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FOCUS: Waste

Trends to watch in the solid waste industry



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The evolving waste-to-energy sector

by MAURA KELLER

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Here's one thing we know: Waste-to-energy (WTE) initiatives continue to take hold in North America and are beginning to catch up to what is common in Europe.

Andrew White, chief executive officer of CHAR Technologies, a company that commercializes and sells hydrogen sulfide recovery systems to solve the problem caused by toxic and corrosive hydrogen sulfide in the biogas industry, sees at least two drivers for this in North America.

The first driver is the regulatory changes diverting waste from landfills. As White explained, the European Union has a landfill tax on waste that makes WTE cost competitive. Similar legislation is taking hold in some jurisdictions in North America.

"For example, in Ontario, a new statute, Waste Free Ontario Act, is focused on diverting waste from landfills," White said. "Regulations that provide the details on how waste must be diverted from landfills have yet to be released but there is speculation that they may include landfill bans on specific wastes or possibly taxes similar to Europe."

The second driver in the growth of WTE is the GHG trading program. As WTE generates significantly less GHG than landfilling, companies that divert waste from landfills and dispose of it by WTE, may be in a position to generate GHG credits that they can sell to off-set the cost of waste management.

"In our view, the increased interest in WTE is a result of North America catching up with Europe on the view that WTE is the fourth 'R' (recovery of energy) after reduction, re-use and recycling," White said. "Some studies have shown the WTE is becoming much more cost competitive versus landfilling when several factors are included such as long-term liabilities, GHG impacts, transportation impacts, and energy recovery."

CHAR Technologies' WTE process is a patent process that takes a low value material (anaerobic digestate – the solids that remain after anaerobic digestion) and turn it into a high value product (activated carbon).

"We sell the activated carbon to renewable natural gas companies (i.e., landfills and anaerobic digestion facilities) as a means of removing hydrogen sulfide (H₂S) from the biogas prior to burning it to produce heat and/or electricity," White said. "We buy back the spent activated carbon from our customers and resell it as a soil amendment product. Hence we have two revenue streams."

The pyrolysis process that CHAR Technologies' uses to produce activated carbon from anaerobic digestate is net



Covanta's Montgomery County facility.

PHOTO COURTESY OF COVANTA

energy positive. The heat produced by burning the syngas is can be used in the pyrolysis process with extra heat that can be used for heating other buildings or generating electricity.

"We are taking a low value byproduct from the anaerobic digestion process and turning it to a high value product that can be sold twice—first as a means of removing H₂S from renewable natural gas and secondly as a soil amendment product," White said. "The bonus to the process, is that it is net energy positive so excess syngas can be utilized for other purposes."

Daniel de Liege, chairman of Alliance Bio-Products, and his team have developed a unique patented cellulose to sugar (CTS) process, which transforms agricultural, residential and commercial waste into sugars used for the production of biofuels and other products. As such, de Liege understands the ever-evolving landscape of WTE within the waste and recycling industries.

"Typically, companies overlook the green waste," de Liege said. "Everyone has been processing metals, plastics and MSW but when it comes to green waste its either filling up the landfill, being burned or chipped into mulch."

Green waste makes up billions of tons of material that can be used in a variety of ways. Through Alliance Bio-Products' cellulose-to-sugar (CTS) process, it can be used to create biofuels (ethanol,

diesel and jet fuel), bioplastics that can start breaking down within weeks of disposal and a very long list of fine chemicals, usually made with petroleum products.

"Waste is abundant and is usually low cost or no cost as a feedstock," de Liege said. "Waste doesn't require lands to grow it on, special equipment or processes to gather, nor does it produce any additional Co₂ or environmental impact in creating it."

De Liege believes the sector will continue to grow as governments around the globe are realizing that growing or making feedstocks for bioproducts is just as damaging as using petroleum based materials.

"We own the exclusive worldwide rights to the patented CTS process," de Liege said. "This is the only known process for converting virtually all cellulose material into its base components of sugars and lignin. It does this without enzymes, liquid acids, applied heat or pressure. Because of this the economics of making a gallon of cellulosic ethanol, for instance, is better than anything on the market, including gasoline. In fact, our production cost on a gallon of ethanol is \$0.91. That is equivalent to \$18 a barrel of oil, something we haven't seen in a long time."

At Alliance Bio-Products they will be introducing the CTS process to the

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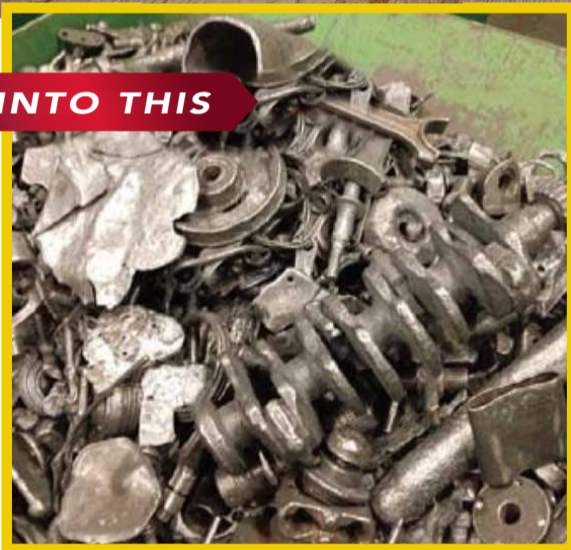
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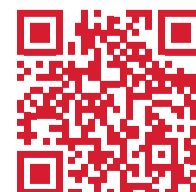
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Ventura County celebrates advancements in recycling



Ribbon-cutting at Del Norte Recycling Center.

The Ventura County Public Works Agency's (VCPWA) Integrated Waste Management Division (IWMD) commemorated the launch of two major recycling efforts at a double recycling event featuring a check presentation and ribbon cutting ceremony at two Oxnard recycling facilities. The new advances, administered through the Recycling Market Development Zone, which is managed in Ventura County by VCPWA IWMD, makes it easier for residents and businesses to recycle both plastic bottles and residential/business carpeting.

First, a \$2 million check presentation of a loan to local recycling business, PinnPack Packaging, will help streamline its processes, making it more affordable to use more than 3,000 additional tons of recycled PET plastic. The new initiative will help PinnPack retain 168 jobs. Next, a ribbon-cutting event at Del Norte Recycling Center celebrated the return of whole carpet recycling to Ven-

tura County. Residents and businesses are now able to recycle whole carpets, separate from garbage, for a fee lower than that for dumping garbage at the station. The event concluded with the inaugural tossing of the first whole carpet sample in a recycling bin.

Both initiatives will make recycled products more desirable economically while creating jobs and economic activity throughout the county.

The event was attended by representatives from each of the various partners including Cal Recycle, as well as a representative from the office of Congresswoman Julia Brownley, a representative from the office of State Senator Hannah Beth Jackson, and Oxnard Mayor Pro Tem Carmen Ramirez. On behalf of County Supervisor John Zaragoza and the Ventura County Board of Supervisors, Lourdes Solorzano delivered commendations to both PinnPack and Del Norte Recycling Center.

Quest Resource Holding renews food waste recycling contract with Kroger Co.

Quest Resource Holding Corporation, a leader in sustainability, recycling, and environmental and resource management, has disclosed the renewal of a three year waste minimization contract with The Kroger Co. Quest will continue to implement custom food waste and meat recycling solutions for the retailer across the U.S.

"The partnership with Quest will continue to play a role in helping Kroger achieve its landfill diversion goals," said Sean McGee, Kroger's senior manager of expense, sanitation and sustainability.

"About 40 percent of the food produced in the U.S. is landfilled," said Ray Hatch, Quest's chief executive officer.

"Quest is determined to help solve this endemic issue. As a result, we continuously develop alternatives and provide services under our diverse national food waste recycling program. We are delighted to continue to help forward thinking retailers minimize their waste footprints and reach their landfill diversion goals."

Quest helps its clients reduce their environmental footprints by recycling hundreds of materials. Last year alone, Quest diverted more than 415,000 tons of food waste and more than 78,000 tons of meat from landfills, which were recycled as animal feed additives, compost or as a source of energy.

PepsiCo joins The Recycling Partnership

National nonprofit The Recycling Partnership announced its newest funding partner, the global food and beverage leader, PepsiCo. The organizations have agreed to collaborate on an ambitious cross-sector approach to increasing recycling rates across America.

PepsiCo's collaboration with The Recycling Partnership will address the continued shortfall in U.S. recycling rates. Currently, still less than half of recyclables in U.S. homes are getting captured; just 22 million tons out of an available 46 million tons every year. The Recycling Partnership has already directly assisted more than 400 local communities, improving curbside recycling for 17 million households.

This work has resulted in the recovery of 115 million pounds of material, and savings of 382 million gallons of water and 164,000 metric tons of greenhouse gases. Each new funder expands The Partnership's reach to improve recycling through local and national work.

PepsiCo has already made significant efforts to cut packaging waste from its snack and beverage products. In 2015 alone, it removed approximately 100 million pounds of packaging and used 139 million pounds of recycled PET. Last year, PepsiCo announced new goals to strive to design 100 percent of its packaging to be recoverable or recyclable by 2025 and

to partner to increase packaging recovery and recycling rates.

The tie-up with The Recycling Partnership is the latest in a series of collaborations that PepsiCo is undertaking to tackle packaging waste.

•PepsiCo announced in March 2017 an agreement with biotechnology leader, Danimer Scientific on the development of biodegradable film resins for thin film packaging.

•PepsiCo announced in May 2017 that it has joined the New Plastics Economy, an initiative led by the Ellen MacArthur Foundation to bring together industry, government, non-governmental organizations, scientists, students and citizens to build a more sustainable global plastics value chain.

•PepsiCo, through the PepsiCo Foundation, is a founding member of the Closed Loop Fund, which is investing \$100 million to raise recycling rates in the U.S., including through improved curbside recycling and materials processing.

•Since 2010, PepsiCo Recycling has worked with more than 4,000 schools K-12, and numerous college and university campuses and local communities in the U.S. to boost recycling and raise awareness of the importance of recycling. Since 2010, in schools alone, some 93 million cans and bottles have been recycled through PepsiCo Recycling.

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Why did the old man fall in the well? Because he couldn't see that well.

Waste-to-Energy

■Continued from Page 1

world by converting an existing bioethanol plant into a CTS cellulosic ethanol plant. By the end of 2018 the first commercial plant will be up and running producing the cleanest, lowest cost fuel available today.

"This will change the way all biofuels are made and evaluated," de Liege said.

Continuous Innovations

The WTE industry continues to innovate. For example, at Covanta, they have developed and deployed technology that continues to improve the environmental performance and increase the amount of material they can recycle. Recently Covanta developed LN (Low NOx), a system that enables existing WTE facilities to reduce nitrogen oxides emissions by half. In 2014, the Montgomery County, Maryland, resource recovery facility, operated by Covanta, received the prestigious Clean Air Technology Award from the U.S. Environmental Protection Agency for upgrading its emissions control with LN technology.

"On metals recycling, we have continued to increase the amount of material we recover and improve the quality of our product," said James Regan, director of communications at Covanta. "After combustion takes place in our WTE facilities, we are able to recover over 500,000 tons of both ferrous and nonferrous metals from the remaining ash. This amount is enough steel to build more than five Golden Gate Bridges and sufficient aluminum for manufacturing more than two billion beverage cans."

Regan pointed to the absence of meaningful sustainable waste, energy or climate policy initiatives at the federal level – similar to those enacted by the European Union – as the reason there has not been a persistent, meaningful increase in the construction of new WTE infrastructure in the U.S.

"Outside the U.S., there are many opportunities for new facilities because of supportive policies that discourage landfilling and encourage sustainable waste management," Regan said.

Covanta's state-of-the-art metals processing operation in Fairless Hills, Pennsylvania cleans and sorts metal materials recovered from Covanta's WTE facilities.

In 2015, Covanta opened a facility to clean and sort ferrous metal for recycling. This year, the company added a new nonferrous facility that uses advanced equipment and technology to recover and sort even the smallest fragments of valuable nonferrous metals like aluminum, brass and copper from the waste stream. The nonferrous material is cleaned and separated by size, density and metal type, creating a higher-value recycled metal product.

"In addition, we have developed a way to recover, clean and sort coins," Regan said.

According to Regan, WTE will continue to grow because of the following benefits:

•WTE facilities provide sustainable, safe waste disposal that comple-

ments recycling. The U.S. wastes 7.5 million tons of metal in landfills each year that could be recovered at WTE facilities and used to build 90 Golden Gate Bridges annually.

•WTE facilities produce clean, reliable energy and steam 24/7. The power is complementary to other intermittent renewables that rely on the weather.

•WTE facilities are net reducers of greenhouse gases, offsetting methane from landfills and CO2 from fossil fuel power plants. Recycling metal and avoiding emissions from the long-distance transport of waste also reduces greenhouse gases.

On the Horizon

Industry experts believe that specialized WTE facilities will take hold in the future. You just need to look at the number of innovative companies in the WTE sector that have various versions of pyrolysis, gasification, thermal depolymerization, etc.

"Each one of these new processes have a niche that they fit into," White said. "We see the move toward these smaller, specialty systems that may handle one specific waste stream or be on site at a facility to eliminate the need for off-site transportation and management of the waste."

Unfortunately, in some jurisdictions in the U.S., government regulation has not caught up with the newer approaches of "waste-to-product."

"The new clean tech companies are caught off guard when they find out they need to apply for a waste processing permit before beginning commercial operations," White said. "In their view, the government regulation view of 'waste' is antiquated."

Indeed, in the U.S. the biggest hurdle to WTE is that there is no uniformity between cities and states as to which direction various efforts should go.

"That's not necessarily a bad thing as numerous technologies get tried and implemented," de Liege said. "The downside is that sometimes the technologies that work get gobbled up by large companies that want a competitive edge and therefore they aren't deployed broadly. Europe is really making strides in eliminating the 'growing' of feedstocks and focusing on waste products."

Certain regions of the world, such as parts of Europe and Asia, embrace WTE and maintain public policy that supports its widespread adoption.

In the U.S. industry players are seeing a shift in how many businesses and industries are now striving for sustainability and reducing their environmental footprint – including waste and recycling.

"We work with them to find solutions to recycle as much as possible and utilize WTE over landfilling as the more sustainable choice to handle what material remains," Regan said. "The WTE industry will continue to be an important part of sustainable waste management as the U.S. grows more aware of the negative short and long-term effects of landfills."

Collaboration delivers funds for education

Recycling professionals from across the U.S. gathered in Minneapolis for the 2017 Resource Recycling Conference to further their recycling education. The Recycling Partnership disclosed the recipients of its Steve Thompson Memorial Education Grants.

At the end of 2016, The Recycling Partnership released its 2016 State of Curbside report, identifying the key attributes of the highest performing recycling programs in the U.S. The single attribute found in 100 percent of those communities was engagement in "public action," where local program staff were actively managing their programs. In other words, recycling professionals are the key to better program performance.

The Partnership announced funding to issue more grants, working with eight additional funders: Cascadia Consulting Group, the Closed Loop Fund, Dow, Keep America Beautiful, ReCollect, ReTRAC Connect, Recycle By City and the Sustainable Packaging Coalition.

This is the second year that The Recycling Partnership, in association with Re-TRAC Connect and Resource Recycling, Inc., has offered the Steve Thompson Memorial Grant to bring recycling professionals to the Resource Recycling Conference, paying for travel, lodging and registration. Last year, 10 grants were chosen from more than 200 applications. This year, 53 grants were issued from more than 500 applicants.

Events Calendar

September 12th-14th

The Battery Show Exhibition & Conference 2017. Suburban Collection Showplace, Novi, Michigan.
855-436-8683 • www.thebatteryshow.com

September 18th-20th

ARC's Annual Conference & Trade Show. Best Western Inn of the Ozarks, Eureka Springs, Arkansas.
866-290-1429 • www.recycleark.org

September 25th-27th

SWANA's WASTECON. Baltimore Convention Center, Baltimore, Maryland.
800-467-9262 • www.swana.org

September 30th-October 4th

Water Environment Federation's Annual Technical Exhibition and Conference. McCormick Place, Chicago, Illinois.
800-666-0206 • www.weftec.org

October 22nd-24th

WV Educational Conference on Litter Control & Solid Waste Management Conference. Pipestem Resort State Park, Pipestem, West Virginia.
304-573-5194 • www.awvswa.com

October 25th-26th

Canadian Waste & Recycling Expo. Scotiabank Convention Center, Niagra Falls, Canada.
403-589-4832 • www.cwre.ca

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EPA adds battery recycling facility to Superfund List

The U.S. Environmental Protection Agency (EPA) has added a former battery recycling facility in Arecibo, Puerto Rico to its Superfund National Priorities List of the country's most hazardous waste sites. As a result of previous operations, the site is contaminated with lead, arsenic and heavy metals. Before it temporarily stopped operating in the spring of 2014, The Battery Recycling Company, Inc. smelted lead batteries into lead ingots, which are bars of lead that can be reused in manufacturing.

In the process of smelting the lead batteries, The Battery Recycling Company, Inc. generated large quantities of waste, including lead slag and lead-contaminated dust. Workers also carried lead dust on their clothes into their cars and homes, putting their families and others potentially at risk. Lead is a toxic metal that can cause damage to a child's ability to learn and a range of health problems in adults. Arsenic is known to cause cancer, as well as many other serious health problems.

•In 2010 and 2011, the EPA conducted a series of inspections of the facility to determine its compliance with federal laws and regulations.

•The EPA took various enforcement actions against the company and reached a settlement in June 2011 under which the company agreed to clean up and prevent releases of lead dust from the facility.

•The EPA also assessed homes and vehicles of former company employees that had become contaminated with

lead dust from the facility. The EPA evaluated 202 homes and 282 vehicles, and the company then cleaned up 149 residential properties and 145 vehicles under EPA's oversight.

•Following the temporary shutdown of the facility in the spring of 2014, the company alerted the EPA to its financial inability to complete work under the settlement. The EPA then began work to stabilize lead slag piles and contain contaminated waste water to minimize the most immediate threats posed by releases from the site. That work is ongoing.

•In September 2016, the EPA proposed the Battery Recycling Company site for inclusion on the federal Superfund list.

The Puerto Rico Environmental Quality Board supports the inclusion of the Battery Recycling Company site on the federal Superfund list and the EPA has determined that Superfund is the best course of action to protect people's health and clean up the contamination. The EPA took public comment and considered public input before finalizing the decision.

The task force's recommendations focused on five overarching goals: expediting cleanup and remediation, reinvigorating cleanup and reuse efforts by potentially responsible parties, encouraging private investment to facilitate cleanup and reuse, promoting redevelopment and community revitalization and engaging with partners and stakeholders.

10 million tons of produce discarded in U.S. annually



Greenbelt Resources Corporation has successfully developed a solution to address industrial segments of the global food waste problem. In the U.S., 30 to 40 percent of food goes to waste costing the country \$220 billion in economic losses, according to the U.S. Department of Agriculture. Consumers and businesses throw another 53 million tons of food away. Saudi Arabia is the largest food waster in the world followed closely by Indonesia where more food is wasted each year than is produced in the country. Focused on developing solutions to the growing crisis, Greenbelt developed its proprietary waste-to-energy technology to convert food industry waste into revenue generating bioproducts.

Currently working on an initiative in Jakarta, Indonesia, Greenbelt chief executive officer Darren Eng explained that Greenbelt's waste-to-energy technology, ECOsystem, was developed to specifically address several areas of food waste including on the farm and in the food industry.

"The ECOsystem process converts the food waste into multiple bioproducts including, in some cases, a high-quality protein feed for human consumption

designed to help meet the growing global demand for more protein sources," said Eng. "The technology can also produce bioethanol, potable water, organic fertilizer that can be used in the fields, and in some cases bioenergy. One of the beauties of our technology is that it can be customized to fit any type of food waste situation."

In the global conversation around food waste three categories of waste have evolved:

- Food losses – the food lost during production;
- Unavoidable food waste – the food lost during the consumption phase (such as orange peels or fruit cores); and
- Avoidable food waste – The food that could have been eaten.

Unavoidable food waste is one area in particular on which Greenbelt is focused.

"No matter how much food waste we avoid, we need to recognize that some element of waste will always be endemic, especially the large stream of inedible food. The question is, since we may not be able to avoid those wastes, what do we do with them?" asked Energy Vision Chair Joanna Underwood.

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Metal Construction Association to offer MCA Certified label

The Metal Construction Association (MCA) is providing a Metal Roofing Certification Program for metal roofing products to help companies "raise the roof" by differentiating their products from the competition. The MCA Metal Roofing Certification Program is open to paint and coatings companies, roofing product manufacturers, coil processors, and roll formers.

Based on industry standards published in the Guide Specification for Residential Metal Roofing, this program offers certification of base metal and finishes. Currently certification for painted finishes and uncoated metal is available.

The certification label assists both contractors and consumers in choosing the right metal roofing materials for their needs. The MCA label clearly differentiates quality levels of steep slope metal roofing by applying industry performance standards.

"The Metal Roofing Certification provides a credible basis for product comparison for the customer, and gives companies a distinct advantage over their competition," says Karl Hielscher, MCA's executive director.

Roofing products that meet the MCA Metal Roofing Certification criteria may be promoted as "Metal Construction Association Certified Premium Painted™," "Metal Construction Association Certified Standard Painted™," or "Metal Construction Association Certified Natural™."

Approval for participation in the MCA Metal Roofing Certification is based on completion of an application that demonstrates that a company meets the criteria and agrees with the program requirements.

For a direct link to the application, view this article on www.AmericanRecycler.com.

Man who illegally disposed of radioactive waste added to EPA's list of Criminal Fugitives

The U.S. Environmental Protection Agency has added James Kenneth Ward to its list of criminal fugitives. Ward was indicted on April 5, 2017, in federal district court in Montana and escaped custody of local officials during a prison transport in Wyoming in March 2013.

Ward is wanted on federal fraud charges connected with illegal disposal of radioactive waste in several North Dakota locations.

Ward should be considered violent and dangerous. Anyone who sees Ward should not attempt to apprehend him, but should report the sighting through the EPA fugitive website or contact the EPA criminal investigation division at 303-312-6458.

In 2011, Ward entered into a contract with a company called Zenith Produced Water to properly dispose of filter bags which can contain pollutants and radioactive substances resulting from the drilling and development of oil. These pollutants and radioactive substances can damage the environment and public health if discharged to ground water, surface water or on land. During the period of the contract with Zenith, Ward did not legally and properly dispose of the filter bags, but instead left them at a former gas station located in Noonan, North Dakota.

Ward, already a fugitive, returned to the U.S. from Mexico to face state larceny charges when he escaped.

California carpet program awards micro-grants

Funds meant to increase carpet recycling

Carpet America Recovery Effort (CARE)'s California Carpet Stewardship Program has awarded grants of \$10,000 Each to five companies for its Cycle 1M Micro-Grants for Collections/Reuse Programs pilot. Funds were awarded for infrastructure projects and/or purchase of equipment that supports the operational logistics of properly collecting and/or reusing California post-consumer carpet (PCC) under a new or established program. Projects must be completed by the end of 2017, and are expected to support over 15 million net new pounds of collection annually.

Grantees include:

•A-1 Planet Recycling, Chula Vista: To purchase four 40 yard roll-off

containers for San Diego localized collection at retail sites.

•CLEAR, Lincoln: To purchase 20 sea containers for Sacramento localized collection at small and medium retailers.

•Green Waste Recovery, San Jose: To purchase a MicroPHAZIR gun to identify PCC types more rapidly and increase throughput into the facility.

•Napa Recycling and Waste Services to purchase a rain/weather cover to increase PCC diversion by 30 percent.

•Zanker Recycling, San Jose to purchase a rain/weather cover and cement pad at the Florin Perkins site in Sacramento to increase PCC diversion by about 33 percent.

LA sanitation program wins award

LA Sanitation (LASAN)'s new recycLA program will receive a 2017 LA Digital Government Summit Award for their technology implementations for customer service.

"LA Sanitation staff works hard every day to develop new technological solutions for our every day mission of protecting public health and the environment," said Enrique C. Zaldivar, P.E., LASAN general manager and executive director.

On July 1, LASAN launched the first phase of a six month rollout of a new business and multifamily recycling and waste collection franchise program called recycLA. However, the work required to make this program run as smoothly as possible was a long time in

the making, including staff dedicated to ensuring the best possible customer service experience for users.

The new recycLA program uses two main systems for data collection. One is an expansion of the popular MyLA system for recycLA-related service requests. This means that commercial customers are now able to use MyLA for waste-related services.

The second system is the Accela Civic Platform Solution, used to collect and maintain Contract Data, Inspections, Permits and other program management data needed to oversee recycLA. Both systems use web series to integrate with the seven private franchise-service providers, and are an essential part of the recycLA program.

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A little boy had been looking out of the plane window. He turned to his mother and asked, "If big dogs have baby dogs, and big cats have baby cats, why don't big planes have baby planes?"

The mother couldn't think of an answer.

She told him to ask the flight attendant.

"Well," said the flight attendant, "Go and tell your mother that there are no baby planes because Southwest always pulls out on time. Have your mother explain that to you."

Rumpke opens new recycling center in Medora, Indiana

Rumpke Recycling unveiled its new Medora Recycling Center during a grand opening ceremony, in August in Medora, Indiana.

Located at 546 S. County Rd. 870 W., the Medora Recycling Center features a 5,540 square foot concrete pad with an enclosure to protect a recycling baler and collected recycling material.

The project was partially supported by an \$87,425 grant from the Indiana Department of Environmental Management's (IDEM's) Recycling Market Development Program. Rumpke funded the remaining balance of the \$625,000 project.

Recyclables will come from residential and commercial customers in the surrounding area. The new center allows for single stream recycling, where residents mix all recyclables into a single container, and a single truck collects the items. It is one of most innovative single stream recycling systems in rural Indiana.

"The Medora Recycling Center will allow Rumpke to expand its curbside and business recycling programs

and improve accessibility to recycling throughout southern Indiana," said Steve Sargent, Rumpke director of recycling. "We've already had hundreds of residents and businesses start recycling, and that number continues to grow. This represents an excellent public-private partnership to improve recycling."

Some recyclables will be transported from Medora directly to manufacturers to create new products, while Rumpke will transport remaining items to its regional recycling facility in Cincinnati for processing.

Rumpke employs 40 people at its Medora District, including drivers, mechanics, equipment operators, laborers, office personnel and managers/supervisors.

The Medora District includes a landfill, recycling center, hauling operation and maintenance garage. Rumpke owns and operates 10 recycling facilities, and the company recycled more than 1 billion pounds of material in 2016.

The teacher was giving her class of seven year olds a nature history lesson. "Worker ants," she told them, "can carry pieces of food five times their own weight. What do you conclude from that?" One child was ready with the answer, "They don't have a union?"



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GLASS

Rocky Mountain Bottle to increase compliance, reduce emissions

Under a settlement disclosed by the U.S. Department of Justice (DOJ), the U.S. Environmental Protection Agency (EPA), and the State of Colorado, Rocky Mountain Bottle Company, LLC (RMBC) has agreed to install emissions controls on the glass furnaces at its Wheat Ridge, Colorado glass bottle manufacturing facility that will eliminate the emission of more than 200 tons of nitrogen oxides (NOx) and 150 tons of sulfur dioxide (SO₂) per year and improve compliance with federal and state clean air laws. Emissions of these pollutants can cause serious respiratory illnesses, aggravate asthma and contribute to the formation of smog.

The State of Colorado, through its Colorado Department of Public Health and Environment and the Colorado Attorney General's office, was an active partner in the settlement.

EPA and the State of Colorado allege that RMBC completed a glass-melting furnace expansion project at its facility in Wheat Ridge, a suburb of Denver, resulting in increased emissions of NOx and SO₂, without first obtaining pre-construction permits or installing

the required pollution control equipment. Wheat Ridge is located in the Denver Metro/North Front Range region, which is categorized as a "moderate" ozone nonattainment area. NOx, along with carbon monoxide and volatile organic compounds, are ozone precursors, meaning that in the presence of sunlight, they react in the atmosphere to form ground level ozone.

The agreement requires RMBC to operate emissions controls to reduce NOx and SO₂ pollution. The controls are designed to reduce RMBC's NOx emissions by approximately 60 percent from previous levels. RMBC must also route all emissions through a continuously operating scrubber system to reduce SO₂ emissions, also by roughly 60 percent from prior amounts. RMBC will also need to continue to operate monitoring systems that will allow it to monitor NOx and SO₂ emissions on an hourly basis. The NOx and SO₂ pollution controls must be fully operational by the end of March 2019. RMBC has also agreed to pay a \$475,000 civil penalty to resolve alleged violations of the Clean Air Act.

A Spanish magician has a grand show and at the end he says he will disappear after counting to three. He starts to count, "Uno, dos..."

POOF! He vanished without a tres!



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PLASTICS

GreenMantra receives \$2.2 million in funding for polystyrene cleantech innovation

GreenMantra Technologies, a clean technology company that produces high-value polymers from waste plastics, will receive \$2.2 million from Sustainable Development Technology Canada (SDTC) to be used toward construction of a demonstration plant that will convert waste polystyrene into modified styrenic polymers for use in inks, foam insulation and other applications.

The funding was announced by the Honorable Navdeep Bains, Minister of Innovation, Science and Economic Development, during a ceremony at GreenMantra's headquarters in Brantford, Ontario.

Polystyrene plastic in foam and solid form is commonly used in consumer products, food and product packaging and many other applications. It is one of the world's fastest growing solid wastes, yet has one of the lowest recycling rates of all plastics with an estimated 95 percent either disposed of in landfills or incinerated.

Using a proprietary catalyst and unique conversion process, GreenMantra Technologies has converted waste polystyrene foam into useful polymers on a laboratory scale. The demonstration plant, to be constructed at GreenMantra's existing manufacturing complex in Brantford, will have an anticipated initial annual capacity of 1,000 metric tons per year. This will provide an ample supply of converted modified styrenic polymers for trialing in end-use applications and potential initial commercial sales. The design and engineering of the new facility will begin this year, with construction starting in 2018.

GreenMantra currently converts waste polyethylene and polypropylene plastics, such as film, bottle caps and food containers, into specialty synthetic waxes. These waxes are used in various applications in the coatings, plastics processing, adhesives, roofing and paving industries.

Plastic makers support G20 efforts to reduce marine litter

The World Plastics Council (WPC) welcomes the Marine Litter Action Plan released by the G20 and commends states for their commitment to reduce marine litter and its impacts by 2025. "This urgent issue requires all of us working together and we look forward to further collaboration with G20 member states to solve this global challenge", said WPC Chairman, Abdulrahman Al-Fageeh, SABIC.

Plastic makers agree with G20 leadership and the growing scientific consensus that the most effective step we can take under this urgent priority is to develop integrated and sustainable waste management infrastructure in rapidly emerging economies where such systems are lacking. Investing in waste collection and treatment facilities and promoting access to these infrastructure resources is the most responsible way to help prevent land-based waste from leaking into our oceans.

"The global plastics industry is already working with leaders in regions where ocean plastic inputs are highest, to ensure that waste management infrastructure is a priority. We look forward to sharing knowledge and expertise with G20 leadership," concluded the WPC chairman.

Around the world, plastics makers currently have more than 260 projects either planned, underway or completed to combat marine litter.

With combined efforts to research and prevent marine debris under the Declaration of the Global Plastics Industry for Solutions on Marine Litter, the effort has grown each year since 2011, when it was launched.

Signed by 70 plastics associations in 35 countries, the declaration focuses on education, public policy, best practices, plastics recycling and recovery, plastic pellet containment and research.



Testimonial



I received your publication by mail. I can confirm I have never seen it before in its hard copy version. I like the layout and it is very informative, in a league of its own in terms of quality information. No wonder it is the only recycling publication quoted on Lumistar's blog. I look forward to upcoming issues.



I have read issues of your publication in the past by accessing digital archives at one of two libraries I am a member of. Your website is also fantastic.

—Paul Angel, LUMISTAR CORPORATION

PLASTICS

Nestlé Waters North America launches recycling labeling

Nestlé Waters North America, a beverage manufacturer, has begun adding the clear and consistent How2Recycle instruction to the labels on half-liter bottles of all its major U.S. brands. This includes its purified water brand Nestlé® Pure Life® as well as its regional spring water brands, Poland Spring®, Deer Park®, Ice Mountain®, Zephyrhills®, Ozarka® and Arrowhead®.

With this move, Nestlé Waters North America becomes the first beverage manufacturer in North America to add this label to all its major U.S. bottled water brands. The company anticipates completing the massive How2Recycle transition and roll out by September 2017.

Variation in recycling programs, unclear labeling and inaccurate recyclability claims make recycling a challenge in the U.S.

The How2Recycle label was first created in 2012 by the Sustainable Packaging Coalition, a membership-based collaborative made up of businesses, educational institutions, and government agencies to help make recycling easier for consumers. It has so far been adopted by more than 65 brands and retailers and can be found on thousands of products on shelves today.

“We cannot overstate the environmental importance of the ‘Empty & Replace Cap’ instruction on these bottles; it means fewer loose caps will have the potential to get into our waterways and oceans,” said Kelly Cramer, who leads How2Recycle at Sustainable Packaging Coalition. “Importantly, it also helps ensure that the caps will be recycled. That’s because when caps are replaced on bottles that go through the recycling stream, it’s less likely that they will fall through recyclers’ equipment and be discarded. Nestlé Waters’ confident move to put the How2Recy-



cle label so prominently on so many bottles is a statement that they are serious about helping people recycle more, and better.”

Nestlé Pure Life began the initiative in August with the How2Recycle label being added to certain Nestlé Pure Life half-liter bottles produced in this country. Following on from the current Nestlé Pure Life rollout, the new label began to appear on certain Poland Spring, Deer Park, Ozarka, Ice Mountain and Zephyrhills brand half-liter bottles in August. The How2Recycle label will begin appearing on certain Arrowhead half-liter bottles during the month of September.

How2Recycle is the only U.S.-based standardized labeling system that communicates recyclability information on package to consumers. How2Recycle is featured on an array of product and packaging types, such as beverages, toys, baby products, pet care products, baking supplies, condiments and more. Consumers should check with their local recycling facilities for more specific information and instructions.

PLASTICS names new director

The Plastics Industry Association (PLASTICS) launched a sustainability advisory board, which will include members who represent the association’s key councils and committees. The goal of the sustainability advisory board is to enlist a diverse group of plastics industry professionals to discuss and identify sustainability priorities in the plastics industry, which will inform projects. The sustainability advisory board unveiled its top priorities in June at PLASTICS’ second annual Refocus Sustainability & Recycling Summit in Orlando, Florida.

“Our Sustainability Advisory Board will help to leverage the brightest professionals to collaborate to help move the needle forward for sustainability in the plastics industry,” said PLASTICS’ newly promoted vice pres-

ident of sustainability, Kim Holmes. “We want to have a forward-thinking group with the intention to drive beyond recycling and more broadly approach sustainability as holistically including recovery in addition to recycling.”

Further strengthening its sustainability practice, PLASTICS has also welcomed Ashley Hood-Morley as director of sustainability. Hood-Morley has worked at PLASTICS since 2014 and brings a wealth of industry knowledge and expertise. Prior to joining PLASTICS, Hood-Morley worked for Eastman Chemical Company in Kingsport, Tennessee where she held a variety of positions including roles in new product development, manufacturing technical staff, quality assurance, and product stewardship.

INTERNATIONAL

Frontline International hires waste oil environmental expert to head operations

Ohio based Frontline International, a provider of Smart Oil Management™ systems for foodservice operators around the world, has opened a South American sales office. The sales office, located in Bogota, Colombia, is headed by Santiago Montejo, and will allow restaurant customers and Frontline International equipment dealers on the continent to receive regular visits from a used cooking oil collection expert and environmental steward.

Montejo will champion the environmental benefits of proper foodservice cooking oil management and be able to provide valuable on-site product installation recommendations. The Bogota office, run independently from Frontline International’s Oil Care branded operations headquartered in Puerto Rico, will allow customers throughout Latin America to receive products quickly and efficiently.

In 2011, Montejo started his own business to collect used cooking oil (UCO) with the environmentally related goals of reusing and repurposing this potentially valuable commodity, which might otherwise be disposed

of improperly. At the time, there were no local biodiesel plants that could process UCO, so it had to be exported to Spain. In 2014, Montejo learned about Frontline International through the company’s website and contacted them to learn more. In 2015, Frontline International sent Montejo equipment to collect UCO from professional kitchen fryers and, by 2016, he was attending the National Restaurant Association conference on the company’s behalf.

While he originally focused on collecting and repurposing the oil, the more he learned about the safety hazards involved with handling UCO, the more driven he was to approach sales and service from the perspective of making kitchens safer, cleaner places. He has worked with the Colombian government to create and standardize formal processes for UCO collection, even assisting with writing the related regulations and lobbying the government for change. He is now an environmental consultant for both the country and for the broader South American restaurant industry.

Singing in the shower is all fun and games until you get soap in your mouth. And then it’s all drama and becomes a soap opera!



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WASTE

Ex-landfill manager given probation

Former Fremont County landfill manager, Dusty VanRenan, plead guilty to a criminal charge of theft. A state investigation accused him of improperly using thousands of tax dollars between October 2014 and August 2015.

VanRenan was charged with criminal conduct and second degree theft. The charges were the result of a special investigation of the Fremont County Sanitary Landfill Commission which found the improper use of thousands of dollars of the organization's funds.

State Auditor Mary Mosiman said her office found irregularities in spending by VanRenan. She says they found a little more than \$39,000 dollars of money that was not properly spent – including approximately \$7,900 that was from the improper use of the commission's fuel card, and there were some improper disbursements to VanRenan.

He resigned in September 2015, was given two years of probation and was ordered to pay restitution and court costs.

For additional articles focusing on the topic of waste, see page B1.

ALTERNATIVE ENERGY

DuPont and Bock partner to expand biogas enzymes distribution footprint

DuPont Industrial Biosciences (DuPont) and silage storage specialists Bock UK Ltd (Bock) formed a strategic partnership where Bock will demonstrate DuPont's biogas enzyme technology at commercial scale in the U.K. market. The enzyme technology, OPTIMASH® AD-100, has been shown to help biogas producers in the agricultural sector improve yields and process robustness, which ultimately can increase customers' revenue and profitability while simultaneously increasing offerings in renewable energy.

DuPont intends to provide its OPTIMASH AD-100 enzyme biotechnology, an innovative and easy to use liquid enzyme product that has been shown to produce up to a 13 percent increase in biogas yields in anaerobic digesters, to Bock for distribution of the biogas enzymes to customers across the United Kingdom.

The biotechnology works by accelerating the breakdown of various materials such as maize silage, grasses, straw, as well as manures and some food wastes, resulting in sugars

more suitable for conversion into biogas. DuPont entered the growing biogas sector with the launch of OPTIMASH AD-100 in July 2016.

Bock UK are the U.K. leaders in silage storage supplying over 50 AD plants in the U.K. with patented sloping wall silage clamps and many more plants with silage clamp covers and accessories. Over 2 million tons of silage is stored in Bock UK silage clamps on AD plants in the U.K.

University of Virginia, Dominion Energy and Coronal Energy launch solar energy project

The University of Virginia continues to expand its portfolio of carbon-free generation and achieve key sustainability targets with another partnership with Dominion Energy.

Under a 25 year agreement, the University will purchase the entire output of a proposed 120 acre solar facility in Middlesex County. The solar facility, developed by Coronal Energy, will be constructed and owned by Dominion Energy. It will produce an estimated 15 megawatts of alternating current, or about 9 percent of the University's electric demand.

The UVA Puller Solar facility joins the previously announced UVA Hollyfield Solar facility. In total, the 2 sites will produce 32 megawatts of solar energy and will offset about 21 percent of the University's electric demand.

The solar facility will enable the University to reduce its carbon footprint by more than 15,000 metric tons a year, as well as reducing more than 19 metric tons of nitrogen, positioning UVA to meet key sustainability milestones. UVA has pledged to reduce its carbon and nitrogen footprints by 25 percent by the year 2025 below 2009 and 2010 levels, respectively. UVA is the first institution to calculate its nitrogen footprint and set a reduction goal.

UVA senior vice president for operations Colette Sheehy said the University has a successful track record on sustainability and energy conservation initiatives, and sees this second solar field as a means to help UVA reach its overall target.

UVA's five year Sustainability Plan, launched in April 2016, compiles new ideas, as well as feedback generated

over the past several years, while building upon the University's many existing initiatives, documents and accomplishments to continue to advance sustainability. It puts forth new and existing goals with more than 100 actions to move toward those goals as well as achieve a longer-term vision.

With the Facilities Management's Delta Force program, which pursues deep energy savings, the University has reduced consumption in 51 of UVA's most energy-intensive buildings, which constitute more than 4.6 million square feet of built space. This has contributed to a 10 percent reduction in overall building energy use intensity since 2010.

The UVA Puller Solar Facility was acquired as a development asset from Coronal Energy, a solar development company with headquarters in Charlottesville, Virginia. The facility will feature approximately 58,800 solar panels, enough to power about 3,750 homes at peak output. Construction is slated to start in late 2017, with commercial operations occurring by the end of 2018.

Eagle Creek Renewable Energy acquires Hydro facilities in Maine

Eagle Creek Renewable Energy has completed the acquisition of approximately 30 MW of hydroelectric facilities from Madison Paper Industries, a partnership of UPM and Northern SC Paper Corp., a subsidiary of The New York Times Company. The closing of the transaction took place on July 31, 2017.

Eagle Creek has acquired the 9 MW Anson and 19 MW Abenaki facilities located on the Kennebec River in Madison, Anson, and Starks, Maine. The two facilities were part of the Madison Paper mill complex and formerly provided

power to the mill until it closed in May 2016. As independent facilities owned by Eagle Creek, they will now provide approximately 150 million kilowatt-hours per year of clean, renewable energy to the New England power grid.

Eagle Creek has also acquired a minority interest in the 4 MW Brassua facility near the village of Rockwood, Maine and a majority interest in the Kennebec Water Power Company, which regulates releases from upstream storage reservoirs on the Kennebec River.

My wife and I have been married for quite a few years and my wife asked me recently to get some pills that would make sure I'd be up to some action in the

bedroom again.

I brought home diet pills. Apparently very much not what she meant.



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METALS

Gerdau reports 2017 second quarter financial results

In the second quarter of 2017, Gerdau posted net sales of R\$9.2 billion, down 11 percent from the same period a year earlier. The result was mainly affected by the effects from exchange variation in the period on units located abroad and by the divestment of the special steel units in Spain. However, compared to the first quarter of 2017, net sales advanced 8 percent, supported by higher shipments at most of the company's business divisions.

Meanwhile, consolidated shipments fell by 13 percent compared to the second quarter last year, amounting to 3.7 million

tons. Compared to the first quarter, shipments grew by 3 percent. Steel production, which amounted to 4.1 million tons, accompanied the behavior of shipments, decreasing 5 percent from the second quarter last year and increasing 2 percent from the first quarter this year.

Adjusted consolidated cash generation (EBITDA) amounted to R\$1.1 billion in the second quarter, down 7 percent on the prior-year period, reflecting the lower gross profit, which was partially neutralized by the 27 percent reduction in selling, general and administrative expenses.

Despite the lower EBITDA in the period, EBITDA margin expanded to 12.2 percent, from 11.7 percent in the second quarter of 2016. Compared to the first quarter of 2017, adjusted EBITDA advanced 31 percent, supported by improvements in all divisions.

In the second quarter, Gerdau also was able to reverse the adjusted net loss of R\$34 million reported for the first quarter, with consolidated adjusted net income of R\$147 million, supported by the higher EBITDA in the period. Net income in the quarter was adjusted by the deconsolidation

of the operation in Colombia from the balance sheet, which has been treated as a jointly controlled entity since June, following the consummation of the sale of a 50 percent interest in Gerdau Diaco to Putney Capital Management.

The operations in Canada, U.S. and Mexico (excluding the special steel mills) shipped 1.6 million tons of steel goods in the second quarter of 2017, down 5 percent from the same period a year earlier and stable compared to the first quarter of 2017, due to strong pressure in the region from imported goods.

Nucor to acquire cold finish facilities

Nucor Corporation has agreed to acquire St. Louis Cold Drawn, Inc., a manufacturer of cold drawn rounds, hexagons, squares, and special sections that mainly serve the U.S. and Mexican automotive and industrial markets.

St. Louis Cold Drawn, Inc. employs 125 people and has 2 manufacturing locations, 1 in St. Louis, Missouri, and the other in Monterrey, Mexico, that have a combined annual capacity of 200,000 tons. The addition of these facilities will increase the total capacity of Nucor's cold finished bar and wire facilities to more than 1.1 million tons annually and helps advance our goal of growing our sales to automotive customers.

MetalX expands with facility in Delta, Ohio

On the heels of last month's acquisition of M&K Metal Processors in Delta, Ohio, MetalX disclosed that it plans to invest \$35 million to build a greenfield, state-of-the-art scrap processing plant in Delta, Ohio. The company intends to develop its new facility on a 60 acre site across the street from North Star BlueScope's flat-rolled steel mill.

When the first phase is fully operational, the facility is expected to handle over 500,000 tons per year and employ more than 80 people. Future plans will grow employment to over 100 people and annual volume to 700,000 tons. Key ferrous operations will include a heavy duty shredder and recovery system, a production baler, mobile shears and a high-capacity staging and distribution yard for prepared grades. Nonferrous

operations will focus on shredded aluminum recovery and industrial scrap processing. The company will also operate a full-service fleet transportation hub to support industrial and wholesale suppliers.

Initial construction activities are slated to begin this fall, but are contingent on securing certain state and local economic development incentives, plus customary approvals and permits, all of which are in process. The plant will be fully operational within 12 months.

The facility will be the 2nd Ohio operation for MetalX, following the company's recent acquisition of M&K Metal Processors, just east of Delta. The former M&K yard re-opened on July 17th as a MetalX branded operation. This facility will remain open after the mega yard is operational, and will focus

on community recycling and commercial customers, but in the meantime, the 10-acre facility allows the company to competitively service industrial and commercial generators in northwest Ohio and southeastern Michigan.

MetalX president & chief executive officer, Danny Rifkin said, "We have developed an outstanding relationship with the team at North Star Blue Scope, and see this as an opportunity to expand that relationship for the benefit of both parties. The site is ideally located with respect to logistics, given the proximity to the steel mill and concentration of industrial and wholesale generators in the region. These freight considerations, combined with the efficiencies associated with a state-of-the-art processing plant, will make us highly competitive in the marketplace."



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METALS

Steel imports increase 11.6 percent in June

Based on preliminary Census Bureau data, the American Iron and Steel Institute (AISI) reported that the U.S. imported a total of 3,868,000 net tons (NT) of steel in June 2017, including 2,941,000 net tons (NT) of finished steel (up 11.6 percent and 12.8 percent, respectively, vs. May final data). Year-to-date (YTD) through six months of 2017, total and finished steel imports are 19,641,000 and 15,024,000 net tons (NT), up 25.0 percent and 17.2 percent, respectively, vs. the same period in 2016.

Key finished steel products with significant import increases in June compared to May include reinforcing bars (up 84 percent), sheets and strip all other metallic coatings (up 61 percent), heavy structural shapes (up 40 percent), cold rolled sheets (up 32 percent), hot rolled sheets (up 29 percent), mechanical tubing (up 25 percent), oil country goods (up 19 percent), hot rolled bars (up 12 percent) and plates in coils (up 11 percent). Major products with significant year-to-date (YTD) increases vs. the same period in 2016 include oil country goods (up 248 percent), cold rolled sheets (up 41 percent), sheets

U.S. IMPORTS OF FINISHED STEEL MILL PRODUCTS BY COUNTRY OF ORIGIN (Thousands of Net Tons)					
	JUN 2017	MAY 2017	2016 Full Year	2017 Annualized	% Change 2017 Annual vs. 2016
SOUTH KOREA	338	329	3,812	3,855	1.1%
TURKEY	328	154	2,416	2,941	21.7%
JAPAN	125	137	1,798	1,570	-12.7%
TAIWAN	163	72	1,083	1,319	21.8%
GERMANY	116	147	1,192	1,205	1.1%
VIETNAM	110	92	823	858	4.2%
INDIA	81	80	862	840	-2.5%
CHINA	53	69	960	815	-15.1%
All Others	1,573	1,526	13,393	16,645	24.3%
TOTAL	2,941	2,607	26,338	30,048	14.1%

and strip all other metallic coatings (up 36 percent), standard pipe (up 35 percent), line pipe (up 32 percent), mechanical tubing (up 29 percent), hot rolled bars (up 28 percent), sheets and strip hot dipped galvanized (up 26 percent), tin plate (up 17 percent) and wire rods (up 10 percent).

In June, the largest volumes of finished steel imports from offshore were from South Korea (388,000 NT, up 18 percent from May final), Turkey (328,000 NT, up 113 percent), Taiwan

(163,000 NT, up 126 percent), Japan (125,000 NT, down 9 percent) and Germany (116,000 NT, down 21 percent). For the first six months of 2017, the largest offshore suppliers were South Korea (1,928,000 NT, down 1 percent vs. the same period in 2016), Turkey (1,470,000 NT, up 23 percent), Japan (785,000 NT, down 10 percent), Taiwan (660,000 NT, up 68 percent) and Germany (602,000 NT, down 2 percent).

Harding Metals receives Business of the Year Award

The Northeast Resource Recovery Association (NRRA) honored Harding Metals, Inc. of Northwood, New Hampshire, with the Business of the Year Award at NRRA's Annual Conference and Expo.

As an NRRA Vendor for over eight years, Harding Metals goes above and beyond to not only provide excellent service at top-notch pricing, but also to educate NRRA Members, as well as Staff, on the ins and outs of scrap metal, particularly nonferrous separation and recycling.

Harding Metals, Inc. is a family owned and operated, metals recycling company that has been in business for over 40 years. Though the face of metals recycling has changed over the past four decades, one thing has always remained the same: Harding Metals' commitment to the environment and their customers.

"Do you believe in life after death?" the boss asked one of his employees.

"Yes, sir," the clerk replied.

"That's good," the boss said. "After you left early yesterday to go to your grandmother's funeral, she stopped in to see you."



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METALS

Nucor reports results for second quarter and first half

Nucor Corporation reported consolidated net earnings of \$323.0 million, or \$1.00 per diluted share, for the second quarter of 2017. By comparison, Nucor reported net earnings of \$356.9 million, or \$1.11 per diluted share, for the first quarter of 2017 and net earnings of \$243.6 million, or \$0.76 per diluted share, for the second quarter of 2016.

In the first half of 2017, Nucor reported consolidated net earnings of \$679.9 million, or \$2.11 per diluted share, compared with consolidated net earnings of \$331.2 million, or \$1.03 per diluted share, in the first half of last year.

Included in the first quarter of 2017 earnings are inventory related purchase accounting charges of \$9.8 million, or \$0.02 per diluted share, associated with the recent acquisitions of Southland Tube and Republic Conduit.

Nucor's consolidated net sales increased 7 percent to \$5.17 billion in the second quarter of 2017 from \$4.82

billion in the first quarter of 2017 and increased 22 percent compared with \$4.25 billion in the second quarter of 2016. Average sales price per ton in the second quarter of 2017 increased 5 percent from the first quarter of 2017 and increased 17 percent from the second quarter of 2016. Total tons shipped to outside customers were 6,748,000 tons in the second quarter of 2017, a 2 percent increase from the first quarter of 2017 and a 5 percent increase from the second quarter of 2016. Total second quarter steel mill shipments increased 3 percent from the first quarter of 2017 and increased 7 percent from the second quarter of 2016. Second quarter of 2017 downstream steel products shipments to outside customers increased 9 percent from the first quarter of 2017 and increased 1 percent from the second quarter of 2016.

The average scrap and scrap substitute cost per ton used during the second

quarter of 2017 was \$313, an increase of 10 percent from \$284 in the first quarter of 2017 and an increase of 35 percent compared with \$232 in the second quarter of 2016. The average scrap and scrap substitute cost per ton used in the first half of 2017 was \$298, an increase of 40 percent from \$213 in the first half of 2016.

Imports continue to negatively impact the U.S. steel industry. Through the first half of 2017, finished steel imports have increased an estimated 15 percent compared to the same period last year and account for an estimated 27 percent share of the U.S. market.

The industry continues to pursue trade cases to combat unfairly traded imports. Final determinations issued earlier this year against cut-to-length steel plate imports from twelve countries are having a positive impact as steel imports of these products have decreased in the first six months of this year compared to

the same period last year. Last month, the U.S. International Trade Commission made final injury determinations affirming the Department of Commerce's antidumping duties in the steel concrete reinforcing bar (rebar) case against Japan and Turkey, as well as final countervailing duties on rebar imports from Turkey.

A final decision regarding Taiwan is still pending. In May, the government determined that there is a reasonable indication that the U.S. steel industry is materially injured or threatened with material injury by reason of carbon and certain alloy steel wire rod imports from ten countries. As a result, the government will continue its wire rod antidumping and countervailing duty investigations, and is expected to issue preliminary duty determinations in the coming months.

Novelis reports net income increased from previous year

Novelis, a leader in aluminum rolling and recycling, reported net income of \$101 million for the first quarter of fiscal year 2018, compared to net income of \$24 million in the prior year period. Excluding tax affected special items, they reported net income of \$103 million in the first quarter of fiscal 2018, up from \$33 million reported in the first quarter of fiscal 2017. The year-over-year increase in net income is driven primarily by higher EBITDA and lower interest expense following debt refinancing actions in fiscal 2017.

"Our automotive strategy, enhanced operational performance and strong cus-

tommer relationships resulted in record first quarter shipments while also increasing Adjusted EBITDA per ton," said Steve Fisher, president and chief executive officer for Novelis.

Adjusted EBITDA, defined excluding metal price lag, increased eight percent to \$289 million for the first quarter of fiscal 2018 from \$268 million in the prior year period, primarily as a result of higher shipments, ongoing operational improvements, and favorable product mix, partially offset by pricing pressures in beverage can.

Net sales increased 16 percent to \$2.7 billion for the first quarter of fiscal 2018.

This was driven by a four percent increase in total shipments of flat rolled products to 785 kilotonnes, including a 16 percent increase in shipments of higher conversion premium automotive products, as well as higher average aluminum prices.

The company reported negative free cash flow of \$77 million for the first quarter of fiscal 2018 as compared to negative \$146

million in the prior year period. The \$69 million improvement in free cash flow over the prior year was primarily a result of higher EBITDA and lower cash interest payments.

As of June 30, 2017, the company reported a strong liquidity position of \$1.2 billion.





Commodity		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
#1 Bushelings	per gross ton	\$204.00	\$219.00	\$225.00	\$289.00	\$340.00
#1 Bundles	per gross ton	205.00	215.00	225.00	261.00	352.00
Plate and Structural	per gross ton	212.00	203.00	227.00	275.00	280.00
#1 & 2 Mixed Steel	per gross ton	185.00	190.00	210.00	250.00	249.00
Shredder Bundles (tin)	per gross ton	169.00	168.00	163.00	175.00	185.00
Crushed Auto Bodies	per gross ton	169.00	168.00	163.00	175.00	185.00
Steel Turnings	per gross ton	89.00	98.00	99.00	189.00	200.00
#1 Copper	per pound	2.45	2.39	2.62	2.65	2.64
#2 Copper	per pound	2.35	2.30	2.51	2.42	2.49
Aluminum Cans	per pound	.58	.59	.64	.68	.60
Auto Radiators	per pound	1.59	1.62	1.62	1.65	1.70
Aluminum Core Radiators	per pound	.59	.59	.54	.58	.57
Heater Cores	per pound	1.10	1.12	1.17	1.20	1.40
Stainless Steel	per pound	.58	.49	.55	.51	.50

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

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AUTOMOTIVE

Copper plays role in EV boom

EV growth forecasted, copper essential to its infrastructure

Electric vehicles (EV) are at a tipping point as new models are being developed and global regulations are increasingly pushing for EV adoption. As EVs and charging stations continue to become more widespread and affordable, a significant amount of copper will

be required to power this technology.

As demand for electric vehicles continues to increase, it will impact the demand for copper, which is used in both the vehicles themselves and in charging stations. According to the International Copper Association (ICA),

while conventional cars contain 18 to 49 pounds of copper, plug-in hybrid electric vehicles (PHEV) use 132 pounds and battery electric vehicles (BEV) contain 183 pounds. A pure electric vehicle can contain more than a mile of copper wiring in its stator windings.

“Copper’s superior conductivity and reliability are used to increase the efficiency of numerous electrical technology, from traditional motors and transformers to renewable energy technology,” said Zolaikha Strong, director of sustainable development for CDA. “The metal is vital to the global shift toward efficiency and sustainability, and its 100 percent recyclability makes copper itself a green material.”

A new report released by the Edison Electric Institute and the Institute for Electric Innovation (EEI/IEI) outlines an impressive sales forecast for plug-in electric vehicles (PEV) in the U.S. through 2025 and identifies the charging infrastructure required to support this growth.

The report, Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required, includes both PHEVs and BEVs within the scope of its forecast. It predicts that 7 million PEVs will be on the road by 2025, up from 567,000 today. Nearly 5 million charge ports will be necessary to support the increase in electric transportation, which will require a significant investment in charging infrastructure.

“The investment in charging ports and their accompanying infrastructure will be significant when you consider the cost of equipment, installation, permits and inspections” said Lisa Wood, executive director of IEI. “Electric companies are fully prepared to meet this challenge with innovative solutions and are already preparing for the integration of PEVs into the larger energy grid.”

As the report states, “customers are buying PEVs in record numbers, and the demand for charging infrastructure is growing.” While most consumers charge their vehicles at home currently, more stations are needed at the workplace and in public settings to enable longer trips. It is estimated that between 2.23 to 2.24 million charging stations will be needed in work and public locations by 2025.

As increasing affordability and availability continue to push the electric vehicle boom, electric companies and the copper industry alike have embraced the important role they have to play in this transition.

Automakers press on with lightweighting

Automakers are working to meet the improved vehicle fuel economy ahead of the 2025 CAFE (Corporate Average Fuel Economy) standards implementation and lightweighting tops the list of possible solutions, according to Ward’s Automotive Trends survey.

The 2017 Wards Auto survey finds that lightweighting and the use of lightweight structural materials continue to lead the list of technologies respondents are most focused on to meet the 2025 CAFE standards. Engine efficiency programs came in second. Vehicle electrification technologies came in third (mild hybrid/start/stop) and fourth (full hybrid/plug-ins) respectively, both demonstrating slight gains over 2016.

Though aluminum remains the most-cited material choice for meeting the 2025 CAFE standards, automakers have sharpened their focus on engineering plastics as a lightweighting tool, which increased by 5 percentage points year-over-year – the single-largest increase in material choices versus 2016 – while interest in multimaterial solutions retreated by 4 percentage points. Advanced composites like continuous fiber and carbon fiber took fifth place, behind advanced, high-strength steel.

“In addition to enabling innovations in passenger safety, comfort and convenience, plastics have been delivering lightweighting solutions for more than 30 years,” said Brian Fish, North American automotive marketing manager, DuPont Performance Materials. “The newer emerging technologies like advanced composites hold promise. However, by engaging material suppliers early in the design process, there are still many opportunities for lightweighting with existing materials.”

Under the Hood and in the Cabin

The vehicle powertrain remains the most-cited focus area for vehicle lightweighting efforts, up two points from 2016, with the chassis running a distant second.

The survey spotlighted another change worth noting: the rise in vehicle interiors as a lightweighting target, interest in which practically doubled year over year. OEMs are introducing creative lightweighting solutions to help differentiate vehicle interiors, contributing to passenger safety and comfort and improving utilization of space through the use of new materials in these critical areas.

SALVAGING Millions

by Ron Sturgeon
Autosalvageconsultant.com

Tools for Success – Find a good mentor and be a good mentee

The first article in this series listed more than 25 tactics to increase your business success, all of them based on my experience.

Good mentees are very hard to find. I am asked a lot to be a mentor and usually decline. I only want to help someone I consider genuine, engaged, and capable of learning and being a good mentee. Many said they wanted to learn but really only wanted shortcuts to success. They weren’t fully engaged or capable of learning. Many millennials, frankly, just didn’t want to work hard enough. I am okay with that, so long as they don’t complain that they want more success or money.

One mentor I spoke to recently said he stopped looking for mentees. He’s found that the best ones come looking for him. They are hungry. He doesn’t have to ask if they want help. So don’t be afraid to ask someone to be your mentor. You might be surprised when they say YES!

What does it take to be a good mentee?

- A good mentee is hungry for knowledge; they are competitive and they don’t want to waste time reinventing the wheel; they want to learn fast and learn all the basic things from someone that’s done that, while benefiting from more advanced items like the strategies of success and leading people.

- Respect their time. Have scheduled meetings; once monthly is good.

- Come with a notepad, keep good notes. I require everyone to have a journal for meetings, with dates at the tops of pages, and numbered pages. The numbers make it easy for us to refer to items in the notes.

- If you had an assignment, report your progress on that item.

- Start by telling the mentor what you learned last month and how you’ve used it.

- Come with a list of meaningful questions to the meeting.

- Be prepared for the raw truth. The world is a tough place; a good mentor is going to tell you the truth about what you need, and when you aren’t doing the right thing. The absolute best mentors will push you to the breaking point; they are intuitive to know how much you can handle. Then they pull back slightly.

- If you aren’t prepared to work hard, and be honest with yourself about what you want to learn, then you won’t make a good mentee, and you will fire yourself or be dismissed. Good mentors don’t have time for slackers.

- When you have a track record of proven success delivering results and leading teams, coupled with good experience, you will hopefully become a mentor. Until then, listen and learn.

I’ve had a few mentees over the last few years. One, who seemed particularly smart and aggressive, I gave three books to read, with instructions to read one monthly and get back to me when they were ready for more. Remember, a goal without a date is a dream. A year later, and about a dozen meetings later, I asked him how he was doing on the books. He said he was still working on them. At that pace, that mentee will take five years to learn what he should have learned in one. Also, projects he was given went undone even though they also seemed enthusiastic about the project at the outset. I called it passive resistance. A lot of times, I believe it was because he simply didn’t work hard enough or prioritize his time properly, but some items, like putting salespersons on commissions instead of salary, were just plain hard to do, and he just didn’t have the strength to do them. This business of leading is hard, and it requires hard decisions. Many want it, but few are suited for it.

Remember, only you can make BUSINESS GREAT!

This article was provided by autosalvageconsultant.com, which was formed in 2001 by recyclers for recyclers, to help them improve their businesses.

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ELECTRONICS

Testing TVs for safe green screens

To improve viewing pleasure, companies have developed television and tablet screens that include quantum dots to enhance brightness and color. Some quantum dots are made with potentially harmful metals, which could leach into the environment when the device is discarded. But other TVs made with less hazardous nanomaterials require more energy to make.

Today, researchers report preliminary results suggesting that under simulated landfill conditions, quantum dots can leach out of devices. But because this happens in such tiny amounts, the team says that in the grand scheme of things, it might make sense to use the more toxic quantum dots that are made with a more eco-friendly process.

"In just the past decade, engineered nanomaterials have been incorporated into so many consumer products," said Yuqiang Bi, Ph.D., a postdoctoral fellow in the laboratory of Paul Westerhoff, Ph.D.

The researchers are still working to precisely quantify the exact amount of leached materials in the solutions. But based on studies done so far, Bi says, "we aren't seeing huge amounts of leaching, especially when we are talking about realistic disposal methods, such as the chunked up electronics or whole product. If you dispose of a nice TV, we don't expect too much release of the cadmium." The released amount is on the order of nanograms per cubic centimeter, far less than the threshold that is considered dangerous.

Mineworx constructs e-waste processing facility

Mineworx Technologies Ltd., formerly Iberian Minerals Ltd. disclosed the joint collaboration with EnviroLeach Technologies Inc. for the construction of an environmentally friendly, modular e-waste processing plant/facility. The e-waste plant/facility has been designed to process up to 5.5 million lbs. per annum of printed circuit board assemblies (PCBA) based e-waste material.

The process plant has been designed as a turn-key, modular and scalable system and will handle all aspects of the e-waste recycling process including, material pre-treatment, shredding, grinding, leaching and metal extraction. The plant is currently under construction at the Mineworx facility in Coquitlam, BC, Canada and is expected to be completed and deployed to a strategic location and be operational by the end of Q4 2017.

The EnviroLeach process provides a safe alternative to the current methods used. The proprietary water-based formula and its primary ingredients are FDA approved food-grade additives.

Itronics expands silver bullion production

Itronics Inc., a diversified zinc fertilizer and silver producing green technology company, has started silver bullion production using e-scrap (ground up computer circuit boards) as a "cost reducing" precious metal bearing raw material. E-scrap is readily available in large quantities, creating the opportunity to expand the breakthrough recovery operation in phases to a meaningful commercial scale.

"Bullion sales from this process will begin to generate revenues for Itronics early in the third quarter. The new revenue stream will be coming on line when seasonal fertilizer sales are declining. The drought in California has ended. GOLD'n GRO fertilizer sales are increasing above expectations there and the new silver bullion revenue stream will provide a welcome addition to revenues in the second half of this year," said Dr. John Whitney, Itronics president.

Itronics has done more than 20 test melts using one of its large furnaces and this generated part of the bullion shipped early this year and has subsequently produced several hundred ounces of bullion not yet shipped. The test melts have been working well so the company has put its second large melting furnace into operation. Itronics is now operating both

furnaces and is establishing an operating schedule for bullion production. Current silver bullion production is approximately 1,500 troy ounces per month.

Process optimization is continuing and further furnace operation improvements are being identified and implemented as part of the process into continuous operation. Between January and mid-April the "per melt" production tripled, from 500 to 1500 ounces per month. The Company believes that improvements over the next several months could increase "per melt" recoveries by another 20 to 50 percent. Under the Company's bullion sales agreement, the elapsed time between shipment and payment is approximately 60 days. Silver bullion shipped in the second quarter will be reported in the third quarter sales results.

Using e-scrap as a raw material represents a new "zero waste" technology for Itronics and is expected to significantly increase both the profitability of the silver recovery operation and the company's revenues. Because of the "cost reducing" characteristics of this breakthrough silver recovery technology, the company believes that the silver bullion production segment has the potential to become the stable non-seasonal cash flow generating revenue

stream that Itronics has been seeking. "Base and precious metals prices are expected to continue to increase, so adding gold, palladium, and copper to the sales mix will expand and stabilize revenues as the silver recovery operation expands," Dr. Whitney explained.

With the new process, e-scrap is completely converted to green energy and saleable goods. The breakthrough metal recovery concept uses the silver from photographic liquids to collect the metals contained in the e-scrap into saleable bullion. A novel aspect of this breakthrough technology is that the company uses the measured composition of several different raw materials, including e-scrap, plus fluxes, to formulate and produce a new chemical composition of glass that is able to reject all of the base and precious metals recovered from the e-scrap into the silver bullion, except for a very small amount of silver and copper which remains in the copper-silver glass produced by the process. In terms of operations, the new process is a glass manufacturing operation that produces silver bullion as a by-product. In terms of value, the silver bullion is the main value and the glass is presently a byproduct value.


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BUSINESS BRIEFS

Wendt Corporation marks 40th anniversary

■ Wendt Corporation was formed on July 15, 1977 by Thomas A. Wendt to initially provide parts and service, engineering and consulting services to the scrap metal recycling industry. Although these core values remain, Thomas A. Wendt's entrepreneurial vision of becoming a manufacturer would come to fruition. Today, Wendt, still family owned and operated, has grown into a world leading manufacturer and systems integrator of automobile shredding and nonferrous separation equipment.

Throughout their 40 years, Wendt has manufactured and installed equipment all over the world.

Eriez-Australia names Viti as new sales director

■ Eriez has named Ezio Viti as the new sales director at Eriez-Australia.

Viti, a mechanical engineer with more than 30 years of experience applying process solutions into the mining, resources recovery, waste water and general process industries, will manage the sales team for Eriez-Australia.

Before joining Eriez, Viti served as a business development consultant. In this role, he assisted local and offshore technology start-ups as well as overseas suppliers seeking to enter the Australia and New Zealand market space. Prior to that, Viti spent six years as sales director and chief executive officer of Steinert Australia where he was responsible for the Asia-Pacific region.

SG Blocks installs container-based stores for recycler

■ SG Blocks, Inc., designer, innovator and fabricator of container-based structures, has signed an agreement with One Earth Recycling, a California based recycling facility, on a new project: "Recycle for Life." Currently in the prototype phase, SG Blocks will help build and install multiple new container-based stores over the next five years. One Earth is aiming to co-locate its recycling facilities with grocery stores as well as do-it-yourself home improvement warehouses.

Muncie Power Products hires Brian Burt

■ Muncie Power Products, Inc. hired new zone sales manager Brian Burt, the company's new sales team member for the Northeast.

Burt came to Muncie Power Products in April 2017 with a background in fluid power and sales experience. He will serve the company's channel partners within New York, New Jersey, New Hampshire, Rhode Island, Maine, Massachusetts, Vermont and Connecticut.

Tervita acquires Columbia Recycle (2008) Ltd

■ Tervita Corporation, an environmental solutions provider, has acquired Columbia Recycle (2008) Ltd., a full service scrap yard located in Kimberley, British Columbia. Columbia Recycle has been in business in the area since 1975.

Timken declares 381st quarterly dividend

■ The board of directors of The Timken Company, a leader in engineered bearings and mechanical power transmission products, declared a quarterly cash dividend of \$.27 per share. The dividend is payable on September 1, 2017, to shareholders of record as of August 22, 2017.

This marks the 381st consecutive quarterly dividend paid on the common shares of the company since The Timken Company joined the New York Stock Exchange in 1922, one of the longest-running dividend records among NYSE-listed companies

Bandit Industries expands dealer network in Vermont

■ Vermont based Champlain Valley Equipment is a part of Bandit Industries' growing network of authorized dealers.

Headquartered in Middlebury, Vermont, Champlain Valley has long served Vermonter's farm, lawn and garden equipment needs. The company will offer Bandit's lineup of small equipment, including hand-fed chippers, stump grinders and attachments.

There are five Champlain Valley locations to choose from: Middlebury, St. Albans, Derby, Berlin and East Randolph.

Bio-Haz partners with CSR Professional Services

■ Bio-Haz Solutions, a Pennsylvania based provider of regulated medical waste services and compliance programs, recently disclosed their new partnership with CSR Professional Services, Inc. As a company that is driven by compliance and that is committed to helping their customers, Bio-Haz Solutions has partnered with CSR to provide a full suite of the industry leading data protection services for their clients. More information about these services is available on the Bio-Haz Solutions website.

Stellar Industries names Bauer as a manager

■ Stellar Industries, Inc. has added Karl Bauer as manufacturing manager. Bauer brings 23 years of industry experience in the hydraulic truck equipment manufacturing realm.

Bauer previously served as a chief engineer charged with sustaining engineering operations, including engineering change records, production support, and all service, parts and maintenance manuals. He has experience collaboratively working with multiple departments on a daily basis.

In his role, Bauer will assess, formulate, and implement processes that will deal with current production obstacles at all of the Stellar locations. He will be responsible for expansion coordination, be the project lead for process and systems improvements, and assist other departments with projects throughout all the facilities.

Navistar makes key executive changes

■ Navistar International Corporation promoted Michael A. Cancelliere to president, truck and parts, replacing William R. Kozek, who will assume a planning role focused on emerging industry opportunities. Navistar also announced that Bernardo Valenzuela is returning to the company in the newly created role of vice president of export, and president of Mexico and global operations.

In his new role, Cancelliere will oversee all aspects of the company's truck and parts business. Most recently, he served as senior vice president, Global Parts and Customer Service, a business he most recently led to three consecutive years of record profits. Cancelliere, who has been with the company for more than 37 years in a variety of truck and parts sales leadership positions, will report to Persio Lisboa, executive vice president and chief operating officer.

Valenzuela is rejoining Navistar and will be responsible for the company's Mexico and export markets, as well as overseeing the company's global operations in South America and Asia, reporting to Lisboa. Previously, Valenzuela spent 16 years at Navistar, working in roles of increasing responsibility across its export and Mexico businesses. He served as vice president of global trucks sales from 2008 to 2014, before leaving and founding Terranova GTS LLC, a developer and distributor of specialty commercial vehicles, primarily serving customers in Mexico and Latin America markets.

Kozek will focus on vehicle electrification and potential disruptive technologies.

Stephen Eastick rejoins Vortex Global

■ Vortex Global has hired Stephen Eastick. In his new role, Eastick will be responsible for the oversight of sales and rep groups throughout Europe, doing so through customer site visits and rep network relations to ensure all necessary tools are provided to further the sales of Vortex's diverse product lines.

Previously, Eastick was an integral member of the Vortex Global internal sales team from 2011 to 2015. In that time, he was tasked with managing Asian markets. Most recently, Eastick was employed as an external salesperson for Eclipse Magnetics, where he had great success working with manufacturing OEMs and end users throughout the UK.

Company Wrench joins Bandit's dealer network

■ Company Wrench Ltd., joined Bandit Industries' network of equipment dealers, offering Bandit whole tree chippers and The Beast® horizontal grinders.

Company Wrench Ltd., focuses on the manufacturing, sales, rentals, parts and service of scrap, demolition and construction equipment.

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BUSINESS BRIEFS

Burns & McDonnell bolsters teams in Texas

■ As Texas faces transportation infrastructure upgrades and ever changing environmental regulations and challenges, Burns & McDonnell hires Dennis Ingram to help manage roadway improvement projects and Amanda Breitting to lead its regional Environmental Services team.

Ingram has more than 20 years of industry experience, including roadway design, project management, quality assurance, development of roadway plans and specifications and site/civil projects. He has supported more than 20 projects throughout his career, including several multimillion and multibillion dollar projects. Ingram is a registered professional engineer in Texas. He holds a bachelor's degree in civil engineering from the University of Maryland and a bachelor's degree in fine arts from Howard University.

Breitting joins the firm's growing team of more than 450 environmental professionals focused on providing integrated services from planning and permitting to remediation, demolition and decommissioning for clients in Texas and nationwide. She has more than 15 years of experience in environmental compliance, project management and due diligence services for air, hazardous waste and water media. Throughout her career, she has managed or performed more than 350 environmental site assessments and subsurface investigations. Breitting is a registered environmental manager and professional geoscientist. She holds a bachelor's degree in environmental science from Texas Christian University.

Robert Byrnes named 2017 Cox Conserves Hero

■ Cox and The Trust for Public Land named Bob Byrnes as California's 2017 Cox Conserves Hero. California Native Plant Society, Byrnes' nonprofit beneficiary, will receive \$10,000. Byrnes was among the three finalists who were nominated by the public then chosen by local judging panels and went to compete in an online public vote for the title of California's Cox Conserves Hero.

Byrnes leads the restoration efforts for the San Diego Chapter of the California Native Plant Society. Not only does he invest his personal time to the organization's efforts, he also sets aside time to encourage and train other volunteers on best practices. Byrnes and his team of dedicated volunteers spend countless hours removing invasive plants that could potentially harm wildlife.

The two runners-up will each receive \$5,000 for their nonprofits of choice. Maria Martinez selected Environmental Health Coalition as her nonprofit of choice; Azarel Garcia chose Living Coast Discovery Center.

The Cox Conserves Heroes awards program was created through a partnership with The Trust for Public Land and Cox Enterprises, the parent company of Cox Communications.

OnSSI appoints Lenox as regional manager

■ OnSSI has named Steve Lenox as its Mid-Atlantic regional manager as part of the company's revitalized growth initiative for continued success, and to further improve customer support and service. A seasoned professional surveillance and security expert, Lenox has spent more than two decades designing and deploying advanced physical security and video surveillance solutions for large enterprise and U.S. government customers.

Lenox has been firmly entrenched in safety and security throughout his career, which began with providing physical security at Naval Weapons Station Seal Beach as a member of the U.S. Marine Corps. Following his service in the military, Lenox explored several business opportunities, including digitizing blueprints, maps and documents using scanning and network technology for companies like Bethlehem Steel, Philadelphia Gas and Light and TVA.

For the past 25 years, Lenox has designed and provided low-voltage security solutions for residential and commercial customers, and has remained on the leading edge of network video technologies since 1999. Since the early 1990s, he has worked for, trained and/or designed video solutions for Apple, Costco, DARPA, Dedicated Micros, Hanwha Techwin America, Honeywell, the National Weather Service, OpenEye, Toshiba, Tyco, the U.S. Coast Guard, the U.S. Postal Inspectors, the U.S. State Department, and many others.

Valet Living joins national effort to increase recycling

■ Valet Living has become the newest Pledge Partner of Recycling at Work, a voluntary national effort led by Keep America Beautiful (KAB) to increase workplace recycling.

According to the U.S. Environmental Protection Agency, as much as 45 percent of the 250 million tons of municipal waste generated in 2010 was from commercial establishments.

As a Pledge Partner, Valet Living has committed to reducing waste and making recycling a priority.

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Weitsman hires new manager for New Castle

■ Upstate Shredding – Ben Weitsman of New Castle has hired George Ostendorf, a tenured veteran in the metals recycling industry. Ostendorf has been named as the new general manager of Ben Weitsman of New Castle.

As general manager, Ostendorf will be responsible for overseeing and managing all operations and employees at Ben Weitsman of New Castle, a division of Upstate Shredding. He will work to improve and enforce all company policies and practices, and ensure that industry standards are exceeded.

Ostendorf will be directly involved in all aspects of the operation of the New Castle facility by providing management and leadership, guaranteeing that the highest levels of ethical conduct and professional standards are maintained by all company personnel at all times.

Prior to joining Upstate Shredding – Weitsman Recycling, Ostendorf spent just under a decade with scrap company Metalico. During that time, he managed Metalico's operations in Rochester and Buffalo, selling nonferrous metals and building dealer and industrial relationships. He oversaw 150 employees and helped generate \$80 million in sales. Five years ago, he moved to Austin, Texas to open his own yard, Worth Metal Recycling. Ostendorf is a Buffalo native, and he's excited to return to the northeast, along with his family.

Bunting Magnetics appoints Bill Wagner CFO

■ Bunting Magnetics Co., a magnet and magnetic equipment design, manufacturing and distribution company, announced the appointment of Bill Wagner to the company's executive leadership team as the chief financial officer. Wagner brings two decades of experience to Bunting Magnetics, including an extensive background in accounting and finance in the manufacturing sector.

Wagner will oversee financial reporting, budgets, accounting and human resources for all Bunting Magnetics divisions: Bunting Magnetics Co. (Newton, Kansas); Bunting's Magnet Materials Division, including its e-commerce site buymagnets.com (Elk Grove Village, Illinois); Magnet Applications, Inc. (DuBois, Pennsylvania); and Bunting Magnetics Europe (Berkhamsted, England, including the company's recent acquisition of Master Magnets Ltd. in Redditch, England).

Based in Newton, Kansas, Wagner draws on over 20 years of experience in accounting, budgeting, forecasting and analysis. Most recently, he was chief financial officer at Physicians Development Group/Axiom Healthcare, a developer/operator of world-class senior healthcare facilities. His experience also reaches into manufacturing as the assistant corporate controller for Spirit Aerosystems, a manufacturer of aerostructures for both commercial and defense customers.

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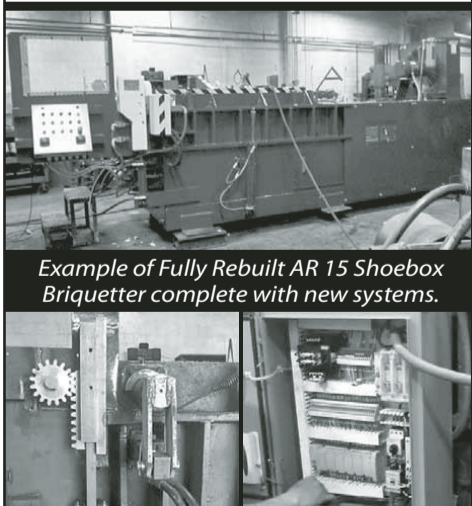
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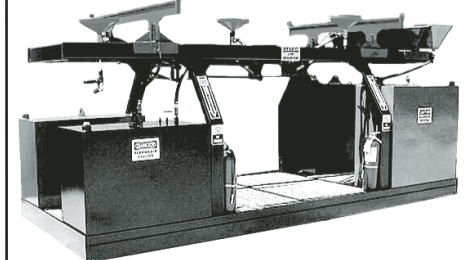


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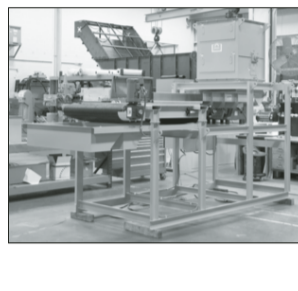


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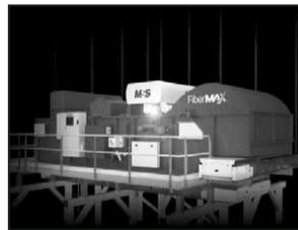


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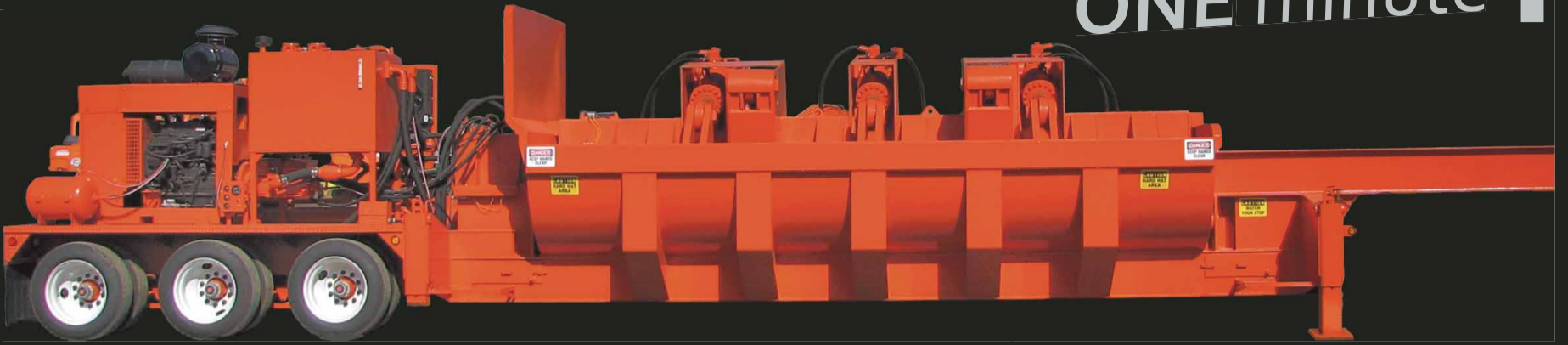
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Trends to watch in the solid waste industry

by MAURA KELLER

mkeller@americanrecycler.com

In the past several years, the solid waste industry has witnessed important changes in the business practices of the industry that is continuing to have a profound effect on the status of the solid waste industry.

According to Martin Vogt, president and chief executive officer of EFS-Plastics Inc., the import stop of solid waste to China is currently one of the biggest challenges facing waste and recycling companies. On July 18, China notified the World Trade Organization (WTO) that it would stop accepting shipments of some waste – such as waste plastic, paper, slag from steelmaking, waste wool, ash, cotton, and yarn. The ban is expected to take place by the end of 2017.

According to Reuters, China imported 7.3 million tons of waste plastics in 2016, valued at \$3.7 billion, accounting for 56 percent of world imports. And the U.S. and Japan are the two biggest exporters of plastic waste to China.

“Cities, municipalities and private collectors may worry that there is nowhere to go with the pre-sorted plastic waste and slow down collection,” Vogt said. “But this challenge also brings opportunities for waste collectors and processors to work closer together.”

In addition to having “all eyes on China and their reluctance to import solid waste from the U.S., the solid waste industry is trying to meet the expectations of smarter, more connected clients with higher expectations for data and diversion.

“As more companies are setting measurable sustainability goals, data will become increasingly more important,” said Kristin Kinder, project lead at Ecova, a sustainability and energy management company. As of early 2017, 210 companies (including Proctor and Gamble, General Mills, and Kellogg) have set science-based targets for sustainability initiatives.



The import stop of solid waste to China is currently one of the biggest challenges facing waste and recycling companies. PHOTO COURTESY OF THE SOLID WASTE GROUP

“Quality data will be the foundation for informing realistic targets and metrics to measure ongoing success,” Kinder said. “Perhaps the biggest challenge businesses face is changing their employee behavior to match regulations and their sustainability goals. From their internal program set up to their services at the curb and employee adoption of new solid waste programs, businesses will need to think comprehensively about their waste programs and foster a new culture to achieve their goals.”

Impact of Technology

While there are considerable advancements in high-end technology being used within the solid waste industry, one of the biggest advancements that Vogt is seeing take hold is the ability to convert ecological and economical efficient plastic waste into high-quality resin for the plastic industry.

“Most of our resins are better than wide spec resins already and are able to replace prime resin by 100 percent,”

Vogt said. “Our recycling process generates less greenhouse gas emissions than the production of prime resin.”

As the solid waste industry continues to evolve, experts agree that the industry will need to get more efficient and stay on top of new developments – such as high-end plastic recycling. For example, Vogt predicts that prime resin will stay low for years to come and will keep margins low.

“Waste collectors and processors will have to work closer together by providing long term supply agreements and consistent quality,” Vogt said. “This will be the only way to keep the industry moving forward.”

And as companies set ambitious sustainability and zero waste goals, these companies are beginning to focus on waste reduction upstream, which will have a significant impact on the solid waste industry.

“For what’s still left in their waste stream, they will be looking to new technologies to capture unconventional recyclables and provide more conven-

ience,” Kinder said. “For example, new technologies are emerging that can treat food waste onsite.”

In addition, waste to energy initiatives and technology – such as anaerobic digesters, on-demand service, circular economy measures, which includes buying the “energy” a client’s food waste produced – are all innovative technological advancements that will have a stronghold on the industry and the entities involved.

What’s more, as government and municipalities play a larger role in the future of waste recycling, the solid waste industry will be able to handle the task of collecting and processing the waste, but the cities and municipalities need to provide the regulations.

“It’s important that municipalities are talking to neighboring municipalities and cities, to provide the industry and residence with harmonized systems across states,” Vogt said.

And as these government regulations drive new waste programs and

See TRENDS, Page B2

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Trends

■Continued from Page B1

initiate significant change – both locally and nationally – consumers are taking notice and jumping onboard the proverbial “solid waste bandwagon” to participate in recycling and composting initiatives as they take hold. In doing so, they are paying attention to the data as it pertains to the industry.

As Kinder explained, food waste is currently receiving a lot of attention – at over 20 percent, it’s the largest contributor to landfills and even more important, it’s wasted resources nutrients.

“In 2010, over a third of the available food supply in the U.S. went uneaten,” Kinder said. “That’s 133 billion pounds worth \$161.6 billion.” These are the stats that are grabbing the attention of consumers, municipalities, and government entities alike.

In late 2015, the USDA and EPA launched their first joint goal to cut our nation’s food waste in half. For the first time, they are approaching food waste holistically – examining all sources of waste in the process from the farm to the consumer – and poised to make a significant impact.

Kinder noted that the State of California’s AB 1826 requires businesses that produce a certain threshold of food waste to recycle it rather than bringing it to a landfill. California has not only inspired restaurants, hotels, hospitals and other organizations to find solutions for separating this food waste, but this state legislation has also encouraged infrastructure change.

“Composters now have a business justification and the opportunity for a more predictable waste stream from businesses required to recycle their organic waste,” Kinder said.

Partners in Progress

According to Bob Craggs, department manager of the solid waste group at Burns & McDonnell, an international engineering firm, there is a growing interest in public-private partnerships to develop solid waste facilities. Part of that interest is related to the upfront capital investment municipalities must make with these projects. By doing a public-private partnership, there can be less financial and operational risk for them.

“For example, a county in Minnesota recently bought a facility from the private sector that takes solid waste and turns it into fuel,” Craggs said. “Why did they do this? Because it allowed them to have more direct

influence over the flow of materials to their landfill and create additional opportunities to transition to other solid waste conversion technologies resulting in greater landfill diversion.”

There’s also more interest in regionalized facilities versus individual facilities to help communities to better manage risk and find opportunities to benefit from economies of scale.

“Throughout the last few years, we’ve seen more communities looking at ways they can increase their landfill diversion opportunities,” Craggs said. “Diversion of organics from disposal is a key focus for many solid waste management programs and now infrastructure is being put in place to help make that happen.”

Matt Evans, senior civil engineer in Burns & McDonnell’s solid waste group, added that aging infrastructure is another challenge the industry must address. Many communities have solid waste facilities that were developed more than 20 years ago. Now, communities are trying to determine how to best move forward including alternatives such as updating the solid waste facility, or going in a different direction with a new system to increase the amount of waste that can be diverted from landfills.

Streamlined Efficiencies

The economy and trends in packaging are also driving the trends within the solid waste industry, because the disposable items that impact our daily lives eventually end up in the waste stream. Lighter water bottles, smaller cardboard boxes from Amazon, and flexible packaging have made great improvements in how companies distribute goods, but also impact recycling centers and our systems for turning waste materials into new products.

As such, Kinder said that over the next few years, organizations and individuals will see more alternatives for dividing waste and recycling materials available for waste management.

“Compost infrastructure is expanding and many locations that currently have limited compost facilities will begin to see more processing facilities, especially in regions with food waste recycling legislations,” Kinder said.


Evans is also seeing a significant interest in automation. Driven by facility safety and efficiencies, companies are testing the use of robots at recycling facilities to sort materials. “It’s still in the development phase but the results so far are promising,” Evans said. “Landfills are also continuing to evolve and be technologically innovative. GPS-operated compactors and alternative daily cover materials have been in use for some time and operators are becoming more and more adept at using them and increasing airspace utilization.”

Industry experts expect to continue seeing more technology integrated into the collection process, which would affect every solid waste hauler. “In Minnesota, some cities are putting computer chips in new recycling bins so they can see who is participating,” Craggs said. “When the hauler tips the bins, the address is recorded automatically noting the household is participating. This increases efficiency and will help facilitate participation reporting.”

In addition, the growth of the flexible plastic packing market is expected to rise and that’s gaining the attention of solid waste industry players, especially recycling companies, who are looking at the actual recyclability factors involved in this packaging. Although touted for being environmentally beneficial because of less material being used, flexible plastic packaging is challenging for recycling companies because of its multi-layer composition. As this packaging becomes a bigger part of the solid waste stream in the next few years, recycling professionals are working with manufacturing companies on design specifications to help in the recovery process.

This is one example, on a system level, where the solid waste industry is beginning to connect all of the dots in our currently linear waste process – designers, manufacturers, packagers, and recyclers are beginning to work together.

“This could inspire the shift to a circular economy where companies design products for reuse,” Kinder said. “Then any waste created has a valuable second life as a resource for something else.”



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Republic Services reports double digit earnings growth

Republic Services, Inc. reported net income of \$202.9 million, or \$0.60 per diluted share, for the 3 months ended June 30, 2017, versus \$180.8 million, or \$0.52 per diluted share, for the comparable 2016 period. Excluding certain gains and expenses, on an adjusted basis, net income for the three months ended June 30, 2017, was \$205.9 million, or \$0.61 per diluted share, versus \$189.5 million, or \$0.55 per diluted share, for the comparable 2016 period.

“Our second quarter performance underscores our ability to grow both price and volume, increase earnings and free cash flow, and consistently improve cash returns to shareholders,” said Donald W. Slager, president and chief executive officer. “Given the strength of our business and the ongoing successful execution of our strategy, we are raising our guidance to reflect our expected out-performance for the year.”

Second Quarter Financial Highlights:

- Adjusted diluted EPS was \$0.61 per share, an increase of 11 percent over the prior year.

- Year-to-date cash provided by operating activities was \$879 million and adjusted free cash flow was \$358 million, an increase of approximately 6 percent over the prior year.

- Total revenue increased 7.5 percent over the prior year, the company’s highest level of growth in over 8 years.

- Revenue growth from average yield was 2.5 percent and volumes increased 1.9 percent.

- Core price increased revenues by 4.1 percent, which consisted of 5.3 percent in the open market and 2.2 percent in the restricted portion of the business.

- Adjusted EBITDA increased \$42 million, or 6 percent, over the prior

year. Adjusted EBITDA margin was 28.0 percent of revenue.

- Total cash returned to shareholders through dividends and share repurchases was \$247 million. Year-to-date cash returned to shareholders was \$454 million.

Second Quarter Operational Highlights:

Republic Services continued to convert contracts from CPI to a more favorable pricing mechanism for the annual price adjustment. The company now has approximately \$440 million in annual revenue tied to a waste-related index or a fixed-rate increase of 3 percent or greater.

- Republic completed its standardized maintenance initiative and the entire fleet is now certified under the program.

- The company, which operates the 7th largest vocational fleet in the U.S., advanced its fleet-based initiatives designed to improve productivity and lower costs. Currently 19 percent of the fleet operates on compressed natural gas, up from 17 percent in the prior year. Seventy-five percent of the residential fleet is automated, up from 73 percent in the prior year. Republic invested \$36 million in tuck-in acquisitions during the second quarter and \$91 million year-to-date.

The company was recently named to the Forbes 2017 America’s Best Large Employers list, an elite employer ranking based on the results of an independent survey conducted among 30,000 U.S. workers at companies and institutions across the country, as well as a recipient of the Glassdoor Employees’ Choice Award which is based on employee reviews about Republic Services on Glassdoor.com. Republic was the only recycling and waste services company to receive either recognition.

Duke Energy recycles coal ash

Duke Energy announced the proposed location for a third coal ash reprocessing unit at its Cape Fear Plant in Moncure, North Carolina.

Last year, the company shared plans to build units at the Buck Steam Station in Salisbury, North Carolina, and the H.F. Lee Plant in Goldsboro, North Carolina.

The units are requirements of the state’s coal ash law and the company has met its obligations in advance of each deadline.

Once constructed, the 3 facilities in total are expected to reprocess 900,000 tons of coal ash a year from basins, making it suitable for use in concrete.

Prior to deciding to put the third reprocessing unit at Cape Fear, the company planned to excavate ash from the facility for beneficial use in structural fills, another important form of ash recycling.

“We’re building a smarter energy future through safe, smart recycling of

coal ash, turning a waste into a valuable ingredient in concrete and other construction materials,” said Brian Weisker, vice president of coal combustion products, operations and maintenance. “Reusing the ash also benefits our customers and our state, often lowering the total cost of basin closure when compared to excavation and transport to a new location, for example.”

In 2016, Duke Energy recycled about 75 percent of the coal combustion byproducts (coal ash and gypsum) produced in North Carolina.

A dedicated team of experts is partnering with technology companies, universities and industry organizations to research smart new uses of the material.

Coal ash can be safely reused to make construction materials stronger and more durable. Some of the world’s most impressive buildings and bridges were built using coal ash.

SWANA publishes safety tips for composting operations

The Solid Waste Association of North America (SWANA) released a new installment of its “Five to Stay Alive” series that features safety tips for composting operations employees.

Like many aspects of solid waste management, composting operations involve physical labor, the use of heavy machinery, and a dynamic work environment. These factors offer the potential for serious injury or fatality if proper safety precautions are not followed.

The new composting safety tips developed for the “Five to Stay Alive” campaign provide flyers and posters that address some of the most common dangers found in this work environment. These resources are now available on a new landing page developed to accommodate this rapidly growing safety campaign.

“The release of these safety tips comes at an important time, as a growing number of state and local governments pursue food waste diversion programs, and yard waste diversion remains popular,” said David Biderman, SWANA’s executive director & chief executive officer. “Composting is a leading disposal alternative for these materials, and it is essential for employers to provide useful safety training and information that ensure employees work safely.”

With solid waste and recycling collection as the 5th most deadly job in the U.S., and many serious injuries and accidents occurring in the processing and disposal of waste and recyclables, the need for practical safety information made available directly to workers is more important than ever.

Falls Church, Virginia to offer curbside food waste service

The City of Falls Church, Virginia is offering a new curbside food waste collection service. City residents currently receiving curbside waste services are able to participate in this voluntary new program.

“Food scraps and organic waste make up 25 percent of what consumers throw in the trash, but diverting organics from the waste stream is relatively new to the D.C. region,” said Falls Church

solid waste coordinator Chris McGough. “With this new pilot program, Falls Church is leading the way to expand composting infrastructure in our region.”

Participants will be provided an airtight collection bin and compostable liners and every week a contractor will collect the food waste then empty and clean the bins, replace the compostable liner and transport the food waste to a composting facility.

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EQUIPMENT SPOTLIGHT

Dust Control

by MARY M. COX

maryc@americanrecycler.com

It is no secret that waste and recycling settings are typically quite dusty and gritty for those who labor there. One aspect of that situation usually involves air quality. Dust control can be addressed through a variety of methods and products.

According to Brian Singer, sales and marketing of Buffalo Turbine, "Buffalo Turbine manufactures dust and odor control machines which are made using high-precision machined components, resulting in long lasting dependable products." The firm's products are used worldwide in a variety of applications. Popular applications include demolition sites, construction sites, recycling facilities, landfills, aggregate processing, waste transfer stations, and many more. Diesel, gas, electric, PTO driven and hydraulic models are available. "The diesel and gas machines are the most popular because they offer oscillation, for a larger cover area and are self-contained machines which make it easy to maneuver around the sites. Being able to maneuver the machine around the facility is essential, especially in areas that are open and subject to shifting air flow. At indoor facilities, visibility and breathing conditions are top priorities for employers who want to keep employees safe from both short and long term harm. Minimal set up time makes these machines even more convenient. Minimal daily maintenance also aids in continued production, and so avoids downtime," Singer explained.

Buffalo Turbine machines function by introducing water to a gyratory atomizing nozzle (GAN). The power of the turbine air then pushes the

atomized water into the air. This creates droplet sizes of 50 to 200 microns, which matches dust particle size, bringing fugitive dust to the ground. Singer noted, "Dust control is not only a necessity for employee safety but also relative to government regulations intended to protect those in adjacent neighborhoods from fugitive dust created by a facility. Facilities can incur large fines if they produce dust to the extent that it migrates to other properties and without dust control, production slow down can also result."

Fogco has 28 years of experience manufacturing and designing high pressure fog systems for a variety of applications and industries. For dust and odor concerns, "Fogco has multiple options that will provide solutions for any size or type of facility," Dana Pack, vice president of sales stated.

For indoor applications, the firm manufactures static overhead line systems that can be designed on a grid to suppress dust and also eliminate odors when injecting a neutralizer into the system. Pack said, "Fogco's proprietary line of fan products is an effective alternative to standard line systems because the high pressure fog is dispersed horizontally at 360°. This technique improves distribution and consistency in covering an area. For large, outdoor needs, we offer a line of fog cannons that can throw fog from 50 to 300'. With recent changes to compliance regulations around silica in demolition and construction, we've seen an increased demand for dust suppression solutions in these settings.

"Companies continue to face challenges with increased regulations involving dust and odor concerns. Fines can be severe for firms that do not equip their

facility with a properly designed system that complies with industry requirements. Worker safety and productivity can be also impacted if an unhealthy environment is not corrected."

Pack believes that if state and federal compliance regulations increase, more business owners will be proactive with these challenges and become a "good neighbor" in the communities where they operate. Fogco routinely designs systems that will prevent dust and odors from extending beyond property lines to ensure that neighbors are not impacted by the operations of Fogco clients.



Fogco

size and scale of the plant involved and carefully applying foam agents.

"Our foam agents, created by our chemists, reduce the damage that dust can do to workers' respiratory systems and your valuable equipment. The

See DUST CONTROL, Page B5



Midwest Industrial Supply, Inc.

Proven effective for more than a decade, Midwest Industrial's Dust-Buster® dust suppression systems have "changed the way recycling companies operate. Products are manufactured to withstand the harsh environment in which they're used and do not require high maintenance or cumbersome water filtering. Not only does our program reduce dust levels, it also lowers Personal Exposure Limits (PEL) and lead levels by 50 percent or more, improving not just employee health, but also their morale. All of this without impacting the speed of critical sortation processes downstream," commented Stephanie Cornell, marketing director.

Midwest works closely with clients to develop the product and application method according to the



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WM opens 100th natural gas fueling station

Waste Management reported a significant milestone in its natural gas fleet journey, opening its 100th natural gas fueling station. At a ceremony in Oklahoma City, industry representatives, local and state officials joined the company to dedicate the fueling station. The company also celebrated a significant milestone of operating 6,000 natural gas trucks, which is the largest heavy-duty fleet of its kind in North America.

As a pioneer in the use of natural gas in its fleet since the early 1990s, Waste Management established a goal to reduce carbon dioxide emissions and improve the efficiency of its on-road fleet efficiency by 15 percent by 2020

(based on 2007 levels). The goal was achieved in 2011, and with the increasing adoption of natural gas vehicles, the company continues to exceed this goal each year.

Waste Management vehicles powered by compressed natural gas (CNG) emit nearly zero particulate emissions, cut greenhouse gas emissions, and are quieter than diesel trucks.

For every diesel truck replaced with natural gas, the company reduces its use of diesel fuel by an average of 8,000 gallons per year along with a reduction of 14 metric tons of greenhouse gas emissions per year (the equivalent of a 15 percent emissions reduction per truck).

Dust control

Continued from Page B4

foam agents permeate the area where explosive gases can accumulate, and can even prevent or reduce the intensity and velocity of explosions. With Midwest behind you, you can reduce the frequency and velocity of explosions by 50 to 80 percent while also taking control of blue smoke, dust, health, safety and regulatory concerns. We are committed to developing individualized and customized solutions for our clients," Cornell said.

In deciding whether to use foam as part of the recycling process, it makes

sense to compare it to water. Some of the benefits of foam, according to Cornell:

- Reduces dust emissions up to 85 percent.
- Does not release dust downstream at transfer points and screening.
- Will not blind screens or impact picking process.
- Requires just a small fraction of the water needed when water is the only treatment.
- Works well with all types of water.
- Decreases disposal costs because residual waste may be 60 percent-90 percent lighter.
- Minimizes muddy conditions.

GPB Capital acquires two waste companies

GPB Capital, a private equity firm, has acquired stakes in Joe Morea & Sons Private Sanitation, Inc. and Staten Island Carting, Inc., two waste management companies serving New York City communities. The firms will be merged into Five Star Carting, Inc., a GPB Capital portfolio company, a move which is likely to facilitate significant synergies for GPB Capital's waste management portfolio.

Joe Morea & Sons, founded in 1982, provides municipal solid waste and cardboard hauling services to residents of Brooklyn, New York, and surrounding areas. The company is expected to generate savings for Five Star Carting via the consolidation of workers' compensation insurance and fleet insurance, as well as route synergies throughout much of Brooklyn. Joe Morea & Sons will also likely divert nearly 1,000 tons of municipal solid




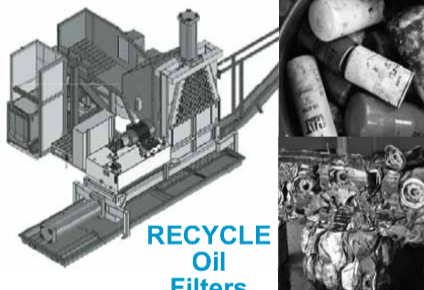
waste per month to Citygreen Organics, another GPB Capital portfolio company. Terms of the acquisition of Joe Morea & Sons, which closed on June 13, 2017, were not disclosed.

Staten Island Carting is a hauling company which currently operates 5 trucks that process approximately 815 tons of municipal solid waste and 165 tons of recycling per month in Staten Island, New York. An investment from GPB Capital will enable Staten Island Carting to transition to front-end loading trucks, which will reduce operational costs and the number of workers required per truck. This vehicle upgrade, along with route consolidation and savings on workers' compensation insurance and fleet insurance, is expected to cut costs and increase cash flow over the long term. The acquisition was finalized on June 20, 2017, and terms were not disclosed.

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INDUSTRY PROFILE

A Closer Look

by Donna Currie

ECO Green Equipment

Brad Swenson • 801-758-7620

The seeds for ECO Green Equipment were planted when Brad Swenson, along with several other partners, started selling promotional products. That grew into a business that manufactured patio furniture in Asia for sale in the US.

One of the partners, Andres Salazar, knew someone in South America who wanted to buy that type of equipment in China. One of the partners, John Porter, spoke Mandarin while Salazar and Swenson both spoke Spanish. "The owners cover two-thirds of the globe with those languages," Swenson said, and they were more than happy to help a friend with the necessary translations to facilitate the purchase.

"We got a front row seat to the disaster of Chinese equipment," Swenson said. "Lower prices don't mean it will run."

The three partners decided to get out of the furniture business and get into tire processing machinery. Swenson, Salazar, and Porter broke off from the furniture business, leaving it in the hands of other partners, and they brought on Ted Rogers, an engineer, as their fourth partner. Swenson said, "We decided that building in China is not what we want to do," which was why they wanted an engineer on their team. They founded the company in 2009 in Utah, where they currently assemble their machines.

Swenson said that their machines are "designed from the ground up for tire recycling," while similar machines are modified from machines built for other uses.

Swenson said that "what we did early on" was to focus more on end users than on the initial tire processors. He said they "built a machine that caters to what the markets are looking for," rather than just taking a tire and making it smaller. The company strives to continue innovating to make their machines produce the best product for the end users.

Swenson said that the innovation and the ability to work on new things are what he most enjoys about his job. He also appreciates that his company creates jobs and benefits the local area.

The company manufactures five basic models, but they can be customized for individual customer needs. "Every market has its nuances," Swenson said, with differences in materials, government programs, collection, and markets. "Costa Rica is very different than Chicago."

The company sells two primary shredders, the ECO Monster and the ECO Green Giant; a secondary shredder, the ECO Grater; and the ECO Crumbler granulator and the ECO Krumbuster® hydraulic mill. "The ECO Krumbuster is what put us on the map," Swenson said.

The ECO Krumbuster can process up to 16 mm chips and can produce 2 tons per hour of 20-mesh crumb, 1 ton per hour of 30-mesh crumb, or 1,400 pounds per hour of 40-mesh crumb.

While the ECO Krumbuster is popular with tire processing facilities, Swenson said that it's becoming more and more popular with "people who are producing a finished product," who buy, process, and use the crumb for their own use. He said that those customers want more control of the material that goes into their products.

The ECO Grater is a secondary shredder that "liberates the steel" from tire rubber so the resulting rubber chips are wire free. Swenson said that material is often used for mulch, tire derived fuel, and crumb rubber for playgrounds.

One major advantage of the ECO Grater is that it runs at 31 rpm rather than the much higher 100 to 350 rpm typical of other machines. Because of the much larger rotor and the increased number of blades on the ECO Green equipment, they make the same number of cuts per revolution as the higher speed machines, even at that slow speed. It can produce up to nine tons per hour of one inch chips.

Swenson explained that the advantage of the slower speed is that less heat is produced and there is less wear to blades.

The ECO Green Giant's key feature is the patented blade design that uses a triangle shape around the rotor. This design means that the blades can be rotated six times before they need to be resharpened for an additional use. This design also "pulls the tire through really fast," with little or no delay.

ECO Green sells their equipment worldwide, and recently sold "the first recycling solution for tires" in Costa Rica. Swenson is particularly impressed with the impact that one machine is having in that country. "They are eliminating tires in the rivers," he said.

Swenson said that he sees more end uses for recycled tire materials, including rubber powder being used in thermoplastics and injection molded plastic items. Rubber is also being used in geomembranes, roof sealant materials and for other uses.

With the industry changing so fast, Swenson is particularly proud that his company has been on the leading edge of innovations. Now, many of his competitors are coming up with their own innovations, but he's not worried about the competition. "It's good for the industry as a whole," he said.

Still, he's not content to stay on a straight path. In the future, the company is "looking at a machine that's for more than recycling." We'll have to wait to see what that is.

Waste Management reports increased revenues

Waste Management, Inc. disclosed financial results for its quarter ended June 30, 2017.

Revenues for the second quarter of 2017 were \$3.68 billion compared with \$3.43 billion for the same 2016 period. Net income for the quarter was \$362 million, or \$0.81 per diluted share, compared with net income of \$287 million, or \$0.64 per diluted share, for the second quarter of 2016. On an as-adjusted basis, excluding certain items, net income was \$329 million, or \$0.74 per diluted share, in the second quarter of 2016.

Jim Fish, president and chief executive officer of Waste Management, commented, "We are hitting on all cylinders right now with the cash generating strength of our business shining brightly in 2017. We achieved the highest quarterly operating EBITDA in our history, with operating EBITDA growing about 8.0 percent in the second quarter when compared to the second quarter of 2016. Our strong operational performance led to record free cash flow generation in the first half of 2017. Together, our strong core price results, robust volume growth, and continued cost improvement focus led to earnings per diluted share growth of almost 10 percent.

Key highlights for the second quarter 2017:

- Overall revenue increased by 7.4 percent, or \$252 million. The revenue increase was driven by positive yield and volume in the company's collection and disposal business, which contributed \$158 million to revenue growth, and higher recycling commodity prices and volumes, which contributed \$90 million of revenue growth.

- Core price, which consists of price increases net of rollbacks, plus

fees other than the Company's fuel surcharge, was 4.7 percent.

- Internal revenue growth from yield for collection and disposal operations was 1.9 percent.

- Internal revenue growth from volume in the company's traditional solid waste business was 3.2 percent in the second quarter of 2017. Total Company internal revenue growth from volume was 3.4 percent in the second quarter of 2017.

- As a percent of revenue, operating expenses were 62.3 percent in the second quarter of 2017, as compared to 62.2 percent in the second quarter of 2016. Operating expenses as a percentage of revenue in the company's traditional solid waste business improved about 70 basis points during the quarter, though that margin improvement was offset by growth in the company's lower margin recycling brokerage business and higher fuel costs.

- As a percent of revenue, SG&A expenses were 9.6 percent, a 30 basis point improvement over the prior year quarter.

- Net cash provided by operating activities was \$813 million, compared to \$762 million in the second quarter of 2016, an increase of 6.7 percent.

- Capital expenditures were \$299 million, compared to \$312 million in the second quarter of 2016.

- Free cash flow was \$520 million in the second quarter of 2017, compared to \$461 million in the second quarter of 2016, an increase of 12.8 percent.

The company returned \$437 million to shareholders during the second quarter, paying \$187 million in dividends and repurchasing \$250 million of its common stock.

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Waste Connections reports revenue of \$1.176 billion

Shows an increase from 2016 results

Waste Connections, Inc. disclosed its results for the second quarter of 2017.

Revenue in the second quarter totaled \$1.176 billion, up from \$727.6 million in the year ago period. Revenue from the Progressive Waste acquisition completed on June 1, 2016, was \$511.4 million and \$174.0 million in the current year and prior year periods, respectively. Operating income, which included \$7.4 million in charges primarily related to share-based compensation costs associated with share-based awards assumed in the Progressive Waste acquisition, was \$206.9 million. This compares to operating income of \$63.5 million in the second quarter of 2016, which included \$73.2 million of items primarily related to the Progressive Waste acquisition completed in that period.

Net income attributable to Waste Connections in the second quarter was \$123.7 million, or \$0.47 per share on a diluted basis of 264.1 million shares. In the year ago period, the company reported net income attributable to Waste Connections of \$27.5 million, or \$0.13 per share on a diluted basis of 210.9 million shares. Shares and per share numbers reflect a three-for-two share split completed in June 2017.

Adjusted net income attributable to Waste Connections in the second quarter was \$145.5 million, or \$0.55 per share, versus \$93.2 million, or \$0.44 per share, in the prior year period. Adjusted EBITDA in the second quarter was \$373.6 million, as compared to adjusted EBITDA of \$233.6 million in the prior year period. Adjusted net income attributable to Waste Connections, adjusted net income attributable to Waste Connections per diluted share and adjusted EBITDA, all non-GAAP

measures, primarily exclude the impact of acquisition-related items, as reflected in the detailed reconciliation in the attached tables.

“Continued strength in solid waste volumes, recycled commodity prices and E&P waste activity enabled us to once again exceed our outlook for the quarter. Given our strong results in the first half of the year and expected continuing momentum from these trends, we believe we are on track to report approximately \$1.45 billion of adjusted EBITDA in 2017, exceeding our initial outlook provided in February,” said Ronald J. Mittelstaedt, chairman and chief executive officer. “More importantly, full year adjusted free cash flow, now estimated at approximately \$750 million, or almost 52 percent of adjusted EBITDA, is also pacing ahead of initial expectations.”

For the 6 months ended June 30, 2017, revenue was \$2.267 billion, as compared to revenue of \$1.242 billion in the year ago period. Operating income, which included \$159.0 million of expenses primarily related to both goodwill impairment against the company’s E&P segment resulting from the early adoption of FASB’s recent accounting pronouncement simplifying the test for goodwill impairment and items related to the expected divestiture of certain assets acquired in the Progressive Waste acquisition, was \$233.3 million, compared to \$154.5 million for the same period in 2016, which included \$82.0 million of costs primarily related to the Progressive Waste acquisition completed in that period.

Net income attributable to Waste Connections for the 6 months ended June 30, 2017, was \$138.5 million, or \$0.52 per share on a diluted basis of 264.0 million shares.

WWF, FFAR and Walmart Foundation team up

World Wildlife Fund (WWF), the Foundation for Food and Agriculture Research (FFAR), and the Walmart Foundation disclosed a research program to maximize crop utilization and edible food recovery. With two grants from FFAR and the Walmart Foundation totaling \$1.3 million, WWF will work with research teams across the country including University of California, Davis and the Global Cold Chain Alliance to identify practical opportunities for producers to increase the proportion of crops that are harvested and delivered to the highest value destinations.

Of the estimated 63 million tons of food lost or wasted annually in the U.S., more than 80 percent is lost or wasted in consumer-facing businesses and in homes. While it’s estimated that less food is lost on farms, the lack of data quantifying this loss in different crops makes it difficult to validate estimates, identify drivers and define cost-effective solutions. Over the next 22 months, research teams aim to bridge those data gaps and test interventions to maximize crop utilization and profitability on farms.

As part of the first phase of the program, researchers at University of

California, Davis (UC Davis) are working with farmers to gather their input on strategies and opportunities for maximizing crop harvest and use. Their research is focusing on leafy greens, peaches, and tomatoes. UC Davis will also quantify the environmental impacts from seed to harvest for each of these crops.

A team led by the Global Cold Chain Alliance will collect qualitative and quantitative data and organize field studies to estimate on-farm and postharvest losses, and identify the current destinations of produce that never makes it to someone’s dinner plate or another end use. Initial research will focus on the harvesting of potatoes in Idaho and Eastern Oregon, tomatoes in Florida, romaine lettuce in Arizona, and peaches in New Jersey.

“The best way to feed people without putting more stress on our environment is to increase the availability of food that has already been produced,” said Jason Clay, WWF’s senior vice president of markets and food. “Each bite that doesn’t reach consumers represents a loss of the natural resources used to produce it.”

My son wanted to know what it's like to be married. I told him to leave me alone and when he did I asked him why he was ignoring me.

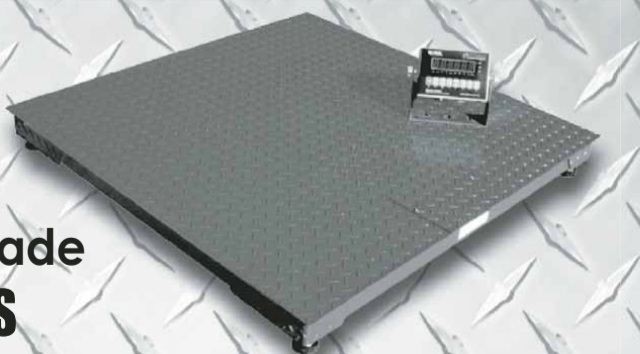
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