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Medical waste hazardous to recycling and waste workers

by MAURA KELLER

mkeller@americanrecycler.com

The improper management of discarded needles and other sharp medical devices can pose a health risk to the public and waste workers. For example, discarded needles may expose waste workers to potential needle stick injuries and potential infection when containers break open inside garbage trucks or needles are mistakenly sent to recycling facilities.

According to Selin Hoboy, vice president of legislative and regulatory affairs at Stericycle, Inc., one of the largest medical waste management companies in the industry, in the last few years and especially in light of emerging diseases like Ebola and now Zika viruses, there has been more attention on the proper management of regulated medical waste.

“Safe management of regulated or biohazardous waste is critical from the point of generation at any facility such as healthcare facilities like clinics, hospitals and surgical centers,” Hoboy said. “But also in places that many may not think of as generating regulated medical wastes such as laboratories, universities, dentists offices, long term care facilities and even tattoo parlors.”

Hoboy said keeping the emphasis on the proper packaging, transport and treatment of these materials is key for workers downstream from generation.

“Environmental services staff, healthcare waste drivers and treatment facility operators all have to manage this material safely to avoid contact and potential exposure to life threatening diseases,” Hoboy said. “As part of their services many regulated medical waste service companies provide training and information to their customers to ensure compliance by the generators and keep their own employees safe.”

Key Regulations

When Mass Innovation Labs was building its Kendall Square facility in Cambridge, Massachusetts, the founders decided to implement a cost-effective approach for reduction of waste disposal. Specifically, the company set up a facility with a main accumulation area for waste that not only allows for proper waste containers, but also for consolidation of waste and fewer shipments, which increases the organization’s profitability.

“Manufacturing and R&D laboratories produce the majority of hazardous waste today, specifically solvent and regulated medical waste,” said Mass Innovation Labs’ chief executive officer Amrit Chaudhuri. “Solvent waste is typically expired hazardous chemicals



A recent industry shift is occurring in the management of home medical waste.

PHOTO BY TREKANDSHOOT | DREAMSTIME

while regulated medical waste is contaminated biological materials. There is less emphasis on safe biohazard disposal these days as manufacturing and R&D labs unknowingly dispose of exposed materials that are detrimental to the environment.”

As Chaudhuri explained, the Environmental Protection Agency (EPA) continues to outline the regulations on a federal and state level by defining and reworking as need be, what is considered to be hazardous waste and how it needs to be managed. The Department of Transportation also contributes to shaping the regulations by managing how waste is handled and labeled and by overseeing transportation paperwork.

In addition, there are both state and federal regulations that impact the proper management of regulated medical waste by hospital and medical facilities, as well as by home users who use syringes and other sharps for their home health care needs.

At the federal level, the Occupational Safety and Health Administration (OSHA) is concerned with the safety of all employees in the environments they work within. In the case of regulated medical waste, the major hazard associated with this waste is blood borne pathogens, so companies who manage this type of waste stream should have an Exposure Control Plan and training for their employees.

Also, at the Federal level, the Department of Transportation Pipeline Hazardous Materials Safety Administration regulates the proper transportation of all hazardous materials.

According to Hoboy, regulated medical waste is considered a hazardous material under these rules, which dictates the wastes are marked, labeled, packaged, documented and transported. This is a preemptive regulation, so it must be followed whether you only operate in one state or many, and must be followed even if a state has no specific regulations for medical waste.

“Beyond that there are many other regulations, which are mainly at the state level, that dictate the treatment of regulated medical waste,” Hoboy said. “What we mean by that is: what happens to the different types of wastes generated? Some states are very specific and strict about how the wastes are segregated, sent for treatment and then sent to ultimate disposal. For example, some states require that pathological wastes be separated out to be sent for incineration. Other states have very few regulations and may allow regulated medical waste to go directly to an authorized landfill – although most facilities don’t follow that practice.”

Emerging Trends

One of the major shifts that has been seen in the industry and the waste industry as a whole, is the management of patients and medical waste generated in the home environment.

“This is of particular interest to all waste workers especially in solid waste and recycling because often home generated wastes are not regulated,” Hoboy said. “This means patients do not have a specific plan or mandate on where to put things like needles.

See MEDICAL WASTE, Page 4

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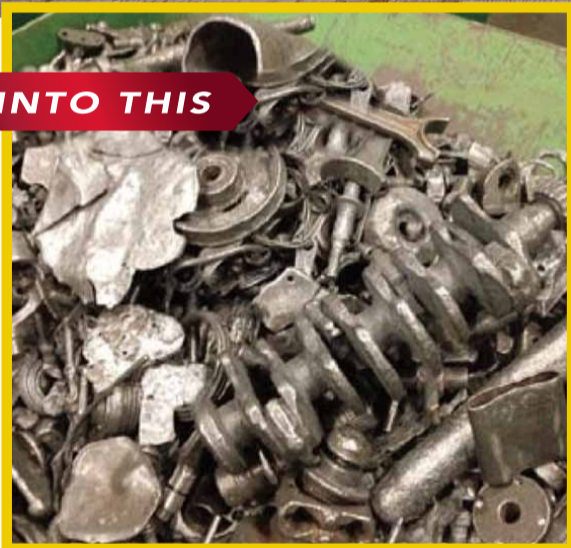
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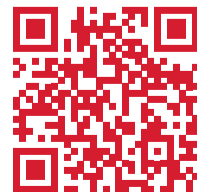
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MagneGas successfully processes septic water

MagneGas Corporation, a technology company that counts among its inventions a patented process that converts renewable and waste liquids into MagneGas2® fuel, announced that the successful results of its recent testing of its developmental wastewater sterilization equipment have moved the company a step closer to entering the septic water treatment market.

In June and July, MagneGas deployed its 50 KW mobile sterilization system at a Florida septic wastewater treatment facility. Initial results of the processed samples analyzed by an independent laboratory indicate significant reductions in pathogens. Additionally, these preliminary results indicate reductions in nitrogen, phosphorus, and potassium. MagneGas will continue to test at this facility during the next few weeks and will provide a final report to the waste treatment facility, based on the analysis of the independent laboratory, by the end of August.

The Florida Department of Environmental Protection estimates that one third of Florida residents use septic systems for disposal of their wastewater. Septic waste is generally collected and treated by privately owned corporations. MagneGas believes that the barriers to entering this market will be lower than the municipal government owned sewage treatment facilities.

ReCommunity Recovery Systems files lawsuit against City of Ann Arbor

The city allegedly broke promises to enrich themselves

Resource Recovery Systems, LLC and FCR, LLC (ReCommunity) filed a complaint in federal court against the City of Ann Arbor for damages arising from the city's wrongful termination of its recycling contract with ReCommunity. The filing includes claims that the city breached its contract, broke promises relied upon by ReCommunity and unjustly enriched themselves at ReCommunity's expense through wrongful actions to escape a contract they believed was no longer financially advantageous. Additionally, the city's actions put dozens of employees out of work, created additional burdens for city taxpayers, and ended a vital, popular service for its residents.

ReCommunity has had a contract with Ann Arbor to manage the city's recycling facility and transfer station since 1993. Such services included the sale of recyclables, and sharing the profits from such sales when the revenues exceeded operating costs. In 2014, when the worldwide price of oil began to decline, sales revenues for recyclables also dropped steadily until reaching all-time sustained lows in 2015. The city's recycling contract included a requirement that the city pay ReCommunity when sale revenues fell short of the amount of ReCommunity's cost to operate the site. It also included a requirement for the city to reimburse ReCommunity's costs for the repair and replacement of recycling equipment

from a fund that the city knew was insufficient to cover costs of needed repairs. Instead of paying the shortfall in revenues and working with ReCommunity to find a solution to equitably fund equipment repairs, the city maximized their profits when market prices were up, receiving nearly \$3 million since 2011, and then refused to pay required shortfall payments and invest in critical equipment when the market was down.

When City Council members realized in March of 2015 that their costs related to the site were expected to increase by \$1 million, the city decided to engage in efforts aimed at escaping the contract with ReCommunity and entering into a new one that provided less financial risk and greater financial reward to the city. To effect its plan, the city retained a consultant to develop a new contract, continued to default on its payment obligations, refused to invest in critical equipment and initiated a series of inspections designed to find any and all discrepancies to manufacture a basis for terminating the contract.

Due to the shortfall in the repair fund, ReCommunity was forced to spend over \$500,000 in repairs without being reimbursed by the city, including constant work on the old baler which would break down regularly causing operational issues, employee turnover, and deferred housekeeping. After ignoring or rejecting numerous proposals from ReCommunity to work together to

find solutions, the city started writing default letters to finalize its termination plan. Recognizing a weakness in its initial default notice alleging failure to obtain approval for the third party recyclables that contributed to the city's revenue share, Ann Arbor then stated that an incurable default existed based on alleged safety violations detected during the daily inspections by the city and its consultants – who were directed to find problems.

ReCommunity did address the alleged safety issues immediately and took steps to reduce third party volumes coming into the facility. ReCommunity also paid in excess of \$550,000 for the new baler in reliance on city assurances that it would pay a portion of such costs. Instead, on the day that the baler was fully installed and operational at ReCommunity's sole cost, the city completed the final step of its plan and issued a termination letter giving ReCommunity one business day to vacate the site.

The city's termination was wrongful and its conduct constitutes a breach of the contract, and ReCommunity seeks to recover all damages associated with the city's actions.

Despite the collection interruption caused by the city, ReCommunity encourages residents to continue their longtime commitment toward a sustainable future and recycle any discarded items or materials.

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Medical waste

■Continued from Page 1

In the past many have been told to put them in solid, sturdy containers like coffee cans or plastic detergent bottles. But so many people are conditioned that those types of containers should go into the recycling that then those containers end up at municipal recycling facilities or MRFs.

"This has increased the potential for needle sticks in the work place for more municipal waste facilities which are not accustomed to dealing with these types of materials," Hoboy said. "We are starting to see more legislation come out around having more take back programs or needle exchange programs to help educate people about the proper management of needles and these wastes. It will take time and will require funding to determine the best strategy for tackling this problem."

Hoboy said another major issue is pharmaceuticals in the waste stream. Recent studies showing that pharmaceuticals and other personal healthcare products are being detected in our waterways. As a result, there has been an effort to better manage disposal of leftover medications.

"The EPA proposed new regulations for the proper management of hazardous waste pharmaceuticals in the fall of 2015 and it is anticipated that these regulations will provide the needed direction for pharmaceutical waste disposal," Hoboy said. Additionally, the focus on opioid abuse has brought prescription medication misuse into the forefront, which has also increased the need to find better disposal options, much like the Drug Enforcement Administration's Disposal of Controlled Substances regulations passed in September 2014.

While many people think that the healthcare industry still relies on treatment through incineration, in actuality more than 85 percent of the waste today is sent through an alternative technology and only about 15 percent is incinerated.

"That is because the EPA Clean Air Act regulations are so strict that it shut down 98 percent of the incinerators in the country," Hoboy said. "Today more waste is treated through alternative technologies, like autoclaving or other chemical treatment."

Prior to 1997 there were over 3,000 incinerators across the country, today there are only 35 and of those, only about 14 are commercially operating facilities.

"Why is this significant? Well, it relates back to the pharmaceutical waste issue. So many people or generators think everything gets burned so it is safer to dispose of this waste in with regulated medical waste," Hoboy said. "But with so much of the waste going to facilities like autoclaves which generate wastewater, it creates a problem with the water discharge. Water discharge could have pharmaceuticals in it. Once the pharmaceuticals are mixed with the regulated medical waste, there is no way to separate them out to other containers to send them for better destruction process options, like incineration. Ultimately, that is why it will be important to see how the federal, state and local regulations change as they address the proper management of pharmaceutical wastes."

Chaudhuri said that recycling of regulated medical waste and laboratory plastics is another emerging trend in the management of biohazard waste. There are two approaches for managing these waste items.

"First, at Mass Innovation Labs we work with a waste management partner, Triumvirate Environmental, which owns a facility that recycles regulated medical waste instead of landfilling or incineration," Chaudhuri said. "In addition, our partner works with a manufacturer to create a closed loop solvent connection system, which reduces the harmful vapors that are created in lab atmospheres. These advancements allow biotech companies to maintain a clean and healthy atmosphere both in and out of the labs."

Future Impact on the Recycling and Waste Management Industries

According to MarketsandMarkets, world's number 2 firm in terms of annually published premium market research reports, the global medical waste management market is expected to reach \$13.3 billion by 2020 from \$10.3 billion in 2015, at a compounded annual growth rate (CAGR) of 5.2 percent from 2015 to 2020.

The medical waste management market is segmented into non-hazardous and hazardous waste. The hazardous waste segment is further categorized into infectious and pathological waste, sharps, pharmaceuticals, and other medical wastes. The medical waste management market, by services, is segmented into collection, transportation, and storage, treatment and disposal, recycling and other services.

The most recent MarketsandMarkets report has found that among various services, the treatment and disposal segment is expected to account for the largest share of the market and expected to grow at the highest CAGR to 2020. The high growth in this segment can be attributed to the increasing number of initiatives taken by government and non-government organizations for the appropriate disposal of medical waste.

In fact, there are several states that are revisiting their medical waste regulations or have passed new regulations in the last few years. For example, California, Colorado, Texas and West Virginia have all passed new regulations.

"Kansas is considering regulation changes in their state which has very minimalistic regulations today," Hoboy said. "Additionally we are seeing more movement at the city and county levels of ordinances or regulations, especially as it relates to home generated wastes."

What's more, when the EPA Pharmaceutical Waste Management regulations are passed, there will be a lot of activity at state levels, too.

"While pharmaceuticals are not what we traditionally think of when we think of regulated medical wastes – such as needles, or bandages with blood – that have a biohazard associated with it, it has long been a practice that many pharmaceuticals get mixed in with the regulated medical waste," Hoboy said. "This tends to get complicated."

Chaudhuri stressed that companies need to understand that it is critical to create a culture within the lab where workers have a basic understanding of the impact of waste on-site. "Ensuring that employees understand the difference between hazardous waste, regulated medical waste and solid trash is crucial in waste management," Chaudhuri said. "Informing lab workers should be the first step in helping facilities and lab spaces appropriately dispose of bio-hazard waste."

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Events Calendar

September 12th-14th

19th Annual Missouri Recycling Association Conference & Tradeshow (MORA). Sheraton Hotel, Westport Plaza, St. Louis, Missouri.
866-667-2777 • www.moraconference.org

September 19th-21st

26th Annual ARC Conference & Trade Show. Best Western Inn of the Ozarks Convention Center, Eureka Springs, Arizona.
866-290-1429 • www.recycleark.org

October 23rd-25th

West Virginia Association of Solid Waste Authorities, Educational Conference. Morgantown Marriott at Waterfront Place, Morgantown, West Virginia.
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October 26th-29th

ARA 73rd Annual Convention & Expo. Baltimore Convention Center, Baltimore, Maryland.
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NWRA chapter comments on recycling goals

The Connecticut Chapter of the National Waste and Recycling Association (NWRA) has reviewed the plan issued by the Connecticut Department of Energy and Environmental Protection (DEEP) and is commenting on elements of the plan based on current challenges facing the recycling markets nationally and worldwide.

The plan outlined by DEEP has laudable goals that the private waste industry supports – improving the performance of municipal waste programs; developing new technologies for sorting recyclables; recovering energy and materials of value from the waste stream; supporting the state’s existing waste-to-energy disposal plants through improved renewable energy credit programs; and, fostering an important dialogue about product design and end-of-product life sustainability and recycling.

However, the assumption of cost savings or cost avoidance by increasing recycling as outlined in the plan places achieving those goals at risk. Recycling

programs across the country have been challenged by declines in the global commodities markets that threaten the economic viability of recycling both for the public sector and private recycling industry.

“Our industry statewide is on the front lines of helping customers reduce the amount of waste they dispose through source reduction, recycling and other efforts, however, based on our real-world experience in the market, the annual savings will be substantially below the \$25 million the DEEP is suggesting,” commented Mike Paine, NWRA Connecticut chapter chairman and chief executive officer of Paine’s, Inc. of East Granby. “The DEEP’s savings projections do not adequately factor in the cost of collecting, processing, and managing the new amounts of recyclables and food scraps and other types of organic waste.”

Paine further added, “A key factor for Connecticut residents, municipal officials and business owners to consider when reviewing the DEEP’s

recently released waste reduction goals is to understand the true economics of the waste and recycling markets. It is a complex market. Any plan for waste reduction must take into account the different costs of various segments within the waste stream – for example, the cost of processing food scraps versus the economics of utilizing waste-to-energy facilities; fees for the processing of waste that cannot be diverted; and, of course, the cost of recycling programs. In new emerging areas for clean energy recovery, such as food waste, the market is too young to make any long term economic assumptions. To achieve the goals outlined by DEEP, the private waste and recycling industry in Connecticut has valuable insights and real-time economic information that can help ensure that the financial assumptions associated with these goals are realistic, and as always, our member companies are prepared to provide our insights and perspectives to help achieve our state’s broader environmental goals.”

NWRA’s Connecticut members and its other 29 chapters nationwide have also been educating the public about the true cost of recycling. There is a significant cost to collect recycling at businesses and the curbside, a cost to sort and package materials in the recycling stream so that materials such as metal, aluminum, plastics and paper products can be repurposed, and there are serious problems with contamination of the recycling stream which also increases costs when trash and other materials are mixed in with recyclables. Here in Connecticut, businesses and residences should be aware of the cost of recycling by having that cost as a separate line item on trash bills.

Knowing the cost of recycling, as well as using resources such as NWRA’s www.beginwiththebin.org website to know what can be recycled are two key elements for driving public support of effective recycling programs.



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2016 Recycle-Bowl launched

As students, teachers, administrators and staff prepare to head back to school, national nonprofit Keep America Beautiful (KAB) plans to promote recycling in schools across the nation with the launch of its 6th Annual Keep America Beautiful Recycle-Bowl. Registration is open for the fall recycling competition at www.Recycle-Bowl.org.

Through participation in Recycle-Bowl and America Recycles Day, the only nationally-recognized day dedicated to promoting and celebrating recycling in the U.S., KAB is helping communities spotlight recycling on a local level by educating students and community members on how and what to recycle, while providing an array of resources to improve recycling in America.

Recycle-Bowl, Keep America Beautiful's national K-12 school-based recycling competition, begins on October 17 and culminates on America Recycles Day, November 15. Registration for the four week in school competition is open to teachers, school administrators, school facility managers, PTA/PTO and other parent groups and local recycling advocates. Recycle-Bowl registration will remain open until October 11, one week before the start of the competition. Nearly 700,000 students and teachers from more than 1,265 schools across the nation competed in the 2015 Recycle-Bowl.

New this year, Keep America Beautiful is equipped to help participating schools customize the competition in their area. The intent of this hyper-local-

ized approach is to support a community or regional school district to use Recycle-Bowl as a platform to host and promote their own local recycling competitions with students leading the way as the next generation of community stewards.

Recyclables recovered during the 2015 Recycle-Bowl competition totaled 3.9 million pounds across 46 U.S. states, with Egg Harbor City Community School, Egg Harbor, New Jersey, crowned as the 2015 champion. Whether a school has an existing recycling program or is looking to launch one, Recycle-Bowl is an excellent way for teachers, students and facility managers to engage their entire school community in recycling.

Millercoors releases 2016 Sustainability Report

MillerCoors released its 2016 Sustainability Report, which provides a comprehensive review of the company's 2015 efforts in the areas of alcohol responsibility, environmental stewardship and community investment.

MillerCoors 2016 Sustainability Report highlights accomplishments in the areas of Great Times, Great Environment, and Great People and Communities. In 2015, the brewer made significant strides working with college alliances to help prevent underage access to alcohol at music and sporting events. The company also partnered with major manufacturers, NGOs and consultancies to form the California Water Action Collaborative (CWAC), a group dedicated to protecting regional watersheds. Inside its walls, MillerCoors is creating opportunities for women to advance in management through leadership training and mentorship.

Additional 2015 sustainability accomplishments include:

- Reducing water usage within its breweries by more than 128 million gallons;
- Reducing its water-to-beer ratio across all direct operations to 3.29:1.00 – a 2.1 percent reduction from 2014;
- Reducing greenhouse gas emissions (GHG) by 18 percent compared to 2010, a 4.9 percent decrease from 2014.

City of Montgomery acquires recycling facility

The City of Montgomery and the Solid Waste Disposal Authority of the City of Montgomery, a coalition created by the city to operate the materials recycling facility (MRF), signed an agreement to acquire the MRF and adjacent lot from current owner and former operator, IREP, for \$625,000 and other consideration.

"Although it's been a long road, today marks a significant step toward bringing one of the most technologically advanced recycling facilities in the nation back online," said Montgomery Mayor Todd Strange.

The agreement contemplates that IREP will promptly file a Chapter 11

bankruptcy case and will request that the terms of the agreement be considered for approval by the Bankruptcy Court in accordance with a schedule and procedures established by the Court.

The agreement also provides the closing of the purchase will be held within five business days after the Bankruptcy Court's approval of the agreement. After the allotted time, the approved purchaser will become the owner of the facility, together with all related machinery and equipment.

Per approval and finalization of the agreements, city officials plan to find an organization capable of resuming operations at the facility. City of Montgomery

finance director Barry Crabb met with more than five potential operators over the past months and will continue meeting with interested parties. Any potential operator must agree to take the facility and process recycling without any additional financial commitments on behalf of the City and Authority.

Opened in April 2014, the MRF spurred from a public-private partnership with the goal of finding a forward-thinking and environmentally-conscious solution to Montgomery's recycling needs. Recycling options still exist for Montgomery residents while the MRF is offline thanks to private sector partners and city services.

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ISRI updates paper and electronic plastic scrap specifications

The Institute of Scrap Recycling Industries (ISRI) recently disclosed new specifications published in the Scrap Specifications Circular 2016.

Included are changes to the paper specifications and amended electronics plastics specifications that have been approved by the ISRI board of directors. The specifications are as follows:

Paper Specs:

- #58 Sorted Clean News (SCN)
- #56 Sorted Residential Papers
- #54 Mixed Paper (MP)

Baled Specs:

- Baled CRT TV Plastic
- Baled Light Colored CRT Monitor Plastic
- Baled Dark Colored CRT Monitor Plastic
- Baled Dark Colored Flat Panel Monitor Plastic
- Baled Dark Colored Printer Plastic
- Baled Light Colored Printer Plastic
- Baled Dark Colored Mixed Electronics Plastic
- Baled Light Colored Copier Plastic
- Baled Dark Colored Copier Plastic
- Baled Light Colored Mixed Electronics Plastic
- Baled Mixed Color Electronics Plastic

Shredded Specs:

- Shredded CRT TV Plastic
- Shredded Light Colored CRT Monitor Plastic
- Shredded Dark CRT Monitor Plastic
- Shredded Dark Electronics Plastic
- Shredded Light Electronics Plastic
- Shredded Mixed Color Electronics Plastic

The following specifications will be deleted effective December 31, 2016:

- News Grades #6, 7, and 8
- Mix Grades #1, 2, and 3

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Partnership enables Composite Recycling Technology Center

Senator Cantwell led the ceremonial announcement of historic agreements between a Tennessee based national composites manufacturing institute, the world's first facility for product development from recycled carbon, and a Washington based college.

The agreement establish the Port Angeles, Washington-based Composite Recycling Technology Center (CRTC) as a strategic partner and West Coast satellite location for the Institute for Advanced Composites Manufacturing Innovation (IACMI), and allows Peninsula College to expand their capacity to train the composites manufacturing workforce of the future.

Stronger than steel and lighter than aluminum, carbon fiber composites are revolutionizing the aerospace industry. But 29 million pounds of composite scrap end up in U.S. landfills every year – a challenge the new partnership will meet head on. IACMI, CRTC and Peninsula College leadership signed three way collaboration agreements to develop nationally deployable composites recycling technologies and train the advanced composites workforce of the future.

This new partnership will add CRTC's expertise in composite recycling to The Composites Institute, and serve to broaden the national impact of the Institute while expanding the capa-

bilities of the Port Angeles facility. CRTC will serve as the West Coast "portal" for the Institute, working with other research institutions, industry and more on behalf of The Composites Institute. In addition, CRTC will have access to world-class level facilities, equipment and partners.

The Composite Recycling Technology Center is the world's first facility to divert uncured carbon fiber scrap from the landfill into innovative new products. IACMI-The Composites Institute, is the fifth Institute in the National Network of Manufacturing Innovation, with a focus deployment of advanced composites in clean energy technologies. It's supported by the US Department of Energy's Advanced Manufacturing Office and was created by the federal government to support US manufacturing by accelerating the development and commercial use of composites.

Peninsula College will support the partnership through its Advanced Manufacturing - Composite Technology program, including the first-of-its-kind Composite Recycling Certification, and hands on Composites Manufacturing Lab, to be located in the CRTC facility at the Port of Port Angeles. The program will give students hands-on training in advanced materials recycling and remanufacturing techniques.

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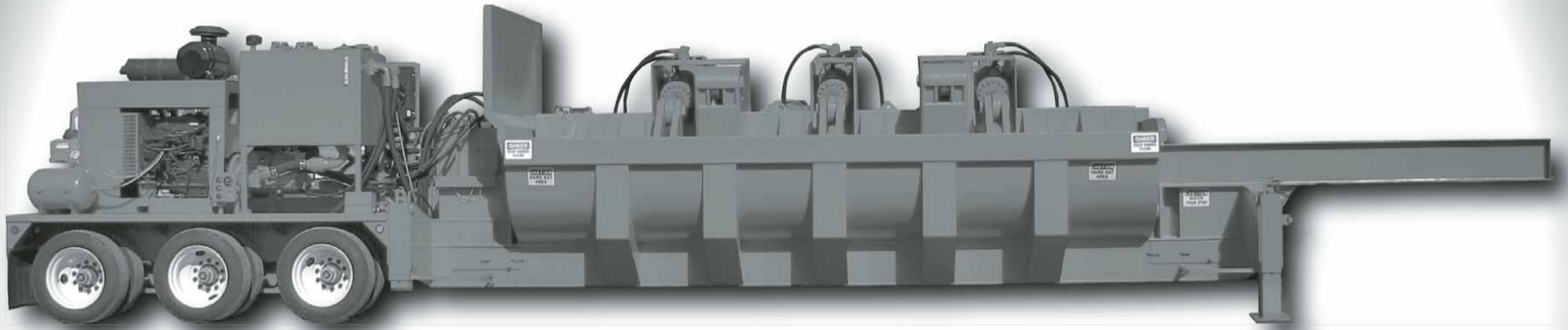
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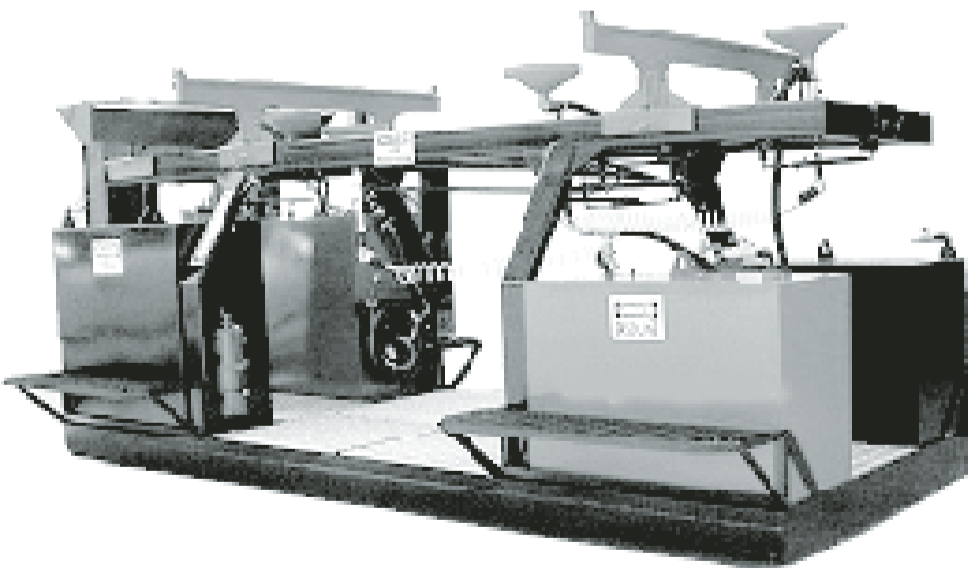
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PAPER

AF&PA releases paper reports

The American Forest & Paper Association released its June paper reports.

Containerboard

Containerboard production was 1.2 percent lower compared to June 2015. The month-over-month average daily production compared to May 2016 was 0.4 percent higher.

The containerboard operating rate for June remained flat at 95.6 percent, while the year-to-date operating rate of 94.5 percent was 1.6 percentage points lower compared to the first half of 2015.

Kraft Paper

Kraft paper shipments were 137.8 thousand short tons, 8.5 percent lower compared to June of last year, which had the highest shipment volume in 2015.

Bleached Kraft paper shipments increased from 7.0 thousand short tons in May to 7.7, while unbleached Kraft paper decreased from 131.0 to 130.1 thousand short tons.

Overall, shipments in the first half of 2016 were 2.4 percent lower compared to the same period in 2015. Total month-end inventories decreased from 79.2 to 68.6 thousand short tons.

Printing-Writing Paper Report

According to the report, total printing-writing paper shipments decreased 6 percent in June compared to June 2015. Total printing-writing paper inventory increased 2 percent from May levels.

•Uncoated free sheet (UFS) paper shipments decreased 5 percent compared to June 2015. UFS imports were down 41 percent year-over-year in May with exports down 17 percent.

•June coated free sheet (CFS) paper shipments increased 1 percent compared to June 2015. Imports of CFS papers decreased 21 percent in May with exports down 8 percent year-over-year.

•Uncoated mechanical (UM) paper shipments increased slightly in June, up just less than 1 percent when compared with June 2015, the first year-over-year increase in the past 16 months. Imports of UM papers were down 7 percent in May while exports of UM in May decreased 23 percent compared to the previous year.

•Coated mechanical (CM) shipments in June decreased 19 percent when compared to June 2015. Imports of CM increased 6 percent in May compared to May 2015 with exports down 41 percent.

•Coated mechanical (CM) shipments in March decreased 4 percent when compared to March 2015. Imports of CM decreased 14 percent in February compared to February 2015.

Boxboard Report

Total boxboard production decreased 2.0 percent when compared to June 2015 and decreased 2.4 percent from May.

Unbleached Kraft Boxboard production decreased over the same month as last year but increased compared to May.

Total Solid Bleached Boxboard & Liner production decreased when compared to June 2015 and decreased compared to the previous month.

The production of Recycled Boxboard decreased compared to June 2015 and decreased when compared to the previous month.

ALTERNATIVE ENERGY

Solect Energy recognized for providing jobs and clean energy in New England

Developer and installer Solect Energy is among the companies recently named to an annual and well recognized list of North America's top solar contractors. Solect Energy achieved an overall national rank of 92 out of 500 solar companies, and ranked #1 on the list for commercial-scale engineering, procurement & construction (EPC) solar companies in Massachusetts.

The Top 500 Solar Contractors List is developed by Solar Power World magazine to recognize the work completed by solar contractors across the U.S. and Canada. The companies on the list are growing the economy, providing jobs and offering electricity consumers a choice about how they get their power. The list was released July 26.

"The companies on this year's list exude solar-business brilliance, and they deserve to be recognized not only for being great companies but also for how their work positively impacts the environment," said Kathie Zipp, managing editor of Solar Power World. Solar

energy is a renewable resource with great potential to significantly reduce our nation's greenhouse gas emissions, according to the Solar Energy Industries Association, a national solar industry association.

Solect Energy employs 60 workers, who installed 12 megawatts (MW) of solar in 2015. Since its founding in 2010, the company has installed more than 32 MW of solar. The company is an industry leader in commercial-scale solar energy, delivering smart solar and energy management solutions that help businesses and organizations reduce energy costs.

Solect Energy works amid a burgeoning business market. The U.S. solar market is expected to grow 119 percent this year, according to global research firm GTM Research. While a majority of solar electricity is produced at large, utility-scale solar power plants, the greatest number of solar jobs is located with companies like Solect Energy.

Giant Leap receives grant through SunShot Initiative

Giant Leap Technologies (GLT) has received a 2 year, \$2.2 million cooperative award from the U.S. Department of Energy SunShot Initiative.

With support from Lawrence Livermore National Laboratory (LLNL) Center for Engineered Materials and Manufacturing, the company will develop capillary optics to replace expensive and wear-prone mechanical sun trackers with low cost invisibility-inducing digital glass for solar thermal and photovoltaic applications – i.e. base-load and peak-load needs.

Digital Glass has the potential to replace today's sun tracker stations, sometimes weighting tons each, with thin transparent panels using a fraction of today's materials, while also drastically reducing the area needed for solar power plants by a factor of 5 to 10 for the same annual energy harvest. This is

because Digital Glass is area-filling and it is not deployed to allow sunlight to fall between trackers—unlike today's collectors. These features will allow GLT to overcome the high-cost of today's solar collectors while further lowering the environmental impact of solar energy.

Giant Leap Technologies has already demonstrated an early-stage and physically large prototype. The SunShot award will allow GLT and LLNL to refine the design and reduce the size of the technology to roughly the thickness of a car's windshield, which is practical and low-cost. The team will advance new techniques in 3D-printing of opto-microfluidic structures having micron feature sizes with a manufacturing technique that can eventually scale to square meter areas. This is an increase in fabrication volume of nearly one billion times what was typical a few years ago.

■For more Alternative Energy news, see Page B1

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ELECTRONICS

Companies are caught exporting electronic waste

Basel Action Network (BAN), released a new report following a two year study that involved placing electronic GPS tracking devices into old hazardous electronic equipment such as printers and computer monitors, and then watching where they travelled across the globe.

The report, the first to be released from the project is entitled Disconnect: Goodwill and Dell Exporting the Public's E-waste to Developing Countries, and is released in conjunction with the airing of a PBS NewHour segment entitled The Circuit, as well as an MIT interactive website which graphically shows the overall movement of the tracked devices.

Instead of being recycled, 32.5 percent of these devices were exported overseas on container ships. Most of them went to Asia and were traded in likely violation of the laws of the importing countries. Of the 149 trackers delivered to recyclers, 39 percent were exported.

"Unfortunately, we are seeing considerable backsliding in the electronics industry today compared to just a few years ago," said BAN executive director Jim Puckett. "Meanwhile, these exports deprive our own nation of green jobs and make it difficult for responsible electronics recyclers to compete and survive."

As a particular focus of the study and the Disconnect report, 46 of the 200 tracker-planted electronic devices were delivered to Goodwill Industries stores across the U.S. Seven of these later reported their whereabouts in the Asian

countries of Thailand, Taiwan, and China (Mainland and Hong Kong). Six of these were part of Dell, Inc.'s Reconnect partnership with Goodwill.

Instead of being recycled in the U.S. as their customers were promised, these devices were exported in violation of Dell's policies, and were likely illegal under the laws of the importing countries.

"Goodwill and Dell, have had strong reputations for social and environmental responsibility. Our findings, however, shake the foundations of that public trust, and cry out for the implementation of immediate reform when it comes to e-waste management," said Puckett.

As part of the study, BAN travelled to the locations where the Goodwill and Dell and other trackers ended up, even retrieving one of them. Most arrived in the rural mainland border area, New Territories in Hong Kong. In this area the devices arrived at many informal, outdoor junkyards. These unpermitted facilities exposed illegal immigrant laborers and the environment as the workers smash equipment releasing toxic mercury from the LCD monitors or toxic toners from the printers.

BAN intends to continue the use of tracking technology, as they believe its use will play a pivotal role in holding an errant and troubled electronics recycling industry to account. They will also make this service available to other civil society organizations, governments, as well as large enterprises.

Recycling electronics to help farmers eliminates e-waste

Partnership aids farmers with disabilities

After being paralyzed from the waist down, Russell Boseck of Villisca, Iowa, wasn't sure he'd be able to work as a farmer again. But, thanks to an electronic recycling partnership between Sodexo, a leader in quality of life services, and Easterseals, Boseck received a grant that lets him continue making a living doing the farm work he loves so much.

The grant is one of the benefits farmers like Boseck and the environment are reaping from the Sodexo-Easterseals partnership.

Since 2007, Sodexo employees have collected used cell phones, laptops, digital cameras, video game consoles and printer cartridges from their jobs, homes and local communities. The items are shipped to recyclers and Sodexo donates the proceeds to the Easterseals Rural Solutions grant program.

This program gives grants to farmers with disabilities or other health conditions to purchase or modify farm equipment to address their mobility challenges. During the program's 10 years, more than 78 farmers in 14 states have received grants from Sodexo totaling \$80,000. Boseck used the money to build a wheelchair-

accessible barn where he raises 600 calves a year.

"We are celebrating our 10th year of recycling technology to help farmers with special needs be independent and remain active in farming. Our funds support the purchase of assistive equipment and devices, which can make an empowering difference for a farmer with a physical impairment," said Brenda Fuller, vice president and associate general counsel for Sodexo and program coordinator. "Behind the Sodexo-Easterseals recycling effort are Sodexo volunteers motivated by a desire to help agricultural workers who are at the heart of what we do in providing food services and improving quality of life. It all begins with the farmer," Fuller said.

The program's benefits are not limited to helping farmers – Sodexo also is able to reduce its carbon footprint by recycling the technology items used by the company's employees daily. To date, the program has prevented 102 tons of electronics from entering the solid waste stream – the equivalent of removing 1,179 cars from the road per year or providing electricity to 721 households for one full year.

A woman was taking an afternoon nap. When she woke up, she told her husband, "I just dreamed that you gave me a diamond necklace. What do you think it means?" "You'll know tonight,"

he said. That evening, the man came home with a small package and gave it to his wife. Delighted, she opened it to find a book entitled, "The Meaning of Dreams."



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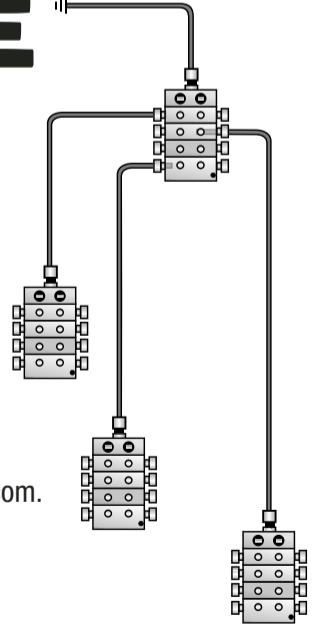
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METALS

Steel imports decline 9 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 2,630,000 net tons (NT) of steel in June 2016, including 2,218,000 NT of finished steel (down 8.6 percent and up 6.3 percent, respectively, vs. May final data).

Year to date (YTD) through 6 months of 2016 total and finished steel imports are 15,516,000 and 12,773,000 NT, both down 29 percent vs. the same period in 2015.

Key finished steel products with a significant import increase in June compared to May are sheets and strip all other metallic coatings (up 44 percent), reinforcing bars (up 39 percent), line pipe (up 26 percent), plates in coils (up 19 percent), heavy structural shapes (up 19 percent), cold rolled sheets (up 14 percent), hot rolled bars (up 13 percent) and tin plate (up 12 percent).

In June, the largest volumes of offshore finished steel imports were from

U.S. IMPORTS OF FINISHED STEEL MILL PRODUCTS BY COUNTRY OF ORIGIN (Thousands of Net Tons)					
	JUN 2016	MAY 2016	2016 Annualized	2015 Full Year	% Change 2016 Annual vs. 2015
SOUTH KOREA	334	352	3,846	4,854	-20.8%
TURKEY	196	147	2,390	2,823	-15.3%
JAPAN	145	119	1,711	2,259	-24.3%
GERMANY	122	125	1,218	1,515	-19.6%
BRAZIL	67	95	990	1,437	-31.1%
CHINA	67	73	901	2,374	-62.1%
TAIWAN	94	74	782	1,205	-35.1%
All Others	1,193	1,102	13,708	15,026	-8.8%
TOTAL	2,218	2,087	25,545	31,493	-18.9%

South Korea (334,000 NT, down 5 percent from May final), Turkey (196,000 NT up 33 percent), Japan (145,000 NT, up 23 percent), Germany (122,000 NT, down 2 percent) and Taiwan (94,000 NT, up 27 percent).

For 6 months of 2016, the largest

offshore suppliers were South Korea (1,923,000 NT, down 37 percent), Turkey (1,195,000 NT, down 26 percent), Japan (855,000 NT, down 31 percent), Germany (609,000 NT, down 26 percent) and Brazil (495,000 NT, down 28 percent).

June 2016 shipments of steel decrease

The American Iron and Steel Institute (AISI) reported that for the month of June 2016, U.S. steel mills shipped 7,628,953 net tons, a 0.4 percent decrease from the 7,661,979 net tons shipped in the previous month, May 2016, and a 1.7 percent decrease from the 7,758,087 net tons shipped in June 2015.

Shipments year to date in 2016 are 44,138,403 net tons, a 0.4 percent increase vs. 2015 shipments of 43,980,293 net tons for six months.

A comparison of June 2016 shipments to the previous month shows the following changes: hot dipped galvanized sheets and strip, up 2 percent; cold rolled sheets, up 2 percent and hot rolled sheets, down 1 percent.

Steel import permit applications increase for July 2016

Based on the Commerce Department's most recent Steel Import Monitoring and Analysis (SIMA) data, the American Iron and Steel Institute (AISI) reported that steel import permit applications for the month of July totaled 3,198,000 net tons (NT). This was a 7 percent increase from the 2,978,000 permit tons recorded in June and a 22 percent increase from the June preliminary imports total of 2,630,000 NT.

Import permit tonnage for finished steel in July was 2,439,000 NT, up 10 percent from the preliminary imports total of 2,218,000 NT in June. For the first 7 months of 2016, total and finished steel imports were 18,713,000 NT and 15,211,000 NT, down 25 percent and 26 percent, from the same period in 2015. The estimated finished steel import market share in July was 27 percent and is 25 percent year to date (YTD).

Finished steel imports with large increases in July permits vs. the June preliminary included standard rails (up 54 percent), reinforcing bars (up 45 percent), plates in coils (up 41 percent), oil country goods (up 41 percent), tin free steel (up 40 percent), hot rolled sheets (up 36 percent), cut lengths plates (up 21 percent), cold rolled sheets (up 19 percent) and hot rolled bars (up 12 percent).

In July, the largest finished steel import permit applications for offshore countries were for South Korea (up 27 percent from June preliminary), Turkey (up 51 percent), Japan (up 33 percent) and Taiwan (up 50 percent). Through the first 7 months of 2016, the largest offshore suppliers were South Korea (down 30 percent from the same period in 2015) and Turkey (1,491,000 NT, down 20 percent).

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METALS

Final USDOC duties set on hot-rolled steel imports

The United Steelworkers said next up is USITC ruling on imports from seven countries

The United Steelworkers (USW) told their union members at 16 steel facilities that the U.S. Department of Commerce (USDOC) made the right call on a final determination issued late Friday for duties on hot-rolled steel imports from seven countries.

"The Commerce Department's final ruling was anxiously awaited by steelworkers and steel companies for the past year of the investigation," said USW international president Leo W. Gerard. "It levels the playing field with imports to provide fair and sustainable market prices for American steel, a critical step in restoring balance to the market."

He further stated: "The hot-rolled steel trade case and others like it are vital to saving steel jobs and our communities. But they're only part of the solution. Chinese excess steel overcapacity is causing terrible injury worldwide and remains a long-term threat."

"In America, we must reignite demand by rebuilding the nation's failing infrastructure and manufacturing growth with our own steel in order to compete in a global economy."

The trade case, filed by six U.S. steel companies last August, charged producers in Australia, Brazil, Japan,

Korea, the Netherlands, Turkey and the United Kingdom with violating international trade laws by improperly subsidizing their steel producers and by dumping hot-rolled steel at below market prices in the U.S. market.

The USW said all that remains in the hot-rolled steel product case is the final ruling of the U.S. International Trade Commission (USITC) on the injury investigation following last week's hearing. USW International Vice president Tom Conway expressed confidence the six commissioners will vote an affirmative ruling early next month to complete the investigation.

Testifying at the trade commission hearing with a dozen steelworkers present from Pennsylvania and Ohio, Conway emphasized the enforcement action by the U.S. is about national and economic security. He pointedly asked: "Do we want to be dependent on imported steel because there are no American steelworkers left?"

In his testimony, Conway highlighted frightening data from a government report published in the first quarter of this year. "One figure jumped out," he declared. "Steelworker wages are almost \$50 million less than they were in the first quarter of 2015. Think

of what lost income of this magnitude means to real people, real families."

He told the trade commission that retirees are barely hanging on to pensions and health care benefits. "We have to stop the bleeding."

Steelworkers and iron ore miners have been devastated by surging imports of hot-rolled, cold-rolled and corrosion-resistant flat steel products that are all in the final stages of separate trade case enforcement actions. More than 19,000 ongoing layoffs in the steel sector states have resulted from idled facilities.

Many of these steelworkers and iron ore miners have exhausted unemployment eligibility, challenging food banks to meet rising demand and threatening home foreclosures. The Granite City steel works of U.S. Steel Corp. in Illinois has been idled since last year with 2,000 workers, along with miners on Minnesota's iron range.

The affected steel states include: Indiana, Ohio, Michigan, Minnesota, Pennsylvania, Alabama, and Kentucky. Hot-rolled steel is used in automotive applications, pipe, tubing, transportation equipment, appliances, heavy machinery, machine parts and nonresidential construction.

According to the USDOC fact sheet, the final determination on antidumping (AD) and countervailing (CVD) duties for hot-rolled steel exports by producers in each country are:

- Australia – 29.37 percent (AD)
- Brazil – 33.14 to 34.28 percent (AD); 11.09 to 11.30 percent (CVD)
- Japan – 4.99 to 7.51 percent (AD)
- Korea – 3.89 to 9.49 percent (AD); 3.89 to 57.04 percent (CVD)
- Netherlands – 3.73 percent (AD)
- Turkey – 3.66 to 7.15 percent (AD); .34 (de minimis) to 6.01 percent (CVD)
- United Kingdom – 33.06 percent (AD)

The USITC final injury determination for hot-rolled steel must be made by September 19, 2016. The duties announced by the government will then remain in place for five years for imports from the seven countries.

The six steel corporations that filed the petition are: AK Steel Corp., Ohio; ArcelorMittal USA LLC, Illinois; Nucor Corporation, North Carolina; SSAB Enterprises, LLC, Illinois; Steel Dynamics, Inc., Indiana and U.S. Steel Corp., Pennsylvania.

Timken declares quarterly dividend

The board of directors of The Timken Company, a global leader in bearings, declared a quarterly cash dividend of \$.26 per share. The dividend is payable on September 2, 2016, to shareholders of record as of August 15, 2016.

This marks the 377th 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.

Q: Is Google male or female?

A: Female, because it doesn't let you finish a sentence before making a suggestion.




Commodity		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
#1 Bushelings	per gross ton	\$185.00	\$200.00	\$230.00	\$260.00	\$271.00
#1 Bundles	per gross ton	187.00	210.00	230.00	260.00	265.00
Plate and Structural	per gross ton	215.00	210.00	185.00	250.00	246.00
#1 & 2 Mixed Steel	per gross ton	184.00	185.00	190.00	230.00	231.00
Shredder Bundles (tin)	per gross ton	150.00	170.00	165.00	195.00	235.00
Crushed Auto Bodies	per gross ton	150.00	170.00	165.00	195.00	235.00
Steel Turnings	per gross ton	94.00	95.00	125.00	149.00	157.00
#1 Copper	per pound	1.97	1.95	2.01	2.12	2.10
#2 Copper	per pound	1.82	1.80	1.95	2.00	1.88
Aluminum Cans	per pound	.55	.57	.56	.55	.54
Auto Radiators	per pound	1.37	1.40	1.44	1.52	1.49
Aluminum Core Radiators	per pound	.53	.52	.54	.54	.55
Heater Cores	per pound	1.05	1.10	1.10	1.19	1.29
Stainless Steel	per pound	.47	.45	.52	.54	.54

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

DISCLAIMER: American Recycler (AR) collects pricing and other information from experienced buyers, sellers and facilitators of scrap metal transactions throughout the industry. All figures are believed to be reliable and represent approximate pricing based on information obtained by AR (if applicable) prior to publication. Factors such as grades, quality, volumes and other considerations will invariably affect actual transaction prices. Figures shown may not be consistent with pricing for commodities associated with a futures market. While the objective is to provide credible information, there is always a chance for human error or unforeseen circumstances leading to error or omission. As such, AR is not responsible for the accuracy or completeness of the information provided, or for outcomes arising from use of this information. American Recycler disclaims any liability to any person or entity for loss or damage resulting from errors or omissions, including those resulting from negligence of AR, its employees, agents or other representatives.

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AUTOMOTIVE

ISRI adds bumper plastics specification to circular

The Institute of Scrap Recycling Industries (ISRI) board of directors recently approved the addition of an auto bumper plastics specification to the plastics specifications listed in the Scrap Specifications Circular.

The specification is as follows:

Name: Post Consumer TPO Plastic Automotive Bumper Covers

Description: This grade consists of painted auto bumper covers removed from motor vehicles.

Product: Post-Consumer Auto Part

Source: Post-Consumer material generated by collision or refurbishment

centers or automobile dismantlers.

Contamination: The following parts must be removed from the bumper cover: head lamps, tail lamps, grills, emblems, rub strips, reflectors and any other components attached to the bumper. Everything attached to the bumper cover should be removed before baling.

Contamination should be limited to small metal parts such as clips, bolts and screws.

No TPU or RIM Plastic allowed.

General: Refer to the "General Information" section for more information.

Auto parts manufacturer faces \$3.42 million in fines

The U.S. Department of Labor's Occupational Safety and Health Administration issued 57 citations for safety violations to Sunfield Inc., an Ohio auto parts' manufacturer. The agency has also proposed the company pay more than \$3.42 million in total fines for its failure to disconnect machinery from a power supply and prevent sudden movement before maintenance and service, and to train workers in how to operate machine presses safely and to service and maintain them.

The fines assessed are one of the largest OSHA penalties ever filed against a company in the automotive parts industry.

Federal investigators inspected Sunfield's Hebron plant after two workers suffered severe injuries in separate incidents in January and February 2016. The facility has an extensive history of federal safety violations dating back 20 years. The company, which investigators found to have a high rate of employee turnover, supplies parts for several major Japanese and domestic automakers.

OSHA issued citations for 46 egregious willful, 2 willful, 1 repeated and 8 serious safety violations with penalties totaling \$3,426,900 to Sunfield. The agency also placed the company in OSHA's Severe Violator Enforcement Program for failure to address these safety hazards. Most of the violations involve lack of machine safety procedures which expose workers to amputation, lacerations and other injuries.

OSHA investigation found:

•On January 6, 2016, a 22 year old male temporary worker employed by the staffing agency, Employers Overload, suffered multiple lacerations and a fractured right elbow, while removing scrap from a blanking press after operating machine parts caught his arm because safety light curtains were not operating correctly. OSHA's investigation found a

supervisor had identified the safety issue two hours prior to the injury, and failed to place the equipment out of service. The injured worker had been on the job just six months.

•On February 18, 2016, a full time 58 year old Sunfield employee had to undergo surgical amputation of his right arm above the elbow after his arm was crushed as he removed scrap on a robotic press line. Investigators again found that the machine's danger zone did not have adequate safe guards to prevent employees from coming in contact with operating machine parts. He had been on the job for just a year.

Prior to these inspections, Sunfield had an extensive history of OSHA violations. Since 1997, 16 of 20 inspections conducted found multiple violations.

In total, the agency has issued 118 citations that have addressed numerous machine hazards similar to those cited today and resulted in 90 serious, eight willful and five repeated violations to the company, which has repeatedly assured OSHA that it would address the unsafe conditions.

OSHA found that the company did not take the necessary steps to protect its workers from being injured by moving machine parts. It did not prevent machines from unintentionally starting when workers were performing service and maintenance such as clearing scrap, and also failed to provide adequate safety mechanisms such as guards, locking devices and other procedures to prevent contact with those moving parts. These types of violations are among the most frequently cited by OSHA and often result in death or permanent disability.

The agency also found multiple electrical safety violations including lack of personal protective equipment, workers exposed to "live" electrical parts, and use of damaged equipment.

SALVAGING Millions

by Ron Sturgeon
Autosalvageconsultant.com

Tools for success – Have a sense of urgency

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

There is no substitute for an extreme sense of urgency. Don't wait to do it, do it now! Delegate it! Make it happen! You already know intuitively that no matter how fast you move in the world of business it's not fast enough.

Practice the urgency every day. Be tireless; make sure everyone around you knows that you always wanted it yesterday. Their sense of urgency leverages on yours. Why wait months to get a new marketing design? Do it this week. Why wait to shake down the reason for high expenses in your service department? Do it today, get started, ask someone for all the metrics and reports for your review by this Thursday!

Make sure that you delegate effectively, as there are many tasks that you may not need to do at all, or have others gather information so you can make a decision. One item that speeds innovation and improvement is a weekly meeting with all the main stakeholders in your organization.

Many of you want better profits. The path to profits requires a big sense of urgency to achieve it and stay ahead of your competitors. How do you do that? It's simple; insist on your preliminary financial statements absolutely no later than the 10th. Ignore those that tell you it's not possible, we had to close the books and publish them by the 5th, regardless of weekends and holidays! As soon as you get it, study it. Make sure it shows the prior 12 months (so it covers 13 months, including the same month last year). Study it for changes, comparing to the prior month and same

month last year. Shine your mental "flashlight" on several items that are either up or down, and march right out of your office to that department. Get details. Ask the accounting department to explain why utility bills doubled last month, and why brokered parts sales are off 30 percent for the last 3 months.

Schedule a meeting tomorrow with the sales staff to discuss how to increase brokered parts sales. Figure out who is leaving all the fans on in the shop, install thermostats on the HVAC system that cuts it off at night.

Now smile and go back to work.

You have had an impact on this month's sales, the month right after the statement you studied. If you don't get your statement until later in the month, or even the next month, then delay reviewing it, then procrastinate on taking steps, won't likely impact things for many months. So you will only make a difference maybe three times per year. Imagine how fast things will change if you shine that flashlight on just two items per month. That's 24 initiatives per month. One of my favorite sayings is, where you check and shine your flashlight is where you get improvement.

Do you have a way to track the efficiency of your buyer's purchases? How about metrics that measure how quickly the inventory turns? Do you know that it has been proven repeatedly that purchases that do the best in the first month do the best in the long term? Getting in front of bad purchasing is one of the quickest ways to increase cash flow and profits. Put the system in place now and start meeting with the buyer regularly, at least monthly. Do it today.

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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PLASTICS

Dr Pepper Snapple Group brings recycling to more parks

A significant grant, made possible by Dr Pepper Snapple Group in collaboration with Keep America Beautiful will help keep parks clean.

The Dr Pepper Snapple Group/Keep America Beautiful Park Recycling Bin Grant Program provides funding for 900 new recycling bins in public parks across the country in 2016, making recycling more accessible for Americans enjoying the outdoors.

Now in its fourth year, the public park recycling grant program has awarded more than 3,400 recycling bins to Keep America Beautiful affiliates, local governments and other community organizations across 28 states to expand the availability of recycling. This investment in recycling infrastructure has improved recycling accessibility and convenience in a variety of park settings, including neighborhood and larger regional parks, beaches, athletic fields and walking trails.

This year, applicants who invested local funds to purchase additional recycling bins beyond those being awarded via grant were given preference in the review process, and those who didn't receive a bin grant this year qualified for discount pricing. Through the bin grants as well as these local investment incentives and discounts, there will be more than 1,000 new recycling bins in parks and other public spaces this year.

"We're taking aim at two challenges that communities face nationwide –

cleaning up parks and other shared spaces and reducing the strain on landfills," said Vicki Draughn, vice president of corporate affairs for Dr Pepper Snapple Group. "Our partnership with Keep America Beautiful puts more recycling bins in more cities within reach of more consumers who are on-the-go, helping tackle both of those challenges."

The lack of away-from-home recycling opportunities is reflected in a recent national survey by Keep America Beautiful to understand where people normally recycle. While 92 percent said they recycled at home, only 19 percent indicated that they typically recycle in public parks. Additional research conducted by Keep America Beautiful indicated only 12 percent of surveyed public locations had recycling infrastructure in place to recover the containers. The Dr Pepper Snapple Group/Keep America Beautiful Park Recycling Bin Grant Program is designed to address the obstacle of overcoming a lack of recycling convenience.

In addition to improving recycling opportunities, the grant program will make additional funds available to Keep America Beautiful community-based affiliates or other grant recipients who commit to conducting a Litter Index in conjunction with the grant to help study the effects of the recycling bins on reducing litter in the immediate areas of the bins.

Inflatable lounge is made from plastic water bottles



Eagles Nest Outfitters, creators of packable camping hammocks and other outdoor accessories, has teamed up with Unifi, Inc.'s Repreve® recycled fiber brand to launch the Eno Billow™ air lounge, the only inflatable lounge made with recycled plastic water bottles.

Repreve collaborates with various brands to help make their products better for the environment. Each Billow Air Lounge is made with Repreve, using 16 plastic water bottles.

Key features of the lounge include triple-stitched nylon and dual-layer construction for enhanced durability. The Billow Air Lounge is portable and intel-

ligently constructed; it comes with a custom carrying case and stakes, and when not in use, packs to a conveniently small size of less than 30 inches long. When inflated, the lounge is comfortably sized at nearly 7 feet long.

Repreve is used in a variety of auto, outdoor, home and apparel products by some of the world's most recognized brands, including The North Face, Volcom, Haggar and more. Since the introduction of Repreve, Unifi has recycled and transformed more than four billion plastic bottles into Repreve-based products.

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Waste Management reports strong earnings

Waste Management, Inc. released their financial results for its quarter ended June 30, 2016.

Revenues for the second quarter of 2016 were \$3.43 billion compared with \$3.32 billion for the same 2015 period. Net income for the quarter was \$287 million, or \$0.64 per diluted share, compared with net income of \$274 million, or \$0.60 per diluted share, for the second quarter of 2015. 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 compared with \$306 million, or \$0.67 per diluted share, in the second quarter of 2015.

The company's as-adjusted second quarter 2016 results exclude \$0.10 per diluted share of non-cash charges related to the write-down of investments in

waste diversion technology companies to their fair value.

Key highlights:

- Overall revenue increased by 3.3 percent, or \$110 million. The revenue increase was driven by positive yield and volume in the company's collection and disposal business of \$98 million. Acquisitions, net of divestitures, also contributed \$52 million of revenue growth to the current quarter. These increases were partially offset by \$24 million in lower fuel surcharge revenue, \$10 million in foreign currency fluctuations, and \$5 million in lower recycling revenues.

- Core price, which consists of price increases net of rollbacks and fees, other than the company's fuel surcharge, was 4.9 percent, up from 4.1 percent in the second quarter of 2015.

- Internal revenue growth from yield for collection and disposal operations was 2.6 percent, up 90 basis points from the second quarter of 2015.

- Traditional solid waste business internal revenue growth from volume was positive 0.8 percent in the second quarter of 2016. Total company internal revenue growth from volume was 0.4 percent in the second quarter, with lower recycling volumes accounting for the 40 basis point difference.

- Average recycling commodity prices increased 2.3 percent in the second quarter of 2016 from the prior year period. Recycling volumes declined 2.9 percent in the second quarter. Results in the company's recycling line of business improved by more than \$0.01 per diluted share when compared to the prior year period.

Texas Army National Guard wins challenge

The U.S. Environmental Protection Agency (EPA) has recognized the Texas Army National Guard as a national winner in the Federal Green Challenge, an event that encourages federal facilities to reduce the government's environmental impact.

The guard nearly doubled the amount of waste diverted for recycling at construction projects across Texas, saving over \$155,000 in waste disposal fees.

The guard won the national Federal Green Challenge in the waste category by increasing the amount of material from construction projects diverted for recycling instead of disposal. In total, recycled material went from 1,762.8 tons in 2014 to 3,506 tons in 2015 for a 98.8 percent increase, saving \$157,849 in waste disposal fees. Regional administrator Curry presented the award at the recent Federal Facilities Training Symposium, hosted by EPA to update federal government agencies on environmental regulations and compliance.

Regional award winners for Region 6 were also recognized at the symposium. These included the Veterans Administration Sam Rayburn Memorial Veterans Center in Bonham, Texas; Office of Natural Resources Revenue in Farmers Branch, Texas; General Services Administration Casey Courthouse in Houston, Texas, and Federal Service Center in Fort Worth, Texas; Drug Enforcement Agency El Paso Intelligence Center in El Paso, Texas; and Veterans Affairs Health Care Services in Albuquerque, New Mexico.

The Federal Green Challenge is a national effort under EPA's Sustainable Materials Management Program, challenging EPA and other agencies to lead by example in reducing the federal government's environmental impact.

Republic Services reports second quarter results

Republic Services, Inc. reported net income of \$180.8 million, or \$0.52 per diluted share, for the three months ended June 30, 2016, versus \$190.3 million, or \$0.54 per diluted share, for the comparable 2015 period. Excluding certain expenses, on an adjusted basis, net income for the three months ended June 30, 2016, was \$189.5 million, or \$0.55 per diluted share.

For the six months ended June 30, 2016, net income was \$337.4 million, or \$0.98 per diluted share, versus \$362.7 million, or \$1.03 per diluted share, for the

comparable 2015 period. On an adjusted basis, net income for the 6 months ended June 30, 2016, was \$356.7 million, or \$1.03 per diluted share.

"Our second quarter results continue to demonstrate the stability and predictability of our business, and the strength of our operating model," said Donald W. Slager, president and chief executive officer. "Strong pricing performance, positive volume growth and contributions from our strategic initiatives keep us well positioned to achieve our full year financial guidance."

Second quarter financial highlights include:

- Second quarter revenue growth from average yield was 2 percent and volumes increased 0.5 percent.

- Core price increased revenues by 3.1 percent, which consisted of 4.1 percent in the open market and 1.5 percent in the restricted portion of the business.

- Second quarter adjusted diluted EPS was \$0.55 per share and was in line with the company's expectations.

- Cost of operations as a percentage of revenue decreased to 61.3 percent resulting in 20 basis points of gross margin expansion.

Republic continues to increase cash returns to shareholders, and its board of directors approved \$0.02 increase in the quarterly dividend. The quarterly dividend of \$0.32 per share for shareholders of record on October 3, 2016, will be paid on October 14, 2016.

Casella Waste Systems reports increased revenues

Casella Waste Systems, Inc., a regional solid waste, recycling and resource management services company, reported its financial results for the 3 month period ended June 30, 2016. The company also increased its Adjusted EBITDA guidance and reaffirmed its revenue and free cash flow guidance for the year ending December 31, 2016.

Highlights include:

- Revenues were \$144.7 million for the quarter, up \$1.0 million, or 0.7 percent, from the same period in 2015.

- Net income was \$5.2 million for the quarter, an improvement of \$4.2 million from the same period in 2015.

- Adjusted EBITDA was \$34.8 million for the quarter, an improvement of \$4.1 million, or 13.3 percent, from the same period in 2015.

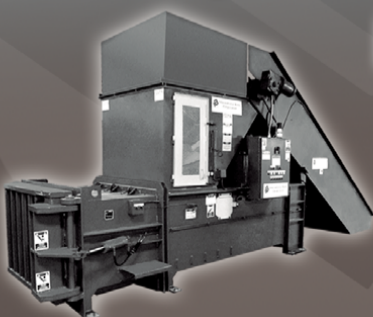
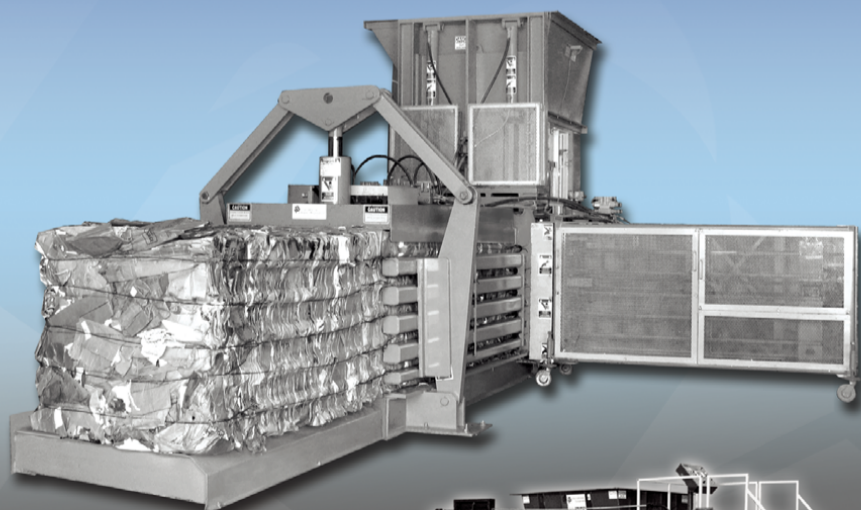
- Overall solid waste pricing for the quarter was up 3.5 percent, mainly driven by strong collection pricing up 4.8 percent.

For the quarter, revenues were \$144.7

million, up \$1.0 million, or 0.7 percent, from the same period in 2015, with revenue growth mainly driven by robust collection, disposal and recycling commodity pricing, the acquisition of three transfer stations, and higher volumes in the organics line-of-business, partially offset by lower landfill and low margin transportation volumes.

Net income attributable to common stockholders was \$5.2 million or \$0.12 per diluted common share for the quarter, compared to net income attributable to common stockholders of \$1.0 million, or \$0.03 per diluted common share for the same period in 2015. The current quarter included a \$0.6 million loss on debt extinguishment related to the redemption, repurchase and permanent retirement of \$15.5 million of our 7.75 percent Senior Subordinated Notes due 2019, while the same quarter last year included a \$0.7 million gain on the divestiture of non-strategic collection routes.

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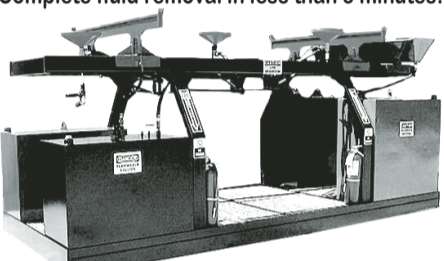


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INDUSTRY PROFILE

A Closer Look

by Donna Currie

Columbus McKinnon Corp.
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Charlie Astafan, general manager at Columbus McKinnon Corp., said that he's been in the recycling machinery manufacturing industry pretty much all of his adult life. After college, he started working for a company that made recycling equipment in upstate New York, near where he lived. He worked his way up from selling parts to selling equipment before Columbus McKinnon made him an offer to move to Florida to work for them. He's worked for them ever since.

Columbus McKinnon is a 140 year old company that was looking to diversify and enter new markets when they made their first tire shredder in 1982. "There was a tire fire in Canada," Astafan said, "that got a lot of attention." It gave them the idea to get into manufacturing equipment for the recycling business.

To get started, the company bought a patent and designed one of the first turn-key tire shredders that could handle a whole tire and chop it into two inch square pieces.

Astafan explained that they design shredders "to make a product instead of for disposal." The first product was a supplemental fuel product for the cement industry. Tire rubber is an ideal product for cement kilns, he said, because those kilns burn very hot for a very long time.

While some people think that burning tires must be bad for the environment, Astafan said, "Tire chips are a petroleum-based product and they burn very clean."

He said that the concrete industry has a closed-loop system, since the small amount of ash left after burning is added to the cement. The wire from the tires, turned into small particles during the burning process, is actually beneficial for the concrete.

While fuel was the original use for recycled tires, there are now a number of other uses. Tire shred can also be used as a lightweight fill for landfill cover as well as landfill construction, where it performs better than stone.

Tires can be used to make decorative mulch when it's cut to .5 to .75" pieces and colored. Used tires play a big part in artificial turf sports fields – it offers great drainage when combined with silica sand that goes under the turf.

The material is also used in an asphalt rubber product which has advantages over traditional asphalt, since it's flexible and won't crack due to temperature-related expansion and contraction.

From that first tire shredder the company built, the line has expanded to include machines that can shred, make rubber mulch or make crumb rubber. The company is expanding into more generalized and hybrid shredders that can shred plastics and light metals as well as rubber. Astafan explained that the shredders are ideal for materials that are abrasive, since the shredder knives can be replaced when they are worn.

Astafan said that the company decided to diversify because "there are only so many tires out there," but the list of other waste materials that could benefit from shredding is nearly endless. "We've been in one segment of the industry," he said. "We're stepping out."

The shredders that the company makes have a similar "core" but the machines are customized for particular customers' needs. "We built a test lab to test and demo," Astafan said. Customers can send some of their material for a test-shred and the product is sent back for their inspection. "It's fun shredding thing up," Astafan said, but it also helps the company customize the shredder so the customer gets the product they need.

Astafan said that the difficult part of the industry is "getting people to accept recycled materials." Although people are interested in being green, "I see what our customers go through." When someone sees a pile of shredded tires or a pile of metal at a scrap yard, they don't see it as a product – they see it as waste material. "We're processors of usable material," Astafan said. "It has a value. It's a raw material."

He said that the recycling industry is not a junk or waste business. Instead, his customers "take things that are at the end of their life and create a new life."

In order for that "new life" to happen, the material needs to be "a consistent state" so it's the right size and so that products that are made from multiple materials can be separated efficiently.

"How do we create these systems?" Astafan asked. "That's the cool part." He said that he would like to find "really hard things to do where we can create a niche" just like they did with the tire industry. "The hard-to-do things...those are the fun things."

He said that the question is, "Where is that next difficult application that other companies have failed at that we can succeed in?"

While he's helping customers in the U.S. with their recycling needs, he's also very proud to sell machinery in 25 other countries and "put the American flag in other parts of the world." He said, "It's a lot of work, a lot of travel, and a lot of sacrifice," but it has also allowed him to create business relationships and make friends all over the world. "People are pretty good all over the world," he said. "People aren't that different."

BUSINESS BRIEFS

EPA selects new deputy regional administrator

■ The Environmental Protection Agency (EPA) has selected Edward H. Chu as the new deputy regional administrator for EPA Region 7 in Lenexa, Kansas. EPA Region 7 encompasses Iowa, Kansas, Missouri, Nebraska and nine tribal nations.

Chu has almost 30 years of experience in environmental and energy policy. He has served in critical senior roles within EPA and at the White House Council on Environmental Quality.

Most recently, Chu was the assistant regional administrator for the Pacific Northwest and Alaska Region (Region 10), serving 4 states and 271 federally recognized tribes. He also served as the assistant regional administrator for the Southeast Region (Region 4).

Prior to public service, Chu spent seven years as an energy and environment consultant.

Petersen Industries names new dealer in Georgia

■ Petersen Industries, Inc., manufacturer of grapple trucks and waste collection systems, has named Environmental Products of Georgia as their exclusive dealer in the state of Georgia.

Environmental Products of Florida Corporation dba Environmental Products of Georgia, began business in Florida in 2001 and acquired the franchise in Georgia in 2010. The Georgia location operates a 30,000 sq.ft. 12-bay facility in Atlanta.

Bunting Magnetics names new product manager

■ Bunting Magnetics Co. has appointed Andrew Blubaugh as its product manager over metal detection. Blubaugh will manage the growth and profitability of the company's line of metal detection products by supporting the company's sales team, identifying new markets and customers, improving the product and enhancing the accompanying service and warranty programs.

Based in Newton, Kansas, Blubaugh draws on nearly 10 years of experience in manufacturing in a variety of positions. Most recently, he was production manager in charge of sales and operations at Kincaid Equipment, a manufacturer of agricultural equipment for the seed research industry, where he excelled in managing the operations and product development process while driving sales growth and customer development.

JWC appoints Greg Guard to SVP of global sales

■ JWC Environmental has promoted Greg Guard to senior vice president of global sales. In this newly created position, Guard will be responsible for directing JWC's global sales initiatives and strategies.

JWC's global sales organization, which includes more than 100 distributors and representative firms, will continue to be supported out of JWC facilities in the U.S., Canada, the United Kingdom and China. JWC's global sales leaders for Europe, Asia and the Americas will report to Guard.



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BUSINESS BRIEFS

Republic Services elects Handley and Kirk to board

■ Republic Services, Inc. disclosed that service company and industrial services and chemicals executive Thomas W. Handley and oil and gas executive Jennifer M. Kirk have been elected to its board of directors. Republic's board now consists of 12 total members, including 11 independent directors.

Tom Handley serves as president and chief operating officer for Ecolab, Inc., responsible for providing leadership, management and strategic counsel. Ecolab, a \$13.5 billion company, delivers solutions and on-site service to promote safe food, maintain clean environments, optimize water and energy use and improve operational efficiencies for businesses around the world. Handley serves on Republic Services' Management Development and Compensation Committee and the Nominating and Corporate Governance Committee.

Jennifer Kirk is vice president, controller and principal accounting officer of Occidental Petroleum Corporation, the third largest U.S. oil and gas company based on market capitalization with oil and gas, midstream and chemical operations in the United States, Middle East and Latin America. She is responsible for the direct oversight of all company financial activities, including financial reporting, accounting, compliance and internal controls. She is an accredited petroleum accountant with 20 years of experience. Kirk serves on the Republic Services' Audit Committee and the Sustainability & Corporate Responsibility Committee.

Terex expands Fuchs material handler line

■ Terex Corporation continues to implement a series of moves to better position its Fuchs material handler business for expansion and sales growth.

The Fuchs line also transitioned to the Terex Material Processing segment, which is a better strategic fit for the business within the broader Terex portfolio.

Accelerated investment in Fuchs' has resulted in multiple announcements of new models and model upgrades. Two completely new model class designs recently introduced, the Fuchs® MHL390 F and MHL370 F, give customers more material handling options for a wider variety of applications.

Fuchs also introduced upgrades to its popular MHL320 F handler, designed as the perfect entry level unit for recycling, waste and small scrap operations who need the high lift capacities, efficient sorting capabilities and fast trailer loading/unloading.

Hyundai names Vicha district sales manager

■ Hyundai Construction Equipment Americas has appointed David Vicha as district sales manager, supporting the company's authorized dealers throughout Texas, New Mexico, Colorado, Kansas, Oklahoma, Arkansas and parts of Louisiana and Missouri.

A graduate of North Dakota State University, with a degree in business administration, Vicha has 21 years of experience in retail management with the past five years in the equipment industry.

Morbark's leader, James Shoemaker, to retire

■ Morbark, LLC president, James W. Shoemaker Jr., has retired after 13 years with the company.

Morbark was acquired by Stellex Capital Management in March of this year. Shoemaker started working with Stellex in September 2015 and agreed to stay on as president to assist with the transition. Shoemaker will stay involved with Morbark in a consulting capacity.

Shoemaker joined Morbark in 2003 as director of operations before being promoted to vice president of operations and then appointed president in 2011.

Involved in local industry associations, Shoemaker is a founder and the president of the Central Michigan Manufacturers Association, and a member of:

- Middle Michigan Development Corporation board of directors.
- Central Michigan University School of Engineering advisory board.
- Eastern Michigan University College of Technology Dean's advisory board.
- Greater Gratiot Industry/education roundtable.
- The Rogers Group board of directors.

In May, for his efforts, dedication and issue advocacy for the manufacturing industry, Shoemaker was honored with the 2016 John G. Thodis Michigan Manufacturer of the Year Award recipient for Large Tier Companies by the Michigan Manufacturers Association.

Shoemaker will continue his work with industry and civic organizations.

WM names James C. Fish, Jr. as new president

■ Waste Management, Inc. has appointed James C. Fish, Jr. to the position of president, reporting to David Steiner, the company's chief executive officer. Fish retains his existing role as chief financial officer while the company conducts a search to fill that role.

The new chief financial officer will report to Fish, who will maintain his responsibility for all financial affairs for Waste Management, including treasury, audit, accounting, financial planning, tax and investor relations. He will also continue to oversee the information technology group and several of the company's growth areas, including strategic business development and the company's organic growth group.

Fish joined Waste Management in 2001. Prior to becoming chief financial officer, he held several key positions with the company, including senior vice president for the company's Eastern group, area vice president for Pennsylvania and West Virginia, market area general manager for Massachusetts and Rhode Island, vice president of price management and director of financial planning and analysis.

Before joining Waste Management, Fish held finance or revenue management positions at Westex, a Yellow-Roadway subsidiary; Trans World Airlines; and America West Airlines. He began his professional career at KPMG Peat Marwick. Fish earned a Bachelor of Science in accounting from Arizona State University and an MBA in finance from the University of Chicago. He is also a Certified Public Accountant.

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U.S. residential solar market booms

by MAURA KELLER

mkeller@americanrecycler.com

While the U.S. market share of the solar industry declined in the early 2000s, the residential solar market is booming once again. According to the Solar Energy Industries Association, there's been a 50 percent annual growth of the solar market in 2015 alone, and analysts are projecting a 50 percent net growth courtesy of the Federal Solar Investment Tax Credit being extended through 2023.

Additionally, according to Stacey Flanagan, business development manager of solar utility services at Allconnect, the price of installing a solar panel system has dropped by over 70 percent since 2006, in part because of the Department of Energy's SunShot Initiative.

"Created to help re-establish American technological and market leadership, improve the nation's energy independence and strengthen U.S. economic competitiveness while fighting climate change, the SunShot Initiative is now running forcefully toward its goal of reducing the cost of solar power by 75 percent from 2010 to 2020," Flanagan said.

And, as a result, in the first quarter of 2016, the U.S. hit a milestone of one million solar installations. With the scientific research, policy support, and monetary backing of the federal government, the U.S. is forecasted to hit 2 million total solar installs by 2018.

"The status of the solar industry is strong, financially sound, and growing continually, said Todd Verk, vice president of sales at Green Solar Technologies. "I look at the solar industry here in the U.S. as somewhat like an aggressive startup company. The main goal is to obtain the most market share, while growing your personal brand, and continually adding revenue by changing strategies on a regular basis to get more positive attention."

According to Verk, solar power manufacturers are coming and going, some acquired by others, but all trying to better their engineering and operating efficiency while attempting to reduce cost and gain profits.

"As component prices continue to fall, solar is becoming increasingly cost effective," said Ashley Fallon, senior marketing manager at UGE, a provider of comprehensive renewable energy solutions. "Meanwhile, pressures from climate change are making energy sourced from renewable, clean sources a crucial part of a more sustainable future. This is driving individuals, businesses, states and nations to rely on solar for a clean and affordable energy solution, ensuring its continued rapid growth."

At its core, a single solar panel is comprised of many smaller photovoltaic cells linked together. In each cell, two pieces of oppositely charged semi-conducting materials, typically made of silicon, are sandwiched together to create an electric field. The negatively charged material absorbs photons (units of light energy from the sun) as they hit the cell. Once enough photons are absorbed, the negatively charged material will release an electron into the electric field. This electron is then attracted to metal conductive plates at the sides of the cell, which move the electrons into wires to become free-flowing energy. This energy feeds into established grids, and is what we use as electricity.

"The reason some solar companies are struggling today and some are actually closing is that the federal government, at the start of their support, offered actual cash incentives of 30 percent, which helped the consumers afford to make the purchase and to finance less money, giving them lower payments while paying to own the system," Verk said. "With the government changing their incentive to tax credits, there are a high percentage of consumers who do not qualify for the tax credit based on fixed income, not paying into income tax, etc. – therefore reducing the amount of potential clients available. Also, with local and national lenders requiring more stringent stipulations, it is harder to get customers approved for the financing."

According to Shane Perkins, co-owner and co-founder of Legend Solar in St. George, Utah, a dealer for SunPower, rooftop solar customers and businesses want to install solar as a way to be socially responsible first. Saving money is the added bonus.

"So far in 2016, as of June 30, Legend Solar has installed 3,215 kilowatts worth of solar panels in homes and businesses," Perkins said. "That amount of solar power offsets about four million pounds of carbon dioxide emissions each year, equivalent to



planting 64,000 trees or removing 525 vehicles off the road for a year."

While Legend Solar is doing well, others are struggling. Here's why: Power companies won't give credits to customers for their own generated power, which is a highly debated issue.

"Nevada is currently in the midst of a net metering battle, which is why many of the solar companies working there have either pulled out altogether, or have been forced to lay off employees," Perkins said. "Renewable energy will become the primary source of power. It will take time, but as faster technology increases, coupled with education, it's only a matter of time."

Consumer and Business Response

The affordability of renewable energy and sustainability goals coupled with local, federal and state incentives have attracted wide interest in installing solar across the residential, commercial and utility sectors.

"Solar can provide cleaner energy and significantly cut electricity costs," Fallon said. "The extension of the federal Investment Tax Credit has also made solar more appealing to potential customers, along with many other renewable energy credits and incentives, like the SREC program in New Jersey. Consumers can sell credits they receive from producing renewable energy, or the surplus of energy itself."

In the residential sector, standardized projects with reproducible returns have ensured continued and growing investments in solar. The commercial sector has struggled to see the same

financing, but has been adopted by businesses on a large scale nonetheless.

As Fallon explained, the average price of a completed commercial photovoltaic (PV) project has dropped by nearly 30 percent in the past 3 years alone, according to SEIA. Top corporations like Walmart, IKEA and Macy's are taking advantage of this opportunity.

"The leading 25 corporate solar users in the U.S. installed more than 907MW of solar capacity as of August 2015. Businesses are embracing solar, not only to show a commitment to sustainability, but to cut costs from their electricity bills," Fallon said.

With a wide range of financing options, customers can now purchase or lease their solar system for little to no upfront cost, and then pay for their electricity at rates lower than what their utility offers. In states like New Jersey, you receive credits for the renewable energy you produce. You can sell these credits to businesses who are not meeting their renewable energy requirements.

What's more, the sustainability aspect is not to be overlooked. Each year the amount of solar installed at U.S. corporations and businesses are enough to offset 890,000 metric tons of carbon dioxide emissions.

"As countries look to keep global temperatures from rising above two degrees Celsius, using renewable energy will be a key way to cut emissions. A more sustainable future

See RESIDENTIAL SOLAR, Page B7

VLS Energy Clinic receives grant for solar development

The Energy Clinic at the Institute for Energy and the Environment (IEE) at Vermont Law School announced an \$80,000 grant from The John Merck Fund, enabling faculty and student clinicians to expand their community solar work throughout New England.

The grant, which covers a 12 month period, funds a new staff attorney and allows the clinic to increase advocacy efforts, community technical assistance, and training and peer support. These initiatives will help the region scale up its transition to locally developed, clean energy and provide a model for the rest of the nation.

The Energy Clinic has hired Jeanne Oliver LLM'13, an alumna and former global energy fellow who returns to VLS after serving as special counsel for the Vermont Department of Public Service, where she focused on solar-siting issues.

The Energy Clinic takes a community-minded approach by helping locals

develop local clean energy projects that yield both environmental and economic benefits. The clinic's clients include the Vermont Natural Resources Council, Randolph Community Solar, Vermont Farmers Food Center, New Hampshire Sustainable Energy Association, and the VLS Sustainability Committee. At VLS, the Energy Clinic helped procure net-metering credits from a local, 500-kilowatt solar photovoltaic system to meet over half of the school's electric energy requirement while reducing its carbon footprint.

The Institute for Energy and the Environment at Vermont Law School serves as a center for energy policy research with an advanced curriculum focused on the energy policy of the future. IEE research associates are selected from students in the energy and environmental programs at Vermont Law School, top-ranked in the nation for environmental law.

E.ON and Digital Realty to procure energy from Colbeck's Corner Wind Farm

E.ON Climate & Renewables North America, LLC (E.ON) and Digital Realty, a global provider of data center, colocation and interconnection solutions, disclosed a long term agreement to procure energy from the Colbeck's Corner Wind Farm. The agreement allows Digital Realty to offset 100 percent of its U.S. colocation and interconnection energy footprint.

"This collaboration with Digital Realty allows us to bring clean energy to power the very things making our lives digital," said Patrick Woodson, chairman of E.ON North America.

Colbeck's Corner is a 200.48 megawatt wind farm located in Carson and Gray counties, 37 miles east of Amarillo, Texas. Colbeck's Corner has 112 GE 1.79-100 turbines that can create enough electricity to power approximately 64,000 homes. E.ON has developed more than three gigawatts of wind projects in the United States since 2005.

"Data centers are the backbone of today's digital economy and Digital Realty joins a growing list of companies procuring utility-scale renewable energy for the first time to create a sustainable digital infrastructure," said Hervé Touati, managing director at the Rocky Mountain Institute and leader of the Business Renewables Center. "This agreement leads directly to more development of new wind capacity. It is deals like this that pave the way for other corporations to follow and scale up their own renewable energy procurement."

A team of nearly 240 construction workers completed the Colbeck's Corner project, and 16 personnel, including skilled technicians, are stationed on site day-to-day. During the next 25 years, Colbeck's Corner is projected to generate more than \$32 million in property taxes for Carson and Gray counties. This additional revenue will support essential county services and local schools.

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SolarEdge Technologies reports record revenues

SolarEdge Technologies, Inc., a global leader in PV inverters, power optimizers, and module-level monitoring services, shared its financial results for the fiscal fourth quarter and year ended June 30, 2016.

"Our fiscal 2016 results demonstrate consistent and strong execution with record revenues and 51 percent annual growth. We maintain our profitability and continue to generate cash flow from our operations, quarter over quarter. While this quarter is characterized by a general slowdown in the residential U.S market, we were able to compensate with increased sales in other geographic regions in which we sell," said Guy Sella, founder, chairman and chief executive officer of SolarEdge.

The company reported revenues of \$124.8 million for fiscal Q4 2016, a decrease of 0.4 percent from the prior quarter and increase of 26.8 percent from fiscal Q4 2015.

GAAP gross margin reached 31.4 percent for fiscal Q4 2016, down slightly from 32.5 percent in the prior quarter and up from 28.7 percent in fiscal Q4 2015.

Non-GAAP gross margin was 31.6 percent for fiscal Q4 2016, down slightly from 32.7 percent in the prior quarter and up from 28.9 percent in fiscal Q4 2015.

GAAP operating expenses were \$21.2 million for fiscal Q4 2016, consistent with \$21.0 million, from the prior quarter and an increase from \$16.4 million in fiscal Q4 2015.

GAAP operating income was \$17.9 million for fiscal Q4 2016, down from \$19.7 million in the prior quarter and up from \$11.9 million in fiscal Q4 2015.

GAAP net income was \$17.3 million for fiscal Q4 2016, down from \$20.8 million in the prior quarter and up from \$9.3 million in fiscal Q4 2015.

Non-GAAP net income was \$19.9 million for fiscal Q4 2016, a decrease from \$23.3 million in the prior quarter and an increase from \$13.8 million in fiscal Q4 2015.

GAAP net diluted earnings per share (EPS) was \$0.39 for fiscal Q4 2016, down from \$0.47 in the prior quarter and up from \$0.21 in fiscal Q4 2015.

Non-GAAP net diluted EPS was \$0.44 for fiscal Q4 2016, a decrease from \$0.51 in the prior quarter and an increase from \$0.31 in fiscal Q4 2015.

As of June 30, 2016, cash, cash equivalents, restricted cash and marketable securities totaled \$186.6 million, compared to \$172.2 million on March 31, 2016. As of June 30, 2016, the company did not have any debt.

Now that I'm somewhat older, here's what I've discovered:

- I started out with nothing, and I still have most of it.*
- My wild oats are mostly enjoyed with prunes and all-bran.*
- I finally got my head together and*

now my body is falling apart.

- Funny, I don't remember being absent minded.*
- Funny, I don't remember being absent minded.*
- Some days, you're the top dog, some days you're the hydrant, live with it.*

Sumitomo Corporation invests in Brazilian biomass fuel manufacturing business

Sumitomo Corporation signed a contract to acquire up to 20 percent of Cosan Biomassa S.A., a subsidiary of the world's largest sugar and ethanol company, Cosan S.A. Industria e Comercio and producer of sugarcane pellets for power generation, subject to the prior approval of anti-trust authorities in some jurisdictions.

Biomass is a renewable energy source such as solar, wind and small-scale hydro power that provides cleaner, sustainable energy. Such investments in renewable energy are increasingly important with Japan's commitment to reduce its greenhouse gas emission by 26 percent by 2030 as part of the Paris Climate Treaty.

"Brazil is already among the largest producers and exporters of agricultural commodities in the world. Pelletized biomass is a new commodity being created to serve the low carbon economy," said Mark Lyra, Cosan Biomassa chief executive officer. "By making use of sugarcane residues and benefiting from the economic and environmental advantages that the shift to rail logistics brings to the game, Brazil is positioned to become the Saudi Arabia of renewable energy."

"By the year 2030, we foresee that Japan will consume as much as 10 million tons of pelletized biomass, the majority of which would come from overseas. Renewable energy including biomass will play a prominent role in our power generation sector by that time. We believe a relevant portion of this demand will be met by agricultural waste, particularly sugarcane biomass pellets produced in Brazil. Sugarcane's productivity and abundant availability is

tied to the fact that we are using its residual byproduct as a raw material. This provides a unique sustainability condition when compared to other biomass sources in the world," said Yoshinobu Kusano, general manager, Biomass Business, Sumitomo Corporation."

Cosan Biomassa has developed a fuel pellet made from sugarcane residues such as bagasse from the sugar mill and straw left over in the sugarcane field. Cosan built a large-scale production plant (annual capacity 175,000 tons) for the first time in the world last September, which began a commercial production in December 2015.

Through the participation of Sumitomo, Cosan Biomassa will increase its exports to Japan and Europe along with increased domestic sales. There is a potential of 45 million tons per year of sugarcane pellets from the farms in Sao Paulo state alone. With this abundant availability, the venture would aim for 2 million tons by 2025, and as much as 8 million tons in the future, subject to future growth of the market as well as a satisfactory return.

Sumitomo Corporation regards biomass energy as a promising source of renewable energy, and started importing biomass fuel for power generation to Japan in 2008. In addition, Sumitomo's subsidiary, Summit Energy Corporation, has been managing a biomass power plant and plans to build more. Sumitomo has been in search of competitive and sustainable resources outside of Japan to supplement domestic biomass resources and to step into the European market, where the bulk of fuel pellet demands exist.

Bafalis named CEO of PHG Energy

Greg Bafalis has been named CEO of PHG Energy, a company that's developing waste-to-energy and solar systems in Antioch, Tennessee.

PHG is owned by the same family that runs regional Caterpillar dealer Thompson Machinery, with decades of experience in the energy and clean technology sectors. A decade ago, he

founded biodiesel producer Clean Earth Fuels, raising \$168 million in funding (in part from Goldman Sachs) and growing the venture to \$250 million in revenues in less than three years. Since then, he has run two other companies and for the past year run an investment fund to buy small businesses in the Houston area.

Call John Monaghan, CPA, CVA for your expert financial advice.

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TruStar Energy contracted to build and maintain CNG station in Long Beach

TruStar Energy, a developer of compressed natural gas (CNG) fueling stations, was awarded the contract to build and maintain the first CNG fueling station for Long Beach, California.

The new CNG station supports the city's commitment to using cleaner, safer and domestically produced fuels for its vehicles. Long Beach, which is in midst of shifting from liquefied natural gas to CNG for its fleets, currently has 24 CNG-fueled vehicles. Over the next 6 years, the city plans to acquire an additional 307 CNG vehicles.

"Using alternative fuels for our refuse trucks and street sweepers is an important part of the City of Long Beach's commitment to more environmentally sustainable city services for residents," said Oliver Cruz, fuel operations program officer for Long Beach. "Compressed natural gas is cost effective and cleaner than other fuels, and safer than liquefied natural gas."

The city's fleet was recognized as the 12th best government fleet in the U.S. for 2016 by Government Fleet Magazine, and was ranked the No. 1 North American Government Green Fleet in 2008.

The CNG station, which will be located at the city's fleet services lot at

2600 Temple Avenue, is projected to be completed by TruStar Energy in November 2016.

The city awarded the CNG fueling station contract to TruStar Energy because of the company's aggressive hands on approach that results in stations being completed on time and on budget. TruStar Energy will also maintain and service the station under a long-term maintenance agreement.

The station will have 100 time fill posts, three 200 HP Ariel compressors, packaged by ANGI, and a PSB gas dryer. The time fill system will allow the city to plan more efficiently and to store more fuel in vehicles, keeping vehicle downtime to a minimum.

CNG is insulated from the price volatility of diesel and gas resulting from international conflicts and events, which in recent years have been responsible for dramatic price fluctuations for those fuels. As for the environment, CNG-powered engines are clean and quiet; produce 30 percent less greenhouse gases; and do not need the costly exhaust after-treatment devices and diesel exhaust fluids required for diesel engines. Natural gas engines also have an average of 80 to 90 percent lower noise decibel level than diesel engines.

Ecoplexus to develop solar installations in California

Ecoplexus Inc., a developer of solar photovoltaic systems, disclosed a 25 MW DC portfolio of projects across California. The projects are a combination of carport and ground-mounted installations, connecting behind-the-meter at a number of state facilities. The generating systems will power the facilities, offset greenhouse gas emissions and reduce energy costs.

The portfolio will provide approximately 30.5 gigawatt-hours of clean

electricity annually. That is enough to annually power almost 2,000 households, or offset roughly 21,000 metric tons of carbon dioxide.

The first seven MW will be completed in August 2015, while the remaining projects are scheduled to complete construction in the spring of 2017. The on-site facilities include state hospitals, military bases and a variety of other facilities.

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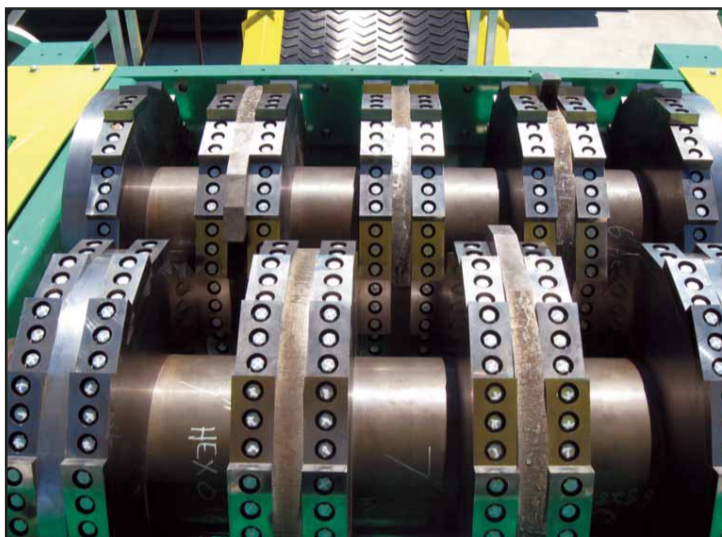
EQUIPMENT SPOTLIGHT

Waste-to-Energy

by MARY M. COX

maryc@americanrecycler.com

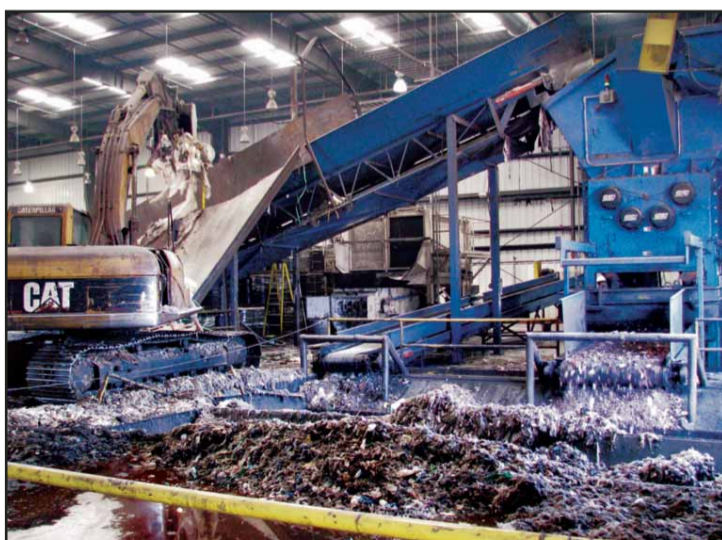
The waste-to-energy (WTE) market continues to trundle along, whether involving the organic or man-made materials, found in waste. Landfill and fossil fuel usage also continue, but become less pragmatic with every year that passes. Meanwhile, WTE options continue to broaden on a global scale.



Columbus McKinnon Corp.



Komar Industries, Inc.



SSI Shredding Systems, Inc.

Columbus McKinnon Corporation (CM) produces a wide range of tire shredders “known worldwide for producing clean cut, consistently sized chips for alternative fuel for the cement industry, paper pulp mills, electric generating facilities and waste-to-energy plants,” said Charlie Astafan, general manager. The company recently delivered one of their systems to the Kingdom of Saudi Arabia where it will produce tire derived fuel for a large manufacturer of cement. CM has also developed a line of hybrid shear shredders for the reduction and recycling of other wastes. The line consists of shredders from 10 to 250 h.p. with feed openings as small as 30” x 18” and up to 90” x 46”. The wide range of machinery can be used to process numerous types of waste to alternative fuels or other recycling applications.

This hybrid line of shredders is offered with traditional one piece shear knives or CM’s patented replaceable knife inserts. This proprietary knife system has been used in CM’s tire shredding machines for the past 35 years. The high quality steel found in tires requires that knives be made of a high grade of hardened tool steel to effectively cut the steel wires cleanly.

Since 1981, the company has manufactured over 400 machines specifically for tire recycling and their systems are in 26 countries and 5 continents. This same technology can be used for other high wear applications in the general waste and recycling industries. The knives come in numerous sizes and configurations, depending on the application. They can be rotated and sharpened numerous times for multiple uses and that can result in a significant cost reduction. CM can also retrofit existing machines with this knife technology.

Komar Systems are utilized to efficiently process and feed bio fuels, MSW/RDF, hazardous, medical and radioactive waste streams. “The Komar Industries continuous plug feed processors have been proven over the last 30 years in some of the most demanding waste stream applications and are available in sizes from 200 lbs. per hour to in excess of 25 tons per hour in a single feed systems. Feed systems can be stacked together to meet higher throughput demands,” stated Mark Koenig, president.

He added, “The unique ability of the patented Komar feed systems to generate a moving plug of material that isolates the feeder from whatever it is feeding in conjunction with the ability to infinitely adjust the continuous feed rate make it the ideal for today’s emerging waste-to-energy technologies, including: gasification, pyrolysis and plasma energy systems and more.”

Komar Systems provide sizing, blending and feeding while in a controlled atmosphere and can handle feedstock in nearly any form from loose to baled. The continuous feedstock delivery system eliminates free air entering the gasifier making downstream gas cleaning and control much simpler.

Komar, an American design and manufacturing company with waste preparation and continuous feed systems all over the world, holds over 140 U.S. and foreign patents in material processing technology.

SSI Shredding Systems, Inc. is a leading U.S. manufacturer of low-speed, high-torque shredding technology for waste-to-energy and alternative fuel applications. Since

See WASTE-TO-ENERGY, Page B6

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Collaboration has high hopes for hydrogen-powered transit

Sumitomo Corporation together with Sumitomo Corporation of Americas (SC Group) shared their Strategic Collaboration Agreement with US Hybrid to support their desire to grow its fuel cell production business through the expansion of fuel cell stack production capacity for commercial production. SC Group will play an integral role in the project by coordinating the discussions with OEMs through their extensive business network.

US Hybrid, together with their Fuel Cell division, US FuelCell, has more than 26 years of experience in fuel cell balance of plant components and vehicle development and deployment. US FuelCell develops and manufactures new technologies and transportation products.

"Fuel cell vehicles offer high energy efficiency, no tailpipe emissions and full vehicle functionality, including the normal driving range, fast fueling and a potential path to sustainable transportation. We respect Japanese automakers as a leader in commercializing fuel cell passenger vehicles, and we consider our new freeze-capable, fuel cell powertrains to be a game-changer for the equally important market segments of medium and heavy duty trucks for freight movement and buses for public transit," said Abas Goodarzi, president of US Hybrid.

SC Group has studied hydrogen as a clean energy source, including how fuel cell technologies can be applied to cars. In Japan, the development of fuel cell technology has already been incorporated into passenger cars.

Through this research, SC Group has recognized the need to develop this clean energy technology for greater infrastructure needs, specifically applying it to public transportation. Reaching this agreement with US Hybrid will be an important next step in developing this technology, whose fuel cell application to public transit had been evaluated as one of the closest to the commercialization through demonstration projects in California, Hawaii, Ohio and Michigan.

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Republic Services and Mas Energy unveil latest renewable energy project

Facilities capable of powering over 15,000 households and one of the largest landfill-gas-to-energy portfolios in Georgia

Republic Services, Inc. and Mas Energy, LLC unveiled a new renewable energy project serving Metro Atlanta. The innovative project involves landfill gas-to-energy facilities at three area landfills, located in the cities of Buford, Griffin and Winder. Together, these facilities are capable of generating 24.1 megawatts of electricity, or enough renewable energy to power 15,665 households.

Landfill gas-to-energy projects like these involve capturing methane, a byproduct of the normal decomposition of waste, from the subsurface and routing the methane to a series of engines. These engines convert the methane into electricity, which can be distributed to the local power grid.

According to the U.S. Environmental Protection Agency, 3 mW of renewable energy generated by landfill gas-to-energy projects is equal to preventing the carbon emissions emitted by the use 16.6 million gallons of gasoline. Based upon calculations, this project prevents carbon emissions that



would otherwise be emitted by the use of over 132 million gallons of gasoline.

Nationwide, Republic Services companies send landfill gas to 69 landfill gas-to-energy projects, which taken together generate enough renewable energy to power more than 250,000

homes, or every household in the city of Atlanta.

Other partners participating in the latest renewable energy project include Georgia Power, I Squared Capital, Crowder Construction Company and Nixon Energy.

Duke Energy Renewables completes wind project

The 426th turbine of the Los Vientos wind power projects is now serving customers near the Rio Grande in Starr County, Texas.

It marks the completion of Los Vientos IV, the last of the five area projects to begin operation.

Duke Energy has installed more than 1,500 MW of wind energy in Texas, more than double its owned wind capacity in other states combined.

"Four years ago, we first began capturing the winds off the gulf with Los Vientos I and II in Willacy County," said Rob Caldwell, president, Duke Energy Renewables and Distributed Energy Technology. "Since then, we've brought three other Los Vientos wind projects on line, delivering 900 MW of clean energy to South Texas.

The Los Vientos projects generate the majority of their power during the day, when customer demand is greatest.

Austin Energy is purchasing the power and associated renewable energy credits from the 200-MW Los Vientos IV wind farm under a 25-year agreement, increasing its total output purchased from Duke Energy Renewables to more than 665 MW.

Los Vientos IV is located approximately 35 miles northwest of McAllen, near Rio Grande City.

It was actually a woman who made the discovery of electricity happen.

The real story was that Ben Franklin was laying in bed with his wife one night, leaned over and whispered something in her ear.

She told him to go fly a kite. The rest is history.

Vestas supplied 100 V110-2.0 MW turbines for Los Vientos IV and will service the project under a three-year operations and maintenance agreement.

The facility was constructed by Wanzek Construction. Amshore US Wind provided development support for the project.

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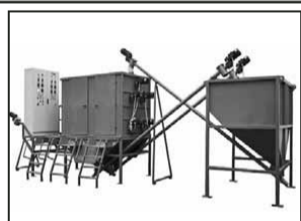
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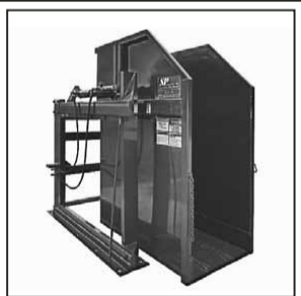


ELECTROSTATIC SEPARATION SYSTEM OFFERED BY REDOMA

Redoma Recycling AB has expanded its product range with a cost-efficient Electrostatic Separation System (ESS), available in six different sizes depending on capacity requirement. The ESS can separate residual fine copper from the plastic with close to 100 percent purity.

The capacity of the ESS ranges from 150 to 1,350 kg/h. This corresponds to an infeed capacity of mixed copper cable of 250 to 2,200 kg/h, which covers the whole range of Redoma's cable recycling plants. Larger electrostatic separators with capacity up to 2,000 kg/h are also available.

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SP INDUSTRIES LAUNCHES NEW ROLO BOX DUMPER

SP Industries offers the ROLO Box Dumper – a heavy capacity production dumper used extensively in auto parts production, forging facilities, recycling operations, distribution centers, food processing and waste handling. With a dump angle of 135°, this box dumper is ideal for carts, bins and cans, efficiently handling scrap metals, metal chips, corrugated materials and hospital waste. Material can be emptied from the ROLO Box Dumper directly into production, into smaller containers, onto a sorting tray, table or conveyor.

The dumper has a structural steel frame and high-tensile steel pivot shaft.

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STELLAR INDUSTRIES REDESIGNS HOOKLIFT LINE

Stellar Industries, Inc. released the redesigned 20,000 lb. capacity hooklift line that has been upgraded and is lighter than the previous version. The Stellar® 20,000 lb. capacity hooklift is a truck-mounted hydraulic system that is capable of interchanging various bodies.

Incorporated into the redesign of the hooklifts is the use of a plunger valve. This device stops jib movement when the hooklift is in dump mode. The plunger valve replaces the original rotary valve, which required maintenance. Without the need to monitor and adjust a rotary valve, there is less maintenance required over the life of the hooklift.

Stellar Industries, Inc.
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Waste-to-energy ■Continued from Page B4

1980, SSI has supplied hundreds of systems worldwide for generating energy from a broad range of waste streams – including municipal, industrial, hazardous waste, tires, mill waste, wood and other organics.

“There is a growing diversity of conversion technologies – mass burn, RDF, gasification, pyrolysis, anaerobic digestion, etc. – and plant sizes ranging from 1-2tph to over 100tph, so there's no one size fits all system when it comes to shredding,” said SSI's solid waste sales manager, Terri Ward.

With extensive in-house design, engineering and applications expertise, SSI is able to address each customer's unique application with systems known for high-performance, low-maintenance, and on-line reliability. SSI offers one of the broadest product line-ups available. From the massive PRI-MAX® primary reducers, flexible Dual-Shear®, Tri-Shear™ and Quad® shear shredders, to the Uni-Shear® rotary grinders, they can provide a robust, stand-alone shredder or a combination of technologies within a larger processing line.

“Our PRI-MAX primary reduction shredders are designed to process high volumes of unsorted or bulky wastes into manageable sizes without over-shredding, keeping O&M costs low. This allows waste-to-energy facilities competing for waste volumes to diversify beyond MSW, bringing in oversized or industrial wastes that can't otherwise be accepted into the main pit, as they would block the main feed system, result in incomplete combustion, or jam the downstream metal recovery system,” said Ward.

With an increasing interest in high-volume mixed waste processing facilities that include energy recovery, PRI-MAX is also an ideal first step to pre-condition and liberate material prior to separation and recovery of recyclables, organics or RDF feedstock in large-scale MRFs. PRI-MAX serves as a high capacity bag-breaker, but doesn't require extensive pre-sorting. At the same time, it doesn't damage high-value commodities the way more traditional shredders do. The PRI-MAX product line ranges from as little as 5 to 10 tons per hour to over 100 tons per hour.

SSI also offers a number of approaches for secondary shredding to reach spec sizes down to 1-2" minus, having used all of its 1, 2, 3 and 4-shaft shredders for engineered fuel projects, depending on the material and production rate required. However, “for producing alternative fuel in the U.S., I'm probably

keenest on our Quad technology,” said Ward.

That's because economic, political and regulatory conditions here differ greatly from Europe, where large-scale RDF plants are gaining acceptance. Most fuel processors here have to handle commercial and industrial waste streams, making specific blends of high Btu value materials cost-competitive.

“The Quad is by far the most capable, robust and flexible of fuel-production machines. Compared to alternative low-speed, high-torque technologies it operates at lower rpm, higher torque and lower inertia, allowing it to shred most metals or instantly stop and reverse itself on heavy, non-shreddable metals to prevent damaging cutters or the drive train. It also generates less friction, heat and dust, allowing it to process low melt plastics, adhesives and to operate without dust collection equipment, in most cases. It doesn't require an extensive pre-processing line including pre-shredding, pre-sorting or air-density separation to protect it from damage.”

SSI has always been strong on drive technology, building both hydraulic and electric drive shredders and patenting their SSP – Severe Shock Protection™ torque coupling. We also developed the variable-speed electric SmartDrive® technology years before other manufacturers sought to acquire similar capabilities,” Ward stated.

As with all of their product lines, SSI uses the drive that suits the application. As a stand-alone, industrial waste-to-fuels shredder, they offer the proprietary, high-performance TopFuel™ drive that allows them to process whole bales, rolls, and slabs of material with maximum torque and fast overload reversing. As soon as the bale is broken up, the Quad can go to maximum rpm and focus on sizing, as torque is no longer needed.

SSI is able to utilize a single, stand-alone machine to produce up to 15 to 20tph of quality material for cement kilns or gasification. As a secondary shredder, production rates are even higher, as the shredder can be optimized to use more of the available horsepower for speed than torque. Smaller units are available as well.

While SSI inventories a number of its best-selling shredders, most customers prefer a purpose-built system, tailored to their operational needs. Depending on complexity, this can take anywhere from two to four months to manufacture, up to a week for transportation, and a week or two for installation.

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Veolia chosen to raise performance

Veolia recently signed a five year contract with Lowell Energy AD, managed by Sustainable Partners (SPART) of Grand Rapids, Michigan, for the operations and maintenance of its Lowell Energy anaerobic digester.

Commissioned in 2015, the Lowell Energy biogas-to-electricity facility has sought to maximize its 800KW power output capacity. Under the contract, Veolia is charged with improving performance of the anaerobic digestion system to increase biogas and power output.

Subsidies keep wind energy afloat

State subsidies to renewable energy give an unfair advantage to more expensive and inefficient sources of energy, while requiring taxpayers and ratepayers to pick up the tab, warns a new report from the National Center for Policy Analysis.

In Texas, the wind energy industry is thriving – largely due to government influence.

•A mandated Renewable Portfolio Standard (RPS) requires Texas retail electricity markets to obtain 10,000 MW of energy from renewable sources in 2025, a goal which was surpassed in 2009. These “retail entities” include

investor-owned utilities that have not unbundled, retail electric providers in deregulated areas, and municipal utilities and electric cooperatives that offer customer choice.

•The Energy Policy Act of 1992 created Production Tax Credits (PTC), a federal government subsidy of \$23 per megawatt hour (MWh) of wind production.

•A provision in the Texas Tax Code exempts new renewable energy facilities from property taxes.

•The Texas legislature passed a \$7 billion bill allowing the Texas Public Utility Commission to create Competi-

tive Renewable Energy Zones (CREZ) – areas with a surplus of wind energy that could be transported – and to fund the construction of transmission lines through an estimated additional fee of \$6 dollars a month on consumer’s future electric bills.

“States should allow the market to determine the best, most efficient, and most reliable sources of energy,” said John McDonald, author of the report and a research associate with the National Center for Policy Analysis. “Maybe with the progress of technology, renewable energy will become the best source of energy.”

Residential solar ■Continued from Page B1

depends on consumers and businesses using cleaner energy,” Fallon said. “The reason a few solar companies are struggling is largely due to some deficiencies in financing with a plethora of untapped opportunities in the industry. In the commercial sector, there is such high demand for large scale projects, particularly those that will attract continued financing, and many companies have not yet established the appropriate bandwidth or financial wherewithal to take these on with success. As a result, particularly in the commercial sector, companies struggle to receive the financing they need. In residential solar, it’s difficult for smaller companies to get new projects and grow because of key players in the sector who already hold a majority of market share.”

The solar industry is not without its share of challenges. Jacob Bayer, senior energy consultant at Luminex Incorporated, said that solar needs to learn how to “play nice” with utilities.

“Until the day when battery technology becomes cheap enough for everyone to declare grid independence, solar needs to work together with utilities on smart integration,” Bayer said. “Another reason why solar might not be implemented today on a wider scale is the fact that a decade ago it wasn’t even remotely as cheap as it is today. Now that prices are favorable, I think it’s moving as fast as it can in a market already saturated with other energy giants.”

Down the Road

According to a report by Bloomberg Energy Finance, \$7.8 trillion will be invested in renewables by 2040, \$3.4 trillion of which will go to solar. By 2027, it will be cheaper to build wind and solar plants than to run existing coal and gas generators.

“There’s no “if” about it anymore,” Fallon said. “As solar becomes widespread, the energy landscape will change to accommodate it.”

As Fallon explained, some solar companies are struggling however; this is not a matter of lacking demand or loss of government support. Every year, more states are adopting policies to support and incentivize the use of renewable energy.

States vary hugely in their solar situations – either because of incentives

passed, the utilities present in the state, or the state’s unique adaptability to solar – but there’s a lesson in every state’s solar accomplishments and efforts.

For example, California’s solar power production recently topped their last record high, reaching nearly twice the amount produced in mid-2014.

“However, California’s grid is an example of the nation’s challenges in transitioning to clean energy – the state has been relying on power plants burning natural gas to fill the gap of time between when the sun fades and wind hasn’t yet hit, and the grid doesn’t always have room for all the energy it’s receiving from the rapid expansion of solar plants,” said Zolaikha Strong, director of sustainable energy at the Copper Development Association. “Many operators are now discussing a multistate market, which would both help the state meet its renewable energy targets – 33 percent by 2020 and 50 percent by 2030 – as well as further push down already dropping renewable energy costs.”

The federal ITC was extended to 2021, to offer continued financial benefits to those installing solar. “Should Obama’s Clean Power Plan and stricter standards for emissions be put into action over the coming years, even reluctant states and businesses will have to start looking toward solar and other renewable energy solutions,” Fallon said.

One of the major challenges for the solar industry is financing. Commercial solar has not yet accessed the same range of financing options that helped the residential sector explode. As the market consolidates, it will open opportunities for commercial solar to take on a larger scale of projects and lock in more consistent financing, producing a virtuous cycle of market stimulation.

“Solar is currently being implemented on a wide scale, across the globe. It will continue to grow in scale as the price for solar falls, technology improves, and the demand for cleaner energy becomes more firm,” Fallon said. “However, as with any new and rapidly growing technology, it takes time for perspectives and politics to catch up. We understand the benefits and importance of renewable energy. As we continue to adopt policies that

support the advancements we’ve made in technology and science, we will see the furthered success of renewables.”

According to Strong, recently the Obama administration announced a huge solar plan called the Clean Energy Savings for All Initiative, which aims to bring one GW of solar capacity to communities, veterans, and low- and moderate-income families by 2020.

“The White House also announced the Solar Training Network, to be administered by the Solar Foundation, which will foster the growth of solar employees, some of whom are joining solar after being downsized from the oil and gas industry,” Strong said. “Less sensationally but of enormous importance, in December 2015, Congress passed the multi-year extension of the investment tax credit (ITC) which will continue to fuel the growth of the solar energy industries for years to come.”

In fact, the Solar Energy Industries Association says the ITC extension will result in the solar energy adding 220,000 new jobs and lead to more than \$133 billion in new, private sector investment in the U.S. economy by 2020. The ITC will also benefit the copper industry (and many other key industries in the nation’s economy that are involved in solar production) since copper is a key component of PV systems, increasing the efficiency and reliability of photovoltaic cells and modules. A well-designed photovoltaic plant uses approximately 9,000 pounds

of copper per megawatt of peak capacity.

However, international policies and trade agreements can both impact and inform the U.S. solar industry. Energy regulation talks from a recent meeting on the Transatlantic Trade and Investment Partnership drew concerns that establishing common energy regulation standards with the E.U. could undermine U.S. efficiency efforts and deter the use of clean energy in the power grid.

“The U.K. lost one third of its solar jobs in the last year and a similar percentage of businesses expect to downsize in the coming year, something that one report suggests is largely due to government subsidy cuts,” Strong said.

Fallon indicated that if you want to be on the forefront of impacting change in our energy system, go renewable. Last year clean energy investments outpaced gas and coal, 2 to 1. According to the International Renewable Energy Agency, 8.1 million people worldwide are now employed by the renewable energy industry, with the solar PV sector as the largest employer. Meanwhile fossil fuel jobs are down 14 percent.

“Even utilities and traditional energy companies are investing in renewables. Renewables offer clean, abundant, and now more affordable energy,” Fallon said. “As this industry grows, companies have the opportunity to grow with it, or to fall behind.”



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