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Smart technologies help municipalities optimize routes and reduce costs

by MAURA KELLER

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For decades, municipal waste and recycling collection has depended heavily on institutional knowledge. Routes were drawn on maps, drivers carried printed route sheets, missed pickups were recorded manually and supervisors relied on radios or phone calls to understand what was happening in the field. While those systems could get the job done, they made it difficult for municipalities to respond quickly to changing service demands or identify inefficiencies.

Connected collection technology is changing that equation. IoT-enabled bins, digital fleet systems and route optimization are giving public works departments real-time visibility into vehicles, collections and service issues while creating opportunities to continuously improve operations.

"These technologies are fundamentally reshaping municipal waste and recycling operations and the shift goes far beyond simple digitization," said Jeremy Collins, chief executive officer of Routeware. "Smart collection tools are turning historically manual, reactive operations into connected, real-time systems that are more visible, more responsive, more data driven and more resident focused."

For municipalities facing tight budgets, growing populations, labor challenges and increasing expectations from residents, that visibility can translate into measurable operational improvements. Jennifer Latchford-Perkins, senior government specialist at Asset Management Software, Siemens, who has more than 25 years of experience working in state and local government, including serving as chief information officer for the City of Boston, said connected technology also helps municipalities determine whether collection schedules reflect actual use.

"The first step to understanding how IoT-enabled bins and sensors can improve efficiency is by understanding when bins actually need to be emptied," Latchford-Perkins said. "A lot of municipalities have a standard schedule, such as collecting public trash bins every Wednesday, but that schedule doesn't account for changes in how those bins are being used."

A home football game, for example, can dramatically change waste volumes in a particular area. IoT-enabled sensors can alert municipalities when a bin is approaching capacity or overflowing, allowing crews to respond based on actual conditions rather than relying entirely on a fixed schedule.

"Over time, that data can help communities identify patterns and create more efficient collection schedules," Latchford-Perkins said. "Waste bin sensors may seem like a small initiative, but they can have a big impact on overall maintenance and impact on the community."



IoT-enabled bins, digital fleet systems and route optimization are giving public works departments real-time visibility into vehicles, collections and service issues while creating opportunities to continuously improve operations.

Moving beyond historical routes

One of the most immediate applications is route optimization. Many municipal routes have developed through incremental changes rather than systematic analysis. New homes are added, vacant properties remain on service lists, collection requirements change and new waste streams are introduced, but the basic route structure can remain largely intact.

"The reality is that many collection routes were built years ago and have evolved through incremental adjustments rather than deliberate planning," Collins said. "The main problem with that is managing change – be that new properties to service or new waste streams to manage."

Route optimization software allows municipalities to evaluate service areas using current operational data rather than relying solely on historical routes and institutional knowledge. Factors can include route distance, vehicle capacity, geographic considerations, collection schedules, traffic and actual service activity.

Latchford-Perkins said the same principle applies to individual bins and collection points. Rather than assuming every location requires the same frequency of service, municipalities can use real-time data to determine where collection resources are actually needed.

"The value is being able to base collection decisions on actual use rather than assumptions," Latchford-Perkins said. "Some bins may need to be emptied several times a week, while others may only need to be emptied once a week."

With sensors, municipalities can identify filling patterns that might otherwise take months or years to establish through resident complaints and field observations. The objective is not simply to shorten every route, but to rebalance workloads, improve stop sequencing and reduce unnecessary travel and backtracking.

"The goal isn't to make crews work harder. It's to enable them to work smarter," Collins said.

According to Routeware, municipalities using route optimization have achieved a 21 percent reduction in route miles, a 20 percent decrease in missed-bin calls to councils and a 17 percent increase in citizen satisfaction. Municipal partners have also reported annual cost savings of up to $320,000.

Connecting trucks, bins and residents

IoT and connected collection technologies add another layer of operational visibility, providing information about route progress, service completion and exceptions as they occur. That can be particularly useful when residents report a missed collection.

"Connected collection technology challenges one of the biggest inefficiencies in municipal waste operations: sending trucks back to collect a container that wasn't put out," Collins said.

Instead of automatically dispatching a truck based on a resident complaint, municipalities can use service data, photos and video to determine what happened. If a collection was missed, supervisors have information that can help determine why and address the issue.

Real-time visibility can also help prevent unnecessary return trips. Dispatchers and supervisors can monitor route progress and respond to problems before they create larger disruptions. When connected technology is paired with route optimization, municipalities can reduce backtracking, improve sequencing, balance workloads and reduce idle time.

Latchford-Perkins said responding to actual conditions also has implications beyond efficiency. Overflowing public trash bins can create public health concerns, attract rodents and insects and

See MUNICIPAL PROGRAMS RECYCLING, Page A4

ERI becomes strategic investor in Cyclic Materials

ERI, the nation's leading material resource recovery, ITAD, mobility and data destruction/processing provider and recycler of electronics, has become a strategic investor in Cyclic Materials, an advanced recycling company creating a circular supply chain for rare earth elements and other critical materials.

The investment marks the first time a recycling company has invested in a rare earths downstream partner and further expands the companies' strategic partnership announced this past July. The collaboration combines ERI's global collection and pre-processing network with Cyclic Materials' proprietary MagCycle and REEPure technologies and commercial processing infrastructure, with rare earth-bearing feedstock generated through ERI's global operations to be delivered exclusively to Cyclic for rare earth recovery and processing. Together, the companies are creating a scalable pathway to recover rare earth elements from end-of-life products and return them to the supply chain, supporting a secure, domestic and circular supply of critical materials.

ERI, which recycles more than one million pounds of electronic waste every day, will leverage its global collection network and eight U.S.-based recycling centers to identify and aggregate rare earth-bearing materials for delivery to Cyclic Materials.

Cyclic will use its proprietary technologies and commercial infrastructure to recover and process the contained rare earth elements for reuse in the domestic supply chain. The combination of ERI's extensive sourcing reach and Cyclic's specialized rare earth recovery technologies creates an integrated pathway for capturing rare earth value that has historically been lost and can now be recovered at commercial scale using Cyclic's proprietary technology.

ERI's investment coincides with Cyclic's recent completion of a $75 million strategic financing round, reflecting expanded commitments from existing investors and bringing its total equity funding to $237 million. The capital raised is intended to accelerate deployment of Cyclic Materials' rare earth recycling campus in South Carolina and expansion of its Hub-and-Spoke infrastructure across the United States, increasing domestic production capacity for rare earths and critical minerals, an important ingredient across the AI, semiconductor, robotics, defense, automotive, medical and other advanced manufacturing sectors.

"Together with John Shegerian's team at ERI, we are building a new domestic source of rare earths by recovering valuable materials already in circulation and returning them to the supply chain, which derisks foreign trade tensions, increases supply chain resilience, and strengthens national security," said Ahmad Ghahreman, chief executive officer and founder of Cyclic Materials. "ERI's investment further strengthens a partnership that combines their extraordinary sourcing reach with Cyclic's rare earth recovery technologies and infrastructure. We are excited to continue scaling this together."

Key recycling bills clear House Energy & Commerce Subcommittee

The Recycled Materials Attribution Act (RMAA) and the Packaging and Claims Knowledge (PACK) Act, advanced out of the House Energy & Commerce Committee following a markup of the two key recycling bills.

The RMAA will create federal standards for recycled content claims. The bill is intended to establish clearer, more consistent standards for companies making claims that products contain recycled material. This bill focuses primarily on plastics.

These proposal bills will give consumers more reliable information and manufacturers greater certainty. Together, they strengthen recycling markets and encourage investment in recycling and domestic manufacturing.

The Plastics Industry Association (PLASTICS) made this statement: "PLASTICS is pleased to see the RMAA and PACK Act advance out of the House Energy and Commerce Committee. We thank Chairman Brett Guthrie, members of the committee and the sponsors of these bills, Reps. Nick Langworthy and Randy Weber, for their continued leadership.

These proposals would establish clearer, nationally consistent standards for recycling and related packaging claims, giving consumers more reliable information and manufacturers greater certainty. Together, they strengthen recycling markets and encourage investment in recycling and domestic manufacturing.

We look forward to continuing to work with lawmakers of both parties to get these measures across the finish line and deliver a stronger, more consistent recycling system across the nation."

Comstock Metals commences operations for solar panel recycling



Equipment at Comstock Metals solar panel recycling facility.

Comstock Inc. and Comstock Metals LLC, a leader in the responsible, zero-landfill recycling of end-of-life solar panels with North America's first certified operations, announced that the company's solar panel recycling production system is now operating continuously at its Silver Springs, Nevada facility.

"Following dedicated work preparation with our production supervisors and operating staff across the four shift teams, we have now successfully graduated to continuous operations," stated Dr. Fortunato Villamagna, president of Comstock Metals. "We are grateful for the dedicated efforts and support of our entire team, our strategic suppliers, contractors, regulators and the broader Silver Springs community for making this first-of-a-kind operation possible."

By establishing this continuous processing model in Silver Springs, Comstock Metals solidifies its market-leading position at the forefront of responsible, zero landfill recycling of end-of-life solar panels. The facility's transition to continuous production ensures an efficient, high volume, zero landfill solution that eliminates disposal related environmental liabilities for utility-scale solar customers and provides them with certified, audit ready chain-of-custody documentation validating that their end-of-life regulatory obligations have been fully discharged. The company will now ramp up its production platform to meet increasingly higher customer volume demands.

The plant addresses a challenge the industry is only beginning to confront. As the installed base of solar panels approach the end of their operating lives, the volume of end-of-life panels requiring responsible processing is projected to grow sharply, far outpacing the industry's current capacity.

With Silver Springs operating continuously and additional storage capacity in place at its Hanford, California and Cambridge, Ohio facilities, Comstock believes it is one of the few, if not the only, true domestic recycler positioned to absorb the anticipated flow of end-of-life panels at the volumes utility-scale generators will require, without compromising the zero-landfill and chain-of-custody standards that customers depend on.

CARE California reports gain

Carpet America Recovery Effort (CARE) submitted the California Carpet Stewardship Program's 2025 Annual Report to CalRecycle, describing the program's activities and progress. Since the passage of the state's first carpet stewardship law in 2010, CARE has built a solid framework to collect, transport, reuse, recycle and process post-consumer carpet across the state.

Accomplishments include:

- Unmatched recycling rate – The recycling rate for carpet reached 37 percent.
- Carpet kept out of landfill – The program collected 78.5 million pounds of carpet, enough to cover over 3,000 football fields. 86 percent of the collected carpet was recycled.
- Reuse soars – 3.5 million pounds of carpet was sent for reuse, more than four times the amount in 2021. CARE worked directly with large commercial end users, architectural & design firms and general contractors to integrate reuse into active renovation and construction projects.
- Growing collection network – The program continued to serve all 58 California counties, adding 15 net new drop-off sites, for a total of 174 public drop-off sites at the end of 2025.
- Grants fuel innovation and growth – CARE awarded $1.77 million in new grant funds in 2025 for capital improvement, product testing, micro-grants and innovation & design grants.

Michigan cities celebrate recycling successes

Flint and Bay City are among the communities contributing to improved household recycling statewide and the growth of Michigan's sustainable circular economy. The eastern Michigan cities recently held local events to celebrate new recycling records.

Michigan continues to recognize five consecutive years of record-setting improvement in the state's overall recycling rate. In April, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) announced a new record-high 26 percent rate based on the most recent data available.

Flint and Genesee County leaders announced a new all-time high of 2,200 tons a year compared to 624 tons a year before the rollout of "Flint Strong"-branded household recycling carts in 2024 – a 253 percent increase.

"Every bottle, box and can we recycle brings us one step closer to a sustainable Flint where both the environment and our community thrive," Sheldon Neeley, mayor of Flint said. "This analysis by the City of Flint with EGLE reminds everyone how simple and important it is to recycle properly."

Flint leaders attribute the recycling achievement to the distribution of more than 68,000 free 96-gallon trash carts and 64-gallon recycling carts to more than 34,000 residential households. The rollout marked the first major step in transitioning Flint to a cart based recycling program. The previous recycling program required residents to provide their own waste and recycling receptacles for curbside pickup.

EGLE provided Flint with a $1 million infrastructure grant to help the city buy and provide the recycling carts free to residents. National nonprofit The Recycling Partnership awarded a $3.3 million grant to help support Flint's effort to modernize its waste management program and expand access to recycling.

The city's recycling improvement coincides with plans for a new $12.7 million Genesee County Recycling and Education Center on Chavez Drive at the site of a former McDonald Dairy property. EGLE has allocated $900,000 toward the project.

Bay City leaders announced the city's annual recycling rate has reached a record high, according to data from EGLE and the Bay City Department of Public Works (DPW).

Households recycled 1,396 tons of material in 2025, up 50 percent from 2022. That growth follows the Bay City DPW and City leaders' 2022 launch of a city-wide program to distribute new 96-gallon curbside recycling carts to 15,000 households, supported by funding from EGLE. Bay City's recycling improvements are also attributed to increased use of the Bay City Recycles Drop-off Center, supported by a $50,000 EGLE grant.

The Bay City Recycles Drop-off Center – the first of its kind facility within the Great Lakes Bay Region – opened to the public in 2020. The number of visitors has tripled since its opening, from 464 visitors in 2020 to 1,400 visitors in 2025.



City leaders dedicated the site as the Michael and Sandy Buda Bay City Recycles Drop-off Center in honor of the long-time former Bay City mayor and his wife's commitment to civic and environmental stewardship.

EGLE research shows Michigan has steadily increased its recycling rate from 14.25 percent before 2019 to 26 percent for fiscal year (FY) 2025, on track toward the state's goal of a 30 percent recycling rate by 2029.

From 2024 to 2025, Michiganders increased their recycling to a total tonnage of 800,940 tons: more than 60,000 tons of glass, 577,000 tons of paper and paper products, and 41,000 tons of plastics and plastic products.

This equates to every person in Michigan recycling nearly 158 pounds of recyclable materials over a 12-month span, EGLE researchers found.

The combined total matches the weight of 10 Mackinac Bridges and would fill the football stadiums of the Detroit Lions, University of Michigan, and Michigan State University.

EGLE leaders attribute the state's recycling success to funding for infrastructure and technical support for projects that increase access to recycling services, along with the "Know It Before You Throw It" education campaign featuring the Recycling Raccoon Squad.

Recycling in Michigan supports 72,500 jobs and contributes more than $17 billion a year to the state's economy, according to an analysis by EGLE's Next-Cycle Michigan Initiative.

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Municipal programs recycling

■ Continued from Page A1

potentially lead to damage from animals. A sensor alert can give municipalities an opportunity to address those problems before they become larger maintenance or service issues.

Memphis puts optimization to work

The City of Memphis provides an example of what can happen when a municipality takes a systematic approach to route efficiency.

Before its optimization effort, Memphis was servicing more than 170,000 weekly collection points with undersized routes. Printed route plans also included vacant properties, while bulk item collection involved significant manual work.

In early 2022, the city implemented a citywide fleet optimization project designed to consolidate routes, remove vacant homes from service plans and bring route sizes closer to industry standards.

Memphis reduced its daily routes by 8 to 10 and subsequently recorded 2,500 fewer go-backs and 34,500 fewer miles. According to Routeware, the effort also produced $297,000 in fuel and operating cost savings and avoided 122 tons of carbon dioxide equivalent emissions.

The city also increased collection productivity, with disposal tonnage rising from approximately 7 to 8 tons to 9 to 10 tons, making disposal trips more efficient.

"Memphis's challenge wasn't a lack of resources. It was a system weighed down by inefficiency," Collins said. "In 2022, Memphis recognized that improving service didn't require adding more trucks or more staff. It required building smarter routes."

That approach illustrates why route optimization can be more than a fleet-management exercise. Latchford-Perkins said municipalities should consider the broader opportunity cost associated with inefficient collection.

"Any time route optimization is evaluated for efficiency, it has an impact across multiple areas of operations," Latchford-Perkins said. "It's not just about employees' time, but also the mileage on the vehicle, the fuel it uses, the maintenance associated with that vehicle and even the opportunity cost of having that vehicle tied up on a one-off collection route."

She said municipalities should think of those improvements less as a single cost-savings calculation and more as an overall efficiency and cost-avoidance opportunity. If a lightly used bin does not need to be collected as frequently as a heavily used one, eliminating an unnecessary trip allows resources to be redirected where service is actually needed.

Efficiency and sustainability

Reducing unnecessary miles also affects the environmental performance of a collection fleet. Every mile eliminated can reduce fuel consumption, vehicle wear and emissions while freeing up labor and equipment capacity.

"More efficient routing is one of the most practical and immediate ways municipalities can improve sustainability," Collins said.

Latchford-Perkins similarly pointed to unnecessary collection trips as a straightforward sustainability opportunity. If a municipality does not dispatch a vehicle to collect a bin that does not need to be emptied, the resulting reduction in mileage also reduces fuel consumption and vehicle use.

IoT technology can help municipalities move away from a one-size-fits-all collection model toward one that responds to actual demand. That can become increasingly important as communities balance service expectations with sustainability goals and constrained operating resources.

"It's about building smarter operations that reduce environmental impact every single day without sacrificing service," Collins said.

Routeware estimates that digital route optimization software can reduce costs by an average of 15 percent, giving municipalities a financial incentive to pursue changes that can also support emissions-reduction goals.

Changing the job, not replacing it

The transition to connected collection also changes how drivers, supervisors and fleet managers interact with their work. In-cab technology can provide drivers with real-time route guidance, automated service verification and digital tools that reduce paperwork and administrative tasks.

"Most drivers are big fans of new in-cab technology," Collins said. "The technology empowers drivers with real-time route guidance, automated service verification, and tools that make service delivery more accurate, accountable, and efficient."

For supervisors and fleet managers, the shift is from reviewing performance after a route is completed to managing operations while they are underway. Live data can help identify disruptions, rebalance workloads and verify service completion.

"The biggest advantage isn't better reporting, it's better control," Collins said. "Rather than discovering problems after routes are complete, managers can monitor performance in real time, respond immediately to disruptions, rebalance workloads, verify service completion, and make decisions based on live operational data instead of assumptions."

That shift requires training and changes in established workflows. Collins emphasized that technology adoption is ultimately a people issue as much as a software issue.

"Connected collection systems require more than software deployment. They require new skills, new processes and a culture that values data-driven decision-making," he said.

Latchford-Perkins said municipalities also need an internal champion who can identify the opportunity and make the case for investing in it. Funding and prioritization can be particularly challenging when public works departments are balancing technology investments against other infrastructure needs.

"These technologies aren't necessarily something a municipality has to implement; someone who is forward-thinking and can see the opportunity it presents to improve the community is needed," Latchford-Perkins said. "From there, funding and prioritization are the biggest challenges."

While data integration can create additional costs, she said open application programming interfaces (APIs) and modern integration approaches are making it easier to connect information from different systems. Workforce adoption can also be manageable because municipalities do not necessarily need every field worker to change how they perform their jobs. In some cases, a supervisor or central employee can monitor alerts and use the information to determine how routes should be handled.

From reactive to predictive

The next stage of connected recycling and waste collection is likely to involve greater use of artificial intelligence and predictive analytics. Rather than simply showing municipalities what is happening, connected systems can increasingly help anticipate demand and identify potential problems before they affect service.

"The future of municipal waste collection will belong to cities that can move from reactive operations to predictive ones," Collins said.

AI and connected technologies could help municipalities anticipate demand, dynamically adjust routes, identify emerging service problems and allocate resources based on actual conditions. Over time, that could move collection toward service levels that more closely reflect actual need.

Latchford-Perkins said the long-term value of connected data will come from the patterns that emerge over time. If a particular location consistently has overflowing bins, for example, the data could prompt a municipality to consider adding another bin, changing the collection schedule or relocating the bin.

"Over time, the data will reveal patterns unidentifiable from a fixed collection schedule," Latchford-Perkins said. "If a particular location consistently has overflowing bins, the municipality might determine that it needs an additional bin, a different collection schedule or even a different bin location."

Latchford-Perkins said productivity improvements can also have a broader effect on public works operations by freeing resources for other work.

"We're all trying to move from reactive management to more predictive, proactive operations, but reactive work isn't going to disappear," Latchford-Perkins said. "Unexpected things are bound to happen. The goal is to make routine activities as predictable as possible, so the workforce has the flexibility to respond quickly when something unexpected does happen."

Technology is also beginning to expand beyond collection itself. Latchford-Perkins said recycling represents a significant potential application, particularly as municipalities contend with contamination in single-stream recycling programs. Connected systems and other technologies could potentially identify materials as they move along a sorting conveyor and divert materials that do not belong in the recyclable stream before they contaminate a larger load.

"Smart waste bins are a relatively simple first step," Latchford-Perkins said. "They show how municipalities can use IoT to become more efficient, better understand how their assets are being used and respond more quickly when something unexpected happens."

"Technology should reduce complexity, not create it," Collins said. "The goal is not to replace human judgment. It's to augment it."

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Width	7'6"
Height	7'2"
Overall:	
Length	40'
Weight	53,000 lbs.
Height	13'3"
Hydraulics:	
Pressure	2,400 psi
Port Reliefs	2,700 psi
Cycle Time	45 Seconds
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Hydraulics:	
Pressure	2,400 psi
Port Reliefs	2,600 psi
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World crude steel production decreases

World crude steel production for the 70 countries reporting to the World Steel Association (worldsteel) was 144.2 million tonnes (Mt) in August 2026, a 1.2 percent decrease compared to August 2025.

Crude steel production by region

Africa produced 2.1 Mt in August 2026, up 8.8 percent on August 2025. Asia and Oceania produced 106.7 Mt, down 1.4 percent. The EU (27) produced 8.9 Mt, down 1.0 percent. Europe, Other produced 3.8 Mt, up 1.2 percent. The Middle East produced 3.7 Mt, down 4.6 percent. North America produced 9.4 Mt, up 3.9 percent. Russia & other CIS + Ukraine produced 6.3 Mt, down 5.6 percent. South America produced 3.4 Mt, down 4.9 percent.

Top 10 steel-producing countries

China produced 74.6 Mt in August 2026, down 3.7 percent on August 2025. India produced 14.8 Mt, up 4.6 percent. The United States is estimated to have produced 7.3 Mt, up 3.0 percent. Japan produced 6.7 Mt, up 0.4 percent. Russia is estimated to have produced 5.5 Mt, down 0.3 percent. South Korea produced 5.4 Mt, up 2.6 percent. Turkey produced 3.4 Mt, down 0.4 percent. Germany produced 2.6 Mt, up 1.7 percent. Brazil produced 2.7 Mt, down 6.2 percent. Viet Nam produced 2.7 Mt, up 36.4 percent.

Top steel-producing countries

	Aug 2026 (Mt)	% change Aug 26/25	Jan-Aug 2026 (Mt)	% change Jan-Aug 26/25
China	74.6	-3.7	651.9	-3.1
India	14.8	4.6	115.9	6.0
United States (e)	7.3	3.0	57.5	5.5
Japan	6.7	0.4	54.0	-0.2
Russia (e)	5.5	-0.3	43.8	-5.1
South Korea	5.4	2.6	42.8	2.8
Turkey	3.4	-0.4	26.6	6.8
Germany	2.6	1.7	23.9	6.3
Brazil	2.7	-6.2	21.8	-1.8
Vietnam	2.7	36.4	20.6	29.1

e-estimated. Ranking of top 10 producing countries based on year-to-date aggregate

Steel imports up 3.4 percent

Based on preliminary Census Bureau data, the American Iron and Steel Institute (AISI) reported that the U.S. imported a total of 2,345,954 net tons (NT) of steel in August 2026, including 1,599,537 NT of finished steel (up 3.4 percent and 2.2 percent, respectively, vs. July 2026). Total and finished steel imports are down 15.1 percent and 18.5 percent, respectively, year-to-date vs. 2025. Over the 12 month period September 2025 to August 2026, total and finished steel imports are down 18.4 percent and 22.8 percent, respectively, vs. the prior 12 month period. Finished steel import market share was an estimated 17.5 percent in August and is estimated at 16 percent over the first eight months of 2026.

Key steel products with a significant import increase in August compared to July are hot rolled sheets (up 64 percent), plates in coils (up 31 percent) and hot dipped galvanized sheets and strip (up 21 percent). Products with a significant increase in imports over the 12-month period September 2025 to August 2026 compared to the previous 12-month period include heavy structural shapes (up 55 percent).

In August, the largest suppliers were South Korea (407,000 NT, down 27 percent vs. July), Canada (296,000 NT, up 6 percent), Brazil (351,000 NT, up 39 percent), Mexico (254,000 NT, up 32 percent) and Vietnam (159,000 NT, up 4 percent). Over the 12-month period September 2025 to August 2026, the largest suppliers were South Korea (3,660,000 NT, up 32 percent compared to the previous 12-months), Canada (3,229,000 NT, down 41 percent), Brazil (3,084,000 NT, down 28 percent), Mexico (2,164,000 NT, down 37 percent) and Vietnam (1,313,000 NT, up 22 percent).

U.S. Imports of Steel Mill Products by Country of Origin
(thousands of net tons)

COUNTRY	AUG. 2026 PRELIM	JULY 2026 FINAL	% VAR. AUG. VS. JUNE	YTD 2026 (8 MON.)	YTD 2025 (8 MON.)	% VAR. 2026 VS. 2025	SEP. 2025 TO AUG. 2026	SEP. 2024 TO AUG. 2026	% VAR.
Canada	296	280	5.8%	2,148	3,411	-37.0%	3,239	5,447	-40.5%
South Korea	407	556	-26.8%	2,957	1,953	51.4%	3,660	2,773	32.0%
Brazil	351	253	38.8%	2,110	3,152	-33.1%	3,084	4,267	-27.7%
Mexico	254	192	31.8%	1,560	2,217	-29.6%	2,164	3,453	-37.3%
Vietnam	159	153	3.7%	1,056	612	72.6%	1,313	1,078	21.8%
Japan	103	79	30.6%	766	727	5.4%	1,111	1,095	1.4%
Taiwan	47	72	-35.6%	573	837	-31.6%	827	1,149	-28.0%
Germany	53	67	-21.1%	472	807	-41.5%	787	1,196	-34.2%
India	84	53	58.1%	459	378	21.5%	635	486	30.7%
Turkey	60	30	100.5%	398	344	15.9%	602	426	41.2%
China	31	47	-34.0%	305	307	-0.6%	441	469	-6.0%
Netherlands	47	33	42.5%	249	390	-36.2%	384	630	-39.0%
Argentina	30	0	-	186	78	140.2%	336	101	232.7%
United Arab Emir.	51	19	170.9%	194	280	-30.9%	338	421	-19.7%
Indonesia	63	88	-29.2%	322	105	206.1%	437	136	221.6%
All Other	311	346	-10.0%	2,153	3,138	-31.4%	3,053	4,346	-29.8%
Total	2,346	2,268	3.4%	15,907	18,737	-15.1%	22,411	27,473	-18.4%
memo EU-27	289	305	-5.1%	2,007	2,912	-31.1%	2,967	4,320	-31.3%

Metallus awarded $995 million Department of Defense contract

Metallus, a leader in high-quality specialty metals, manufactured components and supply chain solutions, announced that the U.S. Defense Logistics Agency (DLA), the logistics agency for the Department of War, has awarded the company an Indefinite Delivery/Indefinite Quantity (IDIQ) contract to supply steel for critical defense applications.

Under this single award, firm-fixed-price IDIQ contract, the DLA may purchase material through delivery orders issued during the contract term. The contract has a five year ordering period and a maximum ceiling of $995 million. This ceiling represents the maximum amount the DLA may order over the contract term and is not a commitment to purchase that amount.

On September 29, 2026, Metallus received an initial delivery order under the contract valued at approximately $125 million. The company has up to 24 months to fulfill each delivery order.

"This award, along with the initial delivery order, represents another key step in the continued transformation of Metallus. Our momentum within the defense market reflects Metallus' proven ability to produce specialty steel products that meet the rigorous performance, quality and traceability requirements of critical defense applications," said Mike Williams, chief executive officer of Metallus. "We are proud to support the DLA and the U.S. military's readiness mission through steel produced entirely in the United States. The five year contract will provide a solid foundation for continued collaboration with the DLA and highlights the critical role Metallus plays in supporting our nation's security.

As demand across all of our end markets for domestically sourced specialty steel grows, Metallus intends to continue investing in our operations and capabilities to help deliver the quality, reliability and capacity our customers depend on."

Nucor to invest $105 million in Indiana facility expansion

Nucor Corporation is expanding production at its Nucor Towers & Structures facility in Crawfordsville, Indiana, pending receipt of regulatory and other approvals. The additional $105 million investment will add capacity to manufacture utility poles and related products that support the nation's power transmission and distribution infrastructure. This investment is expected to create 100 new jobs paying average annual wages of $87,500.

'The expansion of our Indiana facility reflects the strong demand we are seeing in the utility market,' said Leon Topalian, chair and chief executive officer of Nucor Corporation. "Utilities across the country are making significant investments to modernize the electric grid and meet growing electricity demand. By expanding our Crawfordsville operations and investing in advanced manufacturing and automation, we are strengthening our ability to serve our customers and support their long term infrastructure needs."

The expansion includes more than 120,000 square feet of additional manufacturing space, incorporating advanced automation, modern production equipment and the latest manufacturing technologies. These investments are designed to expand production capacity while supporting efficient, safe, and high-quality manufacturing operations as Nucor Towers & Structures continues to grow. Nucor Towers & Structures Indiana facility currently employs 328 teammates.

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BHS

TECHNOLOGY CONTINUED

BHS (Bulk Handling Systems) has opened the Nashville-based CTEC (Customer Testing and Education Center); offering material stream testing and evaluation in real time with BHS equipment and systems.

Testing at CTEC gives customers vital information about the characterization and value of materials being processed at every stage. This type of testing will benefit operators who may be struggling to improve the percentage value of their waste stream purity. By sending a sample to test with the BHS team, operators can receive key insights into what system changes would be required to improve purity rates. Customers can choose to submit test samples and have BHS provide results, or participate in real-time testing via virtual or in-person sessions.

Understanding the costs of required system updates and the timeframe for a return on investment is crucial to businesses where investing in new equipment retrofits could mean critical downtime and lost productivity and revenue. The CTEC system provides clear, tested validation on what purity levels can be achieved.

An industry-first facility, CTEC utilizes Max-AI® Flex robots, followed by the industry-leading SpydIR®-HS optical sorter; the loop showcases a fully automated QC where customers can choose either the proven Max-AI® AQC-2 robotic QC featuring the iEOT, or Max-AI® AIR direct eject QC machine—all controlled via the Total Intelligence Platform.

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15 KW OHIO GENERATOR AND 54" MAGNET



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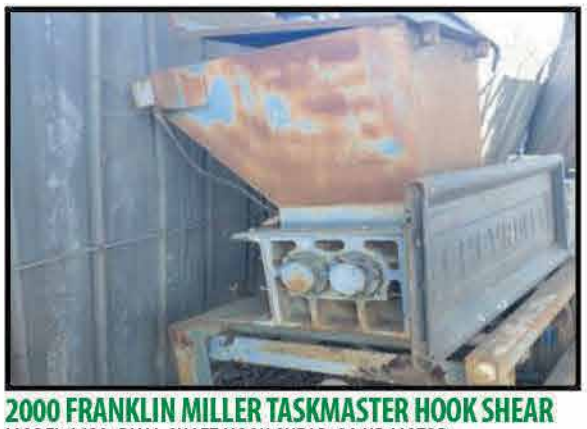
200 HP MOTOR, 9.5" × 37" OPENING, EXTRA PARTS AND SCREENS



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METALS

CDA publishes new guidance to strengthen recycled content reporting

Copper Development Association Inc.

Copper Development Association (CDA) has published a new suite of resources designed to help companies make more informed decisions about recycled copper content, carbon performance, and circularity.

Developed for OEM procurement teams, engineers, sustainability professionals, third-party certifiers, and auditors, the resources address a growing challenge in customer requests and procurement specifications: Recycled content is an important measure of circularity, but the percentage alone does not provide a complete picture of a product's carbon performance.

The three new resources provide complementary guidance for different audiences:

- Essential Industry Context – Aligning Recycled Content with Climate Outcomes in the Copper System examines how recycled content, carbon intensity, scrap availability, product requirements, regional infrastructure and material recovery interact across the copper system. The white paper provides procurement recommendations intended to reward expanded recovery, verified carbon reduction, and stronger supply resilience.
- Copper Recycled Content – What OEM Procurement Professionals Need to Know translates the findings into practical guidance for buyers. The two page resource covers standardized reporting boundaries, scrap availability, product-specific feasibility and procurement considerations, including the importance of evaluating recycled content alongside lifecycle carbon data.
- Copper Recycled Content – What Third-Party Certifiers and Auditors Need to Know provides a copper-specific framework for validating recycled content claims. It addresses process boundaries, treatment of scrap, mass-balance evidence, and chain-of-custody documentation, with guidance informed by ISO 14021, ISO 14040, ISO 59020, and EN 45557.

How copper scrap availability affects recycled content procurement targets

The resources reflect the realities of a mature copper recycling system. Copper's intrinsic value, durability and established recovery infrastructure already create strong incentives for recycling.

At the same time, the amount of scrap available at any given time is constrained by product lifetimes, collection, separation and processing capacity. The white paper's 2020 material-flow example estimates that recovered scrap accounted for approximately 42 percent of the benchmark for semi-finished copper demand. Even in a theoretical scenario in which all currently unaccounted end-of-life scrap were recovered, that figure would rise to approximately 59 percent.

That constraint has important implications for procurement. Increasing recycled content in one product does not necessarily increase the total amount of copper recovered if existing scrap is simply redirected from another use. CDA's resources encourage buyers to consider whether procurement decisions expand net recovery and to evaluate carbon intensity, product performance, and technical feasibility.

Why product requirements matter when setting recycled copper specifications

Product requirements also affect what recycled content targets can realistically achieve. Copper products such as magnet wire, rod, tube, flat-rolled products, alloys and precision components can have different impurity tolerances, conductivity requirements, fabrication processes, and performance specifications. The guidance recommends that procurement teams account for those differences rather than apply uniform recycled content thresholds across product categories.

How can standardized reporting make recycled content claims more comparable?

Consistent accounting is another focus of the new materials. CDA's guidance applies a standardized semi-fabrication casting boundary so equivalent material flows are treated consistently regardless of a manufacturer's operational structure. For third-party reviewers, the audit guide provides specific questions and indicators for assessing process boundaries, scrap treatment, mass balance, and carbon-related claims.

Together, the resources are intended to give buyers, suppliers and independent reviewers a common framework for discussing recycled content and its role in broader sustainability goals. For climate-oriented procurement, CDA recommends reporting recycled content and product carbon intensity as separate, complementary metrics while prioritizing actions that expand recovery and reduce emissions.



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Prysmian and Aurubis partner on copper agreement

Aurubis

Prysmian and Aurubis have signed a landmark agreement for the supply of copper wire rod, deepening a strategic partnership spanning more than 30 years.

The agreement represents a significant step in securing one of the critical materials underpinning electrification, the energy transition, and digitalization. As copper demand grows, driven by the expansion of power grids, renewable energy, electrification and AI infrastructure, the agreement will enhance Europe's production footprint, recycling capabilities and low-carbon copper rod and cable production.

Alberto Boffelli, chief operating officer at Prysmian, said, "As the world's largest buyer of copper wire rod, Prysmian has both an opportunity and a responsibility to help shape the future of the copper value chain. This agreement with Aurubis gives us the reliable, flexible and increasingly sustainable supply our customers need, while strengthening Europe's access to a material that is critical to its energy and digital future."

As Europe's largest vertically integrated low-carbon copper rod producer, Aurubis combines scale, quality and security of supply. The company currently produces copper wire rod with approximately 36 percent recycled material content and a carbon footprint significantly below the global industry average. Its four copper rod plants across Europe also provide Prysmian with flexibility and proximity to key markets.

Advancing more sustainable value chains

Prysmian and Aurubis share an ambition to advance electrification, the energy transition and digitalization through more sustainable value chains.

Prysmian is working to set best-in-class sustainability through its products and supply chain, while Aurubis contributes copper wire rod with an increasing share of recycled material and a carbon footprint significantly below the global average for comparable products.

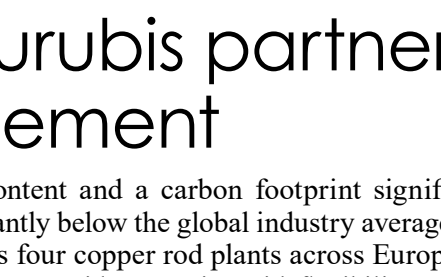
All Aurubis rod mills have been awarded The Copper Mark, the leading independent assurance framework for responsible copper production, sourcing and recycling. Prysmian is also a member of The Copper Mark.

Together, the companies bring advanced recycling expertise, ambitious decarbonization efforts and high standards across the value chain to help meet growing demand for critical materials.

Strengthening Europe's copper supply chain

The agreement helps secure the materials needed for electrification, energy infrastructure and digital networks, while supporting Europe's long-term industrial competitiveness.

AR Scrap Metals MarketWatch



Commodity		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
FERROUS						
#1 Bushelings	per gross ton	$450.00	$429.00	$427.00	$440.00	$450.00
#1 Bundles	per gross ton	430.00	409.00	407.00	420.00	430.00
Structural	per gross ton	370.00	368.00	365.00	366.00	365.00
#1 & #2 Mixed Steel	per gross ton	305.00	300.00	305.00	310.00	315.00
Crushed Auto Bodies	per gross ton	215.00	215.00	219.00	221.00	240.00
Shredded Auto Scrap	per gross ton	425.00	412.00	419.00	417.00	418.00
NON FERROUS						
#1 Copper Bare Bright	per pound	6.65	6.50	6.25	6.20	6.47
#2 Copper Wire & Tubing	per pound	6.35	6.30	6.05	6.00	6.27
Aluminum Cans	per pound	.99	.95	.99	.97	.97
Al/Cu Radiators	per pound	3.37	3.20	3.15	3.15	3.19
Aluminum Radiators	per pound	.44	.40	.41	.40	.41
Heater Cores	per pound	1.40	1.38	1.39	1.38	1.43
Stainless Steel	per pound	.69	.68	.68	.68	.68

All prices are expressed in USD. Printed as a reader service only.

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METALS

Mesabi Metallics to build $15B steel mill in Iowa

Mesabi Metallics announced at the White House an $18 billion investment to build a fully integrated steel company, uniting its iron ore mine on Minnesota's Mesabi Iron Range with a new steel complex in Iowa. Mesabi will invest $15 billion to build the Iowa facility, in addition to the $3 billion being spent to complete the iron ore mine in Minnesota.

Creating the largest single investment in a steel complex in American history, the project will drive job creation in Minnesota and Iowa, deliver meaningful economic growth across the Midwest, and reshape American steelmaking with a supply chain that is 100 percent American: mined, melted and poured.

"This is a major moment for U.S. made steel, combining the highest quality direct-reduction grade iron ore pellet from Minnesota's Iron Range with the most advanced DRI to EAF steelmaking technology in Iowa to supply the high quality, all-American steel that our national defense, cars and trucks, shipbuilding, household appliances, energy and infrastructure depend on," said Joe Broking, chief executive officer for Mesabi Metallics.

Mined in Minnesota

Mesabi Metallics' iron ore mine on Minnesota's Mesabi Iron Range is the first new iron ore mine built in the United States in 50 years, with close to $3 billion invested. Located in Nashwauk, Minnesota, the mine will produce Patriot Pellet, the company's direct-reduction-grade (DR-grade) iron ore pellet engineered for modern electric arc furnace steelmaking – one of the highest quality iron ore pellets made anywhere in the world. More than 1,500 construction workers are on site, alongside over 200 full time employees already working at the mine, building towards 350 full time jobs once fully operational.

That iron ore – and the Patriot Pellet made from it – will feed directly into the Iowa steel complex, the next link in a fully domestic, mine-to-mill supply chain.

Steelmaking in Iowa

Mesabi Metallics' investment will provide a wide range of benefits to the state of Iowa, the Midwest and nationally.

- The company will make a $15 billion investment to build the new complex in Iowa, creating over 6,000 jobs during construction while utilizing local vendors to support additional job growth throughout the area.
- Once the plant is operational, Mesabi Metallics will employ at least 1,750 full time team members while continuing to work with suppliers and businesses throughout Iowa and the Midwest.
- During construction and the first 10 years of full operations, Mesabi Metallics' investment in American-made steel will produce $95 billion in total economic output – supporting businesses, workers and communities across the region.

Innovation and sustainability

Through innovation and new technologies, Mesabi Metallics' integrated steel complex in Iowa will be one of the most efficient and environmentally friendly facilities in the world. The complex will utilize hot direct-reduced iron (DRI) and electric arc furnace (EAF) technology that will significantly lower energy usage and reduce emissions.

- DRI technology involves taking the iron ore mined in Minnesota, removing oxygen at temperatures below its melting point, and creating solid metallic iron. Feeding the DRI into the electric arc furnace while it is still hot reduces the energy required to melt it, improving the efficiency and productivity of the steelmaking process.
- EAF technology is a more efficient, cost-effective way to produce steel. This facility's EAFs will be fed with a mixture of hot, freshly reduced iron from the plant's own DRI process and scrap steel – reducing energy use and emissions compared to traditional blast furnaces.

These technologies, along with other innovations and sustainable practices, will allow Mesabi Metallics to deliver a highly efficient, fully domestic manufacturing process – producing high quality, sustainable, cost effective, 100 percent American steel: mined, melted and poured.

Reshaping American steelmaking

Steel manufacturers in the United States primarily rely on two production processes: integrated blast furnace mills that utilize iron ore from American mines, and highly efficient electric arc furnaces that recycle scrap and imported iron into steel. Mesabi Metallics builds on the strengths of both, by pairing domestic iron ore from its new mine in Minnesota with a modern electric arc furnace steelmaking complex in Iowa. That combination will allow Mesabi Metallics to cost effectively produce a fully domestic, sustainable, high-quality finished steel product.

Issues remain before building

Although Mesabi Metallics has announced these plans, significant steps remain before construction can begin. The company has identified Lee County as the general location, but the specific site has not been publicly finalized, and local records show no completed land transaction or finalized site plan. Permitting is also still in its early stages; rather than holding final construction permits, the project is moving through the preliminary regulatory process. At the same time, Iowa lawmakers are considering changes to the state's tax-incentive program that would accommodate the scale of the proposed investment. The steel mill has been announced as a major Iowa project, but its precise location, required permits and some of the financial arrangements needed to move forward remain unresolved.

Despite optimism from stakeholders, including local officials and company representatives, concerns remain related to site commitment, required legal changes, and readiness of local communities to support such a massive development.



PAPER

European paper recycling rate remains stable

European Paper Recycling Council (EPRC) data shows that the recycling rate for all paper products, including graphic paper, packaging and tissue, remained stable at 76.4 percent in 2025, confirming the robustness and maturity of Europe's paper recycling system.

The stable recycling rate reflects the long-standing commitment of the paper industry and its partners to circularity. For decades, stakeholders across the value chain have worked together to build and maintain efficient collection, sorting and recycling systems, creating the conditions for a well-functioning market for paper for recycling, where supply and demand remain closely aligned. Consistent collection volumes and steady demand from paper mills have ensured a reliable circular flow of materials across the value chain.

The resulting recycling rate, which reached 76.4 percent in 2025, is defined as the ratio between the recycling of used paper, including net trade of Paper for Recycling (PfR), and the consumption of new paper and board.

Year-to-year, the total amount of paper and board collected and recycled in the paper sector decreased by 0.3 percent to 53.9 million tonnes, while consumption of paper and board decreased by 0.4 percent to 70.5 million tonnes. As consumption and recycling volumes declined at a similar rate, the recycling rate remained stable.



Europe continues to lead globally in paper recycling, maintaining its position as the region with the highest recycling rates worldwide. The majority of European countries surveyed, sustain recycling rates above 70 percent. Paper packaging in particular continues to achieve the highest recycling performance among packaging materials, reaching 86.6 percent as an EU average.

Looking ahead, the EPRC highlights the importance of maintaining this equilibrium while continuing efforts to improve collection systems, enhance recyclability and promote eco-design, something it will continue to monitor transparently. Innovation and cooperation across the value chain will remain key to sustaining performance and meeting future challenges. The European paper industry remains committed to maintaining high recycling rates and strengthening circularity across all paper products.

DOE funded projects target more efficient cardboard recycling

Common minerals and used cardboard could become new sources of high-value materials through two projects led by RTI International, an independent scientific research institute, with $5.5 million in federal funding from the U.S. Department of Energy (DOE).

The new projects are conducted at the RTI Pilot Xcelerator, a research and development platform that helps move technologies from laboratory testing toward real-world use. RTI celebrated the opening of a $14 million facility expansion on Sept. 10, doubling RTI's infrastructure for pilot-scale testing of energy and industrial process innovations.

"These DOE awards reflect our shared interest in advancing practical solutions to complex industrial challenges," said David Dausch, Ph.D., vice president, engineering and advanced technology at RTI.

One of the projects is focused on converting abundant natural minerals into critical materials for advanced manufacturing and energy. Sameer Parvathikar, Ph.D., Program Director for the RTI Pilot Xcelerator, will lead the work for RTI in partnership with Gunnadoo Consulting LLC and Thar Energy LLC.

The team will explore a new way to turn olivine into several valuable products including materials needed for modern steelmaking, hydrogen fuel, soil improvement products and ingredients used in construction. The technology could help strengthen U.S. manufacturing supply chains, support industrial processes and make more efficient use of natural resources.

The second project will explore a new way to recycle cardboard boxes. RTI senior fellow and biofuels director David Dayton, Ph.D., will lead the work for RTI in partnership with the Forest Biorefineries Department at North Carolina State University. The team will use innovative anaerobic digestion technology to make cardboard recycling more efficient. The goal is to operate the next generation process for 100 continuous days, converting at least 1,000 kg (2,200 lbs.) of old cardboard into reusable fiber and biogas. The recycled cardboard yields and process energy efficiency will be compared to existing cardboard recycling methods.

These awards are part of a broader DOE initiative to strengthen the U.S. industrial sector. Projects were selected to advance innovative solutions that lower the cost of producing key commodities and strengthen domestic supply chains.

These new projects illustrate the breadth of technology development activities the expanded RTI Pilot Xcelerator is designed to support. Located on RTI's campus in Research Triangle Park, the platform provides pilot-scale equipment, engineering expertise, scientific evaluation and commercialization support for companies, startups and government partners.



PLASTICS

Recycled plastics must be treated as a strategic raw material



Recycled plastics should be recognised "as a strategic, sustainable raw material" that creates a more resilient economy, not "a temporary solution when virgin materials become expensive", Bureau of International Recycling (BIR) plastics division president, Henk Alssema of Netherlands-based Inviplast BV, told delegates at the world organization's first joint meeting between its plastics division and its tires & rubber committee.

"If customers only buy recycled material when the virgin prices are high, we create a very dangerous situation for our industry," he said.

In recent months, the plastics recycling sector across the globe has experienced a turnaround, with increased demand and stronger order books, following a challenging couple of years of low prices, an abundance of cheap virgin material and plant closures. This change in fortunes is mainly owing to the sharp increase in virgin material prices because of the conflict in the Middle East, which in turn has driven demand for recycled materials.

Now recycled plastics are increasingly seen as a valuable and strategic part of raw material supply chains. But if buyers don't continue to use this material when the markets eventually stabilize, they could lose this supply option, as seen with the plant closures of recent years. "Our message is very simple today: use it or lose it," Alssema said.

"If we want enough recycling capacity in the future, we need stable demand today," he continued. "Recyclers need long-term commitments to justify investments in new equipment, innovation, quality systems and traceability." Policy support is also important. "Without strong and stable obligations, demand for recycled material will continue to depend on oil prices and geopolitical events," he noted. "With clear policies, companies can invest with confidence and build for the future."

According to BIR tires & rubber committee chairman Max Craipeau of Hong Kong-based Greencore Resources, the market upturn for recycled rubber mirrors that of recycled plastics, and for the same reasons. Both sectors face similar issues and both benefit from positioning as a "strategic" material. If brands rely solely on primary material, said Craipeau, "they're definitely in trouble when you have geopolitical issues happening". A strong advocate of minimum recycled content mandates, he said these measures must be in place to create demand.

Turning to South East Asia where he operates a PET recycling plant in Indonesia, Craipeau said the issues in the Strait of Hormuz have reduced the typical oil inflows into the market, especially to Asia, by around 20 percent. This has benefited secondary materials, with recyclate prices increasing 15 to 20 percent and back in line with levels that made operations sustainable.

But he warned that, while the current situation means customers are "coming to us to beg for more material", they "tend to have a short memory". He reminded the audience that, during the COVID pandemic, there was much talk about securing more recycled material but, after a couple of years, "that momentum disappeared".

But security of supply is important for brands, and the current Middle East crisis is proving that point, Craipeau commented. "The Strait of Hormuz might just be the tip of the iceberg if a conflict between the US and China arises, for example, in the future," he warned. "So, brands should stop having short memories and secure long-term contracts if they want to keep their products on the shelves."

Executive director of the PET Recycling Corp. of California, Sally Houghton said recycling is used as a "salve" to address the anti-plastic sentiment of voters in California, and she is sometimes "flabbergasted" in her conversations with policy-makers about how little they know or understand about the plastics recycling industry.

California does have positive policy measures in place which include a requirement to have 50 percent recycled content in bottles by 2030 – and this supports demand for recyclate. A similar measure is not in place for packaging, which means packaging producers abandoned recyclate for cheaper virgin material and have started coming back to recycled material only in recent times. But an extended producer responsibility bill has now been passed in the state that will require 100 percent recyclability of packaging, design for recycling and a 65 percent recycling rate – measures that give recyclers confidence.

As such policy measures increasingly come into play, the need for more closed-loop recycling solutions should increase.

Zealafoam Holdings awarded 2026 Innovation in Bioplastics Award

The Plastics Industry Association (PLASTICS) has named Zealafoam Holdings Ltd. as the winner of the 2026 Innovation in Bioplastics Award. Presented by the PLASTICS Bioplastics Division, the annual award recognizes innovative, unique and creative applications of bioplastics materials, products and manufacturing processes.

Zealafoam Holdings received the recognition for its ZealaFoam material, a 100 percent plant-based foam designed to closely match the insulation, cushioning and mechanical performance of traditional expanded polystyrene (EPS). The culmination of more than a decade of research, ZealaFoam is manufactured using the company's proprietary process, offering manufacturers a practical and scalable pathway to incorporate plant-based materials into a range of applications.

ZealaFoam demonstrates how sustainable materials can go hand-in-hand with commercial practicality. According to the company, the material is engineered for applications requiring lightweight, insulated and impact-resistant foam, including protective packaging, cold chain logistics, construction products and other molded applications that traditionally utilize EPS.

"We're excited to recognize Zealafoam as the 2026 Innovation in Bioplastics Award winner," said Patrick Krieger, senior vice president of sustainability and policy at PLASTICS. "They've spent more than a decade developing a new plant-based material that combines strong performance with practical, real-world applications and will serve as a valuable option for manufacturers. We congratulate the entire Zealafoam team on this well-earned recognition and thank all of this year's applicants. Every year, we're impressed by the new ideas, technologies and applications coming out of our industry, and we're excited by the possibilities as materials science continues to advance."

"This recognition means a lot to our team," said Sarah Heine, chief executive officer of ZealaFoam Holdings Ltd. "Our proprietary technology transforms plant-based PLA into high-performance expanded particle foam that can be supplied at different stages of the manufacturing process and processed using existing EPS manufacturing infrastructure, helping reduce one of the major barriers to adopting more sustainable materials. Behind ZealaFoam is more than a decade of research and development, a strong portfolio of intellectual property, and a team focused on taking the technology from New Zealand to international markets. We're excited about what comes next."



WASTE

California Waste Solutions supports illegal dumping cleanup

California Waste Solutions, Inc. is putting AI scanners and expanded optical sorting to work at its Bay Area plants as Oakland launches a new aerial AI program, which will help the City of Oakland to detect illegal dumping before it sits on the street.

The city announced that Aerbits consisting of AI-assisted aerial imagery meant to spot abandoned trash. Separately, California Waste Solutions, Oakland's longtime recycling contractor, is installing EverestLabs AI scanners at its 10th Street material recovery facility in Oakland and increasing Pellenc optical-sorting capacity at the Timothy MRF in San Jose.

California Waste Solutions is adding AI components to its optical sorters. The company's most recent investment in the AI optical sorters stand is to support the city in its aim to crack down on the problem of illegal waste dumping.

"We are delighted to help the City of Oakland, where we are from, in fighting illegal waste dumping," said Michael Duong, president of California Waste Solutions. "Our family company began in Oakland, expanded to southern California and as far away as Vietnam. Everything we built has been based on my father and grandfather's early days of picking up trash on the streets of Oakland. Illegal disposal of trash has always presented the city with a huge problem and we are supportive of the City's efforts to curb it."

California Waste Solutions collects Oakland's recyclables and all is processed through the plant. The new Oakland scanners watch material entering the container line and report what is headed for disposal. They count items, record belt burden and show how much belt is left exposed, so operators can see when a line is running too deep or too uneven to recover items that should have been pulled.

"There is no question that the more you reduce illegal waste dumping, the more you see high-quality results come out of recycling facilities such as ours," said David Duong, founder of California Waste Solutions. "We have seen this over the past four decades that we've been in the recycling business, from the ground up, picking trash off the street, to running sophisticated factories like we have today, employing hundreds of skilled workers. The better organized and regulated the trash disposal process is, the better the result for customers."

The new AI scanners at California Waste Solutions give crews a running record, instead of a walk-through once a shift. If the same recyclable keeps showing up at the end of the line, supervisors can look upstream to settings, loading, and contamination and change the operation. That data helps determine what comes next. Robotics, more optical sorting, or both are under consideration; the company only adds machines when it determines what is actually being missed.

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BUSINESS BRIEFS

Macqueen opens Bismark service center

McNeilus Truck and Manufacturing, Inc., an Oshkosh Corporation business, announced that MacQueen, an authorized McNeilus® dealer, has opened a new service center in Bismarck, North Dakota. The new facility strengthens MacQueen's service capabilities and enhances support for refuse and recycling collection vehicles, while also providing service, parts and technical support for a broad range of Oshkosh Corporation's environmental and emergency vehicle platforms in the region, including McNeilus and Pierce Manufacturing.

Located at 5016 Platoon Ave, Unit 2, in Bismarck, the facility marks MacQueen's 25th location. The new service center represents a transition to a dedicated brick-and-mortar operation, providing customers with expanded access to local service, parts, technical expertise and repair capabilities, while still offering mobile support as needed.

The Bismarck location strengthens MacQueen's ability to support municipalities, contractors and refuse and recycling fleets across the state. Its central location enables the team to provide responsive service through both in-house and mobile technicians, while improving parts availability and reducing response times to help keep customer vehicles operating at peak performance.

Don Ross named CEO of Kollekt

Kollekt U.S., Inc., a new U.S.-based manufacturer and provider of waste and recycling collection equipment, has launched under the leadership of waste industry veteran, Don Ross.

Kollekt brings together North American waste industry experience with the global engineering and manufacturing capabilities of the Kirchhoff family of companies. With its history stretching back to 1785, Kirchhoff has generations of manufacturing experience and today develops waste collection technologies used in markets around the world.

As chief executive officer, Ross will lead Kollekt's entry into the North American market. He brings nearly 40 years of experience in solid waste and recycling, with a background in collection operations, municipal waste management and refuse equipment manufacturing. Ross previously held senior leadership roles across the industry and is a former SWANA International board member and certified instructor. He currently serves as chairman of the board of trustees for the National Waste & Recycling Association (NWRA).

Kollekt will be American-led and focused on the needs of municipalities and haulers across North America. The company plans to bring proven European waste collection equipment and technology to North America and adapt them for this market, with these products already in service in New York City.

Eriez appoints Bainbridge director, global manufacturing

Eriez has appointed Graeme Bainbridge to the position of director of global manufacturing. In this role, Bainbridge will lead and coordinate the company's global production strategy, focusing on manufacturing alignment, fabrication processes, design standardisation, operational efficiency and cost competitiveness.

Bainbridge brings extensive international manufacturing and operational leadership experience to Eriez, having held senior positions with companies including JELD-WEN, REHAU, Masco and Belkin. Throughout his career, he has led large-scale transformation initiatives across multi-site manufacturing environments, driving improvements in performance, supply chain management, organisational effectiveness and profitability. He is well-versed in lean manufacturing principles and continuous improvement methodologies.

Through the remainder of 2026, Bainbridge will be based at Eriez-Europe.

TerraCycle appoints Elsisi as chief financial officer

TerraCycle, Inc., an international leader in innovative sustainability solutions, has appointed Ramy Elsisi as chief financial officer (CFO). Elsisi joins TerraCycle's executive leadership team with more than two decades of global finance experience spanning Fortune 500 life sciences companies and high-growth technology organizations.

As CFO, Elsisi leads TerraCycle's global financial strategy, including TerraCycle U.S.'s active Regulation A investment offering and performance optimization. He will play a key role in supporting the company's continued expansion, driving long-term value creation and sustainable, profitable growth.

Elsisi joins TerraCycle from Adheretech, where he served as chief financial officer and chief operating officer, leading the finance, capital-raising, information technology and human resources functions. During his tenure, he helped position the company for accelerated growth while enhancing operational efficiency and financial performance.

Prior to Adheretech, Elsisi served as head of commercial financial planning & analysis at Otsuka Pharmaceutical Companies, where he led business planning and transformation initiatives across multiple commercial divisions. Earlier in his career, he held progressive financial leadership positions with Johnson & Johnson, Merck and Bayer. His experience includes serving as regional CFO across Latin America, Canada and Western Europe, global financial planning and analysis leadership, as well as leading global finance business partnering roles for sales, marketing, and research and development functions.

BUSINESS BRIEFS

Wieland acquires Neotiss to expand energy markets

Wieland Group has acquired Neotiss SAS, a provider of heat transfer solutions and leading manufacturer of high-performance smooth and finned tubes for demanding applications in the nuclear, energy and process industries. Through the acquisition, Wieland expands its product and materials portfolio, further strengthens its engineering capabilities and enhances its international presence in strategically important markets.

Growing demand for reliable energy supply, driven in part by the rapid expansion of data centers, combined with ongoing investments in industrial infrastructure, is increasing the global need for efficient heat transfer solutions and high-performance tube systems. With the acquisition of Neotiss, Wieland is well positioned to support customers around the world even more comprehensively in these growing markets.

Neotiss is a leading specialist in welded smooth and finned tubes made from titanium, stainless steel and nickel alloys. Its products are used in highly demanding applications where maximum efficiency, corrosion resistance and operational reliability are essential. Headquartered in Issy-les-Moulineaux, France, the company operates manufacturing facilities in France, the United States and China and employs approximately 370 people.

For Wieland, the acquisition provides access to customers and applications in the nuclear industry, Neotiss' most important end market. At the same time, it strengthens the company's position in heat transfer as well as heating, ventilation, air conditioning and refrigeration applications. In addition, Neotiss brings extensive expertise in processing advanced materials and in the design and engineering of high-performance tube solutions to the Wieland Group. Following the acquisition, Neotiss will become part of Wieland's Business Unit Thermal Solutions.

The transaction was completed on October 1, 2026.

DENIOS adds Ernesto Milan as director of operations

DENIOS, a leader in safety and material handling products, has added Ernesto Milan as the new director of operations. In this new role within the company, Milan oversees manufacturing, production planning, supply chain, logistics, maintenance, continuous improvement and operational performance. He holds a bachelor's degree in industrial engineering from Instituto Tecnologico de Santo Domingo and a master's in engineering management from Indiana Institute of Technology. He brings varied experience across several engineering disciplines, most recently as director of manufacturing engineering for Fenco Solutions.

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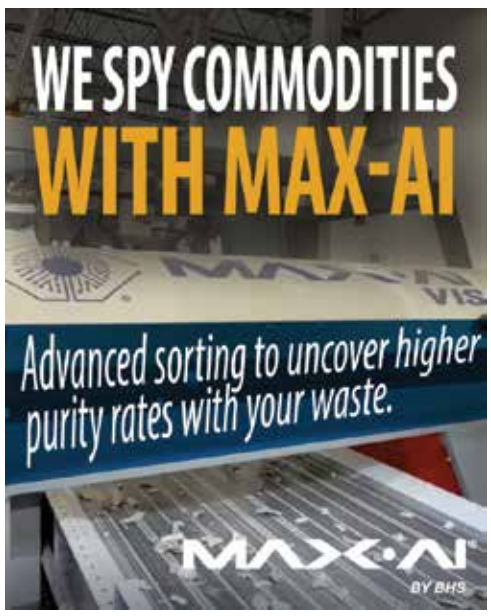

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EPR reshapes plastics and packaging recycling

by MAURA KELLER
mkeller@americanrecycler.com

For years, extended producer responsibility (EPR) has been discussed as a potential way to address some of the economic challenges facing recycling. Now, the concept is moving from policy discussions into actual recycling programs, creating new funding streams while also introducing new requirements for producers, retailers and others throughout the supply chain. As seven states put producer responsibility programs into various stages of implementation, plastics recyclers are watching to see whether new funding will strengthen collection, processing and end markets.

The initial movement

Seven states – Maine, Oregon, Colorado, California, Minnesota, Maryland and Washington – have enacted packaging-specific EPR laws. The programs are at different stages of implementation and vary in their covered materials, reporting requirements, fee structures and performance standards. With no federal packaging EPR system in place, companies selling products across the country are instead facing a growing patchwork of state programs.

For plastics recyclers, the significance goes beyond regulatory compliance. EPR could influence how much plastic enters the recycling stream, the types of packaging being produced, investment in collection and processing infrastructure, and the demand for recycled resin.

"I hear EPR come up more and more in industry conversations," said Sandra Leyva Martinez, head of sustainability, CHEP Americas, in a recent press release. "Most recently in a meeting with major U.S. retail suppliers, the topic surfaced and focused on the complexity of tracking requirements across different jurisdictions, whether across individual U.S. state lines or into Canada or Mexico."

Martinez said each jurisdiction has its own packaging scope, reporting granularity, fee schedules and deadlines, with some large organizations navigating more than a dozen requirements at a time.

"It was clear there's a growing need for solutions that help simplify compliance," Martinez said. "This is an area that CHEP supports through the scale of its pooled network and existing data capabilities, helping customers and retail partners report more confidently around regulations and broader sustainability goals."

Shifting the cost of recycling

The fundamental change created by EPR is financial. Traditional recycling systems have often relied on municipal funding, consumer participation and the sale of recovered commodities. EPR shifts more responsibility for managing packaging after use to the companies that put that packaging into the marketplace.

The objective is to have producers help finance collection, sorting and recycling while creating incentives to improve packaging design and recyclability.

That distinction is important for plastics because the economics of recovering different plastic formats can vary considerably. Some materials have established collection systems and reliable end markets. Others can be difficult to identify, sort, process or sell.

EPR programs attempt to address those differences by connecting producer fees to the characteristics and impacts of the packaging being placed into the marketplace.

The result could be a shift in the economics of plastic packaging before that material ever reaches a recycling facility.

Oregon provides an early look

Oregon provides the first significant example of an operating packaging EPR program. Its Plastic Pollution and Recycling Modernization Act took effect in July 2025 and is designed to shift some recycling-system costs from local governments to producers and distributors.

During its first year, the program generated funding for recycling infrastructure and curbside collection improvements. More than $30 million has been directed toward recycling infrastructure, along with funding for more than 70,000 curbside recycling carts.

Oregon also provides an early indication of the legal environment surrounding EPR. A federal district court upheld the state's EPR law in August 2026 following a challenge by a packaging industry trade group. Other state programs have faced or could face legal challenges as implementation progresses.

For plastics recyclers, however, the most closely watched program may be California's.



Extended producer responsibility (EPR) could influence how much plastic enters the recycling stream, the types of packaging being produced, investment in collection and processing infrastructure, and the demand for recycled resin.

California's large scale experiment

California's SB 54, the Plastic Pollution Prevention and Packaging Producer Responsibility Act, establishes an EPR system covering packaging and single-use plastic food service ware. The law requires producers to finance implementation and establishes targets for reducing, recycling and improving the recyclability of covered materials.

By 2032, California requires a 25 percent reduction in single-use plastic packaging, a 65 percent recycling rate for single-use plastic packaging and food service ware, and 100 percent of covered packaging and plastic food service ware to be recyclable or compostable.

The recycling target phases in over several years, reaching 30 percent in 2028, 40 percent in 2030 and 65 percent in 2032.

Those targets will require more than changes in packaging design. They will require collection systems, sorting capacity, processing infrastructure and viable end markets capable of handling significantly more material.

California's permanent SB 54 regulations became effective May 1, 2026. Circular Action Alliance (CAA), the approved Producer Responsibility Organization, submitted its initial program plan in June and is preparing a final plan for submission to CalRecycle.

That makes the final fee and funding structure particularly important to recyclers.

CAA's draft plan projects $9.3 billion to $17.2 billion in total program costs during the first five years, with costs funded through producer fees. Proposed spending includes collection, processing, material specific investments, reuse and refill infrastructure and California's Plastic Pollution Mitigation Fund.

The amount ultimately paid by individual producers will depend on the final program and the characteristics of their packaging.

Plastic's economics are different

One of the most consequential aspects of EPR for plastics recyclers is the movement toward material-specific fees.

California's system establishes base fees by covered material category, with additional fees and potential adjustments connected to packaging characteristics. The approach recognizes that different materials have different environmental impacts and different costs associated with collection and recovery.

For a plastics recycler, those distinctions matter.

A PET beverage container with

See PLASTIC RECYCLING, Page B2



Plastic recycling

■ Continued from Page B1

established collection systems and strong end markets presents a different recycling proposition than a multilayer flexible package that may be difficult to sort or process economically. Under an EPR system, those differences can potentially be reflected in what producers pay.

The concept is often referred to as eco-modulation. Rather than charging every producer the same amount regardless of packaging characteristics, fees can be adjusted to encourage more desirable packaging attributes.

That could influence packaging decisions before materials reach the recycling stream. If packaging that is easier and less expensive to recycle carries a more favorable economic profile, producers have an incentive to consider recyclability when designing and selecting packaging.

California's program also incorporates source reduction and reuse goals. Recycling is, therefore, only one part of the state's strategy.

For recyclers, that creates a complicated dynamic. More recyclable packaging could improve the quality of available feedstock, while source reduction or elimination of certain packaging formats could reduce the overall volume of material entering recycling facilities.

Data becomes part of recycling

The financial side of EPR is only one piece of the equation. Producers must also be able to determine what packaging they are putting into the marketplace, where it is being sold and how it is classified under different state programs.

That is increasing the importance of supply chain visibility and data collection.

"Retailers continue to place significant value on supply chain transparency, especially as they face growing expectations to demonstrate progress against their sustainability commitments," said Heather Stuart, vice president, retail supply chain solutions, CHEP U.S., in a recent press release. "As EPR evolves, the conversation is shifting from setting goals to understanding how packaging is used, recovered and reused through the end-to-end supply chain."

Stuart said that visibility can help organizations make better decisions, strengthen collaboration and support both compliance and waste reduction.

That visibility could eventually become important for recyclers as well. More detailed information about the materials entering the recycling system could help producers and other stakeholders understand where packaging is being collected, how it is being processed and whether it ultimately reaches a viable end market.

As EPR programs mature, the recycling industry may therefore see greater emphasis on material tracking and reporting alongside the physical movement of commodities.

Seven states with different approaches

California is not operating in isolation. Oregon and Colorado have moved into implementation, while Maine, Minnesota, Maryland and Washington are developing programs with their own requirements and timelines.

Colorado's program, established under HB 22-1355, requires producers to finance aspects of the state's recycling system. Maine's law similarly establishes producer responsibility while



incorporating considerations related to the cost and environmental impacts of managing packaging.

Minnesota, Maryland and Washington represent a newer wave of state programs. Their longer implementation schedules give regulators, producers and recycling stakeholders additional time to establish infrastructure, reporting systems and funding mechanisms.

The common thread is producer financing, but the details vary substantially. Definitions of covered materials, exemptions, reporting requirements, fee structures, performance requirements and implementation schedules are not uniform.

For companies selling packaging nationally, that creates a significant compliance challenge.

For recyclers, it also means that there is not one national model for how EPR money will flow through the recycling system.

Looking beyond the initial cost

EPR could also change how manufacturers evaluate packaging and supply chain decisions.

"EPR is accelerating a broader shift toward measuring supply chain performance more holistically," said Cheryl Henry, vice president, commercial, CHEP U.S., also in the press release. "What this means for manufacturers is continuing to look beyond upfront costs to evaluate solutions based on their long term operational, environmental and financial impact."

At the scale many manufacturers operate, Henry said even small improvements can translate into meaningful savings when applied across millions of units moving through the supply chain.

For packaging manufacturers and brand owners, that means the cost calculation could increasingly include not only the price of producing and transporting packaging, but also its recovery characteristics and potential EPR obligations.

That could create opportunities for recyclers if it encourages greater use of materials with established recycling markets and increases demand for recycled content.

Where the money goes

The potential benefit for plastics recycling is straightforward: EPR can put new money into parts of the recycling system that have historically struggled to secure adequate investment.

Collection systems need equipment and labor. Materials recovery facilities need sorting equipment and upgrades. Plastics processors need capacity and technology. Recycled resin needs reliable end markets.

Producer fees can potentially support each of those areas. For example, California's scale could make the effects considerably larger than those of earlier programs. Its program plan contemplates billions of dollars in expenditures over five years, including funding for collection, processing and material-specific investments.

But funding alone will not guarantee higher recycling rates.

The effectiveness of EPR will depend on how money is allocated, whether infrastructure investments address actual system bottlenecks, whether recovered materials have viable markets and whether producers and recycling companies can work within increasingly detailed data and reporting requirements.

A changing plastics stream

The expansion of EPR is likely to have effects throughout the plastics recycling chain.

Recyclers operating in multiple states will have to contend with different program structures and potentially different material requirements. Producers may respond by changing packaging designs, material choices or product formats to reduce their obligations.

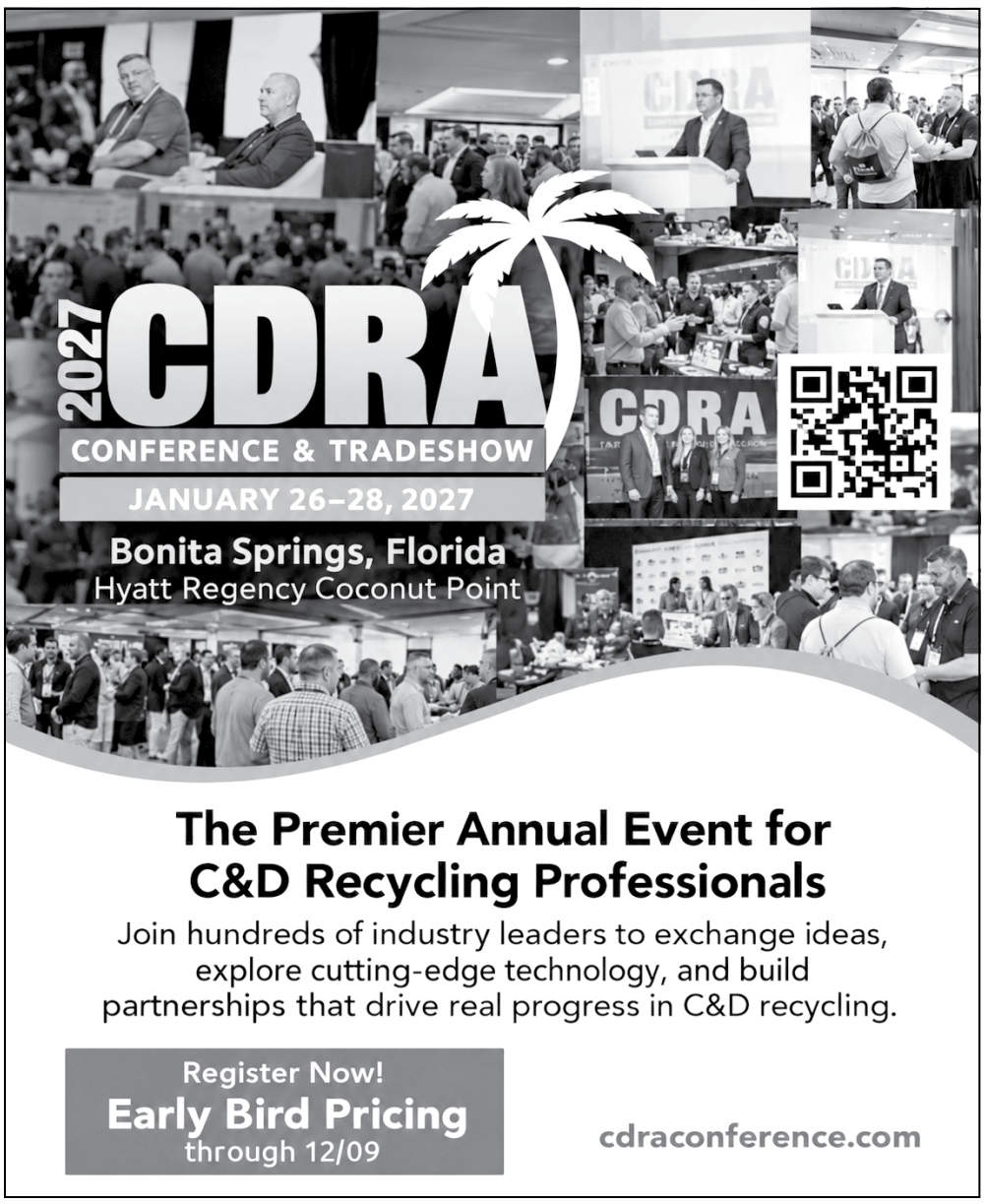
Those changes could affect recyclers' feedstock. Some difficult-to-recycle materials could decline, while other materials become more prevalent as producers respond to economic incentives and consumer expectations.

At the same time, producer-funded investment could strengthen collection and processing infrastructure, potentially increasing the volume and quality of plastic available to recyclers.

The question is how those forces will balance.

Oregon is providing the first operating experience. California is building one of the nation's largest packaging EPR systems, while Colorado and the other states move through their own implementation processes.

For recyclers, the emergence of EPR represents a significant change in who pays for recycling. But its longer-term significance may extend further – influencing what packaging is manufactured, how it moves through the supply chain, what reaches recycling facilities and whether recovered plastic can be converted into a commodity with a reliable end market.





A CLOSER LOOK

SPOTLIGHTING THE PEOPLE, COMPANIES AND INNOVATIONS SHAPING OUR INDUSTRY



Sean Johnston of Remcon

by MATT JONES

news@americanrecycler.com

Remcon Equipment traces its roots to 1977, when it was established as a division of Idaho-based steel manufacturer REM, short for Recycling Equipment Manufacturing. The Washington based company became independent in 1991 and has since specialized in the design, fabrication and installation of conveyor-belt systems.

"Back then, REM really wanted to get into more repeatable processes and products that were more assembly line-y than what Dennis really liked doing," said Remcon chief executive officer Sean Johnston, referring to Dennis Lux who he succeeded as chief executive officer in August. "The owner gave him the opportunity to break off and do his own thing and focus on more custom-type solutions for recyclers, so Remcon spun out of that."

Johnston's career has taken him everywhere from T-Mobile to tech startups. He did freelance work with Remcon before joining the company full time as chief executive officer. He separates the company's products into two categories. About half of Remcon's work consists of fully customized projects. A typical example is a recycling company that needs to install a baler and feed system in a facility with significant space constraints. Remcon works closely with these customers to develop solutions tailored to their operational requirements and the physical limitations of their facilities.

"The other 50 percent of what we do is a little bit more standardized," explained Johnston. "There's still always some custom work that needs to be done, but we do some acceleration conveyors for folks who do optical sorting. We built a system that separates plastic and glass bottles and aluminum cans into separate streams for one of our bigger customers down in Oregon. Those really are the more standardized products. I wouldn't say they're perfectly standardized, because Dan [Lueck], our head of engineering, is always fiddling, making them better. Every iteration needs a little bit of work trying to figure out a bit of a new design."

Lueck, who has been with Remcon for many years, said the emergence of AI applications, including sensor systems, is beginning to revolutionize the recycling sector, much as computerized optical sorting systems did in the 1990s. For Remcon, however, the technology's impact remains somewhat removed from its day-to-day business. "With AI, they're doing stuff that's even more complex than they were doing before," said Lueck. "We're kind of along for the ride, and still able to provide them with the basic nuts and bolts machine."

Johnston noted that Remcon's designs, particularly its acceleration conveyors, have evolved over the past 30 years. When the company first began manufacturing acceleration conveyors much of the fabrication – including bending, cutting, forming and hole punching – had to be done in-house. At the time, laser and water-jet cutting technologies were not nearly as advanced or widely accessible as they are today.

"There was no way to really optimize the designs as effectively as we can now, where things work with airflow better because you don't have to design everything in a blocky fashion," said Johnston. "You can design it more in a rounded fashion so that the air can flow more effectively and you can separate things more effectively."

Lueck added that the technology has not only become more convenient but also more precise. Previous plasma cutting wasn't as accurate as current laser or water-based steel cutting.



"The holes weren't as accurate, you couldn't trust the cuts as well," said Lueck. "With laser cutting, we can order the parts and have our guys fit and weld them with very little effort and in any shape and configuration that we want. So that really reduced the amount of time we spend in-house making parts by hand. So we've really been able to increase our efficiency in the shop by utilizing some of the local suppliers that have laser cutters and CNC capabilities."

In explaining what makes Remcon stand out compared to other businesses in the sector, Johnston said they design beds that conveyor belts ride on in a unique fashion. The company tries to build as many of their beds as they can with slats instead of just a flat piece of steel.

"That allows for less friction, and if there's any debris that gets around the belt somehow, it can just fall through," explained Johnston. "It doesn't cause snags or problems with the belt or the pulleys or anything like that. It costs a little bit more for us to do it that way, there's more welding time and that sort of thing. But in the end, it builds a much longer lasting product."

Another unique offering is self-cleaning return pans. Lueck noted that rather than idlers that protect and hold up the belt, they have a design where the belt rides in a continuous pan and drags all the debris out into a collection point at the tail end.

"This prevents debris falling off the underside of the conveyor and making a huge mess on the floor," said Lueck. "It's all contained and deposited at the tail end, where they can occasionally clean it out. It's safer, cleaner running and low maintenance."

Material recovery facilities that do curbside or commercial collection that need retrofits on their systems make up the company's most common customer base, Johnston noted that the company is open to working with clients outside of that sector.

"We like doing that type of work if it makes sense," said Johnston. "We were just approached by a cement manufacturer, for example, as well as a manufacturer of a small product that needed a way to count how many units were being filled into their discharge bin. It's kind of a unique proposition. They need it mobile, on the back of a trailer or a truck. We like going through those engineering iterations and helping the customer actually solve the problem. That's about 10 to 20 percent of our business. The other eighty percent is for material recycling facilities."

Remcon's market is far reaching. Most of their work takes place in the U.S. and Canada, but they have sold some systems to clients as far away as Japan and Australia through partner businesses.

Johnston said that most of Remcon's business, about 80 percent, is repeat customers. One of his goals as chief executive officer is to expand the horizons of who they sell to – both within and beyond the recycling sector.

"I think Dan and Dennis have done an absolutely phenomenal job engineering and designing these systems and building an incredible product," said Johnston. "That's where their bread and butter is and I see the opportunity here. They've built this baseline of really good products that seems like they last forever, especially when we hear stories about some of our competitors. We're expanding who we sell these things to because there's a huge untapped market throughout the States that I think we can approach."

Johnston sees that as a two-pronged approach. On one hand there are partnerships – the company has some partner businesses that they work with, and he would like to expand on that. A possible example he cites would be businesses that produce equipment for MRF operations that Remcon can't or won't build.

"Things like eddy current separators – we don't build anything like that, that's above our pay grade and we don't want to build those," said Johnston. "We want to partner with the best folks in the industry who do that."

The biggest challenge for Remcon is finding a way to share all the knowledge that their long-term employees have amassed.

"Dan is a major bottleneck," said Johnston, referring to Lueck's 22 years with the company. "He and Dennis know about as much as you can know about the market and about manufacturing for particular customers. So I think getting somebody up to speed, perhaps a junior engineer, is going to be a challenge. To get them to have the full breadth of tribal knowledge that was developed over those 22 years and beyond are the sort of operational challenges that I'm trying to attack right now."

"Dennis and I have been here forever and that was one of the things we struggle with," added Lueck. "How do we take the next step in growth? We are so busy dealing with the day-to-day and taking care of our customers, so it's hard to reach more customers. That's what we know Sean can do. He's been doing a great job expanding contacts and building relationships with people so we can sell more products and help more customers."

EQUIPMENT SPOTLIGHT

Balers

by MARY M. THORNTON
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The American Forest & Paper Association reported that our nation, through residential, institutional, commercial and industrial sectors, managed to recycle approximately 45 million tons of paper in 2025 and the rate for cardboard was 33 million tons. Over two thirds of the resulting recycled material was used to make new products and half of that quantity made new cardboard boxes. These achievements are the result of the recycling innovations in research, outreach and new technology use. The overall success in these efforts is also due to decades of commitment by those who invest in and improve, recycling methods. One aspect of those methods involves paper and cardboard baling machinery, manufactured by companies such as those described in the following.

"The BALETECH Pathfinder is an entry level horizontal baler. It is the perfect fit for any operation that is ready to move up to the next level of baling. With the ability to efficiently handle increased volumes of paper and cardboard generated at your facility, this baler is a great fit for users that have outgrown their manual fed vertical balers and are sometimes faced with limited floor space," noted Angel Martinez, sales manager.

Manufactured by JM Hydraulics, the Pathfinder can be a time management aid, as it can handle larger material throughput with standard and automatic, photo-eye operation. The automatic operation feature allows the Pathfinder to be used and fed manually, with dumper totes, air-feed systems and conveyor options. The baler operates at higher working pressures than vertical models, which will produce heavier weight paper bales for higher recycling returns. The Pathfinder also includes regenerative hydraulics, which reduces cycle time and can save on power consumption cost. The baler produces industry standard, 42 x 32" size bales with variable length options up to 65" to best suit end user preferences.

Martinez explained, "The Pathfinder baler provides operators with the features of a larger baler at a lean price point with the ability to improve baling capabilities in a larger environment. The machine can be used by recyclers, destruction/document shredders, warehouses, distribution centers or anywhere higher volumes of paper are generated. Call anytime for a free consultation and we'll show you how the BALETECH Pathfinder baler can reduce your paper baling expenses and improve your process for efficiency."

C&M Baling Systems manufactures a broad line of industrial balers for processing paper, OCC and other fiber recyclables. Their product line includes vertical balers for lower-volume operations and horizontal manual-tie and automatic-tie balers for medium to high volume processors. C&M offers more than 150 standard models, as well as custom engineered systems designed around a customer's specific material stream and production requirements. Built with heavy duty steel construction, industrial hydraulic systems and readily available hydraulic and electrical components are why these balers maximize durability and simplify maintenance. Baler customers use C&M equipment to produce dense, mill-quality bales that reduce transportation costs and improve material handling efficiency.



Baletech Recycling Equipment

John Gibbs, general manager, advised that in selecting and installing a baling system begins with understanding processing volume, available floor space, labor requirements and the types of paper being processed. Higher volume operations often benefit from automated horizontal balers that increase throughput while reducing manual handling. Proper installation, material flow, and system integration are also critical to achieving long-term productivity and minimizing downtime.

He also commented that automation continues to be one of the strongest trends. "Recycling facilities are looking for equipment that helps address labor shortages while improving throughput and producing consistent bale quality. Customers also expect equipment that operates reliably under demanding conditions and requires minimal maintenance. Integrating balers with conveyors and other material-handling systems is becoming increasingly common as facilities seek greater operating efficiency."

Gibbs concluded, "Every recycling operation has unique requirements, so there is no one-size-fits-all solution. Our focus is on helping customers select equipment that fits their application today while providing the durability and flexibility needed for future growth. As demand for recovered fiber remains strong, dependable baling equipment continues to play a vital role in supporting efficient recycling operations and

See Balers, Page B5



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Balers

■ Continued from Page B4

supplying quality material to paper mills and manufacturers."

Mike Schwinn, vice president of distributor sales, stated that Harris American Company is an industry leader across three major baler categories – 2Ram, extrusion balers and lower volume manual tie balers. He added that "while many competitors specialize in a single baler type and attempt to fit every application into their design, Harris American Company uses our expertise across all three technologies, matching the best solution to the customer's needs. The recycling industry has changed dramatically. As printed paper volumes decline and digital communication grows, recycling facilities are processing increasing amounts of corrugated cardboard (OCC), plastic film, rigid plastics and scrap metals alongside traditional paper grades."

For operations handling multiple material streams, Schwinn noted that the Harris 2Ram baler is the ideal solution – and their HRB-Centurion remains the industry's benchmark. The reason, in part, is because for more than 30 years, the machine has delivered unmatched performance, durability and reliability. Available in 150 and 200 hp configurations, the HRB-Centurion processes approximately 15 to 25 tons of paper per hour. With 232 tons of baling force, it consistently produces dense, high-quality bales that maximize transportation efficiency and material value. Additional attributes include a heavy-duty box design with the industry's strongest construction; a large feed opening for efficient material handling; proven performance across a wide range of recyclable materials and exceptional durability in demanding operating environments.

Harris American Company manufactures 2Ram balers at each of their four production facilities, which facilitates the flexibility to deliver equipment with shorter lead times than many others in the industry. "Our commitment doesn't end with the sale. Harris American is backed by a network of 18 distributors and more than 160 factory trained service technicians, providing responsive support whenever and wherever it's needed. From installation and startup to ongoing service and maintenance, we're committed to delivering an outstanding customer experience throughout the life of your equipment. We will demonstrate how we can help you improve efficiency, increase throughput and maximize the value of your recycling operation," Schwinn concluded.

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Plastic beverage bottles lead beach debris

Ocean Conservancy released results from the 2025 International Coastal Cleanup® (ICC) – the largest single day beach and waterway cleanup in the world, which mobilizes hundreds of thousands of volunteers annually to remove millions of pounds of trash – revealing that volunteers collected 1,338,712 plastic bottles and 885,854 caps. This makes them the first and third most commonly found items polluting beaches and waterways worldwide.

Not only are plastic beverage bottles and bottle caps among the most prevalent types of plastic pollution, but Ocean Conservancy-led peer reviewed research also found these items can be highly deadly to marine life. An albatross was found to have been killed by swallowing a plastic bottle whole, and hard plastics like bottle caps are one of the deadliest plastics when ingested, especially for seabirds.

In addition to leading the ICC, Ocean Conservancy has advocated for policies at the local, state and international levels to prevent plastic pollution in the first place, such as California's SB54, better bag bans in California and Oregon, the Florida balloon release ban and the U.N. Plastics Treaty. Bottle deposit return schemes (bottle bills) and extended producer responsibility (EPR) – which make producers responsible for waste management costs of the products they create – are some of the most effective policies to reduce plastic bottle pollution. Currently, 10 states have bottle bills and four more have recently considered similar legislation. EPR policies have been passed in Maine, Oregon, Colorado, California, Minnesota, Washington and Maryland since 2021, and there are nearly a dozen more states where EPR legislation is being considered.

Since the first ICC in 1986, nearly 20 million volunteers have joined local cleanup efforts to remove over 405 million pounds of trash from beaches and waterways around the globe, all the while logging each item and building the world's largest database on marine debris, totaling nearly 440 million items. The International Coastal Cleanup is held annually on the 3rd Saturday of September but has grown so large that thousands of cleanups happen throughout the month. Hundreds of coordinators around the world are currently preparing for this year's event.

In addition to the direct benefit of removing trash from the environment, the ICC's marine debris database has been used to inform scientists, conservation groups, governments and industry leaders about ocean trash to fuel plastic pollution prevention and advocacy efforts. ICC data were recently used in a peer-reviewed study that shows plastic bag bans lead to reduced plastic bag pollution. ICC data have also been instrumental in spurring policy change–from being used to promote California's SB 54, the Florida balloon release ban, the Farewell to Foam Act and the U.N. Plastics Treaty.

New report finds major shifts in residential recycling

The Recycling Partnership released the second installment of its 2026 State of Recycling Report, the nation's most comprehensive assessment of the U.S. residential recycling system. Built on The Partnership's National Recycling Database, multi-year field measurement studies, and capture rate analyses, The Evolving Ton: Residential Generation Data, examines the packaging and printed paper that U.S. households discard into both trash and recycling, revealing a material mix that is becoming lighter, more varied, and more operationally complex to manage.

What comes out of the home shapes everything that comes next for the U.S. residential recycling system. Understanding how the material mix is changing helps producers, policymakers, communities, processors, and recycling leaders prepare collection, processing, and end markets to recover more material and return it to productive use.

The report found that since 2020, the number of U.S. households has grown by approximately 8.5 million, while generation of traditionally collected material has declined by 3.7 million tons, or 8 percent, excluding film. On a household basis, cardboard increased 32 percent, consistent with the continued growth of e-commerce. Generation of mixed paper declined 34 percent and glass declined 28 percent, while cartons increased 61 percent, non-bottle PET increased 48 percent, polypropylene increased 47 percent, aluminum foil and trays increased 44 percent, and aluminum cans increased 18 percent.

"What comes out of American homes shapes what our recycling system must be ready to handle next," said Cody Marshall, chief programs officer at The Recycling Partnership. "This new data shows not only the scale of the opportunity, with households generating roughly 705 pounds of traditionally collected recyclable materials plus film and flexibles each year, but how quickly that material mix is changing. Understanding those shifts gives producers, policymakers, communities, and recyclers the information they need to make smarter investments in collection, processing, and end markets, keeping more valuable material in the U.S. economy as feedstock for domestic manufacturing, strengthening supply chains, and supporting job-creating economic development."

Other key findings include:

- The Material Mix Is Shifting – Per-household generation of cardboard, metals, and plastic containers grew from a combined 39 percent of traditionally collected material generation in 2020 to 51 percent in 2026. With film and flexibles included, combined plastics now represent 31 percent of generation, surpassing mixed paper at 28 percent.
- Recycling Supply Chain Investment and Policy Are Critical – As noted in the first installment, recycling works when there are supply chains to turn old products into new products. Collection and processing are essential infrastructure, but they must be matched with strong markets for sorted materials. Understanding how the residential material mix is evolving provides critical data to guide investment and inform policies that can strengthen recycling supply chains and demand for domestically sourced recycled content.
- The Connection Between Extended Producer Responsibility (EPR) and non-EPR States Remains Critical to a Strong National System – EPR can accelerate improvements in states with enacted policies, but recycling supply chains do not stop at state lines. Strengthening the U.S. recycling system will also require sustained investment in non-EPR states to manage the evolving stream, helping communities that rely largely on local funding to expand collection, processing, and recovery while maintaining quality.
- Packaging Choices Affect the Entire Recycling Supply Chain – U.S. households will generate 51.5 million tons of packaging and printed paper in 2026, with 78 percent falling within traditionally collected material categories. What is designed and produced upstream ultimately shapes what residents discard and what collection programs, materials recovery facilities, processors and end markets must manage.

As the packaging and printed paper stream evolves, the recycling system responsible for recovering it needs comparable investment and innovation to keep pace.

The Partnership is releasing the State of Recycling Report in installments in 2026 to deliver timely, strategic data and insights and best support the rapidly evolving regulatory landscape.



Roadmap outlines plastics industry emissions cuts

The National Association for PET Container Resources (NAPCOR) released PET Forward: A Decarbonization Roadmap for the PET Packaging Value Chain, a new analysis developed by independent environmental consulting firm Eastern Research Group, Inc. (ERG). The roadmap identifies practical strategies that could significantly reduce emissions associated with predominant U.S. PET beverage bottle systems through 2050. PET (polyethylene terephthalate), widely identified by the #1 inside the triangle, is the most recycled plastic in the world.

The roadmap finds that, by 2050, the PET industry can reduce the life cycle greenhouse gas emissions intensity of the PET beverage bottle systems studied by approximately 57 percent. In practical terms, this means significantly reducing the greenhouse gas emissions associated with each bottle across its full life cycle, from the materials used to make it through its eventual disposal or recycling. Even as production grows, total annual emissions associated with the systems studied could decline by about 42 percent, the equivalent to taking 323,000 gas-powered passenger vehicles off the road.

NAPCOR's new research builds on its comparative life cycle assessment, which found that a typical PET soda bottle has less than half the total greenhouse gas footprint of an aluminum can and approximately one-fifth that of a glass bottle. The roadmap demonstrates how the industry can reduce emissions from PET beverage bottles even further.

Meaningful progress does not depend solely on future breakthroughs. Many of the strategies driving the modeled reductions are already available across the PET value chain, including lightweighting, renewable energy, and improvements in manufacturing efficiency. Over time, stronger collection systems, increased recycling and recycled content, and continued investment in infrastructure and innovation can drive further progress.

"PET is already starting from a position of strength," said Laura Stewart, executive director of NAPCOR. "It has a lower greenhouse gas footprint than common beverage packaging alternatives, is the most recycled plastic in the world, and is supported by an established bottle-to-bottle recycling system operating at scale. This roadmap shows that we don't have to choose between meeting growing consumer demand and continuing to improve environmental performance; we can do both."

A practical pathway to lower emissions

The ISO-compliant roadmap builds on NAPCOR's 2023 peer-reviewed, ISO-compliant life cycle assessment and examines four of the predominant PET beverage bottle systems sold in the U.S.– 16.9 ounce water bottles and 16.9 ounce, 20 ounce, and 2 liter carbonated soft drink bottles. The PET Forward Roadmap evaluates emissions across the bottle life cycle, from raw material production and manufacturing through transportation and end-of-life management, and models how that footprint could change through 2050. An independent third-party expert peer-reviewed the final report.

The analysis shows that substantial progress can happen well before 2050. Under the modeled pathway, the emissions intensity of a 16.9 ounce PET water bottle system, measured per 1,000 gallons of beverage delivered, could decline approximately 44 percent by 2035 compared with the 2023 baseline. The three carbonated soft drink bottle systems studied could achieve emissions intensity reductions of approximately 35 to 43 percent over the same period.

The roadmap also distinguishes between actions the PET industry can advance directly, and the broader conditions needed to unlock additional progress. Manufacturers can continue improving bottle design, energy efficiency, and production processes, while deeper long-term gains depend on factors across the wider system, including reliable supplies of high-quality recycled PET, stronger collection and sorting infrastructure, recycling capacity, and supportive policy.

"The analysis is designed as a roadmap. It models the cumulative impact of multiple strategies over time and includes sensitivity analyses to account for variables such as future production growth and different approaches to measuring the benefits of recycling. The result is a framework for identifying where the PET industry can act today and where collaboration across the value chain will be necessary to achieve further progress," said Dr. Mariya Absar, senior LCA expert at ERG.

Decarbonization and American manufacturing

The roadmap also demonstrates that reducing emissions and supporting economic growth do not have to be competing objectives.

"Recycling strengthens American manufacturing," added Stewart. "When we collect more PET and recycle it here in the United States, we create a stronger domestic supply of valuable material for manufacturers. Policies that improve collection and encourage investment in recycling infrastructure can help accelerate environmental progress while also strengthening American manufacturing and supply chain resilience."

Many of the investments needed to advance PET decarbonization are also investments in U.S. manufacturing and recycling capacity. More efficient production, expanded collection and processing, greater availability of recycled PET, and continued packaging innovation can strengthen domestic supply chains while reducing environmental impacts.

"Decarbonization depends on connecting manufacturing with the recycling system," stated Tom Busard, NAPCOR board chair, chief polymers and recycling officer for Plastipak Packaging, Inc., and president of Clean Tech, Plastipak's recycling affiliate. "Efficiency gains matter, but deeper reductions require reliable access to high-quality recycled PET. That makes stronger collection and domestic recycling capacity essential to delivering lower carbon packaging at scale."

USFFI advances flexible packaging recycling

The US Flexible Film Initiative (USFFI), a 501(c)(6) nonprofit membership organization working to demonstrate scalable solutions for the recovery and recycling of flexible plastic packaging, has awarded its first round of contracts.

Through this initial round, USFFI has partnered with Valemi Inc. and GreenWaste, two companies with Materials Recovery Facilities (MRF) collecting residential recyclables in California, as well as EFS Plastics and Merlin Plastics, two plastic film reclaimers. To date, USFFI has moved more than 3 million pounds of flexible plastic packaging from California MRF collection programs to reclaimers in the U.S. and Canada for processing. Following the successful completion of these loads into a variety of commodities, USFFI has facilitated offtake agreements supporting up to eight loads per month of recycled flexible plastic.

Consistent with USFFI's mission, the awards are intended to help test and demonstrate approaches that can support the collection, sorting and processing of flexible plastic packaging at scale. The initiative is initially focused on California, with the potential to scale to other states with emerging Extended Producer Responsibility (EPR) programs.

Flexible packaging plays an important role in delivering safe, convenient products while also helping to reduce food waste. However, recognizing the infrastructure and resource challenges facing municipal recycling programs in the U.S., USFFI is focused on helping advance solutions.

The initial RFIs were open to a range of solution providers, including material recovery facilities, processors, and recyclers with the capability or near-term potential to handle flexible plastic packaging. Information gathered through the RFI process helped inform the structure and focus of this first round of contracts and will continue to guide future program development.

USFFI opens second round of RFIs

Building on the results of this first round, USFFI has issued two new Requests for Information (RFIs), inviting responses from California-based material recovery facilities (MRFs) and from plastic reclaimers and secondary processors prepared to receive materials sourced from California MRFs. As with the initial RFI process, USFFI is seeking entities interested in operational funding to support the sorting and baling of recovered flexible plastic films and packaging; the purchase of mixed flexible plastic films and packaging as feedstock for a secondary process that produces flake, pellet, or product; and transparent reporting on material quality, tonnage, and recovery rates.

USFFI encourages all interested stakeholders to review the new RFIs and submit responses to help shape the next phase of flexible packaging recovery.

USFFI recognizes that measurable and effective progress will require coordinated action among brands, recyclers, policymakers, investors and other stakeholders working across the system.

PCPA issues first poly coated paper recycling guidelines

The Poly Coated Paper Alliance (PCPA) has completed its 2026 Design for Mill Recyclability Guidance, the first comprehensive U.S. design guide for poly coated paper packaging, including milk and juice cartons, coffee cups, ice cream containers and other food and household packaging. The resource provides brands, converters, and manufacturers a common framework for designing poly coated paper packaging in closer alignment with U.S. paper mill end markets.

The release comes as Circular Action Alliance (CAA) finalizes its plan for implementation of extended producer responsibility in California. CAA can draw on the new guide as a mill-informed industry backed resource to inform fees and recovery strategies in California and in other states in which it is active.

While design guidance exists for other packaging formats and material types, poly coated paper packaging has lacked a comprehensive U.S.-specific resource. The new guide addresses that gap by identifying packaging features and components that can influence how these materials are reprocessed by paper mills.

The design guide is grounded in direct input from U.S. and Canadian mills representing more than 90 percent of consumption of the recovered fiber grades that contain poly coated paper packaging, including Grade 54 Mixed Paper, Grade 52 Cartons, and other poly coated white fiber grades.

"This guide brings the operating realities of paper mills directly into the packaging design process," said Jason Pelz, vice president of recycling for the Carton Council. "By grounding this work in direct mill feedback, we're helping the industry better understand where compatibility exists today and where more work is needed."

The guidance uses four compatibility categories – fully compatible, conditionally compatible, not compatible, and unknown. The framework was informed by existing global guidance, including the 4evergreen Alliance, and adapted for U.S. mill conditions. Additional testing, including RFID tracking, optical sorting, and bale audits conducted by the PCPA, helped inform the guidance.

The findings show that seemingly small design choices can influence how poly coated paper packaging performs at end markets. Mill feedback identified differences in compatibility across coatings, adhesives, and other non-fiber components. This includes the latest guidance for repulpability standards.

"Industry-developed guidance like this fills a real gap," said Scott Byrne, vice president, global sustainability & industry affairs for Sonoco. "Having a credible framework already in place gives producers a resource we can consider as EPR implementation moves forward in California and across the country."

A summary of the 2026 Design for Mill Recyclability Guidance is available on the Poly Coated Paper Alliance website. The full design guide is currently only available to PCPA members, advisors, and partners. PCPA plans to make the complete design guide publicly accessible after further industry engagement in the coming year.

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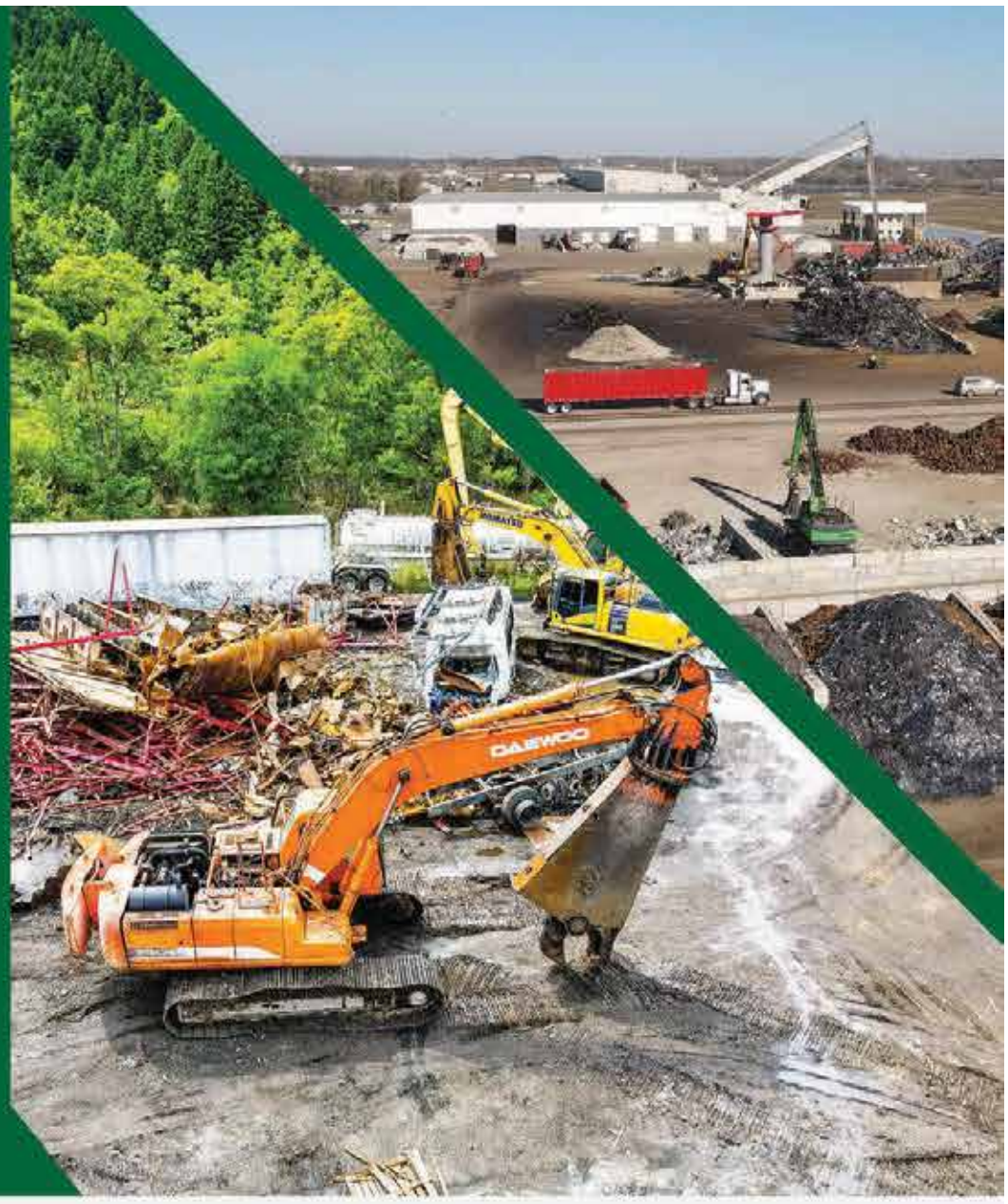

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