

MD Catholic Conference_SB 384_FAV.pdf

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Position: FAV



MARYLAND
CATHOLIC
CONFERENCE

February 13, 2024

SB 384

**Maryland Energy Administration – Carbon Capture Opportunity Program -
Establishment**

Education, Energy & the Environment Committee

Position: Favorable

The Maryland Catholic Conference (MCC) offers this testimony in support of Senate Bill 384. The Catholic Conference is the public policy representative of the three (arch)dioceses serving Maryland, which together encompass over one million Marylanders. Statewide, their parishes, schools, hospitals, and numerous charities combine to form our state's second largest social service provider network, behind only our state government.

Senate Bill 384 would establish the Carbon Capture Opportunity Program which would assist nonprofit and for-profit organizations engaged in carbon capture projects or research. Addressing environmental challenges is not just a scientific or political endeavor but a moral imperative rooted in our responsibility to care for God's creation.

The Catholic Church teaches the importance of stewardship and protection of the environment. Pope Francis, in his encyclical "*Laudato Si*," emphasizes the urgent need for global action to address climate change and calls for responsible care of the planet. Establishing programs, such as the one in this bill, promote sustainable practices and contribute to the reduction of carbon emissions.

The Carbon Capture Opportunity Program holds great promise in fostering environmental stewardship within Maryland. By supporting nonprofit and for-profit businesses engaged in carbon capture projects or research, the program takes a proactive approach to mitigating the impact of climate change. It not only addresses the immediate environmental concerns but also encourages innovation and collaboration in finding long-term solutions.

The MCC appreciates your consideration and, for these reasons, respectfully requests a favorable report on Senate Bill 384.

HM Testimony SB384 02.12.24.pdf

Uploaded by: Neal Karkhanis

Position: FAV



The Honorable Brian Feldman
Chair, Senate Education, Energy, and the Environment Committee
2 West
Miller Senate Office Building
Annapolis, MD 21401

RE: Testimony in Support of MD SB 384 – Carbon Capture Opportunity Program
POSITION: SUPPORT

Dear Chairman Feldman:

Thank you for the opportunity to testify in support of SB 384 – Carbon Capture Opportunity Program. Additionally, we would like to thank Senator Lewis Young for sponsoring this legislation. Heidelberg Materials is a leading supplier of construction materials in North America. Our core activities include the production of cement and aggregates, as well as producing ready-mixed concrete, asphalt, and other downstream cement products. The Union Bridge, MD plant dates to 1909 and Heidelberg Materials has supplied the cement supporting Maryland's critical infrastructure needs since 1911. The Union Bridge plant employs approximately 165 people year-round.

Cement is the primary ingredient in concrete, the world's most consumed building material behind water, which has a long-proven value as a durable, cost-effective, available material that is resistant to extreme temperatures and resilient against natural disasters. Concrete remains critical to Maryland's infrastructure due to its versatility, durability, resiliency, strength, and its ability to enable construction that is more sustainable.

Heidelberg Materials is committed to supporting Maryland's carbon emissions reduction targets and has already made significant reductions by transitioning to producing EcoCem PLC™, a portland limestone cement (PLC) that directly lowers the carbon intensity of our cement product, which in turn, translates to carbon intensity reductions across the cement and concrete value chain. As an innovative leader in sustainability as well as an important part of the Maryland community, we will continue to be an engaged partner with Maryland as we work together to reduce State carbon emissions.

Heidelberg Materials is a leader in the development and use of resilient construction materials and sustainable construction practices and has also formalized its commitment to, and is working diligently toward, achieving carbon neutral concrete by 2050 at the latest. It is important to note that cement manufacturing is energy-intensive and requires significant fuel in the manufacturing process. Fuel optimization is a critical component in reducing CO₂ emissions. Additionally, a key piece that sets this industry apart from others is that approximately 65% of CO₂ emissions result from calcination, which is the essential step in the cement manufacturing process.

We are also developing new technologies that reduce our CO₂ footprint on a large scale, especially targeting those emissions that cannot be mitigated in full. Therefore, we are investing in different carbon capture technologies, aiming to trap CO₂ in its purest form to either utilize or safely store it. Such technology development is challenging, and Heidelberg Materials believes that partnership among government, industry, and academic institutions will be key to successful implementation in an effective and economical manner.



Heidelberg Materials

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Heidelberg Materials supports SB 384 because collaboration, support and advocacy on the part of the State is essential to successfully accessing and deploying federal funding. Additionally, it is critical to leverage available state funding to not only advance near-term solutions that yield significant benefits through real reductions in GHG, but to accelerate the adoption of longer-term technologies and strategies that ultimately will enable essential industries like cement manufacturing to fully decarbonize while supporting long-term economic prosperity for Maryland.

Thank you once again for the opportunity to express our support for SB 384.

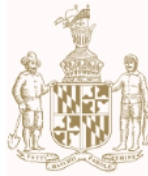
SB384 - Carbon Capture Opportunity Program Cover L

Uploaded by: Senator Karen Lewis Young

Position: FAV

KAREN LEWIS YOUNG
Legislative District 3
Frederick County

Committee on Education, Energy,
and the Environment



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THE SENATE OF MARYLAND
ANNAPOLIS, MARYLAND 21401

The Honorable Senator Feldman, Chair
The Honorable Senator Kagan, Vice Chair
Education, Energy, and Environment Committee
Maryland Senate
Annapolis, MD

February 13th, 2024

Testimony in Support of SB384: Carbon Capture Opportunity Program

Chair Feldman, Vice Chair Kagan, and esteemed members of this committee,

I am here to testify in favor of SB384. This bill directs the Maryland Energy Administration to establish a program to assist businesses and non-profits based in Maryland apply for federal and private funding to research and implement carbon management technology. The federal government's Inflation Reduction Act created strong tax incentives for companies pursuing carbon management technology. The Infrastructure Investments and Jobs Act offered an additional \$12 billion in incentives through grants, loans, and tax cuts.

What is carbon management and why is it important? Carbon management is a process of negating carbon emissions. One type of carbon management, carbon capture and storage (CCS), takes carbon produced by industrial processes and power generation and stores it, usually deep underground. Another type of carbon management is reforestation, which has the additional benefits of reducing rainwater runoff and urban heat sinks. Researchers at the University of Maryland are working on new technology involving microalgae that would, "Reduce carbon dioxide emissions on an industrial scale while producing valuable byproducts such as nutraceuticals and biofuels¹."

According to the United Nations, in order to avert the worst effects of climate change we will need carbon negative technology, not just carbon neutral. In Maryland, despite the increase of renewables, only 13 percent of our state's energy consumption comes from renewables². The

¹ University of Maryland Center for Environmental Science, "Researchers Pursue Green Technology To Capture Carbon Dioxide Emissions."

<https://www.umces.edu/news/researchers-pursue-green-technology-to-capture-carbon-dioxide-emissions>

² Maryland Energy Administration.

<https://msa.maryland.gov/msa/mdmanual/01glance/html/energy.html#:~:text=Renewable%20energy%20production%20in%20Maryland,two%2Dfifths%20came%20from%20hydropower.> Maryland State Archives.

remainder comes from coal, gas, and other sources. In order to counteract the increased demand for energy, and therefore the increased demand for the energy sources putting carbon in our air, we need to manage our carbon emissions through either capturing them before they enter our atmosphere, or directly negating their influence.

This program, implemented at minimal cost, will allow the Maryland Energy Administration to help homegrown businesses and non-profits compete for those federal incentives. Those businesses and non-profits will bring jobs. With this legislation, the Maryland Energy Administration will be a resource for them while opening another avenue for our state to achieve our legally mandated net zero emissions goals.

We know how important fighting climate change is. No options should be off the table. This bill will help us translate the business-friendly climate the federal government has created to climate-friendly solutions here in Maryland. I urge a favorable report.

Sincerely,

A handwritten signature in blue ink that reads "Karen Lewis Young". The signature is written in a cursive, flowing style.

Senator Karen Lewis Young

SB384_IndivisibleHoCoMD_FAV_VirginiaSmith.pdf

Uploaded by: Virginia Smith

Position: FAV



SB384

**Maryland Energy Administration - Carbon Capture Opportunity Program -
Establishment**

Testimony before the Education, Energy, and the Environment Committee

Hearing February 13, 2024

Position: Favorable

Dear Chair Feldman and Vice-Chair Kagan, and members of the committee, my name is Virginia Smith, and I represent the 700+ members of Indivisible Howard County. Indivisible Howard County is an active member of the Maryland Legislative Coalition (with 30,000+ members). We are providing written testimony today **in support of SB384**, which would establish the Carbon Capture Opportunity Program in the Maryland Energy Administration. We appreciate the leadership of Senator Lewis Young and Senator Muse in sponsoring this legislation.

Maryland has ambitious goals to reduce our greenhouse gas (GHG) emissions over the next two decades. This is admirable and necessary. However, in 2022 alone, Maryland released 16 million metric tons CO₂. And considering that carbon has a long-life span in our atmosphere, between 300 and 1,000 years, cutting our GHG emissions is not enough to solve our climate crisis. This bill would provide support to non-profits and for-profit organizations that want to research and develop carbon capture systems within the state. Capturing carbon is also necessary because the GHG levels will continue to impact us, regardless of if we stop producing carbon today because of carbon's long life. Maryland can be a leader in carbon capture with the help of this program.

Thank you for your consideration of this important legislation.

We respectfully urge a favorable report.

Virginia Smith
Columbia, MD 21044

MD GA Testimony HB 0155 - SB 0834.pdf

Uploaded by: Dante Swinton

Position: UNF

Our Zero Waste Future Incorporated
HB [0155](#) / SB [0834](#)
Position: Against

My name is Dante Swinton and I am the executive director of our Our Zero Waste Future. We stand vehemently against SB 0834 / HB 0155. The state should spend absolutely no taxpayer dollars on the creation or facilitation of carbon capture projects. Carbon capture is merely a distraction from the actual policy needed to fight climate change, which should focus on the cancellation of any new fossil fuel projects, and the winding down of existing fossil fuel projects as we transition to a renewable energy economy.

Carbon capture technology requires additional power to run the carbon capture and storage (CCS) equipment, which could be achieved in a couple of ways, including

1. Producing more power from the plant in question to run the carbon capture equipment
2. Building a new power plant to power the carbon capture equipment

With the former, additional power from the power plant in question means additional co-pollutants emitted, such as sulfur dioxide, nitrogen oxides, and particulate matter - pollutants that are not the focus of the capture equipment. With the latter, the new power plant is typically a natural gas plant. The emissions from this plant are not captured, which means more carbon dioxide emissions and additional co-pollutants, fugitive methane emissions, and additional upstream methane emissions from natural gas production. More pollution means more long-term impacts on communities, especially low-income communities and communities of color. Carbon capture equipment could be run by renewables like solar and wind, but it would make more sense to use that solar and wind capacity as a replacement to the fossil fuel power plant itself¹.

If the plant with the capture equipment is the one supplying the power, anywhere from **13-44% additional power will be required**, known as an “energy penalty².”

Proponents of carbon capture claim that the CCS equipment can capture up to 95% of the carbon emitted from the target plant. However, projects across North America and beyond have fallen well short of this goal³.

¹ Stanford University. The health and climate impacts of carbon capture and direct air capture. <https://web.stanford.edu/group/efmh/jacobson/Articles/Others/19-CCS-DAC.pdf>

² IPCC AR6 Working Group III report. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter06.pdf

³ IEEFA. Blue hydrogen: Technical challenges, weak commercial prospects, and not green. https://ieefa.org/wp-content/uploads/2022/02/Blue-Hydrogen-Presentation_February-2022.pdf

There are about 5,500 miles of carbon dioxide pipelines in the country right now⁴. For CCS to have any sort of serious impact on the climate, that number must increase by at least 12-fold⁵. But we cannot place Maryland communities at risk of any accidents related to carbon capture, especially communities of color and low-income communities. Carbon pipelines are an incredibly risky venture. The pipelines deal with extremely high pressures, and impurities in the steel pipes, such as water or other gasses, can weaken the pipe and lead to serious accidents⁶. Linked to this testimony is a video on what happens when a carbon pipeline ruptures⁷. The carbon dioxide immediately converts to dry ice around the rupture, but the rest will sublimate into a cloud that displaces oxygen and moves into low-lying areas.

Internal conditions are not the only threat to carbon pipelines. In February 2020, after weeks of heavy rains in Mississippi led to land subsidence, a carbon dioxide pipeline ruptured⁸ near the community of Satartia. Dozens of residents were impacted, including some residents wandering around like zombies⁹ during the incident. Emergency responders were not prepared for this kind of emergency, with Denbury - the responsible company - failing to include Satartia as a "high-consequence area" in the event of an accident, and failing to engage the Tri-Community Volunteer Fire Department¹⁰. At least some survivors of the incident have had long-term neurological impacts, with some who were exposed to carbon dioxide the longest still unable to work. Following this incident, PHMSA released an advisory for pipeline owners to review the potential risks for geohazards¹¹. And with climate change causing more and more 100-, 500-, and 1,000-year storms with greater frequency, any pipeline buildout in Maryland could be exposed to these geohazards.

⁴ Pipeline and Hazardous Materials Safety Administration (PHMSA).

https://portal.phmsa.dot.gov/analytics/saw.dll?Dashboard&PortalPath=%2Fshared%2FPDM%20Public%20Website%2F_portal%2FMiles%20by%20Decade&Page=Miles%20By%20Decade%20Gas%20Distribution

⁵ Princeton University. Net zero America: potential pathways, infrastructure, and impacts.

[https://netzeroamerica.princeton.edu/img/Princeton%20NZA%20FINAL%20REPORT%20SUMMARY%20\(29Oct2021\).pdf](https://netzeroamerica.princeton.edu/img/Princeton%20NZA%20FINAL%20REPORT%20SUMMARY%20(29Oct2021).pdf)

⁶ Pipeline Safety Trust and Accufacts Inc. Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as it Relates to Carbon Capture, Utilization, and Sequestration within the U.S.

<https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf>

⁷ CO2 pipeline rupture test. <https://vimeo.com/668827261>

⁸ PHMSA. Failure investigation report: Denbury Gulf Coast Pipeline.

<https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/Failure%20Investigation%20Report%20-%20Denbury%20Gulf%20Coast%20Pipeline.pdf>

⁹ Huffington Post. The gassing of Satartia.

https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f

¹⁰ PHMSA. Denbury consent order.

[https://primis.phmsa.dot.gov/comm/reports/enforce/documents/42022017NOPV/42022017NOPV_Consent%20Agreement%20and%20Order_03242023_\(20-176125\).pdf](https://primis.phmsa.dot.gov/comm/reports/enforce/documents/42022017NOPV/42022017NOPV_Consent%20Agreement%20and%20Order_03242023_(20-176125).pdf)

¹¹ PHMSA. Pipeline safety: Potential for damage pipeline facilities caused by earth movement and other geological hazards.

<https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/PHMSA%20Land%20Movement%20Advisory%20Bulletin.pdf>

Placing Marylanders in harm's way of possible CO2 pipeline buildout would neglect everyone's right to a safe environment to live, and spend taxpayer money on nothing more than perpetuation of our dependence on fossil fuels. I strongly urge this bill to be pulled from consideration.

Please reach out if you have any questions.

Kind regards,
Dante Swinton
Executive Director, Our Zero Waste Future
ourzwf.org
864-371-2574

SB0834 Carbon Capture .pdf

Uploaded by: Jolie McShane

Position: UNF

Senate Bill 0384

Position: Oppose

Maryland Resident, Baltimore County

Jolie McShane 410-299-3032

Carbon capture is simply a money grab. If you are serious about manmade climate change how about doing something about all the toxins in our environment that are causing man made illnesses. Chronic illnesses we never saw 100 years ago, CANCER, heart disease, ADHD, autism, diabetes, obesity, infertility and the list goes on and on.

Mandate that the CDC and FDA stop the revolving door with the chemical and pharmaceutical companies. Outlaw in Maryland all foods that contain cancer causing glyphosates, all vaccines until tested against a placebo, corn syrup and its derivatives, sunblock with hormone disrupters and irradiation of our foods. This type legislation would massively improve our climate and overall health.

SB0384 (HB0155) - LOI (1).pdf

Uploaded by: Landon Fahrig

Position: INFO



Maryland Energy Administration

TO: Chair Feldman, Vice Chair Kagan, and Members of the Education, Energy, and the Environment Committee

FROM: MEA

SUBJECT: SB 384 - Maryland Energy Administration - Carbon Capture Opportunity Program - Establishment

DATE: February 13, 2024

MEA Position: Letter of Information

This bill would create a Carbon Capture Opportunity Program within the Maryland Energy Administration (MEA) to support businesses engaged in carbon capture projects or research.

Technologies for carbon capture, utilization, and storage (CCUS) are viable for broader deployment, but challenges still hinder their use. Carbon capture includes technologies that separate and purify carbon dioxide (CO₂) from an industrial facility or generation plant (point-source capture) or the atmosphere (direct air capture or DAC). DAC has been implemented *only* at a pilot scale, and point-source applications for power generation require greater demonstration for economic and operational feasibility. High costs are challenging to widespread deployment of both types of carbon capture in the near term. For instance, for point-source capture, the total costs of capturing one metric ton of CO₂ are estimated to be from \$40 to \$290.¹

Despite the challenges, MEA recognizes the necessity of CO₂ removal and plant retrofits to capture and store CO₂ to meet our long-term goals as a state and as a country. To that end, the federal government, through 45Q tax credits, provides significant financial support to projects. IIJA and IRA similarly provide a high level of funding for this technology. Overseas funding, particularly in Europe, is significant in the space as well, pointing to rapid advancement over the next decade. Further, DOE funded projects in the carbon management space are making significant progress.

The primary challenge concerning this legislation is one of scale. 45Q tax credits are available for projects of a certain size and DOE grants are typically for large-scale projects. Of the potential, viable projects in the state, they are large and capital intensive, far beyond the type of funding and expertise MEA can provide. Without dedicated funding, and a large-scale project for DOE application, MEA would be unlikely to even be able to provide technical assistance on a scale necessary for CCUS in the state.

¹ See www.gao.gov/products/gao-22-105274

Our sincere thanks for your consideration of this testimony. For questions or additional information, please contact Landon Fahrig, Legislative Liaison, directly (landon.fahrig@maryland.gov, 410.931.1537).