

New Solution to Copper Theft

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With the price of copper holding steady at well over \$3 per pound during the last 12 months, increasing numbers of criminals are engaging in metal theft. Among the hardest hit victims of copper theft are electrical utility substations because of the large amounts of copper wire they use for electrical grounding and transmission, and because these facilities are often located remotely where theft is hard to detect. Several utility companies have recently turned to [Arteco](#), a provider of Intelligent Video Solutions (IVS), to combat this problem.

“Utilities realize they must start treating the metal as an asset to protect,” said Steve Birkmeier, Arteco’s vice president. “The demand for copper overseas, especially in China, is driving up the price for scrap, and this security problem has to be dealt with proactively.”

Birkmeier explains that the effect of copper theft on utility companies is both costly and dangerous due to loss of materials, damage to transformers, electrocution, and possible loss of power to customers. Damaged transformers and substations can cost anywhere from \$500,000 to \$11 million to repair or replace.

It is also not uncommon for thieves to knock out power to thousands of customers in the process of stealing a few hundred dollars of scrap copper. More frequently, thieves are electrocuting themselves in the process and creating a hazardous environment for workers sent in to fix the problem after the fact.

Power industry executives are well aware of the problem, said Birkmeier, but they have been struggling in their efforts to combat it successfully. Few security products can deliver the right combination of real-time detection and verified response required to address the situation in a proactive

manner.

Currently, solutions involve more thorough tracking of buyers and sellers of copper and implanting microscopic tags in the wires. However, both of these solutions are ineffective until after the theft has occurred, and rely on catching the criminals at scrap yards as they attempt to sell the copper.

Furthermore, there are indicators that copper theft is moving into an organized crime ring, separating the thieves from the scrap yards. This will hinder the ability of scrap yards to police the legitimacy of the scrap they are purchasing.

Birkmeier explains that utility companies typically set-up "virtual" perimeters around the fence of the substation, and areas within the substation around the transformer. Should a dog wander into this perimeter or trash be blown in it, the system holds steady.

But if a man approaches the gate of the substation with wire clippers, for example, the system detects the size and orientation immediately, and triggers an event within the IVS. At the utility control center, an alert sounds and a red box appears on a video monitor that draws attention to the violated area. Personnel double-click on the red box to instantly review video of the man entering the gate while simultaneously watching the perpetrator real-time in a second window. Security uses this information to take the appropriate countermeasure.

"Intelligent Video offers a pro-active and cost-effective solution to a problem that is growing at alarming proportions," said Birkmeier. "Utility companies realize that they have personnel already in-place to respond to the problem but until now they haven't had an accurate solution to alert them to the theft taking place in real-time."