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ONE HUNDRED NINETEENTH CONGRESS

Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
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MEMORANDUM JULY 14, 2025

TO: Members of the Subcommittee on Environment
FROM: Environment Subcommittee Majority Staff
RE: Hearing entitled "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth"

I. INTRODUCTION

The Subcommittee on Environment will hold a hearing on Wednesday, July 16, 2025, at 10:15 a.m. (ET) in 2322 Rayburn House Office Building. The hearing is entitled, "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth."

II. WITNESSES

- **Ross Eisenberg,** President, America's Plastic Makers, American Chemistry Council;
- **Matt Bedingfield,** President, Mint Innovation;
- **Dan Felton,** President and CEO, Flexible Packaging Association; and,
- **Keefe Harrison,** Founder and CEO, The Recycling Partnership.

III. BACKGROUND

According to the U.S. Environmental Protection Agency (EPA), about 300 million tons of municipal solid waste are generated annually in the United States. About 23 percent is recycled, 12 percent combusted for energy, and 50 percent disposed of in landfills.[1] These figures do not include the volume of other nonhazardous waste that may be landfilled at the local level, including construction debris, non-hazardous industrial wastes, or hazardous wastes. Paper and paperboard accounts for two thirds of recycled material, metals about 12.5 percent, and plastics about 5 percent.[2]

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[1] U.S. ENVTL. PROT. AGENCY, *Advancing Sustainable Materials Management: 2018 Fact Sheet* (December 2020)(accesses July 13, 2025), https://www.epa.gov/sites/default/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf.
[2] *Id*.

This hearing will examine several emerging policy issues, technological developments, and economic opportunities impacting recycling in the United States and globally.

A. Emerging Issues

1. International Plastics Treaty

In 2022, the UN Environmental Assembly of the United Nations Environment Programme adopted Resolution 5/14, "End plastic pollution: towards an international legally binding instrument."[3] An Intergovernmental Negotiating Committee (INC) was established to develop an internationally binding document that would address plastic pollution, including in the marine environment.[4] Five INC meetings took place between 2022 and 2024. In 2024, the Biden-Harris Administration declared the United States one of the "high ambition" countries calling for a global plastic treaty to cap and phase down the production of plastic.[5]

On October 15, 2024, twenty-six House Republicans signed a letter to the Department of State opposing the Biden-Harris Administration's support of a cap on plastics production.[6]

At the end of the fifth and (at the time) final planned INC meeting in Busan, Republic of Korea, delegates agreed to reconvene in 2025 to build on an existing draft agreement text.[7] As of December 2024, the draft text included components such as a financial mechanism, information sharing, and national action plans.[8] Additional negotiations are planned for August 5-14, 2025, in Geneva, Switzerland.[9] Some countries are expected to push for restrictions on certain plastics and chemicals used in plastics.

Any decisions made by the INC-5.2 will have significant implications for the United States as the country is one of the largest plastic producers.[10] The Trump administration has pushed back against Biden-era climate agreements. On January 2025, President Trump signed

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[3] CONG. RESEARCH SERV., INTERNATIONAL AGREEMENT ON PLASTIC POLLUTION: NEGOTIATIONS (Jan 22, 2025).
[4] *Id*.
[5] Valerie Volcovici, *Exclusive: In shift, US backs global target to reduce plastic production, source says*, REUTERS, (Aug. 14, 2024, accessed July 9, 2025), https://www.reuters.com/sustainability/shift-us-backs-global-target-reduce-plastic-production-source-says-2024-08-14/#:~:text=WASHINGTON%2C%20Aug%2014%20(Reuters),negotiators%20told%20Reuters%20on%20Wednesday.
[6] Letter from Rep. Dan Crenshaw and 25 other Members of Congress to Secretary of State Antony Blinken, (October 15, 2024, accessed July 11, 2025), 60626E98CFDF78322602C1B7127B160C.rep.-crenshaw-letter-on-u.n.-global-plastics-treaty.pdf.
[7] UNITED NATIONS ENVIRONMENT PROGRAMME, *Second Part of the Fifth Session (INC-5.2)* (accessed July 13, 2025), *https://www.unep.org/inc-plastic-pollution/session-5.2*.
[8] *Id.*; UNITED NATIONS ENVIRONMENT PROGRAMME, *Intergovernmental Negotiating Committee to Develop an International Legally Binding Instrument on Plastic Pollution, Including in the Marine Environment* (2024), *available at* https://wedocs.unep.org/bitstream/handle/20.500.11822/46710/Chairs_Text.pdf.
[9] *See* Valerie Volcovivi, UN SETS DATE FOR EXTRA SESSION TO FINALIZE PLASTICS TREATY, REUTERS, Mar. 3, 2025, https://www.reuters.com/sustainability/climate-energy/un-sets-date-extra-session-finalize-plastics-treaty-2025-03-03/.
[10] Kristen Edgreen Kaufman, *Why U.S. Business Has A Vested Interest In A Plastic Pollution Treaty,* FORBES (Jul. 8, 2025), https://www.forbes.com/sites/kristenkaufman/2025/07/08/why-us-business-has-a-vested-interest-in-a-plastic-pollution-treaty/.

the "Putting America First in International Environmental Agreements" Executive Order (EO).[11] This EO declared the United States will only join international environment agreements if they align with the values and pursuits of the country and must not have the potential to damage the American economy or unjustly burden the United States.

2. E-Waste

Electronic waste includes cell phones, computers, televisions, cameras, appliances, and printers. Rapid electrification and technological booms since the 1990s have increased the amount of technology used in everyday life, and frequent upgrades and newer versions of devices have contributed to shortened lifespans of consumer and industrial technology. In 2005, the U.S. EPA estimated there were 1.9 to 2.2 million tons of outdated or end of life electronics, now considered e-waste.[12] In 2022, it was estimated that 62 million tons of e-waste had been produced, which was an 82 percent increase from 2010 and expected to increase by another 32 percent in 2030.[13]

E-waste recycling is a labor-intensive process that has become increasingly difficult due to the complex mix of different metals, glass, and plastics found within each device. The pace of technological advancement not only shortens the lifespan of technology but makes it difficult for innovative recycling methods to keep up. E-waste recycling has the potential to repurpose existing minerals and materials while also providing massive economic incentives. In 2019, the discarded e-waste for the globe was valued at over $57 billion due to high levels of gold, silver, and copper found within devices.[14] It is estimated that in the United States alone, nearly $10 billion in e-waste is thrown away each year, with most of the value losses coming from metals such as copper, gold, and palladium.[15]

With the increasing growth of artificial intelligence technology, colocation data center capacity has doubled in four years.[16] Graphic processing units (GPU) and servers are essential for data center operations and expected to account for millions of tons of e-waste due to their lifespan of 1-3 years and high replacement rate. A recent study concluded that infrastructure needed to support AI has the potential to add 1.2 to 5 million tons of e-waste annually.[17]

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[11] Exec. Order No. 14162, 90 FR 8455, https://www.whitehouse.gov/presidential-actions/2025/01/putting-america-first-in-international-environmental-agreements/.
[12] U.S. ENVTL. PROT. AGENCY, *Fact Sheet: Management of Electronic Waste in the United States* (Last revised 2008), http://bit.ly/461AHGx.
[13] *The Global E-waste Monitor 2024 – Electronic Waste Rising Five Times Faster than Documented E-waste Recycling: UN*, UNITAR SUSTAINABLE CYCLES (SCYCLE) PROGRAMME (last updated Dec. 2024), https://ewastemonitor.info/the-global-e-waste-monitor-2024/.
[14] Vanessa Forti, *Global electronic waste up 21% in five years, and recycling isn't keeping up*, THE CONVERSATION (Jul. 20, 2020, at 10:38 AM ET), https://theconversation.com/global-electronic-waste-up-21-in-five-years-and-recycling-isnt-keeping-up-141997.
[15] Janice Lee et al., *Don't Throw Away the Opportunity in E-Waste,* BCG (Jun. 26, 2023), https://www.bcg.com/publications/2023/seizing-opportunity-ewaste-recycling.
[16] Peng Wang et al, *E-Waste challenges of generative artificial intelligence,* NATURE COMP SCI. (Oct. 28, 2024), https://www.nature.com/articles/s43588-024-00712-6.
[17] *Id*.

Twenty-five states and the District of Columbia have passed legislation related to consumer electronics recycling, including through extended producer responsibility programs.

3. Microplastics

Microplastics are miniscule pieces of plastic, often described as less than five millimeters long. Microplastics are separated into primary and secondary categories. Primary microplastics are created for a particular purpose, such as cosmetic microbeads.[18] Secondary microplastics come from the breakdown of larger plastic materials, such as packaging, paint, textiles, and tires.[19] Although a number of recent scientific studies and media reports have raised questions about the human health impacts of microplastics, the Food and Drug Administration states, "Current scientific evidence does not demonstrate that levels of microplastics or nanoplastics detected in foods pose a risk to human health."[20] The EPA is also engaged in research on methods to evaluate impacts of microplastics on human health and the environment,[21] and in 2024, the U.S. Geological Survey issued a strategic science plan to study microplastics in the environment.[22] In November 2024, EPA received a petition to regulate microplastics as a contaminant under the Safe Drinking Water Act.[23]

B. Recycling Methods

1. Mechanical Recycling

Recycling is the process of collecting and processing materials that would otherwise be discarded as trash and utilizing them to form new products.[24] Mechanical recycling, considered the traditional recycling method,[25] involves physical processes such as grinding or shredding.[26] In the context of plastics, however, mechanical recycling has some limitations. For example,

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[18] U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, https://marinedebris.noaa.gov/what-marine-debris/microplastics.
[19] UN ENVIRONMENT PROGRAMME, *Everything you should know about microplastics* (Jun. 2, 2025), https://www.unep.org/news-and-stories/story/everything-you-should-know-about-microplastics.
[20] U.S. FOOD AND DRUG ADMIN., *Microplastics and Nanoplastics in Foods* (July 13, 2025), https://www.fda.gov/food/environmental-contaminants-food/microplastics-and-nanoplastics-foods?_hsenc=p2ANqtz--WcfkPtnHOUOQsEKplmxUsv19PdorC5-fLnd0K_8T-bPQ8CUvNEp3qOp_zC92__yBR82HP.
[21] U.S. ENVTL. PROT. AGENCY, *Microplastics Research*, https://www.epa.gov/water-research/microplastics-research.
[22] U.S. GEOLOGICAL SURVEY, *Integrated science for the study of microplastics in the environment – A strategic science vision for U.S. Geological Survey*
[23] PETITION TO U.S. ENVTL. PROT. AGENCY, *submitted by Food and Water Watch, et al.* (Nov. 25, 2024), https://www.foodandwaterwatch.org/wp-content/uploads/2024/11/Microplastics-Petition-to-EPA.pdf.
[24] U.S. ENVTL. PROT. AGENCY, *Recycling Basics and Benefits*, https://www.epa.gov/recycle/recycling-basics-and-benefits (last updated May 14, 2025).
[25] *See* LAURA GATZ, CONG. RESEARCH SERV., R48293, PLASTIC POLLUTION AND POLICY CONSIDERATIONS: FREQUENTLY ASKED QUESTIONS 12 (2025).
[26] *See id.*; BASF, *Mechanical Recycling Moves the Circular Economy*, https://www.basf.com/global/en/who-we-are/sustainability/our-contributions-to-enabling-the-green-transformation/circular-economy/circular-feedstocks/mechanical-recycling (last visited July 9, 2025).

mechanical recycling is best suited for homogeneous streams of used plastic and typically produces lower quality plastics than "virgin" plastics.[27]

2. Chemical Recycling

Chemical recycling, also referred to as advanced recycling, has emerged as an alternative or supplement to mechanical recycling.[28] Chemical recycling technologies use heat, chemical reactions, or both to convert plastic into raw materials that can be used to produce virgin-quality plastics.[29] Some advanced plastic recycling methods can accommodate expanded plastic waste streams, including mixed plastic waste, films and flexibles, and other material that are difficult to recycle with conventional methods.[30] Industries seeking to use chemical recycling may face adoption challenges, such as high startup costs, underdeveloped domestic markets for recycled products, and limited incentives for investment.[31] They have also cited potential regulatory barriers, such as how advanced recycling is regulated under the Clean Air Act.[32]

C. Legal Framework

1. Resource Conservation and Recovery Act

In enacting the Resource Conservation and Recovery Act (RCRA) in 1978, Congress recognized that "millions of tons of recoverable material which could be used are needlessly buried each year" and "the recovery and conservation of such materials can reduce the dependence of the United States on foreign resources."[33] Under Subtitle C, RCRA establishes a system for managing hazardous waste throughout its entire lifecycle.[34] Subtitle D authorizes states to develop comprehensive management plans for non-hazardous municipal solid waste landfills and other solid waste disposal facilities.[35] RCRA outlines basic requirements for waste

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[27] U.S. GOV'T AND ACCOUNTABILITY OFFICE, GAO-21-105317, SCIENCE AND TECH: SPOTLIGHT: ADVANCED PLASTIC RECYCLING 1 (2021); Martinya Solis & Semida Silviera, *Technologies for Chemical Recycling of Household Plastics – A Technical Review and TRL Assessment*, 105 WASTE MGMT. 128, 129 (2020), *available at* https://www.sciencedirect.com/science/article/pii/S0956053X20300465.
[28] U.S. GOV'T AND ACCOUNTABILITY OFFICE, *supra* note 27.
[29] *Id.*
[30] *See* EUNOMIA RESEARCH AND CONSULTING, *How to Scale the Recycling of Flexible Film Packaging: Modeling Pyrolysis' Role in Collection, Quantity and Costs of a Comprehensive Solution* (2024), *available at* https://plasticsrecycling.org/wp-content/uploads/2024/08/Pyrolysis-Role-in-_FFP-Recycling-Report.pdf; OAK RIDGE NAT'L LAB., *ORNL Scientists Close the Cycle on Recycling Mixed Plastics*, Oct. 19, 2023, https://www.ornl.gov/news/ornl-scientists-close-cycle-recycling-mixed-plastics (describing solutions to address challenges of recycling mixed plastics); AM. CHEMISTRY COUNCIL, *Advanced Recycling*, https://www.americanchemistry.com/better-policy-regulation/plastics/advanced-recycling (last visited July 9, 2025);
[31] U.S. GOV'T AND ACCOUNTABILITY OFFICE, *supra* note 27.
[32] Ross Eisenberg*, EPA: Pick Up Where You Left Off in 2020 on Advanced Recycling*, AM. CHEM. COUNCIL, Feb. 27, 2025, https://plasticmakers.org/epa-pick-up-where-you-left-off-in-2020-on-advanced-recycling/.
[33] 42 U.S.C. 6901(c).
[34] Resource Conservation and Recovery Act, subtit. C. *See ALSO* ENVTL. PROT AGENCY, RCRA'S CRITICAL MISSION AND THE PATH FORWARD 5 (2015), https://www.epa.gov/sites/default/files/2015-09/documents/rcras_critical_mission_and_the_path_forward.pdf.
[35] Resource Conservation and Recovery Act, subtit. C. See also Envtl. Prot. Agency, *supra* note 34, at 5.

disposal but states and localities have primary responsibility over waste and recycling programs.[36]

2. Environmental Protection Agency Role

While states and localities retain primary responsibility for managing materials and waste, EPA provides guidelines and technical support.[37] It also collects data on waste disposal and residential recycling.[38] Additionally, the Infrastructure Investment and Jobs Act: appropriated to EPA $275 million to implement the Solid Waste Infrastructure for Recycling Grant Program, authorized under the Save our Seas 2.0 Act;[39] authorized and appropriated $75 million for the Recycling Education and Outreach Grant Program;[40] authorized and appropriated $10 million for EPA to develop best practices for battery recycling; and authorized and appropriated $15 million for EPA to develop a voluntary labeling program for batteries and related outreach materials.[41] As of January 6, 2025, most of this funding had been obligated.[42]

3. State and Local Roles

Local governments typically manage their own recycling programs to address household waste.[43] They often arrange for recyclable materials to be collected and transported to material recovery facilities (MRF), where they are sorted and cleaned.[44] Commercial entities and institutions may use private recycling companies separate from local government programs but must comply with applicable state and local laws and regulations.[45] States, localities, and recycling facilities often determine which types of materials they will accept for recycling, and this varies by jurisdiction.[46] State laws on issues such as post-consumer recycled content in packaging[47] and packaging producer responsibilities[48] vary, as well. Artificial intelligence and other technologies are being deployed to assist with the sortation and processing of materials for recycling.

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[36] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-21-87, RECYCLING; BUILDING ON EXISTING EFFORTS COULD HELP ADDRESS CROSS-CUTTING CHALLENGES 3 (2020).
[37] U.S. ENVTL. PROT. AGENCY, RECYCLING: PROTECTING THE ENVIRONMENT AND GROWING THE ECONOMY 4 (2018).
[38] *See id.* at 22.
[39] Pub. L. No. 117-58, div. J, tit. VI.
[40] Div. G, 70402; div. J, tit. VI.
[41] Div. G., § 70401; div. J, tit. VI. https://www.epa.gov/system/files/documents/2025-01/2024-iia-report_jan2025_508.pdf.
[42] ENVTL. PROT. AGENCY, INVESTING IN AMERICA REPORT: PROGRESS UNDER THE BIPARTISAN INFRASTRUCTURE LAW & THE INFLATION REDUCTION ACT 42 (2025).
[43] U.S. GOV'T AND ACCOUNTABILITY OFFICE, *supra* note 36, at 6.
[44] *Id.*
[45] *Id.*
[46] *Id.*
[47] *See, e.g.*, ASSOC. OF PLASTIC RECYCLERS, *Recycled Plastic Content Requirements*, https://plasticsrecycling.org/tools-and-resources/policy-hub/policy-priorities/recycled-plastic-content-requirements/ (last visited July 9, 2025).
[48] *See*, *e.g.*, EXAMINING EXTENDED PRODUCER RESPONSIBILITY POLICIES FOR CONSUMER PACKAGING: HEARING BEFORE THE S. COMM. ON ENVT. AND PUB. WORKS, 118th Cong. (2024) (written statement of Dan Felton, Exec. Dir., AMERIPEN).

D. Congressional Activity

1. House Activity

Two bills related to recycling have been introduced in the 119th Congress. Representative Mariannette Miller-Meeks (R-IA) introduced the Recycling Infrastructure and Accessibility Act (RIAA) (H.R. 2145) on March 14, 2025.[49] This legislation would require EPA to establish a grant program to improve recycling access in underserved communities.[50] On June 24, 2025, Representative Joe Neguse (D-CO) introduced the Recycling and Composting Accountability Act (RCAA) (H.R. 4109).[51] The RCAA requires EPA to compile data and produce a report on compostable materials and efforts to reduce recycling contamination, prepare an inventory of materials recovery facilities in the United States, estimate the numbers and types of recycling and composting programs, prepare a report on end-market sale of compost, a make publicly available a report estimating annual recycling and composting rates.[52]

2. Senate Activity

On January 30, 2025, Senator Shelley Moore Capito introduced the Strategies to Eliminate Waste and Accelerate Recycling Development (STEWARD) Act (S. 351).[53] This bill contains the same provisions as the RIAA and RCAA in one bill. The Senate Environment and Public Works Committee advanced the bill on February 5, 2025.[54] It now awaits consideration by the full Senate.

IV. Topics for Discussion and Questions to Consider

- How should the United States engage in the plastics treaty negotiations, and what would an "America First" plastics treaty look like?
- Can current recycling infrastructure capacity handle the projected growth of e-waste and plastic expected from datacenters and how can AI technology improve recycling?
- What are the regulatory and policy challenges to improving recycling infrastructure and investment in new recycling technologies?

V. Staff Contacts

If you have any questions regarding this hearing, please contact Byron Brown, Christi Harsha, and Kaitlyn Peterson of the Committee Staff at (202) 225-3641.

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[49] H.R. 2145, 119th Cong. (2025).
[50] *Id.*
[51] H.R. 4109, 119th Cong. (2025).
[52] *Id.*
[53] S. 351, 119th Cong. (2025).
[54] Press Release, Sen. Comm. on Envt. and Pub. Works, EPW Committee Unanimously Passes Brownfields, Recycling Legislation, Feb. 5, 2025, https://www.epw.senate.gov/public/index.cfm/2025/2/epw-committee-unanimously-passes-brownfields-recycling-legislation#:~:text=The%20STEWARD%20Act%20is%20the,unanimous%20consent%20in%20March%202024.