IOT BRIGHTENS SMART LIGHTING
APPLICATIONS WITH SATELLITE TECHNOLOGY

Chris Hotts Park in San Jose, Calif., deployed the EverGen solar lighting system. System data is collected and forwarded to the cloud via a low-earth orbit (LEO) satellite network. PHOTO PAUL NORDIN.

As the IoT (internet of things) revolution continues, it presents an ever-growing range of innovations emerging on the commercial lighting and power supply front, where data-gathering sensors have long been an integral part of daily operations.

From the status of streetlights to exception-based reporting at a remote site, the intelligence that can be gained through satellite-based remote monitoring and reporting is invaluable in reducing costs and improving efficiency.

As with any industrial IoT application, the challenge with smart commercial lighting is the need for consistent and reliable remote access to data for effective monitoring and troubleshooting. While LTE is typically the communications infrastructure of choice, it is not always feasible from a logistical and/or financial standpoint when operations and facilities are located off the grid.

> **IoT is bringing a wealth of opportunities for electrical contractors, including innovative solutions such as satellite-enabled solar lighting, "smart city" initiatives and remote operations.**

When dealing with larger-scale operations that include remote locations in different jurisdictions, the cost of delivering and managing cellular connectivity can quickly escalate, and can require managing multiple service providers. An added issue is the operational challenge and cost of deploying workers to field locations for routine maintenance or troubleshooting.

Tracking assets from space

Integrated satellite connectivity is emerging as the preferred option for electrical contractors and operations managers who need to affordably and reliable receive and manage information from remote assets, including lighting and other industrial machine-to-machine (M2M) applications. With the advent of modernized satellite infrastructure and modems, satellite connectivity is becoming an increasingly attractive proposition for large and small-scale lighting applications.

For example, Carmanah's Sol developed its EverGen M Series solar outdoor lighting system to be integrated with satellite technology from Globalstar. Organizations that deploy a solution like Sol can have their solar lighting system data collected and forwarded to the cloud via a low-earth orbit (LEO) satellite network to provide reliable one-way data transmission from virtually any location.

By integrating the Globalstar simplex transmitter unit (STX3) with an onboard processor, Sol can collect and transmit data at predetermined intervals via satellite: when a lighting system isn't working as expected, users receive an automated status notification via email. For ongoing monitoring needs, the data can be viewed through a cloud-based dashboard to gain insight into battery efficiency, status and performance.

Managers can make better business decisions when they have visibility into system status: they can reduce equipment downtime and deploy workers to remote locations more efficiently, eliminating unnecessary physical checks on lighting equipment and lowering associated staffing and travel costs.

For global organizations who depend on ubiquitous coverage, using a satellite network eliminates the need to manage multiple local cellular agreements, increasing organizational efficiency. Plus, some satellite modems are extremely energy efficient, meaning they can be deployed in environments outside the reach of electrical grids or cellular networks without requiring frequent battery replacement.

IoT and satellite tech

Integrated solar solutions can be applied in a range "smart applications, including traffic light systems, perimeter and security lighting, warehouses and facilities that are not heavily staffed, marine lighting, as well as hurricane relief and other emergency efforts.

Satellite modems are already widely accepted in pipeline monitoring, smart metering, asset tracking, wildlife studies and other IoT applications. They can also be used as backup solutions, especially in high-risk zones or extremely remote areas, where interruptions in cellular communications are an ongoing concern.

As the drive for energy-efficient solutions continues, and the cost of technology declines, cities and commercial operations will increasingly turn to the new breed of affordable IoT solutions to meet their operational needs. Lighting is no exception.

IoT is bringing a wealth of opportunities for electrical contractors, including innovative solutions such as satellite-enabled solar lighting, "smart city" initiatives and remote operations. Add to that equation a low operational cost, environmental sustainability and data monitoring capability, and the benefits increase exponentially. **EB**

— With files from Globalstar Canada Satellite Co.