



## **Application: Autonomous Surveillance for Electric Utilities and Generating Facilities (Non-Nuclear)**

An autonomous surveillance system is one that scans, detects, analyzes and presents Situational Events without initial human involvement.

The solution includes a complete automated process of 1) field site analysis and 2) situational presentation of what is occurring in the field in the form of geo-spatially organized video & sensor information. This provides you the capability to *continuously monitor & guard widely dispersed areas on a large scale* at a reasonable price.

### ***Value of the Pivotal Vision Solution for Your Organization***

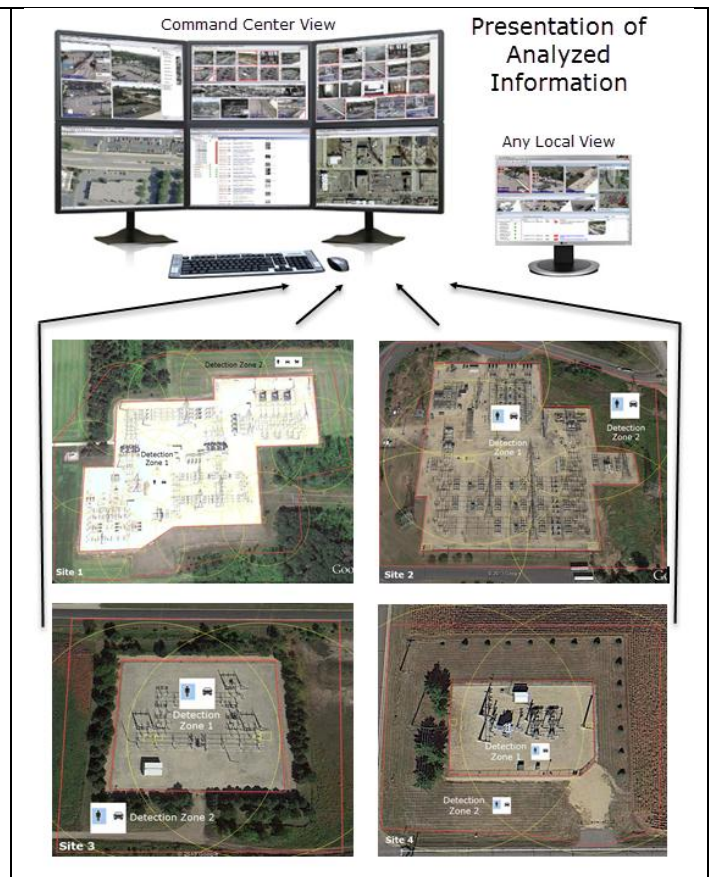
- Automation using time tested control & data acquisition techniques provides a significant cost benefit by allowing a minimum number of Alarm Station Operators/ responders the ability to cover large and multiple remote sites.
- All your facilities are simultaneously patrolled by the system, directing PTZ's & other sensors to automatically scan & gather site intrusion information. The system analyzes it on a 24/7 basis, which could allow you to interrupt or even prevent a catastrophic breach of your critical assets. All site equipment, (PTZ's fixed cameras, sensors etc.) can be integrated into an automated detection plan.
- You dramatically increase the chance of detecting or interrupting an intrusion by maximizing the amount of time and size of area under patrol at each site including approach areas *before they get inside your protected area*. It will give you time to react before a breach (*Early warning*). With appropriate camera coverage you have an opportunity to *detect/ track persons conducting drive or walk-by reconnaissance prior to an intrusion*.
- The average attention span of anyone watching traditional security monitors is 7 to 10 minutes. This solution helps minimize human errors of not paying adequate attention to situations in the field. Responders receive the pre-analyzed situational data with loud audible alarms & flashing video for each validated event. They can focus on tactical responses rather than trying to determine what occurred.
- The *interactive Skyview & Plotter* will identify how many intruders are present and whether the threat is increasing or decreasing by watching bread crumb trails as they are laid down on a map of your site or diagram of the interior of your facilities.
- Your monitoring personnel will instantly be provided critical information such as site, zone and type of the potential threat. False alarms are minimal because of 3D geo- spatial object identification. Alarming is done by exception rather than every sensor or motion detector trip.
- Cyber Security is becoming extremely critical and is built into the basic design of the architecture and protocols of the Pivotal Vision system that uses encryption and embedded devices.

- You decide on unique custom automation plans for sensors and camera patrols based on the concerns for each site. An unlimited number of zones can be set up with as many detection characteristics (vehicles, people, animals etc.) as you choose for each zone.
- Once an incident begins, the analyzed information is sent to the System Management Controller which coordinates information from all sites at an Enterprise level. You can customize your automation plans and determine which command centers and who receives alerts from sites depending on the time of day or day of the week.

### Substation Site Surveillance Plans



### Responder Presentation Plans

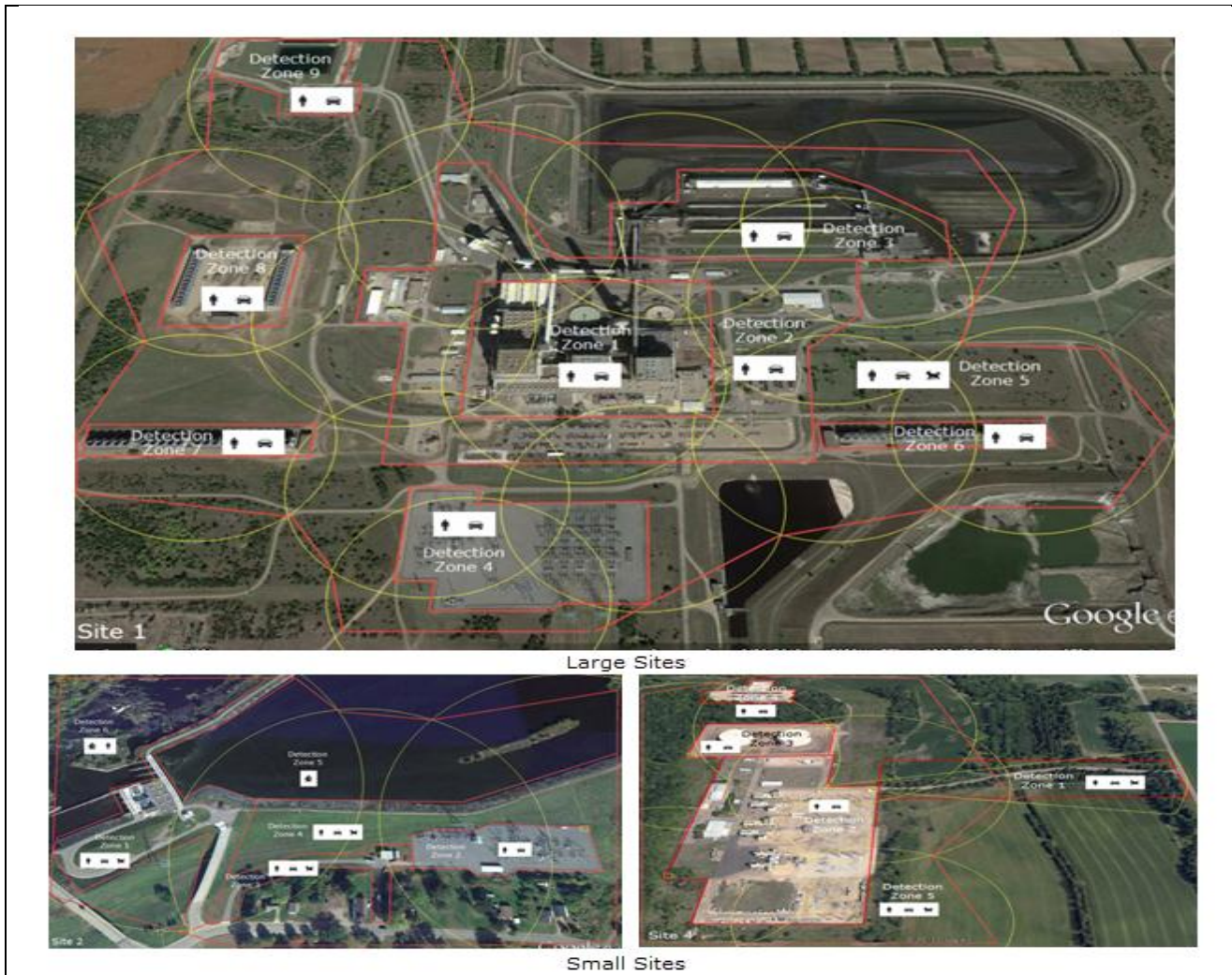


- Critical substations may be targets for serious acts of sabotage. Those engaged in these types of acts likely have planned out their attacks and use more complex methods. Today's new threats require new responses with modern technology that can be used as counter measures. Some of the key methods this system allows you to deploy that can make a significant difference are as follows:
  - With proper camera coverage, the system can pick up a vehicle that stops on a road outside a station or if one enters a substation drive way. Each one is logged & stored as a time stamped Event plus it is immediately shipped off site to your command center where they are saved a second time for long term storage.



- Many large critical sites are located in very isolated and remote areas with long, lightly traveled roads leading to a site. The system can pick up vehicles a mile or more away when coupled with long distance thermal cameras. It will give you a chance to react.
- The system provides you an *option of using scare tactics to interrupt or at least deter an entry*. Your custom automation plans can have the system turn on substation lights, sirens or strobes automatically after a human or a vehicle is validated in area where no one should be present.
- Perpetrators may cut communications to the site prior to entering. The Pivotal Vision system usually is installed with a separate communications system between the site and the head end controller. Wireless cell phone technology provides more than enough bandwidth. If primary communications to the site is cut the system will continue to fully operate and transmit. In the unlikely chance all communications were cut, the system will continue to operate and save the recorded event on site.
- In addition to cameras, multiple types of sensors can be connected and managed by the system. PTZ's can be sent to the vicinity of where sensor triggers occurred. They don't go to just one point but start an automated search of the area to analyze the threat. The system can manage gunshot detectors, fence shakers, PIRs, micro wave links and others.
- A new potential threat to digital control and IP based systems is from electromagnetic pulse (EMP) devices. The system can receive inputs from monitors that sense EMP and alert you of high levels. If someone were to fire at a station and disable operations, the value of the Pivotal Vision system is that it likely captured the perpetrator in the approach detection zones, notified Alarm station operators and sent the recorded video off site to the head end where the Event was recorded and saved.
- The system can automatically send text messages or e-mails with thumbnail snap shots of the initial intrusion in a protection zone. If you have roving trouble men, substation operators or supervisors who are on weekend or off hour duty they can be notified immediately.
- If you manage entry to the critical areas with card access systems, the system can make available video to your card access system. It creates a video log of workers as they drive up, enter the substation gate and as they swipe the card access. You can *monitor piggy backing* of unauthorized contractor entry.
- Inside your control houses you can have a time stamped Event based video record of whom and where visitors have been with interior cameras placed at strategic locations. It can be part of your cyber security safeguards.
- As more stringent CIP rules immerge this advanced system allows you to be ahead of the compliance requirements.

Generating facilities have similar perimeter characteristics plus some unique applications.



- Information can be concurrently presented both locally at each plant and/or at your command centers. Your custom automation plan can move alarm presentation based on your guard & shift schedules
- Large plants have massive perimeters & buffer zones making traditional security methods very costly. Strategically placed PTZ's on 24/7 guard patrols can cover those large areas.
- Zones can be set up to detect objects the size of train cars and human intruders at the rail entry areas. Special zones can be set around GSU substations & water intakes.
- Many hydro, combustion turbine and wind facilities are remote & normally unmanned and the autonomous capability of the system can be used to protect them similar to remote substations.
- Boaters too close to the upper side of dams are a public safety issue. Using 3D boat characteristics, your custom automation plan can automatically sound horns or flash strobe lights if a member of the public enters a danger zone and the system detects them.