Waste-to-Energy (WTE) Briefing

House Energy Committee

January 29, 2013

Purpose of WTE Briefing

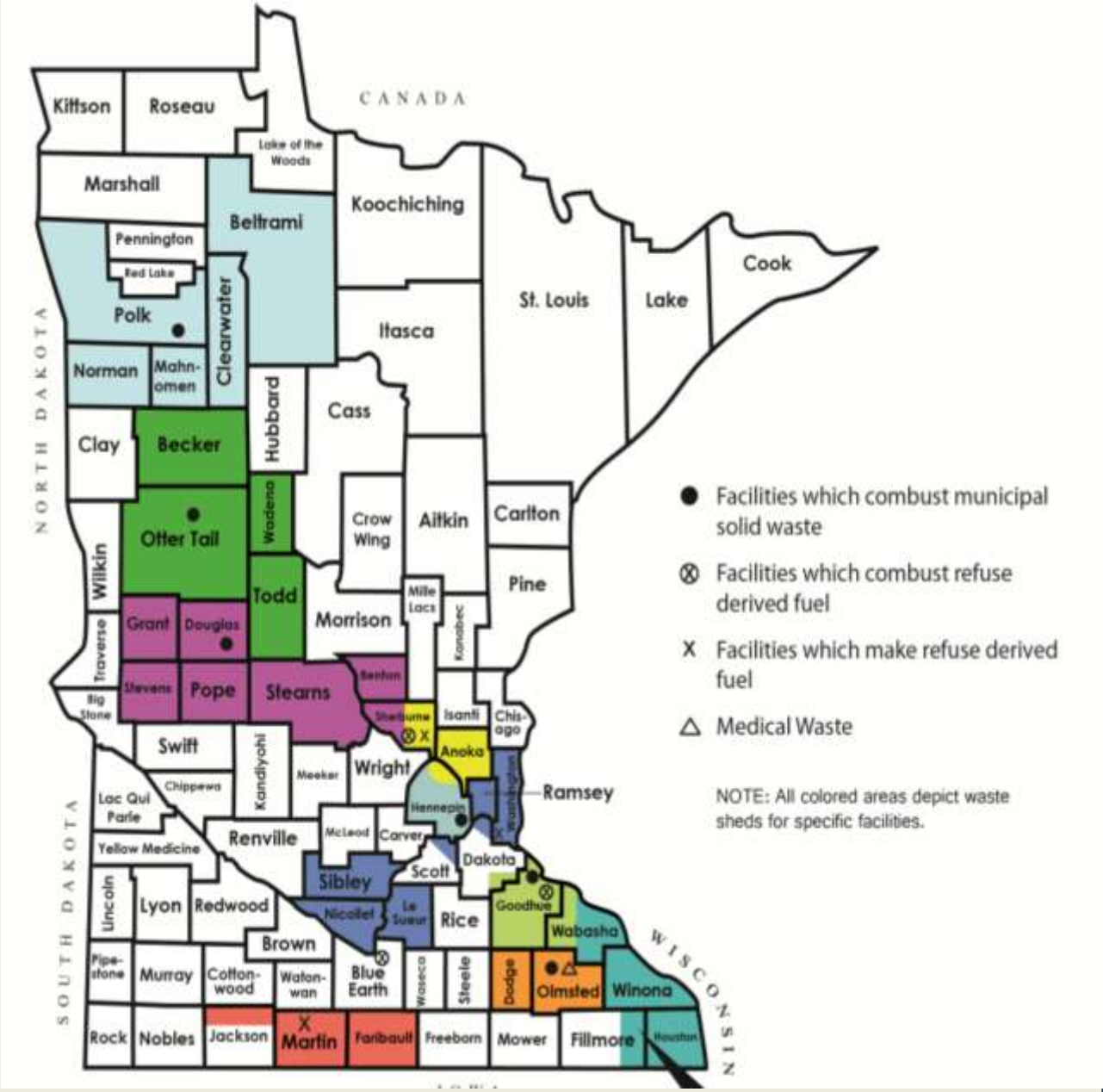
- Update for House Committee
- Key facts about WTE in Minnesota
- Provide background
- Answer questions

Minnesota's WTE system

- Small part of Minnesota's electrical power system
- Large local impact – large thermal energy provider via steam lines
- WTE is one part of a solid waste system combining reduction, re-use, recycling, organic materials recovery, and landfills
- WTE facilities have evolved and have been improved over 25 years

WTE locations

Fosston
Perham
Alexandria
Elk River
Minneapolis
Newport
Mankato
Red Wing
Rochester
Truman

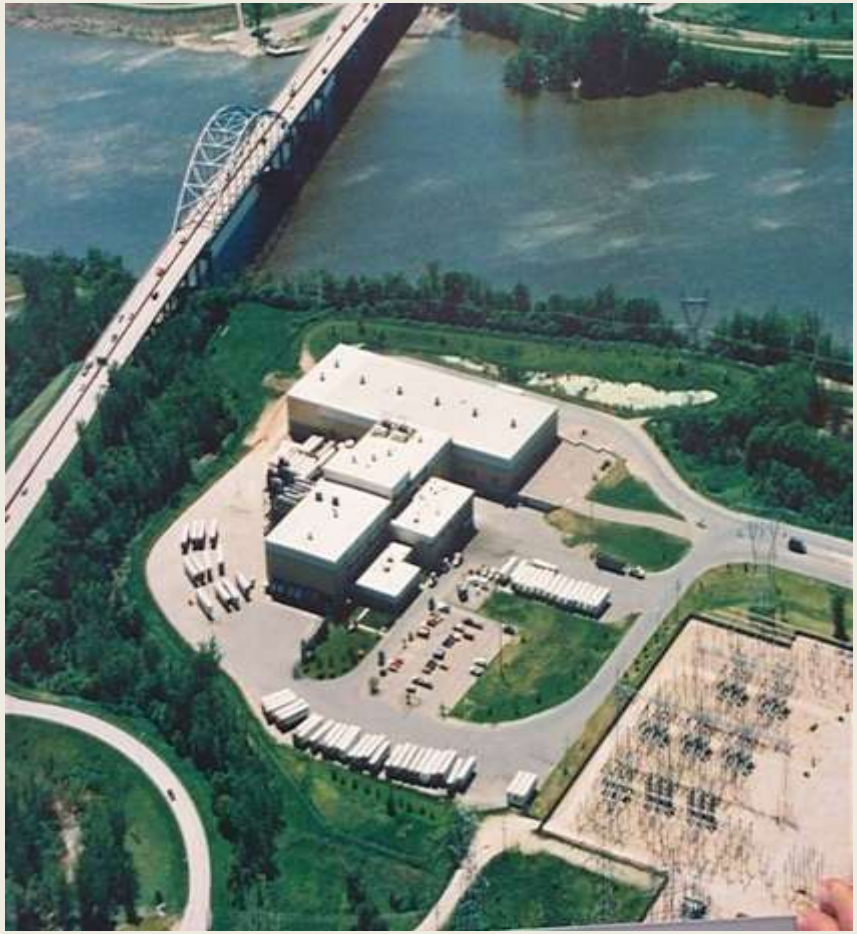


Conventional WTE facilities

- Most operate as “co-generators” produce both heat and electricity
- All in one facility – trash in, materials and energy out
- All publicly owned

WTE - Refuse derived fuel (RDF)

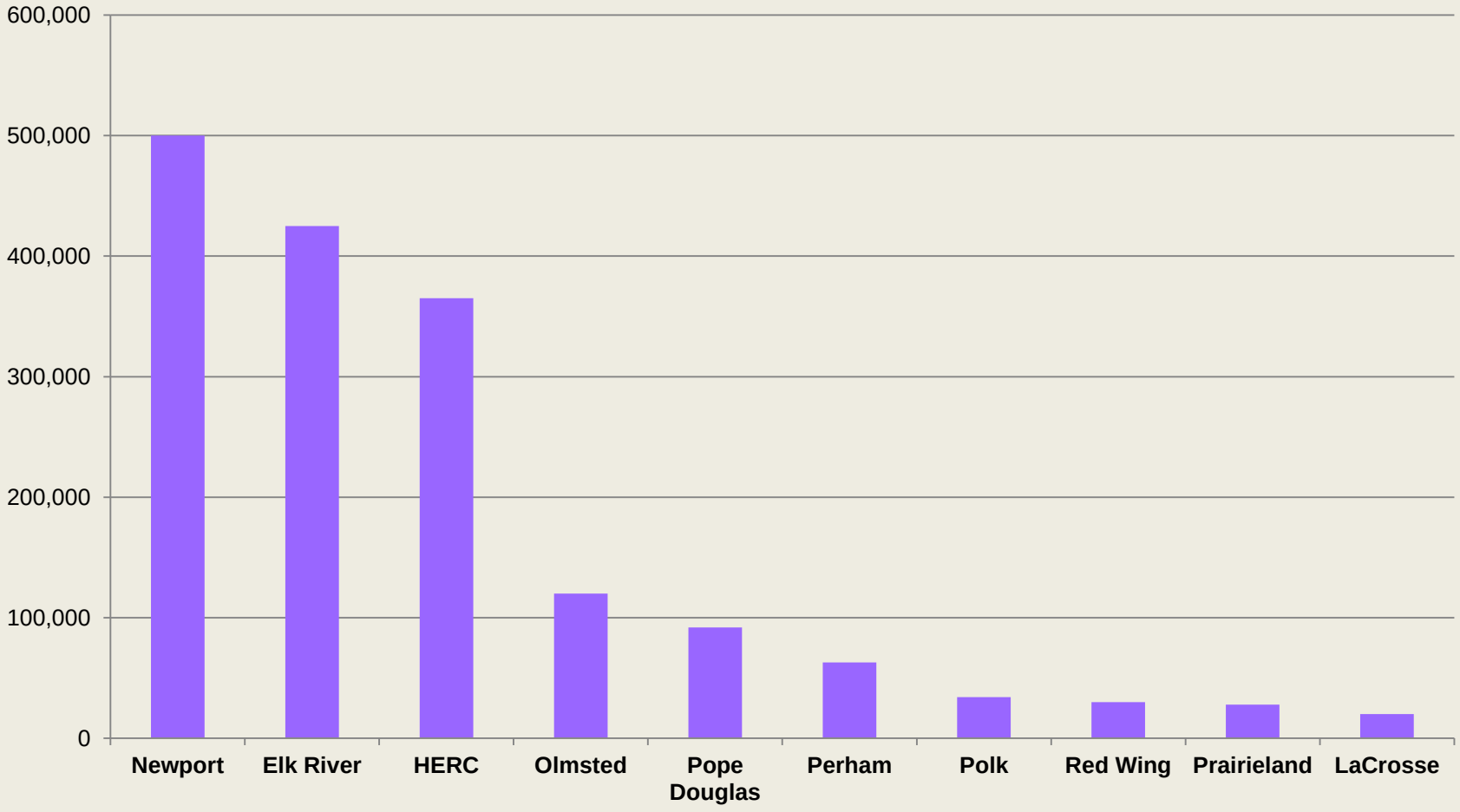
- Refused derived fuel or “RDF”
- 1st facility converts trash to RDF & sorts metals to recycle
- 2nd facility - Separate boilers burn RDF instead of coal



Minnesota's WTE system

- Minnesota's WTE system converted about 1 million tons of trash to approx. 100 MW of power
  - Power for 100,000 homes
  - plus 12,000 MBTU's of steam per day
  - Reliable systems for base load power
- WTE supports economic activity
  - Leather, sandpaper, cheese, vegetables, pet food, & metals recovered from trash
  - 368 jobs – estimated $22 million payroll

WTE Facility Permitted Capacity



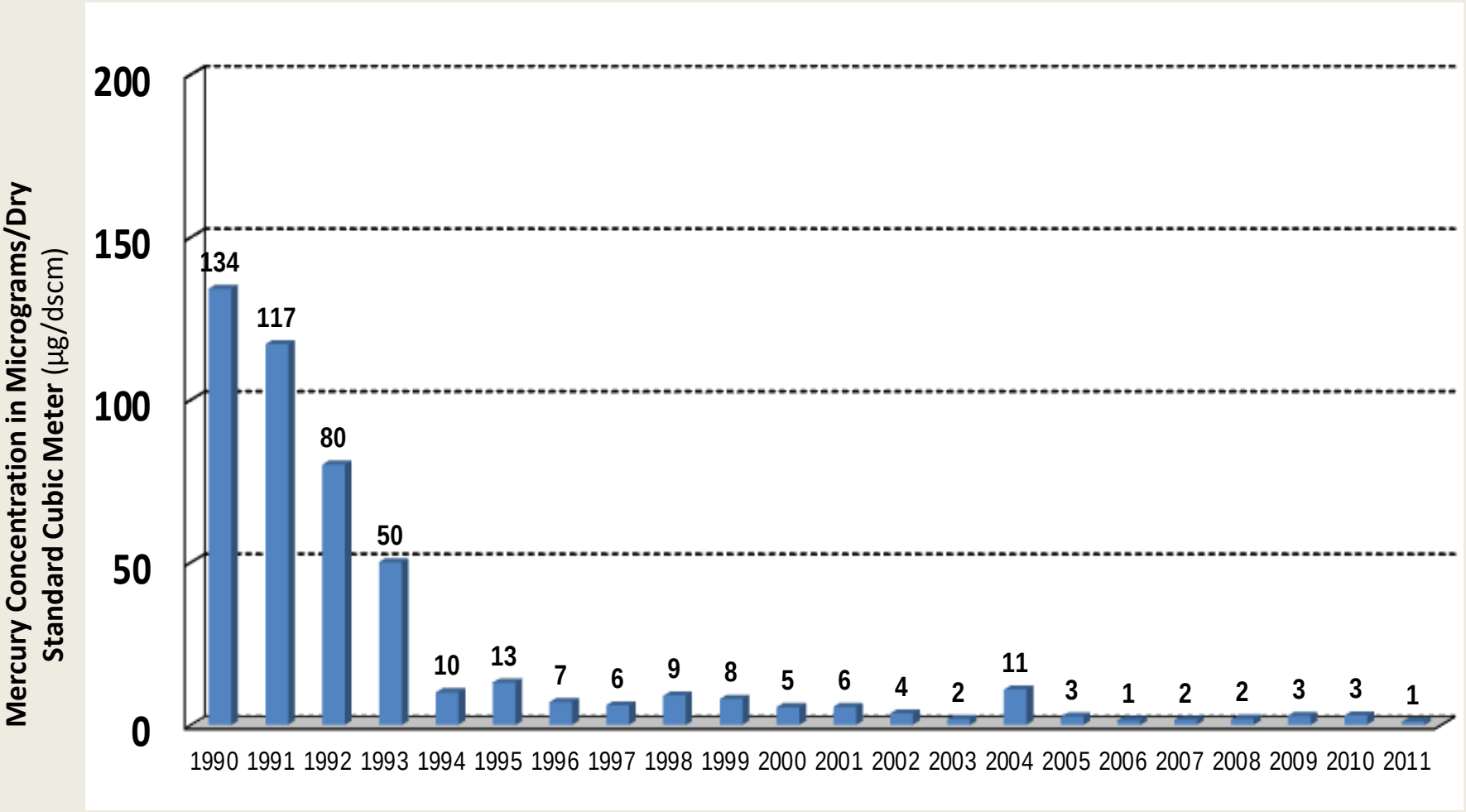
Minnesota's WTE facilities

- All produce energy – electricity, industrial process steam, or district heating
- Several facilities produce electrical power that counts as renewable energy
- All separate materials and recycle from waste or ash
- WTE is supported by robust mercury/problem materials diversion programs

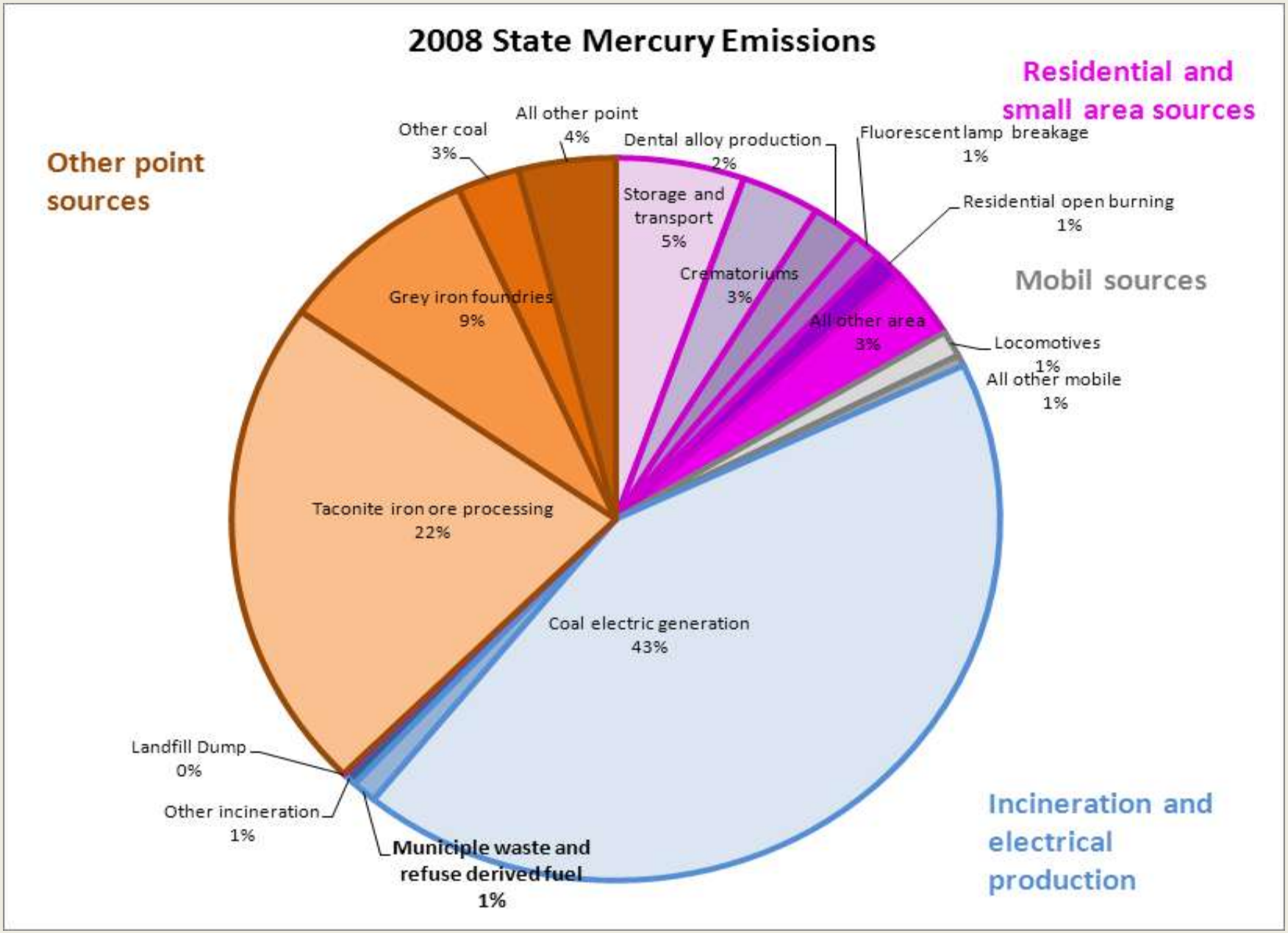
Air pollution control - WTE

- New air pollution control systems added at all facilities in 1990s due to federal and state regulations
- Continuous emissions monitoring also required
- WTE systems have high standards and significant testing & reporting requirements
- WTE pollutions controls have worked well

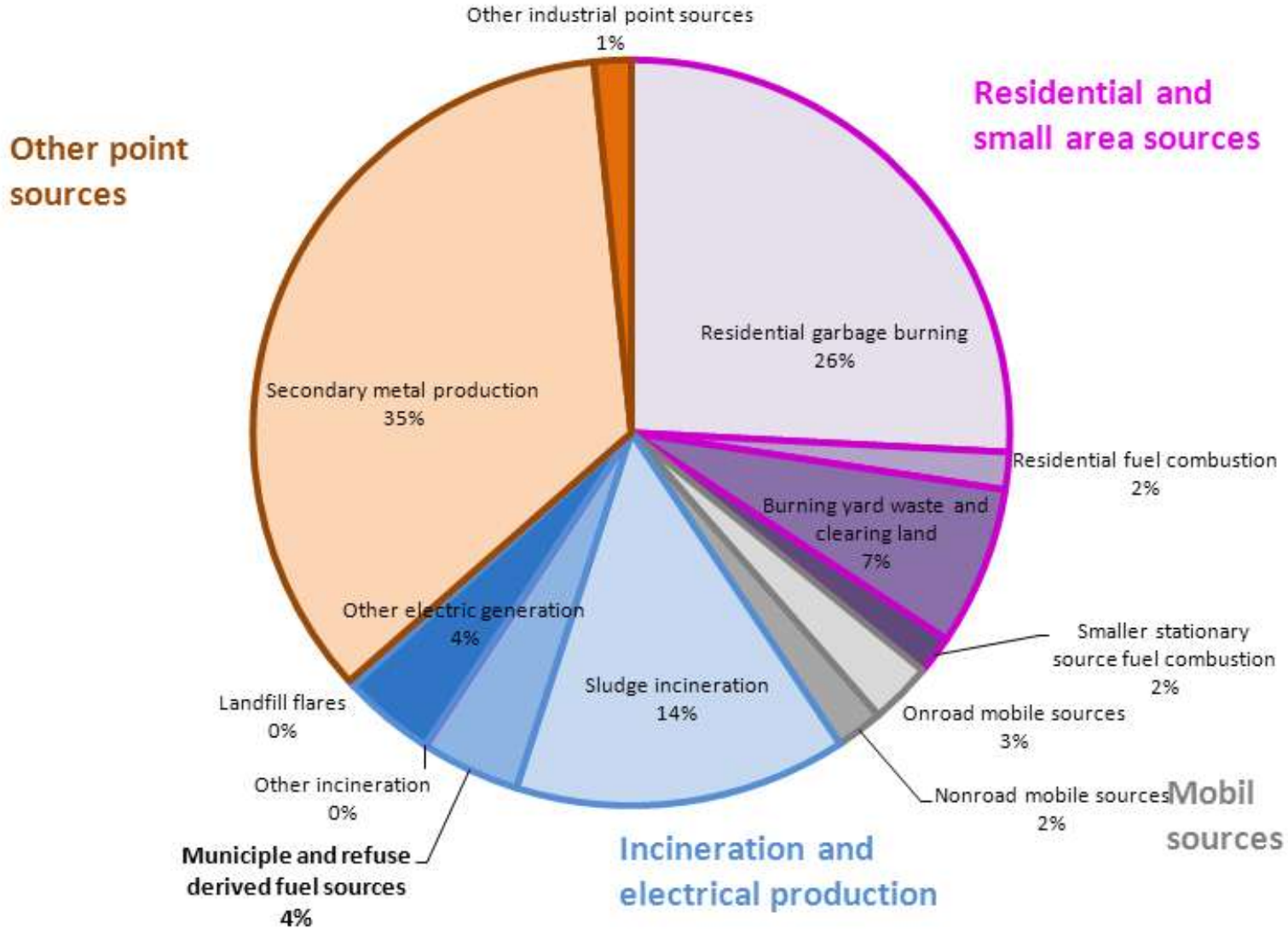
Mercury Concentration: 1990 -2011



2008 State Mercury Emissions



2008 State Dioxin Equivalents Emissions



WTE & State Policy

- WTE creates renewable electric power and also thermal power for district heating/manufacturing
- WTE systems are supported by robust HHW, special mercury, electronics, and recycling programs
- HOWEVER - Waste reduction, waste re-use, and source separation of recyclables and organics are preferred over WTE and landfill disposal

Olmsted Waste-to-Energy Facility

serving the citizens and business of the counties of Dodge and Olmsted

- Began operations in 1987 and was expanded in 2011 to process 400 tons per day of Municipal Solid Waste (MSW)
- Operates as a **co-generation** power plant 24 hours/day, 7 days/week,
- Employs 43 people full time with a payroll of $3.7 million
- Over 1.3 million tons of waste processed
- Over 2 million cubic yards of landfill space saved (33 football fields 100 ft deep with garbage)
- Energy produced from waste is equivalent to over 590,000 tons of coal
- Serves 37 buildings with steam, chilled water and electric power
- Additional electricity sold to local utilities (SMMPA via RPU)
- Extra efficiencies of **Combined Heat and Power**

Olmsted County District Energy System

Creating Energy from Your Garbage

Olmsted's Less than Zero Landfill

- Air Space Recovery
  - Reclaim 84,000 cubic yards in the landfill
  - Landfill becomes a temporary storage facility
  - No more non-processable wastes to be landfilled
  - Only landfill industrial solid wastes
- Landfill Life Extension
  - Recovered air space – 84,000 cubic yards
  - Estimated waste into MSW cell – 1,634 tons per year
  - Estimated life of current cell until 2044
  - Landfill projected to last until the year 2136
- Annual Landfill Report to MPCA
  - Negative waste for MSW Cell of 14,000 tons annually
  - Reports will show negative flow for 3 to 5 years

Thank you – Questions?