far beyond video surveillance and access control. By assigning a dedicated project manager to coordinate all the players and technologies, the additional support they provided helped us complete this project in an extremely short timeframe, with minimal growing pains.”

The Benefits

The integrated solution includes access control, robust reporting to meet strict auditing regulations and constant monitoring of the perimeter surrounding the fence line and hundreds of meters beyond—to **make it easy for the station to exceed requirements and establish best practices, possible future compliance requirements, and operations needs.**

In addition to watching the horizon for security threats and providing an integrated solution to address them, the cameras keep an eye on operational activity in the engine house and the towers to make sure the generators and other mechanical equipment are functioning properly. **Because the system can differentiate between human activity versus movement of animals or vegetation set in motion by the wind, the autonomous nature of the system slashes the number of false alarms, which reduces costs.**

“The combined Honeywell/SpotterRF solution, service and support turned out to be a perfect fit,” said Davis. “This system is always on duty. It works around the clock, never takes a day off, and its attention never wavers.”

Since the facility is so remote, it’s not cost-effective to keep security guards on site. **Staffing would add about \$500,000 a year to operating costs** which would ultimately result in increased rates for consumers.

“By meeting and exceeding industry standards for critical infrastructure installations, this security system not only matches the capability of the station’s plant, but we’ve gone beyond any regulations to mitigate against future threats,” said Greg Tomasko, Honeywell applications engineer. “This technology can be used as a template for other installations in the future to protect the entire utility industry.”

For more information:

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