

# CASE STUDY

## ELECTRICAL POWER SUBSTATION PERIMETER SECURITY

### > Overview

**Customer:** A Energy company

**Challenge:** Protect electrical substations from copper theft, vandalism and safety problems - Provide 24/7 imagery for isolated locations and a minimum of 200mx200m area surveillance - Easy integration with other security and facility systems including a Video Management System (VMS) and a Pan-Tilt-Zoom (PTZ) camera.

**Solution:** HGH Infrared System's Spynel infrared camera system provides a cost-effective and fast deployment surveillance solution, with limited infrastructure to ensure accurate electrical substation security. Autonomous and fully passive, Spynel-M was the security system of choice.

**Results:** Detect, Track & Classify in real-time multiple threats, to prevent any unintended intrusions inside the critical zone defined by the authorities.

**Conclusion:** HGH Spynel infrared camera systems are reliable and autonomous sensors ideal for medium and large area surveillance coverage located in isolated areas.

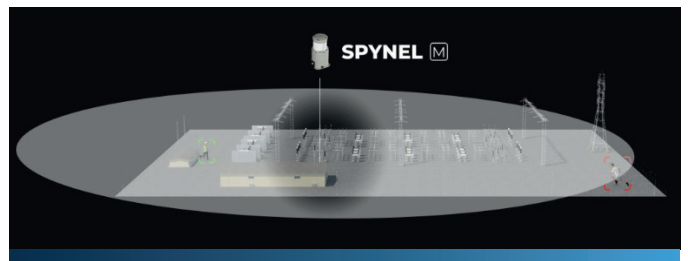
### > Customer

HGH Infrared Systems provided Spynel-M thermal cameras to an energy company for 24/7 electrical substation security. Power substations represent a critical element of the national infrastructure aimed at the security and wellness of the population. It has become crucial and even mandatory for utility companies to implement a perimeter security system that can detect and deter intruders approaching a substation. Conventional CCTV and PTZ camera offer limited perimeter security solutions and requires significant infrastructure (cabling, masts).

**Spynel's 360° visualization and recording, ease-of-use and automatic detection & classification were three key points which appealed the client.** Ultimately HGH's Spynel panoramic thermal infrared camera contributes to substation security while being compliant with the highest security recommendations.

### > Challenge

Early detection is the key to preventing potential attacks on electrical substations throughout the country. True substation security means stopping an event by detecting intruders as early as possible, ideally before they enter a secured area, and triggering several levels of alerts depending of the position of the threat. When it comes to securing substations, real-time awareness is critical for preventing copper theft, vandalism, accidents and other activities that could disrupt the stability of the power grid.



*Electrical power substation monitoring with Spynel-M*

The electrical substations are located in isolated areas and the 24/7 surveillance of these substations is monitored remotely, from one unique remote control room. Even though the early warning of an intrusion inside the substation is important, the continuous surveillance and tracking of the site assets is critical to provide an accurate situational awareness of the damages caused to respond appropriately.

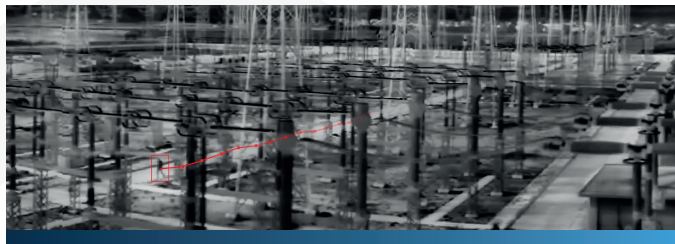
Finally, a **reliable, autonomous security system with low power and low bandwidth** was required to fulfill the needs of monitoring and protecting in isolated areas.

While video surveillance cameras have long been established as an effective perimeter security solution, they require extensive infrastructure to install and maintain.

## > Solution

Based on the topography of each site, the Spynel configuration and localization has been customized to fit the customer's transformer substation sites measuring 200mx200m. The HGH solution provides from one to several Spynel-M to fit the specificities of each site and ensures the best protection. **Spynel-M provides a real-time 360° visualization, multiple threat detection, classification and tracking capability and is effective day and night.**

When Spynel detects an intruder, an alarm is triggered to alert security personnel and send the target's location information. The Spynel-M is paired with a Pan-Tilt-Zoom (PTZ) camera for target identification. The PTZ is then automatically redirected by the Cyclope alarms and tracks the moving targets. The user-friendly Cyclope software is interfaced with the customer's VMS (Video Management System) platform simultaneously displaying the access control system, Spynel & PTZ real-time images.



Human intrusion classification and tracking with Cyclope

The substation operator, located in his remote control room, can take control of the PTZ camera to steer it and zoom on the target. The coupling with the PTZ, a high power light and sound gun makes Spynel the ideal solution for perimeter and critical equipment protection.

**HGH's Spynel infrared imaging cameras provide an early warning and an opportunity for rapid and accurate detection over large areas, regardless of the outdoor conditions.** Spynel is able to detect and to classify people, vehicles and any objects beyond the fence line of a substation, triggering alarms when intruders approach the facility, giving security personnel ample warning and time to intervene. Benign targets (such as animals for instance) can be filtered out thanks to video analytics based on Artificial Intelligence.

## > Results

The customer chose the HGH's Spynel thermal security camera as their solution and deployed it on multiple electrical substations of up to 200mx200m area, across the country. **With its 360° real-time detection, Spynel meets the requirements of autonomy (power/bandwidth), provides day&night images with very low false alarm rates, and is fully passive.**

The complete solution including HGH Infrared Spynel sensors and Cyclope software has been designed to simplify the installation and minimize compatibility issues, while being easy to operate for security personnel.

## > Conclusion

HGH's Spynel IR cameras provide real-time and accurate large area coverage along with reduced infrastructure costs. The Spynel system is **economical to operate, requires minimal maintenance, and can be interfaced with other sensors, including VMS platforms and PTZ cameras.**

The solution is also scalable allowing for much larger sites with additional sensors and/or multiple sites controlled either locally or in a single command and control center that group several sites. Cyclope advanced communication features also include video streaming sent to the VMS platform, which enhances the accuracy of data interpretation.

***"HGH's Spynel IR camera has been recognized and awarded several times to be used in a large variety of applications including intrusion detection, UAV detection and tracking. This application shows how the most demanding customers trust HGH's Spynel systems to protect the most critical infrastructures in their country."***

***Whether considering a new installation or an upgrade to an existing surveillance system, Spynel is an outstanding choice for electrical substation protection."***



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