Biotechnology Innovation Organization

June 16, 2020

The Honorable Bobby L. Rush
Chairman
Subcommittee on Energy
Energy and Commerce Committee
U.S. House of Representatives
Washington, DC 20515

The Honorable Fred Upton
Ranking Member
Subcommittee on Energy
Energy and Commerce Committee
U.S. House of Representatives
Washington, DC 20515

The Honorable Frank Pallone
Chairman
Energy and Commerce Committee
U.S. House of Representatives
Washington, DC 20515

The Honorable Greg Walden
Ranking Member
Energy and Commerce Committee
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Rush, Ranking Member Upton, Chairman Pallone, Ranking Member Walden, and Members of the Subcommittee:

The Biotechnology Innovation Organization (BIO) is pleased to submit a statement for the record to the United States House of Representatives Committee on Energy and Commerce Subcommittee on Energy hearing "Reviving our Economy: COVID-19's Impact on the Energy Sector."

Introduction

BIO represents more than 1,000 members from the biotech ecosystem. Together we collaborate on our central mission – to advance public policy that supports a wide range of companies and academic research centers that are working to apply biology and technology in the energy, agriculture, manufacturing, and health sectors to conquer disease, sustain our environment, and advance nutrition and wellness.

Our members use biotechnology to enhance the agricultural value chain. These technologies support food production, sustainable fuels, renewable chemicals, and biobased products. This provides a cost-competitive and sustainable alternative to the petroleum value chain while generating added value through economic development, job creation, and public health. Companies are utilizing biological processes to convert biomass and waste feedstocks into everyday products, creating new markets for agricultural crops, crop residues, and waste streams – in addition to contributing to a circular economy.

Executive Summary

COVID-19 has clearly demonstrated the vulnerabilities that exist throughout the value chain supporting the energy sector. The disruptions caused by COVID-19

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have been acutely felt by the sustainable fuels industry. With Americans heeding the calls of local and state governments to stay home to stop the spread of COVID-19, the need for transportation fuel, including sustainable alternatives, has plummeted. This dramatic disruption not only severely curtails the growth of sustainable fuels from advanced and cellulosic feedstocks, but also lays bare the industries integral role in providing food grade CO_2 which is widely used in the treatment of drinking water and the preservation of food.

As Congress examines how to revive the economy through the energy sector, it is critical we adapt and accelerate innovation in this space to create a more resilient and self-sustaining economic recovery. Policies supporting the production and deployment of sustainable fuels and biobased manufacturing will allow us to rebuild our national economy and workforce in a forward-looking manner; bolstering our economic independence in a way that facilitates self-sufficiency. This "bioeconomy" will also create an energy sector that addresses climate change by reducing greenhouse gas emissions and enhancing human health through improved air quality.

Biobased Technologies Reducing Pollution in the Transportation Sector and Improving Environmental Health

As BIO stated in its comments to the U.S. Environmental Protection Agency's (EPA) Scientific Advisory Board (SAB) *Review of COVID-19 Pandemic Scientific and Technical Issues to Inform EPA's Research Actives*[1], "our member companies offer several solutions that can not only help combat this pandemic, but also lessen the impact of a future pandemic by helping to establish a resilient, sustainable bioeconomy."

Harmful tailpipe emissions, including particulate matter (PM) from the transportation sector disproportionately affect areas comprised of minority populations. For example, according to a study by the Union of Concerned Scientists (UCS), African Americans and Latinos breathe in about 40 percent more particulate matter from cars, trucks, and buses than white Californians[2]. Another UCS study found Northeast communities of color breath 66 percent more air pollution from vehicles[3].

According to the National Bureau of Economic Research, the United States saw fine particulate pollution increase 5.5 percent between 2016 and 2018. According to the American Lung Association, State of the Air report for 2019, more than four in ten Americans live in counties that have unhealthy levels of ozone pollution or particular matter.[4] Prior to COVID-19, the World Health Organization[5] found that 4.2 million deaths[6] every year occur as a result of exposure to ambient air pollution. Since then, numerous studies have found that long-term exposure to

[1] https://yosemite.epa.gov/sab/sabproduct.nsf//0/2996BA363B41C2598525854C0048EA69?OpenDocument
[2] https://www.ucsusa.org/resources/inequitable-exposure-air-pollution-vehicles-california-2019
[3] https://www.ucsusa.org/about/news/communities-color-breathe-66-more-air-pollution-vehicles
[4] http://www.stateoftheair.org/key-findings/
[5] https://www.who.int/health-topics/air-pollution#tab=tab_1
[6] https://www.who.int/gho/phe/outdoor_air_pollution/burden/en/

levels of tiny particulate matter were linked to a significant increase in the mortality rate for COVID-19[7].

Sustainable fuels represent a readily available solution to addressing air quality by reducing tailpipe emissions including particulate emissions, hydrocarbons, and carbon monoxide, which helps prevent the formation of ground-level ozone. Data from 222 EPA sensing sites show that ozone levels have fallen during the period in which ethanol blending increased.[8] Additional data from the University of Illinois-Chicago (UIC) show substantial reductions in particulate matter and benzene with the addition of biofuels.[9] The American Lung Association, Upper Midwest Region found higher volumes of biofuels can reduce ozone-forming pollutants and evaporative emissions.[10]

Such benefits are not unique to ground transportation; research has demonstrated that sustainable aviation fuels (SAF) reduce contrails, particulate matter and mass emissions compared to conventional fossil jet fuels, with the potential to improve air quality near airports and reduce the climate impacts of aviation at high altitude.[11]

Because of the clear air quality benefits associated with the use of sustainable fuels, members of both the Congressional Black Caucus and Congressional Hispanic Caucus have appealed to the EPA multiple times[12,13] to raise biofuel volumes under the Renewable Fuel Standard. As the Committee explores ways to improve air quality and lessen the impact of pollution from the transportation sector, BIO encourages it to support the production of sustainable fuels by strengthening existing policies and ensuring future policies increase market access and spur development of new biofuel technologies across all transportation sectors.

Biobased Technologies Reducing Pollution in the Manufacturing Sector and Improving Environmental Health

Increasing the use of biofuels is not the only solution that BIO's members can provide to lessen air pollution caused by the energy sector. The production of petrochemicals, much of which are used in single use plastics are a major contributor to air pollution and climate change.

The impact petrochemical production has on human health in communities of color is exemplified in what has been called "Cancer Alley" in Louisiana[14]. As Beverly Wright, the founder and executive director of the Deep South Center for Environmental Justice in New Orleans stated in the New York Times April 29, 2020 article, *'A Terrible Price': The Deadly Racial Disparities of Covid-19 in America*, "As

[7] https://www.newscientist.com/article/2241778-are-you-more-likely-to-die-of-covid-19-if-you-live-in-a-polluted-area/
[8] http://www.ethanolrfa.org/2014/12/real-world-ozone-and-particulate-data-expose-fallacy-of-minnesota-study/
[9] http://www.erc.uic.edu/assets/pdf/UIC_Cook_County_Slides.pdf
[10] https://www.cleanairchoice.org/fuels/e85.cfm
[11] https://www.nature.com/articles/nature21420
[12] https://www.bio.org/sites/default/files/2020-06/2015%20CBC%20Biofuels_EPA%20letter_Final.pdf
[13] https://www.bio.org/sites/default/files/2020-06/CBC-CHC%20biofuel%20letter.pdf
[14] https://www.businessinsider.com/louisiana-cancer-alley-photos-oil-refineries-chemicals-pollution-2019-11

soon as I heard about Covid, I started getting nervous about the relationship between PM 2.5 and this virus."

As BIO highlighted in its statement[15] for the record to the House Energy and Commerce Environment Subcommittee's March 4, 2020 hearing entitled, "Reduce, Reuse, Recycle, Reform: Addressing America's Plastic Waste Crisis," biobased products can provide a solution to the increasing rise in emissions in petrochemical plastic production.

Because bioplastics are derived at least in part from biomass, they have a smaller carbon footprint, with lower cradle-to-plant-gate greenhouse gas emissions than their fossil fuel-based counterparts.[16] Substituting the annual global demand for fossil-based polyethylene (PE) with biobased PE would save more than 42 MMT of CO_2. This equals the CO_2 emissions of 10 million flights around the world per year.[17] Replacing conventional 1,4-Butanediol (BDO) with biobased BDO would save over seven million tons of greenhouse gas emission per year, or the equivalent of taking 1.5 million cars off the road.[18] In addition to reducing greenhouse gas emissions, biobased BDO can produce compostable plastic packaging, reducing plastic waste.

As the Committee explores options to improve the energy efficiency of the manufacturing sector and make it more resilient to future disruptions, BIO would encourage members to advance policies that support research and development and investment in biobased manufacturing processes, products and bioplastics derived from renewable or waste-based chemicals. Climate legislation or any economic recovery package should seek to address the ever increasing rise in emissions and pollution from petrochemicals and plastics and encourage the use of biobased products instead.

Conclusion

A sustainable post-COVID-19 recovery will require innovation driven by the development of sustainable fuels and biobased manufacturing. With sound public policy we can achieve our goal of rebuilding our national economy and workforce in a forward-looking, self-sufficient manner with the added benefit of addressing climate change and enhancing human health through improved air quality.

BIO looks forward to working with the Committee and Congress in developing pro-innovation policies and technologies to ensure a sustainable recovery.

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[15] https://www.bio.org/letters-testimony-comments/bio-testifies-biobased-products-address-plastic-waste
[16] https://ihsmarkit.com/research-analysis/bioplastics-offer-a-smaller-carbon-footprint.html
[17] https://www.european-bioplastics.org/bioplastics/environment/
[18] https://www.genomatica.com/wp-content/uploads/Genomatica-Sustainability-and-Social-Responsibility-2019.pdf