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

Baltimore's Largest Polluter: Wheelabrator / BRESKO Trash Incinerator



Baltimore's Largest Polluter: Wheelabrator / BRESKO Trash Incinerator

- Burns 2,250 tons of trash per day
 - Largest of two remaining trash incinerators in MD
 - 10th largest in the nation
- Responsible for 36% of all stationary sources of air pollution in Baltimore in 2014
- Fined for mercury violations in 2009
- Contract expires in 12/31/2021



Baltimore's Largest Polluter: Wheelabrator / BRESKO Trash Incinerator

Among trash incinerators in the U.S., it's 10th largest, but worse than average for some pollutants:

- #2 in formaldehyde
- #3 in sulfur dioxide (SO₂)
- #3 in lead
- #6 in hydrochloric acid (HCl)
- #6 in hydrofluoric acid (HF)
- #6 in chromium (III)
- #8 in chromium (VI)
- #8 in benzo(a)pyrene



Baltimore's Largest Polluter: Wheelabrator / BRESKO Trash Incinerator

In 2014, Wheelabrator Baltimore was...

- #1 in mercury (89% of total: 60 pounds!) [2011 data]
- #1 in benzo[a]pyrene (84% of total)
- #1 in hydrochloric acid (83% of total)
- #1 in sulfur dioxide (SO₂) (83% of total)
- #1 in lead (78% of total)
- #1 in nitrogen oxides (NO_x) (59% of total)
 - Equal to half the cars or half the trucks in the city!
- #1 in formaldehyde (33% of total)
- #3 in carbon monoxide (CO)
- #3 in particulate matter (PM₁₀ and PM_{2.5})



Baltimore's Largest Polluter: Wheelabrator / BRESKO Trash Incinerator

In all of Maryland (520 facilities), Wheelabrator is the 12th largest air polluter, including...

- #4 in benzo[a]pyrene
- #4 in hydrochloric acid
- #4 in mercury
- #6 in lead
- #9 in sulfur dioxide (SO₂)
- #10 in chromium (VI)
- #11 in nitrogen oxides (NO_x)
- #11 in hydrofluoric acid
- #12 in nickel
- #16 in formaldehyde
- #19 in fine particulate matter (PM_{2.5})



Montgomery County's 2nd Largest Polluter: NMWDA / Covanta Trash Incinerator (Montgomery County Resource Recovery Facility)

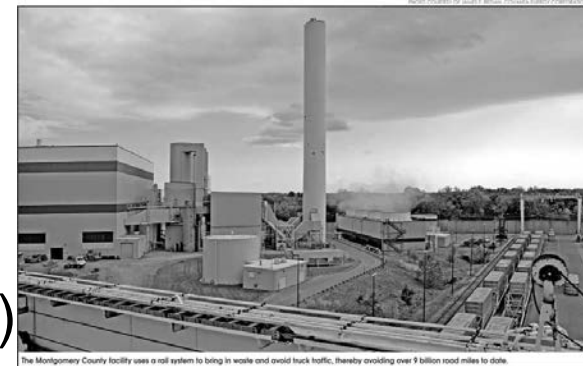
PHOTO COURTESY OF JAMES F. BEGAN, COVANTA ENERGY CORPORATION



The Montgomery County facility uses a rail system to bring in waste and avoid truck traffic, thereby avoiding over 9 billion road miles to date.

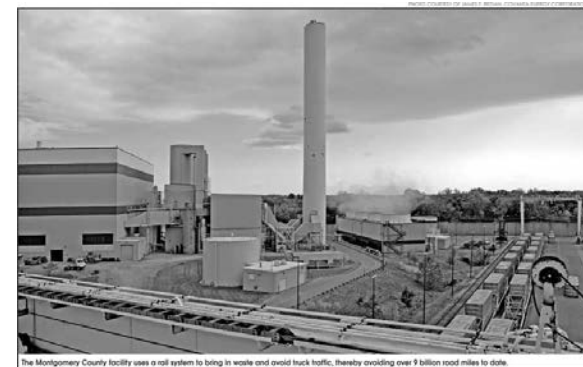
Montgomery County's 2nd Largest Polluter: NMWDA / Covanta Trash Incinerator (Montgomery County Resource Recovery Facility)

- Can burn 1,800 tons of trash per day
 - 22 years old
 - One of two trash incinerators in MD and just 76 remaining nation-wide
- Responsible for 17% of all stationary sources of air pollution in Montgomery County (2011 & 2014 EPA data)
- Coal power plant in Dickerson responsible for 67% of the county's air pollution.
- When the coal plant closes, the incinerator will make up 50% of the county's air pollution (27 other sources)



Montgomery County's 2nd Largest Polluter: NMWDA / Covanta Trash Incinerator (Montgomery County Resource Recovery Facility)

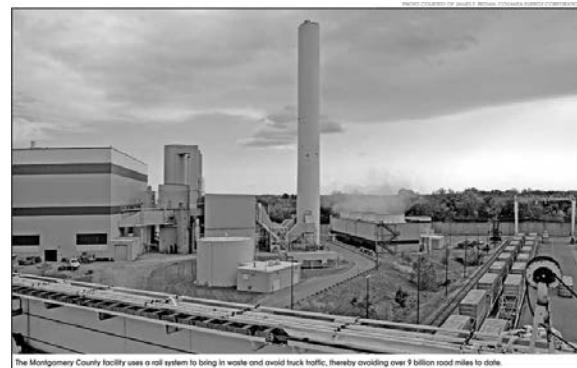
- In 2013, took in 558,184 tons of trash and turned them into air pollution and 170,590 tons of toxic ash
 - Ash shipped 100-150 miles away to landfills in black communities in Virginia
 - 30 tons of ash for every 100 tons burned
- Waste contract & service agreements expire in 2021



Montgomery County's 2nd Largest Polluter: NMWDA / Covanta Trash Incinerator (Montgomery County Resource Recovery Facility)

Among trash incinerators in the U.S., it's 20th largest, but worse than average for some pollutants:

- #4 in Particulate matter (PM)
- #7 in Fine particulate matter (PM2.5)
- #6 in Chromium VI
- #9 in Hydrochloric acid (HCl)
- #12 in Sulfur dioxide (SO₂)



Montgomery County's 2nd Largest Polluter: NMWDA / Covanta Trash Incinerator (Montgomery County Resource Recovery Facility)

In Montgomery County, the incinerator is...

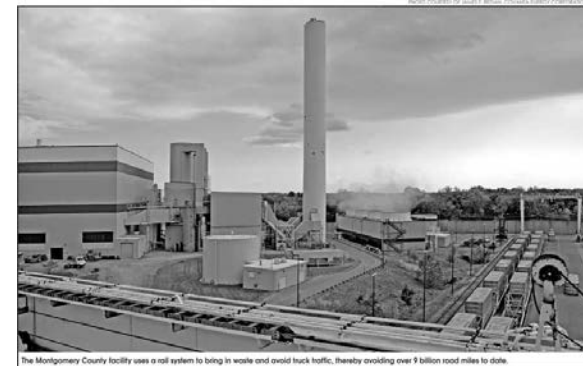
- #1 in Hydrochloric acid (94% of the emissions in the county)
- #1 in Cadmium
- #2 in Nitrogen Oxides (NOx) (19.5% of the county's emissions)
- #2 in Particulate Matter (PM) (all types)
- #2 in Chromium VI
- #2 in Cobalt
- #2 in Sulfur dioxide (SO₂)
- #2 in Lead (60 lbs)
- #2 in Mercury
- #4 in Nickel
- #4 in Volatile Organic Compounds (VOCs)
- #4 in Carbon Monoxide (CO)
- #6 in Formaldehyde



One of Maryland's Largest Polluters: 17th out of 536 industrial polluters

In all of Maryland, the incinerator is...

- #3 in Hexachlorobenzene
- #5 in Hydrochloric acid
- #8 in Cadmium
- #11 in Ammonia
- #12 in Beryllium
- #13 in Arsenic
- #13 in Condensable Particulate Matter
- #14 in Mercury
- #14 in Nitrogen oxides (NO_x)
- #14 in Sulfur dioxide (SO₂)
- #10 in Chromium (VI)
- #17 in Cobalt
- #17 in Primary PM_{2.5} (filterable and condensable)



MCRRF 2014 NOx Emissions

2014 Top 15 NOx Emission Sources in MD

No.	FACILITY	NOx Emissions(tpy)*
1	NRG Chalk Point Generating Station	3,877
2	Fort Smallwood Road Complex	3,638
3	Lehigh Cement Company LLC	2,902
4	Luke Paper Company	2,696
5	NRG Dickerson Generating Station	1,688
6	NRG Morgantown Generating Station	1,323
7	C. P. Crane LLC	1,247
8	Holcim (US), Inc	1,173
9	Wheelabrator Baltimore, LP	1,076
10	AES Warrior Run Inc	552
11	MCRRF	427
12	Harford County Resource Recovery Facility	284
13	Constellation Power - Perryman Generating Station	215
14	Mettiki Coal, LLC	125
15	Brandywine Power Facility	118

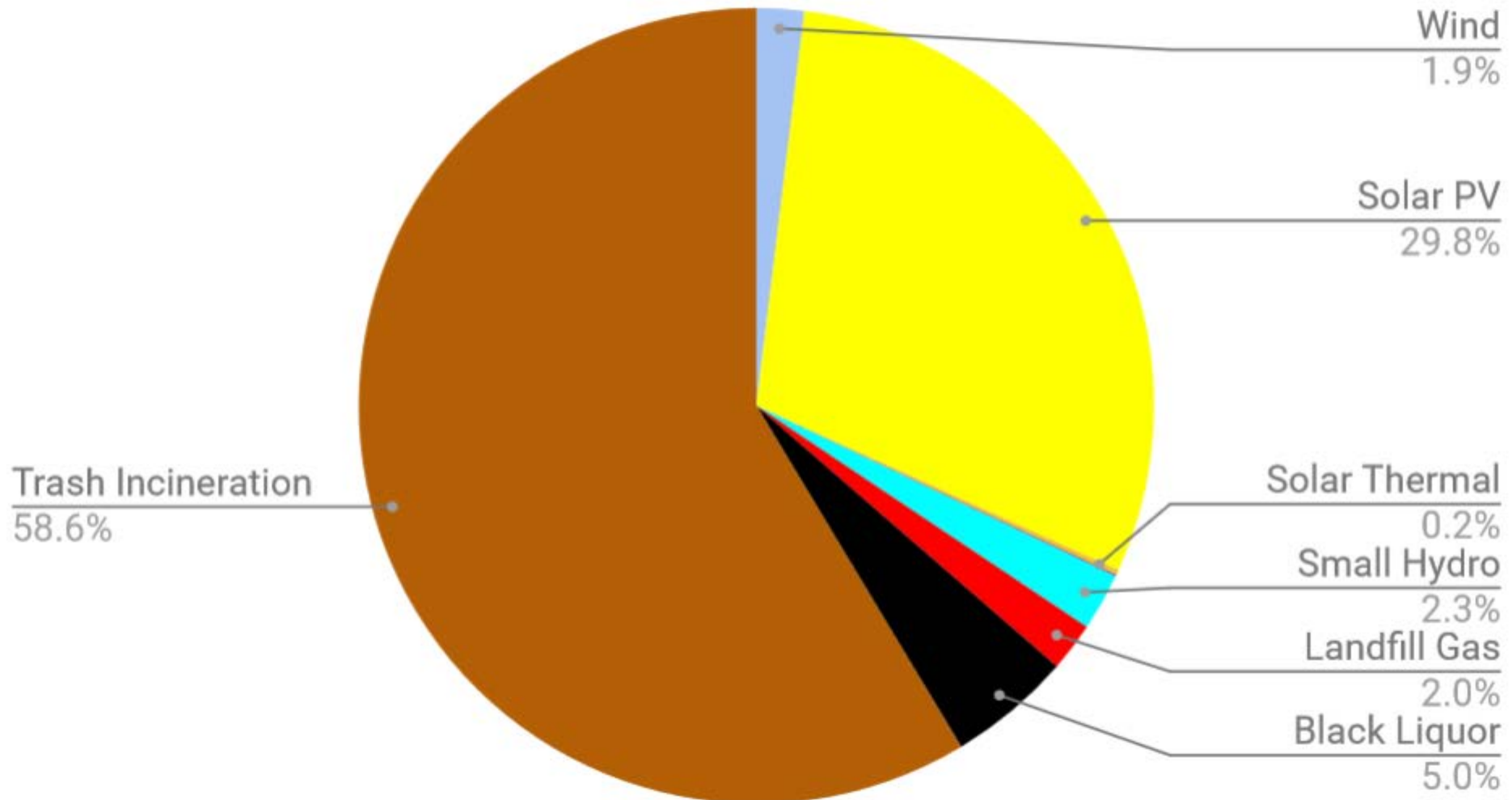
* Facility-wide NOx emissions



Maryland
Department of
the Environment

Maryland In-State “Renewable” Generation Supported by MD RPS

2016



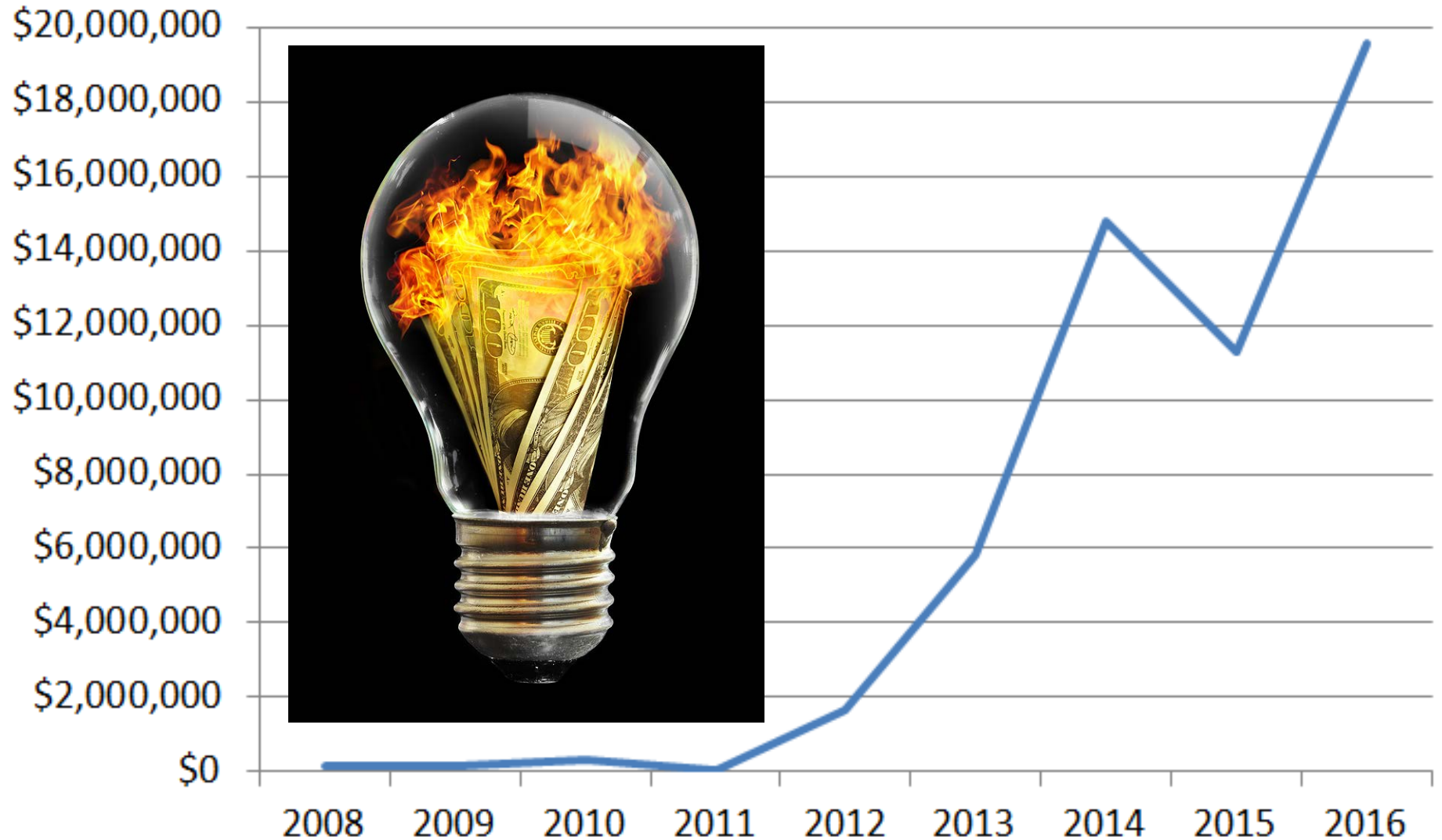
MD Renewable Portfolio Standard

- One of the dirtiest in the nation
- 2006-2015: Maryland ratepayers paid \$125 million to subsidize paper mills, trash incinerators, tree burners, and landfills
- 2015: \$47 million to dirty energy & rising
- 77% of the “Tier I” dirty energy from out of state
- 59% of the “Tier I” renewable energy serving Maryland that is actually produced IN the state of Maryland comes from the state’s two trash incinerators – sources dirtier than coal burning.

MD Renewable Portfolio Standard

- Senate Bill 690 of 2011: moved trash incineration and refuse derived fuel (RDF) from Tier 2 to Tier 1, putting it in competition with wind power
- All other states with multi-tier RPS laws still relegate it to a second tier
- Signed into law by Governor O'Malley the same day that a \$100,000 check was given by the incinerator industry to the Democratic Governors Association he then chaired.
- Instead of incinerator credits expiring in 2018, their value skyrocketed

MD Ratepayer money to trash incinerators via RPS RECs



MD Tier I Renewable Energy Defined:

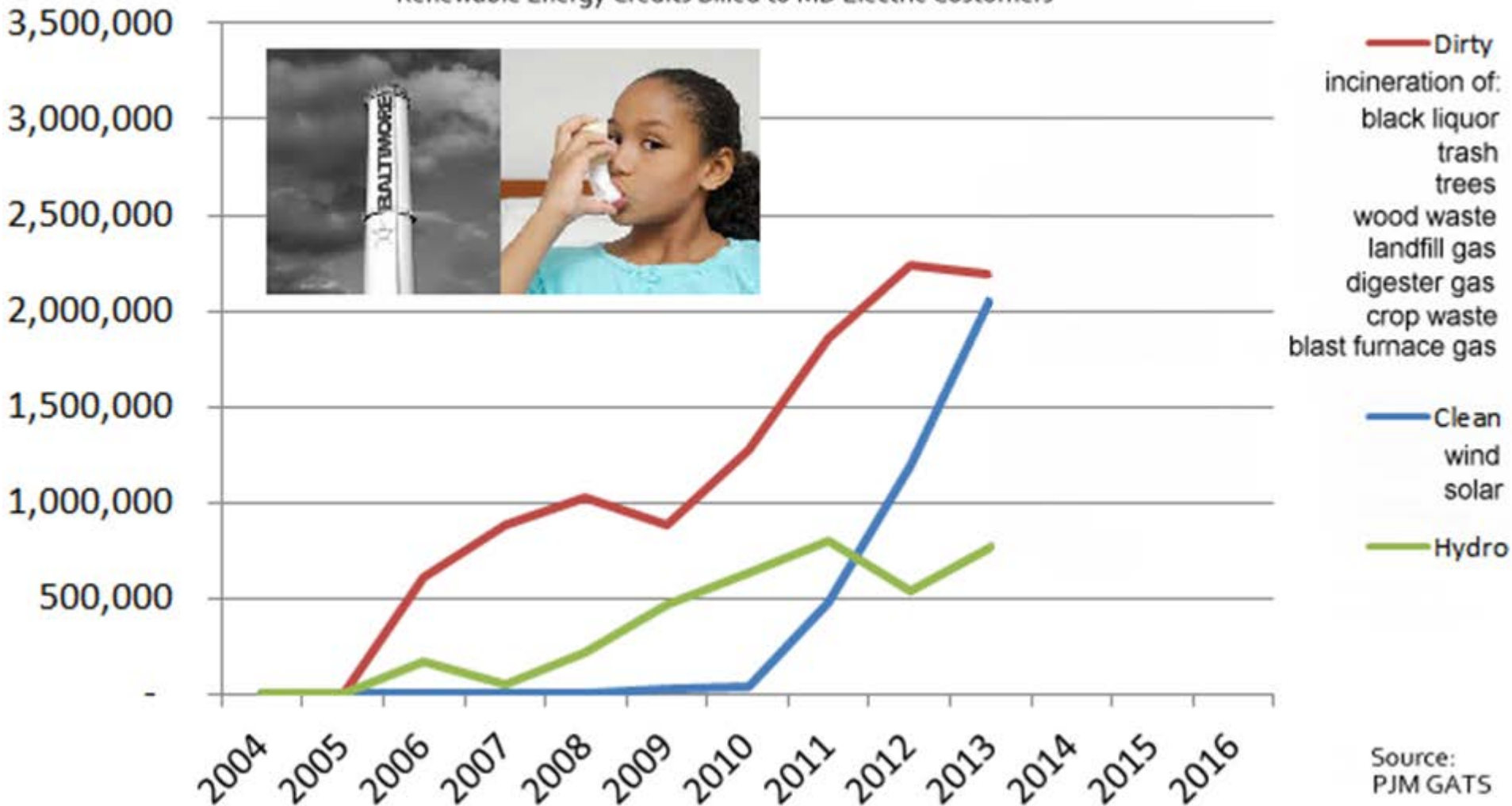
- (1) **solar energy, including energy from photovoltaic technologies and solar water heating systems;**
- (2) wind;
- (3) **qualifying biomass;**
- (4) **methane from the anaerobic decomposition of organic materials in a landfill or wastewater treatment plant;**
- (5) **geothermal, including energy generated through geothermal exchange from or thermal energy avoided by, groundwater or a shallow ground source;**
- (6) ocean, including energy from waves, tides, currents, and thermal differences;
- (7) a fuel cell that produces electricity from a Tier 1 renewable source under item (3) or (4) of this subsection;
- (8) a small hydroelectric power plant of less than 30 megawatts in capacity that is licensed or exempt from licensing by the Federal Energy Regulatory Commission;
- (9) **poultry litter-to-energy;**
- (10) **waste-to-energy;**
- (11) **refuse-derived fuel;** and
- (12) **thermal energy from a thermal biomass system.**

Bold = Has to be MD-based or nearby

Red = Combustion technology

Tier I Renewable Energy in Maryland

Renewable Energy Credits Billed to MD Electric Customers



www.energyjustice.net/md

Tier I Renewable Energy in Maryland

Renewable Energy Credits Billed to MD Electric Customers

3,500,000

3,000,000

2,500,000

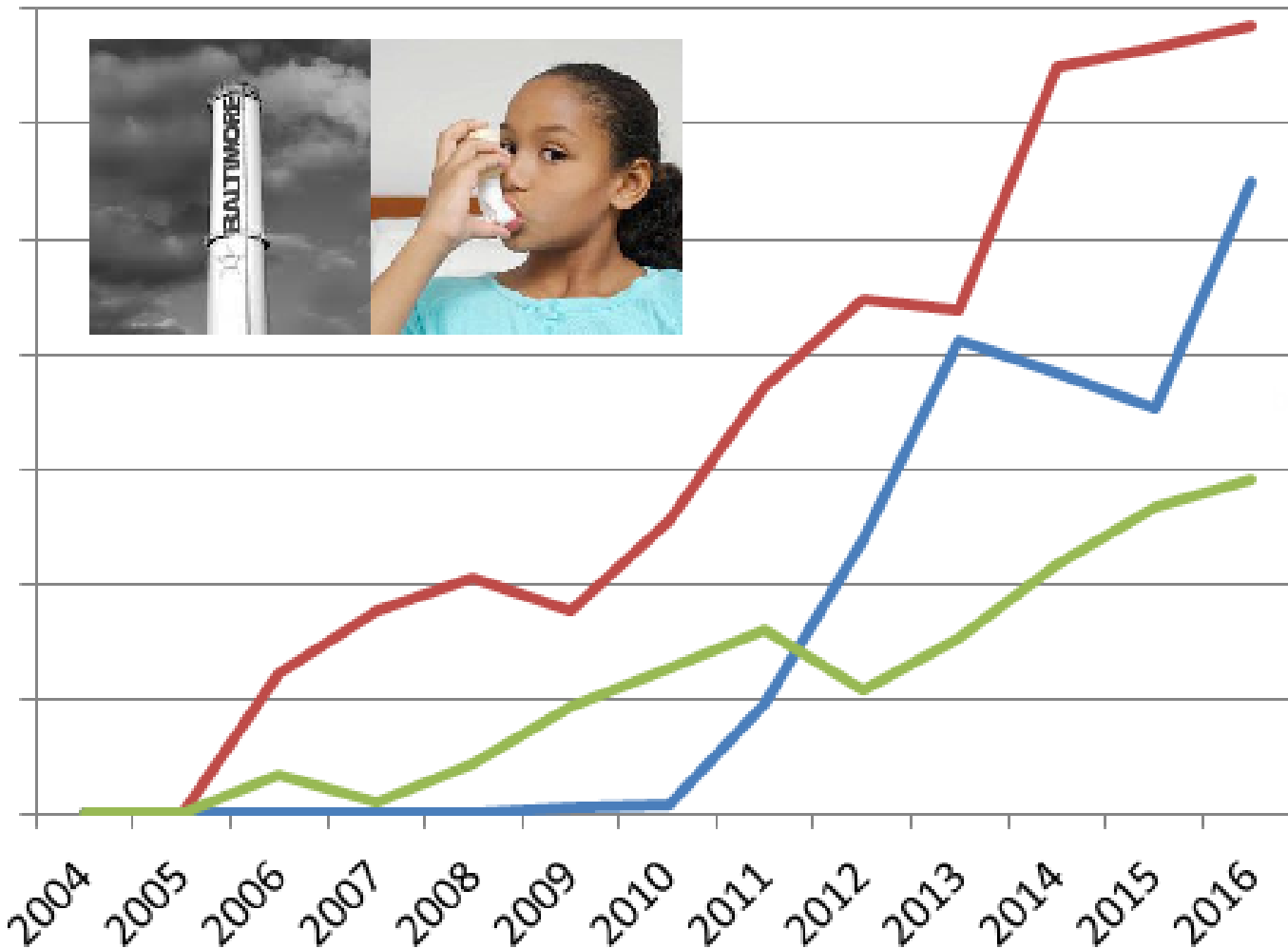
2,000,000

1,500,000

1,000,000

500,000

0



- Dirty
 - incineration of:
 - black liquor
 - trash
 - trees
 - wood waste
 - landfill gas
 - digester gas
 - crop waste
 - blast furnace gas
- Clean
 - wind
 - solar
- Hydro

Source:
PJM GATS

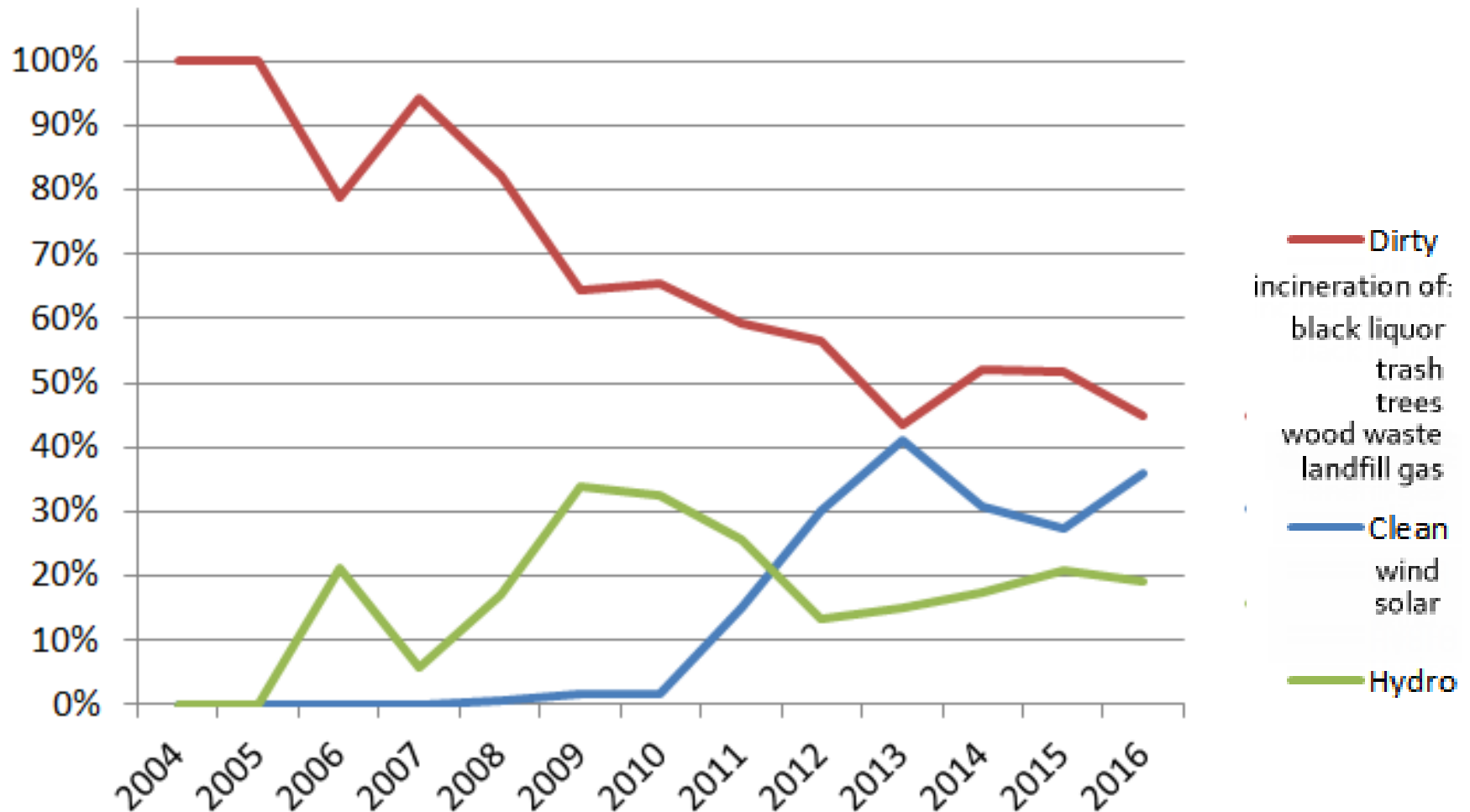
www.energyjustice.net/md



Can Dirty Energy Increase?

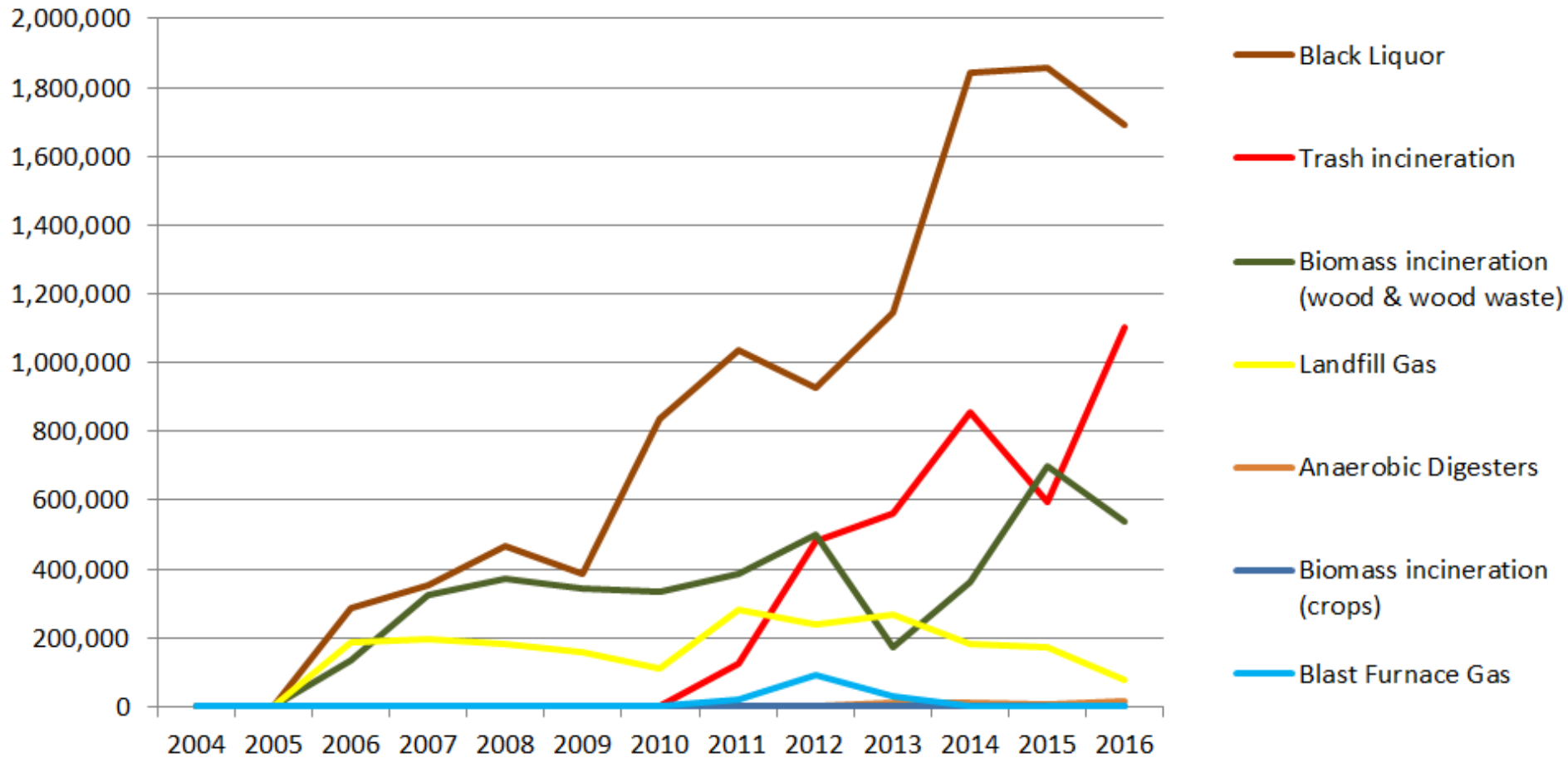
- CCAN argued it wouldn't a few years ago, then it did. They were wrong, and could be wrong again.
- 59% of the 109 burners serving the MD RPS were built or expanded since the RPS began.
- Refuse-Derived Fuel (RDF) Loophole
- Supporting existing dirty facilities is a problem
 - \$47 million in 2015 and rising fast
 - Landfill gas burning distorts the market for waste, competing with composting
- The existence of combustion RECs has led to contracts like the Energy Answers energy contract

Maryland's "Renewable" Energy Mix (by percentage)

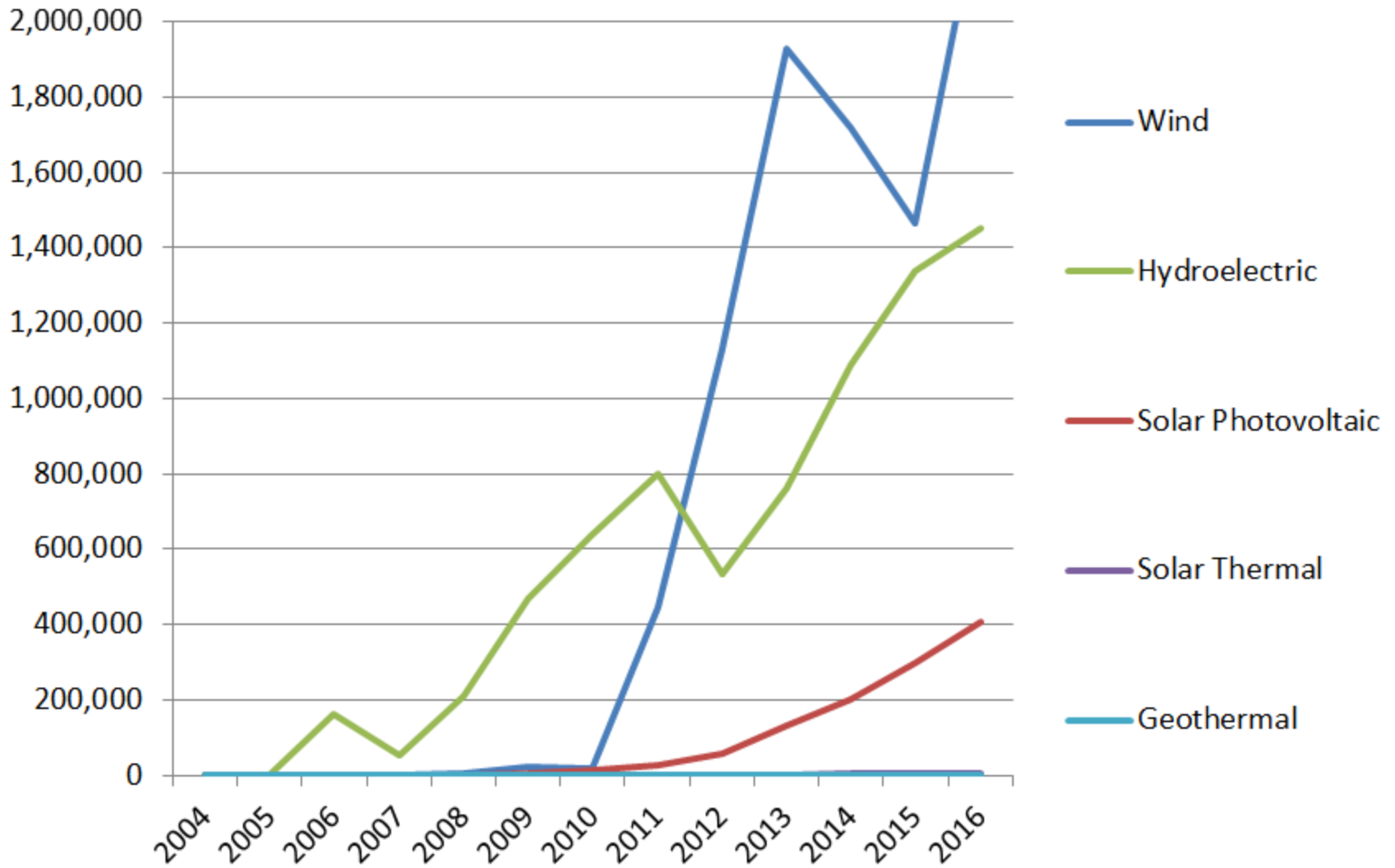


Dirty energy was a majority in every year except 2013 and 2016, when it fell to 44% and 45%, respectively.

Dirty Energy in the MD RPS



Clean Energy & Hydro in the MD RPS



Trash Incineration

- Described as “waste-to-energy” in law
- Most expensive and polluting to manage waste or to make energy
 - Dirtier than burning coal
 - Worse than direct landfilling, and sends toxic ash to landfills
- Competes with zero waste
- \$38 million in RECs (2005-2016)



Trash Incineration

- Wheelabrator Baltimore (Baltimore City, MD)
 - 36% of the city's industrial air pollution
- Montgomery County Resource Recovery Facility (Dickerson, MD)
 - 2nd largest air polluter in county; 17% of total
- Covanta Fairfax (Lorton, VA)
 - 75% of county's industrial air pollution
- Covanta Alexandria/Arlington (Alexandria, VA)
 - Largest polluter in Alexandria; 3rd in Alexandria/Arlington
- In past decade, incinerator proposals faced in:
 - Frederick, MD
 - Baltimore City, MD
 - Prince George's County, MD
 - Washington County, MD
 - Carroll County, MD
 - Wicomico County, MD
 - Washington, DC
 - Stafford, VA



Trash Incineration: Refuse-Derived Fuel (RDF)

- Trash pellets (mostly paper / plastic after glass & metal removed)
- Can be burned in normal incinerators or in coal power plants, cement kilns, paper mills, & other industrial boilers; helps keep coal power plants alive
- Nearly as dirty as normal trash burning. Dirtier when burned in facilities not designed to burn trash.
- Energy Answers facility in Baltimore would have burned RDF
- In region:
 - Large RDF plant in Philadelphia
 - Washington County proposal
 - Martinsburg, WV Entsorga plant



Biomass Incineration

- In Maryland RPS, biomass means burning:
 - Trees
 - Paper and lumber mill residue (including black liquor)
 - Yard waste
 - Pallets, crates and dunnage
 - Agricultural sources (crops, tree farms, grains, legumes, sugars, crop residues)
 - Digester gas from animal waste
- Burning along with coal or other fuels counts
- Thermal biomass: mainly animal waste to make heat, and can include food waste and other “biomass”
- \$24 million in RECs from 2005-2015
- **DOES NOT COUNT:** Old growth timber, sawdust, wood shavings, postconsumer waste paper, or invasive exotic plant species



Biomass Incineration

- Greenhouse gases are 50% worse than coal, but assumed to be zero
- Very expensive
- Biomass burners gravitate to burning wastes (\$)
- Emissions can be comparable to coal
 - Particulate matter comparable, but PM10 and PM2.5 (the smaller, more dangerous kind) is far worse
 - NOx 16% worse
 - Dioxins 7x higher
 - Permits allow biomass to release much more NOx, VOCs, PM, and CO.
- Destroys forests, soils, air, and water
- Toxic ash peddled as fertilizer
- Violations are common
- Fires, explosions, odors, noise, & dust common



Biomass Incineration – Facilities Used

KY	Cox Waste
MI	Hillman Power
MI	Cadillac Renewable Energy
NC	Kapstone Kraft
NC	Cravenswood
OH	Coshocton Mill
PA	Viking Energy
TN	AEP W Kingsport
VA	Hopewell Mill
VA	West Point Mill
VA	Multitrade of Pittsylvania
VA	Covington MeadWestvaco
VA	South Boston
WI	Kaukauna

Bold = stand-alone biomass incinerators.
Others are mills



Black Liquor Burning at Paper Mills

- Has been burned at mills for many decades before the RPS, but mills now cashing on in millions
- Very polluting – toxic dioxins formed from chlorine in bleaching process
- Very high GHGs per unit of energy
- Largest historic recipient of MD RECs (28% of total from 2004-2016)
 - #1 recipient in 9 of 13 years
 - \$67 million from 2005-2015
- Luke Mill in Western MD is only one in MD. Other 11 mills in MI, NC, OH, PA, TN, VA, & WI. Mostly VA.



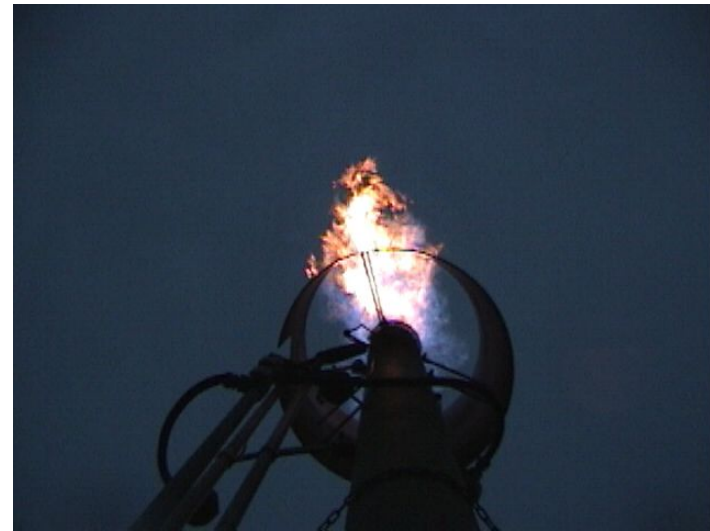
Poultry Waste Incineration

- Limited to in/near Maryland
- None built, despite 20 years of efforts
- Energy Justice Network's has helped communities defeat nearly every proposal in the world, including many throughout the U.S., and led to the folding of the main corporation involved, Fibrowatt
- One large-scale plant built in U.S. – in Benson, MN
 - Failed early emissions tests
 - Was caught illegally burning treated wood
 - Is 10x more expensive than new wind power, leading Xcel Energy to try to lift the state biomass mandate and buy out the town in a deal to close the plant



Landfill Gas

- Landfill gas contains hundreds of toxic chemicals, many halogenated (forming toxic dioxins/furans and acid gases when burned), mercury, and even radioactive tritium.
- Use for energy encourages mismanagement of landfills
- Competes with composting
 - In 2013, Michigan tried to repeal their yard waste disposal ban to intentionally put more yard waste into landfills to make more gas for renewable energy
- Over \$9 million in RECs from 2005-2015
- 71 Landfills in DE, IL, KY, MD, MI, NC, NJ, OH, PA, TN, & VA
 - Includes 10 public landfills in MD

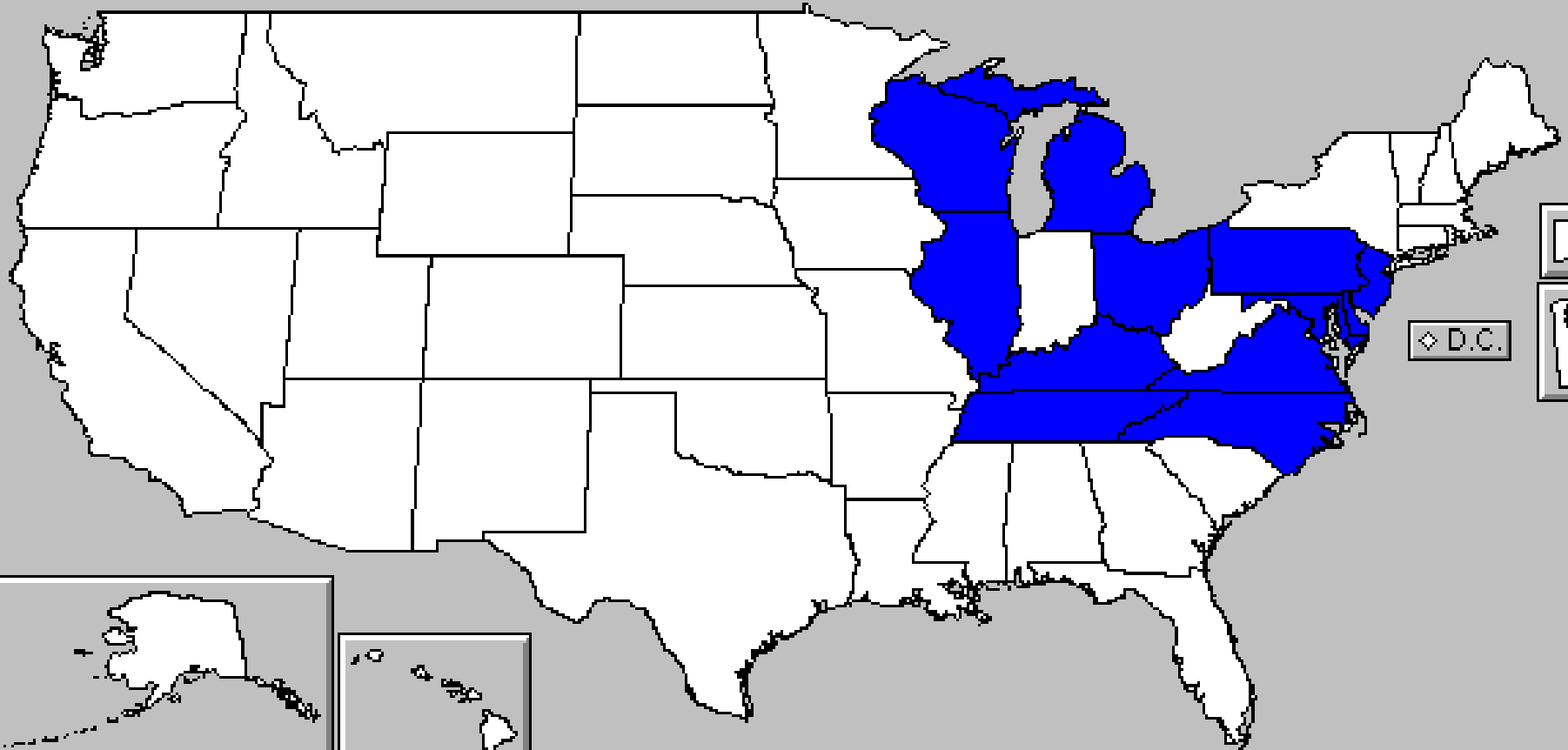


Anaerobic Digesters

- Mostly for cow manure, sewage sludge and food waste
- Subsidizes corporate animal agriculture
- Competes with aerobic composting for food waste
- All 8 facilities are in Ohio
- Only \$300,000 through 2015 (all since 2013)



Where Maryland's "Renewable" Energy Comes From:



Where Maryland's "Renewable" Energy Came From in 2016

<u>Source</u>	<u>In-State</u>	<u>Out-of-State</u>
Wind:	1%	99%
Solar:	100%	0%
Geothermal:	100%	0%
Hydroelectric dams:	2%	98%
Biomass incineration (wood):	0%	100%
Biomass incineration (crops):	0%	100%
Black Liquor burning (paper mills):	4%	96%
Landfill Gas Burning:	34%	66%
Trash incineration:	73%	27%
Anaerobic digester gas:	0%	100%
TOTAL:	18%	82%

MD Renewable Portfolio Standard

- **A better way to grow wind & solar...** Since dirty energy is nearly half of the mandated renewable energy mix in recent years, removing these sources doubles the space for wind, solar and hydro.
- Those who propose doubling the RPS goal risk a continued growth of subsidies to dirty energy sources. Maintaining annual dirty energy subsidies helps keep these facilities open, such as Maryland's remaining trash incinerators that we're organizing to close.

RPS Cleanup Bill

Cuts out 97% of the combustion sources from the RPS:

- 1) Immediately limit eligibility of combustion sources to those facilities currently in the RPS.
- 2) Make trash incineration and refuse-derived fuel credits ineligible by 2019.
- 3) Make out-of-state combustion sources ineligible by 2020.

RPS Cleanup Bill

- 1) Immediately limit eligibility of combustion sources to those facilities currently in the RPS.
- This prevents any new combustion facilities from qualifying, including biomass and poultry waste incinerators. Effective 1/1/2019.

RPS Cleanup Bill

- 2) Make trash incineration and refuse-derived fuel credits ineligible by 1/1/2019.
 - Based on 2016 numbers, this would remove 14.4% of the Tier I resources.
 - Credits already banked can still be sold for the rest of their 3-year REC lifetime.



RPS Cleanup Bill

3) Make out-of-state combustion sources ineligible by 2020.

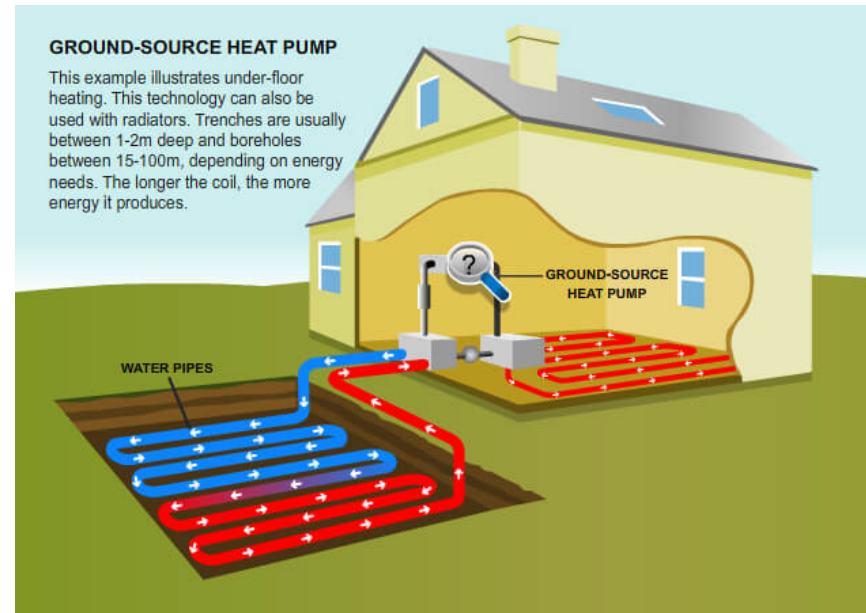
- Based on 2016 numbers, this would remove another 29.2% of the Tier I resources, for a total of 43.7% of the Tier I to be removed, which is 97% of the combustion sources (which were 45% of the RPS in 2016)
- Only combustion sources still eligible will be Luke Mill (black liquor), and 10 county-owned Maryland landfills (landfill gas).
- Credits already banked can still be sold for the rest of their 3-year REC lifetime.

RPS Cleanup Bill

One other small part of the bill...

... allows people to get credits for installing a geothermal system in their home or business if they're replacing a natural gas heating system.

Currently, it only counts if they replace any other type of heating system.



RPS Cleanup Bill – Politics!

The only Maryland facilities that would be removed from the RPS by this bill are the two trash incinerators in Baltimore City and Montgomery County.

Since we have the political winds blowing against both of those plants, the political obstacles are much reduced.

The bill mainly removes dirty out-of-state facilities, in the same way that the RPS already limits 5 of the 12 eligible resources.

RPS Money to Maryland Sources

Facility	2013	2014	2015	2016 (est.)
Luke Mill (Black Liquor)	\$ 591,857	\$ 1,531,981	\$ 945,766	\$ 895,115
Maryland Landfill Gas 10 county landfills)	500,643	540,750	202,575	361,228
Wheelabrator Baltimore Trash incinerator	1,986,678	3,984,984	3,327,217	5,224,232
Montgomery County Resource Recovery Facility Trash incinerator	1,644,995	6,797,399	4,550,699	5,224,232
TOTAL	\$ 4,724,173	\$ 12,855,115	\$ 9,026,257	\$ 11,704,806



A little history...

- 2004: CCAN gets MD RPS bill passed. Energy Justice warned legislators of incineration threat, but was ignored
- CCAN waged multiple unsuccessful campaigns to remove black liquor from RPS
- 2014-2016: Energy Justice, Sierra Club, Food & Water Watch and several other groups pushed to get dirty energy out of the RPS. In 2016, we had our first complete cleanup bill, drafted by Energy Justice and introduced by Sierra Club. An amendment to remove just trash incineration came within one vote of passing the Senate.
- 2016-2017: CCAN and MD Climate Coalition pass bill to expand RPS from 20% to 25%. 2018 campaign for 50%. Food & Water Watch campaign for 100%.

For more info...

MD RPS: www.energyjustice.net/md

RPS Cleanup Bill:

www.energyjustice.net/files/md/2018RPSCleanupBill.pdf

RPS Cleanup Bill flyer:

www.energyjustice.net/files/md/2018RPSflyer.pdf

Trash Incineration www.energyjustice.net/incineration

Biomass Incineration www.energyjustice.net/biomass

Poultry waste incineration www.energyjustice.net/poultrylitter

Landfill Gas www.energyjustice.net/lfg

Anaerobic Digesters www.energyjustice.net/digesters



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