Going Green 101

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Perhaps you don't need convincing that sustainability is the wave of the future. But where to start? Resources of all types—from websites to trade shows to white papers—are waiting to help green your operation. Most areas are home to regional business alliances devoted to helping local manufacturing outlets contribute in an environmentally sound manner. Here are a few go-to resources for going green.

GreenBiz.com. This online news and information resource shows how to align environmental responsibility with business success. There are more than 8,000 resources, including daily news posts and feature articles, reports, checklists, case studies, and links to organizations, technical assistance programs, government agencies and recognition programs. *www.greenbiz.com*

Bosch Rexroth Sustainable Manufacturing Website. Learn about sustainability in specific applications such as hydrostatic regenerative braking systems, energy efficiency in pneumatics and hydraulic gearboxes and pitch drives for wind turbines. Get free application assistance and solutions for conserving energy. Visit *www.boschrexroth-us.com/sustainable*.

EIATRACK. This internet tool is useful for manufacturers with outlets abroad for quickly and cost-effectively navigating and keeping up to date on the labyrinth of environmental regulations and legislation in every country. Try the online demo at *www.eiatrack.org/public/eiatrack/about/*, and browse the website to learn more about how EIATRACK can improve your environmental credentials and your bottom line. *www.eiatrack.org*

Green Manufacturing Expo. Network at one of these conferences offered in different locations throughout the upcoming year and co-located with major design and manufacturing trade shows organized by Canon Communications. They are being held March 11–12 in Charlotte, NC, June 9–11 in New York City and September 22–24 in Rosemont, IL. For more information, visit *www.devicelink.com/expo/gmx09/*.

The United States Business Council for Sustainable Development. The U.S. BCSD is a non-profit association of businesses whose purpose is to deliver highly focused, collaborative projects that help its members and partners demonstrate leadership in the United States on sustainable development and realize business value. Learn more about the U.S. BCSD at *www.usbcsd.org*.

Recycling is just one way to go green. There are many resources available to learn about other methods. (Courtesy of Gleason Cutting Tools.)

One OEM's Tin Scraps are Another OEM's Gold

Metals recyclers most actively operate on a smaller, regional level, so be sure to use local resources to find scrap services conveniently nearby. Here are a few to try.

Schnitzer Steel Industries, Metals Recycling Business. Operating with 35 facilities in 13 states, Schnitzer Steel recycled 5.5 million long tons of ferrous metals and 383.1 million pounds of nonferrous metals in 2007. For more information, visit *www.schnitzersteel.com/metals_recycling.aspx*.

Premier Metals Recycling Inc. This Chicago-based company purchases all types of nonferrous recyclable metals to maximize scrap revenue for manufacturers. For more information, visit *www.premiermetalsrecycling.com*.

Western Metals Recycling, LLC. WMR is the largest full service metals recycler in the Intermountain West. Services include buying ferrous and nonferrous scrap, baling, car crushing, plant cleanup and providing industrial containers. For more information, visit *www.wmrecycling.com*.

ASCO Metals. Located in Santa Fe Springs, CA, ASCO Metals serves the scrap recycling needs of Los Angeles, Orange and Riverside Counties. For more information, visit *www.ascometals.com*.

Franklin & Son. This industrial scrap and steel supply company is independently owned and located in Dowagiac, MI. Franklin & Son buys all ferrous and nonferrous scrap metals for recycling. For more information, visit *www.franklinandson.net*.

Tri-Miss Services. Tri-Miss provides quick, reliable scrap metal recycling services in the Mississippi area. For more information, visit *www.trimissrecycling.com* or call (601) 352-5027.

Need New Stuff? Upgrade Plant Energy Efficiency

Energy may be the simplest and most significant area to cut costs and reduce carbon footprints, but there are other benefits to upgrading lighting and HVAC systems facilities managers will notice. Lime Energy is a company providing efficiency consulting services to commercial and industrial businesses and implementing lighting upgrade services, mechanical and electrical conservation services, water conservation services and renewable energy solutions. According to Dave Laybourn, director of marketing at Lime Energy, companies will enjoy new lighting and HVAC equipment, which in turn will allow employees to work in a safer, more comfortable environment. Plant accuracy may improve, as will a company's image.

"Some of these facilities guys, at the end of the day, they're happy for saving on the utilities bills, but what they really wanted was new lights, and they got them," Laybourn says. "For a lot of people it really is the opportunity to upgrade their facility, get the new things they've been wanting for a long time and cloak it all under the cape of energy efficiency.

"The other thing that is overlooked is the benefit to the company after doing an energy efficiency retrofit—the benefit to their image. They get to do a local press release and say their company, after this retrofit, is going to save a million kilowatts a year, which is equal to one and half million pounds of CO_2. It's huge for their image."

Lime Energy issues press releases through their own agency for each project and posts them all to their website, so interested visitors can read about other companies' experiences.

The average cost of installation ranges greatly depending on facility size, but Laybourn estimates $100,000 to $150,000 of initial investment is involved. The return on investment is what's key here. Laybourn says companies will get at least a 20 percent ROI in the first year and in some cases as much as 40 to 50 percent.

"This high ROI is the icing on the cake. There's no other thing people can do in their plants that are going to get them a 30 percent ROI."

Uni-Select USA, a network of independently owned auto parts dealers in North America, conducted a lighting retrofit project at a warehouse in Auburn, WA in 2008. Lime Energy replaced the metal halide lighting with high-output fluores-

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Lime Energy helps commercial and industrial companies upgrade lighting services, implement mechanical, electrical and water conservation systems and other renewable energy solutions. (Courtesy of Lime Energy.)

Aerospace supplier ORCON Corp. saved almost $55,000 in energy costs through a lighting retrofit project Lime Energy was enlisted to help with. (Courtesy of Precision Fluorescent.)

cent fixtures that use half as much energy. The result was an energy reduction of 375,518 kilowatt-hours per year.

"The project went very well with no disruption to our daily production, and the light levels have greatly improved over our previous lighting system," says Gayle Moeller, operations manager of the Uni-Select Northwest Division. "The new lighting system is significantly brighter and we have improved the order accuracy in our warehouse operation to nearly 100 percent. The project made financial sense due to the energy cost savings and the $79,000 grant from Puget Sound Energy; however, factoring in the increased efficiency and the reduced cost of rework means this project's rate of return is calculating at a rate that is exponential rather than linear."

After installing more efficient lighting, managers appreciate the high ROI, and employees enjoy working in a safer, cleaner and more efficient environment. (Courtesy of Lime Energy.)

ORCON Corporation, an aerospace supplier headquartered in Union City, CA, completed a lighting retrofit in March 2008, and ORCON saved almost $55,000 in reduced energy costs. "The new lights seem to have energized the workers," says Bill Fuson, facilities maintenance manager for ORCON. "I have been here 20 years and I can't say enough good things about how this went, plus it was very economical with a fast payback."

Lime Energy operates from 16 offices around the country. For more information, visit *www.lime-energy.com* or email *info@lime-energy.com*.

Also for energy efficiency information:

The National Association of Energy Services Companies. NAESCO is a national trade organization that represents energy service companies (ESCOs), distribution companies, distributed generation companies, engineers, consultants and finance companies. Track down local ESCO's based on project size and service sector using the "find a provider tool" on the association's website (*www.naesco.org/providers/default.aspx).*

Bartering Waste for Profit

Separating miscellaneous steel scrap from chips is merely the first step in byproduct synergy where one company's waste is identified for reuse by another company. (Courtesy of Gleason Cutting Tools.)

Industrial ecology or industrial symbiosis, a relatively new way of looking at manufacturing processes, encourages companies to collaborate and match unwanted byproducts as resources for new products and processes. The Chicago Waste to Profit Network is one of a small handful of local organizations that holds meetings for companies to network with others and establishes opportunities for byproduct synergy (BPS) and material reuse. The Waste to Profit Network is sponsored by Chicago Mayor Richard Daley, the Chicago Manufacturing Center, City of Chicago, State of Illinois and regional EPA.

There is a current initiative by IMEC, formerly known as the Illinois Manufacturing Extension Center, to institute another network throughout the state of Illinois. Another similar network is known as Bridging the Gap, in Kansas City. The idea of byproduct synergy developed in the late 1980s and has slowly gained attention.

"What's different about the Chicago Waste to Profit Network from most waste exchanges is that we have an active role in finding synergies," says Bill Hoffman, director of sustainability services at the Chicago Manufacturing Center. "So we collect information from companies about what their needs are and what their byproducts are and then try to make matches between companies that have a byproduct and other companies that have a need for that byproduct."

Since its inception in 2006, the network has helped divert 20,000 tons of waste in the first year and about 40,000 tons of waste in 2007. Companies of all sorts have enjoyed the benefits, including manufacturers like Mittal Steel, Naylor Pipe, S&C Electric and metal scrap service providers like Acme Refining, EPI Concrete Products and General Iron.

For network participants, "It has really been a great thing for them because they have in several cases been able to expand their business," Hoffman says. "Companies that have byproducts they're disposing have been able to find outlets for this material and reduce their cost or disposal."

Regional BPS projects are at various stages of development in Connecticut-Massachusetts; Ohio; Mobile, AL; Houston and Austin, TX, according to the U.S. Business Council for Sustainable Development.

For more information on the Chicago Waste to Profit Network visit *www.wastetoprofit.org* or contact Libby Allen Augustine at (312) 542-0496 or *lallen@cmcussa.org*.

Other similar networks include:

Kansas City Regional By-Product Synergy Project (BPS). For more information, contact Richard Gordon at Bridging The Gap, (816) 561-1061, ext. 114 or e-mail him at *richard.gordon@bridgingthegap.org*.

By-Product Synergy Northwest. Learn more about this Pacific Northwest network, which is organized by the Pacific Northwest Pollution Prevention Center, at *www.pprc.org/synergy/* or contact Debra Taevs at (503) 336-1256, *dtaevs@pprc.org*.

National Industrial Symbiosis Program (NISP). This U.K. organization was a precursor to organizations in the U.S., except it is a government-sponsored program. For more information, visit *www.nisp.org.uk*.