

## Thieves beware, Axis thermal cameras never sleep. City Utilities of Springfield, MO uses Axis thermal cameras to catch copper thieves after dark.



Organization:  
City Utilities of  
Springfield, Missouri

Location:  
Springfield, MO, USA

Industry segment:  
Critical infrastructure

Application:  
Loss prevention, safety  
and security

Axis partners:  
NetWatch, Inc.,  
Milestone Systems

### Mission

Hard economic times and the skyrocketing value of recycled copper, which reached \$3 per pound, have led to an alarming rise in copper theft at Springfield, Missouri's unmanned electricity substations. In just the first two months of 2012, City Utilities (CU) recorded 17 incidents of copper theft from its power substations. The utility needed a surveillance solution to watch over its barbed wire-topped, 7 ft. chain link fence and help alert police in time to catch the thieves in the act.

### Solution

NetWatch, Inc., a Springfield, Missouri-based IP surveillance system provider with multiple Axis Certified Professionals on staff, recommended an array of Axis thermal and pan/tilt/zoom (PTZ) network cameras to detect break-ins and track intruders in real time. Cameras at each of the 47 unmanned substations stream video 24/7 to the company's central security office.

Heat signatures and motion detection alerts help the staff verify the nature of incidents and whether the people on video are authorized employees before calling local law enforcement or their own security service to investigate.

### Result

In addition to eliminating a rash of false alarms, the thermal and PTZ network cameras are helping CU mitigate the risk of trespassers tampering with live ground wires and creating the potential for electrocution. The real-time alerts have also helped law enforcement respond to incidents more quickly, causing suspects to flee or be caught before they can cut wires and interrupt the flow of electricity to the city.

"Given that copper thieves generally hit our substations under cover of darkness, the Axis thermal cameras help us detect suspicious movement, and the Axis PTZ cameras give us enough detail about attire to help law enforcement apprehend intruders."

Nick Rasey, Manager of Physical Security for City Utilities of Springfield, MO..

## Staying well-grounded

City Utilities of Springfield, Missouri operates 47 unmanned electric substations that deliver power to more than 100,000 customers in the city of Springfield and outlying areas. With copper value soaring, these unstaffed substations present an attractive target for copper wire thieves.

The situation reached a tipping point in 2012. "In a 22-day period, we had nine break-ins that cost CU about \$45,000 in replacement supplies and labor," said Nick Rasey, Manager of Physical Security for City Utilities of Springfield, MO.

The thefts were also putting lives in danger. "If you don't know what you're doing, cutting copper ground wire can get you electrocuted," Rasey said. "Also, if a CU employee enters the substation not knowing the wire's been cut, they could get electrocuted, too."

CU wanted to install network security cameras to remotely monitor its substations, but they worried that the amount of lighting needed for a traditional network camera would disturb the surrounding neighborhoods. Furthermore, the additional lighting might draw too much attention to the facilities. "[The substations are] not easy to locate in the dark, which is another good deterrent," Rasey said.

## Maintaining a nightly vigil

To address these concerns, NetWatch, Inc. recommended CU install AXIS Q1921-E Thermal Network Cameras throughout their facilities. The thermal cameras detect the heat signatures of objects in their field of the view and stream the video back to a Milestone XProtect® Enterprise video management system in CU's central security office, which is manned 24/7. Intelligent thermal imaging analytics coupled with motion detection alarms alert security to potential intruders and provide enough detail for them to determine if the alarm had been triggered by a human, an animal or an inanimate object.

The thermal cameras are paired with AXIS P5532-E PTZ (pan/tilt/zoom) Network Cameras set on guard tour to stream full color images in daylight and use infrared technology to stream detailed black-and-white images at night. The PTZ cameras can also be controlled remotely through Milestone XProtect® by security staff to verify and investigate any alerts before calling security or police.

Because the security office keeps an up-to-date roster of staff schedules, they can also check if the "intruder" is in fact an authorized CU employee.

"This process has helped us avoid a lot of false alarms," Rasey said. "And it's helped shorten law enforcement response time to about five minutes."

## Stopping thieves in their tracks

The first Axis cameras were installed at the highly targeted Brookline substation. Within the first month, the police responded to four separate alarms. In the first three incidents, the intruders ran away as the police cruisers arrived on the scene. Often, the cruiser's flashing lights are enough to scare off intruders before much damage is done. But, in the fourth incident, police and security service cordoned off the area and apprehended the suspect as he was fleeing into the woods, as well as his get-away driver.

The intelligent network camera system with thermal technology provides a return on investment that has both financial and personal security benefits.

"An average incident costs us about \$6,000," Rasey said. "A majority of that is labor. For safety reasons, we can only use certified utility technicians to repair the breach in fences and replace the ground wires."

"I don't think there's ever a way to totally stop copper theft," he said. "But once you capture somebody and publicize it, it's a better deterrent than any signage you can put up."



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