Testimony Supporting HB11
House Economic Matters Committee
March 4, 2022

Written testimony to the House Economic Matters Committee in **SUPPORT** of HB11 provided by the **Environmental Integrity Project.**

The Environmental Integrity Project supports HB11 because Tier 1 renewable energy credits should be reserved for clean energy, meaning energy that does not produce large amounts of health-harming pollution when generated. In particular, we support achieving this goal by removing from Maryland's Renewable Portfolio Standard energy that is generated by trash incinerators, sometimes called "waste-to-energy" facilities, and energy generated by the anaerobic decomposition of animal waste.

1. **Burning trash does not produce clean energy**

In 2020, Maryland's two trash incinerators emitted more of certain harmful air pollutants per unit of energy (measured in megawatt hours (MWh)) than its fossil fuel-fired plants. As shown in Table 1 below[1,2], both of Maryland's trash incinerators produce far more emissions of mercury, a potent neurotoxin, than any of its fossil-fuel fired plants. In fact, the Wheelabrator incinerator in Baltimore City produced mercury emissions at a per-unit-of-energy rate that was 37 times higher than that of the average fossil-fuel fired plant, while the Montgomery County incinerator's mercury emissions rates was 11 times higher than the average fossil fuel-fired plant. The incinerators also emitted more nitrogen oxides (NOx) per unit of energy than the 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.[3]

Table 1: Fossil fuel plants v. incinerators – pollution produced per unit of energy

Facility	2020 Mercury Emissions (lbs/TWh)	2020 NOx Emissions (lbs/MWh)
Fossil Fuel-Powered Plants		
Chalk Point	Excluded due to data error[4]	1.55
Dickerson	2.94	2.49
Brandon Shores and H.A. Wagner[5]	4.94	1.08
Morgantown	5.16	0.62
Incinerators		
Montgomery Co. Incinerator	44.67	2.78
Wheelabrator Baltimore	160.75	6.58

[1] Energy generation from U.S. Dep't of Energy, The Energy Information Administration (EIA), EIA-923 Monthly Generation and Fuel Consumption Time Series File, 2020 Final Revision (Sources: EIA-923 and EIA-860 Reports).
[2] Emissions data from Maryland Department of the Environment's 2020 Emission Inventory, obtained through request under the Maryland Public Information Act.
[3] *See, e.g.*, EPA Greenbook, 8-Hour Ozone Nonattainment Areas (2015 Standard), https://www3.epa.gov/airquality/greenbook/map8hr_2015.html.
[4] MDE's 2020 dataset shows a value of 0.386 tons of mercury, when the value probably ought to be 0.00386 tons.
[5] The Brandon Shores and HA Wagner plants are located together at the Fort Smallwood coal plant complex.

Our analysis is based on 2020 data and we understand that the Maryland energy landscape has shifted and will continue to shift in the coming years. Each of the fossil fuel-fired plants in our analysis has either retired its coal-burning units or stated that it will do so by the end of 2025. In addition, Wheelabrator has entered into a settlement agreement[6] with Baltimore City under which the company has agreed to reduce the amounts of NOx, mercury, and other pollutants emitted by its incinerator starting at the end of 2023.

However, the Wheelabrator incinerator will continue to emit several toxic pollutants that pose significant risks to human health even in very small amounts, including mercury. Mercury is a potent neurotoxin that can cause cognitive development problems in infants that are exposed in utero.[7] The primary health risk occurs via deposition of mercury in bodies of water, where it can bioaccumulate in fish.[8] According to the Minnesota Pollution Control Agency, one gram of mercury entering a 20-acre lake over the course of a year "can contaminate the fish in that lake, making them unfit to eat on a regular basis."[9] In addition, the pollution controls that remove toxins from the air emitted from facilities like Wheelabrator typically concentrate those toxins elsewhere, such as in water discharges and/or in the incinerator ash that is produced by the facility and then disposed of at Baltimore's Quarantine Road Landfill.

Trash incinerators do not generate clean energy, even by comparison to fossil fuel-fired plants, and they should not be subsidized in Maryland as a Tier 1 renewable source.

2. Gas produced from the anaerobic decomposition of animal waste or poultry waste is not clean energy.

The Environmental Integrity Project also supports HB 11 because poultry litter-to-energy, or gas produced from the anaerobic decomposition of poultry waste or animal waste, is not a clean energy source and should not be classified as a Tier-1 renewable energy source.

Manure-to-energy projects are not clean

Anaerobic digestion is a process which breaks down organic wastes, like poultry litter, to generate and capture biogas. The biogas is primarily methane and can be used for end uses such as electricity generation but can also include other gases like hydrogen sulfide. When biogas is combusted for electricity generation, it produces harmful air pollutants like nitrogen oxides, just as combusting fossil fuel gases would. Digesters and the gas pipelines and infrastructure also leak methane, a potent greenhouse gas that contributes to climate change.[10] EPA estimates anaerobic digestors have a 2% methane loss to leaks.[11] Nationally, anaerobic digestion at biogas facilities generated an estimated 6

[6] *See* Condon, Christine, et. al, Baltimore Sun extends trash incinerator contract despite protests, Baltimore Sun, Nov. 5, 2020, at https://www.baltimoresun.com/politics/bs-md-ci-bresco-contract-20201104-z5rqrc6qmbgg7jloa565p2fo2y-story.html

[7] U.S. EPA, Health Effects of Exposures to Mercury, at https://www.epa.gov/mercury/health-effects-exposures-mercury.

[8] World Health Organization, Mercury and Health, at https://www.who.int/news-room/fact-sheets/detail/mercury-and-health#:~:text=Exposure%20to%20mercury%20%E2%80%93%20even%20small,%2C%20kidneys%2C%20skin%20and%20eyes. .

[9] Minnesota Pollution Control Agency, Preventing Mercury Pollution, at https://www.pca.state.mn.us/quick-links/preventing-mercury-pollution

[10] Gittelson P. et al., May 2021, The False Promises of Biogas: Why Biogas is an Environmental Justice Issue, *Environmental Justice*, at https://www.liebertpub.com/doi/10.1089/env.2021.0025.

[11] U.S. EPA, November 2020, Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM): Management Practice Chapters, Page 3-4, at https://www.epa.gov/sites/default/files/2020-12/documents/warm_management_practices_v15_10-29-2020.pdf.

kilotons of methane 2020.[12] Natural gas systems that would receive excess biogas are also notorious emitters of methane.[13]

Anaerobic digestion also produces byproducts that can be used as fertilizer, but the process can concentrate nutrients like phosphorus and ammonium, which is harmful when applied in areas with already high soil phosphorus levels.[14] Overapplying phosphorus-rich manure from poultry operations to fields has already polluted waterways and the Chesapeake Bay.[15] For years, Maryland has worked to reduce its high soil phosphorus levels by limiting manure application on fields.[16] Promoting and incentivizing anaerobic digestion of poultry litter as a solution to the poultry industry's phosphorus problem needs further evaluation and a plan for managing the even higher nutrient content in digestate.

Manure-to-energy is not the financial solution it's often hailed as

Proponents of anaerobic digestion often promote potential cost-savings and revenue for farmers that install biogas systems. In theory, the digesters can help manage animal waste, meet the farms energy needs, and sell excess energy to the power grid. But biogas projects are costly to install and operate, often leaving farmers in debt.[17] In 2014, Maryland's Animal Waste Technology Fund awarded $675,144 to the state's only anaerobic digester that processes poultry litter. Capital costs exceeded $1.8 million, and the project has faced an estimated $123,377 in annual loses. As a pilot project, financial losses were expected but viability would require the facility to drastically scale up in size, like increasing their capacity from 1,200 tons of poultry litter per year to 50,000 tons per year.[18]

For all of these reasons, we urge the Committee to vote in favor of HB11.

[12] U.S. EPA, DRAFT Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020, Page 2-6, at https://www.epa.gov/system/files/documents/2022-02/us-ghg-inventory-2022-main-text.pdf
[13] Alvarez, R. et al., June 2018, Assessment of methane emissions from the U.S. oil and gas supply chain, *Science*, at https://www.science.org/doi/10.1126/science.aar7204.
[14] University of Maryland Extension, May 2017, Manure to Energy Byproducts are Useful Nutrient Sources, FS-1065; Singh, K. et al., 2010, Anaerobic Digestion of Poultry Litter: A Review, *Applied Engineering in Agriculture*, Vol. 26 (4), Page 684, at https://www.researchgate.net/publication/273919895_Anaerobic_Digestion_of_Poultry_Litter_A_Review.
[15] Environmental Integrity Project, October 2021, Blind Eye to Big Chicken, at https://environmentalintegrity.org/wp-content/uploads/2021/10/MD-Poultry-Report-10-28-21.pdf.
[16] Maryland Department of Agriculture, January 2021, Implementation Update: The Phosphorus Management Tool, at https://mda.maryland.gov/Documents/PMT-Update-January-2021.pdf.
[17] Gittelson et al.
[18] UMD Environmental Finance Center, January 2018, Financial Feasibility of Alternative Animal Waste Management Demonstration Projects in Maryland, at https://arch.umd.edu/sites/default/files/docs/publications/Financial%20Feasibility%20of%20AWTF%20Projects%20January%202018.pdf.