

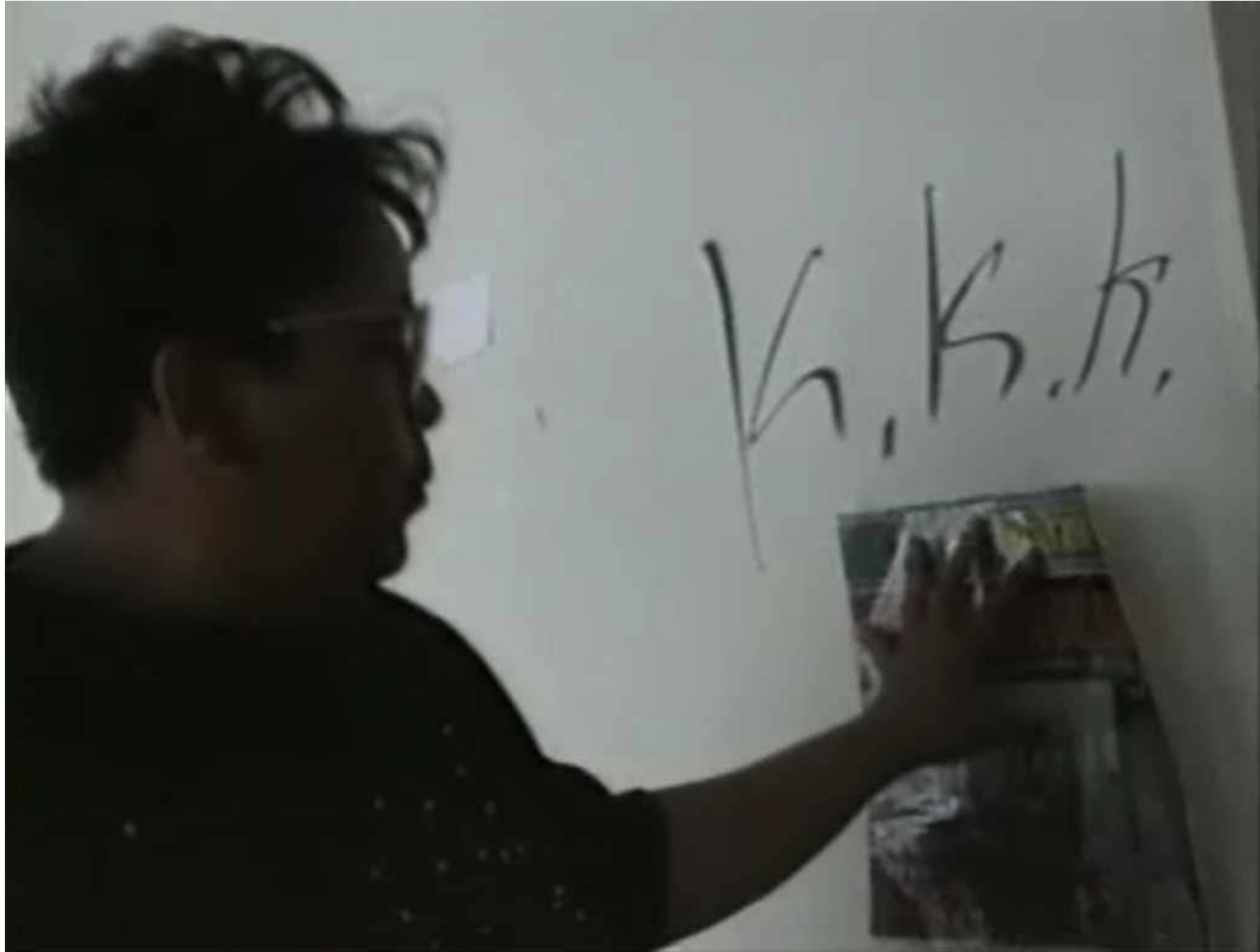


www.EnergyJustice.net

*...helping communities protect
themselves from polluting energy
and waste technologies*



Racism isn't usually this obvious...



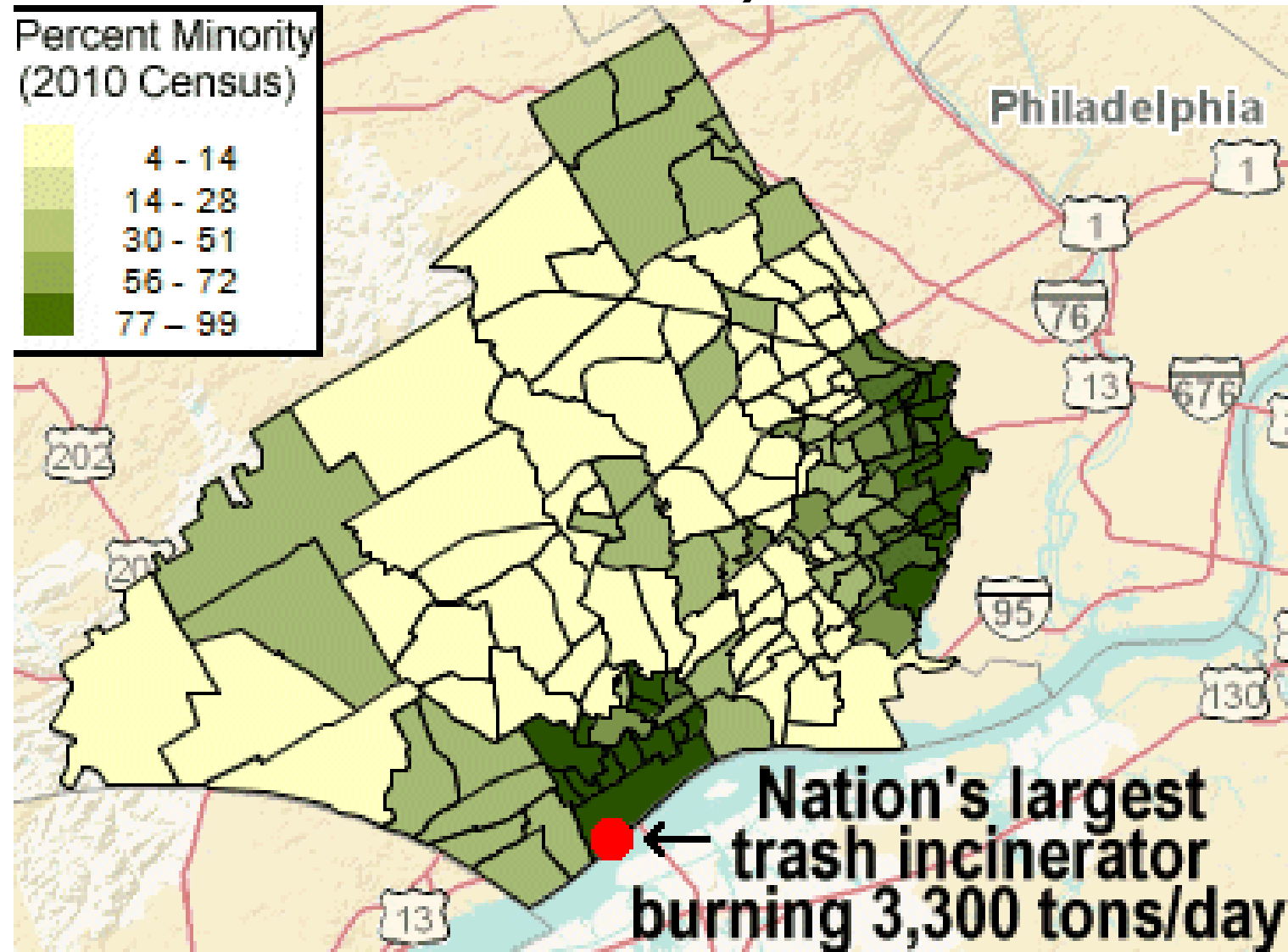
Zulene Mayfield shows signs of vandalism at office of Chester Residents Concerned for Quality Living in Chester, PA in 1996 "Laid to Waste" documentary.

What is Environmental Justice?

- Environmental Justice is the movement's response to environmental racism
- Principles of Environmental Justice developed at the First National People of Color Environmental Leadership Summit in 1991
- Defined by the movement, not by EPA

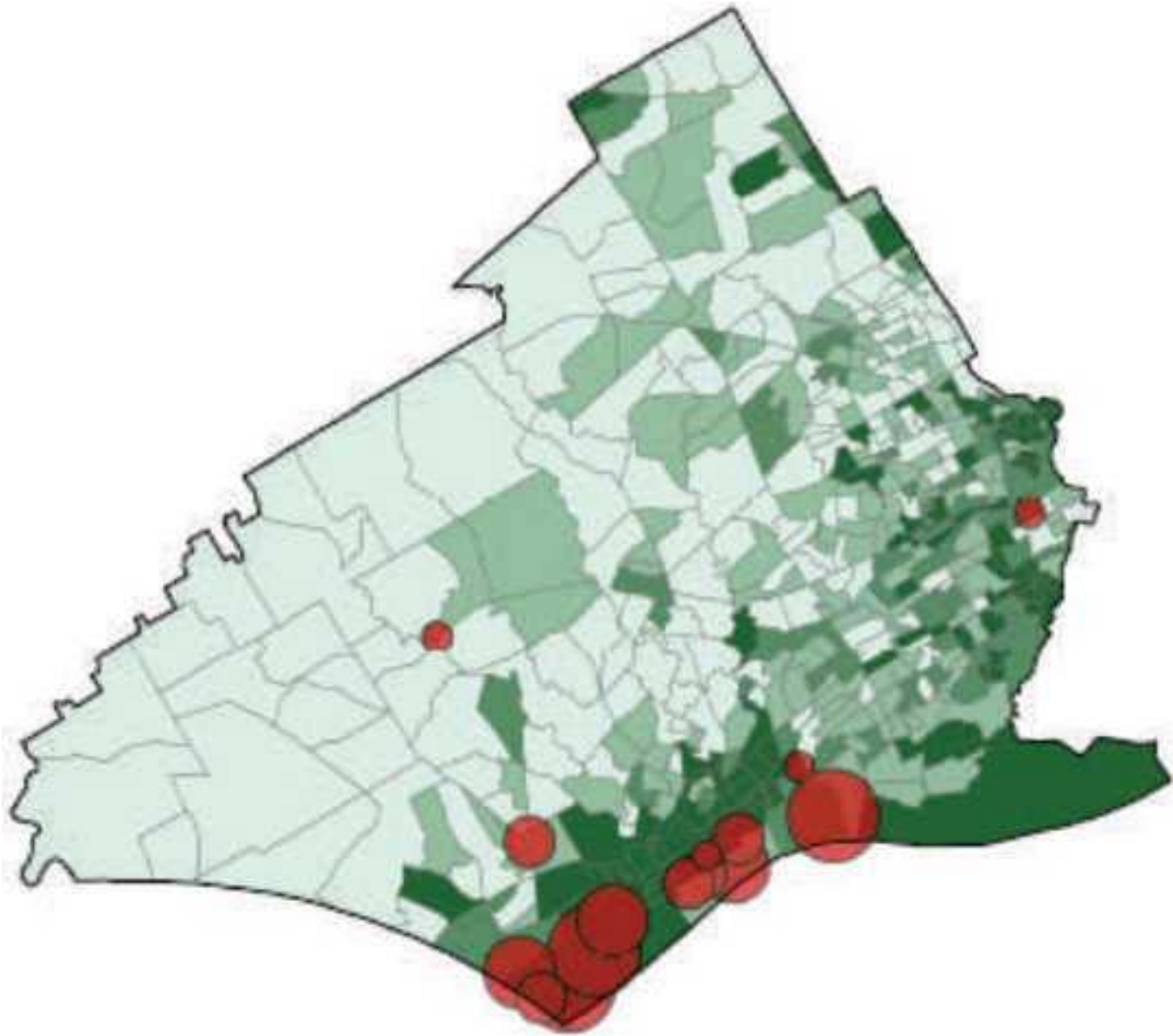
www.ejnet.org/ej/

Chester, PA



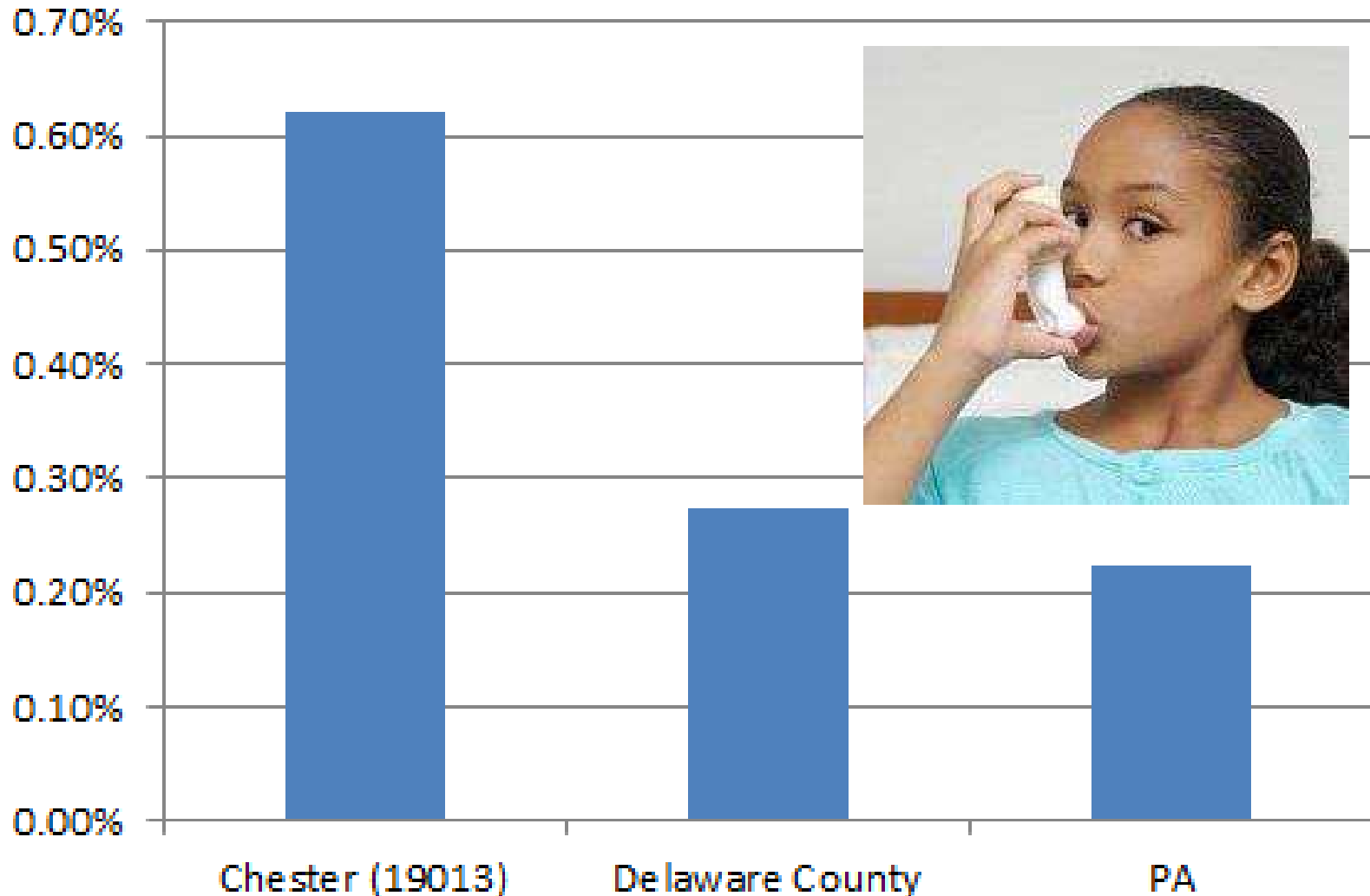
www.ejnet.org/chester

Delaware County, PA / Chester City



Childhood asthma hospitalization 3x PA rate

Data for those under 18 years of age, for 2010



Source: Analysis based on 2010 Census data and asthma data from The Asthma Program, PA Department of Health.
Data provided by Pennsylvania Health Care Cost Containment Council (PHC4).

Delaware County's Largest Polluter:

In 2017, according to data reported to the state DEP on industrial sources of air pollution, Covanta Plymouth released:

1,043,624 TONS of greenhouse gases (CO2 equivalents)... #1

2,473,256 pounds of Nitrogen Oxides (NOx)... #1

772,147 pounds of Carbon Monoxide (CO)

177,200 pounds of Sulfur Oxides (SOx)... #1

120,940 pounds of Particulate Matter (PM10)... #2

85,980 pounds of Fine Particulate Matter (PM2.5)

16,685 pounds of Hydrochloric Acid... #1

13,080 pounds of Volatile Organic Compounds (VOCs)

43 pounds of Mercury (19,504 grams)

38 pounds of Lead

24 pounds of Nickel

9 pounds of Chromium

8 pounds of Cadmium

6 pounds of Arsenic

Health effects...

Air Pollutant	Health Effects
Nitrogen Oxides	triggers asthma attacks, increases lifetime risk of chronic respiratory disease and stroke
Sulfur Dioxide	triggers asthma attacks, increases lifetime risk of chronic respiratory and heart diseases and stroke
Hydrochloric Acid	irritates eyes, skin, and nose, damages lungs
Carbon Monoxide	causes headaches and dizziness; increases lifetime risk of heart disease
Particulate matter (soot)	heart attacks, stroke, irregular heartbeat, aggravated asthma, decreased lung function, difficulty breathing
Fine Particulate matter	same as above, but worse, as it can get deep into lungs and into blood stream
Volatile Organic Compounds	eye, nose and throat irritation, headaches, loss of coordination and nausea, liver, kidney and central nervous system damage, cancer
Formaldehyde	irritates eyes, skin, and nose, increases lifetime risk of cancer
Hydrogen Fluoride	lung, liver, and kidney damage, skeletal fluorosis (brittle bones)
Lead	causes damage to nervous system and kidneys, lowers IQ in children, increases likelihood of antisocial behavior
Mercury	causes damage to nervous, digestive, and immune systems, lowers IQ in children
Nickel	lung and nasal cancers
Chromium (VI)	lung cancer, shortness of breath, coughing, and wheezing

Health effects...

Delaware County recently received an “F” grade from the American Lung Association for smog in their [2019 State of the Air report](#).

The Asthma and Allergy Foundation [ranked](#) the Philadelphia metro area as the 4th worst place for asthma.

Philadelphia has the highest cancer rate of any major city in the U.S.

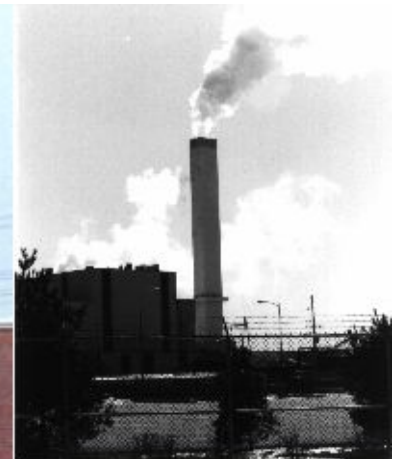
Covanta is the 8th largest air polluter in the 7-county area surrounding Philadelphia.



Largest Trash Incinerators in the U.S. (by size)

<u>St</u>	<u>City</u>	<u>Name</u>	<u>Burners</u>	<u>Tons/Day</u>
PA	Chester	Delaware Valley Resource Recovery Facility	6	3,510
FL	St. Petersburg	Pinellas County Resource Recovery Facility	3	3,150
VA	Lorton	I-95 Energy-Resource Recovery Facility (Fairfax)	4	3,000
HI	Honolulu	Honolulu Resource Recovery Venture—HPOWER	3	3,000
NJ	Newark	Essex County Resource Recovery Facility	3	2,800
MA	West Wareham	SEMASS Resource Recovery Facility	3	2,700
NY	Westbury	Hempstead Resource Recovery Facility	3	2,671
FL	Miami	Miami-Dade County Resource Recovery Facility	4	2,592

Where does the waste come from?



Where the Waste Comes From

29%	Delaware County, PA
28%	Philadelphia City, PA
17%	NY
16%	NJ
7%	DE
3%	Ocean City, MD
0.4%	NC
0.4%	VA
0.1%	Lehigh County, PA
0.1%	PR
0.0%	Chester County, PA

Source: PA Dept of
Environmental Protection –
Data reported by Covanta

Covanta Lacks Basic Pollution Controls

Covanta's incinerator in Chester uses the fewest pollution control devices of any incinerator in Pennsylvania and the fewest of any in their fleet of 39 incinerators.

LACKING:

- **Selective Non-Catalytic Reduction** to reduce the nitrogen oxides (NO_x) that cause asthma.
- **Carbon injection** to remove additional toxic metals and dioxins.

Out of 80 commercial trash incinerators in the U.S. operating as of 2014, 59 use carbon injection and 55 use some form of NO_x controls. Why does the nation's largest one lack these protections?

Covanta Lacks Basic Pollution Controls

Pennsylvania Incinerators:

State	City	Facility Name	Tons/Day	# of Controls	Air Pollution Control Systems
PA	Bainbridge	Lancaster County Resource Recovery Facility	1,200	5	SDA; FF; SNCR; CI; FSI
PA	Morrisville	Wheelabrator Falls Inc.	1,500	4	SDA; FF; SNCR; CI
PA	Conshohocken	Covanta Plymouth Renewable Energy	1,216	4	SDA; FF; SNCR; CI
PA	Harrisburg	Harrisburg Resource Recovery Facility	800	4	SDA; FF; SNCR; CI
PA	York	York Resource Recovery Center/Montenay York	1,344	3	SDA; FF, CI
PA	Chester	Delaware Valley Resource Recovery Facility	3,510	2	SDA; FF

Source: Energy Recovery Council 2014 and 2010 Directories of Waste-to-Energy Plants
www.wte.org/userfiles/files/ERC_2014_Directory.pdf and www.wte.org/userfiles/file/ERC_2010_Directory.pdf

Covanta Lacks Basic Pollution Controls

Nearly all of Covanta's 39 incinerators have these pollution controls. Several have 5-6 pollution control devices. Chester's has just two.

No new incinerator could be built these days without these protections.

Source: Energy Recovery Council
2014 and 2010 Directories of
Waste-to-Energy Plants
www.wte.org/userfiles/files/ERC_2014_Directory.pdf and
www.wte.org/userfiles/file/ERC_2010_Directory.pdf

State	City	Facility Name	Tons/Day	# of Controls	Air Pollution Control Systems
NJ	Newark	Essex County Resource Recovery Facility	2,800	6	SDA; FF; ESP; SNCR; CI; CYC
OR	Brooks	Marion County Solid Waste-to-Energy Facility	550	6	SDA; FF; SNCR; CI; CYC; DSI
MA	West Wareham	SEMASS Resource Recovery Facility	2,700	5	SDA; ESP; COHPAC (Units 1 & 2) SDA; FF; SNCR (Unit 3)
NY	Niagara Falls	Niagara Falls Resource Recovery Facility	2,250	5	SDA; FF; SNCR; CI; ESP
FL	Fort Myers	Lee County Resource Recovery Facility	1,836	5	SDA; FF; SNCR; CI; FGR
MD	Dickerson	Montgomery County Resource Recovery Facility	1,800	5	FSI; SDA; FF; SNCR; CI
PA	Bainbridge	Lancaster County Resource Recovery Facility	1,200	5	SDA; FF; SNCR; CI; FSI
OK	Tulsa	Walter B. Hall Resource Recovery Facility	1,125	5	CI; CYC; FF; SNCR; SDA
MA	Agawam	Pioneer Valley Resource Recovery Facility	408	5	FGR; DSI; FF; CI; CYC
VA	Lorton	I-95 Energy-Resource Recovery Facility (Fairfax)	3,000	4	SDA; FF; SNCR; CI
NY	Westbury	Hempstead Resource Recovery Facility	2,671	4	SDA; FF; SNCR; CYC
FL	Miami	Miami-Dade County Resource Recovery Facility	2,592	4	SDA; FF; SNCR; CI
26 other Covanta incinerators - nearly all have SNCR and Carbon Injection					
PA	Chester	Delaware Valley Resource Recovery Facility	3,510	2	SDA; FF

Covanta Lacks Basic Pollution Controls

In March 2009, when an EPA inspector (Ms. Horgan) asked Covanta's Gene Bonner why they don't have the pollution controls that their other plants have, Covanta responded that "it costs a lot of money" and would create "operational issues."

Ms. Horgan asked if there is any control equipment that would be practical to reduce emissions. Mr. Bonner stated that practical is a matter of money to business people. He stated that Covanta doesn't have a big issue for dioxins or mercury so a carbon system is not needed. Ms. Horgan asked about additional NO_x control. Ms. Horgan mentioned that NO_x emissions were 1119 tons in 2003 and 1257 tons in 2005. Ms. Horgan asked if there was a system to bring down these NO_x emissions. Mr. Bonner stated that putting in a urea system would; but, that it costs a lot of money and also introduces additional operational issues. He stated that the more equipment that is added, the more potential for operational issues at some time. He said that the NO_x emissions could be brought down; but, the equipment is not easily operated.

Community Organizing in Chester

1992-2001: Chester Residents Concerned for Quality Living (CRCQL or 'circle') led by Zulene Mayfield

1996-1999: Campus Coalition Concerning Chester (C-4)

2001-2003: Laborers International Union Local 413

2007-2009: Delco Alliance for Environmental Justice

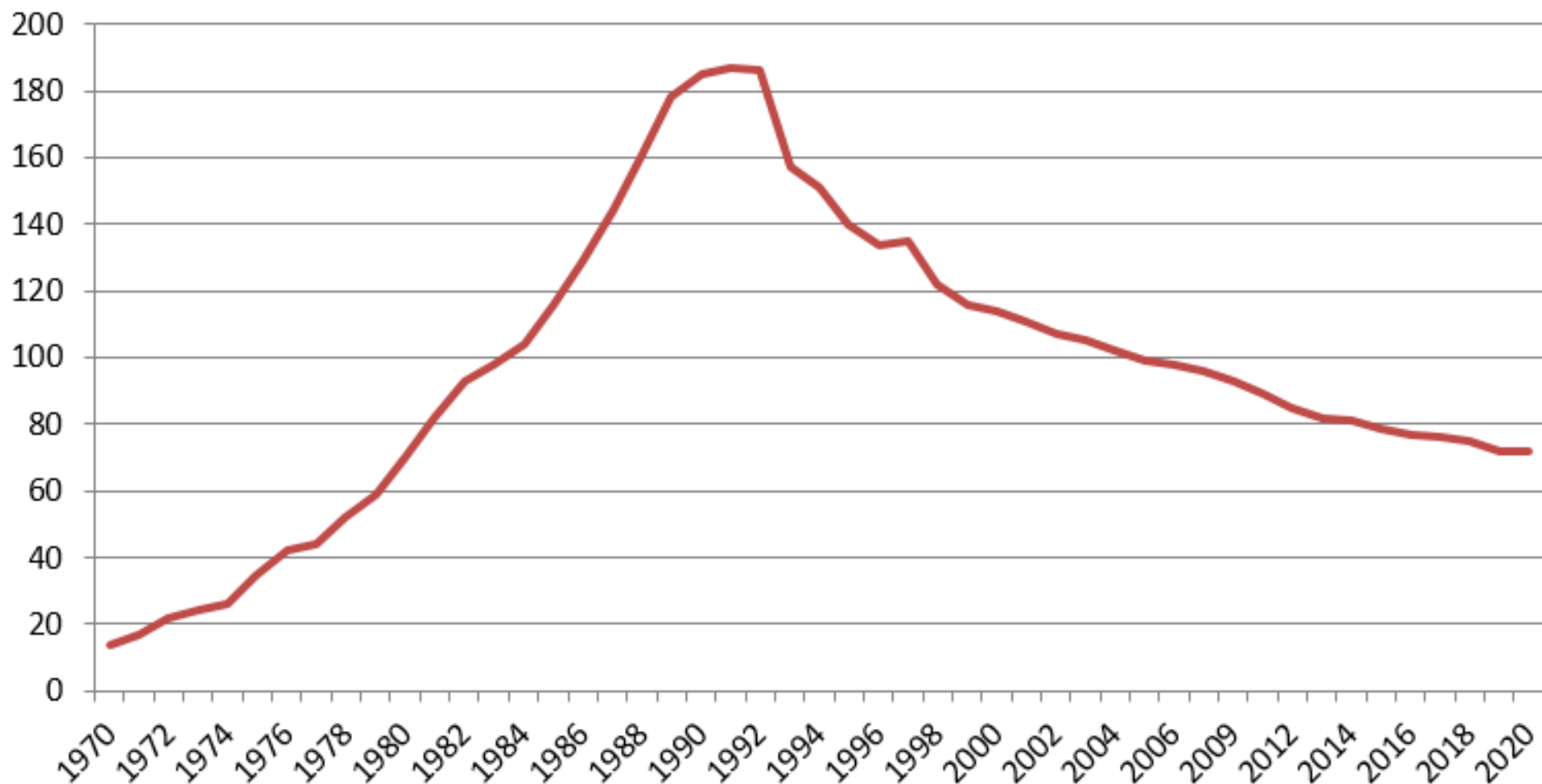
2014: Chester Environmental Justice

2019: *Rebuilding CRCQL and C-4 with your help!*

Victories in Chester

- 1995: ThermalPure medical waste autoclave closed down
- 1996: Soil Remediation Systems contaminated soil “burner” defeated
- 1997: Crozer-Chester Medical Center medical waste incinerator closed
- 1997: Pet crematorium proposal defeated
- 1997: Cherokee Biotechnology’s contaminated soil plant defeated
- 1997: DELCORA sludge incinerator lawsuit won
- 1997: Environmental racism lawsuit victory (later set aside)
- 1998: Ogborne construction/demolition waste transfer station defeated
- 1999: Delaware State stops sending waste to Chester incinerator
- 2002: Kimberly-Clark tire burning plan denied
- 2005: Clean Metal incinerator ash plant closes
- 2008: Koach Energy’s plan to build the world’s largest tire incinerator defeated

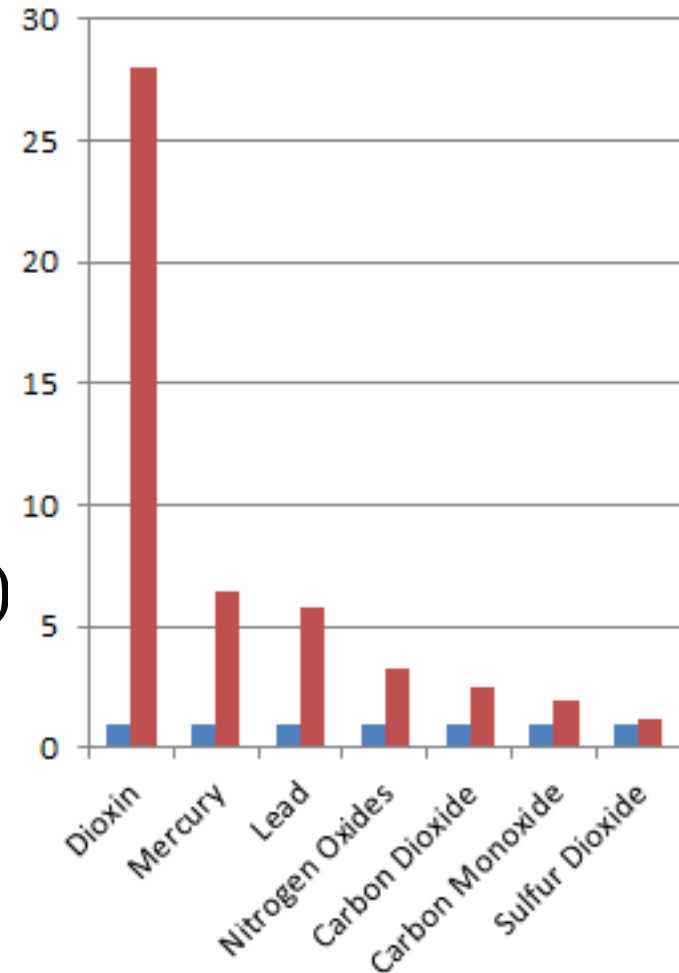
Number of Commercial Operating Trash Incinerators in the U.S.



Incineration Worse than Coal

Toxic Air Emissions are...

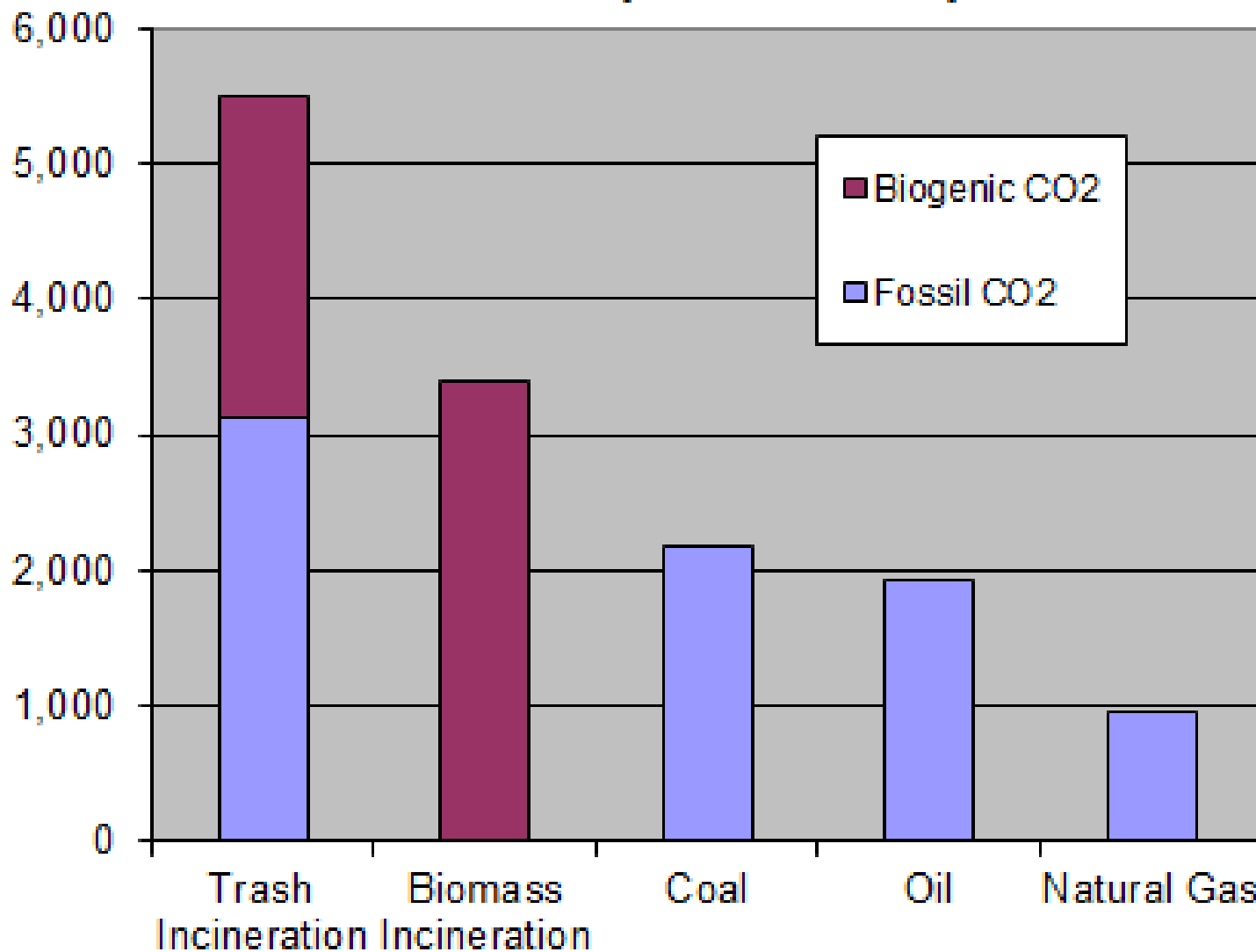
- **Dioxins / furans** (28 times)
- **Mercury** (6-14 times)
- **Lead** (6 times)
- **Nitrogen Oxides (NO_x)** (3.2 times)
- **Carbon Monoxide (CO)** (1.9 times)
- **Sulfur Dioxide (SO₂)** (70% worse)
- **Carbon Dioxide (CO₂)** (2.5 times)



Global Warming Pollution

Smokestack CO2 Emissions from U.S. Power Plants

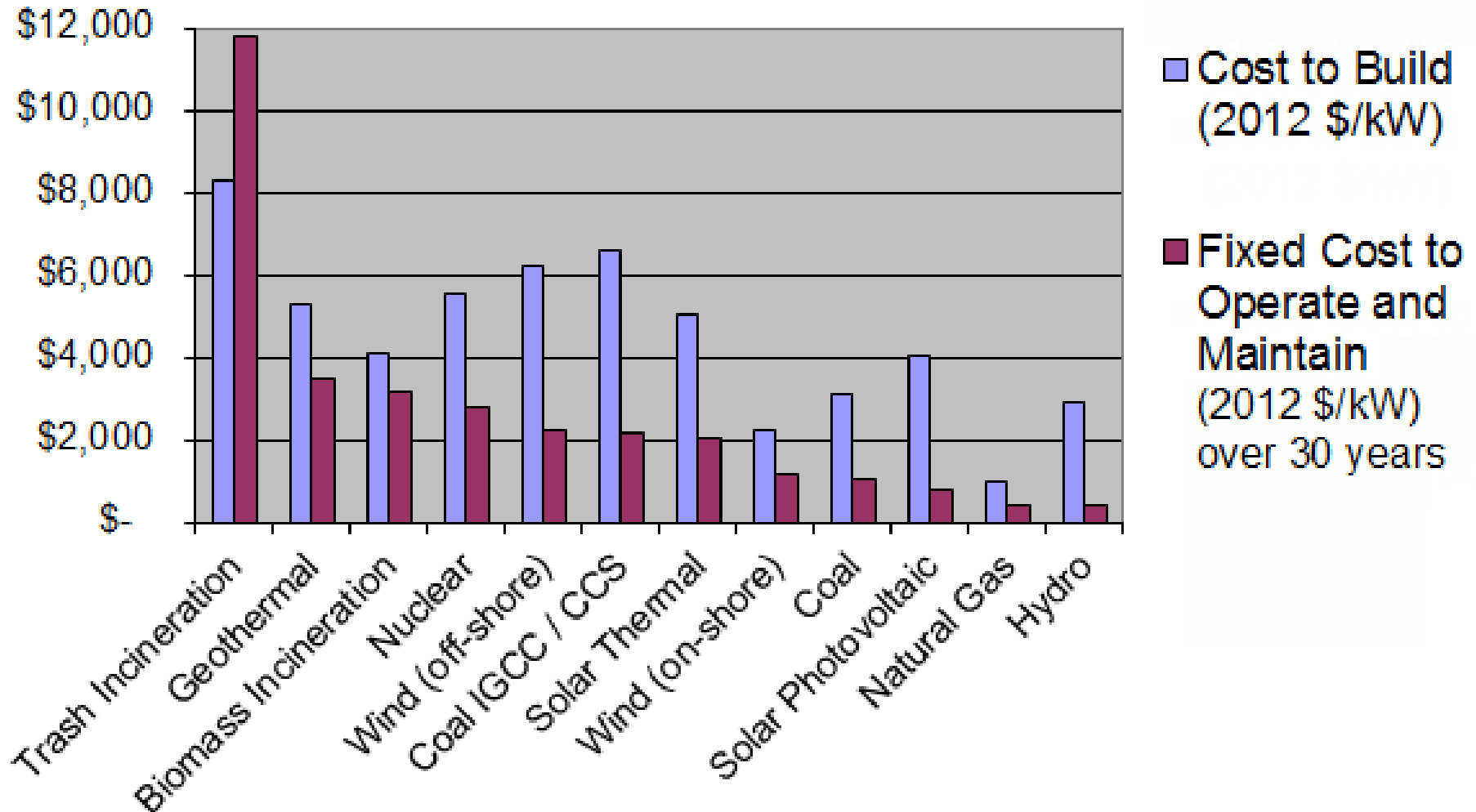
CO2 (lbs/MWh)



Data is in pounds of CO2 per unit of energy produced (lbs/MWh)

Source: U.S. EPA
Emissions &
Generation
Resource Integrated
Database (eGRID)
v.9, released
2/24/2014
(2010 data)

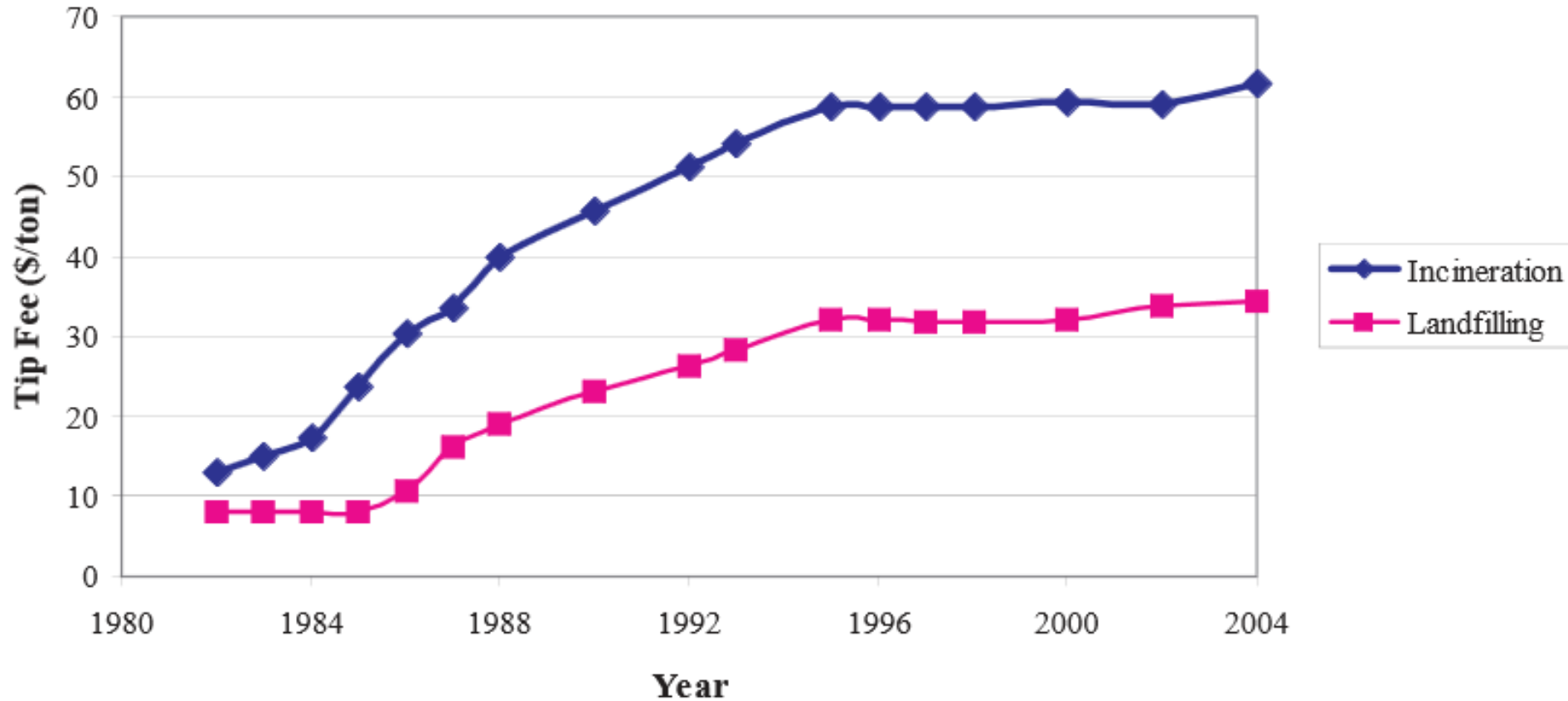
Most Expensive Way to Make Energy



Source: "Updated Capital Cost Estimates for Utility Scale Electricity Generating Plants," Energy Information Administration, April 2013, p.6, Table 1. Full report here: www.eia.gov/forecasts/capitalcost/pdf/updated_capcost.pdf

Most Expensive Way to Manage Waste

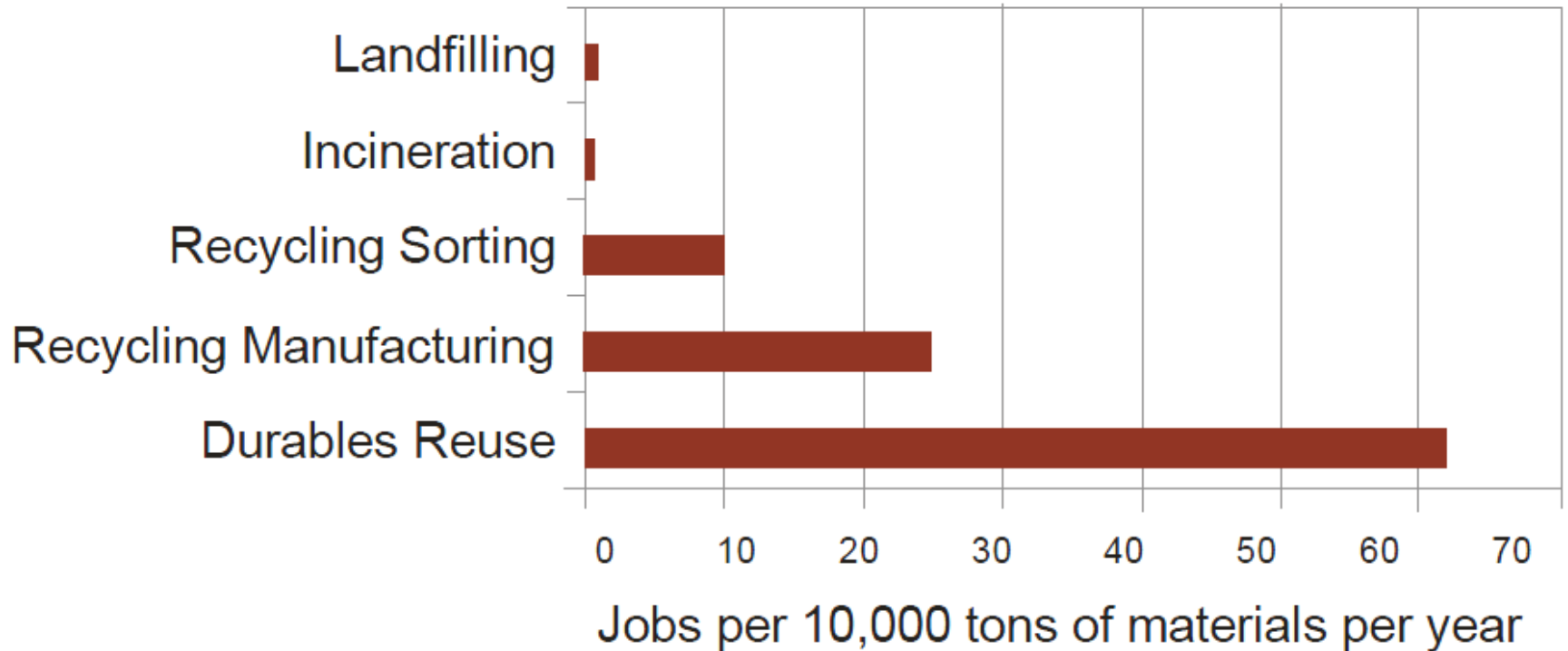
Figure 3. Landfill and Incinerator Tip Fees



Source: National Solid Waste Management Association 2005 Tip Fee Survey, p4.
www.environmentalistseveryday.org/docs/Tipping-Fee-Bulletin-2005.pdf

Worst Way to Create Jobs

Job Creation: Reuse & Recycling vs Disposal



Source: Institute for Local Self Reliance

Incineration Worse than Landfills

- 7 times more air pollution per ton
- More racist
- Incinerators still require landfills for their toxic ash
- 30 tons of ash produced for every 100 tons burned



Incineration Worse than Landfills

- Incinerators still require landfills for their toxic ash
- Choice is NOT landfill vs. incinerator, but:

landfill

VS.

incinerator AND a smaller, more toxic landfill

Incineration Worse than Landfills

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OR...

Zero Waste and minimal landfilling

Incineration Worse than Landfills

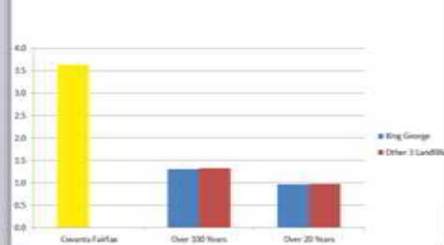
Incineration is worse for...

- Global Warming
- Toxic emissions
- Nitrogen oxide pollution
- Acid Gas pollution
- Particulate Matter
- Smog
- Number of people impacted
- Environmental racism
- Jobs
- Cost

Incineration worse than Landfills

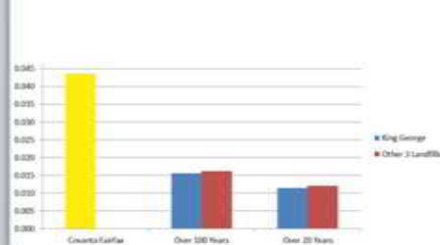
Nitrogen Oxide (NOx) Pollution

[Pounds of NOx per ton of waste disposed.]



Particulate Matter Pollution

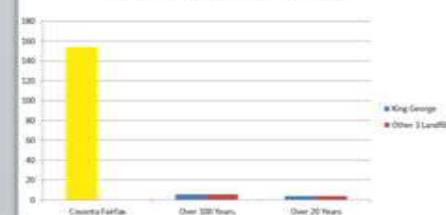
[Pounds of PM2.5 equivalent per ton of waste disposed.]



Toxic Pollution

[Pounds of toluene equivalents per ton of waste disposed.]

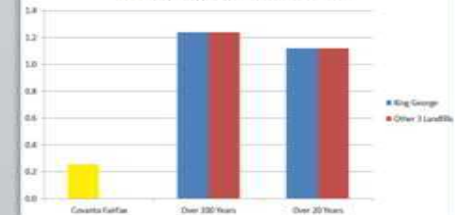
Does not include dioxin/furan emissions.



Carcinogenic Pollution

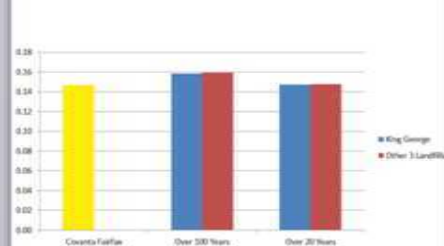
[Pounds of benzene equivalent per ton of waste disposed.]

Does not include dioxin/furan emissions.



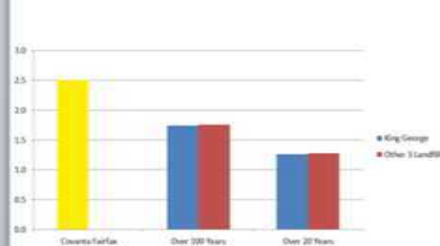
Eutrophication

[Pounds of nitrogen equivalent per ton of waste disposed.]



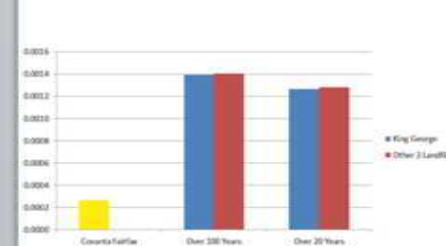
Acidification

[Pounds of SO₂ equivalent per ton of waste disposed.]



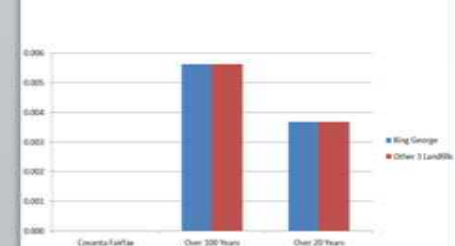
Ecosystems Toxicity

[Pounds of 2,4-D herbicide equivalents per ton of waste disposed.]



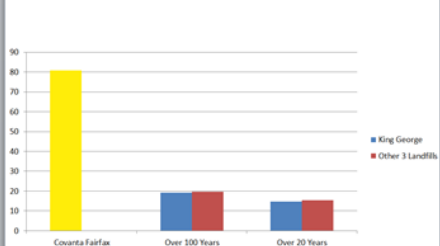
Ozone Depletion

[Pounds of CFC-11 equivalent per ton of waste disposed.]



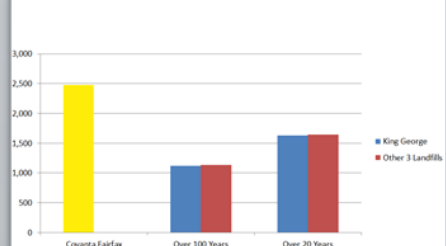
Smog Formation

[Pounds of ozone (O₃) equivalent per ton of waste disposed.]



Global Warming Pollution

[Pounds of CO₂ equivalent per ton of waste disposed.]



Trash Incinerator Health Impacts



Health effects

People living near incinerators have an increased risk of...

- **All types of cancer, including:**
 - Stomach
 - Colorectal
 - Liver
 - Renal
 - Lung & pleural
 - Gallbladder
 - Bladder
 - Non-Hodgkin lymphoma
 - Leukemia
 - Soft-tissue sarcoma
- **Respiratory diseases & symptoms**
- **Cardiovascular diseases**
- **Urinary diseases**



**Murder is murder,
whether by gun or by chemical.**



Source: Shelia Hyland, Chester Resident

The back end is still a landfill...

1. Direct landfilling
(bad, but better than incineration)
 - leachate (toxics)
 - air emissions (toxics, methane, odors)
2. Incineration → toxic ash to landfill
(most polluting and expensive option)
 - leachate (even more toxics)
 - air emissions from ash blowing off site (toxics)
3. Anaerobic digestion → landfill
(best option; avoids gassy, stinky landfills)
 - odor, leachate and air emissions highly minimized



What is Zero Waste?

“The conservation of all resources by means of responsible production, consumption, reuse, and recovery of all products, packaging, and materials, without burning them, and without discharges to land, water, or air that threaten the environment or human health.”

THE ZERO WASTE HIERARCHY

RETHINK/REDESIGN

REDUCE

REUSE

RECYCLE/COMPOST

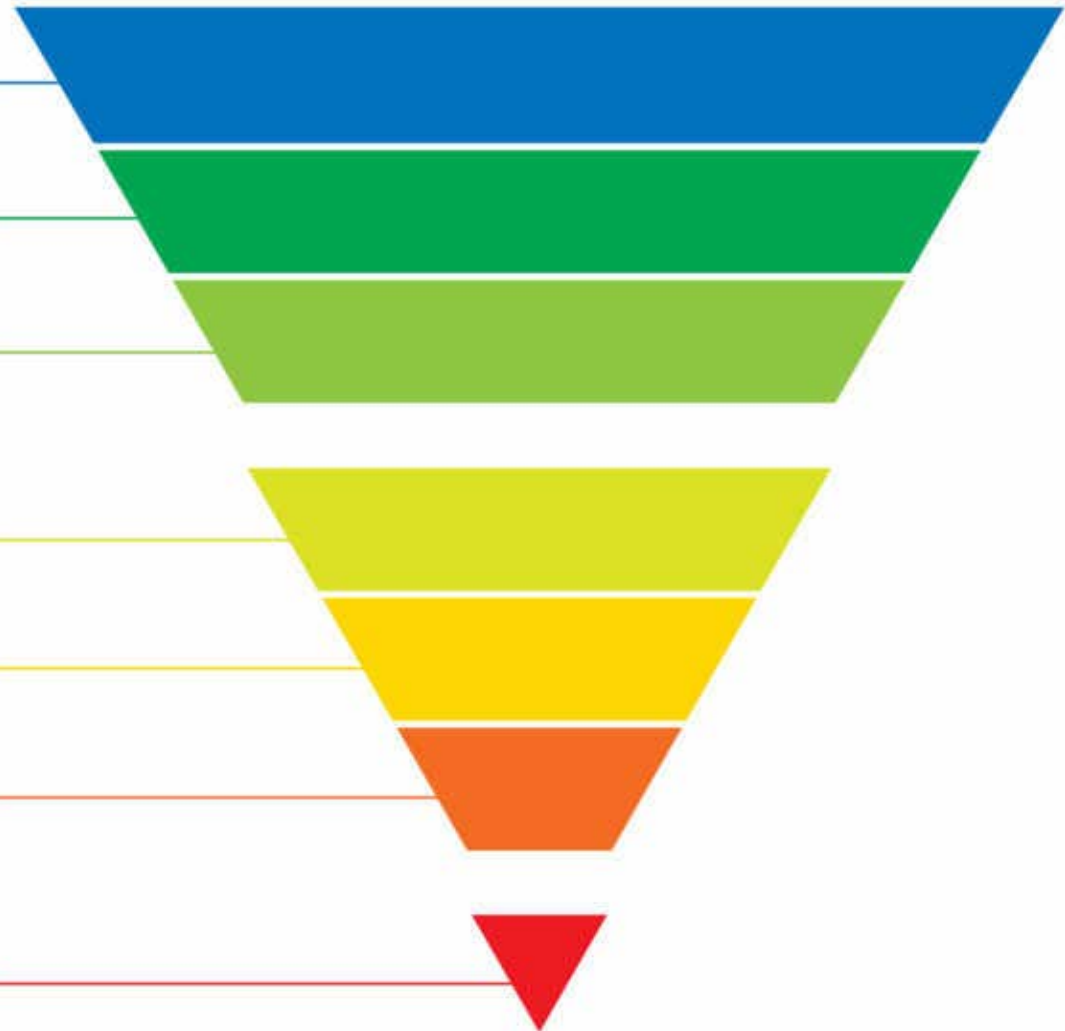
MATERIAL RECOVERY

RESIDUALS MANAGEMENT

(Biological treatment and stabilized landfilling)

UNACCEPTABLE

(Waste deregulation, incineration,
and "waste-to-energy")



Zero Waste Hierarchy

- Rethink / Redesign
- Reduce
- Source Separate:
 - **Reusables**
 - **Recycle** (multi-stream)
 - **Compost**
 - **Waste**
 - **Research** to see what is left, and encourage redesign
 - **Recovery**: mechanically remove additional recyclables
 - Anaerobically digest, then aerobically compost residuals
 - Stabilized (digested) residuals to landfill

www.energyjustice.net/zerowaste

Incineration Competes with Zero Waste

- County contract with Covanta punishes waste reduction
 - Contract promises at least 300,000 tons/year of DelCo trash
 - County provided 366,037 tons in 2017
 - If County doesn't provide this much trash to Covanta, they pay Covanta a penalty fee
- This means that the county cannot reduce waste more than 18% without being punished.

Getting to Zero Waste

- Save as you throw
- Free bins – and the right sizes!
- Composting
- Deconstruction



What do we want? Justice! And...

- Delaware County Council must take control back from the Delaware County Solid Waste Authority and not sign new incineration contracts in 2021.
 - Current county contract is 5-year, expiring 4/30/2022
 - Authority board members can't be overturned in time
- Ask politicians and candidates to commit to end incineration & move the county to Zero Waste.
- Stop Philadelphia from sending waste to Chester
- Boycott Ocean City!

www.ChesterResidents.org

www.EnergyJustice.net/pa/philly



www.EnergyJustice.net

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