

CASE STUDY:

PROTECTING CANADA'S LARGEST BATTERY ENERGY STORAGE PARK: HOW SWI AND UTIL-ASSIST MONITOR THE HAGERSVILLE BESS

The Hagersville Battery Energy Storage Park is currently the largest operating battery energy storage facility in Canada. Developed by Boralex Inc. in partnership with the Six Nations of the Grand River Development Corporation, the 300 MW site uses Tesla Megapack 2XL technology to store electricity overnight and release it back to the Ontario grid during peak demand.

A facility of this size represents hundreds of millions of dollars of private investment. Unlike a regulated distribution utility, an independent power producer cannot turn to a regulator to recover the cost of damaged equipment, downtime, or stolen materials. Every theft, vandalism event, or unplanned shutdown comes directly out of project returns, which makes physical security a core operational requirement rather than a back-office function.

The threat profile is also broader than typical utility theft. Battery energy storage parks must be sited where transmission capacity exists, which often places them in areas with no influence over local crime patterns or community sentiment. Copper theft remains a persistent issue across the sector. Operators are increasingly facing community resistance, and in some cases organized opposition that can escalate to property damage. Layered on top of this, lithium-ion battery installations attract scrutiny from neighbouring communities concerned about thermal runaway and chemical release events, which adds a thermal monitoring dimension that traditional security designs do not address.

To protect the Hagersville site, Boralex selected Util-Assist Inc. as its physical security and battery container monitoring partner, deploying Util-Assist's SecureAssist managed service. At the foundation of SecureAssist's Hagersville deployment is utility-grade visual and thermal sensor technology from Systems With Intelligence (SWI).

THE REQUIREMENTS

Boralex's security and monitoring requirements at Hagersville reflected the scale and profile of the asset.

- Substation-hardened monitoring equipment built to withstand the electromagnetic environment of a high-voltage facility
- A secondary thermal monitoring layer to provide independent backup to in-container temperature sensors
- AI-driven visual analytics tuned to filter wildlife, weather, and vegetation from genuine intrusion events
- 24/7 monitoring with trained agents who understand utility operations and security response
- Defensive deterrence capabilities to interrupt and disengage intruders before damage occurs
- A vendor partnership with the expertise, responsiveness, and law enforcement relationships to support a critical infrastructure asset of this scale

THE ENGAGEMENT

Util-Assist's involvement in the Hagersville project grew directly from prior results. At Boralex's wind farm operations in the Niagara region, the team had replaced legacy motion-based detection that was generating constant false alarms and being ignored by the central control room. The local Boralex manager, frustrated by repeated copper theft and recurring fence repairs, had been searching for a better solution. A recommendation from local law enforcement brought Util-Assist into the conversation. The Niagara deployment proved successful enough that when Boralex won the Hagersville contract, Util-Assist was incorporated into the project scope as the trusted incumbent.

Util-Assist is vendor-agnostic by design and connects to a range of camera manufacturers. For greenfield deployments like Hagersville, where the security infrastructure is designed from scratch, the first call is to SWI. According to John McClean, director of business development at Util-Assist:

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SWI is the only manufacturer I'm aware of that makes utility-grade equipment. The level below that is commercial. We've seen utilities buy cameras off Amazon. We can make those work, but you will probably be replacing them every year. SWI cameras are substation-hardened. The microprocessor board within the equipment is ruggedized to withstand potential fault variances. That's critical when you're deployed inside a ground grid.”

For Hagersville, SWI delivered both visual and thermal sensors integrated into Util-Assist's SecureAssist platform. The visual sensors handle perimeter intrusion detection and asset surveillance. The thermal sensors operate as a secondary monitoring layer over the Tesla Megapack containers, providing an independent line of defence against thermal runaway events not caught by the in-container temperature sensors.

The Hagersville deployment uses three SWI camera platforms. The IPCAM2000 is a utility-grade, high-resolution fixed visual camera. The IPTZ1016 is a utility-grade, high-resolution PTZ visual camera with 40x zoom. The TCAM2000 is a utility-grade, high-resolution PTZ thermal sensor. Together they handle both the visual perimeter and the thermal layer over the Tesla Megapack containers.





Site design was central to the deployment. Util-Assist and SWI worked together with the project team to position cameras to defend the site from the outside in, rather than catching intruders only after they were already inside the fence line. As John McClean explained:



I've been to so many utilities where the cameras are pointing inwards. But if you catch somebody inside your facility, it's too late. We defend on the outside. SWI does a good job in their site design. We tweak angles and lenses to make sure we don't put too much hardware in or it becomes too expensive. We don't cut any corners either. It's just the right mix."



THE BENEFITS

LAYERED DEFENCE WITH PRE-APPROVED RESPONSE PROTOCOLS

The SecureAssist deployment at Hagersville processes video at the edge through a local hub and routes alerts to Util-Assist's cloud-based security operations centre. When an event triggers, the responding agent works through an action plan that has been pre-built and pre-approved by Boralex. Defensive deterrence is sequenced, not simultaneous. Strobes come first, often enough to send opportunistic intruders away under the impression that they have triggered a motion sensor. If they remain, audible follows. If they remain, the agent initiates a talk-down using SecureAssist's "three P's" approach: professional, precise, polite. The agent describes the intruder's clothing and appearance in real time, confirms that video is being recorded, and advises that law enforcement is on the way. The talk-down is consistently the most effective deterrent in the SecureAssist toolkit.

AI TUNED FOR UTILITY ENVIRONMENTS

The visual analytics layer at Hagersville is configured to recognize only the categories of threats that matter at a battery storage facility. Animals, snowflakes, raindrops, and spiders are filtered out at the edge. The agent is alerted only when the AI identifies people, vehicles, or other genuine objects of interest. This is the same false-alarm fatigue problem that drove Boralex away from its legacy motion-based system in the Niagara region, and it is one of the most important reasons the team selected utility-grade visual analytics for Hagersville.

INDEPENDENT THERMAL MONITORING OVER TESLA MEGAPACK CONTAINERS

Tesla's Megapack 2XL units include internal temperature sensors that report continuously to the asset owner's control room. These sensors are the primary line of defence against a thermal event. SWI's infrared cameras, monitored by Util-Assist, provide a fully independent secondary layer. If a hot spot develops on the exterior of a container, Util-Assist sees it from the outside even if the primary sensors fail to flag it from the inside. This redundancy is engineered for what the industry calls a high-impact, low-frequency event, and it is also a direct response to the community concerns that battery storage developers face during siting and permitting.



SWI's thermal capability extends well beyond simple redundancy. SWI thermal sensors are deployed at thousands of sites globally, and the analytics have been tuned specifically for utility applications. At a BESS site, thermal imaging delivers a holistic view that container-level sensors cannot provide on their own. Every battery container is monitored and compared in the same field of view, both visually and against live temperature data. The comparative analytics flag any container running hotter or cooler than the others, often before the internal temperature alarms inside that container have been triggered. That earlier signal gives operators time to investigate and take corrective action before a thermal anomaly progresses to a failure.

REAL-TIME CAMERA HEALTH MONITORING WITH DEFINED SLAS

SecureAssist continuously monitors the health of every camera on site. If a sensor degrades or goes offline, Util-Assist is contractually obligated under defined SLAs to notify Boralex, and where appropriate to coordinate directly with SWI on resolution. Responsibility for monitoring system uptime stays with the security partner, not the asset owner.



A WORKING RELATIONSHIP WITH THE SITE STAFF

Util-Assist's agents and the Boralex personnel at Hagersville operate on a first-name basis. Site staff call when something looks off, and Util-Assist agents reach out when a routine walk-around picks up movement at the fence. This day-to-day operating relationship has reduced friction at the human layer of the security model and reinforced trust on both sides.

ACTIVE TUNING OF THE THERMAL LAYER

The team has been refining the thermal monitoring configuration over the early months of operation. Sunrise and sunset can produce false thermal alarms as the sun's heat reflects off the roofs of the battery containers. To address this, Util-Assist applies a combination of techniques: averaging temperatures over time windows, comparing temperature deltas between adjacent containers, and adjusting threshold logic based on time of day. This is the kind of tuning that comes only with operational experience on a specific class of asset, and the learnings from Hagersville are being carried forward to future BESS deployments.

THE RESULTS

The Hagersville BESS has been operating without a security incident since the SecureAssist deployment went live. There have been no intrusion attempts, no copper theft, and no damage to assets. From Boralex's perspective, the absence of events is the measure of success, because the cost of the security service has been built into the project's return on investment from day one. The fixed monthly fee for SecureAssist is a known operating line item, and every avoided event keeps the project's economics on track.



For the broader Canadian renewable and storage sector, the Hagersville deployment offers a few clear takeaways. Securing a 300 MW BESS is not a job for commercial-grade cameras and a generic monitoring contract. It requires substation-hardened hardware, AI tuned for utility environments, a thermal layer that does not depend solely on the asset's own internal sensors, and a monitoring partner that understands both the technology and the operating context. For asset owners weighing whether to build this capability in-house or outsource it, the case for a managed service like SecureAssist, built on a utility-grade hardware foundation from SWI, is strongest in the small-to-medium utility and distributed energy resource segments, where the in-house alternative would mean asking control room operators to add security to an already full operational load.

The growth of renewable generation and grid-scale storage is driving rapid adoption of battery energy storage systems across North America. As a relatively new utility asset class, BESS introduces failure modes that older infrastructure did not present, and those modes demand proactive, continuous monitoring to keep low-probability events from becoming catastrophic ones. SWI's thermal and visual monitoring technology is built for that responsibility and will take on an increasingly central role in keeping the electricity supply resilient and reliable as more of these assets come online.

ABOUT UTIL-ASSIST

Founded in 2005, Util-Assist was established during a pivotal moment when a local government moved to mandate smart meters in every home. From day one, our mission has been to support and protect utility interests as they navigate complex technology transitions. Our deep expertise in advanced metering infrastructure (AMI) has positioned us as a trusted advisor to electric, water, and gas utilities across North America. Operating in the middle ground between vendors and utilities, we provide end-to-end professional services—from strategy and procurement to deployment and optimization—helping utilities manage large-scale projects with confidence.

We have continually evolved our offerings to stay ahead of your changing needs.

In 2007, we launched a managed service for utility billing and call center support, now known as CustomerAssist. Two years later, we introduced "Sync Operator Services" (now SyncAssist) to address AMI exception management and data synchronization. In 2014, on the heels of a devastating ice storm, we established PowerAssist to support utilities with better outage communications. And in 2020, in response to growing security threats, we introduced SecureAssist to help safeguard utility critical infrastructure.

Util-Assist is a wholly owned subsidiary of Alectra Energy Services, a branch of the Alectra Inc. family of companies providing non-regulated energy services. Alectra Utilities is the second largest municipally owned electric utility by customer base in North America.

ABOUT SYSTEMS WITH INTELLIGENCE INC.

Systems With Intelligence Inc. (SWI) is a global provider of Touchless™ Monitoring Solutions for electric power, industrial, and oil & gas applications. SWI systems collect and analyze the data that allows companies to increase safety and reliability while reducing operating costs. Coupling advanced sensor technology with advanced AI analytic algorithms, SWI solutions automate remote site monitoring and inspections.

Systems With Intelligence products are engineered to operate in the harshest environments and withstand high levels of electromagnetic interference, static discharge, and voltage surges found in industrial applications, ensuring uninterrupted operation. Providing a monitoring system that operates reliably and connects seamlessly allows customers to remain focused on their operations.