

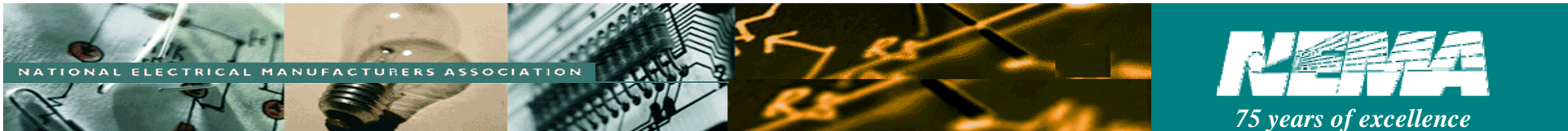
# Great Lakes BiNational Toxics Strategy Mercury Workgroup Meeting

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## MERCURY REDUCTION IN ELECTRO-INDUSTRY PRODUCTS: STATUS AND PERSPECTIVES

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NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION  
December 2007



# NEMA VITAL STATISTICS

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- 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

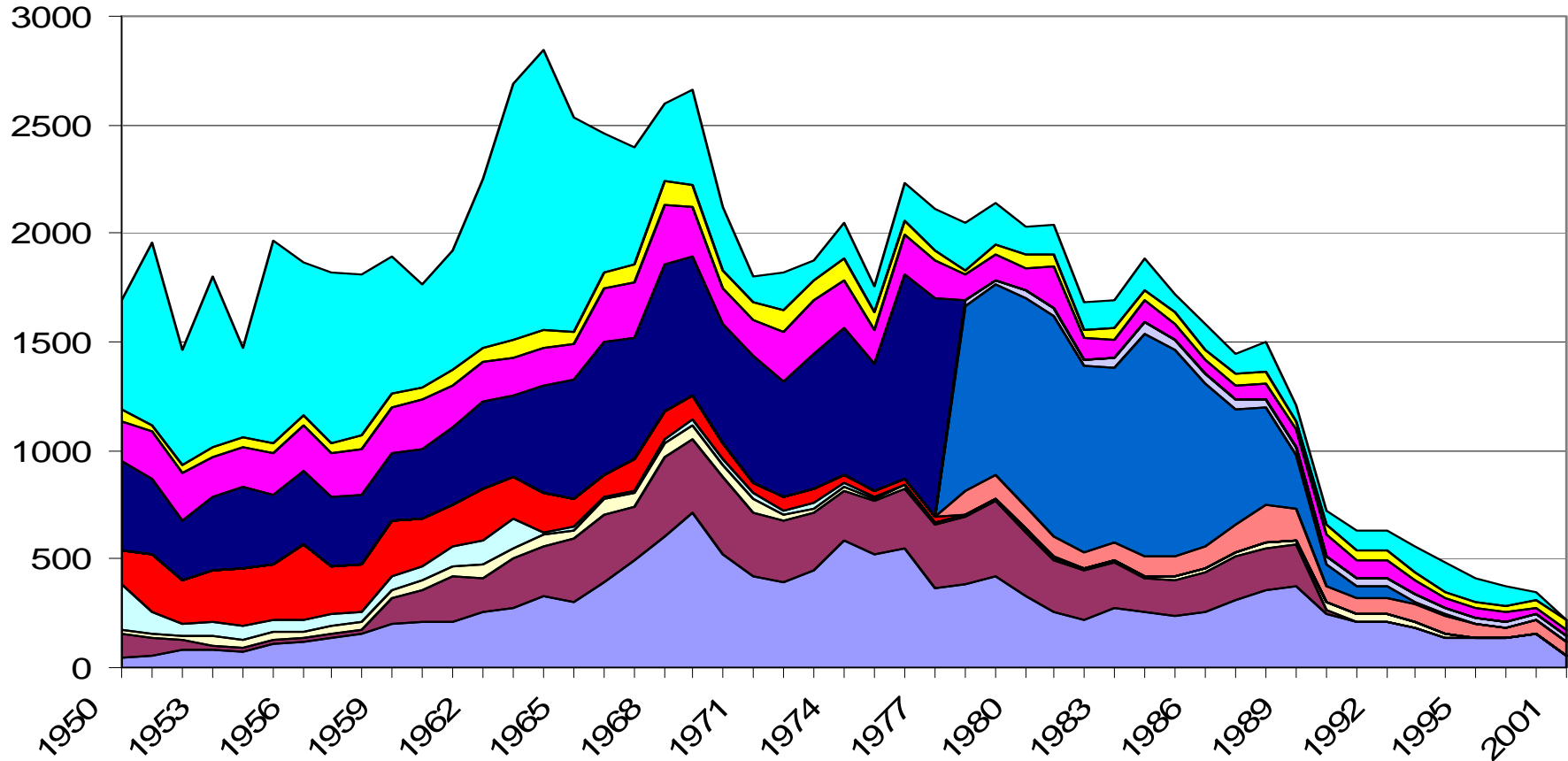
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## \*\* INDUSTRY USE OF Hg HAS FALLEN DRAMATICALLY \*\*

- 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

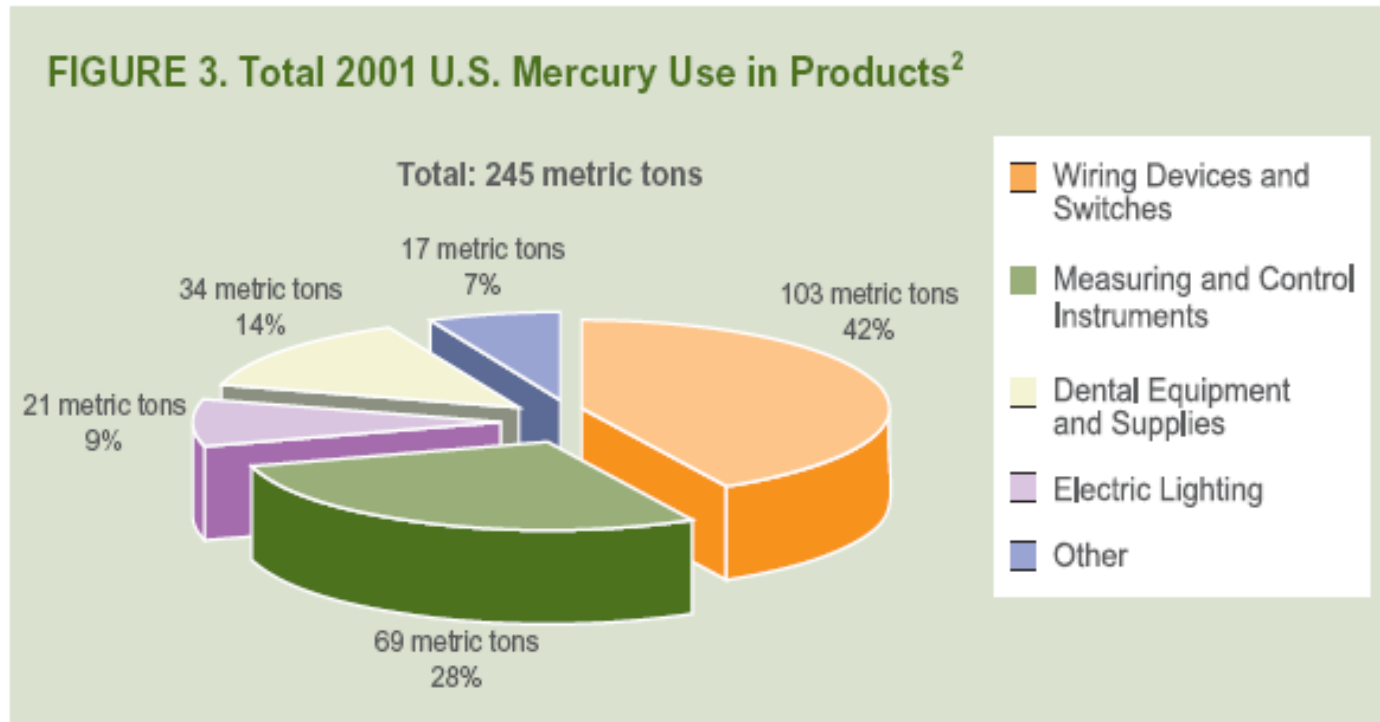


- Other
- Dental uses
- Measuring & control instruments
- Electrical, total; includes wiring devices, batteries, lighting prior to 1977
- Lighting
- Batteries
- Wiring devices & switches
- Agriculture
- Pharmaceuticals
- Laboratory uses
- Paint
- Chlorine & caustic soda mfr.

Source: U.S. Bureau of Mines: EPA (2001)

# 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
<b>TOTAL</b>	<b>50365.9</b> <b>(25.18t)</b>	<b>46464.07</b> <b>(22.9t)</b>

# BATTERIES

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## \*\* 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***

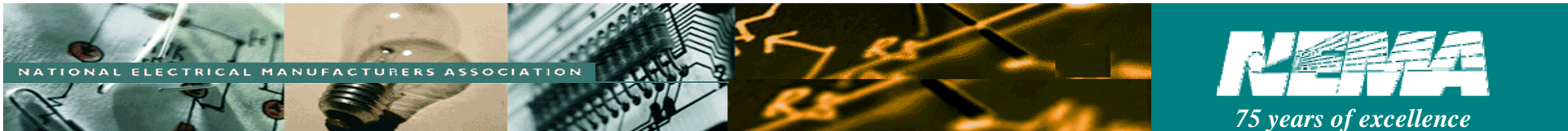


# ENERGY EFFICIENT LIGHTING

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



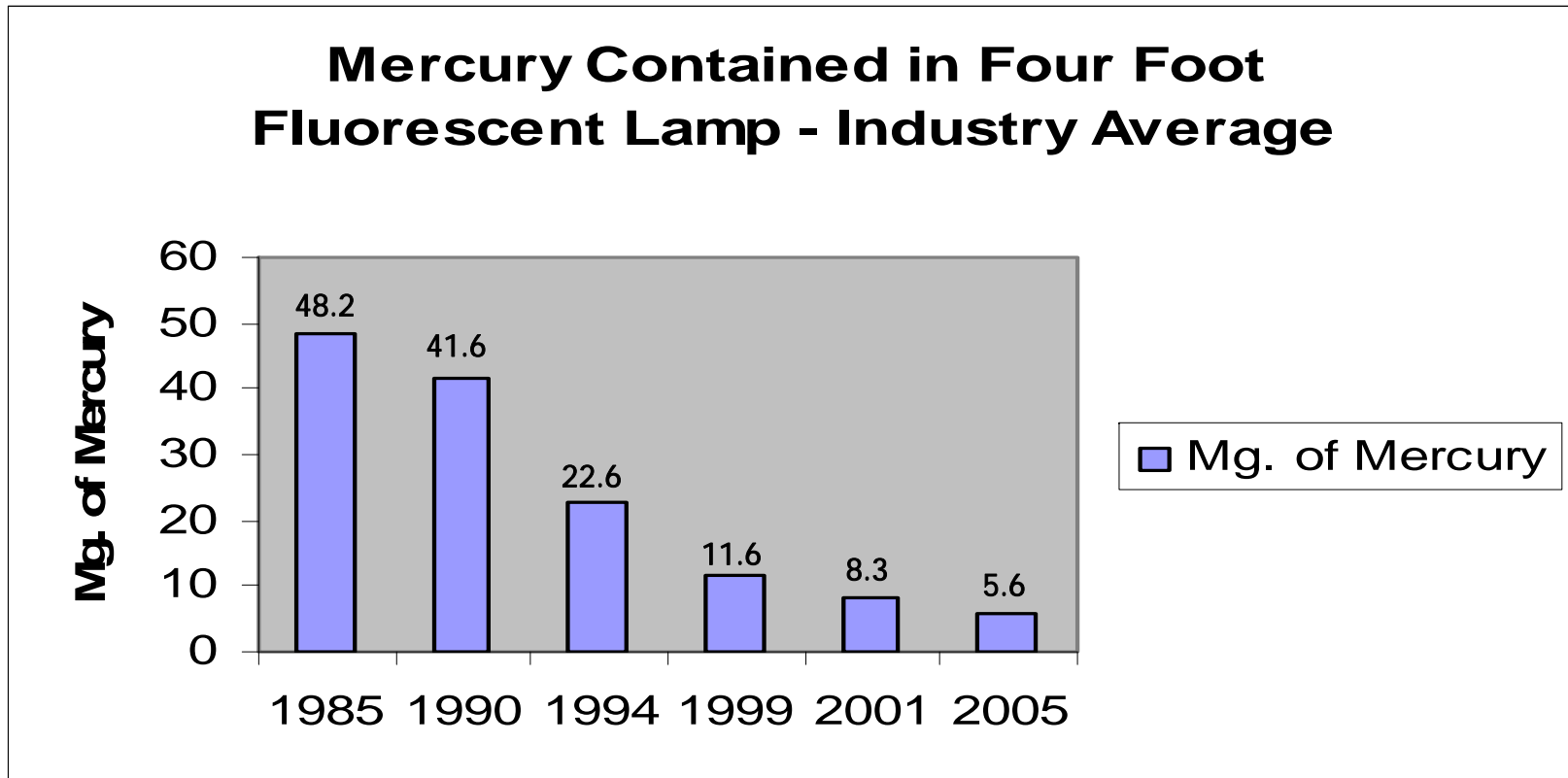
## LIGHTING Contd

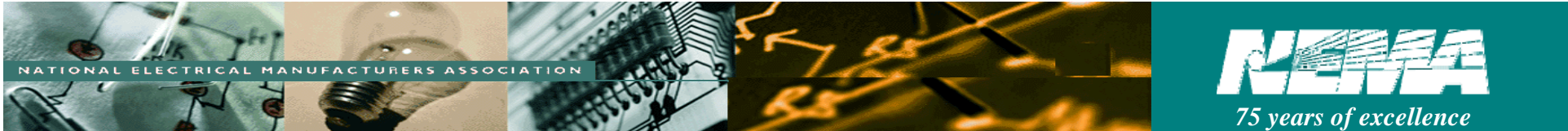
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- Hg Contributes to Efficient Operation of Fluorescent Lamps
  - Efficiently generates ultra-violet energy, which is absorbed by phosphor coating on glass. Phosphor fluoresces, emits visible light
  - Metal halide and most HPS use mercury as starting 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 \*\***



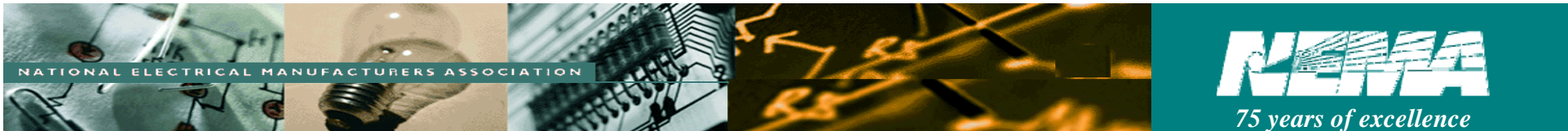


## LIGHTING Contd

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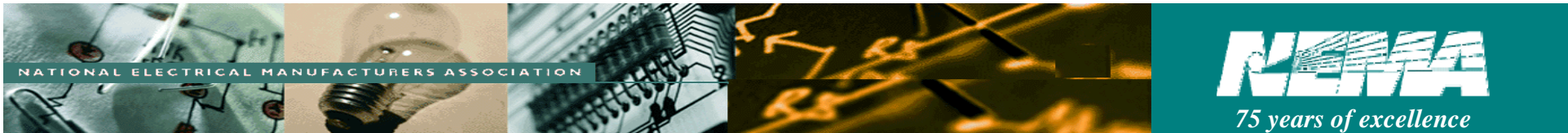
### \*\* LAMP RECYCLING \*\*

- National Lamp Recycling Rate (ALMR)
  - Est at ~24% Nationwide (2004)
  - NEMA Computing Rate for MASS as per New Law
- Resources
  - [www.lamprecycle.org](http://www.lamprecycle.org)
  - [www.earth911.org](http://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

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### \*\* 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

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## ➤ LAMPS

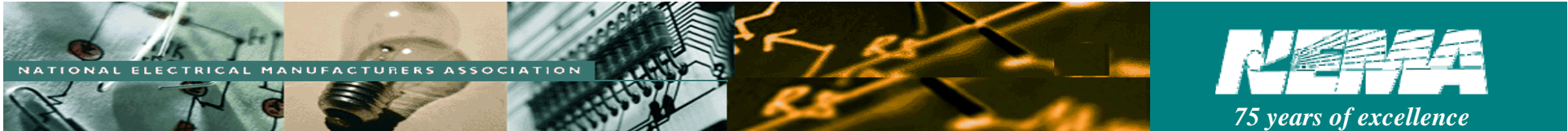
- Require Recycling - OK, but *Enforcement is Key*
- Household Exemption is Good
- Shared Responsibility is Good
- Banning Technologies - *Market Solutions, Perf Stnds are Better!*

## ➤ 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



# CONTACT INFORMATION

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