

Used Batteries Tracked to Disposal

Can/U.S. Enviro-Energy employs RFID to track the new and used batteries it delivers to telecommunications companies.

By Claire Swedberg

June 18, 2008—Canadian logistics and engineering company Can/U.S. Enviro-Energy, which specializes in supplying new industrial-size batteries for the telecommunications industry, as well as in disposing of used ones, is employing passive EPC Gen 2 RFID tags to track its battery inventory, and to provide customers with visibility into the disposal of their batteries. The RFID system, designed by Montreal-based RFID research and development firm [Academia RFID](#), utilizes [Motorola](#) interrogators and tags, as well as operation management software from [Ship2Save](#).

Telecommunications companies across Canada use banks of large batteries that provide consistency in power for their telecom customers' services when power outages or losses occur. Depending on the nature of the reduction or loss, some batteries may be used while others may not unless the outage is long-term.

To track the various batteries' status, telecom inspectors intermittently check their functionality. When the inspectors discover batteries approaching the end of their lifespan, a telecommunications company can contact Can/U.S. Enviro-Energy, which is responsible for removing old batteries and delivering them to recycling depots for dismantling, then either disposal or recycling. Can/U.S. Enviro-Energy also sells and delivers new batteries to companies, according to Alain Perreault, the logistics firm's general manager.

Until recently, the system was largely manual and paper-based. Can/U.S. Enviro-Energy would order new batteries after receiving a notice from a customer that such were required. The logistics firm stores the new batteries in its warehouse in Lachine, Quebec, and previously tracked those it received and delivered on paper forms stored in file folders. The company then scheduled a time to deliver the new batteries and haul the old ones out utilizing large dollies and trucks designed to carry hazardous waste.

When the firm removed an old battery, one of its drivers (who have been trained in hazardous waste handling) transported it to a recycling depot and had paperwork completed indicating where and when the battery was disposed of. Once the customer received a copy of that paperwork in the mail, verifying the battery's disposal, the telecom company could then apply for financial compensation from the Canadian government for properly discarding the batteries. This system, however, had several shortcomings.

Can/U.S. Enviro-Energy required better visibility into its inventory, to ensure that batteries did not spend too much time in the warehouse, as well as to track what was on hand and what needed to be reordered. Batteries, which typically can operate for up to 10 years or more, can lose some of their lifespan while sitting in storage. What's more, the batteries are heavy and difficult to move, making it time-consuming for warehouse employees who need to move them in order to access other batteries.

Can/U.S. Enviro-Energy received frequent calls from telecommunications companies asking whether old batteries had been delivered to a recycling depot, as well as where and when the deliveries had occurred. At

times, Perreault says, customers would call looking for records regarding batteries previously disposed of—a year prior, for instance. That type of request, he notes, required employees to hunt through physical file folders searching for paperwork indicating when and where the battery was discarded.

According to Perreault, Can/U.S. Enviro-Energy contacted Academia RFID seeking a solution to these problems. The research firm spent several weeks studying the company's processes and preparing a proposal using RFID technology. The two partners then built a system together, which they piloted for three months at the end of 2007. "It was a real team effort," says Anthony Pallermo, director of business development for Academia RFID. "No one knows the company's processes like they do."

After three months of piloting, the system went live in February 2008. With the new system, a Can/U.S. Enviro-Energy driver, upon arriving at a telecom customer site to pick up an old battery, attaches a Motorola EPC Gen 2 UHF tag to the side of the battery, then reads it with a Motorola handheld interrogator, capturing its unique ID number and linking it with the time the scan occurred. The driver then inputs such data as where the battery is being removed, as well as the driver's identity.

If there is a GPRS connection, the data is immediately transmitted to the Can/U.S. Enviro-Energy server. Otherwise, the information is stored until the handheld device locates a GPRS signal. The unique ID number and data input by the driver is then stored in the logistics firm's Web-based server and interpreted by the OMS software, making it available by portal to customers who log into the server site using a password.

Upon reaching a third-party recycling depot, the driver scans the battery tag once more, along with a "master tag" attached at the depot gate. That master tag, which also stores a unique ID number, links to data regarding the depot's location in the Can/U.S. Enviro-Energy server. This enables the battery to be listed as delivered in the back-end system, along with indications of where, when and by whom the delivery was conducted.

When Can/U.S. Enviro-Energy receives a new battery at its Lachine warehouse, it attaches and scans an RFID tag, then places the tagged battery in the warehouse. This allows staff members to know which batteries are in the warehouse, when they have arrived and how long they have been sitting in storage. Thus, they can ensure that newer batteries are not sold and delivered to telecom companies before older ones.

The RFID system also reduces the need to search for batteries that workers believe are in the warehouse but, in fact, may not be. Because each battery tag is scanned upon delivery, employees have an automated record of which batteries are in the warehouse. In addition, warehouse staff members can utilize a handheld reader to locate a particular battery. Because of the high level of metal in batteries, Perreault says, Academia RFID designed a pouch with an air pocket that lifts the tag off the metal surface.

RELATED_ARTICLES The research firm provided a training program for Can/U.S. Enviro-Energy's customers to understand how the RFID tags work. According to Perreault, customers have been happy with the system—due, in part, to their having driven this new solution by seeking better visibility into the disposal of their batteries. "We're very happy with it," Perreault says. "We see a good benefit." Labor reduction, he adds, will be one long-term benefit because office workers will not spend as much time searching for files regarding battery disposal. However, he notes, the real benefit will be better control over battery inventory.

"We are able to get customers we may not have had in the past," Perreault says, because the company's customers now have immediate access to proof of battery delivery at recycling depots. This, he states, is part of the return on investment. The logistics company plans to charge its telecommunications customers an additional fee to offset the cost of the RFID system, he says, though he declines to reveal the amount.