This is a close-up of the video monitor camera located inside the station and "looking" out toward the perimeter fence.

Glassy Mountain Tower Substation: On Oct. 26, 2008, Blue Ridge received a video alarm with a suspect in the substation. The police officers and Blue Ridge representative arrived on the scene and found a hole in the fence but no damage to the site.

At 11:29 p.m. on Sept. 2, 2009, Blue Ridge received an alarm. The police officers checked and stated that everything was fine. There were some suspects outside who claimed to be looking at the lights, so the officers cleared the scene. A few minutes later, a Blue Ridge employee called in and stated that, after further inspection, part of the alarm panel was smashed and part of it was missing.

Intrusion Video Clips Work

In all of these incidents, video intrusion alarms instantly sent the video clip of the intruders to the Blue Ridge monitoring station for immediate dispatch. Priority police response to crimes in progress prevented significant damage and large losses. And, the system cost about one-tenth the price of a traditional CCTV system. The system delivers physical security at remote sites at a very low cost.

After the success with the initial installations, Blue Ridge has expanded its video intrusion alarm program. Affordability means Blue Ridge is able to protect more of its assets. TDW

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Companies mentioned:
Blue Ridge Electric Cooperative **www.blueridge.coop**
Videofied **www.videofied.com**

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Utility Clips Copper Theft

Blue Ridge Electric opts for a wireless video-clip surveillance system to monitor remote substations.

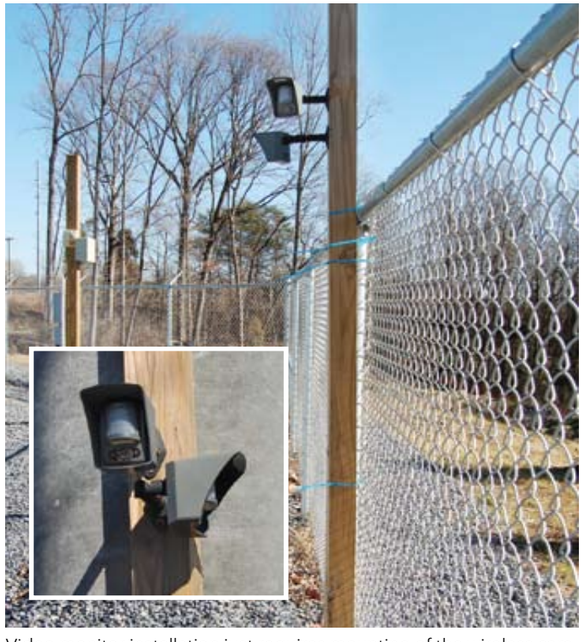
By **James I. Lovinggood**, *Blue Ridge Electric Cooperative*

Energy distribution depends on substations at the local level. For rural cooperatives, many substations are in remote locations. Unfortunately, the scrap value of copper conductors and grounds means substations are becoming defenseless piggy banks for a new wave of criminals. The substation ground grids are now targeted by opportunistic thieves, and the copper pennies in the proverbial piggy banks are no longer safe.

This presents a challenge as, typically, the only physical security around these substations is a chain-link fence. The results are easy to imagine; in fact, it does not even need to be imagined because utilities are seeing increasing repair costs and interrupted service from copper theft.

Why Are Copper Assets Unguarded?

The simple answer as to why copper assets are unguarded is cost. Securing even a few of the worst sites presents a difficult problem for a utility's capital budget, whereas emergency repair costs are not part of the capital budget or the traditional approval process. The approvals for the ounce of prevention, as the saying goes, are more difficult to attain than the expensive pound of cure for repairs.



Video monitor installation just requires mounting of the wireless cameras to observe the station fence perimeter.

Budgets are tight, and while closed-circuit television (CCTV) cameras and guard services can do the job, they are simply too expensive to be viable except in more than a handful of the larger, more visible locations. The economic realities of today mean expensive solutions cannot be deployed at the level needed to make a difference. Prevailing wisdom for physical security involves streaming video and high-resolution CCTV cameras combined with digital video recorders (DVRs) to document incidents so perpetrators can later be identified, caught and prosecuted.

This approach is flawed at two levels. Firstly, it is difficult to get a good identification of the thieves from even a high-resolution camera. Most criminals wear hooded sweatshirts, hats or even masks, and keep their heads down to avoid being identified. Secondly, even if the camera does capture a decent face shot, reviewing events that happened days or even weeks earlier provides no guarantee that anyone knows who did the deed or where they can be found.

Also, surveillance systems remain expensive. It is expensive to purchase the equipment. It is expensive to run the necessary power and network cables to the locations where the cameras do the most good; installation labor is often more than 50% of the cost of the system. The simple fact is small utilities on tight budgets cannot afford proper surveillance to secure many remote assets.

Another Approach

Blue Ridge Electric Cooperative — South Carolina's second-largest cooperative, with more than 63,000 member customers — had been struggling to prevent copper theft. In 2008, a theft of US$50 worth of grounding cables destroyed a $50,000 transformer. Management decided enough was enough. Blue Ridge also had a security division that sold alarm systems to its members. The security team was tasked with finding a solution. Knowing that a CCTV surveillance system was beyond Blue Ridge's budget, the team decided against video surveillance in favor of a cordless/wireless video alarm system using MotionViewers made by Videofied.

The baseball-sized MotionViewer uses an infrared sensor to detect intruder presence and sends a 10-second video of the alarm over the cell network for monitoring personnel to review it and dispatch a representative immediately. If the video confirms a crime in progress, a priority call is made to the local police. Prompt response is crucial to minimize infrastructure damage and make arrests. The Videofied system has already proven effective for Blue Ridge, minimizing potentially significant damage and repair costs. Following are some specific incidents.

Marietta Substation: At 12:32 a.m. on July 20, 2008, the Blue Ridge alarm monitoring station received a video alarm showing two suspects in the substation. When police officers arrived on the scene, they discovered an actual break-in, but the suspects had fled at the approach of the squad car. Bolt cutters were used to cut the fence to get inside. Nothing was damaged but the fence.

At 1:46 p.m. on June 26, 2009, Blue Ridge received a video alarm showing two suspects in the substation. The suspects fled when they heard the audible siren of the police car. One of the suspects looked like they had something in their hand. The police officers checked with the Blue Ridge representative, who confirmed the fence was cut but nothing was taken.

Pleasant Ridge Substation: At 6:06 a.m. on July 16, 2009, Blue Ridge received a video alarm showing a male suspect with a bandanna covering his face. The responding police officers notified Blue Ridge that it was an actual break-in but no damage was found.

Thefts Caught on Video Surveillance Cameras

A thieve in substation at night.

Cutting fence to gain entrance.

Stealing substation cable.

Stealing ground line cable.