

Testimony of Judith Enck, President of Beyond Plastics

U.S. Senate Environment and Public Works, Subcommittee on Chemical Safety, Waste Management, Environmental Justice and Regulatory Oversight Hearing: *Examining the Impact of Plastic Use and Identifying Solutions for Reducing Plastic Waste*

Washington, D.C.

December 15, 2022

Thank you for the opportunity to offer testimony today on this critical topic. My name is Judith Enck, and I am the founder and president of Beyond Plastics, a nonprofit that aims to end plastic pollution everywhere. I am on the faculty of Bennington College in Vermont, and I served as Regional Administrator for Region 2 at the U.S. Environmental Protection Agency, appointed by President Barack Obama.

The production, use, and disposal of plastics is a vitally important issue that threatens human health, our ability to avoid the worst projected impacts of climate change, and the health of our oceans and environment. The U.S. already has sufficient plastic production to meet domestic demand and is a net exporter of plastics. But petrochemical and fossil fuel companies are seeking to add profits from low U.S. gas prices and are building new production facilities intended for plastics export to global markets, including to countries that lack basic waste management systems. These U.S. facilities include ethane crackers in low-income communities of color—making pollution and health problems in the U.S. even worse.

Unfortunately, federal leadership has been sorely lacking on plastics waste. To briefly summarize federal actions to date: in 2015, Congress passed and President Obama signed the Microbead-Free Waters Act, which limited the use of rinse-off cosmetics containing plastic microbeads. In 2020, Congress passed and President Trump signed the Save Our Seas 2.0 Act which created a genius prize, urged international cooperation, and provided

grants for studies of waste management and mitigation programs. One of the products of Save Our Seas 2.0 was a 2022 report by the National Academies of Sciences, Engineering, and Medicine titled “Reckoning with the U.S. Role in Global Ocean Plastic Waste.”¹ This bipartisan report called for the United States to create a national strategy by the end of 2022 to reduce our increasing contributions to global ocean plastic waste, including a focus on reducing the amount of plastic waste generated in our country. This report and others show that it is past time to address the plastic pollution crisis we currently face.

We need major new federal legislation to significantly reduce the production, use, and disposal of plastics, and we need it now.

One caveat: I’d like to note that there are valid uses for certain plastics. For example, many life-saving medical devices are made with plastics. But medical uses for plastic account for a tiny percentage of all the plastics made, used, and disposed of—and we’re not seeing beaches littered with pacemakers or trees festooned with IV tubing.

I do not dispute that plastics used to make car parts lighter can improve the fuel efficiency of cars. But, again, car bumpers are not commonly found in our rivers and streams, and they are used for decades, not minutes.

Plastics are also used in electronics such as phones and computers. Even though we use these devices for years—not minutes—they still break down, and when they do, they should be repaired, not discarded. Congress needs to pass a “Right to Repair” law so that electronics, car parts, and consumer items are designed to be repaired, rather than being designed for wasteful and expensive “planned obsolescence” as they are now.

My testimony today focuses not on the tiny percentage of plastics used to create medical devices or car bumpers, nor on the plastics used in electronics, but on the *majority* of plastics produced that are designed *for a single use* before being buried in a landfill, littered in our environment, or burned in an incinerator. This growing class of non-essential plastic products includes single-use plastic bags, straws, cups, forks, plates, gift cards, bottles, vapes and e-cigarettes, and plastics in cigarette filters, to name just a few of the most common problem items. I find it particularly ironic that plastic—a

¹ [“Reckoning with the U.S. Role in Global Ocean Plastic Waste.”](#) National Academies of Sciences, Engineering, and Medicine, 2022.

material that lasts for literally hundreds of years, if not longer—is used to make so many products that are designed to be used just once before they are thrown away.

We need policy solutions that are commensurate with the problem that is described below. Voluntary efforts by the business community are not working and there is no more time to waste on fictional schemes and failed approaches. Some states and local governments have adopted new laws, but the federal government is largely missing in action. This will only change with Congressional leadership—the leadership of this committee and your colleagues in the House.

I’ve included more details in the section of my testimony that deals with solutions, but **my primary recommendation is for Congress to adopt a law establishing the goal of reducing the production of plastic by 50% over the next ten years, and providing enforcement mechanisms and federal funding to achieve this goal.**

THE PROBLEMS WITH PLASTICS

Plastics Are Polluting Our Ocean

Plastic pollution is turning our ocean into a watery landfill. Scientists estimate that about 8 million metric tonnes of plastics enter the ocean each year. This is the equivalent of emptying a dump truck full of plastic into the ocean every minute.² Since plastic doesn’t decompose, the amount of plastic pollution in the ocean is growing larger as we meet here today. As one of the world’s largest producers of new plastics, and one of the world’s largest generators of plastic waste, the U.S. bears a unique responsibility for the global plastic pollution crisis. Similar to the global climate change impacts caused by historical carbon emissions from industrialized nations, decades of massive U.S. plastic production are resulting in legacy impacts to global human health and the environment.

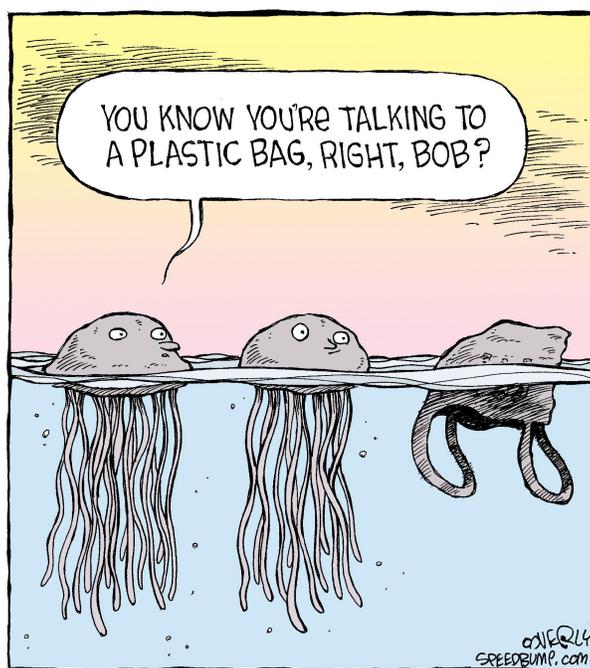
This plastic pollution is taking a heavy toll on marine life and ecosystems. It is everywhere—from wetlands and mangrove forests to the ocean floor, including, remarkably, the deepest point of the ocean—the Marianas Trench,³ and everywhere in between. As a result, plastics are being eaten by all manner of marine life, starting with the tiny zooplankton who form the foundation of the marine food chain. A 2021 study

² [“The United States’ contribution of plastic waste to land and ocean,”](#) *Science Advances*, October 2020.

³ [“Plastic in Mariana Trench.”](#) National Oceanic and Atmospheric Administration’s Science on a Sphere webpage, accessed Dec. 11, 2022.

found that microplastics limit the growth and abundance of microscopic marine life,⁴ with troubling implications for all organisms higher up the food chain.

Fish—including many species humans enjoy eating—are eating micro and nano plastics. There are a number of videos that one cannot unsee showing people cutting open fish’s stomachs and discovering plastic litter both large and small.⁵ Seabirds routinely mistake bits of plastic for food, ending up with stomachs full of plastic litter that they cannot pass. This fools them into thinking they are full of food, and they die of starvation. A recent study indicates that plastic litter covered with algae emits a gas that is similar to seabird’s food.⁶ Scientists estimate that almost 100% of seabirds will be ingesting plastic by 2050.⁷



Art courtesy of Dave Coverly: www.SpeedBump.com

Sea turtles tend to mistake floating plastic bags for jellyfish—a favorite food—an error that often proves fatal. Researchers found that ingesting just one piece of plastic came

⁴ “[Microplastics hinder the growth of microscopic marine animals.](#)” *Frontier Science News*, Aug. 17, 2021.

⁵ “Gut-wrenching video of man finding plastic in fish’s stomach in Spain goes viral.” [YouTube video](#), accessed Dec. 11, 2022.

⁶ “[Marine plastic debris emits a keystone infochemical for olfactory foraging seabirds.](#)” *Science Advances*, Nov. 9, 2016.

⁷ “[Threat of plastic pollution to seabirds is global, pervasive, and increasing.](#)” *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, August 31, 2015

with a 22% chance of death for sea turtles.⁸ A 2015 international study led by the University of Australia Queensland found that half of all sea turtles had ingested plastic.⁹ Marine mammals are also at risk. In 2019, a young cuvier beaked whale washed up on a beach in the Philippines—it had died of starvation and dehydration with 88 pounds of compacted plastic trash in its stomach.¹⁰

These pieces of plastic in the ocean both *contain* toxic materials and also act as sponges that *attract and absorb* toxic pollutants in the water, including pesticides and hormone-disrupting chemicals.¹¹

According to researchers, 70-80% of the plastic in our ocean comes from land-based sources.¹² The flow of plastic from humans to the ocean is increasing as new plastic production increases. Today, the well-respected international environmental group Oceana is releasing a new report revealing that Amazon.com generated an estimated 709 million pounds of plastic packaging waste last year. That's 18% more than they estimated just two years ago. It's also enough plastic to circle the Earth more than 800 times in the form of the plastic air pillows that you find in their shipping boxes. Oceana estimates that up to 26 million pounds of this plastic waste will end up in the ocean and waterways.¹³

Plastics Are Harming Human Health

While plastic is clearly a huge threat to our ocean and all its inhabitants, it's not just a problem for ocean creatures; it's also a threat to human health that goes far beyond people who eat a diet high in seafood. Unlike paper products that are biogenic and break down into carbon and other elements that are recycled back into the natural ecosystem, plastics are made from fossil fuel-based carbon compounds that don't *break down*. Instead, they *break up* into smaller and smaller pieces, eventually ending up as little bits known as microplastics—technically any piece of plastic that is five millimeters or less in length. These tiny plastic particles are getting into the water we drink, the air we breathe, the soil our food is grown in, the fish we eat, the salt we flavor our food with, and more.

⁸ "How much plastic does it take to kill a turtle?" CSIRO news release, Sept. 14, 2018.

⁹ "[World's turtles face plastic deluge danger.](#)" University of Queensland, Australia, news release. Sept. 14, 2015.

¹⁰ "[This young whale died with 88 pounds of plastic in its stomach.](#)" *National Geographic*, March 18, 2019.

¹¹ "[The Plastics Plague: Marine Mammals and our Oceans in Peril.](#)" International Marine Mammal Project of Earth Island Institute, 2022.

¹² "[Plastic waste in the marine environment: A review of sources, occurrence and effects.](#)" *Science of the Total Environment*, Elsevier, Oct. 2016.

¹³ "[The Cost of Amazon's Plastic Denial.](#)" (Oceana), December 15, 2022.

In fact, a 2019 study by the World Wildlife Fund estimated that adult humans are all ingesting 50 grams—roughly a credit card’s worth—of plastic each week.¹⁴ It should not come as much of a surprise that whenever scientists look for microplastics, they find them. In the past two years, scientists have found microplastics in the human placenta,¹⁵ in blood,¹⁶ in breast milk,¹⁷ in feces,¹⁸ and in lungs.¹⁹

Plastics are made from a combination of fossil fuels and chemicals. This means our bodies are being exposed to thousands of chemicals—some of which like fluorine, cadmium, benzene, per- and polyfluoroalkyl substances (PFAS), bisphenol A (BPA), bisphenol S (BPS), and phthalates—we already know are harmful to humans. Scientists are just beginning to study the impacts of these chemical “plasticizers,” and early results indicate increased rates of cancer, hormonal changes, endocrine disruption, obesogenic effects, decreases in sperm count and fertility—to name a few.

This is just the tip of the iceberg. There are literally thousands of chemicals used in plastics about which we still know very little or nothing.²⁰ Canada and some European countries (including Denmark, Sweden, and Germany) adhere to “the precautionary principle,”²¹ which means that a chemical must be proven safe before it is introduced to the market. Here in the United States, by contrast, chemicals are presumed innocent until proven guilty, at which point the government *may* take action and pull them off the market—a rare occurrence. Unfortunately, many chemicals used in plastic production continue to be used long after multiple scientific studies have identified them as harmful. Polychlorinated biphenyls (PCBs) are a perfect example of this legacy problem.

The process of introducing a new chemical to the consumer goods marketplace is completely different from the process pharmaceutical companies go through when they introduce a new blood pressure medication or measles vaccine which require a lengthy

¹⁴ [“No Plastic In Nature: Assessing Plastic Ingestion from Nature to People.”](#) An Analysis for WWF (World Wildlife Fund) by Dahlberg & The University of Newcastle, Australia, 2019.

¹⁵ [“Placenta: First evidence of microplastics in human placenta.”](#) *Environment International*, Dec. 2, 2020.

¹⁶ [“Discovery and quantification of plastic particle pollution in human blood.”](#) *Environment International*, 163 (2022) 107199.

¹⁷ [“Raman Microspectroscopy Detection and Characterisation of Microplastics in Human Breastmilk.”](#) *Polymers*, June 30, 2022.

¹⁸ [“Analysis of Microplastics in Human Feces Reveals a Correlation between Fecal Microplastics and Inflammatory Bowel Disease Status.”](#) *Environ. Sci. Technol.* 2022, 56, 1, 414-421.

¹⁹ [“Detection of microplastics in human lung tissue using \$\mu\$ FTIR spectroscopy.”](#) *Science of The Total Environment*, Volume 831, 20 July 2022, 154907.

²⁰ [“Plastic Products Leach Chemicals That Induce *In Vitro* Toxicity under Realistic Use Conditions.”](#) *Environ Sci Technol.* 2021 Sep 7;55(17):11814-11823.

²¹ [“The precautionary principle.”](#) *Arh Hig Rada Toksikol*, 2005 Jun; 56(2):161-6.

process to prove a drug’s safety. The situation we’re witnessing play out right now with PFAS is a troubling example of what happens as a result of our lax chemical regulations. This backwards system means that Congress and federal regulators need to examine the safety of plastics used in food and beverage packaging.

Plastics Are Speeding Climate Change

Plastics pose a major threat to our ability to avoid the worst projected impacts of climate change. Made from chemicals and fossil fuels (primarily ethane, produced by hydraulic fracturing of gas), plastics produce climate-warming greenhouse gasses at every stage of their lifecycle: from extraction to production to creation to usage to disposal. As we note in our 2021 report, “The New Coal: Plastics and Climate Change,” the U.S. plastics industry’s contribution to climate change is on track to exceed that of coal-fired power in this country by 2030.²² As of 2020, the U.S. plastics industry is responsible for at least 232 million tons of carbon dioxide-equivalent greenhouse gas emissions each year. This is equivalent to the emissions from 116 average-sized (or 500 megawatt) coal-fired power plants.

Petrochemical companies see falling demand for their products in their traditional markets for transportation and electricity generation. In response, they are increasing plastics production to make up the difference. In the process, they are largely canceling out any greenhouse gas reductions gained from the recent closures of 65% of the country’s coal-fired power plants.

The Plastics Industry Plans a Massive Expansion

According to the Organisation for Economic Cooperation and Development (OECD), annual production of fossil fuel-based plastics is set to top 1.2 billion tons by 2060, with plastic waste to exceed one billion tonnes.²³ The World Economic Forum (WEF) predicts that plastic production will double in the next 20 years as the petrochemical industry rushes to build new plastics production plants to profit from turning a glut of cheap U.S. hydraulic fracked shale gas into plastic. According to the International Energy Agency (IEA), petrochemicals—the category that includes plastics—now account for 14% of oil use and are expected to drive half of oil demand growth between now and 2050.²⁴

²² [“The New Coal: Plastics and Climate Change.”](#) Beyond Plastics, October 2021.

²³ [“Global Plastics Outlook: Policy Scenarios to 2060.”](#) The Organization for Economic Co-operation and Development (OECD), June 21, 2022.

²⁴ [“The Future of Petrochemicals: Towards a more sustainable chemical industry.”](#) PDE, International Energy Agency, Oct. 2018.

The growth of plastic production and related emissions is accelerating in the United States. In 2020, the plastics industry’s reported greenhouse gas emissions increased by 10 million tons over 2019 levels. Since 2019, at least 42 plastics facilities have opened, are under construction, or are in the permitting process. If they all become fully operational, these new plastics plants will release an estimated 55 million tons of greenhouse gasses a year—an amount equivalent to the emissions from 27 average-sized coal plants.²⁵

The U.S. is already one of the world’s largest producers of plastics, and we are leading the world in the expansion of even *more* new plastic production intended for export to global markets.²⁶ These new domestic petrochemical facilities are being built to increase company profits, not to meet the domestic demand for plastics, and these facilities will have harmful impacts on U.S. communities through pollution to the surrounding air, water, and soil.



“Someday, daughter, all this will be yours, and you’ll just have to deal.”

Art courtesy of Liza Donnelly: <https://lizardonnelly.com>

²⁵ [“The New Coal: Plastics and Climate Change.”](#) Beyond Plastics, October 2021.

²⁶ [“How the fossil fuel industry is pushing plastics on the world.”](#) Katie Brigham, CNBC, Jan. 29, 2022.

Plastics Are a Major Threat to Environmental Justice

It's important to note that not all Americans are bearing the negative impacts of all this plastic equally. The U.S. plastics industry reported releasing 114 million tons of greenhouse gasses nationwide in 2020, 90% of which occurred in just 18 communities where residents earn 28% less than the average U.S. household, and are 67% more likely to be people of color. In addition to releasing greenhouse gasses, these facilities also emit massive amounts of particulates and toxic chemicals into the air, threatening the health of residents in fenceline communities. When plastics arrive at the end of their (often very short) lives, the landfills and incinerators they are sent to are also overwhelmingly located in low-income communities and communities of color,²⁷ burdening residents with the adverse health impacts of air pollution, including asthma and chronic bronchitis.²⁸

At Beyond Plastics, we believe that your zip code should not determine the condition of your health. Sadly, this is not the reality for many of our sisters and brothers living in communities where there is a concentration of petrochemical facilities. Reducing the production of plastics by half will provide some relief.

UNMASKING FALSE SOLUTIONS

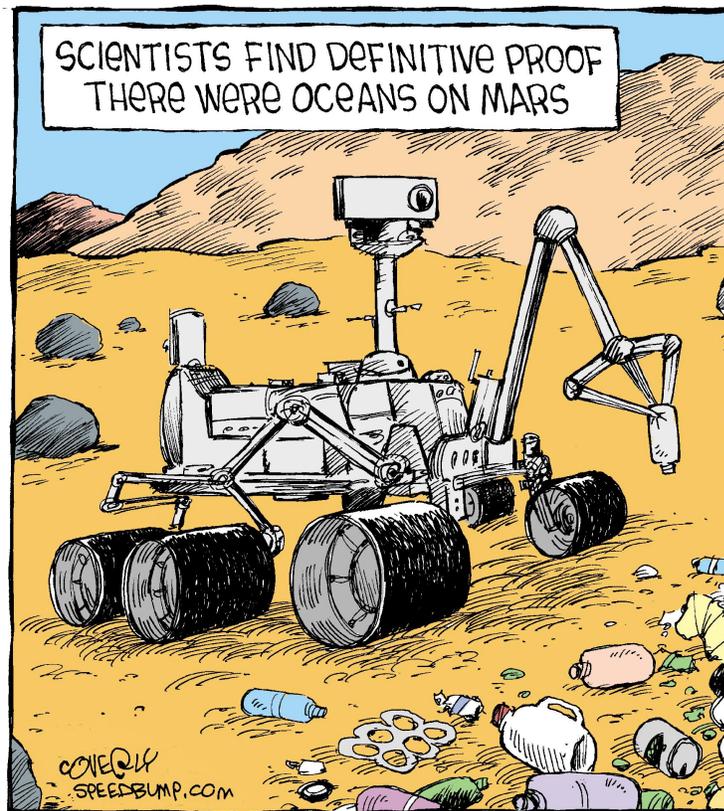
Conventional Plastics Recycling is an Abysmal Failure

For decades, the plastics industry has been promoting conventional recycling as the solution to plastic waste, and blaming individuals for its failure. The industry has focused on the need for individuals to take greater personal responsibility while intentionally hiding the fact that it's the local taxpayers who are footing the bill to deal with their waste: municipalities are bearing the burden of collecting and sorting all this plastic waste. At the same time, the plastics industry has been quietly working to block measures such as container deposit laws (or "bottle bills") that are proven to be a highly effective means of increasing collection and recycling rates.

²⁷ ["New Jersey's Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey's Frontline Communities."](#) Earth Justice and Vermont Law School Advocacy Clinic, Inc., February 2021.; ["U.S. Municipal Solid Waste Incinerators: An Industry in Decline."](#) Tishman Environment and Design Center, The New School. May 2019.

²⁸ "Written Report of George D. Thurston Regarding the Public Health Impacts of Air Emissions from the Wheelabrator Facility." [Chesapeake Bay Foundation](#), November 20, 2017; GAIA's Breathe Free Detroit [webpage](#), accessed December 10, 2022.

I want to state clearly for the record that I am a staunch supporter of recycling. In fact, I started my town’s recycling program more than thirty years ago, and it’s still going strong. Some materials—such as paper, glass, and metal—*can* be effectively recycled and safely made from recycled content. The U.S.’s high paper recycling rate (68% in 2021) proves this point.²⁹ But that’s just not the case for plastics. The plastics recycling rate is abysmal, and the end-products made with recycled plastics are sometimes laden with toxics.



Art courtesy of Dave Coverly: www.SpeedBump.com.

In 2021, the U.S. had a dismal recycling rate of about 5% for post-consumer plastic waste.³⁰ This rate is down from a still-paltry high of 9.5%³¹ in 2014, when the U.S. exported millions of tons of plastic waste to China and counted it as recycled—even

²⁹ [“US tallies higher paper recycling rate in 2021.”](#) Marissa Heffernan. *Resource Recycling*, May 24, 2022.

³⁰ [“NREL Calculates Lost Value of Landfilled Plastic in U.S.”](#) National Renewable Energy Laboratory (NREL) news release, April 28, 2022.

³¹ [“Advancing Sustainable Materials Management: 2014 Fact Sheet Assessing Trends in Material Generation, Recycling, Composting, Combustion with Energy Recovery and Landfilling in the United States.”](#) U.S. Environmental Protection Agency, November 2016.

though much of it was not actually recycled, according to a report by *The Guardian*.³² And we're learning now that even when we *do* recycle plastics, we may not want to use some of the resulting products. A "bottle-to-bottle" process has long been considered the holy grail of recycling, but new evidence suggests that food-grade packages should not be made with recycled plastics because there are too many toxic additives that leach out into the food and drink they contain.

After years of earnestly promoting plastics recycling, it's time to admit that these efforts have failed. Plastics recycling does not work and will never work. **We cannot recycle our way out of the plastic pollution problem.**

The failure of plastics recycling lies not with the concept or the process, but with the material itself. The first problem is that there are thousands of different plastics, each with its own composition and characteristics.³³ They all include different chemical additives and colorants that cannot be recycled together, making it impossible to sort the plethora of discarded plastics into separate types for processing. For example, polyethylene terephthalate (PET#1) bottles cannot be recycled with PET#1 clamshells, which are a different PET#1 material, and green PET#1 bottles cannot be recycled with clear PET#1 bottles (which is why South Korea has outlawed colored PET#1 bottles.)³⁴ High-density polyethylene (HDPE#2), polyvinyl chloride (PVC#3), low-density polyethylene (LDPE#4), polypropylene (PP#5), and polystyrene (PS#6) all must be separated for recycling.

Another problem is that the reprocessing of plastic waste—when possible at all—is wasteful and polluting. Plastic is flammable, and the risk of fires at plastic recycling facilities³⁵ affects neighboring communities—many of which are located in low-income communities or communities of color. Unlike metal and glass, plastics are not inert. As mentioned, plastic products are made from many different chemicals and many different colorants. According to a report published by the Canadian government, toxicity risks in recycled plastic prohibit "the vast majority of plastic products and packaging produced" from being recycled into food-grade packaging.³⁶

³² ["Where does your plastic go? Global investigation reveals America's dirty secret."](#) *The Guardian*, June 17, 2019.

³³ ["Types of Plastic: How Many Kinds of Plastics are There?"](#) Plastics Make it Possible®, January 18, 2012. Website accessed Dec. 11, 2022.

³⁴ ["No colour, no PVC: South Korea bans hard-to-recycle plastic materials for F&B packaging."](#) Pearly Neo, *FoodNavigator-Asia.com*, January 31, 2020.

³⁵ ["Fires at Plastic Recycling Facilities."](#) The Last Beach Cleanup, webpage accessed Dec. 11, 2022.

³⁶ ["Assessing the State of Food Grade Recycled Resin in Canada & the United States."](#) *Environment and Climate Change Canada/STINA*, 2021.

Yet another problem is that plastic recycling is simply not economical. Recycled plastic costs significantly more than virgin plastic made from petrochemicals because collecting, sorting, transporting, and reprocessing plastic waste is exorbitantly expensive. As I've already stated, the petrochemical industry is also rapidly expanding to increase production, which will further lower the cost of new plastic made from fossil fuels.

Despite this stark failure, the plastics industry has waged a decades-long public relations campaign to perpetuate the myth that the material is recyclable.³⁷ This campaign is reminiscent of the tobacco industry's efforts to convince smokers that filtered cigarettes are healthier than unfiltered cigarettes.

So-Called “Chemical Recycling” & “Advanced Recycling” are Expensive, Polluting Distractions That Will Not Solve the Problem

Conventional mechanical recycling,³⁸ in which plastic waste is ground up and melted, has been around for about three decades. Recently, even the plastics industry is showing signs of conceding that conventional plastic recycling is a failure. Now the industry has pivoted to aggressively promoting so-called “chemical recycling” or “advanced recycling”—an umbrella term for a suite of problematic technologies that attempt to turn plastics into fossil fuel or break it down into its chemical components.

In practice, **“chemical recycling” is just greenwashing for burning plastic.** It amounts to a two-step process that superheats and boils plastics down into gasses or chemicals or tars or oils. Despite recent claims, there will be some oxygen present during the process, resulting in combustion, and the plastic waste gasses are typically combusted to heat the process. Fuels produced from plastic waste will be combusted elsewhere. These facilities do not recycle plastic; they're just the next generation of trash burning with a misleadingly eco-friendly sounding name.

“Chemical recycling” is more of a marketing strategy than an actual solution to the plastics problem. Currently, there are only eight “chemical recycling” facilities operating in the United States, and two are under construction. It is estimated that the existing facilities can only process 0.26% of the plastic waste generated in the U.S. each year.³⁹

³⁷ [“Plastic Wars.”](#) *Frontline*, PBS. March 31, 2020.

³⁸ [“Infographic: How does the process of Mechanical Recycling work?”](#) Blue Vision website, accessed Dec. 11, 2022.

³⁹ [“Is chemical recycling greenwashing?”](#) Conor McGlone, Engineering and Technology, Nov. 7, 2022.

The public relations push by petrochemical companies and others wants you to believe that this is a new, breakthrough technology. It is not. “Chemical recycling” processes have been proposed by the plastics industry for more than 30 years, with no real success.⁴⁰ For example, in its 1991 Congressional testimony, Eastman Chemical Company announced its plans to “close the loop” by producing PET plastic with recycled content for food packaging, using plastic soda bottles. Eastman stated they would use their existing methanolysis unit in Rochester, New York, to convert recycled PET into its raw materials that would be blended with virgin feedstock at Carolina Eastman Company. Eastman stated that it would produce about 50 million pounds of plastic a year.⁴¹ Despite Eastman’s claims, no evidence could be found that this PET bottle facility was ever operated, and the overall facility was fully shut down in 2012.⁴²

Disturbingly, the industry-backed “chemical recycling” bills that have been introduced in legislatures around the country in the past two years attempt to exempt these facilities from important state and federal regulations that ensure some level of health and environmental safety by classifying the facilities as “manufacturing” rather than waste management or recycling facilities. Most have not involved the basic step of writing an environmental impact statement. According to a recent *Oil and Gas Watch* review of state permit documents, chemical recycling plants could release 96 different types of hazardous and toxic air pollutants during normal operations.⁴³ It’s important to note that like all the other facilities involved in plastics production and disposal, “chemical recycling” facilities are almost always built in low-income communities and/or communities of color—another threat to environmental justice.

The Natural Resources Defense Council (NRDC) analyzed U.S. “chemical recycling” facilities in its September 2022 report “Recycling Lies,” and found that these technologies generate copious amounts of hazardous waste, have large carbon footprints, are mostly constructed in environmental justice communities, create fuels which generate the same harmful air pollution as burning fossil fuels, and, significantly, require the ongoing production of new plastics from fossil fuels.⁴⁴ Greenhouse gas emissions from

⁴⁰ [“FDA Approves Kodak Plan To Recycle Plastic For Food Containers.”](#) *AP News*, August 22, 1991.

⁴¹ [“National Recycling Markets: Hearings Before the Subcommittee on Commerce, Consumer Protection, and Competitiveness of the Committee on Energy and Commerce,](#) House of Representatives, One Hundred Second Congress, First Session, on H.R. 2746, a Bill to Develop, Assist, and Stabilize Recycling Markets.” June 26 and July 18, 1991, Volume 4.

⁴² [“Kodak Closing Rochester Unit: 80 Jobs Impacted.”](#) *Associated Press*, May 15, 2012.

⁴³ [“No plastics panacea: chemical recycling causes pollution, promotes waste.”](#) *Oil and Gas Watch*, Dec. 7, 2022.

⁴⁴ [“Recycling Lies: ‘Chemical Recycling’ of Plastic Is Just Greenwashing Incineration.”](#) Veena Singla, NRDC. Sept. 7, 2022.

“chemical recycling” facilities can be as bad as those from conventional garbage incinerators, which are, in turn, worse for the climate than coal-fired power plants.⁴⁵ In 2018, Dow Chemical claimed that the Renewlogy chemical-recycling plant in Salt Lake City was able to reprocess mixed plastic waste from Boise, Idaho, households through the “Hefty EnergyBag” program and turn it into diesel fuel.⁴⁶ However, as Reuters exposed in a 2021 investigation, all the different types of plastic waste contaminated the pyrolysis process.⁴⁷ Today, Boise burns its mixed plastic waste in cement kilns, resulting in climate-warming carbon emissions. This well-documented Renewlogy failure has not stopped the plastics industry from continuing to claim that “chemical recycling” works for “mixed plastics.”⁴⁸

These projects have a history of frequent (and very expensive) failure, and they rarely survive without substantial taxpayer subsidies. Investing time, energy, and taxpayer dollars in more of these “chemical recycling” projects serves one true purpose: it allows the plastics industry to create the public relations cover they need to continue expanding plastics production—at the risk of public health and our climate.

The General Services Administration should be directed to exclude chemically recycled plastic in any definition of recycling. Even though chemical recycling is being pushed hard by the chemical industry, it is entirely the wrong tack for the federal government to take.

“Chemical recycling” is not viable. It has failed and will continue to fail for the same real-world reasons that the conventional mechanical recycling of plastics has consistently failed. Worse yet, its emissions of toxics and greenhouse gases could cause new harm to our environment, our climate, and the health of our most vulnerable people.⁴⁹

⁴⁵ [“Trash Incineration More Polluting than Coal.”](#) Energy Justice Network, website accessed Dec. 11, 2022.

⁴⁶ [“How Dow Chemical and Boise are taking aim at plastics.”](#) Cassandra Sweet, *Greenbiz*, April 23, 2018.

⁴⁷ [“The Recycling Myth: Big Oil’s Solution for Plastic Waste Littered with Failure.”](#) *Reuters*, July 29, 2021.

⁴⁸ [“ACC’s Baca to Announce Stepped-Up Awareness Efforts on Advanced Recycling at World Petrochemical Conference.”](#) American Chemistry Council news release, March 22, 2022.

⁴⁹ [“New NRDC ‘Chemical Recycling’ Analysis: Process is Harmful, Misleading, Not Solving Plastic Pollution.”](#) NRDC news release, March 7, 2022.

THE SOLUTIONS TO THE PLASTIC POLLUTION CRISIS

Fortunately, proven solutions to these plastic waste and pollution problems already exist in many places—and with federal leadership, can be replicated across the country. There is no shortage of practical, sensible solutions to reduce the use of plastics. What’s missing is the strong political leadership to address this problem and embrace the many effective solutions available to us right now.

The smartest and most economical move is to focus on reduction. Over-packaging is a needless waste of resources and money. This is particularly true for e-commerce—think of your own experience of buying a product online and having it arrive in too much packaging. Most companies will not stop over-packaging their products unless there is a law requiring them to do so.

In addition to waste reduction, there are commonsense changes focusing on transitioning away from single use plastics by investing in reuse and refill infrastructure. Some examples include ensuring widespread access to water fountains and water refilling stations in public buildings, airports, and train and bus stations; installing dishwashing equipment in schools to allow students to eat their food off real dishes with real cutlery rather than single-use plastics; and providing funding to enable Meals on Wheels and other meal delivery programs to switch from serving meals in single-use plastic dishes and trays to reusable dishware. Federal funding will help advance all of these solutions.

The National Park Service has said it will ban the sale of single-use plastic water bottles in national parks and install water fountains, but that it will not implement this policy for ten years. *What are they waiting for?* Congress should require the National Parks Service to move faster and to end the sale of all beverages in plastic containers. This commonsense policy should be implemented at all federal facilities as well.

The public is often confused by plastics recycling and ends up putting non-recyclable plastic items in recycling bins because the items feature the iconic chasing arrows recycling symbol, or because waste haulers unwisely urge their customers to throw all their plastics in their recycling bins, knowing that most of it never gets recycled.

This issue of widespread deceptive advertising can be addressed by the Federal Trade Commission by updating the FTC “Guides for the Use of Environmental Marketing Claims” (also known as Green Guides) and initiating a rulemaking to turn them into enforceable laws. The Green Guides are essential to ensure that false marketing is addressed and, notably, have not been updated since 2012. However, they are only guides. It is also essential for the FTC to take steps to enforce its own policies; it is a

mistake to keep leaving this vitally important role up to state governments to tackle. Consumer protection agencies in other countries, including Canada and the United Kingdom, are actively working to protect consumers from false recyclable labels on plastic products, but the U.S. is lagging.

On the legislative front, there are many effective solutions that Congress can and must support, starting with the priorities outlined below.

1. Introduce and Support a Strong Packaging Reduction and Recycling Bill

Extended producer responsibility (EPR) is a policy tool that makes producers legally and financially responsible for mitigating the end-of-life impacts of their products and packaging. EPR is a strategy used around the world, and is gaining in popularity in the United States, with four states adopting state laws in the last two years, albeit with some with significant problems. These programs can be a vital part of the solution to our growing packaging waste and plastic pollution crisis—but only if designed correctly.

In theory, shifting costs from taxpayers to the companies creating the waste encourages companies to use less packaging and choose items that are more recyclable. However, we have learned from other EPR systems that the program will only achieve these outcomes if the legislation includes specific reduction requirements, standards for recyclability, and mandates the elimination or reduction of toxic substances. In order to be effective, we recommend that any federal packaging reduction legislation include the following ten pillars, which Beyond Plastics and our partner organization Just Zero have developed as a checklist⁵⁰ for policymakers and activists considering new EPR laws at the state level:

- 1. Establish Environmental Standards for Packaging.** Similar to fuel efficiency standards for cars and appliances, we need environmental standards for packaging: 50% reduction in packaging over ten years—achieved either through elimination or by switching to reuse/refill systems—and the rest must achieve a 70% recycling rate. Waste reduction comes before recycling in every waste hierarchy and will only be achieved if it is required. Plastics recycling is a failure, and we cannot rely on recycling to solve the plastics problem.
- 2. Reduce Toxics in Packaging.** Packaging that contains toxic chemicals is harmful to human health and the environment and can make it unsafe to use recycled materials in future products. Known toxic chemicals and substances, such as PFAS, formaldehyde, styrene, mercury, and lead should be removed from packaging.

⁵⁰ [“Ten Requirements for Effective Packaging Reduction Policies.”](#) Beyond Plastics and Just Zero, 2022.

3. **No Plastic Burning a.k.a. “Chemical Recycling” or “Advanced Recycling.”** Chemical and advanced recycling is mostly waste-to-fuel, and these facilities are almost always placed in low-income communities and communities of color. The last thing we need is to create more fossil fuels or to waste taxpayer dollars and valuable time on false solutions. These technologies should not be considered recycling—the definitions in any policy must make that clear.
4. **Include a Modernized Beverage Deposit Law, a.k.a Bottle Bill.** As covered in more detail below, bottle bills work. Deposit return laws are the best example of EPR, and the most effective way to handle beverage containers. Most beverage containers should be managed by a modernized deposit law that sets the minimum deposit at ten cents, requires a certain percentage of refillable containers, has minimum reuse and recycling targets, and makes it easy for people to return their containers at stores that sell beverages. Redemption centers or depots should supplement but not substitute for mandatory return to retail.
5. **Provide Financial Relief to Taxpayers and Consumers.** Packaging companies should pay fees that are used to reimburse municipalities and consumers for the cost of recycling packaging material, provide new funding for projects that reduce packaging waste and improve recycling, and fund state agencies for managing the program and enforcing the law. Companies should pay no fees for packaging used in reuse and refill systems.
6. **Include Both Residential and Commercial Waste.** Commercial waste makes up between 40% and 60% of the waste stream. The policy should apply to packaging generated in all sectors.
7. **Do NOT Put the Packaging Industry in Charge.** We would not expect the tobacco industry to implement effective anti-smoking efforts, and we should not allow consumer brands to self-regulate through Producer Responsibility Organizations (PROs). There need to be binding performance targets set in statute and strong accountability and oversight by agencies, including the ability to completely disband poor-performing PROs.
8. **Ensure Strong Oversight and Accountability.** A law is only as strong as its enforcement. Create a new Office of the Inspector General specifically to enforce the program and make sure agencies receive the funding necessary to implement and enforce the law.

9. **Avoid Glaring Loopholes.** Make sure the bill language does not allow packaging producers to wiggle out of compliance. For instance, Section 42060(3) (A) of the California EPR law exempts “single-use material that presents unique challenges in complying.” This provision alone could make California’s new EPR law ineffective.

10. **Seek Transparency and Inclusion in the Process.** Do not negotiate this complex and important policy behind closed doors. Hold public hearings and roundtables. Invite ordinary citizens into the process. Hear all sides and then decide what is best for the people and the environment.

2. Introduce and Support a National “Bottle Bill” Which Includes a Requirement for Refillable Containers

It is past time for Congress to pass a national bottle bill with mandatory refill targets. Today *I am calling on the beverage companies and plastics industry to stop blocking the adoption of these effective laws* in the 40 states that do not yet have them, as well as at the federal level.

Single-use plastic bottles are a big part of our current plastic pollution crisis. More than one million plastic bottles are purchased around the world every minute,⁵¹ and more than half a trillion plastic bottles will be sold this year—about 120 billion of them in the United States. According to industry data, only 26.6% of the plastic bottles were collected for recycling in the U.S. in 2021. The percentage collected for recycling has decreased each year since 2013 while production has expanded.⁵² Bottles that are not recycled end up clogging our neighborhoods, parks, rivers, the ocean, and landfills, and damaging air quality when they're burned in incinerators.

There are ten U.S. states with bottle bills. These deposit laws have proven effective at:

- Reducing the amount of waste sent to landfills and incinerators
- Dramatically reducing litter
- Increasing beverage container recycling rates significantly

⁵¹ [“Reusable Water Bottle Market Size, Share & Trends Analysis Report By Material Type \(Glass, Plastic, Stainless Steel\), By Distribution Channel \(Supermarkets & Hypermarkets, Online\), By Region, And Segment Forecasts, 2022 – 2030.”](#) Grand View Research.

⁵² [“PET recycling report\(s\),”](#) 2013-2021. National Association for PET Container Resources (NAPCOR) website, accessed Dec. 11, 2022.

- Conserving natural resources such as timber, water, and minerals
- Saving energy, reducing air and water pollution, and reducing greenhouse gas emissions, and
- Helping to create new jobs in the recycling and manufacturing industries

We need a national bottle bill because our current collection systems haven't kept up with the skyrocketing volume of containers sold. Curbside recycling systems have never succeeded in recovering even half of plastic containers sold. Recycling experts estimate that up to 15% of PET bottles collected curbside are lost in sortation.⁵³ Residential curbside recycling programs also can't recycle what they can't collect: the billions of single-use bottles and cans consumed away from home. But a dime deposit creates a powerful financial incentive for people to bring these containers back to collect the refund. In Oregon and Michigan—the two U.S. states with dime deposits—80 to 90% of deposit containers are returned for recycling.

- Deposits are **fairer** than the current system where the local taxpayer shoulders the burden of running recycling programs or trash disposal. Deposit systems put the financial and operational responsibility for recycling collection and processing where it belongs: with the *producer* of the discarded goods.
- Deposits also produce material of **higher quality** than material recovered through curbside recycling programs. Mixing everything together in one blue bin, and then one compactor truck, leads to breakage, contamination, and high rates of residuals that are ultimately landfilled. Because deposit materials are kept separate from the outset, they are clean and more marketable than curbside material. They command higher prices, and they can be used to manufacture higher quality products.
- Deposits are **more effective** than any other type of recycling program. In 2019, more than three quarters (77%) of aluminum cans with a deposit were recycled, versus only one third (36%) of cans without a deposit. Two thirds of deposit glass bottles (66%) were recycled, compared to only one fifth (22%) of non-deposit glass bottles. The difference is most stark for PET plastic bottles: 57% of deposit PET was recycled, versus only 17% of non-deposit PET: a forty percentage point spread.⁵⁴

⁵³ ["In My Opinion: PET recycling lessons can transform industry."](#) Adam Gendell, *Plastics Recycling Update*, June 29, 2022.

⁵⁴ ["U.S. Nominal Recycling Rates by Deposit Status, 2019."](#) Container Recycling Institute website, accessed Dec. 11, 2022.

- Finally, it is very important to make redemption systems **easy for consumers**. That is why all stores that sell deposit containers should be required to also accept them for return. “Return to retail” enables busy people to easily drop off their empty containers when they are doing their regular shopping. Redemption centers or depots are a *supplement* to return to retail, but they should not be seen as a *replacement* for return to retail. Technological innovations, such as reverse vending machines, have made it very easy for consumers to make these returns and get their deposits back. Requiring return to retail is important, particularly for people without cars or without time to make extra stops.

I want to recognize the hard work being done by low-income people in bottle bill states who collect empty containers in order to redeem the deposit money. Known as “canners” (though I prefer to call them “redeemers),” these people help keep our communities clean and boost recycling rates. We should make it much easier for them to return empty containers. It would of course be better for them to have a living wage job with health insurance, but they are out collecting empty containers every day in every bottle bill state, and their hard work is valuable.

If the U.S. were to adopt a national container deposit system, we’d be in very good company. More than 300 million people currently live in 52 countries, states, provinces, and territories with deposit systems. Another 20 jurisdictions that are home to more than 230 million people are in the process of implementing or planning deposit systems.⁵⁵ They must be onto something.

Congress should bring container deposits’ winning strategy to the national level to boost recycling rates for the whole country, not just for the 10 states where container deposit laws are in place now. A national bottle bill is also the perfect policy through which to require refillable beverage containers to help reduce our reliance on single-use containers. Congress should pass a national bottle bill that includes a mandatory 25% refillable container requirement for each brand by 2030. Coca-Cola has voluntarily pledged to transition to 25% refillable bottles by 2030 and Pepsico has pledged to achieve 20% refillables in the same timeframe. Either this transition is doable and should be required, or the promises of these companies are merely a public relations ploy. It’s time to make refillable requirements mandatory and hold the entire industry to the same standard with 25% refillables by 2030.

⁵⁵ “[Global Deposit Book 2022](#): An Overview of Deposit Return Systems for Single Use Beverage Containers.” Reloop Platform, 2022.

3. Support *The Break Free From Plastic Pollution Act*

The Break Free From Plastic Pollution Act ([H.R. 2238](#), [S.984](#)) is a comprehensive approach to reducing plastic pollution and reforming our broken waste and recycling system, and Congress should pass it. Major provisions include:

- Require producers of packaging, containers, and food-service products to design, manage, and finance waste and recycling programs.
- Launch a nationwide beverage container refund program to bolster recycling rates, and to encourage the use of refillables.
- Ban certain single-use plastic products that are not recyclable.
- Ban single-use plastic carryout bags and place a fee on the distribution of the remaining carryout bags, which has proven successful at the state level.
- Channel massive investments in U.S. domestic recycling and composting infrastructure.
- Prohibit plastic waste from being shipped to developing countries.
- Protect state and local governments that enact more stringent standards.
- Require EPA to partner with the National Academies of Science to conduct a comprehensive study on the environment and cumulative public health impacts of incinerators and plastic “chemical recycling” facilities.
- Establish a pause on permitting new and expanded plastic production facilities while the EPA creates and, as necessary, updates regulations on plastic production facilities to protect frontline and fenceline communities from direct and cumulative impacts on public health.

4. Support the *Protecting Communities from Plastics Act*

Introduced earlier this month by Senator Cory Booker (D-NJ) and Representative Jared Huffman (D-CA), together with U.S. Senator Jeff Merkley (D-OR) and Representative Alan Lowenthal (D-CA), this legislation⁵⁶ addresses the plastic production crisis that is fueling climate change and perpetuating environmental injustice. This bill includes elements of the larger *Break Free From Plastic Pollution Act* detailed above and has a much-needed strong focus on environmental justice as well as including provisions mandating non-toxic reuse and packaging reduction. It also should be passed.

⁵⁶ [“Protecting Communities from Plastics Act would target plastic production.”](#) *Recycling Today*, Dec. 2, 2022.

THE TIME TO ACT IS NOW

The data is clear. The crisis is real. Your constituents in every district and every state are paying attention to this issue, and they are looking for leadership. In February 2022, Oceana released a nationwide poll conducted by Ipsos which found that 81% of American voters support local, state, and national policies that reduce single-use plastic.⁵⁷ This support is bipartisan.

The world is watching, too. A global poll conducted by Ipsos earlier this year found that about 75% of people worldwide want single-use plastics banned.⁵⁸ **We need Congress to make this a priority and find the political will to act.** Every day that Congress does not act, the intertwined plastic pollution, climate change, and environmental injustice problems grow deeper, becoming more difficult and more costly to fix. These urgent problems are only getting worse.

In the five minutes I've spent testifying today, the equivalent of five garbage trucks full of plastic waste have entered the ocean around the world. Much of that plastic was originally made in the United States. We're already flooding the world with plastic, and the plastics industry wants to crank up production and open the taps even wider. We call on you to take action to keep us all from drowning in this flood.

The clock is ticking.

⁵⁷ ["8 in 10 American Voters Support a National Policy Reducing Single-Use Plastic."](#) Oceana website accessed Dec. 11, 2022.

⁵⁸ ["Three quarters of people in global survey want single-use plastics banned."](#) Ipsos, Feb. 22, 2022.