

Can Copper Theft be Prevented?

by Duane Jones

Posted: June 12, 2008



Intelligent fiber-optic-based fence sensor technology can tune out environmental nuisances, alert to real break-ins and cell call utility staff for quick response. For example, SmarterFence from Smarter Security Systems can also combine with the firm's beam motion detectors and infrared cameras.

As the price for copper surpasses \$4.00 a pound, many companies face threats from thieves who steal bulk copper. Wire that is energized has not deterred some criminals. Often sites for theft have baseline security measures in place. But it is still a challenge to find a prevention answer.

TRENDS AND IMPACTS

Understanding motivations behind copper thefts is an important part in establishing an effective prevention strategy. The obvious financial motivation exists as copper prices continue to rise, almost doubling in price since 2005. The availability and visibility of copper also adds to the motivation. According law enforcement, much of the copper thefts can be attributed to individuals addicted to methamphetamine.

Many legitimate metal recycling companies have joined with local police in attempting to ensure only legitimate transactions occur. However, there are many jurisdictions that have no laws that address the amount or recording of transactions at recycling facilities.

The financial impact of copper theft is extensive. Keith Morelli, of the Tampa Bay Tribune, reported that in 2006 copper thefts for Tampa area were approximately \$3 million, which did not include the costs for replacement. In addition, some people engaged in attempts to steal copper have been severely burned and there also have been fatalities. As companies targeted for theft also recognize, the potential for major service disruptions also exist. Utility companies, irrigation projects and even rail service have been impacted.

REDUCING THE RISK

While local law enforcement may know that a facility exists, now is the time for the security manager to arrange a tour of the facility, showing what assets are important to the continued safe operation of the facility. Often law



Intelligent video surveillance lets the Columbus (Ohio) Division of Electricity set up "virtual" perimeters around fences and building doors to protect from copper theft. Photo courtesy Arteco

enforcement will provide measures to increase security. Request that local police increase their patrol activity, and even offer coffee readily available for any patrol during evening hours. The rapport that can be established is invaluable.

Reducing the risk of copper theft may also require work with local government officials. Increasing the punitive effects of those convicted of copper theft along with the establishment of better accounting and transaction practices from recycling companies should be high on security's agenda. Coordinating with other local companies that are also susceptible to copper theft will serve as a force multiplier.

Managing the supply of copper is also important. Scheduling deliveries to prevent unnecessary volumes of on-site copper is one step. If there are large quantities of copper on hand, they should be placed in storage containers, lockable buildings or wire cages. Using an accountability system for onsite storage of copper is another measure.



Taking measures to conceal the presence of copper is another. A source of copper readily visible is more likely to be targeted than where copper is concealed or not readily identifiable. Concealment of copper can consist of simply shrouding the equipment by covering it from casual observation. Relocate equipment that has copper inside to a less visible and more secure location. For locations with copper that cannot be moved, consider painting to conceal the true nature and color of the material.



Consider marking the copper with nanotechnology that allows the wire to be identified when recovered. Other adhesive sprays adhere to the copper in small granules that have specific identifiers on each grain, and the identifier can tie specifically to your company. While these approaches are primarily designed for use in recovery and prosecution, installing signage along the perimeter can help deter the thief. As part of regular security surveys, access points to potential copper sources, such as ladders leading to air conditioning units, must be adequately controlled. Motion-activated lighting and intelligent video systems can be very effective additions, too.

Wireless night vision video that runs on batteries is packaged with a motion sensor and infrared illuminators to protect cell towers from metal theft. This unit, called Videofied, helped recently catch the metal thief pictured. Photos courtesy RSI Video Technologies

No one measure alone will eliminate copper thefts, but taking steps to reduce the risk of theft, engaging local community leaders and law enforcement, using sound security practices and appropriate technologies offer the greatest chance for preventing future theft.

SIDEBAR: Stopping Theft, Catching Thieves

Jim Smith, executive director of asset protection for AT&T, said, "In 2006, AT&T reported 1,066 copper cable thefts with more than one-third disrupting service for customers. The cost to AT&T alone: \$2.2 million." Law enforcement estimates that total losses across all types of U.S. businesses hit more than a billion dollars annually.

For utilities with many remote locations, traditional video and access controls may be less expensive and more costly. A few carriers have been experimenting with a new totally wireless video system that runs for months on a set of batteries. SNC, a security firm in Hutchinson, Kan., discovered new European video security technology, Videofied. SNC took existing indoor integrated camera/sensors from RSI Video Technologies and customized them, putting the camera/sensor in a black housing on a gimbal to handle harsh weather proof for cell tower sites.

Elsewhere, David McGinnis, general manager/CEO at Grayson-Collin Electric Cooperative in rural Texas, said the problem, in his area, has grown substantially over the last two years. "It's not really organized here – just vandals who see a new area to mine."

While McGinnis uses security video tied to DVRs and traditional intrusion detection, vandals still cut through fencing and run off with copper from substations before he could effectively react. He installed smart fiber fencing from Smarter Security Systems. In one fence and lock cutting incident just last month, "we were there within eight minutes of the alarm. In four days, the car and driver were identified." A dialer calls a number of McGinnis employees.

Called SmarterFence the highly intelligent fiber-optic, fence sensor technology tunes out environmental nuisances to detect real intrusion attempts.

The Columbus Division of Electricity utility substations, in Columbus, recently installed an intelligent video solution (IVS) from Artec to prevent copper theft and other security related issues. After setting up a "virtual" perimeter around the fence and areas within the substation around the transformer, video analytics technology provides true object orientation and recognition and real-time alerts.

SIDEBAR: On-site, Use Guard

At some locations where copper is stored and used, operations personnel and patrolling officers can use guard tour systems.

According to Contronics Technologies, guard tour is an electronic system composed of hardware and software which aims to control human activities, in this case specifically the tours of patrol officers or other staff. The hardware must be rugged and reliable and the software must generate a variety of reports and be easy to use. Besides tracking the steps of the patrol officers or even the supervisors, such systems as from Contronics prevent mistakes that usually occur, since the wand interacts with the user, informing the time to start each tour and if it is being done correctly. Copper stocks can be marked to be part of a tour.



A guard tour system can play a key role in protecting property and copper supplies. Using memory "cans" attached to doorways and even valuable property, a person can tour the facility. Photo courtesy Contronics Technologies

The reports generated by software such as PROGuard are comprehensive tools to manage and evaluate the officers. There are several reports to choose from and all can be configured to display the information needed for each case.

For more information, go to www.coppertheft.info

Duane Jones

Duane Jones is the corporate security manager of Kinder Morgan in Houston, Texas, one of the largest pipeline transportation and energy storage companies in North America. Jones holds a B.S. in Security Management from Bellevue University.