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Technology in recycling metals improves

by MAURA KELLER

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Technological advancements within the recycling sector have taken the metal recycling industry by storm, enhancing collection, identification, sorting and other key processes.

Derek Pritchett is the senior vice president of corporate development at Novelis, a global leader in the production of innovative aluminum products and solutions and the world's largest recycler of aluminum. According to Pritchett, improving high-speed sortation of municipal and industrial scrap has been the area of greatest opportunity for technological advancement within the recycling industry.

“Traditional processes deployed in material recovery facilities (MRFs) are highly effective for separating aluminum, steel and other metals from a mixed-material stream, but are less effective for sorting plastics and paper by type and are completely ineffective for segregating alloys in industrial scrap,” Pritchett said. Recently developed technology uses vision systems and infrared to improve both the speed and accuracy of sorting. Some of the systems also integrate AI to assist with scrap analysis and reporting.

As Pritchett explained, in an industrial setting, technology enables companies to recycle automotive scrap and segregate aluminum alloys to preserve their value. When scrap comes into a facility, it often includes different types of alloys that need to be sorted in order to create product.

“For example, in automotive scrap, we have to separate the 5,000-series alloys from the 6,000-series alloys before we can recycle it and produce new automotive sheets. Technology to accomplish this has been in development for about 10 years,” Pritchett said. “The systems sort alloys accurately but not at high rate, so that is an area where we expect to see improvement in the years ahead.” Some systems use lasers while others – including the Sortera system that Novelis has invested in – use an x-ray method that operates at a slightly higher speed.

Alastair McFarlane, sustainability expert at PA Consulting, said leading MRFs are integrating more advanced and diversified equipment, and making informed decisions through increased use of data analytics and machine learning.

“They are combining higher resolution sensors and cameras with more advanced sorting equipment, with accompanying software to enable process optimization and automation,” McFarlane said. “The result is high throughput and high accuracy identification and sorting of metal scrap.”

It goes without saying that the



Metal recycling facilities use modern sorting technologies to minimize waste and maximize profits.

technological advancements facing the recycling industry are making significant advancements in industry processes and procedures. As Pritchett pointed out, improved separation and material segregation technologies help preserve the value of the materials in the scrap stream, which is a key recycling objective.

“Each time material is recycled, we want it to be used to its highest value rather than downcycling it for a lower-value application,” Pritchett said. “The more efficient the sorting the higher the quality of the recycled materials – which can help increase demand and drive growth in the industry.”

Offsetting Contamination Issues

Some of today’s well-intentioned consumers negate the impact of their recycling efforts, especially when attention is paid to the contamination issue facing mixed-use recycling. But luckily, technology advancements are helping with this issue.

As Pritchett explained, contamination is a real issue in single-stream recycling. For example, when recycling beverage cans, there is always some paper and plastic mixed in with the aluminum. Small amounts can be eliminated during the recycling process, but at a certain point it becomes a problem. Technology can help minimize contamination and keep it within tolerable ranges.

“That’s important because the goal of recycling is not simply to reuse the material from the scrap stream; we want to maximize its value by returning to its highest possible use. If we are recycling cans, for example, we want to recover that material in a way that allows us to recycle it into new cans,” Pritchett said. “That requires highly reliable and efficient sortation, which new technologies are enabling.”

One challenge facing the industry in this regard, however, is that there is not strong demand for all materials, which

Pritchett said makes it difficult to justify the cost of recovery and recycling.

“The demand for recycled aluminum is always higher than supply, and copper is also a high value scrap material. In contrast, glass is very low-value and often used in downgraded products such as aggregate for building roads,” Pritchett said. “Similarly, certain grades of plastic are not easily recycled into new containers and are of low value in the system. They require energy-intensive processes to recycle into feed stock, and they degrade with each recycling, which can be a concern for plastics used in consumer products.”

McFarlane added that tackling contamination is a shared issue throughout the full value chain, and the most cost-effective interventions are arguably found upstream. “Nonetheless, combining multiple steps of metal separation, such as current separation optimized for different fractions of nonferrous scrap, with high-resolution color detection, can enable recovery of multiple fractions from even highly contaminated waste streams,” McFarlane said.

Ultimately, there is a limit to purity levels that can be feasibly achieved. “Recognizing this reality, an exciting area of research is the development of machine learning tools that can assess the optimal secondary uses of materials based on contamination levels and profiles,” McFarlane said. “This offers the potential to preserve the economic value of recyclates.”

The Waste-To-Energy Component

One key technological advancement within the recycling and waste handling industry is the waste-to-recycling component. As Ole Hede-gaard Madsen, senior director of technology and business development at Babcock & Wilcox, explained, the team at Babcock & Wilcox view See RECYCLING METALS IMPROVES, Page A5

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DOE pledges \$192 million for battery recycling programs

The U.S. Department of Energy (DOE) announced more than \$192 million in new funding for recycling batteries from consumer products, launching an advanced battery research and development (R&D) consortium, and the continuation of the Lithium-Ion Battery Recycling Prize, which began in 2019. With the demand for electric vehicles (EVs) and stationary energy storage projected to increase the lithium battery market by as much as ten-fold by 2030, it is essential to invest in sustainable, reduced cost recycling of consumer batteries in support of a secure, resilient, and circular domestic supply chain for critical materials. This pledge supports the goal of having EVs make up half of all vehicle sales in America by 2030.

As of April 2023, more than 3.6 million plug-in electric vehicles have been sold in America. Battery costs have fallen more than 90 percent since 2008, and energy density and performance have increased rapidly.

Consumer Electronics Battery Recycling Funding Opportunity

DOE's \$125 million Consumer Electronics Battery Recycling, Reprocessing, and Battery Collection funding opportunity is an essential part of the \$7 billion authorized by the Bipartisan Infrastructure Law to grow and secure America's battery supply chain. Topic areas funded through this opportunity will:

- Develop and implement education and/or behavior change campaigns to increase participation by consumers in existing battery recycling programs,
- Improve the economics of recycling consumer electronics batteries to spur greater market demand for battery recycling,
- Assist states and local governments in establishing or enhancing battery collection, recycling, and reprocessing programs,
- Help retailers implement programs to collect, sort, store, and transport consumer electronics batteries.

Projects selected for this funding must advance diversity, equity, inclusion and accessibility; contribute to energy equity; and invest in America's workforce. This funding – which will be administered by DOE's Vehicle Technologies Office and Office of Manufacturing and Energy Supply Chains – supports goals and targets detailed in the Federal Consortium for Advanced Batteries' (FCAB) National Blueprint for Lithium Batteries. Learn more about this funding opportunity here. Concept papers are due August 17, 2023, and the deadline for full applications is November 29, 2023.

Advanced Battery R&D Consortium

The rapid growth of EV manufacturing and adoption across vehicle classes will require new solutions for challenges

associated with raw materials and critical minerals. Substantial R&D is required for new or alternative battery chemistries that can achieve lower cost and use more abundant materials.

The Advanced Battery R&D Consortium funding opportunity will provide up to \$60 million to convene major manufacturers of electric drive vehicles in the U.S., universities, National Laboratory partners, mineral and material suppliers and other key battery stakeholders to address critical battery needs for the next phase of wide scale EV commercialization.

The consortium seeks to advance battery R&D that is relevant and responsive to the needs of EV manufacturers, and to further develop a domestic battery supply chain and recycling capabilities that are essential to meeting the rapidly growing demand for EV batteries. The consortium will be integral to DOE's efforts to develop advanced transportation technologies that will help decarbonize the transportation sector and significantly reduce the nation's dependence on foreign oil.

Applications must include a community benefits plan that addresses how diversity, equity, and inclusion objectives will be incorporated. Applications for this funding opportunity are due by September 8, 2023.

The Lithium-Ion Battery Recycling Prize

First launched in January 2019, the Battery Recycling Prize has to date awarded \$5.5 million for innovative solutions to collecting, sorting, storing and transporting spent and discarded lithium-ion batteries. In recognition of its ongoing importance in informing larger battery recycling efforts, DOE is announcing \$7.4 million to fund a new Breakthrough Contest, as well as Phase IV of the Prize.

The Breakthrough Contest will incentivize the development of solutions that meet the overall Battery Recycling Prize goal. The Breakthrough Contest is open to industry entrepreneurs – including new or former Prize participants – and will bolster participation from new competitors while providing additional support to Phase III winning teams. Phase IV: Demonstration of Impact will challenge participants to prove how effectively their solutions contribute to moving spent or discarded batteries from consumers to recyclers across all commercial uses.

The Battery Recycling Prize incentivizes American entrepreneurs to develop and demonstrate technologies that, when scaled, have the potential to profitably capture 90 percent of all discarded or spent lithium-based batteries in the U.S. for recovery of key materials for re-introduction into the U.S. supply chain.

Gershow Recycling donates 30 cars



Representatives from Gershow Recycling joined members of the Northport Fire Department and local elected officials at the 16th Annual Chuck Varese Vehicle Extrication Tournament at Steer's Pit in Northport.

In support of local fire departments, Gershow Recycling donated the use of 30 cars for the 16th Annual Chuck Varese Vehicle Extrication Tournament, which was held at the Northport Fire Department's Training Grounds at Steer's Pit in Northport, New York. Gershow also donated the use of its Huntington facility to enable teams to practice in the week leading up to the tournament.

Twenty-seven teams from 15 fire departments participated in the tournament, which involved groups of five firefighters working to extricate a "victim" from a "crash" using the Jaws of Life. Once again, the firefighters used battery-powered tools during the extrication exercises; the Chuck Varese Vehicle Extrication Tournament was

the first such tournament to bring in electric tools.

Each team was judged on the amount of time it took to perform the extrication, the handling of equipment and the safety procedures they followed. The top three teams were:

- 1st Place — East Northport FD (6 minutes, 26 seconds)
- 2nd Place — Northport FD (6 minutes, 50 seconds)
- 3rd Place — Commack FD (8 minutes, 40 seconds)

The Ridge Fire Department had the fastest evolution time of the tournament at 3 minutes, 6 seconds.

After the tournament, the vehicles were brought back to Gershow's facility, where they were shredded and recycled.

NJ DEP to honor those with commitment to recycling

An annual recognition program to honor excellence in recycling is accepting nominations for awards in 11 categories, including a new one recognizing businesses and institutions with programs aimed at specifically using post-consumer recycled products, Commissioner Shawn M. LaTourette announced.

The Department of Environmental Protection (DEP), in conjunction with the Association of New Jersey Recyclers, annually recognizes excellence in recycling to highlight program successes achieved by individuals, agencies, businesses and others who help keep New Jersey communities clean and healthy.

"Recognizing achievements in recycling has helped make New Jersey a more sustainable state and highlighted our national leadership in many environmental areas, including recycling," Commissioner LaTourette said. "Celebrating recycling excellence reinforces the important role that recycling has in our homes, businesses and across communities."

Nominations may be submitted in these categories: Institution, Business, Retail Merchant, Government, Leadership, Rising Star, Recycling Industry, Outstanding Educator/Educational Program, Volunteer Citizen, Source Reduction/Resource Management/Sustainability and, new this year, Recycled Products Procurement Star.

The new category recognizes any business, institution, government agency

or other organization that has implemented a post-consumer recycled products procurement program or expanded an existing post-consumer recycled products procurement program. Post-consumer recycled products are made with a percentage of recycled content material derived from goods that were used by consumers, collected and then recycled.

Nominations are due Friday, July 21 and awardees will be notified in September. Award winners will be honored at a recognition ceremony this fall.

The 2022 winners included a diverse group of businesses, organizations and individuals. Among them: a business in the field of nutritional science in Bridgewater, an airport in Millville, the municipal recycling program in Ridgewood and a senior citizen who volunteered his time to help his township's recycling collection program.

New Jersey was the first state to require recycling by passing the New Jersey Statewide Mandatory Source Separation and Recycling Act in April 1987. Today, the state continues developing policies to further increase recycling rates, clean up the recycling stream, and to adapt recycling strategies to match current lifestyles.

To view the 2023 Recycling Awards nomination application and information packet, visit www.nj.gov/dep/dshw/recycling/awards.htm or www.recycle.nj.gov

Why did the recycling bin go to therapy? It was feeling a bit "bottled up" and needed to sort out its emotions about waste separation.

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Recycling Partnership launches Recycle Check

The Recycling Partnership is launching Recycle Check, a package-specific labeling platform providing up-to-date recycling information directly to U.S. consumers. The platform offers the ability to enter a zip code or allow location permissions and receive a clear, yes-no answer about whether to recycle a specific item where you are – in seconds. It also enables consumer brands to navigate the complex recycling landscape, reduce label changes, and leverage existing labeling systems.

The fragmented U.S. recycling system creates high variability in what is collected and recycled locally. “Eight in 10 people believe in recycling’s positive impact, yet two-thirds of household recyclables are wasted each year. Confusion about what and how to recycle is a key driver of this loss,” explains Sarah Dearman, Chief Innovation Officer at The Partnership. “Meanwhile, new state-level packaging policies are changing requirements for recyclability claims.”

Recycle Check is powered by The Partnership’s National Recycling Database, a state-of-the-art resource that centralizes up-to-date recycling access data from more than 9,000 U.S. community programs, covering 97 percent of the U.S. population. By connecting local information with brand and package-specific details, Recycle Check allows for a new level of dynamic communications that evolve with the changing landscape via a digital link, either on a company website, application, or as a QR code on a physical packaging label.

Recycle Check is also designed to complement existing labeling systems.

The Partnership and GreenBlue are collaborating with early adopters to pilot use of the How2Recycle® label and the Recycle Check QR code together on product packaging. The Partnership is also working closely with the Consumer Brands Association to offer Recycle Check through its SmartLabel program, widely used by brands on thousands of products.

“The Recycling Partnership is the recognized leader in the recycling database space, and Recycle Check is an elegant solution for GreenBlue’s How2Recycle and The Partnership to collaborate simply and with greater connectivity,” says Paul Nowak, Executive director of GreenBlue. “By connecting consumers to local data and leveraging the country’s most recognized on-pack recycling instructions, we are truly creating an inclusive, best of both worlds solution that demonstrates collaboration at scale is possible.”

General Mills and Horizon Organic are leading the charge as early adopters of Recycle Check, using dynamic labels to provide local recycling information on-pack. Later this year, General Mills will feature Recycle Check with the How2Recycle label on its Pillsbury Frozen Pie Crust packaging, allowing consumers to check local recycling availability for all package components by scanning a single link. Because aluminum pie trays are only accepted in approximately 40 percent of residential curbside collection programs, the QR code label provides clarity on where the item is accepted for recycling.

Through package design, on-pack

labeling and additional efforts, General Mills is continuously working to educate consumers and make recycling easier for them,” said Patrick Keenan, packaging sustainability research and development, General Mills. “We are excited to leverage this technology to localize the consumer experience and see this as a collaborative step to making the recycling system more efficient.”

Horizon Organic is also leading the industry in dynamic recycling communications by including Recycle Check alongside the How2Recycle label on select Horizon Organic Milk Cartons. In doing so, Horizon Organic encourages consumers to determine local access to carton recycling, which is growing across the country. “As a brand that looks toward a better future for all, we are excited to be part of Recycle Check,” said Tyler Holm, general manager for Horizon Organic. “By providing easy access and education on local recycling options for our milk cartons, we are hopeful that even more consumers will support the movement to recycle and join us in helping to protect the one horizon we all share.”

Recycle Check is a platform for all residential recyclables – paper, plastics, metals, and glass. Because of its ability to deliver up-to-date, community-specific information, it is an especially helpful solution for packages that are accepted in some but not all curbside programs across the U.S.

To learn more about Recycle Check and consider this platform for your brand’s products, visit recyclingpartnership.org/recyclecheck.

Rumpke opens recycling, solid waste transfer facility

Rumpke Waste & Recycling opened its \$14.3 million Monroe County Resource Recovery Facility in Bloomington, Indiana.

The 25,000 square foot site serves as a recycling and waste transfer facility, accepting recyclables and waste from residential, commercial and institutional sources. Waste will be unloaded from collection trucks and reloaded into tractor trailers for same day transport to Rumpke’s landfill in Jackson County, Indiana. Recyclables will be processed and transported to Indiana manufacturers or to Rumpke’s state-of-the-art recycling facilities for further processing.

“Rumpke is committed to providing enhanced recycling and disposal options for residents and businesses in Monroe County and the surrounding region, and this facility is an important part of that mission,” said Eric Curtis, region vice president for Rumpke. “When planning for this project, we recognized a critical need for increased recycling in South Central Indiana. Rumpke’s Monroe County Resource Recovery Facility is a vital component of the infrastructure needed to ensure communities have access to innovative, long-term recycling and disposal options for years to come.”

The enclosed facility features a modern design with a large tipping floor to receive municipal solid waste on one side and recyclables on the other. Recyclables will be processed by a Machinex baler partially supported by a \$366,000 grant from the Indiana Department of Environmental Management’s Recycling Market Development Program.

Rumpke will accept a variety of recyclable materials, including mixed recycling from residential sources as well as large quantities of separated cardboard, plastics and glass from commercial and industrial entities.

In addition to materials collected by Rumpke’s hauling operations, the facility will also be available to third-party waste haulers, municipal crews and institutions performing their own collection.

The site includes a separate building with a maintenance garage and office space to house sales, operations and administrative employees. Initially, 25 Rumpke employees will work at the location.

Rumpke operates 10 facilities in Indiana, including three waste transfer stations, 2 landfills, 2 recycling facilities and 3 truck depots.

Braille labels offered for carts

Taking out the trash and recyclables is getting a little bit easier for the Broken Arrow, Oklahoma’s blind or visually impaired customers who read Braille. The City of Broken Arrow began offering recycling and garbage labels for each cart written in Braille in June.

“We pride ourselves in being inclusive, and we’re interested in making sure that everybody can participate in the programs that we release to the public,” Jerry Schuber, director of Solid Waste and Recycling, said. “These labels are a great example of another way we have enhanced the essential service of Solid Waste and Recycling collection for our customers.”

Ronita Smalley is legally blind and serves as the rehab and community outreach manager for NewView Oklahoma, an empowerment agency benefiting people living with blindness and low vision. She says steps like these are moving the city in the right direction.

“Your self-esteem and ability to do things on your own builds your confidence and helps you feel like you can take care of yourself and be more independent,” Smalley said. “We all need help from time to time, but the more we can do on our own, the better we feel about ourselves.”

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NewsVoice of Salvage, Waste and Recycling
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American Recycler is published 12 times per year, postage paid at Columbia, Missouri.

SUBSCRIPTIONS: Call our offices at 877-777-0043 or visit AmericanRecycler.com.
US 1 year \$58; 2 years \$89.

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Recycling metals improves

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generating energy from waste as a vital part of a strong and sustainable waste management chain.

“It is fully complementary to recycling and is an economically and ecologically sound way to produce renewable energy while diverting waste from landfills,” Hedegaard Madsen said.

Babcock & Wilcox’s waste-to-energy technologies have been developed and refined over many decades and include boilers, state-of-the-art combustion grates and emissions control systems to help customers use municipal and industrial waste that remains after metals, certain plastics, and other recyclables are removed from the waste stream to generate power and steam for heating and industrial uses.

“Producing clean, reliable base-load energy from waste isn’t just a trash disposal method to avoid harmful landfills,” Hedegaard Madsen said. “It’s also a way to recover valuable resources and enhance recycling efforts. Today, it is possible to reuse 90 percent of the metals contained in the bottom ash left over after burning waste, and the remaining ash can be re-used in road construction and other industrial processes.”

As Hedegaard Madsen further explained, communities that use waste to produce energy also generally have higher overall recycling rates than those that don’t, while diverting waste from landfills also helps avoid methane emissions and offsets greenhouse gas emissions from fossil fuel electrical production. WTE also requires less land per megawatt than most other renewable energy sources.

“A great example of the impact a WTE facility can have is seen in the Amager Bakke facility in Copenhagen, Denmark. This facility integrates B&W’s WTE technology to form a practical solution to meet clean energy demands, treating approximately 400,000 tons of waste each year and generating electricity to power 50,000 households, as well as provide district heating for 120,000 households,” Hedegaard Madsen said. “The facility actually has become a

tourist attraction due to a roof-wide artificial ski slope, hiking trail and climbing wall, all of which are open to the public.”

Ongoing Advancements

As new sortation technologies become adopted more widely, Pritchett said it is likely that the recycling industry will see growth in the use of robotics as well. Many of these systems integrate AI and robotics, enabling them to perform the same physical tasks as humans but at a higher speed and with greater accuracy.

“Robotics are essential for segregating alloys in industrial scrap as humans

aren’t capable of identifying alloys and sorting them by type,” Pritchett said. “I expect that we are at the front end of a long-term growth curve in the use of robotics and AI within the recycling industry.”

For MRFs, McFarlane said the investment case for use of robotics will increasingly stack up as equipment costs drop and more seamless integration of sensors and robotic sorting is achieved. “Adoption will be fastest where the economics are in place for highest throughput, sorting accuracy and purity levels at MRFs,” added McFarlane.

An area still developing that hasn’t matured yet is traceability. According to Pritchett, it is becoming increasingly important to track material all the way through the supply chain, from point of origin through recycling.

“It’s particularly important when certifying the recycled content of products, or documenting chain of custody, to ensure material isn’t coming from restricted sources and that it is of appropriate quality,” Pritchett said. “There is a great opportunity for growth in this area, but it is extremely complex because so many players are involved.”

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Illinois landfill to pay \$100,000 settlement

Attorney General Kwame Raoul announced a \$100,000 settlement with Advanced Disposal Services (ADS) Orchard Hills Landfill Inc. in Davis Junction, Illinois. This settlement resolves Raoul's May 2020 complaint against the landfill for air pollution and failure to collect and control landfill odors.

Since Raoul's lawsuit was filed in 2020, ADS addressed the alleged violations by making multiple improvements, including no longer accepting construction debris containing drywall fines, which is known to generate hydrogen sulfide gas that causes odors; converting existing wells to improve the capture of landfill gas; and installing additional gas collectors and additional piping to improve landfill gas collection.

"Landfills operating in our state must be properly maintained to limit off-site odors and ensure they are not impacting nearby communities," Raoul said. "I appreciate Advanced Disposal Services' cooperation to make significant improvements to collect and control landfill gas and minimize impact to the surrounding community."

According to Raoul's settlement, ADS' improvements have significantly reduced the overall waste acceptance with a drop in daily volume from about 7,000 tons to 2,500 tons of waste.

Under the settlement, ADS will monitor the local area each week for off-site landfill odors using a device to measure

the level of an odor, if any. If a detected odor is attributed to the landfill, ADS will investigate the cause of the odor and implement corrective measures such as repairing, replacing or adjusting the gas collection system components.

ADS will also maintain a hotline for residents to call if they smell any landfill odors. If ADS receives one to five complaints in one week, off-site monitoring for the odors will increase to twice a week until resolved. If ADS receives 6 to 10 complaints, the company will monitor the area every other day until resolved. If ADS receives more than 10 odor complaints in a week, monitoring will occur every day until resolved.

ADS has also agreed to take the following steps in the settlement:

- Pay a \$100,000 civil penalty.
- Cease accepting construction debris containing drywall fines.
- Continue to comply with the landfill gas collection and control system monitoring and maintenance plan.
- Install an enhanced immediate cover system on portions of the landfill.

The Attorney General's office enforces Illinois' environmental protection laws. Raoul's Environmental Enforcement Division, which enforces civil environmental laws, has recovered millions of dollars from polluters and required companies to undertake environmental improvement projects in communities impacted by contamination.

EREF study shows average MSW tip fee rose sharply in 2022

The Environmental Research & Education Foundation (EREF) released its 7th annual Municipal Solid Waste (MSW) landfill tip fee report, an essential part of its data-driven efforts toward sustainable materials management. The 2022 report incorporates data from 348 MSW landfills spread across all 50 states.

This comprehensive analysis shows a nationwide surge in tip fees, with an 8 percent rise in the national unweighted average tip fee, growing to \$58.47 per ton

from \$54.03 in the previous year. However, the Southeast region presented an exception with a nominal two percent increase in tip fees. Geographically, while the Pacific and Northeast regions have sustained their positions as areas with the highest fees per ton, the Midwest and South-Central regions reported the most substantial percentage increases, 22 and 29 percent, respectively. These two regions also showed the greatest year-on-year growth since EREF's inception of this research in 2016.

NRC Environmental Services and Oakland Power Company to pay \$230K fine

The U.S. Environmental Protection Agency announced a settlement with NRC Environmental Services Inc., the Oakland Power Company LLC, and NRC and Oakland Power. These companies will pay \$230,000 in civil penalties and personnel at California facilities will complete training to ensure familiarity with state and federal hazardous waste regulations.

During 2019-2020, Oakland Power hired NRC to remove tank bottom water from a two million gallon jet fuel tank at the Oakland plant and dispose of it. In April 2020, NRC transported over 8,000 gallons of what the companies believed was tank bottom water in three tanker trucks to the East Bay Municipal Utility District (EBMUD) for disposal as non-hazardous waste. The EBMUD staff sampled the third truck when they suspected it

contained petroleum products. The sample showed that the truck's contents possessed characteristics of hazardous waste, including elevated concentrations of benzene, ethylbenzene, toluene and xylenes. As a result, EPA investigated and determined that the companies' management and delivery of hazardous waste violated the Resource Conservation and Recovery Act.

The Resource Conservation and Recovery Act is designed to protect public health and the environment and avoid lengthy and extensive cleanups by requiring the safe, environmentally sound storage and disposal of hazardous waste. With proper training, employees may know how to handle hazardous waste safely and how to respond in an emergency, thereby decreasing the likelihood of a release and worker exposure.

ELECTRONICS

ERI achieves SOC 2 Type II Compliance Certification

ERI, the nation's largest fully integrated IT and electronics asset disposition provider and cybersecurity-focused hardware destruction company, has successfully completed the Service Organization Control (SOC) 2 Type II audit and has received compliance certification, making ERI the first and only SOC 2 Types I and II certified ITAD & e-waste recycler in the industry.

SOC 2 Type II compliance certification is recognized globally for its rigor in the review of organizations' systems and controls. It affirms that ERI's practices, policies, procedures, security, data integrity and operations meet the highest SOC 2 standards for security and data protection.

SOC 2 independent audits are conducted to review companies' effective implementation of employee controls and training, IT systems and risk management control, product discipline, and vendor selection. SOC 2 Type II, the most extensive audit of its kind, is an attestation of controls at a service organization over a minimum six-month period. SOC 2 Type II reports on the description of controls, attests that the controls are suitably designed and implemented, and attests to

the operating effectiveness of the controls.

During a SOC 2 Type II audit, independent auditors carry out field work on a sample of days across the testing period to observe how controls are implemented and how consistently effective they are in keeping potential and existing customers' sensitive data safe, secure and fully protected. ERI has effectively met all SOC 2 Type II audit standards on a continuous basis.

"Achieving SOC 2 Type II certification further demonstrates ERI's ongoing commitment to security, data protection and the responsible recycling of all electronic devices," said John Shegerian, ERI's chairman and chief executive officer. "Our partners and customers can feel 100 percent confident that we have made and continue to make every investment and operational protocol to establish and maintain the highest level of security and compliance in the industry. Our successful SOC 2 audits are also proof that we are always willing and able to provide third-party, independent audits, testing and validation to ensure our systems and controls are state-of-the-art for handling data can be fully trusted every step of the way."

Lithium-ion batteries to be disposed of properly



Disposal facility fires increasing due to improper disposal of Lithium-ion batteries

After several battery fires over the past month or so at Kent County, Michigan, Department of Public Works (DPW) facilities, department officials are asking residents to properly dispose of lithium-ion batteries and other hazardous waste.

These types of batteries are found in common items like cell phones, electronic scooters and bikes, electric toothbrushes and vaping devices, and can pose safety risks if not handled and disposed of properly. If simply thrown in the trash, they can ignite or explode when crushed or handled by the DPW's sorting equipment.

Most recently, an electric scooter containing a lithium-ion battery was tossed into the trash and ignited at the South Kent Recycling and Waste Center.

"While we were able to safely extinguish the fires, we would like residents to take advantage of our free SafeChem

disposal program," said Dar Baas, DPW director. "Lithium-ion batteries become a huge problem if they are not disposed of properly, and for the safety of our workers and facilities, we'd like Kent County residents to be mindful of what they're throwing in the trash."

The U.S. Environmental Protection Agency released an analysis in 2021 of lithium-ion battery fires in waste management and recycling and found hundreds of fire incidents due to the batteries and stated that incidents were likely to increase because of the continued growth in popularity of lithium-ion batteries.

The DPW offers its SafeChem program to all residents, which allows for the safe disposal of household hazardous waste. There are five convenient disposal sites throughout the county. More information on disposing of hazardous waste safely, including a list of accepted items, can be found on the DPW's website.



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PLASTICS

Reynolds, Walmart sued for deceptive marketing of recycling bags

Minnesota Attorney General Keith Ellison announced that he has filed a lawsuit against Reynolds Consumer Products, Inc., the parent company of the Hefty bag trademark, and Walmart for defrauding and deceiving Minnesota consumers through their marketing of so-called “recycling” bags. These bags are not in fact recyclable in Minnesota and render unrecyclable all materials placed within them, even items that would otherwise be recyclable. All recyclable items that consumers place into Reynolds and Walmart’s “recycling” bags end up at a landfill, contrary to consumers’ intentions. Moreover, any “recycling” bag that makes its way into a recycling stream at any material recovery facility (MRF) in Minnesota can cause the sorting machinery to malfunction, cause fires, and result in unsafe conditions for workers who must crawl into the machinery to remove them.

The Attorney General’s Office alleges that Walmart and Reynolds are intentionally misleading customers about the recyclability of their bags. Ellison said that Walmart’s Great Value recycling bags once claimed they were acceptable at many municipal recycling plants, though it has now taken that claim off the packaging.

“Plastic bags are not recyclable in our programs, and we don’t accept them — but we get lots of them anyway. They wrap around equipment making it less effective, contaminate and decrease the value of other material like paper, and cause safety

hazards like fires. Additionally, when recyclable material comes in to our facility contained in a plastic bag, we have to throw it away because there is too much risk of injury for our employees to rip open the bags as they come across the line,” explained Lynn Hoffman, co-president of Eureka Recycling, a non-profit Zero Waste social enterprise recycler. “It is a common misconception that plastic bags are recyclable, which is made even worse by false marketing claims. We appreciate Attorney General Ellison for seeking accountability for these harmful practices.”

Eureka Recycling estimates that “recycling” bags and other plastic bags in their recycling streams cost approximately \$75,000 a year in lost productivity and lower revenue. These are costs that are passed on to all the residents of the municipalities Eureka serves.

Connecticut also sued Reynolds over its recycling bags. The Connecticut attorney general said the bags were not compatible with recycling facilities in the state.

Walmart in a statement said it relies on its suppliers to adhere to labeling requirements for its products.

“Walmart does not manufacture these items and look to our suppliers to provide quality products that comply with all applicable laws, including labeling requirements. We will respond in court as appropriate once we are served,” Walmart said.

Reynolds in a statement said it cannot comment on pending litigation.

Dow and WM partner to promote curbside film recycling

Historically, most curbside recycling programs do not collect plastic films for recycling, due to challenges sorting and separating these films from other materials collected for recycling.

To address this challenge Dow and Waste Management (WM) launched a new collaboration to improve residential recycling for plastic films. WM is leveraging its infrastructure to manage collections and sorting, including implementing specialized technologies that can enable recovered plastic films to be sorted and separated from other materials collected at the curbside.

The initiative will help close the gap of households that have access to curbside plastic recycling by enabling consumers in pilot cities to recycle film plastics like bread bags, cling wrap, and dry-cleaning bags through curbside recycling programs. According to The Recycling Partnership, only 1.9 percent of U.S. households have access to curbside plastic film recycling.

The initial pilot program began in Hickory Hills, Illinois, outside of Chicago, reaching approximately 3,500 households, with more cities to follow across the country. Once operating at full capacity, the program is expected to help divert more than 120,000 metric tons of plastic film from landfills annually, and

by 2025, film recycling through WM is expected to reach 8 percent of U.S. households.

As North America’s leading provider of comprehensive waste management environmental services, WM has one of the largest platforms in the U.S. to help consumers manage waste they generate in an environmentally responsible manner. WM has invested more than \$1 billion in recycling infrastructure in the past decade, with another \$680 million in planned investments through 2025. Through its Recycle Right® comprehensive education recycling and outreach program, WM will continue to implement plastic film recycling pilot projects across the U.S.

Dow is working with WM to close the gap for recovered plastic films by enabling end-uses for materials collected through the program. To complement WM’s waste management expertise, Dow is providing its materials science expertise to support this initiative in multiple ways, including trialing and testing the film bales to model and test quality, composition, and end market performance; providing resin and working with a customer to develop and donate carts needed for curbside recycling; and continuing to demonstrate its commitment to investments in circular solutions and technologies.

METALS

Steel imports down 9.4 percent in April

Based on preliminary Census Bureau data, the American Iron and Steel Institute (AISI) reported that the U.S. imported a total of 2,369,000 net tons (NT) of steel in April 2023, including 1,933,000 NT of finished steel (down 9.4 percent and up 1.4 percent, respectively, vs. March 2023). Total and finished steel imports are down 11.9 percent and 14.5 percent, respectively, year-to-date vs. 2022. Over the 12-month period May 2022 to April 2023, total and finished steel imports are down 11.7 percent and 6.1 percent, respectively, vs. the prior 12-month period. Finished steel import market share was an estimated 23 percent in April and is estimated at 23 percent over the first four months of 2023.

Key steel products with a significant import increase in April compared to March are reinforcing bars (up 106 percent), heavy structural shapes (up 76 percent), wire drawn (up 13 percent) and wire rods

(up 12 percent). Products with a significant increase in imports over the 12-month period May 2022 to April 2023 compared to the previous 12-month period include line pipe (up 42 percent), oil country goods (up 41 percent), standard pipe (up 25 percent) and heavy structural shapes (up 18 percent).

In April, the largest suppliers were Canada (594,000 NT, down 10 percent vs. March), Mexico (345,000 NT, down 21 percent), Brazil (213,000 NT, down 53 percent), South Korea (168,000 NT, down 10 percent) and Japan (130,000 NT, up 11 percent). Over the 12-month period May 2022 to April 2023, the largest suppliers were Canada (6,933,000 NT, no change compared to the previous 12-months), Mexico (4,970,000 NT, down 7 percent), Brazil (2,759,000 NT, down 25 percent), South Korea (2,588,000 NT, down 9 percent) and Japan (1,309,000 NT, up 12 percent).

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

COUNTRY	APR. 2023 PRELIM	MAR. 2023 FINAL	% VAR. APR. VS. MAR.	YTD 2023 (4 MON.)	YTD 2022 (4 MON.)	% VAR. 2023 VS. 2022	MAY. 2022 TO APR. 2023	MAY. 2021 TO APR. 2022	% VAR.
Canada	594	660	-10.1%	2,385	2,311	3.2%	6,933	6,963	-0.4%
Mexico	345	436	-20.9%	1,619	1,951	-17.0%	4,970	5,339	-6.9%
Brazil	213	457	-53.3%	1,418	1,227	15.6%	2,759	3,689	-25.2%
South Korea	168	187	-9.8%	719	948	-24.1%	2,588	2,828	-8.5%
Japan	130	117	10.8%	437	338	12.5%	1,309	1,165	12.4%
Germany	108	87	24.0%	374	336	11.2%	1,164	1,300	-10.5%
Taiwan	72	85	-14.9%	285	392	-27.1%	931	1,090	-14.6%
Turkey	22	22	0.9%	133	334	-60.2%	799	1,085	-26.3%
China	48	58	-17.1%	229	231	-0.9%	649	591	9.8%
Vietnam	61	45	36.0%	189	503	-62.4%	623	1,320	-52.8%
Netherlands	43	9	370.8%	132	152	-12.8%	575	631	-8.9%
India	13	40	-66.7%	114	238	-52.3%	560	591	-5.3%
Italy	77	43	78.4%	205	106	94.0%	551	298	85.2%
Algeria	77	44	74.6%	214	255	-16.1%	468	540	-13.3%
Romania	50	6	790.4%	144	181	-20.2%	447	439	1.8%
All Other	348	319	8.9%	1,285	1,662	-22.6%	4,191	5,546	-24.4%
Total	2,369	2,615	-9.4%	9,882	11,213	-11.9%	29,517	33,415	-11.7%
memo EU-27	441	262	67.9%	1,428	1,285	11.1%	4,553	4,072	11.8%

Novelis enters agreement to supply aluminum beverage can sheet to Coca-Cola

Novelis Inc., a sustainable aluminum solutions provider, has signed a new, long-term contract with Coca-Cola Bottlers’ Sales & Services Company, which is the contracting agent for The Coca-Cola Company’s authorized North American bottlers.

Under the agreement, Novelis will supply Coca-Cola’s authorized North American bottlers with aluminum can sheet for The Coca-Cola Company’s family of iconic brands. This includes supply from Novelis’ plant in Bay Minette, Alabama which is currently under construction and expected to begin commissioning in 2025. Under the agreement, The Coca-Cola North American bottlers, through the CCBSS and Novelis

agreement, have committed to purchasing a confidential volume of aluminum can sheet over a multi-year period.

“This new long-term contract builds on a decades-long relationship between Novelis and the Coca-Cola system, and further strengthens Novelis’ position as the leading provider of aluminum for beverage cans,” said Steve Fisher, president and chief executive officer of Novelis. “This contract validates our investment in expanding rolling and recycling capacity in North America and solidifies a strong future for sustainable aluminum as the beverage packaging material of choice.”

See NOVELIS AGREEMENT, Page A11

METALS

Novelis agreement

■Continued from Page A10

The contract includes an agreement for closed-loop recycling, highlighting both companies' commitments to sustainability. Through closed-loop recycling programs, Novelis directly takes back the manufacturing scrap generated during the can making process, recycles it and converts it into new can sheet, which is then made into new beverage cans. In addition to this continuous loop, Novelis recycles more than 80 billion used beverage cans per year into new aluminum for beverage packaging. These efforts result in lower-carbon products, as recycling aluminum is approximately 95 percent less energy intensive than making primary aluminum, resulting in 95 percent less carbon emissions.

Novelis expects demand for aluminum beverage can sheet to grow at a 3 percent compounded annual growth rate from 2022 to 2031. The demand growth

is driven by consumer preference for more sustainable products and size variety, as well as more beverage types being packed in cans, including water, energy drinks, soda, beer, wine, hard seltzers and ready-to-drink cocktails.

Demonstrating the strength of the aluminum beverage packaging market, the majority of the Bay Minette plant's capacity for beverage can is already contracted.

Novelis' new, low-carbon facility in Bay Minette will be the first fully integrated aluminum manufacturing and recycling plant built in the U.S. in nearly 40 years and is expected to create up to 1,000 new jobs. Boasting an initial capacity of 600,000 tons of finished goods for the North American can and automotive markets, it will be powered by renewable energy, use recycled water and operate as a zero-waste facility. Additionally, Novelis is working toward a goal of achieving net carbon neutrality at Bay Minette.

April 2023 crude steel production

World crude steel production for the 63 countries reporting to the World Steel Association (worldsteel) was 161.4 million tonnes (Mt) in April 2023, a 2.4 percent decrease compared to April 2022.

Africa produced 1.3 Mt in April 2023, up 4.8 percent on April 2022. Asia and Oceania produced 121.1 Mt, down 1.5 percent. The EU (27) produced 11.1 Mt, down 11.7 percent. Europe, The Middle East produced 4.2 Mt, up 4.2 percent. North America produced 9.2 Mt, down 4.6 percent. Russia & other CIS + Ukraine produced 7.5 Mt, up 5.9 percent.

South America produced 3.6 Mt, down 2.2 percent.

China produced 92.6 Mt in April 2023, down 1.5 percent on April 2022. India produced 10.7 Mt, up 3.2 percent. Japan produced 7.2 Mt, down 3.1 percent. The U.S. produced 6.6 Mt, down 5.3 percent. Russia is estimated to have produced 6.4 Mt, up 1.9 percent. South Korea produced 5.7 Mt, up 3.0 percent. Germany produced 3.2 Mt, down 3.8 percent. Brazil produced 2.8 Mt, down 5.9 percent. Turkey produced 2.7 Mt, down 20.6 percent. Iran produced 3.1 Mt, up 5.9 percent.

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66" wide | 25' long
40 degree angle
With replaceable liners
at the base of the ramp



MAGNET STAND
48" x 60" Permanent Magnet
With drum drive chain driven
With lower fluff chute
Catwalk on drive side of the drum



DOUBLE FEED ROLL ASSEMBLY
Double feed roll frame | Two double feed
roll drums with drive sprocks attached
Two drive gear boxes with motors Drive
chains from the gear boxes to the drums
Two DFR cylinders



C2 FERROUS STACKING CONVEYOR
Length 28 feet
Width 48 inches
HP 7 1/2
Belt Speed 175 FPM



SHREDDER LOWER BOX SECTION
Complete with a newer set of grates
installed | Two midsection shredder
box tilt cylinders and pins



C3 NON-FERROUS CONVEYOR
Length 20 feet | Width 36 inches
HP 7 1/2 | Speed 175 FPM



SHREDDER ROTOR
In good shape | Bearings and housings
mounted on the rotor | Recappable end
discs | Motor drive coupling mounted on
the shaft | Full set of hammers and pin
protectors mounted on the rotor



C4 2nd NON-FERROUS CONVEYOR
Length 20 feet
Width 36 inches
HP 7 1/2
Speed 175 FPM



SHREDDER BOX MID SECTION
Includes front wall castings and top
grate | Kick out door with cylinders



SHREDDER DEFLECTOR BOX TOP SECTION
Newer dome top section

NOTE: THE ROTOR BEARINGS ARE FULL GREASE BEARINGS SO YOU DO NOT NEED A LUBE UNIT FOR THE ROTOR BEARINGS

NOTE: ALL THE CONVEYOR STANDS AND STRUCTURES COMES WITH THE SYSTEM



UNDER SHREDDER SHAKER TABLE
48 INCHES WIDE



C1 PRIMARY FERROUS CONVEYOR
Length 25 feet
Width 54 inches
HP 7 1/2
Belt speed 175 FPM
Picking Station

YOU NEED THE FOLLOWING TO COMPLETE THE SYSTEM

- The main motor was running with a 1000 HP AC motor
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METALS

Finished import market share estimated at 21 percent in May

Based on the Commerce Department's most recent Steel Import Monitoring and Analysis (SIMA) data, the American Iron and Steel Institute (AISI) reported that steel import permit applications for the month of May totaled 2,395,000 net tons (NT). This was a 3.6 percent increase from the 2,311,000 permit tons recorded in April and a 0.6 percent increase from the April final imports total of 2,380,000. Import permit tonnage for finished steel in May was 1,875,000, down 3.0 percent from the final imports total of 1,933,000 in April. For the first five months of 2023 (including May SIMA permits and April final imports), total and finished steel imports were 12,288,000 NT and 9,465,000 NT, down 12.0 percent and 15.7 percent, respectively, from the same period in 2022. The estimated finished steel import market share in May was 21 percent and is 22 percent year-to-date (YTD).

Steel imports with large increases in May permits vs. April final imports

include cut lengths plates (up 70 percent), cold rolled sheets (up 54 percent), sheet and strip hot dipped galvanized (up 36 percent), structural pipe and tubing (up 28 percent) and hot rolled bars (up 28 percent). Products with significant year-to-date (YTD) increases vs. the same period in 2022 include standard rails (up 73 percent), oil country goods (up 46 percent), electrical sheet and strip (up 43 percent), line pipe (up 19 percent) and cut length plates (up 16 percent).

In May, the largest steel import permit applications were for Canada (627,000 NT, up 6 percent from April final), Brazil (311,000 NT, up 46 percent), Mexico (281,000 NT, down 20 percent), South Korea (171,000 NT, up 2 percent) and Japan (112,000 NT, down 13 percent). Through the first five months of 2023, the largest suppliers were Canada (3,012,000 NT, up 2 percent), Mexico (1,906,000 NT, down 22 percent) and Brazil (1,730,000 NT, up 28 percent).

April steel shipments up 1.7 percent

The American Iron and Steel Institute (AISI) reported that for the month of April 2023, U.S. steel mills shipped 7,499,979 net tons, a 1.7 percent decrease from the 7,629,985 net tons shipped in April 2022. Shipments were up 1.7 percent from the 7,372,430 net tons shipped in the previous month, March 2023. Shipments year-to-date in 2023 are 28,938,521 net tons,

down 5 percent vs. 2022 shipments of 30,456,079 net tons for four months.

A comparison of shipments year-to-date in 2023 to the first four months of 2022 shows the following changes: hot rolled sheet, down 3 percent, cold rolled sheet, down 5 percent and corrosion resistant sheet, down 5 percent.

Over \$400K granted to promote recycling and reuse

NextCycle Washington (NCW) selected Renew Seed Grants that provide up to \$10,000, along with technical support and growth planning for early-stage projects focused on expanding waste prevention, repair, reuse, recycling and composting in the state.

The program also offers mentorship from community leaders and industry subject matter experts, and access to its professional network. Participants in NCW can be entrepreneurs or start-ups, small businesses, established corporations, community organizations, non-profits, or a collaboration of entities.

"King County has made a commitment and is actively supporting businesses that focus on expanding waste prevention and material reuse, repair, or recycling," said Andy Smith, recycling and environmental services manager at King County Solid Waste Division. "The NextCycle Washington program has helped to identify businesses, that with mentorship and funding, will have a positive impact on Washington's circular economy."

The 41 projects were selected for a total of over \$400,000 in Renew Seed Grants. Projects range in focus from a project introducing reusable containers to studies exploring the development of new products from recycled plastics. Projects funded by King County:

- Bennion Construction – Deconstruct, salvage, and recycle materials (including fixtures and framed structure) from old homes in Seattle and King counties.
- Minty Made LLC – Expand Green Marketing Academy to train and educate businesses, organizations, and agencies on utilizing sustainable, ethical, inclusive and accessible marketing practices.
- N8madic, Inc. – Prototype of portable smart storage-furniture made of recycled plastics.

- Refugee Artisan Initiative – Support the transport, cleaning, storage, and delivery of retired fire houses to skilled refugee and immigrant women artisans for upcycling.
- Sage Conservation – Expand service to low income multi-family housing to maintain, repair and upgrade plumbing (versus replacement) conserving water and diverting materials from landfill.
- Sledge Seattle LLC – Research, prototype, and showcase re-milling of reclaimed old growth lumber.
- South King Tool Library – Develop course modules, surveys, assessments, and processes to build a Tool Library Incubator Program for community-based organizations to use as a guide in developing their own lending programs.
- Sustainable NE Seattle – Research and plan for a Reuse Commons in North King County that houses a suite of reuse- and repair-focused services.
- The Chayah Movement – Create a pilot internship program focused on improving environmental and ethical impacts of the fashion industry.
- Zero Waste Washington – Conduct market and feasibility analysis for furniture repair project utilizing rescued, damaged furniture items from the public and partner organizations.

Funding for NCW is provided through King County's Solid Waste Division, Washington Department of Ecology, Washington Department of Commerce, and Seattle Public Utilities. Technical support and program management is provided by Resources Recycling Systems, Cascadia Consulting Group, Start Consulting, and Traversal Designs.



Commodity		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
FERROUS						
#1 Bushelings	per gross ton	\$463.00	\$465.00	\$469.00	\$462.00	\$465.00
#1 Bundles	per gross ton	443.00	445.00	441.00	443.00	445.00
Structural	per gross ton	359.00	363.00	361.00	364.00	375.00
#1 & #1 Mixed Steel	per gross ton	325.00	325.00	328.00	329.00	332.00
Crushed Auto Bodies	per gross ton	210.00	215.00	213.00	215.00	265.00
Shredded Auto Scrap	per gross ton	405.00	410.00	405.00	410.00	415.00
NON FERROUS						
#1 Copper Bare Bright	per pound	3.69	3.72	3.75	3.79	3.85
#2 Copper Wire & Tubing	per pound	3.49	3.51	3.55	3.57	3.63
Aluminum Cans	per pound	.70	.72	.72	.72	.74
Al/Cu Radiators	per pound	1.75	1.79	1.83	1.84	1.89
Aluminum Radiators	per pound	.57	.59	.64	.63	.67
Heater Cores	per pound	1.50	1.57	1.60	1.59	1.60
Stainless Steel	per pound	.65	.66	.65	.68	.68

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

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BUSINESS BRIEFS

Republic Services completes acquisition of GFL Environmental

■ Republic Services, Inc. has completed its acquisition of GFL Environmental's Colorado and New Mexico operations. The vertically integrated operations include recycling, collection and disposal assets in four Colorado markets: – Denver, Colorado Springs, Durango and Cañon City – as well as the Bloomfield, New Mexico market.

Terms of the acquisition were not disclosed.

Republic Services offers the most complete set of products and services for its customers' environmental services needs.

Anaergia appoints Andrew Spence as chief financial officer

■ Anaergia Inc. has appointed Andrew Spence as chief financial officer (CFO).

Spence has extensive experience as a CFO in the renewable energy sector, having served in this capacity at both Aria Energy LLC, now part of BP, and at Ameresco.

In his prior roles, Spence led finance teams that fostered continuous growth and performance for the benefit of all stakeholders at successful renewable energy companies.

Hani Kaissi, who is currently serving as acting CFO, will continue in his role as chief development officer of the company.

TOMRA Recycling Sorting appoints Trofimov as new area sales manager

■ Global sensor-based sorting technology provider, TOMRA Recycling Sorting, announced Gleb Trofimov as a new area sales manager for the Americas, strengthening the company's sales support for the waste, plastics, wood and metals recycling industries. In this role, Trofimov will consult directly with TOMRA partners and customers throughout Canada and portions of the United States to implement the right advanced sorting technologies designed to improve recycling recovery rates, increase product purity and throughput, and boost profitability.

Trofimov offers well rounded experience in the waste management and recycling industries. For 14 years, he worked in waste collection and recycling, so he understands first-hand the challenges recyclers face. Most recently, he has spent the last four years with TOMRA, leading sales efforts in parts of the Eastern Europe and Asia regions.

Trofimov is strategically located in the Toronto, Ontario, area to assist operations in North America with installing TOMRA's broad range of sorting technologies designed to optimize resource recovery. He will also aid companies in leveraging the latest deep-learning-based AI technologies as well as processing data that can help to boost recovery rates and material purity.

AISI names Dan Snyder vice president, construction program

■ The American Iron and Steel Institute (AISI) has selected Dan Snyder as its new vice president, construction program. He is responsible for leadership of AISI's construction programs, including commercial buildings, codes and standards, and transportation/infrastructure. Snyder was formerly senior director of business development at AISI. He succeeds Robert J. Wills, P.E., who recently retired after nearly 33 years of service with the Institute.

Snyder has served in AISI's construction program for 25 years. He helped to establish the Short Span Steel Bridge Alliance in 2007, growing membership to over 100 organizations and increasing market share for steel bridges with spans under 140 feet. He led the marketing initiative BuildSteel, which successfully raised industry awareness of the benefits of cold-formed steel framing. Snyder also led AISI's strategic planning and program implementation directives for metal roofing, metal wall panels and steel utility poles.

Nucor declares 201st consecutive cash dividend

■ The board of directors of Nucor Corporation declared the regular quarterly cash dividend of \$0.51 per share on Nucor's common stock.

This cash dividend is payable on August 11, 2023 to stockholders of record on June 30, 2023 and is Nucor's 201st consecutive quarterly cash dividend.

Keter Environmental Services to merge with Waste Harmonics

■ Keter Environmental Services, a leading recycling and waste management company owned by TPG, and Waste Harmonics, a national technology-enabled managed waste service provider backed by global alternative investments firm Arcapita, today announced that the companies have signed a definitive agreement to combine the two companies.

Following the close of the transaction, Keter chief executive officer Kevin Dice will serve as chief executive officer of the combined company. Waste Harmonics' founder and chief executive officer, Mike Hess, will assume the role of executive chairman and Keter founder and president, Steve Schlusel, will continue in his role as president. With deep industry experience, both Hess and Schlusel will remain active in supporting the combined company's growth strategy under Dice's leadership.

Similar to Keter, Waste Harmonics leverages a national network of haulers and proprietary technology to coordinate, manage, and optimize its customers' waste and recycling programs. Together, Keter and Waste Harmonics will service nearly 70,000 business locations for 750 customers across a wide range of industries.

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BUSINESS BRIEFS

AMERIPEN elects new board members

Members of AMERIPEN, the American Institute for Packaging and the Environment, elected the following board of directors members:

- Cathy Foley – Pratt Industries
- Shannon Crawford Gay – WM
- Michael Okoroafor – McCormick & Company
- Beth Percynski – Procter & Gamble
- Jennifer Ronk – Dow
- Kelly Smith – Ferrero USA

Their terms run for three years beginning June 1, 2023, and they join these individuals already serving on the Board:

- Scott Byrne – Sonoco
- Brendan Adams – Kraft Heinz
- Mark Bescher – Mondelez International
- Lynn Dyer – Pactiv Evergreen
- Jordan Fengel – Tetra Pak
- Terry Grill – Sealed Air
- Philip Rozenski – Novolex

The following individuals will continue to serve as AMERIPEN officers:

- Scott Byrne – Sonoco, president
- Kelly Smith – Ferrero, vice president
- Cathy Foley – Pratt Industries, treasurer
- Lynn Dyer – Pactiv Evergreen, secretary

Harsco Corporation changes name to Enviri Corporation

Harsco Corporation changed its name to Enviri Corporation effective immediately. The company began trading under the NYSE ticker “NVRI” in June 2023.

The new name and brand identity reflect the company’s transformation over the past four years into a single-thesis environmental solutions company that provides services to manage, recycle and beneficially reuse waste and byproduct materials.

With more than 150 operating sites around the world, Enviri™ is pursuing innovation initiatives that are focused on decarbonization, energy efficiency and enhanced resource recovery technologies to deliver the highest quality environmental management. Enviri’s objective of achieving zero waste for its customers and partners is reflected in its new logo, which at its heart includes a symbol that signifies the transformation from waste to reuse and recycling.

The company’s new name and brand identity better align with its sustainability goals, recent achievements and actions already underway, including the following results from its latest (2021) Environmental Social and Governance Report:

- 100 percent of revenue came from environmentally focused segments, compared to 67 percent 5 years ago.
- Recycled, repurposed or reused more than 28 billion pounds of waste.
- Clean Earth segment successfully recycled over 93 percent of all waste processed, totaling more than 8 billion pounds.
- 70 percent increase, over a two-year span, in the number of new environmental solutions launched.

Casella Waste Systems to acquire assets of Consolidated Waste Services

Casella Waste Systems, Inc., a regional solid waste, recycling and resource management services company, signed an asset purchase agreement on June 9, 2023, to acquire the assets of Consolidated Waste Services, LLC and its affiliates (dba “Twin Bridges”) for a purchase price of approximately \$219 million in cash. The proposed acquisition, which is expected to generate annualized revenues of approximately \$70 million, includes two collection operations, one transfer station, one material recovery facility (MRF), one office building that can support future growth, and several satellite properties.

Twin Bridges is a solid waste management company located in the greater Albany, New York market that provides residential, commercial, and industrial collection, transfer, and recycling processing services.

Compelling Strategic and Financial Benefits

•Solid infrastructure complements existing operations. Twin Bridges has high quality assets and operations that will complement Casella’s operations and allow for additional opportunity for the internalization of waste and recyclables. Their transfer station and MRF were both built in the last three years, and their average frontline fleet age is just over three years.

•Strong financial and cash flow attributes with transaction. The acquired operations are anticipated to generate approximately \$70 million of revenues, \$1 million of net income and \$18 million of EBITDA1 during the first 12 months. In addition, Casella expects to generate approximately \$4 million of incremental annual synergies and benefits by year three of operations through route efficiencies, internalizing waste and recycling volumes, and other operational improvements. Given the structure of the transaction, Casella expects to recognize cash tax benefits of approximately \$61 million over a multi-year period. Further, Casella does not anticipate significant replacement capital expenditures over the initial operating years given the health and age of the fleet along with the accompanying key facilities.

•Revenue profile consistent with existing collection portfolio. The collection revenue profile is similar to Casella’s existing collection mix, with approximately 80 percent of the revenues in residential and commercial collection lines of business. Revenues from construction and demolition volumes comprise approximately 7 percent of their total revenues.

The acquisition was unanimously approved by Casella’s board of directors and is expected to close by the fourth quarter of 2023, subject to customary closing conditions, including regulatory approvals.

Why did the plastic bottle go to the gym? To get shredded.



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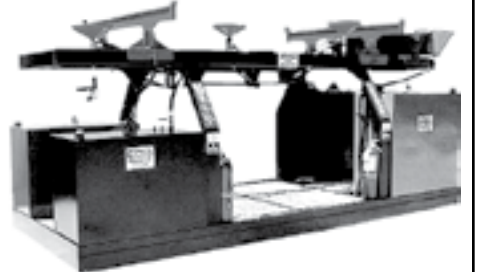
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Evolving challenges of EV recycling

by MAURA KELLER

mkeller@americanrecycler.com

According to the International Energy Agency, demand for electric vehicles is skyrocketing. Sales in 2023 are expected to jump 35 percent after record-breaking sales in 2022. As more and more EVs enter the automotive stream, the focus of automotive recyclers turns to the end-of-life recycling challenges these high-tech vehicles bring to the industry.

“The parts of traditional combustion engine vehicles have been recycled for years. Similarly, the metal body, tires, plastic, and other parts of electric cars can all be recycled just as easily,” said David Lewis, chief executive officer and co-founder of MoveEV. “The biggest issue will be battery recycling. Since EV batteries are larger, the recycling process is complex, and there is currently limited infrastructure for battery recycling in the U.S.”

As Lewis explained, some of the most prominent challenges include:

Cost

The recycling process of EV batteries is currently more expensive than the production of new batteries due to the complexity of the process and the limited scale of operations. This makes it difficult for battery recycling to be cost-competitive with battery production, particularly in the absence of government subsidies or regulatory incentives.

Scalability

The volume of end-of-life EV batteries is expected to grow rapidly in the coming years, and the recycling industry must rapidly expand its capacity to meet this demand. The scaling of the recycling infrastructure can be challenging due to the need for specialized equipment, skilled labor, and financing.

Material complexity

EV batteries contain a mix of metals and chemicals, which can make the recycling process more challenging. Different battery chemistries have varying recycling requirements. The battery recycling industry must develop and adapt recycling methods that are suitable for each battery chemistry.



Electric vehicle engine with lithium battery.

Supply chain management

The battery recycling industry must ensure a secure and transparent supply chain for end-of-life batteries to avoid the potential for illegal or unethical recycling practices. The supply chain should provide traceability of the materials from the point of collection to the final processing stages.

“Overcoming these challenges will require a coordinated effort among governments, the private sector, and academia to develop new technologies, infrastructure, and policies to support the growth of the battery recycling industry,” Lewis said. “This will help create a more sustainable and circular economy for electric vehicles, reducing their environmental impact while promoting the development of a more sustainable energy system.”

Liz Najman is a climate scientist and communications and research manager of Recurrent – a leading EV research and analytics company. Recurrent analyzes data from over 10,000,000 used EVs and compiles free comprehensive reports about EV battery health for EV owners, buyers and sellers.

Najman said one of today’s challenges in lithium-ion battery recycling is how long those batteries are holding up.

“In a study of 15,000 vehicles that are part of the Recurrent community, only 1.5 percent have had their batteries replaced,” Najman said. “Although that number will increase as vehicles age and the need for recycling will rise. Interestingly, the Inflation Reduction Act of 2022 may accelerate the battery recycling industry, since any materials recouped from U.S. recycling facilities will be eligible for future tax credits.”

Industry Growth Potential

Overall, industry experts agreed that the EV battery recycling industry has a very high growth potential, both economically and technologically, and has the added benefit of improving national security and promoting ethical sourcing of rare materials.

“The growth potential of EV battery recycling is significant,” Lewis said. “As an industry, electric vehicle manufacturing at scale is still relatively new.

“Government money is readily available to consumers and manufacturers of

EVs – not only of the cars themselves, but the infrastructure needed to support them. The technology needed to optimize battery recycling is still emerging and evolving,” Lewis said.

The materials used in EV batteries also are highly reusable, and can even be repurposed for energy storage after being unable to power vehicles. As Lewis explained, this has led to a strong and rapidly growing battery recycling industry, with dozens of startups in North America and Europe. For example, B2U takes used batteries and repurposes them to store solar energy at their solar plant.

“In addition to the economic benefits of recycling, boosting domestic supplies of rare battery materials can also enhance national security,” Lewis said. “Currently, the supply of many of these materials is controlled by one or a few nations, some of which have poor human rights records. Governments can generate a consistent, domestic, and ethical supply of these highly in-demand materials by supporting the growth of the recycling industry in their countries.”

See EV RECYCLING, Page B6

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Top four benefits of customized, closed-loop and end-of-life recycling programs for automakers

Contributed by: **Jamie Zinser**,
Vice president, global automotive, Novelis Inc.

As the global automotive industry strives to reach ambitious sustainability targets, most notably regarding carbon emissions, it continues to gravitate toward the world's infinitely recyclable material — aluminum. In fact, aluminum can be recycled and reused endlessly without losing its material properties. This phenomenon is the foundation of a circular economy for the automotive industry fueled by closed-loop and end-of-life recycling.

To help the automotive industry reduce carbon emissions and ultimately achieve carbon neutrality, as well as reduce waste and preserve natural resources, Novelis works in partnership with automakers to create and implement customized circular economy programs. These programs include closed-loop recycling solutions that address the unique infrastructure and business dynamics of each automaker. Novelis is dedicated to shaping the automotive circular economy of the future and understands that truly collaborative and transparent partnerships with automakers are the key to realizing this goal.

Jamie Zinser, vice president, global automotive at Novelis, outlines the top 4 benefits of customized closed-loop recycling programs for automakers.

Preserving the value of aluminum alloys

Recycled aluminum is essential for the future of sustainable mobility. A customized, closed-loop and end-of-life recycling program is key to keep like alloys separated, which is critical to maintaining the performance specifications of automotive alloys.

To enable this, aluminum scrap segregation and sorting technologies are critical to any successful recycling program as scrap aluminum can be collected and transformed into new vehicle parts. These processes separate different alloys by refined alloy families. Keeping these alloys separate ensures the same alloy can go back into its original application, which preserves its value, and requires less primary metal input, enabling the conversion of high-quality scrap material into new coils. While aluminum scrap separation is a complex process, Novelis continues to invest in sorting and segregation technologies to streamline the process for

automakers. The use of recycled aluminum reduces the demand for raw materials.

Reducing CO2 emissions

Recycled aluminum uses approximately 95 percent less energy than primary aluminum production, resulting in 95 percent less carbon emissions. Increasing the use of recycled aluminum improves energy efficiency and promotes a true circular economy. Closed-loop agreements with customers allow Novelis to recycle production scrap into new automotive sheet and its customers to enhance the sustainability profile of their vehicles.

Establishing a secure supply chain

Using recycled materials in a circular economy system strengthens the automaker's supply chain and makes its production schedule less vulnerable to disruptions caused by external factors. The average stamping process turns 30 to 40 percent of an aluminum coil into scrap that can be recycled back into the same product, leveraging aluminum's unique benefit of being infinitely recyclable without losing its material properties.

Enhancing economic benefits

Because aluminum is infinitely recyclable, automakers can leverage closed-loop recycling programs to reuse aluminum again and again without impacting its properties. This reduces total vehicle costs and helps maximize the sustainability benefits of aluminum, including its extensive lightweight properties that can enable EV efficiency and allow for traveling longer distances on a single battery charge.

As a leader in automotive closed-loop recycling, Novelis is working extensively with OEMs around the world. In North America, we worked with our customer to develop the largest closed-loop system in the automotive industry. Through this partnership, they recycle enough aluminum scrap generated from the automotive stamping process to produce 37,000 new vehicle bodies each month. In addition, Novelis worked with partners in Europe to establish the first regional closed-loop recycling system, which is a dedicated round-trip railway service that delivers materials across Europe.

With a common goal of a more sustainable future, the automotive and aluminum recycling industries can work together to develop solutions to make the circular economy a reality today.

GM invests \$280 million for next-generation truck production

General Motors announced an investment in Oshawa Assembly to produce next-generation internal combustion engine (ICE) full size trucks. This investment builds on GM's commitment to Canadian manufacturing, which includes more than \$1.2 billion invested in the Oshawa plant in 2020. Product details and timing related to GM's trucks are not being released at this time.

Two years ago, Oshawa Assembly delivered one of the fastest plant launches in GM history, demonstrating the flexibility and agility of the Oshawa workforce. Since it reopened, GM Canada has created 2,600 new manufacturing jobs, and thousands of indirect jobs at Canadian suppliers. Production has increased to three shifts, and fifty per cent of new production hires at the Oshawa plant are women.

Tesla stock surges as all Model 3 sedans qualify for EV tax credit

Tesla stock (TSLA) surged in early June, up as much as 4 percent in early trading and hitting highs not seen since early October of last year, as investor bullishness grew following news that all Model 3 sedans now qualify for the full federal electric vehicle tax credits. Tesla stock is on track for its longest winning streak since January 2021.

Tesla announced that all versions of the Model 3 sedan now qualify for the full federal EV tax credit of \$7,500; previously the less expensive Model 3 rear wheel drive version qualified for half the amount. The federal government confirmed the announcement on its [fueleconomy.gov](https://www.economy.gov) website.

The EV tax credits were mandated by Congress last August as part of the Inflation Reduction Act with the goal of ending U.S. reliance on China for batteries. The full \$7,500 tax credit is broken into two parts. EVs can qualify for half, or \$3,750, if 50 percent of the value of battery components were produced or assembled in North America; the other half requires

40 percent of the value of critical materials be sourced from the U.S. or another free trade agreement country.

Initially, when the tax credits began on January 1, the U.S. Treasury Dept. held off on publishing the battery sourcing guidance in order to give EV-makers time to meet the requirements. On April 18, the department began enforcing the critical material sourcing requirement, which led to many vehicle models losing the full tax credits they had been eligible for in the first quarter of the year.

Tesla's Model 3 saw its full credit slashed in half, but many other automakers — like BMW, Rivian, Volvo and Hyundai — lost their credits entirely.

Now, it appears that all Tesla vehicles will be eligible for the full \$7,500 credit. Previously, the only Model 3 that qualified for the full tax credit was the Model 3 Performance. Now, the Model 3 long-range all-wheel drive and rear-wheel drive will also qualify. The Model 3 rear-wheel drive now starts at \$32,740 when the tax credit is applied.

Volvo Cars global sales up 31 percent in May

Volvo Cars reported global sales of 60,398 cars in May, up 31 percent compared with the same month last year. The company's fully electric cars were the main contributor to the growth rising 196 per cent during the period. Furthermore, figures from May 2022 were negatively affected by lower production due to last year's supply chain constraints.

For the first 5 months of the year, Volvo Cars sales reached 275,312 cars, up 14 percent compared to the same period during 2022.

Sales of Volvo Cars' Recharge models of fully electric and plug-in hybrid cars increased by 55 percent in May, accounting for 40 percent of all Volvo cars sold globally during the month. The share of fully electric cars stood at 18 percent.

Sales in Europe for May reached 26,272 cars, an increase of 40 percent compared to last year. The share of

Recharge models reached 63 percent of overall sales in the region and the share of fully electric cars ended up at 29 percent.

U.S. sales grew by 14 percent in May with 10,723 cars sold. The share of Recharge models reached 28 percent of overall sales and sales of fully electric cars increased by 66 percent compared to last year.

In China, sales reached 14,121 cars, an increase of 49 percent compared to the same month last year. Sales of Volvo Cars' Recharge models grew 116 percent, accounting for 8 percent of the total sales in China.

In May, the Volvo XC60 was the top selling model with sales of 18,052 cars (2022: 15,117 units), followed by the XC40, with total sales at 17,596 cars (2022: 12,097 units) and the XC90 at 9,058 cars (2022: 8,790 units).

Ford Motor Company recalls certain Lincoln MKCs for fire concerns

Ford Motor Company is advising customers of certain 2015-2019 model year Lincoln MKC vehicles to park their vehicles outdoors and away from structures while the company supplies Ford dealers and Lincoln retailers with parts and repair instructions to resolve the issue.

On these vehicles, the location of the battery monitor sensor may make the sensor susceptible to damage when the battery or related electrical components are serviced. In the event of battery monitor sensor housing damage, an electrical short may develop in the sensor's printed circuit board. If this happens, a lack of fusing in the sensor power circuit may cause the surrounding materials to overheat.

Affected vehicles will have an in-line fuse added to the battery monitor sensor power circuit to prevent electrical current load, due to shorting, from overheating surrounding material.

Ford is aware of 19 potentially related reports of under hood fire, including some reports when the vehicle was parked and off. Ford has not issued instructions to stop driving vehicles under this recall and is not aware of any accidents or physical injuries related to this issue.

This recall affects 142,522 vehicles in the U.S. and Federal Territories. Customers can determine if their vehicle is included in this recall by entering the vehicle's identification number (VIN) at: <https://www.ford.com/support/recalls/>

Honda engine plant in Ohio produces 30-millionth engine as it prepares for electrified future

Honda celebrated production of the 30 millionth engine built by associates at the company's Anna Engine Plant in Ohio with the production of the newly refined 2.0-liter Atkinson-cycle four-cylinder engine, which is part of the two-motor hybrid-electric system that powers Honda Accord and CR-V hybrid-electric models. The Anna plant, Honda's largest engine plant in the world, is now preparing to retool to add production of the casings for the battery modules that will power Honda and Acura EVs made in Ohio.

Since starting engine production in 1985, the Anna facility has produced a diverse array of powertrain and other components, ranging from motorcycle and automobile engines to transmissions, suspensions and wheels. The 2.0-liter hybrid Atkinson-cycle engine represents the continued evolution of the plant's capabilities and an important step in Honda's electrification strategy, as nearly 60 percent of U.S. sales of the popular Honda Accord and CR-V are powered by the two-motor hybrid-electric system.

The Anna plant will continue to play a vital role in Honda's future electrification plans as more hybrid-electric systems are introduced to core models to reduce CO2 emissions and bridge customers to the volume battery-electric Honda and Acura vehicles in development.

In October 2022, Honda announced a \$700 million investment in Ohio to establish a new Honda EV Hub in Ohio, which includes retooling the Anna Engine Plant, the East Liberty Auto Plant, and Marysville Auto Plant, as Honda prepares for the production of battery electric vehicles. While Honda initially indicated production would start in 2026, in April, Honda announced that it will pull forward EV production in Ohio to 2025. Importantly, Honda expects to maintain employment stability across all locations during this transition.

As part of the new EV Hub, the Anna Engine Plant will produce the cases for the Intelligent Power Unit (IPU) that houses the EV battery module and its controlling hardware. Honda and LG Energy Solution (LGES) recently broke ground for a new joint venture battery facility in Ohio that will produce these lithium-ion batteries, which will power the EVs to be produced at the East Liberty and Marysville Auto Plants. Honda and LGES have committed to invest \$3.5 billion in the new JV battery facility, with the overall investment projected to reach \$4.4 billion.

Honda has produced automobiles in Ohio for over 40 years, beginning in November 1982 with the start of automobile production at the Marysville Auto Plant.

Toyota ramps up commitment to electrification with U.S. EV production and additional battery plant investment

Advancing its commitment to vehicle electrification and building where it sells, Toyota will assemble a new, three row, battery electric SUV at Toyota's Kentucky facility starting in 2025. The company's first U.S.-assembled battery electric vehicle (BEV) will be powered by batteries from Toyota in North Carolina. The new battery plant, now under construction, will receive an additional \$2.1 billion investment to support the company's drive toward carbon neutrality.

"We are committed to reducing carbon emissions as much as possible and as soon as possible," said Ted Ogawa, president and chief executive officer, Toyota Motor North America. "To achieve this goal, customers must have access to a portfolio of options that meet their needs now and in the future. It is exciting to see our largest U.S. plant, Toyota Kentucky, and our newest plant, Toyota North Carolina, drive us into the future together with BEV and battery production for our expanding electrified lineup."

The decision to assemble a BEV in the U.S. demonstrates the company's belief

in electric vehicles and its commitment to design, engineer and produce vehicles for the market.

Toyota is investing \$2.1 billion in its North Carolina battery manufacturing plant for new infrastructure to support future expansion. This brings total investment in Toyota North Carolina to \$5.9 billion.

The facility will be Toyota's hub for developing and producing lithium-ion batteries needed for its expanding portfolio of electrified vehicles. Production at the Liberty plant is slated to begin in 2025 with six battery production lines, four for hybrid electric vehicles and two for BEVs.

A pioneer in electrified vehicles, Toyota has put more than 23 million hybrids, plug-in hybrids, fuel cell electric and battery electric vehicles on the road globally – more than all other automakers combined. The company currently offers 22 electrified vehicle options in the U.S. across the Toyota and Lexus brands, the most among any automaker. By 2025, the company plans to have an electrified option available for every Toyota and Lexus model globally.

Mercedes-Benz signs "green steel" agreements

Mercedes-Benz and H2 Green Steel have signed a binding agreement for the delivery of about 50,000 tonnes of green steel to the car maker's European production annually. In a pioneer move Mercedes-Benz has also signed a memorandum of understanding with H2 Green Steel for the potential supply of green steel produced in North America.

Mercedes-Benz was an early investor in H2 Green Steel and was also early out in confirming customer demand for green steel through an offtake agreement. This agreement has now been further developed into a binding agreement covering volumes of about 50,000 tonnes per year, which will be produced in H2 Green Steel's green hydrogen powered iron and steel plant in Boden in northern Sweden. In using high-quality steel that is sustainably produced, Mercedes-Benz takes yet another step towards reducing the environmental impact from its car manufacturing.

"H2 Green Steel exists because pioneering companies in the automotive industry like Mercedes-Benz, signaled the transition in the steel industry was too slow for them to meet their climate targets. Working side-by-side with Mercedes Benz, we have a partner with whom we can raise the bar when it comes to supply chain emissions, circularity and social sustainability. They are a very strong player to liaise with for our European operations, but naturally also as we endeavor into the steel value chain in North America," says, Henrik Henriksson, chief executive officer, H2 Green Steel.

In addition to a sustainable production of green steel, Mercedes-Benz has a strong commitment to circularity and

the two companies will create a closed-loop recycling of scrap steel to the Boden plant. The partnership also includes H2 Green Steel being able to leverage Mercedes-Benz extensive knowledge and expertise in supply chain human rights.

"With the supply deal of around 50,000 tonnes almost CO2-free steel from H2 Green Steel for our manufacturing plants in Europe, Mercedes-Benz and H2 Green Steel are accelerating the creation of a decarbonized, regional and resilient steel supply chain. At the same time, we are taking our partnership to the next level with the aim of establishing a sustainable steel supply chain in North America, another important step towards making the auto industry more resilient and sustainable," said Markus Schäfer, member of the board of management of Mercedes-Benz Group AG chief technology officer, development & procurement.

With the partnership in Europe as the foundation, the two companies have also agreed to work together to enable a long term supply of green steel produced in North America for Mercedes-Benz manufacturing plants in North and South America. By doing so, the companies will demonstrate the feasibility and value of a green steel supply chain.

"We have talked to different stakeholders in both Canada and the U.S. for some time and the possibility to leverage a large supply of renewable electricity for the production of green hydrogen and green sponge iron that can feed a sustainable steel production is a very interesting prospect for H2 Green Steel as it continues to push the steel value chain to decarbonize globally", said Henriksson.

GM and POSCO Future M to expand EV battery supply chain in North America

General Motors Co. and POSCO Future M announced the second phase of their Ultium CAM joint venture, an investment projected to exceed \$1 billion to increase production capacity of CAM in North America and integrate precursor materials production. pCAM is a specifically engineered combination of processed raw materials necessary to produce CAM, a key battery material representing about 40 percent of the cost of a battery cell. Currently, CAM and pCAM processing is highly concentrated in Asia.

GM is executing plans to install one million units of annual EV capacity in North America in 2025, supported by four U.S. battery cell joint venture plants with 160GWh of capacity and grow from there in subsequent years. The Ultium CAM joint venture will support production of approximately 360,000 Chevrolet, Cadillac, GMC, Buick and BrightDrop

vehicles annually in the 2025-2030 time-frame in North America.

"Increasing CAM production capacity and adding pCAM to our joint venture is another significant step in building a more secure and sustainable North America-focused supply chain to support GM's fast-growing EV production needs," said Doug Parks, GM executive vice president, global product development, purchasing and supply chain. "We started by establishing battery cell production in the U.S. From there, we have been working through the entire battery supply chain, all the way to raw material recovery. We're building higher levels of vertical integration, driving expanded investment and helping create jobs across North America."

The companies established the Ultium CAM joint venture, which is majority owned by POSCO Future M, in July 2022. Site selection will be announced later.

EQUIPMENT SPOTLIGHT

Wheel Loaders

by MARY M. THORNTON

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Auto recycling operations commonly require the use of wheel loaders as inventory must be sorted, relocated and managed overall. According to Scott Ruderman, Komatsu product marketing manager – working gear, “Needing an all-around machine doesn’t mean you have to settle for a middle-of-the-road one.” Referring to the Komatsu WA380-8 large wheel loader he notes that the machine can handle multiple tasks – recycling, waste, road work, paving and snow removal – easily, with a fully integrated set of components designed to work together over the long haul. “The WA380-8 is responsive and nimble, is designed to boost productivity and offers advanced engine technology. Since a loader’s engine torque should match the demands on the machine to use fuel most efficiently, Komatsu’s Smart Loader Logic optimizes engine torque. The result helps conserve fuel. An efficient powertrain also helps maximize fuel efficiency and productivity. The large capacity torque converter of the WA380-8, allows operators to up-shift gears faster, for outstanding acceleration and the ability to maintain high travel speed in load-and-carry applications,” said Ruderman.

He also explained how “WA380-8 operators can choose the best mode for an application to help optimize efficiency, working in the mode best suited for the workload. For maximum fuel efficiency for general loading, run in economy mode. Use the power mode for maximum output during hard-digging or hill climbing. Proprietary systems include an EPA Tier 4 final engine that cuts NOx by more than 80 percent vs Tier 4 Interim levels. The WA380-8 bucket angle and remote boom positioner can be set from the cab and upper and lower boom kick-outs can be set with the push of a button. The bucket positioner stores three horizontal settings, so operators can easily change attachments and a closed-center load sensing system with a variable displacement piston pump maintains smooth operation and fuel efficiency.”

Mecalac’s AS900tele combines the compactness and mobility of Mecalac’s AS Swing Loader Series with telescopic technology to provide game-changing versatility on the jobsite. As a loader, telehandler or landscaping tool, the



Komatsu

AS900tele reduces the need for additional equipment and optimizes jobsite logistics. The 22.2 gpm (84 l/min) auxiliary hydraulics of the AS900tele further increase flexibility, allowing use with a range of attachments. Mecalac designs, manufactures and distributes compact construction equipment for urban environments.

“When you rely on one machine for each task, a jobsite can end up looking more like a parking lot,” said Peter Bigwood, general manager, Mecalac North America. “Reducing the need for additional equipment and streamlining the jobsite is at the heart of Mecalac’s design philosophy, including the AS900tele. It’s good for the contractor, the client and the environment.” Like all AS Series units, the eight ton AS900tele features Mecalac’s innovative swing design. Operators can swivel the fully



Mecalac

loaded bucket 90 degrees on either side, transforming space management and allowing for a radical new approach to tasks. With the rotated bucket, filling trenches or carrying pipes requires minimum operating space.

With a lifting height of 15.5 feet (4.72 meters) and outreach of 11.5 feet (3.5 meters), the AS900tele allows operators to minimize repositioning while maximizing reach. The AS900tele has a carrying capacity of 5,004 pounds (2,270 kilograms) at full extension, providing ample power for applications such as loading walking floor trailers or waste handling. Paired with a range of attachments, the telescoping allows the unit to replace traditional backhoe loaders, wheel loaders and telehandlers. The AS900tele features three steering options – 2-wheel, 4-wheel and crab. This flexibility allows operators to simultaneously drive, pivot and maneuver, regardless of ground conditions. Combined with the swivel arm, it results in a 20 percent smaller turning radius compared to traditional wheel loaders and increases productivity and safety for a range of common tasks.

“All the AS Series units were designed around a single idea – improving the articulated loader to provide better efficiency and streamline the worksite,” Bigwood said. “The AS900tele takes that innovation a step further, replacing two or even three other machines without sacrificing the productivity or safety of Mecalac’s swing loader.”

MANUFACTURERS

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Caterpillar

Paul Mackin
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Volvo Construction Equipment

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Yanmar Compact Equipment

Frank Gangi
800-205-9913
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Volvo Construction Equipment offers a wide range of wheel loader models for use in automotive recycling, from the 11-ton L60H to the 22-ton L120H. For improved cycle times and reduced fuel consumption, many of these models come with an optional lock-up function that eliminates losses in the torque converter by creating a direct drive between the engine and transmission, which work in harmony with the axles. Most Volvo loaders in this range are sold pre-customized within a scrap

See WHEEL LOADERS, Page B5

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Wheel Loaders

■Continued from Page B4



Volvo

package that focuses on durability, performance and preventive protection for the operator and machines themselves, by providing guards all around the machines, cab and engine precleaners, solid tires, a long boom option and more. And with Volvo buckets and attachments, these loaders perform at their best while the reliability features ensure around-the-clock operation.

Automobile recycling can be tough on wheel loaders. Telematics programs are designed to help owners and operators better monitor their machines and operating habits to help prevent unnecessary wear and tear and costly downtime. “Volvo’s ActiveCare Direct does an especially good job at this with a team at Volvo’s Uptime Center who monitors machines 24/7 and alerts customers and their dealers of potential machine down issues that may be caused by things like high-speed shifting and hot turbo shut-downs,” explained Chris Connolly,

product manager – medium wheel loaders.

Since digitization and technology are integral to an efficient operation, Volvo operators can optimize their load cycles and safeguard their machines with Load Assist, powered by the Volvo Co-Pilot. Load Assist can monitor everything from tire pressures to reduce wear, load weights for improved accuracy/efficiency, and even operator coaching to help operators improve their performance. Also, a host of new Volvo services can provide site visibility through mapping, site speed limit zones, and productivity monitoring, which can improve safety and productivity. “Most electric loaders currently offered are compact in size, but midsize and larger loaders should start to emerge in the industry soon, offering an even more efficient way to move vehicles for processing. They’ll also be great ways to comply with any upcoming fleet sustainability requirements,” Connolly stated.

Ford EV customers to gain access to Tesla Superchargers

Ford Motor Company has reached an agreement with Tesla Motors that will provide Ford electric vehicle customers access to more than 12,000 Tesla Superchargers across the U.S. and Canada, doubling the number of fast-chargers available to Ford EV customers starting Spring 2024.

“This is great news for our customers who will have unprecedented access to the largest network of fast-chargers in the U.S. and Canada with 12,000+ Tesla Superchargers plus 10,000+ fast-chargers already in the BlueOval Charge Network,” said Jim Farley, Ford president and chief executive officer. “Widespread access to fast-charging is absolutely vital to our growth as an EV brand, and this breakthrough agreement comes as we are ramping up production of our popular Mustang Mach-E and F-150 Lightning, and preparing to launch a series of next-generation EVs starting in 2025.”

Added Rebecca Tinucci, Tesla’s senior director of charging infrastructure: “We’ve spent the last 10 years building an industry-leading charging network that enables freedom to travel and provides charging confidence for our Tesla owners. We’re excited to deliver on our mission to accelerate the world’s transition to sustainable energy by welcoming Ford owners, and other electric vehicles who adopt NACS, to our thousands of Superchargers across North America.”

A Tesla-developed adapter will provide Ford F-150 Lightning, Mustang Mach-E and E-Transit vehicles fitted with the Combined Charging System (CCS) port access to Tesla’s V3 Superchargers. Ford will equip future EVs with the NACS charge port, removing the need for an adapter for direct access to Tesla Superchargers, starting in 2025.

“Tesla has led the industry in creating a large, reliable and efficient charging system and we are pleased to be able to join forces in a way that benefits customers and overall EV adoption,” said Marin Gjaja, chief customer officer, Ford Model e. “The Tesla Supercharger network has excellent reliability and the NACS plug is smaller and lighter. Overall, this provides a superior experience for customers.”

The BlueOval Charge Network is already North America’s largest public charging network with over 84,000 chargers including access to over 10,000 public DC fast-chargers. Adding more than 12,000 Tesla Superchargers creates the single largest integrated fast-charge network across the U.S. and Canada, designed to significantly reduce charge anxiety for Ford customers, with automatic routing to the nearest charger and seamless billing via FordPass.

Additionally, Ford dealers are adding roughly 1,800 public-facing fast-chargers and locations to the BlueOval Charge Network by early 2024.

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EV recycling

■Continued from Page B1

Steve Christensen, executive director of the Responsible Battery Coalition, added that the proper management of the EV's battery is the most significant issue facing lithium-ion battery recycling. The infrastructure for the handling, assessment, repair, potential second use and recycling of the battery is in a very early stage and operates only regionally.

"Our members, which includes OEMs and recyclers, are working to improve this," Christensen said. "Information about the battery throughout its life appears to facilitate managing its end of life or second life. We are seeing this in the work of our partners at the Global Battery Alliance as the Battery Passport continues to be developed. The passport will provide the information needed for proper recycling and material recovery of the battery."

Christensen added that the recovery and reuse of the battery's materials in a true circular economy remains a challenge. As he explained, the technology exists to recover most of the metals in an EV battery. However, given the costs to recover and refine the metals, it is still cheaper to manufacture a battery from newly mined materials.

"This is where there might be a role for government policies that incentivize the use of recycled materials in new batteries in a way that relieves the additional costs associated with using recycled metals," Christensen said.

In the Know

With an ever-changing industry, it is vital for automotive recyclers to stay abreast of the ongoing changes within the EV recycling industry.

First, Lewis said recyclers must stay informed regarding the latest developments in EV technology and battery materials. This can be done by attending industry events, reading trade publications, and staying in touch with automakers and other industry stakeholders.

"Also, auto recyclers should invest in the necessary tools and equipment to safely and efficiently handle EV batteries. This may include specialized training for staff, new dismantling equipment, and storage facilities designed for EV batteries," Lewis said.

Auto recyclers should also consider partnering with automakers and other industry players to develop more sustainable and efficient recycling processes. This could involve collaborating on the design of EV batteries to make them easier to dismantle and recycle, as well as sharing best practices and knowledge.

"Finally, auto recyclers need to be adaptable and open to new technologies and approaches," Lewis said. "The EV recycling industry is still evolving, and new innovations are likely to emerge in the years ahead. Auto recyclers that are

flexible and willing to embrace change are more likely to thrive in this dynamic environment."

Christensen pointed to the safe handling of the vehicle and its battery as well as where the battery must go next as two areas that automotive recyclers should monitor. Anecdotally, Christensen regularly hears stories of auto recyclers that refuse an EV due to fire safety concerns; they don't have the ability/training to remove an EV battery; their insurance will not allow them to handle EVs; or they don't know where to send the battery or the vehicle after they recover it.

"There are several non-profit and academic organizations that offer training for first responders and auto recyclers in handling EVs and EV batteries," Christensen said. "One of the premiere training programs is the National Alternative Fuels Training Consortium at the University of West Virginia."

Upcoming Advancements

One thing is for sure in the auto recycling industry: Recyclers are facing an uncertain but exciting future, with many opportunities for building a new and booming industry of recycled battery materials.

"One of the challenges they may face is a shortage of unusable batteries, seeing that automakers have only recently begun to widely manufacture EVs. Finding, collecting and dismantling batteries, which are often mislabeled, is another challenge," Lewis said. "However, there are simultaneously many opportunities for new partnerships with automakers, encouraging them to design batteries with recycling in mind, and there are many other sources of recyclable material, such as defective or excess battery material from a large number of new battery plants. The other challenge that recyclers may face is whether the materials in old batteries will still have value for future batteries, as battery technology is changing rapidly to incorporate new materials."

As EVs become the car of the future for both humans and the planet, Lewis advised that the industries surrounding it – recycling, battery manufacturing, charging, etc. – will boom as well.

"As more and more resources are poured into research and policy surrounding electrification, we believe that recycling EVs will only get easier, more efficient, and more economical with time," Lewis said.

Christensen agreed that the automotive recycling industry will continue to see exponential growth and innovation.

"I am constantly amazed by the creativity and ingenuity of the automobile industry," Christensen said. "We are witnessing landmark research on battery chemistries and automotive technologies at a pace that has not been seen in a generation. It is a truly remarkable time for the industry."

Novelis accelerates aluminum automotive part innovation



Investment demonstrates the continued commitment to bringing lightweight sustainability and cost benefits of high-strength aluminum to automotive market. Photo courtesy of Novelis

Novelis Inc., a sustainable aluminum solutions provider and a leader in aluminum rolling and recycling, announced the startup of its new roll forming development line. The new development line will help Novelis meet industry demand for a process that can produce large volumes of high-strength aluminum auto parts.

Located at the company's Automotive Customer Solution Center in Novi, Michigan, the new state-of-the-art roll forming development line will provide Novelis with the unique advantage of conducting full scope, year-round research and development on roll forming in house. The round-the-clock access to the line will facilitate unmatched innovation and expedite the process to ensure complex, high-strength aluminum roll forming is developed, and process robustness is proven more swiftly.

As the automotive industry moves toward electrification, it is demanding faster production of lighter, greener parts. With the roll forming process, strips of aluminum are incrementally formed in a continuous fashion to form a desired shape having various degrees of detail and strength. Offering a process that is scalable and customizable, aluminum roll forming provides significant

opportunities for production of high strength aluminum at scale. While roll forming is not new to the industry, its ability to produce complex high strength aluminum parts has yet to be fully developed and will require innovation and investment to maximize its potential.

Novelis' introduction of its own roll forming development line is a critical step to moving the technology forward. The shift to the mass production of aluminum-intensive vehicles is a natural next step as the industry prioritizes electrification and sustainability, as well as other benefits of aluminum, such as increased safety, reduced risk of corrosion and improved performance.

"The auto industry understands the benefits of aluminum and is looking to Novelis to develop technology that supports their growth initiatives," said Jamie Zinser, vice president, global automotive, Novelis Inc. "One of these technologies is roll forming. We are introducing this development line to accelerate research and development, not to become a roll forming company. Our goal is to work with our automotive and Tier I partners to innovate and develop aluminum sheet technology that will support the electrification movement."

Volvo introduced new all electric EX30

The new fully electric Volvo EX30 was introduced in June 2023. Their smallest ever SUV, the EX30 is designed to make people's lives safer, more convenient and more enjoyable. It's designed to have the lowest CO2 footprint of any Volvo car to date, while offering customers plenty of range.

Already by mid-decade, Volvo aims for half of their global sales volumes to consist of fully electric cars and to reach an operating profit margin of 8 to 10 percent. By 2030, Volvo plans to sell only fully electric models.

With the Volvo EX30, Volvo will enter a new and fast-growing segment for their brand. There is a growing demand from consumers globally for small, fully electric premium SUVs. For example, many people living in the city are looking for a

car that brings convenience and allows them to commute to work and get around, while doing so in a way that reflects who they are.

The EX30 is designed to be as safe as you'd expect from a Volvo car. For example, it includes a special safety feature for bikes that helps to prevent so-called 'dooring' accidents, by alerting you when you are about to open your door in front of a cyclist, scooter or runner. State-of-the-art protective safety tech further illustrates how we've applied our high safety standards to the EX30.

The EX30 provides drivers with a true and capable SUV, born electric and packed with all the smart tech that they need.

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Five active safety features come standard on all GM EVs for 2023 model year

General Motors will include automatic emergency braking, as well as four additional active safety features proven to reduce crashes, as standard equipment on 98 percent of its 2023 model year vehicles. This encompasses every new EV launching this year, including the Chevrolet Blazer EV and Equinox EV.

GM had previously signed an industry commitment to make automatic emergency braking standard on 95 percent of all new vehicles sold. Thanks to this advocacy and collaboration among automakers, more new vehicles than ever will now provide this key active safety feature as standard equipment. GM has now also gone a step further to make these four additional active safety features standard on the majority of its 2023 model year vehicles: forward collision alert, front pedestrian braking, lane keep assist with lane departure warning and IntelliBeam auto high-beam control.

“GM has gone well beyond the safety commitment we made to our customers for the 2023 model year, with a handful of additional standard safety features shown to bring real-world results,” said John Capp, director, vehicle safety

technology, strategy and regulations. “As we look ahead toward a future vision of zero crashes, zero emissions and zero congestion, these technologies are significant building blocks with proven benefits for reducing common crashes.”

GM is committed to using safety research data to guide option packages that make the most beneficial features more widely available. A 2023 University of Michigan Transportation Research Institute (UMTRI) study examining these GM safety features indicated automatic emergency braking, together with forward collision alert, reduced rear-end striking crashes by 42 percent. Front pedestrian braking reduced front pedestrian crashes by 23 percent and lane keep assist with lane departure warning reduced roadway departure crashes by 15 percent. In addition, a 2022 UMTRI study indicated IntelliBeam reduced nighttime crashes with animals, pedestrians and bicyclists by 22 percent.

The Cadillac LYRIQ, and the all-new 2023 Chevrolet Colorado and GMC Canyon, provide these five standard active safety features and also usher in a new generation of front sensors with an expanded field of vision and added

benefits. Available benefits of this new sensor suite include extending automatic emergency braking operation up to 80 mph, adding bicyclist automatic emergency braking to front pedestrian braking operation, providing smoother lane keep assist engagement and adding blind zone steering assist, which provides a brief, firm turn of the steering wheel to help avoid lane change crashes. Additional future products will gain these same advancements in upcoming model years.

GM’s latest affordable internal combustion engine products also reflect the company’s commitment to standard active safety features. Models as affordable as the 2024 Chevrolet Trax, with a starting price of \$21,495, will feature standard automatic emergency braking, forward collision alert, front pedestrian braking, lane keep assist with lane departure warning and IntelliBeam headlights. The Trax, along with the 2024 Buick Envista, provide customers more options for new vehicles priced well below \$30,000. With this commitment, customers across all price points and trim levels will benefit from this set of proven safety technologies.



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Toyota Motor North America makes executive change

Toyota Motor North America announced, effective July 1, 2023, Shiniichi Yasui, executive vice president, Toyota Motor North America, Research & Development, will be appointed chief project leader, Hydrogen Factory at Toyota Motor Corporation (TMC).

TMC’s Hydrogen Factory is a newly established organization dedicated to accelerating customer-focused product development and production of fuel cells and hydrogen-related products. The goal is to align business strategy, development, production, sales and marketing under one roof to enable faster decision-making, stronger alliances with rapidly expanding markets, including China and Europe, and the promotion of sustainable commercialization.

A 35-year Toyota veteran, Yasui has been a member of Toyota’s North American executive committee since 2017, leading the company’s R&D operations in the region. Yasui joined TMC in 1988 as an engineer, developing air bag systems, seats and seat belts. Over the years he held a variety of engineering and product planning roles and in 2013, became chief engineer for all Corolla models. In 2016, he was appointed executive general manager of product planning at TMC’s Mid-Size Vehicle Company before becoming executive vice president at TMNA.

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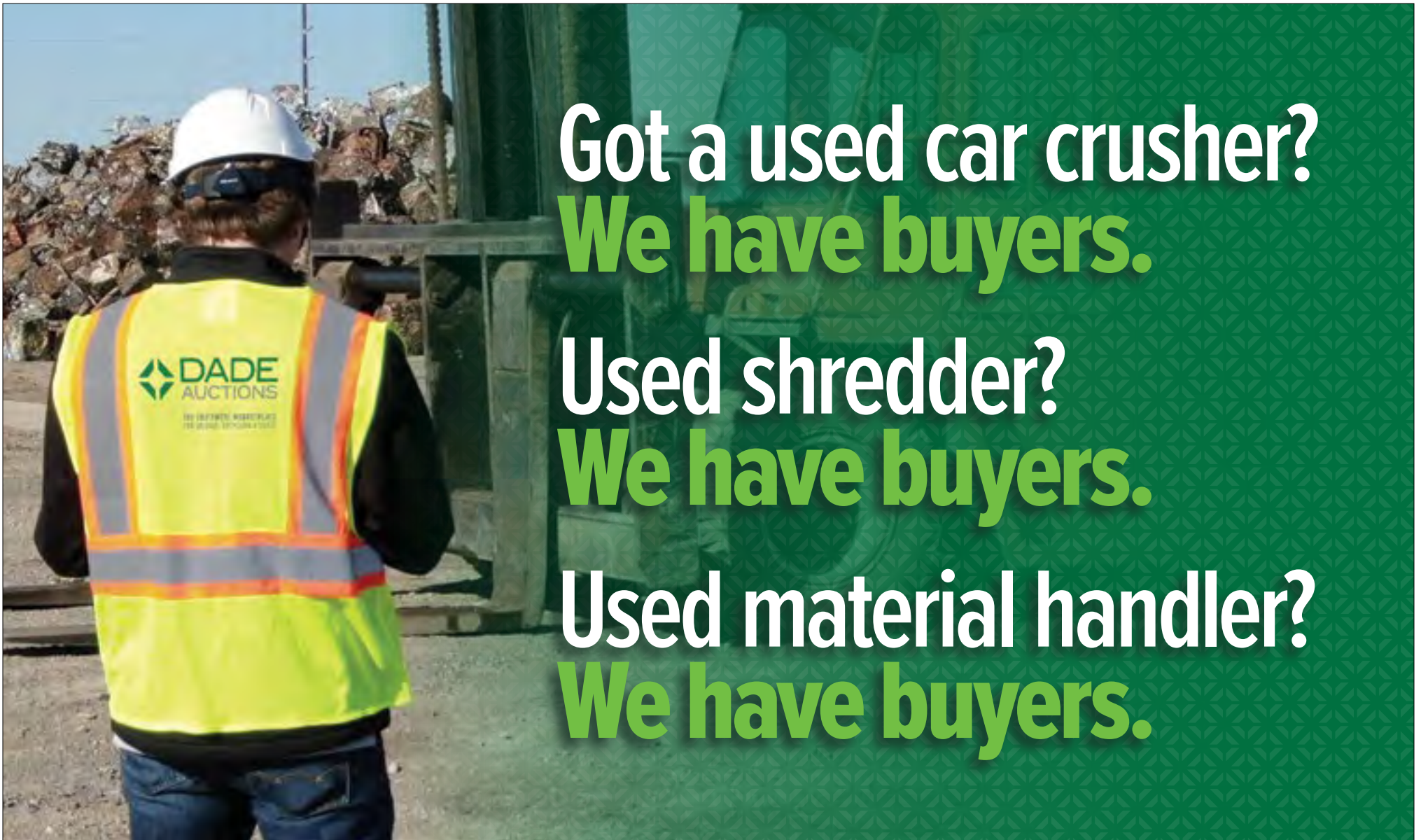
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