

Waste Recovery Report

recycling, reprocessing, and reusing resources

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E-waste bill is moving through the New Jersey legislature

The Assembly Appropriations Committee of the New Jersey Legislature has approved Assembly Bill A3572, The *Electronic Waste Recycling Act*. This is a substitute version of Senate Bill 455, regulating the management of electronic waste in the state.

In general, the legislation covers computers – including monitors but not the processors in automobiles or appliances – and TV sets. Manufacturers selling products in New Jersey will be expected to register and participate in a statewide recycling program. This includes paying a portion of the collection, transportation, and recycling costs incurred by authorized recyclers based on the company's market share. As an alternative, the manufacturers may – individually or in groups – operate their own recycling systems.

The act also prohibits recycling by prison labor and disqualifies convicted felons from becoming autho-

rized recyclers. In addition, it specifies that all covered devices comply with the provisions of Directive 2002/95/EC of the European Union.

Under the law, retailers could sell only products made by registered manufacturers. They would also have to distribute recycling information provided by the state to customers. A copy of Bill A3572 is online at www.njleg.state.nj.us/2006/Bills/A4000/3572_U1.HTM; alternately, contact New Jersey Office of Legislative Services, Room 50, Box 068, Trenton NJ 08625-0068, 800-792-8630 or 609-292-4840.

Maine regional waste management group is ISO certified

Ecomaine, a regional waste management entity owned and operated by 21 municipalities, has again received certification by the International Organization for Standardization (ISO). Ecomaine's waste-to-energy, ashfill/landfill, and recycling plant was declared in compliance with the ISO 14001 Environmental Management System Stan-

dard. The certification was first awarded to Ecomaine in 2002, and is subject to revisitation at three-year intervals, based on compliance audits conducted on-site every six months. For more information, contact Anne Hewes, Ecomaine, 64 Blueberry Rd, Portland ME 04102, 207-773-6464, www.ecomaine.org.

Metals can be separated from e-scrap electrostatically

Electrically conductive and non-conductive particles can be separated from electronic and cable scrap using electrostatic techniques. A system developed by Eriez Manufacturing inserts a spinning electrode into a commingled mass of chopped material. A surface charge is applied to the materials through the electrode. The non-conductive substances hold the charge and cling to the rotor. Conductive matter dissipates the charge and is thrown off by centrifugal force. For further information, contact Eriez Manufacturing, 200 Asbury Rd, Erie PA 16506, 888-300-3743 or 814-835-6000, www.eriez.com.

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211 S 45th Street, Philadelphia PA 19104 USA

215/349-6500, FAX 215/349-6502, e-mail wasterec@aol.com

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Editor & Publisher: Alan Krigman

Website: www.wrr.icodat.com

NY bill would mandate health study of crumb rubber in synthetic turf

New York Assembly Bill A09503, a counterpart to Senate Bill S6531, would mandate a public health study involving the use of crumb rubber fill in synthetic turf. Installation of such products indoors and outdoors in the state would be halted for six months or until the outcome of the study is available.

The incentive for the legislation is that the crumb rubber can include various heavy metals as well as components such as acetone, having known adverse health consequences. While some testing of synthetic turf has been conducted to identify levels of various materials likely to be present, more information is considered necessary to make rational decisions on the use of these products. The state recognizes the incentives for recycling old tires. However, it is essential that the subsequent uses not pose health or environmental threats. **For more details, contact Assemblyman Steve Englebright, Legislative Office Building, Room 712, Albany NY 12248, 518-455-4804; a copy of the Bill is online at <http://assembly.state.ny.us/leg/?bn=A09503>.**

Missouri landfill diversion fell in 2006, but still beat state goal

Diversion of waste from landfills was 44% in Missouri in 2006. This was down from 46% in 2005, but was still ahead of the 40% goal established in 1990 by Senate Bill 530. The Dept of Natural resources (DNR) believes the drop was a result of several factors, principally the increase in storm debris after an unusually severe winter, and an increase in the total trash generated from 12.1 MM tons in 2005 to 12.5

MM tons in 2006 – corresponding to 1.13 tons to 1.2 tons per capita, respectively. **For more information, contact Dennis Hansen, MO DNR, Box 176, Jefferson City MO 65102-0176, 800-361-4827 or 573-751-5401, www.dnr.mo.gov.**

Canadian polystyrene recycler shuts its operations

The Canadian Polystyrene Recycling Association (CPRA), an organization formed to recycle and market polystyrene in Canada and the US for its members, has closed its facilities. CPRA had just invested C\$300,000 in new capacity, anticipating a 1,500 metric ton surge from Toronto's having added polystyrene to its curbside collections. However, the Association's Roman Talkowski asserted that the drop in the US dollar reduced its revenues by 30% and made operation unsustainable. Options are being explored – including selling equipment to a larger company which could integrate it into a more comprehensive recycling program. **For more information, contact Roman Talkowski, CPRA, 7595 Tranmere Dr, Mississauga ON L5S 1L4 CANADA, 905-612-8290, fax 905-612-8024, www.cpra-canada.com.**

Sears and K-Mart to phase-out PVC

Sears Holdings Corp will phase-out PVC in the products and packages sold at its Sears and K-Mart stores. The company says it will:

- ▶ identify safer, more sustainable and cost-effective alternatives to PVC and incorporate them into the design and manufacturing process for private label merchandise and packaging;
- ▶ show preference for PVC-free materials that do not contain highly hazardous chemicals, and set a long term goal of sourcing

- bio-based polymers that are sustainably sourced, have higher recycled content, and can be reused, recycled, or composted;
- ▶ show preference for private label merchandise packaging that incorporates the Society of the Plastics Industry labeling system, to facilitate factoring recycling options into purchase decisions by consumers;
- ▶ show preference for private label merchandise marked as PVC-free when true;
- ▶ encourage suppliers to reduce or eliminate their use of PVC in merchandise and packaging;
- ▶ encourage suppliers to utilize the Society of the Plastics Industry labeling system on packaging;
- ▶ encourage suppliers to label their merchandise as PVC-free when true.

For more information, contact Sears Holdings Corp, 333 Beverly Rd, Hoffman Estates IL 60179, 847-286-2500, www.searsholdings.com.

Virginia reports that recycling rose in 2006

The Virginia Dept of Environmental Quality (DEQ) has released figures showing that recycling rate increased statewide in 2006. The rise was from 32.2% to 38.4%, representing a total of 3.7 MM tons in 2006. Gains occurred across the spectrum of materials including paper, metals, plastics, glass, junk tires, used oil, and electronics scrap.

The minimum target rate in the state is 25%, except in regions with low population density or high unemployment where it is 15%. Only 10 regions failed to meet their targets in 2006, compared with 29 in 2005. Those falling under the limit are required to submit recycling action plans to the DEQ. **For more details, contact DEQ, Box 1105, Richmond VA 23218-1105, 804-698-4000, fax 804-698-4500, www.deq.state.va.us.**

Joint venture to build waste-to-energy plants in China

Covanta Holding Corp and Guangzhou Development Industry Holdings (GDIH) will jointly construct waste-to-energy plants in Guangdong province of Southeast China. The annual generation of solid waste in China is presently about 280 MM tons; the Chinese Ministry of Construction plans to raise the level at which this is converted to energy from the current 2% to 30% by 2030. Guangdong province alone produces 27 MM tons of household trash per year.

Covanta already has over 30 such facilities worldwide – predominantly in the US – which convert 15 MM tons of waste to 8 MM MWhr of electricity per year. GDIH is an energy company with experience in building and operating electricity generating facilities. For more details, contact Vera Carley, Covanta Energy, 40 Lane Rd, Fairfield NJ 07004, 973-882-2439, fax 973-882-7076, www.covantaholding.com.

Safety-Kleen expands northeast presence by acquisition

Safety-Kleen System Inc has expanded its presence in the northeastern US by acquiring Advanced Liquid Recycling Inc. Safety-Kleen primarily collects and re-refines motor oil, and also offers parts cleaning and industrial waste management services. Advanced has similar operations, with a customer base of over 6,000 locations. Its resources include three plants, a 140-vehicle fleet, and 160 employees. For more information, contact Frederick Florjancic, Safety-Kleen, 5400 Legacy Dr, Cluster II, Building 3, Plano TX 75024, 800-669-5740 or 972-265-2000, www.safety-kleen.com.

Paper usage growth in China greatly outpaced recycling advances

Consumption of domestically-recovered paper in China grew by 256% between 1990 and 2004. The volume increase was not matched by recovery rate, however; this rose only from 27% to 30%. The disparity resulted from production rising dramatically during the period.

On the other hand, according to a report released by the American Forest and Paper Assn (AF&PA), China is now “by far the largest importer of recovered paper in the world ... [with 2004 volume at] 12.3 MM metric tons ... while the second largest importer, Canada, only imported 2.4 MM metric tons.” Imports in 2005 were even greater, at 17 MM metric tons.

The analysis indicates that a driving factor favoring imports over domestic recovery is quality. “Waste paper from countries such as the US tends to have higher average virgin content (at least in some grades) than much of the waste paper in China.” Further, shipping costs are low. This is because most container traffic is out of China to North America and Europe. And it costs the shipping companies only marginally more to send their vessels back loaded with recovered paper than with them empty – so they can generate income while still offering a low price.

Additional information, not only about China but worldwide, is presented in *Wood for Paper: Fiber Sourcing in the Global Pulp and Paper Industry*. The report is online at www.afandpa.org/temp/AFPA-FiberSourcingPaper12-07.pdf; alternately, contact AF&PA, 1111 19th St NW, Suite 800, Washington DC 20036, 800-878-8878 or 202-463-2700, www.afandpa.org.

New incentives credited with recycling rate rise in CA

California Assembly Bill AB 3056 took effect in January 2007. It is credited with much of the boost in recycling rate to a record 71% in the first half of 2007. Overall, recovery exceeded 6.9 billion beverage containers, 600 MM more than in the first half of 2006. Rates for the most-recycled materials were:

- ▶ aluminum – 83%,
- ▶ glass – 71%,
- ▶ polyethylene terephthalate (PET) – 58%,
- ▶ high density polyethylene (HDPE) – 70%,
- ▶ polyvinyl chloride (PVC) – 12%.

Among other provisions, AB 3056:

- ▶ increased refunds on small containers to \$0.05 from \$0.04 without raising consumer deposits;
- ▶ expanded the state’s Quality Incentive Payment program to increase recovery quantity and quality in curbside collections;
- ▶ established a program to support recycled plastic market development;
- ▶ updated the funding system for supermarket-based recycling;
- ▶ reduced beverage producer payments.

For more information, contact Stephen Bantillo, CA Dept of Conservation, 801 K St, Sacramento CA 95814, 916-323-3836, www.conservation.ca.gov.

State recycling grants awarded in NY

The New York state Dept of Environmental Conservation (DEC) has awarded \$26 MM in matching fund grant to local authorities for equipment, education programs, and other projects. For additional information, contact NY DEC, 625 Broadway, Albany NY 12233-0001, 518-402-8013, www.dec.ny.gov.

Tissue mill enhanced to accept lower-grade recovered fiber

SCA Tissue will upgrade its mill in Menasha WI with enhanced deinking and other features. The \$23 MM project is intended to allow greater use of lower-grade recovered fiber. The move will allow SCA to capture waste paper now being exported to China. The company spent \$7 MM last year to increase capabilities at the installation. The Menasha mill presently converts 300,000 tons per year of reclaimed paper into napkins, towels, bathroom tissue, and wipers sold to commercial and institutional market users such as hotels, restaurants, and schools. **For more information, contact Ronald Thiry, SCA, Box 2400, Neenah WI 54957, 866-722-6659, www.scatissue.com.**

C&D recycling center planned for Richmond VA area

S B Cox Co has applied for state permits to operate a construction and demolition (C&D) debris recycling center in the Richmond VA area. Local authorization has already been obtained.

The projected 57,000-ft² facility, which is expected to start-up in April, will be totally enclosed. The company will separate unpainted wood, concrete, metal, plastics, and corrugated cardboard from the incoming stream – an estimated 60% to 70% of the total – and to ship the material elsewhere for processing. The residuals will be taken to the firm's C&D landfill in nearby Chesterfield County. **For additional information, contact Barbee Cox, S B Cox Demolition Contractors, 901 Potomac St, Richmond VA 23231, 804-222-3500, fax 804-222-7837, www.sbcxdemolition.com.**

Biomass gasification projects receive CA precertification

Four 20-MW projects involving the gasification of biomass derived from post-recycled municipal solid waste (MSW) and other sources have been precertified in California as having renewable energy source status. As such, electricity generated at the facilities qualifies for sale to utilities adhering to the state's Renewables Portfolio Standard.

The developer, World Waste Technologies, plans to build the plants in northern California. They will produce a clean synthesis gas for use in traditional steam boilers. Company officials point out that with this approach, the feedstock is obtained from a post-recycled source – allowing maximum reclamation of useful materials. Moreover, the gasification reaction is anaerobic and therefore has low emissions and high conversion efficiency. **For additional information, contact John Pimentel, World Waste Technologies Inc, 13500 Evening Creek Drive North, Suite 440, San Diego CA 92128, 858-391-3400, fax 858-486-3352, www.worldwasteintl.com.**

Sonoco relocates Charleston SC plant to a larger installation

Sonoco has relocated its Charleston SC recycling plant to a larger, 30,000-ft² materials recycling facility (MRF) on a new 5-acre site. The company's Miles Cohen says that the installation will expand local capacity to process and warehouse corrugated boxes and other grades of paper as well as metals and plastics. It will be able to accept curbside material brought by the public, and can pick up baled, palletized, or containerized materials on its flat-bed and roll-off trucks as well as

loose items in its vans. Much of the output of the facility will be used to produce paperboard at the company's mills. The installation will also prepare recovered paper for export though the nearby Port of Charleston. **For additional information, contact Sonoco, North Second St, Hartsville SC 29550, 800-377-2692, www.sonoco.com.**

Plasma gasification systems sold to Turkey

Kiplasma Industries and Trade Inc of Istanbul Turkey has purchased plasma torch systems and the associated engineering for four reactors at which it will convert 144 tons per day of common hazardous wastes into electricity. The equipment and technology, furnished by Alter Nrg Corp, cost about \$2 MM.

The units are expected to be operational by the end of 2009. Two similar facilities are on-stream in Japan and another two are under construction in India. **For more information, contact Mark Montemurro, Alter Nrg, 910 7th Ave SW, Suite 700, Calgary AB T2P 3N8 CANADA, www.alternrg.ca.**

Waste gasification technology firm gets \$2.5 MM new funding

Ze-gen Inc has received additional funding of \$2.5 MM from Pinnacle Ventures LLC. The company is developing a process that converts municipal waste to a clean synthesis gas for use in generating electricity. The new investment was based on performance achieved at Ze-gen's demonstration facility in New Bedford MA. The money will assist the firm in moving forward on construction of a commercial-scale plant. **For more information, contact Bill Davis, Ze-gen, 70 Franklin St, 3rd Fl, Boston MA 02110, 617-875-1062, www.ze-gen.com.**

Crystalline framework has high methane storage capacity

A newly developed sponge-like crystalline metal-organic framework (MOF) with a surface area exceeding 2,000 m²/g can store 28% more methane than the target set by the US Dept of Energy for transportation applications. At present, lack of means for safe, economical, high-capacity storage has hindered serious consideration of methane as a competitor for liquid fuels. The development, by a research team headed by Professor Hongcai Zhou of Miami University of Ohio, may also have implications for recovery of methane from small-scale digesters and other waste processing equipment. For additional information, contact Hongcai Zhou, Miami University, Oxford OH 45056, 513-529-8091, fax 513-529-0452, zhouh@muohio.edu.

New UK plant will recover plastics from shredder residue

A recycling plant being built in Britain by MBA Polymers UK will recover plastics from 60,000 tons per year of upgraded automotive and appliance shredder residue (ASR). The facility, a joint venture of MBA Polymers Inc and European Metal Recycling (EMR) Ltd, is expected to go on-stream in 2009. EMR presently processes ASR to separate and reclaim the metals content. The joint venture will now clean, sort, and further upgrade the concentrated plastics fraction obtained from this process. Output will be high-quality material for use as a manufacturing feedstock.

MBA has two existing international joint ventures, both of which were formed in 2004 and have recycling throughputs of 40,000 tons per year.

They are MBA Polymers Austria and Guangzhou GISE - MBA New Plastics Technology in China. For further information, contact Michael Biddle, MBA Polymers Inc, 500 West Ohio Ave, Richmond CA 94804, 510-231-9031, fax 510-231-0302, www.mbapolymers.com.

Trade-in contracts offered for electronic equipment

Producer-independent *Guaranteed Buyback* contracts are being offered for a wide range of electronic equipment by TechForward Inc. Consumers can pay a fee at the time of purchase, which locks-in refund rates they can obtain at various times in the future.

As examples:

- ▶ Buyers of Dell computers with the Vista operating system, 2048 MB of RAM, and a 200 GB hard drive can obtain a refund contract for \$29. This will ensure that they can resell the system to TechForward for:
 - \$540 within 3 months,
 - \$490 from 3 to 6 months,
 - \$430 from 6 to 12 months,
 - \$340 from 12 to 18 months,
 - \$300 from 18 to 24 months.
- ▶ Consumers who buy 52-inch Pioneer flat panel LCD TV sets can obtain return contracts for \$109. The guaranteed trade-in values are:
 - \$2,410 within 3 months,
 - \$2,180 from 3 to 6 months,
 - \$1,550 from 6 to 12 months,
 - \$1,340 from 12 to 18 months,
 - \$940 from 18 to 24 months.

Devices returned in *excellent condition* receive a 10% bonus. Equipment must be in at least *good condition* to receive the full buyback amount. Anything in *poor condition* will be accepted, but the refund will be reduced by 25%. Products deemed *substantially impaired* will

not be accepted. For additional information, contact TechForward Inc, 6080 Center Dr, 6th Floor, Los Angeles CA 90045, 877-623-5681, www.techforward.com.

Tetra Pak adds access to recycling

Tetra Pak milk cartons and aseptic containers are manufactured from plastic, aluminum, and paperboard. The packages are designed so contents can be kept safely for up to a year at room temperature. Specialized recycling processes are needed to handle the combinations of materials used. However, the containers can now be recycled in over 600 communities in 24 states. Households with access to recycling programs for these packages presently number 20.7 MM. The company added 2 MM households to this list in 2007 and seeks to do the same in 2008. In addition, 40 communities nationwide incorporated Tetra Pak containers into their curbside programs in 2007. A list of cities with access is available online at www.tetrapak.com/docs/processingus/ Carton_Recycling_Programs.xls. For details, contact Tetra Pak Inc, 101 Corporate Woods Pkwy, Vernon Hills IL 60061, 847-955-6000, fax 847-955-6500, www.tetrapak.com.

Aluminum recycling goal is raised

Alcoa has set the goal of raising the used beverage can recycling rate in the US and Canada from the present 52% to 75% by 2015. The company says the worldwide average is 60% and Japan and Brazil are already at 92% and 95%, respectively. On its part, Alcoa is investing \$22 MM to raise the recycling capacity at its Tennessee Operations by 50%. For more information, contact Alcoa Tennessee Operations, 2300 N Wright Road, Alcoa TN 37701-3141, 800-977-2869, www.alcoa.com/tn_operations.

Scrap smelter will double e-waste recycling capacity

Xstrata Copper will double the capacity to recycle electronics waste at its Horne smelter in Rouyn-Noranda Quebec. The expansion will enable the company to process 100,000 metric tonnes per year of scrap containing copper and precious metals. The principal changes required to increase the throughput will involve the facility's receiving and sampling processes. As such, the capital requirements of the project are modest and the company expects the first phase of the gains to be realized by January 2009 with the rest a year later. **For more information, contact Xstrata Copper Canada, 1 Ave Carter, Rouyn-Noranda, PQ J9X 1R5 CANADA, 888-7973195 or 819-797-3195, fax 819-762-5172, www.xstrata.com.**

Waste-to-energy plant in Hawaii will add a third boiler

HPower, a venture of Covanta Energy and Honolulu Resource Recovery, will add a third waterwall boiler to its waste-to-energy plant in Oahu HI. The two boilers now in operation process up to 600,000 tons per year of nonhazardous solid waste, producing a refuse-derived fuel to generate 46 MW of electricity while also recovering metals from the feed stream. The inert ash from the plant is 10% of the volume of the incoming waste. The power generated is sold to Hawaiian Electric Co. The additional boiler will cost \$100 MM less than the new facility that was originally proposed to reduce the load on the Waimanalo Gulch landfill; it should be on-stream as early as 2011. **For details, contact Hpower, 91-174 Hanua St, Kapolei HI 96707, 808-682-96707, www.honolulupower.com.**

Georgia Power signs contract with biomass plant now being built

Georgia Power has signed a 20-year contract to buy half the electricity produced at a 110-MW Yellow Pine Energy Co facility now under construction. The plant, near Ft Gaines GA, should start up in 2010. Georgia Power already has contracts to purchase electricity from four smaller biomass-fired and other renewable-source generators. It also obtains electricity, as available, from a dozen others. **For details, contact Georgia Power Co, 30 Ivan Allen Jr Blvd NW, Atlanta GA 30308, 404-506-6526, www.georgiapower.com.**

Nominations sought for carpet recycling award

The Carpet America Recovery Program (CARE) and the US Environmental Protection Agency (EPA) will present the 1st annual *Innovations in Carpet Recycling Award* at the CARE Conference in May 2008. Nominations are open, and are due on or before March 3. Criteria are:

- ▶ The innovation may involve recycling or reuse of post-consumer carpet in any product or process.
- ▶ The post-consumer content of the product must be at least 10% by weight.
- ▶ The carpet utilized must be domestic in origin.
- ▶ The concept must have been demonstrated as feasible within the previous 24 months.
- ▶ Potential for diversion of post-consumer carpet from landfills must be substantial.

Nominations can only be accepted electronically. **For more information, or to make nominations, contact Jeremy Stoop, CARE, 730 College Dr, Dalton GA 30720, 706-428-2127, www.carpetrecovery.org.**

GM will partner with biomass-to-ethanol innovator

General Motors will partner with Coskata Inc to commercialize a process that may produce ethanol from biomass for under \$1 per gallon. The first stage is conventional gasification. Proprietary microorganisms then convert the gas to ethanol at low temperature and pressure by consuming carbon monoxide and hydrogen without enzymatic pretreatment. As a third step, a licensed low-energy *pervaporation* technology is used to separate and recover the ethanol. Coskata claims that the process not only yields the ethanol at low cost, but reduces greenhouse gas emissions by 84% compared to gasoline, uses only a gallon of water per gallon of product, and returns 7.7 times the energy used in production. **For more information, contact Coskata Inc, 4575 Weaver Pkwy, Suite 100, Warrenville IL 60555, 630-657-5800, fax 630-657-5801, www.coskataenergy.com.**

Waste paint solids are used as alternate fuel

Two Chrysler assembly plants in St Louis MO generate about 1 MM lb of dried paint solids annually. The waste has traditionally been collected and sent to landfills. Now, the residues are being sent to an Ameren Energy coal-burning generating station for use as an alternate fuel. The waste displaces about 570 tons of coal per year. In addition, tests by the automaker, Ameren, and researchers from Washington University show that the titanium oxide in the paint bonds with mercury in the plant exhaust, facilitating the trapping of the mercury in the plant scrubbers. **For more information, contact Ameren Energy, 1901 Chouteau Ave, St Louis MO 63103, 314-621-6071, www.ameren.com.**