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New rules for large state C&D projects

Wisconsin should see less construction and demolition (C&D) debris in its landfills come the first of the year. A partnership among two state agencies and a nonprofit organization has shown that C&D projects throughout Wisconsin can successfully recycle.

Based on these results, the Division of State Facilities will require C&D waste to be recycled rather than put in landfills. This will apply to State of Wisconsin construction projects over $5 million and demolition projects advertised for bid after January 1, 2010. The efforts will reduce waste disposal costs, conserve landfill space and reduce greenhouse gas emissions.

The results come from a pilot project in which the nonprofit WasteCap Resource Solutions (formerly WasteCap Wisconsin) worked with the Department of Administration Division of State Facilities (DSF) under a contract with the Department of Natural Resources (DNR). The goal of the project, which began in

See C&D RULES, Page 3

Poultry litter recycled to create fertilizers and renewable energy

by MIKE BRESLIN

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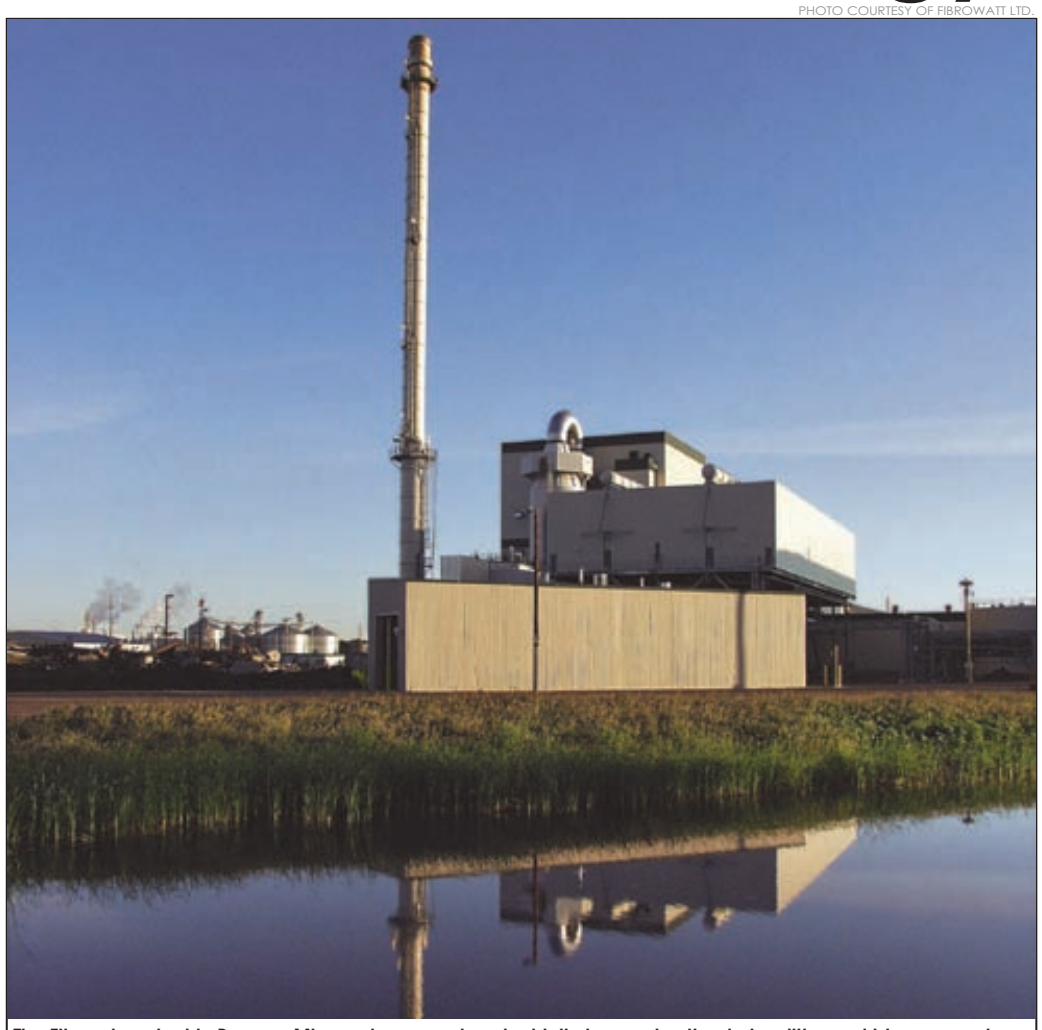
The United States poultry industry is being assaulted on many fronts; by more stringent government regulations, by environmental and animal rights groups, and by escalating feed and electricity costs, just to mention a few. Manure management has become a prime concern for growers, a hot issue for communities, an annoyance for anyone living downwind from a poultry farm and everyone interested in minimizing nutrient run off that damages water quality and marine life. But it looks as though there is recycling relief in sight for handling the manure problem.

Called poultry litter in commodity form, it is a combination of manure and bedding materials such as wood shavings, sawdust, peanut hulls, shredded sugar cane, straw, or other dry, absorbent, low-cost organic materials. Of course, the commodity price fluctuates with the quality of the litter, seasonality, and is affected by the price of natural gas and oil used to make competitive chemical fertilizers. In Arkansas, poultry litter recently sold between $6 and $10 per ton – down from $15 a year ago. Long recognized as a good organic fertilizer that contains nitrogen, phosphorus and potassium, it has drawbacks. In raw form it can be applied only before a crop is planted, cannot be applied during the growing season and is not ideally chemically balanced to suit many plant nutrient requirements. For these reasons, growers face the challenge of managing excess supply.

Meanwhile, poultry litter is constantly produced in huge quantities because the United States is the world's largest poultry producer and the world's second-largest egg producer and exporter of poultry meat. Annual United States meat production totals over 43 billion pounds. Over four-fifths is broiler meat, most of the remainder is turkey meat, and a small fraction other poultry meat. Total farm value of United States poultry production exceeds $20 billion dollars with broiler production accounting for most of the value, followed by eggs, turkey, and other poultry.

As litter is produced, it is periodically removed from poultry houses and accumulates in large, outdoor stockpiles – often standing for months which presents odor, runoff, and potential pathogen problems.

PHOTO COURTESY OF FIBROWATT LTD.



The Fibrominn plant in Benson, Minnesota generates electricity by combusting turkey litter and biomass and provides an outlet for growers to dispose of excess litter and earn income.

To deal with excessive litter and more efficiently recycle the commodity, two new methods have been developed over the past several years – first, processing the litter into slow-release fertilizer pellets that can be applied anytime during the crop cycle and secondly, combusting the carbon content in the litter along with other biomass to generate electricity as well as recover approximately one-eighth of the raw feedstock as ash that is sold as a P & K (phosphorous and potassium) fertilizer with useful levels of micronutrients.

In 2001, Perdue AgriRecycle became the first United States company to introduce an environmentally sound alternative use for chicken litter. Perdue, one of the country's largest poultry producers, joined forces with AgriRecycle, a company that helped develop litter pelletizing technology and built a large-scale plant in Sussex County, Delaware. Located in one of the country's most concentrated areas of chicken production, it processes the equivalent of 400 poultry houses worth of litter each year. The process dries and pasteurizes the litter to make pellet and granular organic fertilizers

See POULTRY, Page 6

Water; The original green energy

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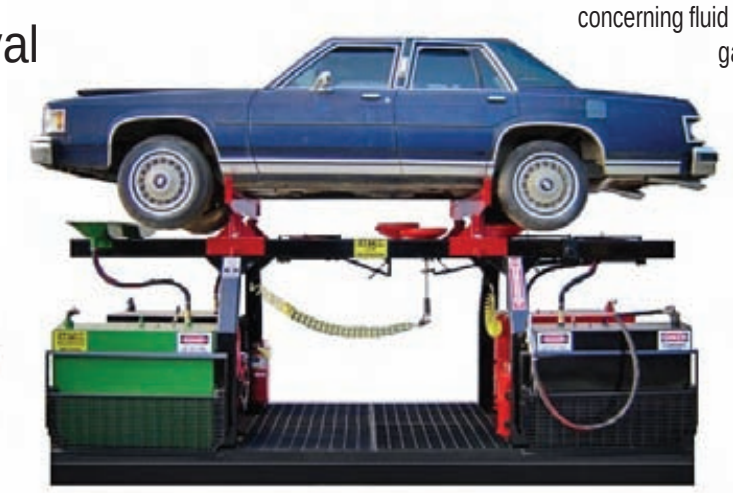
WHAT'S INSIDE

The Enviro-Rack

Auto Fluid Removal & Dismantling Station

The Enviro Rack is the **FIRST AND ONLY** self-contained fluid removal system on the market.

We offer all steel tanks along with a grated catwalk for operator safety. Underneath the catwalk is a 249 gallon catch pan and also a 360 gallon tank to catch any spills. No other system on the market comes close to the Enviro Rack. Meet EPA and State level regulations concerning fluid removal. The Enviro Rack is totally air operated. There are no gasoline or electric motors that could create a spark. The Enviro Rack is a safe system. Complete fluid removal in less than 5 minutes.



Enviro Rack Features:

Options:

- Hook and rails suitable for rolloff container system
- Catalytic Converter Cutter powered by air
- Vacuum system to remove fluids from master cylinder and power steering pumps
- Extra funnel with air drill increasing operating speed for two man operation.
- We also sell Oil Dri by the pallet or half pallet and oil absorbent cloth sold by the pound.

Dimensions:

Height	7’ 4”
Width	6’ 6”
Length	16’ 0”
Weight	7,000 lbs.

- Funnels are equipped with drills through the center to insure there are no spills.
- Antifreeze drain vat is piped into the holding tank
- Antifreeze and motor oil storage tanks have a 180 gallon capacity
- All tanks have gauge and gauge guard
- Each unit is equipped with two fire extinguishers
- Grated catwalk for floor safety
- Adjustable car rack allows for any size vehicle and can be setup tilted to the left or right for liquids to drain to one side of the tank
- Air drills are used for speed and safety
- 249 gallon catch pan
- 360 gallon lower tank beneath catch pan
- 4 foldout catwalks for tire removal
- 50ft. retractable hose reel for air wrench
- The upper rack serves as an air manifold
- Fluid can be pumped out of tanks using air pressure and tanks also have lifting eyes for easy handling

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IRON AX

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C&D rules

■Continued from Page 1

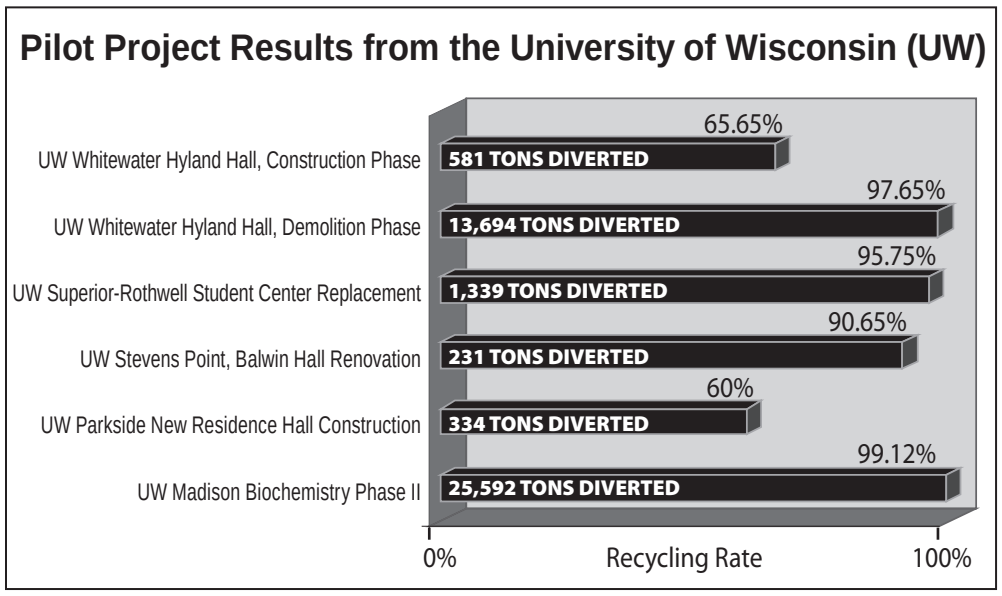
2007, was to develop methods, standards and trained staff to result in successful, measured C&D debris recycling on state projects.

Impact of C&D waste

Nationally, the United States Environmental Protection Agency (EPA) estimates more than 170 million tons of C&D debris are generated each year. In Wisconsin, C&D debris – much of which is recyclable – represents a huge proportion of the municipal solid waste (MSW) stream.

A 2002 DNR study found that C&D debris made up nearly 30 percent of the MSW stream, with 5 of the top 10 largest single components of the MSW being materials found in C&D debris, including untreated wood and shingles as the first and third largest components, respectively.

When the new recycling requirements are underway, much of the annual construction and demolition debris from state projects will be recycled rather than dumped in landfills.



"We recognized this was a significant effort, not only because of the potential to reuse and recycle C&D debris from state projects," said Jenna Kunde, executive director of WasteCap. "We knew if we could give contractors experience with C&D reuse and recycling and make it a part of the way they do business with the state, it would have the potential to allow them to implement successful C&D recycling on projects throughout Wisconsin and beyond. It's a result we're already seeing realized."

Commitment to recycling

The inspiration for the project came from Governor Jim Doyle's 2005 Conserve Wisconsin Agenda in which he committed to following green building standards for state buildings and set a 50 percent recycling goal for all state projects. In response, the DSF developed a Sustainable Facilities Policy and Guidelines, including C&D debris management guidelines.

At the same time, the DNR contracted with WasteCap, a nonprofit organization that provides waste reduction and recycling assistance for the benefit of business and the environment, to work with the DSF on the implementation of C&D debris recycling on state projects.

"By any measure, this effort has been a success," said Dave Haley, state chief architect and deputy director of the Bureau of Architecture and Engineering for the Department of Administration. "Every pilot project exceeded the 50 percent goal and many of the contractors that recycled on these projects are now recycling on other projects where they are not required to recycle. These projects have an average 84.8 percent recycling rate and have diverted 41,771 tons of material to date – the equivalent of removing 1,500 cars from the road for one year."

City of Atlanta launches new recycling program

The City of Atlanta announced that a select group of Atlanta residents will soon be rewarded for their curbside recycling efforts. In an effort to encourage recycling, boost recycling participation, reduce the amount of recyclables being sent to area landfills and save taxpayer money, City officials introduced the pilot rewards program as an opportune way to move towards a greener, cleaner Atlanta.

In order to complement Atlanta's existing sustainability initiatives, the City of Atlanta has partnered with Rehrig Pacific, a container company and service provider, to bring a unique incentive based pilot recycling program to its residents. As part of this pilot program, Rehrig Pacific has collaborated with key sponsor Coca-Cola Recycling, LLC and rewards partner RecycleBank® to offer Atlanta residents a premiere rewards and loyalty program that incentivizes household recycling. City officials are confident they will see a rise in recycling volumes and a decrease in waste tonnages. In addition to the benefit to the environment, the rewards program will give residents and local businesses a needed economic boost.

The City of Atlanta selected 10,000 households for the incentive based pilot recycling program. The participating households represent a cross section of recyclers throughout the city. The RecycleBank rewards program will encourage better participation in the curbside recycling program. It will also allow the City to evaluate changes in the amounts of recyclables collected from residents participating in the pilot program.

Each home will receive a new 96 gallon blue cart, retrofitted with an ID tag with the resident's household address and RecycleBank account number. City trucks have been retrofitted with technology to read the cart ID tag.

KAB announces 2009 clean up results

Take over 3 million volunteers and participants, and 1,000 grassroots organizations, provide them with the tools and motivation to make their hometown a better place, mix in 5.2 million volunteer hours, sweat, grit and elbow grease, and watch as communities flourish with a cleaner environment, civic pride and enhanced natural beauty.

National nonprofit Keep America Beautiful's 2009 Great American Clean Up accomplished this and more, with more than 30,000 events taking place in 32,000 communities nationwide.

The 2009 campaign, themed "Green Starts Here," encouraged communities to declare that being "green" begins with the actions of individuals. It can start with an educational event, a litter cleanup, recycling drive, graffiti paint-out, planting a community garden or planting just one tree. Great movements, claimed event organizers, begin with small actions. The results offer proof. In the program's three months (March 1 through May 31):

•64 million pounds of litter and debris were removed from public lands and rights-of-way, including 95,000 acres of parks and public lands,

•Nearly 9,000 miles of rivers, lakes and shorelines, over 10,000 acres of wetlands, and 7,800 miles of hiking, biking and nature trails;

•3,200 parks and community recreation areas were improved, restored or constructed;

•4,750 illegal dump sites were remediated.

•More than 243 million plastic (PET) bottles were collected for recycling, many through school-based programs, which is nearly 30 percent more than were collected in 2008.

•The 6.9 million pounds of electronics collected for recycling represented a 30 percent increase over 2008.

•Moreover, volunteers kept 14.5 million pounds of aluminum and steel out of landfills through their collection efforts, a 42 percent increase.

•870,000 tires were collected for recycling.

•36 million pounds of newspaper were collected for recycling.

City of Atlanta encourages recycling with incentive program

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Each home in the pilot area will receive a new 96 gallon blue cart, retrofitted with an ID tag with the resident's household address and RecycleBank account number. City trucks have been retrofitted with technology to read the cart ID tag.

Recycling Association of Minnesota awards four recyclers for outstanding efforts

The Recycling Association of Minnesota (RAM), a nonprofit that helps educate Minnesotans on the importance of recycling and waste reduction, announced the winners of four RAM awards.

Winner of the Recycler of the Year Award was given to the Best Buy Corporate Campus in Richfield, Minnesota for their efforts with creating a successful source separated organics (SSO) collection program in the cafeteria as well as providing SSO collection at employee's workstations. The Recycler of the Year Award is awarded annually to an organization displaying initiative and commitment to recycling; innovation and leadership in recycling and plays an active role in recycling market development or environmentally preferable purchasing.

The Denise Kolar Award was presented to Marcus Zbinden of Carver County Environmental Services for his generous time and effort given to benefit RAM and improving recycling in Minnesota. Zbinden has served on the RAM board of directors, has assisted RAM with numerous volunteer hours, special projects and fundraising efforts.

The third award, the Public Service Award, was given to Ginny Black of the Plymouth City Council for all of her efforts in the city of Plymouth in regards to special waste collection events held annually which collect a wide array of materials such as mattresses, electronic waste, scrap metal, bikes, clothing and fluorescent bulbs. This award recognizes an elected official who has demonstrated outstanding service for the betterment of recycling and the environment. Black is also recognized for her efforts at the MPCA assisting state-created policies and programs to increase composting efforts statewide.

The final award, The Green Project Award, was awarded to the City of Elk River and Elk River Municipal Utilities for their new program, Project Conserve. Project Conserve focuses on resource conservation at the local, individual resident's level by establishing realistic conservation goals of electric, natural gas, gasoline, water and garbage use.

Novo Energies signs 10-year pact for recycled tires

Novo Energies Corporation, an alternative energy company, announced that is has executed a 10-year supply contract to recycle tire feed stock with Colorado Tire Recycling LLC of Hudson, Colorado.

Colorado Tire Recycling has agreed to supply tire derived fuel (TDF) chips to Novo for 10 years beginning January 1, 2010. Colorado Tire Recycling will provide a minimum of 6,000 tons of TDF for the first year of the contract and a minimum of 12,000 tons per year thereafter, with a further option to increase supply.

Novo plans to construct its first tire-to-fuel plant in the Denver, Colorado area and expects to have it fully operational during the second quarter of 2010. Novo should be able to generate approximately 1,000,000 gallons of fuel or fuel additives during the first year of the operation of its plant and 2,000,000 gallons per year thereafter. As a result of the expected additional tire residual materials, Novo intends to also produce approximately 3,000 metric tons of Carbon Black and 900 metric tons of steel during the first year of operation.

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Survey of communities shows recycling access widespread

The American Beverage Association (ABA) released a report showing that nearly three in four Americans have access to curbside recycling programs – but the infrastructure is in place for millions more to gain access to this convenient and efficient form of recycling.

The report, prepared independently by the environmental firm R.W. Beck, found that an estimated 229 million Americans, or 74 percent of the total population, have access to some form of curbside recycling at home. The data was compiled through a broad national survey of local recycling officials. Curbside recycling makes it easier and more convenient for people to recycle — and thus more likely to recycle.

While widespread access to curbside recycling is encouraging news, the study underscores the great potential for up to 95 million more Americans to have regular curbside pickup of recyclables. For these Americans, the infrastructure is in place for curbside recycling if two barriers are removed: extending recyclables collection to all who currently have curbside trash pickup and lifting of recycling fees for those who have access to "subscription" curbside recycling service. For example, right now, an estimated 36 to 60 million residents currently have trucks come to their curb to collect their trash but not their recyclables. So the pieces are in place for those same trucks, or entities, providing the trash collection to all to collect recyclable materials at the curbside. Also, subscription services can often be a disincentive for people to participate in existing curbside recycling programs.

The conclusions of this report show greater curbside access than previous studies, which were much less comprehensive. This survey contacted local officials with firsthand knowledge of the recycling programs and was designed to capture a larger sample of the population. Between improved access and other upgrades to existing recycling programs, the United States has significant untapped potential to improve recycling rates within its existing framework.

ABA commissioned the study to determine how many consumers have access to recycling of beverage containers so that it can continue to support efforts to improve access to the most convenient and efficient methods of recycling. The survey methodology combined direct responses from the largest counties and cities in the United States with a sampling approach designed to capture a representative sample of the much more numerous small communities. The survey targeted 280 million people (90 percent of the total population of the United States) and more than 1,200 counties containing 20,000 communities.

Owens Corning begins asphalt shingle recycling

Owens Corning announced through its roofing business that it will provide a new program that simplifies recycling asphalt shingles for its preferred roofing contractors. The company is the first roofing manufacturer to connect contractors with convenient recycling facilities through a national strategic alliance.

Based on a pilot conducted in Indiana, Owens Corning will roll out the program nationally, starting in the Midwest. As part of the program, contractors pledge to recycle their shingle tear-offs. In addition to keeping shingle waste out of landfills, contractors benefit by promoting sustainable business practices to homeowners.

"While the technology exists to recycle asphalt shingles, we are making it efficient and cost-effective for our contractors," said Sheree Bargabos, president of Owens Corning Roofing and Asphalt, LLC. "This program makes recycling easy, and provides our contractor network with an opportunity to clearly differentiate themselves by providing a complete roofing system including a sustainable end-of-life recycling option for old shingles."

Owens Corning is working with Heritage Environmental Services, a privately-held environmental services company. Heritage will provide drop-off centers that will recycle and process shingle tear-offs.

"Millions of tons of asphalt roofing shingles are sent to landfills every year, wasting valuable resources such as asphalt and aggregate," said Bill McDaniel, president and chief executive officer, Heritage Environmental Services LLC.

Recycling glass-based asphalt shingles is a cost-effective alternative to producing new asphalt and helps preserve resources. Last year the Asphalt Institute estimated that the asphalt from recycled shingles has a potential value of more than $1 billion, which is variable upon the price of asphalt.

Partnership formed for rest area recycling

Citing the need for all Californians to work together to reduce litter and keep California clean, state government, the private sector and a nonprofit have formed a partnership to help increase the recycling of plastics and other recyclable materials that are commonly discarded at rest areas.

Their goal is to keep recyclable plastics and other materials off of California's streets and roadways, out of its waterways – and instead get them into recycling bins.

"One of the goals of Caltrans is stewardship - to preserve and enhance California's resources and assets," said Caltrans director Randell Iwasaki.

The partnership was launched with the placement of new recycling bins and corresponding educational signage at the H. Dana Bowers Roadside Rest Area in Marin County, just north of the Golden Gate Bridge. The partnership will expand to other Caltrans rest stop locations in 2009 and 2010.

Caltrans, American Chemistry Council and Keep California Beautiful team up

"Plastics do not belong as litter on our roads or in our waterways," said Steve Russell, vice president of plastics for the American Chemistry Council. "Many plastics, including much of what will be collected in the new Caltrans bins, are recyclable. "

Until now, there has not been a widespread campaign that makes it easy for travelers to recycle and, at the same time, discourages them from littering. More than 100 million motorists visit California's 87 roadside rest areas every year.

The "Plastics. Too Valuable to Waste. Recycle" program with Caltrans is being launched on the heels of another successful partnership between the California Department of Parks and Recreation, ACC and Keep California Beautiful.

The partnership has placed more than 500 seasonal and permanent recycling bins at 19 coastal locations in the San Diego, Los Angeles, San Luis Obispo, Monterey and Santa Cruz areas. Additional recycling bins have been placed in the cities of Brentwood and Woodland.

Never tell people how to do things. Tell them what to do and they will surprise you with their ingenuity. —*George Patton*

Poultry

■Continued from Page 1

that are sold in bulk for commercial applications or added to other products.

"As far as we know there is no other commercially sized plant of this type that takes chicken litter and converts it into organic fertilizer," said Luis Luna, Perdue's vice president of corporate communications. Luna reported that the demand for their organic fertilizer is very high because it is certified for organic production. Farmers, nurseries and landscapers find it very desirable because there are no chemicals, does not burn crops and contains 60 percent organic matter.

Perdue does not pay for chicken litter, but carts away excess that saves the grower the cost of trucking. "Since we started, it has not been a profitable business, but this year we are starting to make some profit. In our years of operation, we have removed 40 million pounds of nitrogen, 20 million pounds of phosphorous and 30 million pounds of potassium that otherwise would have been applied to the land or used in some other way that could have runoff into the Chesapeake Bay. We knew this was the right thing to do environmentally, not because it was going to be a big money-maker. We have figured out how to do it profitably and we hope to do it on a continuing basis," Luna added.

Power from poultry litter is the other option being closely watched by a number of poultry producing states.

Robin Morgan, Dean of the University of Delaware and Professor of Animal and Food Sciences said, "The State of Delaware has not allowed incineration of poultry litter due to regulations by the Delaware Department of Natural Resources and Environmental Control, so we really don't have first-hand experience with this. Nevertheless, we are watching with interest because incineration of poultry litter is allowed in Maryland. My view is that if the incineration process is clean this could very well be another alternative for value added to poultry operations. The cost of energy is probably the largest uncertainty that poultry growers face, and indeed, energy is a huge issue for agriculture."

Other than Delaware, there are no states that directly restrict the use of poultry litter as a fuel for resource recovery.

Minnesota became the first state where poultry litter was used to generate electricity when Fibrominn, a subsidiary of Fibrowatt LLC fired up a $140 million dollar plant in Benson in 2007. The Benson 55 megawatt power plant also became the largest biomass power plant in the country. Yearly it burns 500,000 tons of turkey litter and 100,000 to 200,000 tons of agricultural wastes. "The acceptance of our service in Minnesota has been very high. They recognize that in this day and age agricultural markets are getting more and more onerous from a regulatory perspective. Having an option like this relieves a lot of these pressures and growers recognize the value of having our alternative available," said Terry Walmsley, vice president of environmental and public affairs for Fibrominn.

Fibrowatt first introduced poultry litter to generate electricity to the United Kingdom in the 1990s and built three plants there. Today, delegations from other United States poultry producing states are visiting and evaluating the Benson plant. Fibrowatt has already selected sites in North Carolina for three plants and is in the process of finalizing power purchase agreements (PPAs) with electric utilities.

PHOTO COURTESY OF FIBROWATT, LTD.

Power from poultry litter is now a reality.

Fibrowatt gathers feedstock from growers, primarily within a 50 mile radius of its plant, but will travel further depending on the volume and composition of the litter. Nutrient composition of manure varies with the type of bird, feed ration, proportion of litter to droppings and other factors. Consequently, Fibrowatt samples and analyzes litter for fuel value and nutrient content before entering into contracts with growers. Contracts are flexible to the needs of growers. In some instances Fibrowatt will actually clean out the poultry house, in others cases the grower does. A nominal price is paid for the litter so it is actually more of a service to help the grower dispose of and manage the manure.

Litter is transported in tightly covered trucks that travel on pre-arranged routes to minimize truck traffic in local communities. It is unloaded into a fuel storage building that is kept at negative pressure to prevent odor escape. Litter travels via a conveyor system to the boiler where it is combusted at over 1,500 degrees to destroy pathogens. The boiler produces high pressure steam that drives a turbine to make electricity that is sold to the utility under a PPA.

Unlike fossil fuels, when poultry litter and other biomasses are combusted no new carbon dioxide is released. Because of the clean-burning fuel and advanced pollution control equipment, the plant meets strict air emission limits for each of the major gases. Emissions are regulated and monitored by a continuous emissions monitoring system that logs and reports on emission performance. "We are regulated by federal and state environment regulations and pass all requirements. We use best available technology," said Walmsley.

A byproduct of combustion is ash which is recovered and processed as a fertilizer. The ash consists of primarily high potassium and phosphorous. When looking the phosphorus and potassium content in the ash, it is comparable to a 0-17-13 fertilizer. This ash also contains secondary nutrients like sulfur as well as micronutrients like zinc.

Fibrominn reported that one of the benefits of its plant is the improvement in quality of life for neighbors of poultry farms. Poultry operations were often located in rural areas on land that was not particularly good for raising crops. As residential development encroached, poultry odor became an increasing problem. By handling the litter promptly or by avoiding long term stockpiling odor and runoff is reduced.

"What the industry finds important is that this is a sustainable solution. It saves the grower labor, cleanout, transportation and management time. When growers have an excess of manure that they can't put on the land because they are regulated as to how much and when they can spread, our service allows growers to use the litter in appropriate concentrations and provides an alternative to monetize excess litter that could exceed crop nutrient requirements," Walmsley summarized.

Novelis receives Keep America Beautiful award

Keep America Beautiful, Inc. has chosen Novelis Inc. as its 2009 Vision for America Award honoree. Keep America Beautiful recognized and honored Novelis for the corporation's leadership in environmental issues, employee volunteerism, and for its outstanding efforts to promote recycling in America and worldwide.

The Vision for America Award is presented annually to distinguished leaders of honored corporations whose personal and corporate commitment have significantly enhanced civic, environmental and social stewardship throughout the United States.

"Through its global recycling programs, Novelis has demonstrated its commitment to increasing access to recycling, and advancing the public's awareness of recycling of aluminum and of all materials," said Keep America Beautiful president and CEO Matthew M. McKenna.

Another factor in KAB's selection of Novelis was the company's commitment to volunteerism. To encourage and assist employees to volunteer their time in support of community organizations as individuals and through team-based projects, Novelis identifies and organizes volunteer opportunities within each of its communities.

Beyond recycling and volunteerism, Novelis is committed to reducing its energy consumption and greenhouse gas emissions. Beginning in 2005, Novelis established a set of environmental sustainability objectives focused on three annual measures:

•Reduce landfill waste generation by six percent per year.

•Improve energy efficiency by two percent per year.

•Reduce greenhouse gas emissions by two percent per year.

As part of these commitments, which extend through 2012, every Novelis facility is mandated to develop an energy-saving initiative each year.

Since 2006, Novelis has supported federal greenhouse gas reduction and energy efficiency initiatives as a Climate Leaders Partner with the EPA. Through this industry-government partnership, Novelis further developed an emissions inventory monitoring plan to measure and validate its progress against its stated goals. A dozen Novelis facilities in the United States and Canada participate in this program, four of which have recycling operations.

Through its R&D and continuous improvement teams, Novelis works with its customers to find ways to reduce the amount of aluminum that goes into its products, maximize recycling and increase recycled content. For example, improvements in the manufacturing process allow for "downgauging," or using a thinner sheet of aluminum.

The amount of aluminum required to produce a beverage can shrank almost 30 percent from 1980 to 2000 while maintaining the necessary level of durability.

Maine summer recycling program pays dividends

The small Maine towns of Harrison and Ogunquit realized measurable increases in their municipal recycling percentage rates and decreases in waste disposal costs this past summer through a trial campaign specifically targeting vacationers.

The results showed an increase in recycling percentages for both towns, as compared to the same three-month period last year: Harrison's increased by 12.25 percent and Ogunquit's by 28.61 percent.

These recycling rates are derived from the comparison of total waste tonnage to the number of recycling tons received at ecomaine, a non-profit, municipally-owned recycling, waste-to-energy, and landfill operation serving more than 20 percent of Maine's population. That is, a town collecting 70 tons of waste and 30 tons of recycling has a total of 100 tons; recycling material is 30 percent of that total.

Both Harrison town manager Bradley Plante and Ogunquit town manager Thomas Fortier stressed that recycling is not only an environmental concern; it is also a financial concern for municipalities. Each of ecomaine's 21 owner-communities pays $88 per ton of trash, but is entitled to recycle at no charge. As items get recycled, instead of thrown in with the trash, the town's waste tonnage is reduced. From June through July 2009, compared to 2008 at the same time, Harrison saved $2,990 and Ogunquit saved $919 in waste disposal fees.

In September, one month after the summer recycling pilot campaign ended, Harrison benefited from a 7.9 percent increase in recycling compared to last September and Ogunquit increased 1 percent over last year.

The experiment was funded jointly by municipally-owned ecomaine and by the Maine State Planning Office's waste management and recycling division. Each of the two participating towns were given 70 recycling bins, a supply of posters and a several thousand 5" x 7" cards printed with detailed recycling information and using the theme "Families recycle – even on vacation".

Though the materials were created by ecomaine and ideas for distribution were discussed, it was left to the individual towns to determine how the pilot campaign would be implemented. "The materials we provided were catalysts and tools, but the successful outcomes were due to the planning and implementation done by volunteers with the support of their town managers," added Chairman Plante.

PLASTICS

Envion opens waste plastic to oil facility

Washington-based Envion, Inc. has unveiled technology that converts plastics into synthetic oil.

Envion introduced its first market-ready commercial unit at a demonstration held at the Montgomery County Solid Waste Transfer Station in Derwood, Maryland.

The company calls its Envion Oil Generator the first of its kind and says it is capable of converting 10,000 tons of waste plastic per year into high quality, light to medium synthetic oil for less than $10 per barrel. "About eight percent of world crude oil production is used to manufacture plastic," Michael Han, CEO, added. "The Envion Oil Generator uses a closed loop, catalyst-free system to take plastic and convert it back into oil safely, efficiently and economically."

The technology works by melting plastic in an oxygen-starved environment to separate the hydrocarbons for conversion to oil from everything else which is rendered into a nonhazardous ash byproduct. Envion uses a far-infrared ray technology which it claims to yield more fuel than competitors' processes and handle any type of plastic. One ton can be converted into three to six barrels of fuel, depending on the type of plastic. The 10,000 ton per year version is expected to cost from $6 million to $7 million to build.

Plastic bottle recycling sets record high of 2.4 billion pounds

In 2008, consumer plastic bottle recycling increased 75 million pounds to reach a record high of more than 2.4 billion pounds for the year. The total plastic bottle recycling rate of 27 percent is up almost three percentage points from 2007's rate of 24.4 percent, according to a report released by the American Chemistry Council (ACC) and the Association of Postconsumer Plastic Recyclers (APR).

The 19th annual National Post-Consumer Plastics Bottle Recycling Report noted that PET hit 27 percent, an increase of 55 million pounds – highest for the resin since 1997 – HDPE rose to 29 percent, up three percentage points from 2008's rate of 26 percent, an increase of 16.1 million pounds. PP had an 11.4 percent recycling rate in 2008, and less than one percent for LLDPE and PVC.

HDPE bottles collected hopped by 16.1 million pounds to 936.7 million pounds, because of "vigorous collection in the first three quarters of the year," according to the report.

Orpet to develop Oregon plastic recycling facility

Orpet, a new Oregon-based partnership, announced plans for a state-of-the-art, sustainably designed polyethylene terephthalate (PET) plastic bottle recycling facility near St. Helens, Oregon. Orpet is a partnership between private investors and the Oregon Beverage Recycling Cooperative (OBRC), the predominant administrator of Oregon's bottle bill. Orpet will begin operations in the second quarter of 2010, immediately creating 50 local, sustainable jobs.

The facility will be the first of its type in the region, converting millions of the PET bottles collected each year through Oregon's Bottle Bill into materials for manufacturing, construction and packaging. Orpet plans to market these products to a wide variety of Northwest companies, providing a local supply chain solution for regional businesses, and eliminating the carbon footprint associated with the current practice of exporting PET bottles to foreign countries.

"Oregon's innovative bottle bill and the public's commitment to recycling can benefit both the environment and our region's economy," said Dennis Denton, organizing group partner, Orpet. "Rather than ship these materials overseas, we can put them to work right here in the Northwest, with zero negative environmental impact."

Orpet's collaborative business model leverages a management team with more than 25 years of experience in recycling and materials management, as well as OBRC's expertise with Oregon's bottle bill. OBRC manages more than 95 percent of the recyclable containers collected through the bottle bill, which in 2009 added PET water bottles to the $.05 deposit program. Collection of PET water bottles has increased significantly since their addition to the program, providing a consistent supply of bottles for the facility.

In planning and constructing the facility, Orpet will pursue the U.S. Green Building Council's prestigious LEED green building certification. Plans for the facility include green building elements such as rainwater harvesting, rooftop solar panels, building materials containing recycled content and a variety of features to conserve energy.

Formosa Plastics agrees to resolve environmental violations

Formosa Plastics Corp., Texas, and Formosa Plastics Corp., Louisiana, will spend more than $10 million on pollution controls to address air, water, and hazardous waste violations at two petrochemical plants in Point Comfort, Texas, and Baton Rouge, Louisiana, according to the Justice Department and the Environmental Protection Agency (EPA).

The companies also have agreed to pay a civil penalty of $2.8 million to resolve violations under the Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA) and Emergency Planning and Community Right-to-Know Act (EPCRA).

Under the agreement lodged in the United States District Court for the Southern District of Texas, both the Texas and Louisiana facilities will implement a comprehensive CAA enhanced leak detection and repair program, which goes beyond regulatory requirements by requiring more stringent leak definitions, more frequent monitoring and monitoring and repair of additional chemical manufacturing equipment. The leak prevention practices agreed to in the settlement include an innovative program to replace valves with new "low leak" valve technology, which will significantly reduce the likelihood of future leaks. The enhanced program also includes requirements for periodic audits of the companies' leak prevention practices to ensure compliance going forward.

The enhanced leak detection and repair program will potentially reduce the annual volatile organic compound (VOC) air emissions from the two Formosa facilities by approximately 6,570,000 pounds per year of VOCs, including hazardous air pollutants such as vinyl chloride.

The Formosa facilities also will undertake an enhanced vinyl chloride leak detection and elimination program designed to improve the companies' systems for identifying and addressing leaks of vinyl chloride.

In addition, the settlement requires both facilities to undertake analyses to prevent future wastewater discharge violations. The Formosa Texas facility will undertake a comprehensive review of its compliance with EPCRA's toxic release reporting requirements, and the Formosa Louisiana facility will cease improper disposal of certain listed hazardous wastes.

The case was initiated as a result of inspections conducted by EPA's National Enforcement Investigations Center at Formosa's Point Comfort and Baton Rouge facilities. During the inspections, EPA identified extensive Clean Air Act leak detection and repair violations, including failing to properly monitor leaking components, failing to include chemical manufacturing equipment in its leak detection and repair program, and failing to timely repair leaking equipment. Inspectors also identified a variety of hazardous waste violations at both facilities.

In addition, the inspectors found that Formosa had violated wastewater discharge limits under its CWA permits, and, at the Texas facility, had failed to comply with the CAA benzene waste operations requirements and to submit correct toxic release reporting information to EPA.

The consent decree is subject to a 30-day comment period and final approval by the court.

PAPER

International Paper plans retirements, mill shutdowns

International Paper (IP) announced several retirements and new assignments among its senior management.

Wayne Brafford, senior vice president, Printing and Communications Papers, announced his retirement, effective December 31, 2009. With Brafford's retirement, Mark Sutton, currently senior vice president of global supply chain, will become senior vice president, Printing and Communications Papers, the Americas. Sutton began his career with IP in 1984 and also has served as vice president of European Container, vice president of strategic planning and senior vice president of global supply chain.

Mike Balduino, senior vice president, Consumer Packaging, and Tom Gestrich, senior vice president and president, IP Asia, also announced their retirements, effective December 31, 2009. With their retirements, Tom Kadien, currently senior vice president and president, xpedx, will become senior vice president, Consumer Packaging and IP Asia. Kadien has been with IP more than 30 years and has held additional leadership positions in the company's papers and IP Europe businesses.

Mary Laschinger, currently senior vice president and president, Europe, Middle East, Africa and Russia, will become senior vice president and president, xpedx. Laschinger has been with IP since 1992 and has held leadership positions in specialty papers, pulp and wood products.

Maximo Pacheco, currently senior vice president and president of IP Brazil and Latin America, will become senior vice president and president, IP Europe, Middle East, Africa and Russia. Pacheco has been with the company since 1994 and also has held executive leadership roles in Carter Holt Harvey Chile as well as IP Latin America.

International Paper shuts down three mills

International Paper also announced plans to close its paper mill and associated operations in Franklin, Virginia, and its containerboard mills in Pineville, Louisiana, and Albany, Oregon. The company announced it would permanently shut down the previously idled No. 3 machine at its Valliant, Oklahoma, containerboard mill. The Valliant Mill's other two machines will continue to operate. These permanent shutdowns will reduce the company's North American paper and board capacity by 2.1 million tons.

The closures, which will impact about 1,600 employees, will result in permanent North American capacity reductions.

Following these permanent shutdowns, International Paper will have approximately 10 million tons of North American containerboard capacity, 2.6 million tons of North American uncoated freesheet production capacity, and 1.7 million tons of North American coated paperboard capacity.

Total printing-writing paper shipments down

According to the American Forest & Paper Association's (AF&PA) September 2009 Printing-Writing Paper Report, total printing-writing paper shipments decreased 11 percent in September compared to September 2008. For the year to date, shipments were down 19 percent – all four major printing-writing grades recorded the lowest year to date decline when compared to 2008 for the third consecutive month. United States purchases (shipments + imports – exports) of printing-writing papers dropped 16 percent in September versus year-ago September and declined 22 percent for the year to date. Total printing-writing paper inventory levels decreased 120,700 tons, or 6 percent, from August.

Additional key findings from the report include:

•Uncoated free sheet shipments at lowest year-ago decline in the past twelve months.

•Coated free sheet shipments climb versus the prior month for the fourth consecutive month.

•Coated mechanical shipments exceed 300,000 tons for the second month.

•Uncoated mechanical shipments hit highest level in past ten months.

GLASS

Over 14 tons of glass collected during Recycle Glass Week

The Glass Packaging Institute's (GPI) 2009 Recycle Glass Week proved a success, with glass container manufacturers, including Anchor Glass, O-I, Rocky Mountain Bottle Company (RMBC), and Saint-Gobain Containers, Inc., collecting over 14 tons of glass bottles, and counting, for recycling, through events at their plants and in local communities. The energy saved from the recycled glass collected is equivalent to planting 128 trees.

In all, over 50 educational activities and public events in 22 states were held during the week, building awareness for glass bottle recycling across the United States. Two events, in Colorado and Indiana, also lead to permanent collection locations for glass container recycling.

Doubling the United States glass container recycling rate (28 percent in 2007) would allow manufacturers to use 50 percent recycled glass to make new glass containers, saving enough energy to power 21,978 homes for one year and removing 181,550 tons of waste from landfills every month.

During Recycle Glass Week, GPI also recognized seven 'Friends of Glass,' honoring those making significant and innovative efforts to promote or participate in glass container recycling.

AUTO

LKQ diluted earnings per share increases 11 percent

LKQ Corporation reported diluted earnings per share of $0.20 for the third quarter ended September 30, 2009, an 11.1 percent increase from $0.18 for the third quarter of 2008. Revenue for the third quarter of 2009 was $494.8 million, an increase of 2.7 percent as compared to $481.6 million in the third quarter of 2008. Net income in the third quarter of 2009 was $29.2 million as compared to $25.1 million in the third quarter of 2008. Excluding restructuring expenses from continuing operations and excluding a fixed asset impairment from discontinued operations, diluted earnings per share was $0.22 in the third quarter of 2009 as compared to $0.19 in the third quarter of 2008.

As previously announced, LKQ entered into an agreement to divest certain self-service recycling businesses, and LKQ has classified these divestitures as discontinued operations in its three and nine month statements ended September 30, 2008 and September 30, 2009.

See LKQ CORP, Page 14

Salvaging Millions

by Ron Sturgeon
Autosalvageconsultant.com

What are you doing to make 2010 your best year ever?

I know, I know, you think I am confused. Trust me. I know we have three months until 2010 starts. I suspect 2009 was not a great year for you. If you want to change your results in the coming year, now is the time to start planning. Have you started on your budgets for next year? Done your financial forecasts? Outlined specific programs to improve your key operating metrics in 2010? You need to start now to be ready to go in January.

Let me share with you a few steps that you can take now to make more money in 2010:

1. Review your financial performance for 2009. Compare 2009 month-by-month to 2008. Be sure to include total sales, sales per salesperson, and sales per day. Look for trends in expenses and cost of goods. Taking a month-by-month look at your metrics will help you identify which areas to focus on in 2010. Review your operating metrics also: How many cars did you buy per month? How much did you spend buying cars per month? How much were your expenses for each car you processed? These are just a few of the metrics you should consider as you look for ways to improve your results in 2010.

2. Prepare a financial plan for 2010. Using what you've learned, make a financial plan that has metrics consistent with your forecast. For example, you can't forecast more sales if you buy and process fewer cars at the same value. If you are forecasting growth next year, prepare a bridge. Use a bottom up budgeting process to make certain that you have accounted for the relationship between your metrics and are in a position to make the right decisions based on the numbers. Learn more about bridge plans and bottom up budgeting in forthcoming issues of this publication or by visiting the recycling discussion board at www.MrMissionPossible.com.

3. Involve your people: As you do your planning, ask your staff to tell you what they think they can accomplish in sales, dismantling, buyers, etc. Make the 2010 plan their plan. Once they buy in, you can get them energized to meet the goals they have set forth for themselves. Have them tell you what resources they need you to provide so they hit their goal. For instance, sales will tell you how much you need to spend on cars. Buyers can tell you what they need to make sure they can buy the required amount, and still keep cost of goods within projections. Dismantlers need to tell you what they need to be able to dismantle the cars you buy. Make sure that you have considered the best way to prevent your people from sharing teeth. (Learn more about sharing teeth in a future issue or on the recyclers' discussion board.) Don't forget to include the people that will be delivering parts to your customers in 2010. What do they need to deliver on time to your newly added accounts?

4. Build accountability and monitor progress. Hold a group meeting to communicate the objectives of your plan and who is accountable for results in each area. Cycle back and check for the deliverables beginning in February for the January results.

If you would like to do even more to make 2010 your best year in business, join one of our Peer Benchmarking Review Groups. You will be in group with 10-12 other non-competitor auto recyclers to compare metrics, sharpen strategic initiatives, and share what works and what doesn't in meeting 2010's challenges. To learn more about participating in a PBRG, visit www.MrMissionPossible.com.

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.

Dana launches first eco-friendly cylinder head cover

Dana Holding Corporation is supplying cylinder head covers made of recycled material on Ford Motor Company's 3.0-liter Duratec engine, used in the 2010 Fusion and Escape vehicles – providing significant cost and environmental benefits.

Manufactured using EcoLon® nylon, the cover is the first automotive product of its kind manufactured from post-consumer recycled nylon. Dana partnered with Wellman Engineering Resins, a compounder and supplier of high-quality nylon resins – to test, develop, and supply the material.

To repurpose nylon, Wellman grinds used nylon carpeting into fiber and recaptures the material through a proprietary process. The resulting product is a high-quality nylon resin, which Dana then uses to mold into cylinder-head covers through its injection-molding process.

The covers provide greater fuel economy due to weight savings of nearly 20 percent when compared with aluminum die-cast cylinder head covers.

Dana developed and is manufacturing the cylinder head covers at its Composite Sealing Center in Paris, Tennessee.

Ford uses wheat reinforced plastic

Ford Motor Company, working with researchers and suppliers, is the first automaker to develop and use wheat straw-reinforced plastic in a vehicle.

The first application of the natural fiber-based plastic that contains 20 percent wheat straw bio-filler is on the 2010 Ford Flex's third-row interior storage bins. This application alone reduces petroleum usage by some 20,000 pounds per year, reduces CO2 emissions by 30,000 pounds per year, and represents a smart use of wheat straw, the waste byproduct of wheat.

Ford researchers were approached by the University of Waterloo in Ontario, Canada. The University already had been working with plastics supplier A. Schulman of Akron, Ohio to perfect the lab formula for use in auto parts, ensuring the material is not only odorless, but also meets industry standards. Less than 18 months after the initial presentation was made to Ford's Biomaterials Group, the wheat straw-reinforced plastic was refined and approved for the Flex.

The wheat straw-reinforced resin demonstrates better dimensional integrity than a non-reinforced plastic and weighs up to 10 percent less than a plastic reinforced with talc or glass.

Already under consideration by the Ford team: center console bins and trays, interior air register and door trim panel components, and armrest liners.

To date, Ford and its suppliers are working with four southern Ontario farmers for the wheat straw needed to mold the Flex's two interior storage bins.

AUTO

Pull-A-Part's Indianapolis facility inducted in Indiana Clean Yard Program

The Indianapolis, Indiana Pull-A-Part location became the first auto salvage yard to be inducted into the Indiana Department of Environmental Management's (IDEM) Clean Yard Program at the Gold level. In an award ceremony conducted at the Indianapolis Pull-A-Part, IDEM Commissioner Thomas Easterly presented this designation for the first time to Pull-A-Part's president, Ross Kogon, and senior vice president Steve Levetan.

To pursue either of the Indiana Clean Yard recognitions, auto salvage yards begin by contacting IDEM for an environmental self-evaluation checklist. After correcting any problems as determined by the checklist, the yard becomes eligible for IDEM's Indiana Clean Yard award. If the facility meets additional requirements, they can receive the Indiana Clean Yard – Gold Level status. Achieving the highest certification level signifies that the auto salvage facility has gone beyond environmental regulations to show that they care about the community and are committed to protecting the environment.

EPA reaches agreement with J&J Cores on clean-air violations

United States Environmental Protection Agency (EPA) Region 5 has reached an agreement with J&J Cores, LLC on alleged clean-air violations at the company's secondary aluminum production facility in Newcomerstown, Ohio. EPA assessed a $1,000 penalty.

The agreement resolves EPA allegations that from April to June 2008 J&J Cores failed to continuously monitor and record temperatures of the afterburner that controls hazardous air pollutant emissions from its sweat furnace.

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2008 LaBounty MSD2500 shear. Low hours. Immediately available. $295,000

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2005 SIERRA 500SL SHEAR/LOGGER/BALER
Portable with 5,900 hours. $395,000

1992 SIERRA MODEL 3500 METAL BALER
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Motors and gear box refurbished 12/08. Double stacked and staggered hook knives. Includes support frame, feed hopper, hood and control panel. Opening 96" x 44" with (2) 75 h.p. motors $165,000

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1997 E-Z CAR CRUSHER MODEL B
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2003 CASE 621D WHEELED LOADER WITH FORKS
This loader is in excellent condition with under 8,800 hours. This machine runs well and is ready to work in a scrap yard. $72,000

2002 SIERRA 500SL SHEAR/LOGGER/BALER
500-ton shear/logger/baler. 20' x 24" shear throat for No. 1 bales. $265,000

2003 KOMATSU PC270LC WITH SHEAR
With rebuilt Genesis GPX500 shear. Good condition. Steal this machine with this low sale price! $135,000

2001 E-Z PORTABLE METAL BALER
5,900 hours. Recently reconditioned. $110,000

AUTO

LKQ Corp

■Continued from Page 10

Income from continuing operations was $30.1 million in the third quarter of 2009, an increase of 26.0 percent as compared to the third quarter of 2008.

Organic revenue growth, excluding Other Revenue, was 5.5 percent for the third quarter of 2009. Aftermarket, other new and refurbished products organic revenue growth was 11.3 percent for the third quarter of 2009 as compared to the same period of the prior year.

During the third quarter of 2009, the company had restructuring expenses of $0.9 million in continuing operations related to its Keystone acquisition and a fixed asset impairment of $3.5 million included in discontinued operations related to a divested self-service business. For the third quarter of 2008, the company reported restructuring expenses of $2.4 million. These expenses reduced diluted earnings per share by $0.02 in the third quarter of 2009, and $0.01 in the third quarter of 2008. Earnings per share from discontinued operations excluding the fixed asset impairment was approximately $0.01 in both the third quarter of 2009 and the third quarter of 2008.

For the nine months ended September 30, 2009, revenue was $1,492 million, an increase of 3.3 percent as compared to $1,443.8 million in the same period of the prior year. Year to date 2009 net income was $90.3 million as compared to $86.9 million for the prior year. Year to date 2009 diluted earnings per share was $0.63 as compared to $0.62 in the prior year. Diluted earnings per share before restructuring expenses and the fixed asset impairment was $0.65 for both the year to date 2009 period and the same period of the prior year.

During the third quarter of 2009, the company made two acquisitions: Superior Collision Parts, an aftermarket supplier with annualized revenue of $11.0 million and with operations in Atlanta, Georgia; Pittsburgh, Pennsylvania; Columbus, Ohio; and Allentown, Pennsylvania; and a heavy-duty truck business with historical annual revenue of $2.0 million in Maryland.

LKQ announced on October 2, 2009, the acquisition of Greenleaf Auto Recyclers, LLC from Schnitzer Steel Industries.

LKQ also announced on October 2, 2009 the sale to SSI of four self-service facilities and certain business assets at three other facilities with plans to close two of the sites and to convert the remaining location to a wholesale recycling business. In addition, subject to customary closing conditions, LKQ agreed to sell to SSI two other self-service recycling facilities in Dallas, Texas with an anticipated closing date in mid-January 2010. The results of the facilities sold, to be sold or closed and the related restructuring expenses and the fixed asset impairment have been classified as discontinued operations by LKQ.

As of September 30, 2009, LKQ's balance sheet reflected cash and equivalents of $166.0 million as compared to $79.1 million as of December 31, 2008. Debt as of September 30, 2009 was $635.6 million as compared to $642.9 million at the end of 2008.

METALS

Recycle bale wire scrap at point of generation

by Scott Ashpole

Sweed Machinery, Inc.

For industrial processors, who depend on efficiency to stay profitable, gnarly bale wire scrap cut loose from binding raw inputs at the start of production can act like barbed wire on a battlefield, slowing progress and threatening the safety of those nearby. The solution is to get it off the production floor as quickly, safely, and efficiently as possible.

But the traditional manual means of handling high-tensile bale wire scrap is inadequate, since having staff handle it multiple times wastes valuable space and labor while increasing injury risk. It's not only difficult to manually cut, wad, wind, or compress but also can spring back like a whip when bent. Its sharp ends can poke, scratch, or puncture, and are a particular hazard to eyes. Long lengths of it can also trip staff and entangle machinery.

A growing number of companies in bulk processing industries, ranging from recycling and textiles to paper and pulp, are finding a key to unlocking greater productivity and safety. They're handling high-tensile bale wire scrap more safely and efficiently by recycling it at its point of generation via heavy-duty scrap choppers that clean up the production floor and rev up profitability.

Recovery Processes Innovations (RPI), a recycler of end of life electronics plastics based in Salt Lake City, Utah, streamlined its process and enhanced safety with a heavy-duty chopper that's making short work of high-tensile bale wire, cut loose from incoming bales of plastic to be recycled.

"We achieved ROI in six months with our bale wire chopper," said Ronald Kobler, president of RPI. "An operator can put the ends of ten wires into the feed where they're cut loose, and within 15 seconds they're chopped into compact pieces in a storage box underneath. We're saving $1,000 a month in labor and have freed up 1,000 sq. ft. of production floor space that we use to store inventory. Eliminating the bale wire at its source has eliminated a safety risk, and will help to prevent injury and workers' comp claims."

Before using the bale wire chopper, RPI faced a less than satisfactory situation in handling high-tensile bale wire scrap, each approximately 10 feet long, with typically hundreds per shift. At first, the company tried letting the bale wire go through its recycling process, but it ensnared downstream equipment and had to be removed, requiring added labor and downtime.

When operators tried bending the wire for easier transport and storage, it was difficult and inefficient. "If you bend high-tensile bale wire it springs right back, and you've got to watch out for the sharp ends that can poke you in the eye," explained Kobler.

Operators couldn't cut bale wire with hand wire cutters, and bolt cutters were too

See BALE WIRE, Page 15

METALS

Bale wire

■Continued from Page 14

slow; they had to step on the wire, cut it, and pick up the pieces with a shovel. They ended up cramming bale wire into boxes set on pallets. When enough boxes were filled, a forklift operator moved them to an outside dumpster for pick up.

"We understood that chopping scrap at its point of generation would boost safety and cut labor and handling costs," said Kobler. "But we needed a heavy-duty chopper actually built for bale wire. With our volume, we couldn't afford to feed a wire at a time into a light duty chopper that would jam or wear out."

Kobler turned to a heavy-duty bale wire chopper, designed to reduce and ready the high-tensile scrap for recycling.

"Now the bale wire disappears as soon as it's cut," said Kobler. "We've done away with the extra labor and handling cost, the added box and pallet costs and the storage limitations. What's most improved is safety and morale. Instead of being up to our eyeballs in unruly bale wire, we've got a safe, clean production floor and compact wire that's easy to store and transport."

"After a year of operation, the bale wire chopper is working fine, and we expect it to provide many years of trouble-free use," added Kobler, who says its wear-resistant hardware and rotatable knives are part of its appeal.

Western Pulp, a leader in molded fiber solutions in industries such as packaging-shipping, nursery-greenhouse and floral, has also enhanced safety, efficiency, and recycling with a heavy-duty bale wire chopper. As its primary bulk input, bundles of used paper enter production bound with bale wire that must be removed and safely disposed of.

Previously, operators cut the bale wire then rolled or wadded it to fit into outside dumpsters.

"The primary driver for us was safety, to reduce the risk of pokes and cuts posed from loose, tangled bale wire," said Terry Glasgow, Maintenance Supervisor at Western Pulp's Corvallis, Oregon plant. "We didn't want anyone poked in the eye. Because the chopper will help to eliminate poke, cut or trip incidents due to loose bale wire in the production area, it should simplify meeting OSHA requirements."

Glasgow liked a number of the safety features in the heavy-duty bale wire chopper, such as a large opening for smooth feeding of the wire, along with an "anti-kickback" funnel infeed. He felt its "safety face" makes an easy target should a user need to stop the machine quickly. "Since the operator can hit the entire front of the machine with a shoulder, elbow, or body part, it's a failsafe emergency stop that enhances safety."

Glasgow acknowledged another economical, ecological plus, "Instead of paying to haul unmanageable bale wire to a landfill, a scrap dealer is now paying us for the chopped, more easily processed bale wire. Our improved process will help move us toward green certification, as we aim to recycle 100 percent of our input material, including bale wire."

Preliminary steel imports increase 23 percent

Based on preliminary Census Bureau data, the American Iron and Steel Institute (AISI) reported that the United States imported a total of 1,204,000 net tons (NT) of steel in September 2009, including 1,024,000 NT of finished steel (up 23 percent and 25 percent, respectively, vs. August final data). These were the highest monthly import figures since April. Total and finished steel imports on an annualized basis are down 51 percent and 45 percent, respectively, vs. 2008. Annualized total imports of steel in 2009 would be 15.7 million NT. Finished steel import market share, which was an estimated 16 percent in September and year-to-date (YTD) through nine months is an estimated 23 percent.

Key finished steel products with increases in September 2009 compared to August include line pipe (99 percent), oil country goods (76 percent), cut length plates (52 percent), heavy structural shapes (45 percent), hot dipped galvanized sheets (43 percent) and hot rolled sheets (22 percent).

In September, the largest volumes of finished steel imports from offshore were from South Korea (64,000 NT, down 26 percent), Japan (51,000 NT, up 51 percent), Brazil (43,000 NT, up 17 percent) and Taiwan (42,000 NT, up 171 percent).

Steel import permits rise 16 percent

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 October totaled 1,491000 net tons (NT). This was a 16 percent increase from the 1,283,000 permit tons recorded in September 2009 and a 24 percent increase from the September preliminary imports total of 1,204,000 NT. Import permit tonnage for finished steel in October was 1,187,000 NT, which was also an increase of 16 percent from the preliminary imports total of 1,024,000 NT in September.

In October 2009, the largest finished steel import permit applications for offshore countries were for Korea (116,000 NT, up 80 percent from September), Japan (94,000 NT, up 85 percent), Turkey (69,000 NT, up 507 percent), the Netherlands (68,000 NT, up 192 percent) and China (56,000 NT, up 35 percent). Finished steel import market share in October is estimated at 18 percent and at 22 percent year-to-date.

August steel shipments up 5.7 percent

The American Iron and Steel Institute reported that for the month of August 2009, United States steel mills shipped 5,570,000 net tons, a 5.7 percent increase from the 5,271,000 net tons shipped in July 2009.

A month-to-month comparison of shipments shows the following changes: hot dipped galvanized sheet and strip, up 2.8 percent; hot rolled sheet, up 6.8 percent; and cold rolled sheet, up 9.9 percent.

Scrap Metals MarketWatch

Commodity		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
#1 Bushelings	per gross ton	$183.00	$168.00	$210.00	$218.00	$265.00
#1 Bundles	per gross ton	183.00	168.00	202.00	217.00	268.00
Plate and Structural	per gross ton	205.00	170.00	227.00	215.00	228.50
#1 & 2 Mixed Steel	per gross ton	210.00	170.00	227.00	229.00	210.00
Shredder Bundles (tin)	per gross ton	160.00	158.00	120.00	159.00	150.00
Crushed Auto Bodies	per gross ton	168.00	140.00	175.00	165.00	150.00
Steel Turnings	per pound	74.00	79.00	64.00	90.00	145.00
#1 Copper	per pound	2.58	2.40	2.71	2.69	2.69
#2 Copper	per pound	2.47	2.25	2.50	2.58	2.59
Aluminum Cans	per pound	.54	.54	.59	.61	.64
Auto Radiators	per pound	1.59	1.53	1.55	1.52	1.55
Aluminum Core Radiators	per pound	.49	.45	.50	.49	.50
Heater Cores	per pound	1.10	1.25	1.28	1.39	1.30
Stainless Steel	per pound	.65	.55	.68	.70	.69

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

WASTE

IESI-BFC to acquire Waste Services

Merger will create the third largest waste company

IESI-BFC Ltd. and Waste Services, Inc. (WSI) announced that their boards of directors have approved a definitive merger agreement that creates North America's third largest solid waste management company with expected pro forma annual revenues of nearly $1.5 billion.

The combined company, to be headquartered in Toronto, will have more than 6,000 employees serving commercial, industrial and residential customers in 11 states in the United States and the District of Columbia, and in 6 Canadian provinces. The transaction, which is expected to close during the first calendar quarter of 2010, is expected to generate $25 to $30 million in net pre-tax annual run rate synergies by the end of the second year following closing, and to be accretive to IESI-BFC's earnings and free cash flow per share in the first year following closing.

Under the terms of the agreement:

•IESI-BFC will issue 27.8 million common shares to WSI shareholders, representing approximately 23 percent ownership in the combined company, assuming conversion of IESI-BFC's participating preferred shares.

•The exchange ratio is 0.5833 common shares of IESI-BFC for each WSI common share held.

Based on the closing stock prices of both companies on November 10, 2009, this represents a premium of approximately 27 percent over the volume weighted average closing price of WSI's shares for the previous 30 trading days of $6.10. This premium reflects a fully-diluted share count for WSI at closing of 47,660,982, which includes restricted share units vesting on change of control, as well as in-the-money options.

The acquisition will combine IESI-BFC's and WSI's collection, transfer, recycling and landfill businesses under a proven management team led by Keith Carrigan, IESI-BFC's vice chairman and chief executive officer. The combined company will be diversified across United States and Canadian markets, customer segments and service lines, while maintaining a commitment to excellent customer service, environmental stewardship, and community support. The combined company will use its excess free cash flow to fund organic growth, maintain IESI-BFC's regular quarterly dividend payments to shareholders, finance accretive strategic acquisitions and reduce debt.

"In uniting with WSI, IESI-BFC will advance to a top-three position in the North American solid waste management industry," said Keith Carrigan, vice chairman and chief executive officer of IESI-BFC. "We will also establish a meaningful presence in the Florida market, where WSI has initiated a vertical integration strategy centered around the JED landfill, one of the most valuable solid waste assets in the state. Since 2004, WSI has made steady improvements in Florida, where it achieved an adjusted EBITDA margin of 27.2 percent in the third quarter ended September 30, 2009. By applying IESI-BFC's operating model, strong balance sheet, and acquisition strategy centered on creating collection density for landfills, we will be able to accelerate the Florida growth strategy and margin improvement, driving incremental value for the combined company's shareholders."

Following completion of the transaction, Keith Carrigan will become vice-chairman and chief executive officer of the combined company.

Pursuant to the terms of the definitive agreement, WSI will have the right to nominate two members of the board of directors of the combined company. The combined company, which will be headquartered in Toronto, will trade under the symbol 'BIN' on the New York and Toronto Stock Exchanges.

The transaction is subject to various closing conditions, including satisfactory completion of due diligence; both companies receiving fairness opinions; WSI shareholder approval; and approvals by antitrust and other regulatory authorities.

Republic Services plans for third material recycling facility in Texas

Almost a year after merging with Allied Waste Services, Republic Services, Inc. reported that, in the Dallas-Ft. Worth area, the green initiatives of the combined companies are growing steadily in acceptance and participation. Republic plans to construct a third state-of-the-art processing center at a location in Tarrant County since the space required for the company to be able to collect, sort and transport recyclable materials to its markets is growing.

Public school districts are moving to implement recycling programs. In past months, Republic has added the Grapevine/Colleyville, Keller, Carrollton/Farmer's Branch, Mesquite, Southlake/Carroll and Lancaster independent school districts to its list of public sector contracts.

Single-stream processing makes recycling easy, he added. All materials may be co-mingled at their source, and they are sorted using the most advanced technology at a MRF.

Currently, Republic has an agreement with RecycleBank in North Central Texas, a program that puts money in the pockets of Republic's customers.

Alabama grease haulers charged with water violations

A Mobile, Alabama, grand jury has indicted a waste disposal company, its president and top manager for offenses involving the illegal disposal of waste into the sewage treatment systems of Mobile and of neighboring municipalities.

DHS Inc., operating under the name Roto Rooter; its president, Donald Gregory Smith; and manager William Wilmoth Sr. were charged in a forty-three count indictment with numerous violations of the Clean Water Act and with fraud and conspiracy for having dumped into local sewers thousands of gallons of waste grease and oil that they had been hired to dispose of safely and legally. The indictment recites Mobile's history of years of sewage overflows, inadequate wastewater treatment and polluting effluent caused by blockages of sewer lines and treatment works with solidified grease.

In response to lawsuits under the Clean Water Act, the city of Mobile entered into a court ordered agreement with EPA under which Mobile implemented a grease control program requiring restaurants and other food service establishments to install grease traps to prevent cooking oils from entering the sewer system. The indictment charges that Roto Rooter, on the representation that it would pump out the grease traps of restaurants and other commercial customers and dispose of their grease waste at legal facilities, instead discharged the grease through grease traps and manholes into the sewer lines that the defendants were being paid to prevent it from entering.

Roto Rooter employee Michael L. Edington has entered guilty pleas in federal district court in Mobile from having dumped from Roto Rooter pump trucks numerous loads of grease into area sewer systems between 2004 and 2006, to having falsified grease tracking manifests to make it appear the waste had been disposed of properly, and to conspiring with the defendants named in the indictment to commit the illegal disposals and fraud with which they have all been charged.

Individuals who are found to have violated the Clean Water Act are subject to up to three years of incarceration per count, twenty years in prison for fraud, as well as monetary penalties.

The matter is being handled by the Justice Department's Environmental Crimes Section, the United States Attorney's Office for the Southern District of Alabama and EPA's Criminal Investigation Division.

An indictment is a determination by a grand jury that there is probable cause to believe that offenses have been committed by a defendant. A defendant, of course, is presumed innocent until and unless he or she is proven guilty at trial.

■See "Riverside converts cooking grease to methane gas" on Page B3.

WASTE

San Francisco law mandates residential waste separation

The most comprehensive recycling law in the nation went into effect in San Francisco in October. People who do not properly sort their garbage will get warnings and could be subject to fines.

Everyone in San Francisco is now required, by law, to have three different recycling bins – black for trash, blue for recycling and green for composting things like coffee grinds, egg shells and last night's leftovers.

San Franciscans generally do pretty well with the blue bins to recycle cans, bottles and paper. The new law is an aggressive push to force every resident and business to use the green bins to compost food scraps.

"It's helping us keep things out of landfills and it also returns nutrients to the soil and helps prevent global warming," San Francisco Department of the Environment spokesperson Jean Walsh said.

The city says it already diverts more than 70 percent of its waste from landfills. The goal is to send nothing there by the year 2020, so the green bins are key.

More than 100 new bins are being delivered to homes and offices every day and outreach workers are going door to door to educate customers.

"We often hear concerns about odor and bugs; that's really a false phobia, there are lots of ways to handle food scraps in the kitchen or at work, put it in a paper bag or a compostable bag and close it up and at the end of the day toss it in a green cart," garbage-collection company Recology spokesperson Robert Reed said.

Reed estimates about one-third of the city's apartment buildings, half the homes, most restaurants and even high rise offices are on board. Those who do not get with the program face fines starting at $100 dollars, but the emphasis these first few months is on education.

The city says there will not be such a thing as garbage cops, inspectors lifting lids to see if residents correctly sorted their trash. They will focus first on making sure everyone has ordered the bins and signed up for the program.

Environmental Industry Associations to accept nomination forms for NSWMA and WASTEC awards

The Environmental Industry Associations (EIA) announced it is accepting nominations to honor the solid waste management industry's most outstanding leaders and employees at the 2010 Waste Expo conference. Industry officials are encouraged to recognize their peers for their great work by nominating them for the awards.

EIA Hall of Fame Awards recognizes leaders in the waste industry that have been actively engaged in the business for at least 25 years. The deadline for 2010 EIA Hall of Fame Awards nominations is January 8, 2010. The nomination form may be found at www.environmentalistseveryday.org/docs/2010-Hall-of-Fame.pdf

NSWMA Driver of the Year Awards seeks to honor drivers who have upheld the field of solid waste management as an honorable occupation and who have conducted themselves and operated their vehicles in a safe and responsible manner. The winner in each category is honored in person at Waste Expo and receives a commemorative gift and $1000 cash prize. The deadline for 2010 DOY awards is December 11, 2009. The nomination form is at www.environmentalistseveryday.org/docs/DOY-2010-form.pdf

WASTEC Awards: This program is a unique opportunity for WASTEC member companies to recognize their best employees who excel in engineering, production or sales and marketing. WASTEC Employees of the Year demonstrate diligence and ingenuity. The deadline for 2010 WASTEC Awards nominations is January 15, 2010. The necessary nomination form may be found at www.environmentalistsevery day.org/docs/WASTEC/WASTEC-award-nomination-form-2009.pdf

BUSINESS BRIEFS

Smurfit-Stone chooses new senior VP and manager

■ Smurfit-Stone Container Corporation announced the appointment of Michael Exner as senior vice president and general manager of the company's Containerboard Mill Division, effective January 1, 2010. Exner reports to Steve Klinger, Smurfit-Stone's president and chief operating officer.

Exner's career in the paper industry spans 31 years and includes a variety of leadership positions with International Paper (IP) and Boise-Cascade Corp.

Most recently, he served as International Paper's vice president of manufacturing for Containerboard.

During his 29 year tenure with IP, Exner also served as pulp and operations manager; mill manager for the company's Vicksburg, Missouri, and Lock Haven, Pennsylvania, facilities; and director of manufacturing for IP's commercial printing and imaging papers division.

Mechel appoints new chief executive officer

■ Mechel OAO announced appointment of the new chief executive officer for Mechel's East-European Steel Division.

Viktor Dyshlevich was appointed chief executive officer for Mechel's East-European Steel Division effective from October 26, 2009.

At this position he succeeded Vyacheslav Shmyga who has taken the position of chief executive officer for Mechel-Workshop OOO headquartered in Chelyabinsk.

Prior to this appointment since 2005 Dyshlevich worked as chairman of the board of directors of SC Laminorul steel plant, Romania. From 2003-2005 he was chairman of the board of directors of Dan Scan Steel, Danish steel company. Before that time from 1994 he worked as director of a private business company, steel industry being its activities area. From 1986-1994 he held various executive positions at Belarusian Steel Works.

Bulk Handling Systems to construct recycling system

■ Bulk Handling Systems (BHS) has signed a $15.7 million contract to design, manufacture and install single stream and mixed commercial processing equipment for a new materials recovery facility.

The facility is the Shoreway Recycling and Disposal Center located in San Carlos, California. It is managed by the South Bayside Waste Management Authority.

South Bay Recycling is a joint venture between Community Recycling and Potential Industries and will operate the system.

The system incorporates the latest in screening, optical, and air separation technologies and is designed to maximize the recovery of marketable commodities, yielding minimal residual material and reducing disposal costs. It is capable of processing up to 45 tons of material per hour.

EPA chooses several new regional administrators

■ United States Environmental Protection Agency (EPA) administrator Lisa P. Jackson announced several of President Barack Obama's selections for new regional administrators.

Regional administrators for the EPA are responsible for managing the agency's regional activities. They promote state and local environmental protection efforts and serve as a liaison to state and local government officials.

Shawn M. Garvin was chosen to be the agency's new regional administrator for EPA's mid-Atlantic region, Region 3. This region encompasses Delaware, District of Columbia, Maryland, Pennsylvania, Virginia and West Virginia.

Shawn M. Garvin has worked for EPA Region 3 for more than 10 years and currently serves as EPA Region 3's senior state and congressional liaison. In that position he serves as the primary contact to Congressional delegations and state and local officials throughout the region. He joined EPA in 1997, serving as special assistant to the regional administrator.

Dr. Alfredo "Al" Armendariz was chosen to be the Agency's regional administrator for EPA's region 6. This region encompasses Louisiana, Arkansas, New Mexico, Texas, Oklahoma and 66 Tribal Nations.

Dr. Alfredo "Al" Armendariz is an associate professor at Southern Methodist University in Dallas, Texas, where he has taught environmental and civil engineering. For the past 15 years, Armendariz has worked in a variety of research and academic positions and has published several research papers.

Jared Blumenfeld was chosen to be the Agency's regional administrator for EPA's Region 9. This region encompasses California, Arizona, Hawaii, Nevada, the Pacific Islands, and over 140 Tribal Nations.

Jared Blumenfeld is currently the director of the San Francisco Department of Environment where he spent eight years as the primary environmental decision-maker for 28,000 city staff and a $6.5 billion budget. He also managed the San Francisco Recreation and Parks Department which oversaw 242 world-class parks and recreational centers including facilities such as Golden Gate Park, Candlestick Park, and Harding Park PGA golf course.

Nucor CFO Terry Lisenby announces plans to retire

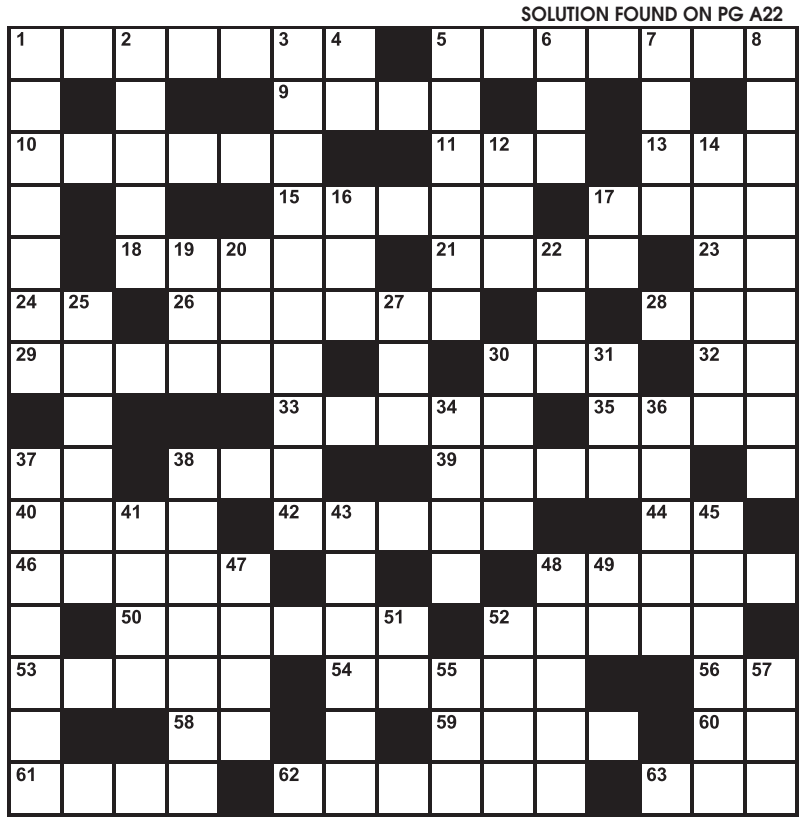
■ Nucor Corporation chief financial officer Terry S. Lisenby announced his plans to retire at the end of this year, after 24 years of service with Nucor. Lisenby began his career with Nucor in 1985 as manager of financial accounting. In January 2000, he was promoted to chief financial officer, treasurer and executive vice president.

Effective January 1, 2010, James D. Frias will be promoted to chief financial officer, treasurer and executive vice president.

MONTHLY CROSSWORD

BY Myles Mellor

SOLUTION FOUND ON PG A22



ACROSS

1. ___-___ system, any of several processes for recovering resources from the organic portion of the waste stream
5. ___ rate, the percentage of generated secondary materials actually recovered from a household or business
9. Overflow
10. Organic garbage pit
11. ___ scrap, material which is discarded during a manufacturing operation which cannot be fed back into the operation
13. Peron or Longoria
15. Truths
17. Busy activities
18. Place on the Burma border
21. Heroic story
23. Light, for short
24. Promotional feature
26. Degree goal?
28. Dynamic pair?
29. LLDPE part
30. Screen type
32. Tiny distance measurement
33. ___ depletion, destruction of an earth layer due to the release of CFCs
35. Away from wind
37. Former partner
38. Utah University
39. Metrical feet
40. Dishonest person
42. Paper ___, scrap or waste papers that have been sorted and baled into specific grades
44. Kamchatka is in the __ of Russia
46. Pester
48. Requisites
50. Said yes to
52. Liner___, a paperboard used as the facing material in the production of corrugated shipping containers
53. Printer necessity
54. Circular areas
56. That is, for short
58. Road, for short
59. Too
60. Friendly alien
61. Recyclable tin containers
62. Bill or bank preceder
63. Fly ___, residue left after trash is burned in an incinerator

DOWN

1. ___ can, food or beverage can with a steel body and an aluminum lid
2. Junior trainee
3. Types of metals which contain no iron, such as aluminum, copper, brass and bronze
4. Act
5. Buy-back ___, a recycling facility that purchases small amounts of secondary materials from the public
6. Animal foot
7. UBC and USBC part
8. Material which can be stretched to twice its size, and then return to its original size when released
12. Special sense
14. ___ reduction, processing waste materials to decrease the amount of space the materials occupy
16. Swallowed
17. Temperature control
19. Cocktail cooler
20. Farm sound
22. Facility that separates, cleans, and bails materials to sell to manufacturers, abbr.
25. This may be released into the atmosphere through the incineration of chlorinated paper
27. Id's associate
30. Oil problem
31. Pat lightly
34. Friendly French town?
36. Barrier designed to prevent the leaching of contents from a landfill
37. Wasteband material
38. Stock workers
41. Unknown author
43. ___plastics, plastics which can be reformed repeatedly by application of heat and pressure
45. Contrary currents
47. ___ waste, green waste
48. Annoying sound
49. Each, abbr.
51. Prosecutor
52. Bottle ___, a law requiring deposits on beverage containers
55. Digital audiotape, abbr.
57. African nation, for short

BUSINESS BRIEFS

Exodus Machines chooses four for director positions

■ Exodus Machines, a manufacturer of material handlers for the scrap and waste markets, has named four members to director positions within the company. Named were Adam Bennis, director of engineering; Erik Finstad, director of finance; Marisa Ring, director of human resources; and Justin Bacon, director of procurement.

Adam Bennis comes to Exodus with a wealth of engineering experience, most recently as project engineer for a forestry heavy equipment manufacturer. As director of engineering, Bennis will oversee all engineering-related efforts at Exodus.

As director of finance, Erik Finstad oversees all of corporate accounting and finance, IT, legal, insurance, banking relationships and interaction with state and federal agencies. Before joining Exodus, Finstad was a business development consultant to Dover Corporation, and chief financial officer for Anderson Lubricants, Inc., of Superior, Wisconsin.

Prior to assuming her position at Exodus, Marisa Ring spent eight years as a technical writer/marketing assistant, as well as customer service representative at Genesis Attachments, also of Superior, Wisconsin. At Exodus, she will oversee all activity related to human resources and technical publications.

Justin Bacon is another veteran of Genesis Attachments where he headed up the company's rebuild program. He is responsible for overseeing material procurement, shipping/receiving, and inventory control.

ADVERTISER INDEX

Advanced Clean Tech completes acquisition

■ Advanced Clean Technologies, Inc. has completed the acquisition of American Petroleum Solutions, Inc., (API), which holds an exclusive license for an oil sludge removal technology.

"This strategic addition to our company, strengthens our offering in the oil and gas industry and accelerates our growth plans," said Russell Kidder, CEO.

API has more than 15 years of experience providing a wide range of green services including environmental remediation, soil remediation and other services for the oil and gas industry.

E-Z Pack names Greg Podell president and CEO

■ Greg Podell, a 25 year veteran of the waste management equipment industry, has been named president and chief executive officer at E-Z Pack Manufacturing, LLC, a manufacturer of refuse trucks and parts.

Podell most recently served as chief operating officer at Wastequip, Inc., a manufacturer of waste handling and recycling equipment, where he was responsible for steering the organization toward improved production methodologies, product standardization, and financial results.

Prior to his role as COO at Wastequip, Podell spent six years as president of the company's Galbreath subsidiary, where his accomplishments included impressive customer growth with the nation's largest waste collection companies and ISO 9001:2000 certification. Podell also served eight years as Galbreath's vice president of sales and marketing after starting his career in sales.

Events Calendar

December 14th-15th
Stormwater Management: Permits and Plans. Crowne Plaza San Diego, San Diego, California.
410-897-0037 • www.aarcherinstitute.com

January 12th-15th, 2010
2010 North American Environmental Field Conference & Exposition. Embassy Suites Hotel at The University of South Florida Location, Tampa, Florida. 575-532-5535
www.envirofieldconference.com

January 20th-22nd
9th International Electronics Recycling Congress, IERC 2010. Salzburg Congress, Austria. www.icm.ch

January 24th-27th
US Composting Council's 18th Annual Conference & Tradeshow. Wyndham Orlando Resort, Orlando, Florida.
631-737-4931 • compostingcouncil.org

February 23rd-25th
Renewable Energy World Conference & Expo North America. Austin Convention Center, Austin, Texas. 918-831-9736
www.renewableenergyworld-events.com

March 28th-30th
C&D World Annual Meeting of the CMRA. Rio Hotel and Casino, Las Vegas, Nevada.
630-585-7530 • www.cdrecycling.org

Morbark and HTI partner for waste-to-power

■ Morbark, Inc. a manufacturer of wood reduction equipment announced an agreement with Heat Transfer International (HTI) of Kentwood, Michigan. HTI is a technology company providing turnkey waste-to-energy systems which create renewable energy through SALT™ gasification of biomass. The agreement, which will create dozens of green jobs in Michigan, includes a manufacturing agreement for Morbark and an equity investment in HTI.

Morbark's investment in HTI is in line with the company's vision of sustainable energy through responsible forestry.

Michael Larson elected to Republic Services board

■ Republic Services, Inc. announced that its board of directors elected Michael Larson, to serve on the Company's board of directors effective October 28, 2009. The Board further appointed Larson as a member of its compensation committee and its nominating and corporate governance committee.

Michael Larson is the business manager of Cascade Investment, LLC and is the chief investment officer for William H. Gates III.

Cascade Investment, LLC. and the Bill & Melinda Gates Foundation Trust own in the aggregate approximately 15 percent of Republic Services, Inc.'s common stock.

Call2Recycle appoints Sirjord as board chairman

■ Call2Recycle announced the appointment of Andrew Sirjord as chairman of the board of directors, tasked to guide the company through strategies designed to spur growth and development. Sirjord has been a board director with the organization since 2006, and was appointed chairman due to his distinct knowledge of environment and energy related products, as well as his strong background in legal affairs.

Harsco expands services to UK with acquisition

■ Harsco Corporation announced its acquisition of Nicol UK Ltd., a multi-disciplined provider of industrial insulation services, site services and scaffolding to major petrochemical, energy and industrial clients throughout the UK. Terms were not disclosed.

The acquisition strengthens Harsco's position in the UK industrial sector by offering customers a multi-disciplined service package that combines Harsco's extensive scaffolding expertise and resources with Nicol's additional capabilities for thermal insulation and cladding, site cleaning and industrial painting. The privately-held Nicol UK has annual sales of approximately $25 million.

The most valuable of all talents... that of never using two words where one will do.
—Thomas Jefferson

NEW PRODUCT SHOWCASE

DUST CONTROL TECHNOLOGIES ADDS OSCILLATION TO DESIGN

Dust Control Technology has introduced a 180° oscillation option on its two largest designs, effectively quadrupling the coverage area of each machine. The breakthrough allows Dust Control Technology to deliver effective particle control over more than 80,000 square feet of area from a single location with its flagship model, the DustBoss DB-60. Users can now cover nearly two full acres with a powerful dust-trapping mist, selecting from 45°, 90°, 135° or 180° settings to meet the specific job requirements on any given day.

Dust Control Technology
1607 West Chanute Road
Peoria, IL 61615
309-693-8600
www.dustboss.com

HIRSCHMANN INTRODUCES THE IVISOR MENTOR EI65

Hirschmann Automation and Control (PAT), introduces the iVISOR mentor EI65 indicator system for mobile cranes.

The iVISOR mentor EI65 provides a continuous display of actual and allowable load, boom angle, boom length, radius, parts of line, and alerts the operator to an impending two block condition. Setup and calibration is done through the console. The operator can preset limits for all geometric and load variables with an audible and visual warning when these limits are reached. The iVISOR incorporates CANbus technology for all sensors.

Hirschmann Automation and Control Inc.
1540 Orchard Drive
Chambersburg, PA 17201
717-217-2216
www.hirschmann-usa.com

EMERY INTRODUCES THE NEW ROADWEIGH AXLE SCALE

The new Roadweigh quick-clean axle scale provides efficiency by including an easily lifted, heavy duty weighbridge, hydrostatic load cells that are immune to water damage and unique locating and alignment pins that accurately allow the scale module to be removed from and returned to exactly the same weighing location when lowered back into the pit after the cleaning. These features combine to make this product a best choice in any application where material buildups can impact weighing accuracies and processing speed.

Emery Winslow Scale Co.
73 Cogwheel Lane
Seymour, CT 06483
203-881-9333
www.emerywinslow.com

MOD TILT TRUCKS FEATURE ERGONOMIC HINGED PANEL

Tilt trucks in the Poly-Trux® line feature an optional hinged side panel to reduce the lifting of heavy bags over the rim during loading unloading.

Ideal for the collection of recyclables and refuse, the tilt trucks open on one or both sides, even while covered, and close tightly for secure handling and transport. “These MOD tilt trucks stand up to heavy-duty use even when hauling up to 2,000 lbs.,” says Dan Woods, president of Buddy Dumper, which uses these tilt trucks to convert pickup trucks and forklifts into versatile dumping vehicles.

MOD
4920 State Road
Ashtabula, OH 44004
800-829-4535
www.Recycleosaurus.com

HENRY A. WILTSCHEK LAUNCHES THE TEME CONTAINER TILTER

A trailer with a container enters the Teme tilter station, then the container is unlocked from the trailer and secured to the Tilter. Once locked into place, the Tilter lifts the container free from the trailer allowing the trailer to be driven away. The Tilter lifts the container to 90° to allow for loading by a crane or conveyor.

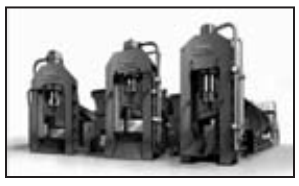
Tilting the container ensures all of the container volume is used and it is filled to its full capacity. Load cells within the base of the Tilter monitor the desired load weight.

Henry A. Wiltschek Inc.
707-851 Queenston Road
Stoney Creek, ON Canada
L8G 1B4
888-518-8469
www.hawiltschekinc.com

SCRAP SALVAGE & SURPLUS’ MOBILE PROCESSING UNIT

Scrap Salvage & Surplus, Inc. has patented a mobile processing unit for heavy-torching oversized metal scrap. The unit reduces energy consumption and labor costs, and effectively eliminates 99.8 percent of airborne emissions. More efficient than standard stationary units, the device travels over the materials, permitting continuous operation and eliminating the need to handle material more than once. It can accommodate heavy torching, lance rods, plasma cutting, scarfing, sand blasting and painting. The process facility can employ two torch operators simultaneously, and be equipped with automatic torches.

Scrap Salvage & Surplus
690A Glenwood Way
Butler, PA 16001
724-285-2876
www.scrapsalvage.com



METSO LINDEMANN INTRODUCES NEW LUC SCRAP SHEAR

Metso Lindemann has introduced the new LUC scrap shear designed to handle medium volumes of scrap. Metso’s design team responded to customers’ requests for optimal cost-to-benefit ratio, high efficiency and an expanded choice.

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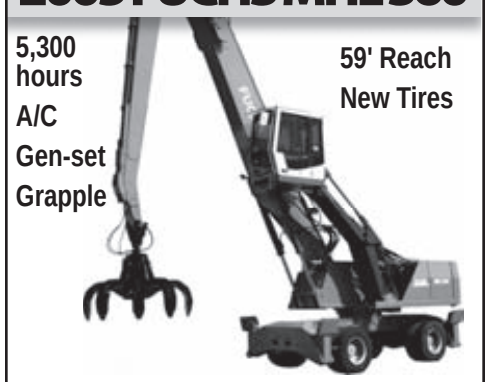

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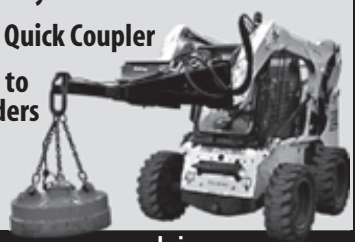

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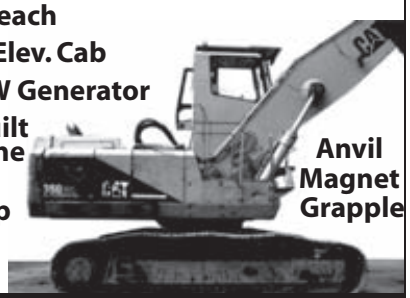

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NEXT DEADLINE DECEMBER 17

CLASSIFIEDS Continued, Page 22

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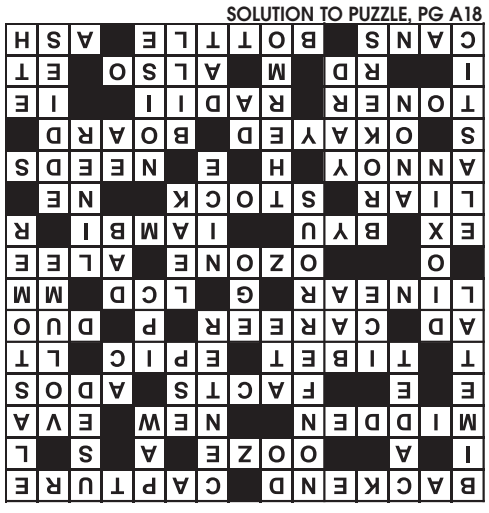

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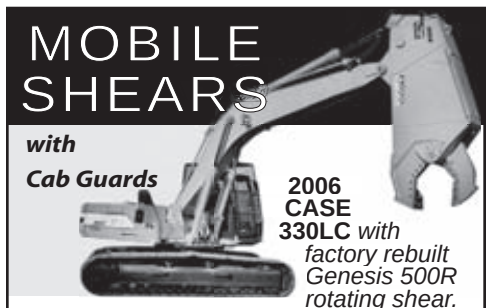

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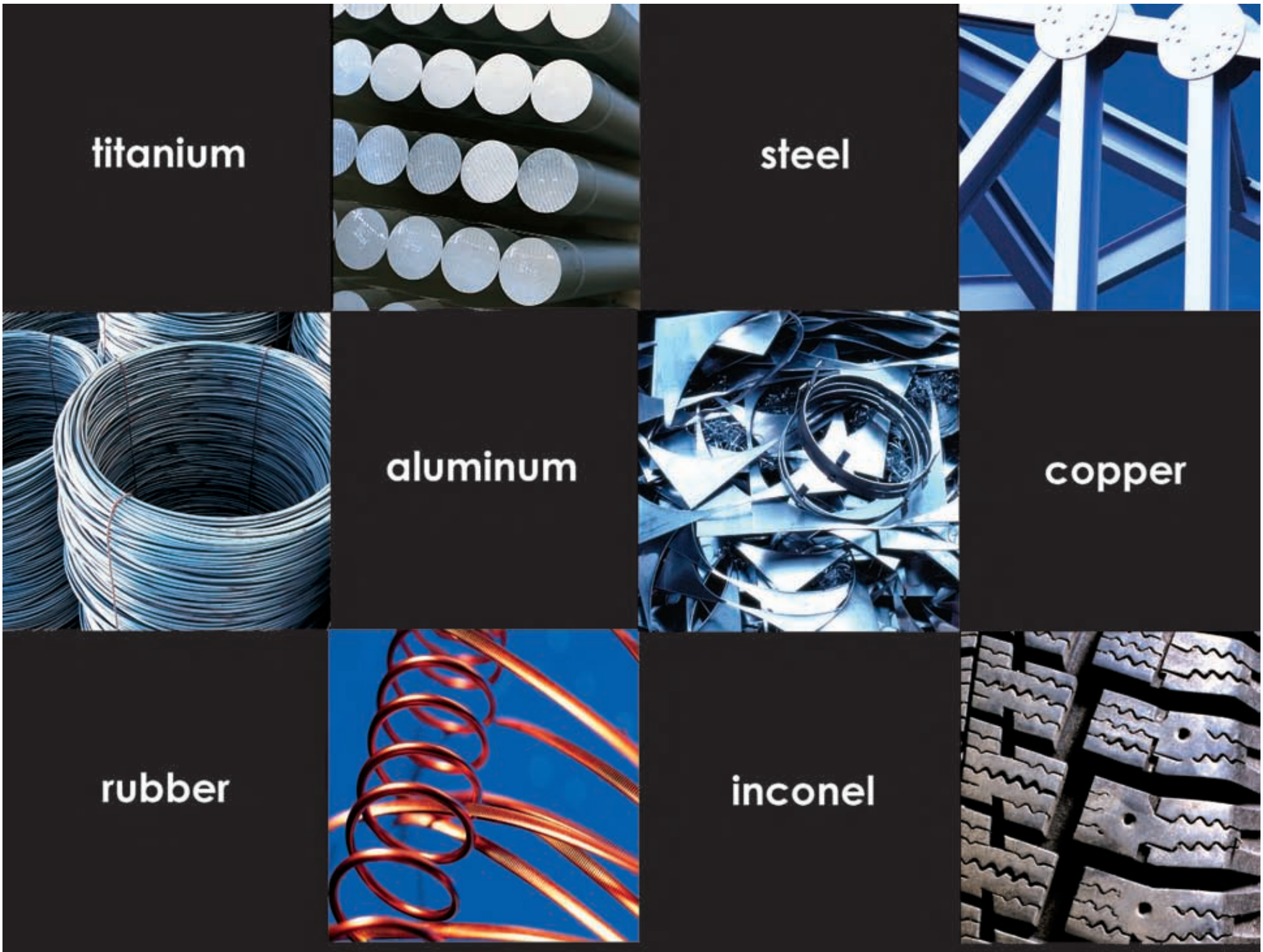

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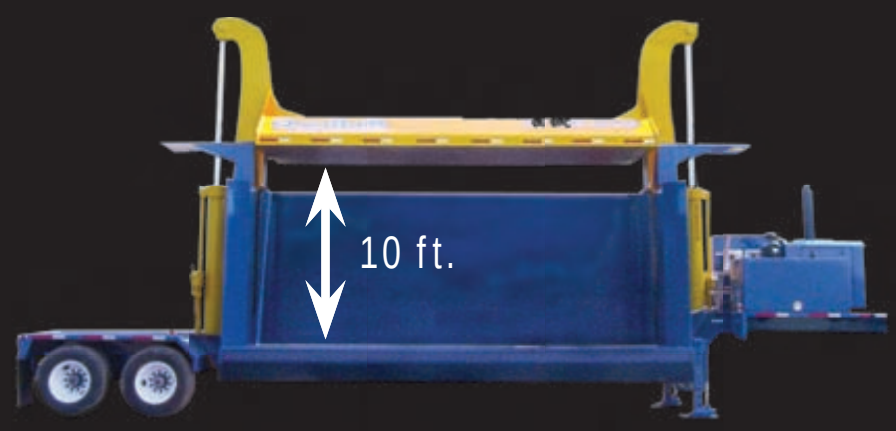

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Ceres awarded $5 million for energy grasses

Energy crop company Ceres, Inc. announced that it plans to expand an advanced trait development project to increase biomass yields of several energy grasses by as much as 40 percent in coming years, while simultaneously decreasing the use of inputs such as nitrogen fertilizers. The project, which was selected by the United States Department of Energy (DOE) from among 3,700 renewable energy proposals, will be funded in part by a $5 million advanced research grant.

Created in 2007 by the America Competes Act, the prestigious grant program is managed by the Advanced Research Projects Agency – Energy (ARPA-E), a DOE organization modeled after the defense organization, DARPA, which helped launch a number of revolutionary new technologies, including a precursor to today's internet. Similar to the DARPA review process, Ceres' technology was examined by leading United States energy science and technology experts and ARPA-E's own program managers. Evaluations were based on the potential for high impact as well as scientific and technical merit.

Projections indicate that the Ceres traits alone could displace 1.3 billion barrels of oil and 58 million tons of coal over a ten year period. 1.2 million tons of nitrogen fertilizer could be eliminated (about the amount of nitrogen needed for 24 million acres of cotton), among other benefits.

"At the heart of our ambitions for a full-scale bioenergy industry will be how well we utilize our land resources," said Richard Hamilton, Ceres chief executive. "With greater use of technology, increased productivity will go hand-in-hand with greater sustainability." He noted that higher yields reduce the land area needed to support individual projects.

The three-year project was projected to begin in December. Ceres researchers will test its advanced traits in a variety of energy grasses such as switchgrass, sorghum and miscanthus. Productivity and input requirements, such as fertilizer, will be evaluated, as well as expected improvements to carbon and nitrogen cycles. Upon successful completion, the Ceres traits would undergo a customary evaluation by USDA prior to full commercialization.

Water; The original green energy

by MIKE BRESLIN
mbreslin@americanrecycler.com

JAMES STEIDL | DREAMSTIME

Although large hydroelectric operations like this one have potential to generate quite a bit of green energy, some believe that even more energy could be harnessed by a large number of smaller facilities.

"There's a major reexamination of the value of hydropower going on now, particularly over last three or four years. The renewed interest is because of the push for renewable portfolio standards in certain states and how to meet those standards. Hydro is considered green by the states, has a favorable standing with local communities and is very popular. There has been increased attention and a movement to harness what is potentially out there," said Doug Dixon, technical executive at the Electric Power Research Institute (EPRI). Members of EPRI represent more than 90 percent of the electricity generated and delivered in the United States.

Today, conventional hydroelectric power represents only 7.6 percent of all American electric generation, but the potential waiting to be harnessed is huge. Not in gigantic projects like the Hoover Dam, but in a vast number of smaller, more diverse, nationally distributed sources that cumulatively could add up to big electricity production. Hydro has advantages over solar and wind since it produces full time. The next generation of water power is likely to include:

•Building additional capacity or increasing efficiency at existing hydroelectric plants.

•Installing new power plants on existing dams.

•Building small-scale hydro plants not requiring new dams or reservoirs.

•Installing ocean-wave and tidal generators.

•Placing in-stream hydrokinetic turbines in rivers.

•Harnessing the power of constructed waterways: canals, aqueducts, water supply system, and effluent streams.

Hydropower was the earliest and cleanest source of renewable energy, but not much was heard, if anything, about it in speeches about renewable energy from the presidential candidates. They would talk about wind, solar, biomass, ethanol, electric vehicles; even bring up controversial nuclear, but barely any mention of hydro.

Fred Ayer, executive director of the Low Impact Hydropower Institute (LIHI) characterized the situation this way, "My sense is the public attitude about hydro is mixed. People are conflicted. When they think about it initially, they like the idea it's renewable. On the other hand, it has the potential to cause serious damage when you insert dams into free-flowing rivers. I don't think you will see many new dams built in the United States in the near future."

Rather than build new dams, environmentalists are lobbying to remove them from rivers that have migrating fish such as the salmon in the Columbia River. Besides storing potential energy to generate electricity, people often lose sight of the vital role dams play in flood control, irrigation and creating lakes to store water supplies and for recreational use.

"I think our best hope for additional near term hydro is the powering of non-powered dams. The dam is already there and the environmental impact has either been accepted or mitigated," ventured Doug Hall, program manager for water energy at the Idaho National Laboratory (INL). Adding capacity to existing hydro plants is another option. Replacing older turbines with newer, more efficient ones can gain significant power output with the same water flow, by as much as 15 percent.

INL is a science-based, applied engineering national laboratory that supports the United States' Department of Energy's missions in nuclear and energy research, science and national defense. It is also the leading authority on hydropower's potential. In 2004, with the assistance of the United States Geological Survey, INL completed a major water energy assessment of all 20 hydrologic regions in the United States.

Anyone is interested in exploring the water power potential in their area should

See HYDRO POWER, Page 7

A Letter from the Editor

Dear Readers,

Happy holidays to you all. Whichever holiday you happen to celebrate, I hope it's filled with family, good friends, good food and enough rest to see you through 'til the next holiday.

Red, white and green have always been the colors of the season, but this season, the color green may be eclipsing the others. The environmental movement is pushing its way into some of our most deeply-rooted holiday traditions, but I think that most folks will see that the changes it's bringing make good sense both environmentally and economically.

Instead of chopping down a tree from a tree farm, many families this year will be decorating live trees in their living rooms. Not only will a well-kept live tree not shed its needles, but it also won't dry out and pose a fire hazard when draped with warm lights. And when the holidays end, that tree can be planted out in the yard rather than set at the curb.

And speaking of warm lights, the hot-burning strands of incandescent lights are old technology. Now, one can do their holiday lighting with strands of cooler-burning, more efficient LED bulbs. Not only do they burn brighter and with truer colors, but they also draw less power, leaving the user with lower power bills and more money for holiday festivities. And when LED's are coupled with a timer that turns them off during the hours that no one will see them, the savings, in both money and carbon emissions, can really add up.

Speaking of saving money, don't be piqued if your presents come wrapped in newspaper this year. Many environmentally-minded people will be saving their old newsprint to use instead of purpose-bought wrapping paper. It's cheap, easy to recycle, and if you use the Sunday comics, just as colorful as the other stuff. So go ahead and use this issue of American Recycler to wrap some gifts (after you've read it cover to cover, of course). Think of the positive message you'll be sending – not only will you be saving the earth, but when you use AR to wrap a gift, the recycling message will be printed all over it.

Again, happy holidays everyone. Be on the lookout, and I'm sure you'll see these practices, as well as other not mentioned here, being implemented by even the most tradition-minded families. Please enjoy this edition of American Recycler, and consider putting it to good use once you're through.

Warm wishes for you and yours,

Dave Fournier
Focus Section Editor

Solar Technology Acceleration Center provides new tech testing grounds

Members of the Solar Technology Acceleration Center (SolarTAC) and supporters convened in Aurora, Colorado to mark a milestone in "powering up" one of the world's largest solar test and demonstration facilities. Since announcing the initial launch of SolarTAC one year ago, the site infrastructure development has progressed to the point where members can now break ground for their planned solar technology implementation and testing.

SolarTAC originated when six public and private sector entities – Abengoa Solar, the City of Aurora, the Colorado Renewable Energy Collaboratory, Midwest Research Institute (MRI), SunEdison, and Xcel Energy – joined forces to build a site where member companies can bring their early commercial or near-commercial stage solar technologies for testing and demonstration under actual field conditions.

This occasion also included the announcement that the United States Department of Energy's National Renewable Energy Laboratory (NREL) and the Electric Power Research Institute (EPRI) have both signed letters of intent to join SolarTAC.

By the end of this year, nearly $1.8 million of infrastructure work will be completed by MRI, SolarTAC's management and operating contractor, to prepare the site for member companies to move in equipment and construct member-specific facilities. The work includes grading, drainage and soil erosion control, access roads, electric power supply and distribution, fire protection, sewer and water lines, communications lines, fencing and security.

"We have made steady progress in developing the SolarTAC site and in identifying potential new member companies that will further accelerate the commercialization of solar technologies," said Roger Harris, Ph.D., MRI associate vice president and director of Energy and Life Sciences.

NREL membership in SolarTAC will allow the national laboratory to better engage with industry to solve challenges in increasing the amount of solar electricity produced in the States. Among other projects, NREL will install a $2 million pilot-scale advanced thermal energy storage test and evaluation facility at SolarTAC to help improve heat storage technologies that can offset variability.

At this stage in the site development, Abengoa Solar and SunEdison are ready to begin installation of equipment and facilities for testing and evaluation of advanced solar technologies.

SunEdison's initial deployments at SolarTAC will include a proprietary, low cost, recycled, ballasted ground mount system designed for installation on a variety of ground conditions. The array will include examples of all major photovoltaic (PV) module technologies, including: standard and high efficiency crystalline silicon, amorphous silicon (a-Si), cadmium telluride (CdTe), copper indium diselenide (CIS) and both low and high concentration PV systems.

The initial array will also be used for expanded testing of distributed direct current power management and advanced inverter technologies that offer the potential to significantly increase energy yield. The arrays will be monitored using the SunEdison Energy and Environmental Data System (SEEDS). SolarTAC will serve as an important beta test site for SEEDS as new capabilities are added.

In the future, SunEdison plans to gradually increase the number and variety of module technologies deployed on the site and will leverage SolarTAC to validate new mounting systems, installation methods, and electrical configurations to minimize cost and maximize energy harvest. SolarTAC will provide a test-bed to study forecasting, variability, energy storage, and reactive power control along with other methods and technologies to ensure safe and reliable interconnection of high penetration levels of PV on the grid.

The Abengoa Solar Facility at SolarTAC will be used for testing, validating, and demonstrating advanced and emerging concentrating solar power (CSP) technologies, including outdoor studies and readiness deployment of prototype systems. Abengoa Solar currently plans to install an operational scale CSP collector loop and associated assembly building at the site to test and validate new designs of its technologies.

At the event, Abengoa Solar displayed several modules of the Astro, one of its established concentrating solar collector designs.

During the event, the nearly 150 attendees were updated on the site development plans, and had an opportunity to see solar technology demonstrations led by Abengoa Solar and SunEdison representatives.

Upcoming Section B editorial focus topics

ISSUE	CLOSE	FOCUS
JAN	12/17	Auto
FEB	1/19	Tires/Rubber
MAR	2/16	C&D
APR	3/17	Solid Waste
MAY	4/16	Auto
JUN	5/16	Plastics
JUL	6/17	Wood/Green Waste
AUG	7/16	Solid Waste

Siemens Energy to supply coal gasification technology

Siemens Energy, Inc. has been chosen to provide the coal gasification technology for the Taylorville Energy Center (TEC), the 730-megawatt advanced clean coal generating plant being developed near Taylorville, Illinois.

The (TEC) will be one of the nation's first commercial-scale, coal gasification plants with carbon capture and storage (CCS) capability.

Tenaska, managing partner for the $3.5 billion project, has signed equipment contracts and licensing agreements with Siemens for four gasifiers that will convert Illinois coal into substitute natural gas. The gas will be used for electricity generation or fed into the interstate natural gas pipeline system.

TEC's integrated gasification combined-cycle technology also will capture and provide storage for at least 50 percent of the carbon dioxide (CO2) that would otherwise enter the atmosphere.

Said Michael Suess, CEO of the fossil power generation division of Siemens Energy, "By capturing and storing at least 50 percent of the CO2 it produces, TEC will have emissions comparable to a natural gas-fueled plant."

TEC is in advanced development, with the front end engineering and design (FEED) work required by the Illinois Clean Coal Portfolio Standard law under way. The FEED is expected to include more than 100,000 work hours by the time its facility cost report is presented to the Illinois Commerce Commission in early 2010. TEC is projected to be completed and in operation in 2014.

The United States Department of Energy has supported the TEC by choosing Tenaska to proceed into the term sheet negotiation phase under the DOE Loan Guarantee Program. Upon completion of due diligence and negotiation of the termsheet and guarantee documentation, the Taylorville project expects to receive a federal government guarantee of its debt of up to $2.579 billion, depending on the final project costs and capital structure, which will greatly reduce financing costs.

Converting cooking grease to methane gas

by IRWIN RAPOPORT
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Restaurants across America generate a massive amount of waste cooking grease, oils and fats on a daily basis, much of which either ends up in landfills or is poured down drains where the substances are either processed in wastewater treatment plants, coat and clog sewers or contaminate the ecosystem.

Efforts to re-use this resource include using grease as a transportation fuel source for vehicles with engines modified to burn it, but this idea still has limited application.

Disposing of this grease is becoming harder as more landfills no longer accept it and cities that formerly processed grease from outside cities and counties, now only accept locally produced grease. Hence, disposal fees are increasing, which impacts cities and restaurants.

However, Riverside, California, with nearly 300,000 residents, is utilizing the grease collected from restaurants to increase production of methane gas, which is used to power the city's water treatment plant.

A local waste management company collects the grease from area restaurants, pre-treats it (rendering and screening the grease) and then transports it to the City's wastewater treatment plant for injection into the plant's anaerobic digesters. Riverside, like most major metropolitan areas, requires restaurants to properly and environmentally dispose of the grease they generate. Thus the collection service is something restaurants would be in need of regardless of the program.

"Restaurant grease is an untapped source of energy that is not being harvested," said David Wright, general manager of Riverside Public Utilities.

Wright's department allocated more than $16,000 to the public works department, which in April 2005, initiated the pilot phase of the grease-to-gas-to-power program to increase production of a highly renewable fuel. The program was developed by Riverside's wastewater staff that learned about the possibility of using grease from industry publications that were following ongoing experiments at the time.

"Following a test period that lasted for several months, analysis of the data supported the economic viability of the program and it was continued on a full-time basis in April 2006," said Richard Pallante, Riverside's Wastewater Systems manager and one of the project designers.

"It has been very valuable to the community," said Kevin Street, Riverside's regulatory compliance manager. "We are not the only city doing this. There are some industries that have already implemented similar technology, but we are one of the few cities in the country to have such a grease-to-gas-to-power program."

Street stressed that pre-treatment of the grease is essential, as it removes some of the larger debris which could negatively impact the injection process if it enters the system.

"It also provides a mechanism to ensure consistency with the quality of product that we are getting," he said. "In the wastewater treatment business, anaerobic digestion of solid waste is common practice. The breakdown of solids is enhanced with the addition of restaurant grease as is methane gas production. For us, adding grease to the digesters not only increased the amount of methane we produce, but also the quality."

The additional methane gas produced from restaurant grease now allows the city to run two of its three cogeneration engines at the plant around the clock, producing an average of 1.5 to 1.7 megawatts of power. Through cogeneration, the waste heat produced by combusting methane in engines producing electricity is recovered, which allows the city to reduce its purchase of natural gas.

Riverside anticipates the grease-to-gas program will save the city millions of dollars by reducing the amounts of electricity and natural gas purchased to run the wastewater treatment plant. In terms of actual savings, studies showed that between May and November 2006, the city saved $85,000 a month in natural gas expenses by using restaurant grease as a cogeneration fuel.

In-house staff was responsible for the design, construction and launch of the program. Developing the program cost the city about $100,000.

Thus far more than 40 cities across the United States have contacted city officials to learn more about the program.

Riverside's program has been recognized and this has translated into prestigious awards such as the American Public Power Association Energy Innovation Award (2007), the California Utilities Association Efficiency Award (2007), The League of California Cities Helen Putnam Award for Planning and Environmental Quality (2007) and the Southwest Coast Air Quality Management District's 20th Anniversary Clean Air Award (2008).

"In October we had folks from other agencies on-site taking pictures and being briefed on our program," said Street. "One of the major attractions of what we have done here is that with a relatively small budget, a little investment on-site with the staff at the plant and the resources that we had available, we were able to put up a functioning system for a relatively low cost. Our system may have some limitations, but as far as starting out as a public pilot project and moving to full production, it has been extremely successful."

Street's explanation matches the view that many advocates of alternative energy stress – that the equipment and

See GREASE GAS, Page 6

EQUIPMENT SPOTLIGHT

Solar Powered Systems/Products

by MARK HENRICKS
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After many years of innovation and investment, modern recycling equipment provides a host of cost-effective, environmentally sustainable ways to turn what was once waste into useful products. In many cases, recycled materials are cost- and quality-competitive with other sources.

The same has not been true of solar energy, which has traditionally been seen as a luxurious indulgence of sustainability initiatives, rather than as a way to save money – or at least break even – while replacing less environmentally desirable fossil and other fuels. But, after its own cycle of creativity and effort – bolstered significantly by recent government financial support – the solar energy industry is closer than ever to breaking through as a technology that makes economic, as well as environmental, sense.

Frank Middleton, vice president of marketing for Opel Solar, Inc. of Shelton, Connecticut, said that grid parity, the Holy Grail of the solar energy industry, may be broadly achieved within the next year or two. Grid parity refers to the comparison between the cost of solar-generated electricity and that produced from other sources.

Right now, solar energy generated by photovoltaic systems that convert sunlight into electricity costs about $2 per watt, Middleton said. That's not competitive with the least expensive conventional sources, such as the coal-fired utility power plants that are common in many areas of the United States. But it's down from about $4.50 per watt from two years ago, Middleton said. "And we expect that to continue," he added.

Photovoltaic is already approximately equal to the cost of conventionally-generated electricity in some places where electricity is particularly costly, including Italy, Middleton said. It may achieve grid parity in Southern California sometime during 2010, he said, adding that the rest of the world will follow as soon as 2012.

Thus far, the solar energy industry has been largely supported by government subsidies. Middleton said Japan and Germany kicked off a major round of innovation and interest in the industry in 2005 by instituting incentives. He said that is enough to help things get started, even though it won't work long term. "We need to be able to generate electricity from PV panels and compete without the need of subsidies," he said.

Opel sells high-efficiency concentrating photovoltaic panels that generate almost twice as much electricity as conventional solar panels. These are suitable for large utility installations generating megawatts or hundreds of kilowatts of power. The Company also sells trackers, which are assemblies on which conventional panels can be mounted and then automatically turned to face directly toward the sun as it travels across the sky.

Trackers can increase efficiency of conventional panels by 20 percent to 45 percent, and may find uses in recycling-related applications such as creating solar energy installations on covered-over landfills. "That is a perfect application for solar energy, especially mounted on trackers," said Middleton. "It's land that can be reused to generate electricity."

Solar energy and the recycling industry occupy the same space – finding commercial opportunities in the drive to improve sustainability and reduce the impact of human activities on the environment. As such, they together represent an opportunity to achieve something of a double whammy when it comes to cost reduction and green business. That opportunity resides in employing the sun's energy to power recycling equipment, and it's still very much a wide-open niche in the recycling world.

At the moment, only a couple of companies manufacture standard products that marry the environmental benefits of solar energy and recycling. BigBelly Solar of Needham, Massachusetts, has installed its solar-powered recycling and trash compactor collector stations in cities and other venues across the United States. Richard Kennelly, vice president of marketing, said the combination addresses a specific problem for municipalities and similar entities.

BigBelly Solar

For instance, Kennelly points to the city of Philadelphia where, until last April, there were no downtown sidewalk recycling containers. "If you or I were walking down the sidewalk in Philly and had a can or soda bottle, you'd just put it in the trash," Kennelly said. The obstacle was that it cost too much to drive a collection vehicle to each container numerous times per week to empty the container and transport the materials to a recycling station. So Philadelphians had no choice but to send recyclable materials to the landfill.

However, by replacing 700 55-gallon litter baskets in downtown with 500 solar-powered trash compactors, each capable of holding 200 gallons of compacted waste, the city was able to save enough on trash collection trips to a recycling program. "They went from 17 collections per week to 5 collections," Kennelly said.

The 210 recycling containers placed next to the trash compactors don't compact the materials placed within them. Kennelly said that soda bottles and cans and other springy recyclable materials aren't suitable for compacting in this application. However, by saving on waste collection trips, the solar-powered trash compactors make the un-compacted recycling collection trips economically viable.

Solar has yet to achieve a noticeable presence in other areas of recycling. Kennelly said that, while something such as a solar-power car crusher is technically feasible, it doesn't make as much sense as the solar-powered compactors. "A lot of recycling equipment is located in buildings where there's readily available A/C power," he noted. "So most things plug in." The compactor-collector stations, on the other hand, may be located on downtown streets or other locales far from any available connection to the power grid.

In 2010, BigBelly Solar plans to introduce a larger line of solar-powered compactors. These, in sizes from 2 cubic yards to 30 cubic yards, will be marketed with the assistance of their strategic partner, Waste Management, to shopping centers and other compactor users. Kennelly expects positive results from their move into a larger market. "Everyone's trying to find ways to save money, and the BigBelly is a cost-saver, particularly if you're trying to introduce recycling by reducing the number of collections you do," he said. "It ends up being a very effective way to achieve recycling and waste management goals."

Opel Solar, Inc.

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OriginOil cleans water and energizes algae

by IRWIN RAPOPORT
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With the growing worldwide demand for energy, research is ongoing to secure oil and gas from alternative sources that are environmentally-friendly and utilize waste resources. OriginOil, Inc., based in Los Angeles, is developing proprietary technologies to create innovative surface-mounted systems to treat wastewater and produce algae that would produce renewable oil.

"The new system helps pursue clean water goals while generating algae for fuel and other valuable products in wastewater treatment plants," said Dr. Vikram Pattarkine, OriginOil's chief scientist. "We want to utilize all types of waste resources in terms of carbon dioxide, nutrients and energy to create biomass. The fastest growing biomass that we know of is algae. It doesn't require fresh or potable water and, because it can use wastewater, it does not compete with other uses for water, such as irrigation. Algae can grow in marginal and brackish water and can also be grown on wasteland."

OriginOil CEO Riggs Eckelberry stressed that previous attempts at using surface-mounted algae were not very scalable.

"Our Attached Growth System delivers scalability and throughput in an industrial process that delivers light more efficiently to grow algae for fuel and helps process wastewater at the same time," he said.

The company recently filed for patent protection of the new Attached Growth System (AGS), its ninth patent application, titled Methods and Apparatus for Growing Algae on a Solid Surface. OriginOil will integrate the process into the demonstration algae system now being built at its headquarters.

Pattarkine said that growing algae in water is a challenge because as it grows, the algae thickens and stops light.

"One solution is OriginOil's Helix Bioreactor™, which puts the lights inside the tank," he said. "Another method is to rotate the algae periodically out of the water so it can be exposed to the light. The AGS uses types of algae that will attach to surfaces rotating in and out of the water, exposing the algae to sunlight or artificial light. At harvest time, the algae is scraped off as sludge, greatly decreasing the energy cost of dewatering during oil extraction.

"In wastewater treatment plants, the AGS can be configured to encourage both algae and bacterial growth," he added. "Combining algal and bacterial growth makes for better nutrient extraction than either one of them alone, contributing to clean water goals while also making fuel and absorbing CO2. We recently demonstrated in our cost analysis at the National Algae Association in Houston that algae can be far more profitable when located in wastewater treatment environments. This technology will multiply the benefit."

Algae, said Pattarkine, is the fastest photo-synthetic organism and that photosynthesis involves the combination of CO2 and water to produce glucose, which is the key to further biochemical reactions. Nutrients to promote algae growth include nitrogen, phosphorous and minute amounts of metals such as iron.

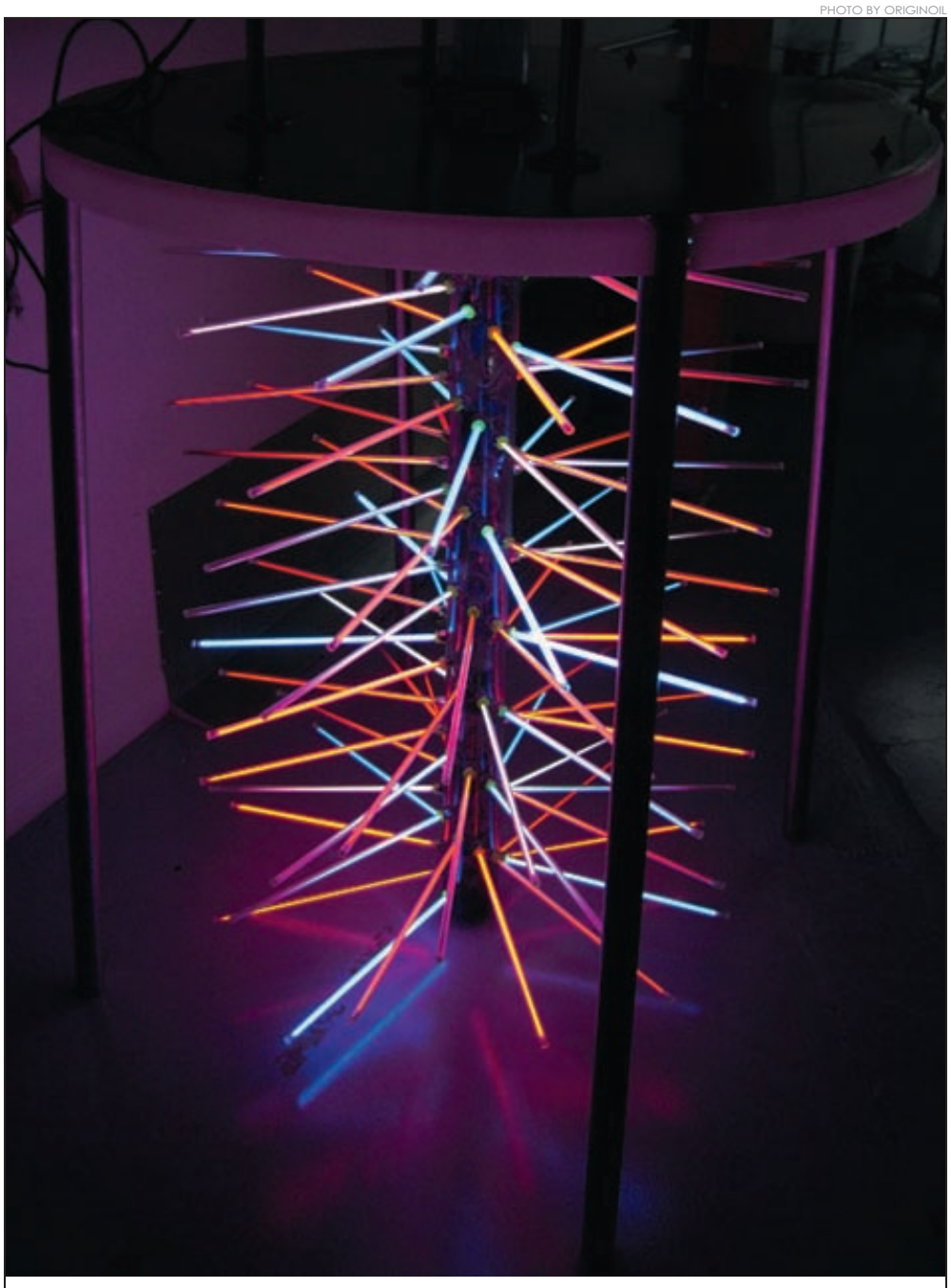
"Global warming is a real issue and we want to look at dealing with CO2 in a reasonable fashion," he said. "We want to get rid of it – and since there is plenty of it available, if you can utilize wastewater simultaneously, you have a winner."

The company is in the process of building a pilot scale plant at its facility in Los Angeles – equipment that can be shipped by trailer to various sites in a city or easily transported around the world.

"Commercial and large scale units are probably a couple of years away," said Pattarkine. "Our systems can be used anywhere in the world and will be piloted in Japan and India. Utilizing wastewater is very appealing in India and we are working there to develop large scale units."

The company said the technology, when fully developed, can be used anywhere in the world and the production process can be adjusted for regional differences.

PHOTO BY ORIGINOIL



OriginOil's lighting assembly for their 200 gallon, mid-sized prototype. The in-tank design is meant to overcome the difficulty of delivering light to algae as it thickens and stops outside light.

PHOTO BY ORIGINOIL

Here, two incubations of nannochloropsis algae are separated for parallel testing. The algae can grow in marginal and brackish water and can also be grown on wasteland.

"The advantages are that you have a huge quantity of water, and algae also requires a huge amount of water," said Pattarkine. "In order to get 1 ton of algae, you need to process nearly 1,000 tons of water. Wastewater treatment plants have that water-handling capacity. By retrofitting plants to remove the nutrients from wastewater to produce algae, we can also eliminate the costly tertiary stage of wastewater treatment. This will also prevent phosphates from ending up in lakes, rivers and bays such as San Francisco Bay, which provide critical wildlife habitat."

The water used for algae production can be reused repeatedly, which means that it does not have to be replaced.

Pattarkine also noted that first and second generation biofuels such as ethanol and biodiesel which use corn, soybeans, and sugarcane, compete with food production, which has had negative impacts on food supplies and prices.

He added that the current oil and gas refinery energy model is now cost-effective because it does not account for all of the costs, such as CO2 emissions, global warming, and environmental damage.

"Future generations will have to pay for that and if we want to have a sustainable model for our energy use, that model will have to change," said Pattarkine.

A Closer Look

by Donna Currie

Waste Reduction Technologies

Riley Hagan • 225-927-2019

—Riley Hagan III

In 2008, Riley Hagan purchased Crochet Equipment Company, a 34 year old manufacturer of industrial incinerators, and named the new company Waste Reduction Technologies, reflecting the fact that incineration technology reduces the amount of waste that ends up in landfills.

An added bonus is that the incinerators can be fitted with waste-to-energy units to create energy. With the decrease in waste disposal fees, plus the value of the generated energy, the payback on these units can be as little as two years.

While Waste Reduction Technologies sells stand alone incinerators, Hagan said the waste-to-energy add-ons "lend themselves to be fitted with boilers and turbines" and are a good fit "when there's a proximate need for hot water and steam." One industry where this application is particularly useful is in food processing plants that use the resulting steam in their cooking, canning, sanitizing and heating.

Currently, Waste Reduction Technologies is building a new waste-to-energy system that will be shipped to Iceland. The unit will generate both steam and electricity. Hagan explained that the sparse population in Iceland means people live in small, isolated villages with few public utilities. It makes sense to burn the waste material and generate energy locally, so each village can be more self-sufficient.

Closer to home, Hagan said incineration technology is becoming more important as landfills reach capacity. "We've got a pretty elegant solution to a tough problem." Landfills that were designed in the 1950's and earlier used projections that were "way too low" in terms of population density.

Landfills that were on the edge of populated areas when they were built are now inside the cities, rapidly filling, and finding space for new landfills is difficult. Newer landfill sites are farther from the cities, adding to the cost of transportation by "burning up huge amounts of fossil fuels," and relying on old technology. "You're still filling up a hole in the ground," Hagan said.

Incineration is no longer the old "put it in a fire and burn it" method that produced unpleasant smoke and ash. "It's the best of both worlds," Hagan said of current incineration plants. The landfills are seeing a reduced volume of waste, and the high heat and new technology burns the material cleanly, "without the air getting polluted."

Hagan explained that the material is burned in two stages. The first time, the waste itself is burned, and then an afterburner cleans up the smoke and particulates. According to Hagan, visible stack testing shows "zero percent opacity" and exhaust is particulate-free. All you can see coming out of the incinerator's stacks is the ripple effect from the heat.

When Hagan bought the company almost two years ago the employees stayed with the company, including the previous owner who stayed on to help with the transition to new management, and will retire at the end of this year. Hagan hired some new people, bringing the number of employees up to about 15, and business remains solid. "We think we've got a pretty full plate going into next year," Hagan said.

Helping the company's future, according to Hagan, is that there are tax incentives for green projects, so those projects are getting more attention from industry. But even before those incentives, Hagan said that incineration made economic sense, just because of the high cost of waste disposal and the lack of landfill space.

Besides being useful in traditional manufacturing, Hagan explained that incineration is also ideal for animal crematoriums, for disposing of pathogens and medical waste, and for other applications where biological contamination might be an issue. Law enforcement applications include disposal of narcotics, and disposing of plant materials confiscated by customs agents at airports.

While the business has its challenges, and the economy has taken its toll on the ability of customers to get financing, Hagan looks forward to a bright future, with growth in both domestic and international business and continued "cutting edge R&D" for new products. Trained as an engineer, Hagan said that he's most happy to be part of "a logical, efficient solution to a difficult problem."

Bulgaria set for massive growth in wind power

Recent wind-energy workshop attendees have been told that Bulgaria is set to dramatically expand its wind power output in the next 10 years. From the current 330 MW installed to over 3,000 MW by 2020, wind energy will meet 13.5 percent of Bulgaria's electricity demand.

The workshop, organized by the European Wind Energy Association (EWEA) in cooperation with the Bulgarian Association of Producers of Ecological Energy (APEE), pooled industry, government representatives, and national electricity companies together to discuss the potential for wind power development in the country.

"With installed capacity increasing more than fivefold in less than two years, Bulgaria is one of the fastest growing markets for wind energy in the world. Moreover, it has another 8,000 MW of wind projects in the pipeline. If current planning and grid access barriers are streamlined, Bulgaria will soon be one of Europe's wind energy front-runners, reaping the economic benefits in the form of new jobs, reduced fuel import dependency and technology development," said Christian Kjaer, EWEA's chief executive.

The EU directive establishing mandatory targets for renewable energy for all EU Member States requires Bulgaria to increase the amount of renewables in its energy mix to 16 percent by 2020, up from the current level of 9.4 percent. Bulgaria must submit its national action plan – outlining the measures it will take to boost renewable energy – by June 2010.

Kostadinka Todorova, director for Energy Efficiency and Environmental Protection at the Bulgarian Ministry of Energy, said that the administration is well on track to submit the first forecast document to the European Commission. "We are working on a new renewable energy law. Once in place, it will attract even more investment to the sector in Bulgaria," she said.

"Bulgaria is well placed to exceed its target, which would allow it to create revenues by selling excess Bulgarian renewable energy production to Member States struggling to meet their targets. This could create revenues of 15-20 billion Leva by 2020 (EUR7.5-10bn)," said Velizar Kiriakov, APEE's President

"Investors and developers have already shown strong interest – demonstrated by the fact that wind energy capacity will have doubled by the end of 2009 compared to the previous year," added Kiriakov. "Wind energy offers highly workable solutions to the current triple-layered crisis – climate, financial and energy. Bulgaria must not miss the chance to create a new industry which will bring investments and create thousands of new jobs, curb CO2 emissions, and ease the dependency of the country from neighboring fuel exporting nations," he concluded.

In 2008, 36 percent of all new electricity generating capacity built in the EU was wind power, ahead of coal, gas and nuclear. On average, 20 wind turbines were installed for every working day of 2008. By the end of 2008, a total of 160,000 workers were employed directly and indirectly in the sector, which saw investments of about 11 billion Euros in the EU.

Grease gas

■Continued from Page 3

technology needed to generate such energy is currently available.

Street believes that Riverside's success can be replicated in many cities, provided the proper planning and infrastructure to match the annual grease supply are put in place.

Riverside operates two 1.3 million gallon digesters in conjunction with its grease injection system. The two digesters collectively consume an average of 32,000 gallons of grease per day.

To further enhance energy production at the plant, the city recently installed a fuel cell which uses digester produced methane as its primary fuel. The fuel cell has increased on-site power production to up to 3 MW.

"This will allow the wastewater treatment plant to be even closer to energy independence," said Street. "Even though we are only using grease at this time, it's important to note that there are other waste streams that can be injected into the digesters which may have similar benefits."

Such sources include materials high in sugar and grease content.

Riverside, which in 2005 adopted a Green Action Plan in regards to everything from power generation to tree planting, has kept its citizens informed about the success of the grease-to-gas program through the city's website, public forums and council meetings.

A barber gave a haircut to a priest one day. The priest tried to pay for the haircut, but the barber refused, saying, "You do God's work." The next morning the barber found a dozen bibles at the door to his shop.

A policeman came to the barber for a haircut, and again the barber refused payment, saying, "You protect the public." The next morning the barber found a dozen doughnuts at the door to his shop.

A lawyer came to the barber for a haircut, and again the barber refused payment, saying, "You serve the justice system." The next morning the barber found a dozen lawyers waiting for a free haircut.

Hydro power

■Continued from Page 1

visit http://hydropower.inel.gov/prospector/index.shtml. There, the Virtual Power Prospector geographic information system (GIS) application displays all natural stream water energy resources in the United States. By displaying maps of potential hydro sites and existing infrastructure, detailed information is available.

Based on this study and additional research, INL released its Feasibility Assessment of the Water Energy Resources of the United States for New Low Power and Small Hydro Classes of Hydroelectric Plants. For study purposes, low power was defined as 1 megawatt or less and small hydro from 1 to 30 megawatts. INL estimated the power potential for sites not requiring a dam or reservoir based on using penstocks (a pipe that takes water from a higher elevation to a turbine at a lower elevation).

"Using very conservative assumptions on how much developable hydro power there is available; we identified 130,000 sites in the States that represent 30,000 megawatts of annual average power. Today there are about 2,300 hydroelectric plants in the United States with a cumulative annual average power of about 35,000 megawatts. So, there is the theoretical potential of nearly doubling hydroelectric production," said Hall. Again, that is without building new dams or reservoirs.

Worldwide during 2008, small hydro installations grew by 28 percent over 2005 to raise the total small hydro capacity to 85 gigawatts (GW). Over 70 percent, or 65 GW of new, small hydro was in China, 3.5 GW in Japan, 3 GW in the States, 3 GW in India and the balance in a number of other countries.

Using water energy that runs through pipes at irrigation projects and water treatment plants is also a greatly underutilized asset. An example of what can be done is found at the Deer Island Wastewater Treatment Plant in Boston. After wastewater is treated, and before it discharges into a 9.5 mile outfall tunnel into Massachusetts Bay, the water drives two, 1,000 kilowatt generators. In August, the project submitted an application for certification to the Low Impact Hydropower Institute. If certified as environmentally responsible, the project may become eligible for carbon trading credits, green energy bonds and can be added to a renewable energy portfolio.

Microhydro, generally defined as less than 100 kilowatts, has experienced a revolution over the past decade, particularly due to technology advances in microturbines that require as little as a few quarts or gallons of water per second to generate electricity. Individuals, both on and off the grid with access to even the smallest water flows are generating their own electricity. Advances in micro circuitry and dropping prices for charge controllers, batteries and small inverters have made this possible. "It's a niche market, but one that is growing," said Denis Ledbetter, owner Lo Power Engineering. His company manufactures microturbines costing from $1,800 for a 50 watt unit to $2,150 for 1,500 watts. They use a multi-cupped Pelton design waterwheel mounted inside a metal case that is driven by a jet, or multiple jets of water. The turbine drives a standard automotive alternator to charge a bank of batteries. Once the batteries are charged, DC power can be fed to an inverter for conversion into AC for home use. Without labor, and depending on the size and length of the penstock, complete microturbine systems typically cost in the range of $5,000 to $10,000 dollars.

A telltale sign of what's happening in a variety of hydro projects is the soaring increase in the number of preliminary permits issued by the Federal Energy Regulatory Commission (FERC). Part of the increase is due to a pilot license program to encourage hydrokinetic and wave energy projects.

A highlight example of FERCs expedited approach is the 100 kW Hastings Minnesota project that was commissioned last August to become the country's first federally licensed hydrokinetic power plant that is grid-connected. Hydrokinetic is different than a conventional hydroelectric. A turbine placed in a river, man-made channel, tidal flow or ocean current captures energy from moving water at low speeds without requiring a dam or diversionary structure to direct the flow.

FERC approved this first commercial hydrokinetic project at Hastings in December 2008 and it came online nine months later – lightspeed compared to FERC's traditional standards. This turbine, installed in the flow of the Mississippi River, is generating electricity around the clock except for occasional maintenance. The project is also a prototype for long-term study of the main environmental objection, fish endangerment. A preliminary study conducted by Normandeau Associates, a leading environmental consulting firm, indicated an estimated 97.5 percent fish survival rating for the turbine. Of course, environmental studies will continue during the demonstration phase and the project can be challenged by any number of federal and state agencies or private interests before it can be fully licensed.

Putting low-speed turbines in rivers holds promise for putting clean, renewable electricity onto the grid in a timely manner, if the environmental concerns can be overcome. Infrastructure costs are comparatively low. Turbines can be suspended from anchored barges as done at Hastings, or mounted on the riverbed. Transmission lines can be buried in river beds and major rivers, the most suitable for hydrokinetic, already have robust transmission infrastructure along their banks. Large cities located on rivers with high power demand could be the prime beneficiaries.

"The people at FERC are very aware of the criticism of how long the licensing process takes. They will tell you that if you have projects where no one is particularly concerned about the impact, for example, on man-made canals running downhill where you need to slow down the flow of the water, those kinds of projects could be licensed reasonably quickly," said Doug Hall at INL. A FERC license typically takes from three to eight years. Because FERC regulates the process, a project is open for review by all the federal resource agencies as well state and local agencies, groups or individuals. This is not the case for wind and solar projects since a FERC license is not required.

"The FERC process is too long, but they try to meet everyone's needs. Before 1969 we didn't have many environmental statutes in this country. In the mid to late 80s, FERC started to pay closer attention. The licensing process is certainly not perfect but they are tremendously ahead of where they were 50 years ago. They deal with a lot of important issues that are not always easy to resolve. It can be very time consuming and a very expensive process," said Fred Ayer at LIHI.

Another FERC sanctioned demonstration project is the Roosevelt Island Tidal Energy (RITE) project in New York City's East River (a tidal estuary). Over the past 2 years, Verdant Power operated 6 turbines, each with 16-foot diameter rotors to demonstrate the system as an efficient source of renewable energy. Over 9,000 turbine-hours of operation, the system produced 70 megawatt hours that were delivered to two end users. Bidirectionally powered by both ebb and flow tides, turbines are automatically controlled for continuous, unattended operation. Now going into Phase 3, the company plans to build greater capacity through 2012. Because tides run like clockwork, electric production is predictable.

In January, defense contractor Lockheed Martin announced a partnering agreement with Ocean Power Technologies (OPT) to build utility-scale wave generation projects on the Pacific coast. FERC issued preliminary permits for four sites in California and Oregon. These projects will use OPT's PowerBuoy technology that has been tested in several small demonstration projects, including one with the Navy in Hawaii.

Arrays of PowerBuoys will be anchored offshore. Waves move a buoy up and down and a power take-off system generates AC electricity that is sent to shore on a seabed cable to the grid. Sensors on the buoy monitor subsystems, ocean conditions and real-time data is sent to shore. If waves become too high, the system automatically stops power production. When waves return to normal, power production resumes.

The Energy Improvement and Extension Act of 2008, included a new PCT for marine and hydrokinetic facilities deriving energy from waves, tides; currents in oceans, estuaries and tidal areas; free flowing water in rivers, lakes and streams; free flowing water in irrigation systems, canals, or other man-made channels, or from differentials in ocean temperatures. Such facilities must have a nameplate capacity of at least 150 kilowatts and be in service before January 1, 2012 – a very tight window for hydro development. The corporate tax credit is 1.1 cents per kilowatt hour.

Developers would be further encouraged to build hydropower if they could bank on generous, long term state tax benefits or incentives or renewable energy incentives from utilities.

Everyone constantly decries our dependence on imported oil when the United States has some of the most abundant water resources on the planet. Moving clean hydropower onto the grid in a responsible environmental manner should be a high priority.

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