

Recycling Fluorescent Lights: A Disposal Solution For Small Businesses



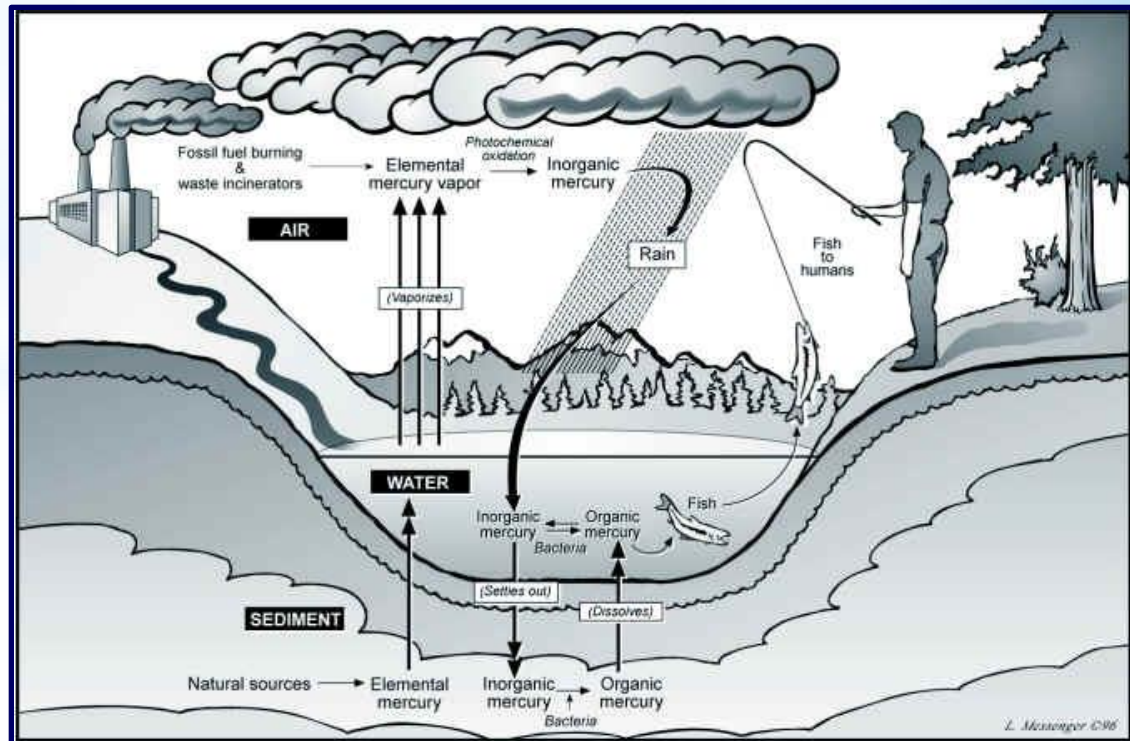
Derry / Londonderry Chamber
of Commerce

July 14, 2015

Londonderry's DPW & Solid Waste and Environment Committee

Recycling Fluorescent Lights

- The Issue
- The Solutions
- Lighting Options
- The Future
- Local Programs





The Issue:

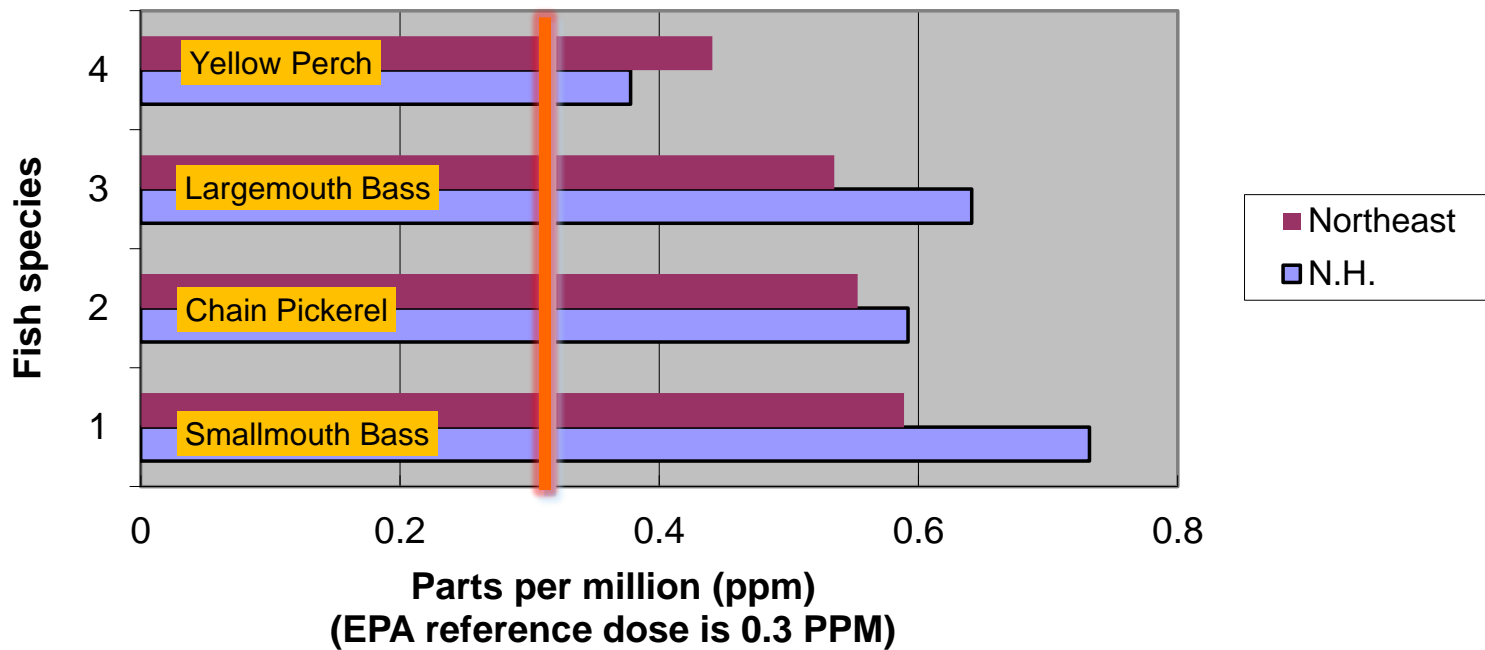
- Many businesses light their buildings with Fluorescent Lamps (FL)
 - Mercury in them makes them **hazardous waste**
 - NH law forbids disposal as solid waste (2008)

The Concern:

- When a lamp is broken the mercury vaporizes. It can contaminate air, soil, surface and ground water, even in a landfill
- Mercury, a neurotoxin, can damage the central nervous system, affecting the brain, spinal cord, kidneys and liver
- It has been detected in freshwater fish in NH—which also affects other wildlife--and a state-wide fish consumption advisory is in place
- 1/7 tsp. of mercury can contaminate fish stock in a 20 acre lake

NH generates **2.6 MILLION** spent FL lamps annually = 114 lbs. of mercury. Less than 15% are estimated to be recycled...

Mercury values in Regional Fish Stock





Recycling Fluorescents:

Conducted Informal Local Business Survey

Findings:

- Large businesses have processes in place with contractors
- Little is known about mercury risk
- Less is known about NH mercury disposal ban
- Nothing is known about recycling options

➤ Need to target small, independent businesses



Why use FLs and CFLs? (compact fluorescent lamps):

- Lighting makes up 20% of a home's electric bill
- Coal-fired power produces high US mercury emissions
- CFLs require a fraction of the energy used by incandescents, last much longer, and cost far less in the long run

They contain mercury - 1% that of a trad'l thermometer

- Less mercury impact than drawing on power plants
- But still a hazard to human health and wildlife in bulk

100% of components—glass, metal—can be recycled

All used fluorescents need to be safely disposed of

Recycling Fluorescent Lights



The Opportunity:

- FL can be managed fairly cheaply if handled to protect human health and the environment: *NH Universal Waste Rule*
- 100% recyclable; all bi-products are recovered

The Catch:

- Disposal has been inconvenient for small businesses

The Solution for Londonderry small businesses:

Londonderry's Drop Off Center

** * * NOW OPEN FOR BUSINESS * * **

- Convenient
- Cheap
- Safe
- Lawful

Londonderry's DPW & Solid Waste and Environment Committee

Rules at Londonderry's Drop-Off Center

- Privileges are extended to small, independent businesses
- Open April to November
- Saturdays, 8am - 4pm, off West Road
- Fee: \$.50 per CFL bulb
\$.25 per foot for other fluorescents
- Limit: 10 lamps per week

Package and transport safely

- Re-purpose on-hand packaging material
- For new boxes or fiber drums - contact the DPW or a FL recycler



Fluorescent Lamp Recycling Options for All Businesses

Professional fluorescent lamp recyclers – Call for a “milk run” pick up by one of the approved lamps recycling facilities. This is convenient but may involve either a minimum transportation charge or minimum number of lamps. The current rate for recycling lamp is around \$0.05 per linear foot for straight lamps or around \$0.35 per compact fluorescent, U-tube, etc. A list of recyclers may be viewed at <http://www.des.state.nh.us/organization/commissioner/p2au/pps/ppuwmp/lamps.htm> (click on vendors).

Self-transport to recycling facilities – As a Universal Waste, lamps may be self-transported to an approved lamp recycling facility. This would save minimum charges or transportation fees. Lamps must be transported in such a manner as to prevent breakage and in proper containers that prevent any loss of mercury to the environment, in the case of breakage. A list of recyclers may be viewed at <http://www.des.state.nh.us/organization/commissioner/p2au/pps/ppuwmp/lamps.htm> (click on vendors).

Lamp Recycling Kits – These kits consist of a properly constructed box that once filled with spent lamps, is mailed to an approved recycling facility via common carrier. The purchase cost of the kit includes the shipping charge and recycling fee. This is extremely convenient, but costs about twice as much per lamp, as recycling directly with the facility. Most fluorescent lamp recyclers provide mailing kits.

If you have any questions, please contact me via e-mail or at 271-6398.

Stephanie D'Agostino
stephanie.dagostino@des.nh.gov

Recycling Fluorescent Lights

Fluorescent Lamp Recycling Vendors - regional

CRT Processing
dba Universal Recycling Technologies LLC
61 Industrial Park Drive
Dover, NH 03820
Telephone: (603) 422-7711
Fax: (603) 422-7720
Web: www.urtrecycles.com

Recycle

United Industrial Services
142 River Road
Newington, NH 03801
Telephone #: (888)276-0885
Fax#: (203)630-4415
E-mail: cpoulin@unitedindustrialservices.com

Transport
L B&D

Complete Recycling Solutions LLC

One Father DeValles Blvd.
Fall River, MA 02723
Telephone #: (508)402-7700
Toll Free #: (866)277-9797
Fax #: 508-402-7750
E-mail: sales@crsrecycle.com
Web: www.crsrecycle.com

Recycle
L B&D

Veolia Environmental Services

218 Canton Street
Stoughton, MA 02072
Telephone #: (781)341-6080
Toll Free #: (800) 478-6055
E-mail: scott.thibodeau@veoliaes.com
Web: www.veoliaes.com

Recycle
L B&D



Recycling Fluorescent Lights

C.R.S. Mail-In Lamp Recycling Kits

Examples:



4 Foot Fluorescent Recycle Container

Price: \$49.00/container | **SKU:** ASB112 | [PURCHASE](#)

This 4-foot lamp recycling carton holds approximately (36) T12 or (72) T8 4-foot fluorescent tubes, dimensions are 9-3/8" x 9-3/8" x 48". *Price includes container, poly liner, shipping to your location and back to CRS once filled, recycling and certificate of recycling.* Not available in Alaska,



8 Foot Fluorescent Recycle Container

Price: \$78.00/container | **SKU:** ASB114 | [PURCHASE](#)

This 8-foot lamp recycling carton holds approximately (15) T12 or (30) T8 8-foot fluorescent tubes. Dimensions are 9" x 5" x 96". *Price includes container, poly liner, shipping to your location and back to CRS once*



6.5"x6.5"x7" Compact Fluorescent Box

Price: \$25.00/container | **SKU:** ASB111 | [PURCHASE](#)

This small, convenient compact fluorescent box is designed to accommodate approximately 15 small CFLs. The container is 6.5"x6.5"x7.0". *Price includes instructions, container, poly liner, shipping*



Recycling Fluorescent Lights

U.R.T. Mail-In Lamp Recycling Kits: Examples:

4FT TRIPLE GUARD



- T-8 lamps = 146
 - T-12 lamps = 64
 - 70 lbs
- Price: \$104.00

4FT TRIPLE GUARD LITE



- T-8 lamps = 60
 - T-12 lamps = 30
 - 70 lbs
- Price: \$75.00

8FT TRIPLE GUARD



- T-8 lamps = 50
 - T-12 lamps = 25
 - 70 lbs
- Price: \$105.00

[Add To Cart](#)

COMPACT FLUORESCENT RECYCLING KIT



- 350 Two Pin
 - 175 Four Pin
 - 106 Spiral
 - 70 lbs
- Price: \$85.00

Click Here **ORDER ON-LINE** for Pricing & Ordering



Other Local Options for Small Businesses

- Home Depot and Lowe's accept and recycle CFLs
 - Cyr Lumber in Windham also takes fluorescents
- *These stores are open year round*

Best Management Practices for FLs

- Store used lamps in original box or a fiber drum
- Containers must be sturdy, no rips, no risk of tipping over
- FL lamps (T-8, T-12) should be stored upright
- Use box spacers between lamps to prevent breakage
- Do not over- or under- pack the box; use packing material
- Do not tape lamps together; seal boxes with tape when full
- Label drums: HANDLE WITH CARE / FRAGILE
- Store boxes away from high traffic areas
- Don't store outside unless in a plastic container
- Don't store in a metal drum





COMING SOON!
to the Londonderry Drop Off Center

Thermostats

- Old devices contain 3g of mercury
 - This represents 100X the mercury in a CFL (1 to 5 mg)
 - Contractors, by law, should be recycling thermostats
- Switch to digital and recycle your old thermostats





Recycling Options for Homeowners

In Londonderry:

- *Benson Lumber (Londonderry) - all types of fluorescent lamps (year round)*
- *Londonderry Drop Off Center - all types (Saturdays, Apr - Nov)*

In Derry:

- *Derry Transfer Station - all types (year round)*

All Homeowners:

- *Home Depot, Lowe's - CFLs only*
- *Cyr Lumber - All fluorescents*
- *Household Hazardous Waste Days:*
 - ✓ *Annual Saturday morning in May in Derry*
 - ✓ *Annual Saturday morning in November in Londonderry*



A Primer on Lamp Options

- Incandescents - light from a filament heated by electricity
Cheap to buy but inefficient; use a lot of energy to run; emissions
- Halogens - incandescents with halogen gas
Lasts longer, uses less energy; only marginally better
- Fluorescents - light from electricity in a **mercury** gas vapor that causes a phosphor coating inside the lamp to glow
4-5X more efficient & last long; contain mercury
- CFLs (Compact) - designed to replace incandescent bulbs
Use $\frac{1}{4}$ the power and last 8-15X longer; contain some mercury
2X to buy but saves > 5X its purchase price in electricity cost
- LEDs - Light Emitting Diodes; the future of lighting
Much cheaper to use but much costlier to buy
 - **But the price continues to decline**

Recycling Fluorescent Lights

Cost Comparison to 60 watt bulbs:

	Incandescent ^[20]	Halogen ^[21]	CFL ^[22]	LED (Cree) ^[23]
Purchase price	\$0.41	\$1.50	\$0.99	\$9.97
Power used (watts)	60	43	14	9.5
lumens (mean)	860	750	775 ^[28]	800
lumens/watt	14.3	17.4	55.4	84
Color Temperature kelvin	2700	2900	2700	2700
CRI	100	100	82	80
Lifespan (hours)	1,000	1,000	10,000	25,000
Bulb lifetime in years @ 6 hours/day	0.5	0.5	4.6	>11.4
Energy cost over 20 years @ 13 cents/kWh	\$342	\$245	\$80	\$54
Total cost over 20 years	\$360	\$311	\$85	\$74

Source:
Wikipedia - LED Lamp



The Future of (LED) Lighting

- No more lighting fixtures or bulbs; to be a utility
- Instead, glowing walls or carpets; table tops, salad bowls
- Using light for more than seeing: treating pain, improving agriculture, boosting sales, promote healing, safer traffic
- Can be connected, like computers and phones
- Users will control:
 - Their light color and brightness, for different purposes (to focus, to relax or to energize)
 - Lighting remotely, wirelessly
 - Programming based on time, sound, event of rain

Advantages of LED Lights

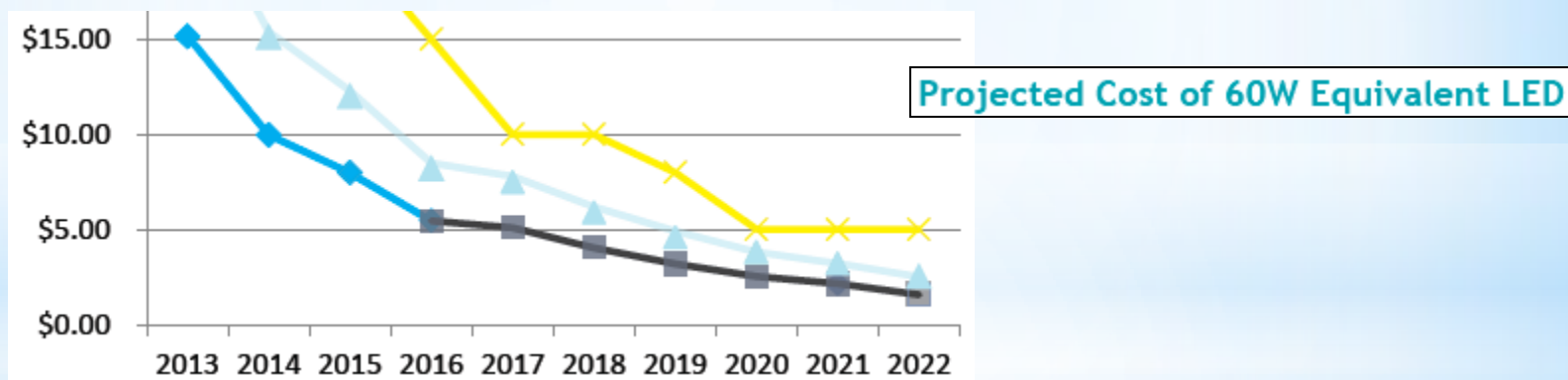
- Highly efficient; cheap to operate
- Last for decades, not years; less energy & maintenance
- Available in varieties of colors and sizes
- Light up quickly
- Stand up better to frequent on/off cycling
- “Cool light” radiates little infra-red heat; avoids damage
- Fail by dimming over time
- Resist shock, unlike other bulbs
- No mercury



Recycling Fluorescent Lights



LED will be the new incandescent, peaking by 2020, when it changes from product to application



bulbs (# per household, per year)	2013	2014	2015	2016	2017	2018	2019
Standard CFL	1.80	1.55	0.95	0.55	0.25	0.10	0.10
Specialty CFL	0.60	0.65	0.35	0.30	0.25	0.10	0.10
Standard LED	0.05	0.30	1.00	1.35	1.60	1.90	1.80
Specialty LED	0.10	0.35	0.55	0.65	0.80	0.85	0.80

NEEP Residential Lighting
Strategy Update 2013-14

APPENDIX

For more information:

- Londonderry DPW: Bob Kerry
Environmental Engineer
432-1100 x137
548-4858 (cell)
rkerry@londonderrynh.org
www.londonderrynh.org
- NH DES: Stephanie D'Agostino
Environmental Program Manager
271-6398
stephanie.dagostino@des.nh.gov
www.des.nh.gov - search on “mercury”
- **Customer Service at Home Depot, Benson Lumber, Cyr Lumber, Lowe's**



Recycling Fluorescent Lights

What to do if a fluorescent lamp breaks (A):

➤ *If properly cleaned up, it should not pose a serious health risk*

1. Ventilate the room: close internal doors & vents, open room windows and exterior doors and vacate the room for 15 min.
2. With disposable gloves and stiff paper or cardboard, pick up glass fragments and residue. Also use tweezers and masking or duct tape
3. Wipe the area clean with a damp paper towel, cloth or wet wipe
4. Place all materials in a glass jar with a metal lid and store safely until the next Household Hazardous Waste Day
5. Wash your hands & leave windows open as long as practical

DO NOT VACUUM

What to do if a fluorescent lamp breaks (B):

For breakage on carpet: Complete steps 1 through 5 above then:

6. If rug is removable, take it outside, shake, and air out as long as practical.
7. After the cleanup, the first time you vacuum the area where the CFL was broken, shut the door to the room or close off the area from as much of the rest of the house as possible and ventilate the room when vacuuming. Remove the vacuum bag when done cleaning the area, wipe vacuum with wet wipe and put the bag and/or vacuum debris, including cleaning materials, into a plastic bag and double bag and store the bag outside the house in an area inaccessible to children as in #3 above.
8. After vacuuming, keep windows open, door closed and children/pets out of room for 1-2 hours.
9. Consider removal of carpeting where the breakage occurred as a precaution if there are infants, small children and/or pregnant women who will be using the room.

For more information, please contact the New Hampshire Department of Environmental Services at (603) 271-2956 or visit www.des.nh.gov and go to Fact Sheets/[CO-19 CFLs](#).

Fluorescents need to be safely recycled

Now that we know what to do. . .

- **How do we spread the word to small businesses in Derry, Londonderry and surrounding towns?**

Recycling Fluorescent Lights

Q&A

How not to store fluorescents:



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