IndivisibleHoCoMD_FAV_SB560
Uploaded by: ALEXANDER, PETER
Position: FAV

Bill No. SB560 – RPS – Eligible Sources to Eliminate Waste Incineration

Name: Peter Alexander, PhD

Position: Favorable

RE: Testimony before the Senate Finance Committee

Date: February 25, 2020

Madame Chair, Mr. Vice Chair, and members of the Committee,

My name is Peter Alexander and I represent the 700+ members of IndivisibleHoCoMD. I am writing in support of SB560, Renewable Energy Portfolio Standard - Eligible Sources, which removes trash incineration from Maryland's Renewable Energy Portfolio. IndivisibleHoCoMD is a member of the Maryland Legislative Coalition, and SB560 is a high priority for MLC.

Burning trash is not clean energy and shouldn't qualify for RPS subsidies which are intended for energy sources such as wind and solar. Trash incineration currently receives the same subsidies as these truly clean energy sources. The fact that trash incineration receives any utility rate payer-funded subsidies is a misappropriation of those utility bill dollars.

To produce the same amount of energy, trash incinerators emit more greenhouse gasses than coal plants do (1). Air pollutants from waste incinerators have also been shown to increase the risk of pre-term births, and lung and blood cancers (2). An Environmental Integrity Project assessment shows that Maryland's incinerators emit higher levels of mercury, lead, nitrogen oxides, carbon monoxide, and carbon dioxide than our coal plants per kilowatt of energy produced (3). A Chesapeake Bay Foundation study found that Baltimore City's trash incinerator emits particulate matter that creates adverse health effects that cost people in our region over $55 million every year (4).

Burning and burying our waste are not the only options. Recycling, composting, re-use, and source reduction can eliminate the need to burn or bury so much waste. Composting is a sustainable

alternative to landfills and incinerators, with many benefits to air and water quality, soil health, local business development, and fighting climate change.

A waste characterization study by Prince George's County found that 77% of its landfilled waste could be composed, recycled or diverted (5). The county has adopted successful zero waste strategies that have extended the life of the county's landfill and the county is now home to the East Coast's largest municipal composting facility, a profitable revenue stream for the county.

Last year, the Frederick County Compost Workgroup launched a pilot program to work with students in three county schools to divert their waste for composting (6). This year, they've expanded to 14 schools. In a waste separation study at Urbana Sugarloaf Elementary School, they found that 87% of the school's trash could be diverted from the landfill (7).

Composting Maryland's organic waste could reduce our waste stream while creating exciting opportunities for local business development. As an added benefit, compost sequesters carbon and builds healthy soils. Composting even creates jobs: composting a ton of waste in Maryland employs twice as many people as landfilling it, and four times as many people as incinerating it.

Let's stop subsidizing trash incineration as a so-called clean energy source and use those subsidies to support truly clean energy sources while developing viable alternatives for diverting waste from our landfill.

We urge a favorable report.

References

(1) http://www.energyjustice.net/incineration/climate

(2) Tait, et. al., (2020). The health impacts of waste incineration: a systematic review. Australian New Zealand J. Publ. Health. 44(1):40.48.

(3) EIP Report: Waste-to-Energy Incinerators Pollute More Per of Hour of Energy than Coal-Fired Power Plants and Are Not Renewable; Oct 2011.

(4) Thurston, G.D. (2017). Written Report of George D. Thurston Regarding the Public Health Impacts of Air Emissions from the Wheelabrator Facility.

(5) SCS ENGINEERS (2016). Waste Characterization Study Summary of Results 2014/2015, File No. 02201056.95. June 2016.

(6) https://frederickcountymd.gov/1739/Composting

(7) https://www.fredericknewspost.com/news/education/schools/public_k-12/elementary/foodwaste-biggest-hurdle-still-to-come-as-fcps-expands/article_a6d398f5-0bee-54bf-9524254e6f4331e5.html

TerrelAskew_FAV_SB560
Uploaded by: ASKEW, TERREL
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

My name is Terrel Askew and I'm a Leadership Organizer with United Workers. I'm a lifelong Baltimorean, residing in the 43rd district. I have at least two people in my family who suffered from asthma: my aunt and her son. They lived in East Baltimore, along the truck routes where the trash is hauled to the incinerator. They are both gone now, I may never know just how much the trash burning affected them.

Maryland needs to remove Incineration from its RPS because incineration is a 19th century solution to a 21st century problem. We are producing more goods than at any other time in history. A great deal of these products are not reusable and have a limited shelf life, which is completely unsustainable. Their production is a drain on our natural resources and their consumption provides more waste for landfills.

Incineration does nothing to address this growing problem, and to the contrary, encourages us to buy more. What it does do is take away precious resources from alternatives like composting and recycling, which would reduce our current waste; and policymaking that would reduce our litter stream. If this was all the harm, these subsidies would be fiscally irresponsible; but no, it gets worse.

Burning our waste releases harmful toxins such as mercury, lead, carbon monoxide, nitrogen oxide, and fine particulate matter into the air we breathe and the water sources we depend upon. These substances are known to cause respiratory issues such as asthma, as well as birth defects, cancer, heart problems, and even death.

Given their locations, the communities that suffer the most are usually low income and persons of color; not to mention animal life, who have little say in the matter. The Environmental Integrity Project released a report that showed that Baltimore City’s rate of asthma hospitalizations is more than twice the state's, and nearly 3x the nation’s. So what we as ratepayers are actually subsidizing is the decimation of our own communities, both marine and human.

And for what? Due to the by-products of incineration, we are still using landfills to bury the two types of ash created. Amounting to about a third of the total waste, fly ash and bottom ash require special hazardous landfills to dispose of them properly. This creates a possibility for further contamination of the soil we use to grow our food. This is a recipe for disaster, one that we could be minimizing by building up our zero waste infrastructure. We in Baltimore City have already started to do just that. The Commission on Sustainability has released a plan for zero waste, the Mayor is focused on doubling recycling rates and there is ongoing discussion about locating a public composting facility in the city.

Actual clean, green energy sources like wind and solar provide more jobs than incineration, and are healthier choices for us and our planet. Similarly, zero waste jobs such as recycling and composting create five to ten times more jobs than incineration ever could. We need only to act: to stop subsidizing our fears and misinformation, put that money toward strengthening the zero waste infrastructure we already have, and to stand firm with the communities, human and animal, man-made and nature-made, with whom we share our most basic resource...the earth. Please support HB438/SB560. Thank you.

EllenBarfield_FAV_SB560
Uploaded by: BARFIELD, ELLEN
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a resident of District 43 and a Maryland ratepayer, I am writing to express my VERY strong support for HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is NOT clean energy, and Maryland's renewable energy subsidies should ONLY be used to support TRULY green energy like wind, solar, geothermal, tidal, NOT trash incineration which pollutes our air.

My beloved husband, a long-time and worsening asthma sufferer, died in June of 2016 of a heart attack while he was trying to use the asthma nebulizer he had had to use for the last few years as his breathing got worse. Mercury, particulates, ozone, all result from burning mixed trash. That is in NO WAY CLEAN.

A Chesapeake Bay Foundation-commissioned study showed that over $55 million a year in adverse health effects are caused by fine particulates emitted by the BRESCO incinerator. Of course there is NO price which can be placed on my sorrow. That study also showed that living near the incinerator is like living with a smoker. Neither he nor I smoke or smoked, but we couldn't and can't help breathing the incinerator's foul emissions. Cells in our bodies damaged by pollution sadly don't have little flags showing what poison or poisons did the damage, but I have absolutely NO doubt the BRESCO incinerator contributed to my husband's death.

For all of these reasons and many more, I STRONGLY urge the House Economic Matters Committee and Senate Finance Committee to support HB438/SB560 and END subsidies for trash incineration in Maryland. Thank you.

Sincerely,

Ellen E Barfield
814 Powers St
Baltimore, MD 21211-2510

EmilyBryson_FAV_SB560
Uploaded by: BRYSON, EMILY
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a resident of Baltimore City and a Maryland ratepayer, I am writing to express my strong support of HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities.

As a nurse in the Pediatric Emergency Room at the University of Maryland Medical Center I see children living with asthma everyday. Children that need to miss school regularly because of their asthma exacerbations. I see the stress that it causes parents when they need to miss work to care for their child in the hospital and, on occasion, the trauma that families have to deal with when a patient doesn't survive despite emergent efforts. These are especially heartbreaking days at work because asthma is a product of environment and exacerbations are preventable.

The citizens of Baltimore city deserve a right to air without the triggering chemical pollution that comes from incineration. Baltimore city has double the rate of asthma compared to the rest of Maryland and the fact that many of our patients live in the shadow of the Bresco incinerator is not a coincidence. Fine particle air pollution from the BRESCO incinerator causes over $55 million in adverse health effects annually, according to a study commissioned by the Chesapeake Bay Foundation. Breathing in the particulate matter that is emitted from the incinerator causes increased risk for asthma exacerbations and other health complications. The fact that Maryland continues to support incineration with subsidies due to the Renewable Portfolio Standard is simply an environmental injustice that you should not allow to continue.

For all of these reasons and many more, I urge the House Economic Matters Committee to support HB438/SB560 and end subsidies for trash incineration in Maryland. Thank you.

Sincerely,

Emily Bryson
606 Jasper Street
Baltimore Md 21201

CouncilmanKrisBurnett_FAV_SB560
Uploaded by: BURNETT, COUNCILMAN KRISTERFER
Position: FAV

BALTIMORE CITY COUNCIL
KRISTERFER BURNETT, 8th District
Committees: Executive Appointments, Housing and Urban Affairs, Public Safety, Education and Youth

Room 521, City Hall
100 N. Holliday Street
Baltimore, Maryland 21202
Office: 410-396-4818
Fax: 410-396-4828

BILL NO: HB438 / SB560
TITLE: Renewable Energy Portfolio Standard - Eligible Sources
COMMITTEE: House Economic Matters Committee and Senate Finance Committee
POSITION: **SUPPORT**

As a member of the Baltimore City Council I am dedicated to transitioning Baltimore toward zero waste practices. I am writing today to urge you to support HB438/SB560 to remove trash incineration from Maryland's Renewable Portfolio Standard and end the practice of providing subsidies to trash incineration, including Baltimore's trash incinerator.

BRESCO began burning trash in 1985 and it has contributed significantly to air pollution in our region. According to a study commissioned by the Chesapeake Bay Foundation, in fine particulate air pollution alone, incinerators cause over $20 million in adverse health effects.

Baltimore is making enormous strides to improve air quality through the passage of the Clean Air Act and transitioning toward zero waste systems that will improve our local environment and build our local economy. However, continued subsidies from the State create artificial profitability for incinerators to operate and that profitability could create incentives to build a new incinerator in the Baltimore region which would have enormous negative impacts on our City.

Trash incineration is not clean energy and should never have been included in Tier 1 of Maryland's Renewable Portfolio Standard. Since it was added to that category in 2011, incinerators has received millions of dollars in subsidies paid by ratepayers across Maryland masking the true cost of incineration to our communities.

Instead of utilizing the Renewable Portfolio Standard for what it was enacted to support – wind and solar power. The subsidies have been put towards incinerators. If those subsidies were redirected towards development of renewable energy, Baltimore residents would benefit with new, living wage jobs building and installing solar panels across the city and participating in the offshore wind industry as it develops at Sparrow's Point. Let our renewable energy subsidies do more to support these developing industries, not to artificially prop up an aging, polluting facility.

In January 2019 my colleagues and I on the Baltimore City Council overwhelmingly voted for Resolution 19-0123 (attached), requesting that the state take action to remove trash incineration from the Renewable Portfolio Standard as part of the Clean Energy Jobs Act. I

understand that the State's Clean Energy Jobs Act passed last year with that language removed, allowing subsidies for incineration to continue and even increase in the future.

I urge you to honor Baltimore's hard work to improve our air quality and move toward a zero waste future by completing last year's unfinished business and supporting HB438/SB560.

Sincerely,

Kristerfer Burnett
City Councilmen District 8
Baltimore City

AllieBusching_FAV_SB560
Uploaded by: BUSHING, ALLIE
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a voter in district 43 and a Maryland ratepayer, I am writing to express my strong support of HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. I respectfully encourage the committee and leaders in Maryland to pursue truly clean, renewable, and sustainable waste reduction and energy solutions in lieu of incineration.

As a resident of Maryland, one of the things I appreciate most about living in this state is the opportunity to get out and enjoy our beautiful parks and natural resources. Not everyone has that luxury. Communities located closest to the BRESCO incinerator are facing hazardous air quality levels and significantly higher rates of asthma as a result of the pollutants put into the air by burning trash. By continuing to subsidize incineration we are forcing people to pollute their own communities. In total the adverse health outcomes associated with incineration are estimated to cost our state $55 million. And we're not only putting people's immediate health at risk; incineration has greater greenhouse gas emissions per unit of energy than burning coal-- putting our entire state at greater risk from the accelerating impacts of climate change.

As a resident of Baltimore, and someone involved in the green sector, I am excited by the economic possibilities in renewable energy industries. We have the potential to use untapped skills in our labor pool, to put people back to work in living-wage careers in wind and solar and create new opportunities through zero waste strategies. Expanding recycling and composting has the ability to create 5-10 times more jobs than incineration. Jobs in the solar industry have grown locally and have been accessible and attractive to many Baltimoreans, with low-barriers to entry and opportunities for strong career pathways. Baltimore is already on a path to zero waste with commitments from Mayor Pugh in the 2019 Office of Sustainability plan-- continuing to subsidize incineration would be counterproductive to these more sustainable strategies.

Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities. I respectfully urge the House Economic Matters Committee to support HB438/SB560 and end subsidies for trash incineration in Maryland. Thank you.

Sincerely,

Allie Busching

TJButler_FAV_SB560
Uploaded by: BUTLER, TJ
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

Dear Senators and Delegates representing the diverse areas and interests of the state of Maryland:

My name is TJ Butler and I live in the Hampden area of Baltimore. I rarely drive, so I do not get the opportunity to always see the BRESCO/Wheelabrator incinerator, the "Welcome Sign" for Baltimore. As one of the delegates pointed out, it's a little weird to have a flaming pile of trash as your welcome sign, but Baltimore is certainly a special place. Although I don't see BRESCO, I do get to smell it. As the city's largest air polluter contributing $55 million to adverse health costs, I worry about the damage I do to myself by trying to live a more sustainable life through commuting by bike. I choose to bike to work as an effort to save money, because one day I would like to invest in a community solar project within the city. It could give Baltimore residents preferential access to affordable energy, ideally financed in a community-ownership model. In order to do that though, we would likely need a little bit of stimulus from the local and state levels.

Speaking of help with the funding, currently BRESCO/Wheelabrator gets millions of dollars to burn trash from ratepayers. Instead of helping fund the incinerator, we could remove subsidies for trash incineration through **HB438** and **SB560** and use that money to support truly green energy. There are quite a few solar-oriented businesses operating right in Maryland including Neighborhood Sun and Navitas Solar, who both have interesting business models and have great opportunities to absorb additional funding and create many additional jobs. These companies, with additional funding, will provide new jobs and grow to meet solar and wind demand in the city of Baltimore and the state of Maryland in general, without the high levels of pollution BRESCO/Wheelabrator currently generate (more greenhouse gas per unit energy than coal).

Speaking of jobs, over 80% of what the incinerator burns could be composted or recycled. This would reclaim the utility of these materials to be used as food for the soil and inputs for other industrial processes. An example of this in action is the Filbert Street Garden and Baltimore Compost Collective. What are issues that bring people together? Jobs? Youth empowerment? The circular economy? Becoming resilient in the face of climate change? The Baltimore Compost Collective with Filbert Street Garden addresses all of these issues by composting food scraps locally, employing youth from the local high school to create "black gold" that gets used right onsite at the garden, which then produces agricultural goods that are sold at farmers markets within the city. Now what if Baltimore and the state of Maryland used resources to grow these home-grown businesses, rather than a polluting giant that is already old and highly automated limiting future job growth?

Speaking of composting and recycling, the city has taken several initiatives to show support for a Zero Waste program. The 2019 Sustainability Plan has a goal of diverting 90% of its waste from incinerators and landfills. What's interesting is that this is almost a trailing goal: recycling rates could be improved by providing free recycling bins, composting companies and community gardens are leading the way, and Styrofoam bans along with bans of other single-use materials are going to make this a non-negotiable reality being built right now. It seems like a good time to hop aboard the sustainable, just economy train.

Look committed to your constituents by supporting the removal of public subsidies for trash incineration. By removing these subsidies for incineration and putting them toward truly clean energy, we can help create jobs in the clean energy and zero waste economies and ensure that Maryland ratepayers are no longer forced to pay to pollute our own air.

Please support HB438/SB560 and end subsidies for trash incineration in Maryland. I'm very excited by the possibilities in the green economy. Thank you very much for your time.

Sincerely,
TJ Butler

GoGreenOC_FAV_SB560
Uploaded by: CHAMBERLAIN, JOSHUA
Position: FAV

GO GREEN OC

Testimony Supporting HB438 / SB560
House Environment & Transportation Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a grassroots organization of residents and businesses working to help Ocean City become the first zero waste resort town in the United States, we urge you to support HB438/SB560 and remove trash incineration from Maryland's Renewable Portfolio Standard. Maryland should not be subsidizing trash incineration in the Renewable Portfolio Standard; burning trash is simply not a source of clean energy. We don't need it to generate electricity, and we don't need it to dispose of our waste. Our efforts and the work of similar organizations across the state demonstrate that Maryland can build alternatives to trash incineration that are better for both the economy and the environment.

Ocean City sees over 300,000 visitors on a nice summer weekend, and all of those people currently produce a lot of trash. Right now, Ocean City is shipping that trash to an incinerator in Chester, Pennsylvania, the largest trash incinerator in the country. That facility has an enormous detrimental impact on the surrounding community. PBS reported in 2017 that 38.5% of children in Chester have asthma; that's nearly five times the national average. A quarter of the town's adults also have asthma. Furthermore, Chester residents are significantly more likely to develop lung cancer and ovarian cancer and die from a stroke or heart disease than other residents of their county. We don't like that Ocean City's trash is contributing to this environmental injustice - and so we decided to do something about it.

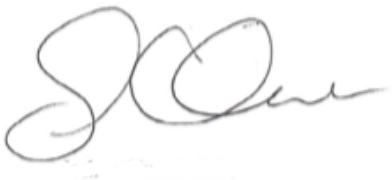
Our Director of Compost Operations, Garvey Heiderman, is the owner of The Hobbit Restaurant. In 2018, we piloted a compost program there that collected almost 2,000 pounds of waste in four weeks. We were able to take over 50% of the waste produced by The Hobbit and divert it to be composted at a farm in Berlin. In 2019, we raised over $8000 to support program growth and in 2020 we plan to build even further and process over 20,000 pounds of food waste produced by The Hobbit. Restaurant composting can quickly and efficiently get enormous amounts of food scraps out of the waste stream, and onto farms where it benefits the farmer. Compost can bring back cropland that has been desolate and drained of nutrients for years. From our coastal point of view it is phenomenal for preventing runoff from leeching into the groundwater and into the watershed, helping to protect our local quality and the Chesapeake Bay.

But not all waste can be composted - so in the fall of 2019, we sponsored the first zero-waste event in Ocean City with OC Bikefest, one of the nation's largest motorcycle festivals. Our members and volunteers worked hard to educate festival goers about recycling and to keep recyclable materials out of the trash cans, and by the end of the event, we had collected over 26,000 cans to be recycled: enough to fill a 30-foot-long moving truck! When OC Bikefest comes back in 2020, we plan to eliminate all plastics at the festival and reduce the event's waste by 65%.

Through scaling up these zero waste programs, we plan to save Ocean City money. Covanta charges nearly $70 per ton to take our waste and burn it at the Chester trash incinerator. We hope to be able to scale composting up to the point where we can do it for substantially less and in turn save the town money. It will also have a positive impact on the town's image enhancing their green efforts - who wouldn't want to come to the first zero waste resort town in the United States? We also want to create local jobs through zero waste in Ocean City. In 2010, Ocean City decided to eliminate recycling pickup, and 20 local residents lost their jobs in that sector. By composting, we plan to create 10-15 local jobs. Studies show that on a per-ton basis, composting employs 2x more workers than landfills and 4x more than incinerators. We want those jobs to benefit Eastern Shore residents and improve our economy and environment.

Continuing to subsidize trash incineration is counterproductive to this goal. Maryland doesn't need to throw our renewable energy money away on burning trash. The alternatives to trash incineration are better for our communities in every way, and groups like ours across the state are making it happen. Please support HB438/SB560 so that these subsidies won't stand in the way of building a better zero waste future.

Sincerely



Joshua Chamberlain

Founder, Go Green OC, Inc
Gogreenoccampaign@gmail.com

VictoriaClark_FAV_SB560
Uploaded by: Clark, Victoria
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a resident of your district, I am writing to express my strong support of HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities.

As an 18-year-old high school student, the dangers of climate change cause me to worry about my future. What if there is a natural disaster in my state? How will I comfortably live if a drought or heat wave occurs? I can't choose to raise a family by the ocean, because sea levels are rising. How will grocery stores be impacted if agriculture in my state is compromised? And will all of these worries follow me for the rest of my life? The answer is yes if we don't take action to prevent the irreversible effects of climate change. One way you can do your part is vote to support HB438 / SB560. Trash incinerators are one of the silent contributors to climate change.

- *Coal power plants are seen as the biggest enemy to climate change, however trash incinerators emit 2.5 times as much carbon dioxide, 28 times as much as dioxin, 5 times as much as carbon monoxide, 3 times as much as nitrogen oxides, 6-14 times as much as mercury, nearly 6 times as much as lead, and 70 percent more sulfur dioxides as a coal power plant to create the same amount of energy*
- *Incinerators release dioxins which are the most lethal Persistent Organic Pollutants*
- *Air pollutants from waste incinerators increase the risk of preterm births, cancers of the blood and lung, reproductive, neurological, and thyroid defects, and respiratory issues.*
- *Incinerators are incredibly expensive (roughly 100 million dollars) and have a short life-span*

For all of these reasons and many more, please support HB438/SB560 and end subsidies for trash incineration in Maryland. Thank you.

Sincerely,

Victoria Clark

SteveCleghorn_FAV_SB560
Uploaded by: CLEGHORN, STEVE
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a resident of the 43rd district in Baltimore, as a member of the St Matthew Catholic Church Green Team and Maryland Catholics for Our Common Home, and as one who can see the BRESCO incinerator looming over downtown neighborhoods from my house near Johns Hopkins Homeland Campus, I am writing to express my strong support of HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities.

These other ways of generating clean energy, as an urgent priority, need our investment. Coupled with reducing waste, recycling and composting, we can hand on a sustainable world to our children and their children's children. We have to take the long view and must get out of the business of "permitting" any amount of poisons and harmful particulates to pollute our air. Our planet and its atmosphere have a lot of healing to do. We don't have to poison and pollute anymore now that we have better and clean ways of meeting our energy needs.

And so, I urge the House Economic Matters Committee and Senate Finance Committee to support HB438/SB560 and end subsidies for trash incineration in Maryland.

Thank you.

Sincerely,

J. Stephen Cleghorn, PhD
310 Ridgemede Rd

SharonDavlin_FAV_SB560
Uploaded by: DAVLIN, SHARON
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a resident of the 42nd district and a Maryland ratepayer, I support HB438 / SB560 and all efforts to remove trash incineration from Maryland's Renewable Portfolio Standard (RPS). Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar. Baltimore's Bresco Incinerator is the City's largest source of industrial air pollution and gives off over 600,00 metric tons of carbon dioxide a year. The risks of incinerating household and commercial waste are proven.

Trash Incineration harms our health, lowers life expectancy, and causes health care costs to skyrocket. Trash incineration blights neighborhoods and depresses property values. Trash incineration has harmed the climate and will continue to do so unless we put a stop to it.

My family moved to Baltimore from upstate New York in the late 1980's. Our eyes, noses and lungs immediately noticed the City's air pollution. Our medical and pharmacy bills rose significantly. In the early 1990's I had the opportunity to tour one of the causes of this pollution, namely the BRESCO Incinerator. I also visited the Quarantine Road landfill where I took samples of the output of the BRESCO and Pulaski Highway incinerators. These increased my concern about the air pollution we were breathing in every day. Along with many concerned residents I campaigned and rallied for the closure of the Pulaski facility. It finally shut down in 1995 -- 24 years ago. BRESCO has continued to poison our air for all those 24 years. In spite of this, incinerators were added to the list of Tier 1 renewable energy sources in 2011. As "renewable energy" BRESCO has qualified for subsidies ever since. We must put an end to this ripoff. No one should have to pay to pollute their own community.

I am convinced that climate change is the most important issue in human history. If we don't act immediately to move toward 100% clean energy, our children and grandchildren will not have a future. They understand how crucial it is to change the status quo and to do it now. Their school strikes, rallies, marches et al. are not stunts. They are scared to death. Removing incinerators from Tier 1 of Maryland's RPS is an important step toward increasing our State's commitment to addressing climate change. In itself HB 961 will not close down incinerators, but the millions spent on subsidies can be applied to alternative clean methods of trash disposal. There are models for doing just this throughout our State.

Baltimore city's 2019 Sustainability Plan includes the goal of diverting 90% of waste from incinerators and landfills and increasing recycling form 20 to 80 percent. In Carroll County, New Windsor is piloting a "pay as you throw" program that, as of January, resulted in a 44% decrease in solid waste. Prince George's County hosts the East Coast's largest composting facility and boasts the highest waste diversion rate in the State. Communities across Maryland are working actively to develop the recycling, composting, reuse, and reduction programs to manage waste streams in ways that are less polluting and more cost-effective than trash incineration.

For all of these reasons and many more, I urge the House Economic Matters Committee and Senate Finance Committee to support HB438 / SB560 and end subsidies for trash incineration in Maryland. Thank you.

Sincerely,
Sharon Davlin

BillDusold_FAV_SB560
Uploaded by: DUSOLD, WILLIAM
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a resident of district 32 and a Maryland ratepayer, I am writing to express my strong support of SB438/HB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities.

SB438/HB560 personally affects me because I have asthma. Burning trash makes my asthma worse. I work in Baltimore for the Maryland Department of Health, and I live in Anne Arundel County. Both Baltimore City and Anne Arundel County, as well as Carroll County, Harford County, Howard County, and Howard County, do not meet federal air quality standards for ozone under the Clean Air Act. Ground-level ozone causes asthma attacks, and is formed when nitrogen oxides combine with other chemicals in the atmosphere. The BRESCO trash incinerator, located about two miles from my office, generates more nitrogen oxides pollution than any power plant in Maryland, based on the amount of energy it produces. It's wrong for subsidies that I pay for to go toward a facility that pollutes my home and workplace, and makes my asthma worse.

Fine particle air pollution from the BRESCO incinerator causes over $55 million in adverse health effects annually, according to a study commissioned by the Chesapeake Bay Foundation. Incineration produces more greenhouse gas emissions per unit of energy than coal plants, according to the Environmental Integrity Project. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities.

For all of these reasons and many more, I urge the Senate Finance Committee and House Economic Matters Committee to support SB438/HB560 and end subsidies for trash incineration in Maryland. Thank you.

William DuSold

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Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a Maryland ratepayer from District 41 in the city, I write urging you to vote in favor of HB438 / SB560. This would remove trash incineration from the Maryland Renewable Portfolio Standard. Burning trash is just as dirty as it sounds! It does not provide clean energy. These subsidies should be reserved for green energy like solar and wind, and not for polluting industries like trash incineration.

I am kept awake at night by climate change, and believe strongly that it is the responsibility of my generation to do everything within our power to put the brakes on it. It t is within our power to take subsidies away from polluting industries so that green energy can have that support instead. Incineration produces more greenhouse gas emissions per unit of energy than coal plants, according to the Environmental Integrity Project. It is anything but green.

In addition I know too many city residents who have asthma, including the little sister of the boy I mentor, who are growing up in southwest Baltimore. The fine air pollution from the BRESCO incinerator causes over $55 million annually in adverse health effects, according to a study by the Chesapeake Bay Foundation. Living near it has the same health impact as living with a smoker.

And there are alternatives. New clean energy could be made possible by removing the "waste-to-energy" incineration from the RPS. This would reduce a huge source of Baltimore's carbon emissions.

We should not pay BRESCO to pollute our air and exacerbate climate change by producing more greenhouse gas per unit of energy than coal.

These are just a few of the reasons of which I have many more to urge the House Economic Matters Committee to support HB438 / SB560 and end subsidies for trash incineration in Maryland. Thank you.

Sincerely,

Bonny Eisenbise

Energy Justice Network_FAV_SB560
Uploaded by: Ewall, Mike
Position: FAV

Energy Justice Network

February 25, 2020

Comments before Senate Finance Committee

FAVORABLE

Senate Bill 560

Renewable Energy Portfolio Standard - Eligible Sources

Mike Ewall, Esq.
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www.EnergyJustice.net

Good afternoon. My name is Mike Ewall, and I'm the founder and director of a national organization, Energy Justice Network. Energy Justice works at the local level with grassroots community groups in Maryland and the rest of the country to support efforts to promote zero waste, and to stop polluting and unnecessary energy and waste industry facilities, with a focus on ending waste incineration.

Trash incineration is the most expensive and polluting way to manage waste or make energy. It's far dirtier than coal, releasing many times more dioxin, mercury, lead, CO_2, and nitrogen oxides. It's also far more polluting than landfills, and sends toxic ash to landfills, making them more dangerous. Compared to landfills, trash incineration is WORSE for global warming, smog, and for emissions of toxic chemicals, particulate matter, acid gases, and the nitrogen oxides that trigger asthma attacks.

There are three trash incinerators profiting handsomely from renewable energy credits: Wheelabrator's incinerator in Baltimore City, and the Covanta-run incinerators in Montgomery County and in Fairfax County, VA. They're the largest air polluters in each of these jurisdictions. One year ago, Baltimore City Council unanimously passed the Baltimore Clean Air Act, which will force the closure of the Wheelabrator Baltimore trash incinerator because the company cannot afford to comply and isn't even trying to. Baltimore City is determined to end its use of incineration, as expressed in several unanimous council resolutions and more. Montgomery County's County Executive is determined to close their incinerator as soon as possible. Both the city and county have gone on record opposing renewable energy credits for incineration, even though Montgomery County is the direct recipient of such credits, as the owner of one of them. The only reason to keep trash incinerator credits in the RPS is to keep sending millions of dollars to the largest air polluter in Fairfax County, VA, whose emissions blow into Maryland.

The main reason Covanta is here opposing this bill is not because of their contract to operate the county-owned incinerator in Montgomery County, where the county gets the credits. It's because they own and operate the nation's 3rd largest incinerator in Fairfax County, VA. That 3,000 ton/day incinerator is the largest industrial air polluter within 20 miles of DC – a facility so filthy that their home state of NJ singles them out as disqualified to sell the RECs to NJ. Covanta directly gets millions of Maryland dollars each year for their Virginia incinerator, and doesn't want to lose Maryland's subsidy to this out-of-state polluter.

Please do not carve out exemptions for Acoya Energy or any other companies trying to cash in on incinerator-like technologies. Their steam reforming system is ultimately a type of incineration where the resulting gases are burned, either on-site or as fuels elsewhere. They're also not competitive, as they admitted when they testified to the House their need for subsidies.

Landfills: It's only fair that if we stop subsidizing incinerators, we should stop subsidizing landfills. Landfills in Maryland and 10 other states have been getting smaller amounts of subsidies over the years. Landfill gas is about half methane and half carbon dioxide, and is full of hundreds of toxic chemicals. The gas is required to be collected by most landfills, but it's actually worse for the community and the climate to burn

it for energy. Doing so usually involves manipulating the landfill to crank up gas production in ways that cause more gas to escape, making climate change worse, but also exposing communities to increased toxins like methylmercury. Landfills are not meant to be managed as energy facilities, and the perverse incentive of considering them renewable energy prevents the zero waste solutions we need to keep organic waste out of landfills and reduce their gassiness. 66% of landfill gas credits support out-of-state landfills.

Where will the waste go?? While this bill would not ban incinerators, it would make them less profitable, and could be one of many factors in seeing them close, as Baltimore City and Montgomery County would like to have happen. Alternatives are already in place. Baltimore has its own public landfill that is in the permitting process for an expansion that was sought because Wheelabrator's ash has been filling it up. Baltimore also uses five transfer stations already for a portion of their waste to be hauled to Virginia landfills. Montgomery County already brings their incinerator ash by train to landfills in Virginia. They already have the rail infrastructure in place to haul trash direct to landfills in VA, TN, OH, or elsewhere.

For more information, see:
Baltimore Clean Air Act: www.cleanairbmore.org/cleanairact
[Find links to council resolutions, "Life After Wheelabrator," Frequently Asked Questions and more here.]
Maryland RPS: www.energyjustice.net/md & www.energyjustice.net/files/md/2018RPScleanupPPT.pdf
Trash incineration: www.energyjustice.net/incineration
Landfill gas: www.energyjustice.net/lfg/

Attachments:

1. Trash incineration factsheet
2. Landfills vs. incinerators factsheet
3. Covanta factsheets on emissions and health impacts
4. Our responses to Covanta's factsheets
5. 2018 "Taking out the Trash" memo on removing trash incineration from the RPS

Energy Justice Network

FACT SHEET
Trash Incineration ("Waste-to-Energy")

www.energyjustice.net/incineration/

Incineration 101

Municipal solid waste (trash) **incineration is the most expensive and polluting way to manage waste or to make energy.** Only 11.7% of U.S. trash in the U.S. is incinerated. The rest is recycled, composted or landfilled.

Incineration is a dirty word, and industry knows it, so they use other terms to make it sound good, like resource recovery, trash-to-steam, waste-to-energy and energy from waste. All of these terms are untruthful and misleading. The most aggressive in arguing that they are not incinerators are specific

types of incinerators using technologies known as gasification, pyrolysis and plasma arc. In the U.S. and in the European Union, these technologies are legally defined and regulated as incinerators. They share the same fundamental problems with conventional incinerators, but they operate in two stages, first turning the waste into a gas, then burning it, letting the companies pretend that they aren't actually incinerating (burning) the waste itself.

In reality, incinerators are **waste-OF-energy** facilities. Incinerators destroy resources that are better reused. If the same materials burned in trash incinerators were recycled or composted, they would save 3–5 times more energy than incinerators can make from burning them, since raw materials don't need to be extracted and produced all over again. Most of the energy in materials, like paper, was spent making them, but is not physically present in the paper itself.

Not Renewable

Incineration is not renewable energy. While many state renewable energy laws count it as renewable energy, municipal waste is non-renewable, consisting of discarded materials such as paper, plastic and glass that are derived from finite natural resources such as forests that are being depleted at unsustainable rates. Burning these materials creates a demand for "waste" and discourages much-needed efforts to conserve resources, reduce packaging and waste and encourage recycling and composting.

Environmental Racism

Incinerators are an environmental racism issue. Incinerators for trash, hazardous waste, sewage sludge and other types of waste are typically located in communities of color and low-income communities. At least with hazardous waste facilities, race is more of a factor than class, so it's not just that people of color tend to live in low-income communities. Some are located in relatively affluent communities of color.

Dirtier Than Coal

To make the same amount of energy, burning trash pollutes the air far more than burning coal, even though incinerators are generally newer and have more air pollution controls than coal power plants. Trash incinerators release 28 times as much dioxin air pollution than coal, about six times more lead and mercury, 3.2 times more nitrogen oxides (NO_x), 2.5 times as much carbon dioxide (CO_2), twice as much carbon monoxide (CO) and 20% more sulfur dioxide (SO_2).

Sometimes called "trash-to-steam" plants, incinerators cannot turn trash into mere water vapor, as there are all sorts of elements in waste, not just hydrogen and oxygen to make H_2O (water). Trash contains toxic metals like arsenic, lead and mercury, halogens like chlorine that produce acid gases and ultratoxic dioxins and furans when burned, carbon, sulfur and nitrogen compounds that form some of the above-mentioned pollutants, and much more.

Incinerators are really "trash-to-toxic-ash-and-toxic-air-pollution" facilities. Imagine that you throw an old pen "away" and it goes to a nearby landfill. There are metals in the pen, some of which may be toxic, as well as plastics and inks that may be chlorinated. Buried in a landfill, it will take a very long time before any of those chemicals can reach you in a form that you can breathe or drink. However, if that pen were sent to an incinerator, any toxic materials in the pen are instantly made available for breathing and drinking through a combination of air pollution and the toxic ash produced, which still goes to a landfill, but now can blow around and leach into groundwater more readily. In addition to making toxic elements more available, burning creates new pollutants that weren't there to begin with, including acid gases, NO_x, CO, CO_2, SO_2, dioxins and furans.

Incinerators, like nearly all facilities with smokestacks, do not monitor what they are putting into the air on a day-to-day basis. Permits only tend to require three pollutants — CO, NO_x and SO_2 (none of the toxic ones) — to be monitored on a continuous basis. Several other pollutants are tested once per year; many not at all. Annual testing is like having a speed limit where a speed trap is set just one day a year, there are signs warning "speed trap ahead" and the driver's brother runs the speed trap (the companies do their own testing). In reality, incinerators are "speeding" many other days of the year, with excessive emissions during startup, shutdown and malfunction times, when testing is not done.

Incinerators do not replace landfills, but require smaller, more toxic, landfills for their ash. Any pollutants captured in air pollution controls are added to the ash, so the cleaner the air, the more toxic the ash. Ash is more toxic than unburned trash because new toxins were formed by burning, and since existing toxins are more available. Think of coffee beans vs. coffee grounds. Pour water over beans and you won't get coffee, but grind them up and increase their surface area, pour water over them, and you get coffee. Ash is similar in that its higher surface area means more toxins can leach out, polluting groundwater.

Health Effects

Incinerators are bad for people's health. Studies have found, in communities around incinerators:

- Increases in pre-term babies and babies born with spina bifida or heart defects.
- Increased cancers, especially: larynx, lung, colorectal, liver and stomach cancers, leukemia (blood cancer), childhood cancers, soft-tissue sarcoma and non-Hodgkin's lymphoma.
- Increased dioxins in the blood of incinerator workers.

Most Expensive — Bankruptcies and Bailouts

Studies done for U.S. Energy Information Administration in 2010 and 2013 show that trash incinerators are, by far, the most expensive way to make energy. Even though trash incinerators get paid to take their fuel, they're the most expensive to build and most expensive to operate and maintain – even worse than nuclear and biomass. They're nine times more expensive to build than a conventional natural gas power plant and 30 times more expensive to operate. They even cost about twice as much to build as solar and nearly four times as much as wind.

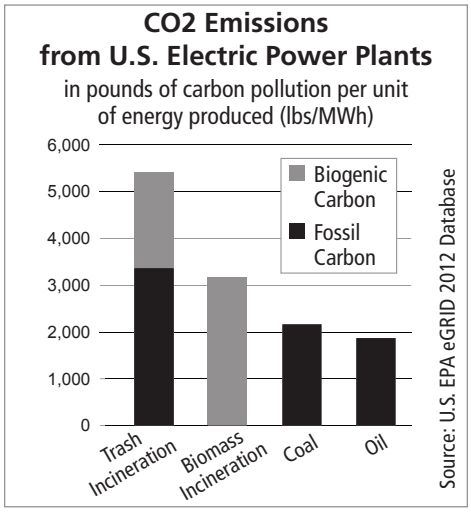
Incineration is also far more expensive than landfilling. It competes only by locating in high-priced waste markets and by locking local and county governments into long-term monopoly contracts, often with "put-or-pay" clauses. Such clauses require that a certain amount of waste be provided to the incinerator, or the governments pay the full amount, even if not providing enough waste. This discourages waste reduction, recycling and composting, because the community can't save money by doing these things. It also allows the incinerator company to fill that extra capacity with waste from other places, getting paid twice for the same capacity.

Expensive incinerators have driven some local governments into bankruptcy. The most spectacular examples have been Harrisburg, Pennsylvania (the largest city bankruptcy at the time, filed in 2011), and Claremont, New Hampshire, where 29 towns filed for bankruptcy due to "put-or-pay" contracts. In other cases, massive bailouts have been necessary, such as the $1.5 billion in state bailouts for New Jersey's five incinerators, and the $1.2 billion in debt payments at the Detroit incinerator, contributing to that city's bankruptcy. In most other cases, the expense of incineration is covered other ways, such as through hidden fees on property tax assessments, by accepting more profitable industrial wastes, and/or by cranking up fees on the captive local community while offering discounted waste disposal to outlying areas to compete with landfills and attract waste to meet capacity.

Incinerators are terrible ways to produce jobs. For every 10,000 tons of waste processed per year, incinerators and landfills create one job, while recycling facilities create 10 jobs and reuse, remanufacturing and repairing materials creates far more (20-300 jobs depending on the material). With a national recycling rate of less than 33%, the U.S. recycling industries currently provide over 800,000 jobs. A national recycling rate of 75% would create 1.5 million jobs.

Competition with Recycling and Clean Energy

Incineration competes with waste reduction, recycling and composting, both through its contracts demanding a certain amount of waste generation, and by virtue of the fact that incinerators need recyclable materials, like paper, tires, wood and plastics, to be able to burn effectively. Within renewable energy policies, incinerators (and landfills that burn their gas for energy) often get subsidized as renewable energy, but recycling and composting do not. Burning trash, "biomass" and landfill gas crowds out wind power in renewable energy mandates.



The "Carbon-Neutral" Myth

While EPA data shows that trash incineration is 2.5 times as bad as coal for global warming (CO_2 pollution per amount of energy produced), the industry pretends that they're carbon negative! They pull off this trick by comparing themselves to methane emissions from landfills, and by not counting the portion of emissions from burning paper and other organic material. Even if you don't count that "biogenic" fraction of what is in waste, the CO_2 emissions from the rest (plastics and such) is still 55% worse than coal. However, the "carbon neutral" myth has been repeatedly busted in recent years, since it takes trees centuries to suck all of the carbon back up, even if trees were replanted and left to grow for that long. It's true that landfills are worse than incinerators for global warming, but this can be avoided by keeping clean compostable organics out of landfills, and by digesting dirty organics before landfilling them, so that their methane can be contained and used for energy in a cleaner way.

It Doesn't Work in Europe

Incinerator pushers like to point across the ocean and claim that incineration works in Europe and Japan, where they rely heavily on incineration. Incinerators in these countries are also very polluting, still compete with recycling, and some European countries have found themselves having to import waste from neighboring countries just to keep their incinerators fed with enough waste to operate.

Real Solutions for Energy and Waste

We can meet all of our electricity needs with conservation, efficiency, wind, solar and energy storage. Sometimes incinerators are used for heating as well, but those needs are best met with conservation, efficiency, geothermal, air-source heat pumps and solar hot water.

The "zero waste" alternative aims to eliminate incinerators and cut use of landfills by at least 90%. Some communities, especially San Francisco, are well on their way. These solutions involve maximizing source reduction, reuse, recycling and composting. For whatever is left, it must be examined to see what failed to get diverted upstream, so products can be redesigned or phased out. Any remainder should go through mechanical and biological treatment before landfilling to get out more recyclables, and digest the remaining waste first, avoiding gassy landfills and their global warming impacts.

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Landfills are bad, but incinerators (with ash landfilling) are worse

Incinerators do not avoid landfills. For every 100 tons of trash burned, 30 tons become toxic ash that goes to landfills. The other 70 tons don't turn into energy, but become air pollution. In terms of air pollution, and groundwater impacts, burning waste then burying ash is far worse than direct landfilling, and both are worse than a Zero Waste approach.[1]

A Zero Waste approach means zero incineration and at least 90% reduction from landfilling, with residuals biologically stabilized prior to landfilling, to minimize odors, leachate, gas formation and toxic migration.

The most recent data comparing incinerators to landfills is from air emissions data provided by the Pennsylvania Department of Environmental Protection (DEP). For 2017, this includes data on all six trash incinerators in PA and 17 landfills in DEP's southeast and southcentral regions.

Pollutant (all data in tons)	Incinerators	Landfills	Incinerators are __ times as polluting
Greenhouse Gases (CO_2e)	482,770	268,763	1.8
Total Health Damaging Pollution	1,975	1,236	1.6
Carbon Monoxide (CO)	119	22	5
Hydrochloric Acid (HCl)	17	1	21
Nitrogen Oxides (NOx)	625	6	105
Particulate Matter, Condensable	25	1	17
Particulate Matter (PM10)	26	17	1.6
Fine Particulate Matter (PM2.5)	17	4	5
Sulfur Oxides (SOx)	55	3	19
Total Suspended Particulate (TSP)	2,178	2,486	0.88
Volatile Organic Compounds (VOC)	3	9	0.34

This shows that incineration is 80% worse than landfills for the climate, and that other pollutants that directly harm human health are 60% worse from incineration. Emissions of nitrogen oxides that trigger asthma attacks are 105 times as bad as landfills.

Only two pollutants for which there was complete data showed landfills to be worse: VOCs, and TSP. However the TSP average for landfills is higher only because of one facility (Fairless Landfill) that had an unusually high number. Without that data point, the average of the other landfills is just 536 tons, which means that incineration is 4 times as polluting as these other landfills, on average. The volume accepted at the landfills is about the same (just 1.6% more) than the incinerators, so this pollution difference is not a function of the amount of waste received.

A more rigorous life cycle analysis of incineration vs. landfilling was commissioned in 2017 to look at Washington, DC's waste options. It looked at DC trucking waste to the Covanta Fairfax incinerator vs. four landfills in southeastern Virginia, one of which requires trucking waste twice as far; the other three involve trucking waste four times as far. It was analyzed on the basis of pollution impacts per ton of waste disposed.

[1] See www.zwia.org/standards/zw-definition/ and www.zwia.org/zwh or www.energyjustice.net/zerowaste/hierarchy

It found that trucking emissions were insignificant compared to the emissions of the incinerators and landfills themselves. It concluded that incineration is worse than landfilling for global warming, smog, toxic emissions, acid gas emissions, nitrogen oxide emissions, and particulate matter, even when trucking waste four times as far to landfills. On one measure, eutrophication, they were basically tied. On three of the smallest measures, landfills showed to be worse. On balance, incineration was far worse than landfilling. Because it couldn't easily be quantified, dioxin emissions (the most toxic chemicals known to science, largely emitted by incinerators) and toxic leaching from incinerator ash were not accounted for. Could they be quantified, this would weigh even more heavily against incinerators.[2]

Why are incinerators worse?

On toxic emissions, nitrogen oxides, smog, acid gases, and particulate matter emissions, it's rather obvious. Incinerators turn 70% of the tonnage into air emissions, only some of which can be captured or reduced through air pollution control devices. Most of this is not generated at landfills because they're products of combustion. The sheer volume of material being emitted through the smokestack leads to this outcome.

Regarding toxicity, incineration is worse than landfilling for two reasons:

1) Highly-toxic new chemicals like dioxins/furans, and polycyclic aromatic hydrocarbons (PAHs) are formed in the combustion process and end up in the air and ash.

2) Toxic materials already present in products, such as toxic metals in inks or electronics, are largely trapped in the product and stay stored in the landfill long-term. When burned, those toxic metals are immediately freed and released in a form that is more available for people to eventually breathe or drink. What does not end up ejected into the air becomes part of the ash. Ash can be kicked up and blow into communities during shipping, when placed on landfills as landfill cover, and where "recycled" to make internal roads in landfills. In terms of leachate, think of coffee beans vs. coffee grounds. Pour water over beans and you won't get coffee, but grind them up and increase their surface area, pour water over them, and you get coffee. Ash is similar in that its higher surface area means more toxic chemicals can leach out, polluting groundwater.

What about methane and global warming?

Landfills *are* bad for global warming, as they emit large amounts of landfill gas as organics like food scraps and yard waste rapidly degrade. Landfill gas is about half carbon dioxide and half methane. Methane was long thought to be just about 20-some times as bad as CO_2 for the climate, but is now understood to be 34 times as bad over a 100-year time span, and a whopping 86 times as bad over a 20-year horizon, which is more relevant for avoiding global warming tipping points. Even using the latest science on methane and a 20-year time horizon, the 2017 life-cycle analysis found that trucking waste four times as far to a landfill is still not as bad for the climate as burning closer to home.

According to EPA, about half (47.3%) of the carbon in municipal solid waste is from plastics and tires.[3] In a landfill, this carbon is sequestered, but when burned, it's immediately injected into the atmosphere. No carbon capture and sequestration is viable or used on trash incinerators. Carbon in more durable materials like wood, leather, and textiles in a landfill largely is sequestered as well, but would be emitted immediately

[2] http://www.energyjustice.net/files/md/montgomery/incineration_vs_landfills.pdf See slides 26-59; study conclusions are on slides 38-48. Note that the difference between the red and blue lines are between doubling the trucking distance and quadrupling the trucking distance. If trucking emissions were significant, there would be a larger difference between these lines.

[3] U.S. EPA Emissions & Generation Resource Integrated Database (eGRID) 2012 Technical Support Document, Table 3-2.

as CO_2 if burned.[4] It's primarily the food scraps and yard waste that degrade rapidly in a landfill, forming landfill gas. Most of that gas is captured and reduced to CO_2 when burned. Some of the methane that leaks out, uncaptured, oxidizes to CO_2, anyway. All told, even with the high potency of methane, overall climate impacts from incineration are worse for the aforementioned reasons.

EPA's WARM Model and other flawed analyses

Greenhouse gas comparisons that make incineration out to be better than landfills (or coal) rely on some major flawed assumptions.[5] About half of the CO_2 emissions from trash incineration are considered "biogenic" in that they come from burning food scraps, yard waste, wood, paper, and other products that were grown, as opposed to petroleum-based plastics that produce the other half. While it's been scientifically debunked repeatedly, some still embrace the "carbon neutrality" argument that counts those emissions as zero because new growing plants suck up the carbon.[6] However, the decision to burn or bury has no impact on whether plants will regrow, and it's not valid to discount nearly half of an incinerator's GHG emissions while counting the GHG emissions from landfills, which are entirely "biogenic" (the plastics in landfills aren't forming GHGs). The sun's rays do not interview carbon molecules in the atmosphere, ask where they came from, and choose whether to not to heat them up. Carbon in a landfill or in a tree is not the same as carbon in the atmosphere. In debunking the biomass carbon neutrality myth, scientists have pointed out that it relies on a form of double-counting, as international carbon accounting protocols already account for tree and plant growth in their models, and for it to be subtracted or ignoring carbon emitted from biogenic carbon emitting sources is hiding the actual climate impacts.

EPA data shows that emissions of CO_2 from wood burning (biomass incineration) is 50% worse than coal, per unit of energy, and that trash incineration is 150% worse (2.5 as bad). A study commissioned by the Commonwealth of Massachusetts found that for wood burning ("biomass"), it takes 45 years on average for that extra pulse of CO_2 to be reabsorbed by newly growing trees. This is not carbon neutrality, but just getting back down to the level of coal burning. No carbon neutrality can be possible within a meaningful timeframe since we do not have decades to avert the worse global warming tipping points.

Another major flaw is subtracting emissions from coal power plants as if any energy generation at an incinerator displaces coal. In fact, because of trash incineration being considered renewable energy in Maryland, no fossil fuels displacement can honestly be assumed. If trash were not burned, electric suppliers will be required to replace that with other Tier 1 renewable resources with Maryland's Renewable Portfolio Standard – and would most likely be replaced by emission-free wind power. Also, subtracting avoided methane emissions from landfills is a dishonest way to do a comparison between incinerators and landfills. Similarly, one would not do a comparison where the landfills can subtract incinerator emissions, or where coal power plant owners can plant enough trees and pretend that their actual stack emissions are negative.

If one is rightfully concerned about the greenhouse gas impacts in the waste system, then it's imperative that incineration is not used, and that readily degradable organics (food scraps and yard waste) are kept out of landfills.

[4] Morris, Jeffrey, "Recycle, Bury, or Burn Wood Waste Biomass?: LCA Answer Depends on Carbon Accounting, Emissions Controls, Displaced Fuels, and Impact Costs," Journal of Industrial Ecology, August 2016. https://doi.org/10.1111/jiec.12469
[5] http://www.energyjustice.net/incineration/climate
[6] http://www.energyjustice.net/biomass/climate

Groundwater

There is no good data to do a comparison of groundwater damage from landfilling unburned trash vs. trash incinerator ash. However, some informed common sense goes a long way. It's not the size of landfills that is harmful, but their toxicity. As described above, incineration creates new toxic chemicals like dioxins/furans, depositing much of them in the ash, and makes existing toxic chemicals more readily available to blow away or leach into groundwater by increasing the surface area.

Ashes and Ash Testing

Two types of ash are produced when trash or other solid fuels are burned: bottom ash and fly ash. Bottom ash, which is what remains on the grate of the boiler, makes up about 90% of the ash. The remainder is "fly ash" – smaller particles that are caught in the air pollution controls. Fly ash is far more toxic and is impregnated with heavy metals and dioxins. Prior to 1994, when incinerator ash was tested with the EP Tox test, the fly ash tested hazardous 94% of the time and the bottom ash tested hazardous 36% of the time. In some other nations, and in two international treaties, incinerator ash is categorically defined as hazardous waste. Until 1994, the U.S. Environmental Protection Agency categorically exempted incinerator ash from hazardous waste regulation. In May 1994, the U.S. Supreme Court ruled that incinerator ash that tests hazardous for toxic heavy metals such as lead and cadmium must be disposed of in hazardous waste landfills rather than in typical municipal solid waste landfills. If incinerators were made to pay for the expense of disposing of their ash as hazardous waste, they'd be out of business overnight. In response to that ruling, EPA saved the industry by changing the test and permitting new practices that consistently avoid a hazardous waste designation. The TCLP test manipulates the pH so that the laboratory test occurs at a pH where lead does not leach out. The use of lime injection in air pollution scrubbers also helps manipulate the pH and EPA allows incinerators to mix the fly and bottom ashes so that the dilution and the injected lime helps the combined ash pass the test. Phosphoric acid can also be used to prevent leaching long enough to pass the test. In real-world, long-term environments, the toxic metals in ash leach out and can be expected to do more damage to groundwater than unburned trash, especially if organics and liquids are kept out of landfills to minimize leachate formation.

What SHOULD we do?

There are three major options for how to manage waste, all of which end in landfilling in some way:

1) Landfill directly
2) Incinerate and landfill toxic ash
3) Zero waste with material recovery and biological treatment prior to stabilized landfilling

Studies comparing landfilling and incineration to zero waste approaches have found – not surprisingly – that avoided production (reduction and reuse), recycling and composting are better for the climate than burning or burying materials,[7] and that the "leftovers" are best handled with a material recovery and biological treatment (MRBT) process before landfilling.[8] Material recovery means mechanically removing extra recyclables that are still discarded. Biological treatment means stabilizing any residual organic material with an anaerobic digestion process so that any gas generation is done in an enclosed system where gases can be easily captured, avoiding having a gassy, stinky landfill. Following the Zero Waste Hierarchy provides the best results.[9]

[7] http://www.eunomia.co.uk/reports-tools/the-potential-contribution-of-waste-management-to-a-low-carbon-economy/
[8] http://www.ecocycle.org/specialreports/leftovers
[9] http://zwia.org/standards/zero-waste-hierarchy/

Energy-from-Waste Emissions

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Like all combustion processes (e.g. cars, trucks, fossil-fuel power plants, landfill gas to energy) and nearly all waste management processes (e.g. landfilling, composting, anaerobic digestion, recycling), Energy-from-Waste (EfW) facilities have air emissions. To minimize emissions, EfW facilities employ sophisticated air pollution control equipment. Emissions are monitored both continuously and with periodic testing. Due to combustion and emissions control, 99.9% of what is coming out of the stack are normal components of air, including water vapor, nitrogen, oxygen, and CO_2.

The installation of the sophisticated air pollution control equipment was primarily driven by the Clean Air Act Amendments of 1990 and its Maximum Available Control Technology (MACT) requirement. Following implementation of these requirements, emissions from the industry dropped dramatically, both as the result of closure of outdated facilities and the installation of new air pollution control equipment (Table 1). In reviewing the data, the U.S. EPA noted that "[t]he performance of the MACT retrofits has been outstanding."

Table 1. Change in U.S. EfW Emissions, 1990-2005[1]

Dioxins & Furans	▼99%
Mercury	▼96%
Cadmium	▼96%
Lead	▼97%
Particulate Matter	▼96%
Hydrochloric acid (HCl)	▼94%
Sulfur Dioxide (SO_2)	▼88%
Nitrogen Oxides (NO_x)	▼24%

Emissions from Covanta's facilities ***continue*** to decrease. Since the start of the company's sustainability program in 2007, emissions of pollutants at Covanta operated facilities, as measured over three-year period from 2015-2017, have decreased by up to 68% (Figure 1). As a result, Covanta's facilities operate well below federal standards (Figure 2).

Figure 1. Covanta Emissions Reductions Since 2007

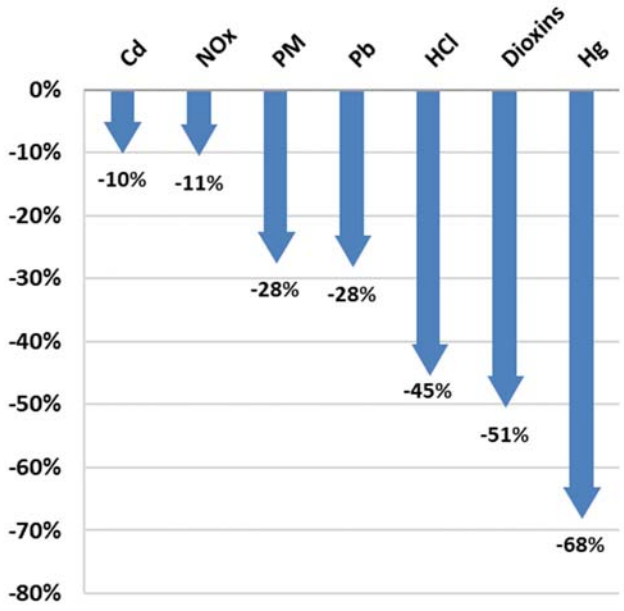
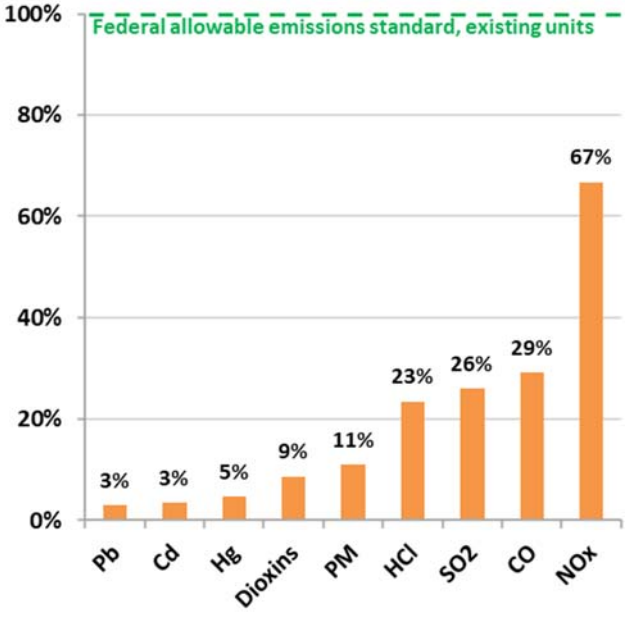


Figure 2. Covanta 2015-2017 U.S. EfW Emissions compared to federal standards



How Are Emissions Measured and Monitored?

Air emissions from EfW facilities are heavily regulated by both the U.S. EPA and state environmental agencies. Emissions from EfW facilities are determined both through routine stack tests (performed at least once a year) and through continuous emissions monitors (CEMS). CEMS monitor flue gases continuously for carbon monoxide (CO), nitrogen

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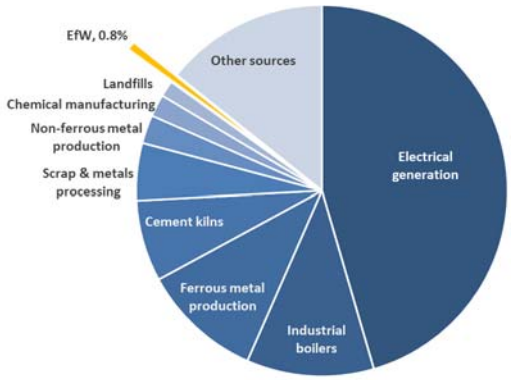
oxides (NO_x), sulfur dioxide (SO_2), opacity, and carbon dioxide and/or oxygen. Facility operators monitor these parameters and adjust as needed to ensure proper operation and compliance. For example, monitoring CO levels continuously allows operators to respond to changes in the waste (e.g. wetter than normal waste that may have been collected during a rainstorm) to ensure complete and efficient combustion.

Other regulated pollutants are checked through a rigorous stack testing program performed by a regulator-approved third-party. The operating parameters under which the stack test is conducted (e.g. activated carbon addition rate, steam flow rate) set the standard for the facility's operation until the next stack test is completed. Operating the combustion process and air pollution control equipment in accordance with these standards ensures compliance. These tests are scheduled well in advance of their performance, and contrary to myth, facility operators do not remove plastics from the waste stream or alter operations in any way to improve emissions performance during the test.

Are EfW Facilities Major Sources of Mercury & Dioxins in the U.S.?

No. Some opponents to EfW facilities cite old data or retain a perception of the industry formed prior to the advent of modern air pollution control. In fact, according to recent peer-reviewed research by Columbia University scientists, the total dioxin emissions of all U.S. EfW plants in 2012 represented less than one-tenth of one percent of total sources of dioxin.[2] Similarly, EfW facilities are a minor source of mercury in the U.S., representing just 0.8% in 2014, roughly half that emitted from landfills (Figure 3). Scrap metal processing and recycling emits 7 times as much mercury as U.S. EfW facilities.[3]

Figure 3. U.S. 2014 Mercury Emissions by Source



What About Nanoparticles?

The vast majority of particulate matter, including nanoparticulate is removed via the air pollution control (APC) equipment installed at EfW facilities. Nanoparticulate that are emitted agglomerate relatively quickly into larger particles, increasing in size and correspondingly decreasing in number within minutes.[5] Other local sources of nanoparticulate are likely more significant. Recent published studies have concluded that EfW's emissions were negligible relative to typical exposures in urban environments[6] and highways.[7] One of the peer reviewed papers concludes that emissions of ultrafine particles from EfW stacks are lower than one single high-duty vehicle.[8]

"The [nanoparticle concentrations] produced by MSW incineration plants are generally reported similar to rural background"[4]

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Energy-from-Waste & Health Risk

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Do Emissions from EfW Present Health Risks?

Study after study have shown that living near an Energy-from-Waste (EfW) facility EfW facility with modern air pollution control equipment does not have adverse impacts on health.

- A recent review of air quality health risk assessments and health surveillance programs surrounding EfW facilities done for Portland, Oregon determined that there was ***not a predictive or actual increase in health issues***, including for those in vulnerable or sensitive "at-risk" populations such as children or the elderly.[1]
- Three years prior, a similar comprehensive review of published risk assessment, biomonitoring, and epidemiology studies, performed for Metro Vancouver concluded that modern EfW facilities "***do not pose unacceptable health risks to local residents***."[2]
- Public Health England found negative health impacts associated with well-regulated EfW facilities likely to be very small, ***if even detectable***.[3]
- Long-term biomonitoring near three Dutch EfW facilities found "***no potential risk*** with respect to human consumption quality of the investigated crops and products in the vicinity."[4]

How are Health Risks Studied?

The potential health risks of an emissions source, like an Energy-from-Waste facility, are typically studied in one of three primary ways:

Biomonitoring

Measurement of chemicals or their metabolites (products of chemical compounds that have been transformed in the body) in blood, urine, breast milk, or tissues. Measures actual uptake or accumulation of chemicals in a potentially exposed population.

Health Risk Assessment

A systematic process to provide quantitative estimates of potential human health impacts of predicted, modeled, or measured emissions.

Epidemiology Study

Assessment of documented health issues or events (e.g. birth outcomes, cancer incidence) relative to an air or other emissions source.

- The Massachusetts Department of Public Health found prevalence of childhood asthma in the Merrimack Valley—where several EfW facilities are located—***was not associated*** with emissions of particulate matter (PM10) or volatile organic compounds (VOCs) from the local stationary sources.[5]
- A 2019 UK study found ***no evidence*** that exposure to, and living near, a modern EfW facility in compliance with current standards was associated with any excess risk of adverse birth outcomes.[6]
- A health risk assessment performed for the Montgomery County facility in Maryland found a ***very low chance*** for occurrence of potential carcinogenic health effects, and no expectation of non-carcinogenic health effects as a result of facility emissions.[7]
- A biomonitoring study in Portugal that measured dioxin in both exposed and control population groups concluded that emissions from EfW ***did not impact dioxin blood levels*** of nearby residents.[8]

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Do Emissions from EfW Facilities Cause Asthma?

No one knows exactly what causes asthma.[9,10,11] Allergies and asthma both tend to run in families, so genetics is suspected as a factor. Environmental factors, including respirator infections in infancy and early childhood, other allergies, and exposures to allergens, certain irritants, or exposure to viral infections as a child also likely play a role. Obesity is also a risk factor for the development of asthma.[12]

One theory is the "hygiene hypothesis", which postulates that our focus on hygiene and sanitation has reduced childhood exposures to infections and other environmental factors affecting the development of children's immune systems and increasing their risk for atopy and asthma.[10]

NIH National Heart, Lung, and Blood Institute

"The exact cause of asthma isn't known. Researchers think some genetic and environmental factors interact to cause asthma, most often early in life. These factors include:

- An inherited tendency to develop allergies, called atopy (AT-o-pe)
- Parents who have asthma
- Certain respiratory infections during childhood
- Contact with some airborne allergens or exposure to some viral infections in infancy or in early childhood when the immune system is developing

If asthma or atopy runs in your family, exposure to irritants (for example, tobacco smoke) may make your airways more reactive to substances in the air.

Some factors may be more likely to cause asthma in some people than in others. Researchers continue to explore what causes asthma."

Source: U.S. Department of Health & Human Services[10]

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Trash incineration FACT CHECK: Covanta's "*Energy-from-Waste Emissions*" flyer

By Mike Ewall, Energy Justice Network, 215-436-9511, mike@energyjustice.net; www.energyjustice.net/incineration

Covanta: *"Like all combustion processes (e.g. cars, trucks, fossil-fuel power plants, landfill gas to energy) and nearly all waste management processes (e.g. landfilling, composting, anaerobic digestion, recycling), Energy-from-Waste (EfW) facilities have air emissions."*

Fact: Covanta's emissions are FAR greater than any of these things. Whether you compare their pollution to the amount you'd get processing the same amount of waste with another method, or producing the same amount of energy with another method, trash incineration is the dirtiest option. Covanta's air emissions are even shown to be dirtier than burning coal – and this is even after their "sophisticated air pollution control equipment" (that isn't state-of-the-art, anyway).

Dirtier than coal: Compared to coal power plants in Maryland, the Covanta incinerator, to produce the same amount of energy, releases 15% more fine particulate matter, 60% more arsenic, 68% more global warming pollution, and 94% more nitrogen oxide (NOx) pollution (which triggers asthma attacks). Even more stark, it emits 3.5 *times* as much chromium, 11 times as much lead, 21 times as much cadmium, 26 times as much mercury, and 50 times as much hydrochloric acid.[1]

Covanta: "Emissions are monitored both continuously and with periodic testing."

Fact: This is true, but misleading, since only four pollutants are continuously monitored, and none of the toxic ones. For dioxins, mercury, lead, beryllium, cadmium, particulate matter, sulfuric acid, hydrofluoric acid, they test just once a year. If we regulated speeding the way we do smokestacks, this annual stack testing is like setting a speed limit and allowing drivers to drive all year with no speedometer. Once a year, on the highways, a speed trap would be set, with signs leading up to it warning "slow down, speed trap ahead" ...and letting the driver's brother run the speed trap (they do their own testing). In reality, incinerators are "speeding" many other days of the year, with excessive emissions during startup, shutdown and malfunction times, when testing is not done.

What is an "Energy-from-Waste (EfW)" facility?

Covanta's facilities are properly described as trash incinerators. EPA regulates them as "Municipal Waste Combustors," and has stated multiple times that this is synonymous with "incinerator." Energy-from-Waste is just the latest public relations twist from an industry that avoids the "'i' word" as they call it.

Before this, it was "trash-to-steam," or "waste-to-energy" – both of which are scientifically invalid PR terms, as trash is turned into far more than water vapor when burned, and waste cannot be literally turned into energy without violating the laws of physics.

In reality, trash is turned into toxic ash and air pollution, and produces less energy than would be saved by composting or recycling what is burned. The industry admits that they're primarily waste facilities, and that energy production is a secondary function, but the PR effort makes them out as if they're primarily energy facilities, making something good out of something bad.

Covanta: U.S. trash incinerator emissions have fallen dramatically between 1990 and 2005, with over 90% reductions in dioxins, mercury, cadmium, lead, particulate matter and hydrochloric acid.

Fact: As Covanta admits, the industry-wide reductions are from a combination of incinerators closing as well as installation of pollution controls on some existing facilities. Most of this reduction is due to incinerators closing down, not existing ones installing substantial pollution controls. Nearly half of the industry (86 of 185 trash incinerators) closed between 1990 and 2005, including many that were exceptionally old and dirty. These closures were largely the result of community activist pressure and the industry's poor economics. A lot of the "cleanups" and closures are also the result of stricter air pollution regulations ("MACT retrofits") that environmentalists fought for in the first place. In the cases where existing facilities reduced their air emissions by adding pollution controls, this simply transfers a lot of those pollutants from the air to the ash that is landfilled, making groundwater more toxic.

[1] The coal data is from the adjacent Dickerson Generating Station (60% coal, 38% gas, 2% fuel oil), and the two power plants in the state that are 100% coal (Morgantown Generating Station and Warrior Run). Data is from EPA's 2017 National Emissions Inventory, EPA's 2016 eGRID database (for global warming pollution), and Energy Information Administration's Form 923 data on electricity production.

Covanta: Air pollution from our trash incinerators is below federal standards.

Fact: They would be illegal to operate if built today. Federal standards allow these decades-old facilities to operate under much weaker standards than if they were permitted and built in the past decade. The standards are also weak compared to those in other countries. Also, nearly all of the pollutants they monitor are self-tested just once a year, underestimating their emissions.

Covanta: We have a "rigorous stack testing program performed by a regulator-approved third party."

Fact: Polluters like Covanta choose and hire their own testing company, and the testing companies know that if they show results that their client doesn't like, they may not be hired again. Even some "regulator-approved third party" testing labs have been busted for falsifying data.

Some incinerators are allowed to just test one boiler each year, and to pick which one they test, as they do at the Wheelabrator Baltimore trash incinerator. It's not unusual that if an incinerator stack test shows a high level, they assume it's a mistake and test again until they get a more acceptable result. State regulatory agencies allow them to get away with this, and allow averaging of multiple test results to get an acceptable passing result. Even when emissions are above limits, companies sometimes don't get fined, or are allowed to negotiate with the state to reduce the amount of a fine. They pay the fines as the cost of doing business, and fines are not significant enough to deter pollution or to get companies to install better pollution controls.

Covanta: "contrary to myth, facility operators do not remove plastics from the waste stream or alter operations in any way to improve emissions performance during the test."

Fact: This is no myth. Covanta was once busted by the Connecticut Attorney General for tampering with their continuous emissions monitors to make it look like their emissions were lower than reality.[2] They were busted most recently in Oklahoma in a criminal investigation conducted by the EPA, relating to "improprieties in the recording and reporting of emissions data." No fines were assessed.[3] We know from Covanta worker experiences at multiple plants that altering the waste stream for stack tests is common at Covanta facilities, where they'll stockpile material that burns cleaner, like cardboard, and use that during their stack test, which is illegal. Similar activity was once exposed at an incinerator in Columbus, Ohio.[4]

Covanta: "Some [incinerator opponents] cite old data."

Fact: Covanta is using 1990-2005 and 2014 data. Our data is in the past decade and is the newest available.

Covanta: Incinerators are not large sources of mercury and dioxins, and emit roughly half the mercury that landfills do and 1/7th that of scrap metal recycling.

Fact: If this were true, it's still awful because there are 8 times as many landfills, accepting a much higher volume of waste. The amount of mercury emitted is far higher if incinerated than if landfilled. However, the newest EPA data (2017) shows that incinerators release 3.1 times as much mercury as landfills: 534 lbs from 59 trash incinerators vs. 171 lbs from over 480 landfills in the EPA National Emissions Inventory.

This same logic error is used when comparing to mercury from scrap metal recycling. There are far more scrap metal recyclers than trash incinerators. Fair comparisons look at the amount of a pollutant per ton of waste disposed – or per amount of electricity produced if comparing to energy sources. Whether comparing fairly to landfills or to coal power plants, incinerators come out worse. Covanta's false comparisons are for PR purposes.

Also, their supposedly small amount of dioxin only looks at air emissions (most of their dioxin emissions at in their toxic ash), and underestimates the emissions by 30-50 times for lack of continuous monitoring.

Covanta: "research by Columbia University scientists"

Fact: Columbia University scientists are the "tobacco scientists" of the incineration industry. They're referring to WTERT, an academic think tank that aggressively promotes incineration because they're thoroughly funded by the incinerator industry, including Covanta.[5] We've looked at some of their research and have found clear flaws in their methodology, which is obviously in the pursuit of pro-incinerator "academic" information.

Covanta: Nanoparticles are removed by controls

Fact: Nanoparticles are too small to monitor or control, and studies purporting to assess this cannot be trusted for lack of accurate monitoring technology.

[2] See the 3rd violation on page 37 of this 93-page compilation of Covanta violations through 2006: www.energyjustice.net/files/incineration/covanta/violations2006.pdf.

[3] "Tulsa Matter," Covanta's 2019 10-K SEC filing for FY2018, p.104.

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Trash incineration FACT CHECK: Covanta's "*Energy-from-Waste & Health Risk*" flyer

By Mike Ewall, Energy Justice Network, 215-436-9511, mike@energyjustice.net; www.energyjustice.net/incineration

Do trash incinerators trash public health?

Several health studies say yes. Trash incinerators – often rebranded with public relations terms such as "waste-to-energy," "energy from waste," or "resource recovery" – are the most polluting way to manage waste or to make energy.[1] There are health studies that find connections to cancers, heart disease, birth defects, respiratory problems, and other health impacts.

A 2019 study published in the *International Journal of Environmental Research and Public Health* sums up the research this way (each number references a study):

"Although various uncertainties limit the overall interpretation of the findings, there is evidence that ***people living in proximity to an incinerator have an increased risk of all types of cancer*** *[12,13],* ***including stomach, colorectal, liver, renal, pleural and lung cancer, gallbladder and bladder for men, non-Hodgkin lymphoma and leukemia, and childhood-cancer/leukemia*** *[13,14]. Studies on incinerators in France and in Italy have suggested an* ***increased risk of non-Hodgkin lymphoma*** *(NHL) [15],* ***soft-tissue sarcoma*** *[16,17],* ***lung cancer*** *[18],* ***and neoplasia of the nervous system and liver*** *[12]. Although the studies conducted by Shy et al. [19] and Lee and Shy [20] did not show respiratory effects. Other studies have reported* ***increases in respiratory diseases or symptoms in populations residing near incinerators*** *[21–24]* ***and in children*** *[25,26]. Other epidemiological studies on incinerators have shown an* ***excess risk of cardiovascular diseases*** *[21,23,24,27,28]* ***and urinary diseases*** *[21]."*[2]

The study found that that men with higher exposures to incinerator pollution had statistically significant increases in death from **lymphohematopoietic cancers** (leukemia, non-Hodgkin lymphoma, multiple myeloma, etc.), **cardiovascular diseases**, and "natural causes;" and in women, increased death from **acute respiratory disease**.

A 2013 study of incinerators in Spain is very clear when discussing their findings. The conclusion states: "**Our results support the hypothesis of a statistically significant increase in the risk of dying from cancer in towns near incinerators** and installations for the recovery or disposal of hazardous waste."[3]

An extensive literature review published in 2013 found the research inconclusive for many diseases, with some studies finding significant health impacts, but more studies unable to do so. However, some of the stronger trends that emerged were for **larynx cancer** ("three ecological studies and one cohort study found convincing associations"), **birth defects and reproductive disorders** (including cleft palate, urinary tract defects, spina bifida, and cardiac defects), a **decrease in respiratory function and an increase in respiratory wheezing in children**.[4]

A 2013 study of eight incinerators in Italy found that "maternal exposure to incinerator emissions, even at very low levels, was associated with **preterm delivery**."[5]

A 2011 study, also from Italy, found that women with the highest levels of exposure to heavy metals from incinerator pollution suffered **increased death in general, and specifically from heart disease**. In men, they found increased hospitalization for **chronic heart failure and heart attacks**.[6]

After noting the challenging nature of different health study methods, a 2004 review of incinerator health studies found that, "analysis by specific cause, notwithstanding the poor evidence for each disease, has **found nevertheless significant results for lung cancer, non-Hodgkin lymphoma, soft tissue sarcomas and childhood cancers**."[7]

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The ABCs of knowledge about health effects from industrial air pollution:

A→B Incinerators (A) release chemicals (B)

B→C Those chemicals (B) cause health effects (C)

A→C Incinerators (A) cause health effects (C)

Don't let polluters take your common sense away. We know that trash incinerators are among the largest air polluters (A → B), and that the pollutants they release cause a wide range of health problems (B → C). Some health studies can show the connection (A → C), but many cannot due to a range of reasons discussed below.

There are gaps in knowledge in all of the above.

A → B: There is continuous emissions monitoring data on just 3-4 pollutants from incinerators and other industrial facilities. Other pollutants are tested once per year, if at all. We have a basic idea of which pollutants are released and in what quantities. However, this data is underestimated since industry refuses to use modern continuous monitoring technology for most pollutants, and federal and state environmental agencies don't require it. (Some local governments, like Baltimore, now do.[8]) Also, incinerator operators have been caught manipulating their tests to make emissions seem lower.

B → C: We have a good idea of what these pollutants do to human and environmental health. There are thousands of studies on health effects from chemical exposures, but it can never be complete. With hundreds of thousands of chemicals in industrial use and many more created each year, not all chemicals are studied for every possible health impact. Certain chemicals are studied in depth, but most are barely understood.

Historically, many studies are of healthy, adult, white male workers, and don't address racial health disparities, or reflect the impacts of chemicals on more sensitive populations: women, children, the elderly, or people with compromised immune systems or other existing health problems. Combinations of chemical exposures are rarely studied, and sometimes 2+2=5 when people are expose to combinations of chemicals. So-called "safe" and allowable exposure levels are based on one chemical at a time, without looking at sensitive populations or the existing body burden of chemical exposures accumulated over a lifetime.

A → C: It's nearly impossible to design a perfect health study connecting a specific pollution source to specific health problems in a specific population of people.

Why is it hard for a health study to find a connection?

Other sources of pollution: Incinerators are often located next to other industrial source of air pollution, so it's nearly impossible to determine what health effects came from one vs. another, or the combination.

Pollution moves: It depends a lot on wind direction and distance. Some pollutants fall very locally, while others (like dioxins) reach as far as the Arctic. Some of the most toxic pollutants, like dioxins and mercury, climb up the food chain in animal fat. Animal products are shipped all over, so this further dilutes the health impacts as dietary exposure routes are spread far beyond any study area.

People move: Diseases (especially cancer) can take decades to manifest. People move in and out of the community over time. Many also move daily for work, which can change their exposure levels significantly. All of this dilutes the affected population studied.

Can't quantify the dose: We usually don't know how much exposure to pollution each person receives. Studies often use distance, which isn't as good as modeling exposure or taking biological samples for pollutants known to be released.

Given the uncertainties, it's impressive when a study manages to find health impacts, and many have.

A → B → C studies: Some studies use modeling to calculate expected damage to health. They'll take the emissions data, use air modeling to calculate how much of a given chemical will reach people, and then factor in health consequences.

A 2017 study of just one pollutant (particulate matter) from the Wheelabrator Baltimore trash incinerator found that this pollution causes an estimated $55 million in annual damage to health in people across several states, primarily from premature death.[9]

A 2011 study looked at six major pollutants from 17 U.S. industries and found that, more than any other industry, the economic health damage from trash incinerators outweighed the industry's economic benefits.[10] Even oil refineries and fossil fuel power plants were less harmful.

[8] Baltimore Clean Air Act. www.cleanairbmore.org/cleanairact

[9] Written Report of George D. Thurston Regarding the Public Health Impacts of Air Emissions from the Wheelabrator Facility, Nov. 20, 2017. www.cleanairbmore.org/uploads/wheelabrator-health-impacts.pdf

[10] Muller, Nicholas Z., Robert Mendelsohn, and William Nordhaus. 2011. "Environmental Accounting for Pollution in the United States Economy." American Economic Review, 101 (5): 1649-75. www.aeaweb.org/articles?id=10.1257/aer.101.5.1649

How Covanta Misleads

Covanta: "Study after study have shown that living near an Energy from Waste (EfW) facility EfW facility [sic] with modern air pollution control equipment does not have adverse impacts on health."

Fact: Covanta ignores the fact that there are other "studies after studies" that DO show health impacts in communities around trash incinerators. (See page 1.)

It's hard to say, without researching every facility examined in each study, whether each facility has "modern air pollution control equipment," however Covanta defines that. Only one trash incinerator out of 72 in the U.S. uses "modern air pollution control equipment," though, and it's located right next to an old trash incinerator in Florida that does not, so no health study in the U.S. could meet Covanta's criteria.[11]

How does Covanta get away with arguing that the heath studies are on their side?

He who pays the piper calls the tune. The first two of their eight health study citations are to literature reviews. One was conducted by HDR, a large consulting company that does engineering work to build trash incinerators.[12] The other was hired by Metro Vancouver, which runs a trash incinerator and has proposed building several more, amid much controversy. They hired Intrinsik, a consulting company that describes themselves as having "over 30 years of helping our clients achieve their goals."[13] Covanta also cites Columbia University scientists who are with a "tobacco science" outfit that is funded by the incinerator industry to promote incineration.[14] The remaining studies are cherry-picked from a large body of available research.

In the literature reviews they cite, they leave out some of the studies that found health effects, and of the ones that did find health impacts, they either gloss over them while admitting their findings, or they find reason to exclude the results.

The "recent review" cited first by Covanta is a report by HDR claiming to be a literature review of "air quality health risk assessments and health surveillance programs surrounding WTE facilities" which "determined that there was not a predictive or actual increase in health issues…." However, the report itself admits that it "was not a formal systematic review of the literature,"[15] though Covanta describes it as "comprehensive."

Covanta then summarizes Intrinsik's report as saying that incinerators "do not pose unacceptable health risks to local residents." However, the report talked about real risks, including increased birth defects, higher dioxin levels in people's blood, and "non-cancer" risks that were "unacceptable." Other studies in the report found health problems, but at levels deemed "acceptable" by government regulations. Intrinsik outright dismisses a study from Spain which found statistically significant increased cancer deaths in towns around trash incinerators. The study was dismissed because Spain's incinerators were "old" (10-20 years) and the study had no mention of what air pollution controls the incinerators used. Except for a handful of expanded or rebuilt facilities, Covanta's U.S. fleet is now 25-40 years old as of 2020. At the time of the Intrinsik review, they would have been 19-34 years old, making Spain's incinerators seem young by comparison. Also, Intrinsik didn't bother to look up info on the air pollution controls. We did, and found that they all have scrubbers and baghouses, similar to Covanta's fleet.

Covanta's pollution triggers asthma attacks. Covanta's incinerator pollution is a major source of the nitrogen oxides (NOx) that trigger asthma attacks. Covanta is correct that the exact *cause* of asthma is unknown. They use this fact to distract from the fact that they trigger asthma attacks in those who already have asthma. The American Lung Association has written to Washington, DC City Council objecting to a contract to burn waste at the highly polluting Covanta plant in Lorton, VA due to concern over asthma and other respiratory problems.[16]

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[11] "Modern air pollution control equipment" includes Selective Catalytic Reduction (SCR) for reducing emissions of nitrogen oxides (NOx) that trigger asthma attacks, keeping NOx below the modern limit of 45 parts per million (ppm). The only incinerator with this equipment in the U.S. is West Palm Beach #2, in Florida. This new plant started in 2015 and Covanta has taken over operation of this county-owned facility. No other facility in Covanta's fleet uses these modern controls. The best of their other incinerators get their NOx levels down to around 85-90 ppm – twice the modern limit. They do this with Selective Non-Catalytic Reduction (SNCR), which lacks the catalyst needed to reduce NOx much further. Some of their incinerators lack these and other basic controls, including the biggest incinerator in the nation, in Chester, PA, which lacks 2 of the 4 common controls (SCR/SNCR controls for NOx and carbon injection for toxic chemicals like dioxins and mercury). See www.ejnet.org/chester/pollutioncontrol.html for a list of pollution controls at Covanta incinerators. Chester's environmental health has been studied and is very poor. Their childhood asthma hospitalization rate is 3 times the state average, in part due to Covanta's excessive NOx emissions. See www.ejnet.org/chester/asthma.html Covanta is the largest industrial air polluter in Chester and the worst in the 7-county Philadelphia region. See www.energyjustice.net/files/pa/philly/top10.pdf

[12] www.cleanairbmore.org/uploads/NMWDAConsultants.pdf (see p.2)

[13] www.intrinsik.com/about/

[14] www.seas.columbia.edu/earth/wtert/newwtert/sponsors/

[15] www.oregonmetro.gov/sites/default/files/2017/07/06/Metro_WTE_Landfill_HIA_Final_with_appendices_20170706.pdf (see p.184)

[16] See: www.energyjustice.net/files/dc/AmericanLungLetter.pdf

How polluting is the trash incinerator in Montgomery County?

The "Montgomery County Resource Recovery Facility" in Dickerson, Maryland is a county-owned trash incinerator operated by Covanta, the nation's largest trash incineration corporation. It's the #1 industrial air polluter in Montgomery County. On top of their routine air pollution, they've had more uncontrolled waste pile fires requiring an off-site emergency response than any other incinerator in Covanta's 40-plant U.S. fleet, despite being the newest.

The latest available data from EPA's National Emissions Inventory shows that Covanta's Dickerson incinerator released:

Pollutant (in pounds except CO2e)	**2014**	**2017**	**Health Effects**
Global Warming Pollution (in tons of CO_2 equivalents)	611,773	629,162	Extreme weather, disease, crop damage, species extinction
Nitrogen Oxides	853,428	883,419	triggers asthma attacks, chronic respiratory disease and stroke
Hydrochloric Acid	159,184	116,405	irritates eyes, skin, and nose, damages lungs
Sulfur Dioxide	139,809	205,058	triggers asthma attacks; chronic respiratory and heart diseases; stroke
Carbon Monoxide	120,321	77,996	headaches and dizziness; increases lifetime risk of heart disease
Particulate Matter	102,091	58,792	heart attacks, stroke, irregular heartbeat, aggravated asthma, decreased lung function, difficulty breathing
Fine Particulate Matter	98,760	53,393	same as above, but worse, get deep into lungs and into blood stream
Volatile Organic Compounds	4,387	3,864	eye, nose and throat irritation, headaches, loss of coordination and nausea, liver, kidney and central nervous system damage, cancer
Ammonia	3,588	3,633	nose and throat irritation
Formaldehyde	124	120	eyes, skin, and nose irritation; increases lifetime risk of cancer
Beryllium	76	0.2	lung cancer; harms liver, kidneys, heart, nerves and lymphatic system
Lead	58	42	damages nervous system and kidneys, lowers IQ, increases likelihood of antisocial behavior
Mercury	24	17	damage to nervous, digestive, and immune systems, lowers IQ
Hexachlorobenzene	12	11	liver, kidney, and thyroid cancers
Chromium (VI)	4	4	lung cancer, shortness of breath, coughing, and wheezing
Cadmium	2	4	kidney disease; lung cancer
Arsenic	2	3	lung, skin, bladder, and liver cancers; irritation of the skin and mucous membranes and effects in the brain and nervous system

To put the smaller numbers in perspective, mercury is one of the toxic pollutants for which there is no known safe level of exposure. Lead and dioxins also have no "safe" level, and dioxins are the most toxic chemicals known to science, and incinerators are a major source (but good data is lacking). The incinerator reported releasing 24 lbs of mercury into the air in 2014, not counting that which gets into the air and water via the ash. A highly cited Minnesota study found that if approximately one gram of mercury (the amount in a single fever thermometer) is deposited to a 20-acre lake each year from the atmosphere, this small amount, over time, can contaminate the fish in that lake to the point where they should not be eaten.[17] 24 pounds of mercury equals 10,886 grams. That means the incinerator, in a typical year, is releasing enough mercury sufficient to keep nearly 11,000 20-acre lakes so contaminated that the fish are not safe to eat.

But what about buildings and mobile sources? Aren't they a bigger source of pollution to worry about?

Yes, for some pollutants, the fossil fuels burned to heat buildings or move vehicles are the largest share of pollution compared to industry. However, the incinerator is the largest polluter of all industrial sources, and is a big share of the total even when compared to everything (vehicles, buildings, etc.). The incinerator is responsible for 10% of the county's total global warming pollution, 99.5% of the cancer-causing hexachlorobenzene, 95% of the hydrochloric acid, 64% of the chromium (VI), 40% of the mercury, 24% of the cadmium, 16% of the sulfur dioxide, 12% of the lead, 5% of the arsenic, and 3% of the nitrogen oxide pollution in the county.

[17] "One Gram of Mercury Can Contaminate a Twenty Acre Lake: An Clarification of This Commonly Cited Statistic," Summary Prepared by Interstate Mercury Education and Reduction Clearinghouse, 2004. www.newmoa.org/prevention/mercury/mercurylake.pdf

Removing Trash Incineration from Maryland's RPS

By Mike Ewall
January 15, 2018

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When Maryland's legislature first adopted a Renewable Energy Portfolio Standard (RPS) in May 2004, trash incineration and hydroelectric dams were relegated to Tier 2, a tier that stayed at a constant 2.5% until being zeroed out for good starting 1/1/2019. States that use this tiered approach to an RPS consistently relegate trash incineration to a second tier where the credits are not worth much, and the percentage requirements tend to be lower and sometimes not set to grow at all and to be eliminated after at time, as in Maryland.

This is to recognize that large hydroelectric dams and trash incinerators should not compete with wind, solar or other Tier 1 resources because they're existing facilities that are dirty and damaging and cheap compared to new wind and solar since they can name their price – either because they're already subsidized by other means (trash incineration) or have been paid off decades ago (hydroelectric dams).

SB 690 of 2011[1] was a national anomaly. Maryland became the first state to bump trash incineration from Tier 2 to Tier 1, putting it in competition with wind and solar power. The bill was signed into law by Governor O'Malley while the trash incinerator industry's annual conference, the North American Waste-To-Energy Conference, was taking place in nearby Lancaster, PA, with attendees urged the day before to support this bill, which was celebrated at the conference the following day. The nation's largest trash incinerator was proposed, at that time, for southeast Baltimore, by a company called Energy Answers. The Baltimore Sun editorial board remarked:

> "Perhaps it is a pure coincidence that Energy Answers International cut a $100,000 check to the Martin O'Malley-led Democratic Governors Association on the very same day that Governor O'Malley indicated he would sign state legislation that could be worth millions to the company."[2]

Those millions never flowed to Energy Answers because their proposal was defeated in a campaign led by high school youth of color (including Goldman Environmental Prize winner, Destiny Watford). However, about $38 million in Maryland ratepayer money flowed to three existing trash incinerators in the five years from 2012 through 2016. These Tier 1 renewable energy credits (RECs) were on top of another $327,000 that went to a different set of four trash incinerators in those same years as Tier 2 RECs.

By moving trash incineration into Tier 1, SB 690 both increased the value of a REC by several times and ensured that these RECs would not expire, as originally planned, at the end of 2018.

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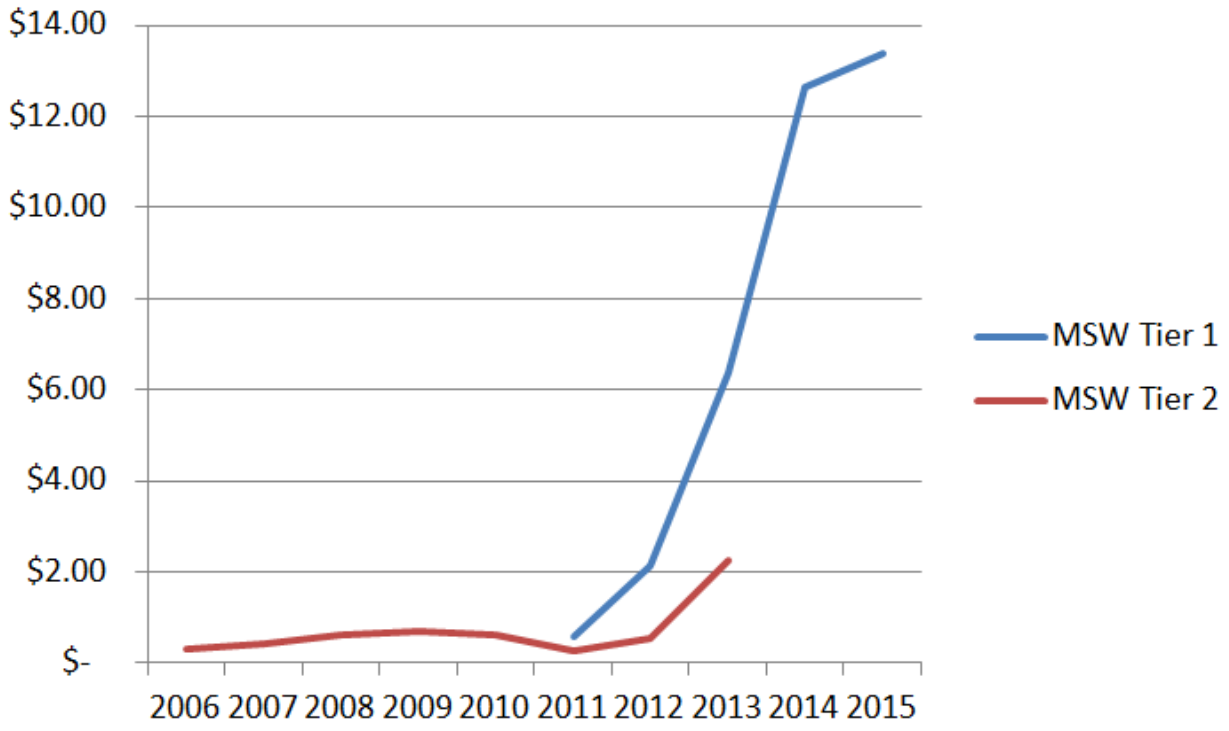
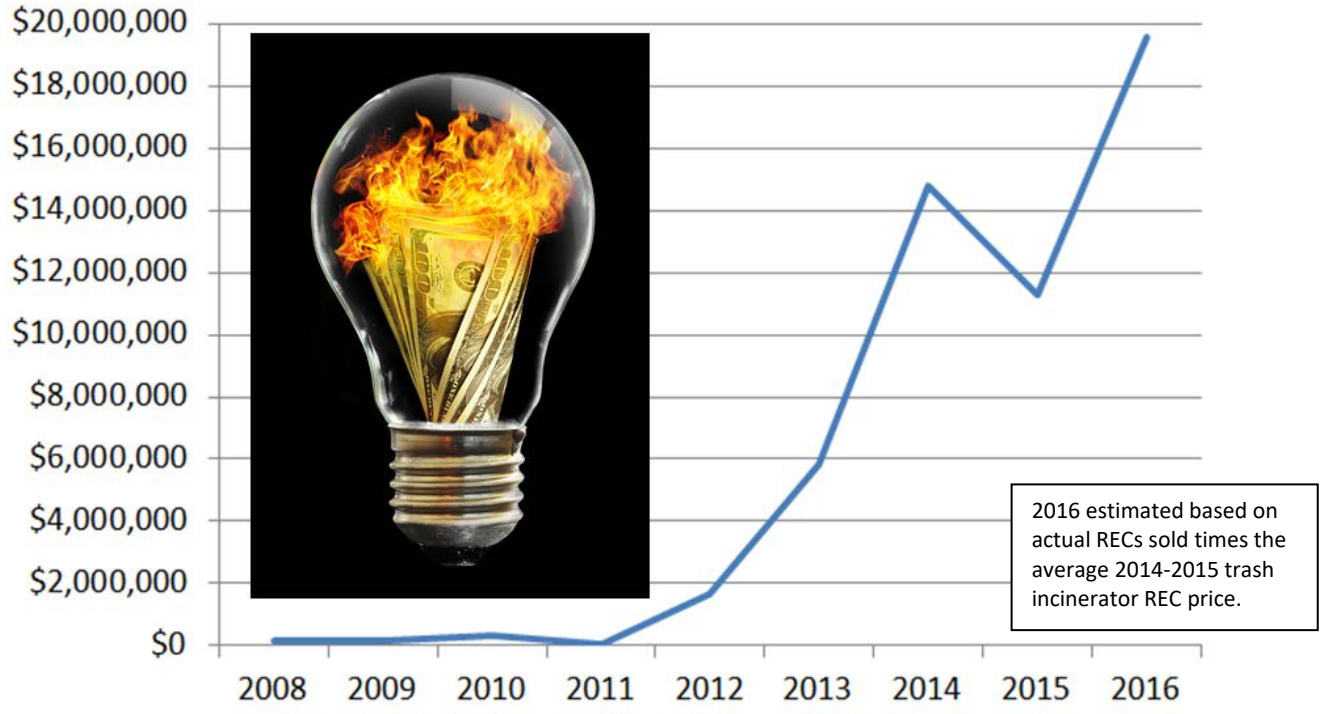
[1] SB 690 of 2011. http://mgaleg.maryland.gov/2011rs/bills/sb/sb0690e.pdf

[2] "O'Malley DGA fundraising: The appearance of conflict – Our view: Donations to a national group Gov. O'Malley heads by firms doing business with the state are just a small part of a broken campaign finance system," Baltimore Sun Editorial, November 28, 2011. http://articles.baltimoresun.com/2011-11-28/news/bs-ed-dga-20111128_1_o-malley-campaign-governor-o-malley-contributions

Trash Incineration (Municipal Solid Waste, or MSW) Renewable Energy Credit (REC) cost under the Maryland RPS



Total Money Going to Trash Incinerator industry under the Maryland RPS (Tiers 1 and 2 combined)



Trash Incinerators relevant to the MD RPS Program:

Operator	Facility Name	City	St	MW	Max MWh	Sold Tier 1 RECs	Sold Tier 2 RECs
Covanta	Montgomery County Resource Recovery Facility	Dickerson	MD	63.4	555,384	Y	Y
Wheelabrator	Wheelabrator Baltimore / BRESCO	Baltimore	MD	60	525,600	Y	Y
Covanta	Covanta Fairfax / I-95 Energy/Resource Recovery Facility	Lorton	VA	93	814,680	Y	
Covanta	Alexandria/Arlington Resource Recovery Facility	Alexandria	VA	22	192,720	Eligible	
Energy Recovery Operations	Harford Waste-to-Energy Facility [closed in 2016]	Joppa	MD	1.2	10,512	Y	
Covanta	Union County Resource Recovery Facility	Rahway	NJ	42	367,920		Y
Covanta	Covanta Plymouth Renewable Energy / Montenay Montgomery	Plymouth	PA	32	280,320		Y
Wheelabrator	Wheelabrator Portsmouth / SPSA WTE / VP Gosport	Portsmouth	VA	60	525,600		Y

Only trash incinerators in Maryland or near Maryland's borders are eligible to sell Tier 1 RECs. Trash incinerators in a much wider geography are eligible to sell Tier 2 RECs. In the chart above, the two remaining trash incinerators in Maryland, and the two in northern Virginia (6 miles from Maryland's border) are eligible, though the Alexandria facility has not sought to sell RECs to MD yet. The Covanta Fairfax incinerator is the third largest in the nation in terms of the amount of waste actually burned, and was only approved to start selling RECs to MD in late 2015. The Harford, MD trash and tire incinerator was the smallest of the three that Maryland has had in recent decades. It closed in March 2016.

There are many other incinerators in nearby states that could sell Tier 2 RECs, but are not listed here. No Tier 2 trash incineration RECs were sold to Maryland since 2013. This is most likely because the facilities that can sell their credits as Tier 1 RECs are doing so, and the others that can only qualify as Tier 2 RECs are selling into other states since there's no special draw to sell them to Maryland. _____

Trash Incinerator RECs sold to MD RPS

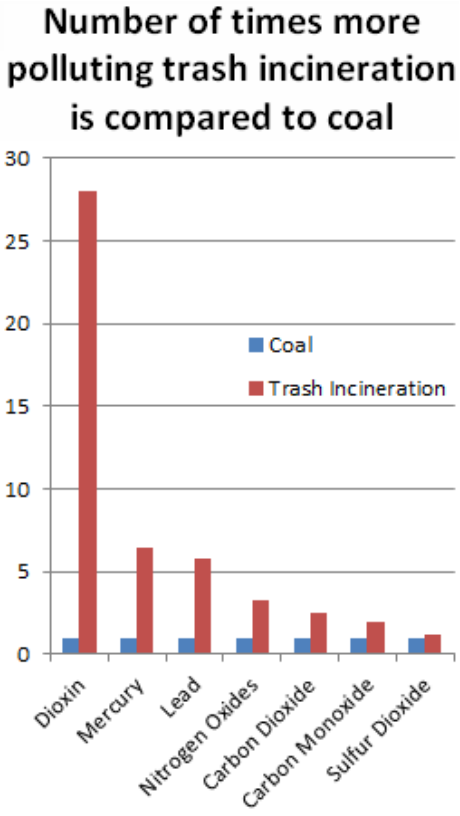
(2016 REC distribution for Maryland and 2016 REC prices estimated)

St	City	Tier	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total REC $
MD	Dickerson	1					269,126	250,820	537,957	339,710	*401,379*	$18,756,354
MD	Dickerson	2	31,428	13,688	38,761	31,423	93,029	18,064				153,964
MD	Baltimore	1					212,738	310,625	315,378	248,377	*401,379*	14,981,429
MD	Baltimore	2		1,363	78,101	31,559	25,378	43				72,338
MD	Joppa	1						949	941			17,959
VA	Lorton	1								7,440	298,320	3,982,511
VA	Portsmouth	1	115,459	176,065	196,444	118,400	41,673	55,233				493,042
NJ	Rahway	2	50,001	42,426	90,103	18,613		23,690				173,887
PA	Plymouth	2	14,858	14,714	1,081	1,826						20,236

How polluting is trash incineration?

Trash incineration is the most polluting way to manage waste or to make electricity. Per unit of energy produced, it's dirtier than burning coal. Per ton of waste disposed, it's far more polluting than landfilling (its toxic ash still ends up in landfills, with about 30 tons of ash produced for every 100 tons of waste burned; the other 70 tons end up as air pollution).[3]

To make the same amount of energy as a coal power plant, trash incinerators release 28 times as much dioxin than coal, 2.5 times as much carbon dioxide (CO2), twice as much carbon monoxide, three times as much nitrogen oxides (NOx), 6-14 times as much mercury, nearly six times as much lead and 70% more sulfur dioxides.[4]



The four trash incinerators eligible for Tier 1 RECs in Maryland are major polluters in their jurisdictions. According to the latest EPA National Emissions Inventory data (for 2014):

Wheelabrator Baltimore (Baltimore City, MD)

- The city's largest air polluter, responsible for 36% of the city's air pollution from industrial sources.
- #1 air pollution source in the city of mercury, benzo[a]pyrene, hydrochloric acid, sulfur dioxide, lead, and nitrogen oxides.
- 4th largest mercury polluter in all of Maryland.

Montgomery County Resource Recovery Facility (Dickerson, MD)

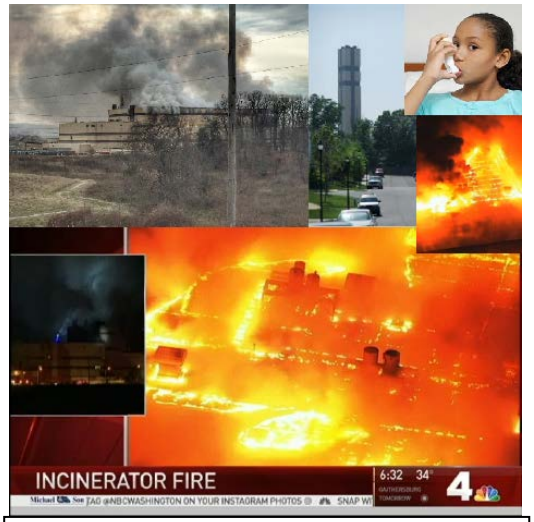
- Montgomery County's 2nd largest air polluter, responsible for 17% of the county's air pollution from industrial sources.
- #1 air pollution source in the county of hydrochloric acid and cadmium, and #2 source of nitrogen oxides, particulate matter, chromium VI, sulfur dioxide, lead, and mercury.
- Had a major trash pile fire in December 2016 that burned for nearly two weeks; one of six such fires in the past few years, more than any incinerator in Covanta's 40-plant U.S. fleet.

Covanta Fairfax (Lorton, VA)

- Fairfax County's largest air polluter, responsible for 75% of county's air pollution from industrial sources.
- Had a major trash pile fire in February 2017 that burned for nearly two weeks, causing the plant to close for 11 months.

Covanta Alexandria/Arlington (Alexandria, VA)

- Largest air polluter in Alexandria.



Covanta Fairfax fire, February 2, 2017

[3] Presentation of Analysis done for Washington, DC Department of Public Works comparing incineration to landfilling by 10 environmental criteria. www.energyjustice.net/files/incineration/incineration_vs_landfills_DC.pdf

[4] "Trash Incineration More Polluting than Coal," Energy Justice Network analysis of U.S. Environmental Protection Agency and state environmental agency data. www.energyjustice.net/incineration/worsethancoal

Who are Maryland's largest air polluters?

Trash incinerators consistently rank among the worst air polluters in any geography, alongside airports, coal power plants, cement kilns, and paper mills. Maryland is no exception. Looking at the largest polluters in the entire state, based on EPA's National Emissions Inventory latest data (2014), we find:

Rank	Facility	Lbs of Air Pollution	Percentage of total
1	Luke Paper Company	41,775,355	21%
2	Raven Power Fort Smallwood LLC	36,752,981	
3	NRG Chalk Point, LLC	18,698,824	
4	Baltimore-Washington International	14,376,897	
5	NRG Morgantown Generating Station	12,029,077	
6	Lehigh Cement Company - Union Bridge	8,727,522	
7	Patuxent River NAS/Trapnell Field	8,244,040	
8	C.P. Crane LLC	6,833,393	
9	NRG Dickerson Generating Station	5,972,532	
10	AES Warrior Run	5,791,947	
11	Holcim (US), Inc.	4,529,901	
12	Wheelabrator Baltimore, LP	3,158,565	1.6%
13	Montgomery County Resource Recovery Facility	1,481,848	0.7%
	507 Other Facilities	32,025,624	
	520 Total Facilities	**200,398,507**	

Three of Maryland's top air polluters (highlighted) get rewarded as renewable energy. Only because the other sources are much larger facilities do the two trash incinerators rank just after the Luke Paper mill, two airports, two cement kilns and several coal power plants. While the incinerators represent 0.38% of Maryland's 520 industrial air polluters, they account for 2.3% of the air pollution, or 6 times what they'd release if they were only as polluting as the average Maryland air polluter. Of course, Luke Mill stands out with an astounding 21% of the total, and is rewarded by the RPS due to their burning of black liquor.

Rank	Facility	Lbs of Mercury	Percentage of total
1	Luke Paper Company	107.4	24.1%
2	Lehigh Cement Company - Union Bridge	75.0	
3	NRG Morgantown Generating Station	61.3	
4	Wheelabrator Baltimore, LP	52.6	11.8%
5	Holcim (US), Inc.	44.2	
6	Raven Power Fort Smallwood LLC	35.5	
7	NRG Chalk Point, LLC	29.7	
8	C.P. Crane LLC	12.1	
9	NRG Dickerson Generating Station	10.1	
10	Harford County Resource Recovery Facility	6.7	1.5%
11	University of Maryland – Baltimore	3.6	
12	Montgomery County Resource Recovery Facility	1.5	0.3%
	81 Other Facilities	6.2	
	93 Total Facilities	**446.0**	

On mercury, we find that the three trash incinerators (before Harford closed) were just 3.2% of Maryland's 93 mercury emitting facilities, but accounted for 14% of their mercury pollution, or 4 times what they'd release if they were only as polluting as the average Maryland mercury emitter.

Rank	Facility	Lbs of Sulfur Dioxide	Percentage of total
1	Luke Paper Company	33,969,782	40%
2	Raven Power Fort Smallwood LLC	25,514,605	
3	NRG Chalk Point, LLC	7,866,418	
4	NRG Morgantown Generating Station	5,992,145	
5	C.P. Crane LLC	3,780,084	
6	AES Warrior Run	2,335,840	
7	Holcim (US), Inc.	1,446,004	
8	NRG Dickerson Generating Station	1,377,201	
9	Wheelabrator Baltimore, LP	621,703	0.7%
10	Baltimore-Washington International	583,515	
11	Naval Support Facility, Indian Head	567,143	
12	NRG Vienna	319,916	
13	Patuxent River NAS/Trapnell Field	256,230	
14	Montgomery County Resource Recovery Facility	139,809	0.2%
	437 Other Facilities	919,350	
	451 Total Facilities	**85,689,746**	

On sulfur dioxide (SO_2), we find that the two trash incinerators were just 0.44% of Maryland's 451 SO_2 emitting facilities, but accounted for 0.9% of their SO_2 pollution, or twice what they'd release if they were only as polluting as the average Maryland SO_2 emitter. Most shockingly, the Luke Paper mill is solely responsible for a staggering 40% of the total SO_2 emissions from Maryland industry. The (now closed) Harford incinerator wasn't far behind, and was the 16th largest SO_2 emitter in 2014.

Rank	Facility	Lbs of Nitrogen Oxides	Percentage of total
1	NRG Chalk Point, LLC	7,754,613	
2	Raven Power Fort Smallwood LLC	7,276,245	
3	Lehigh Cement Company - Union Bridge	5,803,676	
4	Luke Paper Company	5,371,558	9.3%
5	Baltimore-Washington International	5,204,048	
6	NRG Dickerson Generating Station	3,374,691	
7	Patuxent River NAS/Trapnell Field	2,712,586	
8	NRG Morgantown Generating Station	2,603,491	
9	C.P. Crane LLC	2,494,731	
10	Holcim (US), Inc.	2,346,060	
11	Wheelabrator Baltimore, LP	2,151,526	3.7%
12	AES Warrior Run	1,104,350	
13	Montgomery County Resource Recovery Facility	853,428	1.5%
14	Harford County Resource Recovery Facility	568,538	1.0%
	447 Other Facilities	7,857,752	
	461 Total Facilities	**57,477,292**	

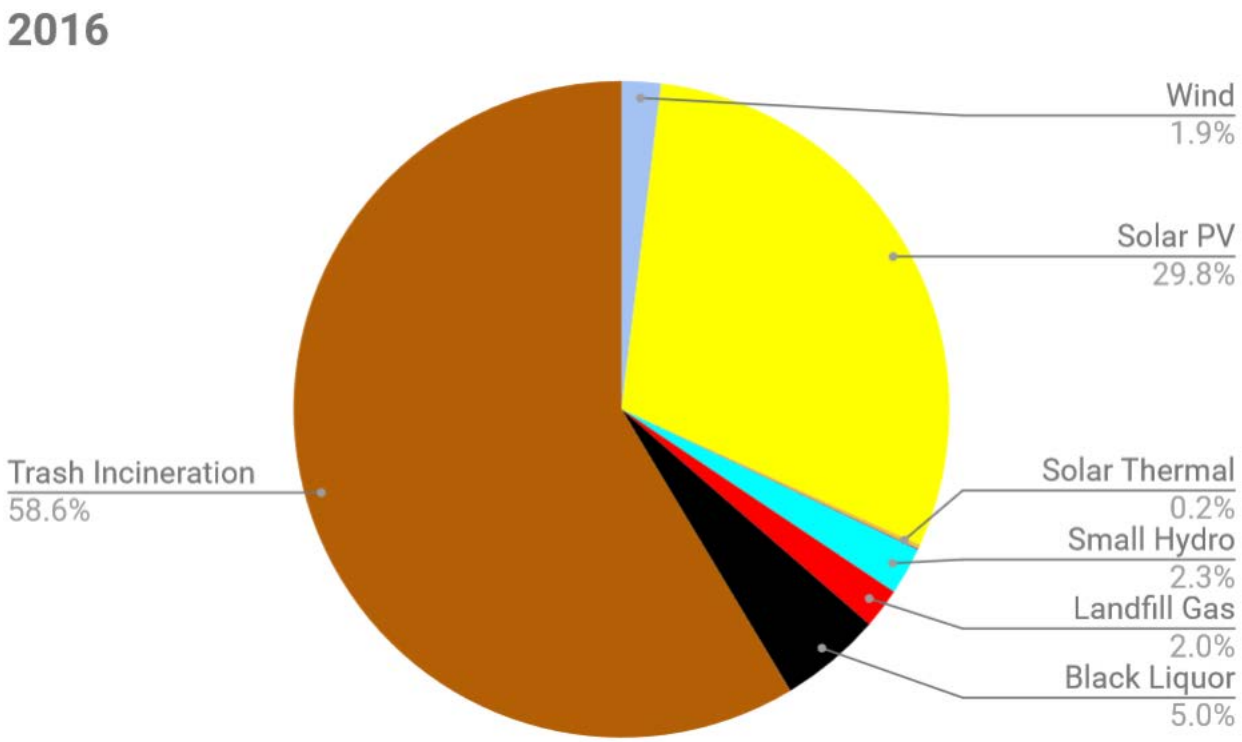
Finally, on nitrogen oxides (NOx), which triggers asthma attacks, we find that the three trash incinerators (before Harford closed) were just 0.7% of Maryland's 461 NOx emitting facilities, but accounted for 6.2% of their NOx pollution, or nearly 10 times what they'd release if they were only as polluting as the average Maryland NOx emitter. In fact, the Wheelabrator Baltimore incinerator's NOx emissions are so high that they represent 59% of the total NOx pollution from Baltimore industry, equivalent to half of the city's cars or trucks.

How much space is trash incineration taking up in the MD RPS?

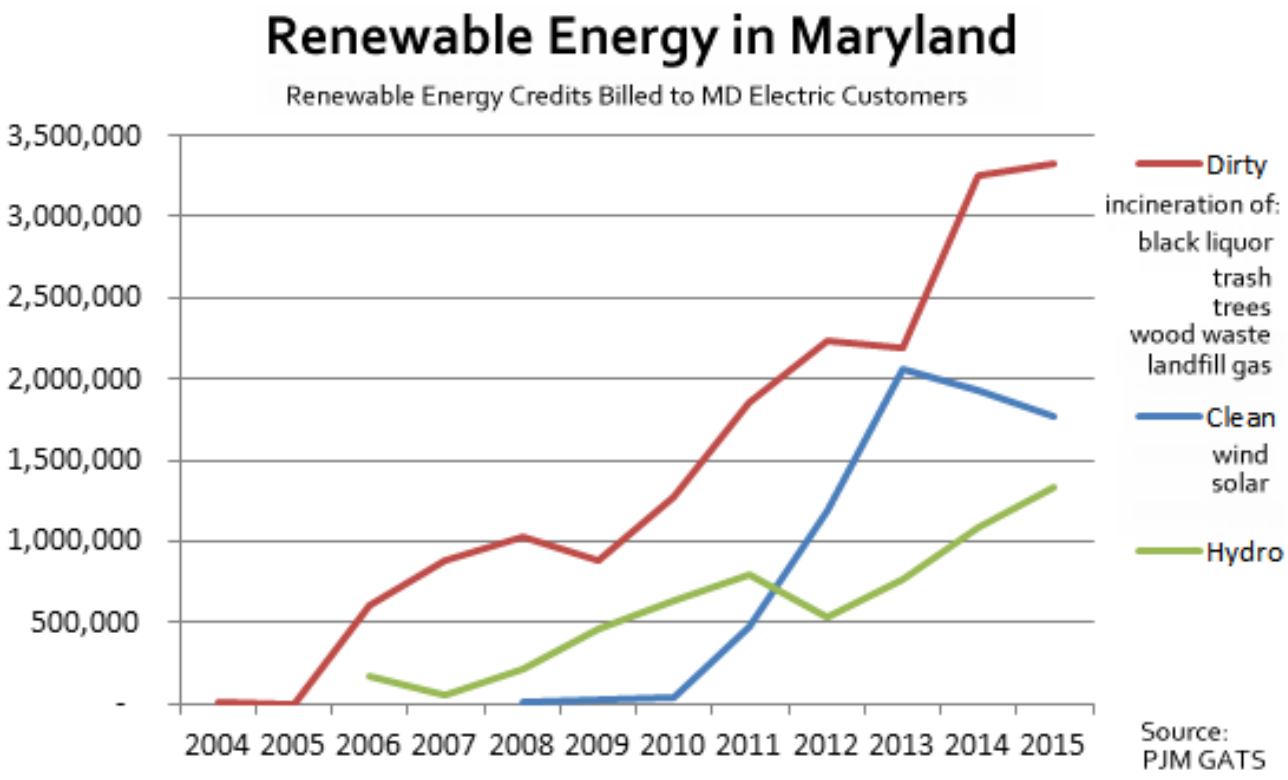
Trash incineration took up 14.4% of the RECs serving Maryland in 2016.

However, most (82%) of the renewable energy credits (RECs) serving Maryland's RPS are from out-of-state. If you look at just the Maryland-based facilities being supported by the Maryland RPS, trash incineration made up 59% of these RECs in 2016. These are RECs going solely to the trash incinerators in Baltimore City and Montgomery County.

Maryland In-State "Renewable" Generation Supported by MD RPS

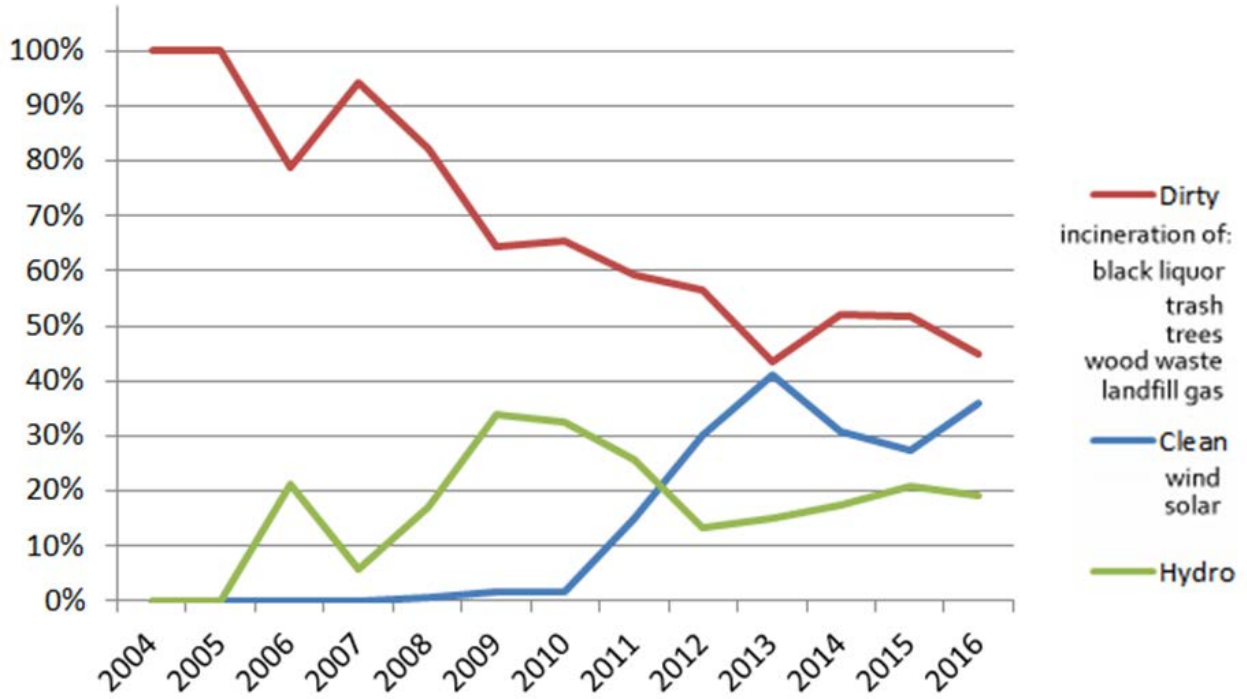


This does not count the rapidly increasing amount of RECs flowing to the Covanta incinerator in Lorton, VA, which is the largest nitrogen oxide polluter within 20 miles of Washington, DC (even worse than each of the two airports in that radius).

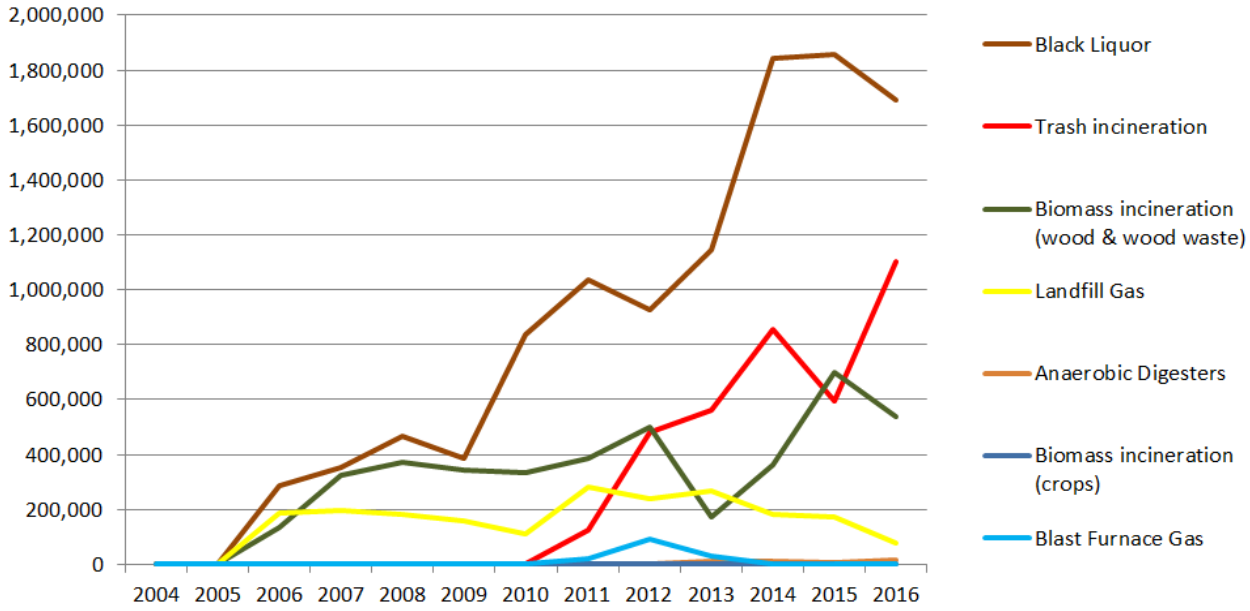


Combustion sources are historically the largest category in the MD RPS, making it one of the dirtiest state "renewable" energy mandates in the nation. Except where it dipped below 50% in two years, smokestack technologies have made up a majority of the "renewable" energy sources serving Maryland.

Resources used to comply with MD RPS, as a percentage:



Combustion Sources in the RPS (# of RECs):



For most of the time since SB 690 moved trash incineration to Tier 1, trash incineration has been the second largest component of the dirty energy fraction of the RPS mix.

As Montgomery County Council's 11/28/2017 resolution states, all combustion sources are dirty energy and ought to be eliminated entirely from the RPS by 2020, including black liquor, burning of trees, wood waste, landfill gas, and digester gas.[5]

The difference between eliminating trash incineration when it was originally to be eliminated (1/1/2019) and allowing the gradual phase-out approach could mean $300 million or more to the trash incineration industry that ought to be going to wind and solar energy.

Through 2016, over $37 million in ratepayer money has gone to the trash incineration industry, via the sale of 3,720,418 RECs. The removal of trash incineration by 1/1/2019 (the original Tier 2 sunset timeline), as advocated in the RPS Cleanup Bill[6], would allow the industry to market as many as about 3,444,000 more RECs. If the slow phase-out approach is used, as was initially proposed in the Clean Energy Jobs Act, another 9,770,638 RECs could go to the industry, and if trash incineration REC prices follow the trends to date, that difference would be worth as much as about $333 million to the trash incineration industry.

The initial phaseout timing in the Clean Energy Jobs Act would have allowed a 69% increase in trash incineration RECs sold each year in 2021, 2022, and 2023 over the incineration industry's best year yet (2016).

REC sales vs. REC retirement: RECs are generated when one megawatthour of electricity is created by an eligible "renewable" energy source. They're initialed *owned* by the owner of the source and *sold* to an electricity supplier who *retires* it when submitting it to the state to meet their annual RPS obligation. RECs sold by the end of 2018 would still be able to be retired by energy suppliers for the 3-year lifetime of the RECs. The generous increase in incinerator REC sales through 2023 is possible because RECs can be *banked* for 3 years.

[5] "Resolution to support strengthening Maryland's Renewable Portfolio Standard Requirement," Montgomery County Council, 11/28/2017. www.montgomerycountymd.gov/COUNCIL/Resources/Files/res/2017/20171128_18-968.pdf
[6] RPS Cleanup Bill, www.energyjustice.net/files/md/2018RPSCleanupBill.pdf; related info at www.energyjustice.net/md

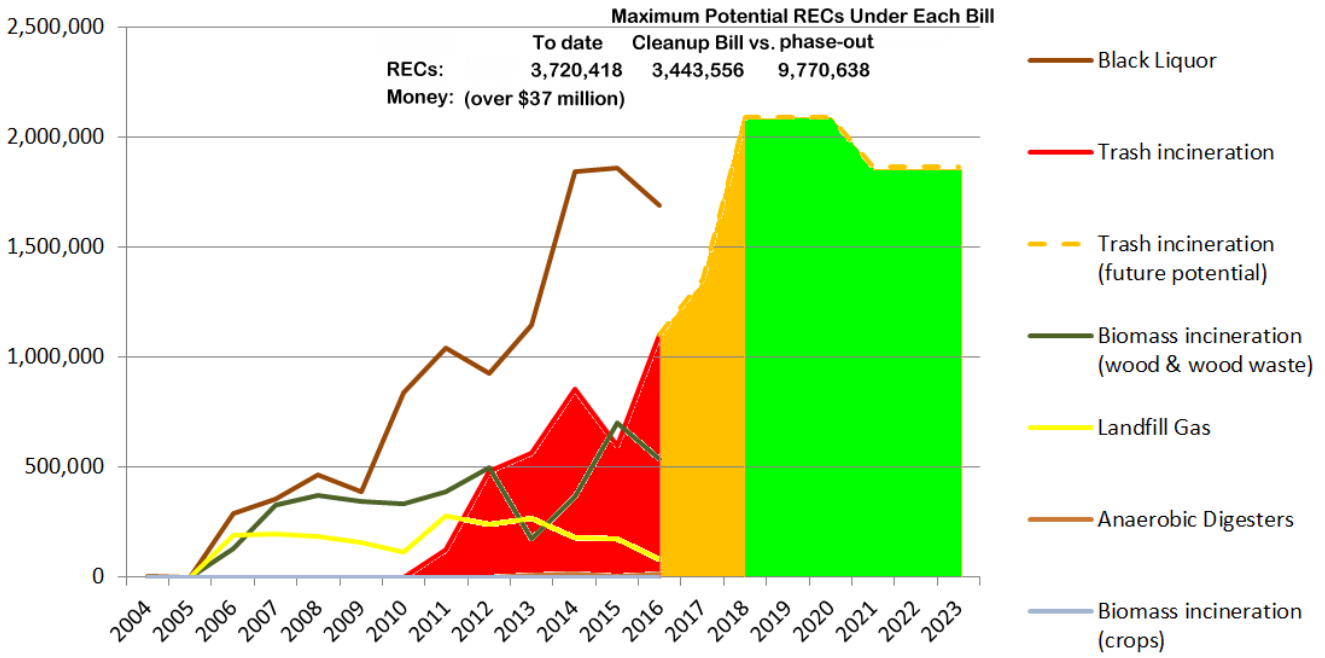
Maximum trash incinerator REC sales scenario under the gradual phase-out in original Clean Energy Jobs Act

	REC Retirement Cap	Max RECs that can be sold	Retired	Banked	2021 Retired	2022 Retired	2023 Retired
2021	1,231,290	1,864,623	1,231,290	633,333			
2022	1,231,290	1,864,623	1,231,290	633,333			
2023	1,231,290	1,864,623	1,231,290	633,333			
2024	850,000		850,000		633,333	216,667	
2025	650,000		650,000			416,666	233,334
2026	400,000		400,000				399,999

The maximum annual number of trash incinerator RECs ever retired in the MD RPS was in 2016, with 1,101,078 RECs retired. The REC retirement cap under the original Clean Energy Jobs Act phaseout, by allowing the amounts in 2024, 2025, and 2026 to be retired from the use of RECs banked in 2021, 2022, and 2023, means that trash incinerators can sell as many as 1,864,623 RECs each year to electric suppliers in 2021 through 2023. This amounts of a 69% increase in REC sales in 2021-2023 over the industry's best year (2016). The industry only needs to operate at 89% capacity to meet this maximum REC sales scenario.

To better visualize this, we've extended the previous trend line chart to project the maximum trash incinerator REC sales scenario. The difference between an immediate elimination of incineration by 1/1/2019 (the original RPS plan when it was in Tier 2) and the slower phase-out is represented by the green part of the chart.

The red section is REC sales through 2016, representing over 3.7 million RECs retired and over $37 million to the industry. The yellow section is the extra amount the industry will get if the tighter time frame passes to eliminate incineration by 2019, meaning another 3.4 million RECs could be sold in that time. The 9.77 million RECs (potentially worth about $333 million) in the green section is what should be avoided by adopting this tighter time frame, removing incineration by 2019 as originally envisioned when the RPS was first adopted.



Notes on the methodology behind the above chart:

The dollar amount of 'to-date' money to trash incinerators could be off a bit, since hard data for 2016 REC prices won't be out until later this month (January 2018). This assessment assumes that they're the same as 2015, which is probably conservative, since they increase each year. Including estimates for 2016, the trash incinerator industry made $37.7 million in Tier 1 REC sales through 2016. It's $38.7 million if you include Tier 2 REC sales (Tier 2 credits are worth much less), which stopped happening in 2015.

In the chart above, the 2017 data point for incineration is low as it is because the Lorton, VA incinerator was closed for all but 5 weeks in 2017. The maximum level (2018-2020) is based on all four incinerators running at full blast 100% capacity, which is highly unusual, but not totally impossible, as some incinerators have actually run beyond their ton/day capacity and generation amounts can be outside of expected boiler rating ranges. That's why it's a maximum. The 2021-2023 level is the "capped" level in the phaseout, including the credits they can sell to be banked by electric suppliers for 2024-2026 RPS use. That capped level is actually a realistic amount to expect they can generate, as the four incinerators only have to collectively operate at 89% capacity to meet that level, and that's a more typical capacity factor. A "capacity factor" is the percentage of time during a year that a facility operates.

Even if the trash incinerator REC prices never increase from their peak in 2015 (2016 prices still unknown), the difference between the two time frames is up to $140,697,187 going to the incinerator industry (if they sell the maximum credits possible). Even though they probably won't produce and sell the maximum number of credits, the REC prices are sure to increase as they have every year, which could more than compensate, so it's conservative to assume that the gradual phase-out timeline lets the incinerator industry get at least $140 million more than they would under a more immediate elimination. That's across the four incinerators (Dickerson, Baltimore, Lorton, and Alexandria).

The $333 million figure is from a more realistic scenario looking at the trendline of where Tier I trash incinerator REC prices would be if they followed the same increase trend through 2023. This trendline has trash incinerator REC prices increasing from $13.40/REC in 2015 to $43.10 in 2023. It's based on the four incinerators operating at 89% capacity, maximizing their potential sales under the phase-out timeline. At just 80% capacity, following the REC price trends, the phase-out timing allows the four trash incinerators collectively to make another $300 million from 2019 through 2023 instead of the maximum possible $333 million.

"Waste-to-Energy" vs. "Refuse-Derived Fuel"

Maryland's RPS includes two types of trash incineration. § 7-701(r) defines a Tier 1 renewable source to include both "waste-to-energy" and "refuse-derived fuel."

Refuse-derived fuel (RDF) is basically processed trash. It's trash where metal and glass (which don't burn) are removed, and the remainder (mostly plastic and paper) is turned into pellets to be burned, either in a trash incinerator or a coal power plant or industrial boiler.

Since Maryland's RPS law allows co-firing, a coal power plant could burn RDF and the RDF portion of their electricity production would earn RECs. It's a strategy that could help keep coal power plants operating. Even though the emissions from burning RDF are worse than those from coal burning, any climate regulation like the Clean Power Plan, ignores the higher CO_2 levels from RDF burning by not counting them at all, thus further incentivizing coal power plants to burn RDF. Coal power plants aren't designed with the additional pollution controls that trash incinerators have. The same is true for paper mill and cement kilns which are also encouraged to burn these "alternative" fuels.

"Waste-to-energy" is an unscientific public relations term meant to describe conventional trash incinerators that produce electricity and/or steam heat. Waste is not actually turned "into" energy as matter cannot be turned into energy without a nuclear reaction, and thankfully that's not what trash incinerators do. They simply turn trash into toxic ash and toxic air emissions while recovering a small portion of the energy that was used to make the materials in trash. Recycling and composting the same materials actually saves 3-5 times more energy than a trash incinerator can "create" by burning (destroying) them, requiring these materials to be extracted and produced again from raw resources. For more on why trash incineration is not "waste-to-energy," see www.energyjustice.net/incineration/waste-to-energy

The Energy Answers incinerator that was proposed for Baltimore (and defeated after a five year fight) would have burned RDF as well as tires, shredded cars, and wood waste ("biomass"). The RDF and wood waste would have been able to earn RECs under the MD RPS.

While RDF has not been used in the MD RPS yet, the potential is large. RDF can be produced anywhere so long as it's burned within or near Maryland's borders in any incinerator, coal power plant, or other boiler capable of making electricity.

In the region are:

- Waste Management Inc.'s large SpecFuel plant in Philadelphia, pelletizing Philadelphia's trash and marketing it within the region.
- Entsorga just built an RDF production plant in Martinsburg, WV.
- Washington County, MD had an RDF production plant proposed that was given a long-term contract in recent years.
- Harford County, MD also had such a proposal a handful of years ago, possibly in order to serve the now-defeated Energy Answers incinerator in Baltimore.

Since RDF qualifies for Tier 1 credits in Maryland, there's an incentive for companies to ship their RDF to burn in Maryland's coal power plants rather than do so in nearby states.

What are the effects of RPS incinerator incentives?

Existing incinerators: RPS incentives help keep existing trash incinerators open. The major waste contracts for the trash incinerators in Baltimore City, Montgomery County, and in Fairfax County, VA all expire in 2021. The local decisions on renewing these contracts will take place around 2019-2020. Keeping upwards of $300 million flowing to these incinerators and the Alexandria, VA incinerator through 2023 interferes with the efforts to get these incinerators closed in the near-term.

Energy Justice Network is leading campaigns to seek the closure of Maryland's incinerators by the end of their contract terms in 2021. Baltimore City and Montgomery County councils have both passed multiple resolutions pointing in this direction and will be considering legislation in 2018 toward these ends.

Proposed incinerators: In the past decade, the following communities in the area faced proposals for new trash incinerators, all of which were defeated by community and political opposition, in some cases, absorbing up to 8 years of people's lives to stop these threats that are incentivized by the RPS:

- Frederick, MD
- Baltimore City, MD
- Prince George's County, MD
- Washington County, MD
- Carroll County, MD
- Wicomico County, MD
- Washington, DC
- Stafford, VA

The status of trash incineration as a Tier 1 renewable in the Maryland RPS was named as a reason why the Baltimore Regional Cooperative Purchasing Committee had its 22 public entity members sign power purchase agreements with the proposed Energy Answers incinerator. It took creative ongoing campaigning led by youth at the nearby Benjamin Franklin High School to get these contracts canceled.

Clean energy: With the sole exception of 2014, in every year, trash incineration REC prices have undercut wind power, competing directly with wind for Tier 1 RECs. Every year that trash incineration remains in Tier 1, means less ratepayer money supporting wind power or other Tier 1 renewables.

Zero waste: All subsidies pick winners and losers. When subsidies were immediately granted to incinerators and landfills in the RPS, and later massively (and immediately) increased for incinerators with SB 690, that didn't give reuse, recycling and composting industries a chance to adjust to the market pressure. It immediately put the dirtiest technologies in the waste hierarchy at a competitive advantage vs. the Zero Waste solutions that the state has been trying to advance.

Timing of incentives: SB 690 passed on 5/19/2011 and took effect on 10/1/2011 – boosting incinerator incentives only 135 days later, which is very little adjustment time for the reuse, recycling and composting industries that compete with incineration. If the Clean Energy Jobs Act became law on 5/19/2018, it would be 226 days before the restrictions take effect, at the new year.

At the outset, the trash incineration industry knew that they were no longer to be in the RPS after 2018, once Tier 2 is eliminated. That's obviously why they spent so much money to get legislative support for SB 690. If their eligibility is ended after 2018, the industry will still have enjoyed seven years of large bonuses from 2012 through 2018. It's time to end these dirty energy subsidies when the RPS was originally intending to.

Incentives may be undeserved: The Public Service Commission is supposed to enforce the RPS, which requires that incinerators comply with environmental laws and draw waste from areas that comply with Maryland's mandated recycling rates. The PSC is doing nothing to assure compliance with these standards. Some incinerators may be benefitting from millions in RECs that they weren't eligible for.

FrederickZeroWaste_FAV_SB560
Uploaded by: GALLAGHER, PATRICE
Position: FAV

FREDERICK ZERO WASTE ALLIANCE

FORMERLY THE NO INCINERATOR ALLIANCE

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

We are a citizen organization originally founded to oppose an incinerator project that was set to be built jointly by Frederick and Carroll Counties, in Frederick County. After a number of years, we prevailed, and both counties have been working on ways to manage "waste" that make better sense than to burn it. Since we have learned so much about the negative aspects of incineration, we are passionate about the subject and URGE you to remove trash incineration from Maryland's Renewable Portfolio Standard.

Please read and include the following op ed, written by an FZWA member for the *Frederick News Post,* as our testimony to support HB 438 and SB 560.

_____

Maryland should stop subsidizing pollution

Last year, Frederick County broke ground on the Ballenger-McKinney Photovoltaic Solar Project — a 5-acre, 1.3-megawatt solar array. This project is special, not only because of the over $100,000 it will save Frederick County every year. It also takes the place of what would have been a municipal waste incinerator burning Frederick County and Carroll County's waste, less than a mile away from two elementary schools.

Frederick, alongside other communities across Maryland, is showing our commitment to moving away from trash incineration, toward truly renewable energy and zero waste. And right now, Maryland legislators are considering HB438 and SB560 — sponsored by Sen. Hough of Frederick County — to remove trash incineration from the Tier 1 renewable energy category in the state's Renewable Portfolio Standard and take away millions of dollars' worth of subsidies that Maryland's remaining incinerators receive every year.

It's time for Maryland's legislature to follow the youngest members of our community and the adaptive attitudes they are bringing to the table, and stop subsidizing trash incineration.

In Baltimore, teens and young adults have changed the conversation about the Bresco incinerator, which pollutes the air they breathe. Their activism, and the self-education they've done on this issue, is a harbinger of things to come.

CONTINUED NEXT PAGE

They know that incinerators are not efficient producers of energy, and that it's been proved in communities worldwide that there are so many better ways to handle materials bound for landfilling than to burn them.

Here in Frederick, much younger children are demonstrating their adaptive spirits, as elementaryage kids in several pilot schools have shown that with some education and a bit of oversight, they'll willingly — and even enthusiastically — divert 80 percent of their cafeteria "waste" into bins for organics, recyclables and liquids. Eighty percent! It's inspiring to see how readily the children — the youngest, in particular — understand and adapt.

Frederick and Carroll counties came very close to building a new incinerator for our waste several years ago. But citizens in both counties who opposed the project for environmental and financial reasons changed the counties' course. It took a long time, and the involvement of hundreds of citizen activists and experts, but eventually, the contract to build the incinerator was overturned. What we learned during and since the incinerator battle, is that there are much better alternatives to incineration for "waste management," more accurately called "resource management," since much of the material we call waste can actually be repurposed, reused, recycled and composted. County Executive Jan Gardner instituted a process called "What's Next" after the incinerator project was canceled. A yearlong series of forums took place around our county to solicit input from county citizens about how we should best divert material from landfilling. A tremendous number and variety of creative solutions were brought forward, and a citizen committee, aided by a consulting company, sifted through all of the ideas.

The committee found that the most promising immediate action would be to begin a county wide organics collection and composting program, since waste sorts have shown that about 30 percent of the material we landfill is organic, much of it food. At this moment, the legislative, budgetary, and regulatory gears are moving Frederick County toward pilot programs and public education, and ultimately to a robust diversion of organics from landfilling, with the added tremendous benefits of producing compost from the organics to amend our soil on farms and elsewhere.

It's becoming increasingly obvious that granting renewable energy status (and financial subsidies) to incinerators is an idea that simply cannot be justified, given that there are so many more effective ways to deal with "waste," and given that incinerators are not a renewable or efficient way to deliver energy.

Why is our state continuing to give incinerators financial benefits, when our tax dollars can be invested in actual renewable energy production, like solar and wind, and create jobs in those arenas, too?

Look to the children, teens, and young adults to see the way of the future. We must all be willing and able to adapt, moving away from old technologies and on toward more innovative and healthier ones. Maryland must pass HB 438 and SB560 to help make this vision possible.

Patrice Gallagher, Frederick Zero Waste Alliance
Frederick News Post

SugarloafCitizens_FAV_SB560
Uploaded by: Greenberger, Lauren
Position: FAV

Sugarloaf Citizens' Association

Protecting Our Rural Legacy

Linden Farm, 20900 Martinsburg Rd., PO Box 218, Dickerson, MD 20842 • Tel. 301-349-4889
www.SugarloafCitizens.org

Testimony for SB 560: Removing trash incineration from the RPS

2.25.2020

Good afternoon, I am Lauren Greenberger, President of Sugarloaf Citizens Association in Dickerson.

We know that waste incineration is horribly polluting – Covanta will tell you they operate below EPA requirements but that still means they are putting over 600,000 tons of GHG in the air annually and dozens of other toxins including 24 pounds of mercury – one gram of mercury can render a whole reservoir undrinkable. Our incinerator is 5-25 times more polluting, depending on the toxin, per unit of energy produced than a coal-fired power plant. Would you consider subsidizing coal plants as clean energy?? This is the number one largest polluter in the county and number two in the whole state.

By keeping trash incineration in the RPS we are subsidizing this polluter and, more importantly, taking away from the expansion of wind and solar production – industries we desperately need to combat global warming.

While George Bush was still governor of Texas, he signed a Renewable Portfolio Standard bill into law. The Texas RPS law caused the dirty utilities to have to invest in truly renewable energy. They turned to wind power, making Texas second to California in wind generation and causing more wind power to be installed in Texas (912 MW) than in the rest of the U.S. combined (775 MW). This is the power of a CLEAN RPS.

Now I know there are rumors that taking away this subsidy will make electric bills go up. This is ludicrous – electric bills will go DOWN because PURPA charges will be reduced. The incinerator industry does not set the market price, they sell to the grid and can charge current market rates. If subsidies are eliminated, the incinerator industry will lose some revenue, but ratepayers will pay a little bit less – that's it. Market rates will not increase. And the fiscal note clearly tells us Maryland can easily meet its 50% renewable goal without trash incineration.

Sugarloaf Citizens' Association

Protecting Our Rural Legacy

Linden Farm, 20900 Martinsburg Rd., PO Box 218, Dickerson, MD 20842 • Tel. 301-349-4889
www.SugarloafCitizens.org

This bill does not call for the closure of any incinerators. Just to stop allowing money earmarked for growing the clean energy sector to be sent to incinerators. No jobs will be lost, no new landfills will be built. And if, at some point in the future, the incinerators were to close, there are many more jobs in zero waste industries than incineration. Recology in San Francisco provides hundreds of well-paid union jobs to manage their waste. Residual waste that could not be composted or recycled could safely and economically go via rail to remote modern landfills with 75% methane capture rates in Ohio, Tennessee or North Carolina. New York City has been doing this for years.

It is also important to note that, because Montgomery County owns the Dickerson incinerator, Covanta has not been getting the REC's for it the past 12 years, the County has. They will lose nothing. County Executive Elrich has purposely NOT included the income from RECs in his current budget estimates because he fully supports removing incineration from the RPS. He recognizes how foolish it is for our community and our planet to be pouring money into dirty technology that could be going to clean.

Please support truly clean industry across the state that provides good, well-paying jobs and a path forward for all our children that will mitigate the devastating effects of GHG emitting industries.
We ask for a favorable report on this bill.

Thank you so much for your attention.

GlenEcho_FAV_SB560
Uploaded by: Hemmer, Lisa
Position: FAV

GLEN ECHO HEIGHTS MOBILIZATION

Committee: **Finance Committee**
Sponsor: **Senator Hough**
Testimony on: **SB 560 – Renewable Energy Portfolio Standard – Eligible Sources**
Position: **Support**
Hearing Date: **February 25, 2020**

Glen Echo Heights Mobilization submits this letter in support of SB 560, a bill to remove trash incineration from the Renewable Portfolio Standard and redefine clean energy sources to exclude trash incineration. It would also and in particular remove state funding incentives for the dangerous BRESCO incinerator.

SB 560 would:

- Change the current inclusion of trash incineration as a defined clean energy source.
- Defeat the government subsidy for trash incineration.
- Conform to the State's commitments to reduce emissions from fossil fuels as reflected in the Greenhouse Gas Reduction Act and the Clean Energy Jobs Act, by also removing incentives for the greenhouse gas emission, mercury, carbon monoxide, and other pollutants emitted by incineration.

We support this legislation for the following reasons:

- **Maryland would join communities in other states that have already set deadlines for achieving net zero emissions in their economies.**
- **Maryland would join communities reliant on science rather than politics for developing our children's futures.**
- **SB 560 would support environmental justice goals by preventing the incentivization of trash incineration in low-income communities.**
- **The bill would permit the state to focus on subsidies for true renewable resources (including wind and solar).**
- **The bill would benefit communities suffering from incinerator emissions and take a stab at reducing the $55 million in medical bills attributed to the BRESCO incinerator by the Chesapeake Bay Foundation.**

Conclusion

This bill provides multiple benefits to Maryland citizens. Of principle importance to our organization, it supports Maryland's existing commitments towards and future development of clean energy and stops using incentives in a way that negatively impacts citizen health. We urge a favorable report by this Committee.

Glen Echo Heights Mobilization is a group of local residents that meets regularly to discuss and take actions to make progressive change happen at the municipal, county, state and federal levels.

BruceHolstein_FAV_SB560
Uploaded by: HOLSTEIN, BRUCE
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

My name is Bruce Holstein, and I am a resident of Carroll County. I was asked by supporters of this bill to provide financial data to the Committee about the joint Frederick County Carroll County incinerator / WTE project finances. The financial data was taken from Government records during the period 2010 to 2014 which is the year when the incinerator contracts were terminated. This project would have cost about $3 billion over 30 years; $1 billion in financing charges and $2 billion in operating charges. The project contracts were terminated because of financial and environmental issues that were identified by concerned citizen groups in both Counties and provided to County decision makers. The citizen group findings were so compelling that County officials who signed the original contracts changed their minds.

I do not believe trash incineration should be subsidized through the Renewable Portfolio Standard. The trash incinerator proposed by the Authority for Frederick and Carroll Counties would have been a bad deal for those counties, regardless of the subsidies it would have received under the Renewable Portfolio Standard. And even if those subsidies had made up the shortfall, Maryland ratepayers should not have to subsidize expensive and polluting trash incinerators in our communities.

In my former life, I was the Director of Audits at the U.S. Government Printing Office for 4 years and also served as their Comptroller for 11 years before I retired. From its formation until recently, I served on the Solid Waste Advisory Council for Carroll County. When I use the word government, I am referring to the Northeast Maryland Waste Disposal Authority, Frederick County, and Carroll County officials who were involved with this project.

Background

The Northeast Maryland Waste Disposal Authority (Authority) wrote all the contracts governing this project. The Authority is a self-supporting public corporation of the State of Maryland and does not receive appropriations for their daily operations. They fund their operations by charging fees for their services. The Authority would have earned about $25 million in fees over the life of the 30 year service contract. The Authority also charges Counties annual membership fees.

If built, the incinerator would have been owned by the Authority for 30 years and then transferred to the Counties after the bonds had been paid off. Construction would have been financed by revenue bonds issued by the Authority. Both Frederick and Carroll Counties were contractually required to pay off the debt over 30 years.

The incinerator would have a capacity of 1,500 tons per day or 547,500 tons per year. The guaranteed throughput was 503,700 tons per year.

The Authority planned to import about 350,000 tons of trash per year from unidentified jurisdictions into Frederick County for burning at this facility because the volume of trash generated by Carroll and Frederick was insufficient to meet required plant capacity.

The Authority was working under contracts on behalf of Frederick and Carroll County and was the contracting officer for the incinerator project.

Wheelabrator was the successful bidder on the contract and was supposed to build the facility and operate it for 20 years with two 5-year options under the Service Contract, i.e. the contract between the Authority and Wheelabrator.

County taxpayers would have been a significant part of the plant revenue funding source via System Benefit Charges on County tax bills if the projected plant revenues failed to materialize.

There were other contracts between the Authority and the Counties: the Project site Lease Agreement with Frederick only; the Energy Recovery Agreements; and the Memorandum of Understanding.

The Authority's financial plan consisted of several pages of spreadsheets showing their estimated revenue and cost projections. The financial spreadsheet plan is identified as Conservative Electric Full Plant.

The most significant issues regarding this project were the financing, disposal of incinerator ash, premature plant obsolescence, and inflated savings estimates attributed to incineration. There are other issues but these are the core issues.

Decision makers in both counties terminated their contracts after they were provided data developed by the citizen groups.

Bonds and other Financing

According to Section 6.3 of the Service agreement, the parties acknowledged their mutual expectation that the cost of the Design-Build work will exceed the Design-Build Price and that the Company will be required to provide all funds above the Design-Build Price necessary to complete the Design-Build Work. The Authority was supposed to issue revenue bonds in the

amount of the Design- Build price. The initial Design-Build price was $332 million. However, the Authority provided a table showing they intended to issue $401.8 million in bonds for construction. The planned bond issuance was $70 million higher than the Design-Build price. The excessive amount of Authority bonds reduced risk that the company would have to spend very much for cost overruns.

Technically, the debt belongs to the Authority because they issued the bonds. However, the Counties were required by the billing formula in Section 4.1 of the Energy Recovery Agreement to make debt service payments. Therefore, the Counties would be paying off debt incurred by the Authority.

Government officials asserted that the contractor was going to contribute $73 million to the project. That assertion was incorrect as the contractor was going to obtain a letter of credit for $73 million. Section 6.3 (B) of the Service Contract identified the $73 million construction commitment as project security to be used in event of a default by Wheelabrator. Section 6.3 (C) states the Authority shall not make any drawings upon the $73 million until it has paid the Company the full Design-Build Price. Drawings were permitted if the Company defaulted during construction. According to Section 6.3 of the Service Contract, the Authority could release or return any unused portion of the Company's Construction Commitment. Nevertheless, the Counties were required to reimburse the Authority as if the entire amount had been spent. The total reimbursement according to Authority spreadsheets was $111.8 million for this item even if there was no default by the contractor.

Ash

Government officials asserted that the incinerator would save landfill space and that outside jurisdictions bringing trash to the incinerator would have to backhaul their own ash. Those assertions were not supported by existing contracts. The contracts committed both counties to dispose of ash, including ash from imported trash, in their existing landfills without receiving a tip fee. The Authority was supposed to develop a landfill contract but that was not done prior to project termination.

Authority spreadsheets clearly showed Frederick County paying for and transporting 90,666 tons of ash which is 60% of the total ash to their own landfill. Carroll was assigned 60,444 tons of ash which is 40% of total ash.

The Memorandum of Understanding assigned ash disposal to Frederick and Carroll based on plant capacity including marketed capacity. There was nothing shown on Authority spreadsheets for other jurisdictions back hauling their own ash. The contracts required Frederick and Carroll to pay for transportation and disposal of out of county ash in their own landfills. In the alternative, the Counties could have paid to have the ash hauled out of state.

Premature Obsolescence

Prior to issuing the permits, MDE required $25 million in additional air quality control equipment above and beyond the original proposal.

Savings did not exist

The estimated savings projected by the government included excessively optimistic revenue estimates for electricity and omission of ash disposal cost; compared to inflated cost of hauling trash to out of state landfills.

Electricity revenue at the Frederick plant was projected at $33 million with 2% increases annually. Montgomery County was selling electricity to the grid from their incinerator so there were real numbers to compare to the overly optimistic electricity revenues projected by the government. The Authority projection for electricity prices was more than double existing prices. I compared real energy revenue at Montgomery County's incinerator of $15.8 million at June 30, 2013 to the Authority's estimate of $33 million from electricity sales at the Frederick plant in 2015 and their estimated 2% increases every year for the next 30 years and concluded their electricity revenue projections were not realistic. According to Authority spreadsheets, the Frederick Plant was projected to generate 377,775 megawatt hours per year based on 750 kilowatts per ton of trash. The Authority was asked to provide the name of one plant in the world that obtains 750 kilowatts per ton. I did not receive a reply to my request. The Montgomery County plant, which is rated at 1,800 tons per day is 300 tons per day higher than the proposed Frederick plant, actually produced 361,529 megawatt hours of electricity last year.

Cost of Incinerator vs out of state landfilling

A significant part of the justification for building the Frederick incinerator was the projected cost savings of burning trash over hauling it to out of state landfills. In order to create projected savings, the government overstated plant revenue and understated operating costs. Electricity revenue was inflated and the cost of ash disposal was omitted.

In a letter to me dated July 23, 2010, Frederick County provided a table which showed Carroll County would save $229 million by using the Authority's incinerator. That assertion is false. The government almost tripled the Carrol County's out of state hauling actual cost in order to develop projected savings. A reasonable estimate showed that it would have cost Carroll County at least $100 million more to use the incinerator. That is a change of more than $300 million.

Conclusion

Claims made about the cost effectiveness of incineration should be scrutinized very closely by independent people to ascertain their reasonableness.

I read the fiscal notes for this bill and noticed the small amount of Renewable Energy Credits (REC) revenue that would be lost if incineration is removed from Tier 1 subsidies.

When making your decision to vote, I urge you to consider the amount of damage done to the environment by burning trash. Also please consider the impact of very expensive incineration that prevents communities from adopting Zero Waste which is much cleaner and far less costly than incineration. Copied below are my recommendations to Carroll County to save money and improve the environment by developing zero waste infrastructure in our county.

Because of my experience giving such scrutiny to the incinerator proposed by the Northeast Maryland Waste Disposal Authority to Frederick and Carroll Counties, I urge you to vote yes on HB961 and SB548 and end the practice of subsidizing trash incineration as clean energy under Maryland's Renewable Portfolio Standard.

Bruce Holstein

Recommended for Carroll County

Long Range Strategic Plan for Solid Waste

November 2019

Carroll County has a significant opportunity to leverage its membership in the Northeast Maryland Waste Disposal Authority (NEA) by creating a REGIONAL Resource Recovery Park with manufacturing jobs located within the County.

Step 1 – Jack Lyburn suggested that you have Industrial Development Authority (IDA) hire a Zero waste Contractor to develop a plan for facilities similar to those located in California. Gary Liss and Neil Seldman could develop the plan – contact information for them is gary@garyliss.com and nseldman@ilsr.org Estimated cost for plan is $100,000.

Step 2 – contact Montgomery County Executive Marc Elrich to discuss sharing cost of developing plan. Neil Seldman should be able to discuss cost sharing with him. Elrich wants to close the Dickerson incinerator but needs a plan for solid waste disposal and disposal of recyclables.

Step 3 – Purchase Walter Kennel's 330 acres to provide space for manufacturing plants, at least one future landfill cell and future construction of rail access. Jeff Castonguay could approach adjacent NEA member counties and request NEA bonding the construction of a Resource Park on the adjacent land to Northern Landfill (Kennel Property) or IDA property in Mt. Airy. Estimated cost $15 million for land and $50 million for construction of the park. The alternative is to use other IDA property for the Manufacturing operations.

The Resource Recovery Park will be supported by citizens because it will produce local jobs without high levels of pollution.

Step 4 – use the PAYT trash bag program to generate more recyclables and additional revenue to pay for ongoing operations. The pilot program in New Windsor proved that it works as trash was reduced by 40%. PAYT needs to be a top down County initiative. It can be implemented County-wide by changing the rules at the County landfill for residential trash. County can require residential trash be delivered in County approved trash bags. Waste Zero working for Carroll County successfully completed a pilot program in New Windsor. Carroll County could issue an RFB for PAYT trash bags. This can be done NOW to create a new revenue stream for solid waste enterprise fund.

sb560, incinertation-energy, 2-25-20
Uploaded by: Hudson, Lee
Position: FAV

Delaware-Maryland Synod
Evangelical Lutheran Church in America
God's work. Our hands.

Testimony prepared for the
Finance Committee
on
Senate Bill 560
February 25, 2020
Position: **Favorable**

Madam Chair and members of the Committee, thank you for the opportunity to testify about clean energy and protecting the environment from toxic pollutants. I am Lee Hudson, assistant to the bishop for public policy in the Delaware-Maryland Synod, Evangelical Lutheran Church in America. We are a faith community of congregations in three ELCA synods, located in every part of the State.

The ELCA committed to caring for the environment in "Caring for Creation" (ELCA, 1993). We have never been proponents of burning waste to generate electricity. Trash is not a "renewable resource." Burning it produces further environmental degradation and threat to the public health. It certainly doesn't merit what amounts to public subsidy through tier 1 generation credits.

It's time to correct this flaw. Eliminating this source of power generation is better energy policy and a benefit to environmental health. We support Senate Bill 560 and ask your favorable report.

Thank you for this hearing.

Lee Hudson

575 South Charles Street, Suite 202 • Baltimore, Maryland 21201 • 410-230-2860 • 410-230-2871 (fax) • demdsynod.org

FatherTyHullinger_FAV_SB560
Uploaded by: HULLINGER, FR. TY
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a pastor of three Catholic parishes in (and also a resident of) the 45th district, I am writing to express my strong support of HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities.

My faith tradition teaches that ecological crises are also moral, spiritual and ethical crises. Our parishioners know by faith, and by family medical histories of asthma, cancer and other illnesses, that burning trash is dirtier than burning coal. Fine particle air pollution from the BRESCO incinerator causes over $55 million in adverse health effects annually, according to a study commissioned by the Chesapeake Bay Foundation. That study also found that living near the BRESCO incinerator has the same health impacts as living with a smoker. And according to the Environmental Integrity Project, trash incineration produces more greenhouse gas emissions per unit of energy than coal plants.

Clearly, we must make profound changes, and HB438/SB560 is a positive step forward. A Baltimore City Office of Sustainability 2014 report *(Waste to Wealth: Baltimore Waste Stream Analysis)* showed that 82% of Baltimore's household materials could be recycled or composted. Pope Francis shares our belief that we can demonstrate accountability to one another, to our earth and to future generations by adopting zero waste and recycling approaches to dealing with our trash instead of incineration:

> *We have not yet managed to adopt a circular model of production capable of preserving resources for present and future generations, while limiting as much as possible the use of non-renewable resources, moderating their consumption, maximizing their efficient use, reusing and recycling them. A serious consideration of this issue would be one way of counteracting the throwaway culture which affects the entire planet.* (Pope Francis*, Laudato Si,* #22).

When Pope Francis chose to address our environment and care for creation as his first encyclical letter, *Laudato Si (On Care of Our Common Home),* he was speaking for us in Baltimore, too:

> *Doomsday predictions can no longer be met with irony or disdain. We may well be leaving to coming generations debris, desolation and filth. … The effects of the present imbalance can only be reduced by our decisive action, here and now. We need to reflect on our accountability before those who will have to endure the dire consequences.* (Pope Francis*, Laudato Si,* #161).

For all of these reasons and many more, I urge these committees to support HB438/SB560 and end subsidies for trash incineration in Maryland. Thank you.

Sincerely,
Rev. Ty S. Hullinger
Pastor of St. Anthony of Padua, St. Dominic & Most Precious Blood Catholic Churches (Baltimore, MD)

RodetteJones_FAV_SB560
Uploaded by: JONES, RODETTE
Position: FAV

Bill: House Bill 438 / Senate Bill 560

Committee: House Economic Matters Committee / Senate Finance Committee

Position: SUPPORT

Date: February 20, 2020 / February 25, 2020

Testimony of Rodette Jones

Dear Members of the Committee,

I am writing you today in support of HB438/SB560. This bill will take the necessary steps in removing trash incineration from the list of "Tier 1 renewable sources," ensuring that these subsidies go to intended sources -- clean energy alternatives. It has become increasingly clear that the time to act on climate change is now and this bill will take a meaningful first step in removing subsidies from an energy source that is actively polluting Maryland's environment. Supporting this bill will allow true clean energy sources to develop and grow in Maryland, a step in the right direction in taking serious climate action.

The recent Intergovernmental Panel on Climate Change report made clear that we need to take drastic action to reduce greenhouse gas emissions immediately in order to avert climate catastrophe. Removing trash incineration from Maryland's RPS will allow Maryland to pursue clean energy alternatives such as wind and solar. Maryland is a state with over 3,000 miles of coastline; rising sea levels due to climate change will directly impact large portions of Marylanders. A changing climate will produce more extreme weather events such as hurricanes, droughts, and floods.

The earth is our home and we are destroying it by continuing to subsidize energy sources that actively pollute the environment. We must listen to the data and take action to combat climate change. If we continue to allow trash incineration to receive Tier 1 renewable source subsidies, we are preventing clean energy solutions from establishing themselves in Maryland that would help to combat climate change. I support HB438/SB560 because it is the first step in ensuring that Maryland takes an active stance in ensuring that our environment is protected for ourselves as well as future generations.

Sincerely,

Rodette Jones

EnvironmentalIntegrityProject_FAV_SB560
Uploaded by: KELDERMAN, KEENE
Position: FAV

Testimony Supporting SB560
Senate Finance Committee
February 25, 2020

Written testimony to the Finance Committee in **support of SB 560** provided by the **Environmental Integrity Project.**

The Environmental Integrity Project supports SB 560 because burning trash does not produce clean or renewable energy. There are two trash-burning incinerators, sometimes called waste-to-energy (WTE) incinerators, that operate within the State of Maryland: the Wheelabrator incinerator in Baltimore City and the Montgomery County Resource Recovery Facility (MCRRF) in Montgomery County. Currently, Maryland classifies these incinerators as Tier-1 renewable energy sources under its Renewable Portfolio Standard (RPS), which should not be allowed.

Trash incinerators typically emit more air pollution per unit of energy (measured in megawatt hours (MWh)) for many harmful pollutants than coal-fired power plants**.** Incinerator emissions include pollutants like mercury and lead that disproportionately harm children, are harmful even in small doses and bioaccumulate over time. In 2018, Maryland's two incinerators emitted, on average, seventeen (17) times more of the neurotoxin mercury per unit of energy than Maryland's four largest coal plants: Chalk Point, Morgantown, Brandon Shores, and Herbert A Wagner. In addition to mercury, the incinerators emitted on average five times as much nitrogen oxides (NOx) per unit of energy as those coal plants. NOx is the primary pollutant that causes ground-level ozone to form, and parts of Maryland do not meet federal air quality standards for ozone.[1] Our analysis also showed that the incinerators emitted two times as much carbon monoxide per unit of energy generated than the previously mentioned coal-fired power plants. See the table below.[2,3]

Facility	2018 Mercury Emissions (lbs/TWh)	2018 NOx Emissions (lbs/MWh)	2018 CO Emissions (lbs/MWh)
Chalk Point Plant	5.30	1.91	0.27
Brandon Shores and H.A. Wagner Plants[4]	4.24	0.86	0.23
Morgantown Plant	3.40	0.57	0.22
Wheelabrator/Montgomery County Incinerators	71.4	4.29	0.40

[1] Maryland Department of the Environment, *Clean Air Progress Report 2019*, p. 3, *available at* https://mde.maryland.gov/programs/Air/Pages/AirQualityReports.aspx.
[2] U.S. Environmental Protection Agency. Emissions & Generation Resource Integrated Database (eGRID), *eGRID2018* Dataset. Used to gather energy generation data (net generation in MWh) for each facility.
[3] Maryland Department of the Environment 2018 Emission Inventories, obtained through request under the Maryland Public Information Act. Used for emissions data.
[4] The Brandon Shores and HA Wagner plants are located together at the Fort Smallwood coal plant complex.

Incinerators do not rely on a form of renewable energy, but instead rely on a fixed waste stream, typically consisting of thousands of tons of trash a day. To the extent that incineration avoids methane emissions that would be produced by landfilling the same waste, Maryland should strengthen requirements for the monitoring and control of landfill methane rather than subjecting communities near incinerators to toxic air pollution. More importantly, Maryland should seek to increase recycling and composting rates and source reduction programs as more effective methods for waste management.

Finally, by including WTE incinerators in Maryland's RPS, Maryland diverts incentives away from truly clean and badly needed sources of real renewable energy, like wind and solar energy. In fact, over 30% of the Tier 1 renewable energy credits generated in 2017 within Maryland's borders were from burning trash.[5] Governor Hogan, in his Clean and Renewable Energy Standard (CARES) plan, recognizes the need to remove trash incinerators from the RPS.[6]

As demonstrated by their toxic emissions at or above levels of coal-fired power plants, trash incinerators are hardly a clean technology. Classifying these facilities as clean and renewable energy is not only inaccurate, but also adds more pollution to areas that are already struggling to meet air quality standards. In sum, trash incinerators not only impact the health of nearby and distant populations, but also replace other Tier 1 renewable energy projects. Therefore, we urge the Committee to vote in favor of removing WTE incinerators from Maryland's RPS.

[5] Public Service Commission of Maryland, Renewable Energy Portfolio Standard Report, With Data for Calendar Year 2017 (November 2018), p. 17, at https://www.psc.state.md.us/wp-content/uploads/FINAL-Renewable-Energy-Portfolio-Standard-Report-with-data-for-CY-2017.pdf.

[6] The Office of Governor Larry Hogan, Governor Hogan Unveils Bold Energy Legislation at https://governor.maryland.gov/2019/12/17/governor-hogan-unveils-bold-energy-legislation/

CleanWaterAction_FactSheet_SB560
Uploaded by: Kunze, Jennifer
Position: FAV

CLEAN WATER ACTION
MARYLAND

Stop Incentivizing Trash Incineration

Burning trash is not clean energy: to produce the same amount of energy, trash incinerators emit more greenhouse gasses than coal plants do. Air pollutants from waste incinerators have also been shown to increase the risk of pre-term births, and lung and blood cancers; an Environmental Integrity Project assessment shows that Maryland's incinerators emit higher levels of mercury, lead, nitrogen oxides, carbon monoxide, and carbon dioxide than our coal plants per energy produced. A Chesapeake Bay Foundation study determined that Baltimore City's trash incinerator creates adverse health effects that cost people in our region over $55 million every year – just with its particulate matter alone.

But in 2011, Maryland added trash incineration to Tier 1 of the Renewable Portfolio Standard (RPS) - a program meant to support clean energy sources and facilitate a transition away from fossil fuels. Tier 1 status means burning trash gets the same subsidies as solar and wind power, which the RPS program was designed to support. Since then, the BRESCO trash incinerator in Baltimore has received over $10 million in subsidies, along with trash incinerators in Montgomery County and Lorton, VA – all money that comes from Marylanders' utility bills. Maryland counties can also receive credit in their recycling rates for incinerating trash, providing an extra incentive for trash incineration that displaces actually recycling materials.

HB0438/SB0560

Removes trash incineration from Maryland's Renewable Portfolio Standard.

HB0179

Stops trash incineration and incinerator ash from inflating recycling rates.

www.cleanwater.org/ZeroWasteMD

1120 N Charles St, Suite 415 | Baltimore, MD 21201 | 410-235-8808
www.cleanwateraction.org/md

CLEAN WATER ACTION
MARYLAND

Start Supporting Composting

Burning and burying our waste are not the only options. All across Maryland, local governments, communities, and groups are working towards a future where recycling, composting, re-use, and source reduction can eliminate the need to burn or bury so much waste. Composting is a sustainable alternative to landfills and incinerators, with many benefits to air and water quality, soil health, local business development, and fighting climate change.

Prince George's County considered building a municipal trash incinerator, but instead adopted zero waste strategies that were so successful, they extended the life of the county's landfill by many years. A waste characterization study found that 77% of its landfilled waste could be composed, recycled or diverted. Now, the county is home to the East Coast's largest municipal composting facility, a profitable revenue stream for the county.

Frederick and Carroll County entered into agreements to build a new trash incinerator a decade ago, but ultimately rejected that idea, and the proposed incinerator was never built. Last year, the Frederick County Compost Workgroup launched a pilot program to work with students in 3 county schools to divert their waste for composting; this year, they've expanded to 14 schools. In a waste separation study at Urbana Sugarloaf Elementary School, they found that 87% of the school's trash could be diverted from the landfill – see above for how.

Urbana Sugarloaf Elementary School
Waste Separation Data for First 15 days & Extrapolated for Full School Year

BEFORE SORT	First 15 Days	Percent	All lunches per year (180 days)	Where it goes!
TRASH	3,047.7 lbs.	100%	36,572 lbs.	Landfilled
AFTER SORT				
Liquids	752.2 lbs.	24.7%	9,026 lbs.	Poured down drain
Compostable Food Waste	1,635.0 lbs	53.6%	19,620 lbs.	Composted by Key Compost
Recyclables	289.5 lbs.	9.5%	3,474 lbs.	Recycled
TRASH	370.5 lbs.	12.2%	4,446 lbs.	Landfilled

Landfilled Trash Reduced by 87.8 Percent!

Composting Maryland's organic waste could reduce our waste stream while creating exciting opportunities for local business development. As an added benefit, compost sequesters carbon and builds healthy soils. Composting even creates jobs: composting a ton of waste in Maryland employs twice as many people as landfilling it, and four times as many people as incinerating it. And there is room for the sector to grow.

HB0589

Phases in an organic waste diversion requirement for large food waste producers in areas where compost facilities are available, creating business opportunities for composting across Maryland.

www.cleanwater.org/ZeroWasteMD

1120 N Charles St, Suite 415 | Baltimore, MD 21201 | 410-235-8808
www.cleanwateraction.org/md

CleanWaterActionetal_FAV_SB560
Uploaded by: Kunze, Jennifer
Position: FAV

Testimony Supporting HB438 & SB560

House Economic Matters Committee | Senate Finance Committee

February 20, 2020 | February 25, 2020

Position: Support

As 33 Maryland-based organizations working to support the health, environmental wellness, economic well being, and climate resiliency of Maryland communities, we urge you to vote yes on HB438/SB560 and end the practice of subsidizing trash incineration as "clean energy" under Maryland's Renewable Portfolio Standard. Burning trash cannot be considered clean energy, and Maryland ratepayers can no longer be required to subsidize facilities that pollute their communities. Transitioning to truly renewable energy and alternative methods of waste disposal will create more jobs in Maryland, and this is a transition that our communities are ready to make.

Trash Incineration Harms the Climate and Does Not Meet the Goals of the RPS Program

When incinerators burn trash, they emit more greenhouse gasses per unit of energy generated than even coal, the dirtiest of fossil fuels. In 2015, the Wheelabrator Baltimore incinerator emitted roughly double the amount of greenhouses gases per unit of energy produced, on average, by each of the 7 coal plants located in Maryland. The Dickerson trash incinerator in Montgomery County produces 500,000 tons of greenhouse gases that contribute to climate change. Climate change poses multiple threats to Maryland residents, including increased precipitation, more frequent and severe flooding, and rising summer temperatures that increase outdoor air pollution levels. The financial support that Maryland's Renewable Portfolio Standard provides must be used to support the development of new renewable energy projects that will help Maryland face and fight climate change, not to prop up aging trash incinerators.

Maryland's Renewable Portfolio Standard (RPS) was enacted in 2004 to facilitate a gradual transition to renewable sources of energy. Because of its impact on public health and on climate change, trash incineration cannot be considered renewable energy. According to the Department of Legislative Services' analysis of this legislation, about 10% of Renewable Energy Credits in 2017 were from trash incineration. If applied to other Tier 1 renewable energy sources instead of incineration, these credits would support new high-paying Maryland jobs, increase GDP due to construction of new Maryland-based renewable energy infrastructure, and reduce Maryland's carbon emissions.

Trash Incineration Harms our Health

Trash incineration contributes to the air pollution in Maryland that causes chronic illnesses among Maryland residents. To produce the same amount of energy, Maryland's trash incinerators emit higher levels of mercury, lead, nitrogen oxides (NOx), carbon monoxide (CO), and carbon dioxide (CO_2) than Maryland's coal plants.[2] The process of incinerating trash creates an especially dangerous set of compounds called dioxins, declared by the World Health Organization as a known human carcinogen; dioxins are also linked to diseases of the immune system, endocrine system, nervous system, and reproductive system.[1]

Air pollution is an enormous problem in Baltimore City, surrounding the BRESCO trash incinerator: according to an Environmental Integrity Project report, the average rate of asthma-related hospitalizations in Baltimore City is approximately twice the average rate of Maryland and three times the average rate of the United States. Even worse, there is a distinct association between asthma hospitalization in Baltimore city and median household income. The Baltimore area has long been classified as the U.S. EPA as failing to meet federal ozone standards. The BRESCO trash incinerator contributes to this problem, emitting over 1,000 tons of NOx pollution annually. NOx also contributes to the formation of fine particles, a pollutant that has been associated in studies with premature death from heart and lung disease, and is a serious trigger of asthma attacks. According to a Chesapeake Bay Foundation commissioned study, fine particulate matter emitted from the Wheelabrator Baltimore "waste-to-energy facility" causes over $55 million in adverse health effects annually.

The Montgomery County Resource Recovery Facility is the second largest air polluter located in Montgomery County. This facility produces approximately 740 tons of air pollutants and sends 180,000 tons of toxic ash to landfills in Virginia. Air pollutants from waste incinerators have also shown to increase the risk of pre-term births, and lung and blood cancers. An Environmental Integrity Project assessment shows that the Montgomery County and Baltimore City incinerators emit higher levels of mercury, lead, nitrogen oxides (NOx), carbon monoxide (CO), and carbon dioxide (CO_2) than coal plants. In Baltimore, Montgomery County, and throughout the state of Maryland, trash incineration contributes to air pollution that harms residents' health; those residents should not be required to subsidize this pollution through the Renewable Portfolio Standard.

Alternatives to Trash Incineration Create More Local Jobs

Truly clean, renewable energy creates jobs in Maryland. The State has more than 218 solar companies and over 5,400 solar jobs. The wind industry has brought more than $380 million in private investment into Maryland's economy, to date. These jobs in clean

[1] https://www.who.int/news-room/fact-sheets/detail/dioxins-and-their-effects-on-human-health

renewable energy lead to good-paying careers within these industries and across related economic sectors. New clean energy development made possible by removing "waste-to-energy" incineration from the RPS, and therefore making credits available to other Tier 1 energy sources, will further support the development of these economic sectors in Maryland.

Likewise, other methods of waste management such as composting, recycling, and reusing materials create more local jobs than trash incineration. According to the Institute for Local Self-Reliance, per ton of waste processed in Maryland, composting already "employs two times more workers than landfilling, and four times more workers than incineration. On a per-capital-investment basis, for every $10 million invested, composting facilities in Maryland support twice as many jobs as landfills and 17 more jobs than incinerators." A similar study projected that within three years of increased recycling rates, "Baltimore could have 500 new direct jobs in this sector of the city's economy;" overall, recycling and composting yield five to ten times more jobs than trash incineration. Likewise, for every 10,000 tons of materials that are managed through reuse programs, 75 to 250 jobs are created. If investments were focused on more environmentally-friendly methods of waste disposal, more jobs would be created in Maryland.

We Do Not Need RPS Subsidies to Deal with Trash

Renewable Portfolio Standard subsidies to trash incinerators are not necessary to process Maryland's trash. Trash incineration was added to Tier 1 of the RPS in 2011, decades after Maryland's two incinerators were built. Before 2011, it had been classified as a Tier 2 source, receiving lower subsidies that were to be phased out by 2019. Thanks to that reclassification in 2011, trash incinerator companies have enjoyed almost a decade of higher subsidies at the expense of Maryland ratepayers, subsidies that will continue in perpetuity without legislative action. But this does not need to be a permanent fixture of Maryland's energy market. These renewable energy credits are intended to support clean, renewable energy, but when Maryland ratepayers' money goes toward Renewable Energy Credits to trash incinerator companies, they do not receive actually clean, renewable energy in return. Taking trash incineration out of tier one is not a bait and switch, merely no longer paying these facilities for a product they do not provide.

Removing trash incineration from Tier 1 of the Renewable Portfolio Standard does not necessarily force Maryland's trash incinerators to close, but allowing trash incineration to keep receiving subsidies as renewable energy is in direct opposition to grassroots efforts to move away from trash incineration and toward zero waste overall. As the only municipalities in Maryland that contain trash incinerators, Baltimore City and Montgomery County are working actively to increase recycling and composting rates and transition away from trash incineration. In April 2017, the Baltimore City Council passed a resolution calling for Baltimore to "develop an effective, long-term, plan to move toward Zero Waste to

support the continued health, well-being, and prosperity of our residents." Then in January 2019, the City Council passed a resolution calling on the General Assembly to remove trash incineration from the RPS. The City Council and Mayor have repeatedly demonstrated their commitment to transition away from BRESCO and toward a zero waste future. However, days after the legislative session ended in 2019, Wheelabrator filed suit against Baltimore City to stop the Clean Air Ordinance that many thought would shut down BRESCO. Wheelabrator has also sued Baltimore County for reducing the volume of waste it sent to be incinerated. Meanwhile, Montgomery County Executive Mark Elrich pledged repeatedly during his campaign that if elected, he would close the Dickerson trash incinerator by 2022; however, just before he took office, the county's contract with Covanta to operate the incinerator was extended through 2026. Continued state subsidies to trash incineration harm efforts to transition away from trash incineration toward zero waste practices like composting, source reduction, and reuse. Baltimore's 2019 Sustainability Plan includes the goal of diverting 90% of the city's waste from incinerators and landfills, and this is an achievable goal. According to the Baltimore Office of Sustainability's 2014 report, "Waste to Wealth: Baltimore Waste Stream Analysis," 82% of Baltimore's household materials could be recycled or composted. Likewise, Montgomery County has a goal of increasing its waste diversion rate - already very high - to 70% by this year.

Other Maryland communities are actively pursuing robust composting, recycling, and repurposing programs with the goal of reducing waste. Frederick and Carroll Counties, since rejecting the construction of a new incinerator in 2014, have made significant strides toward zero waste. In Carroll County, New Windsor piloted a "pay as you throw" program last year that resulted in a 44% decrease in solid waste thrown away. When it decided not to build its new incinerator, Frederick County created a "What's Next" Steering Committee to investigate alternatives to the rejected trash incinerator. In the words of one committee member, "the legislative, budgetary, and regulatory gears are moving Frederick County toward pilot programs and public education, and ultimately to a robust diversion of organics from landfilling, with the added tremendous benefits of producing compost from the organics to amend our soil on farms and elsewhere." County schools are participating in composting and diversion programs that keep up to 87% Prince George's County hosts the East Coast's largest composting facility and boasts the highest waste diversion rate in the state. Communities across Maryland are working actively to develop the recycling, composting, reuse, and reduction programs to manage waste streams in ways that are less polluting and more cost-effective than trash incineration. It's time for the state of Maryland to stop subsidizing facilities that make it harder to reach that goal.

Conclusion

All Marylanders have the right to breathe clean air and no one should suffer health and environmental challenges because of where they live. The state should not subsidize incineration as clean and renewable energy, making it more profitable to pollute our

communities and environment. We strongly urge the passage of this legislation to stop the practice of paying trash incinerators to for clean energy as they pollute our communities and environment.

Sincerely,

Clean Water Action
Multi-Faith Alliance of Climate Stewards - Frederick County
Sunrise Movement Baltimore
Runners4Justice
Turner Station Conservation Teams, Inc.
Filbert Street Garden
Takoma Park Mobilization Environment Committee
Baltimore Free Farm
Echotopia LLC
Baltimore Community ToolBank
CCAN Action Fund
Sunrise Movement Howard County
Sugarloaf Citizens Association
Go Green OC
Maryland Legislative Coalition
Maryland WISE Women
Greenbelt Climate Action Network
Cedar Lane Unitarian Universalist Church Environmental Justice Ministry
Unitarian Universalist Legislative Ministry of Maryland
Maryland League of Conservation Voters
Nuclear Information and Resource Service
Maryland Legislative Coalition
Indivisible Towson
Earth Forum of Howard County
Waterkeepers Chesapeake
Mountainside Education and Enrichment
Maryland Public Health Association
MOM's Organic Market
Blue Water Baltimore
IndivisibleHoCoMD
Key City Compost
Maryland Conservation Council
Food & Water Action

Contact: Emily Ranson, Clean Water Action, 443-562-2832, eranson@cleanwater.org

JoannaMerry_FAV_SB560
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Position: FAV

Joanna Merry
MSW Candidate
University of Maryland School of Social Work
SWCOS Neighborhood Fellow

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

As a graduate student of the University of Maryland School of Social Work, and resident of District 43, I strongly support SB 313 HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that poisons our communities. **HB438/SB560 is a necessary step in addressing our contributions to our changing climate and the threat that it imposes on our future.**

Trash incineration fuels climate change. True renewable energy does not. In 2015, the Wheelabrator Baltimore incinerator emitted about twice as many greenhouse gases per amount of energy produced, on average, as each of the six coal plants located in Maryland. The data is clear that air pollutants from waste incinerators increases asthma rates, increases instances of cancer, and is a leading environmental hazard that leads to the multiple health issues in areas surrounding incineration. New clean energy development made possible by removing "waste-to-energy" incineration from the RPS would decrease carbon emissions and significantly reduce healthcare costs.

Our youth have spoken as they are rising across the globe to stand for their future. As we operated off of calculations and warnings from climate scientists, we acted as though making hard shifts to contributing factors to climate change was a future oriented approach. Over the past several years, the impending threat of inaction against climate change has become very real, visible, and tangible in its effects. In 2019, millions of youth across the globe participated in strikes from school, calling on their legislators to act on our shared global crisis. Youth are letting it be known that they are not disposable.

For all of these reasons and many more, please support HB438/SB560 and end subsidies for trash incineration in Maryland. Thank you.

Thank you for your time, your service and your consideration,
Sincerely,
Joanna Merry
MSW Candidate
University of Maryland School of Social Work
SWCOS Neighborhood Fellow

DoTheMostGood_FAV_SB560
Uploaded by: Noveau, Barbara
Position: FAV

Barbara Noveau, Executive Director, DoTheMostGood—Montgomery County

COMMITTEE: Finance

TESTIMONY ON: SB560 - Renewable Energy Portfolio Standard – Eligible Sources

POSITION: SUPPORT

HEARING DATE: February 25, 2020

BILL CONTACT: Senator Michael J. Hough

To: The Honorable Delores G. Kelley, Chair, Finance Committee, and Committee Members

DoTheMostGood—Montgomery County (DTMG) is a progressive grass-roots organization with more than 1600 members who live in a wide range of communities from Bethesda near the DC line north to Germantown and beyond, and from Potomac east to Silver Spring and Olney. DTMG supports legislation and activities that provide a safe and healthy environment for our members. In order to accomplish this goal, trash incineration must be removed from Maryland's Tier 1 Renewal Energy Portfolio Standards (RPS). Maryland has one of the highest rates of death from air pollution in the United States. Using dirty energy sources such as trash incineration harms the health of Marylanders, especially vulnerable populations such as the elderly, children, low-income communities, and communities of color. It also hinders our economy and contributes to climate change.

Maryland is the only state in the country that includes burning of trash in Tier 1 "renewable energy" and thus allows incinerator operators to receive millions of dollars in taxpayer subsidies from the state. Although we have a lot of trash, burning trash for energy is even worse for Marylanders' health and our climate than burning coal and oil. Burning trash releases 90% more greenhouse gas emissions per unit of energy than coal. Trash incineration also releases toxins, such as dioxins, furans and mercury, nitrogen oxides (NOx), and PM 2.5 (small particulate matter) into the air. NOx contributes to ozone pollution, which can cause chest pain, coughing, and increased risk of asthma attacks, and exposure to PM 2.5 can cause lung damage and increased risk of heart attacks. Furthermore, burning trash creates a toxic ash that still needs to be disposed of. Trash ash needs to be spread out in landfills to decrease the concentration of toxins that leach into the soil, so the ash actually takes up more landfill space than disposal of regular trash in landfills.

Wheelabrator's Baltimore Refuse Energy Systems Co. (BRESCO) incinerator and the Dickerson trash incinerator in Montgomery County are the two incinerators in Maryland that receive RPS subsidies. BRESCO is the largest source of air pollution in Baltimore, with its activities resulting in health and mortality costs of more than $55 million a year. Studies have shown that living near BRESCO increases lung cancer risk as much as living with a smoker. The Dickerson incinerator is the largest polluter in Montgomery County, releasing 390,000 tons of air pollution and producing 180,000 tons of toxic ash per year.

Removing waste incineration from the RPS will not affect the contracts between Baltimore and BRESCO or the Dickerson incinerator and Montgomery County. BRESCO and the Dickerson incinerator were able to operate for decades before trash incineration was added to the RPS in 2011, and they can continue operating without the RPS subsidies. The loss of revenue to BRESCO and the Dickerson incinerator will not be borne by ratepayers, since the renewable energy credits (RECs) are a small fraction of BRESCO's operating costs and recent elimination of the Dickinson incinerator's debt service has lowered that incinerator's budget by much more than the value of its RECs.

SB560 will remove trash incineration from Maryland's RPS, so trash incinerators will no longer be able to sell RECs to Maryland electricity suppliers and receive unfair financial incentives. These RECs help to prop up trash incineration, make it more profitable, and stifle new clean energy development. Enactment of SB560 will ensure that RECs support truly clean energy and incentivize investment in solar, wind and other clean sources of renewable energy in Maryland. The result will be cleaner air and a cleaner environment and new clean energy jobs for Maryland citizens.

Therefore, DoTheMostGood strongly recommends a **FAVORABLE** report on SB560.

Respectfully submitted,

Barbara Noveau
Executive Director, DoTheMostGood
barbara@dtmg.org
240-338-3048

RachelPontius_FAV_SB560
Uploaded by: PONTIUS, RACHEL
Position: FAV

Testimony Supporting HB438 / SB560
House Economic Matters Committee / Senate Finance Committee
February 20, 2020 / February 25, 2020

Position: SUPPORT

As a resident of district 43, I am writing to express my strong support of HB438/SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard. Burning trash is not clean energy, and Maryland's renewable energy subsidies should be used to support truly green energy like wind and solar, not trash incineration that pollutes our communities.

This issue is especially important to me because my mom has asthma, which she was diagnosed with about two years ago. Unfortunately, due to the BRESCO incinerator steadily releasing noxious fumes into the atmosphere, Baltimore has some of the highest air pollution levels and is one of the worst places to be living with asthma. But Baltimore also has some of the highest rates. 12.4% of adults living in Baltimore have asthma, compared with 8.4% statewide[1]. The high level of particulate matter in Baltimore's air, caused in large part by BRESCO, is dangerous to everyone, often causing people to develop respiratory issues. We can't know if the poor air quality in Baltimore caused my mom's asthma, but it certainly isn't helping. Asthma has prevented my mom from feeling truly well for months. And I can't help but think of those less privileged living with asthma in Baltimore, who can't afford good treatments or occasional vacations from Baltimore's air pollution we could.

The time is coming for the BRESCO incinerator to give way to more sustainable waste management practices—and this is clearly possible since 80% of the waste BRESCO burns can be recycled or composted[2]. If we find more responsible ways to dispose our trash, thus reducing harmful air pollution, it would be transformative for the health of our communities.

For all of these reasons and many more, I urge the House Economic Matters Committee to support HB438/SB560 and end subsidies for trash incineration in Maryland. Thank you.

Sincerely,

Rachel Pontious

1) https://health.baltimorecity.gov/node/454
2) https://www.baltimorebrew.com/2017/01/17/incinerator-critics-taking-aim-at-bresco/

CleanWaterAction_FAV_SB560
Uploaded by: Ranson, Emily
Position: FAV

CLEAN WATER ACTION

SB 560: Renewable Energy Portfolio Standard - Eligible Sources

Senate Finance Committee

February 25, 2020

Positon: Favorable

Dear Chairwoman Kelley and Members of the Committee,

Clean Water Action strongly supports SB560/HB438 to remove trash incineration from Maryland's Renewable Portfolio Standard. The continued subsidization of trash incinerators in and around Maryland is contrary to the goals of the program by forcing Maryland ratepayers to boost the profits of polluting facilities.

In 2004, Maryland passed legislation to create our Renewable Portfolio Standard. When this bill passed, trash incineration was included as a tier two energy provider. As a tier two energy provider, these subsidies were supposed to stay stagnate at 2.5% of the market with an eventual phase out in 2019. Trash incineration was seen as a useful tool as the market responded to Maryland's goal for cleaner, renewable energy. As originally intended, **subsidies for trash incinerators should have ended in 2019**.

In 2011, the incinerators mounted an intense effort to be moved to tier one. They were doing this as two new proposed incinerators were on the horizon in Maryland: one in Frederick/Carroll counties and a second one in South Baltimore. This subsidies allowed the current incinerators to reap permanent payments from Maryland ratepayers and were attractive to new facilities. In 2011, the incinerators succeeded in greenwashing their industry and were added to tier one.

The two proposed incinerators were ultimately thrown off by the communities they targeted. Everyday people, graphic designers and accountants, poured over the proposed contract that Wheelabrator offered Frederick and Carroll counties and realized that the contract put all of the risk on the counties. The counties were responsible for making sure the incinerator had enough product. Composting initiatives, expanded recycling, any of those laudable goals would have been hamstrung by the need to feed the incinerator. In Baltimore City, high school students protested yet another polluting industry in their already polluted district. South Baltimore was once again asked to suffer the burden. The community mobilized, and the students were able to convince energy purchasers to not agree to buy from the incinerator. While the project failed, **as long as these subsidies are valid in our state we are more enticing to new incinerators coming into neighborhoods that may not have the capacity or energy to fight**. These campaigns can take over a decade.

Maryland's incinerators were built long before the RPS was proposed. The Baltimore City facility was built in 1985, and the Montgomery County one in 1995. Removing the subsidies is not a bait and switch - **both facilities were built to be profitable without subsidies**. There is no reason to believe that stopping these subsidies will shut down the incinerators. They will **still be allowed to sell their energy** and to **charge for burning trash**. All this legislation does it stop giving them the extra subsidy of the Renewable Energy Portfolio.

Trash incineration was originally included as a bridge as the renewable market geared up to meet Maryland's demand and set up the market. We no longer need it to meet our goals, and continuing to subsidize it is unnecessary. Maryland can meet its renewable energy goals without trash incineration, and it is time to take it out of our RPS.

Thank you,

Emily Ranson
Clean Water Action
443-562-2832
eranson@cleanwater.org

JuneRiley_FAV_SB560
Uploaded by: RILEY, JUNE
Position: FAV

Testimony Supporting SB560
Senate Finance Committee
February 25, 2020

June W. Risley, Community Partner with Benjamin Franklin High School,
25 year resident of Baltimore City, activist for clean air, water and affordable housing

About 8 years ago, students at Ben Franklin researched issues in their communities and found both land and air were contributing to severe health problems. They also discovered that a permit was processing to build a huge incinerator less than a mile from their school. Armed with their statistics and helped by local human rights group United Workers, those students gave testimony to ALL of the organizations and bodies that were being convinced to buy the "energy" from the new incinerator, and they were successful in getting fact-minded listeners to rescind that permit.

You legislators are in a similar situation trying to decide who is telling the truth and what's best for our future. I urge you to listen to your constituents, not a private company. Please go to time.com/nextgenleaders (6/13/2016) to read about Destiny Watford, representative for these students, receiving the Goldman Award for the United States as an environmental activist.

Here we are again! Right now, Wheelabrator is suing Baltimore City to block the city's Clean Air Act from going into effect. Around this time last year, my mailbox was receiving several costly, super-sized ads against bill (see photos attached to my testimony). These ads are all paid for by Wheelabrator. So we need to ask, "Are these true statements or the use of 'alternative facts'" to protect profits?

They say "Waste-to-Energy" is preferred by the EPA over landfilling. They don't mention that the toxic ash they produce when they burn waste is being hauled to a landfill in Curtis Bay. They don't mention that we have more options beyond just burning or burying our waste and that our ultimate goal should be zero waste.

Another statement on the Wheelabrator brochure is that since 1985, they've processed 23 million tons of "post-recycled waste." How does this compare with Baltimore City's waste audit, which found that 80% of what is sent to Wheelabrator's facility could be recycled or composted? Think about all the possible good uses of recycled materials if money was redirected into plants and jobs -- not to mention wind and solar development to produce truly clean energy.

Given all of their misleading assertions in their mailers, I believe Wheelabrator must think we can't read! These brochures in my mailbox are proof enough for me that Wheelabrator is fearful that their time has come. Their profits are at stake; we, citizens of Maryland, are fighting for survival.

June W. Risley
1234 Patapsco St #11
Baltimore, MD 21230
410-370-2212

Waste-to-energy is highly regulated by the **U.S. Environmental Protection Agency** and the **Maryland Department of the Environment** to ensure the protection of public health.

Since 1985, Wheelabrator Baltimore has processed over 23 million tons of post-recycled waste, generated 10 million megawatts of renewable electricity and recycled 350,000 tons of metals.

Wheelabrator Baltimore's waste-to-energy is part of the solution
GetTheFactsBmore.com

The Facts:

EPA Preferred
The U.S. EPA prefers waste-to-energy over landfilling to manage waste because it reduces greenhouse gas emissions by approximately 1 ton for every ton of waste processed and produces reliable, renewable electricity without relying on fossil fuel-generating facilities.

800 Compliance checks
Wheelabrator Baltimore monitors plant and air quality control with more than 800 compliance checks each and every day.

1.3 Million tons
Baltimore City currently recycles only 20% of its waste, leaving nearly 1.3 million tons of post-recycled waste that must be managed responsibly each year.

No Plan
There is no infrastructure, funding or environmentally sound plan to responsibly manage Baltimore City's post-recycled waste without Wheelabrator Baltimore's waste-to-energy facility.

GetTheFactsBmore.com

Paid for by Wheelabrator Technologies.

Wheelabrator BALTIMORE

Contact the City Council

(410) 396-4804
CouncilPresident@BaltimoreCity.gov

Tell them we need a sensible and realistic approach to Clean Air in Baltimore, but **The Clean Air Act is not a solution.**

1801 Annapolis Road
Baltimore, MD 21230

PRESORTED STANDARD U.S. POSTAGE P A I D BALTIMORE, MD PERMIT 721 WTI-R

P-1 P432 47768 **********ECRLOT**C023
CURRENT RESIDENT
BALTIMORE MD 21230-4232

SB 560_MoCo_Samman_SUPPORT
Uploaded by: Samman, Amy
Position: FAV

Montgomery County
Office of Intergovernmental Relations

ROCKVILLE: 240-777-6550 **ANNAPOLIS: 240-777-8270**

SB 560 **DATE: February 25, 2020**

SPONSOR: Senator Hough, *et al.*

ASSIGNED TO: Finance

CONTACT PERSON: Amy Samman (amy.samman@montgomerycountymd.gov)

POSITION: SUPPORT

Renewable Energy Portfolio Standard – Eligible Sources

Senate Bill 560 removes waste to energy and refuse-derived fuel from the list of Tier 1 renewable sources on January 1, 2021 but does not impair any existing obligation or contract right.

The Renewable Portfolio Standard was set up to encourage the development of clean sources of electricity generation like solar and wind. States created renewable standards in order to diversify their energy resources to include cleaner sources of generation, the promotion of domestic energy production, and to encourage economic development. According to a study by the Lawrence Berkeley National Laboratory, roughly half of the growth in U.S. renewable energy generation since 2000 can be attributed to state renewable energy standards.

The primary function of waste-to-energy is not to generate energy; it is a solid waste management method that happens to generate electricity as a by-product. Including waste-to-energy as a Tier I resource under Maryland's Renewable Portfolio Standard could potentially displace the development of new renewable sources of power like solar and wind.

For the foregoing reasons, Montgomery County respectfully requests a favorable Committee report for Senate Bill 560.

19-0123R_1st Reader_KrisBurnett
Uploaded by: Scott, Council President Brandon
Position: FAV

CITY OF BALTIMORE
COUNCIL BILL 19-0123R
(Resolution)

Introduced by: Councilmembers Clarke, Reisinger, Henry, Bullock, Dorsey, Sneed, Stokes, Cohen, Burnett, Pinkett, Middleton, Scott
Introduced and adopted: January 14, 2019

A COUNCIL RESOLUTION CONCERNING

Request for State Action – Removing Financial Incentives for Trash Incineration

FOR the purpose of supporting changes to State law governing Maryland's Renewable Portfolio Standard ("RPS") that remove incentives for the incineration of trash under the RPS; supporting an increase in the amount of renewable electricity required under the RPS to 50% by 2030; supporting investing in clean-energy workforce development while targeting economically distressed parts of the State and individuals who have historically experienced barriers to employment; and supporting the availability of more funding for investment capital and loans to help minority, veteran, and woman-owned businesses grow within the clean energy economy.

Recitals

The Baltimore City Council supports the use of clean, renewable energy in Baltimore City and throughout Maryland. Climate change poses multiple threats to Maryland residents and to Baltimore residents in particular, including increased precipitation, more frequent and severe flooding, and rising summer temperatures that increase outdoor air pollution levels. Maryland's Renewable Portfolio Standard ("RPS") law is a tool intended to incentivize new and clean sources of renewable energy that reduce greenhouse gases and other hazardous air and water pollution. The RPS provides financial incentives to facilities that generate energy from sources that are defined within the RPS as renewable sources of energy. The RPS currently defines "waste-to-energy" and "refuse-derived-fuel" as renewable, but facilities that generate energy from these sources, which are essentially municipal trash or derived from it, are highly polluting.

The Wheelabrator Baltimore incinerator is the largest contributor to air pollution in the City of Baltimore. The Wheelabrator Baltimore incinerator was one of the top 3 polluting facilities in the State of Maryland for hazardous air pollutants in 2015 and 2016, as well as one of the top 6 polluting facilities for nitrogen oxides ("Nox"), a specific air pollutant, during those years. Nox contributes to the formation of ground-level ozone, and the Baltimore area does not meet federal air quality standards for ozone.

The Wheelabrator Baltimore incinerator is a huge polluter in Maryland but still receives RPS incentives. In 2015, the Wheelabrator Baltimore incinerator emitted roughly double the amount of greenhouses gases per unit of energy produced, on average, by each of the 7 coal plants located in Maryland. Fine particle air pollution from the Wheelabrator Baltimore incinerator causes over $20 million in adverse health effects annually in the State of Maryland, according to a study commissioned by the Chesapeake Bay Foundation. The Wheelabrator Baltimore incinerator has received over $10 million RPS incentives since being classified as renewable energy, according to the Baltimore Sun.

EXPLANATION: Underlining indicates matter added by amendment.
~~Strike out~~ indicates matter deleted by amendment.

Clean, renewable energy creates jobs in Maryland. The State has more than 218 solar companies and over 5,400 solar jobs. The wind industry has brought more than $380 million in private investment into Maryland's economy, to date. These jobs in clean renewable energy lead to good-paying careers within these industries and across related economic sectors. Increasing the RPS to 50% renewable electricity, by 2030, would support new high-paying Maryland jobs, and increase GDP due to construction of new Maryland-based renewable energy infrastructure.

Certain communities, especially many low-income communities and communities of color, are overburdened by air and water pollution from energy generation and are underserved by the benefits of climate action. The Maryland Commission on Climate Change has recommended that Maryland's climate action policies should improve resilience in vulnerable communities, produce public health benefits, and produce economic benefits that are equitably distributed across Maryland's population. For these reasons, Maryland should enact policies that encourage the clean energy industry to grow while seeking to increase the diversity of business owners and employees benefitting from the industry.

The Maryland General Assembly, the Governor, and other relevant decision-makers should reverse course on any policies that treat energy generated by burning trash as renewable, clean, sustainable, and/or environmentally friendly. In particular, the Baltimore City Council supports the termination of any financial incentives under the Maryland RPS for "waste-to-energy" or "refuse-derived-fuel" as soon as possible, but no later than 2020. The Council also supports increasing Maryland's RPS law for electricity to 50% renewable electricity by 2030, investing in clean-energy workforce development while targeting economically distressed parts of the State and individuals who have historically experienced barriers to employment, and making more funding available for investment capital and loans to help minority, veteran, and woman-owned businesses enter and grow within the clean energy economy.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF BALTIMORE, That the City Council of Baltimore supports changes to State law governing Maryland's Renewable Portfolio Standard ("RPS") that remove incentives for the incineration of trash under the RPS; supports increasing the amount of renewable electricity required under the RPS to 50% by 2030; supports investing in clean-energy workforce development while targeting economically distressed parts of the State and individuals who have historically experienced barriers to employment; and supports the availability of more funding for investment capital and loans to help minority, veteran, and woman-owned businesses grow within the clean energy economy.

AND BE IT FURTHER RESOLVED, That a copy of this Resolution be sent to the Governor, the Honorable Chairs and Members of the 2019 Baltimore City Delegation to the Maryland General Assembly, the President of the Maryland Senate, the Maryland House Speaker, the Maryland Clean Energy Jobs Initiative, the Mayor, and the Mayor's Legislative Liaison to the City Council.

CouncilPresidentBrandonScott_FAV_SB560
Uploaded by: Scott, Council President Brandon
Position: FAV

Brandon M. Scott
President
Baltimore City Council

100 Holliday Street, Suite 400 · Baltimore, Maryland 21202
410-396-4804 · Fax: 410-539-0647
e-mail: councilpresident@baltimorecity.gov

SB 560

February 25, 2020

TO: The Honorable Members of the Economic Matters Committee
FROM: The Honorable Brandon M. Scott, President of the Baltimore City Council
RE: SENATE BILL 560 – Renewable Energy Portfolio Standard - Eligible Sources
POSITION: **SUPPORT**

Dear Chair Davis,

I write to you in **support** of Senate Bill 560. This bill will remove trash incineration from Maryland's Renewable Portfolio Standard (RPS) and end the practice of providing subsidies to trash incineration, including Baltimore's trash incinerator, Wheelabrator.

Trash incineration is not clean energy, and should never have been included in Tier 1 of Maryland's Renewable Portfolio Standard. Incinerators such as Wheelabrator contribute significantly to air pollution in the region. This incinerator is the largest contributor to air pollution in the City of Baltimore. It was also one of the top 3 polluting facilities in the State of Maryland for hazardous air pollutants in 2015 and 2016. According to a study commissioned by the Chesapeake Bay Foundation, Wheelabrator causes over $20 million in adverse health effects annually in the State of Maryland with its fine particulate air pollution alone. Given its pollution and negative health effects, trash incineration is clearly, not a source of clean energy.

Here in Baltimore, we are making enormous strides toward transitioning toward zero waste systems that will improve our local environment and build our local economy. State subsidies for trash incineration are holding us back from that future. Removing trash incineration from RPS, would support new high-paying Maryland jobs in renewable energy, and increase GDP due to construction of new Maryland-based renewable energy infrastructure.

In January 2019, the Baltimore City Council overwhelmingly passed Resolution 19-0123R (attached), requesting that the state take action to remove trash incineration from the RPS as part of the Clean Energy Jobs Act. I understand that the Clean Energy Jobs Act was passed last year with that language removed, allowing subsidies for incineration to continue. I urge you to honor Baltimore's hard work to improve our air quality and move toward a zero waste future. I hope that you will move for a **favorable** report on Senate Bill 560.

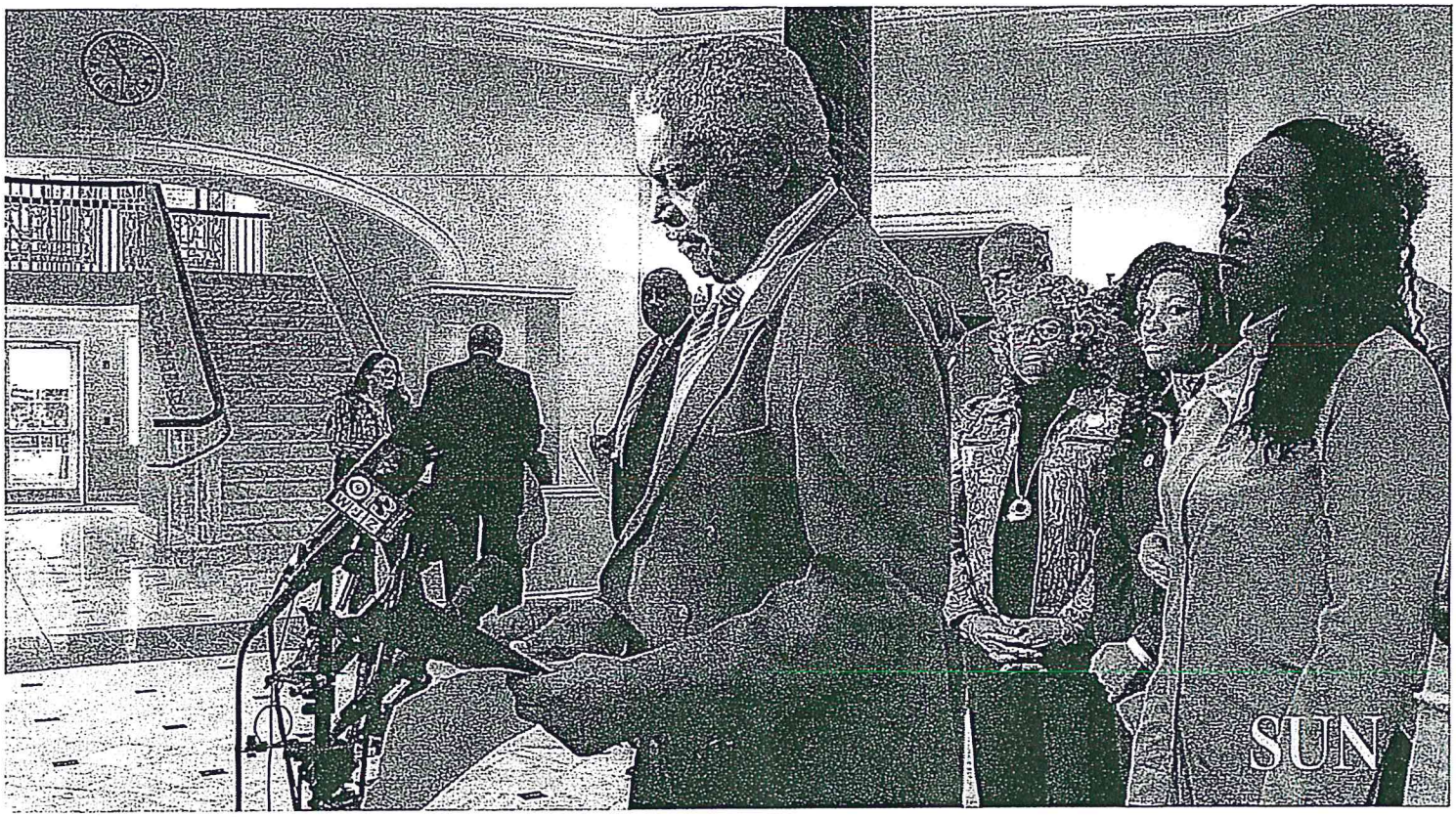
Sincerely,

Brandon M. Scott

Brandon M. Scott
President, Baltimore City Council

Sen.Hough_FAV_SB560
Uploaded by: Senator Hough, Senator Hough
Position: FAV

Power struggle How a trash incinerator — Baltimore's biggest polluter — became 'green' energy



Dante Swinton, an organizer with The Energy Justice Network, leads college students on a "toxic tour" of polluting sites in Baltimore. The Energy Justice Network always starts the tour at the Wheelabrator incinerator, which was long known as BRESCO.

By **Scott Dance**
The Baltimore Sun

DECEMBER 15, 2017, 6:00 AM

A trash incinerator in Southwest Baltimore is the city's largest single source of air pollution. But a state law has nonetheless allowed it to collect roughly $10 million in subsidies over the past six years through a program intended to promote green energy.

Few commuters who pass the imposing white smokestack on Interstate 95 have any idea that the plant burns their household waste, that their electric bills help to maintain it, or that it releases thousands of pounds of greenhouse gases and toxic substances — carbon dioxide, hydrochloric acid, formaldehyde among them — into the air every year.

Wheelabrator Baltimore gets the subsidies because lawmakers agreed in 2011 to classify trash as one of the most environmentally friendly sources of renewable power, on par with wind energy.

The waste-to-energy industry helped write the legislation that awarded it the coveted renewable label that qualifies incinerators for the subsidies. Maryland is one of fewer than a dozen states to reward trash-burning in the same way as it does windmills.

Critics say that's just one example of how Maryland's renewable energy incentive program is like the federal tax code: It's full of breaks and handouts that might have made sense at one time, but have now grown out of control.

Some also question whether burning black liquor — a waste product from paper mills — should qualify as renewable energy eligible for money under the program. A paper mill in Western Maryland and others across the Southeastern United States have collected $60 million from Maryland's electricity ratepayers.

While there is broad support in Maryland and other states for building a clean and renewable energy supply, the debate shows disagreement over how to get there. Politicians generally support efforts to reduce the fossil fuel emissions that are causing the climate to change. But they have been unable to come to a consensus on just what should be counted as green energy.

Del. Jeff Waldstreicher has sponsored legislation to stop rewarding renewable but dirty fuels and focus on truly green energy.

"Each of these elements individually was well-intentioned when it was put in the renewable-portfolio standard," the Montgomery County Democrat says. "Cumulatively, we see it might not be as renewable as we originally thought."

Burning trash to create energy was once widely viewed as a savior, a technology that would make productive use of waste while reducing reliance on environmentally unfriendly landfills. The approach was endorsed by the U.S. Environmental Protection Agency under President Barack Obama. And Wheelabrator, the New Hampshire company that owns and operates the plant that overlooks Russell Street, emphasizes that it has met and exceeded hundreds of air quality standards.

"We work proactively and continuously to maintain a state-of-the-art facility," Wheelabrator spokeswoman Michelle Nadeau says. "Protecting public health and the environment is our highest priority."

But because the Baltimore incinerator is the source of so much of the city's pollution — it produced 82 percent of the sulfur dioxide and 64 percent of the nitrogen oxides emitted by smokestacks within city limits in 2014, according to the EPA — it is getting more scrutiny. Some want to cut its subsidies off.

State environmental officials are working with Wheelabrator to reduce the incinerator's emissions — they note that a comparable facility in Montgomery County produces less than half as much nitrogen oxide. Baltimore

City Council members are also exploring whether more can and should be done to reduce dependence on the incinerator and protect the community from its emissions.

And some residents are mobilizing to move Baltimore toward a "zero-waste" future — increasing recycling and composting to reduce the amount of garbage the city produces — in hopes of eventually cutting off the incinerator's fuel supply.

To Destiny Watford, that would be better than incineration, landfilling or any other option. The 22-year-old Curtis Bay woman began fighting air pollution when she was in high school.

It's not fair, she says, that there is even a debate about whether to burn trash in her community.

"That's environmental injustice — having to ask that question."

Legacy of pollution

The predominantly African-American neighborhoods along the western bank of the Patapsco River just south of downtown Baltimore are crisscrossed by major highways and scarred by industries that have left their toxic stamp on the environment. More than a dozen sites from Westport to Cherry Hill to Brooklyn have been declared Brownfields by the EPA. That means the soil has been saturated by decades of industrial activity, and cleanups have been ordered.

There has been so much pollution here that a local environmental group leads "toxic tours," taking college students from a playground often coated with coal dust to an incinerator that burns medical waste from across the eastern United States. The Energy Justice Network always starts at the Wheelabrator incinerator, which was long known as BRESCO.

Dante Swinton, an organizer with the group, recently showed the sights to dozens of students from Loyola University Maryland.

"Behind you is the city's largest polluter," he told them. The facility processes more than 700,000 tons of trash each year. It releases about 120 pounds of lead, 60 pounds of mercury, 99 tons of hydrochloric acid and 2 tons of formaldehyde, according to the Maryland Department of the Environment. It's Baltimore's chief source of each of those pollutants, according to EPA data.

For every ton of trash it burns, it emits about a ton of carbon dioxide, the chief greenhouse gas. It also generates steam that is used to heat and cool buildings across downtown. (It was that loop of steam pipes that exploded beneath Eutaw Street this summer.)

The incinerator opened in 1985. James Alston, who grew up in Westport, remembers watching it rise over his neighborhood.

It was one more smokestack in a neighborhood where everybody's parents put on their blue uniforms and walked to work in factories. Alston's father worked at St. Joseph Paper Co.; his mother worked for a succession of glass makers.

It wasn't until Alston was in his 30s, when he took a community college course on community activism and got involved in a neighborhood group, that Alston began to think about all the pollution that had surrounded him his whole life.

The average life expectancies for babies born to families in Cherry Hill, Curtis Bay and Brooklyn are all less than 70, according to the city health department, a decade less than the statewide average. In Westport, residents are more than twice as likely to die of lung cancer than those in the Guilford or Homeland neighborhoods of North Baltimore.

To be sure, those estimates are influenced by a multitude of factors. And it's difficult to link an individual cancer or illness directly to any one specific cause. But local groups believe the Wheelabrator incinerator is affecting the community's health. The Chesapeake Bay Foundation estimated this month that the facility's emissions cost Maryland $21.8 million in health care expenses annually.

Alston's father died of colon cancer 25 years ago. His mother died in 2014 after battling diabetes and the consequences of a stroke.

Wheelabrator officials say that the incinerator is "in full compliance with stringent state and federal air, water and solid waste regulations" and that its permits "have been maintained and renewed without exception."

But Alston wonders if incinerator pollution is to blame for cutting his parents' lives short — and what it might mean now for himself and his neighbors.

Maneuvering in Annapolis

When the Wheelabrator facility was built in the 1980s, incineration was viewed as an environmentally friendly alternative to landfills. But by the time the state moved to offer renewable power a boost, its "green" luster had faded. So when the state subsidy program started in 2004, trash incinerators were ranked in a lower tier of renewable energy below wind, solar and geothermal power. In that lesser category, state lawmakers committed to providing incentives only through 2018.

But by 2011, industry officials and their lobbyists were arguing that waste-to-energy should be moved up to a higher tier, with wind and geothermal power.

If they could succeed in moving incinerators to that category, the facilities would qualify for millions of dollars in subsidies — money coming from ratepayers' electricity bills. Allies in the General Assembly introduced legislation to help them.

State Sen. Thomas "Mac" Middleton, the Charles County Democrat who chairs the chamber's finance committee, sponsored the Senate version. He was joined by colleagues including fellow Democrat Catherine Pugh, then a state senator, now Baltimore's mayor.

Middleton says he understands environmentalists' opposition to burning trash. But he says the state cannot rely on wind and solar alone to meet its energy needs.

His argument was buoyed by the EPA assessment that waste-to-energy plants are better for the environment than landfills. Landfills produce more methane, which is twice as potent a greenhouse gas as carbon dioxide.

"They studied it, and their research showed it should be a designated Tier 1 renewable energy source," Middleton said recently. "That's good enough for me."

At a March 2011 hearing of Middleton's committee, proponents argued that there will always be trash to burn, and offering renewable subsidies to incinerators could give the state an economic boost. At the time, there were three trash-to-energy incinerators in Maryland: the Wheelabrator Baltimore facility, the one in rural Montgomery County, and another in Aberdeen.

An agency that helps counties handle their refuse was working with Frederick County to build a fourth incinerator south of Frederick, and a New York-based power company was proposing a fifth, in the Fairfield area of South Baltimore. Supporters said each could bring hundreds of new jobs to the state.

Energy Answers International wanted to build an incinerator in Fairfield on the site of a shuttered chemical plant. The facility could qualify for subsidies from Maryland ratepayers if lawmakers added three words to the bill: "Refuse-derived fuel." That was the name of its main energy source, made from processed trash.

Legislators acquiesced.

Gov. Martin O'Malley's administration was among the bill's supporters, though it would separately come out against black liquor, the waste product burned by paper mills. The administration argued that it set back greenhouse reduction goals.

Kathy Magruder, executive director of Maryland Clean Energy Center, a state agency, argued that declaring trash a renewable resource would create "some tremendous opportunities" to meet the goals of growing the state's green energy supply, and its green work force.

When it came time to vote, that argument won out — narrowly.

With only three hours to go in the 2011 legislative session, then-state Sen. Brian E. Frosh pleaded with his colleagues to put the legislation on hold, a move that would have effectively killed it. The Montgomery County Democrat and his colleagues had advanced it on preliminary votes, but now he feared the measure would effectively diminish investment that might otherwise be made in wind and solar.

The Senate rejected his pleas and voted 24-20 to move trash up to the highest tier of renewable energy.

"I don't know if it just wasn't on anybody's radar or what," recalls Frosh, now the state's attorney general. "I thought we shouldn't have done it."

O'Malley signed the legislation in May 2011 after "careful deliberation," he said at the time. The question, he said, was not whether waste-to-energy generation is better for the environment than a coal plant or a landfill, but whether it was better than both of those evils in combination.

"The answer to that question is a qualified 'yes,'" he said in a statement announcing his decision.

It seemed a practical, environmentally friendly choice. But to those in the communities around the Baltimore incinerator, the decision seemed to ensure decades of more incinerator pollution — from that facility, and, potentially, the Energy Answers project, as well.

Students rise up

Destiny Watford had heard that Energy Answers planned to build its Fairfield incinerator within a mile of her school, Benjamin Franklin High School in Curtis Bay, and four miles from the Wheelabrator incinerator. But it wasn't until a class field trip to Center Stage in 2012, she says, that she fully understood the consequences it could have on her community.

The students saw "An Enemy of the People," a play written by Henrik Ibsen and adapted by Arthur Miller. A man realizes that the new medicinal spa that his town is clamoring for is actually contaminated. But when he attempts to expose the pollution, it is he who ends up being ostracized by his community.

The parallels were easy for Watford and her classmates to draw. With the help of the community activist group United Workers, they launched a campaign to stop the incinerator.

When the incinerator was seen as desirable, the Baltimore public school system and other institutions in the region agreed that they would buy energy from it. The commitments were supposed to make it easier for Energy Answers to secure the investment it needed to build the facility.

Now the students were demanding that the school district pull out of the deal. Watford and her classmates argued it would amount to subsidizing pollution of their community.

At a Baltimore school board meeting in 2014, students Audrey and Leah Rozier expressed their fears in a rap: "No more green, only buildings and all that I can see is landfills and / I'm disgusted, I can't believe we trusted the world but it's not too late to be adjusted."

In late 2015, the students staged a sit-in at the Maryland Department of the Environment, demanding it rescind a key permit for the incinerator project. Seven were arrested.

In March 2016, city officials who had once urged state lawmakers to offer subsidies to the proposed new incinerator canceled their agreements to buy its electricity. Then-Mayor Stephanie Rawlings-Blake said she still supported the project, but expressed frustration over delays.

Three months later, the Department of the Environment agreed that Energy Answers had violated its permit after construction on the project had stalled for more than 18 months.

Energy Answers did not respond to requests for comment on this article.

Company officials said in 2015 that the students' opposition was unfounded. They said the plant would have created 180 "green" jobs, and that it would have met or exceeded any emissions benchmarks.

"Their facts are not accurate," CEO Patrick F. Mahoney told The Baltimore Sun after the sit-in. "I just don't understand the objective of the protest."

But Energy Answers never built the project. To Watford, it was a victory.

"It was just this powerful demonstration of the potential of the people in the room," Watford says.

And she felt validated last year when she was named the North American recipient of the Goldman Environmental Prize, an international award for grassroots activists.

"The fact that I won acknowledges there's a deep-rooted problem in Baltimore," she says.

Dangerous pollutants

Emissions from the Wheelabrator incinerator consistently fall within state and federal guidelines. Now state regulators are in the process of reducing the incinerator's limits for one of its most dangerous pollutants.

The Department of the Environment is expected to tell the incinerator next year to reduce its output of nitrogen oxides by 13 percent, to 150 parts per million. Wheelabrator has agreed to comply.

Nitrogen oxides inflame lung tissue and cause or exacerbate breathing problems, particularly asthma. The particles and other pollutants are often too small to be filtered by the cilia in the upper airways. They make their way deep into the lungs, and eventually the bloodstream.

"It really escapes the body's ability to cleanse itself," said Dr. Gwen DuBois, a Baltimore internist who helps lead the group Chesapeake Physicians for Social Responsibility.

Research has shown that these pollutants can lead to heart disease, asthma, and even stroke, which contributed to the death of Alston's mother.

Wheelabrator officials say they continuously monitor environmental health and safety measures to ensure that their incinerator is complying with regulations and permits. They say they meet or exceed standards in more

than 800 different checks every day at the Baltimore facility.

Alston, now 48, lives in his parents' former home. From the front steps, he has a clear view of the Wheelabrator smokestack half a mile down the hill, billowing steam in front of the downtown skyline.

Alston says he can't believe that the plant is continuing to pump pollutants into the air that he and his neighbors breathe.

Wheelabrator officials say they're helping to improve air quality by reducing the use of fossil fuels to produce electricity and heat.

Alston is nonetheless infuriated over the state of his community's air.

"It's nothing short of environmental racism."

Incinerator foes gear up

Almost seven years after the industry push in Annapolis, some in the capital are ready to reverse the legislation that classified incinerators as green energy.

A coalition of environmental and public health groups is pitching legislation to grow Maryland's renewable energy supply, and it's also calling for ratepayer subsidies to trash incinerators to be phased out.

Others — led by the environmental group Food and Water Watch — are urging more aggressive measures in the legislative session that begins in January. Some want lawmakers to immediately eliminate renewable energy subsidies for any power-generating technology that produces carbon. Some want to shift the state's power supply entirely to renewable sources.

Middleton, the state senator, has shepherded consensus around renewable energy incentives since they were first created in 2004. He says the issue is too complicated to label incinerators as all bad. Wind and solar power are cleaner, he says, but they're less reliable. The supply of garbage, in contrast, is endless.

"We ought to be maximizing the energy generated from wind and solar," he said. "But you've got to look at the cost of it and also the practicality of it."

Opponents say incinerators are falling out of favor. Frederick County backed out of its plans for an incinerator in 2014 over concerns about costs. The Harford County facility closed last year after it lost Aberdeen Proving Ground as a client.

That leaves Wheelabrator Baltimore and the Montgomery County Resource Recovery Facility in Dickerson as the only two trash-to-energy incinerators in Maryland.

In the past year, the Montgomery County incinerator and another in Northern Virginia have been beset by fires that have raged for days.

The Montgomery County Council passed a resolution last month calling for the state to drop incinerators and other dirty energy sources from the renewable power supply, a move that would end the subsidies they receive.

But based on experience, lawmakers don't expect a simple debate in 2018. Last year, before the legislature voted to expand Maryland's renewable energy goal from 20 percent of the power supply by 2022 to 25 percent by 2020, the Senate came within one vote of amending the bill to end subsidies for trash incinerators.

State Sen. Michael Hough, the Republican who pushed the amendment, says he'll keep trying.

Hough, who represents Frederick and Carroll counties, says he can't believe the measure keeps failing in Democratic Maryland.

"One of the most progressive legislatures in the country shoots this thing down every year," he says.

A community empowered

In Westport and Curtis Bay, residents are hoping not just to end the subsidies to the Wheelabrator incinerator. They want to shut it down — and they believe they can.

To students at Benjamin Franklin High, all it might take are some recycling bins. When South Carolina native Liz Samuel moved to Baltimore last year, she was astonished by all the litter between her bus stop on Patapsco Avenue and her school. On neighborhood cleanup days organized by the students and United Workers, she and her classmates noticed that at least two thirds of the garbage they picked up could actually be recycled.

"There's nowhere to put it," the 17-year-old senior says. So she applied for a grant from a local community organization to place trash cans and recycling bins along the littered stretch. The more that goes to recycling, she says, the less there is to feed the incinerator.

Energy Justice Network is applying that concept to a pilot project across Westport and neighboring Lakeland and Mount Winans. Every week, volunteers are rolling around industrial scales to weigh the trash and recycling of homes participating in the pilot.

They hope that by showing that residents are shifting a significant amount of their waste from trash cans to recycling bins, they can convince City Hall it would be cost-effective to provide the recycling bins free citywide.

That's because the city is paying Wheelabrator $52 per ton to burn trash this year, according to a fee schedule that rises each year. But the city makes money selling the scrap metal recovered from trash and recycling -- about $20,000 a year, according to budget documents.

Opponents have packed hearings at the Department of the Environment's headquarters to call on regulators to be aggressive in reducing the incinerator's output of nitrogen oxides. And they have crowded City Council chambers as council members have passed non-binding resolutions to limit the incinerator pollution and to adopt a zero-waste plan for the city.

> “
> It’s like going from passive acceptance to active resistance.
>
> — Greg Sawtell, an organizer with United Workers in Curtis Bay

Greg Sawtell, an organizer with United Workers in Curtis Bay, says he is seeing a community energized. “It’s like going from passive acceptance to active resistance,” he says.

Still, the region’s dependence on the incinerator complicates their fight. Wheelabrator officials stress that the incinerator “is an important part of Maryland’s environmental and energy infrastructure,” Nadeau said.

The facility processed nearly 723,000 tons of trash last year, and only 161,000 tons of it came from Baltimore City residents. The rest comes from outside the city, diverting waste that could otherwise end up in landfills across the state.

The South Baltimore activists are hoping their pressure can put the incinerator out of business nonetheless. They hope their chance will come in four years — under a contract the city approved in 2011, that’s how much longer Baltimore is locked into burning its trash at the incinerator.

If the environmentalists have their way, Swinton says, by then, it will be obsolete.

About the series:

This project was supported with a grant from the Society of Environmental Journalists, a professional organization dedicated to increasing and improving coverage of environmental issues.

Read the first in the series: The Battle for Luke: A massive paper mill in a tiny town in Western Maryland has been ground zero for the debate over what should be considered green energy – and qualify for millions of dollars in subsidies.

Read the third in the series: *Going Green: One wind farm project in Western Maryland is 16 years in the making but still battling community opposition, an example of the challenges that can arise as the green economy of the future becomes a reality.*

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BluewaterBaltimore_FAV_SB560
Uploaded by: SMITH HAMS, TAYLOR
Position: FAV

February 25, 2020

Bill: Renewable Energy Portfolio Standard - Eligible Sources (SB560)
Position: Favorable

Dear Chairwoman Kelley and Members of the Finance Committee,

Blue Water Baltimore's mission is to restore the quality of Baltimore's rivers, streams, and Harbor to foster a healthy environment, a strong economy, and thriving communities. We respectfully urge your support of SB560 and the effort to remove trash incineration from Maryland's Renewable Portfolio Standard.

Burning trash is not clean energy. In reality, incineration harms our air, water, and communities. Nitrogen is a significant source of pollution in the Chesapeake Bay, contributing to algal blooms and dead zones that harm aquatic life. Air pollution causes about one third of the nitrogen pollution in the Bay and is also a main source of mercury pollution that contaminates fish.[1] Facilities like the Wheelabrator incinerator in Baltimore City contribute to this air pollution. In fact, Maryland's two incinerators emit higher levels of mercury, lead, nitrogen oxides, carbon monoxide, and carbon dioxide than Maryland's coal plants to produce the same amount of energy.[2]

Classifying incineration as "renewable energy" runs counter to our regional goals and commitments to clean up the Chesapeake Bay. Maryland spends millions of dollars a year to reduce pollution in the Bay[3] -- why undercut these efforts by incentivizing a source of pollution?

In addition to polluting our waterways, incineration increases the rate of respiratory illnesses and other health problems in our communities, exacerbates environmental injustice, and reinforces our throwaway culture. Blue Water Baltimore volunteers collected over six tons of trash from our streets and streams last year. Yet when we dispose of this litter, we know much of it is going to the Wheelabrator incinerator and simply transforming into another form of pollution. Instead of burning and burying our waste, we must reduce waste at the source, reuse materials, and invest in zero waste solutions.

Maryland's renewable energy subsidies should be used to support truly clean energy like wind and solar, not trash incineration that pollutes our waterways and communities. Please support SB560 to end subsidies for trash incineration in Maryland and help move our state to a zero waste future.

Sincerely,
Taylor Smith-Hams
Outreach & Advocacy Specialist

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[1] "Air Pollution," *Chesapeake Bay Foundation*, https://www.cbf.org/issues/air-pollution/, accessed 18 February 2020.
[2] Leah Kelly, "Waste-To-Energy: Dirtying Maryland's Air by Seeking a Quick Fix on Renewable Energy?" *Environmental Integrity Project,* October 2011, http://environmentalintegrity.org/wp-content/uploads/ 2011-10_WTE_Incinerator.pdf.
[3] Lawrence J. Hogan Jr., Governor and Boyd K. Rutherford, Lt. Governor, "Maryland Budget Highlights Fiscal Year 2020," 18 January 2019, https://dbm.maryland.gov/budget/Documents/operbudget/2020/proposed/FY2020-BudgetHighlights-WebFinal.pdf.

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Position: FAV

CHESAPEAKE BAY FOUNDATION

Environmental Protection and Restoration
Environmental Education

Senate Bill 560
Renewable Energy Portfolio Standard-Eligible Sources

DATE: February 25, 2020 CBF POSITION: **SUPPORT**

The Chesapeake Bay Foundation (CBF) SUPPORTS SB 560. This bill removes trash incineration from Maryland's Renewable Energy Portfolio Standard.

In 2019, the General Assembly passed landmark legislation to increase Maryland's Renewable Energy Portfolio Standards. Removal of trash incineration from the Standards will require public utilities to purchase additional energy from wind, solar, and other renewable sources to fulfill their required renewable portfolio.

The State's Renewable Energy Portfolio Standards aim to confront greenhouse gas emissions and slow climate change. By removing trash incineration from Maryland's Standards, the State would acknowledge that trash incineration is not a renewable energy source but is rather a source of oxidized nitrogen – a climate-impacting greenhouse gas.

Climate change has immediate and drastic impacts on the Chesapeake Bay, many of which are already being witnessed. Warmer climates mean warmer waters, which decrease dissolved oxygen, exacerbating the Bay's fish-killing "dead zones" and contributing to algal blooms. Rising water temperatures stress fish and reducing the populations from the Bay's iconic striped bass to brook trout. Other temperature-sensitive species such as eel grass, a critical habitat plant, are at risk.

Atmospheric deposition of nitrogen is the highest nitrogen input load in the Chesapeake Bay. Nitrogen pollution feeds algal blooms that block sunlight to underwater grasses and suck up life supporting oxygen when they die and decompose. The principle source of oxidized nitrogen, also called NOx, is air emissions from various emitters, including trash incinerators.

Studies have shown that fine particulate matter air pollutants emitted from trash incinerators is also damaging to human health. The enclosed report documents the adverse human health effects that are associated with exposures to air pollutants generally, and, the adverse human health effects associated with the particulate emissions from the Wheelabrator Facility in Baltimore, Md. The Wheelabrator is a waste-to-energy incinerator located in the Westport neighborhood of Baltimore, Maryland.

For these reasons, CBF SUPPORTS SB560 and urges the Committee's FAVORABLE report. For more information, please contact Carmera Thomas, Baltimore Program Manager at 443.482.2011 or carmerathomas@cbf.org.

Maryland Office ▪ Philip Merrill Environmental Center ▪ 6 Herndon Avenue ▪ Annapolis ▪ Maryland ▪ 21403
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WRITTEN REPORT OF GEORGE D. THURSTON
REGARDING THE PUBLIC HEALTH IMPACTS OF AIR EMISSIONS FROM THE WHEELABRATOR FACILITY

November 20, 2017

PROFESSIONAL EXPERIENCE OF THE AUTHOR

I am Professor of Environmental Medicine at the New York University (NYU) School of Medicine.

I have a Bachelor of Science degree in Engineering from Brown University, and a Masters and Doctorate of Environmental Health Sciences from the Harvard University School of Public Health. I have over 30 years of subsequent experience in the evaluation of the human health effects of air pollution. I have served on the U.S. Environmental Protection Agency's Clean Air Scientific Committee (CASAC) that advises the EPA on the promulgation of ambient air quality standards from 2007 through 2010, and I have served on the National Academy of Science's Committee on the Health Effects of Incineration from 1995 through 1999. I have published extensively regarding the health effects of inhaled air pollutants on humans, particularly as it relates to asthma attacks, hospital admissions, and mortality, in prominent scientific journals, such as Science, Lancet, Thorax, and The Journal of the American Medical Association (JAMA). I have also been called upon by both the U.S. House of Representatives and the U.S. Senate on multiple occasions in recent decades to provide testimony before them regarding the human health effects of air pollution. A statement of my qualifications is attached to my affidavit.

SUMMARY OF REPORT

The purpose of this report is to document the adverse human health effects that are associated with exposures to air pollutants generally, and in particular, the adverse human health effects associated with the particulate emissions from the Wheelabrator Facility in Baltimore, Md.

This report documents how emissions contribute to the serious and well-documented adverse human health effects known to be associated with exposure to air pollution. The documentation I present confirms this conclusion, including both epidemiological and toxicological evidence that I and others have published in the medical and scientific literature. In this work, I also rely upon the expert air quality modeling conducted by Dr. Andrew Gray. Applying this information to the U.S. EPA approved Environmental Benefits Mapping and Analysis Program (BenMAP) model, I then provide calculations of the excess adverse human health impacts that would occur each year if the Wheelabrator plant continues its present operations and associated air emissions, as well as the annual economic valuation of those health impacts.

BACKGROUND

The adverse health consequences of breathing air pollution are well documented in the published medical and scientific literature. During the past decades, medical research examining air pollution and public health has shown that air pollution is associated with a host of serious adverse human health effects. This documentation includes impacts revealed by observational epidemiology, and confirmed by controlled chamber exposures, showing consistent associations between air pollution and adverse impacts across a wide range of human health outcomes.

Observational epidemiology studies provide the most compelling and consistent evidence of the adverse effects of air pollution. "Epidemiology" is literally "the study of epidemics," but includes all statistical investigations of human health and potentially causal factors of good or ill health. In the case of air pollution, such studies follow people as they undergo varying real-life exposures to pollution over time, or from one place to another, and then statistically inter-compare the health impacts that occur in these populations when higher (versus lower) exposures to pollution are experienced. In such studies, risks are often reported in terms of a Relative Risk (RR) of illness, wherein a RR =1.0 is an indication of no change in risk after exposure, while a RR>1.0 indicates an increase in health problems after pollution exposure, and that air pollution is damaging to health.

These epidemiological investigations are of two types: 1) population-based studies, in which an entire city's population might be considered in the analysis; and 2) cohort studies, in which selected individuals, such as a group of asthmatics, are considered. Both of these types of epidemiologic studies have shown confirmatory associations between air pollution exposures and increasing numbers of adverse impacts, including:

- decreased lung function (a measure of our ability to breathe freely);
- more frequent asthma symptoms;
- increased numbers of asthma and heart attacks;
- more frequent emergency department visits;
- additional hospital admissions; and
- increased numbers of deaths.

The fact that the effects of air pollution have been shown so consistently for so many health endpoints, and in so many locales, indicates these associations to be causal.

Fine Particulate Matter (PM) is among the key air pollutants that have been revealed by research to adversely affect human health. These research studies have been conducted for a wide array of geographic areas, including eastern North America. $PM_{2.5}$ air pollution has been carefully studied in recent decades. PM is composed of two major components: "primary" particles, or soot, emitted directly

into the atmosphere by pollution sources, and; "secondary" particulate matter, formed in the atmosphere from gaseous pollutants, such as the sulfur oxides (SOx) and nitrogen oxides (NOx) also emitted by pollution sources. After formation in the atmosphere, this secondary PM largely condenses upon the smallest existing primary particles that, collectively, represent the greatest surface area for the secondary PM to condense upon. These particles are very small, commonly having an aerodynamic diameter of less that 1.0 micrometer (*u*m) – a fraction of the diameter of a human hair. For example, after it is released from a smokestack, gaseous SOx is chemically converted in the atmosphere to become sulfate PM.

In addition to lung damage, recent epidemiological and toxicological studies of PM air pollution have shown adverse effects on the heart, including an increased risk of heart attacks. For example, when PM stresses the lung (*e.g.*, by inducing edema), it places extra burden on the heart, which can induce fatal complications for persons with cardiac problems. Indeed, for example, Peters et al. (2001) found that elevated concentrations of fine particles in the air can elevate the risk of Myocardial Infarctions (MI's) within a few hours, and extending 1 day after PM exposure. The Harvard University team found that a 48 percent increase in the risk of MI was associated with an increase of 25 *u*g/m^3 $PM_{2.5}$ during a 2-hour period before the onset of MI, and a 69 percent increase in risk to be related to an increase of 20 *u*g/m^3 $PM_{2.5}$ in the 24-hour average 1 day before the MI onset (Peters et al., 2001). Numerous other U.S. studies have also shown qualitatively consistent acute cardiac effects, such as the Zanobetti and Schwartz (2006) study of hospital admissions through emergency departments for myocardial infarction (ICD-9 code 410); and the Zanobetti et al. (2009) study that examined the relationship between daily $PM_{2.5}$ concentrations and emergency hospital admissions for cardiovascular causes, myocardial infarction, and congestive heart failure in 26 U.S. communities during 2000-2003.

Cardiac effects at the biological level have also been documented in both animal and human studies. Animal experiments at Harvard University by Godleski et al. (1996, 2000) indicate that exposures to elevated concentrations of ambient PM can result in cardiac related problems in dogs that had been pre-treated (in order to try to simulate sensitive individuals) to induce coronary occlusion (i.e., narrowed arteries in the heart) before exposing them to air pollution. The most biologically and clinically significant finding was that, in these dogs, the PM affected one of the major electrocardiogram (ECG) markers of heart attacks (myocardial ischemia) in humans, known as elevation of the ST segment. Cardiac effects at the biological level have been found in human studies, as well. For example, Pope et al. (1999) and Gold et al. (2000) found that PM exposure is associated with changes in human heart rate variability. Such changes in heart rate variability

(HRV) may reflect changes in cardiac autonomic function and risk of sudden cardiac death. In the Pope et al. study, repeated ambulatory ECG monitoring was conducted on 7 subjects for a total of 29 person-days before, during, and after episodes of elevated pollution. After controlling for differences across patients, elevated particulate levels were found to be associated with (1) increased mean heart rate, (2) decreased SDNN, a measure of overall HRV, (3) decreased SDANN, a measure that corresponds to ultra-low frequency variability, and (4) increased r-MSSD, a measure that corresponds to high-frequency variability. This confirms, at the individual level, that biological changes do occur in heart function as a result of PM exposure, supporting the biological plausibility of the epidemiological associations between PM exposure and cardiac illnesses.

Epidemiologic research conducted on U.S. residents has indicated that acute exposure to PM air pollution is associated with increased risk of mortality. A nationwide time-series statistical analysis by the Health Effects Institute (HEI, 2003) of mortality and PM_{10} air pollution in 90 cities across the US indicates that, for each increase of 10 $u g/m^3$ in daily PM_{10} air pollution concentration, there is an associated increase of approximately 0.3% in the *daily* risk of death. While a 0.3 % change in the daily death risk may seem small, it is important to realize that such added risks apply to the entire population, and accumulate day after day, week after week, and year after year, until they account for thousands of needless daily deaths from air pollution in the U.S. each year. Indeed, I concur with the most recent U.S. EPA Particulate Matter Integrated Science Assessment (ISA) (USEPA, 2009), which unequivocally states that "Together, the collective evidence from epidemiologic, controlled human exposure, and toxicological studies is sufficient to conclude that *a causal relationship exists between short term exposures to* $PM_{2.5}$ *and cardiovascular effects . . . and mortality.*"[1]

In addition to the acute health effects associated with daily PM pollution, the long-term exposure to fine PM is also associated with increased lifetime risk of death and has been estimated to take years from the life expectancy of people living in the most polluted cities, relative to those living in cleaner cities. For example, in the Six-Cities Study (which was one key basis for the setting of the original $PM_{2.5}$ annual standard in 1997), Dockery et al. (1993) analyzed survival probabilities among 8,111 adults living in six cities in the central and eastern portions of the United States during the 1970's and 80's. The cities were: Portage, WI (P); Topeka, KS (T); a section of St. Louis, MO (L); Steubenville, OH (S); Watertown, MA (M); and Kingston-Harriman, TN (K). Air quality was averaged over the period of study in order to study long-term (chronic) effects. As shown in Figure 1, it was found that the long-term risk of death, relative to the cleanest city, increased with fine

[1] U.S. Environmental Protection Agency (2009a) (emphasis added).

particle exposure, even after correcting for potentially confounding factors such as age, sex, race, smoking, etc.

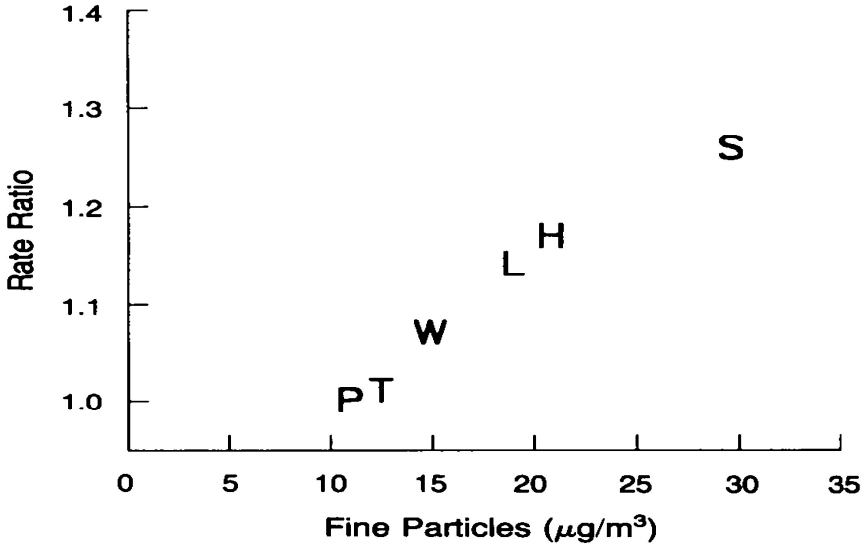


Figure 1. The Harvard Six-Cities Study showed that the lifetime risk of death increased across 6 U.S. cities as the average fine PM levels increased. (Source: Dockery et al., 1993).

In addition, a study that I wrote with co-authors, published in the Journal of the American Medical Association (JAMA), documented that long-term exposure to combustion-related fine particulate air pollution is an important environmental risk factor for cardiopulmonary and lung cancer mortality. Indeed, Figure 2 from this study indicates that the increase in risk of lung cancer from long-term exposure to $PM_{2.5}$ in a polluted city was of roughly the same size as the increase in lung cancer risk of a non-smoker who breathes passive smoke while living with a smoker, or about a 20% increase in lung cancer risk. *See* Pope, CA, et al., 2002.

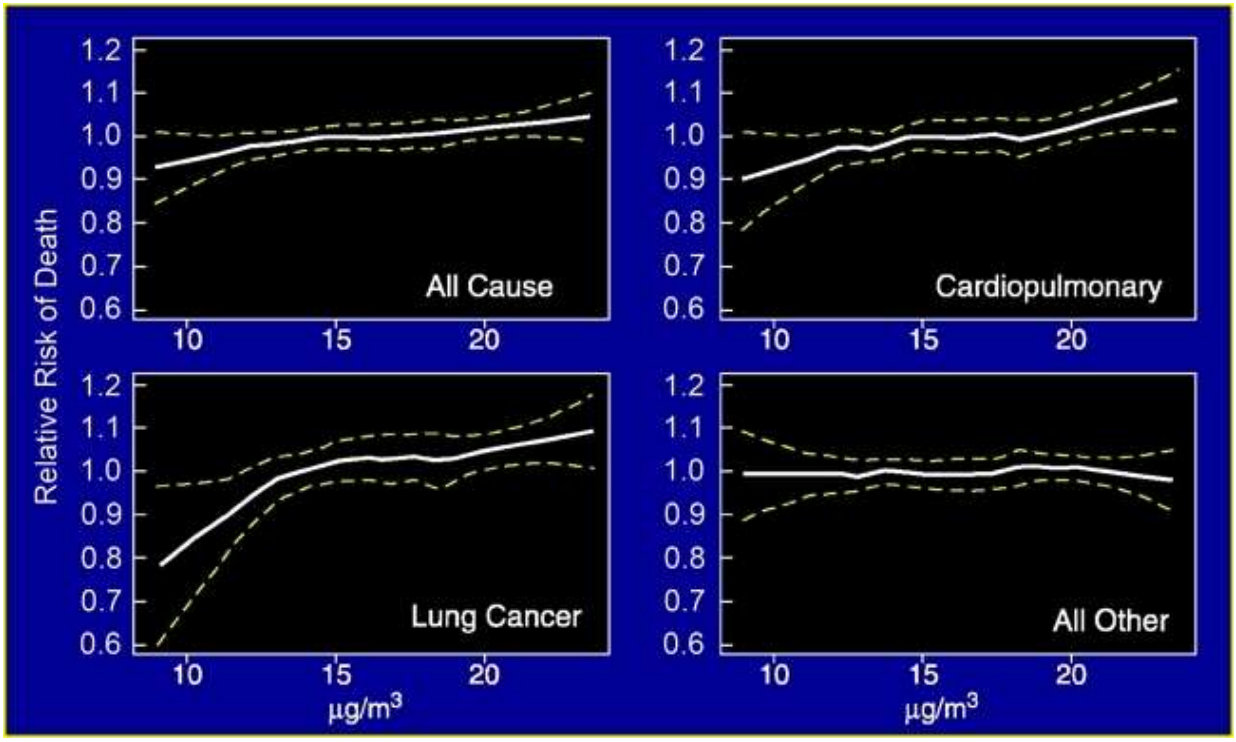


Figure 2. Cardiopulmonary and lung cancer mortality risks increase with exposure to long-term fine PM (adapted from: Pope, Burnett, Thun, Calle, Krewski, Ito, and Thurston, 2002)

Most studies evaluate whether rising air pollution levels worsen health, but it has also been shown that reducing pollution in the air can result in health benefits to the public. For example, Pope (1989) conducted a compelling study clearly showing that, when pollution levels diminish, the health of the general public improves. He investigated a period during the winter of 1986-87 when the Geneva Steel mill in the Utah Valley shut down during a strike. The PM levels dropped dramatically in that strike-year winter, as opposed to the winters preceding and following when the steel mill was in operation. As shown in Figure 3 below, hospital admissions in the valley showed the same pattern as the PM air pollution, decreasing dramatically during the strike. As a control, Pope also examined the pollution and hospital admissions records in nearby Cache Valley, where the mill's pollution was not a factor, and no such drop in respiratory admissions was seen, showing that the drop in admissions in the Utah Valley was not due to some cause other than the reduction in the air pollution levels.

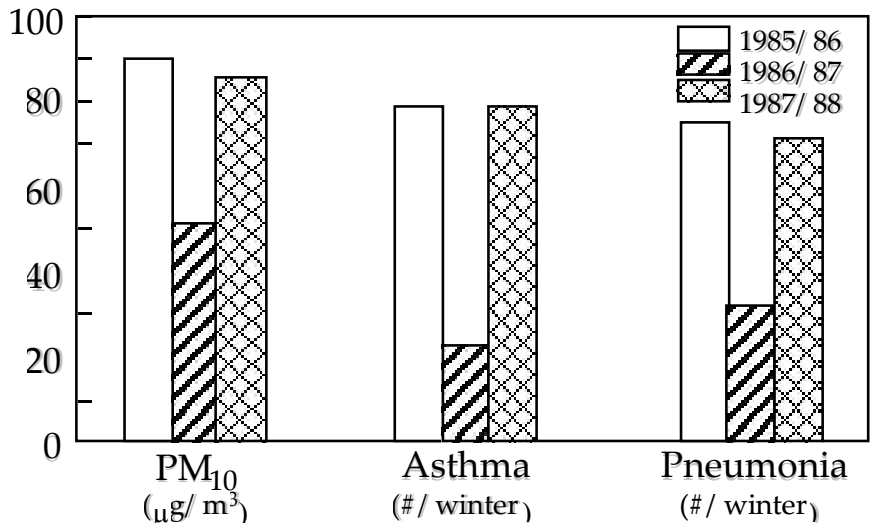


Figure 3. Decreasing PM pollution lowered the number of children's hospital admissions (Source: Pope, 1989).

These studies of the health improvements associated with decreases in $PM_{2.5}$ pollution show that any reduction can be expected to result in commensurate health benefits to the public at ambient levels, even where the National Ambient Air Quality Standards (NAAQS) are already met. A follow-up analysis of the Harvard Six-Cities Study cohort discussed earlier (Dockery et al., 1993), published in the March 15, 2006 issue of The American Journal of Respiratory and Critical Care Medicine (Laden et al., 2006), shows that mortality is decreased by lowering PM pollution. This study was carried out in the same six metropolitan areas evaluated in the earlier study, study participants' ages ranged from 25 to 74 at enrollment in 1974, and the scientists tracked both PM air pollution and mortality through 1998 in these populations. The Laden study found that improved overall mortality (i.e., a risk ratio significantly below 1.0) was associated with decreased mean $PM_{2.5}$ over the study follow-up time (RR = 0.73; 95% per 10 $\mu g/m^3$, CI = 0.57-0.95). In other words, for each decrease of 1 $\mu g/m^3$ of $PM_{2.5}$, the overall death rate from causes such as cardiovascular disease, respiratory illness and lung cancer decreased by nearly 3% (i.e., 10 $\mu g/m^3$ x 2.7% = 27% decrease, or RR=0.73). The study also found that people who are exposed to lower pollution live longer than they would if they were exposed to higher pollution. Francine Laden, the study's lead author, explained its key findings in the March 21, 2006 issue of the New York Times: "For the most part, pollution levels are lower in this country than they were in the 70's and 80's," and "the message here is that if you continue to decrease them, you will save more lives."[2] "Consistently," Dr. Laden said, "in the cities where there was the most cleanup, there was also the greatest decrease in risk of death."

[2] Nicholas Bakalar, *Cleaner Air Brings Drop in Death Rate*, New York Times (Mar. 21, 2006), pg F7.

Although the Laden study took place in urbanized areas, the same principle can be applied in more rural areas where the air is more pristine: higher concentrations of $PM_{2.5}$, even at very low overall levels, are associated with greater health risks. Indeed, a more recent Canadian national-level cohort study, Crouse et al. (2012), has shown that the adverse effects of air pollution extend down to very low levels of $PM_{2.5}$. These investigators calculated hazard ratios (i.e., risk ratios) and 95% confidence intervals (CIs), adjusted for available individual-level and contextual covariates, finding a relative risk (or hazard ratio) of 1.30 (95% CI: 1.18, 1.43) for cardiovascular mortality from Cox proportional hazards survival models with spatial random-effects. Figure 4, taken from the Crouse study, illustrates the finding that mortality risk decreases with decreasing levels of $PM_{2.5}$, even at ambient $PM_{2.5}$ levels down to 1 $\mu g/m^3$.

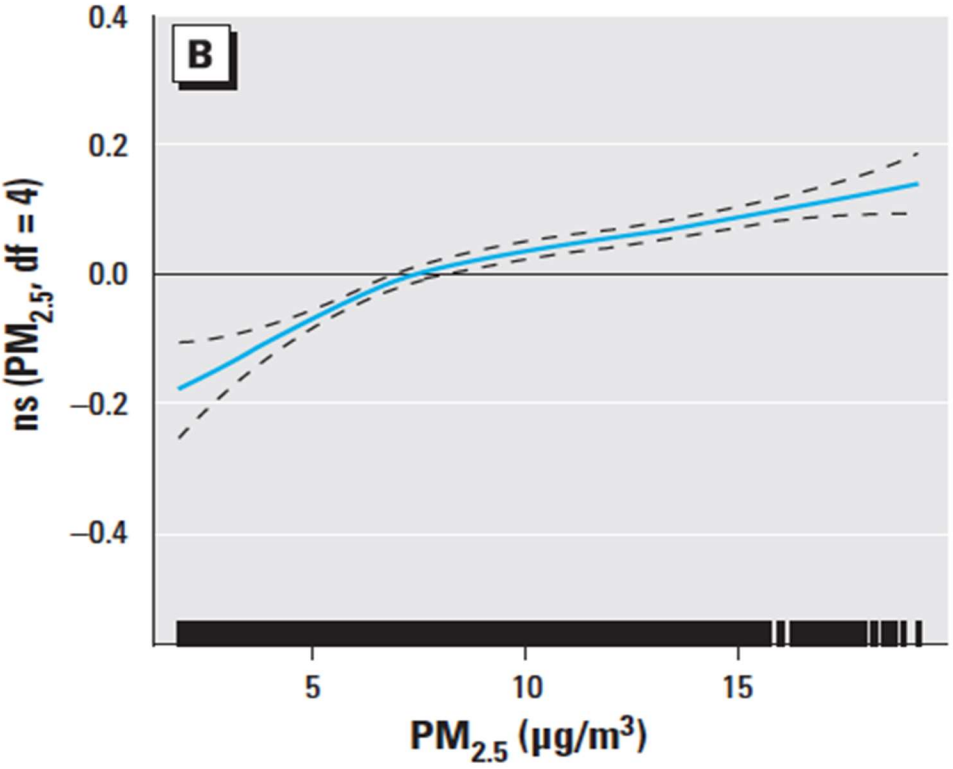


Figure 4. Cardiovascular Mortality Risk vs. $PM_{2.5}$ exposure (solid line) and 95% CIs (dashed lines), showing increasing risk of death with increasing $PM_{2.5}$, even at very low ambient levels of $PM_{2.5}$ air pollution (from Crouse et al., 2012).

Similarly, my own research has verified (as shown in Figure 5) that the association between $PM_{2.5}$ air pollution and cardiovascular mortality extends down to very low $PM_{2.5}$ concentration levels in the US as well (Thurston et al, 2016). Importantly, this study is highly regarded, as it was conducted in a well characterized and large US population: the National Institutes of Health – American Assoiation of Retired Persons (NIH-AARP) Diet and Health Study cohort. The NIH-

AARP Study was initiated when members of the AARP, aged 50 to 71 years from 6 US states (California, Florida, Louisiana, New Jersey, North Carolina, and Pennsylvania) and 2 metropolitan areas (Atlanta, Georgia, and Detroit, Michigan), responded to a mailed questionnaire in 1995 and 1996. The NIH-AARP cohort questionnaires elicited information on demographic and anthropometric characteristics, dietary intake, and numerous health-related variables (e.g., marital status, body mass index, education, race, smoking status, physical activity, and alcohol consumption), that was used to control for these factors in the air pollution mortality impact assessment.

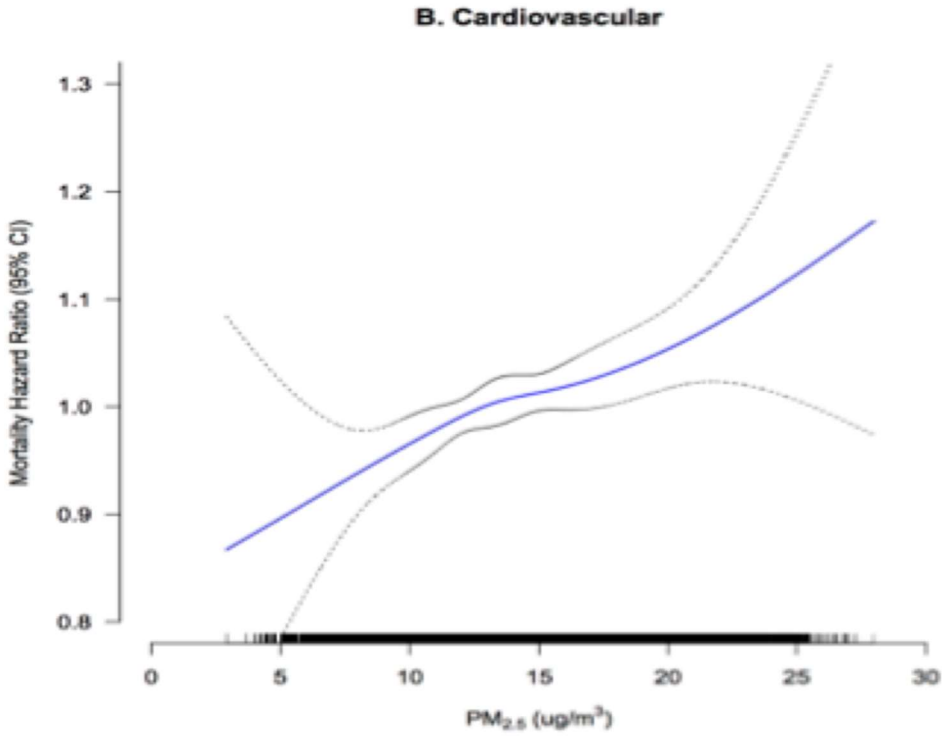


Figure 5. Mortality Risk from Cardiovascular Disease Increases with Rising PM2.5 Exposure, Even Well Below the Present US Ambient Air Quality Standard annual limit for PM2.5 (12 µg/m3). Thurston *et al*., 2016a.

Although published too late to be considered by the U.S. EPA in their 2013 standard setting process, the Crouse et al. (2012) and Thurston et al. (2016a) results indicate that the mortality effects of $PM_{2.5}$ air pollution can occur at even lower ambient air pollution levels than shown by Pope et al. 2002, and even lower levels than that at which the U.S. EPA assumed the effects of $PM_{2.5}$ to exist in its 2012 Regulatory Impact Assessment for the revised annual PM NAAQS (U.S. EPA, 2012). These results confirm that, even in places where background air is relatively clean, small changes in air pollution concentration can have population health impacts.

A more recent documentation of the fact that there is a scientific consensus that air pollution effects occur even at levels below the prevailing NAAQS is the recent article from Fann et al (2017) which states very clearly: "The risk coefficient assumes a log-linear relationship between $PM_{2.5}$ and mortality over all possible values of $PM_{2.5}$, such that there is no threshold concentration below which $PM_{2.5}$-attributable mortality falls to zero. This assumption is consistent with findings in previous studies, which reported no evidence of a population-level threshold in the relationship between long-term exposure to $PM_{2.5}$ and mortality, and so we elected not to apply one in this health impact function (Crouse et al. 2012; Schwartz et al. 2008; U.S. EPA 2009)."

In addition, a very recent nationwide analysis of mortality in a cohort of all Medicare beneficiaries in the continental United States (60,925,443 persons), published in the New England Journal of Medicine, found that "In the entire Medicare population, there was significant evidence of adverse effects related to exposure to $PM_{2.5}$ and ozone at concentrations below current national standards." (Di et al, 2017).

Similarly, Perlmutt et al (2017) found in their research on the effects of air pollution on New York City hospital admissions that "The majority of excess hospital admissions (i.e., > 90% in Bronx County) occurred when the AQI was <100 ('good' or 'moderate' level of health concern) regardless of whether $PM_{2.5}$ was the driver pollutant." Since when the air quality is below 100, it is within the air quality standards, this work is consistent with my testimony, and with the general scientific consensus that air pollution levels below the National Ambient Air Quality Standards (NAAQS) do have significant adverse health impacts.

Moreover, even the World Health Organization (WHO) has also concluded that there are human health effects from air pollution exposures below the legal air quality limits. The WHO has stated that[3] "The lower the levels of air pollution, the better the cardiovascular and respiratory health of the population will be, both long- and short-term" and that "Small particulate pollution have health impacts even at very low concentrations – indeed no threshold has been identified below

[3] http://www.who.int/mediacentre/factsheets/fs313/en/ (Updated September, 2016).

which no damage to health is observed.". Thus, the WHO agrees with my assessment that that adverse human health effects from air pollution exposures occur below the legal air quality limits, and that any addition to that pollution will result in an increased risk of adverse health effects, even when below the prevailing air quality standards (WHO, 2006).

As these studies show, there is no convincing evidence to date showing that there is any threshold below which such adverse effects of PM air pollution will not occur. This lack of a threshold of effects indicates that any reduction in air pollution can be expected to result in commensurate health benefits to the public at ambient levels.

Overall, there is a consistency between the epidemiologic study associations and experimental study results, supporting the conclusion that 1) there is indeed a cause-effect relationship between air pollution and negative health effects; and, 2) there is no known threshold below which no effects are experienced. Thus, reductions in air pollution result in commensurate improvements in public health, as provided in this report.

METHODS

The U.S. EPA-approved Environmental Benefits Mapping and Analysis Program (BenMAP) is a Windows-based computer program that uses a Geographic Information System (GIS)-based method to estimate the health and economic impacts of ambient air pollution (Abt Associates, 2010; U.S. EPA, 2015). Analysts have relied upon BenMAP to estimate the health impacts from air pollution at the city and regional scale, both within and beyond the U.S. Some of the purposes for which BenMAP has been used include the following:

- Generation of population/community level ambient pollution exposure maps;
- Comparison of benefits across multiple regulatory programs;
- Estimation of health impacts associated with exposure to existing air pollution concentrations;
- Estimation of health benefits of alternative ambient air quality standards.

BenMAP is primarily intended as a tool for estimating the health impacts, and associated economic values, associated with ambient air pollution, as we apply it here. It accomplishes this by computing health impact functions that relate a change in the concentration of a pollutant with a change in the incidence of a health endpoint.

Key assumptions of the BenMAP model, as applied here, are that:

- the Concentration -Response (C-R) function is non-threshold, and can be extrapolated down to background concentrations;
- the C-R functions can be transferred from study location to all locations in the U.S.;

• the C-R functions only applies to population examined in study; and,

• the C-R function is constant over time and environmental conditions.

Inputs to health impact functions in this work included (as reflected in Figure 1):

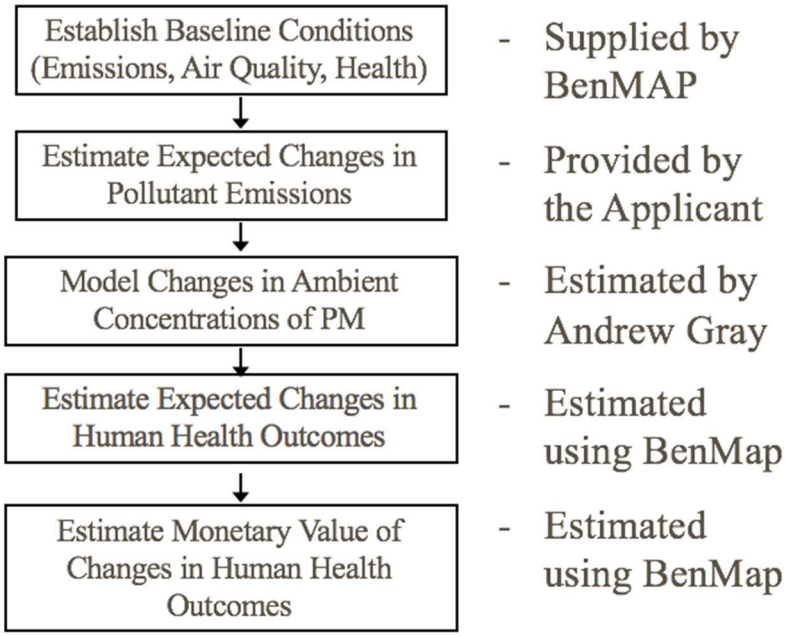
• The ambient air pollution impact level (as provided by Dr. Andrew Gray, of Gray Sky Solutions). All three species concentrations were estimated by interpolating 9 km gridded CALUFF model results to the county centroids. For Baltimore City, Dr. Gray used the results of local-scale AERMOD modeling for the directly emitted fine PM (and added that to the CALPUFF-predicted secondary SO_4 and NO_3);

• pollutant health effect estimates (based upon the scientific literature, present EPA practice);

• the exposed population, on a county basis, as provided in the BenMAP model; and,

• the baseline incidence rate of the health endpoint, on a county basis, as provided in the BenMAP model.

Figure 1. Overview of the BenMAP Health Effects and Valuation Methodology



For example, in the case of a premature mortality health impact function, the BenMAP calculation can be represented, in a simplified form, as:

Mortality Impact = (Air Pollution Impact) * (Air Pollution Mortality Effect Estimate) * (Mortality Incidence) * (Exposed Population)

• **Air Pollution Impact**. The air quality change is calculated as the difference between the starting air pollution level, also called the baseline, and the air pollution level after some change,

such as that caused by a regulation, or by a specific source adding to the prevailing pollution levels (as in this case). In the case of particulate matter, this impact is typically estimated in micrograms per meter cubed ($\mu g/m^3$). In this analysis, these concentrations were provided on a county-by-county population weighted centroid basis.

- **Mortality Effect Estimate**. The mortality effect estimate is an estimate of the percentage change in mortality due to a one unit change in ambient air pollution (e.g., added to the prevailing pollution by a single source, as considered here). Epidemiological studies provide a good source for effect estimates.[4] In this Report, since the choice of mortality effect study has such a large influence on the valuation of the adverse health impacts avoided by applying EPA's proposed emission limits, I have presented (in Tables 1 and 2) BenMAP estimates for the lower end of mortality estimates (Krewski et al., 2009) (vs. higher Laden et al, 2006 and Lepeule et. al, 2012 options in BenMAP). It should be noted that, if I instead used the higher mortality per $\mu g/m^3$ $PM_{2.5}$ effect estimates from the other two studies mentioned above (which are also scientifically supportable), the dollar valuation of health impact estimates in Tables 1 and 2 would be approximately 2.2 times higher using the Lepeul et al. study mortality effect estimate, or approximately 2.8 times higher using the Laden et al. study mortality effect estimate.

- **Mortality Incidence**. The mortality incidence rate is an estimate of the average number of people that die in a given population over a given period of time, as provided in BenMAP. For example, the mortality incidence rate might be the probability that a person will die in a given year.

- **Exposed Population**. The exposed population is the number of people affected by the air pollution reductions, based on Census data for each county within BenMAP.

Note that, in practice, most studies derived their estimates using a logn-linear specification. For a given health outcome y, a standard log-linear specification might look like $y=Be^{\beta PM}$., where "B" is the C- R function, and "PM" represents the pollutant concentration. This implies that the change in incidence of y is: $\Delta y=y_0(e^{\beta \Delta PM}-1)$.

For example, for all cause mortality:

ΔAll Cause Mortality = $y_0 (e^{-\beta \Delta PM2.5}-1)\cdot P$

Key elements: y_0 = county-level all-cause annual death rate per person ages 30 and older

[4] When multiple epidemiological studies are available in BenMAP for a health outcome, multi-study pooled estimates have been made, following recent EPA practice (e.g., USEPA, 2012), and as delineated in Tables 1 and 2.

β = the pollution effect coefficient = 0.0058;

$\Delta PM_{2.5}$ = the modeled change in annual mean $PM_{2.5}$ concentration; and,

P = total population, 30 and older

For this work, population-weighted centroid $PM_{2.5}$ concentration impacts in each county in Maryland and the surrounding six study states (Connecticut, Delaware, DC, Kentucky, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Virginia, West Virginia) were determined by Andrew Gray for the existing plant emissions.[5] Postprocessing of the CALPUFF results was performed to sum the modeled sulfate, nitrate, and $PM_{2.5}$ at each receptor, in order to obtain the estimated total fine PM concentration at each receptor. These values were entered into BenMAP to estimate the health impacts, and their dollar valuations, associated with the plant's pollution impacts on a county-by-county basis. The county-level results were then summed on a cumulative basis (Tables 1 and 2, with both numbers and valuations, by cause). Furthermore, to allow an indication of the Maryland-specific impacts of the Wheelabrator emissions, the health impact valuations (summed over all causes, as dollars) were also calculated.

RESULTS

Using the above-described EPA BenMAP methodology-based analysis, I conservatively estimate the total potential public health-based economic benefits associated with reductions in ambient $PM_{2.5}$ concentrations as a result of eliminating the air emissions from the Wheelabrator plant (as displayed in Table 1 for all seven affected states considered, combined) to be roughly $55 milion per year, overall). As also shown in Table 1, the numbers of avoidable adverse health events from the plant are dominated by the morbidity events, such as respiratory symptoms, restricted activity days, and work loss days. In contrast, the dollar valuation of the adverse health events are largely dominated, as would be expected, by the more severe health outcomes, including myocardial infarctions (heart attacks), chronic bronchitis, and (especially) deaths.

[5] "Existing" emissions are actual emissions rates for the three incinerator boilers, reported in pounds per hour by Wheelabrator on Annual Emissions Certification Reports for 2014, 2015, and 2016, and converted to an average annual rate for all three boilers.

Table 1. Annual Multi-State Human Health Effects and Monetary Valuations Associated With the $PM_{2.5}$ Air Pollution Impacts from the Wheelabrator Plant

Health Endpoint	Number Per Year	Total Dollar Valuation (2010$)
Respiratory Hospital Admissions (Kloog et al., 2012; Zanobetti et al., 2009)	0.9[a]	$27,729
Cardiovascular Hospital Admissions (Bell et al., 2008; Peng et al., 2008; Peng et al., 2009; Zanobetti et al., 2009)	1.2[a]	$43,918
Acute Bronchitis (Dockery et al., 1996)	8.2	$3,919
Acute Myocardial Infarction, Nonfatal (Pope et al., 2006; Sullivan et al., 2005; Zanobetti et al., 2009; Zanobetti & Schwartz, 2006)	0.6[b]	$78,440[a]
Emergency Room Visits (Glad et al., 2012; Mar et al., 2010; Slaughter et al., 2005)	4.8[b]	$2,044
Asthma Exacerbation Symptoms (Mar et al., 2004; Ostro et al., 2001)	158.2[b]	$9,139
Upper Respiratory Symptoms (Pope et al., 1991)	148.4	$4,936
Lower Respiratory Symptoms (Schwartz and Neas, 2000)	104.0	$2,185
Minor Restricted Activity Days (Ostro & Rothschild, 1989)	4622.2	$315,414
Work Days Lost (Ostro et al., 1987)	776.3	$144,895
Chronic Bronchitis (Abbey et al., 1995)	4	$1,116,548[c]
Mortality, All Causes (Krewski et. al, 2009)	5.5	$53,051,923
Total Valuation		$54,801,090

a Pooled effects with averaging approach, as per EPA BenMAP default setting.
b Pooled effects with random/fixed effects approach, as per EPA BenMAP default setting.
c Pooled effects with summation approach, as per EPA BenMAP default setting.

As shown in Table 2, for Maryland alone, the largest health impacts of the plant occur in the state in which the facility is operating, but, because this pollution can be carried so far downwind, nearly more than half of the plant's air pollution health impacts accrue in other (downwind) states.

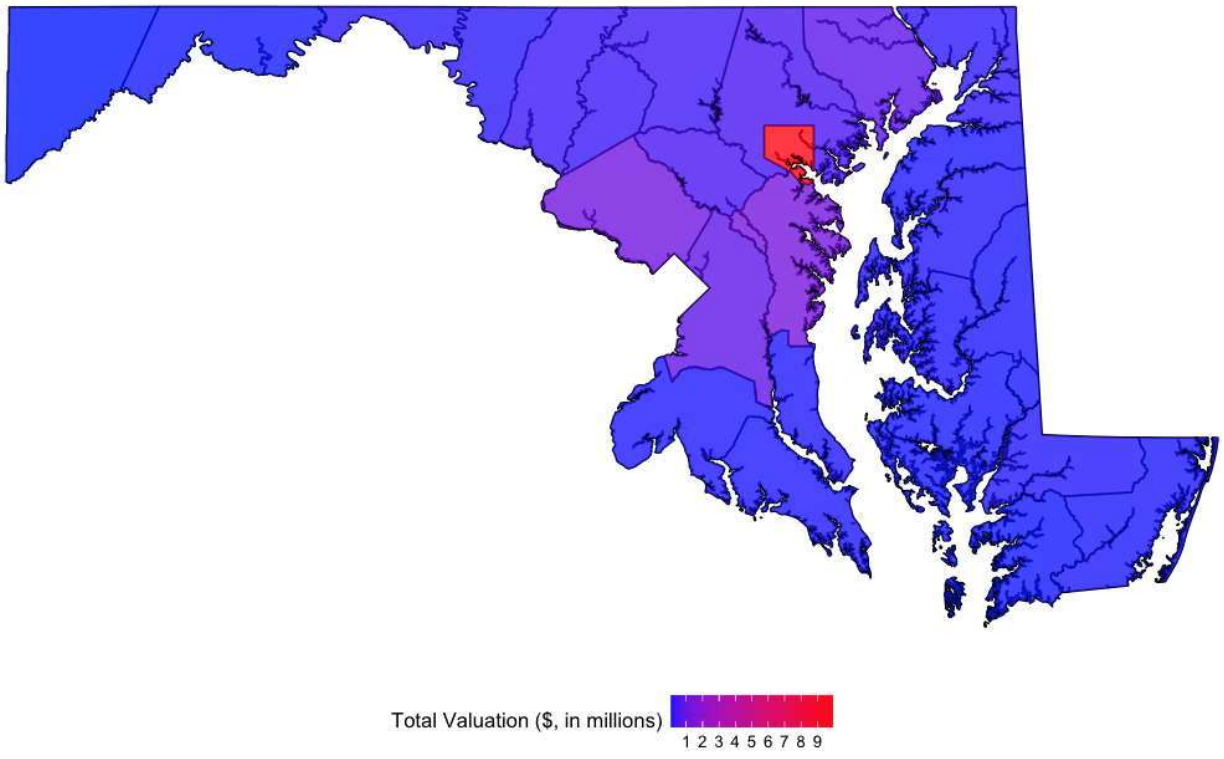
Figure 2 displays the spatial distribution of the total valuation of health impacts across Maryland. Again, it is seen that the greatest potential health benefits of eliminating emissions from the plant would result in Baltimore and in the downwind counties near to Baltimore, as expected.

Table 2. Annual Maryland Human Health Effects and Monetary Valuations Associated With the $PM_{2.5}$ Air Pollution Impacts from the Wheelabrator Plant

Health Endpoint	Number Per Year	Total Dollar Valuation (2010$)
Respiratory Hospital Admissions (Kloog et al., 2012; Zanobetti et al., 2009)	0.3[a]	$10,763
Cardiovascular Hospital Admissions (Bell et al., 2008; Peng et al., 2008; Peng et al., 2009; Zanobetti et al., 2009)	0.4[a]	$16,803
Acute Bronchitis (Dockery et al., 1996)	3.0	$1,462
Acute Myocardial Infarction, Nonfatal (Pope et al., 2006; Sullivan et al., 2005; Zanobetti et al., 2009; Zanobetti & Schwartz, 2006)	0.2[b]	$29,201
Emergency Room Visits (Glad et al., 2012; Mar et al., 2010; Slaughter et al., 2005)	2.4[b]	$1,003
Asthma Exacerbation Symptoms (Mar et al., 2004; Ostro et al., 2001)	59.5[b]	$3,435
Upper Respiratory Symptoms (Pope et al., 1991)	55.3	$1,841
Lower Respiratory Symptoms (Schwartz and Neas, 2000)	38.8	$815
Minor Restricted Activity Days (Ostro & Rothschild, 1989)	1770.8	$120,838
Work Days Lost (Ostro et al., 1987)	297.6	$55,091
Chronic Bronchitis (Abbey et al., 1995)	1.5	$419,644[c]
Mortality, All Causes (Krewski et. al, 2009)	2.2	$21,160,530
Total Valuation		$21,821,425

a Pooled effects with averaging approach, as per EPA BenMAP default setting.
b Pooled effects with random/fixed effects approach, as per EPA BenMAP default setting.
c Pooled effects with summation approach, as per EPA BenMAP default setting.

Figure 2. Map of Maryland Health Impact Valuations in Dollars, by County



In addition to reflecting a conservative (i.e., low) mortality effects estimate, these overall health impact counts and their dollar valuations are conservative estimates of the plant's health impacts for a number of reasons, including: (a) additional health impacts not modeled in this analysis attributable to co-reductions in other pollutants (*e.g.*, gaseous SO_2) are not included here; (b) consideration of health impacts only for the ages of the exposed populations that were considered in the epidemiological studies on which these analyses were based; (c) there are either no health impact studies or no dollar valuation available for many health outcomes thought to be adversely affected by air pollution, such as effects of air pollution on birth outcomes; and (d) in Tables 1 and 2 we have applied the low estimate of the mortality impacts (whereas applying the other two study options noted above would roughly double or triple the estimates in Tables 1 and 2, respectively) . Thus, these estimates of the health impacts and their monetary valuations are only available for a subset of likely health impacts from air pollution. This means that my analysis is very conservative, and likely underestimates the health and monetary impacts of the air pollution resulting from the Wheelabrator plant emissions.

CONCLUSIONS

Even applying conservative estimates and assumptions, the health impacts from the Wheelabrator plant's air emissions, and their dollar valuations, are substantial. Moreover, these impacts and their valuations accrue each and every year it is operational. Accordingly, over ten years, the health impacts and valuations will be roughly ten times the values provided in Tables 1 and 2, before adjustment for a discount rate and future affected population growth, as appropriate. Similarly, these public health impacts and their associated valuation costs continue each and every year that pollution continues. Thus, even a delay of just a few months carries the risk of substantial, and irreparable, harm to public health. As demonstrated above, those public health impacts have an associated and quantifiable adverse economic impact. Thus, it is reasonable to conclude that any delay in eliminating pollution from the Wheelabrator plant will only exacerbate the substantial, and irreparable, harms to public health that have already been incurred to date by the operation of this plant.

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DATED: November 16, 2017, at Chester, New York.

DR. GEORGE D. THURSTON

MD Sierra Club_FAV_SB560
Uploaded by: Tulkin, Josh
Position: FAV

SIERRA CLUB

Maryland Chapter
7338 Baltimore Avenue, Suite 102
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Committee: Finance
Testimony on: SB560 - "Renewable Energy Portfolio Standard - Eligible Sources"
Position: Support
Hearing Date: February 25, 2020

We urge a favorable report from this Committee. The Maryland Sierra Club is a strong and long-time proponent of Maryland ending its subsidy for electricity generation from trash incineration, by removing trash incineration as an eligible source in our state's Renewable Portfolio Standard (RPS).

The RPS is among our state's most important programs for substantially reducing our emissions of climate-disrupting greenhouse gases. As a result of the RPS, Maryland has been turning – albeit too slowly – toward electricity generated by clean, renewable energy sources like solar and wind.[1]

As presently designed, however, the RPS also incentivizes the use of energy from trash-burning, treating it the same as solar and wind. The process of burning trash for disposal has, as a byproduct, the generation of a modest amount of electricity.

Trash incineration does not belong in the RPS. Trash incineration is not clean or environmentally neutral – it emits climate-disrupting CO_2 and other pollutants which cause serious damage to Marylanders' health. The RPS should be focused on incentivizing new, renewable energy facilities which will support Maryland's efforts to mitigate climate change. Yet both the trash incinerators in Maryland supported by the RPS began operations well before the RPS's first compliance year, which was 2006. The Covanta incinerator in Dickerson, MD began commercial operation in 1995, and the Wheelabrator incinerator in downtown Baltimore began operation in the 1980s. Maryland's RPS dollars also have been supporting a Covanta incinerator in Fairfax County, Virginia, which began commercial operations in 1990.[2] There is no indication that these facilities require the RPS subsidy to order to remain in operation.

Maryland can fill all of its renewable energy requirements using clean, affordable energy that does not spew toxic substances into our air or release CO_2. The 2019 Clean Energy Jobs Act will substantially increase the amount of home-grown electricity Maryland consumes, by supporting large increases in solar

[1] The RPS has played a key role in the development of Maryland's solar industry. The RPS's solar carve-out – which requires Maryland's electricity suppliers to purchase a certain minimum amount of solar Renewable Energy Credits (RECs) associated with solar energy generated in Maryland – has helped solar generation in Maryland grow from near zero around the time the RPS was enacted to just under 800 megawatts. However, 2017 data show that solar still constitutes only about three percent of electricity generated in Maryland.

Maryland's RPS, in combination with similar RPS mechanisms in other states, also has played an important role in the growth of the wind industry. As the wind industry was beginning to grow in the early 2000s, these programs helped put onshore wind on a more stable, independent foundation. In addition, Maryland has the potential to obtain abundant electricity from offshore wind. With the Public Service Commission's approval of two offshore wind projects which are to be supported by offshore wind RECs, Maryland is on the cusp of beginning to take advantage of this untapped clean energy resource. As with solar, this is a good start, but wind energy – almost entirely from outside the state - today still only constitutes about four percent our state's electricity consumption.

[2] According to the 2019 Renewable Energy Portfolio Report issued by the Maryland Public Service Commission, reporting data for 2017, the three incinerators had the following percentage shares of retired trash incineration RECs in 2017: Dickerson, 44%; Baltimore, 34%; and Fairfax County, 22%.

and offshore wind over the next decade. More broadly, the state's Greenhouse Gas Emissions Reduction Act establishes the goal of reducing our greenhouse gas emissions by 40% (compared to the 2006 level) by 2030. Using hundreds of thousands of RECs and millions of dollars to support trash incineration will not help us do that.

Incineration facilities typically emit more CO_2, dioxin, mercury, nitrogen oxide, and lead than fossil fuel plants. Their residual ash contains high concentrations of harmful toxins including dioxin, mercury, lead, and other heavy metals; these high concentrations rapidly leach into local soil and water.

The trash incinerator in downtown Baltimore is a major threat to the health of the city's residents, producing 36% of all industrial air pollution in Baltimore. It is the source of 93% of the mercury and 78% of the lead – both known to be critical threats to children's neurologic development. It also is the city's single largest source of pollutants that cause respiratory disease, producing a staggering 80% of the sulfur dioxide and 57% of the nitrogen oxides (NO_x).[3] Sulfur dioxide triggers acute respiratory irritation, triggering immediate worsening for anyone with an underlying pulmonary disorder, such as COPD.[4] Nitrogen oxides contribute to childhood asthma and are the major source of ground-level ozone (smog) formations that trigger asthma attacks.[5]

For all these reasons, we recommend that you give this bill a favorable report.

Darian Unger, Ph.D.
Energy Committee Chair
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Josh Tulkin
Chapter Director
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[3] EPA, National Emissions Inventory data (2014).

[4] EPA, https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects (Nov 2018).

[5] EPA, Ozone and Your Patients' Health - Health Effects of Ozone in Patients with Asthma and Other Chronic Respiratory Disease. http://www.epa.gov/apti/ozonehealth/effects.html (updated Jan 2015); EPA, https://www.epa.gov/no2-pollution/basic-information-about-no2#Effects (Nov 2018).

TAKOMAPARKMOBILIZATION_FAV_SB560
Uploaded by: YOUNTS, DIANA
Position: FAV

Takoma Park Mobilization Environment Committee (TPMEC)

environment@takomaparkmobilization.org (email)

Committee: Finance
Testimony on: SB 0560 - "Renewable Energy Portfolio Standards -- Eligible Sources"
Position: Favorable
Hearing Date: February 25, 2020

Madame Chairwoman and Members of the Committee,

Thank you for allowing our testimony today. The Takoma Park Mobilization Environment Committee (TPMEC), a grassroots organization of over 200 members and a member of two state-wide coalitions (Maryland Climate Coalition and the Earth Coalition) and the Montgomery County 80 x 27 Coalition (a county-wide group focused on aiding the county achieving its goal of reducing its greenhouse gas emissions by 80 per cent by 2027).

TPMEC strongly urges you to support the proposed Act to remove incineration from the Renewable Portfolio Standards for three reasons: 1) burning trash is not clean; 2) burning trash is not healthy; and 3) the incinerators should not be subsidized by the lungs and lives of Marylanders.

Burning Trash is *Dirtier* Than Coal

Burning trash is not clean energy: to produce the same amount of energy, trash incinerators emit more greenhouse gases than coal plants do. Trash incinerators are the dirtiest way to make electricity by most air pollution measures. Even with air pollution control equipment in place, trash incinerators emit more pollution than (largely uncontrolled) coal power plants per unit of energy produced.

To produce the same amount of energy as coal power plants in Maryland, the Montgomery County incinerator -- operated by Covanta -- releases 15% more fine particulate matter, 60% more arsenic, 68% more greenhouse

gasses, and 94% more nitrogen oxide (which triggers asthma), 3.5 times the amount of chromium, 11 times more lead, 21 times more cadmium, 26 times more mercury, and 50 times more hydrochloric acid. [1] Incinerators release 3.1 times the amount of mercury as landfills.[2]

Covanta claims that the pollution created by incinerators has decreased dramatically in the past ten years; however, as Covanta has admitted, the industry-wide reductions are not primarily from the installation of pollution controls on some existing facilities. In fact, most of the reduction is due to incinerators closing down.[3]

Similarly, the pollution controls for our Maryland incinerators do not compare favorably to other facilities in the United States. Both Wheelabrator in Baltimore and Covanta in Dickerson would be illegal to operate if they were built today. Wheelabrator emits 150 ppm of nitrogen oxide and the Dickerson plant emits 85-90 ppm, compared to the facility in West Palm Beach, Florida that emits 45 ppm. Any new incinerator must meet the 45 ppm standard.

Covanta also claims that it has a "rigorous stack testing program performed by a regulator-approved third party." However, Covanta chooses and hires its own testing company. The testing companies know that if they show results that are unfavorable to their clients, they may not be hired again. Even some "regulator-approved third party" testing labs have been caught for falsifying data. Some incinerators are allowed to test only one boiler each year, and to pick which one they test, as is the case for the Wheelabrator Baltimore trash incinerator. It's not unusual that if an incinerator stack test shows a high level of pollutants, for it to be tested again until there is a more acceptable result. State regulatory agencies allow averaging of multiple test results to get an acceptable passing result.[4] The result is that the emissions averaging does not accurately reflect the pollution burden on the surrounding community. For example, the Wheelabrator incinerator in Baltimore is a principal source of much of the city's pollution. In 2017, it was reported to be 82 percent of the sulfur dioxide and 64 percent of the nitrogen oxides emitted by smokestacks within the city limits.[5]

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[1] U.S. Environmental Protection Agency, 2017 National Emissions Inventory, and EPA's 2016 eGRID database, and Energy Information Administration's Form 923.

[2] *Ibid.*

[3] www.energyjustice.net

[4] See, e.g., "Tulsa Matter, Covanta's 2019 10-K SEC filing for FY 2018, p.104.

[5] https://www.baltimoresun.com/news/environment/bs-md-trash-incineration-20171107-story.html

Incinerators Are Not Healthy

Health data studied in Baltimore strongly supports that incinerators sicken Marylanders. In December 2017, the Abell Foundation, in conjunction with the Environmental Integrity Project, published a study entitled "Asthma and Air Pollution in Baltimore City." The study found that Baltimore's asthma rate is three times greater than the rest of Maryland and that the highest incidence of asthma occurred in those zip codes that are adjacent to major emitters of air pollution: 21230, in which the Wheelabrator incinerator is located, and 21226, in which has other major facilities are located. The Wheelabrator incinerator is the single largest stationary source of Nitrogen oxide in Baltimore. The plant emitted 1,141 tons of nitrogen oxide in 2016, making it the state's fifth largest emitter of that pollutant. The Wheelabrator incinerator is also a major source of sulfur dioxide and other toxic air pollutants. According to the Baltimore City Health Department, the average life expectancies for babies born to families in Cherry Hill, Curtis Bay and Brooklyn are all less than 70, a decade less than the statewide average. In Westport, residents are more than twice as likely to die of lung cancer than those in the Guilford or Homeland neighborhoods of North Baltimore. The Chesapeake Bay Foundation estimated that the facility's emissions cost Maryland $21.8 million in health care expenses annually, and $55 million overall in annual health expenses.[6]

Similarly, the Dickerson trash incinerator is the single largest industrial emitter of air pollutants in Montgomery County. This facility produces approximately740 tons of air pollutants and sends 180,000 tons of toxic ash to landfills in Virginia.

Marylanders' Health Should Not Subsidize Incinerators

In Baltimore, Montgomery County, and throughout the state of Maryland, trash incineration contributes to air pollution that harms residents' health; those residents should not be required to subsidize this pollution through the Renewable Portfolio Standard.

For these reasons, we urge you to support SB 0560 and remove incineration from the Renewable Portfolio Standards.

[6] Ibid.

ACOYA Testimony_ FWA_SB560
Uploaded by: Edwards, Lawanda
Position: FWA

FWA - Testimony of Lawanda Edwards

SB560, Renewable Energy Portfolio Standard - Eligible Sources

Thank you Madam Chair, Mr. Vice Chair, and distinguished members of the Senate Finance Committee.

My name is Lawanda Edwards on behalf of former Senator Roger Manno and ACOYA Energy. We would like to sincerely thank Senator Hough and Delegate Mosby for introducing this important legislation, which we support with amendment (SWA).

We speak today with a deep understanding of this issue, after serving for more than a decade in the General Assembly, and as advocates for renewable and sustainable Waste-to-Energy and Refuse-to-Fuel solutions. During my time as Chief of Staff to Senator Manno, we opposed Incineration in Tier 1, supported every one of Senator Hough's amendments to remove Incineration from the RPS, and authored legislation to clean up the RPS and expand clean renewable energy and waste solutions in Maryland.

That's why we formed ACOYA.

ACOYA is a renewable energy company utilizing an ultra-low emission *steam-reformation* technology to process Waste-to-Energy or Refuse-to-Fuel, while providing superior energy efficiencies and economics. This process is clean -- so clean, that the *Carbon Intensity Index*, which is a recognized standard of measuring emissions relative to the intensity of an industrial process, is NEGATIVE. The process contains no incineration, no combustion, no landfill waste, and emissions are a fraction of the most stringent regulations in the world – less than 0.009 percent of the particulate matter of traditional incineration. The proprietary process is *Non-Combustion Carbon Energy Recovery (BRADAM CER™)*. It is vastly more efficient and environmentally safe than other forms of Waste-to-Energy and Refuse-to-Fuel, including generating ~1.4-2.5X more energy than Incineration, ~6-10X more energy than Anaerobic Digestion, is virtually emission free, and has the capability of eliminating 100% of all toxic greenhouse gases (methane) created by landfills. The technology is breathtaking, and transformational.

In my opinion, this technology is at the heart of what Tier 1 of the Renewable Portfolio Standard was initially all about – to incentivize truly clean renewable energy and waste solutions. Only later did it become acceptable for the RPS to incentivize incineration, methane landfills, or simply sweeping the problem under the rug by sending our waste to someone else's state. None of those are sustainable or acceptable solutions to the pernicious problems of waste, and they have no place in the RPS.

This legislation gets to that problem. However, while we enthusiastically support this legislation, we would ask that an amendment be included, which preserves the one WTE / RTF technology that is exceptionally clean, and could not have been envisioned when the RPS was developed: *Non-Combustion Carbon Energy Recovery*.

For these reasons, we ask for a favorable committee report, with amendment.

Thank you for your consideration.

Brookfield Renewable_Lininger_FWA_SB560
Uploaded by: Lininger, Brett
Position: FWA

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Senate Bill 560

Position: SUPPORT WITH AMENDMENT

Testimony of Christopher Ercoli, on behalf of Brookfield Renewable Partners L.P. to members of Senate Finance Committee

Renewable Energy Portfolio Eligible Sources

Brookfield Renewable thanks Chairwoman Kelley and members of the Senate Finance Committee for the opportunity to provide comments on SB560. Brookfield supports SB560 and requests an amendment to extend Maryland's existing Tier 2 RPS program which is currently set to expire at the end of this year. This extension allows clean, reliable, and renewable baseload hydropower resources to continue contributing to Maryland's renewable energy and carbon reduction goals.

Brookfield Renewable Partners L.P. ("Brookfield Renewable") has a substantial presence in PJM, including almost 875 MW of carbon-free hydropower resources in Maryland, Pennsylvania and West Virginia, 377 MW of hydropower in North Carolina and Tennessee that also supplies the PJM market, and 120 MW of solar development projects in Virginia. In Maryland, Brookfield Renewable's 20 MW Deep Creek hydropower facility provides renewable, carbon-free power, local tax revenues, recreational opportunities, and both direct and indirect jobs in Garrett County. Brookfield Renewable is affiliated with TerraForm Power, Inc., which owns and operates approximately 280 MW of wind and distributed solar resources in PJM, including approximately 15 MW of distributed solar in Maryland.

The extension of Tier 2 is important for the following reasons:

- First, Tier 2 hydro is the most cost-effective way of meeting Maryland's clean energy targets. In 2018, the Tier 2 obligation represented almost 15% of the total RPS requirement but only 1% of the $85M in total compliance costs. Further, the fiscal note attached last year to SB350, which was amended to extend Tier 2 until the end of 2020, affirmed there would be negligible effect on Maryland's ratepayers.

- Second, without an extension these resources will unjustly lose the ability to sell their electricity as 'renewable' to Maryland customers. Hydropower electricity is an important low-cost source of clean, non-emitting electricity for Maryland. Without action, these resources will be forced to export their environmental attributes to neighboring states and Maryland will lose the ability to count these cost-effective resources towards its renewable

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energy and carbon reduction goals in the future. This will increase costs for Maryland ratepayers.

- Third, as Maryland and the Mid-Atlantic region increasingly interconnect intermittent renewable resources, hydropower provides the flexibility and resiliency needed by grid operators to help meet fluctuating real-time electricity demand and balance the intermittency of wind and solar resources.

- Lastly, while many hydropower assets are existing, long-life resources, they require substantial capital expenditures over their lifetime to maintain and periodically undergo relicensing by the Federal Energy Regulatory Commission (FERC). Typically spanning 5-7 years and requiring millions in additional capital investments, FERC relicensing brings a facility up to the highest and best environmental standards of the day, allowing them to effectively operate as new resources. These ongoing reinvestments in renewable, clean, and carbon-free electricity is critical to Maryland's carbon reduction goals and should be reflected in the state's renewable portfolio standard.

In short, SB560 will ensure that hydropower continues to provide Maryland with all their energy, environmental, and grid reliability benefits. Brookfield Renewable thanks the Committee again for the opportunity and would be happy to respond to any questions.

ACOYA Testimony_ FWA_SB560
Uploaded by: Manno, Roger
Position: FWA

FWA - Testimony of Roger Manno

SB560, Renewable Energy Portfolio Standard - Eligible Sources

Thank you Mr. Chair, Madam Vice Chair and distinguished members of the Economic Matters Committee.

My name is Roger Manno on behalf of ACOYA Energy. As a former member of this Committee and of the State Senate, I'd like to sincerely thank Senator Hough and Delegate Mosby for introducing this important legislation, which addresses Tier 1 Renewable Energy Credits for Waste-to-Energy and Refuse-to-Fuel under the Maryland Renewable Portfolio Standard (RPS). We support this legislation, with amendment (SWA).

I speak today with a deep understanding of this issue, and a deep personal stake in the outcome. Like many of you, I have a large incinerator in my county and numerous landfills in close proximity to my community. During my time in the legislature, I opposed Incineration in Tier 1, supported every one of Senator Hough's amendments to remove Incineration from the RPS, and authored legislation to clean up the RPS and expand clean renewable energy and waste solutions in Maryland. After more than a decade in that battle, it became an issue of great urgency for me, my family, and the community I love.

That's why I formed ACOYA.

ACOYA is a renewable energy company utilizing an ultra-low emission *steam-reformation* technology to process Waste-to-Energy or Refuse-to-Fuel, while providing superior energy efficiencies and economics. This process is clean -- so clean, that the *Carbon Intensity Index*, which is a recognized standard of measuring emissions relative to the intensity of an industrial process, is NEGATIVE. The process contains no incineration, no combustion, no landfill waste, and emissions are a fraction of the most stringent regulations in the world – less than 0.009 percent of the particulate matter of traditional incineration. The proprietary process is *Non-Combustion Carbon Energy Recovery (BRADAM CER™)*. It is vastly more efficient and environmentally safe than other forms of Waste-to-Energy and Refuse-to-Fuel, including generating ~1.4-2.5X more energy than Incineration, ~6-10X more energy than Anaerobic Digestion, is virtually emission free, and has the capability of eliminating 100% of all toxic greenhouse gases (methane) created by landfills. The technology is breathtaking, and transformational.

In my opinion, this technology is at the heart of what Tier 1 of the Renewable Portfolio Standard was initially all about – to incentivize truly clean renewable energy and waste solutions. Only later did it become acceptable for the RPS to incentivize incineration, methane landfills, or simply sweeping the problem under the rug by sending our waste to someone else's state. None of those are sustainable or acceptable solutions to the pernicious problems of waste, and they have no place in the RPS.

This legislation gets to that problem. However, while we enthusiastically support this legislation, we would ask that an amendment be included, which preserves the one WTE / RTF technology that is exceptionally clean, and could not have been envisioned when the RPS was developed: *Non-Combustion Carbon Energy Recovery*.

For these reasons, we ask for a favorable committee report, with amendment.

Thank you for your consideration.

BRADAM Testimony_FWA_SB560
Uploaded by: Smith, Matt
Position: FWA

BRADAM energies

The Future is Clean. The Solution is Clear.

FWA - Testimony of Matt Smith

SB560, Renewable Energy Portfolio Standard - Eligible Sources

Thank you, distinguished members of the Committee. I am submitting today electronically as I am unable to be present.

My name is Matt Smith and I am representing BRADAM Energies. I am also passionate environmentalist. I applaud the proposed language in eliminating environmental damaging type of Waste to Energy options.

Additionally, we all know that landfilling waste is not only a threat to our water supply, but also a huge contributor to the destruction of our atmosphere through emissions from decomposing waste. Not to mention the carbon footprint associated with relocating waste.

Waste to Energy technologies that have unacceptable carbon footprints and poisonous particulate emissions should no longer be allowed to be built.

I understand we cannot completely educate this body in a couple of minutes today on the new technology that my company is bringing to commercial markets, which are in many cases, are among the most environmentally stringent areas of the world. Very quickly --*BRADAM Energies* has a technology protected by patents and trade secrets - **BRADAM Carbon Energy Recovery (CER) System™** that utilizes waste to convert it into a variety of energy options. HOWEVER,

- There is no incineration
- There is no combustion
- It is carbon neutral
- Emissions are a mere fraction of the most stringent regulations in the world
- Nothing goes to a landfill post processing

As such, we solve the **MSW waste issue, organic waste issue and the plastic waste issue.** And do it in a manner that reforms energy while **displacing fossil fuel-based energy 1:1.** In other words----Carbon Neutral----Maryland, just like other states, municipalities, and countries that we are currently working with will at least want the ability to consider this transformational technology.

In terms of the bill before us, we support this legislation with amendment (SWA), to keep the RPS open to ACCEPTABLE Waste to Energy solutions like the **BRADAM Carbon Energy Recovery (CER) System™**, is in the best interest of Maryland, it's citizens, as well as the environment.

Thank you for your consideration.

Covanta_UNF_SB560
Uploaded by: Blaylock, Frazier
Position: UNF

COVANTA
Powering Today. Protecting Tomorrow.

Frazier Blaylock

Senior Director

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Testimony by Frazier Blaylock
Before the Maryland Senate Finance Committee
In Opposition to SB 560
February 25, 2020

Good afternoon, my name is Frazier Blaylock and I represent Covanta, the largest operator of waste-to-energy (WTE) facilities in the United States, which has provided safe, cost-effective trash disposal and the generation of clean, renewable energy in Maryland since 1995.

I am here today to express our opposition to SB 560 which would remove waste-to-energy (WTE) from Tier 1 of Maryland's Renewable Portfolio Standard (RPS). The elimination of waste-to-energy as a Tier 1 renewable source would ignore the many benefits these facilities bring to their communities, and the environment and treat it unfairly in the competitive energy and disposal markets.

WTE is a clean, local, renewable, efficient, and economical form of baseload energy production and post-recycled waste disposal that helps Maryland divert waste from landfills while producing energy to reduce our reliance on fossil fuels. These plants can be located close to population centers where trash is generated, and thus avoid the long-haul truck traffic associated with most landfill sites.

The process of converting waste into energy is a key part of an integrated materials management plan that focuses on waste reduction, reuse, recycling, and recovery of energy. The U.S. EPA has said that WTE facilities produce electricity "with less environmental impact than almost

any other source of electricity" and "communities greatly benefit from dependable, sustainable capacity of municipal WTE plants."[1]

The revenues, employment, and labor earnings derived from managing waste, producing energy, and recycling metals are the direct economic benefits of WTE.[2] Employees at WTE plants are technically skilled and are compensated at a high average wage. WTE facilities provide stable, long-term, well-paying jobs, while simultaneously infusing dollars into local economies through the purchase of local goods and services.

A study of WTE technologies by the Joint Institute for Strategic Energy Analysis for the U.S. Department of Energy concluded that WTE is a "refined, clean, well-managed application for energy production."[3] WTE meets the two basic criteria for establishing what a renewable energy resource is—its fuel source (trash) is *sustainable* and *indigenous*. WTE facilities recover valuable energy from trash after efforts to "reduce, reuse, and recycle" have been implemented by households and local governments.

The facilities we operate are internationally recognized as GHG mitigation tools, even after accounting for our stack emissions of fossil-based CO2. The IPCC called waste-to-energy a "key GHG mitigation measure." We do this by diverting degradable organics from landfills, the 3rd largest source of methane globally and in the United States, displacing grid connected fossil-fuel fired electrical generation, and recovering metals for recycling. Alongside recycling, WTE has been a cornerstone of Europe's efforts to reduce GHG emissions from the waste management sector.

Our GHG benefits relative to landfilling have been recognized by California's air and waste regulatory agencies, U.S. EPA scientists, Columbia University's Earth Engineering Center, U.S. EPA, the Obama Administration's Clean Power Plan, the World Economic Forum, and the Joint Institute for Strategic Energy Analysis ("NREL"). EPA scientists, in a prominent peer reviewed paper, concluded WTE facilities reduce GHG emissions relative to even those landfills equipped with energy recovery

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[3] Joint Institute for Strategic Energy Analysis. 2013. Waste Not, Want Not: Analyzing the Economic and Environmental Viability of Waste-to-Energy (WTE) Technology for Site-Specific Optimization of Renewable Energy Options. Technical Report NREL/TP-6A50-52829.

systems.[4] EfW facilities generate carbon offsets credits under both the Clean Development Mechanism (CDM) of the Kyoto Protocol and voluntary carbon offset markets.[i,ii]

The benefits of diverting waste out of landfills to recycling and energy recovery are clearer than ever. As currently estimated, landfills are Maryland's 4nd largest source of methane. However, they would easily move up to #1 or #2 if the inventory was updated with the recent measurement data. Across a series of recent studies employing direct measurement of methane plumes via aircraft downwind of landfills, actual measured emissions from landfills have averaged twice the amount reported in GHG inventories, including Maryland's.

Furthermore, Maryland's inventory downplays methane's role in the climate, using an outdated methane GWP. Today, scientists recognize methane as a potent short-lived climate pollutant that is more than 30 times stronger than CO_2 over 100 years, and 80 times stronger over 20 years, when all of its impacts are considered.[iii] States currently leading on climate, like New York and California, have adopted methane's 20-year GWP in planning and legislation.

To remove WTE from Tier one and yet leave landfill gas in Tier 1 is counter to the US and EU waste hierarchies and counter to Maryland's goal of reducing the GHG's that contribute to climate change.

For the reasons stated in this testimony, Covanta opposes SB 560. Thank you for your consideration of these remarks, I am glad to answer any questions.

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[i] Clean Development Mechanism: *Large-Scale Consolidated Methodology: Alternative waste treatment processes, ACM0022*. Available at: https://cdm.unfccc.int/methodologies/PAmethodologies/approved

[ii] Verified Carbon Standard Project Database, http://www.vcsprojectdatabase.org/ See Project ID 290, Lee County Waste to Energy Facility 2007 Capital Expansion Project VCU, and Project ID 1036 Hillsborough County Waste to Energy (WtE) Facility 2009 Capital Expansion Unit 4.

[iii] The IPCC concluded that "it is likely that including the climate-carbon feedback for non-CO_2 gases as well as for CO_2 provides a better estimate of the metric value than including it only for CO_2." See p714 & Table 8-7 of Myhre, G. *et al.* (2013) *Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., *et al.* (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf

Bishop JL Carter_UNF_SB0560
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Position: UNF

TO: The Honorable Delores G. Kelley, Chair
Members, Senate Finance Committee
The Honorable Michael J. Hough

FROM: Bishop Dr. J.L. Carter, Senior Pastor of the Ark Church, President of the Ministers Conference of Baltimore and Vicinity

DATE: February 25, 2020

RE: Wheelabrator's Commitment to Cleaner, Safer Baltimore Communities

---

Good morning to the committee. Thank you for letting me submit comments regarding Wheelabrator's commitment to the Ark Church congregation and surrounding Oliver community, as well as the Ministers Conference of Baltimore and Vicinity.

In 2018, Wheelabrator Baltimore created the We Can Bmore campaign to reduce waste, promote recycling and clean up our streets from litter and debris. Soon after, the Ministers Conference of Baltimore and Vicinity worked with Wheelabrator's We Can Bmore campaign to create the Green Ambassador teams, a two-year commitment to hiring local workers from our congregation and community to clean litter off the streets surrounding the Ark Church in Oliver, Union Baptist Memorial in Upton, Liberty Grace Church in Ashburton and Bethany Baptist in Brooklyn.

Our dedicated workforce of four community members at each location show up to work two days every week to pick up trash off the streets. We know that cleaner streets are safer streets. And Wheelabrator's commitment allows us to join with our neighbors to reduce litter, increase recycling and ensure our communities reflect the sense of pride we take in them.

The Green Ambassador teams are not only helping beautify our neighborhoods by picking up trash. We are also work together with Wheelabrator to educate our neighbors about what can and can't be recycled. And provide residents with free recycling bins donated by Wheelabrator, so that everyone can do their part to help minimize waste and support the environment.

Prior to Wheelabrator's support through the We Can Bmore program, our community had a small group of volunteers that would gather to clean the block surrounding our church on Sunday's before worship. But with the weekly commitment from Wheelabrator, we reach many city blocks and can barely find trash on our streets. With the weekly commitment, our Green Ambassadors are able to speak with community members about reducing waste, and helping to clean the areas around their home, so that the movement grows beyond the Churches. The Green Ambassador teams are managed by two local landscaping and hauling companies that employ entry-level and returning citizens to break into the workforce. Just this week, one of our Green Ambassadors was offered a full-time, entry-level position at Wheelabrator where he will make a good wage, have opportunity for training and growth and receive benefits on day one. This is life-changing for a member of our communities who are starved for good-paying jobs and opportunity.

In addition to the Green Ambassador teams, Wheelabrator's We Can Bmore brought Wheelabrator employees, volunteers, dumpsters and trucks to clear dumped or bulk trash from alleys to the Oliver community where we paired with seven other churches in the area. On one fall day, we cleaned more than 18,000 gallons of trash throughout the Oliver and Johnston Square communities. We gathered after the cleanup for prayer and fellowship where members of the community felt like with the Company's support, they could see the path for cleaner, safer streets and vowed to take care of their own stoops and sidewalks. Our Green Ambassador movement continues to grow.

Since the Ministers Conference and Wheelabrator's We Can Bmore formed our partnership, we've seen a world of difference in both the citizens and community. The greatest joy from our efforts has been seeing our neighbors' excitement and willingness to participate. Having the dedicated support of Wheelabrator to locally hire and manage a team that keeps our streets clean, engage neighbors to pitch in and build community on a

larger level is priceless. Please support companies, like Wheelabrator, that support Baltimore communities and our residents.

Thank you,

Bishop Dr. J.L. Carter
Senior Pastor, Ark Church
President, Ministers Conference of Baltimore and Vicinity
1263 East North Avenue
Baltimore, Maryland 21202
Phone: 410-539-1591

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Testimony of Professor Marco J. Castaldi, Ph.D.[1]
Director, Earth Engineering Center, City College of New York
Director, Earth System Science & Environmental Eng., City College of New York
February 25, 2020

OPPOSE – Senate Bill 560 – Renewable Energy Portfolio Standard - Eligible Sources

I am writing to provide testimony and support to allow Waste-to-Energy to remain eligible as a Tier 1 renewable source in Maryland. Specifically this is in response to Senate Bill 560.

Maryland is producing energy from Waste-to-Energy (WTE) with lower carbon emissions compared to coal fired power plants. The WTE facilities in Maryland State have also decreased their CO_2 intensity by 45% from 2009 to 2014. In fact, nation-wide use of the WTE technology can become one of the big contributors to America's carbon dioxide reductions, accounting for as much as 325 million tons of CO_2 or 6.3% of the total U.S. emissions in 2016. Importantly, the EPA concluded WTE produces electricity with less environmental impact than almost any other source (Horinko and Holmstead, 2003). Furthermore EPA and a 2013 report by the Department of Energy's National Renewable Energy Laboratory (NREL) conclude that WTE is the best for GHG emissions reductions compared to other power generating systems including landfill gas to energy (Funk et al. 2013). Even the California Air Resources Board (CARB) concluded that the MSW disposed of in the three California WTE facilities results in net negative GHG emissions, ranging between -0.16 and -0.45 MT CO_{2e} per ton of waste disposed. Figure 1 provides the individual savings for each WTE facility that was operating in California in 2014.

WTE facilities have been demonstrated to reduce CO_2 emissions. It has been proven through scientific carbon-14 methods (ASTM D6866 protocol) that typical MSW WTE stack emissions, that routinely meet the Maximum Achievable Control Technology (MACT) standards, contains up to 65% biogenic CO_2, i.e. renewable bio-carbon. This scientifically proves that nearly 2/3 of the CO_2 emissions from a WTE facility are from renewable sources. If the GHG savings from recycling 50 pounds of metal from every ton of MSW processed in a WTE facility are included it is evident that every ton of MSW processed in a WTE facility avoids a ton of CO_2 equivalent emissions(Brunner and Rechberger, 2004, 2015). When compared to the energy recovered using methane from landfills, it must be recognized that ½ of the carbon from the biomass fraction is released as CO_2 without any energy recovery. This same consideration must be given to fuel cells as well. Finally regarding sustainable waste management, a consensus was reached on a number of items but one stands

[1] I am a Professor of Chemical Engineering and the Director of the Earth System Science & Environmental Programs at The City College of City University of New York. I have been appointed as a Fulbright Global Fellow for two years for the research involved in transforming waste materials, such as municipal solid waste to energy and am a Fellow of the American Institute for Chemical Engineers and American Society of Mechanical Engineers. I have also been appointed by The National Academy of Engineering Frontiers of Engineering Education for the 2012-2013 academic year based on the work related to waste to energy. I have authored two books related to waste conversion technologies and over 90 peer reviewed journal articles related to waste prevention and reduction, waste to energy and utilization of waste materials for energy or materials production. It is through these experiences that I offer my comments respectfully.

out. It was "*On an overall LCA basis, WTE is environmentally preferable to landfilling*." Europe has long recognized the greenhouse gas mitigation achieved by WTE as well as many other respected organizations such as the IPCC, the Clean Development Mechanism under Kyoto Protocol and U.S. EPA. This is because WTE facilities have been demonstrated to reduce CO_2 emissions.

Table 5: ARB Staff Preliminary Estimates of Net GHG Emissions from California MSW Thermal Facilities*

(MTCO2e/Short Ton Waste)

Facility	Waste (TPD)	Non-biogenic MT CO2E Emissions	Energy Credit MT CO2E[1]	Metal Recycled (Tons)	Metal Recycling Credit MT CO2E[2]	Avoided Landfill Methane Emissions MTCO2e[3]	Net MT CO2E per Ton Waste
Covanta Stanislaus	800	79,590	-49,740	5,690	-10,240	-70,080 to -154,760	-0.17 to -0.46
Commerce Refuse to Energy	360	53,760	-26,000	920	-1,660	-31,540 to -69,640	-0.04 to -0.33
Long Beach SERRF	1380	115,790	-81,390	6,500	-11,700	-120,890 to -266,960	-0.19 to -0.48
Total	2,540	249,150	-153,740	13,110	-23,600	-222,500 to -491,360	-0.16 to -0.45

1 Uses 2009-2010 average CA grid emission factor of 668 lb. CO2e per MWh, and assumes facilities produce 85% of rated power capacity per Table 1.
2 Uses a metal recycling credit of 1.8 MT CO2e per short ton of ferrous metal.
3 Estimated avoided landfill methane emission 0.24 to 0.53 MTCO2e/MT

Figure 1. *CARB's analysis showing specific WTE facilities' ability to reduce GHG emissions*((CARB), 2013)

Importantly a recent UNEP report "District Energy in Cities: Unlocking the Potential of Energy Efficiency and Renewable Energy" states that Paris currently meets 50% of its heating needs using three WTE plants that results in avoidance of 800,000 tons of CO_2 emissions each year. These savings arise from electricity produced from the WTEs that offset electricity production from facilities that rely on fossil fuels.

WTE facilities also recover metals that are recycled. WTE plants recover nearly 700,000 tons of ferrous metal for recycling. That avoids CO_2 emissions and saves energy compared to the mining of virgin materials for manufacturing new metals. One under-appreciated aspect of the residual ash produced by WTE is the large amount of concentrated metals that can be recovered and put back into the material cycle. These metals range from common iron, aluminum and copper yet are in large amounts. For example in one MSW combustion facility there is approximately 6300 tons of aluminum, 3400 tons of iron and 440 tons of copper. Multiply this by the 76 plants currently operating in the US and it is obvious there is a significant driver to incorporate this into the recycling industry. Furthermore, the ash contains a significant amount of rare and critical materials such as silver (0.98 tons/year), rubidium (1.5 tons/yr), yttrium (1.4 tons/yr), neodymium (1.3 tons/yr), and gallium (0.40 tons/yr).

Therefore, it is clear that WTE makes a positive contribution toward GHG reduction (gaseous emissions and associated material recovery) and should be encouraged. It is shameful that the US has lagged so far behind Europe, and now China, in deploying WTE facilities to manage its waste. It is obvious that WTE should maintain its Tier 1 status for renewable energy and should be placed above other GHG friendly power generating technologies because it also manages the vast amounts of waste that citizens of the U.S. create every day.

Respectfully Submitted,

Marco J. Castaldi /mjc

Marco J Castaldi

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References:

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Horinko, M. L. and Holmstead, J. (2003) 'Personal Communication - WTE role in US'. Available at: http://gcsusa.com/pdf files/EPA Applauds WTE.pdf.

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USEPA, U. S. E. P. A. (2016) *Advancing Sustainable Materials Management: 2014 Tables and Figures, United States Environmental Protection Agency, Office of Land and Emergency Management, Washington, DC 20460*. Available at: https://www.epa.gov/sites/production/files/2016-11/documents/2014_smmfactsheet_508.pdf (Accessed: 25 November 2017).

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SB 560 – Renewable Energy Portfolio Standard – Eligible Sources
Senate Finance Committee
February 25, 2019

OPPOSE

Donna S. Edwards
President
Maryland State and DC AFL-CIO

Madam Chair and members of the Committee, thank you for the opportunity to provide testimony in opposition to SB 560 – Renewable Energy Portfolio Standard – Eligible Sources. My name is Donna Edwards, President of the Maryland State and DC, AFL-CIO. On behalf of the 340,000 union members in the state of Maryland, I offer the following comments.

Waste-to-Energy (WTE) facilities around Maryland employ hundreds of workers, directly, and support hundreds more through transportation, facility maintenance, and secondary and tertiary support industries and businesses. The workers at the plants enjoy family-sustaining wages with benefits, which, oftentimes, do not exist in the communities in which they are located.

SB 560 removes waste-to-energy and refuse-derived fuel from Tier 1 of the Renewable energy Portfolio Standard. A clean and sustainable energy future depends on a robust RPS, which includes these sources of energy. Without them, we cannot meet our renewable energy needs, and would need to still dispose of the waste in another fashion. Waste would still be a pollution issue, leading to the State continuing to intervene on proper disposal. We would not realize the energy benefits of WTE facilities nor the well compensated jobs they create and support, yet we would be saddled, as taxpayers, with the additional costs of the remediation of pollution.

We urge an unfavorable on SB 560.

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wasterecycling.org

Maryland-Delaware Solid Waste Association
a chapter of the
National Waste & Recycling Association℠
Collect. Recycle. Innovate.

TO: The Honorable Delores G. Kelley, Chair
Members, Senate Finance Committee
The Honorable Michael J. Hough

FROM: Pamela Metz Kasemeyer
J. Steven Wise
Danna L. Kauffman
Richard A. Tabuteau

DATE: February 25, 2020

RE: **OPPOSE** – Senate Bill 560 – *Renewable Energy Portfolio Standard – Eligible Sources*

The Maryland Delaware Solid Waste Association (MDSWA), a chapter of the National Waste and Recycling Association, is a trade association representing the private solid waste industry in the State of Maryland. Its membership includes hauling and collection companies, processing and recycling facilities, transfer stations, and disposal facilities. MDSWA and its members **oppose** Senate Bill 560 to retain waste-to-energy as a Tier 1 source in Maryland's Renewable Energy Portfolio Standard (RPS).

Waste-to-energy is not only a renewable source of energy, it is regarded by the U.S. Environmental Protection Agency as a reliable and responsible method of waste disposal, and is subject to stringent state and federal air, water, and solid waste regulations. As the Association representing the entire private solid waste industry, we are deeply concerned about how this bill will affect the waste-to-energy facilities in the State of Maryland and the jurisdictions that rely on them for management of their solid waste. For example, Wheelabrator operates a waste-to-energy facility servicing the City of Baltimore, Baltimore County, and numerous commercial clients. It processes up to 2,250 tons of post-recycled waste each day resulting in 64 megawatts of clean electricity while also providing steam for downtown Baltimore's heating and cooling system.

Removing waste-to-energy would be a step backward toward increasing the availability of renewable energy in Maryland and would negatively impact the jurisdictions for which waste-to-energy is a critical component of their solid waste management infrastructure. As such, an unfavorable report is requested.

For more information call:
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Testimony of Ted Michaels
President, Energy Recovery Council
Before the Maryland Senate Finance Committee
February 25, 2020

In opposition to House Bill 560, concerning Public Utilities - Renewable Energy Portfolio Standard - Tier 1 Sources

My name is Ted Michaels and I represent the Energy Recovery Council (ERC). On behalf of the ERC, I strongly oppose Senate Bill 560, which removes waste-to-energy from being an eligible Tier 1 resource. The elimination of waste-to-energy as a Tier 1 renewable source ignores the many benefits of WTE and adversely affects the continued viability of WTE as a renewable energy resource and solid waste disposal solution in the State of Maryland.

ERC represents those engaged in the waste-to-energy (WTE) industry, including municipalities that rely upon this important technology for safe, effective trash disposal and the generation of clean, renewable energy. ERC members that operate facilities in Maryland are Covanta Energy and Wheelabrator Technologies Inc. Maryland's two existing waste-to-energy facilities, located in the City of Baltimore and Montgomery County, generate 123 megawatts of electricity from the disposal of more than 4,050 tons of trash per day.

WTE is Locally-Generated Renewable Power

WTE is a clean, renewable, efficient, and economical form of energy production and post-recycled waste disposal that helps the U.S divert waste from landfills while producing renewable energy to reduce our reliance on fossil fuels to generate electricity. WTE belongs in Tier 1 of the renewable portfolio standard, as it has been since 2011.

Modern WTE facilities use proven technology to take every day post-recycled waste and convert it into clean, renewable energy through controlled combustion of mixed municipal solid waste in large power boilers. The resulting heat energy produces steam, which turns a turbine-generator to produce electricity. The process of converting waste into energy is a key part of an integrated materials management plan that focuses on waste reduction, reuse, recycling, and recovery of energy. The U.S. EPA has said that WTE facilities produce electricity "with less environmental impact than almost any other source of electricity" and "communities greatly benefit from dependable, sustainable capacity of municipal WTE plants."[1] A study of WTE technologies by the Joint Institute for Strategic Energy Analysis for the U.S. Department of Energy concluded

[1] US Environmental Protection Agency. Letter from Assistant Administrators Marianne Horinko, Office of Solid Waste and Emergency Response, and Jeffery Holmstead, Office of Air and Radiation to Integrated Waste Services Association (2003).

that WTE is a "refined, clean, well-managed application for energy production."[2] WTE meets the two basic criteria for establishing what a renewable energy resource is—its fuel source (trash) is *sustainable* and *indigenous*. WTE facilities recover valuable energy from trash after efforts to "reduce, reuse, and recycle" have been implemented by households and local governments. WTE facilities generate clean renewable energy and deserve the same treatment as any other renewable energy resource under the RPS.

WTE has been recognized as renewable by the federal government for nearly thirty years under a variety of statutes, regulations, and policies, including the Public Utility Regulatory Policies Act of 1978; the Biomass Research and Development Act of 2000; the Federal Energy Policy Act of 2005; Executive Order 13423 of 2007; Executive Order 13514 of 2009; the Pacific Northwest Power Planning and Conservation Act; and Section 45 of the Internal Revenue Code.

Many other states have also recognized WTE as renewable. Thirty-one states, the District of Columbia, and two territories have defined WTE as renewable energy in various state statutes and regulations, including renewable portfolio standards. The renewable status has enabled WTE plants to sell credits in renewable energy trading markets, as well as to the federal government through competitive bidding processes, which helps sustain WTE as a viable solid waste disposal option for Maryland municipalities. In the case of publicly owned facilities, the sale of renewable energy credits creates revenue for local governments that own WTE facilities, helping to reduce a community's cost of processing waste and promoting recycling.

WTE Generates Baseload Electricity with High Availability

WTE plants supply much needed base load renewable electricity to the nation's power grid. WTE facilities operate 365 days a year, 24 hours a day and can operate under severe conditions. For example, WTE facilities have continued to operate during hurricanes. In the aftermath of the storms, they have provided clean, safe and reliable waste disposal and energy generation. WTE facilities operate at an average of greater than 90% availability, which is higher than many forms of energy production.[3]

WTE Reduces Greenhouse Gases

EPA scientists, in a prominent peer reviewed paper, concluded WTE facilities reduce GHG emissions relative to even those landfills equipped with energy recovery systems.[4] In addition, many other governmental and nongovernmental organizations have formally recognized WTE for its role in reducing world-wide GHG emissions including the:

[2] Joint Institute for Strategic Energy Analysis. 2013. Waste Not, Want Not: Analyzing the Economic and Environmental Viability of Waste-to-Energy (WTE) Technology for Site-Specific Optimization of Renewable Energy Options. Technical Report NREL/TP-6A50-52829.

[3] Energy Recovery Council. Waste Not, Want Not. www.wte.org/userfiles/file/Waste%20Not%20Want%20Not.pdf (last accessed 01.31.14)

[4] Kaplan, P.O., J. DeCarolis, S. Thorneloe, Is It Better to Burn or Bury Waste for Clean Electricity Generation? *Environ. Sci. Technol.* 2009, 43, 1711-1717. http://pubs.acs.org/doi/abs/10.1021/es802395e

- Intergovernmental Panel on Climate Change ("IPCC") called WTE a "key GHG mitigation technology",[5]
- World Economic Forum (WEF) which identified WTE as one of eight renewable energy sources expected to make a significant contribution to a future low carbon energy system,[6]
- European Union, [7,8]
- U.S. Conference of Mayors, which adopted a resolution in 2005 endorsing the U.S. Mayors Climate Protection Agreement, which identifies WTE as a clean, alternative energy source which can help reduce GHG emissions. As of today, 1,060 mayors have signed the agreement.
- Clean Development Mechanism of the Kyoto Protocol,[9]
- Voluntary carbon markets,[10] and
- Center for American Progress, which promotes the use of WTE as an important waste management method that can decrease greenhouse gases by reducing emissions that would otherwise occur from landfills and fossil-fuel power plants.[11]

WTE GHG reductions are quantified using a life cycle assessment (LCA) approach that includes GHG reductions from avoided methane emissions from landfills, WTE electrical generation that offsets or displaces fossil-fuel based electrical generation, and the recovery of metals for recycling. Life cycle emission analysis show that WTE facilities actually reduce the amount of greenhouse gases expressed as CO_2 equivalents (GHGs or CO_2e) in the atmosphere by approximately 1 ton for every ton of municipal solid waste (MSW) combusted.

New energy from waste capacity is eligible to generate carbon offsets based on a Clean Development Mechanism offset methodology through the Verified Carbon Standard (VCS). To date, two facilities in North America have progressed through the carbon offset generation process, successfully validating and verifying their projects in accordance with the standard. The Lee County, Florida facility began generating carbon offsets with the 2007 emissions year, and the Hillsborough County, Florida facility has verified carbon offsets beginning with the 2009

[5] WTE identified as a "key mitigation measure" in IPCC, "Climate Change 2007: Synthesis Report. Contribution of Work Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change" [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp. Available at: http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm

[6] WTE identified as a key technology for a future low carbon energy system in World Economic Forum. *Green Investing: Towards a Clean Energy Infrastructure.* January 2009. Available at: http://www.weforum.org/pdf/climate/Green.pdf

[7] EU policies promoting WTE as part of an integrated waste management strategy have been an overwhelming success, reducing GHG emissions over 72 million metric tonnes per year, see European Environment Agency, *Greenhouse gas emission trends and projections in Europe 2009: Tracking progress towards Kyoto targets* *http://www.eea.europa.eu/publications/eea_report_2009_9*

[8] European Environmental Agency (2008) Better management of municipal waste will reduce greenhouse gas emissions. Available at: http://www.eea.europa.eu/publications/briefing_2008_1/EN_Briefing_01-2008.pdf

[9] Clean Development Mechanism Executive Board: "Approved baseline and monitoring methodology AM0025: Avoided emissions from organic waste through alternative waste treatment processes." Available at: http://www.cdm.unfcc.int/methodologies/DB/3STKBX3UY84WXOQWIO9W7J1B40FMD

[10] Verified Carbon Standard Project Database, http://www.vcsprojectdatabase.org/ See Project ID 290, Lee County Waste to Energy Facility 2007 Capital Expansion Project VCU, and Project ID 1036 Hillsborough County Waste to Energy (WtE) Facility 2009 Capital Expansion Unit 4.

[11] Center for American Progress (2013) *Energy from Waste Can Help Curb Greenhouse Gas Emissions* http://www.americanprogress.org/wp-content/uploads/2013/04/EnergyFromWaste-PDF1.pdf

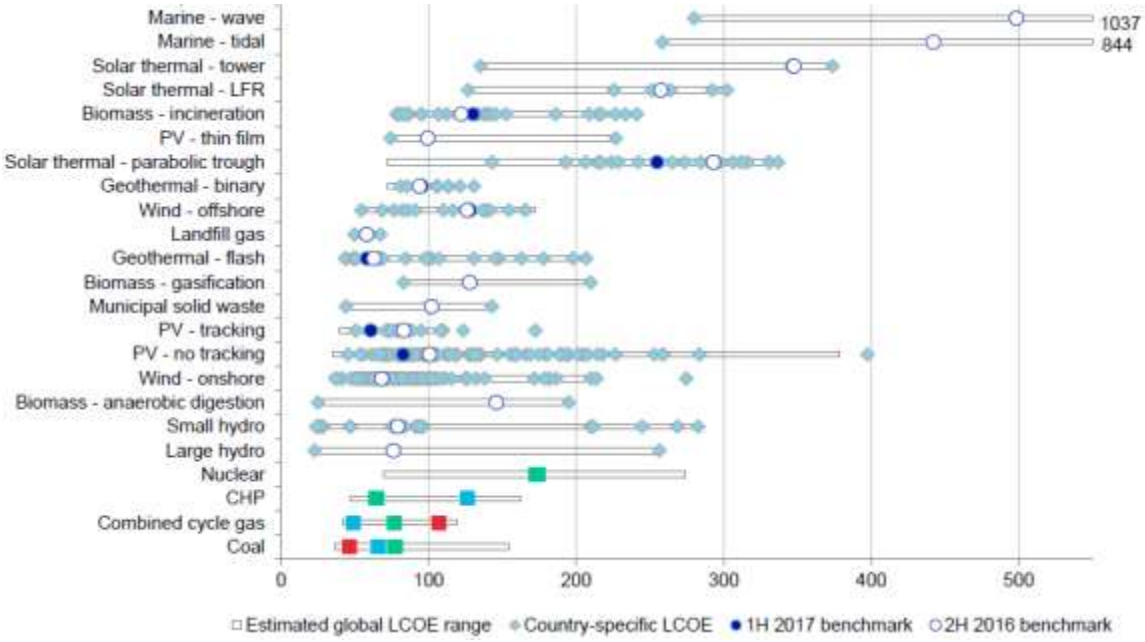
emissions year. The credits are associated with the avoidance of landfill methane and displaced grid-connected fossil fuel electricity generation.

WTE is a Cost-Competitive Source of Renewable Energy and GHG Reduction

The U.S. Department of Energy's Energy Information Administration (EIA) uses Levelized Cost of Energy (LCOE) to measure the competitiveness of a particular energy resource. EIA defines LCOE as:

> *"Levelized cost is often cited as a convenient summary measure of the overall competitiveness of different generating technologies. Levelized cost represents the present value of the total cost of building and operating a generating plant over an assumed financial life and duty cycle, converted to equal annual payments and expressed in terms of real dollars to remove the impact of inflation. Levelized cost reflects overnight capital cost, fuel cost, fixed and variable O&M cost, financing costs, and an assumed utilization rate for each plant type."*

Global levelized costs of electricity, 1H 2017 ($/MWh)



Source: Bloomberg New Energy Finance/Business Council for Sustainable Energy *Sustainable Energy in America 2018 Factbook.*

Based on EIA data, the average LCOE from a new WTE facility is approximately $85 per megawatt hour, making it cheaper than or competitive with other sources of electricity. This figure is comparable to other recently published values for WTE's levelized cost, including those in a recent peer-reviewed article by Duke University scientists ($94 / MWh)[12] and a 2018 report

[12] Chadel, MK, G Kwok, LB Jackson, LF Pratson (2012), The Potential of waste-to-energy in reducing GHG emissions, *Carbon Management* (3)2, 133-144.

coauthored by Bloomberg and the Business Council for Sustainable Energy ($48 - $130 / MWh) (see figure above).[13]

WTE Provides Green Jobs and Boosts Local Economies

The revenues, employment, and labor earnings derived from managing waste, producing energy, and recycling metals are the direct economic benefits of WTE.[14] In addition, these activities generate indirect impacts. Employees at WTE plants are technically skilled and are compensated at a relatively high average wage. As a result, WTE facilities provide stable, long-term, well-paying jobs, while simultaneously pumping dollars into local economies through the purchase of local goods and services and the payment of fees and taxes.

THE PROPOSED LEGISLATION LIMITS THE RENEWABLE MARKET AND HARMS MARYLAND CITIZENS BY:

- Arbitrarily advancing specific energy technologies above others, distorting clean energy markets;
- Removing the potential for existing and innovative renewable energy technologies to participate in the clean energy market;
- Reducing and eliminating overall support for Tier 1 renewable technologies that have created high-quality, diverse renewable energy jobs and contributed to greenhouse gas reductions in the state of Maryland;
- Curtailing diversification of renewable energy resources in Maryland's energy portfolio by favoring a few technologies that lack the reliability of WTE;
- Relying heavily on out-of-state generation to meet Maryland's RPS goals; and
- Threatening the continued operation of Maryland's existing waste-to-energy facilities, which avoid the environmental impact of landfilling in Maryland and expensive long-haul transporting of waste to other states.

For the reasons stated in this testimony, the Energy Recovery Council urges an unfavorable report on SB 560.

[13] Global levelized cost range, estimated from figure 18 of Bloomberg New Energy Finance, Business Council for Sustainable Energy (2018), *Sustainable Energy in America Factbook*, http://www.bcse.org/sustainableenergyfactbook.html.
[14] Berenyi, E. "Nationwide Economic Benefits of the Waste-to-Energy Sector." Governmental Advisory Associates, Inc. August, 2013.

Wheelabrator_Richard Tabuteau_UNF_SB0560

Uploaded by: Tabuteau, Richard

Position: UNF

Wheelabrator
BALTIMORE

TO: The Honorable Delores G. Kelley, Chair
Members, Senate Finance Committee
The Honorable Michael J. Hough

FROM: Richard A. Tabuteau

DATE: February 25, 2020

RE: **OPPOSE** – Senate Bill 560 – *Renewable Energy Portfolio Standard – Eligible Sources*

On behalf of Wheelabrator Technologies and Wheelabrator Baltimore (Wheelabrator), we submit this letter of **opposition** to Senate Bill 560 because it removes waste-to-energy as a Tier 1 renewable energy source from the Renewable Energy Portfolio Standard (RPS). Such a change would have a significant negative impact on Wheelabrator, our customers such as the City of Baltimore and Baltimore County, and the State's ability to reach its own renewable energy goals.

Wheelabrator is an integral part of Maryland's energy, environmental, and economic infrastructure, providing sustainable waste management for the City of Baltimore and Baltimore County. Every day, we divert waste from landfills to safely convert up to 2,250 tons of post-recycled waste from area homes and businesses into 64 (gross) megawatts of clean, renewable baseload electricity – enough to power ~40,000 Maryland homes, while reducing landfilling, lowering greenhouse gases (GHG) and recycling ~12,000 tons of metals that would also otherwise be landfilled. Last year, Wheelabrator's renewable energy generation offsets the need for ~891, 000 barrels of oil, ~268, 000 tons of coal or 3,800 million cubic feet of natural gas. Energy-from-waste reduces GHG by approximately 1 ton for every ton of waste processed.

In addition, Wheelabrator generates "green steam" for downtown Baltimore's heating and cooling system operated by Veolia North America, which services 255 businesses, including the M&T Bank Stadium, home of the Baltimore Ravens. Over 50 percent of the steam delivered to these local businesses is produced by converting post-recycled household waste into energy at Wheelabrator. Together, Wheelabrator and Veolia are reducing Baltimore's total GHG by approximately 47,000 tons per year – the equivalent of removing 8,400 cars from the road. The use of renewable fuel also helps Maryland meet its current goal of generating 25 percent of its energy from Tier 1 renewable resources by 2020.

Energy-from-waste has been endorsed by the U.S. Environmental Protection Agency as the preferred method to landfilling for waste disposal. In fact, it's embraced by the European Environmental Agency, the Center for American Progress, the World Economic Forum, the Intergovernmental Panel on Climate Change, Kyoto Protocol's Clean Development Mechanism, and the United Nations Environment Programme, among many others. Thirty-one states, the District of Columbia, and two territories have defined energy-from-waste as renewable energy in various state statutes and regulations, including renewable portfolio standards. As such, Maryland would become a national outlier by removing waste-to-energy from the renewable portfolio standards.

Unamended passage of Senate Bill 560 could result in the forced closure of Wheelabrator. Such an outcome would contribute to poorer air quality in Baltimore because it would necessitate an additional **37,000 new tractor-trailer trips** to city streets to move waste out of the City or landfill the waste locally. In their

December 2017 report, the Environmental Integrity Project, funded by the Abell Foundation, reported that "on-road vehicles are the largest contributor to the air pollution that people breathe in Baltimore…because vehicle tailpipes…do not disperse pollution as widely as taller smokestacks." They also reported that "there is not a significant association between city zip codes with the highest emissions of criteria pollutants from stationary facilities and the zip codes with the highest asthma rates."

In a Fiscal Analysis produced by the City of Baltimore, if the City had to resort to landfilling, as a result of the forced closure of Wheelabtrator, the cost would be **$98.6 million** over seven years and a recurring cost going forward of **$12.8 million annually**. Moreover, the Department of Public Works would need to immediately begin the process of expanding the City-owned Quarantine Road Landfill (QRL), which is currently expected to reach full capacity by 2026, at an estimated cost of **$99.7 million**. Because of the reduced compaction rate due to taking waste that would have gone to Wheelabrator, QRL would actually reach full capacity as early as 2024 even though the planned expansion of the landfill will likely not be ready to accept waste until 2026. Costs to the City to transport municipal waste out of Baltimore are not much better. That cost is estimated at **$73.6 million** over six years, and a recurring cost going forward of **$15.8 million annually**. These new landfilling and transportation costs to the City contrast dramatically to the **less than $0 net cost** to the City to dispose municipal waste at Wheelabrator.

As reflected in the December 2019 Report of the Maryland Power Plant Research Program, Figure ES-11, Wheelabrator is an important economic engine to the region – providing jobs, economic stimulus in the form of capital investments and the purchase of goods and services, local property taxes, and we remain actively engaged in a series of community, environmental, economic initiatives spending tens of millions in the region annually. Maryland-based waste-to-energy sources (*i.e.* MSW in Figure ES-11), more so than any other Maryland-based source by a multiple of at least 3, are used to comply with the RPS.

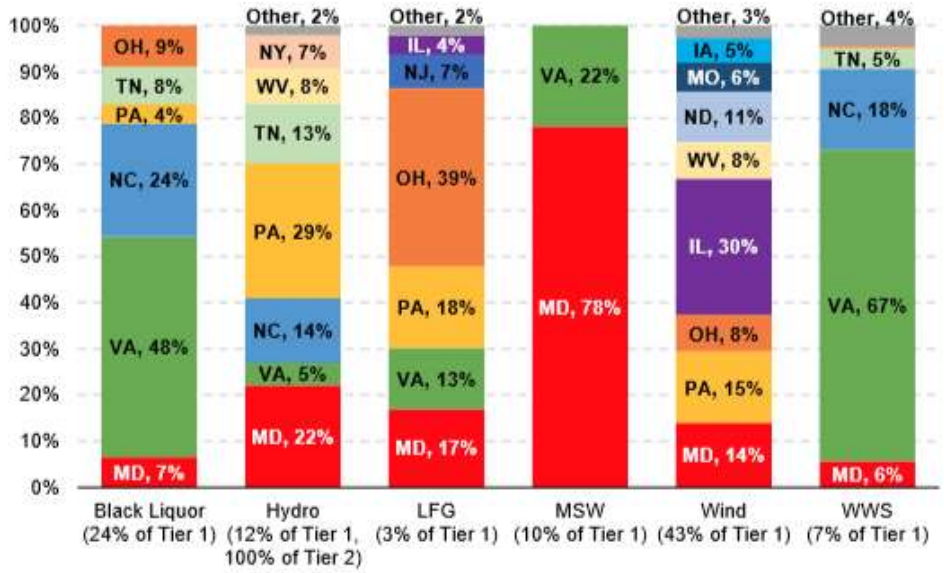


Figure ES-11. Percentage of RECs Generated in Each State Used for Compliance with the Maryland RPS, by Fuel Source (2017)

Source: Maryland PSC 2018 *Renewable Energy Portfolio Standard Report.*

Note: The percentages under each fuel category reflect each fuel type's share of Maryland RPS compliance for 2017.

As you consider Senate Bill 560, we hope you will recognize the tremendous environmental and economic benefits Wheelabrator provides to Maryland. The elimination of energy-from-waste as a Tier 1 renewable energy source will adversely affect the continued viability of Wheelabrator as a renewable energy resource and sustainable waste management solution. Renewable energy credits help the facility remain financially viable so it can continue to provide affordable and dependable disposal services to the City and the County, while promoting and supporting recycling, diversion of waste from landfills and a reduction in GHG. We urge the Senate Finance Committee to give Senate Bill 560 an unfavorable report.

For more information call:
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