BEYOND THE BLUE BIN: FORGING A FEDERAL LANDSCAPE FOR RECYCLING INNOVATION AND ECONOMIC GROWTH

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT

OF THE

COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

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C O N T E N T S

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[1] The information has been retained in committee files and is included in the Documents for the Record at https://docs.house.gov/meetings/IF/IF18/20250716/118510/HHRG-119-IF18-20250716-SD879.pdf.

BEYOND THE BLUE BIN: FORGING A FEDERAL LANDSCAPE FOR RECYCLING INNOVATION AND ECONOMIC GROWTH

WEDNESDAY, JULY 16, 2025

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:15 a.m., in room 2322, Rayburn House Office Building, Hon. Gary J. Palmer (chairman of the subcommittee) presiding.

Members present: Representatives Palmer, Crenshaw, Latta, Griffith, Carter of Georgia, Joyce, Weber, Pfluger, Miller-Meeks, Lee, Evans, Fedorchak, Guthrie (ex officio), Tonko (subcommittee ranking member), Schakowsky, Ruiz, Peters, Barragán, Soto, Carter of Louisiana, Menendez, Landsman, and Pallone (ex officio).

Also present: Representative Harshbarger.

Staff present: Ansley Boylan, Director of Operations; Byron Brown, Chief Counsel, Environment; Christian Calvert, Press Assistant; Sydney Greene, Director of Finance and Logistics; Christen Harsha, Senior Counsel, Environment; Calvin Huggins, Clerk, Energy and Environment; Joel Miller, Chief Counsel; Ben Mullaney, Press Secretary; Kaitlyn Peterson, Policy Analyst, Environment; Chris Sarley, Member Services/Stakeholder Director; Katharine Willey, Senior Counsel, Environment; Giancarlo Ceja, Minority Environment Fellow; Tiffany Guarascio, Minority Staff Director; Anthony Gutierrez, Minority Professional Staff Member; Caitlin Haberman, Minority Staff Director, Environment; Emma Roehrig, Minority Staff Assistant; and Kylea Rogers, Minority Policy Analyst.

OPENING STATEMENT OF HON. GARY J. PALMER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ALABAMA

Mr. PALMER. Good morning, and welcome to today's subcommittee hearing entitled "Beyond the Blue Bin: Forging a Federal Landscape for Recycling, Innovation, and Economic Growth."

Before I begin, I would like to thank Chairman Guthrie for the opportunity to lead the Environment Subcommittee. I would also like to thank Chairman Griffith for his excellent leadership of the subcommittee and wish him the best as the new chairman of the Subcommittee on Health.

And to my friend and colleague, Ranking Member Mr. Tonko, I look forward to working with you.

Mr. TONKO. Thank you. Likewise.

Mr. PALMER. As chairman of the Subcommittee on Oversight and Investigations, I focused on the importance of critical minerals to our national security and holding the Environmental Protection Agency accountable. I look forward to continuing that important work in this new role.

Waste and recycling are generally considered to be regional issues regulated at the State and local level. However, we will hear testimony today about the national and economic security implications of recycling policy. In his first days in office, President Trump emphasized the need to secure our critical mineral and rare earth supply chains. We must use an all-of-the-above approach when it comes to ensuring our ability to access these critical minerals and elements, which is why electronic waste, e-waste, is so important for our future.

With the growth of data centers and the use of technology, e-waste is accumulating higher rates every year, with billions of dollars in losses as this technology reaches its end life. E-waste is a commodity that can be repurposed in our fight to not only be energy independent but energy dominant.

Let me be clear: We will not recycle our way out of these issues. However, as we look to build out our mining capacities, our processing and refining capacities, e-waste recycling innovation provides vital short and long-term support for our needs as a nation.

The President also issued an Executive order on the importance of putting America first in international environmental agreements. As part of the negotiations for the Global Plastics Treaty, the Biden-Harris administration announced support for bans on plastics and a cap on plastic production. That would not be in America's interest.

I look forward to hearing from our witnesses about the role that American businesses can play in innovating and developing technologies to take advantage of the opportunities in the recycling industry. The threat China poses to the United States and our allies cannot be overstated. We will hear from our witnesses today on how we can use recycling as a tool to compete with China and to protect our communities.

Thank you to our witnesses for being here today. It is my understanding we have not had a hearing on this topic in some time, and I appreciate my colleagues engaging on this important issue.

[The prepared statement of Mr. Palmer follows:]

Chairman Gary Palmer
Opening Statement—Subcommittee on Environment
"Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth."
July 16, 2025
As prepared for delivery

Good morning, and welcome to today's subcommittee hearing entitled "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth."

Before we begin, I'd like to thank Chairman Guthrie for the opportunity to lead the Environment Subcommittee. I'd also like to thank Chairman Griffith for his excellent leadership of the Subcommittee and wish him the best as the new Chairman of the Subcommittee on Health. And to my new Ranking Member, Mr. Tonko, I look forward to working with you.

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ability to access these critical minerals and materials, which is why electronic waste (e-waste) is so important for our future.

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I look forward to hearing from our witnesses about the role that American businesses can play in innovating and developing technologies to address environmental pollution.

The threat China poses to the United States and our allies cannot be overstated. We will hear from our witnesses today on how we can use recycling as a tool to compete with China and protect our communities.

Thank you to our witnesses for being here today. It is my understanding we have not had a hearing on this topic in some time, and I appreciate my colleagues engaging on this important issue for my first hearing as Chairman. I look forward to our discussion, and now recognize the Ranking Member of the Subcommittee, Mr. Tonko, for his opening statement.

Mr. PALMER. I look forward to our discussion, and now recognize the ranking member of the subcommittee, the distinguished gentleman from New York, Mr. Tonko, for his opening statement.

OPENING STATEMENT OF HON. PAUL TONKO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. TONKO. Thank you, Mr. Chair. That sounds good.

Let me start by congratulating you on taking over leadership of the subcommittee. I look forward to working together in striking progress.

The United States leads the world in many things. Unfortunately, this includes the amount of waste we generate, and most of this waste ends up landfilled, incinerated, or littered. In recognition of this, we have spent more than 50 years promoting a waste management hierarchy. Every kid learns the three Rs: reduce, reuse, and recycle. So while today's discussion will focus primarily on that third R, I would be remiss if I didn't remind everyone of the needs to similarly focus on reduction and reuse as critical components to our national waste strategy.

Today's hearing will cover a wide range of recycling challenges facing our country, each of which could be its own hearing. But across each of these challenges I believe we will see a common thread: The status quo is untenable, often creating environmental issues while letting billions of dollars of valuable materials go unrecovered.

I understand the desire to promote innovation to overcome these challenges, as suggested by the hearing's title. But in reality, our recycling system needs some very basic foundational improvements before we can even begin to suggest that new technologies will save us.

More than one quarter of Americans do not have access to recycling, and less than one half recycle at home. There are glaring needs for better data, accessibility, labeling, and education to enable people to feel confident that when they use the blue bin correctly, their efforts will actually result in real recycling—by which I mean products are ending up in a responsible end market and not being diverted to a landfill or downcycled.

In recent years Congress has tried to address these basic needs of our recycling system. The Infrastructure Investment and Jobs Act included significant funding for State, local, and Tribal governments to implement EPA's national recycling strategy. Other bipartisan bills like the RIAA and RCAA seek to further support these recycling basics. These proposals will not single-handedly fix our system, but they do represent good first steps to improve data and promote accessibility, and I do hope that the coalition-building and policy development that went into these bills will make it easier for us to work together toward bigger and more ambitious policies in the future.

Because of the absence of Federal leadership, several States have already begun to create such policies. This includes extended producer responsibility, or EPR, laws to require packaging and paper producers to take financial and environmental responsibility for their products. While it is still too early to judge these State laws' effectiveness, we know the intent is to improve recycling services

and infrastructure while encouraging greater market demand for recycled materials.

These programs' fee structures often include a concept known as eco-modulation to further incentivize the use of products that are more sustainable, including products designed to be more easily recycled. Designing for recyclability is a commonsense innovation worth encouraging. Similarly, in recent years there have been major improvements in optical sorting, including the introduction of AI to improve recycling facilities' efficiency. But many industries have used the notion of innovation to promote a suite of new technologies commonly known as chemical or advanced recycling aimed at transforming hard-to-recycle materials. These are controversial technologies, and not without good reason.

While we should not foreclose consideration of any tool to address the problems with our waste management system, we must ensure that these technologies actually displace virgin production and do not introduce environmental and public health risks. At this stage I have not seen much evidence that these technologies are succeeding by these metrics, with much of their output being used as fuels rather than new recycled products. So before we center the debate on these technologies for hard-to-recycle products, I want to reiterate my belief that we should prioritize our system's more fundamental shortcomings and consider why so many materials that rely upon proven, existing recycling technologies frequently fail to reach even 50 percent recycling rates.

Finally, I am glad that members of the majority are beginning to recognize the tremendous opportunity for recovery and reuse of critical minerals. For years, Democrats on this committee have proposed policies to promote the development of secure domestic supply chains by recovering critical minerals in EV batteries and e-waste. In the IIJA we included funding support to support the development of battery recycling best practices and voluntary labeling to further this goal, and there is clearly much more that we can do. Moving forward, I would welcome the opportunity to work together to ensure we are maximizing this largely untapped resource.

And again, my heartfelt congratulations, Mr. Chair. I look forward to working with you.

[The prepared statement of Mr. Tonko follows:]

Committee on Energy and Commerce

Opening Statement as Prepared for Delivery
of
Subcommittee on Environment Ranking Member Paul D. Tonko

Hearing on "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth"

July 16, 2025

Thank you, Mr. Chair. I want to start by congratulating you on taking over leadership of the Subcommittee. I look forward to working together. The United States leads the world in many things. Unfortunately, this includes the amount of waste we generate. And most of this waste ends up landfilled, incinerated, or littered. In recognition of this, we have spent more than 50 years promoting a waste management hierarchy. Every kid learns the three R's – reduce, reuse, and recycle. So, while today's discussion will focus on that third "R", I would be remiss if I didn't remind everyone of the need to similarly focus on reduction and reuse as critical components to our national waste strategy.

Today's hearing will cover a wide range of recycling challenges facing our country, each of which could be its own hearing. But across each of these challenges I believe we will see a common thread: The status quo is untenable, often creating environmental issues while letting billions of dollars of valuable materials go unrecovered. I understand the desire to promote innovation to overcome these challenges, as suggested by the hearing's title, but in reality, our recycling system needs some very basic, foundational improvements before we can even begin to suggest that new technologies will save us.

More than one-quarter of Americans do not have access to recycling and less than half recycle at home. There are glaring needs for better data, accessibility, labeling, and education to enable people to feel confident that when they use the blue bin correctly, their efforts will actually result in real recycling, by which I mean products are ending up in a responsible end market and not being diverted to a landfill or downcycled.

In recent years, Congress has tried to address these basic needs of our recycling system. The Infrastructure Investment and Jobs Act included significant funding for State, local, and Tribal governments to implement EPA's National Recycling Strategy. Other bipartisan bills, like the RIAA and RCAA, seek to further support these recycling basics.

These proposals will not singlehandedly fix our system, but they represent good first steps to improve data and promote accessibility. And I hope that the coalition building and policy development that went into these bills will make it easier for us to work together towards bigger and more ambitious policies in the future.

Because in the absence of Federal leadership, several states have already begun to create such policies. This includes Extended Producer Responsibility, or EPR, laws to require

packaging and paper producers to take financial and environmental responsibility for their products. While it is still too early to judge these state laws' effectiveness, we know the intent is to improve recycling services and infrastructure while encouraging greater market demand for recycled materials.

These programs' fee structures often include a concept known as eco-modulation to further incentivize the use of products that are more sustainable, including products designed to be more easily recycled. Designing for recyclability is a commonsense innovation worth encouraging. Similarly, in recent years there have been major improvements in optical sorting, including the introduction of AI, to improve recycling facilities' efficiency. But many industries have used the notion of innovation to promote a suite of new technologies, commonly known as chemical or advanced recycling, aimed at transforming hard-to-recycle materials.

These are controversial technologies, and not without good reason. While we should not foreclose consideration of any tool to address the problems with our waste management system, we must ensure that these technologies actually displace virgin production and do not introduce environmental and public health risks.

At this stage, I have not seen much evidence that these technologies are succeeding by these metrics, with much of their output being used as fuels rather than new, recycled products. So, before we center the debate on these technologies for hard-to-recycle products, I want to reiterate my belief that we should prioritize our system's more fundamental shortcomings and consider why so many materials that rely upon proven, existing recycling technologies frequently fail to reach even 50% recycling rates.

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In the IIJA, we included funding to support the development of battery recycling best practices and voluntary labeling to further this goal, and there is clearly much more we can do. Moving forward, I would welcome the opportunity to work together to ensure we are maximizing this largely untapped resource.

Thank you. I yield back.

Mr. TONKO. And with that, I thank you and yield back.

Mr. PALMER. Thank you, Mr. Tonko. The Chair now recognizes the chairman of the full committee, the gentleman from Kentucky, Mr. Guthrie, for 5 minutes for an opening statement.

OPENING STATEMENT OF HON. BRETT GUTHRIE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. GUTHRIE. Thank you, Mr. Chairman, and good morning, members of the Subcommittee on the Environment and to our witnesses today. Congratulations, Chairman Palmer, on your new role as chairman of the subcommittee. I thank you for your leadership this Congress on Oversight, but you absolutely have been focused on the issues before this subcommittee, as well, and I really appreciate you taking the leadership of this, and I really look forward to working with you as we look at supply chains, critical minerals, investigating the Biden-Harris administration's implementation of the Green New Deal and other programs.

Our world is constantly changing, and today we will hear whether our country's waste management policies will enable us to embrace the challenges of the future. For example, we are seeing incredible growth in data centers needed to support artificial intelligence infrastructure. But will our waste and recycling laws allow us to manage an expected uptick in electronic waste, and how we can recover valuable materials such as critical minerals from items that are discarded every day?

Additionally, how do we keep the U.S. economy as a global leader in the face of international negotiations that could limit the production and use of plastics and chemicals and place U.S. companies at a disadvantage against Chinese and European competitors?

I look forward to hearing from our panel of witnesses today, including Mr. Bedingfield from Louisville, on these important questions.

While our country is constantly faced with new challenges, thanks to American entrepreneurship and the spirit of innovation we are also presented with new opportunities. Improving our recycling infrastructure could enhance our global economic competitiveness and national security. For example, according to the Recycled Materials Association, the recycled materials industry has a nearly $169 billion economic impact on the United States. New technologies involving artificial intelligence and robotics have improved sorting capabilities for recyclable products like paper. Advanced recycling technologies enable the conversion of difficult-to-recycle plastics into new products that improve our quality of life.

Today's hearing will provide us with the chance to assess regulatory barriers to the proliferation of new technologies and strategies to grow our domestic manufacturing capabilities while keeping valuable materials out of landfills.

And it just makes sense that we take valuable materials, we keep them out of—we take valuable materials, bury them underground, and have them stay there until some future civilization discovers them, or we can put them back in the stream of commerce and make it work today? And so that is important, it is certainly part of our green economy to make sure we recycle our—the

materials that we use. And so I am really looking forward to this hearing, looking forward to working with the Chair and my friend from New York, Mr. Tonko, to see if we can find a pathway forward to make this work.

[The prepared statement of Mr. Guthrie follows:]

Chairman Brett Guthrie
Opening Statement—Subcommittee on Environment
"Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth."
July 16, 2025

As prepared for delivery

Good morning, Members of the Subcommittee on the Environment and to our witnesses. Congratulations, Chairman Palmer, on your new role as Chairman of the Subcommittee. Thank you for your leadership this Congress in highlighting the importance of domestic supply chains for critical minerals and investigating the Biden-Harris Administration's Green New Deal Programs, and I look forward to working with you in this new role.

Our world is constantly changing, and today we will hear whether our country's waste management policies will enable us to embrace the challenges of the future.

For example, we are seeing incredible growth in data centers needed to support artificial intelligence infrastructure, but will our waste and recycling laws allow us to manage an expected uptick in electronic waste and how can we recover valuable materials such as critical minerals from items that are discarded every day?

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Today's hearing will provide us with the chance to assess regulatory barriers to the proliferation of new technologies and strategies to grow our domestic manufacturing capabilities while keeping valuable materials out of landfills.

I look forward to today's discussion.

[1] https://www.recycledmaterials.org/our-impact/#:~:text=Recycling%20creates%20jobs%2C%20advances%20U.S.,interactive%20map%20and%20database%20below.

Mr. GUTHRIE. And I appreciate that, and I will yield back.

Mr. PALMER. The gentleman yields. The Chair now recognizes the ranking member of the full committee, the gentleman from New Jersey, Mr. Pallone, for 5 minutes for an opening statement.

OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Mr. Chairman.

Today the subcommittee is examining the important topic of recycling. Preventing ocean dumping off the Jersey shore was what initially inspired me to come to Congress, so I am pleased to be discussing ways we can reduce pollution and improve recycling in the United States.

But today's hearing comes weeks after President Trump signed the Republican's Big Ugly Bill into law, and this bill doubles down on their unconditional support of polluters propping up the fossil fuel industry at the expense of clean energy, driving up costs for American families and worsening the climate crisis.

And science tells us that, to combat the worst effects of climate change, we need to move away from polluting industries, including reducing our reliance on products derived from fossil fuels. And recycling is an essential tool in our environmental protection toolbox to reduce pollution in communities, boost local economies, combat the climate crisis, and strengthen domestic supply chains. However, with a national recycling and composting rate of just 32 percent, it is clear we still face major gaps in the recycling system that need to be addressed.

That said, the story is not the same for all recyclable materials. For example, paper and cardboard saw a recycling rate of 68 percent in 2018. That is higher than any other material. Unfortunately, the same cannot be said for plastic waste, where a staggering 76 percent was sent to the landfill. And I just think we have to do a lot better. These issues are all compounded by the fact that municipal solid waste recycling systems are severely underfunded across the country. Local governments face tight budgets. And with President Trump's outright assault on State funding, budgets will now be even tighter.

We need to invest in our recycling system to see the improvements we so desperately need. Democrats recognized that need in passing the Bipartisan Infrastructure Law and the Inflation Reduction Act. Together, billions of dollars were invested to help fill gaps in the recycling system and to drive battery collection to grow our domestic circular economy for critical minerals. For example, the Bipartisan Infrastructure Law included $275 million for the Solid Waste Infrastructure for Recycling Grant program, or SWIFR, to bolster recycling infrastructure and help fund improvements in communities around the country.

Beyond funding, we are also seeing promising developments in recycling policy at the State level. Maine, Oregon, Colorado, and others are leading the way by establishing extended producer responsibility, EPR, programs for packaging to help incentivize manufacturers to use recycled content over virgin material. New Jersey has minimum recycled content standards for the sale and distribu-

tion of certain products, and I hope this subcommittee will explain—will explore, I should say—policies like a national EPR framework to improve our recycling system and help provide certainty for manufacturers.

There are two bipartisan recycling bills—H.R. 4109, the Recycling and Composting Accountability Act, and H.R. 2145, the Recycling Infrastructure and Accessibility Act—that aim to strengthen recycling and composting systems, improve accessibility in underserved communities, and improve data measurement and reporting. We had a bipartisan and bicameral agreement to pass those bills last year in the end-of-the-year funding package, but as we know, House Speaker Johnson tanked that entire package because Elon Musk voiced his opposition to it. I believe these bills are still worth moving, and the Senate Environment and Public Works Committee has already advanced them out of committee earlier this year. I believe this committee should do the same.

And finally, while recycling is an important way to address plastic pollution, we must also focus on reducing our use of plastics overall. It is estimated that 8 million metric tons of plastic waste enters the world's oceans every year. That is the equivalent of dumping a garbage truck full of plastic waste into the ocean every minute. This plastic waste can break down into smaller pieces known as microplastics. This is a big deal for my constituents at home on the Jersey shore, as microplastics are polluting the Atlantic and impacting marine life. It is vital that any potential recycling solutions for addressing plastics are science-based, economically feasible, safe for communities, and ultimately make recycled products.

And in 2015, I wanted to mention I led a president—with President Obama, who signed into law the bipartisan Microbead Free Waters Act, which prohibited manufacturers of rinse-off cosmetics from intentionally aiding plastic microbeads. And that law remains the only bill Congress has passed to limit microplastics in our environment. That was a decade ago, and we just have to do more.

So like the climate crisis, pollution is a—plastic pollution is a global problem that warrants ambitious cooperation from the international community. The U.S. delegation must continue to be a strong voice at the Global Plastics Treaty negotiations next month. We should not take a back seat or accept weaker standards.

[The prepared statement of Mr. Pallone follows:]

Committee on Energy and Commerce

Opening Statement as Prepared for Delivery
of
Ranking Member Frank Pallone, Jr.

Hearing on "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth"

July 16, 2025

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But today's hearing comes weeks after President Trump signed Republicans' Big Ugly Bill into law. This bill doubles down on their unconditional support of polluters, propping up the fossil fuel industry at the expense of clean energy, driving up costs for American families, and worsening the climate crisis. Science tells us that to combat the worst effects of climate change, we need to move away from polluting industries, including reducing our reliance on products derived from fossil fuels.

Recycling is an essential tool in our environmental protection toolbox to reduce pollution in communities, boost local economies, combat the climate crisis, and strengthen domestic supply chains. However, with a national recycling and composting rate of just 32 percent, it is clear we still face major gaps in the recycling system that need to be addressed.

That said, the story is not the same for all recyclable materials. For example, paper and cardboard saw a recycling rate of 68 percent in 2018 – that's higher than any other material. Unfortunately, the same cannot be said for plastic waste, where a staggering 76 percent was sent to the landfill. We can and must do better.

These issues are all compounded by the fact that municipal solid waste recycling systems are severely underfunded across the country. Local governments face tight budgets, and with President Trump's outright assault on state funding, budgets will now be even tighter. We need to invest in our recycling system to see the improvements we so desperately need.

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Beyond funding, we are seeing promising developments in recycling policy at the state level. Maine, Oregon, Colorado, and others are leading the way by establishing Extended Producer Responsibility (EPR) programs for packaging, to help incentivize manufacturers to use recycled content over virgin materials. New Jersey has minimum recycled content standards for the sale and distribution of certain products. I hope this Subcommittee will explore policies like a national EPR framework to improve our recycling system and help provide certainty for manufacturers.

There are two bipartisan recycling bills: H.R. 4109, the "Recycling and Composting Accountability Act" and H.R. 2145, the "Recycling Infrastructure and Accessibility Act," that aim to strengthen recycling and composting systems, improve accessibility in underserved communities, and improve data measurement and reporting.

We had a bipartisan and bicameral agreement to pass these bills last year in the end of year funding package, but House Speaker Johnson tanked that entire packet because Elon Musk voiced his opposition to it. I believe these bills are still worth moving, and the Senate Environment and Public Works Committee has already advanced them out of Committee earlier this year. I believe this Committee should do the same.

Finally, while recycling is an important way to address plastic pollution, we must also focus on reducing our use of plastics overall. It is estimated that 8 million metric tons of plastic waste enters the world's oceans every year. That is the equivalent of dumping a garbage truck full of plastic waste into the ocean every minute.

This plastic waste can break down into smaller pieces, known as microplastics. This is a big deal for my constituents at home on the Jersey shore, as microplastics are polluting the Atlantic and impacting marine life. It is vital that any potential recycling solutions for addressing plastics are science-based, economically feasible, safe for communities, and ultimately make recycled products.

In 2015, I led and President Obama signed into law the bipartisan Micro-bead Free Waters Act, which prohibited manufacturers of rinse-off cosmetics from intentionally adding plastic microbeads. That law remains the only bill Congress has passed to limit microplastics in our environment. That was a decade ago and we must do more.

Like the climate crisis, plastic pollution is a global problem that warrants ambitious cooperation from the international community. The U.S. delegation must continue to be a strong voice at the Global Plastics Treaty negotiations next month. We should not take a backseat or accept weaker standards.

I look forward to hearing from our witnesses today, and I yield back.

Mr. PALLONE. So I look forward to the hearing, and I yield back, Mr. Chairman. Thank you.

Mr. PALMER. The gentleman yields. We now conclude with Member opening statements.

The Chair would like to remind Members that, pursuant to committee rules, all Member opening statements will be made part of the record.

We want to thank our witnesses for being here today and taking the time to testify before the subcommittee. The witnesses will have the opportunity to give an opening statement, followed by a round of questions from Members.

Our witnesses for today are Mr. Ross Eisenberg, president of America's Plastic Makers; Mr. Matt Bedingfield, president of—at Mint Innovation; Ms. Keefe Harrison, founder and CEO of the Recycling Partnership; and Mr. Dan Felton, president and CEO of Flexible Packaging Association.

We appreciate you being here today.

Do we swear them in?

VOICE. No.

Mr. PALMER. We don't? OK.

We appreciate you being here today. I now recognize Mr. Eisenberg for 5 minutes to give an opening statement.

Mr. EISENBERG. OK.

[Pause.]

Mr. EISENBERG. I will take care of this one for you guys. Thank you, all right.

STATEMENTS OF ROSS EISENBERG, PRESIDENT, AMERICA'S PLASTIC MAKERS, AMERICAN CHEMISTRY COUNCIL; MATT BEDINGFIELD, GLOBAL PRESIDENT, MINT INNOVATION; KEEFE HARRISON, CHIEF EXECUTIVE OFFICER, THE RECYCLING PARTNERSHIP; AND DAN FELTON, PRESIDENT AND CHIEF EXECUTIVE OFFICER, FLEXIBLE PACKAGING ASSOCIATION

STATEMENT OF ROSS EISENBERG

Mr. EISENBERG. Well, good morning, Chairman Palmer, Ranking Member Tonko, and members of the subcommittee. My name is Ross Eisenberg. I am the president of America's Plastic Makers at the American Chemistry Council. ACC represents the companies that produce the plastics that are essential in modern life.

I want to start by pointing out something that, frankly, you have already noted. The stakeholders of this—at this table today who represent very different points on the value chain for plastics and other materials, we are saying a lot of the same things. I believe we really are at a point of policy convergence when it comes to recycling, one that probably didn't exist the last couple of times this committee examined the topic. I encourage the committee to seize this opportunity because maybe, just maybe, there is a pathway to making real, substantive, lasting change in the way that we deal with plastic waste, and to do it in a constructive, bipartisan way. We would certainly support that.

The U.S. chemicals and plastics sectors are vital to our economy. Nearly 27 percent of U.S. manufacturing output is in industries

that are highly reliant on plastics. The plastics industry supports almost 5 million jobs across the economy and generates over $391 billion in wages. We maintain a $21.9 billion trade surplus in plastic resins, so we are one of the few industries that actually exports more than we import because we—it is so competitive here to make plastic.

Now, with this large footprint come challenges. And at the top of that list, as you have all identified, it is waste. Plastic waste does not belong in the environment. It is very plainly unacceptable. And ACC and our members are committed to ending plastic waste and advancing a circular economy for plastics. We are committed to do that because, frankly, we need plastics. Modern life does rely on them.

Plastics help reduce emissions, save energy, whether by extending the shelf life of food, reducing packaging weight, making homes, workplaces, and vehicles more energy efficient. Plastics are indispensable in healthcare and emergency response: IV bags, disaster relief, syringes, gloves, masks. Plastic packaging protects food, water, and medical supplies when cold storage or sanitation is unavailable. So all of these things that make modern life possible.

But as we all know, plastic is just not recycled enough. To fix that, we have to modernize the way that we collect, recycle, and reuse plastic and other materials. We have to upgrade a recycling system that was set up in the 1970s for bottles, cans, and paper and bring it to 21st century standards, including new recycling technologies. So ACC encourages the Federal Government to take several strong steps.

Number one, top of the list—because it is next month—actively engage the UN Global Plastics Agreement negotiations and help arrive at a final agreement this year that all countries will support and join.

Number two, please remove regulatory roadblocks to the introduction of some of these innovative new technologies.

And number three, please work together and advance commonsense legislation to help these shared goals.

So starting with the global agreement, in a few weeks a number of us are going to be in Geneva with 170 countries to try to arrive at final text of an agreement to address plastic pollution. ACC supports a global agreement focused on stopping plastic pollution, and we have encouraged the U.S. to engage and provide the necessary leadership to help land that plane and land a final agreement. We believe America can lead the world through championing policies that incentivize improved waste management infrastructure and that send the right demand signals to spur private investment in collection, sortation, and recycling of plastic.

Here at home we think there are some immediate steps that Congress and the executive branch can do to improve the infrastructure, as well. One of them is to regulate advanced recycling properly. Now, advanced recycling, which we have talked about a bit today—a good explanation of it, one of our members says it is like unbaking a cake. Imagine you could take a cake, and you could take that cake back down to its elements—the eggs, the flour, the milk, the sugar, the butter—and then you could make it into a cake

again. That is advanced recycling. There is a suite of chemical technologies that can do it, but that is essentially the concept that we have got here.

Advanced recycling technology is break down post-use plastics down to their chemical building blocks, and then use them to make new products, including new plastics. They not only help keep plastic out of landfills and incinerators and our environment, but they help create a more resilient U.S. supply chain and well-paying jobs. Advanced recycling can process contaminated plastics, difficult-to-recycle plastics that mechanical recyclers can't take, and the plastics and other sort of harder recycled plastics that you find in the economy.

Now, despite this potential, a number of regulatory barriers stand in the way of new advanced recycling. Conflicting regulations across States and at the Federal level create uncertainty for investors. Every time EPA over the past few years proposed a rule, withdrew a rule, even talked about a rule, we saw the market chill for new investment in this technology because they didn't really know if they were going to be able to get their permits. So it was getting in the way of the technology and stopping its forward progress.

Now, let me be clear: We believe that advanced recycling should be regulated, and we believe it should be regulated strongly. But it should be regulated as manufacturing, because that is specifically what it is. It is a manufacturing facility.

Finally, we hope Congress will act soon on recycling legislation. The bills mentioned earlier, the RIA, the composting bill, those are all good bills. We hope to see them get over the finish line. We also hope to see re-introduction of the Accelerating a Circular Economy for Plastic and Recycling Innovation Act, H.R. 9676—in the last Congress. Dr. Bucshon, retired Dr. Bucshon, and Don Davis from North Carolina introduced——

Mr. CRENSHAW [presiding]. Thank you, Mr. Eisenberg. If you could, wrap up.

Mr. EISENBERG. Oh, absolutely, sorry.

And so my written statement has more on that, including EPR.

Sorry for taking so long. Thank you all for doing this. I really appreciate the opportunity to do this today. And let's get it on. Thank you.

[The prepared statement of Mr. Eisenberg follows:]

American Chemistry Council | Plastics Division

Statement of Ross Eisenberg

President, America's Plastic Makers™

American Chemistry Council

Before the U.S. House of Representatives Committee on Energy and Commerce

Subcommittee on Environment

"*Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth*."

July 16, 2025

American Chemistry Council | Plastics Division

Chairman Guthrie, Chairman-Designate Palmer, Ranking Member Tonko, and Members of the Subcommittee: thank you for the opportunity to testify and for your thoughtful engagement on waste reduction and recycling. My name is Ross Eisenberg, and I am President of America's Plastic Makers™ at the American Chemistry Council (ACC). In this role I oversee the ACC's Plastics Division, which advocates on behalf of plastic manufacturers and the associated value chain.

ACC represents more than 190 companies engaged in the business of chemistry—an innovative, economic growth engine that is helping to solve the biggest challenges facing our nation and the world. The members of ACC's Plastics Division create materials that countless Americans and companies rely on to make essential and often lifesaving products. These include medical-grade plastic for surgeries, personal protective equipment for ourselves and our caregivers, lightweight vehicle components, and energy-saving products for our homes.

The U.S. plastics and chemical sectors play an important role in maintaining America's competitive edge in global markets and driving innovation, while keeping prices low for consumers. Nearly 27% of U.S. manufacturing output is in industries highly reliant on plastics.[1] The industry is a driver of U.S. economic growth, generating $46 billion in economic output, supporting nearly 5 million American jobs and over $391 billion in wages, and providing feedstock for American industries, including automotive, construction, packaging, electronics, and healthcare. The plastics manufacturing sector itself employs

[1] Manufacturing industries where plastics account for 5% or more of materials (from the agriculture, mining, construction and manufacturing sectors) inputs are considered to be highly reliant on plastics. Nearly all manufacturing industries rely on plastics in some form or another.

670,000 Americans, pays nearly $50 billion in wages, and holds a $22 billion trade surplus — making it one of the few U.S. industries that exports more than it imports.

Plastics are also indispensable in many applications that make them difficult, if not impossible, to replace with alternatives that deliver the same or better performance, environmental footprint, or cost. Use of plastics can be the difference between life and death, as items such as IV bags, syringes, gloves, masks, and other personal protective equipment and medical equipment are all made with plastic. Packaging and shipping also frequently call for plastics in critical end uses. Plastics are integral to natural disaster emergency response when cold storage is unavailable, and it is difficult to keep items safe and sanitary. In these situations, plastic packaging protects food, water, and other emergency response supplies.

ACC and our members are committed to creating a more circular economy for plastics and helping to end plastic waste in the environment. Because plastics typically allow us to do more with less, they tend to have a lower carbon footprint than other materials and are used in a wide range of energy-saving applications at home, work, and on the road. Plastic packaging helps to dramatically extend the shelf life of fresh foods and beverages while allowing us to ship more product with less packaging material—reducing both food and packaging waste and associated emissions. Plastic insulation, sealants, and other building products are making our homes significantly more energy efficient, while reducing costs for heating and cooling. Lightweight plastics in cars can dramatically increase miles per gallon, saving drivers money at the pump without sacrificing passenger safety.

Waste in the environment, including plastic waste, is never acceptable. America's Plastic Makers™ believe in a future where used plastic does not end up in the environment, but is instead reused, remade into new plastics, or converted into valuable raw materials that society needs. To get there, we must modernize the way we collect, recycle and reuse plastic and other materials. This is not a small task, but we believe we can get there with the right policies. The remainder of my written testimony will focus on policies the federal government should implement to help our vision become a reality.

We encourage the federal government to take the following strong steps in the near term:

1. Actively engage in the U.N. global plastics agreement negotiations and help arrive at a final agreement in 2025 that all countries—plastic producers and consumers—will support and join.
2. Remove regulatory roadblocks to the introduction of innovative new recycling technologies.
3. Advance common-sense legislation to help achieve these shared goals.

1. Importance of U.S. engagement in the Global Plastics Agreement negotiations

American leadership can help create an opportunity out of a global challenge. Governments across the globe have labored for more than two years to advance a global agreement to address plastic pollution, an international effort to develop solutions to prevent plastic from entering our environment. Negotiations resume in August 2025, when the U.N. Environment Programme convenes in Geneva, Switzerland, for the Second Part of the Fifth Session of the International Negotiating Committee on Plastic Pollution (INC-5.2). The *original* Fifth Session (INC-5) was intended to conclude last November at INC-5 in South Korea, but countries were unable to reach consensus on a final agreement. When

negotiations resume in August 2025, U.S. engagement and leadership can help land an agreement that puts America first.

The shale gas boom in the U.S. has led to a major resurgence of the domestic plastics industry, which uses natural gas not only for energy but as a feedstock. Since 2010, more than $200B of shale-advantaged chemical industry investment has been announced in the U.S. Of this, two-thirds have been completed and more than a dozen projects are under construction. Twenty one percent of the investment—more than $40B—has been in plastic resin production.[2] New capacity for resins and a competitive feedstock advantage has allowed plastics exports to grow. Over the past decade, plastic resin exports have risen by 72% (on a volume basis). In March 2025, plastic resin exports hit a new record high of nearly 2.4 million metric tons.

The United States has a clear strategic and economic interest in shaping a final agreement that can bring the priorities of the United States to the forefront, safeguarding U.S. manufacturing while ensuring global action to end plastic pollution. This means opportunities to create more domestic jobs, foster American innovation and protect our coastlines and tourism-dependent coastal communities from pollution. America can lead the world through championing policies that incentivize improved waste management infrastructure and that send the right demand signals to spur private investment in collection, sortation and recycling of plastic.

[2] Source: ACC Economics Department.

If the U.S. does not take a bigger role at INC-5.2, we run risk of other nations stepping up as deal-maker and arriving at an agreement that fails to match U.S. interests. I saw this exact script play out at INC-5 in Busan. Three months before INC-5, the Biden Administration announced a sharp change in position—a wish list of policies the U.S. government did not have the legal authorities to implement (and therefore could not sign). Then, three weeks prior to INC-5, the 2024 election happened. When the Biden negotiating team arrived in Busan, it was clear that the U.S. was not in a position to broker a final agreement—and the rest of the world knew it. Other nations stepped into the deal-maker role, and I assure you they were not negotiating with U.S. interests in mind.

What is the consequence of the world entering an agreement that the U.S. can't join? Look no further than the Basel Convention. The United States is the only developed country that has not ratified this treaty. The Basel Convention plays a vital role in promoting the open exchange of information and shared global responsibility on the trade in hazardous and other wastes. In recent years, the Basel Convention has expanded its scope to include regulating global plastic waste trade, which is a critical development.

As the United States is not a Party to Basel, it must sit on the sidelines at the treaty's technical committees and Conference of Parties while decisions are made that significantly impact the U.S. economy. The United States is also prevented from trading in materials regulated under the Basel Convention, including plastics for recycling, with countries that are Parties to the agreement without separate bilateral or multilateral agreements to allow such trade. Such agreements take time and involve significant negotiations by both countries.

To effectively shape global standards, the U.S. must be positioned with clear legal authorities and a coordinated interagency approach. When we're not at the table in a meaningful way, others step in—and not always in ways that reflect our interests.

Rather than sit on sideline for years to come as other countries make decisions that impact the U.S. economy, the United States can lead global challenges and do so on our terms. Seizing this moment to shape international standards that help strengthen our economy and protect our environment is critical to the plastic industry's competitiveness, and for these reasons we strongly encourage the United States to engage in the Global Plastic Agreement.

2. Remove roadblocks to the introduction of innovative new recycling technologies

The U.S. recycling system is dated, set up in the 1970s to collect bottles, cans, and paper. Americans and American companies are demanding products made with recycled plastic. Yet, the supply of recycled plastic is not keeping up with the demand. (Automakers are a good example. Our cars and trucks are made of about 50% plastic by volume. Automakers are seeking more recycled plastic in vehicle components to meet sustainability goals and to comply with global policy demands for recycled content.) According to the EPA, in 2018, industrywide, recycling as percent of generation levels run about 68% for glass, 34.1% for metals, 29.1% for polyethylene terephthalate (PET) containers, and 29.3% for high-density polyethylene (HDPE) natural bottles. The recycling rate for low-density polyethylene (LDPE), polypropylene (PP), polystyrene (PS), and other plastics is significantly lower. Overall, only 8.7% of plastic was recycled in 2018. Outdated and underfunded recycling infrastructure has stymied plastic recycling.

We believe in a future where used plastic does not wind up in a landfill or in the environment. To achieve this goal, we will have to make major investments in all forms of recycling. Mechanical recycling, the most common method of recycling, efficiently recycles many common plastics. Mechanical recycling involves sorting, cleaning, and shredding, to make plastic flake which is then melted into new products. By integrating new technologies like enhanced sorting and new shredding techniques, mechanical recycling is increasingly able to handle more plastics than in the past. And we will need it to: reducing the amount of plastic waste that ends up in landfills or the environment means scaling up mechanical recycling significantly.

Despite its advances, mechanical recycling cannot process every type of plastic. Contaminated and mixed plastics often cannot be mechanically recycled. Sortation is difficult and error prone, especially for flat, small, and some colored products. Each time plastic is melted and reformed, its integrity diminishes, limiting the number of times a plastic can be mechanically recycled. Also, only certain plastics can be mechanically recycled. In most cases, films, flexibles, and multilayered plastics, like chip bags, cannot be mechanically recycled. And while newer, more effective (and efficient) technologies for mechanical recycling exist, municipalities often rely on older, less effective equipment. Due to these limitations, a large portion of plastic is sent to landfills or is incinerated. Some states are running out of landfill space and exporting their waste to other states. Further complicating matters, infrastructure varies community to community, leaving many uncertain of what can be recycled and further complicating sortation.

All of these concerns around recycling have led to depressed recycling rates. Unsurprisingly, low recycling rates have a negative effect on consumers. In the past 5 years, the number of consumers that question whether recyclables were truly recycled has more than doubled.[3] When consumers lose confidence in recycling, they stop buying recycled plastic and stop recycling plastic. That is an outcome nobody wants.

A suite of technologies we refer to in this testimony as advanced recycling technologies[4] can help increase recycling rates and restore consumer confidence in the industry. Advanced recycling technologies break down post-use plastics to serve as the chemical building blocks for new products, including new plastics. These technologies not only help keep plastic out of landfills, incinerators, and our environment, they help keep used plastic in our economy, helping create a more resilient U.S. supply chain and well-paying American jobs. Specifically, advanced recycling can process contaminated plastics, and previously difficult to recycle plastics, such as films, flexibles, dyed, and multilayered/mixed plastic. New technologies such as artificial intelligence and robotics at a select number of material recovery facilities (MRFs) are greatly improving sortation capabilities and opening new markets for materials previously destined for the landfill. Because post-use plastic is turned into

[3] https://recyclingpartnership.org/recycling-confidence-index/.
[4] By advanced recycling, we refer to a manufacturing process for the conversion of post-use polymers and recovered feedstocks into recycled products that include basic raw materials, feedstocks, chemicals, and other products through processes that include pyrolysis, gasification, depolymerization, catalytic cracking, solvolysis, chemolysis, and other similar technologies. In other contexts, these processes have been referred to as non-mechanical recycling, chemical recycling, or molecular recycling. In recent years, we have received criticism from manufacturers of other materials and from mechanical recyclers, who believe use of the term "advanced" means that other technologies are not advanced. That is not our intention at all. That being said, non-mechanical recycling also includes energy recycling, which is outside the scope of today's testimony. Therefore, for the purposes of precision while encompassing a suite of technologies, I will use the term advanced recycling during today's hearing.

chemical building blocks, there is not concern about diminished quality, and the end product is fit for food contact and medical purposes.

We recognize the need for transparency and rigorous environmental safeguards with any new technology. That is why we support independent certification and strong regulatory oversight for advanced recycling processes, to ensure they deliver measurable environmental benefits.

New recycling technologies can expand our nation's ability to produce essential materials here in the U.S. Advanced recycling can strengthen our supply chains, improve our competitiveness, grow thousands of new, well-paying U.S. jobs and cut waste. Adoption of advanced plastics recycling and recovery facilities in the U.S. could result in 48,500 U.S. jobs, as much as $3.3 billion in annual payroll and $12.9 billion in economic output.[5] Perhaps most importantly, if advanced recycling does not scale up in the U.S., the plastics that can only be handled by advanced recycling will wind up in landfills or the environment.

Despite the potential for advanced recycling to help us eliminate plastic waste, a plethora of regulatory barriers stand in its way. Conflicting regulations across states create uncertainty for investors in advanced recycling. These technologies are inconsistently defined across jurisdictions or categorized as solid waste management or even incineration, subjecting them to permitting frameworks that were never designed with their intended use in mind and/or excluding the output from counting as recycled content. For example, New Jersey does not count advanced recycling as a method of meeting post-consumer

[5] https://www.americanchemistry.com/content/download/10845/file/Potential-Economic-Impact-of-Advanced-Recycling-Recovery-Facilities-in-the-US.pdf.

recycled content mandates. However, other states, such as Washington, permit advanced recycling to count towards recycling provided certain criteria are met. ACC's position is that advanced recycling of plastic should be regulated as manufacturing and that plastic made with advanced recycling should be regulated as recycled content.

The uncertainty exists in the federal space as well. The Federal Trade Commission's (FTC) Green Guides, which provide guidance as to how marketers can qualify their claims to avoid deceiving consumers, are silent as to whether or not content from advanced recycling can be called recycled content. The Environmental Protection Agency (EPA) has proposed and withdrawn a series of regulations related to some recycling technologies under the Clean Air Act and Toxic Substances Control Act; this year-to-year regulatory uncertainty chilled the market for new investment in advanced recycling technologies.

To encourage innovation and investment, federal regulations need to be clear, objective, transparent, and timely. They also need legal certainty. And they should be designed to remove obstacles, not create them. The timelines for obtaining permits are already lengthy due to outdated environmental review protocols; inconsistent regulatory frameworks will only worsen this situation and further discourage investment from companies looking to build or scale advanced recycling facilities.

3. ACC supports smart common sense legislation

American companies need legislation that supports waste reduction and establishes clear national standards for plastic recycling and recycled content. Current law is leading to unintended market disruptions. Federal legislation could address the legal and regulatory uncertainty created by the growing

patchwork of state laws and regulations. It could also help catalyze investments in recycling technologies, plus the collection and sortation infrastructure needed to bring more recycled plastic to market.

ACC would support federal legislation establishing an extended producer responsibility (EPR) program that would help generate funding, incentives, infrastructure, public education, and other needed changes to fill the gaps in the current recycling system. Under most EPR systems, product makers are charged a fee to support the recycling infrastructure and public education. We believe an industry-led EPR framework designed to drive innovation, support local infrastructure, and minimize taxpayer burden can be a powerful tool to improve recycling outcomes without stifling economic growth. To be successful in the U.S., at a minimum EPR legislation should:

- Aim to invest in the necessary infrastructure to increase the recycling rate through improved access, collection, sortation, and education;
- Include all forms of recycling ;
- Specifically authorize secondary sortation;
- Eco-modulate fees based on weight of the packaging and the material's environmental impact;
- Include recycled plastic attributed through a mass balance accounting system;
- Require independent certification for plastics attributed via mass balance accounting;
- Allow a producer responsibility organization (PRO) overseeing the EPR system to utilize a special assessment to support the infrastructure to increase the recycling rate for specific items;
- Include exemptions for public health and critical U.S. interests;

- Encourage innovation by permitting transitional requirements for newly developed products and material;
- Include government oversight of the EPR system to ensure smart governance and avoid exorbitant costs;
- Dedicate funds collected under the EPR system to infrastructure buildout and supporting functions;
- Establish fair, open, and competitive markets for post-use materials within EPR systems; and
- Sunset once assessment-identified goals are achieved, leaving the modern/expanded system in place.

EPR should not include policies that encourage material switching or production caps. Nor should the system ban or restrict certain resins, plastic products or chemistries that have little nexus to recycling or are more appropriately addressed in other regulations. ACC appreciates the work being done by Ranking Member Tonko and other Members of the Committee in this space.

In addition, ACC supports legislation that would develop national recycling standards for plastic. Plastic recycling today is confusing – recycling standards can create more certainty for recycling markets. There are approximately 9,000 state and local recycling systems that process plastic differently. Congress should direct the EPA to bring together the plastic value chain and municipalities to develop a national recycling framework for plastic. National recycling standards could include:

- Minimum household access standards to optimize the ability of Americans to recycle;

- Standard definitions of recycling and recycled content to provide clarity for consumers, business and government;
- Minimum infrastructure capacity standards to ensure communities can handle common materials and adjust to new materials in the waste streams; and
- Treat plastic made using advanced recycling technologies as recycled plastic and advanced recycling of plastic as a manufacturing process.

These legislative fixes on recycled plastic will help increase the amount of recycled plastic, reduce the amount of plastic sent to landfills, create new jobs, and strengthen and reignite U.S. manufacturing overall.

ACC has proudly endorsed H.R. 2145, the Recycling Infrastructure and Accessibility Act (RIAA), introduced by Congresswoman Mariannette Miller-Meeks (R-IA). Approximately 40% of Americans lack ready access to recycling. The RIAA would task the Environmental Protection Agency (EPA) with establishing a pilot program to improve recycling accessibility in underserved communities – those without access to full recycling services. Moreover, ACC is an ardent supporter of the Accelerating a Circular Economy for Plastic and Recycling Innovation Act (H.R. 9676, 118th Congress). The bill would have created national plastic recycling standards and a minimum requirement for recycled plastic, while studying the impact of greenhouse gas emissions from product materials and establishing a legal framework for advanced recycling. Lastly, ACC would support legislation to create a federal program to accelerate plastics circularity through improved interagency coordination and/or research and development for expanding recycling and reuse technologies, materials, and techniques related to such initiatives as sorting and advanced manufacturing.

Thank you again for holding today's hearing on recycling. I believe we are in the midst of a rare moment of policy convergence, where stakeholders from all sides of the recycling debate are seeking similar outcomes. This Committee has a unique opportunity to lay the foundation for a modern recycling system that is efficient, scalable, and built for the future. Let's get this policy right so the private sector can do what we do best: innovate, invest, and deliver results for the American people.

Mr. CRENSHAW. I appreciate you being here.
Mr. Bedingfield, you are now recognized.

STATEMENT OF MATT BEDINGFIELD

Mr. BEDINGFIELD. Thank you. I would like to express my appreciation to Chairman Palmer, Ranking Member Tonko, and the committee members for having me here today. My name is Matt Bedingfield. I am the president of Mint Innovations. I am honored to have the chance to be here to speak to you today about the state of e-waste recycling in the United States, how we can work together to increase recovery of this material, and the value of doing so.

To provide a foundation for this conversation, I would like to outline the current e-waste landscape in the United States. We generate approximately 7 to 8 million metric tons of e-waste each year in this country. Of that volume, more than 6 million is disposed of in landfills. While this only compromises—or comprises 2 to 3 percent of landfill volume, it accounts for over 70 percent of the hazardous materials and heavy metals in our landfills. What makes matters worse is these are the materials that are needed to supply the companies that are currently reshoring and driving the current domestic manufacturing resurgence.

Recycling rate aside, we do not have the capacity or capability in our country to recover the metals from the million metric tons that we do recycle. This is all collected domestically and then exported to Asia or Europe to be refined and, in many cases, then imported back into this country. This does absolutely nothing for the reshored companies I mentioned earlier.

The conventional solution is pyrometallurgical refining. These plants have significant emissions, take over 5 years to construct and, in many cases, over $1 billion in capital or more to build out. Mint Innovations has taken a different approach by leveraging hydrometallurgy that combines chemistry and biology to efficiently recover the copper, gold, palladium, silver, and tin from e-waste. Our plants cost approximately $30 million, generate no emissions, and take only 12 months to deploy.

Our first full-scale plant, a first of its kind in the world, is located in Sydney, Australia, and the wastewater is literally poured down the drain. We are building our second plant in Longview, Texas. This plant will consume up to 8,000 tons of printed circuit boards per year and will recover these metal units to be used domestically in the U.S. supply chain. This plant will be online 12 months after funding is secured.

The U.S. is the undisputed global leader in countless categories. Recycling and recovering our critical resources, metals, and minerals, unfortunately, is not one of them. We are not seeking an uneven playing field or a handout. However, this committee is uniquely positioned to provide a hand up to our industry, which enables us to compete and to win on an even playing field long term.

This committee and the U.S. Government overall can help in numerous ways, including allocating Federal funding to provide an enhanced education about how and why to recycle e-waste, directing funds to States to encourage and incentivize investment in recovery of metals and critical minerals, which are critical to our na-

tional security, and prioritizing companies that have a domestic footprint and the capability to recover these metals when issuing contracts for materials generated by the Government and its contractors.

As we think about critical mineral security, the United States cannot and should not rely upon massive government grants for singular projects. Those can become single points of failure, depending on company performance, operations, and poor market conditions. Taxpayer dollars should be spread among lightweight, cost-effective, and proven systems of scale. That is what Mint brings to the table.

I am happy to answer any questions, and I appreciate your attention. Thank you again for the honor of speaking to you today.

[The prepared statement of Mr. Bedingfield follows:]

House Energy and Commerce Committee
Subcommittee on Environment
Mint Innovation Testimony
July 16, 2025

Opening Remarks

Thank you Chairman Palmer, Ranking Member Tonko and the Energy and Commerce Subcommittee on Environment for holding today's hearing and elevating the importance around advanced recycling. My name is Matt Bedingfield and I am the Global President at Mint Innovation, a global clean technology company with a mission to localize and decarbonize metal refining. Mint Innovation has been operating since 2016, investing in our proprietary biorefining technology to recover critical metals from end of life electronic assets.

Mint strongly believes that building a robust, circular ecosystem around electronic waste (e-waste) recycling is both an environmental imperative and an economic opportunity. Our mission is to be the world's leading provider of circular green metals. We will achieve this by strengthening domestic infrastructure and capability for responsibly processing e-waste, ensuring that critical and strategic metals remain within our shores to support and secure U.S. manufacturing supply chains.

Mint Innovation has developed innovative technology that combines chemistry and biology to efficiently recover the copper, gold, palladium, silver, tin, lithium, cobalt and nickel from e-waste streams. We offer a sustainable alternative to traditional smelting and informal recycling, both of which are linked to significant environmental and social issues. Our approach delivers local benefits while advancing national priorities in sustainability, security, economic resilience, and clean technology. We recognize that improving recycling rates requires more than technology; it requires trust and transparency. That's why we engage directly with local communities to promote and encourage safe, accessible recycling solutions right here within our borders.

a. Current state of play: The U.S market

E-waste is the world's fastest growing solid waste stream. In 2022, the U.S. alone produced 10% of the world's e-waste, equal to 7.9 million metric tons of e-waste and containing 3.9 million metric tons of metals, such as gold and copper. The economic value of this material is estimated around US$10.6 billion; however, despite the abundance of valuable metals available within this feedstock, the majority of U.S. e-waste is either landfilled or exported often to countries with inadequate environmental and labor protections.

By 2030, projections indicate the global e-waste stream will increase by 32%, reaching 82 million metric tons annually. However, these figures underestimate the impact of emerging digital infrastructure, particularly the exponential growth of artificial intelligence (AI) and data centers. The rapid deployment of generative AI systems, hyperscale data centers, and cloud-based computing is creating a parallel stream of high-performance electronic waste—from graphics processing units (GPUs) and high-density server blades to advanced network modules and semiconductors. A 2024 study published in *Nature Computational Science* estimates that AI-driven data infrastructure could generate between 1.2 and 5 million metric tons of additional e-waste globally by 2030, with the U.S. likely responsible for 20–30% of that total—or up to 1.5 million metric tons annually that is not currently factored into forecasted volumes.

Despite these rising volumes, the U.S. remains unequipped to manage this waste stream at scale. There is no national mandate or federal recycling standard for e-waste. While 25 states and the District of Columbia have implemented e-waste recycling laws, these vary widely in scope, enforcement, and covered devices. This fragmented regulatory landscape leaves critical gaps in

coverage, creates enforcement loopholes, and enables actors to shift operations to states with minimal oversight.

Only 15–20% of e-waste generated in the U.S. is processed through certified recycling channels, and even then, the country lacks vertically integrated infrastructure to collect, dismantle, recover metals, and refine them to market-grade purity. Some domestic firms engage in preliminary shredding or low-grade smelting, but these operations typically stop short of producing high-purity, market-ready materials. Instead, partially processed e-waste is exported for final treatment. In the 2022 year, the U.S. exported an estimated 340,000 metric tons of e-waste, according to the U.S. International Trade Commission. This system results in the loss of critical materials such as gold, palladium, copper, and rare earth elements that are essential to national industries including semiconductors, defense, EVs, and clean energy. It also outsources job creation, technology development, and recycling expertise that could otherwise strengthen the U.S. industrial base.

The majority of e-waste that is not recycled through formal channels ends up in landfills. According to Gutterman (2023), while e-waste constitutes less than 2% of total U.S. landfill mass, it accounts for over two-thirds of the heavy metals found in landfill sites—including lead, mercury, and cadmium. These materials leach into groundwater, contaminate soil, and pose long-term risks to public health and ecosystems.

b. Creating Domestic Supply of Critical Minerals from E-waste for U.S. Manufacturing Supply Chains

The Trump administration's "America First" agenda places a strong focus on the onshoring of U.S. manufacturing as a means to restore industrial strength, safeguard national security, and reduce reliance on foreign supply chains—particularly those tied to China. This strategy emphasized domestic revival

in sectors such as steel, automotive, and electronics, all of which depend on a steady supply of critical and strategic metals.

Today, China controls the global supply chain for many of these essential materials, posing a significant risk to U.S. economic and geopolitical stability. According to the U.S. Geological Survey's 2024 Mineral Commodity Summaries, China is the leading producer of 30 out of 44 minerals. These include metals such as copper, lithium, nickel, tin, and rare earth elements, which are vital for semiconductors, defense systems, electric vehicles, and clean energy infrastructure

The White House has recognized that "processed critical minerals and their derivative products are essential for economic security and resilience because they underpin key industries, drive technological innovation, and support critical infrastructure vital for a modern American economy."[1] President Trump has stated that increasing domestic mineral production, including through advanced recycling technologies, is essential to U.S. national security and economy[2].

To support domestic manufacturing and reduce dependency on foreign supply chains, the U.S. must invest in alternative, onshore sources of refined metals. One of the most immediate and scalable opportunities lies in recovering these materials from e-waste.

Advanced technologies, such as Mint Innovation's proprietary biorefining process, can extract copper, gold, silver, tin, palladium, cobalt, lithium, and nickel directly from printed circuit boards and lithium-ion batteries, producing market-ready metals while generating local industries, adding jobs, reducing emissions, and reinforcing U.S. industrial resilience.

[1] Ensuring National Security and Economic Resilience Through Section 232 Actions on Processed Critical Minerals and Derivative Products – The White House
[2] Immediate Measures to Increase American Mineral Production – The White House

In line with America First principles, this approach keeps strategic resources and economic value onshore, reduces environmental risk, and accelerates the shift to a secure, circular supply chain for the industries that will define America's future.

c. Comparative Assessment of Options to Increase Domestic E-Waste Processing

The prevailing method for metal recovery from e- waste globally is pyrometallurgical refining, commonly referred to as smelting. While well-established, this technique presents significant barriers to widespread and sustainable deployment within the United States.

- **Extended Development Timelines:** Smelters require extensive timeframes—frequently approaching a decade—from initial design through permitting, construction, and commissioning. This lags behind the pace needed to address rapidly growing e-waste volumes.
- **High Capital and Regulatory Complexity:** Capital expenditure for a single smelting facility typically exceeds US$500-700 million, and permitting is encumbered by rigorous environmental regulations due to air emissions, waste management, and community impact concerns. The perceived and actual risks associated with these facilities often trigger public opposition and regulatory delays.
- **Environmental and Energy Costs:** Pyrometallurgical refining is energy-intensive, contributing to approximately 4% of global energy consumption and responsible for nearly 7% of global greenhouse gas (GHG) emissions. The high-temperature processes required for smelting generate substantial air pollutants and carbon dioxide. In practice, smelting

infrastructure is often centralized and located offshore, resulting in additional emissions associated with the transboundary shipment of hazardous waste materials.

Given these challenges, relying solely on smelters to build domestic recycling capacity will delay progress and undermine environmental goals.

Hydrometallurgy presents a lower-emissions, lower-temperature alternative to smelting that is increasingly being explored for critical and precious metal recovery. Most hydrometallurgy processes use cyanide, strong acids or other chemicals to leach metals from e-waste. Low-concentration metal solutions are produced, which require some form of liquid/solid exchange to recover the precious metal content for further purification. Recycling loops and low-cost product recovery are required for the process to be cost-effective.

d. The Mint's Solution for U.S. E-Waste Recycling

i. Core technology

Mint Innovation is a New Zealand based clean technology company that is working to accelerate our domestic presence through a network of facilities across the U.S. These facilities will process e-waste, like old cell phones or laptops, to recover critical and strategic metals and minerals, including copper and gold, as well as silver, tin and palladium, from printed circuit boards (PCBs).

Mint Innovation is the only commercially scaled hydrometallurgical technology capable of economically recovering valuable metals from printed circuit board waste. Our proprietary biosorption process uses a naturally occurring biomass that is highly selective for specific metals, like high value gold, enabling precise, efficient recovery of high-purity outputs while generating minimal waste. By processing e-waste and producing metals onshore, Mint supports a fully circular

economy—reducing reliance on imported resources and integrating recovered materials back into domestic supply chains.

Each Mint facility is capable of processing up to 8,000 metric tons of PCB and server blade material per year, recovering approximately 1,000 tons of copper, 6 tons of silver, 300 pounds of palladium, 220 tons of tin, and 1 ton of gold. This represents a meaningful domestic contribution to U.S. critical mineral supply security while displacing the need to export hazardous e-waste or rely on carbon-intensive overseas refining. In contrast to traditional pyrometallurgical approaches, Mint's proprietary hydrometallurgical process is conducted at ambient temperatures, produces no air emissions, and requires no combustion or high-temperature inputs. The core of the process is a proprietary biosorption technology that utilizes a naturally occurring biomass with selective affinity for specific metals—particularly gold—enabling precise recovery of high-purity materials while minimizing residual waste.

The facilities are designed to operate within standard industrial zones, using available city infrastructure such as power, water, and wastewater systems. They are rapidly deployable, requiring only 12 months from permitting to operation, and have a relatively low capital cost of approximately US$30 million per site—an order of magnitude less than a single smelter. This modular and distributed model enables Mint to establish a network of strategically located plants across the country, optimizing regional material flows and avoiding overreliance on a centralized processing system. This decentralization not only improves system resilience but also enhances the circularity and security of U.S. metal supply chains.

In terms of operational security, all electronic waste is subjected to size reduction via a hammer mill to a particle size of 0.6 mm or less. This ensures complete destruction of data and chip design, which

is critical for applications involving sensitive or classified information. The process not only increases the surface area for more efficient metal recovery but also provides a high-assurance pathway for secure destruction.

Mint's platform is also being extended to lithium-ion battery recycling, enabling recovery of essential materials such as lithium, cobalt, and nickel from spent batteries using the same low-carbon, low-temperature, closed-loop methodology. A single Mint battery biorefinery is expected to recover 250 tons of lithium, 500 tons of cobalt, and 1,000 tons of nickel per year, directly supporting U.S. battery manufacturing capacity and energy security goals.

The company's services are designed to address the entire e-waste ecosystem—including consumers, recyclers, corporate asset managers, and government agencies. To further improve accessibility and reduce the risks associated with e-waste logistics, Mint is developing a fleet of mobile shredder trucks that can be deployed to secure facilities or corporate campuses for on-site material destruction. These units reduce the chain of custody, limit transportation-related emissions, and enhance trust in secure material handling

e. Benefits to Boosting E-Waste Recycling Infrastructure

In addition to economic benefits, fostering recycling innovation will have several ancillary benefits such as an increase in recycling rates (further increasing economic growth), job creation and environmental impacts.

To truly increase national e-waste recycling rates, we must invest not only in innovative technologies but also in the infrastructure and community partnerships that make recycling accessible and trusted. At Mint, we believe that advancing recycling innovation, building out a distributed processing

network, and proactively engaging local communities are essential pillars of a successful, long-term strategy. Our model emphasizes working hand-in-hand with cities, regional leaders, and community stakeholders to promote safe, visible, and convenient recycling solutions—right here within our borders. By locating our facilities within urban industrial zones and ensuring they are publicly acceptable and environmentally responsible, we foster community trust and participation.

Each of our U.S. facilities will contribute directly to local economic development. On average, a single Mint facility will create 35 high-quality, family-sustaining direct jobs, and support an estimated 121 additional indirect jobs in adjacent sectors such as logistics, equipment services, utilities, and downstream manufacturing. These are skilled, clean economy jobs that support long-term workforce development in host communities.

The environmental benefits of scaling technologies like Mint's are also compelling. According to analysis by the REMADE Institute, if the U.S. were to increase recycling rates by just 20% using less energy-intensive technologies like ours, the country could reduce energy consumption by 21 petajoules and avoid 1.2 million metric tons of CO_2-equivalent emissions each year. These savings would represent a major step forward in achieving national climate targets while bolstering domestic supply chains for critical and strategic metals.

f. Policy recommendations

Mint commends the Subcommittee for recognizing the need to modernize recycling policies and expand the federal government's role in advancing new recycling technologies. Mint Innovation has developed the following recommendations to ensure this:

- First, we encourage the federal government to work across agencies through the Department of Energy, Environmental Protection Agency, and Department of Defense to invest in new

recycling technology that supports a circular economy domestically and taps into valuable resources that exist within current waste streams already within our country's borders. Federal support to mobilize interagency collaboration on advancing recycling efforts domestically will allow companies like Mint Innovation to expand rapidly.

- Second, a critical barrier to effective e-waste recycling is public awareness. Many Americans do not know what they can and cannot recycle. This leads to the improper disposal into landfills or storage of electronics at home. We encourage the Environmental Protection Agency to work with states to develop educational campaigns to inform consumers and businesses about the importance of properly recycling e-waste. Expanding awareness across all regions—especially underserved and rural communities—will significantly increase participation in recycling programs, reduce environmental harm, and support the growth of domestic recovery industries like Mint Innovation.

- Third, while the United States generates a significant amount of e-waste streams annually, a large portion of it is exported out of the U.S. to foreign countries. This contributes to national security risks and undermines the development of the critical material recovery industry. The federal government should enforce penalties to curb the exportation of e-waste.

- Lastly, Mint commends policymakers like Representative Haley Stevens for continuing to champion legislation like the *Unearth America's Future Act*. This bill represents a critical step toward directing federal investment—through loans and tax credits—to accelerate domestic mineral production and advanced recycling. Congressional focus on strengthening U.S. supply chain independence and supporting domestic industries creates the conditions for innovative companies like Mint to grow and thrive. This includes efforts made by a number

of Members in both the House and Senate who are currently working to pass the *Critical Minerals Consistency Act*, which aligns DOE and USGS's critical minerals list to include copper. We strongly encourage continued bipartisan efforts to advance policies that provide targeted federal support for private-sector solutions, enabling companies like Mint to expand critical metals recovery infrastructure and help build a resilient, circular economy here at home.

Closing Remarks

In closing, I want to thank the committee for inviting Mint Innovation to be a part of today's important conversation. Mint stands eager to work with Congress, federal agencies, and the Administration to build the infrastructure needed to transform e-waste into secure, sustainable domestic supply chains of critical materials.

Thank you and I look forward to your questions.

Mr. CRENSHAW. I look forward to hearing more from you.
Ms. Harrison, you are now recognized.

STATEMENT OF KEEFE HARRISON

Ms. HARRISON. Chairman Palmer, Ranking Member Tonko, Vice Chairman Crenshaw, and the members of the committee, thank you for inviting me in today to talk about recycling in America and the tremendous opportunity we have ahead.

I am a 28-year veteran of the recycling system. In the early days, I ran a recycling truck. Now I work with Fortune 500 companies on multimillion-dollar investments because I believe that this recycling system has so much potential for our country. I founded the Recycling Partnership to be a public-private partnership. And after one decade we have achieved half a billion dollars' worth of impact working directly with more than 400 communities and recycling facilities across the country. That is a billion pounds of new recyclables that we have added to the stream.

In my experience there has never been a moment like now. Recycling is at an inflection point. We have huge opportunity in front of us, but only if we address the challenges that—in a very real and data-driven way. These challenges include that 76 percent of paper and packaging materials that are currently in homes end up in the landfill, not in the recycling system. Cheap imports, often from Asia, are threatening to upend market dynamics for recycling content, putting American jobs at risk. Many companies are failing to meet their recycling goals that they have set and are responding not by leaning in, but by stepping back. And it is estimated that only half of the packaging—plastic packaging that is produced is actually even designed for recycling, something that is easily fixable. Finally, only 73 percent of our Nation's households have access to recycling.

As we have already heard here, recycling matters for our economy. It is simple. Our Nation's recyclables become feedstock for American manufacturing. We can put that to work. Fully investing in recycling would deliver huge benefits: 200,000 new jobs, more than $8 billion of materials returned to the economy, $11 billion of savings—and taxpayers and local governments who currently foot the bill for this. But to achieve these, we need system change.

Like the title of this hearing, American recycling needs to go beyond the blue bin. When we say recycling, it is one word but it really means many different things. It is how is something designed, it is access. Can the public do it? It is participation. Does the public do it? It is infrastructure and it is end markets, which means does old stuff turn into new stuff? To level up, we must embrace innovation. But as we innovate, we cannot lose a hold of really what is our why.

Recycling for the purpose of recycling is not the point. We must ground ourselves in science and data and purpose to ensure that we are achieving a goal of conserving natural resources, building regional economies, and creating sustainable, resilient communities.

Today we are going to talk about chemical recycling, and that refers to a broad, wide variety of technologies. It is one term, but it means very many different things. Such technologies offer great—

they vary greatly in terms of what materials they can accept as inputs, what they can create as outputs, what is the amount of energy used, the impacts on the environment and human health.

So before we endorse one thing, we really need to get to the heart of taking a broad category and turning it into definitions of the specific things, asking ourselves questions such as, what is the technology? What is the supply chain? How do we make the economics work? How do we ensure that we understand the environmental and human health impacts? Is it scalable, and do we ensure transparency?

So where do we go from here? Three things are on my mind. We need ground decisions and a clear-eyed, data-driven view of the recycling system. We must take a systems approach—no more silver bullets. And we must support robust policies that drive accountability and level the playing field for responsible engagement from our U.S. companies. The good news is that this committee can take immediate steps to solve the challenges of recycling.

First, the committee should mark up and pass the STEWARD Act that puts together two bills that nearly passed last year and supports our rural communities in this country.

And second, I urge you all to support the CIRCLE Act, which will launch—which will be introduced today and establish a recycling infrastructure investment tax credit. It would reward domestic investment that could create jobs in every State, every district in this nation.

So thank you for the opportunity to testify today. I look forward to working with each and every one of you to build a better solution for America.

[The prepared statement of Ms. Harrison follows:]

Written Testimony of Keefe Harrison,
Chief Executive Officer of The Recycling Partnership

On

"Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth"

Before the
House Committee on Energy and Commerce
Subcommittee on Environment

July 16, 2025

Chairman Palmer, Ranking Member Tonko, and Members of the Committee:

Thank you for inviting me to testify on opportunities for recycling innovation and economic growth. It is my honor to be with you.

I founded The Recycling Partnership eleven years ago to unite the public and private sectors in building a stronger U.S. residential recycling system and protecting our planet. Our mission was—and still is—to capture the paper and packaging from American homes, putting those materials back to work within a thriving circular economy. Since then, my organization has grown from an idea into an institution delivering half a billion dollars' worth of impact in towns across this country. We are fiercely committed to producing real results, leveraging deep relationships with hundreds of states and community recycling program leaders, recycling operators, packaging manufacturers, brands, and retailers to create meaningful change benefiting every American. It is our mission to build a better recycling system in the U.S., and it is why we bring together companies, communities, and policymakers. Recycling is at an inflection point, and with your help, we can land the outcome our country deserves.

Our country deserves a robust recycling system that both fuels our economy and protects our environment. As a 28-year veteran of recycling, I believe this moment in time is ripe for finally delivering that potential. Why now? Because the public is calling for it. In fact, 81% of Americans believe that we are not doing enough to combat wastefulness and 77% of Americans believe that recycling has a positive impact. And with the seven states that have recently passed Extended Producer Responsibility legislation, one in five Americans will see the returns of investing in a circular economy and benefit from an at-scale recycling system. These critical programs are both growing the recycling system and reducing the cost burden for communities by requiring companies to ensure that the products they produce are properly recycled, composted, or reused. This is momentum we have never seen.

However, this remarkable progress is at risk unless we pay attention to two further components: imports and softening corporate commitments. Increasingly, cheap imported materials are threatening to upend market dynamics for recycled content, risking thousands of American jobs. And distressingly, many companies are failing to meet the recycling goals they have set and are responding not by leaning in, but by stepping back. Recycling only happens when old stuff turns into new stuff, and if companies are not ensuring they are putting our domestic recycled content feedstock to work, the momentum I

just spoke of will not continue. We need federal and state policies that provide the right incentive structures for companies along the supply chain to utilize domestic recycled content.

Good news—this is fixable. With the attention of this important committee, we can succeed. To support that work, I have outlined where the U.S. recycling system is today, what an effective system looks like, and how we will get there.

Where the U.S. Stands Today: The State of Recycling

In 2024, The Recycling Partnership released our State of Recycling Report, a comprehensive analysis of the nation's residential recycling capabilities.[1] The report shows that only 73% of the nation's residents have access to recycling service and fewer than half take part. As a result, 76% of the paper and all packaging materials (e.g., aluminum, glass, plastic, steel) in American homes are lost to landfilling or incineration. Why does that matter to the U.S. economy? Simple: It reduces the domestic manufacturing supply chain. That is nearly 34 million tons of domestic manufacturing feedstock that could be turned into new products but is instead wasted. It is clear that this business-as-usual scenario is wasting valuable resources, and we need to do better.

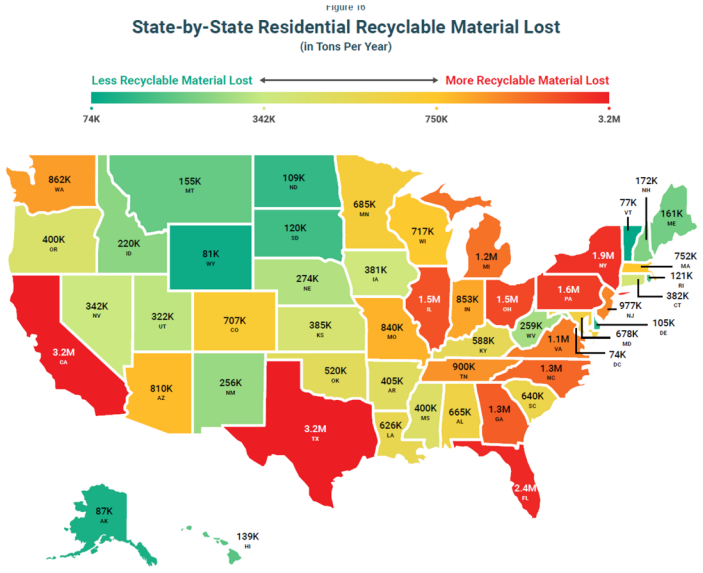

Figure 1. State-by-State Residential Recyclable Material Lost from the State of Residential Recycling Report.

[1] The Recycling Partnership's State of Recycling Report

What Good Looks Like: The Future Opportunity of Recycling

Fully investing in recycling—which means giving every household across the nation access to recycling services—would create nearly 200,000 jobs, return $8.8 billion in new materials to the American economy, and save taxpayers and local governments $11 billion over the next 10 years.[2] It would require a $17 billion capital investment, but it is an investment with an almost guaranteed rate of return. For every dollar that we invest in recycling across the country, whether it is successful government programs like the Solid Waste Infrastructure for Recycling (SWIFR) grant program administered by EPA or public-private partnerships spearheaded by organizations like The Recycling Partnership, we create new jobs and new opportunities for American markets.

There is also an opportunity for the recycling system to evolve and innovate over time, leveraging new technologies and best practices learned from on-the-ground experience. Yet every innovation, whether in packaging design, processing, or community outreach, must be tested for its impact on people, the planet, and the system. Innovation should not come at the expense of human and planetary health but should aim to fully serve our communities and our recycling system.

Data-Driven Solutions: The 5 Requirements of an Effective Recycling System

American recycling is often pictured as simply the "blue bin," the iconic symbol at the end of driveways across the nation. But recycling goes beyond the bin. It spans a value chain with local and global decision makers at every step. Whether an item successfully is recycled into something new is determined not only by the initial blueprints of the packaging engineers that designed it, but also by the design choices of brands and retailers, by the ability and commitment of hard-working American families to recycle, by the equipment and technology of haulers and recyclers to sort and process the material, and by the markets where the material is sold as feedstock for manufacturing.

For the United States residential recycling system to function effectively, these five requirements must be met:

- **100% of packaging needs to be recyclable**. Following the waste management hierarchy, paper and packaging should be designed to minimize waste generation and maximize resource utilization, prioritizing source reduction, reuse, and recycling—adhering to clear, harmonized, and transparent recyclability standards.
- **100% of households need access to recycling from their homes.** Everyone can dispose of trash, but not every household has access to recycling. For those with access, some locations do not accept all packaging types, thus limiting the amount of recyclable material collected.
- **Residents need to fully engage in recycling.** Recyclable material is lost because some households with access do not receive sufficient communication to help them use their recycling service and recycle all their recyclables. In an effective system, at least 90% of households should participate.

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[2] The Recycling Partnership's Paying It Forward Report

- **Recycling facilities need to effectively process 95% of the material.** Once collected from households, recycling facilities need adequate technology and infrastructure to efficiently sort and process different material types.
- **Recycling facilities need sufficient and commercially viable supply chains.** After recycling facilities sort the various material types, they must be able to sell these recycled commodities. Sufficient markets for these materials are key to an effective recycling system.

Fewer than half of plastic packages are recyclable by design. Only 73% of U.S. households can set out recycling, and just 43% do so. Although 87% of collected material is sorted and sold, demand still trails behind what the system supplies. Given these data points, every link in the residential chain can improve. Grounded in real-world experience and data, The Recycling Partnership equips policymakers, companies, and community recycling programs to close these gaps and unlock widespread economic and environmental benefits.

An Innovation Deep Dive: Chemical Recycling Principles

Whether we use the phrase molecular, chemical, or advanced recycling, we need to be very clear about what problem we are trying to solve. Recycling is not an end goal in and of itself; recycling is a means to an end of conserving natural resources, building regional economies, and creating sustainable, resilient communities. Every American deserves clean soil, air, and water. I have dedicated my career to improving the U.S. recycling system because I care about protecting natural resources and the critical biodiversity of this planet. Before recycling, I worked on a logging crew in North Carolina, researched giant sea turtles in Costa Rica, tiny bog turtles in the U.S., and studied reindeer husbandry in Finland. Today I work with Fortune 500 companies and communities to build a better recycling system, but the goal remains the same: protect natural resources and the biodiversity they sustain.

With these goals in mind, The Recycling Partnership is building a stronger U.S. residential recycling system by embracing innovation at every step. Electric trucks and smarter routing boost curbside collection. AI and optical sorters capture more high-value material. New domestic uses for recycled content keep dollars and jobs at home. Recycling has always evolved and changed in response to evolving packaging streams, new business opportunities, and regulatory frameworks. Technologies that fall under the umbrella term of “chemical recycling” are just one example of innovation, largely driven by the reality that some of the plastics in today’s stream are difficult or unable to be recycled mechanically, particularly for application in food-contact packaging.

The term “chemical recycling” refers broadly to a wide variety of processes and technologies that differ from mechanical recycling in that they use heat and/or chemical reactions to break down plastics into raw materials for remanufacturing. Such technologies vary greatly in terms of what materials it can accept as inputs, what is produced as outputs, the amount of energy used, and the impacts on the environment and human health. Before offering an endorsement or rejection of a broad category of recycling technologies, it is critical that we get specific about the process in question and can answer with confidence the following questions:

- **What is the impact on the environment?** Chemical recycling facilities should be environmentally preferable to the production of new plastics and robustly regulated for impacts including emissions to air, discharges to water, water usage and management, chemical management, plastic pollution, and generation and disposal of hazardous and non-hazardous waste.
- **What is the impact on communities and human health?** These processes should not negatively impact the people, water and air surrounding the facility, especially low-income communities that often bear a disproportionate share of the impact.
- **What are the supply chain economics?** Having the technical capability to recycle a material does not automatically lead to successful recycling in practice and at scale. We must be transparent and realistic about the physical and economic challenges of collecting, sorting, and processing recyclables as feedstock for remanufacturing in a cost-competitive manner.
- **What is the appropriate timeline for scale?** Change takes time and it is important to know how long innovation, if successful, will take to reach meaningful scale. Community recycling programs cannot be flipped on and off like a switch, and the American people demand greater transparency around what happens to the materials they put in their recycling bins.
- **What is the goal and how do we ensure transparent impacts?** Chemical recycling processes should be driven by a genuine need to turn “old stuff into new stuff" with transparent reporting as to what these operations yield. They should not be motivated by a desire to claim that “recycling” is occurring without meaningful production of raw material. As new technologies disrupt past business approaches, ensuring that they are positive for people and the planet will speed up their adoption and impact.

As Extended Produce Responsibility (EPR) legislation rolls out in seven states, all recycling technologies—mechanical and chemical—will face stricter reporting, transparency, and newly defined performance standards. This shift is a chance to transform recycling for good, driving innovation that is grounded in science, data, and meaningful purpose.

How We Deliver Recycling’s Full Economic & Environmental Impact: Opportunities for Action

As this committee considers how best to ensure recycling delivers its full potential, I advise that we adopt a few guiding principles:

1. Ground decisions in a clear-eyed, data-driven view of today’s recycling system.
2. Take a systems approach to designing solutions, diversifying interventions instead of chasing silver bullets.
3. Support robust policies that drive accountability and level the playing field for responsible brands and U.S. recyclers.

There are three immediate opportunities for Congress and this Committee to put these principles to work, forging a federal landscape for recycling innovation and economic growth.

Strategies to Eliminate Waste and Accelerate Recycling Development (STEWARD) Act (S. 351)

First, I call on the members of this Committee to mark up and combine the Recycling Infrastructure Accessibility Act (H.R.2145) and the Recycling and Composting Accountability Act (H.R.4109) into the

Strategies to Eliminate Waste and Accelerate Recycling Development (STEWARD) Act (S.351). The STEWARD Act has been introduced in the Senate and passed out of the Environment and Public Works Committee by unanimous consent. It is common-sense legislation that would help rural and underserved communities access recycling markets and help us better understand the recycling and composting system here in the United States. Both bills are bipartisan, and both bills have received a wide array of industry and environmentalist support.[3]

Cultivating Investment in Recycling and Circular Local Economies (CIRCLE) Act

Second, I encourage the members of this Committee to support the Cultivating Investment in Recycling and Circular Local Economies (CIRCLE) Act. The CIRCLE Act would establish a recycling infrastructure investment tax credit to stimulate investment in the domestic recycling economy and reward those who make investments in American businesses and communities. Also bipartisan and supported by a wide array of stakeholders, the CIRCLE Act would accelerate investment in recycling while reducing the burden on governments at all levels—including the federal government—to fund recycling systems.

Global Treaty on Plastic Pollution

Third, I encourage this Committee, the Administration, and stakeholders across the system to remain engaged in the ongoing global treaty on plastic pollution. An effective global treaty is one that leverages the weight and power of the American economy to accelerate the transition to a circular economy. American innovations, like the state-level frameworks for Extended Producer Responsibility for paper and packaging can provide templates for successful international policies. It is important that the U.S. remains at the negotiating table to inform the global plastic treaty and that this Committee consider components of the global treaty that could become U.S. law.

Chairman Palmer, Ranking Member Tonko, and Members of the Committee, America is at a pivotal moment for recycling. By championing pragmatic policies like the STEWARD and CIRCLE Acts and maintaining U.S. leadership in the global plastic pollution treaty, Congress can accelerate investment, strengthen domestic manufacturers, and keep valuable materials in our economy instead of our landfills. The Recycling Partnership stands ready to support your efforts every step of the way. Thank you for the opportunity to testify; I welcome your questions.

About The Recycling Partnership

The Recycling Partnership is a purpose-driven organization committed to building a better recycling system, one that delivers the economic and environmental benefits our communities and the hundreds of thousands of people who work throughout the recycling industry deserve. The Recycling Partnership's team of experts, practitioners, and thought leaders with real-world experience works with its partners to create meaningful change across the recycling system and assist communities, companies, and policymakers in enacting such change. The Recycling Partnership uses its one-of-its-

[3] The Recycling Partnership is proud to have led a letter signed by 65 stakeholders from across the spectrum – private companies, non-profits, trade organizations and more – to call for the passage of RIAA and RCAA last Congress.

kind National Recycling Database that reaches more than 9,000 U.S. recycling programs and develops practical and innovative resources to address critical gaps in the recycling system.

Mr. CRENSHAW. Thank you.
Mr. Felton, you are now recognized.
Mr. FELTON. I can't get the mic on. Is it?
[Pause.]
Mr. FELTON. Yes, thank you.

STATEMENT OF DAN FELTON

Mr. FELTON. Good morning, Vice Chair Crenshaw, Ranking Member Tonko, and members of the subcommittee. I am Dan Felton, president and CEO of FPA, the Flexible Packaging Association. Thank you for the opportunity to testify today on Federal support for recycling innovation and economic growth in the U.S. This is a core policy issue for FPA and our members and stakeholders, and we must all work together to craft effective industry public policy approaches.

FPA represents flexible packaging manufacturers and suppliers with business in the U.S. Flexible packaging is the fastest-growing and second-largest segment of the U.S. packaging industry, and is produced from paper, film, plastic, aluminum foil, or combinations of those materials. It includes bags, pouches, labels, liners, wraps, roll stock, and other flexible products. Flexible packaging is used for a myriad of consumer goods, including fresh and frozen food products, personal care items, pet foods, and lawn and garden products. Flexible packaging is also used extensively in the medical device industry to ensure that products like dental instruments, intubation tubes, and personal protective equipment maintain sterility and efficacy before use.

Flexible packaging is one of the most sustainable packaging types, as it reduces water and energy consumption, improves product-to-package ratio, enhances transportation efficiency, minimizes food waste, and reduces greenhouse gas emissions. However, full circularity options for flexible packaging are more limited than other packaging formats and materials that have been in the market longer and thus have more mature infrastructure solutions for recycling. But we believe that will not always be the case for flexible packaging, as recycling has always been iterative, regardless of product, format, or material.

FPA is deeply committed to solving packaging waste issues and increasing the recyclability and recycling of flexible packaging. We are collaborating with manufacturers, brand owners, recyclers, retailers, waste management companies, and other organizations to continue to make strides towards total packaging recovery. As we collaborate, the following are some key public policy issues covered in greater detail in my written testimony on which FDA is focused and that we believe will help increase flexible packaging recycling through innovation and economic growth, and could also benefit from some Federal Government support.

First, increase data funding and infrastructure. This includes two bills you have heard mentioned this morning currently before the House Energy and Commerce Committee: the Recycling Infrastructure and Accessibility Act and the Recycling and Composting Accountability Act. FPA encourages the committee to pass these bills this year.

Second, advanced recycling. FPA believes advanced recycling is critical for increasing the use of safe, recycled content in certain films and flexible packaging, particularly for food contact and sterile medical applications. Anything the Federal Government can do to help support advanced recycling, including classifying it as a manufacturing process rather than a solid waste management process, will be meaningful.

Third, recycled content. FPA supports achievable and reasonable government requirements that recognize certain unique attributes or the need to limit the use of recycled content in some flexible packaging. It is also important to recognize the distinction between postconsumer recycled content and postindustrial recycled content for different flexible packaging applications. FPA believes there is an opportunity for the Government to support and incentivize the use of durable products for lower-grade recycled content while supporting research and development for higher grade uses.

Finally, consumers will benefit with more consistent and harmonized national requirements on what is considered recyclable and how and where to recycle it. However, an emerging patchwork of State-level requirements is becoming unmanageable and may create interstate commerce issues. FPA supports AMERIPEN's proposed Packaging and Claims Knowledge Act, the PACK Act, that would establish Federal requirements for the labeling of packaging for recyclability, compostability, and reusability, with oversight by the FTA that already maintains jurisdiction over guidance on marketing claims through its Green Guides.

Additional public policy issues highlighted in my written testimony include artificial intelligence and extended producer responsibility for packaging. I hope these thoughts from FPA offer some perspective on flexible packaging and what we believe will help support continued recycling, innovation, and economic growth for us and other industries in the U.S.

I appreciate that opportunity to appear before you this morning, and I look forward to any questions you may have. Thank you.

[The prepared statement of Mr. Felton follows:]

Statement of
Dan Felton, President & CEO

Flexible Packaging Association (FPA)

before the

U.S. House of Representatives
Committee on Energy and Commerce
Subcommittee on Environment

Hearing:
Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth

Wednesday, July 16, 2025

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Committee Chairman Guthrie, Subcommittee Chairman-Designate Palmer, Ranking Member Tonko, and Members of the U.S. House of Representatives Committee on Energy and Commerce Subcommittee on Environment.

The **Flexible Packaging Association (FPA)** very much appreciates the opportunity to appear before the Committee to discuss with you our positions and views on recycling infrastructure, needs, and technology for flexible packaging in the United States. This is a critical core policy issue for **FPA** and the flexible packaging industry in the U.S., and we must all work together to craft effective industry and public policy approaches.

FPA represents flexible packaging manufacturers and suppliers to the industry in the U.S. Flexible packaging in the U.S. represents $42.9 billion in annual sales, is the second largest and fastest-growing segment of the packaging industry and employs approximately 83,000 workers. Flexible packaging is produced from paper, plastic, film, aluminum foil, or any combination of these materials, and includes bags, pouches, labels, liners, wraps, rollstock, and other flexible products.

These are products that you and I use every day, including hermetically sealed food and beverage products such as cereal, bread, frozen meals, infant formula, and juice, as well as sterile health and beauty items and pharmaceuticals, such as aspirin, shampoo, feminine hygiene products, and disinfecting wipes. Even packaging for pet food uses flexible packaging to deliver fresh and healthy meals to a variety of animals.

For a more specific example, a retort pouch is a flexible or semi-rigid package made from heat-resistant laminated plastic and sometimes foil and then sealed and sterilized at temperatures up to 121°C with food products inside. Interestingly, the development of the retort pouch was driven by the U.S. military in the 1950s and 1960s to move away from rigid cans for individual combat rations to make those C-rations lightweight and save packing, distribution, and storage space. Thanks in part to the U.S. government, retort pouches then quickly became commercialized for non-military use as well, and of course, remain in the marketplace today.

Flexible packaging is also used for medical device packaging to ensure that the products packaged, like diagnostic tests, IV solutions and sets, syringes, catheters, intubation tubes, isolation gowns, and other personal protective equipment maintain their sterility and efficacy at the time of use. Trash and medical waste receptacles use can liners to manage business, institutional, medical, and household waste. Carry-out and take-out food containers and e-commerce delivery, which became increasingly important during the global COVID pandemic,

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are also heavily supported by the flexible packaging industry. Thus, **FPA** and its members are particularly interested in and deeply committed to solving packaging and plastic waste issues and increasing the recyclability and recycling of all packaging.

Developing end-of-life solutions for flexible packaging is a work in progress, and there are now more than a dozen peer organizations and many more private efforts working collaboratively to advance flexible packaging recycling. **FPA** is partnering with manufacturers, recyclers, retailers, waste management companies, brand owners, and other organizations to continue making strides toward total packaging recovery. Some examples of entities with which we are collaborating include The Recycling Partnership (TRP), the Hefty® ReNew™ Program, the Flexible Film Recycling Alliance (FFRA), and the Circular Action Alliance (CAA) Plastic Film and Flexibles Taskforce. These programs all seek to increase the recycling of flexible packaging. Also, increasing the recycled content within new products, including flexible packaging, will not only create markets for the products but will also serve as a driver for the creation of new collection, sortation, and processing infrastructure for the valuable materials that make up flexible packaging.

CHALLENGES AND SOLUTIONS FOR INCREASING FLEXIBLE PACKAGING RECYCLING

Flexible packaging is one of the most environmentally sustainable packaging types, as it reduces water and energy consumption, improves product-to-package ratio, enhances transportation efficiency, minimizes food waste, and reduces greenhouse gas emissions. But it is important to note that recycling is an iterative process, developed over time, and full circularity options for flexible packaging are generally more limited than some other packaging formats and materials (i.e., glass bottles, metal cans, paper, rigid plastic containers) that have been in the solid waste stream for much longer and have had more time to develop mature infrastructure options and solutions for collection, recovery, sortation, and end market delivery and usage.

There is no single solution that can be applied to all communities in the U.S. when it comes to the best way to collect, sort, process, and utilize end markets for flexible packaging. Viability is influenced by existing equipment and infrastructure; material collection methods and rates; volume and mix; and demand for the recovered material. For example, single-material flexible packaging, which is approximately half of the flexible packaging waste generated, can be mechanically recycled and is collected from consumers primarily through store drop-off programs. The other half—multi-material flexible packaging, and in particular food contact packaging—is better suited for advanced alternative recycling technologies such as pyrolysis and gasification, although gathering sufficient intake volume for these types of large manufacturing facilities is a current challenge.

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It is **FPA's** position that a full suite of options is needed to address the general lack of infrastructure for currently less readily recyclable flexible packaging materials, and promotion and support of market development for recycled packaging is an important lever to build that infrastructure. The following are more specific related challenges and potential solutions.

Increased Data, Funding, and Infrastructure

As stated earlier, there is a general lack of adequate infrastructure established to handle the recycling of flexible packaging in the U.S. fully, and this is largely true whether that packaging is collected through more "traditional" curbside collection, or through alternative collection methods such as depots, store drop-off, subscription pick up services, etc. This is not to say that most flexible packaging cannot be recycled, **because it can be**. We just need the proper collection, sortation, processing, and end market delivery mechanisms that already exist today put in place and scaled up to handle significant volumes of flexible packaging.

FPA believes that properly constructed and executed extended producer responsibility (EPR) program laws for packaging are one public policy mechanism that could significantly assist with increasing flexible packaging recovery and recycling in the U.S. through additional funding and infrastructure. Seven such laws have now been enacted in California, Colorado, Maine, Maryland, Minnesota, Oregon, and Washington State. While these laws are not all created equal and some are arguably overreaching in their goals and requirements, **FPA** is proud to have publicly supported the enabling legislation in Maryland and Minnesota as vehicles we believe have real potential to promote a critical and necessary shift in flexible packaging recycling in the U.S. while not placing overburdensome requirements or restrictions on flexible packaging manufacturers and users. With Oregon's program now in effect as of July 1, 2025, and programs in the other states going into effect over the next several years, time will tell how well these packaging EPR laws in the U.S. increase flexible packaging recovery and recycling.

Critical to the success of increasing any flexible packaging recovery and recycling in the U.S. is a clear understanding of the location and volume of packaging in the market, how and where it is disposed of at its end of life, where helpful recycling infrastructure does or does not exist to collect, sort, and process that packaging, and where end markets do or do not exist to turn that recycled packaging into another product. There are important mechanisms within the emerging packaging EPR laws and regulations in the U.S. to assist with this, including statewide recycling needs assessments and statewide collection lists. The data from these types of mechanisms is meaningful and will ideally help create harmonization and standardization within states and regions, and potentially even at the national level.

There are additional opportunities to help create harmonization and standardization at the national level through federal funding and data collection and usage, including two bills

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currently sitting before the House Energy and Commerce Committee for consideration. The Recycling Infrastructure and Accessibility Act (RIAA) (H.R.2145, Miller-Meeks, Sherrill) would require the U.S. Environmental Protection Agency (EPA) to establish a grant funding pilot program to improve recycling accessibility in communities where there is not more than one recycling materials recovery facility within a 75-mile radius of that community. The Recycling and Composting Accountability Act (RCAA) (H.R. 4109, Neguse, Burchett) would require the EPA to collect and publish data on recycling and composting rates across the country to provide an accurate reflection of performance both nationwide and at the state level. **FPA** has actively supported these sound public policy bills over multiple sessions of Congress and encourages the Committee to pass them this year.

Support for Emerging Sortation and Processing Technologies

Artificial intelligence (AI) and robotics have become meaningful contributors in recent years for the successful sortation of recyclables, including flexible packaging. Due to their light-weight nature, films and flexible packaging are harder to capture and more difficult to sort in a material recovery facility (MRF). The use of robotics to rapidly sort and direct these materials to the correct processing stream has proven to be highly advantageous. As films and flexible packaging can be made from many different resin types, the use of AI to help rapidly identify the resin further supports the ability to sort these materials effectively for recycling within large MRFs. There are several technologies currently being tested and used within MRFs that are showing great promise for properly handling and sorting flexible packaging. **FPA** encourages consideration of additional federal and state support, including funding or tax incentives for AI and infrastructure and research and development, to help drive these technologies even further.

Regarding emerging technologies for processing additional flexible packaging to bring even greater circularity to our industry's products and fill a large existing supply versus demand gap for plastic recycled content, particularly for food-contact packaging, **FPA** is supportive of advanced recycling—sometimes also referred to as chemical or molecular recycling. Common advanced recycling technologies, such as pyrolysis, gasification, and depolymerization, can convert used plastics that would otherwise be considered waste into high-value recycled content plastic using methods that are regularly deployed in other industries. Despite being a relatively nascent recycling industry compared to recycling technologies that have had decades to figure out how to process certain packaging formats and materials for a more circular economy, the petrochemical industry has voluntarily invested over $7 billion into advanced recycling technologies, leading to a massive 21 billion pounds of plastic waste being diverted from landfills across the nation each year.[1]

[1] https://www.americanchemistry.com/better-policy-regulation/plastics/advanced-recycling

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A common myth that **FPA** and others must constantly dispel with those that oppose or do not fully understand advanced recycling is that it is just burning plastic waste through incineration. This type of recycling relies on cutting-edge technologies that purposefully operate with little to no oxygen, thereby allowing for the recovery of material by transforming plastic products back into a chemical monomer for reuse. Studies have shown that flexible packaging manufactured with recycled content via advanced recycling results, on average, in 20% less greenhouse gas (GHG) emissions than the use of virgin materials. Because advanced recycling permits the manufacture of brand-new resins, quality issues typically associated with mechanically recycled content are negligible. Furthermore, advanced recycling produces emissions equal to or lower than similar facilities in other industries with the added benefit of no measurable lead or dioxin emissions. All advanced recycling facilities are subject to the same federal Clean Air Act standards as mechanical recycling and often outcompete those facilities on environmental indicators.

Advanced recycling is necessary for increasing the use of recycled content in some films and flexible packaging, as stringent quality standards enforced by the U.S. Food and Drug Administration (FDA) require additional washing and processing for mechanically recycled films to ensure no chemical migration, odor, or color is transferred. This restricts the use of recycled content in some product packaging (i.e., cosmetics, food, and medically sterilized devices), and obtaining FDA approvals for the use of mechanically recycled content for packaging for these types of products is often arduous and slow. Advanced recycling eliminates some of this lag because the technology returns plastics back into a monomer, eliminating concerns of chemical migration, odor, or color.

With the amount of interest and investment in advanced recycling, we are confident that engineers and chemists will be able to definitively make a compelling case that advanced recycling makes a significant and necessary contribution to our circular plastics economy. In the meantime, **FPA** supports consideration of legislative and regulatory proposals at the federal level to characterize advanced recycling as a manufacturing technology, rather than solid waste processing and management, as states continue to grapple with this issue inconsistently and some states (i.e., California, Maryland, New Jersey, New York, Oregon) have even sought to ban advanced recycling.

<u>Increased Recycled Content Use and End Market Development</u>

There is a strong desire and need for flexible packaging converters (manufacturers) and brand owners to use more recycled content in their packaging products, whether to meet stated company or organizational (e.g., Ellen MacArthur Foundation Global Commitment) sustainability goals or to meet emerging state EPR or recycled content requirements for packaging. FPA is generally supportive of helping its members increase recycled content in their

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packaging products, but not through unachievable or unreasonable government requirements that treat all packaging the same and therefore do not recognize certain unique attributes or needs of some flexible packaging (i.e., for food and medical) that may need to limit the use of recycled content.

It is also important to recognize the distinct differences between post-consumer recycled (PCR) content and post-industrial recycled (PIR) content, and the value of both for use in different flexible packaging applications and other products. Post-consumer recycled (PCR) content sources come in different grades of "cleanliness" depending on how the film is first used in a product and how and where it is recycled/sorted (back-of-house commercial and retail operations versus curbside recycling versus store drop-off). PCR content bale grades are reflective of the level of contamination they face. Business-to-business (think back-of-house retail) PCR content film is generally considered the best grade available. This is typically material that is quickly baled on site after it is used and sent straight back to recycling. It's clean because very few have touched it, and businesses use it in large volumes that can quickly and easily be baled.

As we move into the lower grades of PCR content sources, more people have handled it, and it takes longer to create sufficient volumes to bale. These grades are created as consumers mix their films and flexible packaging with other recyclables at the curb, or films and flexible packaging that have gone through the MRF, where they pick up more dust, potential food contamination (think of spilled soda in the recycling bin), etc. Because they are made up of multiple packaging products, lower grades of PCR content sources tend to have more inks and different print materials, as well as more color and odors. This is less valuable material as it is harder to clean and reuse back into packaging. The highest grade mechanically recycled sources for PCR may be more desirable for some packaging applications (i.e., food and medical), whereas the lowest grade mechanically recycled sources for PCR may be more acceptable for non-packaging applications such as building materials, decking and patio furniture, roadway products, railroad ties, underground drainage solutions, etc.

The use of mechanically recycled PCR content can be challenging to incorporate into flexible packaging at levels above 20-30%. Unless the PCR content source has been carefully selected, most PCR content sources have a broad range of properties, including variable color and potential odors due to contaminants and impurities present in the original post-consumer waste streams. Hence, for flexible packaging applications where there are more demanding performance and regulatory requirements, there is more limited potential to incorporate PCR content.

Post-industrial recycled (PIR) content, while not the same as post-consumer recycled (PCR) content, is equally important to the flexible packaging industry. PIR content, sometimes

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somewhat misleadingly referred to as pre-consumer recycled content, refers to materials that are recycled from industrial waste, specifically from manufacturing processes, before reaching consumers. This differs from PCR content, which comes from products that consumers have already used. PIR content materials include production waste, scraps, and defective products that are recycled back into the manufacturing process and is typically mechanically recycled on-site at manufacturing facilities.

The use of mechanically recycled PIR content from well-managed manufacturing waste sources can be an excellent source of recycled material. **FPA** members have demonstrated the ability to replace up to 95% of virgin resin with PIR content in non-food high-performance flexible packaging applications where film appearance, toughness, and processibility must meet stringent performance criteria. The use of PIR offsets the use of virgin resin and avoids material going to waste. For these reasons, PIR should be recognized as an important means to meet any mandated requirements for recycled content, and FPA believes the federal government could take a lead role in supporting this.

Just as recycled content occurs in a hierarchy, so too does recycling. Film to film or packaging to packaging is considered the highest and best use of material to drive a truly circular economy. For mechanical recycling, post-industrial films can generally be used back into film processes up to 95%. Higher grade post-consumer grades (like those collected from businesses or via material specific depot stations like store drop-off) can typically be used at 20-30% back into a film product, whereas the lower grade films that have been sorted by MRFs are often too contaminated to be used cost effectively back into packaging. But they are ideal for non-packaging applications, such as those durable plastic goods described above, that are proven to be more cost-effective and resilient than their traditional counterparts, indicating that there are advantages to these materials beyond just the use of recycled content. **FPA** believes there is an opportunity here to ensure we direct higher value material to the right processes, and an opportunity for government to support and incentivize the use of durables for lower grade recycled content, including through government procurement, while supporting R&D investments made for higher grade uses.

PCR or PIR content sourced through advanced recycling is, in a way, the “holy grail” because it can be used for all new product applications and is therefore particularly desirable for use in more high-performance product applications such as food and medical. Advanced recycled plastic has identical properties as virgin plastic and is often the preferred means to incorporate recycled content for contact sensitive applications such as flexible food packaging where appearance, odor, taste, or sterility matter.

There are multiple excellent examples of **FPA** members driving the demand for and supply of recycled content, enabling new end markets for flexible packaging and other products. For

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example, in May of this year, **FPA** member NOVA Chemicals, Inc., in collaboration with **FPA** member Novolex, announced[2] the commissioning of its first polyethylene (PE) film recycling facility, "SYNDIGO1," located in Connersville, Indiana. The facility is one of the largest and most sophisticated plastic film mechanical recycling facilities in the world. SYNDIGO1 spans 450,000 square feet and will recycle 145,000 bales of post-commercial end-of-life plastic film sourced from retail and distribution centers to annually produce over 100 million pounds of SYNDIGO™ recycled PE (rLLDPE), suitable for food- and non-food grade packaging applications. In 2024, the facility's mechanical recycling process received a first-of-its-kind Letter of Non-Objection (LNO) from the FDA confirming its ability to produce post-consumer rLLDPE that is suitable for food-contact applications. In April 2025, the facility achieved the Recycled Material Standard certification from Green Blue, which verifies that the SYNDIGO recycled polyethylene produced at the facility is 100% post-consumer recycled content. The facility will be operated by Novolex, capitalizing on its nearly 20 years of experience in operating plastic film recycling facilities.

In 2022, Novolex announced[3] that it was investing $10 million to expand capacity to recycle plastic bags and other polyethylene (PE) film at its recycling facility in North Vernon, Indiana. Their investment in mechanical recycling equipment will reduce waste and enable the plant to produce up to 28 million pounds of recycled content per year, which can be used to manufacture new products containing PCR or PIR content. The state-of-the-art equipment chosen for the expansion will be able to identify and sort a wide range of incoming materials such as plastic bags, pallet wrap, agricultural film, and more, providing important flexibility in the range of potential incoming feedstocks and annually diverting tens of millions of pounds of PE from landfills.

Less than three weeks ago, on June 26, FPA member Amcor announced[4] an investment in its Nicholasville, Kentucky, facility to increase PCR packaging production capabilities to support customers' varied PCR needs. The state-of-the-art system incorporates dedicated silos that feed multiple production lines to enable precise PCR blending, giving customers the ability to choose their optimal PCR percentage. The flexibility in PCR content—up to and including 100% PCR—is offered for custom and stock rigid packaging, demonstrating Amcor's ability to optimize manufacturing processes and enable increased use of PCR material. While this example is not directly applicable to flexible packaging, it does display another deep commitment to driving the use of PCR content by a company that also manufactures significant volumes of flexible packaging.

[2] https://www.novachem.com/media-center/news-releases/nova-commissions-rpe-recycling-facility/
[3] https://novolex.com/blog/novolex-invests-10-million-in-indiana-recycling-expansion/
[4] https://www.amcor.com/media/news/amcor-expands-pcr-capabilities-with-facility-investment

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These are just a few examples of how **FPA** members are genuinely committed to collaborating and investing to help the flexible packaging industry meet evolving sustainability goals and needs, reduce waste, support recycling end markets, bring more PCR-based packaging solutions to market, and contribute to a more circular economy – all while creating more jobs in the U.S. Federal and state government support for these efforts through smart (achievable) recycled content mandates for packaging and incentives for industry to invest even further will help.

Consumer Education and Labeling

All the increased data, funding, infrastructure, processes, technology, and end markets for the recycling of flexible packaging and other materials and products are essentially for naught if consumers cannot or do not recycle in the first place. While several of the topics addressed above, plus focused consumer education through those initiatives or otherwise, can certainly help address this problem, consumers would also benefit from more consistent and harmonized national requirements on what is considered recyclable and how and where it can be recycled.

California's "truth in labeling" law enacted in 2021 (Senate Bill 343) that establishes state-specific requirements for when packaging can be labeled as recyclable will likely lead to consumer confusion and more—not less—packaging going to landfill if allowed to go into full effect in October 2026, as it will immediately be in conflict with up to 30 other states with different requirements for recyclability labeling. There are several other states considering their own "truth in labeling" laws, and **FPA** is opposed to these state-level efforts.

Rather, **FPA** fully supports the consideration of a federal law, such as proposed in the Packaging Claims and Knowledge (PACK) Act drafted by AMERIPEN—the American Institute for Packaging and the Environment—that is awaiting introduction into Congress. The PACK Act would establish federal requirements for the labeling of packaging for compostability, recyclability, and reusability, with oversight by the U.S. Federal Trade Commission (FTC) that already maintains jurisdiction over guidance for product marketing claims through its Guides for the Use of Environmental Marketing Claims ("Green Guides"). We believe this approach, which will also support existing national labeling programs such as How2Recycle and the Biodegradable Product Institute (BPI) certification program for compostable labeling, makes far greater sense than a state-by-state approach and will lead to more consumers properly handling flexible packaging at its end of life.

# # #

In conclusion, **FPA** appreciates the opportunity to appear before the Subcommittee to discuss with you our positions and views on infrastructure, needs and technology for flexible packaging

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recycling and recovery in the United States as we strive to ensure the quality and safety of consumer goods as they are manufactured, shipped, stored, and consumed. **FPA** believes there is a unique opportunity for all of us to join forces to position the U.S. as a leader on recycling within the globally competitive circular economy, and we are committed and look forward to working with you, other policymakers, and all stakeholders within the flexible packaging value chain.

Recycling supports multiple domestic manufacturing industries while at the same time reducing our collective environmental impact. Carefully crafted investment by the U.S. government into supporting the highest and best use of materials for remanufacturing can result in significant advantages to our country, while helping industry to create new high-tech jobs at the forefront of AI, robotics, and science, technology, engineering, and mathematics (STEM).

Mr. PALMER [presiding]. I thank all of the witnesses for their testimony. We will now move to the question-and-answer portion. I now recognize the gentleman from Texas, Mr. Crenshaw, for 5 minutes for his questions.

Mr. CRENSHAW. Thank you, Mr. Chairman. Thank you to all the witnesses for being here. I think we are all on the same page. We want to strive to build a more innovative economy that incorporates advanced recycling and revitalizes American manufacturing, and I think we need two key elements: clear rules at home and strong leadership abroad.

First we have to provide regulatory clarity and certainty. This is essential for innovation, for investment, and for scaling domestic recycling infrastructure. You can't build the future on a regulatory framework that is often shaped by climate alarmism instead of common sense.

Second, I do want to address the—our global role in this. The United States must lead at the negotiating table for the Global Plastics Treaty. This is coming up soon. That means rejecting production caps and overzealous environmental mandates that have clearly hampered European industry. We shouldn't be following along with their mistakes, and those mistakes have come at the expense of human prosperity without an obvious benefit to the environment. Our goal should be encouraging innovation and reasonable environmental stewardship without handing the entire global supply chain to China and our adversaries.

With that said, Mr. Eisenberg, if I could start with you, can you give me just quickly your perspective on what our role on American leadership should be at the negotiating table for the Global Plastics Treaty coming up? Have you had any engagement with the administration on this?

Mr. EISENBERG. Absolutely. Thank you for the question.

Mr. CRENSHAW. I think you need a mic.

Mr. EISENBERG. It doesn't turn on when I—so thank you for the question.

[Audio malfunction.]

Mr. EISENBERG. We think they got pretty close at the end of last year. There are still a few provisions that are needed.

[Audio malfunction.]

It is very important that we lead. We, at the last—the U.S. came in at a time of political changes after the election. They were engaging with a position that we couldn't do in the U.S., we just didn't have the law to support it. And the rest of the world knew, right? They saw that we didn't have that—so other countries were stepping in and getting [inaudible].

VOICE. Sorry, this thing is not working.

Mr. EISENBERG. OK. There is literally no light here.

So other countries were leading, and they, frankly, weren't doing it in our best interest. So I would recommend the U.S. to engage. We hope they will. We think they will. Thank you.

Mr. CRENSHAW. I appreciate that. Maybe those mics are made of recycled materials.

[Laughter.]

Mr. CRENSHAW. Mr. Eisenberg, sticking with you, you know, we need to address this fact that advanced recycling is not classified

as a manufacturing process. If it were classified as a manufacturing process, what would that do specifically? How might it drive manufacturing growth here?

I mean, it seems that—obviously, there seems to be vast agreement on advanced recycling here. It checks all the boxes, it is good for the environment, supports American jobs, reduces landfill waste, strengthens our supply chains, enhances our competitiveness.

So that question is for Mr. Eisenberg. Mr. Felton, if you could also weigh in, and Mr. Bedingfield, with what your company is doing.

Mr. EISENBERG. I will be quick. So there are 25 States in the country that define advanced recycling as manufacturing. That is where it is happening. You can look at the map, and that is where the starts—they are. Ohio, Pennsylvania, Georgia, Texas, Louisiana, places like that. So a Federal definition, we think, would open the rest of the country up to that.

Mr. CRENSHAW. So that is interesting. Mr. Bedingfield, is that why you are opening your next spot in Texas?

Mr. BEDINGFIELD. There are many reasons.

Mr. CRENSHAW. Well, of course, there's a lot of good reasons. Is there a Buc-ee's nearby? I don't know.

Mr. BEDINGFIELD. Now, with Texas, about 15 percent of the ITAD—which is ITS at disposition where electronic waste is collected—are located in Texas. The data center footprint that is growing, the manufacturing footprint that is growing, it is a very business-friendly environment. But recycling is—regardless of how it is defined, it is manufacturing as much as many as anything else is——

Mr. CRENSHAW. But the definition matters legally. And was that a reason that your next plant will be in Texas?

Mr. BEDINGFIELD. It is not.

Mr. CRENSHAW. OK, OK. Would you comment on that in my last few seconds, Mr. Felton, on redefining it?

Mr. FELTON. There we go. I would say—and I thought Ms. Harrison highlighted really well—there's a lot of things to think about when we are talking about recycling.

From the perspective of recycled content for flexible packaging, we can use all sorts of different recycled content and at different levels for different products. For food contact packaging, medical packaging, the best path forward we see is advanced recycling. And I would say that even the FDA has acknowledged that through letters of nonobjection for certain types of food contact packaging has recognized chemical recycling. So even at that level we do recognize the value of, really, a need for that in certain types of packaging applications.

Mr. CRENSHAW. OK, I think I got an answer out of that.

I yield back.

Mr. PALMER. The gentleman yields. The Chair now recognizes the ranking member, the gentleman from New York, Mr. Tonko, for 5 minutes for his questions.

Mr. TONKO. Thank you, Mr. Chair. I appreciate that some Members may want to focus on those hard-to-recycle materials, but as I stated earlier I really want to try to understand some of the basic

deficiencies of our recycling system. Many materials in many parts of the country that aren't considered hard to recycle continue to have what is a very low recycling rate.

So Ms. Harrison, can you help us with the—diagnosing the root causes that make this the case?

Ms. HARRISON. So when we look at what are the barriers to recycling working presently, we—I think about recycling, again, as one word, but it is really a loosely connected, highly dependent network. So some of the challenges that we face we can put into five categories of what would make a healthy one. So if we know where we are and we want to get to a good system, what would make a better system?

First we would focus on design. Are things properly designed and prioritized for recycling?

Second, we would work on capture, which means can the public do it? And right now the majority of Americans still can't recycle at home.

The third thing we would focus on is participation, which means does the public believe and do the activity of putting that material into the bin?

The fourth thing we would focus on is the recovery infrastructure. Do we have the material recovery facilities to take those recyclables back and send them off to market?

And the final thing we would focus on is end markets. Does old stuff turn to new stuff? And are we prioritizing a domestic—an American—North American supply chain for our American manufacturers?

Mr. TONKO. Thank you. So it seems like there is this low-hanging fruit that, with some investments in services and infrastructure, we can dramatically improve our national recycling rates.

Again, Ms. Harrison, what are your recommendations for how we can best improve the recycling of each—of easily recycled materials?

Ms. HARRISON. So why hasn't it worked to date? It has been chronically underfunded. Recycling is on the backs of local governments, to—as materials are made and put into the world, then they come to the community to manage with what happens next, and that is a cost burden for Americans.

What I believe would be a better path would be the future of extended producer responsibility. EPR laws that you are very familiar with, Mr. Tonko, are—completely change the dynamics of recycling in that they prioritize that design for a recycling piece, and then they engage the producers, the companies that are making the stuff, and funding the system to make sure that recycling actually functions at a high level, the way that it hasn't been.

Mr. TONKO. Thank you. And if recycling depends on robust end markets to incentivize demand for recycled materials, how can policymakers help support the development and strengthening of those given markets?

Ms. HARRISON. Good. The first one is to pass EPR and then to—second is to layer on the conversation about end market use.

So we can—what does this really mean? Today we are talking about domestic innovation, American industry. We can use an example of PET, so soda bottles, a common food packaging. We see

a high number of companies that are committed to using recycled content, but we have not invested in the U.S. system to really level up the recycling rate. It still hovers at 25, 30 percent for those materials, highly recyclable materials.

So where are companies supposed to get the material if we are not investing in the supply chain? Well, the answer is we have recently seen up to a 300 percent increase of import of cheap Asian recycled content, and it is flooding the market, putting pressure on our own companies. So that would be an example of how we could see this group lean in.

The other ones would be the CIRCLE Act that I mentioned, and that is dropping today.

Mr. TONKO. Thank you. And obviously, some of these solutions could be implemented at the State or local levels. What are the most impactful steps that the Feds can take to help stop sending easily recyclable material to landfills and incinerators?

Ms. HARRISON. Some steps would be engaging in the global treaty, as we have been discussing; passing EPR, the CIRCLE Act, the STEWARD Act. These are all things that are ripe and ready to go. They are tested, they are data-driven, and they are—they represent what the public is hungry for—is a cleaner, serious solution that doesn't put it on their burden to figure out how to make something recyclable. The system works for the public.

Mr. TONKO. Well, according to data from the EPA, recycling rates have largely plateaued in the last 20 years. It is my understanding that part of this plateau is because gains in recycling collection and processing have been offset by increases in the amount of waste generated.

Ms. HARRISON. Mm-hmm.

Mr. TONKO. Do you think that recycling ever creates incentives that lead to more waste being produced, or takes the focus away from waste reduction?

Ms. HARRISON. I like that you opened with the three Rs. We need to talk about reducing, making sure we are serious about what is being produced, reusing wherever we can. Recycling is a critical component, but it won't—we can't recycle our way out of that. We have heard this at this—it is a critical component, but it shouldn't be the solution or the tradeoff for making whatever you want.

Mr. TONKO. Well, I thank you so much.

And with that I yield back, Mr. Chair.

Mr. PALMER. The gentleman yields. The Chair now recognizes the chairman of the full committee, the gentleman from Kentucky, Mr. Guthrie, for 5 minutes for his questions.

Mr. GUTHRIE. Thank you. Thank you, Mr. Chair.

And Mr. Bedingfield, I know you had to change your travel plans to be here with us today, and we really appreciate you doing that.

So Mint, the company you are with, was founded in New Zealand but is in the process of building an electronic recycling company in Texas and extracting valuable commodities, and you are looking for other expansion locations. Can you discuss what led Mint to expand in the U.S. and what growth in data centers in the U.S. will mean for waste recyclers like Mint?

Mr. BEDINGFIELD. Sure. So Texas is the first of what we hope will be many recycling locations in the United States. The market

in the United States is quite large, even the market that is recycled right now, but we are dedicated to trying to help increase that recycle rate, as well, which will only make the opportunity even larger.

The data center presence in the U.S. presents multiple opportunities and reasons why this is of extreme importance. So there is the metal that is in the data centers that we need to—my favorite thing to say is we need to plug up the hole in the bucket. So this is not going to let us recycle our way out of it, but we can only import these metals once by recycling them and then using them in our industry here too. But with the data centers, we also need to protect the IP that is in this and the data. So by shredding it, melting it down, and recycling it, reusing it, we solve the cybersecurity risk, we solve the IP risk, and we also return these metals to the domestic supply chain.

Mr. GUTHRIE. OK, thank you. Thank you for that.

And Mr. Eisenberg, negotiations for the Global Plastic Treaty started with the focus on reducing plastic pollution and supporting recycling. But during the Biden-Harris administration negotiations, which are trying to ban plastics and restrict chemicals—can you explain why a plastic treaty should not be used as a backdoor way to regulate chemicals, and how a secure domestic supply chain of chemicals is needed to support the semiconductor, transportation, and other industries?

Mr. EISENBERG. Absolutely, thank you. So this process has been a lot like an NDAA, right? You know, it is going to pass, or you think it has got a pretty good chance to pass. It becomes a bit of a Christmas tree for everybody's ornaments they want to hang on it, and that is exactly what happened.

The original assignment was to address plastic pollution, including in the marine environment. It started—the scope started to expand as we went over time to production, chemicals, things of that nature. Chemicals are addressed by a number of other treaties, right, including one that was passed during this process. And so we believe that it is more appropriately handled there and certainly not in the context of a plastic agreement, particularly because chemicals go in a lot more than just plastic. So if you want to address chemicals, address chemicals in a standalone thing.

Certainly on the production side this is really a competitiveness issue for us. We are the second-largest producer. China is the largest, but it is by quite a bit. And so if you start putting constraints on production, it really does threaten our competitiveness. We think let's start with focusing on pollution, the actual goal here, and handle that right now. That will make tremendous strides, including waste management for folks around the world, and actually start to actually create an environment where—with real market signals to actually try to fix infrastructure around the world.

Mr. GUTHRIE. Thank you, I appreciate that.

Mr. Felton, in your testimony you mentioned that artificial intelligence and robotics are important tools used by facilities to identify and process different kinds of materials for recycling. Can you discuss how these tools are being used to increase the amount and kinds of materials that are recycled and diverted from landfills?

And are these tools available for only recycling in big cities, or can they be used in smaller communities?

Mr. FELTON. Yes, thank you—there we go. Thank you, Chairman, for the question.

If you take a look specifically at flexible packaging and pouches and films and things when they run through what I call more traditional recycling at a material recovery facility, existing equipment may recognize it if it is flat as a flattened box, a flattened can, or something. With increased intelligence and increased use in artificial intelligence and robotics, we are seeing success in recognizing flexible packaging and other materials more precisely within those facilities. And with that, then, it can be sorted, moved off to the correct bale, as it were, within a recycling facility to then be used in a recycled content manner.

In terms of the cost of that, a couple of things I would suggest is I think we will see, as with any emerging newer technologies, the cost will come down over time. I would also suggest that I think we will see the opportunity to leverage extended producer responsibility in those States that have programs in place for producers, brand owners, and others within the packaging value chain to be—I won't say forced, but to be recommended to provide funding to that type of technology.

Mr. GUTHRIE. OK, thanks.

And so, Ms. Harrison, in your—you focus a lot on households, but I know you have big companies in your group, as well. Can you discuss the work your organization does on the front end to help member companies make packaging and products easier to recycle?

Ms. HARRISON. Yes, sir. So my nonprofit is funded almost entirely from corporate entities. So when they make a pledge to recycle, we say, "Great, we want to help you get there." So the work we do is—really comes down to those five principles of a healthy recycling system, helping them understand that if they want the public to do their part, then the companies have to do their part both on design, but then investing in that infrastructure to get it back.

The problem has been that—I am so proud of the half a billion dollars' worth of impact we have made, but we are trying to solve a $17 billion annual problem. So there is a gap between what we have done, and the companies are asking for policymakers to step in and level the playing field with the EPR policies we are talking about because they want to do more.

Mr. GUTHRIE. OK, thank you. My time is expired, and I will yield back. Thank you for your answer. I appreciate it.

Mr. PALMER. The gentleman yields. The Chair now recognizes the ranking member of the full committee, the gentleman from New Jersey, Mr. Pallone, for 5 minutes for his questions.

Mr. PALLONE. Thank you, Mr. Chairman, and congratulations on your new post.

I listened to what Mr. Eisenberg said, and I think I disagree, although I don't want to put words in his mouth, because I do believe that when we talk about the Global Plastic Treaty negotiations we have to shift the economic burden of recycling from consumers and local governments to producers, and I believe it should include

measures to address the supply side of a plastic production to help the world get a handle on rampant plastic pollution.

I mean, as I mentioned in my opening statement, you know, part of the problem is if you put all the burden on, you know, consumers, local governments, and they just don't have the resources to do all this recycling—and I think that is one of the reasons why recycling rates are going down, because of the fact that towns just don't have the resources to do it—but I don't know that you said that you didn't want any action on producers——

Mr. EISENBERG. Yes.

Mr. PALLONE [continuing]. So I didn't want to put words in your mouth.

I wanted to ask, though, about these final negotiations for the UN Global Plastic Treaty. I know they are in Geneva in August. They are going to have—hopefully, come up with an agreement because the Intergovernmental Negotiating Committee didn't reach a final agreement last December. So they are trying to develop that now in August.

But let me go to Ms. Harrison. Can you please explain why a global plastic treaty is necessary, if you will?

Ms. HARRISON. Yes, a global treaty is necessary because this problem is too big for any one company, one country, or one group to solve alone. And this treaty is also important is—because material flows around the globe, whether that is through a supply chain or through ocean currents.

We need a global binding treaty to be able to level the playing field so that we have consistent solutions. What does that mean for the United States? It is a tremendous opportunity for us to take this global commitment and bring it home for—to advance a national EPR approach, to prioritize the material resource conservation, and to drive our economy.

Mr. PALLONE. Well, thank you. The problem I see, though, is that, unfortunately, President Trump has a track record of pulling the U.S. out of other international environmental and climate agreements, you know, obviously, the Paris Agreement being the most notable. And I think that cedes U.S. global leadership in the process.

So I am encouraged that the U.S. delegation was present at the recent informal discussions, and it is—but it is still unclear to me how the U.S. delegation will approach the upcoming plastics treaty negotiations. So my second question, Ms. Harrison, is how would meaningful U.S. participation in the plastics treaty negotiations help the U.S. promote American manufacturing, innovation, and job creation?

Because, you know, everything has to be taken back at home in terms of our manufacturing, our innovation, our job creation, if you would.

Ms. HARRISON. So I have been at every one of these meetings thus far, and it has been fascinating to watch the pieces come together.

How this serves the United States is that we are home to some of the biggest companies in the world, and we lead in many areas of innovation. But as my colleague Mr. Bedingfield said, we are behind in recycling. So if we are not sitting at the table and setting

the course for what good looks like in this global treaty, it will not serve our domestic manufacturing, it will not serve our industry, it will not serve our supply chain.

So whether we go all in or not, my organization is not missing a beat in making sure that we take this opportunity with the global companies who are at the table there, as well, to ensure that we are driving American policy like the ones that we have been talking about today.

Mr. PALLONE. I appreciate that. You know, I just think that engaging in these negotiations can really be a win for domestic manufacturing, boost the recycling sector, improve our resiliency.

You know, I meet a lot of times with the recyclers and the waste management people, and there are so many different ways, you know, so many new ways and innovative ways of doing things that sometimes are very expensive. And so, you know, it is hard to get local organizations to back it because it costs a lot of money. But there is so much innovation in this field——

Ms. HARRISON. Yes.

Mr. PALLONE [continuing]. That could really make a difference in terms of our taking a leadership role. So thank you.

Thank you all very much. I appreciate it.

Ms. HARRISON. Well, if I may——

Mr. PALLONE. Yes, sure.

Ms. HARRISON. Recycling is all about innovation. In fact, in the—Chairman Palmer's home State we see a company called KW Plastics that started because they were really making batteries, they had all this plastic left over, they saw an opportunity to make money from that, and now they are the biggest polypropylene recycler in the world. That is the innovation we want.

But without policy it will stay a reaction, not a leading function. That is what we stand to gain.

Mr. PALLONE. Well, thank you.

Thank you, Mr. Chairman.

Mr. PALMER. The gentleman yields. The Chair now recognizes the gentleman from Ohio, Mr. Latta, for 5 minutes for his questions.

Mr. LATTA. Well, thank you very much, Mr. Chairman, and also congratulations on your gavel here in committee—in the subcommittee. And so many questions, so little time.

If I could start with you, Mr. Bedingfield. In your written testimony you talk about the extended development timelines that are out there, and you mentioned about how long it takes for smelters for—you know, to get into production. You know, it is almost a decade from the initial design through permitting, construction, and commissioning.

And I guess my question will come down on permitting. How long does that permitting take to get a smelter into production and get it online?

Mr. BEDINGFIELD. Forced smelting, it can take a very long time. I recently participated in building a secondary copper smelter in Kentucky. And through partnership with both the State and locals, we were able to do that in a fairly expedited manner. But it is complicated. It can take years in many instances.

Luckily, the technology has caught up to where it can pass for those permits, ultimately, but it does face a lot of scrutiny. That is why we are using the hydrometallurgy process, where we actually produce no air emissions. The wastewater that comes out has salt content in it, but it is less salinity than the ocean water. It actually goes down the drain. So for us, the permitting process is quite quick.

Mr. LATTA. Well, thank you.

Mr. Eisenberg, real quick, you know, your—reading through your testimony, one of the questions I have is this —I have about 86,000 manufacturing jobs in my district, and we do a lot of recycling in northern Ohio. And one of the things that, you know, when we are looking at trying to get more people to, you know, put the things back into recycling is this question, is how far can you ship a product to have it recycled to make it profitable?

Mr. EISENBERG. Well, that is a really good question, and I probably don't have the best answer for you. We could get you a more technical one in the QFRs.

But, you know, certainly there is interstate commerce of recycled products of sort of—you know, of waste. And we have seen a number of times that new recyclers are online trying to get, you know, product from somewhere else. One of the challenges that they have on all of the plastic recycling side—which is a crazy thing to say—is not enough access to clean plastic to get into the system, which is bonkers, right? I mean, we have so much of it, and yet getting it in a very concerted way in is quite difficult.

And so that is where we come back to—and I think all the witnesses kind of agree on this—if we fix sortation, if we fix collection, if we fix some of those basic services, then we have the supply and we will probably have a lot more folks investing in recycling.

Mr. LATTA. Well, because, you know, that is the problem you have, is that, you know, smaller communities—and I know my home city in Ohio, Bowling Green, was one of the first cities back in the 1980s that went into recycling very heavily. But it was also making sure they had a market to be able to get that product to. And we have been fortunate in some areas that have been able to get that there. But then for some other areas it is like, OK, it costs more to ship it than it costs—than you are going to get out of it. So I think that is one of the things we have to think about, too, is where these centers are going to be located.

And if I could just follow up, also in your testimony—because you also brought up about kind of the ABCs of the Federal Government when you are talking about the Federal Trade Commission, the EPA, and, you know, about the uncertainty that has chilled the market. And I think the word—you used the word "certainty" about twice in about 40 words, and that is one of the words we hear around this place constantly is "uncertainty."

And could you just talk about the absolute need to have certainty in business to be able to make sure you can do what you got to do?

Mr. EISENBERG. Sure. We saw it in real time. EPA proposed a rule that was somewhat confusing for the manufacturers on how to handle the product that was coming out of the recycling stream at an advanced recycler, and all of a sudden their customers said, "Well, we don't know if we really can do this anymore because we

don't know if this is going to continue." Companies that are looking to build new facilities, same kind of situation.

I think the challenge here is that we are dealing with an early-stage commercialization-type industry, and it is moving quickly. And the—you know, the technology is evolving. The regulations aren't necessarily keeping up with it, and regulators are having trouble understanding it. And so you get strange regulations coming out, people are kind of asking them to do things, asking them to act, and they are acting in ways that maybe are not necessarily all that helpful.

And so we really would like either EPA—frankly, Congress—to try to settle this once and for all, and basically just level the playing field. We are not saying preferential treatment. Just let us compete, right? I mean, give this thing a shot. Let it develop just like any other technology, and hope that it succeeds.

Mr. LATTA. Well, in my last few seconds, I think you brought up a good point, is that the regulators have to understand what you are doing and have to know what that technology is.

And Mr. Chairman, I will yield back the balance of my time.

Mr. PALMER. The gentleman yields. The Chair now recognizes the gentleman from California, Mr. Ruiz, for his questions.

Mr. RUIZ. Thank you, Mr. Chairman.

In my district, Lithium Valley holds one of the largest lithium deposits in the world, a critical resource that can power battery manufacturing and more clean energy in our clean energy future. This region can supply lithium for electric vehicles and battery storage, strengthening the grid and boosting U.S. energy resilience. Lithium Valley is key to securing clean energy leadership, national security, and energy independence.

But we must also prioritize critical mineral recovery and recycling to build a sustainable supply chain. As we heard in a subcommittee hearing last Congress, recycling is an essential tool in building secure and sustainable critical mineral supply chains. That is why I am proud that Democrats invested in this space through the Bipartisan Infrastructure Law, which provided $35 million for EPA to develop battery collection best practices and voluntary labeling guidelines, $3 billion for battery manufacturing and recycling, and $3 billion for battery materials processing.

Mr. Bedingfield, can you speak to how critical material recycling can help both our environment and boost national security and resiliency?

Mr. BEDINGFIELD. Sure, thank you for the question.

We are actually developing lithium ion battery recycling. Right now we are starting in the UK with a pilot plant to use hydrometallurgy to recover those metals. The vision will be that every site in the U.S., once developed, will also have that technology there.

These metals, if they go into the landfill, leach into our water. But they are also extremely valuable. So it is the right thing, it is the profitable thing. And from a national security perspective, with all the companies that we are reshoring, if we don't have these materials here to supply them, we have really done nothing. That is where all of this begins.

Mr. RUIZ. Yes.

Mr. BEDINGFIELD. So we have to have the metals here.

You are right, we cannot recycle our way out of it. The mines are going to take time to build. We must build them, and we must also recycle them so that we don't continue——

Mr. RUIZ. Well, we would love to follow up and talk to you about our efforts in the region to build a full supply chain and recycling of batteries in the—in my district.

Unfortunately, while clean energy drives critical mineral recycling, President Trump and congressional Republicans are attacking the industry through their Big, Ugly Bill. It is a reckless, shortsighted move that undermines our climate goals, our economy, and our national security.

I also want to raise serious concerns about chemical recycling, a practice often marketed as a silver bullet for the plastic crisis that we have. In my district, waste facilities using this technology have led to harmful health outcomes for residents and have failed to deliver the promised recycling revolution. Many of these facilities either close soon after opening or do not actually recycle plastics in a meaningful way.

Ms. Harrison, I want to be clear on whether these facilities are truly part of the recycling system. If a facility burns plastic using chemical or heated methods and turns that plastic into fuel, do you consider that process to be recycling?

Ms. HARRISON. No, fuel alone is not recycling.

Mr. RUIZ. Thank you. I agree, and we must be honest and precise. To be considered true recycling, a facility must turn plastic back into plastic, just like we do with paper. Converting plastic into fuel through chemical or thermal processes is not recycling, it is incineration.

We have seen the harm from these misleading practices before in east Los Angeles, Mecca, and the San Joaquin Valley, where hazardous waste sites are often placed in low-income communities of color. In 2010, Mecca, a small, farmworker community in the eastern Coachella Valley near where I grew up, was exposed to toxic fumes from an unregulated waste facility that was leased on Tribal land. For months, residents suffered headaches, nausea, nosebleeds, and respiratory issues, especially young children. A local school had to be evacuated. Community members spoke out.

One mother, Lydia Varga, said, "I am afraid to let my children play outside some days. My kids had to stay indoors all the time."

A teacher, Richard Reyes, shared he felt "very lightheaded, having a hard time concentrating and thinking. I got real shaky. I was very nauseous."

Despite hundreds of complaints, action only came after public outrage. This was more than regulatory failure. It was a failure to protect a vulnerable community. And as we move forward with clean energy and battery manufacturing, we must center the needs of our communities, our vulnerable communities, frontline communities, science, and public health, not faulty solutions that put profit over people.

Thank you, and I yield back.

Mr. PALMER. The gentleman yields. The Chair now recognizes the gentleman from Texas, Mr. Weber, for 5 minutes for his questions.

Mr. WEBER. I thank the Chairman. Thank you on your new role.

Mr. Eisenberg, I am going to come to you real quick. Reading—I wasn't here when you gave your testimony, I apologize for that. You said as president of America's Plastic Makers you oversee a self-funded group of 19 ACC plastics division member companies—like we have Dow Chemical, for example, in my district who do a really good job—who are working together to maximize the value and minimize the waste of one of the most versatile materials on the planet. Are you able to recruit and get more companies to do—to get on board?

Mr. EISENBERG. Yes.

Mr. WEBER. And how do you—how does that work?

Mr. EISENBERG. So companies have to apply for membership in the ACC in the plastics division. We are separately funded within ACC, but yes, we are able to. We take—we are largely the resin producers, so the folks take it from raw material to plastic pellets. But we also have a number of what we call the value chain members, so the companies that take it from the pellets and turn it into your cups and useful products like that. And then recyclers, so traditional mechanical recyclers and advanced recyclers.

Mr. WEBER. All right. Well, thank you. I was interested in that. Interesting.

I am thankful that this subcommittee is discussing the state of recycling in the U.S. One of my top priorities in this space is working with the industry to introduce the Packaging and Claims Knowledge, PACK, Act of 2025. This legislation, as most of you all are going to know, would create the framework to establish a consistent national standard for recyclability labeling, avoiding a patchwork of State regulations.

Let me be clear: This is not about creating burdensome red tape, so I don't want all the naysayers to start that—going down that path. It is actually about cutting through the red tape to create a uniform, progrowth regulatory framework that helps innovators innovate. It helps consumers make informed choices, helps industry lead the way.

Also, did I mention that the accreditation is voluntary? I want to get that out there. So this legislation would not create any mandate.

If we want to beat China, if we want to protect American jobs and reduce waste, then we need to empower American manufacturers to do what they do best: build, grow, and compete. It is not written to score political points, it is written to deliver real results and aligns the Federal Government's role with industry-driven resolutions.

Mr. Bedingfield, I am coming to you. You are building a plant in Texas, in Longview, Texas, the northeast part of Texas, OK? You did mention that there's possibilities for more plants in Texas. OK, we want you to get those hurried up and done in Texas. What is the status on that plant?

Mr. BEDINGFIELD. Thank you for the question. And yes, if I am able to do my job even halfway, there will be many more of these plants constructed.

The status of the plant right now is we have secured the site, we are taking possession of it, and we have ordered long lead time

equipment. We are currently out in the market raising capital to ensure that we can build that one and the next one to two after that. So we are right in the middle of that process right now.

Mr. WEBER. OK.

Mr. BEDINGFIELD. We should have the first operation hopefully up and going by Q1 of 2026, with the plant operational by the end of 2026, early 2027.

Mr. WEBER. OK. Well, for number two we are taking applications in Galveston County, just so you know, OK?

Mr. BEDINGFIELD. We are engaging with a lot of different States, and we would love——

Mr. WEBER. All right, I love hearing that.

Mr. Felton, can you speak to the importance of having a unified national framework for recyclability claims as proposed in the PACK Act, rather than relying on a State-by-State approach? Tell us why that is important.

Mr. FELTON. Thank you, Representative Weber, for that question, and I very much appreciate your leadership on this issue.

We are absolutely supportive of a Federal standard, and I think you have heard discussion of recycling is very different around the country. You have heard discussion about consumer confusion of what they can recycle, where they can recycle. We believe a voluntary standard at the Federal level, through law, with jurisdiction by the appropriate agency, will help significantly with helping consumers understand how to recycle and where to recycle things. And that will give us an opportunity as an industry to be able to feel support, as it were, for these products that are being recycled, our packaging that is being recycled, and as well the recycled content, right, that we can get from that.

So we believe the Federal standard on labeling will drive that desire to push for more recycled materials.

Mr. WEBER. I appreciate that, thank you.

Mr. Eisenberg, as you know, my district along the Texas Gulf Coast is the home of many plastic manufacturers. I mentioned our great Dow Chemical that is one of our biggest. These manufacturers are also at the forefront of developing new recycling techniques and infrastructure. Can you speak to how we strike the right balance between emerging recycling methods such as chemical recycling while still encouraging development and investment in this space?

Mr. EISENBERG. Yes, absolutely, so—and that is an important point.

To actually get to the goals that we have set for the country, and to keep, essentially, waste out of landfills and the environment and all these things, you need all of these technologies, right? We need to dramatically scale up mechanical recycling. We need to dramatically invest in and scale up advanced recycling. So it is all necessary.

And we need, frankly, a good policy and a sound policy and rules of the road so that companies can feel comfortable investing in this.

Mr. WEBER. Yes.

Mr. EISENBERG. If they can, I think they will.

Mr. WEBER. Yes. Thank you for that, Mr.—I appreciate you all being here and your input.

Mr. Chair, I yield back.

Mr. PALMER. The gentleman yields. The Chair now recognizes gentlelady from Ohio, Ms. Schakowsky, for 5 minutes for her questions.

Illinois, sorry.

Ms. SCHAKOWSKY. Yes, thank you. Get my State right.

Mr. PALMER. Jan, I know better.

Ms. SCHAKOWSKY. That is right. Let's see. Hold on.

Ms. Harrison?

VOICE. Yes.

Ms. SCHAKOWSKY. Ms. Harrison, I want to thank you for the important work that you do, and I hope the work that also really affects me. I have the pleasure of living right on the—really, right on Lake Michigan. My home is just about a couple blocks down the street. A lot of my district really loves the wonderful lake. I have a home in Michigan City, Indiana, which is right on the lake.

But I am very concerned that about 22 million—what is it? Million——

VOICE. Pounds.

Ms. SCHAKOWSKY. Pounds of plastic are in the lake every year. That is a lot of plastic, and we really need to do something about that as soon as we can. And so I wanted to ask you, what are the things that we can do quickly to make sure that the lake is safer for all people?

I mean, we are swimming, we are doing everything within the lake, and yet we have this problem that is there so much. So if you could, just tell me what we need to do.

Ms. HARRISON. Yes. Thank you for your question and for your commitment to the water. And I live in Providence, Rhode Island, right on the water, too, and I see it every day.

So there are three things that come to mind for immediate impact. One is to encourage the U.S. to stay very engaged in the Global Plastics Treaty. The second is to engage with us on the CIRCLE Act, which will be introduced today, which provides tax credits for businesses and creates more opportunity for plastics recycling. And the third one is the STEWARD Act. The STEWARD Act brings forward opportunities for rural communities on recycling. Those are three immediate things that this committee can do.

Ms. SCHAKOWSKY. So what are the things that would actually change in communities and make them safer?

Ms. HARRISON. Sure. So when we talk about a healthy recycling system, we break it into five parts.

We talk about how companies are engaged in what they produce and streamlining what they produce from—into things that can actually be recycled by your public.

The second one is bringing better funding for your communities so they are not paying for their recycling system, that we are using EPR to drive a new funding system for it.

The third thing is making sure that the public trusts and understands and puts that material in the right bin, never litters, never throws away or incinerates something that has so much value, the recycling of it.

And then the final piece is really making sure that old stuff turns to new stuff, investing in our infrastructure here in the—in this country.

Ms. SCHAKOWSKY. So the Environmental Protection Agency, does it play a role here in what we are seeing in the lakes?

Ms. HARRISON. Yes. The EPA has set targets for recycling, which has really developed momentum. It has an opportunity to really bring people together from the public and the private sector. This is not an us-versus-them situation. This is a bipartisan opportunity to really drive forward solutions.

So the EPA's goals help align for a common approach, and then the other critical thing that EPA has provided are SWIFR grants, which are dollars that go directly to communities to help improve their infrastructure, to connect with their businesses, and to prevent the pollution that you are talking about.

Ms. SCHAKOWSKY. Well, thank you so much. I hope you are having an opportunity to enjoy the lake during the summer. I think everyone ought to do that. And—but we want to make it as safe as possible and as clean as possible. So thank you for your work.

Ms. HARRISON. Thank you.

Ms. SCHAKOWSKY. I yield back.

Mr. PALMER. The gentlelady from Illinois yields back. The Chair now recognizes the gentleman from Georgia, Mr. Carter, for 5 minutes for his questions.

Mr. CARTER OF GEORGIA. Thank you, Mr. Chairman, and thank all of you for being here today. This is certainly an important subject.

We know that recycling is a essential tool to keeping our environment clean and to mitigating streams of pollution and to creating jobs in America. Let's don't forget about that, as well. However, the proposed caps that—on plastic production by groups such as the United Nations I don't think are the answer. Plastic is essential, and it is essential—I am a pharmacist, a healthcare professional—it is essential because of the many lifesaving products that are in the medical field such as personal protective equipment and medical-grade plastic needed for surgery. We all understand that.

So capping production of plastic is not going to fix our issue. In fact, demand for recycled plastic is outpacing the supply, so we need to focus on fixing confusion, regulation—confusing regulations surrounding recycling. We also need to support businesses that are putting—are pursuing cutting-edge recycling technology such as advanced recycling.

Mr. Eisenberg, let me ask you: Can you tell me about the impact that fostering advanced recycling in the U.S. would have on the economy and on our supply lines?

Mr. EISENBERG. Absolutely. So first things first. On the recycling side, it would make a dramatic impact, right? I mean, the types of plastics that advanced recycling can cover just aren't going to be covered by other types of recycling. So those then get out of landfills, they get out of the environment, and you have made a substantial impact there on the environment.

On the economic side, our—my written testimony walks through some of the numbers. But essentially, if you scale this up you are creating municipal jobs, you are creating manufacturing jobs, you

are creating sort of all of those follow-on jobs across the supply chain. And just like any other manufacturing industry with a sort of a high multiplier effect on jobs, you are spurring the economy, right? So you can actually do good while you are doing well, and that really is the goal of this, to create essentially an industry around this that is thriving.

Mr. CARTER OF GEORGIA. Great. What are some of the—or let me ask you this. Timeliness. You mentioned in your writing that the timelines for obtaining permits are already lengthy, and due to outdated environmental review protocols and inconsistent regulatory framework. What can Congress do? Tell us what we can do to help. Tell us what we can do to fix this issue.

Mr. EISENBERG. I appreciate that. So certainly, there is permitting legislation that is, you know, being discussed almost all—almost every Congress. But again, right now that would be a good place for this. It would be great if Congress would essentially define advanced recycling as manufacturing, just like there's 25 States in the country that have done that. That would essentially take this issue away from the permitting process. Otherwise, you are essentially injecting uncertainty in the permitting process and making it—and making those times speed up.

Regulating as manufacturing is a pretty significant standard, right? Under the Clean Air Act, under some of these other laws, these are significant controls that are put in place, some of the strictest in environmental law. So we are not saying don't regulate it, just regulate it consistent.

Mr. CARTER OF GEORGIA. OK, got you.

Mr. Bedingfield, let me ask you, what is e-waste?

Mr. BEDINGFIELD. That is a good question, and it is defined differently in different places. But basically, anything that has got a—that is electronic, that has a cord on it. So from your vacuum——

Mr. CARTER OF GEORGIA. So you are talking about the physical parts of computers and all.

Mr. BEDINGFIELD. Yes, sir. The entire thing is classified as e-waste. The motherboard is a specific part of it, but there's commodities that we can use in this country from the plastic, the aluminum, the steel, all throughout that appliance.

Mr. CARTER OF GEORGIA. How are we going—you know, Georgia is a big home to data centers. And how are we going to be able to handle this? How are we going to be able to handle all this e-waste that is going to be coming from all the AI-driven data centers?

Mr. BEDINGFIELD. Well, that is exactly what we are trying to do. The question is how quickly can we scale it up.

So there is a smelter being built in Georgia right now. They are stopping short and I believe exporting the product to be finished in Europe. So it is not adding back to the economy from a metals perspective. Our facilities, we are trying to ramp up as quickly as we can to deal with them. But there are more and more electronics in our lives each and every day, which means this problem is only going to get larger if we don't come up with a way to address it.

Mr. CARTER OF GEORGIA. So you say that the smelter is being built in Georgia, but they—the finished product is being built overseas?

Mr. BEDINGFIELD. They have an existing network of facilities in Europe that actually recovers the metals back to exchange-grade metal to be used in industry. There is an intermediate product that will be produced in Georgia.

Mr. CARTER OF GEORGIA. OK. Is that not something we can do over here if we encourage that?

Mr. BEDINGFIELD. It could. And I am not speaking for that company at all, but I would imagine that that is something that they probably consider.

Mr. CARTER OF GEORGIA. OK. OK, good. Well, thank you all again for being here. This is extremely important.

Thank you, Mr. Chairman, and I yield back.

Mr. PALMER. The gentleman yields back. The Chair now recognizes the gentlelady from California, Ms. Barragán, for her questions.

Ms. BARRAGÁN. Thank you. Thank you, Mr. Chairman.

Ms. Harrison, traditional recyclers that sort and process materials or turn old aluminum cans into new ones are regulated as waste management operations with environmental standards to protect nearby communities from pollution. But some chemical recycling companies backed by the plastics industry want to call themselves manufacturers instead. That shift would let them dodge stronger environmental protections under laws like the Clean Air Act and the Resource Conservation and Recovery Act, even though many of their facilities are in low-income communities and communities of color that already face high pollution levels.

Should chemical recycling facilities have to follow the same environmental standards as other recycling and waste operations?

Ms. HARRISON. Thank you.

When we talk about chemical recycling, the challenge that plagues me is that it is not one thing. We have given a blanket term to many different technologies. And so I think, if we are going to really address the challenges that you have just outlined, we first need to start with what is the technology, and it's different types of unbaking the cake, as has been described earlier.

So what is the technology? What is the supply chain—which means how will we—how—what would be possible for feeding that plant? What are the health and human impacts or the human health impacts and environmental impacts of that technology? And importantly, what are the economics?

In each of those, environmental standards are critical. So I can't answer a yes or no because there is no one thing. This is multiple things that we are talking about.

Should we protect our land, our soil, our air? Yes, absolutely. We have to protect our planet. And recycling has to be advantageous to the protection of our planet.

Ms. BARRAGÁN. Great. And in your testimony you list important questions that must be answered for chemical recycling. If a chemical recycling facility doesn't meet environmental quality standards, causes unacceptable harm, or is not financially viable, should it be part of our recycling system?

Ms. HARRISON. That is the question that we have put in our longstanding position. We want more innovation. We need more types of creating end markets and materials going to end markets.

But in order to ensure that they are viable, we have to make sure that they are economically sound, environmentally sound, that there is transparency, and that you can track the material through them.

Ms. BARRAGÁN. Great. And recycling only works if people know what goes in the bin. What does the Recycling Partnership's research show that helps reduce confusion and contamination, especially in multilingual communities?

Ms. HARRISON. It is very important to address multilingual and diverse communities where they are. It is not a matter just of translating into a different language. It is really coming from a common understanding. So we do a lot of work with the diverse communities all across this country, because who is our recycling demographic? It is every single person of every age and every background. And so ensuring that the recycling system works for all is critical.

Ms. BARRAGÁN. Great. And the infrastructure law included major investments in recycling education, outreach, and infrastructure. But the EPA is facing major staff cuts that threaten the effectiveness of the program. Can you—how could that weaken education campaigns like you described?

Ms. HARRISON. Many—some of the tools that the EPA uses to help support community recycling programs are grants. And if you administer grant funding for a community, you need the staff behind it to make sure that the money is managed well.

And you can't just throw money at a problem. You have to apply best management practices. If there's not the humans to do the work, the money won't matter, the effort—the goal won't matter.

Ms. BARRAGÁN. Right. And finally, research by the Recycling Partnership found that nearly 40 percent of Americans in apartment buildings don't have access to basic recycling. What is blocking better access? And what programs can Congress support to help fix—to help communities fix it?

Ms. HARRISON. Residential recycling in this country has traditionally focused on single-family households, leaving multifamily households behind. Why? Some of it comes down to the way that solid waste is managed in communities. Typically, apartment buildings of four units and above—below—are part of the residential, or the municipal collection. So it is the city that is operating that. Anything that is above four units becomes into a commercial program. So it is out of the jurisdiction of the community, and it has just become this stranded opportunity.

So we have leaned in to how we do that, because it is—there is—this affects every single community and a significant part of the population. But it will take a different solution.

Ms. BARRAGÁN. So how do we get to them?

Ms. HARRISON. We need more—we need better policy that—such as EPR. We need things like the STEWARD Act that pull together resources for rural communities. And we need to make the value of the supply chain work better so it is advantageous to the communities. We will not get there without policy.

There is also opportunity for local mandates to ensure that recycling is required in multifamily.

Ms. BARRAGÁN. Great. Thank you so much.

Ms. HARRISON. Thank you very much.

Ms. BARRAGÁN. I yield back.

Mr. PALMER. The gentlelady yields. The Chair now recognizes the gentlelady from Iowa, Mrs. Miller-Meeks, for 5 minutes for her questions.

Mrs. MILLER-MEEKS. Thank you, Chairman Palmer and Ranking Member Tonko, for holding this important hearing on recycling.

As a representative from Iowa, I know firsthand the challenges that rural communities face in accessing recycling services. Over 36 percent of Iowa households lack access to recycling, and that is over 450,000 families. It is an economic and a national security imperative as well as an environmental issue. Iowa's manufacturing sector depends on recycled materials as feedstocks, yet we are watching China and other competitors purchase our scrap at above-market prices while our own factories struggle to source domestic materials.

The data shows we are landfilling millions of tons of valuable manufacturing materials every year, materials that should be creating jobs and strengthening supply chains right here in America. In Iowa alone we are capturing less than half of our aluminum cans and only 15 percent of our steel cans, despite having a deposit on aluminum cans. That is not just waste, it is a lost economic opportunity for our manufacturers and increased dependance on foreign suppliers.

And this challenge extends beyond traditional materials. Last year my amendment to the NDAA directed the Department of Defense to report on recovering rare-earth elements from electronic waste using acid-free dissolution technology developed by the Ames National Laboratory.

We must keep these critical minerals in American hands, not ship them overseas. It is also why I introduced the Recycling Infrastructure and Accessibility Act. RIAA would establish a pilot grant program specifically targeting communities, like many in my district, without a recycling facility within 75 miles. It is bipartisan legislation that has earned endorsements from industry leaders—many of you here today—and manufacturers who understand that recycling infrastructure is manufacturing infrastructure, and that domestic material supply is economic security. And I urge this committee to pass RIAA.

Mr. Felton, are there ways to better utilize our preestablished recycling systems? For example, would a hub-and-spoke pilot program connecting small towns to establish recycling infrastructure as seen as my—in my bill, the RIAA, improve recycling without requiring a resource-heavy system overall?

Mr. FELTON. Thank you, Representative Miller-Meeks, for your question. And absolutely, the RIAA is another critical tool in the toolbox, if you will.

We have—I never like to hear the phrase "recycling is broken" in the United States. My belief is recycling is continuing to mature and always will continue to mature. And the RIAA is a very perfect example, really, of how to increase recycling, give more people access—a little bit of funding, right, from the Federal Government, but it is, again, another tool in the toolbox, along with a thoughtfully crafted, implemented extended producer responsibility, recy-

cled content requirements which actually drive, don't restrict, packaging. So again, absolutely, that is a tool we need.

Mrs. MILLER-MEEKS. Thank you.

Mr. Bedingfield, we are losing 10.6 billion in critical minerals through e-waste exports. My NDAA amendment last year addressed recovering rare-earth elements from defense electronics. Beyond supporting individual technologies like yours, what broader Federal framework do we need to capture the full value of our e-waste, from precious metals to rare-earth elements, and keep those strategic resources in the American supply chain?

Mr. BEDINGFIELD. Sure, and thank you for your leadership in this space. As much as I would like to say we can solve the whole problem, we can't. So the funding that is available right now, directing that to States to be able to incentivize businesses like ours, I think, would drive it. Working with States and local communities to find the need to create the jobs there, to recover the metal that ultimately supplies the businesses that we are bringing back is the key.

But the scale is massive. It is going to take a long time to do it, but we must get started.

Mrs. MILLER-MEEKS. Thank you.

And Mr. Eisenberg, we have a Novelis and our iconic facility in our district that rely on secondary aluminum. I also have Gerdau and SSAB, and most people don't realize that 98 percent of the steel in the United States is recycled, but they are struggling to source domestic materials. We are seeing China purchase our aluminum scrap at above-market prices, process it, and sell it back to us at a premium. So just asking for you, how does a bill such as the RIAA help to address this issue?

Mr. EISENBERG. Well, so those—you know, this is the beauty of actually putting Federal dollars and creating pilot programs to improve sort of the accessibility here. There's been so many—and plastics, frankly, has the exact same problem, right?

I mean, I have visited recyclers and in the town that they are in they don't have blue bins because the municipality can't afford it. And it is—you sort of see this really strange dynamic. So you absolutely—I mean, it is something that could use Federal attention. I really appreciate you doing this. We strongly support the RIAA and think it is a bill that really could make a big difference here.

Mrs. MILLER-MEEKS. Thank you very much. My time has expired.

I yield back.

Mr. WEBER [presiding]. The gentlelady yields back. The gentleman from Florida is now recognized for 5 minutes.

Mr. SOTO. Thank you, Chairman.

Every week millions of central Floridians recycle, the blue bin that we have been talking about already. But we face some challenges in central Florida, particularly with glass. We see Orange County, the biggest county, is able to recycle glass. They have 20 recycling centers, a 72 percent recycling rate. But mid-size counties like my home county of Osceola County and also Polk County don't have glass recycling. We have applied for some grants. It hasn't worked out.

Obviously, glass has been recycled for thousands of years—I mean, I was looking into this—back to, like, the Roman Empire, right? So Ms. Harrison, how do we improve the ability for mid-sized and small counties to do glass recycling, something that has been done for so long in human history?

Ms. HARRISON. Rural communities need extra support because recycling is a critical mass exercise. When you have enough of a like thing that you can turn into something new, you can make a profit. It is—that is an extra burden for smaller communities because, one, they have less to collect and, two, further to ship. So the STEWARD Act is exactly this type of legislation that would help solve this sort of problem.

One of the questions that we heard earlier is, does transportation impact the value of a material? When it comes to things like glass, glass has a smaller radius with which it can move before the cost of transportation exceeds the value of return. When we establish that only economic drivers fuel recycling, it is—we are only going to recycle it if it is making money, we are limiting ourselves for the important environmental and community impacts that would impact that. So glass is a great example for your community.

Mr. SOTO. Would that legislation address things like breakage or contamination that I know seem to be some of the obstacles to glass recycling?

Ms. HARRISON. Glass is infinitely recyclable. It is—for thousands of years, absolutely right. And so it is best when it is kept whole, but it can still be recycled as broken pieces.

But yes, can it affect that? By engaging the public you can reduce the contamination. So we want to keep nonglass materials out of glass, for example, and then keep it as whole as possible. And reducing transportation would help with that too.

Mr. SOTO. Thank you. Recently the Corsair Group has reached out to local governments like St. Cloud and Poinciana and Osceola County. They are out of Europe and have strict regulations they follow, especially in places like Finland that apparently have some of the highest in the world to do pyrolysis, which is a heated, oxygen-free environment where they put plastics in it and run gases through wet scrubbers to prevent air pollution and change the smoke into oil to make gas, diesel, kerosene, and new plastics.

Mr. Eisenberg, are you familiar with the pyrolysis technique? And do you have any opinions or recommendations for our local communities, as well?

Mr. EISENBERG. Yes, I—yes, thank you. Yes, I do. Ms. Harrison said there is sort of a variety of different technologies. Pyrolysis is probably the dominant technology for advanced recycling right now. There's solvent-based ones and depolymerization, things like that. But pyrolysis is the one that I think most of the advanced recyclers now are using.

And every company does it differently. You know, this is an area where, you know, certainly they are responding—from what you just said, they are obviously aware of the footprint that they have, and they are aware of—that they do produce emissions and things like this. And so, you know, hold them to it, right? They—you know, make sure that they are, you know, keeping track of what their emissions are.

The vast majority of our members that are doing this are very happy to sort of open up and show you their books and say this is what we are putting out into the environment. They want to be good neighbors, right? I mean, they are there to make a difference.

That being said, the emissions from these facilities is largely pretty darn low. They are often permitted as synthetic minor sources because they really are putting out things that are on the scale of like a hospital or something like that. But like any other manufacturer that moves to your district, you should, you know, make sure that they are permitted correctly and are complying with all their air, water, waste permits. And hopefully it works out well. It is a great technology, and something that we really think has a lot of promise.

Mr. SOTO. We all recognize there is a ton of plastic out there, but it is recyclable and we can recycle a lot of it. How to do it most cleanly and efficiently is something I think we are all trying to grapple with here. And then, of course, the potential jobs resulting from it.

We benefit in central Florida from a lot of wind. There's no mountains. There is—we are surrounded by water on all sides, so air quality is something that we haven't had to stress about as much. But I know different communities are going to look at different technologies to see what is the best fit.

I appreciate the advice, and I yield back.

Mr. WEBER. The gentleman yields back, and the gentleman from Pennsylvania is now recognized for 5 minutes.

Mr. JOYCE. Thank you, Mr. Chairman and Ranking Member Tonko, for holding this important hearing, and to our panel for being with us here this morning.

If you look around the room where we are holding this hearing, you will see laptops, you will see cell phones, you will see cameras, you will see TV monitors and many other pieces of technology. When all of these products are eventually replaced—and often it is sooner than later—they will become electric waste, the e-waste that we are discussing.

With the continued increase in the amount of this technology we use each and every day, the creation of e-waste has rapidly accelerated. Efficient recycling of e-waste is not only made difficult because of the amount of waste produced and how it is outpacing existing recycling infrastructure, but also the fact that we have new technology requiring innovation in the actual methods of that recycling.

The e-waste problem is only projected to get worse. As I have discussed extensively on this committee, the data centers needed to support AI are very resource intensive, and that intensiveness is requiring technology. The technology for the data center operations will need to be regularly advanced and updated, and the potential to add millions of additional tons to e-waste each and every year. It is estimated that in the United States alone nearly 10 billion in e-waste is discarded each year. Much of the value of this comes from critical minerals, minerals that we already lack a sufficient domestic supply of. If we want U.S. leadership in this technology and AI, we need to do a better job at recycling some of these materials.

Mr. Bedingfield, in your written testimony you stated that only 15 to 20 percent of e-waste generated in the U.S. is processed through certified recycling channels. What is happening to the rest of it?

Mr. BEDINGFIELD. That is a great question, and I agree with all your comments. Thank you for them.

It is going to the landfill. And many of the heavy metals that actually have a lot of value—the gold, the palladium, the silver, the tin, the copper—are leaching into the ground.

One thing we are extremely excited about is this seems to be one of the few bipartisan issues that people can wrap their mind around. Whether it is sustainability, national security, supply to all of our domestic manufacturing, there is something everyone here can get their—get behind.

Mr. JOYCE. What countries are currently the leading recipients of the e-waste that is not recycled here?

And should the lack of domestic processing of this waste concern us?

Mr. BEDINGFIELD. The lack of domestic processing should absolutely concern us.

As I said before, all the companies that are coming here for manufacturing, they need raw materials. If we don't have them here, then we have really not done much by reshoring them. So having that full supply chain here is critical. The countries we are exporting to right now have this infrastructure, and they are in Europe and they are in Asia.

Mr. JOYCE. Mr. Bedingfield, as we continue to develop the technologies for recycling e-waste and work to deploy them, what role can the Federal Government play in helping to manage the waste until we have those capabilities?

Mr. BEDINGFIELD. Until we have those capabilities, it is very difficult because you can't stockpile as much material as you are talking about. There is—there are significant stockpiles already within the government. There is up to a 7-year backlog of classified assets within our military departments that we are trying to find a solution for. So directing those materials to domestic companies with domestic capabilities helps to build the business cases to get the investments that we need to drive the capabilities here.

Mr. JOYCE. Thank you.

Mr. Felton, in your written testimony you discussed medical device packaging, the packaging that we see around IV solutions or syringes, or around isolation gowns. How can industry work with hospitals to solve the packaging and plastic waste which we know has only increased since the COVID–19?

Mr. FELTON. Thank you for your question, Representative Joyce, and I would say there's a couple of ways to sort of tackle that problem.

It could be considered business-to-business recycling, right? So in instances in hospitals and other commercial settings, there may be systems already established to recover those materials and put them back into other products, have them be recycled. It is significant impact from the flexible packaging industry. Pharmaceutical medical is about 16, 17 percent of the flexible packaging industry in the U.S.

So I think B2B is important, and then look for opportunities to do public-private partnerships and also potentially even extended producer responsibility done responsibly. Oregon's program, for example, doesn't only cover residential recycling, it covers commercial recycling.

So, you know, if the programs move forward in the States and we can have the ability to do some more partnerships so that industry can be getting those materials back, we would find that a benefit.

Mr. JOYCE. Thank you, Mr. Felton, and thanks to all of our witnesses for appearing today.

We do have an opportunity to create a more efficient technology supply chain by leading the way in e-waste recycling. These are valuable resources if we support the innovative recycling infrastructure necessary to process them and to retain them.

Thank you, Mr. Chairman, and I yield back.

Mr. WEBER. The gentleman yields back. The gentleman from Ohio is recognized for 5 minutes.

Mr. LANDSMAN. Thank you, Mr. Chairman, and thank you all for being here today. I wanted to do a couple of things. One is just underscore—which has been done, but—the economic impact, the—just the overall impact of recycling in the United States. The EPA's Recycling Economic Information report found that recycling contributes to 681,000 jobs, $3,738 million in wages, and about $5.5 billion—$5.5 billion—in tax revenue.

Ms. Harrison, can you talk a little bit about the recycling industry's impact on manufacturing and economic security?

Ms. HARRISON. Yes, I expect that there will be a number of staffers from the Recycling Partnership watching this today, and a lot of them are from Ohio, so you have got big fans.

Mr. LANDSMAN. Right.

Ms. HARRISON. And they want to hear the questions that you are asking right now, because recycling has long been felt—you know, we teach it in schools, but it is like a feel-good thing——

Mr. LANDSMAN. Yes.

Ms. HARRISON [continuing]. Of, like, do your part in recycling. It is really about domestic supply chain. It has always been about creating fuel for U.S. manufacturing.

Mr. LANDSMAN. Yes. And so can—talk a little bit about the importance of the data and all of this, the—and improving data availability for strengthening this system.

Ms. HARRISON. Yes, recycling has long been woefully underdataed. I think that is a real word.

Mr. LANDSMAN. It is.

Ms. HARRISON. And that ambiguity has led to wishful thinking, has led to greenwashing, but it has also led to a missed opportunity to do the work that matters most.

The Recycling Partnership for 11 years has worked to document what is produced in the household. We actually do studies where we participate with communities to study what is in community trash cans and recycling so we can really measure what is there. Then we can map how it is getting to market. By having that data, we see where the gaps are so we can have a detailed application of what works in Ohio versus, say, Tennessee. And we are able to

create a prescription for how we meet the community with what they need most and serve the businesses in those locales.

Mr. LANDSMAN. And they—this is a bipartisan, you know, issue, both recycling but also the data as we try to collectively get better.

The two bills, the Recycling and Composting Accountability Act and Recycling Infrastructure and Accessibility Act of 2025, would help to bolster recycling data and measurement as well as accessibility. These two bills were in the final spending package, and so this is—it is important, I think, as we approach the next spending bill to appreciate all of the things that got pulled out. These two bills were pulled out. Can you talk a little bit about the impact these two bills would have?

Ms. HARRISON. Yes. This committee has the opportunity to mark them up and put them together in the STEWARD Act, and that would serve primarily rural, but all communities, with solutions. It would drive forward opportunities for small manufacturing and large, and there is an opportunity to do that right now. So the STEWARD Act is an immediate step this group can take, and then the CIRCLE Act that is being introduced today is the next one.

Mr. LANDSMAN. Yes, STEWARD, CIRCLE, and potentially, as part of a final, you know, end-of-year spending package. But I hope this committee pursues that bipartisan work, getting it on the floor, getting in something that is moving, STEWARD or otherwise, and making sure this gets done finally, since we didn't get it done last year. Thank you all——

Ms. HARRISON. Thank you.

Mr. LANDSMAN [continuing]. Very much.

I yield back.

Mr. PALMER [presiding]. The gentleman yields. The Chair now recognizes the gentlelady from Tennessee, Mrs. Harshbarger, for her questions.

Mrs. HARSHBARGER. Well, if I—microphone on—can you hear me?

VOICE. Yes.

Mrs. HARSHBARGER. Good. Thank you, Mr. Chairman, for allowing me to waive on, and thank you to the witnesses for being here today.

You know, we use plastic in everything. I mean, we store our food that way, we use it in medicine. You don't—you can't walk into my pharmacy and not see syringes or anything like that. I mean, we use a lot of plastic. But when we are talking about the future of plastics, we need to work towards making a more circular economy.

And my district is home to Eastman Chemical Company, and it is the largest dedicated advanced recycling facility in the world. And in Kingsport, Eastman has been taking plastics that normally would go into the landfill and then instead use the materials—the material recycling process. And they can convert and create new plastic materials that have the same quality integrity as plastics that were made directly from petrochemicals. And to Mr. Bedingfield's point, it keeps those plastics out of the landfill from leaching out microplastics. There is a lot of health concerns when it comes to that.

So when I think about this, I think it is important to weigh the economic opportunities for our country, and it is possible to direct U.S. policy to provide incentives that will build these advanced recycling facilities in the U.S. instead of overseas in China. And we can bolster confidence in the domestic recycling system. And I think you will see a lot more onshore manufacturing that brings domestic jobs and investment to our country.

Mr. Felton, I guess I will ask you this: What plastics are generally recycled, I guess, the most today?

And what are the barriers to recycling a broader range of those plastics currently in use?

Mr. FELTON. Thank you, Representative Harshbarger, for your question.

Generally speaking, if you look at—if you think of the resin identification codes on products, including packaging, they are generally 1 through 7—generally speaking, 1 and 2. So even a bottle like this may be more recyclable. Many of those others are—those others, 3 through 7, are recyclable. It needs the infrastructure behind it and the opportunity to recapture that.

And advanced recycling, as you have mentioned, is one of those examples for particular types of recycled plastics to be able to move them back to full circularity. And that is why FPA is supportive of that.

And I think also looking at the opportunities for specific packaging applications as you recycle those plastics—you mentioned pharmaceutical, medical devices——

Mrs. HARSHBARGER. Yes.

Mr. FELTON [continuing]. Food contact.

Mrs. HARSHBARGER. Yes.

Mr. FELTON. It is critical. Companies are trying to use as much—less virgin plastic, more recycled content, but they need pathways forward to do that—

Mrs. HARSHBARGER. Yes.

Mr. FELTON [continuing]. Different collection methods, as Ms. Harrison has suggested, also different recycling methods.

Mrs. HARSHBARGER. Yes, that is why I think circular recycling is the bomb.

Mr. FELTON. Yes.

Mrs. HARSHBARGER. Well, how does advanced recycling improve the recycling system in the U.S., I guess, and what are the steps that need to be taken to make those technologies complementary to the existing technologies that are deployed?

Mr. FELTON. Yes, thank you for that question.

I would say one of the things to be thinking about is collection. We have, you know, what we typically call traditional recycling at curbside.

Mrs. HARSHBARGER. Yes.

Mr. FELTON. Absolutely, we need that. The flexible packaging industry needs and wants it, but we need other methods, as well, right? We want store dropoff, we want depots, we want subscription services. And all those different types of abilities, ways to collect packaging and other products, are meaningful to contribute to that full circularity.

Mrs. HARSHBARGER. Yes, exactly. You know, we have seen periodic efforts, I guess, to increase recycling infrastructure domestically. You see them here, you see them there. There is not really a defined path. But policies are needed to see a nationwide improvement in these recycling rates and the development of infrastructure that can address the plastic being used by Americans today.

Do you agree, everybody?

I mean——

Mr. EISENBERG. Yes.

Mrs. HARSHBARGER. I just—look, if anybody wants to throw anything in that I haven't covered, but I am all about recycling. But we can go to infinity and beyond with some of these plastics that you recycle over and over and over, and we can get away from some of the petrochemicals.

Anybody got anything to add?

Yes, ma'am.

Ms. HARRISON. So the example of the Kingsport Eastman facility is a good one to bring innovation, American industry at its best. What it needs most, though, is protection to make sure that companies are using that high-quality recycled content that you talked about and ensuring that it is not getting displaced by cheap imports that could disrupt the momentum that you are talking about. So that is an area that we would love to see your help leaning in.

Mrs. HARSHBARGER. Well, that is what I am working on. So thank you all.

And I will yield back, Mr. Chairman.

Mr. PALMER. The gentlelady yields back. The Chair recognizes the gentleman from New Jersey, Mr. Menendez, for 5 minutes for his questions.

Mr. MENENDEZ. Thank you, Chairman.

I am always proud to represent New Jersey, especially since it has been a national leader on extended producer responsibility, or EPR, laws which shift accountability for product recycling from households and municipalities to our industry partners. In 2024 New Jersey passed the first-of-its-kind EPR law for electric vehicle batteries to incentivize recycling and sustainable management of EV batteries, and ultimately advance vehicle electrification.

EV batteries contain valuable materials, and collecting and recycling batteries helps us conserve resources while reducing harm to human health and the environment. New Jersey's EPR law for EV batteries is just one example of how EPR can be applied in innovative ways to solve many types of waste issues.

Mr. Bedingfield, you mentioned in your testimony that Mint's platform is expanding to lithium ion battery recycling. How can recovering and recycling critical materials from EV batteries help promote a circular supply chain for American manufacturers?

Mr. BEDINGFIELD. Thank you very much for that question.

So first of all, there is a difference. We do recycle a lot of materials, and it is processing and getting things down to commodity level. But then many of those processes and the process—or the material that comes out of lithium ion batteries is called black mass. We don't have the processes here in many instances to re-

cover it back to the cobalt, lithium, nickel that comes out of that to be able to be reused. That is what is being exported.

So the process that we are developing actually recovers it so that we can feed those right back into the businesses that are based here in the country to make new batteries. So that is the key, is finishing that loop. You know, the collecting is only step one. Then we have to be able to recover the metals to be reused here.

Mr. MENENDEZ. For sure, I appreciate that. And obviously, that will have immense benefits for our supply chain as we continue to have more domestic manufacturing of EV vehicles. Is that correct?

Mr. BEDINGFIELD. Yes, sir.

Mr. MENENDEZ. Yes.

Mr. BEDINGFIELD. It is only growing.

Mr. MENENDEZ. And it is important that we foster circularity to reduce our environmental impact and reliance on foreign supply chains, as we just discussed. EPR programs can also help bolster supply chains by keeping recycled materials in use and promote more sustainable product design.

Ms. Harrison, in general why should businesses take financial responsibility for the full life cycle of their products?

Ms. HARRISON. So I think a good example of what change looks like—in 2023 we partnered with the Coca-Cola Foundation, and we piloted a new education campaign in Newark, New Jersey. So we helped put 4,000 new carts, recycling carts, on the ground and redid the whole education program. And we project that Newark now collects more than 700 new tons of material per year. That is an opportunity that companies have not just to work on what they are producing, designing for recycling, but by investing in communities they see that they can make meaningful change.

The challenge is, one by one, it takes a very long time to do that. That is where the opportunity of policy, EPR, comes in to be able to give the same opportunity that Newark got in—for—in your fine State to every community.

Mr. MENENDEZ. Yes. No, I appreciate that. And, you know, obviously in the current construct, right, it is the individuals, the families, it is the municipalities who are paying for the waste and the recycling. And EPR programs can help ensure that manufacturers take responsibility.

I think you brought up a good point. It is—thinking about when they are responsible for the full life cycle, it may enhance their design phase, right——

Ms. HARRISON. Yes.

Mr. MENENDEZ [continuing]. To think about what they are delivering to the customer if they are also responsible for recycling, right? I think that is——

Mr. EISENBERG. Correct.

Mr. MENENDEZ. It is good business, and it is good for our environment. It is good for our—all of our constituents.

Ms. Harrison, can you expand on how EPR can spur needed investment in our Nation's recycling system?

Ms. HARRISON. Yes, the U.S. recycling system, if we were going to fix it—which we can——

Mr. MENENDEZ. Yes.

Ms. HARRISON [continuing]. Which means that everyone can recycle, everyone does, and old stuff turns to new stuff, we are looking at a $17 billion CapEx. So that means everyone has carts, we have got trucks, we have got good infrastructure. Then annually that is a $17 billion investment to run it.

We know the return is more than fourfold on that. It comes back into the U.S. opportunity to make new things, to domestic supply chain. So we see a really strong opportunity to invest in our system. It serves our communities, it prevents pollution, and it serves manufacturing. So it is a no-brainer in my book.

Mr. MENENDEZ. Yes. And do you think—is there a way we should be sort of reframing the conversation? Right? Because as we have alluded to here, you grew up with the three R's about recycling, right? And it seems like sort of like more of a task, right, for both for companies and for individuals, for communities.

Is there an opportunity in this moment, because of all the benefits that we have discussed in this 4½ minutes and in the broader committee hearing, is there a way that we should be reframing it to get people to engage in it in a way that they are going to actively want to participate?

Ms. HARRISON. Yes. The first step is to make sure that they can and that it is easy and it is not confusing, and then trust. They want to see the process of their yogurt cups becoming car parts and their cans becoming airplane parts. They would love to know about that.

But I would challenge us not to rely on it always being the consumers'—the public's burden. We need to build the system. Once the system is there, then they will participate.

Mr. MENENDEZ. Yes, I appreciate that.

Ms. HARRISON. Thank you.

Mr. MENENDEZ. I would love to hear from Mr. Bedingfield, but I don't want to be too—anyway, I will yield back. Thank you all so much.

Mr. PALMER. I thank the gentleman for yielding. I now recognize myself for 5 minutes for questions.

And I am sorry. This is my first hearing, and it is like I have never done one.

[Laughter.]

Mr. PALMER. I now recognize the gentleman from Virginia, Mr. Griffith, for 5 minutes for his questions.

Mr. GRIFFITH. I really appreciate you, Chairman, allowing me that opportunity, and let me apologize to the witnesses. I have been chairing a meeting downstairs and trying to juggle when I could get up here. And so I ran up the stairs to get here.

Microplastics is something I am really interested in. I apologize if it is repetitive, but there is concern. It is becoming a more visible issue, with news media beginning to publicize what is going on, and microplastics in the brain. And where is that plastic coming from? And I am hearing all kinds of different reports from my plastic water bottle to the tires on the highways. Does anybody have a definitive answer yet?

Mr. EISENBERG. So I am happy to take that one, and it is——

Mr. GRIFFITH. I assume the answer is no, nothing definitive yet. But where are we going?

Mr. EISENBERG. Yes. So—and that is really symbolic of the challenge.

So there are a number of sources, right? We know that it is coming from tires and tire runoff. We know it is coming from textiles, from the clothes we are wearing and things like that. We know it is coming from big plastics that become little plastic because of their environment and they start to degrade and things like that. We are still trying to figure out how much of it is coming off of existing plastics that—you know, in sunlight and things of that nature.

And really, that is the—that is what, I think, the message that I think is most important here is that I think if you ask anybody—scientists, environmental activists, industry person—we all need more science, right? We need dramatically more science to help inform the policy here.

We, the chemical industry, the global chemical industry, are putting—we funded over 100 researchers in 37 institutions around the globe. We need so much more than that. We are trying to get these answers. We hope that Congress will act and help do this as well. Let's get those answers so that we can reassure the public of what is going on here.

Mr. GRIFFITH. Well, and I appreciate that. And of course, the problem right now is you don't know what to do. I mean, I—

Mr. EISENBERG. Agreed.

Mr. GRIFFITH. It is little stuff, but I changed out my tea bags this week because apparently some of them use a plastic fiber, and a lot of them are switching back to plant-based. And so I switched my bags out and went with a more expensive tea bag. I am cheap and was trying to stay cheap, but it is that kind of stuff that we worry about.

Mr. EISENBERG. Yes, and totally understandable, right?

Now, I will channel the chemical side of the house at ACC. The presence of a chemical is not a risk, right? I mean, we have to do our risk evaluation and understand that—if the presence of the chemical actually does demonstrate a risk to human health, and that is something that we should absolutely be doing here as the science develops.

But in the meantime we can also be focusing—I mean, that is the great thing about this recycling message that we are all putting here. We can take care of the big plastics not becoming little plastics, right? Let's get them back into the system. Let's make this circular, and make sure that that piece of the challenge is taken care of right now.

Mr. GRIFFITH. And I would say I am really excited about some of the recycling stuff that is happening out there. I have visited—I know you heard from Diana Harshbarger a few minutes ago, and I don't know what her questions were, but I have visited the Eastman facility that is in her district because it is within 8 miles of my district. And so I have—about 10 percent of their workforce is in my district. And the research that they have been doing for decades on cracking open different carbon molecules and rearranging them and creating new plastics, it is absolutely fabulous.

And instead of putting this plastic into the ground, if we can find good, efficient, practical ways to recycle it, that is absolutely the goal, I think, of all Americans.

Does anybody disagree with that?

None of our panelists—let the record reflect none of the panelists disagreed with that comment. And so I really appreciate what you all are doing. We just have to try to figure out the science, and that is the hard part.

I have about a minute left. Does anybody have something to add to the questions I have asked or the concerns?

Yes, ma'am.

Ms. HARRISON. Well, I think the very nature of—you, as just an individual trying to figure out what is the best way to handle this—which tea bag is right? What about your carpet? What about the clothes? That is exactly why we need this committee and why we need leadership from Congress. Because the public can't answer all that. Busy moms can't answer all that. They just need things to be healthy.

And so this is where we need policy to set up a good system to—that drives innovation and U.S. opportunities but that also keeps the public safe. And so I think the research that we need has to be funded in part from you all and in the leadership so that we can all make those good choices.

Mr. GRIFFITH. And I won't disagree with that, because what I want to see is that we make decisions based on science, and too often what we do is we decide something is bad, we get scared, and it is understandable that the public gets scared. I mean, as cheap as I am, I wouldn't have bought new tea bags if I didn't have some concern about, you know, plastics in the brain.

But that said, we have got to have the science before we go throwing the product out, which has been an amazing product for consumers and, in fairness, for the health of the environment over time. It doesn't mean everything is perfect, but I believe it has been a real asset to our environment. Notwithstanding those who just look at the negatives, the positives far outweigh those in my mind.

With that, Mr. Chairman, I appreciate you giving me the time, and I yield back.

Mr. PALMER. I thank the gentleman for yielding. I now recognize myself for 5 minutes for my questions.

And as I was about to point out earlier, yesterday I introduced the Securing America's Mineral Supply Act of 2025 to codify President Trump's Executive orders that will ensure we secure our critical mineral, rare-earth element supply chain.

So Mr. Bedingfield, you spoke of the importance of securing processing of e-waste, and I would think you would include refining, as well. But what they—a lot of people don't realize is what a national security risk we have created for ourselves by basically exporting the processing and refining to an adversarial nation. In your process you destroy any data—any potential for data recovery. Is that correct?

Mr. BEDINGFIELD. Yes, sir, we do. We shred to below 2 millimeters, which is NSA standard for data destruction.

Mr. PALMER. Do you think China does that?

Mr. BEDINGFIELD. I am honestly not sure what China does. I don't think any of us are, and that is absolutely the problem. But if they can get data, I would think they would sure take it.

Mr. PALMER. You also talked about how you have the capabilities—each facility has the capability to recover, for instance, 1,000 tons of copper, a ton of gold, 250 tons of lithium, 500 tons of cobalt. These are the things that we are having to import from China. You said 1,000 tons of nickel. Those elements and those minerals were very likely not sourced from here.

Would you say that, that they are likely sourced from mines in Africa and South America and processed and refined in China, placed in the electronics that we buy, so we are recovering basically what China has mined, processed, and refined? Would you agree with that?

Mr. BEDINGFIELD. Yes, sir. We have to import them because we don't have the capacity here. And then, when we export them, we do it all over again. So we need to keep those minerals here. If we have to import them the first time, fine. But once we get the mines up, hopefully that ends. But at the very least right now, we should only import them once.

Mr. PALMER. You also in your written testimony said that we export 340,000 tons of e-waste each year. Where does that go?

Mr. BEDINGFIELD. Most of it goes to either Europe or Asia. That is where the big refineries are. They have built these things over decades and decades——

Mr. PALMER. Europe has the refining capability to refine e-waste. Do they also have the refinery capability to refine processed aggregate, or is that—that is obviously a different process, isn't it?

Mr. BEDINGFIELD. It is, but I believe they do, as well.

Mr. PALMER. OK. Mr. Eisenberg, we talked about recycling, and part of the problem with that is—I think—is that the market doesn't support it. And do you see a future where the market would pay for recycling so the recycling would pay for itself?

Mr. EISENBERG. Pay for itself? I mean, hopefully, yes. I mean, any technology, if you—is my mic on?

Mr. PALMER. Yes.

Mr. EISENBERG. Any technology, if you do sort of mature it, will become cost competitive, right? I mean, that is the beauty of it, and putting all the additional time——

Mr. PALMER. OK.

Mr. EISENBERG [continuing]. And effort into it.

Mr. PALMER. Ms. Harrison, I asked my colleague, Mr. Tonko, to let me see his cranberry juice bottle. And on it there—it states that, "We will pay 5 cents for redemption." One State on the bottle pays 10 cents. Do you think that that would play a role?

And I say that because when I was just a kid we had a chance to go to the University of Alabama to see the State basketball playoffs, but we had to have $5, and I was—I grew up dirt poor, so I walked up and down the road and pulled soft drink bottles out of the ditch, went to the neighbor's house and asked for them to try to come up with 100 to get the $5 I needed.

Ms. HARRISON. Did you do it?

Mr. PALMER. I did. I bought a hamburger.

[Laughter.]

Ms. HARRISON. Deposits can definitely help, but I think it is important we break this into two parts. There is the cost of collecting it and getting it to the end market. And that deposit helps offset the cost for communities to get it into the recycling system.

Mr. PALMER. But you are talking about communities, and I think that is where we kind of lose the market part of it. We have got to figure out a way where there is a market solution to incentivize people to do this because if it is just a matter of trying to remember to separate what you put in your trash—put out, you know, one time a week or whatever—but if there is some way that we can incentivize this——

Ms. HARRISON. Yes.

Mr. PALMER [continuing]. I think it would really help.

And you talked about, Mr. Eisenberg, about a national standard. I think what we ought to be talking about here is not, you know, some of the politics that we get into here, but really coming up with a solution that makes sense, that it is not always run by the government because there is—I think there is an automatic dismissal of government programs unless it is enforced on people.

So if we could come up with a way to incentivize this, I think we would make some pretty significant advances in our ability to recycle and solve some of these problems that we have.

I can't believe I am already out of time. But I will yield back and recognize the gentleman from Louisiana, Mr. Carter, for 5 minutes for his questions.

Mr. CARTER OF LOUISIANA. Thank you, Mr. Chairman, and thank you to our witnesses for joining us today.

I am a proud supporter of recycling, not just because it is good for the environment and sustainability, but it also—but because it is—the circular economy where materials are reused, recycled, and kept in circulation is good for business. The business community gets this. That is why my hometown of New Orleans began partnering with New Orleans and Company, our local tourism bureau, to create recycled dat. Dat, like who dat.

[Laughter.]

Mr. CARTER OF LOUISIANA. The first official recycling effort for Mardi Gras—the largest street party on Earth, generated more than 2 million pounds of trash annually, which the city had to collect after the parties and parades were over. Now they have shifted their efforts to working with local recycling businesses to keep those plastic beads, beer cans, and water bottles from clogging our storm drains or ending up in landfills. This past year the program collected over 23,000 plastic bottles, 46,000 pounds of glass, 22,800 pounds of beads and parade throws.

Our tourism leaders understand that visitors to our city not only want to enjoy our culture, but they also want to do it in an environmentally responsible way.

On a national scale, an expanded circular economy can create jobs, reduce greenhouse gas emissions, and make our supply chain more resilient. According to the EPA, recycling and reused—recycling and reuse already supports 680,000 jobs, generating more than $37 billion in wages and $5.5 billion in tax revenues annually.

Programs like the Solid Waste Infrastructure for Recycling, or SWIFR grants, and the recycling education, or REO, programs are

critical lifelines for communities seeking to modernize outdated recycling infrastructure and educate the public on effective recycling practices. These aren't just environmental programs. They are economic development tools, as well.

A quick question for Keefe Harrison.

Mr. Harrison—Ms. Harrison, I am sorry, Ms. Harrison —the City of New Orleans is proud—is a proud recipient of a SWIFR grant. Your team at Recycling Partnership helped put the application together, and now we are assisting the city in implementing the project. Nearly 4 million in bipartisan funding from the Bipartisan Infrastructure Law will transform the way my neighbors and I can recycle.

Can you tell us more about how the grant will improve recycling in New Orleans and how this project can serve as an example for other communities across the country, recognizing the great work that we have in New Orleans?

Ms. HARRISON. Yes, Representative Carter. We were so proud to join you in that announcement, and our team worked hard to make sure that New Orleans is a shining star.

This grant will make sure that 83,000 community—or households in New Orleans will now be able to recycle. It will give them the infrastructure that you are talking about. It will also layer in the education to make sure they know what to do.

Our research shows that 58 percent of Louisianans don't understand what to recycle.

Mr. CARTER OF LOUISIANA. As you mentioned, a portion of the award will go toward solid waste master plan, including an evaluation of regional recycling processing infrastructure opportunities for the city to obtain Materials for Recovery Facilities, or MRF, which receive—sorts and prepares recyclable materials for sale to manufacturers.

Why should Federal funding be used for municipalities to undertake these studies?

And why would a new MRF be beneficial to the New Orleans region?

Ms. HARRISON. A new MRF would be beneficial because the—so when we put our stuff into the recycling cart, it is all mixed together. Then you have got to separate it out. That is what happens in a MRF. It is a critical step for making sure that those materials make it to end market. Many of those MRFs, you know, they have evolved over time, and they are not at pace with the diversity of packaging that we are talking——

Mr. CARTER OF LOUISIANA. How much time does that save you when you don't have to go and resort all this stuff?

Ms. HARRISON. It saves time, it saves money, but it also increases the amount of recyclables that get to U.S. manufacturing.

Mr. CARTER OF LOUISIANA. And we know we generate a lot of beads, a lot of plastics.

[Laughter.]

Ms. HARRISON. I have been.

Mr. CARTER OF LOUISIANA. You know, when we say, "Hey Mister, throw me something," we throw it. We want people to enjoy Mardi Gras. We want them to enjoy it respectfully, peacefully. And we want to recycle, not just during Mardi Gras. That is, obviously, an

important time. But as you know, New Orleans has no shortage of festivals: French Quarter Festival, Jazz Festival, Essence Festival, Tomato Festival, fried chicken festival. And all of those things generate a lot of debris that can be recycled and put back into the secondhand market for manufacturing.

Ms. HARRISON. Yes. The mayor of New Orleans recently joined me for a webinar, and she is so fiercely proud of the leadership that she is bringing to the community to make sure that everyone has the opportunity. The equal opportunity is key.

Mr. CARTER OF LOUISIANA. And I am proud to say the people of New Orleans are eager. They love what you do. They love the idea of recycling. They love the idea of having venues so they can recycle.

So, Mr. Chairman, my time is up, and I yield.

Mr. PALMER. Hey, Mister, can you throw me some fried chicken?

[Laughter.]

Mr. CARTER OF LOUISIANA. Absolutely.

Mr. PALMER. The gentleman yields. I would like to thank our witnesses for being here today.

Members may have additional written questions for you, and I will remind Members that they have 10 business days to submit additional questions for the record, and I ask that the witnesses do their best to submit responses within 10 business days upon receipt of the questions.

I ask unanimous consent to insert in the record documents included on the staff hearing documents list.

Without objection, that will be the order.

[The information appears at the conclusion of the hearing.]

Mr. PALMER. Without objection, the subcommittee is adjourned.

[Whereupon, at 12:30 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

U.S. House Committee on Energy and Commerce
Subcommittee on Environment
"Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth."
Documents for the Record
July 16, 2025

1. A letter from Association of Plastic Recyclers, addressed to Chairman Palmer and Ranking Member Pallone, submitted by the Majority.
2. A fact sheet from Mint Innovation titled "E-Waste Recycling for Critical Minerals and Economic Growth," submitted by the Majority.
3. A letter from the Coalition to Protect American Small Sellers, addressed to Chairman Palmer, submitted by the Majority.
4. A letter from the Paper Recycling Coalition addressed to Chairman Palmer and Ranking Member Tonko, submitted by the Majority.
5. A letter from the American Critical Minerals Association, addressed to Chairman Guthrie, Ranking Member Pallone, Chairman Palmer, and Ranking Member Tonko, submitted by the Majority.
6. A letter from the Recycled Materials Association, addressed to Chairman Guthrie, Ranking Member Pallone, Chairman Palmer, and Ranking Member Tonko, submitted by the Majority.
7. A letter from AMERIPEN addressed to Chairman Palmer and Ranking Member Tonko, submitted by the Majority.
8. A letter from the Solid Waste Association of North America, addressed to Chairman Guthrie, Chairman Palmer, and Ranking Member Tonko, submitted by the Majority.
9. A letter from the American Forest & Paper Association, addressed to Chairman Palmer and Ranking Member Pallone, submitted by the Majority.
10. A letter from NAPCOR, addressed to Chairman Palmer and Ranking Member Tonko, submitted by the Majority.
11. A fact sheet from Moms Clean Air Force entitled "Chemical Recycling 101," submitted by the Minority.
12. An article from the NRDC entitled, "More Recycling Lies: What the Plastics Industry Isn't Telling You About 'Chemical Recycling,'" submitted by the Minority.
13. An article from Politco entitled, "Trump Admin Opts for Tighter Air Rules on Plastics Recycling," submitted by the Minority.
14. A fact sheet from the Product Stewardship Institute entitled "Extended Producer Repsonsibiliy (EPR) For Packaging," submitted by the Minority.
15. A fact sheet from the Product Stewardship Institute entitled, "Packaging Extended Producer Responsibility (EPR) Rethinking Packaging Waste," submitted by the Minority.

16. A report from the Product Stewardship Institute entitled, "Making Sense of 'Chemical Recycling' Criteria for Assessing Plastics-to-Plastics and Plastics-to-Fuel Technologies," submitted by the Minority.
17. A article from Plastics Today entitled, "Trump's DOE Nixes $375M Eastman Grant," submitted by the Minority. [1]

[1] The information has been retained in committee files and is included in the Documents for the Record at https://docs.house.gov/meetings/IF/IF18/20250716/118510/HHRG-119-IF18-20250716-SD879.pdf.

July 15, 2025

The Honorable Gary Palmer
Chairman
Subcommittee on Environment
House Committee on Energy & Commerce
2125 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Paul Tonko
Ranking Member
Subcommittee on Environment
House Committee on Energy & Commerce
2322 Rayburn House Office Building
Washington, D.C. 20515

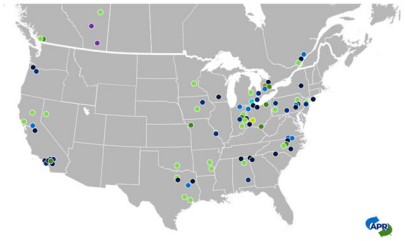
Dear Chairman Palmer, Ranking Member Tonko, and Members of the Subcommittee:

The Association of Plastic Recyclers (APR) sincerely appreciates the opportunity to provide comments regarding the July 16, 2025, hearing before the U.S. House of Representatives Committee on Energy and Commerce, Subcommittee on Environment, "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth."

The APR is a U.S.-based, international non-profit association and the only North American organization focused exclusively on improving the recycling of plastics. APR members are the entirety of the plastics recycling industry from design to collection to recovery to remanufacturing. APR represents over 80% of the processing capacity for post-consumer plastic packaging in the U.S. and Canada. Plastics recycling is what APR does every day. APR understands the challenges facing the industry and the solutions needed to scale recycling effectively with the goals of reducing plastic pollution and supporting stronger domestic manufacturing.

There are over 80 facilities that recycle plastic packaging across 21 states. These facilities process recyclable plastic packaging from households and businesses generated by all 50 states, providing economic and environmental benefits across the country. The entire U.S. recycling and reuse industry accounts for over 680,000 jobs in the US, and is poised to exponentially grow over the coming years with new investments and policies to improve recycling.

Figure 1. Operating mechanical and physical plastics recycling facilities across US and Canada, 2025



Plastics recycling is an essential solution to ending plastic pollution, strengthening domestic supply chains, supporting U.S. manufacturing, and reducing climate pollution. APR believes the federal government plays a central role in facilitating greater action and coordination among states to improve and expand recycling.

APR offers the following recommendations with regard to federal policies to guide the Subcommittee's discussion:

1. Strong engagement in the U.N. Global Plastic Treaty to secure U.S. competitiveness
2. Enact a tariff on recycled PET to protect US recycling industry
3. Prioritize federal legislation to support the collection of more recyclable plastics
4. Reduce consumer confusion through national labeling and revised Green Guides from the Federal Trade Commission
5. Drive investment in the circular plastic economy through national recycled content requirements
6. Develop a data-driven national plan inclusive of existing federal agency work

Strong US engagement in the UN Global Plastic Treaty to secure US competitiveness

APR has been actively engaged with the UN negotiations and the US government delegation since early 2023, including as a featured speaker at several INC negotiations. APR urges the US to support a strong global plastics treaty to ensure

American leadership and innovation in the new circular plastics economy. Strong engagement in the UN process will provide these key benefits:

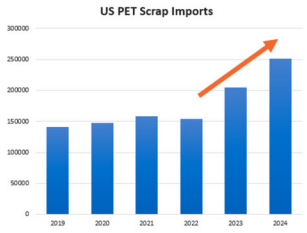
- Ensure US tools and standards are the foundation for future implementation. The APR Design® Guide for Plastics Recyclability, along with the APR recognition program, testing protocols, and training programs, have been used by many of the largest consumer goods companies for nearly 30 years and have influenced programs around the world. Similarly, U.S. federal agency initiatives including under the U.S. Department of Energy (DOE) and National Renewable Energy Lab (NREL) are leading the world in innovations around new recycling technologies, new packaging designs, and much more. U.S. leadership in the global treaty negotiations is essential to ensure that these and other U.S. tools, organizations, and initiatives are embedded into the implementation of the treaty and continue to shape the future of plastics recycling for decades to come. We cannot risk allowing other countries and organizations to set the standards and drive innovation without strong U.S. involvement.

- Reduce costs to U.S. businesses from current patchwork approach. APR is a member of the Business Coalition for a Global Plastics Treaty, which represents over 290 global businesses, financial institutions and NGOs. The Coalition supports harmonized global regulations because they provide the lowest cost option to effectively address plastic pollution. The current fragmented regulatory landscape results in increased costs and complexity. Global alignment across markets will provide much-needed certainty for businesses and investors, improving long-term decision-making and lowering the cost of capital. This will catalyze investment and innovation towards long-term value creation. In short, the U.S. will fall behind in the global economy if we do not invest in new policies and innovations to support circular plastics.

- Harmonize global actions with U.S.-state level policies. The recycling policies adopted by states are similar to those being discussed under the treaty and adopted in many regions of the world. U.S. businesses are struggling with this patchwork of existing state regulations, which is adding costs and regulatory burdens. American leadership in the global plastics treaty will help align efforts to reduce the burden on businesses and reduce the need for states to act independently of federal leadership.

Recommend protections for U.S. recyclers against imported recycled plastics

In the past two years, there has been an unprecedented surge of recycled plastics imported into the U.S., particularly from Asia. These imported recycled plastics are undermining domestic recyclers, forcing some facilities to cut production capacity, cancel expansion plans, and issue warnings of more drastic cuts if the situation is not addressed. The numbers are striking. In just two years, recycled PET (rPET) imports to the U.S. rose by over 65%, from 150,000 metric tons in 2022 to more than 250,000 metric tons in 2024. Imports from Asia now represent 44% of this volume, up from 20% in 2020.



Data source: ICIS

APR urges Congress to protect and strengthen the American recycling system by working with the Administration to implement a tariff on recycled PET plastics from outside North America. Both PET and rPET were placed on the initial exclusion list for reciprocal tariffs for reasons that remain unclear. APR supports the extension of tariffs to rPET to provide essential, substantive protection for the American recycling industry.

Accelerate immediate opportunities to improve plastics recycling through stronger collection programs

The U.S. has recycling markets for the most widely used consumer plastic packaging. In 2022, over five billion pounds of post-consumer plastics were recovered for recycling from U.S. sources. That is five billion pounds of post-consumer plastic that did not end up in a landfill or the ocean, and was instead reprocessed and made into new products.

Yet there is so much more plastic that can be recycled today using existing infrastructure and proven policies. Existing U.S. and Canadian plastics recycling facilities have the built capacity to recycle nearly two billion more pounds of plastics each year if more common plastics were collected for recycling. For example, the recycling rate of PET water and soda bottles alone, the most common type of plastic accepted in recycling programs, could improve by 30% today—using the plastic recycling facilities already running in the U.S. and Canada —if more bottles were put in the recycling bin at homes and businesses.

This data illustrates the immediate need for stronger collection programs across the U.S. to increase plastics recycling rates. While most recycling policies are determined at the state level, there is a need for targeted federal leadership to assist states and ensure a more effective, efficient national system. Specifically, APR recommends Congress focus on these three efforts to help improve recycling collection:

1. Cultivating Investment in Recycling and Circular Local Economies (CIRCLE) Act. APR encourages the members of the Subcommittee to support the Cultivating Investment in Recycling and Circular Local Economies (CIRCLE) Act. The CIRCLE Act would establish a recycling infrastructure investment tax credit to stimulate investment in the domestic recycling economy and reward those who make investments in American businesses and communities. The bipartisan Act will be introduced this week by Congressman Tom Suozzi (D-NY) and Congressman Brian Fitzpatrick (R-PA).

2. Recycling Infrastructure Accessibility Act (H.R.2145) and the Recycling and Composting Accountability Act (H.R.4109). APR encourages the Subcommittee to combine both bills with the Strategies to Eliminate Waste and Accelerate Recycling Development (STEWARD) Act (S.351), as has been done in previous sessions.

3. National packaging EPR framework: APR appreciates the leadership of Representative Tonko's office in drafting a national packaging EPR framework and the extensive work to gather stakeholder input. While states will continue to lead on recycling policies, national legislation is needed to streamline compliance and increase efficiency.

Reduce consumer confusion through national labeling and revised Green Guides from the Federal Trade Commission

Recycling needs to be easy for consumers. Right now, Americans are confused about what plastics to recycle. Clear, consistent labeling standards would increase household participation in recycling, supplying more recyclable plastics into the supply chain. A national standard would also eliminate the conflicting state laws and provide regulatory certainty for consumer goods companies who need to label primarily for national markets, not state by state.

Additionally, APR urges the Committee to direct the Federal Trade Commission to recommit staff to its 2023 review of the Federal Green Guides. These guidelines are the leading federal standards for companies on all environment labeling, including recyclability. In the absence of clear federal guidance, packaging companies are exposed to an increasing number of lawsuits around claims of recyclability, and conflicting state laws are adding unnecessary burden and cost.

Drive investment in the circular plastic economy through national recycled content requirements.

Around the U.S. and the world, consumers and businesses are demanding solutions to reduce plastic pollution. A 2024 University of California, Berkeley, study found that the most impactful policy to reduce plastic pollution is to require the use of more recycled plastics to make new products.

Additionally, the federal government has already recommended federal procurement of more recycled plastics as a key opportunity for federal leadership. A 2020 report from the Government Accountability Office (GAO) identifies the economic barriers facing U.S. recycling and the role of the U.S. government in stimulating market demand through the CPG and the U.S. Department of Commerce.

Five U.S. states currently require recycled content in some plastics packaging, but state by state approaches are not preferable because most plastic packaging and products are produced for the entire American marketplace and not on a state-by-state basis. Federal incentives and requirements for recycled content are more cost-effective than state by state approaches, minimize reporting and compliance requirements, and drive greater economic and environmental benefits.

APR recommends that the Subcommittee evaluate the creation of national recycled content targets, procurement goals, and legislative opportunities. Effective goals should target both food-grade and non-food-grade plastic packaging and products, with targets set by resin and product types to reflect the many different uses of plastics.

Develop a data-driven national plan inclusive of existing federal agency work.

Despite growing consensus for national action to improve recycling, the U.S. lacks a data-driven approach to help prioritize actions based on measurable impacts. Reports and documents to date are more qualitative in nature and lack the objective, data-driven rigor to make smart, targeted investments in proven policies. The APR urges Congress to commission a data-driven action plan focused on catalyzing the actions with the most economic and environmental benefits, and best done at the federal level. One example of a strong data-driven analysis is the PEW Charitable Trust's "Breaking the Plastic Wave," which qualifies the impacts of global action steps, similar to what is needed for the U.S. to prioritize actions. The U.S. Department of Energy (DOE) Strategy for Plastics Innovation is a strong model for setting clear and quantitative goals and priority action steps.

Moving Forward

APR is grateful to the Subcommittee for taking the time to hear from the recyclers and businesses in plastics recycling who help every day to grow U.S. manufacturing and support a clean, healthy environment. APR looks forward to continued engagement with the Subcommittee, with Congress, and with the many federal agencies who are working to accelerate recycling as an essential part of a national and global strategy to end plastic pollution and support domestic manufacturing. APR staff are available at your convenience to discuss these comments and share further technical, regulatory, and policy information.

Please contact Kate Bailey, Chief Policy Officer, at katebailey@plasticsrecycling.org.

Sincerely,

Kate Bailey

Kate Bailey, Chief Policy Officer, Association of Plastic Recyclers (APR)

mint

E-Waste recycling for critical minerals and economic growth

The growing e-waste opportunity

The U.S is one of the world's largest e-waste producers. However, lack of onshore processing means critical metals are exported to foreign countries for processing or end up in landfill. Despite making up less than 2% of the U.S. waste streams, e-waste is responsible for approximately 66% of heavy metals in landfills. With the Government's current focus on critical minerals and the value of metals in e-waste, recycling innovation and capability needs to improve.

10% of global e-waste is produced in the U.S

In 2022, 7.9m tons was produced, equal to 46lb p/capita and a total of USD10.6b economic value.

Limited regulation on e-waste collection

There are no federal recycling regulations, and only half of the States have restrictions on e-waste handling.

Metals in high demand contained within e-waste

Metals make up 50% of e-waste, most of which are critical or precious metals needed to service future industries.

Economic value lost through e-waste

Inconsistent legislation drives cheap exports and landfill priority over metal recovery through recycling.

About Mint Innovation

- Mint Innovation is a technology company transforming waste into circular green metals to power a better future.
- We have commercialized a world-leading process in Sydney, Australia to recover critical and valuable metals from printed circuit boards (PCBs).
- Our first U.S facility is opening in Longview, Texas in late 2026 and will recover copper, gold, silver, tin and palladium.
- We have ISO & AS/NZS certifications for our Sydney facility and will shortly acquire R2v3 certification for our U.S facility.

Our process

Printed circuit boards (PCBs)

PCBs ground to a coarse sand consistency

Base metals are dissolved and recovered

Valuable metals are selectively dissolved

Gold biosorption & copper electrowinning process

High value metal product refined

Pure metals

Key benefits to the U.S

Onshore Circular Supply

Local processing returns critical metals into local supply, powering local industries and minimizing supply chain vulnerabilities.

Low cost and easily scalable

Small, city-scale facilities designed for deployment in existing urban infrastructure, where waste is produced.

Military-grade data destruction

Complete destruction exceeding nominal 2mm NSA requirement leaving no trace of data or chip design, avoiding data and national security concerns.

Low carbon

Ambient temperatures used create significantly less carbon emissions than traditional methods like mining and smelting.

Matt Bedingfield
President
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www.mint.bio

The Coalition to
Protect America's Small Sellers

July 15, 2025

The Honorable Gary Palmer
Chairman, Energy & Commerce Subcommittee on Environment
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Palmer,

On behalf of the Coalition to Protect Small Sellers (PASS Coalition), a coalition comprised of eBay, Etsy, Poshmark, Mercari, OfferUp, Redbubble and Whatnot, and the millions of sellers and digital marketplace entrepreneurs on their platforms, we applaud the Committees for holding this hearing to examine the current state of America's recycling industry. As the hearing title acknowledges, recycling is more than just the blue bins that so many of us see around our neighborhoods and it is encouraging to see this Committee call attention to the many aspects of recycling including its role in shaping America's global economic competitiveness. The PASS Coalition appreciates the opportunity to submit this letter to be included in the official record to call attention to elements of recycling that dovetail with the transformative power of recommerce within America's circular economy, encouraging benefit and participation at the individual and small-business level beyond just large scale industrial enterprises.

One of the challenges facing the recycling industry is diverting products from landfills or incineration. According to an analysis, each US consumer discards over 100 lbs. of textiles annually, with only around 15% of that being sent to recycling facilities. Similarly, we continue to see massive increases in the total amount of electronic devices and components (so-called e-waste) that find their way to landfills rather than being resold or recycled.

As this hearing examines the broader elements of recycling from innovation in recycling technologies as well as barriers - both mechanical and chemical – recyclers encounter; to new challenges and opportunities within the industry, PASS hopes the committee also considers how recommerce can be a critical component of the broader recycling ecosystem.

Recommerce—the repair, refurbishment and resale of goods and products—is a multifaceted complement to traditional recycling and a powerful force for sustainability and economic opportunity. It is also a rapidly growing industry that is anticipated to grow more than 55% over the next four years to become a $291.6 billion dollar market. Digital platforms – like the companies that comprise the PASS coalition help drive this growth -- extend the lifecycle of countless products while simultaneously enabling sustainable entrepreneurship for millions of Americans.

As the Committee continues to examine the opportunities and benefits of the recycling industry, the PASS Coalition respectfully urges the Subcommittee to recognize that recommerce is a form

of recycling, with the added benefit of empowering individuals and entrepreneurs to earn extra income and acquire more affordable items, all while meeting the goals featured in this hearing. There is more than environmental impact from recycling, there are also significant economic considerations – both industrial and for individual entrepreneurs. Thank you for your leadership and commitment to these issues. The PASS Coalition is eager to collaborate with Congress to find solutions that marry small business growth with the environmental benefits of recycling and looks forward to working with this Committee in that endeavor.

Sincerely,

Chris Lamond

Chris Lamond
Executive Director
Coalition to Protect Small Sellers (PASS Coalition)

July 16, 2025

The Honorable Gary Palmer
U.S. House of Representatives
170 Cannon House Office Bldg.
Washington, DC 20510

The Honorable Paul Tonko
U.S. House of Representatives
2269 Rayburn House Office Bldg.
Washington, DC 20510

Re: Statement for the Record – Hearing on "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth"

Dear Chairman Palmer and Ranking Member Tonko:

On behalf of the Paper Recycling Coalition (PRC) – an organization of eight member companies representing the interests of the 100 percent recycled paperboard and containerboard industries – we appreciate the opportunity to submit the following statement for the record regarding the Subcommittee's hearing, entitled "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth."

The PRC commends the Subcommittee for evaluating the state of the nation's recycling system and considering various policy solutions. The PRC supports the Subcommittee's concern for, and assessment of, these issues. As you consider possible legislative policies affecting the recycling sector, the PRC encourages you to recognize that recycling commodities are not all equal. Recyclable materials such as paper have unique characteristics and face different challenges. Federal policy, therefore, should account for such differences rather than adopting a "one size fits all" approach to recycling infrastructure and system improvements.

I. About the Paper Recycling Coalition

The PRC's eight member companies represent the interests of the 100 percent recycled paperboard and containerboard industries. Our members operate over 500 facilities in 45 states and support over 65,000 well-paid jobs with competitive benefits throughout the United States. PRC members manufacture 100 percent recycled paper products that are ubiquitous in American commerce, such as cereal and pizza boxes, tubes and cores, Amazon cartons, and other shipping containers and packaging critical to today's growing e-commerce economy. The PRC's mission is to promote recycling education and to prevent market-distorting government programs and subsidies from diverting mill quality recycled fiber from the supply chain.

II. Federal Interventions in Recycling Markets Will Undermine Paper Recycling

The PRC shares congressional interest in reducing packaging pollution and ensuring that the nation's recycling system is robust, resilient, and – above all – a key component of creating a more circular and sustainable future. However, the PRC strongly believes any federal Extended Producer Responsibility (EPR) framework – or similar federal intervention – should be strategically tailored to address materials and products that have low recovery rates like plastic packaging. Potential overreach could undermine markets for other recyclable commodities – such as paper and paper-based packaging – which has a robust and well-functioning market and successful recycling track record.

To this end, any federal recycling policy, including an EPR framework, should:

- Address plastic pollution and other underperforming commodities by focusing on improving capacity and demand for materials with low-recovery rates.
- Avoid a one-size-fits all approach, recognizing instead the differences between commodities as measured by quantifiable utilization and recovery rates.
- Not pick winners and losers by disproportionately applying higher fees to highly recovered recycled commodities versus fees for lesser recovered materials.
- Preserve market-based principles to ensure a well-functioning market.
- Protect consumers from increased waste management and product costs.
- Reduce recycling challenges and barriers through education and outreach.

A. The Recycling System is Not Broken

A stated justification for greater federal intervention in recycling markets, including federal EPR and other top-down policies, is that the recycling system is broken. The PRC takes issue with this negative portrayal of the nation's recycling system and the implication that all recycled commodity sectors have failed to invest and innovate toward establishing a resilient recycling system. The 100 percent recycled paper sector has invested billions of dollars in modern recycling infrastructure over the last two decades and has worked to establish robust demand for paper and paper-based packaging. This has resulted in a 65-69 percent recovery rate of recyclable paper in 2023, marking the fourteenth consecutive year with rates above 60 percent.

B. Federal Policies Should Target Underperforming Commodities

In contrast to the paper sector's 60-plus percent recovery rate, other recyclable commodities have drastically underperformed. For instance, according to 2018 EPA data, the recycling rate for plastics is around 8.5 percent.[1] Other materials are in the double digits but the recovery rate for fiber dwarfs them all. Indeed, more paper by weight is recovered from MSW streams than plastic, glass, steel, and aluminum combined. In short, recycling commodities are not equal. Federal policy, therefore, should account for such differences rather than adopting a "one size fits all" approach to recycling infrastructure and system improvements.

C. Policies Like EPR May Undermine Recycling's Economic Impact

As the recycling sector continues to grow, especially the 100 percent recycled paperboard and containerboard industries, sound and consistent policies are critical to preserving and expanding recycling. The PRC's eight member companies, for instance, employ over 65,000 Americans across 45 states, representing $150 billion in economic impact. Short-sighted federal policies could lead to outcomes that discourage private sector investment, hinder economic growth and job creation, and hurt consumers. For instance, EPR fees will discourage the use of recyclable materials where the fee is higher and encourage the use of materials with lower fees. The fee structures in some EPR models being discussed to date would have a net increase on the cost of recycled paper packaging as compared to other packaging materials.

D. Allow Markets to Work

The PRC supports well-functioning markets and urges caution against any federal intervention to artificially create markets or pick winners or losers. Markets work best when traditional forces of supply and demand are permitted to operate free of government intervention. This is true of recycling commodities, as demand for 100 percent recycled paperboard and containerboard products and packaging has triggered billions of dollars in private capital to develop, sustain, and grow these markets.

To be sure, the domestic paper recycling sector has completed or announced nearly $7 billion in manufacturing investments through 2026 (2019-2026). These investments will add 9 million tons of additional U.S. manufacturing capacity in the form of new mills, new paper machines, paper machine conversions, and the re-starting of idle mills. Further, the investments will increase efficiency of recycled paper mills and have a positive impact on the industry's environmental profile. This is a true testament to the circular and well-functioning paper recycling market. Investments in end-user capacity and capabilities encourage supply chain investment and innovation to support that demand.

[1] U.S. EPA, "Advancing Sustainable Materials Management," (December 2020).

E. Education is the Key to Reducing Recycling Barriers

Policies that support the availability of a separate, clean stream of recyclable materials is vital to sustaining and growing the recycling sector. This can be achieved through improved recycling education and outreach. Federal programs and funding can help educate the public about not only how to recycle properly but also drive consumer engagement by stressing the many benefits – both economic and environmental – of recycling. Using the resources and reach of the federal government to educate the public is a more cost-effective strategy than a government market intervention through EPR. Recycling education can reap immediate recycling-related rewards and have a significant return on investment for taxpayers.

F. EPR and Other Fee-Based Policies Penalize Consumers

Proponents of EPR allege that producers will absorb the costs and prevent those costs from being passed onto consumers. Such arguments fail to understand how manufacturers and producers manage input costs. Consumers will pay more for products affected by EPR and these costs will not be outweighed by the purported benefits of an EPR regime. In fact, consumers often end up paying twice, both as taxpayers (as a result of increased waste management costs) and as consumers. The burden of this double payment falls most heavily on low-income consumers. Indeed, at least one study of British Columbia's EPR program demonstrated that "costs increased by approximately 26 percent from program inception in 2015 to 2018 while program performance increased by only one percent."[2]

G. EPR Does Not Address End Use Markets

End use markets are an essential part of the recycled value chain. EPR proponents suggest that addressing the recycling infrastructure and increasing supply will eventually generate demand for certain commodities, like plastic. Economic theory would suggest that end use markets must be established first. This demand will encourage investment and innovation in the recycling system to support that demand. With the low recovery rates of several materials, the current recycling infrastructure can accommodate the demands of an emerging end use market.

III. Perspectives on Chemical Recycling

The PRC shares the goal of finding solutions to address the plastics pollution challenge. We support efforts to divert plastic waste from landfills, responsible materials management, and innovative methods to convert waste into usable products with end market demand. Doing so provides important economic value and environmental protection. However, the PRC fundamentally opposes redefining chemical processes that convert plastic waste into energy and fuel as recycling. This is energy recovery, not recycling.

[2] Resource Recycling, "The Whole Package?" (October 26, 2020).

The paper recycling sector has worked for many decades to invest in and promote recycling to the public as a circular and sustainable alternative to landfilling. Conflating recycling with energy recovery from gasification, pyrolysis, and similar chemical processes and technologies undermines this public trust. Tens of millions of American households put their recyclables in the "blue bin" expecting these materials to be recycled into new products, not burned for energy or converted into fuel substitutes. We urge the Subcommittee to uphold the integrity of recycling and protect consumers by rejecting the misleading concept of "advanced recycling."

Moreover, Congress should avoid providing federal support to the plastics sector to aid with the construction of chemical recycling facilities, regardless of whether designed for plastics-to-energy or plastics-to-plastics. Such facilities can be permitted and built today under existing state and federal law. Federal regulatory carveouts, mandates, tax credits, definitional changes, R&D funding, and other federal interventions are not necessary to support these projects. In fact, they would distort recycling markets and undermine state and local control over solid waste management.

The plastics industry's efforts to promote chemical recycling will undermine EPA's waste management hierarchy by defining "advanced recycling" to include converting plastics and other recyclable materials into chemical feedstocks, fuels, and energy recovery. The PRC opposes such efforts. To this end, the PRC recommends that any recycling legislation developed by this Subcommittee should expressly exclude such end products from the bill's definition of recycling. To do otherwise would be to overturn decades of recycling law and policy, skew "real" recycling rates, disadvantage true recyclers, and destabilize the recycling economy.

IV. Proper Role of the Federal Government in Recycling

Despite challenges for less recycled commodities, the PRC would caution against federal interventions that distort recycling markets. But there are a handful of areas where the federal government can certainly play a role:

- Recycling Education: The federal government is well-suited to help educate the public about the benefits – both economic and environmental – of recycling. Educating communities and consumers about the importance of recycling, what is recyclable, and how to recycle properly is essential to increasing recycling rates and reducing contamination. Therefore, we were pleased to see the RECYCLE Act included in the enacted bipartisan infrastructure bill and the subsequent awarding of grants from EPA to dozens of communities. The Subcommittee should encourage EPA to continue these cost-effective grants to deserving communities across the country.

- Data Collection to Inform Recycling Policymaking: As Congress considers other recycling-related policies, it is important to have accurate and complete baseline data. Such data across the recycling supply chain is lacking. That is why the PRC supports both S. 351, the "Strategies to Eliminate Waste and Accelerate Recycling Deployment (STEWARD) Act" and H.R. 4109, the "Recycling and Composting Accountability Act." These bills provide a first step to gathering more data related to MRF inputs and outputs, landfill and waste-to-energy diversion, and other data that can inform investment decisions, as well as future policymaking.

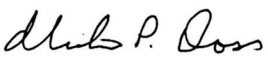
- Recycling Access: Equally important is providing communities with access to recycling, which is why the PRC supports both the STEWARD Act and H.R.2145, the "Recycling Infrastructure and Accessibility Act." The PRC supports the objective of expanding access to recycling in communities that have historically had limited access to recycling collection programs. Fortunately, access to paper recycling is readily available: the latest data from the American Forest & Paper Association, shows that 94 percent of Americans have access to community paper and paperboard recycling programs. These two bills will help close the remaining gap, while helping other recycled commodities increase their own recycling access rates.

- Protecting Recyclable Feedstocks: The federal government can also ensure a level playing field for recycled paper manufacturers by protecting our raw material – recovered fiber. In the past, the tax code has provided subsidies to the waste-to-energy sector that incentivizes the burning and contamination of paper. Financial incentives that would subsidize the destruction of another sector's raw material or otherwise distort recycling markets should be avoided by Congress.

V. Conclusion

We thank you for your leadership and we look forward to working with you and your staff as the Committee continues considering policies in furtherance of establishing a more circular, sustainable future. The PRC would be pleased to provide testimony before the Subcommittee should future opportunities arise.

Sincerely,



Brian McPheely
Chairman, Paper Recycling Coalition, Inc.
Global CEO, Pratt Industries

Michael P. Doss
Vice Chairman, Paper Recycling Coalition, Inc.
President/CEO, Graphic Packaging Int'l, LLC

Terese Colling
President, Paper Recycling Coalition, Inc.

American Critical Minerals Association

July 16, 2025

Congressman Brett Guthrie
Chairman
Committee on Energy & Commerce
U.S. House of Representatives
2125 Rayburn House Office Building
Washington, DC 20515

Congress Frank Pallone
Ranking Member
Committee on Energy & Commerce
U.S. House of Representatives
2125 Rayburn House Office Building
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Congressman Gary Palmer
Chairman
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2125 Rayburn House Office Building
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Congressman Paul Tonko
Ranking Member
Subcommittee on Environment
Committee on Energy & Commerce
U.S. House of Representatives
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Guthrie, Ranking Member Pallone, Chairman Palmer and Ranking Member Tonko,

We write today in support of the Committee's efforts to advance recycling policies that will strengthen the independence and reliability of U.S. supply chains. In particular, the American Critical Minerals Association (ACMA) applauds your leadership in holding a hearing that examines the potential to reclaim materials from e-waste. These discussions are critical to ensure our critical minerals sector can access key resources as discussed below.

The mission of ACMA and its members is to support the growth of the United States' critical mineral supply chain. ACMA is an industry association that welcomes members from across the critical minerals supply chain, including raw material producers, processors, recyclers, suppliers, manufacturers, and end users, as well as academic institutions and other stakeholders. Our organization serves as a unified voice to advance U.S. -based critical mineral processing and recycling capacity for the benefit of multiple sectors, including but not limited to, the defense, transportation, aerospace, energy, and manufacturing sectors.

ACMA supports critical minerals resourcing from advanced mining, seabed extraction, innovative materials production, separation from waste streams, and recycling. All resources are essential. Perhaps more importantly though, ACMA believes that without diversification of the midstream (processing and refining) element, China's monopoly will continue to dominate these global markets. In fact, the International Energy Agency (IEA) notes that "The average market share of the top three refining nations of key energy minerals rose from around 82% in 2020 to 86% in 2024 as some 90% of supply growth came from the top single supplier alone: Indonesia for nickel and China for cobalt, graphite and rare earths."[1] The story is not much different for recycling capacity. In 2023, China accounted for 80% of global capacity for pretreatment and material recovery – the key steps in recycling minerals from end-of-life batteries.[2]

The IEA[3] regularly stresses the importance of expanding recycling globally. Whether reclaiming lithium, cobalt, and nickel from EV batteries or scaling up traditional metal recycling – recycling minerals is less emissions-intensive

[1] International Energy Agency. "Global Critical Minerals Outlook 2025." Available at https://iea.blob.core.windows.net/assets/ef5e9b70-3374-4caa-ba9d-19c72253bfc4/GlobalCriticalMineralsOutlook2025.pdf, pg 6. Last accessed July 14, 2025.
[2] International Energy Agency. "Recycling of Critical Minerals: Strategies to scale up recycling and urban mining." Available at https://iea.blob.core.windows.net/assets/3af7fda6-8fd9-46b7-bede-395f7f8f9943/RecyclingofCriticalMinerals.pdf. Pg. Last accessed July 14, 2025. Pg. 10.
[3] *Id.*

American Critical Minerals Association

and reduces supply chain pressures on critical minerals, including key metals like copper and aluminum. The national security and environmental benefits[4] of critical minerals recycling are meaningful, but they are benefits that China is currently best positioned to capture. By securing these feedstocks and building out additional capacity to pre-treat, recover, and recycle key minerals, the United States can reduce exports to China that consequently support the growth of China's recycling sector.

While global battery recycling capacity is growing, a few glaring issues remain: (1) the buildout may not keep pace with consumption supply over the longer term, (2) available feedstock remains limited due to insufficient collection infrastructure and policies, and (3) the majority of capacity is in China.[5] In fact, "China is on track to retain 80% of global pretreatment capacity and 75% of material recovery capacity in 2030."[6] Therefore, U.S. policymakers must consider policies to address the key challenges facing this sector, underwhelming collection levels, extended producer responsibility (EPR), need for financial support, trade policy that incentivizes recycling, and the burdensome permitting regime for new capacity.

It is also important to keep in mind that recycling alone will not counter China's monopoly over critical minerals nor meaningfully reduce the need for production from more conventional sources. Projected demand for materials continues to grow at a rapid pace. Since 2017, lithium demand has tripled and, under the IEA's Net Zero Emissions by 2050 Scenario, is expected to grow tenfold. The Cobalt Institute argues that "Cumulatively, batteries for EVs, consumer electronics and stationary storage will require at least 5.5 million tons of cobalt – one of the key battery elements ensuring range, safety and durability – by 2050 to power these critical energy transition industries."[7] Meeting that demand will require investment in mines and recycling infrastructure.

ACMA advocates for comprehensive policy solutions intended to derisk U.S. investment in processing and recycling because the buildout of U.S. recycling infrastructure alone will not counter China's monopoly over the critical minerals supply chain. In addition to the above, we must advance predictable tax policy, targeted trade agreements, price support measures, and permitting legislation that includes common-sense judicial reform. All of these policies are critical to ensuring the U.S. reduces its reliance on China in the very near term.

Fortunately, each of these policy imperatives can serve to support the numerous means by which we access mineral resources – whether mining, seabed extraction, separation from waste streams, or recycling. We believe your efforts are essential to protecting and growing U.S. and allied investments in the production, processing, and recycling of critical minerals. ACMA looks forward to working with you to advance common-sense policies for the benefit of our nation's national and economic security.

Sincerely,

Sarah Venuto
Executive Director
American Critical Minerals Association

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[4] In fact, "recycled energy transition minerals such as nickel, cobalt and lithium incur 80% less greenhouse gas emissions than primary materials produced from mining". *Id at 10.*
[5] *Id.*
[6] *Id* at 10.
[7] The Cobalt Institute. Available at https://www.cobaltinstitute.org/resource/cobalt-2050-unlocking-potential-for-a-net-zero-future/#:~:text=The%20demand%20for%20cobalt%20in,focuses%20on%20three%20main%20areas: Last accessed July 14, 2025.

Recycled Materials Association

Sustainable. Resilient. Essential.

recycledmaterials.org

Via Electronic Mail

July 15, 2025

The Honorable Brett Guthrie
Chair, House Energy & Commerce Committee
2125 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Frank Pallone
Ranking Member, House Energy & Commerce Committee
2125 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Gary Palmer
Chairman, Subcommittee on Environment
2125 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Paul Tonko
Ranking Member, Subcommittee on Environment
2125 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Guthrie, Ranking Member Pallone, Chairman Palmer, and Ranking Member Tonko,

The Recycled Materials Association (ReMA) – the leading organization dedicated to promoting safe, economically sustainable, and environmentally responsible recycling through education, networking, and advocacy – commends the House of Representatives Energy and Commerce Environment Subcommittee for its commitment to examining both the opportunities and challenges that exist within the nation's recycled materials industry at the upcoming hearing, *Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth*.

ReMA – formerly the Institute of Scrap Recycling Industries (ISRI) – represents 1,700 companies that play a critical role in supplying recycled materials to America's manufacturing supply chain. The recycled materials industry is integral to the U.S. economy, transforming surplus and end-of-life materials into essential components of daily life and providing high-quality renewable resources for everything from national infrastructure to consumer products. America is Made with Recycled Materials. The roads we drive on and the cars we drive in, the rebar that strengthens our buildings, the wires that bring electricity and communications into our homes and offices, and the boxes that bring consumer goods and food to our homes are all made with recycled materials. In 2024 alone, the recycled materials industry generated nearly $170 billion in economic impact and supported over 600,000 direct and indirect jobs across the nation. Our industry is **Sustainable**, **Resilient** and **Essential**, producing materials that conserve and protect the environment, grow the economy, and stabilize supply chains critical to America's growth.

While ReMA is currently updating its 2025 Yearbook to reflect updated economic figures, in 2022, the U.S. recycled materials industry processed 137 million metric tons of recycled materials, including nearly 70 million tons of recycled iron and steel, 45 million tons of recovered paper and fiber, 9 million tons of nonferrous metals, and more than 5 million tons of recycled and reused electronics. Over 70% of all the recycled material processed in the United States was consumed by domestic manufacturers who rely on recycled materials to produce everything from steel beams to

cardboard boxes, vehicles and batteries, household appliances, cell phones, computers, and electronics. In a time of growing uncertainty around global trade and increasing interest in near-shoring, recycled materials represent a ready-made solution to domestic supply chain insecurity. To highlight that reliance:

- The U.S. steel industry relies on recycled materials, with over 70% of the steel manufactured in the U.S. being made with recycled ferrous metals;
- Over 75% of U.S. paper mills depend on recycled paper for daily production needs; and
- In the U.S., 80% of aluminum production comes from recycled aluminum.

To strengthen the nation's recycled materials industry and support our essential role in the supply chain, we respectfully urge the Committee to consider the following policy priorities:

Support Innovation & Investment in Recycling Infrastructure
Recycling is a capital-intensive industry. Fostering the growth of the recycled materials industry – including collection and processing – is critical to increasing material recovery, reducing pressure on the nation's overburdened landfills, and strengthening domestic supply chains. Targeted tax policy is essential to scaling and modernizing the recycled materials industry, and as such ReMA has endorsed the proposed *Cultivating Investment in Recycling and Circular Local Economies (CIRCLE) Act*, which would not only incentivize investment in new infrastructure but would also support improving existing equipment and facilities. Such a credit would help to unlock private-sector investment, increase material recovery rates, and expand domestic material processing – allowing the industry to drive progress, create new jobs, and increase supply chain resilience.

Recycling Technology Equity - Chemical and Mechanical Recycling
Innovation is at the core of our industry's success. We strongly support public and private efforts aimed at developing new recycling processes and technologies and encouraging manufacturers to adopt Design for Recycling® principles in their operations. Robotics, artificial intelligence, optical scanners, laser separation and other sophisticated technologies are now commonly found in recycled materials operations, allowing recycling to continue to be an essential part of the solution to creating a more resilient planet. For instance, significant investments are currently being made in researching non-mechanical processes (variously called "molecular", "advanced", or "chemical" processes) to convert end of life plastics back into recycled resin, resin precursors (i.e., monomers), and petrochemical intermediates and fuels.

Certain non-mechanical processes are recycling, and others are not. Plastics recycling is a series of activities that processes end of life plastic materials into marketable commodities that are subsequently consumed in lieu of virgin materials as feedstock in the manufacture of material products and not in the production of energy or fuels. Non-mechanical processes that convert plastics at the end of life into recycled resins and monomers are recycling as they are producing materials to be "consumed in lieu of virgin materials as feedstock in the manufacture of material products and not in the production of energy or fuels". Non-mechanical processes that convert plastics at the end of life into petrochemical products that are fuels or used to make fuels are not recycling.

Additionally, ReMA does not support the label of "advanced recycling" for non-mechanical recycling, as doing so creates an inappropriate and untruthful distinction between mechanical and non-mechanical recycling processes, and fully supports recognition in policy of the distinction between recycling (inclusive of both mechanical and non-mechanical recycling) and solid waste management.

Battery & Electronics Recycling – Securing Material for the Future

The battery-powered future is here now. From phones and laptops to e-bikes, scooters, and electric vehicles, batteries are present in nearly every aspect of modern life. ReMA's members are at the forefront of addressing the opportunities and challenges presented by our battery-powered future.

Over the next 10 years, the volume of batteries available for recycling is projected to triple, exceeding 700,000 tons and 962 million units per year in 2034. Of these, 845 million of those batteries will be small, loose batteries or batteries in small electronic devices, while another 84 million will be found embedded in devices. Lithium-ion battery recycling has the potential to secure a critical domestic supply chain for minerals such as lithium, nickel, cobalt, and manganese. However, several key safety, technical, logistical, regulatory and economic hurdles must be addressed to unlock that potential.

If these batteries do not reach proper recycling streams, they move from a potential valuable resource of critical minerals and other recyclable materials to a risk to the public, to first responders, and to recycling and waste employees and infrastructure. The recycled materials industry is committed to building a secure manufacturing supply chain for these materials, but doing so will require detailed understanding, and support from policymakers to address the challenges that accompany a battery-powered world and ensure the materials are recovered safely.

As the association representing those companies ensuring our manufacturing sectors have resilient supply chains, we appreciate the opportunity to provide feedback and offer both ReMA and our members to serve as a resource as needed moving forward. On behalf of ReMA, I thank you again for your work on this issue, we stand ready to support the Subcommittee's efforts to bolster recycling and welcome additional dialogue and opportunity to discuss these comments further. To continue that dialogue, please contact our VP of Government Relations and Public Policy, Kristen Hildreth at khildreth@recycledmaterials.org.

Sincerely,

Robin Wiener
President, Recycled Materials Association

AMERIPEN®

July 15, 2025

The Honorable Gary Palmer
Chairman
Subcommittee on Environment
House Energy & Commerce Committee
2125 Rayburn House Office Building
Washington, DC 20515

The Honorable Paul Tonko
Ranking Member
Subcommittee on Environment
House Energy & Commerce Committee
2322A Rayburn House Office Building
Washington, DC 20515

Dear Chairman Palmer and Ranking Member Tonko,

We are pleased to provide a statement for the record of the Subcommittee hearing on "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth." Thank you for convening this hearing to discuss emerging policy issues, technological developments, and economic opportunities impacting recycling in the United States and globally.

The American Institute for Packaging and the Environment (AMERIPEN) represents the entire packaging value chain, advocating for responsible packaging policies that drive meaningful progress in packaging sustainability while supporting industry growth and consumer needs. Our members include material suppliers, packaging manufacturers, consumer packaged goods companies, retailers, and end-of-life materials managers.[1] Our membership also includes a robust array of industry, material, and product-specific trade associations.[2]

Packaging plays a vital role in the United States, ensuring the quality of consumer goods as they are manufactured, shipped, stored, and consumed, protecting the health and safety of U.S. citizens who consume, use, and handle those products. Packaging has value and none of it belongs in landfills, roadsides, or waterways. We need to recover it to be recycled and reused, and no one knows better how to do that than the AMERIPEN members who design, supply, produce, distribute, collect, and process packaging products. Our members are driving innovation and designing packaging for better environmental performance to boost recycling and evolve the recycling infrastructure.

The U.S. packaging industry contributes $537.91 billion in total economic output to the national economy and is responsible for nearly 1.7 million jobs. These workers earn over $117.73 billion in

[1] AMERIPEN Company Members
[2] AMERIPEN Associate Members

wages and benefits, and members of the industry and their employees pay $43.46 billion in direct federal, state, and local taxes.

As the leading voice for packaging policy in the United States, AMERIPEN works with legislators, regulators, and stakeholders to develop science-based, data-driven solutions that enhance packaging's role in product protection and circularity. AMERIPEN is leading an effort at the federal level to address a patchwork of state laws on recyclable, compostable, and reusable claims on packaging. We also support recycling bills introduced in the House and Senate, as we discuss further below.

Packaging Claims

Retailers, consumer packaged goods companies, and their suppliers are facing a patchwork of laws at the state level related to making recyclable, compostable, and reusable claims on packaging. This is leading to interstate commerce challenges for businesses and promoting consumer confusion on how to dispose of packaging. This dynamic exists because the Federal Trade Commission (FTC), which regulates advertising claims under federal law, currently lacks the authority to preempt state laws regulating these claims. While the FTC has issued the "Green Guides," these are merely "guides" that are not independently enforceable, without the force and effect of law.

The packaging value chain supports the introduction and passage of the Packaging and Claims Knowledge Act (PACK Act), which will establish a new framework for compostable, recyclable, and reusable claims for consumer product packaging under the FTC Act. The PACK Act will create a uniform federal structure specifying when compostable, recyclable, and reusable claims can be made for packaging and will preempt state laws that attempt to regulate these types of claims in an inconsistent manner. The legislation calls on the FTC to work with and consider input from the Environmental Protection Agency (EPA) to administer the new scheme. The key elements of this framework include:

- State Preemption – States will be preempted from establishing, enforcing, or continuing in effect any legal requirement unless it is identical with any requirement imposed under the PACK Act. This approach will: (1) ensure that a truly national and consistent framework for compostable, recyclable, and reusable claims for packaging is achieved to eliminate interstate commerce challenges; (2) to the extent possible, eliminate consumer confusion and mistrust regarding packaging claims; and (3) help assure that packaging is handled correctly.
- Mandatory Third-party Certification Scheme for Consumer Product Packaging – The PACK Act establishes a mandatory third-party certification program, based on existing industry-recognized standards, for claims that consumer product packaging is compostable,

recyclable, or reusable. This allows independent third parties to certify that product packaging meets industry standards and follows the FTC's guidance to avoid deceptive claims.

- Focus on Consumer Product Packaging – The certification programs will address how compostable, recyclable, and reusable claims can be made for different types, shapes, sizes, and colors of consumer product packaging. Non-consumer product packaging will not be subject to the mandatory third-party certification requirement.

Recycling Infrastructure and Accessibility Act

AMERIPEN supports passage of the Recycling Infrastructure and Accessibility Act (RIAA) of 2025 (H.R. 2145) that would require EPA to create a grant program to improve recycling programs in underserved areas. This federal funding will play a critical role in increasing recycling access and rates. The U.S. must improve material recycling and recovery systems, especially in rural and underserved communities, to reuse more materials and achieve a more circular economy.

Recycling and Composting Accountability Act

AMERIPEN supports passage of the Recycling and Composting Accountability Act (RCAA) (H.R. 4109) that would require EPA to collect, maintain, and publish data on recycling and composting rates across the country— information that will be critical to improving recycling and composting programs and evaluating future policies. AMERIPEN also appreciates that the RCAA includes a report on recyclable material and compost end market sales as our members strongly support end market development.

CONCLUSION

Thank you for the opportunity to submit this statement for the hearing record. AMERIPEN is looking forward to working with you on these important federal policy issues that impact packaging, recycling, and composting.

Sincerely,

Lynn Dyer
AMERIPEN Executive Director

SWANA
SOLID WASTE ASSOCIATION OF NORTH AMERICA

July 16, 2025

U.S. House of Representatives Committee on Energy and Commerce
Subcommittee on Environment
2125 Rayburn House Office Building
Washington, D.C. 20515

RE: Hearing on *Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth*

Dear Chairman Guthrie, Chairman Palmer, Ranking Member Tonko, and Members of the Subcommittee,

The Solid Waste Association of North America (SWANA) commends the House Committee on Energy and Commerce, Subcommittee on Environment for holding a hearing on the landscape for improving recycling innovation and fostering economic growth. This is a timely and critical discussion. Strengthening recycling systems through federal action is essential to building resilient domestic supply chains, supporting resource management, and driving long-term economic development.

SWANA is committed to advancing from waste management to resource management. Our members — recognized experts across the fields of recycling, organics management, collections, workforce safety, landfills, PFAS mitigation, waste-to-energy, and more — are deeply invested in the outcomes of this hearing.

As a leading professional association in the waste and resource management sector, SWANA serves industry professionals through technical conferences, certifications, publications, and a large offering of technical training courses. We serve as a trusted source of information for both our members and the media on industry trends and emerging opportunities. We are building a stronger waste and resource management industry, empowering our members to deliver essential services to communities today and anticipate their needs for tomorrow.

SWANA supports the use of domestic renewable resources to create high-quality materials for essential infrastructure and consumer goods. The recycling of packaging and products into new materials, and the processing of organic material into compost and energy are key for supporting supply chains. Our industry plays a key role in the recycling supply chain, enabling the use of recycled content in producing millions of products and packaging that Americans rely on daily.

Federal investment through the Solid Waste Infrastructure for Recycling (SWIFR) Grants has already made a meaningful impact, enabling communities, states, and territories to launch or expand reduction, reuse, and recycling programs that might otherwise remain unattainable. SWANA encourages the continuation of SWIFR grants and the dedication of additional funding mechanisms. While this support is historic and significant, the demand for infrastructure investment still far exceeds available resources.

SWANA endorses the proposed Cultivating Investment in Recycling and Circular Local Economies (CIRCLE) Act, a creative solution to the challenge of funding recycling systems. The CIRCLE Act would establish a federal recycling infrastructure investment tax credit to incentivize recycling infrastructure development in the US. We encourage the Committee to support this bipartisan legislation which is supported by diverse stakeholders. Many SWANA members are eager to expand recycling operations but face financial barriers. The CIRCLE Act

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SOLID WASTE ASSOCIATION OF NORTH AMERICA

would provide a much-needed catalyst for investment in this critical sector, and SWANA urges its prompt passage.

On the international front, the upcoming United Nations Intergovernmental Negotiating Committee meeting at INC-5.2 may have significant implications on US recycling, particularly related to plastic production, design, and available end markets for recycled content. The outcomes may provide changes to financing mechanisms; policies related to extended producer responsibility, product design, and limits on plastic production; and the structure of the implementation. SWANA encourages the US to play an active role in the treaty negotiations and to support an outcome that will support strong, holistic waste and resource management systems.

To support informed dialogue at INC-5.2, SWANA is hosting a stakeholder event in Washington DC on July 29th, ahead of the start of INC-5.2. This gathering of stakeholders will serve to raise awareness of the critical importance of the waste and resource management sectors and to align on key points going into the negotiations. We respectfully invite the members of the Committee on Energy and Commerce and colleagues to attend and engage with industry leaders on these pressing topics. Please contact Kristyn Oldendorf at koldendorf@swana.org for additional details.

Battery and electronics recycling (e-waste) is another urgent priority. Recovering critical minerals, preventing hazardous materials from entering landfills, and reducing fire risks are essential goals in many industries. Fires caused by lithium-ion batteries are increasingly common in solid waste and recycling facilities and collection vehicles, creating a major safety risk and causing costly damage. Insurance rates for waste and recycling facilities have been increasing due to the risk of fires, an additional cost for businesses and organizations that may force them to go out of business. This has become an emergency in our industry. We urge the Subcommittee to support policy solutions that promote safe collection of batteries and electronics, in order to prevent fires and to promote the recovery of materials, reducing reliance on foreign sources for critical minerals.

Above all, the safety of our workers is our highest priority. Policy solutions should include a lens of worker safety. We encourage the Subcommittee to support workforce development programs that properly train individuals for the wide range of trades and professions essential to modern waste and resource management. Our sector supports a diverse and skilled workforce, creating local jobs and strengthening regional economies.

SWANA welcomes collaboration and stands ready to support the Subcommittee's efforts to advance recycling, protect workers, and build a more sustainable and resilient future. Thank you for your work on these important issues. We welcome you to contact the undersigned at koldendorf@swana.org for additional conversation and engagement.

Sincerely,

Kristyn Oldendorf
Senior Director of Public Policy and Communications

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American Forest & Paper Association
Statement for the Record
House Committee on Energy and Commerce, Subcommittee on Environment
Hearing on *"Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth"*
July 16, 2025
2322 Rayburn House Office Building

The Honorable Gary Palmer
170 Cannon House Office Building
Washington DC 20515

The Honorable Paul Tonko
2269 Rayburn House Office Building
Washington DC 20515

Dear Subcommittee Chairman Palmer and Ranking Member Tonko,

We are writing regarding the Subcommittee on Environment's hearing on "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth" on July 16. The American Forest & Paper Association (AF&PA) appreciates the opportunity to share our recycling story on behalf of our members and their employees who manufacture recycled products every day as part of the circular economy.

The American Forest & Paper Association (AF&PA) serves to advance public policies that foster economic growth, job creation and global competitiveness for a vital sector that makes the essential paper and packaging products Americans use every day. The U.S. forest products industry employs more than 925,000 people, largely in rural America, and is among the top 10 manufacturing sector employers in 44 states. Our industry accounts for approximately 4.7% of the total U.S. manufacturing GDP, manufacturing more than $435 billion in products annually. AF&PA member companies are significant producers and users of renewable biomass energy and are committed to making sustainable products for a sustainable future through the industry's decades-long initiative — *Better Practices, Better Planet 2030*.

Paper Recycling Works
Paper recycling is a model that works. The paper and paper-based packaging industry has a demonstrated, measurable record of success in making paper products more circular and sustainable through market-based approaches. The paper industry recycles nearly 60% more paper today than it did in 1990. In 2023, our recycling rate for cardboard was 71-76% and our recycling rate for paper was 65-69%.

Paper recycling is well integrated within our industry – AF&PA members own and operate more than 100 materials recovery facilities (MRFs) nationwide. In addition, our industry has planned or announced nearly $7 billion in manufacturing infrastructure investments (2019-2025), which will use more than 9 million tons of recycled fiber in our products. The forest

products industry has also set a goal to increase the use of secondary materials like recycled paper in new paper products to 50% by 2030.

Our industry prioritizes data collection to improve recycling rates and we have long invested in research into the state of paper recycling and how we can improve. The 2021 AF&PA Access to Recycling Study shows that 94 percent of Americans have access to community paper and paperboard recycling programs. In addition, AF&PA's Design Guidance for Recyclability provides data for packaging designers and consumer brands interested in improving the recyclability of their packaging on how non-fiber elements impact the recyclability of paper-based packaging.

AF&PA Supports Recycling Solutions

AF&PA supports several pieces of legislation that will help improve data collection and accessibility. AF&PA supports H.R. 4109, the Recycling and Composting Accountability Act (RCAA), which will help further increase and improve recycling and composting in the U.S. by helping the Environmental Protection Agency to improve measurement, data and reporting tools. AF&PA also supports H.R. 2145, the Recycling Infrastructure and Accessibility Act of 2025 (RIAA), which will improve recycling accessibility in underserved communities. AF&PA also supported previous iterations of the RCAA and RIAA (H.R. 4040/S. 1194 and H.R. 6159/S. 1189, respectively) that were introduced in the previous Congress. In addition, AF&PA supports the STEWARD Act of 2025 (S. 351), which combines many of the important provisions contained in the RCAA and RIAA into one bill that would establish a pilot grant program to improve recycling accessibility and require EPA to collect and disseminate data on recycling and composting programs.

AF&PA believes that these pieces of legislation are important tools that will help generate the necessary data to improve the accessibility of recycling, particularly in rural and underserved communities. We look forward to working with the Committee to help advance these important bills and other policies to strengthen the recycling system.

AF&PA Supports Free and Fair Recycling Markets

The free market makes it possible for paper to be collected, processed, and utilized in the most efficient and highest-value way in recycled products. Government interventions in recycling markets through policies such as extended producer responsibility (EPR) or by supporting chemical recycling results in subsidizing materials with low recycling rates at the expense of materials with high recycling rates, such as paper.

Federal aid to the plastics sector to help sbuild their recycling infrastructure via regulatory carveouts, definitional changes, grant provisions, and other interventions is unnecessary. Moreover, it can distort recycling markets and undermine state and local control of recycling programs and waste management.

There has been an effort at the federal and state levels to expand the definition of "recycling" to include processes that produce fuel or fuel substitutes for use in energy production. This is energy recovery, not recycling, and AF&PA opposes such efforts.

Advanced recycling is being used to create a new term that equates "recycling" and "energy recovery" and seeks to create new permitting and tax requirements for processes under this term. There are several issues with this:

- **Creates a competitive advantage for certain industries over others.** Using a term so similar to "recycling" that includes producing fuels for use in energy production creates a risk they could be equated or diminish the efforts of other industries to increase their recycling rates.
- **Allows consumer brands to meet their recycling goals by turning post-use packaging into fuels used for energy production.** This is disingenuous and would mislead the American public, who often base purchasing decisions on such goals.
- **Allows for fuel manufacturing to qualify for recycling tax credits.** This policy opens the door to those energy recovery technologies converting post-use materials into fuels or fuel ingredients to also qualify for manufacturing tax incentives reserved for recycling facilities in some states.
- **Creates precedent to use commonly recycled paper for energy recovery and call it "recycling."** The paper industry does not want to create a system that puts burning paper on par with recycling.

Paper recycling has enjoyed decades of success because of the industry's private investments, our consumer education initiatives, the wide availability of recycling programs, and the efforts of millions of Americans who recycle at home, work, and school every day. The paper products industry is proud to be part of the recycling solution by providing renewable, sustainable, and highly recycled products for consumers. We look forward to continuing our work with the Committee, and your staff may contact Elizabeth Olds, Senior Manager of AF&PA Government Affairs, at Elizabeth_Olds@afandpa.org for further information.

NAPCOR
National Association for PET Container Resources

July 16, 2025

The Honorable Gary Palmer
Chair-Designate
House Energy and Commerce Committee
Subcommittee on Environment
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Paul Tonko
Ranking Member
House Energy and Commerce Committee
Subcommittee on Environment
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman-Designate Palmer and Ranking Member Tonko:

The National Association for PET Container Resources (NAPCOR) submits the following comments regarding the House Committee on Energy and Commerce, Subcommittee on Environment hearing titled, "Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth." Thank you for holding a hearing on this important topic.

About NAPCOR
NAPCOR is the industry association for the polyethylene terephthalate (PET) plastic packaging industry in the United States, Canada, and Mexico. We represent the entire PET supply chain, including recyclers, raw material suppliers, container producers, and equipment suppliers. Our members supply consumers with safe, durable, versatile, and sustainable materials used in a wide range of products, including beverage bottles, food packaging, household items, clothing, medical supplies, toys, and automotive parts. PET plastic waste is a valuable asset that can be transformed into new products when effectively recycled, at a lower cost and using less energy than alternatives such as aluminum and glass.

PET Plastic Recyclability
PET plastic, universally recognized by the number 1 resin identification code, is the most widely recycled plastic in the world. More than three billion pounds of used PET bottles and containers are collected annually in North America (the US, Canada, and Mexico) for recycling. More than 1.9 billion pounds of used PET bottles and containers are recovered in the US each year alone. PET plastic bottles and jars are accepted in virtually all US recycling programs and are recycled at higher rates than any other type of plastic. A PET plastic bottle can be recycled repeatedly and can be made with up to 100 percent post-consumer recycled material; it's made to be remade.

Our latest research shows that the US PET bottle collection rate was 33 percent in 2023, up four percentage points from 29 percent in 2022; the highest recycling rate in the US since 1996. The average amount of post-consumer recycled PET used in US bottles and jars was 16.2 percent in 2023, up three percentage points from 13.2 percent in 2022. This is the highest level, demonstrating a significant increase in demand for recycled PET nationwide.

PET's Sustainability
Research shows that ultra-lightweight PET plastic is more sustainable than alternatives, as it requires less energy for production and transportation, ultimately resulting in significantly fewer greenhouse gas emissions. For example, compared to a 12 oz. aluminum can and a 12 oz. glass bottle, a 16.9 oz. PET plastic water bottle requires 80 percent less energy during production, creates 80 percent less solid waste, uses 53 percent less water during production, has a 74 percent lower global warming potential, and generates 68-83 percent fewer emissions. Please refer to the infographics at the end of this document for more details on the advantages of PET water and soft drink containers.

Recycling Infrastructure, Methods, and Innovation
PET has an established, robust recycling infrastructure in the US. The US collected 1,962 million pounds of PET bottles for recycling in 2023, 87 percent of which were reclaimed domestically. Mechanical recycling is well-developed and utilizes readily available technology. Chemical recycling, or depolymerization, complements mechanical recycling, enhancing the recovery of all PET packaging, including some challenging-to-recycle packages. The PET industry has a history of innovating with sustainable practices in mind while meeting the requirements of consumers who rely on PET. Currently, PET reclaimers utilize AI, automation, and advanced sorting technologies, among other technological advancements, to capture more PET packaging for recycling.

Domestic Supply
Currently, there is a limited domestic supply of recycled PET, which forces our members to rely on suppliers outside of North America for materials, even as minimum recycled content mandates and commitments increase. Investing in domestic PET collection and recycling infrastructure will increase the domestic supply of recycled PET, enabling our industry to become less dependent on imports and maintain a healthy domestic PET reclamation business.

Bottle Redemption Programs
NAPCOR supports well-designed and implemented bottle redemption policies as a means of increasing the supply of post-consumer PET feedstock. Our data shows that a well-designed redemption system can deliver 2.5 times greater per-capita PET bottle recovery than curbside collection alone in the United States. A well-designed redemption system can be efficient, fair, and cost-effective, complementing single-stream recycling programs while providing the highest quality and quantity of recycled PET.

Thank you again for holding a hearing on this important matter. Please do not hesitate to contact us if you require further information about the PET industry.

Sincerely,
Laura Stewart
NAPCOR Executive Director
Phone: (608) 826-8447 | Email: lstewart@napcor.com

Chemical Recycling 101

Turning plastic trash into air pollution

In recent years, plastics industry lobbyists have been promoting an old incineration method as a new way to solve the plastic pollution crisis. They are calling the process "chemical recycling" and "advanced recycling," even though it is not "advanced" and nothing gets recycled. These misleading terms were created by the plastics industry to greenwash plastics incineration technologies. The plastic trash that enters a so-called "chemical recycling" facility is burned, creating harmful air pollution, contaminated oil, and toxic ash.

By deceptively presenting plastics incineration as an environmentally sound solution, the plastics industry seeks to justify its plans to triple plastics production by 2050.

This misleading practice is greenwashing at its worst

What is "chemical recycling?"

The terms "chemical recycling" and "advanced recycling" generally refer to technologies that seek to break down or "deconstruct" plastic into its chemical building blocks. Most facilities use what are called "pyrolysis and gasification," processes that burn plastic trash and turn it into harmful air pollution and chemical wastes.

Some of the outputs created by "chemical recycling" facilities are burned again later as hazardous waste or as heavily contaminated industrial fuels, releasing additional toxic air pollution. **This is not recycling.**

The plastics industry lobby is trying to convince state and federal lawmakers, as well as the Environmental Protection Agency (EPA), that burning plastics in "chemical recycling" facilities should not count as incineration.

They want to change the classification of "chemical recycling" from incineration to "manufacturing" or "recycling," or to redefine plastic trash as "not solid waste," as a way to evade air pollution controls.

Such a determination would leave companies free to emit unlimited amounts of harmful air pollution without any monitoring, reporting, or control technologies.

In addition, if reclassified, many of these facilities would qualify for subsidies and tax breaks. Already more than two dozen states have passed laws promoting "chemical recycling."

What are the health impacts of burning plastic?

Plastics are the biggest category of "petrochemicals." They are made by combining fossil fuels (oil, gas, and coal) with hundreds of toxic chemicals.

Incinerating plastic creates climate-warming gases and releases toxic pollution that can impact health. These pollutants include dioxins, benzene, formaldehyde, particulate matter, and heavy metals, such as mercury and arsenic.

Exposure to this pollution increases the risk of cancer, birth defects, reproductive system damage, developmental issues, cardiovascular problems, respiratory impairment, hormonal irregularities, and neurological problems.

MOMS clean air FORCE

The mission of Moms Clean Air Force is to protect children from air pollution and climate change. We envision a safe, stable, and equitable future where all children breathe clean air. We fight for Justice in Every Breath, recognizing the importance of equitable solutions in addressing air pollution and climate change. www.momscleanairforce.org

CHEMICAL RECYCLING 101

How does "chemical recycling" harm communities?

Many "chemical recycling" incinerators are located in communities of color and in low-income neighborhoods that are already overburdened by other sources of air pollution. Changing the laws so that these incinerators can emit harmful pollution without limits in disproportionately impacted communities is environmental racism.

In addition to air pollution and toxic waste, "chemical recycling" incinerators produce large amounts of heavily contaminated pyrolysis oils, which can be made into highly toxic fuels. A 2023 investigation showed just how dangerous these fuels really are: A Chevron refinery in Pascagoula, Mississippi, received EPA approval to use the pyrolysis oils derived from incinerating plastic as ingredients to make jet and boat fuel. Air pollution produced from burning the jet fuel is *expected to cause cancer in one in every four people* exposed over a lifetime. The boat fuel ingredient is even more toxic: *every person exposed over a lifetime* would be expected to get cancer. This risk level is one million times higher than what EPA usually considers acceptable for new chemicals and six times higher than the chances of lung cancer from a lifetime of smoking.

What can EPA and Congress do to protect us?

For nearly three decades, EPA has required the same pollution-control standards for pyrolysis and gasification incinerators as it has for other incinerators. **This must continue.**

Since these "chemical recycling" facilities burn plastic trash, which is solid waste, they meet the legal definition of incinerators under the Clean Air Act. There is no reason to reclassify these incinerators. We are pleased that in 2023 EPA withdrew a 2020 proposal that sought to remove these facilities from federal incinerator rules. We urge EPA to take the next logical steps: Affirm that pyrolysis and gasification "chemical recycling" incinerators are indeed incinerators, and begin to enforce the Clean Air Act rules at noncompliant facilities.

In addition, EPA and Congress must not fall for the false distinction between "chemical recycling" that is "plastics-to-fuel" (burning plastic trash in an incinerator, and then burning the outputs again as a fuel) and that which is "plastic-to-plastic" (using some of the incinerated plastic as feedstock for new chemicals or plastics). No matter what is produced at the end of the process, "chemical recycling" pyrolysis is a heavily polluting incineration technology that needs to remain under Clean Air Act incinerator rules.

Photo right: Brightmark "advanced recycling" facility in Ashley, Indiana. May 2022. Credit: The Last Beach Cleanup

We urge EPA and Congress:

- Do not exempt "chemical recycling" from air pollution rules. Do not reclassify "chemical recycling" technologies as "recycling" or "manufacturing." Do not reclassify plastic trash as "not solid waste."
- Affirm that "chemical recycling" pyrolysis and gasification will remain classified as solid waste incineration and thus subject to clean air requirements.
- Enforce Clean Air Act incinerator rules at all "chemical recycling" facilities.
- Support policies that reduce plastic production and waste.

Turning plastic trash into hazardous waste and air pollution is not a solution to the plastics crisis. Please join us in saying no to this plastics industry greenwashing.

Learn more and take action: www.momscleanairforce.org/issues/plastics

Full list of sources: momscleanairforce.org/sources-chemical-recycling

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November 2023

NRDC

MARCH 2025
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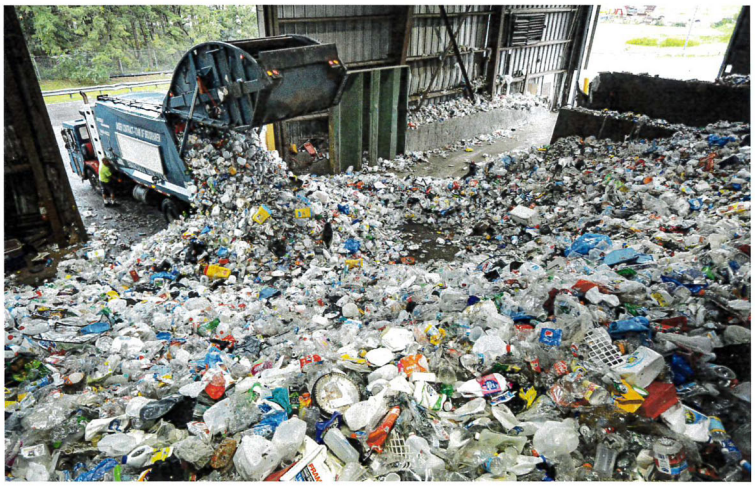
ISSUE BRIEF

MORE RECYCLING LIES:

WHAT THE PLASTICS INDUSTRY ISN'T TELLING YOU ABOUT "CHEMICAL RECYCLING"

Plastic is polluting our bodies, trashing our cities, and fouling the oceans. For decades, the plastic industry has promised that recycling would solve the problem of plastic waste, yet the plastic crisis continues to grow. A definitive report from the National Academy of Sciences found that the United States is the largest generator of plastic waste in the world.[1] Yet the dismal U.S. plastic recycling rate continues to hover around 5 percent.[2] Globally, plastic use is projected to almost *triple* by 2060, relative to a 2019 baseline.[3]



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PYROLYSIS ACCOUNTS FOR 80 PERCENT OF ALL PROPOSED AND OPERATING "CHEMICAL RECYCLING" FACILITIES

The term "chemical recycling" is used by the plastic industry to refer to a range of technologies that include pyrolysis, gasification, solvolysis, and solvent-based purification (Table 1). The plastic industry, however, is pushing one of these technologies above all others: pyrolysis. This single technology accounts for 80 percent of all currently operating and proposed "chemical recycling" facilities in the United States (Table 2). Pyrolysis (along with gasification) is a form of incineration with serious toxic impacts and is regulated as such under the federal Clean Air Act.[10]

Of course, just because a facility is proposed doesn't mean it will be built, and just because a facility is currently operating doesn't mean it will continue to run. In fact, during 2024, the Agilyx/AmSty (Regenyx) pyrolysis plant in Oregon, the Fulcrum Bioenergy (Sierra Biofuels) gasification plant in Nevada, and the New Hope (Trinity Oaks Tyler) pyrolysis plant in Texas all closed due to technical and financial difficulties.[11] The Prima America (Groveton) pyrolysis plant in New Hampshire also appears to be closed.[12] This is a significant number given that only eight "chemical recycling" facilities appear to be currently operating in the United States as of January 1, 2025.[13] Four proposed pyrolysis and gasification plants

TABLE 2: "CHEMICAL RECYCLING" FACILITIES BY TECHNOLOGY TYPE AND OPERATING STATUS

Data compiled by NRDC and Oil and Gas Watch; full list of facilities and detailed methods available in the Appendix. Asterisk (*) indicates that one operating facility (Eastman (Kingsport)) uses both solvolysis and gasification methods and therefore is listed in this table twice but is otherwise counted as a single facility in this report. Data current as of January 15, 2025.

Technology Type	Number of Facilities				Percentage of Total (excluding closed and canceled facilities)
	Operating or Partially Operating	Closed or Canceled	Proposed	Proposed, Under Moratorium	
Pyrolysis	6	5	24	2	80%
Gasification	1*	3	1	0	5%
Solvolysis	1*	0	3	0	10%
Solvent-based purification	1	0	1	0	5%

Local resident, Conrad Whyne, stands on a hill overlooking the site where Texas firm, Encina, plans to build a pyrolysis "chemical recycling" facility, in Point Township, Pennsylvania, on October 30, 2023.

Although only partial-year reporting was available for 2024 at the time of this writing, EPA data indicate that both Alterra (Akron) and Braven (Zebulon) had already generated far more hazardous waste in that year than in any previous year. For example, in the first 9.5 months of 2024, the Alterra (Akron) facility had shipped 172,653 pounds of hazardous waste off-site for disposal as compared with 113,337 pounds for the entire previous year; during that same 9.5-month period, the Braven (Zebulon) facility had shipped 384,962 pounds of hazardous waste off-site as compared with 115,072 pounds in 2023.[25]

The chemicals contained in hazardous waste produced by the Agilyx/AmSty (Regenyx), Alterra (Akron), and Braven (Zebulon) pyrolysis facilities are associated with a wide range of health hazards including cancer; reproductive and developmental harm; and impacts on the brain, liver, and cardiovascular and respiratory systems (Table 4).

Pyrolysis facilities also emit "hazardous air pollutants" (HAPs) such as benzene, formaldehyde, toluene, and vinyl chloride, as well as "criteria air pollutants" such as carbon monoxide and nitrogen dioxide. HAPs (also known as air toxics) are a group of air pollutants that are "known or suspected to cause cancer or other serious health effects, such as reproductive harm or birth defects, or adverse environmental effects."[26] Criteria air pollutants are six common air pollutants that are regulated by the federal government and can harm your health and the environment; some criteria pollutants can also damage crops and buildings.[27]

Table 5 shows selected HAPs and criteria air pollutants that have been released or are permitted to be released by one or more of the following six pyrolysis facilities: Agylix/AmSty (Regenyx), Alterra (Akron), Braven (Zebulon), Brightmark (Ashley), New Hope (Trinity Oaks Tyler), and Nexus (Atlanta).

TABLE 4: HEALTH HAZARDS OF CHEMICALS CONTAINED IN THE HAZARDOUS WASTE GENERATED BY PYROLYSIS FACILITIES

Reflects hazardous waste generated in 2021 by the Agilyx/AmSty (Regenyx), Alterra (Akron), and Braven (Zebulon) facilities, as reported in the EPA's Biennial Hazardous Waste Report (2021 is the most recent year for which such data are available).[28] Data on hazard traits from the California Safer Consumer Products Candidate Chemicals list.[29]

	Carcinogen	Reproductive toxicant	Developmental toxicant	Neurotoxicant	Persistent	Bioaccumulative	Liver toxicant	Cardiovascular toxicant	Respiratory toxicant	Kidney toxicant	Skin toxicant	Eye toxicant
Barium				X			X	X		X		
Benzene	X	X	X	X				X	X			
Cadmium	X	X	X		X	X			X	X		
Carbon disulfide		X	X	X								
Chlorobenzene		X		X			X			X		
Dichloroethane	X			X			X	X		X	X	
Ethyl benzene	X		X	X			X		X	X		X
Methanol			X	X								
Methyl ethyl ketone			X	X					X		X	X
Methyl isobutyl ketone	X		X	X			X			X		X
Methylene chloride	X			X			X	X	X			
Pyridine	X			X								
Tetrachloroethylene	X			X			X	X	X	X		X
Toluene			X	X			X	X	X			X
Trichloroethylene	X	X	X	X			X	X	X	X		X
Xylene				X					X			X
1,1,1-trichloroethane	X			X			X	X		X		
1,1,2-trichloro-1,2,2-trifluoroethane				X			X					
1,1,2, trichloroethane	X			X			X	X		X	X	
2-ethoxyethanol		X	X									
2-nitropropane	X			X			X			X		

© Eddie Seal/Bloomberg Via Getty Images

Emissions rising from a petroleum refinery in Corpus Christi, Texas.

In addition to the hazardous waste and hazardous air pollutants created during the pyrolysis process, it is becoming increasingly clear that the fuel products produced by plastic pyrolysis are also highly toxic. In 2023, ProPublica reported that the EPA had approved 18 new chemical mixtures derived from plastic waste processed for use as fuels with no restrictions or limitations on environmental releases, even though EPA scientists had also determined that these chemicals posed astronomically high risks for cancer and other non-cancer health effects.[33]

One of these chemical mixtures, intended to be used as jet fuel, was estimated to pose a 1 in 4 cancer risk (meaning that 1 in every 4 people regularly exposed to it throughout their life would be likely to develop cancer). A second chemical mixture derived from plastic waste, approved to be used as a boat fuel, posed a 1 in 1 cancer risk—meaning that *every* person regularly exposed to it throughout their life would be likely to develop cancer.[34] In September 2024, after being sued by a citizen group living near the Chevron refinery where the plastic-derived fuels were to be produced, the EPA announced that it would at least temporarily withdraw its approval for these 18 plastic-based fuels while the agency reassesses them.[35]

CHEMICAL AND SOLVENT-BASED "CHEMICAL RECYCLING" PROCESSES ALSO POSE SERIOUS TOXIC CONCERNS

While chemical and solvent-based methods of "chemical recycling" are more likely than pyrolysis to actually recycle some amount of plastic (as opposed to burning it or turning it into fuels), these processes also pose serious health and environmental concerns. Not only do they often use toxic solvents and chemical agents (Table 6), but in some cases they can also generate significant quantities of hazardous waste.

Solvent-based purification and solvolysis, for example, use chemicals linked to neurotoxicity and respiratory toxicity; Chemicals linked to cancer, developmental harm, and other health hazards are also commonly used. There is still much we don't know about the solvents and chemicals being used in these processes, so the chemicals listed below may be only the tip of the iceberg.

FIGURE 1: GEOGRAPHIC DISTRIBUTION OF OPERATING, PROPOSED, CLOSED, AND CANCELED "CHEMICAL RECYCLING" FACILITIES

Data compiled by NRDC and Oil and Gas Watch; full list of facilities and detailed methods is available in Appendix.

TABLE 8: DEMOGRAPHIC ANALYSIS OF COMMUNITIES WITH OPERATING AND PROPOSED FACILITIES

Based on the demographics of the population living within three miles of the facility, with demographic data obtained from EPA's Environmental Justice Screening and Mapping Tool. In the EPA data, "People of Color" is defined as individuals who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. "Low-income population" is defined as individuals in households where the household income is less than or equal to twice the federal "poverty level."[41] The "proposed or under construction" category includes facilities that have been proposed but are currently not moving forward because the local community has adopted a moratorium on construction.

Operating Status	Percentage of facilities in areas with above-average populations of people of color	Percentage of facilities in areas with above-average low-income population
Currently operating or partially operating	45%	100%
Proposed or under construction	55%	72%

Luckily, while the industry is pushing to expand "chemical recycling," other forces are countering this effort. Georgia, Indiana, and Pennsylvania have had facilities proposed and then later canceled due to community opposition.[42] In addition, four operating facilities in Oregon, Nevada, Texas, and New Hampshire shut down in 2024, and a proposed facility in Texas was canceled due to bankruptcy.[43] Two other proposed plants, in Ohio and Massachusetts, are also on hold after the communities where they were to be sited passed ordinances that placed moratoriums on the building of such facilities.[44]

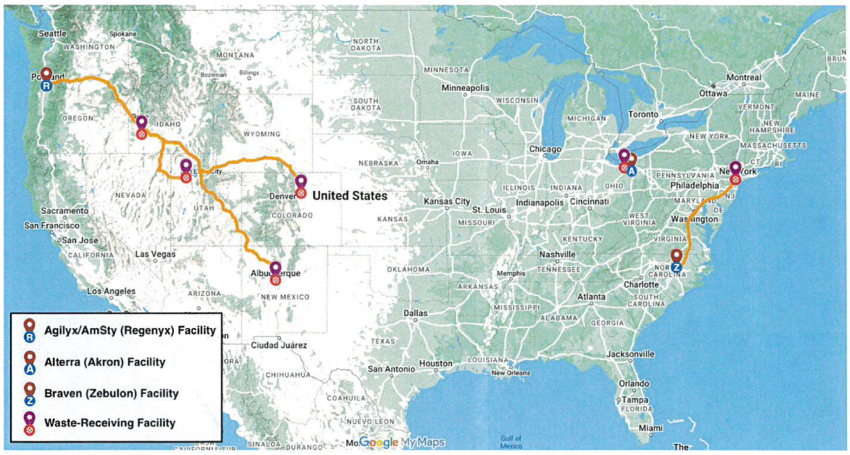
LONG-DISTANCE TRANSPORTATION OF HAZARDOUS WASTE MEANS MANY MORE COMMUNITIES COULD BE ENDANGERED

In addition to impacting local communities through the emission of harmful pollutants, "chemical recycling" facilities also send hazardous waste to management sites in other locations, endangering the communities that live along the transportation routes as well as people who live near the disposal facilities.

As discussed above, "chemical recycling" facilities can generate tens of thousands or even hundreds of thousands of pounds of hazardous waste every year. This waste can take the form of solids, liquids, or sludge and may be classified by the EPA as ignitable, reactive, or corrosive.[45] This waste

FIGURE 2: HAZARDOUS WASTE FROM THREE PYROLYSIS FACILITIES LIKELY TRAVELED THROUGH 13 STATES ON ITS WAY TO DISPOSAL

Reflects hazardous waste data from three pyrolysis facilities: Agilyx/AmSty (Regenyx), Alterra (Akron), and Braven (Zebulon). Hazardous waste disposal information and location obtained from EPA's RCRAInfo website.[62] NRDC used Google Maps to identify likely routes that the hazardous waste traveled from the "chemical recycling" facility to the final disposal site(s).



U.S. GOVERNMENT SCIENTISTS EXPOSE FLAWS IN INDUSTRY'S FALSE NARRATIVE ON THE PROMISE OF "CHEMICAL RECYCLING" FOR PLASTIC-TO-PLASTIC RECYCLING

When it comes to creating recycled plastic, "chemical recycling" technologies are more expensive and have significantly higher environmental impacts than mechanical recycling. Some of them even perform worse than making plastic out of virgin fossil fuels.

In 2023 scientists from the DOE's National Renewable Energy Laboratory (NREL) published a peer-reviewed study that compared the technical, economic, and environmental metrics for mechanical recycling and "chemical recycling" when attempting to recycle waste plastic into new plastic.[63] The study concluded that "mechanical recycling offers energy use and [greenhouse gas] emissions an order of magnitude lower than the other recycling technologies for all plastics, as well as low [energy usage], land use, toxicity, and water use" (Table 9). The study authors also found that mechanical recycling "economically outcompetes all other options."[64]

TABLE 9: MECHANICAL RECYCLING PRODUCES FAR FEWER GREENHOUSE GAS EMISSIONS AND USES FAR LESS WATER THAN "CHEMICAL RECYCLING" TECHNOLOGIES

Using mechanical recycling as the baseline, this table shows how many times greater the greenhouse gas (GHG) emissions and water usage rates are for "chemical recycling" technologies during plastic-to-plastic recycling. Data adapted from supplemental information (Table S27) provided by the Uekert et al. (2023) study and averaged across different polymer types.[65]

"Chemical recycling" technology	GHG emissions (number of times higher than mechanical recycling)	Water use (number of times higher than mechanical recycling)
Pyrolysis	55x	1,694x
Gasification	238x	2,598x
Solvolysis	11x	84x
Solvent-based purification	2x	46x

APPENDIX: SURVEY OF OPERATING, PROPOSED, CANCELED AND CLOSED "CHEMICAL RECYCLING" FACILITIES IN THE U.S.

	Company/Facility name	State	City or County	Technology Used	Operating Status
1	Agilyx and AmSty Louisiana Chemical Recycling Plant	LA	St. James Parish	Pyrolysis	Proposed
2	Agilyx and AmSty Regenyx Chemical Recycling Facility	OR	Tigard	Pyrolysis	Closed
3	Agilyx and INEOS Styrolution TruStyrenyx Channahon Plant	IL	Channahon	Pyrolysis	Proposed
4	Alterra Akron Plastic Recycling Facility	OH	Akron	Pyrolysis	Operating (Pilot)
5	ARCH2 Empire Green Follansbee Plant	WV	Follansbee	Pyrolysis	Proposed
6	BASF/Total Port Arthur Olefins Complex - TOTAL ChemCycling Unit	TX	Port Arthur	Pyrolysis	Operating
7	Braven Environmental Texarkana Chemical Recycling Plant	TX	Texarkana	Pyrolysis	Proposed
8	Braven Environmental Zebulon Chemical Recycling Plant	NC	Zebulon	Pyrolysis	Operating
9	Brightmark Macon-Bibb Plastics Renewal Facility	GA	Macon	Pyrolysis	Canceled
10	Brightmark Plastics Renewal IN - Ashley Facility	IN	Ashley	Pyrolysis	Partially Operating
11	Brightmark Plastics Renewal TX - Dayton Yard Facility	TX	Dayton	Pyrolysis	Proposed
12	Brightmark Thomaston Plastics Renewal Facility	GA	Thomaston	Pyrolysis	Proposed
13	Chevron Pascagoula Refinery	MS	Pascagoula	Pyrolysis	Proposed
14	Clean-Seas Newaygo Chemical Recycling Facility	MI	Newaygo	Pyrolysis	Proposed
15	Clean-Seas Phoenix Chemical Recycling Facility	AZ	Phoenix	Pyrolysis	Proposed
16	Clean-Seas Quincy Chemical Recycling Facility	WV	Quincy	Pyrolysis	Proposed
17	Clean-Seas Templeton Chemical Recycling Facility	MA	Templeton	Pyrolysis	Proposed (Under Moratorium)
18	Eastman Chemical Longview Operations	TX	Longview	Solvolysis (Methanolysis)	Proposed
19	Eastman Chemical Tennessee Operations	TN	Kingsport	Gasification, Solvolysis (Glycolysis, Methanolysis)	Operating
20	Encina Point Township Circular Manufacturing Facility	PA	Point Township	Pyrolysis	Canceled
21	ExxonMobil Baton Rouge Polyolefins Plant	LA	Baton Rouge	Pyrolysis	Proposed
22	ExxonMobil Baytown Chemical Plant	TX	Baytown	Pyrolysis	Operating
23	Freepoint Eloy Chemical Recycling Plant	AZ	Eloy	Pyrolysis	Proposed
24	Freepoint Gulf Coast Chemical Recycling Facility	LA	Ascension Parish	Pyrolysis	Proposed
25	Freepoint Hebron Chemical Recycling Plant	OH	Hebron	Pyrolysis	Under Construction
26	Fulcrum Bioenergy Centerpoint BioFuels Plant	IN	Gary	Gasification	Canceled
27	Fulcrum Bioenergy Sierra BioFuels Plant	NV	McCarran	Gasification	Closed
28	Fulcrum Bioenergy Trinity Fuels Biorefinery	TX	Baytown	Gasification	Canceled
29	FusionOne New Iberia Hydrogen Plant	LA	New Iberia	Pyrolysis*	Proposed
30	FusionOne New Orleans Hydrogen Plant	LA	New Orleans	Pyrolysis	Proposed
31	Greeley Project Energy	CO	Greeley	Pyrolysis	Proposed
32	H Cycle Pittsburg Hydrogen Project	CA	Pittsburg	Gasification	Proposed
33	Honeywell Upcycle Plant	TX	Waller	Pyrolysis	Proposed
34	Mura Cascade ELP	WA	Arlington	Solvolysis (Hydrolysis)	Proposed
35	New Hope Trinity Oaks Tyler Facility	TX	Tyler	Pyrolysis	Closed
36	Nexus Circular Chicago Plant	IL	Cook County	Pyrolysis	Proposed
37	Nexus Circular Dallas Chemical Recycling Plant	TX	Dallas County	Pyrolysis	Proposed
38	Nexus Circular Fuels Atlanta Plant	GA	Atlanta	Pyrolysis	Partially Operating

ENDNOTES

1 National Academies of Sciences, Engineering, and Medicine, *Reckoning with the U.S. Role in Global Ocean Plastic Waste* (Washington, D.C.: National Academies Press, 2022), https://doi.org/10.17226/26132.

2 Anslin Milbrandt et al., "Quantification and Evaluation of Plastic Waste in the United States," *Resources, Conservation and Recycling* 183 (August 2022): 106363, https://doi.org/10.1016/j.resconrec.2022.106363; Beyond Plastics and the Last Beach Cleanup, "The Real Truth About the U.S. Plastics Recycling Rate," May 4, 2022, https://www.beyondplastics.org/reports/the-real-truth-about-the-us-plastics-recycling-rate. Note: The plastic industry is highly intertwined with the chemical industry, but we use the term *plastic industry* for the sake of simplicity here.

3 Organization for Economic Cooperation and Development, *Global Plastics Outlook: Policy Scenarios to 2060*, June 2022, https://doi.org/10.1787/aa1edf33-en.

4 Laura Paddison, "The Plastics Industry Says This Technology Could Help Banish Pollution. It's 'an Illusion,' Critics Say," CNN, May 31, 2024, https://www.cnn.com/2024/05/30/climate/chemical-recycling-plastic-pollution-climate/index.html#; American Chemistry Council, "Advanced Recycling," 2024, https://www.americanchemistry.com/better-policy-regulation/plastics/advanced-recycling.

5 Veena Singla and Tessa Wardle, "Recycling Lies: 'Chemical Recycling' of Plastic Is Just Greenwashing Incineration," NRDC, September 7, 2022, https://www.nrdc.org/sites/default/files/chemical-recycling-greenwashing-incineration-ib.pdf.

6 Tariq Maqsood et al., "Pyrolysis of Plastic Species: A Review of Resources and Products," *Journal of Analytical and Applied Pyrolysis* 159 (October 2021): 105295, https://doi.org/10.1016/j.jaap.2021.105295; Simon Hann and Toby Connock, "Chemical Recycling: State of Play," Eunomia, December 8, 2020, https://chemtrust.org/wp-content/uploads/Chemical-Recycling-Eunomia.pdf.

7 S. A. Salaudeen, P. Arku, and Animesh Dutta, "Gasification of Plastic Solid Waste and Competitive Technologies," chapter 10 in *Plastics to Energy*, Sultan al-Salem, ed. (New York: Elsevier, 2019), 269–93, https://doi.org/10.1016/B978-0-12-813140-4.00010-8; Hann and Connock, "Chemical Recycling: State of Play."

8 Dominik Triebert et al., "Solvent-Based Recycling," in *ACS Symposium Series*, Dimitris I. Collias, Martin I. James, and John M. Layman, eds. (Washington, D.C.: American Chemical Society, 2021) 1391:33–59, https://doi.org/10.1021/bk-2021-1391.ch003.

9 Hann and Connock, "Chemical Recycling: State of Play."

10 Jacob Wallace, "EPA Withdraws Proposal to Drop Pyrolysis from Regulation Following Criticism," *WasteDive* (blog), June 6, 2023, https://www.wastedive.com/news/epa-pyrolysis-emissions-clean-air-act-decision/652153/.

11 In the text of this report, we identify facilities with the company name first and the plant name in parentheses. Jacob Wallace, "Fulcrum BioEnergy Shutters Nevada Waste-to-SAF Facility, CEO Departs," *WasteDive* (blog), June 5, 2024, https://www.wastedive.com/news/fulcrum-bioenergy-sierra-biofuels-reno-nevada-shutdown-eric-pryor/717916/; Ben Seal, "Latest Chemical Recycling Plant Closing Spurs Concern over the Industry's Viability," *EHN* (blog), April 8, 2024, https://www.ehn.org/chemical-recycling-plant-closing-2667655935.html; Oil & Gas Watch, "Despite Big Growth Plans, Chemical Plastics Recycling Plant in East Texas Unexpectedly Stops Operating," October 29, 2024, https://news.oilandgaswatch.org/template/brief/despite-big-growth-plans-chemical-plastics-recycling-plant-in-east-texas-unexpectedly-stops-operating.

12 In early December 2024, NRDC noted that Google Maps included a "permanently closed" label on the Prime America facility. On December 10, 2024, we conducted a business record search on the New Hampshire secretary of state's website and sent an email to the contact listed there asking if the facility was still operating but received no response as of January 13, 2025. NRDC also left a voicemail message on the listed phone line on December 10 and also received no response as of January 13, 2025. We thus concluded that the facility does indeed appear to be closed.

13 As noted in Table 2, one operating facility uses both solvolysis and gasification methods. It therefore is listed in this table twice but is otherwise counted as a single facility in this report.

14 Jacob Wallace. "Fulcrum BioEnergy Files for Chapter 11 Bankruptcy Protection," *WasteDive* (blog), September 10, 2024, https://www.wastedive.com/news/fulcrum-bioenergy-chapter-11-bankruptcy-nevada/726555/; James Bruggers, "A Giant Plastics Chemical Recycling Plant Planned for Pennsylvania Died After Two Years. What Happened?" *Inside Climate News*, April 26, 2024, https://insideclimatenews.org/news/26042024/encina-pennsylvania-chemical-recycling-plant-canceled/; *Recycling Today*, "Brightmark Scraps Plans for Georgia Plant," April 12, 2023, https://www.recyclingtoday.com/news/brightmark-georgia-advanced-plastic-recycling-plant-discussions-end/; Haley Rischar, "Clean Fuels Company Verges on Collapse After Financial Troubles, Layoffs," *Waste Today*, June 5, 2024, https://www.wastetodaymagazine.com/news/clean-fuels-company-verges-on-collapse-after-financial-troubles-layoffs-fulcrum-bioenergy/; Violet Comber-Wilen, "Waste-to-Jet Fuel Company Likely Won't Place Plant in Gary, After Years of Plans," WFYI Indianapolis, June 21, 2024, https://www.wfyi.org/news/articles/waste-to-jet-fuel-company-likely-wont-place-plant-in-gary-after-years-of-plans; Stan Boney, "Council Votes to Extend Moratorium Preventing SOBE's Pyrolysis Process," WKBN 27, November 21, 2024, https://www.wkbn.com/news/local-news/aharon-news/council-votes-to-extend-moratorium-preventing-sobes-pyrolysis-process/; Oil & Gas Watch, "Massachusetts Town Targeted for Waste Plastics Processing Plant Passes One-Year Moratorium," December 11, 2024, https://news.oilandgaswatch.org/template/brief/massachusetts-town-targeted-for-waste-plastics-processing-plant-passes-one-year-moratorium.

15 Taylor Uekert et al., "Technical, Economic, and Environmental Comparison of Closed-Loop Recycling Technologies for Common Plastics," *ACS Sustainable Chemistry & Engineering* 11, no. 3 (January 23, 2023): 965–78, https://doi.org/10.1021/acssuschemeng.2c05497. See Table S29 in the "supporting information" file associated with the paper, available at https://pubs.acs.org/doi/suppl/10.1021/acssuschemeng.2c05497/suppl_file/sc2c05497_si_001.pdf.

16 Singla and Wardle, "Recycling Lies."

17 U.S. Environmental Protection Agency (hereinafter EPA), Office of Resource Conservation and Recovery, *Draft National Strategy to Prevent Plastic Pollution*, EPA 530-R-23-006, April 2023, https://www.epa.gov/system/files/documents/2023-04/Draft_National_Strategy_to_Prevent_Plastic_Pollution.pdf; European Parliament and Council of the European Union, "Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and Repealing Certain Directives," *Official Journal of the European Union*, November 22, 2008, https://eur-lex.europa.eu/eli/dir/2008/98/oj; California Department of Tax and Fee Administration, "Laws, Regulations and Annotations," 2024, https://www.cdtfa.ca.gov/lawguides/vol4/iwmfl/iwmfl-40180.html#:~:text=Chapter%202.&text=40180.,Section%2040201%20or%20EMSW%20conversion.

18 Renee Sharp and Veena Singla, "The Plastics Industry's Latest Deception: 'Mass Balance.'" NRDC *Expert Blog*, September 9, 2024, https://www.nrdc.org/bio/renee-sharp/plastics-industrys-latest-deception-mass-balance.

19 Hazardous waste data for the other four operating pyrolysis facilities either are obscured by the fact that they are part of larger chemical plants that also produce hazardous waste (in the case of ExxonMobil (Baytown) and BASF/Total (Port Arthur)), or are not reported to the EPA (in the case of Brightmark (Ashley) and Nexus (Atlanta)), likely because they are not processing much plastic. See EPA, "Enforcement and Compliance History Online," 2024, https://echo.epa.gov/; Beyond Plastics and IPEN. "Chemical Recycling: A Dangerous Deception," October 2023. https://static1.squarespace.com/static/5edn91260bbb7e7a4bf528d8/t/655791f76ad9bb07d10e1290/1700237890522/10-30-23_Chemical-Recycling-Report_web.pdf.; James Bruggers, "Inside Indiana's 'Advanced' Plastics Recycling Plant: Dangerous Vapors, Oil Spills and Life-Threatening Fires," *Inside Climate News*, June 16, 2023, https://insideclimatenews.org/news/16062023/indiana-advanced-plastics-recycling-vapors-spills-fires/.

20 Beyond Plastics and IPEN, "Chemical Recycling."

45 EPA, "RCRAInfo Search," accessed November 7, 2024, https://enviro.epa.gov/envirofacts/rcrainfo/search.

46 EPA, "Hazardous Waste Transportation," EPA, May 9, 2024, https://www.epa.gov/hw/hazardous-waste-transportation; U.S. Department of Transportation (hereinafter DOT), Bureau of Transportation Statistics, "U.S. Hazardous Materials Shipments by Transportation Mode, 2017," 2017, https://www.bts.gov/content/us-hazardous-materials-shipments-transportation-mode-2007.

47 The three facilities are Agilyx/AmSty (Regenyx), Alterra (Akron), and Braven (Zebulon). EPA, "RCRAInfo Search," accessed November 15, 2024, https://enviro.epa.gov/envirofacts/rcrainfo/search.

48 Ibid.; EPA, "EJScreen."

49 EPA, "EJScreen," accessed November 7, 2024, https://ejscreen.epa.gov/mapper/.

50 EPA, "RCRAInfo Search," accessed November 7, 2024; Singla and Wardle, "Recycling Lies."

51 Singla and Wardle, "Recycling Lies."

52 Ibid.

53 P. W. Tait et al., "The Health Impacts of Waste Incineration: A Systematic Review," *Australian and New Zealand Journal of Public Health* 44, no. 1 (February 2020): 40-48, https://www.sciencedirect.com/science/article/pii/S132602002300732X.

54 EPA, "RCRAInfo Search," accessed November 7, 2024.

55 Excludes hazardous materials transported through pipelines since this is not a method used to transport hazardous waste. DOT, Bureau of Transportation Statistics, "U.S. Hazardous Materials Shipments."

56 California Department of Toxic Substances Control, "Managing Hazardous Waste," August 2007, https://dtsc.ca.gov/hazardous-waste-transporter-requirements-fact-sheet/.

57 DOT, Pipeline and Hazardous Materials Safety Administration, "Incident Statistics, 10 Year Incident Summary Reports, Hazardous Waste Incidents, https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics.

58 Ibid.

59 Ibid.

60 EPA, "East Palestine, Ohio Train Derailment," accessed August 23, 2024, https://www.epa.gov/east-palestine-oh-train-derailment; David A. Gay et al., "Widespread Impacts to Precipitation of the East Palestine Ohio Train Accident," *Environmental Research Letters* 19, no. 7 (July 1, 2024): 074022, https://doi.org/10.1088/1748-9326/ad52ac.

61 Artemis Moshtaghian, Melissa Alonso, and Taylor Romine, "Residents of Ohio Community Allowed to Return After Chemical Leak from Railroad Car Forced Evacuations." CNN, September 25, 2024, https://www.cnn.com/2024/09/24/us/ohio-train-chemical-leak-evacuation-order/index.html.

62 EPA, "RCRAInfo Search."

63 Uekert et al., "Comparison of Closed-Loop Recycling Technologies."

64 Ibid.

65 Ibid.

66 Ibid.

67 Ibid.

68 Ibid.

69 Ibid.

70 For information on "mass balance" credit approaches, see Renee Sharp and Veena Singla, "The Plastics Industry's Latest Deception: 'Mass Balance.'" NRDC *Expert Blog*, September 9, 2024, https://www.nrdc.org/bio/renee-sharp/plastics-industrys-latest-deception-mass-balance.

71 Oil & Gas Watch, "Search the Oil & Gas Watch Database," 2024, https://oilandgaswatch.org/search.

72 Bea Miñana, "Global Directory of Molecular Recycling Technologies," Closed Loop Partners, 2021, https://www.closedlooppartners.com/wp-content/uploads/2021/11/CLP_Molecular-Recycling-Directory-2021.pdf; Beyond Plastics and IPEN, "Chemical Recycling"; Kate Ringler and Josh Want, "AmSty and Agilyx Announce Collaboration to Build Advanced Recycling Facility," Agilyx, April 8, 2021, https://www.agilyx.com/amsty-and-agilyx-announce-collaboration-to-build-advanced-recycling-facility/; Kate Ringler and April Ludwikoski, "Agilyx and INEOS Styrolution Advance Development of Large Scale TruStyrenyxTM Plant," Agilyx, March 27, 2023, https://www.agilyx.com/agilyx-and-ineos-styrolution-advance-development-of-large-scale-trustyrenyx-plant/; Marissa Heffernan, "Illinois Chemical Recycling Plant Moving Forward," *Plastics Recycling Update*, April 18, 2023, https://resource-recycling.com/plastics/2023/04/18/illinois-chemical-recycling-plant-moving-forward/; Brightmark, "Plastics: Frequently Asked Questions (FAQs)," July 3, 2024, https://www.brightmark.com/plastics-renewal/faq; Emily Friedman, "ExxonMobil's Commercial-Scale Chemical Recycling Facility Begins Production," Independent Commodity Intelligence Services, December 14, 2022, https://www.icis.com/explore/resources/news/2022/12/14/10835695/exxonmobil-s-commercial-scale-chemical-recycling-facility-begins-production/; H Cycle, "H Cycle FAQ," 2024, https://hcycle.com/faq/; SOBE Energy Solutions LLC, "SOBE Energy Solutions (SES)," 2017, https://www.sobeenergysolns.com/; WR Grace & Company, "Maryland Department of the Environment Air and Radiation Administration Application for a Permit to Construct: Docket #16-23," Maryland Department of the Environment, 2023, https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/Public-Review/new%20public%20review%20documents/WR%20Grace%20Combined%20init%20and%20Sub%201%20and%202%2016-23.pdf; EIN Presswire, "Braven Environmental and W. R. Grace & Co. Collaborate on Renewable and Recyclable Feedstock from Advanced Recycling," KGET.com, July 18, 2024, https://www.kget.com/business/press-releases/ein-presswire/723608760/braven-environmental-and-w-r-grace-co-collaborate-on-renewable-and-recyclable-feedstock-from-advanced-recycling/; Stefan Brandt and Rafael Gonzalez, "Navigating the Energy Transition—Co-Processing of Chemical Recycling Products in Fluid Catalytic Cracking Units," *Asian Downstream Insights*, September 23, 2024, https://asiandownstreaminsights.com/energy-transition/navigating-the-energy-transition-co-processing-of-chemical-recycling-products-in-fluid-catalytic-cracking-units/.

73 Kate Ringler and April Ludwikoski, "Agilyx and INEOS Styrolution Advance Development of Large Scale TruStyrenyx™ Plant," Agilyx, March 27, 2023, https://www.agilyx.com/agilyx-and-ineos-styrolution-advance-development-of-large-scale-trustyrenyx-plant/.

76 Gregg Nudd, "Draft Environmental Impact Report for the H Cycle Pittsburg Renewable Hydrogen Project," Bay Area Air Quality Management District, March 13, 2024, https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa-letters/2024/h-cycle-pitts-hydro-project-deir-air-district-ltr-pdf.pdf?rev=5a05cdb4b3804645b566cf9a68769bc0.

75 Aquafil, "Locations," 2022, https://www.aquafil.com/locations/.

GREENWIRE

Trump admin opts for tighter air rules on plastics recycling

In a U-turn from President Donald Trump's first term, an updated EPA rule calls for more protective limits on chemical recycling.

BY: **SEAN REILLY, ELLIE BORST** | 06/24/2025 01:41 PM EDT

Emissions rise from a smokestack. A new rule pertaining to incinerators will require more protective air rules on a chemical recycling process known as pyrolysis. | Ritzau Scanpix/AFP via Getty Images

GREENWIRE | A controversial chemical recycling process will remain under more protective air regulations — a reversal from the first Trump administration's attempts to weaken standards in line with industry pleas.

EPA on Tuesday posted its final rule outlining changes to the performance standards for what are technically known as "other solid waste incinerators," a category covering about 60 trash-burning operations used by prisons, nursing homes and other facilities.

But the agency "will not be taking additional action related to pyrolysis/combustion units in this action," leaving pyrolysis as a "municipal waste combustion unit" under the Clean Air Act.

It's a change of course from President Donald Trump's first term, which in 2020 proposed to remove pyrolysis from its emission guidelines for incineration and recategorize it under the less-protective manufacturing standards — a change chemicals and plastics groups have pushed for. The Biden administration withdrew Trump's proposal in 2023.

Industry groups have pushed development of pyrolysis, one of the technologies under the "chemical" or "advanced" recycling umbrella, over recent years as the innovative new solution for hard-to-recycle plastics that traditional recovery facilities can't handle. The

billions of dollars in investments have come in response to growing public scrutiny over pollution from single-use plastics.

But green groups have criticized pyrolysis, which uses high heat to break plastics down to their chemical building blocks for future reuse, as an evasive, "dangerous and dirty" process with ambiguous efficacy.

The American Chemistry Council, an influential trade association lobbying for a majority of the nation's biggest names in plastics production, has spearheaded the push to categorize all chemical recycling processes — primarily pyrolysis and gasification — under manufacturing instead of incineration regulations.

ACC's lobbying push has been successful in at least half of U.S. states, which have enacted laws to regulate the new recycling technologies under less restrictive air quality rules.

Ross Eisenberg, head of plastics at ACC and president of America's Plastic Makers, said the trade association does "not believe the classification of pyrolysis discussed in the OSWI rule is applicable to the type of pyrolysis used in advanced recycling of plastics."

"We urge EPA to clarify that advanced recycling is a manufacturing process, not a form of solid waste incineration, and should be regulated accordingly," he continued.

The updated rule posted Tuesday comes almost five years after the agency released the initial proposal containing the pyrolysis exemption.

In dropping the planned carveout after receiving what were described as "significant adverse comments," EPA in 2023 said it would be inappropriate for those facilities "to become unregulated emissions sources during the time required for our analysis of pyrolysis/combustion units to be completed, particularly if the Agency ultimately concludes that regulation is needed."

The new rule follows a 2016 Sierra Club lawsuit alleging that EPA was long past statutory deadlines for updating the incinerator regulations. Under the final settlement terms to the suit, brought in U.S. District Court for the District of Columbia, EPA had to sign off on the final version by the end of the month.

Jim Pew, an Earthjustice attorney involved in the litigation, had previously said it would be illegal for EPA to reinstate the pyrolysis exemption. He declined further comment on the issue Tuesday.

In the updated regulations, the agency found no new "cost-effective" pollution controls for the approximately 60 plants now included in the "other solid waste incinerators" category. but took other steps — such as eliminating an exemption for unpermitted emissions stemming from startups, shutdowns and equipment breakdowns — expected to reduce pollution relative to an earlier baseline.

But under its complex classification framework for different types of trash-burning operations, the agency also opted to shift 29 plants that had previously been covered by more stringent regulations for commercial and industrial incinerators into the "other" category.

The change will lead to about 11 tons of added annual emissions, according to an EPA estimate included in the rule. Most of that will be the particulates often dubbed soot, but the total also includes the toxic metals mercury and cadmium.

Overall, the new rule will save industry about $12 million per year, a summary says.

UP NEXT IN THIS EDITION OF GREENWIRE

Florida proposes Everglades tract for migrant detention

BY MICHAEL DOYLE, MIRANDA WILLSON

EXTENDED PRODUCER RESPONSIBILITY (EPR) FOR PACKAGING

EPR is a producer-funded system to increase recycling of packaging and paper products, promote reuse, and ensure accountability for single-use products and packaging. It builds on existing recycling infrastructure while providing sustainable funding to cover the costs of collection and processing, expand end-markets, and shift producers to more reusable and sustainable packaging.

CHEMICAL RECYCLING

The term “chemical recycling” refers to a wide range of technologies that process recovered plastic products (including packaging) into new plastic, as well as energy and/or fuel. These technologies generate heated discussion: Producers promise an ability to process plastics that can't be mechanically recycled, and environmental groups point to creation of hazardous wastes, emissions, and enabling of wasteful unneeded plastic products.

Government policy makers tasked with passing legislation or issuing permits for chemical recycling projects lack criteria to assess their economic, environmental, and human health impacts. Yet as of 2021, more than 40 companies are working to develop or manage chemical recycling projects in the United States.

PSI's model legislation for packaging EPR, which informed laws enacted in Maine, Oregon, Colorado, and California, specifies that incineration and “waste to fuel” or “waste to energy” technologies, which burn material for energy, should be considered disposal, not recycling. The only laws to address chemical recycling specifically are Colorado (packaging) and New York (carpet), which stipulate that the technologies must meet environmental standards. New York's carpet law also specifies that chemical recycling technologies such as pyrolysis and gasification do not count towards recycling.

The outputs of each technology type are key to their identity. If the final products are fuels, the process is often referred to as plastics-to-fuel and considered energy recovery and disposal rather than recycling. If marketable plastics are the final products, the process is referred to as plastics-to-plastics and is often seen as a type of recycling. Most U.S. governments and a growing number of international standards do not consider energy recovery technologies (including plastics-to-fuel) to be recycling.

EXISTING AND EMERGING TECHNOLOGIES

Purification is a process by which plastics are dissolved in chemicalsolvents to recovervirgin-grade plastic resins that are free from additives and dyes.

Depolymerization processes break the molecular bonds of plastics to recover building blocks (monomers) that can be reconstructed into “like-new” resins.

Conversion technologies convertplastics into refined hydrocarbons and petrochemicals. Pyrolysis and gasification technologies generally produce fuel or fuel intermediaries.

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PSI PRODUCT STEWARDSHIP INSTITUTE

PACKAGING EXTENDED PRODUCER RESPONSIBILITY (EPR)

RETHINKING PACKAGING WASTE

A fully producer-funded system to reduce packaging and single-use plastic waste, make recycling easier and disincentivize problematic packaging, and lower taxpayer costs for managing waste.

WASTE CHALLENGES:

- E-commerce and the delivery economy has led to a dramatic increase in packaging waste. Packaging waste and printed paper now account for 40% of our waste stream.
- Despite increasing public pressure plastic production is expected to double in the next 20 years, according to the World Economic Forum. Consumer brands have little incentive to choose more sustainable materials or reduce the amount of packaging they put into the waste stream.
- The burden of dealing with these ever-growing mountains of packaging waste falls on local governments and taxpayers.

THE SOLUTION:

To solve this problem, states are requiring producers to take responsibility for their packaging throughout its lifecycle – from design to disposal. Producer responsibility laws shift the costs of recycling from taxpayers to producers and incentivize the use of more sustainable packaging.

Shifting the costs of recycling to producers through producer responsibility has multiple benefits:

- Producers have an incentive to reduce waste and stop using materials that are hard to recycle.
- Local governments and taxpayers save millions of dollars of costs in managing packaging waste.
- Reducing, reusing, and recycling packaging waste saves energy and has climate benefits. It takes 90% less energy to make a can from recycled aluminum compared to virgin material, 50% less energy to recycle glass, and 75% less to recycle paper.

Under Packaging EPR, best practices include:

Materials must be **source reduced**.

Support a packaging **reuse system.**

Materials must be **recycled or composted**.

Postconsumer recycled content targets established

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PACKAGING EXTENDED PRODUCER RESPONSIBILITY (EPR)

WHAT DOES THIS LEGISLATION DO?

OVERSIGHT

The state department is responsible for enforcement and oversight. The department will appoint a multistakeholder advisory committee to provide ongoing program input and recommendations. The Producer Responsibility Organization (PRO) must submit annual reports and five-year plans to the advisory committee for review and to the state department for approval.

BUILD ON A STRONG FOUNDATION

The program must protect and leverage public and private investments already made in each state's infrastructure. The PRO must work with existing haulers and material recovery facilities to ensure recycling services are as conveniently available to all state residents as trash collection.

SIMPLIFIED RECYCLING

The PRO will fund and develop outreach and consumer education materials that are consistent across the entire state, building on existing educational efforts. There will be a single, universal baseline list of recyclable materials statewide to reduce confusion and contamination.

Proven EPR Success

Packaging EPR has passed in seven states within the U.S. EPR for packaging and paper products has been successfully implemented for decades around the world, and as a result in these places consumer recycling rates have tripled. Recycling rates have reached 83% in Belgium and 78% in British Columbia, and research on existing programs has found no increase in the price of consumer goods.

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Trump's DOE Nixes $375M Eastman Grant

The grant would have helped to fund construction of an advanced recycling facility in Longview, TX.

Norbert Sparrow
June 2, 2025

2 Min Read

US Secretary of Energy Chris Wright announced a $3 billion cutback on previously approved federal funding of projects that the Trump administration considers "green" initiatives. ALEX WONG/GETTY IMAGES NEWS

Local media outlets are reporting that the US Department of Energy (DOE) has canceled a $375 million grant to Eastman for its chemical recycling facility in Longview, TX. The move is part of a $3 billion cutback on previously approved federal funding of projects that the Trump administration considers "green" initiatives.

24 grants terminated

The cutback in funding for Eastman is part of a larger "termination of 24 awards issued by the Office of Clean Energy Demonstrations (OCED)" under the Biden administration, US Secretary of Energy Chris Wright announced on May 30. The statement on the energy.gov website said that "that these projects failed to advance the energy needs of the American people, were not economically viable, and would not generate a positive return on investment of taxpayer dollars." The DOE estimates that rescinding funding for these projects will generate "$3.6 billion in savings for the American people."

The press release did not name Eastman as being affected by the cutback but reporting from media outlets confirmed that the Tennessee-based company is included.

Total cost estimated at $1.2 billion

The total cost of the Longview project is estimated to be $1.2 billion and the grant would have accounted for about one-third of the required funding, according to media reports. At the time of writing, Eastman has not issued a response to the government's action.

Related: Shell Walks Back Chemical Recycling Project

As reported in *PlasticsToday* last year, Eastman said the Texas facility will have the capacity to recycle approximately 110,000 metric tonnes of hard-to-recycle plastic waste, and is expected to generate more than 200 full-time jobs in addition to approximately 1,000 temporary construction jobs. Eastman said it has operated in the Longview community for more than 70 years and currently has over 1,500 employees at the location.

World's largest advanced recycling plant planned for France

Eastman's first molecular recycling facility was recently completed at its Kingsport, TN, headquarters. It is also in the process of building a facility in France, first announced by Eastman CEO Mark Costa and French President Emmanuel Macron in January 2022. Once completed, Eastman claims it will be the largest advanced recycling facility in the world,

Eastman's molecular recycling technology breaks down hard-to-recycle plastic waste into its molecular building blocks, which are reassembled into virgin-quality material without compromising performance. The technique has the potential to enable infinite reuse by keeping these molecules in production in a material-to-material high-yield loop, according to Eastman.

Related: Chemical Recycling Just Isn't Feasible

About the Author

Norbert Sparrow

Editor-in-chief of *PlasticsToday* since 2015, Norbert Sparrow has been an editor working within business-to-business media since 1996. Prior to taking the helm of *PlasticsToday*, Sparrow oversaw the editorial content of several media outlets devoted to the medical device manufacturing sector, including *European Medical*…

Source: https://www.plasticstoday.com/legislation-regulations/trump-s-doe-nixes-375m-eastman-grant

American Chemistry Council | Plastics Division

September 11, 2025

The Honorable Gary Palmer
Chairman, Subcommittee on Environment
House Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Palmer:

Enclosed are my responses to the questions for the record from my testimony of July 16, 2025, on recycling innovation and economic growth. Thank you again for the opportunity to testify and for the Subcommittee's attention to this important topic. I was encouraged by the discussion and the bipartisan interest in real steps to improve our recycling infrastructure.

We at the American Chemistry Council look forward to working with the Subcommittee on this and other important issues in the 119th Congress.

Very truly yours,

Ross Eisenberg
President, America's Plastic Makers™

American Chemistry Council | Plastics Division

Responses to Questions for the Record

The Honorable Bob Latta (R-OH)

1. **You noted in your written testimony that mechanical recycling is incorporating more advanced technologies and increasingly able to handle more plastics.**

    a. **In addition to reducing the amount of plastic that ends up in a landfill, how can new advances in mechanical recycling technologies enhance economic opportunities?**

    b. **What obstacles do we face in scaling up mechanical plastics recycling technologies?**

Response:

Mechanical recycling is becoming significantly more advanced. New sorting technologies, artificial intelligence, enhanced shredding and washing technologies, improved decontamination and more streamlined operations are widening the types of materials mechanical recyclers can take and increasing their capacity. I recently visited the grand opening of a new mechanical recycling facility in Connersville, Indiana, which takes in post-consumer plastic film (i.e. bags) from recycling bins, store drop-off locations and back-of-store collections and cleans, chops, remelts and reforms the films into new plastics suitable for a wide range of food-contact packaging applications. This state-of-the-art manufacturing facility takes advantage of the newest technologies on the market and is capable of recycling over 145,000 bales of plastic per year.

Many of the obstacles that stand in the way of scaling up mechanical plastics recycling are the same ones standing in the way of non-mechanical (i.e. advanced or chemical) recycling.

- Infrastructure: Many consumers still lack access to recycling. Municipalities struggle to collect and sort used plastics. Existing equipment is old and outdated and cities and towns lack the budget flexibility to invest in new equipment. These challenges are the same for all forms of recycling. A few years ago, ACC released our Roadmap to Reuse,[1] a set of actions that we believe could modernize the way we collect, recycle and reuse plastic and other materials.

[1] https://plasticmakers.org/our-solutions/eliminating-plastic-waste/the-roadmap-to-reuse/.

- Design for recyclability: Many companies are working to make their plastic packaging easier to recycle.[2] Large brands are demanding more plastic containing recycled content to meet sustainability goals. So, many of today's plastic makers are creating some of their products with recycled plastic and announcing plans for more. These trends support a self-reinforcing loop: easier-to-recycle packaging, more market demand for recycled plastic, and more recycled plastic. Improving design of packaging will make it easier for products entering the recycling stream to be recycled. Our colleagues at the Association of Plastic Recyclers maintain an APR Design® Guide for recyclability that dives deeper into this topic.[3]

- Policy: Many of the same policy concepts I outlined in my written testimony for advanced recycling would also apply to mechanical recycling. Improvements to the regulatory approval process, a more consistent national recycling framework, and policies like recycled content standards and extended producer responsibility (EPR) can be effective tools to accelerate the growth of mechanical and non-mechanical recycling in the U.S.

[2] https://plasticmakers.org/our-solutions/designing-for-recycling/.
[3] https://plasticsrecycling.org/apr-design-hub/apr-design-guide-overview/.

Written Responses to Questions for the Record of Keefe Harrison,
Chief Executive Officer of The Recycling Partnership

Following the Hearing Titled

"Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth"

Before the
House Committee on Energy and Commerce
Subcommittee on Environment

Hearing Date: July 16, 2025
Response Date: September 3, 2025

The Honorable Bob Latta (R-OH)

1. **In the United States, the mid-and-downstream aluminum industry has invested $10 billion over the past decade. In order to support continued investment, the aluminum industry needs input materials, therefore requiring an all-of-the-above policy approach to keep and collect more domestic aluminum scrap.**
    a. **What can Congress be doing to support domestic aluminum scrap collection for consumer and industrial scrap?**

According to The Recycling Partnership's *2024 State of Recycling Report*, every year, 45% of aluminum cans in American households are trashed instead of recycled. That's nearly 1 million tons of a highly recyclable commodity that could become new cans on store shelves again. Instead, it ends up in landfills.

The aluminum industry has invested billions to make better use of materials, but no single industry or material alone can fix a fragmented system. We need coordinated policy to collect, sort, and recycle more materials, including aluminum, domestically and at scale.

Congress has two clear opportunities to help close the gap for all materials.

1. Pass the CIRCLE Act (H.R.4466) to incentivize investments that upgrade and expand the recycling system.
2. Advance legislation like H.R.2145 and H.R.4109, which build on The Partnership's decade-plus of community–based work to ensure more Americans can participate in recycling.

The CIRCLE Act is a bipartisan recycling infrastructure investment tax credit designed to reward investments in the domestic system that returns materials back into the supply chain, building local jobs and increasing efficiency along the way. This legislation would allow for investments like those made by the aluminum industry and others to go farther while reducing the burden on local governments and nonprofit operators that face high capital costs. We encourage inclusion of the CIRCLE Act in upcoming packages that adjust the tax code or focus on investing in the domestic economy.

At The Recycling Partnership, we use data and field-tested insights to identify where recycling systems fall short and what needs to change. Our work is grounded in the five requirements of an effective recycling system. We ask: is it recyclable, can people recycle, do people recycle, is it being recycled, and is the material being reused? We've mapped how aluminum and other materials move through the system, and where they stall. With that insight, we can pinpoint where policy interventions are needed to improve material flow and recovery.

Both H.R.2145 and H.R.4109 (combined in the Senate as the STEWARD Act, S.351) would increase access for rural and underserved communities, while capturing and sharing proven strategies to reduce landfill waste. Passing the STEWARD Act would help ensure all materials, not just aluminum, stay in use and in the American economy.

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September 10, 2025

The Honorable Gary Palmer, Chairman
Committee on Energy and Commerce Subcommittee on Environment
U.S. House of Representatives
170 Cannon House Office Building
Washington, DC 20515

The Honorable Paul Tonko, Ranking Member
Committee on Energy and Commerce Subcommittee on Environment
U.S. House of Representatives
2269 Rayburn House Office Building
Washington, DC 20515

RE: ***Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth***

Dear Chairman Palmer and Ranking Member Tonko,

On behalf of the **Flexible Packaging Association (FPA)**, I very much appreciated the opportunity to appear before the U.S. House of Representatives Committee on Energy and Commerce Subcommittee on Environment on July 16, 2025, for the hearing titled, *"Beyond the Blue Bin: Forging a Federal Landscape for Recycling Innovation and Economic Growth,"* to present and discuss our positions and views on recycling infrastructure, needs, and technology for flexible packaging in the United States. This is a critical core policy issue for **FPA** and the flexible packaging industry in the U.S., and we must all work together to craft effective industry and public policy

approaches. I also very much appreciate the opportunity within this letter to respond to the follow-up questions for the record (QFRs) received from you on August 27, 2025.

FPA represents flexible packaging manufacturers and suppliers to the industry in the U.S. Flexible packaging in the U.S. represents $42.9 billion in annual sales, is the second largest and fastest-growing segment of the packaging industry and employs approximately 83,000 workers. Flexible packaging is produced from paper, plastic, film, aluminum foil, or any combination of these materials, and includes bags, pouches, labels, liners, wraps, rollstock, and other flexible products.

Flexible packaging is also used for medical device packaging to ensure that the products packaged, like diagnostic tests, IV solutions and sets, syringes, catheters, intubation tubes, isolation gowns, and other personal protective equipment maintain their sterility and efficacy at the time of use. Trash and medical waste receptacles use can liners to manage business, institutional, medical, and household waste. Carry-out and take-out food containers and e-commerce delivery, which became increasingly important during the global COVID pandemic, are also heavily supported by the flexible packaging industry. Thus, **FPA** and its members are particularly interested in and deeply committed to solving packaging and plastic waste issues and increasing the recyclability and recycling of all packaging.

The following responses to the QFRs reflect these commitments.

The Honorable Robert Latta (R-OH)

1. In your written testimony, you briefly touched on the distinction between post-consumer recycled content and post-industrial recycled content.

a. Can you elaborate on the current state of post-industrial recycled content infrastructure in the United States?

FPA Response:

Post-industrial recycled (PIR) content is also known as pre-consumer recycled content. This type of recycled content comes from the excess trim, scraps, or defective products collected during the initial manufacturing of a product. PIR content typically stays within the manufacturing facility and is reworked back into the manufacturing process before the final product reaches a consumer. If the manufacturer does not have the technology to regrind and reuse PIR content onsite, it may be sold off to a third party to make additional products. In contrast, post-consumer recycled (PCR) content refers to materials that have been used by consumers and then collected through recycling programs. Since PCR content generally goes through a material recovery facility (MRF) or secondary sortation facility, it is easier to track volumes and infrastructure investments through the sale and movement of materials. While some PIR content is sold and also runs through the U.S. recycling system, a significant volume stays onsite and is reused by manufacturers. As a result, there is insufficient data on the volumes of PIR content versus PCR content or the infrastructure available for processing PIR content. Most investment in PIR content is an internal capital investment by the manufacturer, seen as an efficiency and cost savings expenditure.

Organizations like the Association of Plastics Recyclers (APR) tend to report total recycled content, noting what they can track moving through the recycling system and not separating what they know to be PIR from PCR content. This still excludes what is reused onsite at manufacturing facilities. Recently, the Vinyl Institute did clarify the difference between PIR and PCR recycled content that they could track moving through

the recycling system.[1] They reported a total 1.1B pounds of vinyl is recycled across the United States and Canada, with 958 million pounds of that material being PIR content and only 142 million pounds being PCR content.[2] ***The majority of recycled vinyl (almost 90%) came directly from PIR.*** While most packaging materials have a more robust collection process to recycle post-consumer plastics than vinyl does, this data does help reinforce that there are significant volumes of PIR content that the U.S. plastics industry is using but which is not being measured or quantified towards our state and national recycling rates.

Additionally, when it comes to recycling, quality matters. As noted in my written comments submitted for the hearing on July 16, PCR content material is often graded according to the level of contamination that it experiences as it moves through manufacturing, consumer use and various collection and sortation processes. In contrast, PIR content material retains significantly high-quality levels due to the controlled environment in which the waste is captured, making it an excellent input for products requiring high levels of regulation. PIR content material from packaging can typically be recycled mechanically and turned back into packaging in the ideal closed loop system. In contrast, depending on how plastic PCR content is collected and sorted, the higher contamination rates tend to drive this material towards lower value durable goods or require advanced/chemical recycling to meet the high quality and regulatory requirements necessary for use in packaging.

Also noted in my written comments submitted for the hearing, the use of mechanically recycled PIR content from well-managed manufacturing waste sources can be an excellent source of recycled material. FPA members have demonstrated the ability to

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[1] Vinyl that was reused onsite by a manufacturer was excluded from these numbers.
[2] 2019 Tarnell Company Recyclers Survey for the Vinyl Institute (Amounts Sold) – PVC recycling estimates are from a tri-annual survey of 140 recyclers in the U.S. and Canada, last completed in 2019. Totals exclude manufacturing scrap that is internally reused by the producer.

replace up to 95% of virgin resin with PIR content in non-food high-performance flexible packaging applications where film appearance, toughness, and processibility must meet stringent performance criteria. The use of PIR content offsets the use of virgin resin and avoids material going to waste. For these reasons, PIR content should be recognized as an important means to meet any mandated requirements for recycled content, and FPA believes the federal government could take a lead role in recognizing and incentivizing the use of PIR content even further in the United States, including through tax credits and incentives to encourage manufacturers to utilize even more PIR content within their facilities.

b. What type of benefits could we see from scaling up the volume of post-recycled content available in the United States?

FPA Response:

When considering recycling in the U.S., we need to look at supply, availability and demand. A 2025 report by AMERIPEN and Recycling is Real examined the available supply of PCR content from various packaging materials versus the demand based on corporate goals and state recycled content mandates and contrasted that against the domestic capacity to process the supply of material to meet demand.[3] The study did not evaluate PIR content given the challenges noted above.

When examining the PCR content use rates for plastics, by and large, demand outpaced available capacity, followed by supply. The biggest challenge is to engage more consumers to recycle to increase the supply of PCR content. However, it should be noted that even if supply were matched with available capacity, the U.S. currently lacks enough infrastructure to meet the demand for PCR content.

[3] AMERIPEN (2025) US Packaging Recycled Content Goals Analysis.

Further supporting the analysis into the gaps between supply and capacity, APR notes that if supply was increased to meet the capacity needs of plastic recyclers across the U.S. and Canada an estimated 2 billion additional pounds of plastics could be recycled each year.[4] This would amount to an increased volume of recycled plastics of 36% for polyethylene terephthalate (PET), 35% for high density polyethylene (HDPE), 42% for polypropylene (PP), and 44% for film.[5]

This data is based on scaling up PCR content as that tends to be the standard unit of measurement globally when reporting recycling rates, but as noted above, if we could start to quantify what volumes manufacturers recycle onsite or examine the potential of PIR content material that is not currently captured in recycling metrics, we would see a significant jump in our national recycling rate.

An economic impact report from the Recycled Materials Association (ReMA) notes that in 2021, over 600,000 FTE jobs were created from the recycling industry with an estimated $169B economic impact.[6] Recycled materials are among the nation's largest exports by value, and overall, exports account for over 30% percent of the industry's economic activity.[7]

The ReMA analysis further notes that greenhouse gas (GHG) emissions can be lowered by 35-96% by using recycled materials.[8] Recycled materials in manufacturing tend to reduce industrial energy consumption by 27-90% depending on the material and processes used.[9] On average, recycling one ton of materials saves 3,000 pounds of coal from being mined.[10]

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[4] APR (2025) 2025 Plastics Recycling Capacity in the U.S. and Canada
[5] IBID
[6] ReMA (2025) Recycling's Role in our Economy
[7] IBID
[8] ReMA (2025) The Sustainability Impact of Recycling
[9] IBID
[10] IBID

Scaling up recycling across the U.S. would not only reinforce our strength as a global exporter of recycled materials, but it would also create additional high paying jobs and reduce our cumulative environmental impact through resource efficiency. This is evidenced in my written comments submitted for the hearing on July 16, with several examples of FPA member companies driving the demand for and supply of recycled content, enabling new end markets for flexible packaging and other products – all while expanding existing and opening new facilities and creating new jobs.

# # #

In conclusion, **FPA** appreciates the opportunity to share with you our thoughts on the current state of post-industrial recycled content infrastructure in the U.S. and the benefits of scaling up the volume of post-recycled content available in the U.S. We hope you find our responses helpful, and please don't hesitate to contact me at (410) 694-0825 or dfelton@flexpack.org if I may be of any further assistance.

Sincerely,

Dan Felton
President & CEO
Flexible Packaging Association (FPA)