

# Northeast Energy Efficiency Partnerships, Inc.



## **NEEP CFL Disposal & Recycling Report and Recommendations September 10, 2008**

### **Abstract**

This report seeks to inform policy makers and energy efficiency program administrators in the Northeast of the present status of Compact Fluorescent Lamp (CFL) disposal/recycling efforts, offer analysis of the advantages and disadvantages of the existing recycling/disposal mechanisms that are in practice, and ultimately propose a course of action. The action plan seeks to inform both our own activities as well as those of our efficiency program Sponsors and the regions' state and local policy makers and other stakeholders.

The following specific questions are addressed:

1. What is the context of the issue?
2. What disposal/recycling initiatives are currently operating?
3. Are they successful? Sustainable?
4. What course of action makes sense?

After extensively researching the landscape of recycling options, NEEP found that the Northeast is as active as any other region of the country in terms of offering disposal opportunities for consumers. While some Northeast states have built modest networks of affordable and convenient recycling options, the need for education, infrastructure expansion and more sustainable funding systems are still greatly needed. The job of educating consumers on the importance of using CFLs and properly disposing/recycling them must occur in tandem with the growth of infrastructure. These steps must be taken before restrictions and regulation regarding the disposal of CFLs can be expected to be effective. NEEP has drawn the conclusion that retailers and manufacturers must begin to play a larger role in educating, promoting, and funding CFL disposal/recycling efforts as part of a highly cooperative, leveraged strategy. Given the existence of highly interested policy makers at the state and local levels and the experience of program providers at the implementation level, NEEP recommends leveraging existing programs and relationships. NEEP is uniquely positioned to facilitate coordinated execution of the recommended actions to the broad universe of stakeholders.

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## **Background**

### **Why are governments and energy efficiency programs concerned about CFLs and their proper disposal?**

Long promoted by governments, environmental organizations, and energy efficiency programs for their energy efficiency and ability to reduce greenhouse gas emissions, CFLs have been a true success story. Since 2000, imports of CFLs have climbed from 21 million bulbs to approximately 400 million in 2007<sup>1</sup>. The ENERGY STAR program boasted that 2007 CFL sales (290 million qualified bulbs sold) will save over 13 million MWh and prevent the release of over 20 billion tons of CO<sub>2</sub> over their lifetime<sup>2</sup>. Unfortunately, this technology comes with a small hidden cost in the form of mercury. The necessary presence of mercury in CFLs has created a challenging environmental paradox. On one hand they save energy and prevent greenhouse gases, while on the other, they contain a trace amount of mercury which is a highly toxic chemical and a political lightning rod.

Unfortunately, for a variety of reasons, CFLs are currently recycled at very low rates (Only about 2% of household fluorescent lamps are recycled in the U.S.<sup>3</sup>). Lack of consumer awareness contributes to this low rate, and a public collection infrastructure (household hazardous waste collection centers and events) which is not presently equipped to adequately address this problem. Public sector programs are typically under-funded and ineffective. With the growth of CFL sales expected to continue, and the reality that these bulbs are not commonly recycled, many feel the time has come to act.

Over the past few years, recycling programs have begun to emerge across the country. For some areas, there is a clear mandate for energy efficiency programs and governments to come together to solve this problem, requiring a cooperative solution from stakeholders. There is an obvious need to proactively find answers and get informed, consistent messages out to the public. Since programs have encouraged the mass distribution of CFL's, some argue there is a shared responsibility for them to be part of the solution to inform consumers, help develop an effective recycling infrastructure, and ultimately improve recycling rates. However, it is indeed true that efficiency programs are bound to cost-effectiveness criteria that, by definition, define ancillary services like CFL disposal as overhead or a leakage. Ideally, it should be as easy to recycle CFLs as it is to purchase them.

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<sup>1</sup> The US Department of Commerce 2007 trade statistics

<sup>2</sup> EPA Press release, "EPA and DOE Spread a Bright Idea: Energy Star Light Bulbs are Helping to Change the World", 1/15/2008. Calculations based on ENERGY STAR's CFL savings calculator; [http://www.energystar.gov/ia/business/bulk\\_purchasing/bpsavings\\_calc/CalculatorCFLs.xls](http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/CalculatorCFLs.xls)

<sup>3</sup> National Mercury Lamp Recycling Rate Study, November, 2004, Association of Lighting and Mercury Recyclers (ALMR)

## **CFLs and Mercury: The Basics**

### **What are the benefits of CFLs compared to incandescent light bulbs?**

Compared to traditional incandescent light bulbs, CFLs use just a quarter of the energy and last up to 10 times longer. Because they draw less electricity from the electrical grid, less electricity needs to be generated, and fewer greenhouse gas emissions are given off. The energy savings over the life of a CFL equates to operating cost savings in the neighborhood of \$65.<sup>4</sup>

### **Why do CFLs contain mercury?**

Mercury is required to make light in a fluorescent light bulb. Two electrodes, one on either end of the bulb, pass electrons through the bulb which is coated on the inside with phosphor powder containing mercury. When an electron interacts with a mercury atom, the mercury atom enters an excited state. Once in an excited state, a mercury atom immediately returns to a normal state releasing ultraviolet photons in the process. This ultraviolet light then collides with the phosphor and the phosphor releases visible light.

### **How much mercury is in each CFL?**

The mercury content inside CFLs typically ranges between 3.5 milligrams (mg) to 6 milligrams, with an average falling around 4 mg according to the US EPA<sup>5</sup>. Based on voluntary limits set by the National Electrical Manufacturers Association (NEMA) and ENERGY STAR at 5 mg, a large majority fall at or under this level. 5 mg of mercury is about the size of the ball of a ballpoint pen. Compare this to mercury thermometers that contain 500 mg of mercury. The 5mg of mercury contained in CFLs today is less than the amount when CFLs were first sold commercially and manufacturers are currently working to reduce the amount further. Many manufacturers have recently released low mercury products with as little as 1 mg.

### **In what different ways does mercury get emitted into the atmosphere?**

The US EPA estimates that 104 metric tons of mercury is emitted into the environment every year. The majority of emissions come from coal powered electricity generators, while a much smaller fraction are released out of mercury containing devices that are disposed of improperly in landfills and incinerators. To offer some perspective on the potential release from CFLs versus the total US emissions, consider that most of the mercury in a CFL bonds to the glass casing when broken, emitting approximately 10% of the mercury to the air or water. In a worst case scenario that all 290 million ENERGY STAR qualified CFLs were broken in landfills, the total emissions would come to .13 metric tons or .1% of total human caused mercury emissions in the US.<sup>6</sup>

### **How much mercury is emitted through coal power plant emissions to power CFL and incandescent light bulbs?**

The exact amount depends on the regional electricity grid generation mix. According to the EPA, a typical coal fired power plant will emit 2.4 mg of mercury during the operating hours of a CFL over a 5 year period, while incandescent bulbs will emit 10 mg over

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<sup>4</sup> Based on ENERGY STAR's CFL savings calculator at [http://www.energystar.gov/ia/business/bulk\\_purchasing/bpsavings\\_calc/CalculatorCFLs.xls](http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/CalculatorCFLs.xls)

<sup>5</sup> US EPA bulb recycling website; <http://www.epa.gov/bulbrecycling/faqs.htm#6>

<sup>6</sup> [Frequently Asked Questions, Information on Compact Fluorescent Light Bulbs and Mercury](#), U.S. Environmental Protection Agency, May, 2008

the same time span<sup>7</sup>. For most regions, even when the mercury emissions from improper disposal are factored in, total release to the environment is still less for the CFL.

In a state such as Massachusetts, with stricter emissions standards, coal fired power plants are now limited to 0.0075lb Hg/gWh in 2008. New standards like these will make the case for proper disposal even more important as lifetime emissions decrease. This scenario is augmented further as regional energy portfolios emerge, including alternative non-mercury releasing energy sources such as solar and wind<sup>8</sup>.

### **What are the effects of mercury exposure?**

Mercury is a toxic metal. When it is released into the air (by trash incinerators, landfills, and wastewater discharges) it can accumulate in people and wildlife. Children are particularly vulnerable, because it can damage their developing nervous systems.<sup>9</sup> The U.S. National Institutes of Health reports, “Exposures to very small amounts of these compounds [mercury] can result in devastating neurological damage and death. For infants and children, the primary health effects of mercury are on neurological development. Even low levels of mercury exposure, such as result from a mother’s consumption of methyl mercury in dietary sources, can adversely affect the brain and nervous system. Impacts on memory, attention, language and other skills have been found in children exposed to moderate levels in the womb.”

### **Why recycle CFLs?**

Because they contain a small amount of mercury, CFLs should not be disposed of into the regular waste stream. When CFLs are crushed in landfills, mercury can be released into the air or leach into water supplies. To prevent this release of mercury into the environment, states and municipalities have encouraged consumers to drop off spent CFLs at designated locations to be recycled. Mercury in CFLs does not escape during use or over time; rather, the mercury inside a CFL is sealed by the bulb and cannot escape unless the bulb is broken. CFL recycling allows for mercury to be reclaimed and glass, metal and plastic recycled for manufacturing of new CFLs or other products (see recycling info below). A “second best” solution is to dispose of them properly. If your state or local environmental regulatory agency permits you to put used or broken CFLs in the garbage, seal the bulb in two plastic bags and put it into the outside trash, or other protected outside location, for the next normal trash collection. Never send a fluorescent light bulb or any other mercury-containing product to an incinerator.

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<sup>7</sup> Frequently Asked Questions, Information on Compact Fluorescent Light Bulbs and Mercury, May, 2008

<sup>8</sup> Massachusetts Department of Environmental Protection, Fact Sheet; Mercury emission limits for Coal Powered Power plants, May 2004

<sup>9</sup> Massachusetts Department of Environmental Protection Summary: Massachusetts Mercury Management Act; <http://www.mass.gov/dep/toxics/laws/hglawfax.doc>

### **Where can I recycle or dispose of my spent or broken CFLs?**

It depends where you live. Most municipal waste collection facilities consider CFLs to be household hazardous waste (HHW) and only accept it on special collection days. A growing number of areas are developing networks of retail locations that accept spent CFLs during all office hours. These locations typically do not accept broken CFLs. The following web sites include CFL/mercury information and search engines for recycling sites and events.

[www.earth911.org](http://www.earth911.org)

[www.recycleabulb.com](http://www.recycleabulb.com)

[www.lamprecycle.org](http://www.lamprecycle.org)

[www.epa.gov/bulbrecycling](http://www.epa.gov/bulbrecycling)

### **How are CFLs recycled?**

First, CFLs are gathered, packaged for transportation, and delivered to a recycling facility. Then the CFLs are brought into a negative pressure room where the bases are separated from the bulbs. Depending on the facility, this process can happen manually by workers in Tyvek suits or through a machine that also creates a negative pressure chamber. The bases are further separated into ballast and casing. The base components are chopped up and the materials separated and recovered by type i.e. plastics, metals, for remanufacturing. Next the bulb is crushed by implosion. The Phosphor/mercury powder is separated from the glass using a vibrating conveyor belt and is then blown into a bag house. The glass is recovered for use in manufacturing fiberglass or other glass products including new CFLs. The Phosphor powder is collected in sealed drums and retorted for mercury reclamation and Phosphor powder re-use. Several national companies are in the business of performing these processes including Veolia Environmental Services, Waste Management, Earth Protection Services, Inc. (EPSI), etc.

### **How much does it cost to recycle a CFL, including collecting, storing, transporting and deconstruction?**

The cost can range from \$0.35 - \$2.00 per lamp; however, the typical average is \$0.50 - \$0.75 per lamp.<sup>10</sup>

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<sup>10</sup> Vicki Calwell, Ecos Consulting

## **Current CFL Management Regulations**

### **Federal Policy**

“In 1993, as mandated by Subtitle C of the Resource Conservation and Recovery Act (RCRA), EPA promulgated regulations governing the safe management of hazardous waste from the point of generation until the point of final deposition. Within these regulations, EPA developed a streamlined management program for certain hazardous wastes, known as Universal wastes. The universal waste program provides an alternative set of regulations that reduce the regulatory burden by allowing longer storage of these wastes and reduced recordkeeping”<sup>11</sup>. Universal wastes are:

- generated in a wide variety of settings, not solely industrial
- generated by a vast community
- present in significant volumes in non-hazardous management systems

It wasn't until 1999 that Hazardous waste lamps (i.e. fluorescent lamps) were included under the universal waste definition. Handlers of universal wastes became subject to less stringent standards for storing, transporting, and collecting these wastes. The Agency concluded that regulating spent hazardous waste lamps as a universal waste under 40 CFR Part 273 would lead to better management of these lamps and would facilitate compliance with hazardous waste requirements.

While most linear fluorescent lamps fell under this update, not all CFLs gained a new Hazardous waste classification. “The EPA’s Universal Waste Rule allows mercury lamps with low mercury content (those that pass the Toxicity Characteristic Leaching Procedure ([TCLP](#)) test for mercury) to be disposed of in the regular waste stream. The test method is used to characterize waste as either hazardous or non-hazardous for the purpose of disposal. The TCLP test measures the potential for mercury (or another chemical) to seep or "leach" into groundwater from waste potentially disposed in a landfill.”<sup>12</sup> Most CFLs pass the TCLP test and are technically allowed to be disposed of as Municipal Solid Waste (MWS).

Under federal law, large users of fluorescent bulbs and tubes are not permitted to send spent lamps to municipal landfills. The bulbs must be recycled or sent to designated hazardous waste facilities. Smaller businesses and households, however, are exempt. Regardless of the regulations, EPA urges consumers to recycle all spent CFLs so the mercury, glass and other components can be recovered.

### **State Policies**

Several states added mercury lamps to their universal waste programs prior to the July 1999 final rule that included fluorescent lamps. Therefore, that federal addition made the management requirements consistent with many existing state programs. Currently, all 50 states have adopted these regulations.

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<sup>11</sup> US EPA Website; “Mercury Containing Light Bulb (Lamp) Regulatory Framework”, <http://www.epa.gov/epaoswer/hazwaste/id/univwast/lamps/index.htm>

<sup>12</sup> Northeast Waste Management Officials Association (NEWMOA) website; <http://www.newmoa.org/prevention/Mercury/lamprecycle/tclp.cfm>

Still at issue is the education and motivation of the public to know how to dispose of CFLs and linear fluorescents safely. Without recycling capabilities, programs and consumer education, mercury will inevitably continue to end up in landfills and incinerators.

Adding to the complexity of this issue is a growing number of states that have enacted stricter standards and banned the disposal of all CFLs into the normal waste stream. States including Minnesota, Wisconsin, California, Maine, New Hampshire and Massachusetts have laws in place that have, or will, remove CFLs from the accepted municipal solid waste category. Unfortunately, compliance in some of these states with landfill ban is very low.

Most municipalities that accept CFLs for recycling or safe disposal, charge a drop-off fee, typically \$1 per lamp, to offset the cost of recycling. Lamp recyclers charge municipalities about 50¢ to 75¢ per lamp plus a pickup fee of up to \$200. The latter fee covers both lamps and any other universal wastes picked up at the same time.

### **Existing Disposal/Recycling Programs**

Some governments and energy efficiency programs have addressed these issues by designing and implementing CFL recycling programs/pilots that go beyond the capabilities of local municipal waste collections. The following is a snapshot of programs around the country that seek to improve recycling rates.

## **Northeast**

### **Maine**

Direct information source; Richard Bacon, Residential Lighting Manager, Efficiency Maine (207-287-8349, [richard.bacon@maine.gov](mailto:richard.bacon@maine.gov) )

Maine's legislature created a resolve mandating the Department of Environmental Protection (DEP) and Public Utility Commission (PUC) to create a CFL recycling and education program no later than January 1, 2008. As of June 1, 2007, Efficiency Maine, in cooperation with Graybar Electric and Veolia Environmental Services, has been educating and delivering recycling buckets to participating stores. The Efficiency Maine website includes information on the Residential Programs page about participating stores listed by region. Any store with the participating emblem *will accept CFLs free of charge to the customer*. Program places buckets in CFL retailer stores (at approximately 400 locations) across the state where consumers can return spent bulbs free of charge (No broken bulbs). There is no cost to the retailer for participating in the program. Once the bucket is full, the retailer ships the bucket back for recycling (prepaid label). Efficiency Maine field representatives train each participating retailer, based on their own training from the Maine Department of Environmental Protection. Retailer cooperation and participation has been very positive. See:

[Report regarding the recycling of fluorescent lamps and consumer education efforts](#) January, 2008 from the Maine DEP and PUC

**Funding:** Recycling costs are being paid out of Efficiency Maine's budget. Cost to Efficiency Maine of recycling falls in the \$.50-.70 per bulb range.

**Unique Advantages:** While many state programs partner with a small number of different retailer names, Maine recruited a very broad range of retailers to participate (including Wal-Mart). Other programs may want to utilize these relationships in trying to engage them in their territory. Another aspect of Maine's program to mention is the simplicity of participation for the retail locations. Full pails of collected CFLs are sealed and mailed directly to the recycling facility. This eliminates a middle party to collect and transport to a central collection location. Maine's program has also been supported by a consistent messaging campaign to consumers. Signage in stores helps to explain to customers why disposing of CFLs properly is necessary.

**Unique Challenges:** Sustainability of funding is an issue that Maine is currently wrestling with. The state does not want to be solely responsible for funding one or two years from now.

### **New Hampshire**

Direct source of Program information; Kathy Borockett, Health and Safety coordinator, New Hampshire Department of Environmental Services, (603-271-6284, [Kathleen.Brockett@des.nh.gov](mailto:Kathleen.Brockett@des.nh.gov) )

New Hampshire Department of Environmental Services, with cooperation from Public Services of New Hampshire, and the New Hampshire Small Business Development Center, teamed up with local True Value Hardware stores to create a statewide CFL recycling program. 24 True Value retail locations now offer spent CFL recycling at *no cost to the consumer*. Retail recycling locations are highlighted on the DES's website as well as the state's energy efficiency program, NHSaves', website. This program accepts CFLs, 4ft. and 8ft. linear bulbs. In order to prevent large commercial generators from using these locations to recycle, customers are limited to six bulbs per visit. Broken bulbs are not accepted at this time. In addition to the listed participating retailers, the NH DES also lists 63 towns who now accept CFLs at their recycling/transfer stations. Retailer education is conducted by DES staff and NHSaves field representatives. Special collection pails are used at each location, and once full, are sent to the recycling facility for processing. See also: <http://www.des.state.nh.us/factsheets/co/co-19.htm>

**Funding:** DES currently funds the collection and recycling cost through money from a power generation company settlement/licensing fee that has to be spent on projects to reduce mercury. The contracts are about to be renewed and it is likely there will be enough money to last at least two more years. After that, the Department is hoping that either the participating retailers pick up the costs as a customer service or that they continue the program by charging customers around \$0.50 per lamp.

**Unique Advantages:** Designed in collaboration with Vermont, and following a model from Maine, New Hampshire had the luxury of regional support. With other successful programs in neighboring states, recruitment of retailers was a much easier "sell".

**Unique Challenges:** Sustainability of funding. It is not clear how long the settlement fee money will last.

## **Vermont**

Direct source of program information; Karen Knaebel, Mercury Education and Reduction Coordinator, Vermont Department of Environmental Conservation, (802-241-3455, [karen.knaebel@state.vt.us](mailto:karen.knaebel@state.vt.us))

Michael Russom, Market Manager, Residential Energy Services, Efficiency Vermont, (802-863-4511, [mrussom@veic.org](mailto:mrussom@veic.org))

The Vermont Department of Environmental Conservation, through the Mercury Education and Reduction Campaign, has teamed with local Ace, Do-it-Best, and True Value Hardware stores to offer free CFL recycling to consumers. A list of participating stores can be accessed at <http://www.mercvt.org/dispose/lamprecycleproject.htm>. DEC conducted original outreach to local retailers following the model of the Maine program. Special lined cardboard boxes are provided to the stores for in-house collection and storage. Vermont's program incorporates a unique "reverse distribution" method to collect the boxes when they become full. During regular deliveries of new product, the distributor simply loads the box of spent bulbs into their trucks and returns them to their central warehouse. Large quantities are then transported from the central warehouse locations to the processing location by their recycler, Complete Recycling Solutions. For several locations that are unlikely to collect large quantities of spent CFLs, Efficiency Vermont has provided prepaid mail-back pails.

**Funding:** The program is funded through SEP (Supplemental Environmental Project) funding, or basically, environmental fines. The Vermont DEC cannot use the fines but others can apply for the funding and so the Small Business Development Center/True Value and Ace applied for these funds two different times and were awarded \$22,500 each time. The first funding lasted from August 2005 until February 2008 and it paid for the cost of recycling, the transportation from the ACE/True Value warehouses to the recycler and the cost for administering the program (paying the bills and keeping track) for SBDC. The boxes were provided at no charge by the recycler, the retailer collected in their stores at no charge, and the warehouse consolidated at their location at no charge.

**Unique Advantages:** Vermont utilizes a unique reverse distribution system that transports the collected bulbs from the retail location back to the original distribution center. Instead of a municipality collecting pails or boxes, or a mail back system, this method includes the participation of the retail distributors. This cooperation helps spread some of the cost and responsibility to the distributor. Since the merchandise trucks from the warehouse already transport goods to the stores, the back hauling of bulbs and the delivery of new boxes really didn't cost any extra given the truck was already going there. One of the largest costs in recycling is the transportation – so ANY time you can consolidate, it is always a bonus. Vermont reports that there are significant cost differences between this system and systems that employ mail back. Another advantage the Vermont program has is their strong messaging support from the State efficiency program, Efficiency Vermont. Included in several marketing pieces that they broadcast is an educational component explaining the necessity of proper disposal.

**Unique Challenges:** Sustainability of funding. It is not clear how long the SEP money will be available.

## **New York**

The New York State Energy Research and Development Authority (NYSERDA) is working with the New York Department of Environmental Conservation and Long Island Power Authority (LIPA) to encourage retailers to purchase recycling buckets for consumers in their stores. They are working with three vendors (Waste Management, Veolia, and Northeast Lamp Recycling), but the retailers are responsible for the cost. NYSERDA/LIPA are providing marketing materials (customer brochure) for their retail partners to use at the point of sale.

**Unique Advantages:** This program design eliminates the need to tap efficiency programs or governments for funding. The NY DEC has done much of the logistical work for the retailers, by lining up potential recycling vendors and creating the necessary marketing materials.

**Unique Challenges:** Without financial support, the recruitment of retailers to assume the costs of recycling may be difficult.

## **Massachusetts-Rhode Island-Vermont Joint Program**

Sponsors of the Northeast ENERGY STAR Lighting Initiative from Massachusetts, Rhode Island and Vermont have been running Negotiated Cooperative Promotions (NCP) of CFLs for several years. For the first time in 2008, these Sponsors have included a recycling component in the solicitation.

The offer to retailers and manufacturer teams includes added preference and potentially increased incentive levels for retailer/manufacturers that incorporate recycling capabilities into their promotions. The Sponsors are in the process of exploring proposals that were submitted.

## **Beyond the Northeast**

### **Wisconsin**

Direct source of program information; Karl Hilker, Wisconsin Energy Conservation Corporation, (608-249-9322 ext. 273)

New contact; Mike Plunkett, Wisconsin Energy Conservation Corporation, (608-249-9322 ext. 175)

Wisconsin's Focus on Energy has partnered with their member utilities, True Value Hardware Stores, and the environmental service company, Veolia, to offer a solution to the problem of CFL recycling inconvenience. Since September, 2007, Focus on Energy representatives have been providing interested retailers with recycling containers as part of a new, *no-cost CFL recycling program for their customers*. A retailer search engine is available on Focus' website ([Focus on Energy CFL Recycling](#)) to find retailers participating in the CFL recycling program.

Consumers can still recycle their bulbs even if there are no retailers partnering with Focus on Energy in their area. Consumers are recommended to take advantage of available local recycling options for CFLs. Consumers can contact their local municipal solid waste agency directly, or visit [www.epa.gov/bulbrecycling](http://www.epa.gov/bulbrecycling) or [www.earth911.org](http://www.earth911.org) to identify local recycling options.

Karl Hilker, who helped develop and launch the retailer based program last September, commented that getting the True Value retailers to participate “has been a very easy sell”. In speaking with retailers across Wisconsin, he would often remind them that “your best customer is the one who has a spent CFL and needs to go and replace it”. Focus used existing lighting field workers to recruit 300 different True Value retailers at over 450 different locations. The issue of liability for stores to handle mercury has not been a roadblock. True Value locations already deal with mercury precautions due to the products they sell. Adding collection on the back end has not been a problem for them. Without substantive figures, Karl believes that retailer collection “blows away” the amount of bulbs handled by municipal waste collectors. Total numbers of recycled bulbs from 2007 have not been totaled yet.

**Funding:** Costs for retailer education and mail back recycling pails are covered by utility-funded Focus on Energy. Focus is charged \$90 for each pail of between 200-250 CFLs (<\$.50/bulb). Individual towns cover the costs of recycling at their municipal facilities.

**Unique Advantages:** In a rural state like Wisconsin with greater distances between homes and waste collection facilities, the need for more drop-off locations is even more pronounced. The vast numbers of participating retailers (450 locations) is a valuable tool in increasing proper disposal rates.

## **Illinois**

Direct source of program information: Mary Anne Emmons, Environmental marketing Manager, ComEd (630-437-2424)

Secondary source: Chad Bulman, MEEA ([cbulman@mwalliance.org](mailto:cbulman@mwalliance.org))

ComEd is partnering with the Illinois Environmental Protection Agency (IEPA) and Ace Hardware to conduct a pilot CFL recycling program. 148 participating local Ace Hardware stores in northern Illinois will accept used CFLs from ComEd customers through June 2008 and properly dispose of them in IEPA-approved recycling facilities. Click here for [ComEd's CFL recycling website](#). Retailers accept spent CFLs from ComEd customers and store in shipping-safe pails from Veolia Environmental Services. Retailers simply ship the pail to the recycling center once the pail is full. The pilot program was kicked off last year at during the ENERGY STAR's Change-a-Light campaign in October. Chad Bulman, Midwest Energy Efficiency Alliance (MEEA) worked to recruit new retailers to participate.

Overall, Mary Anne Emmons expressed her surprise that the program has been so easy to run. While ComEd has spent resources marketing the program through literature and posters, they do not travel to retail locations to conduct employee education. Thus far, they haven't seen any reason to change this policy. Illinois EPA coordinates the contracts with the recycler, Veolia. Due to the program being in its early stages, success has been hard to quantify at this stage. From the beginning, Ace Hardware is described as a very enthusiastic, involved partner. To Ace, the program is seen as just another valuable service they can provide to their customer, one that at the moment not all retailers are offering. ComEd's only concern is the potential growth of the program. As CFLs become more popular and recycling becomes more mainstream, total program cost is likely to grow. No liability issues have been raised by Ace.

**Funding:** ComEd shares the cost of the Veolia recycling service with the Illinois EPA. Funds come directly from the efficiency budget.

**Unique Advantages:** Like many of the retailer-based programs, the Illinois approach is seen as another valuable service retailers can provide to their customer. Retailers view the service as a point of differentiation, as not all retailers are currently offering the service.

**Unique Challenges:** Neither ComEd nor IEPA conduct in-person retailer education. This reality forces the program to communicate procedures exceptionally well through print and phone communications. Like many of the other programs, ComEd has concerns over the potential growth of the program and subsequent costs.

## **Minnesota**

Direct source of program information; Kim Sherman, Xcel, (612-337-2360)

John Gilkeson, MN Pollution Control Agency, (651-215-0199, [John.Gilkeson@state.mn.us](mailto:John.Gilkeson@state.mn.us))

Kelly Gribauval-Hite, Mercury Technologies of Minnesota, (320-629-7888)

With a directive from the state in 1992 to reduce mercury emission from the source of power generation, Xcel Energy negotiated that they would instead design a fluorescent lamp recycling program that would prevent the release of mercury from landfills.

Xcel Energy's Bulb Recycling program has been running since 1992. The Bulb Recycling program, offers two convenient ways to recycle spent fluorescent bulbs. Spent fluorescent lamps can either be (1) taken to the county recycling center for no charge (with Xcel reimbursing the counties 100% of their costs), or (2) consumers can take spent CFLs to a participating area hardware store and *pay a recycling fee (range from \$0.50-\$2.00)*. Xcel will pay a portion of the recycling fee with \$.50-off coupons. [Xcel Energy - Bulb Recycling Website](#).

This program covers the cost of recycling to residential and commercial customers of up to 10 bulbs per year at county recycling centers. Lists of county centers and retail locations are available on the website. At over 50 retail locations, Xcel Energy provides \$0.50 coupons to customers to offset a portion of the cost. Coupons are available on the Excel website, through bill inserts, or are available at retailers who order them. Retailers typically charge a total of about \$1.

Mercury Technologies of Minnesota manages both the retail-based recycling and most of the county recycling centers for Xcel. Mercury Technologies recruits retail participants, distributes collection bins, collects the bins, recycles the bulbs, as well as collects the coupons and reimburses the retailer. Kelly Gribauval-Hite from Mercury Technologies emphasized that the participating hardware stores strongly support the program and have always seen this as an opportunity to drive foot traffic.

Amazingly, Kim Sherman from Xcel reported that 98% of recycled bulbs came through county recycling centers last year. Her feeling about the high number was due to the age of the program and focus of messaging. Originally, messaging was concentrated on recycling at county recycling centers. Consumers got used to this location and have continued to feel comfortable

utilizing them. Kim Sherman estimated that 200,000 bulbs were recycled through the program in 2007.

There are also statutory outreach requirements for utilities. Any promotion or advertising of lamps must also inform consumers of the state's recycling requirements and provide recycling program information. Xcel spends money on in-store posters and bill inserts.

John Gilkeson added, "As we look at better programs for lamps, with a strong component of manufacturer responsibility, I think that utilities should be involved in outreach to consumers and it is appropriate for a utility to subsidize recycling at the same level as its subsidy for the purchase price of a lamp to its customers."

**Funding:** Funds to support the recycling program come out the conservation fund that the state uses to fund their efficiency programs. For costs associated with county collection, Xcel reimburses the facility for their cost they incur to recycle the bulb, which averages about \$0.50-\$0.55 per bulb. For costs associated with the retail collection locations, there is cost share between the customer and Xcel. Cost to the customer depends on how much the retailer is charged by mercury Technologies for the comprehensive recycling service. Xcel will contribute \$.50 towards the cost for each bulb.

See "Partial Customer End of Life fee" in Analysis section for commentary.

## **Oregon**

Direct source of program information; Bob Lorenzen, Eugene Water and Electric Board, (541-484-1125, [bob.lorenzen@eweb.eugene.or.us](mailto:bob.lorenzen@eweb.eugene.or.us))

At the height of the west coast energy crisis, many different types of organizations and governments across the Northwest began to aggressively promote CFLs. After receiving heavy consumer pressure in 2001 that there were insufficient means to dispose of the bulbs, an alliance of stakeholders gathered to form the Northwest CFL Recycling project ([http://www.zerowaste.org/cfl/cfl\\_index.htm](http://www.zerowaste.org/cfl/cfl_index.htm)). The project developed a pilot project that was adopted by Lane County, OR.

Based on the success of a pilot program that ran from October 2004 to October 2005, the Eugene Water and Electric Board's Lane County Lamp Recycling Coalition created a permanent CFL recycling program. The Waste Management Division of the Lane County Public Works serves as the program manager. 17 locally owned retail stores offer the collection service free to their customers. The program recycled about 17,500 lamps in 2005, 22,000 lamps in 2006, and 22,000 lamps in 2007. The retailers accept CFLs and linear fluorescent bulbs (linear fluorescents make up the majority of the bulbs collected, 78% in 2007). Evaluations of the original year long pilot program showed that recycling costs were above \$0.50 per CFL and \$3.74 when marketing expenses were included. ([Pilot Program Final Report](#))

According to Bob Lorenzen, the basic pilot model is still in tact; however more retailers have been added. The county provides the special collection boxes to the stores and is responsible for transporting the boxes to a central facility when they become full. EPSI, a national recycling

company is contracted with Lane County to handle the final transportation and ultimate recycling service. When the full scale program was launched, the supporting utilities conducted promotions and consumer messaging. After the first year, this activity has been drastically cut back. EWEB still buys one advertisement each year.

Anecdotally, Bob feels that the collection numbers from retailers dwarf those from the HHW locations. “Being green” has become so mainstream in the area, that retailers want this opportunity to differentiate themselves. When asked about the liability issues of collecting mercury containing products, Bob explained that these hardware stores already handle so many products that contain toxic chemicals that spent CFLs don’t pose a greatly increased risk.

Bob Lorenezen reported that initially the retailers were not doing a good job of packing bulbs into the boxes before the county came to pick them up. This resulted in extra time spent by the county to reorganize. This issue has since been resolved through more time spent to train the retail workers.

**Funding:** The recycling cost (collection and recycling) is paid for entirely by Lane County while the marketing is paid for by the county’s five utility companies based on each company’s market share of the region. The current cost is about \$0.30-\$0.50 per CFL and the marketing budget has been cut by four-fifths from \$15,000 to \$3,000 annually. Linear bulb recycling costs were \$0.15 per foot during the pilot program and are now \$0.07-\$0.09 per foot. Utilities are now spending less than \$10,000/year on messaging. The costs have been consistently dropping over the past few years and are expected to continue this trend, which would enable Lane County to handle the increased numbers at the same cost.

**Unique Challenges:** The Lane County program had run into several issues early on with the Retailers packing the bulbs properly. It was common for the county workers to arrive at a retail location and find the storage boxes packed haphazardly, requiring extra time to repack. The issue was addressed by the county with a boost of education and saw immediate results. County collectors no longer have to spend extra time repacking.

## **Washington**

A variety of recycling options exist throughout Washington State.

(1) Direct source of Program information; Lauren Cole, Project Manager, Take it Back Network, King County Solid Waste Division, (206-296-4363)

As part of the Take-it-Back Network, select retailers offer recycling of both CFL bulbs and fluorescent linear tubes during normal store hours. Most retailers in this network *charge a fee* to cover the recycling costs. For a complete listing of locations:

[www.metrokc.gov/dnrp/swd/takeitback/partners.asp](http://www.metrokc.gov/dnrp/swd/takeitback/partners.asp)

King County, working in cooperation with 14 different retailers, developed the recycling program. Customers who participate are charged a fee when dropping their bulb(s) off for recycling. Exact costs are decided by the individual retailer, but fall in the \$.50 to \$1.50 range. Marketing for the program is handled by the county. Retailer recruitment and education is a

function of the Take-it-Back Network and Lauren Cole reports that retailers have been very receptive to joining the Network. Ecolights Northwest, the recycler used by the participating retailers, provides storage/shipping containers, transportation, and final recycling.

While the main hurdle for the program to overcome is the cost to consumers, the Network has still seen modest numbers over the past few years (2000 CFLs in 2006 and 5000 CFLs in 2007). The ultimate goal for the Network would be to have manufacturers/retailers assume the cost of recycling. While this cost share has not been formalized with any of the participating retailers, Lauren Cole mentioned there were indications that the possibility does exist and discussions are ongoing. Lauren felt strongly that the idea of producer responsibility was the way for these programs to sustain themselves long term. It was also Lauren's impression that local utilities were starting to receive more pressure from their customers to assist them with the cost.

**Funding:** Customers pay for cost of recycling, with promotional support from the county

See Analysis section for commentary on this model

(2) King County utilizes a mobile collection center, the Wastemobile that travels to different communities to provide free household hazardous waste disposal, including both CFL bulbs and fluorescent linear tubes.

(3) Puget Sound Energy offers free recycling of CFL bulbs to all employees and customers at six office locations in five Washington state counties. The selected locations are in or near city centers, are easy to access, and require no appointment for drop off. Customers can simply place their spent CFL bulbs in the specially labeled bins at the various PSE locations during normal business hours.

(4) Washington state county's household hazardous waste facilities offer free recycling of CFL bulbs and FLT tubes, in addition to all hazardous wastes. Some of these locations have special operating hours and may require an appointment.

## **California**

Direct Source of Program Information; Leonard Robinson, Chief Deputy Director, California Department of Toxic Substances Control, (916-324-2471, [leonard.robinson@dtsc.ca.gov](mailto:leonard.robinson@dtsc.ca.gov))

The California Take-It-Back Partnership is a collaboration of state government, city and county government, businesses, non-profit agencies, and non-governmental organizations to provide free, local, and convenient ways for California residents to recycle everyday household wastes such as batteries, fluorescent lamps, and electronic devices that can no longer be disposed in the trash. In essence, the Partnership provides a way for California residents to assist the California Environmental Protection Agency in its mission to protect public health and the environment.

There are many options for collections. Consumers can contact their county's Household Hazardous Waste Collection Program, the Department of Toxic Substances Control (DTSC), or CIWMB for assistance in finding convenient locations. The California Take-It-Back Partnership will provide public service announcements, posters, stickers, and window signs to identify

businesses as participating partners. Additionally, many local solid waste or Household Hazardous Waste Collection Programs form public-private partnerships with retailers. Participation is as easy as setting out a collection box and having the agency pick it up when it's full. DTSC's Universal Waste Web Site at <http://www.dtsc.ca.gov> has details on the requirements. The site also includes training materials that can be customized for individual businesses.

Also, the California Legislature has mandated a Lighting Efficiency and Toxic Reduction Task Force (Assembly Bill 1109) to make recommendation for the labeling & designation; education & outreach; and collection & recycling of end-of-life fluorescent lighting.

**Funding:** Funding for recycling CFLs comes from many different sources; Local HHW programs, the state through the California Integrated Waste Management Board has issued grants the last couple of years to fund the local CFL recycling, and in some cases the retail stores pay for the recycling. Also, the utilities in California are starting to combine the message of energy efficiency and environmental protection by paying for the collection and recycling of end-of-life fluorescent lighting. Pacific Gas and Electric has championed various collection projects in their area of service. Recently, they were allowed by the California Public Utility Commission to use "Public Goods" monies for education; outreach; collection and recycling of end-of-life fluorescent lights. Other utilities are following suit.

## **National Initiatives**

### **Product Stewardship Institute**

Direct source of Program information; Sierra Fletcher, ([sierra@productstewardship.us](mailto:sierra@productstewardship.us))

PSI, Inc. has partnered with Women's Voices for the Environment (WVE) to implement pilot collections of spent fluorescent bulbs and mercury thermostats. The collection pilots will run from March through October 2008 in Colorado, Utah, Montana and South Dakota. A three month design phase and four month evaluation phase will occur before and after the eight month implementation period. The pilots will use retailer based collection mechanisms and include a minimum of 25 locations across the four-state region. CFL recycling will therefore be free to and may include financial incentives at select retailers.

**Funding:** PSI and WVE have received a grant from US EPA region 8 to implement, design, and evaluate the pilot collections; however, PSI is relying on outside sponsorship in the future to cover the cost of CFL recycling as to not burden consumers for "doing the right thing".

### **Retailer-based Programs**

#### **The Home Depot CFL recycling Initiative**

On June 24, 2008, The Home Depot announced the launch of a nationwide CFL recycling initiative in all 1973 of their stores in the U.S. According to their [press release](#), "This free service is the first such offering made so widely available by a retailer in the United States and offers customers additional options for making environmentally conscious decisions from purchase to disposal. At every Home Depot store, customers can simply bring in any expired, unbroken CFL bulbs, and give them to the store associate behind the returns desk. The bulbs will then be managed responsibly by an environmental management company who will coordinate

CFL packaging, transportation and recycling to maximize safety and ensure environmental compliance”.

**IKEA offers free CFL bulb recycling during normal business hours.** Customer can bring spent mercury-containing light bulbs to any IKEA store for free disposal. IKEA believes that since CFL bulbs contain a small amount of mercury, they should not be simply tossed out. IKEA offers the solution: a ‘Free Take Back’ program offering recycle bins in all IKEA stores. Any bulb is accepted, regardless of where it was originally purchased. IKEA has marketed itself as an environmentally conscious retail chain that wants to offer its customers the convenience of proper bulb disposal.

**Funding:** All costs associated with these programs are covered by The Home Depot and IKEA. It is not known if support is provided by their product manufacturers.

**Unique Advantages:** The Home Depot and IKEA represent the only large scale national retailers that not only offer CFL recycling to their customers, but also cover the full cost. With 1,973 locations nationwide for The Home Depot and 35 for IKEA, these retailers provide a model for other retailers to consider following. As mentioned before, the growth of CFLs is expected to drive spent CFLs far beyond current levels in the next 5-10 years, and likely put increased pressure on state agencies and efficiency programs to afford their continuation. This model clearly alleviates this forecasted pressure on state/municipal resources.

**Unique Challenges:** Can The Home Depot/IKEA continue to assume the financial burden? In the same way agencies are concerned about growing costs, it is possible that these retailers would decide the costs are more than they want to bear?

#### **US Postal Service Mail-Back Pilot (Concept stage)**

Direct Source of concept information; Terry L. Grover, Energy Coordinator for the Northeast Area Office, United States Postal Service ([terry.grover@usps.gov](mailto:terry.grover@usps.gov))

Ronald Garey, Sr. eCommerce Specialist, Business Development & Identity Protection Service, United States Postal Service, ([ronald.e.gary@usps.gov](mailto:ronald.e.gary@usps.gov))

After having done some preliminary research and surveying of residents in a few different communities, including Cambridge, MA, the United States Postal Service (USPS) concluded that a mail-based CFL recycling program would likely have strong support from residents and could conveniently meet consumers’ needs of disposing of their spent CFLs responsibly. When presented with the possibility of a mail based recycling program that was either free or cost less than \$1.00, 89% of survey respondents said they would, in fact, utilize such a system.

Several recyclers have already created prepaid, mail-safe, USPS-approved boxes for consumers to use to ship spent CFLs directly to their recycling facilities. Veolia Environmental Services, for example, has a “RecyclePak” that retails for \$20 and claims to fit approximately 10 CFLs, depending on bulb size. Such boxes are available to purchase, mainly through companies respective websites. There are a small number of efficiency programs that have actually help promote the distribution of these boxes. In the case of Hawaiian Electric Co, they gave away 1000 of the “RecyclePaks” to interested customers. Estarlights.com, a paper and web catalog

produced by a consortium of New England efficiency programs, has recently included a mail back recycling box in its broad range of products (listed at \$14). USPS is actively pursuing an organization to partner with to pilot a program that assisted consumers in utilizing the mail back system.

**Funding:** USPS would not fund such a program. They would merely provide their existing transportation infrastructure to enable such a program to operate. Costs would either be covered by the individual consumers (i.e. prepaid packaging), state/local agencies, or an efficiency/environmental program. The USPS is open to running co-promotions with a partnering organization.

### **Analysis: Advantages and Disadvantages of existing Recycling Mechanisms:**

NEEP's analysis addresses these three central issues;

- Improvement of infrastructure for spent CFL collection and transportation
- Consumer messaging that provides education and motivation for CFL recycling
- Sustainable funding mechanisms that spread cost/responsibility

### **Retailer-based Collection Design**

**(1) "Free to customer"** (Maine, New Hampshire, Vermont, Wisconsin, Illinois, Oregon, Home Depot)

These programs offer retail-based collection options for consumer at no cost. Recycling costs are financed by government agencies, utility based efficiency programs, or the retailers themselves. By far, this is the most popular design among the most recently formed recycling programs. There are many advantages associated with employing a network of existing retail locations to increase CFL recycling. A primary advantage is simply that the total number of locations is greatly expanded from say a single municipal collection site. The increase in locations brings customers the luxury of convenience. Not only are there more locations and shorter distances to travel, but retail stores have far longer operating hours as well. Municipal waste facilities often limit the collection of Household Hazardous waste (HHW) to special collection days that occur infrequently (once a month or less) and are located, generally, at out of the way sites. This reality forces consumers to store their spent CFLs between events, increasing the chance of accidental breakage in the home.

There are a number of benefits from the retailer perspective as well. Customers needing to recycle a bulb are often in the market to replace that bulb. When a consumer comes to drop that CFL off for recycling, they have the opportunity to replace it during the same trip. From conversations with program managers, stores are generally overjoyed by the traffic building aspect of offering this service. The current atmosphere in the retail world surrounding "green" and environmental responsibility provides an excellent opportunity for these retailers to boost their image as businesses doing the responsible thing.

Lastly, retailers are generally very anxious to leverage resources from outside organizations when it comes to marketing and advertising. These recycling programs have, on several occasions, drawn much appreciated publicity and awareness to their stores.

While obviously a no-cost model is quite affordable for customers, the sustainability of the existing funding source structure is often raised as an issue that must be dealt with. Assuming government agencies will continue to be able to afford these efforts is likely naive. Since CFL recycling is only expected to grow, this issue will become even more acute. Many programs are operating under the assumption that once the infrastructure is developed, additional funding sources will be secured. While some retailers report that issues of liability surrounding collecting mercury-containing products are not a barrier to participation, program managers have heard this complaint from many of the larger “big box” retail chains. It will be an issue that must be sufficiently addressed in order to expand into new retail markets. The announcement from The Home Depot that they will be offering free recycling without state or program support makes them the first major retailer to do so in the U.S. While governments and efficiency programs are likely to celebrate this move, it is too early to determine if The Home Depot can, and will, sustain the offering.

### **(2) “Customer End-of-life fee” (Washington)**

This design involves participating retailers passing recycling cost onto the customer in the form of a small cost for recycling. The Take-it-Back Network in King County, WA runs their program in this style. The obvious advantage to this design is the lack of dependence on public funding to sustain the recycling effort. As long as consumers are properly educated, there will always be a portion of the population that is willing to pay a small price to dispose of mercury-containing products in a responsible manner.

While there is a population of consumers that is willing to pay this small fee, it appears the majority of consumers are not. A perceived penalty for “doing the right thing” has discouraged likely program participants.

### **(3) “Partial Customer End of Life fee” (i.e. Minnesota)**

This model includes the use of coupons provided by the utility company or efficiency program to offset some of the recycling cost incurred by the retailer. Xcel Energy in Minnesota employs such a program. The pros and cons for such a model fall in between the “free to customer” and “customer end of life fee”. This system alleviates some of the cost pressures that fall onto the county, and does not place a heavy burden on the consumer either. Anytime costs get spread out across several market actors, the higher the chance the program will last, as no one party carries too much of the financial responsibility. In Xcel’s case, a \$.50 coupon doesn’t sound like a prohibitive cost, but this is comparable to what other programs pay for entire cost of recycling per bulb and approaches the typical incentive associated with purchase of a new bulb in many areas. The same issues of “penalizing” the consumer for doing the responsible thing arise.

### **(4) Mail-based Collection Design**

The United States Postal Service (USPS) offers a few distinct advantages that a remote drop off location cannot provide. By reaching nearly 150 million households daily, they have an incredibly large and functioning infrastructure that exists today. Instead of transporting the spent CFL to recycling location, the mail back option requires a consumer to simply place the appropriately packaged CFL(s) in the regular mail. Convenience could be the most attractive aspect of this model.

Without financial support from a third party, costs are the biggest barrier facing this model. Current retail prices on prepaid recycling boxes bring the cost of recycling per bulb to around \$2. Until that price can be lowered, this will remain a major barrier. The size of the available boxes is also a barrier. The smallest mail-safe residential box available on the market is 6”X6”X6” and holds 10-12 bulbs depending on size. For many consumers, storing this box long enough to fill with spent CFLs could be burdensome. The evolution of a smaller mail-safe box that may hold 2-4 bulbs may address this issue. Some commercial businesses have designed, or are considering designing, sales packaging that would double as a mail-safe prepaid return package. A consumer would just need to save the packaging the bulb was sold in and when any bulbs failed in the house, refill the packaging and place in the mail to be sent directly to the recycler.

### **NEEP’s Recommendations and Regional Action Plan**

Based on the review of the issue, the different existing approaches to disposal/recycling and analysis of them, NEEP’s conclusion is that a coming together of efficiency program sponsors, state governments and local/regional waste management organizations to pursue a cooperative strategy leveraging the resources of these parties with those of industry, while remaining engaged with national efforts, represents the formula for a sustainable, effective and highly utilized CFL disposal/recycling strategy.

#### **Leverage Existing Lighting Programs**

- Starting as soon as practicable, efficiency programs that offer incentives for CFLs (i.e. coupons, markdowns) should give preference and/or additional support to manufacturers or retailers who provide or help support take-back/mail-back services. NEEP will promote this recommendation by engaging in a dialogue with its ENERGY STAR Products Working Group and via policy outreach to the Northeast states. NEEP constitutes the only organization to hold such region wide forums through which the opportunity exists to engage programs on this topic. Our network of contacts throughout the region in the policy arena also points to NEEP as an appropriate entity to promote this kind of progressive strategy. (High Priority)
- Develop efficiency and community program messaging that includes information regarding the mercury content in fluorescents, and the consequent urgency to recycle them at end of life. By engaging the program sponsors in the fall of 2008 during their 2009 planning process, NEEP will offer to facilitate the development of regionally coordinated marketing plans. In order to avoid consumer confusion, NEEP will help program administrators and policy makers (“stakeholders”) to develop and deliver consistent messaging to consumers across the region. This type of regional messaging is subject to marketing budgets and participation of individual efficiency program sponsors. (High Priority)
- Encourage promotion of CFL designs that lower mercury content and improve ruggedness and durability, through existing negotiated cooperative promotion and/or coupon programs, and through engagement of codes, standards and other policy processes.
- Enable stakeholders to promote, as cost and technology allow, the development and use of newer, more advanced lighting technologies (SSL) that do not contain mercury. NEEP

will leverage its existing resources through its Technical Information Network for Solid State Lighting (TINSSL) to engage in such activities.

- Enable the development, collection and dissemination by stakeholders of up-to-date information and advice for consumers about the risks from CFL breakage and proper clean-up methods, via web sites, brochures, and other media available to stakeholders. The U.S. EPA, through the ENERGY STAR program, maintains the latest information on the subject.

### **Leverage Existing Relationships**

- Bring stakeholders together via coordination between the NEEP ENERGY STAR Products Working Group and NEEP's Policy business unit to work aggressively toward developing retail and vendor take-back programs for mercury-containing lamps, preferably through a sustainable producer-supported structure. (High Priority)
- Work collaboratively with stakeholders to encourage existing lighting manufacturer and retailer contacts to expand the infrastructure of spent CFL drop-off locations. (High Priority)
  - o Specific relationships to leverage:
    - Ace and True Value hardware stores are the most experienced retailers at collecting spent bulbs in the Northeast. NEEP will coordinate efficiency program sponsor communicate with program field staff in areas with active stores to help foster relationships with stores in inactive states.
    - The Home Depot has a new recycling Initiative and continues to be a "prime mover" for the region's CFL programs. NEEP will assist efficiency programs to bring heightened attention to this new opportunity.
    - Other "Big Box" retail chains warrant recruitment by sponsors in a fashion similar to that utilized with smaller hardware chains and, similarly, warrant encouragement from public policy makers at multiple levels.
- Work with state policymakers toward the introduction of legislation to ban the disposal of CFLs in landfills and incinerators, and to enable public-private partnerships to address funding and infrastructure for CFL disposal and recycling. With several examples of bans throughout the Northeast, NEEP will work toward broader policy action.

### **Engage Regional and National Dialogues**

- (Continue to) Engage national audiences of stakeholders in developing effective program structures, such as the Fluorescent Lighting Dialogue Workshop organized by the Product Stewardship Institute. This national effort is engaging a broad spectrum of interested parties in a year long process to develop a viable and sustainable collection mechanism that can be replicated throughout the country.
- Establish relationships with the Northeast Waste Management Officials Association's (NEWMOA) fluorescent light recycling workgroup to further the development of infrastructure related to drop-off locations and capacity in the region.