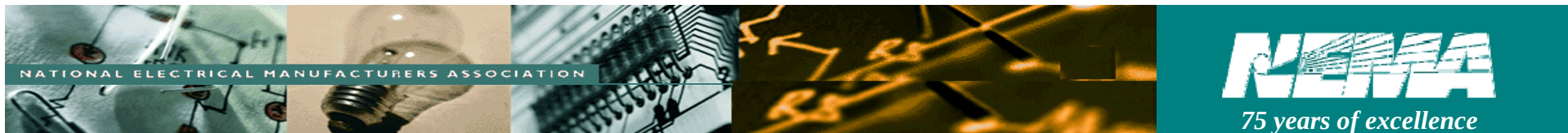


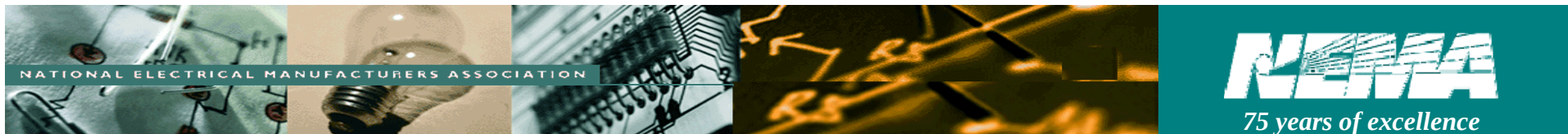
US EPA ARCHIVE DOCUMENT



Great Lakes BiNational Toxics Strategy Mercury Workgroup Meeting

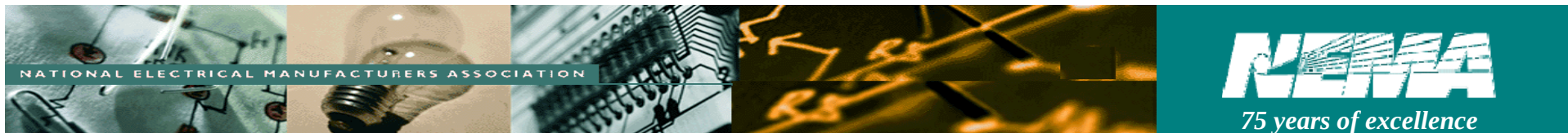
MERCURY REDUCTION IN ELECTRO-INDUSTRY PRODUCTS: STATUS AND PERSPECTIVES

MARK A. KOHORST
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
December 2007



NEMA VITAL STATISTICS

- Created 1926, Largest U.S. Trade Association of Electro-Industry Manufacturers
- Membership: Appr 430 US Manufacturers
 - 8 Industry Divisions, 50 Product Sections:
 - Products used for generation, transmission, distribution, control, and end-use of electricity
 - Batteries to Motors to Traffic Signaling Equip to X-Rays, etc.
- Industry Standards, Advocacy, Data Collection & Analysis
- More than 500 Industry Standards; Internally and With ANSI and IEC



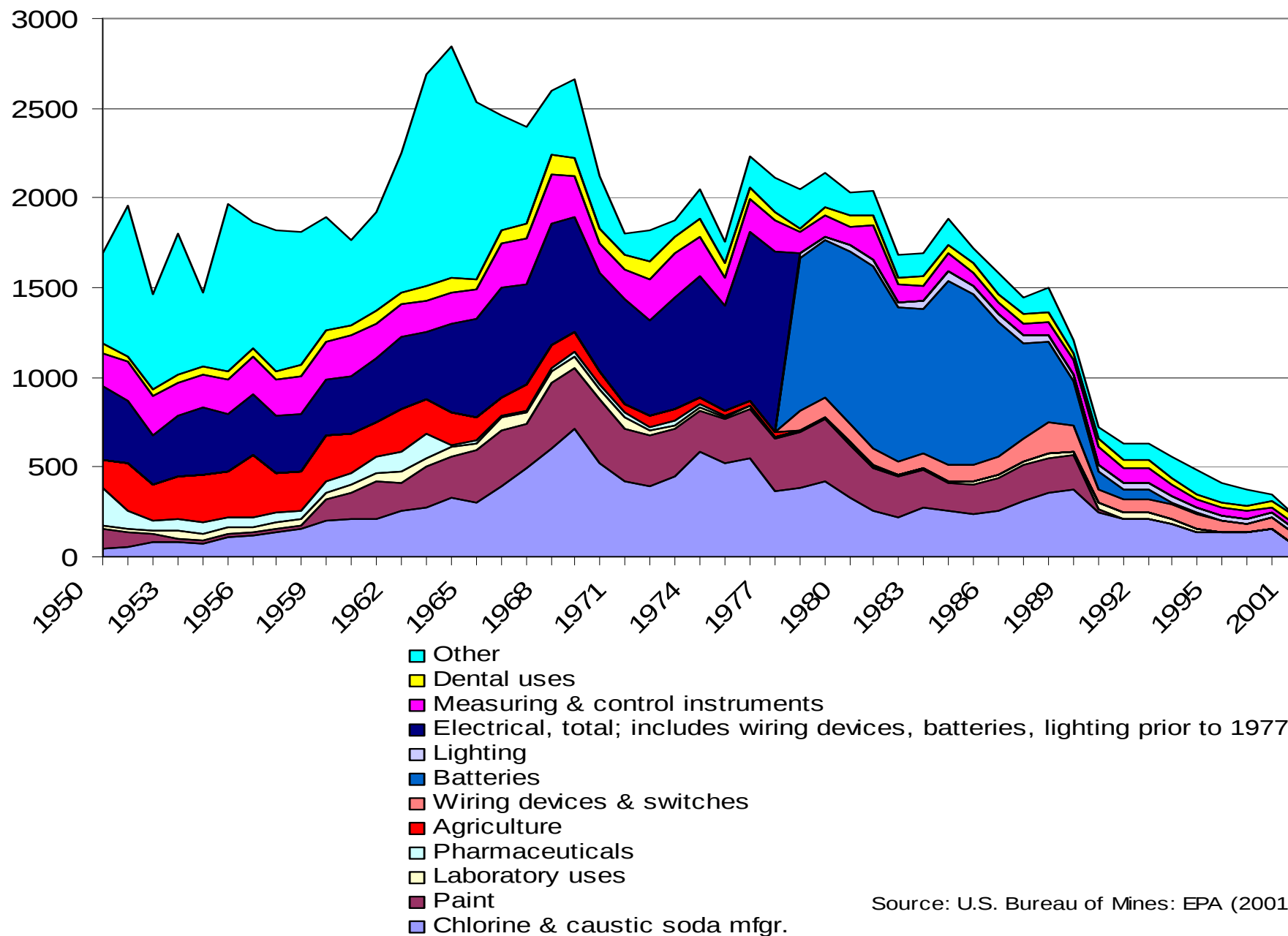
INDUSTRY USE OF MERCURY

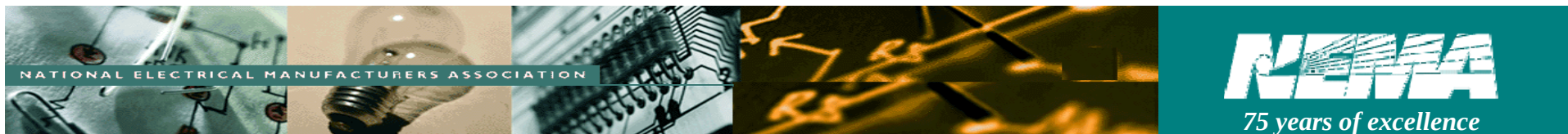
**** INDUSTRY USE OF Hg HAS FALLEN DRAMATICALLY ****

- Industry Consumption = > 2,000 Tons in 1980
- USGS Estimated 350 Metric Tons in 1997
- GLBTS *: “On the basis of data reported by the chlor-alkali industry and the lamp industry, it is estimated that mercury use declined by more than 50 percent between 1995 and 2003. . . . This may underestimate the actual decline, considering likely reductions in the use of mercury in measurement and control devices, switches and relays, and dental amalgam that have not been quantified.”

* GLBTS Management Assessment, Feb 2006, pg. v

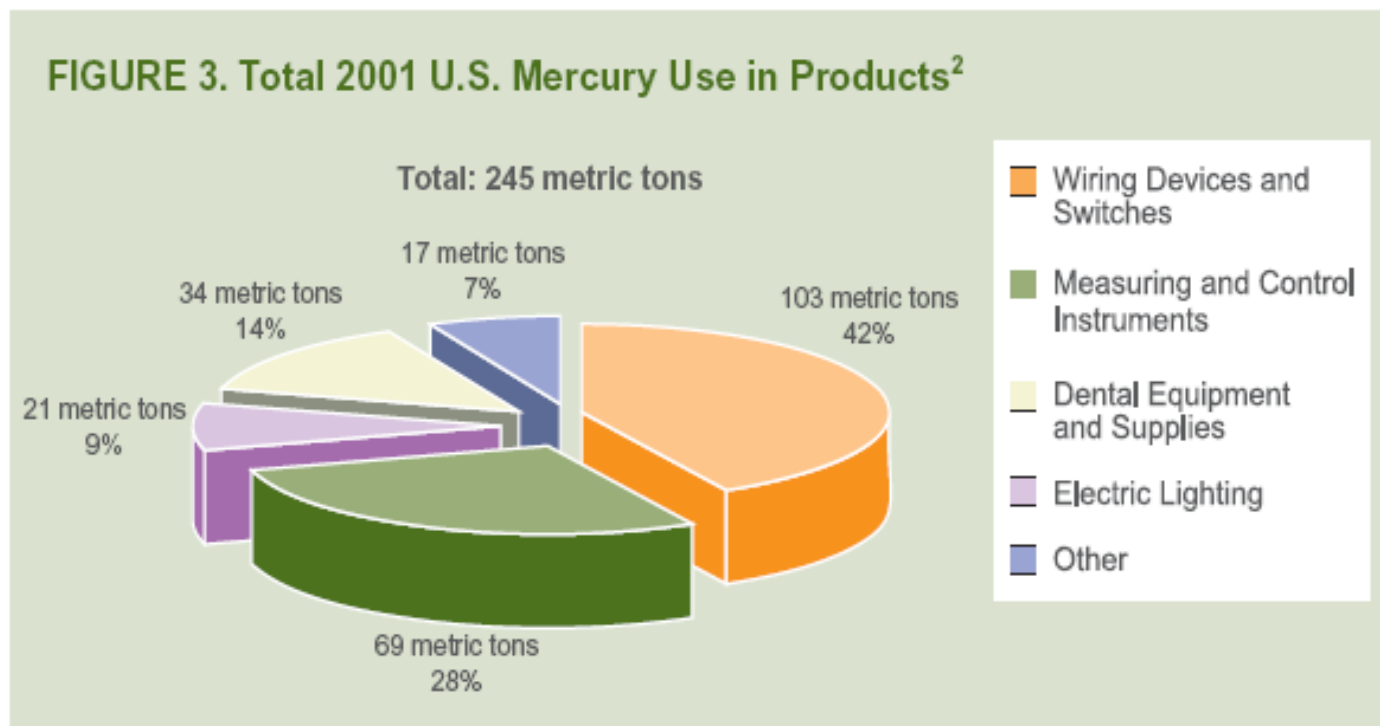
U.S. mercury consumption, by end use; metric tons

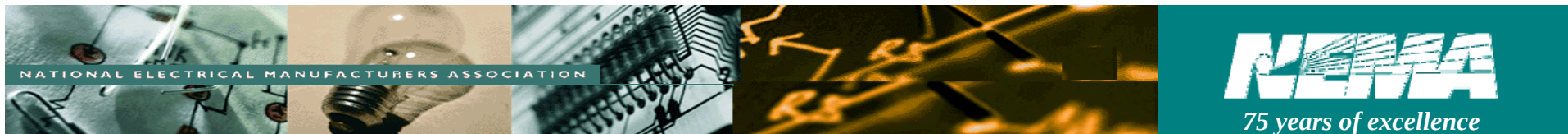




MERCURY USE IN PRODUCTS

**** EPA RoadMap Estimates 245 Metric Tons in 2001 ****

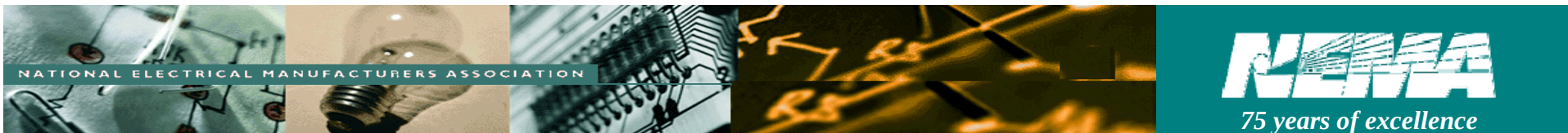




NEMA IMERC REPORTING: 2001- 2004

Pounds of Mercury Reported

<u>Product</u>	<u>2001</u>	<u>2004</u>
Lamps	17,902	15,925
Batteries	3975	2874
Thermostats	28,485	27,659
Hg Switches - Medical	3.9	4.07
TOTAL	50365.9 (25.18t)	46464.07 (22.9t)

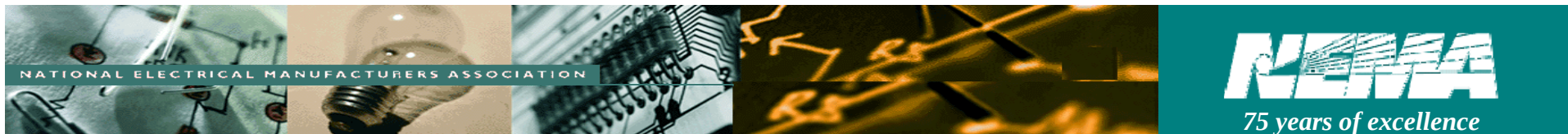


BATTERIES

** BUTTON CELLS **

- Only Remaining Mercury Containing Batteries
 - Used in hearing aids, digital thermometers, insulin pumps, portable medical monitors, hospital pagers, watches, toys, and calculators
- By Fed Law: Cannot Exceed 25 mg Mercury per cell
- Three BC Battery Chemistries
 - Silver oxide (watch) 2.5mg
 - Zinc air (hearing aid) 8.5 mg
 - Alkaline (misc.) 11 mg





BATTERIES Contd

➤ Why Not Zero Mercury?



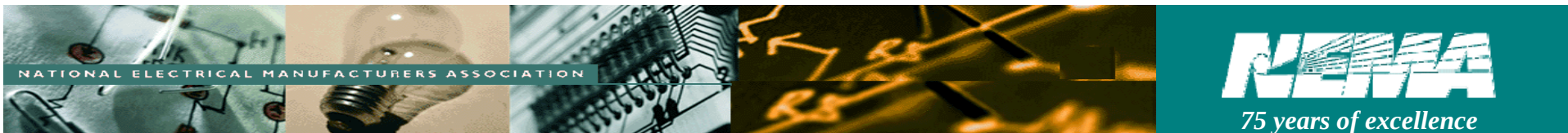
- Small size and need to provide maximum energy leaves little room for gas buildup before cell begins to bulge, possibly resulting in leakage and/or rupture

- Non-Hg Technology is Under Development
- NEMA Commitment is in place, for July 2011

NEMA PRESS RELEASE

March 2, 2006

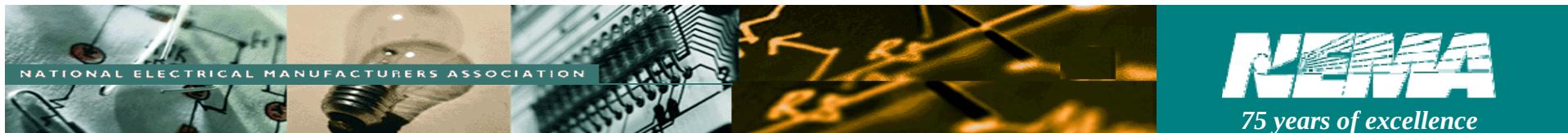
***NEMA Announces Battery Industry Commitment to
Eliminating Mercury in Button Cells***



ENERGY EFFICIENT LIGHTING

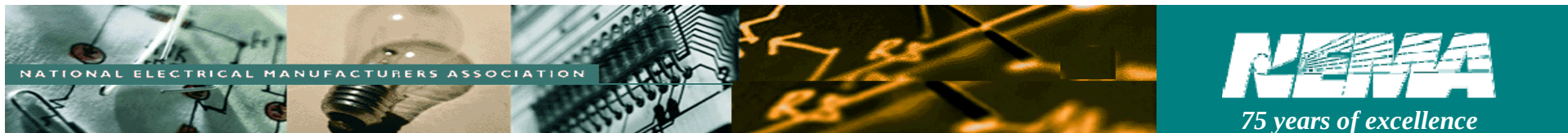


- **Fluorescent**
 - Schools, Offices, Stores
- **High Intensity Discharge**
 - Metal Halide
 - Cold Cathode ("Neon")
 - High Pressure Sodium
 - Mercury Vapor
 - Street Lights, Floodlights, Industrial Lighting, Entertainment



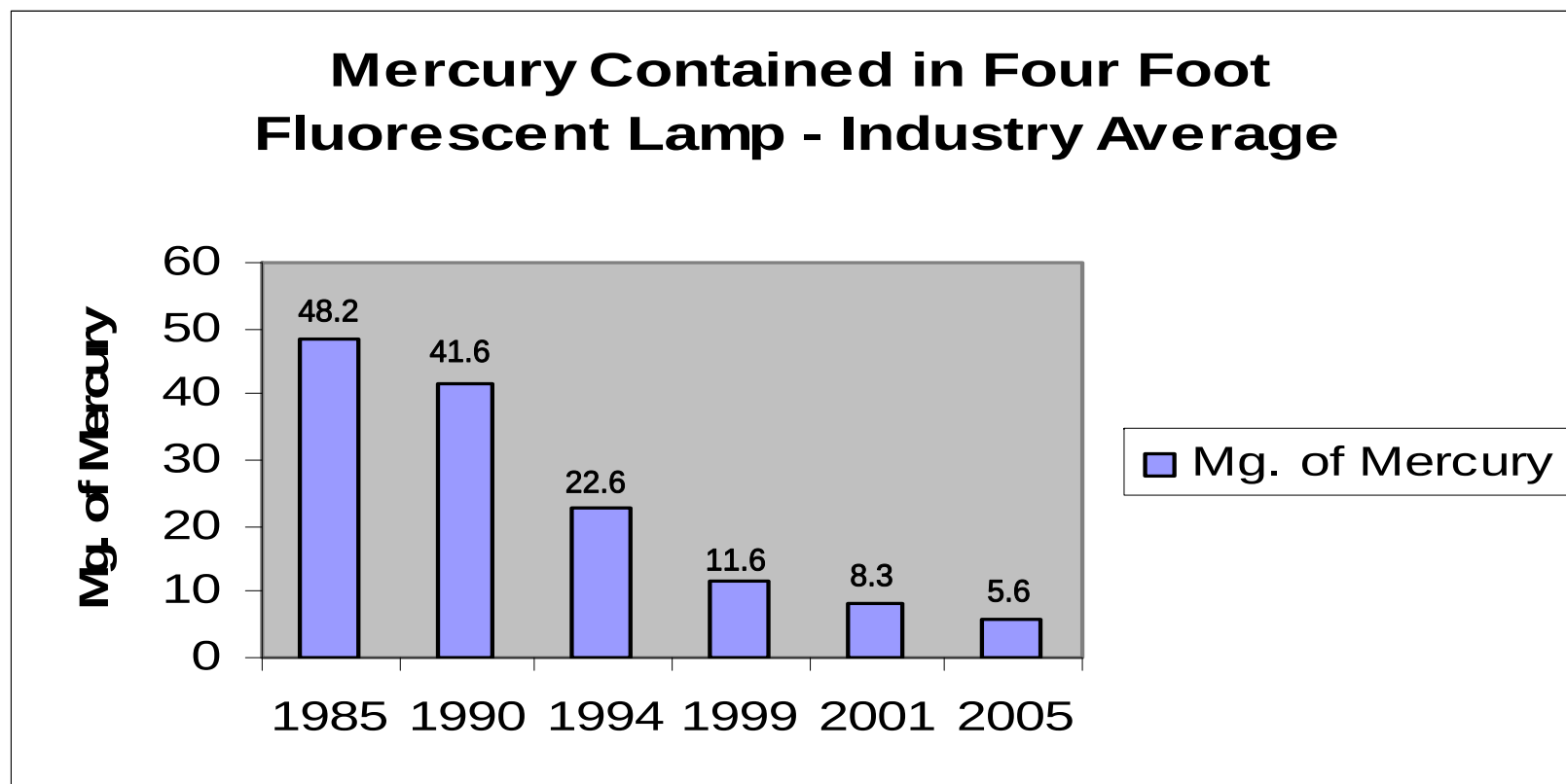
LIGHTING Contd

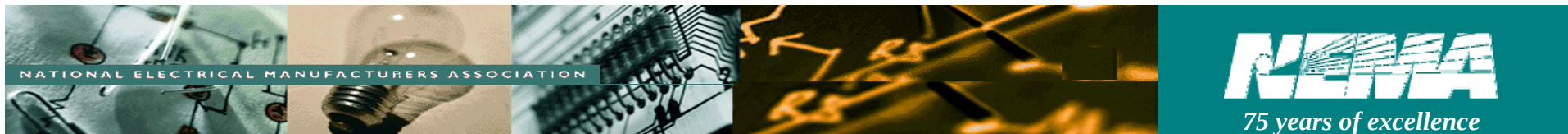
- Hg Contributes to Efficient Operation of Fluorescent Lamps
 - Efficiently generates ultra-violet energy, which is absorbed by phosphor coating on glass. Phosphor fluoresces, emits visible light
 - Metal halide and most HPS use mercury as starting aid and voltage control
- Despite Hg Content, Many States, Localities, National Govts Moving to EE Lighting
- EPA, ENERGY STAR Program
 - “If every household in the US replaced one light bulb with an ENERGY STAR qualified CFL, it would prevent enough pollution to equal removing 1 million cars from the road.”



LIGHTING Contd

**** Lamp Industry - Steady Progress in Reducing Hg Content ****

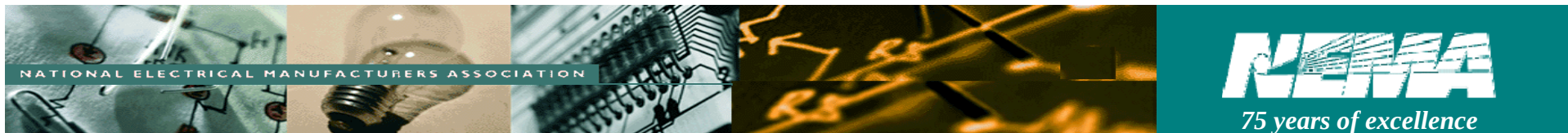




LIGHTING Contd

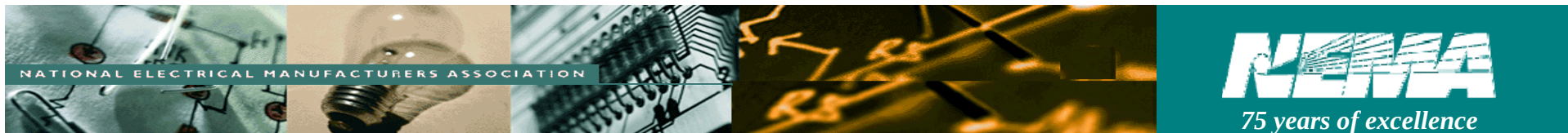
** LAMP RECYCLING **

- National Lamp Recycling Rate (ALMR)
 - Est at ~24% Nationwide (2004)
 - NEMA Computing Rate for MASS as per New Law
- Resources
 - www.lamprecycle.org
 - www.earth911.org
 - <http://www.epa.gov/bulbrecycling/>
- Activities
 - Utility collection programs in ME and MN
 - IKEA, others recycling at store outlets
 - Pilots in VT, NH, and other states utilizing various funding sources and collection sites



LIGHTING Contd

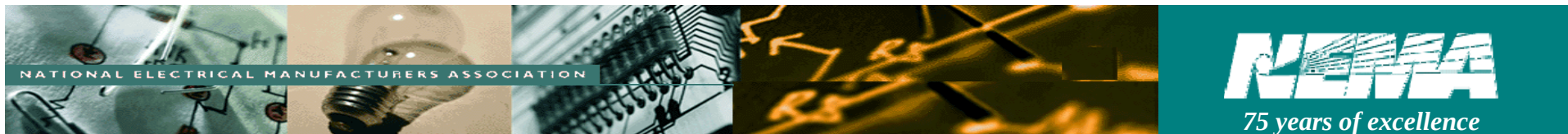
- NEMA Supports Recycling Policies *if they* . . .
 - Keep the cost of CFLs affordable to consumers
 - Develop sensible, cost-effective solutions for bulb collection and disposal to fit the widely variable circumstances of consumers nationwide
 - Provide a variety of consumer lamp recycling options
 - Involve *multiple stakeholders* in the effort to design recycling solutions and establish programs
 - Build upon the *existing* recycling infrastructure
 - Enable recyclers to pass the true cost of recycling to consumers and other stakeholders, allowing for price reductions as volumes increase and recycling technology improves.



LIGHTING Contd

** National Transition to Energy Efficient Lighting? **

- NEMA Supports Public Policies that will Transform the U.S. Market to More Energy-Efficient Lighting ***Within a Decade.***
- Guiding Principles
 - The market transformation must be orderly; starting point is ***least efficient*** medium screw base A-line incandescent lamps, 40 - 100 w
 - Transition must be accomplished thru ***performance standards***
 - Performance standards must be ***technology-neutral***
 - Performance standards will be required for set of A-line incandescent lamps including frost, soft white and enhanced spectrum
 - The market transformation should begin with strategies that will save the most energy.



GLRC STRATEGY RECOMMENDATIONS

➤ LAMPS

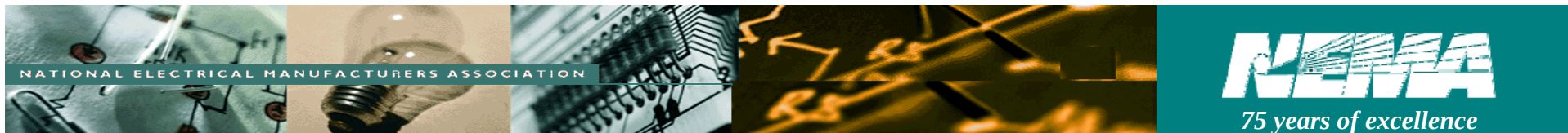
- Require Recycling - OK, but *Enforcement is Key*
- Household Exemption is Good
- Shared Responsibility is Good
- Banning Technologies - *Market Solutions, Perf Stnds are Better!*

➤ THERMOSTATS

- Sales Bans - OK, as Alternatives Exist
- Mandate Recycling and Promote TRC - OK
- Involve Retailers and HHW Facilities in Collection - OK
- Financial Incentives from Mfr - ?????

➤ SWITCHES AND RELAYS

- Remember Refurbished Products!
- Keep Labeling Laws Consistent



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