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April 27, 2003 8:01AM

# Off the scrap heap

## ElectriCycle spins gold from old computer components

Rebecca Evans  
SPECIAL TO THE TELEGRAM & GAZETTE

**GARDNER-** A one-ton bale of aluminum sat on the loading dock at ElectriCycle Inc. Company President Richard A. Peloquin ran his hands along the smooth strips of metal and smiled approvingly.

"This is a beautiful bale," he said. "You're looking at perfectly clean aluminum." The aluminum scrap, which was extracted from the guts of old computer monitors, will be sold to manufacturers and reused to make everything from soda cans to new computers.

The final resting place for old televisions and computers is often an attic or a landfill. But ElectriCycle gives them a second life.

Since 1999, the electronics recycling and repair company has processed more than 15 million pounds of damaged, broken or obsolete electronic equipment collected from New England municipalities, state agencies, charities, private corporations and individuals.

Two-thirds of what is processed comes from municipalities.

"What sets ElectriCycle apart from other recyclers is its commitment to reuse and repair," said Brooke A. Nash, branch chief of municipal waste programs for the Massachusetts Department of Environmental Protection.

Technicians at the Gardner recycling plant examine each computer, printer, television, VCR and household appliance for reusability. Salvageable items, which account for 15 percent of volume, are fixed and sent back for resale at Goodwill Industries, the Salvation Army and other charities.

"They do a great service for us," said John E. Midura, director of business and operations at Pittsfield-based Goodwill Industries of the Berkshires. "We receive donations of televisions and computers and those that don't work can be shipped to ElectriCycle for repair or recycling."



ElectriCycle Inc.'s vice president Robin F. Ingenthron, left, and President Richard A. Peloquin stand in the Gardner warehouse full of computer monitors. (T&G Staff / RICK CINCLAIR)

[Enlarge photo](#)



Mr. Ingenthron holds a tray of IBM computer processors that contain gold to be recycled. (T&G Staff / RICK CINCLAIR)

[Enlarge photo](#)

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Outdated computers and other obsolete electronics that can't be resold in the United States are often sent to schools in developing countries.

"We try to find a buyer for anything that is reusable," said Vice President Robin F. Ingenthron, pointing to an old overhead projector. "If you sit on something like this long enough, you may find a school in South America that needs it."

The 85 percent of material that doesn't qualify for reuse is harvested for parts and then recycled. Using hammers and drills, the demanufacturing team breaks apart televisions, computer monitors and other electronics to recover reusable material. Aluminum, plastic, glass and steel are sorted by chemistry and grade and sold as scrap. Gold, silver, palladium and copper are extracted from computer circuit boards and sent to smelters for recovery. Wood from TV consoles is processed and sold to landscapers. Even screws are saved and reused in new electronics.

ElectroniCycle's recycling efforts help preserve natural resources, reduce mining for precious metals and keep electronics out of landfills.

"Just as a lot of people recycle paper to save trees, we are recycling electronics to preserve forests, rivers and mountainsides," said Mr. Ingenthron.

But not all consumers are aware of the environmental and social benefits of recycling used electronics. "Our biggest challenge is making the public aware that all electronic items can and should be recycled," said Mr. Peloquin. "And it doesn't have to be complicated. Something like a toaster can be recycled for less than a dollar."

Rapid technological advances have decreased the lifespan of most electronics, making electronic waste, or "e-waste," the fastest growing component of solid waste, according to the U.S. Environmental Protection Agency, which estimates that 250 million computers will become obsolete by 2005.

If disposed in landfills, cathode ray tubes found inside televisions and computer monitors can contaminate groundwater with lead, which causes nerve damage, birth defects and other health hazards. In 2000, Massachusetts became the first state to ban the disposal of computers and televisions in landfills. Mr. Peloquin, who ran a television repair company for 30 years, saw an opportunity to move into the recycling business.

"I'd always been interested in recycling," he said. "When the state introduced legislation to ban CRTs, I began researching potential markets."

After placing competitive bids, ElectroniCycle and Superior Special Services of Stoughton (now Onyx Environmental Services) were chosen to be the state's official recycling contractors. The contracts were renewed last May for three years with renewal options. More than 290 Massachusetts cities and towns provide some CRT device recycling. Fees are paid for by the municipality, consumer or combination of both, said Ms. Nash.

In addition, the DEP awarded ElectroniCycle two grants of about \$45,000 each that allowed the company to buy new equipment and expand into the 50,000-square-foot 461 West Broadway facility, a former plastics factory, which it purchased in 2001. That allowed the consolidation of facilities in Spencer, Auburn and Middlebury, Vt.

In 2001, ElectroniCycle merged with American Retroworks of Vermont, which was founded by Mr. Ingenthron.

"ElectroniCycle is a big success story of a Massachusetts homegrown business," said DEP's Ms. Nash. "They've exceeded everyone's expectations in what they've been able to do."

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Today, ElectroniCycle, with 28 employees, has statewide contracts in Massachusetts and Maine and is the CRT recycler for several corporations, counties and waste haulers in the Northeast.

"There are not many companies out there like ours," said Mr. Peloquin. "This is a dirty, hard work business, and the profit margin is slim."

Fifty percent of the company's revenue comes from recycling fees paid by municipalities and consumers, which range from 15 cents to 21 cents per pound. Sales of scrap, parts and repaired units make up the remainder.

Since 1999, revenues have doubled, according to Mr. Ingenthron. "We are presently a \$1 million per-year company and want to continue to double every three years," he said.

But meeting this goal will be difficult if weak economic conditions persist. Growth will depend on the company's ability to increase its volume of recycled material, which fell from 7 million pounds in 2001 to 6 million pounds in 2002.

"The influence of the poor economy is that it puts recycling at the bottom of people's to-do list," said Mr. Peloquin.

In January, ElectroniCycle signed an 11-state agreement with Waste Management's Recycle America Alliance, which it hopes will boost volume to 10 million pounds in 2003.

The introduction of flat panel computer and television screens, high definition television and other emerging technologies should also increase future volume, according to Mr. Peloquin.

"There will be adapters to use the old equipment but everyone will want to buy a new TV," he said. "People will hold onto their old units for a few years before they decide to get rid of them."

In the meantime, the biggest threat to the company's growth will be competition from what Mr. Ingenthron described as "dirty recyclers" with dangerous environmental practices. "These companies enter lower, uninsured bids that make it harder for legitimate companies like ElectroniCycle to cover our overhead," he said.

Businesses and consumers need to ask recyclers where the basic ingredients of material being recycled will go, said Mr. Peloquin. "Recyclers should be able to produce statistics, invoices or manifests to show material was repaired and sold or material was sold to someone capable of repairing or recycling it."

ElectroniCycle and other concerned recyclers want to establish stricter standards for handling electronic waste.

"We've had to become an environmental advocacy group," said Mr. Peloquin. "I didn't know this would be part of the package, but it is important to see that electronics are fueled into the proper channels."

For example, of the 6 million pounds recycled last year, ElectroniCycle shipped 1.3 million pounds of raw glass from CRTs to Envirocycle Inc. of Hallstead, Pa., a glass processing firm, for use in new CRTs.

Despite the challenges of the industry, Mr. Peloquin said he is committed to electronics recycling.

"I love it," he said. "It's rewarding to look at a bale of clean aluminum that came from the inside of computer monitors. It's rewarding to know it can be reused."

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