

Lamp recycling: Right, smart

When the right thing to do is also a smart business decision.

RARELY ARE ENVIRONMENTAL "SHOULD" WRITTEN WITH black ink at the bottom line. But proper fluorescent lamp handling might be the slickest case where being a responsible corporate neighbor actually makes a measurable addition to the bottom line for distributors.

Fluorescent lamps: ubiquitous, long, thin, delicate—and deadly. Every broken tube in a landfill or dumpster releases a small amount of mercury into the environment. Now think of the boxes and boxes of tubes purchased by large facilities such as hospitals and office buildings to replace spent lamps. What do those folks do with their end-of-life lamps?

"The national recycling rate [for fluorescent lamps] is very low," according to Paul Abernathy, executive director of the Association of Lighting and Mercury Recyclers (ALMR). "We believe that's because most people aren't aware that many lamps contain toxic levels of mercury."

It's also because, until recently, it was difficult (and expensive) to properly handle them because those toxic levels of mercury propelled them into the category of "hazardous waste," he added.

UWR and distributors

The entire dynamic of spent lamp handling changed in 1999 with the addition of mercury-containing lamps to the federal list of "universal wastes" regulated under the *Resource Conservation and Recovery Act*. This modification, referred to in the lamp recycling world as the "Universal Waste Rule," or UWR, allows third-party



handlers of waste lamps to be subject to less stringent standards for storing, transporting, and collecting dead lamps.

"In this specific case, the UWR has been intended to encourage handlers like distributors to get involved in keeping fluorescent lamps out of the waste stream," said Christine Guiao of the Pollution Prevention Resource Center in Seattle. "All states have adopted a less burdensome set of regulations for dealing with toxic lamps, allowing handlers a lot of latitude to set up recycling programs."

The UWR encourages recycling by eliminating special registration, licensing, permitting, and reporting requirements normally associated with hazardous waste handling. It eases bottom-line considerations such as insurance premiums for handling this material as well.

Do I really want to handle this stuff?

A Small Quantity Handler of Universal Waste (SQHUW) is defined as anyone handling less than 5,000 kg total of lamps at a time—that would include most distributors.

For SQHUWs:

- No EPA ID is required;
- Storage time for the waste is up to a year;
- Employees need only minimal training (the kind of training many distributors likely are already offering regarding proper handling and emergency spill procedures should any of these lamps, new or old, break); and
- Proper marking and labeling of the containers in which the waste is to be transported or shipped is required (all can be provided by a recycler partner).

"Recycling fluorescent lamps is really very easy," said Tom Badrick, a recycling and waste management specialist at Legacy Good Samaritan Hospital in Portland, Ore. "We really don't generate overwhelming numbers of bulbs—our smallest facility will get a case of bulbs a month. At our largest, it doesn't take much time at all to have a pallet full of about 1,000 lamps, but we are able to move them on quickly."

In Maine, 39 hospitals signed on to a 2001 incentive program to get partici-

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pants to increase overall recycling 50% by 2010. As is usually the case, maintenance and staff are responsible for properly stowing the spent lamps—most frequently in the same boxes the new lamps arrived in—and to label them according to regulations. The boxes are then stored, most often on a pallet, in an out-of-the-way place or in a specially designated warehouse.

One Maine hospital maintenance supervisor reported that he sent about three shipments a year, and he's spending about \$3,500 annually on the service.

It would cost 10 times that if lamps were designated "hazardous waste."

Oregon hospitals also have a special incentive to recycle their lamps: \$.06 per foot.

Based on a study conducted by Ore-

gon State University that revealed less than 18% of the state's hospitals were properly handling their fluorescent lamps, the Oregon Center for Environmental Health approached a licensed recycler, Environmental Protection Services, and

our next fiscal year, all of our facilities will be on board," he said.

"Because of the incentive, we went ahead and began collecting the lamps before we even had a budget for the program," Badrick admitted. "Our chal-

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was able to negotiate the special hospital rate for straight lamps.

This incentive, and the nearly automatic link to the recycler, proved to be Badrick's catalyst to accomplishing fluorescent lamp recycling at most of his four hospitals and one research lab. "By

challenge is getting the guy on the floor at each of our facilities to start storing them properly as he relamps. We literally use the same box the new lamps came in, and I'm lucky enough to have a warehouse in which to store the pallets. It's only a couple of days between when I

Mercury rising

THERE ARE MANY EFFORTS AT VARYING LEVELS TO educate building owners about the dangers of mercury escaping from waste lamps into our environment. One of several significant to distributors is the federal amendment allowing mercury-containing lamps to be categorized as universal rather than hazardous waste. The goal of the modification was to raise the national recycling rate for mercury lamps from the late-90s levels of 20%, to 40% by 2005, and 80% by 2009, according to the EPA's Web site notice of the modification posted with links at www.epa.gov/epaoswer/id/univwast/lamp.htm.

Another effort represents a possibly unprecedented partnership among manufacturers, recyclers, educators, the EPA, and others to create an informative CD offered FREE, called the Lamp Recycling Outreach Project (LROP).

In 2004 the free CD became available through the efforts of the Association of Lighting and Mercury Recyclers (ALMR, www.almr.org), the Solid Waste Association of North America (SWANA, www.swana.org), and the National Electrical Manufacturers Association (NEMA, www.nema.org). Funded by the EPA (www.epa.gov), the CD is available from ALMR's Web site, or there's a special site set up for the LROP (www.lamprecycle.org).

The contents of the CD can be accessed through either site—if you click the link to the "flash" movie of the CD, be prepared to await a long upload and be sure you have

a fast connection. It's 21 MB and takes about 10 minutes to come in through a DSL connection, but it's well worth obtaining.

Along with explaining in more detail why we must lower the numbers of fluorescent lamps getting into our landfills, the information has a special section for distributors, with an overview of how you can join the effort. In addition, it offers a comprehensive and geographically varied listing of who's in the business of taking the things off your hands (licensed recyclers). The partners also have made it easily applicable to every state in the United States with contact information for regulatory agencies in each state, plus it offers information for Canadian and Mexican users.

"Distributors are the ideal middle-men, because they already have all the equipment, and under the UWR, they need hardly anything additional, except minimal training and some labels and bills of lading," said Christine Guiao of Seattle's Pollution Prevention Resource Center. "If you're located in an urban area, there's very likely a recycler near you. If you're more rural, recyclers elsewhere will provide you with a box program so all you have to do is sell the prepaid boxes, and your customers can mail them via FedEx or UPS directly to the recycler as needed. An excellent resource for a distributor to start his or her own program and offer value to customers is the recycler with whom he or she will ultimately be working."

—A.L.C



■ WORLD OF LIGHTING

The largest light source

Lighting designer Jim Benya is often called a lightning rod in the lighting industry for serving as the industry's apostle for major trends such as light pollution legislation and now, harvesting the light of the sun through architectural daylighting to save energy and improve spaces for the people who use them.

As examples of market drivers, he points to the LEED program, which strongly advocates daylighting, and a 2004 change to the Title 24 energy code in California that requires skylights for floor areas directly under roofs for large low-rise non-residential buildings greater than 25,000-square-feet and with ceiling heights higher than 15'. Also, according to the U.S. Department of Energy, more than 60% of commercial building floor space is single-story or on a top floor—representing good opportunities for skylights.

Daylighting provides many benefits, but has always been a difficult disciplinary cross-section between lighting design and architecture, however—the trick being to allow in cool, diffuse daylight but not excessive heat and source of glare.

That's where new technology comes into play. The new wave in daylighting is about hardware and control—from the smaller items such as photocells and dimming ballasts to systems such as heliostats to automated window blinds. Bottom line: Daylighting isn't just about windows and glazings anymore, it's about electric systems that distributors can sell.

—By Craig DiLouie

call Environmental Protection Services and the time someone comes to collect the pallets.”

Opportunity knocks on the warehouse door

Distributors have the opportunity to make money answering the needs of folks like Badrick—who said that when the discount incentive runs out (it's supported through a grant), he'll be looking for another way to make his lamp disposal problem disappear.

“Distributors and contractors with commercial contracts are already in touch with some of the largest waste lamp generators,” pointed out Guiao. “Adding a spent lamp hauling component to the business is a logical next step. Distributors are in an ideal position: they already have the pallets, forklifts, trucks, and warehouse space. It would be easy to bundle recycling services into those offered their lamp-buying customers.”

But distributors don't have to be handlers. Box programs can be set up with customers, linking them directly with recyclers. In this case, the distributor is the supplier of the appropriate, prepaid, pre-labeled containers. When full, boxes can be sent directly from the customer to any recycler via ground mail shipment.

For those who really want to add value to their larger contracts, Guiao recommends basing the pricing for the recycling service on the number of clients participating. “Negotiate a fee with your recycler based on that volume, then decide on what your mark-up needs to be for the role you're playing in getting the lamps from the customer to the recycler,” Guiao explained. “The difference between the rate you can negotiate and that which your customer pays is your profit. This is a tremendous value-add you can offer your large user clientele—but also a very nice service for those smaller businesses who otherwise wouldn't have ready access to a recycler.”

Regardless, distributors should have an on-site program for the handling of their own spent bulbs—it's in their best interest to allow customers to use them

as conduits, since distributors must do it for themselves anyway.

“The ideal for me,” said Badrick, “would be if the cost of taking the lamps back is simply built into the cost of the lamps purchased new. That way, I'd get one invoice from my distributor. The less time I have to spend figuring out how to make this happen, the more efficient I can be at my job.”

While speaking with his distributor's rep about retrofitting for more efficient lighting in his facilities, Badrick also requested a pricing proposal for all of Legacy Good Samaritan Hospital facilities' end-of-life lamp disposition. “They should be able to be competitive.”

Efficiency retrofits of lighting in offices and factories are in fact one of the major sources of toxic lamps getting into the waste stream. The FREE Lamp Recycling Outreach Project CD (see sidebar to the left) states the following: “As a distributor, you are likely involved in the sale of efficient lamps for retrofits. Any lighting retrofit will generate a large number of waste lamps; the most significant environmental enforcement actions concerning incorrect handling of waste lamps and ballasts have involved lighting retrofits.”

Green distribution

Efficiency is only one aspect of retrofits and building designs for green construction. “Distributors could benefit beyond what they can charge their customers for recycling,” stated Guiao.

“Environmental consciousness is becoming a bigger and more important part of doing business—from facilities construction to management. With the growth of green building techniques and awareness, distributors can position themselves as being knowledgeable about lamp recycling and other timely environmental issues in such a way that it could help their bottom lines.”

“It's easy,” said Badrick. “Most places have enough space to store a pallet.” ■ ■ ■

Chichester is a Virginia-based freelance writer. She can be reached via e-mail at falconer@swva.net.