

# 2013 **INSIDER** Knowledge

Lessons Learned from Corporate Environmental,  
Sustainability and Energy Decision-Makers

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**Lessons Learned from Corporate Environmental,  
Sustainability and Energy Decision-Makers**

**environmental**  
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up to **30%\*** savings  
enterprise-wide

Corporate office savings

Manufacturing plant savings

Data center savings

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Volatile resource prices and ever-changing regulations make it challenging to run a thriving business today. How do you navigate this complexity amid shrinking budgets? Start with strategic energy and sustainability management from Schneider Electric.™ Gain a competitive edge with the only qualified partner that has a proven track record and in-house expertise to accelerate your business performance.

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- > **Procurement:** Negotiate the best terms with every supplier and minimize risk.
- > **Control:** Monitor your operations from shop floor to top floor.
- > **Optimization:** Execute targeted efficiency projects with demonstrable ROI.
- > **Performance:** Access robust reporting software to ensure optimum performance.



Ranked 13<sup>th</sup> in the Global 100 Most Sustainable Corporations in the World by Corporate Knights.



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Learn how to improve your bottom line with energy and sustainability management!

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Electric™

## From Environmental Leader's publisher

Thank you for downloading Environmental Leader's **2013 Insider Knowledge Report**, a compilation of corporate tactics and stories from more than 100 environmental and energy management leaders.

Once again, we received several hundred submissions, and had our work cut out for us to choose the 100-plus entries included in this report. As always, we wish we could include every submission, because the level of innovation shown by our readers is awe-inspiring.

In these pages you'll find entries covering a wide variety of lessons-learned, techniques, tactics, products, case studies, and advice from those working and innovating in companies around the world – all of which we hope will help inspire you to greater strides in the environmental and energy management space.

Thank you to all who contributed, and a special thanks to our sponsor, Schneider Electric, for making this report possible.

Happy reading!

**Paul Nastu, Founder & Publisher**

Environmental Leader

[www.environmentalleader.com](http://www.environmentalleader.com)

## From the Sponsor

**With operations in more than 100 countries and ranked as the 13th most sustainable corporation in the world by Corporate Knights, Schneider Electric** is uniquely positioned to understand the sustainability and energy challenges faced by businesses, cities, governments, and global communities.

Through our integrated solutions across multiple market segments we help businesses around the world address the economic and environmental issues that drive their need for sustainability, energy management, and energy efficiency.

From our global perspective, we continue to witness the rise in energy prices and in the global demand for energy. Limited availability of resources is forcing governments to introduce strict environmental regulations and making companies look for energy efficiency solutions and optimization services. These global trends have a real impact on organizations and will continue to influence business strategy.



Ranked 13th in the Global 100 Most Sustainable Corporations in the World by Corporate Knights.



At Schneider Electric, we address these trends by focusing on making energy safe, reliable, efficient, productive and green. We help businesses around the world address the economic and environmental issues that drive their need for energy efficiency and sustainability. Our integrated energy management solutions combine our products, services, and software and can significantly improve an organization's bottom line.

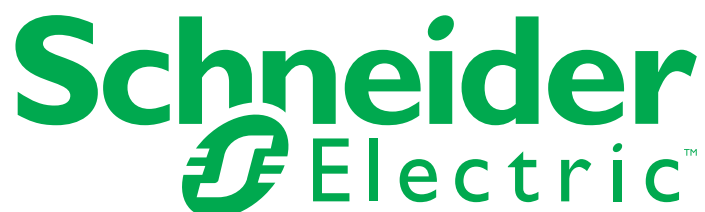
While energy management remains a priority to organizations, the move towards sustainability continues to grow. Progressive organizations understand that sustainability is not just about "going green" but that it also makes good business

and economic sense. As a global leader in sustainability services, Schneider Electric provides an unmatched end-to-end solution that encompasses every phase of the sustainability journey. Through our offer of strategy, technology, and implementation, we are able to drive successful sustainability programs from start to finish that accelerate business performance.

The need to track and manage sustainability and energy management projects and initiatives is critical to any program's success. Schneider Electric's award-winning, online sustainability and energy management solution, Resource Advisor, provides secure access to the data, reports, and summaries that drive sustainability and energy programs. By coupling our market leading technology with domain expertise in sustainability and energy management, we are able to lead our clients into getting the most out of their technology solution.

For Schneider Electric, sponsoring the Environmental Leader's 2013 Insider Knowledge Report compliments the work we are conducting around the globe. The world is at a point where "not my responsibility" is no longer an option. Now is the time for sustainable and energy efficient solutions that benefit all global communities. This report highlights much of the positive work being conducted by companies committed to sustainable solutions and we complement them all on their efforts.

**For more information on Schneider Electric, contact:  
[Sustainability@ems.schneider-electric.com](mailto:Sustainability@ems.schneider-electric.com)**



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# Energy Management

**As the leading one-stop shop** for systems integration in a year when “cloud computing” and “m-Biz” are finally all the rage, 2012 was a year of introspection and rapid growth for 8760Inc.

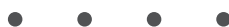
Technology has advanced so quickly, yet many of the assets and facilities we utilize today are in the same position they were in over 20 years ago. The slow adoption of technologies relative to the perception of a high cost of entry into the smart building market and inability to realize a return was our company’s foundation.

At 8760Inc. we study energy consumption (kWh) down to the device level 24 hours a day, 7 days a week, 365 days a year. Granularity is what we are after because the more we are able to study remotely, the less our customers will have to physically expend resources at each of their buildings. Once we adopted cloud computing in-house back in 2005 and vetted the process, we took the next step and determined this is what we need to provide for our customers: a secure location for their data and an accessible way for them to access that data--all of our apps and software reside in a server farm.

**Rachel Dawn Davis**  
Sustainability Strategist,  
8760Inc.  
[www.8760inc.com](http://www.8760inc.com)

Servicing a renowned Fortune 50 global bank, we took on the challenge of reducing energy waste at 400+ retail sites requiring visibility and management from a central location. By applying our solutions, the bank experienced a 20 percent annual kWh reduction and a 40 percent reduction in service calls. This highlights not only the elimination of energy waste but wasted people power and time.

This client shared: “8760Inc. delivered a flawless installation, working through over 350 sites in 6 months. Now that we have this platform installed, our facilities team is working with our business units to continue to scale this solution nationally. These measurable results help our business every day.”



**How do we continue** to improve energy efficiency inside our organizations? Companies are placing resources on energy reduction but as I continue to work with companies



to reduce their energy cost, consumption and CO2 footprint, I see some key areas of opportunity.

The first step is to focus on the development of your energy program and the engagement of employees. We continue to spend much effort focusing on the silo approach with our energy initiatives. We need to move past this philosophy and focus on moving energy initiatives horizontally across the organization instead of just vertically.

**Bruce Bremer, President**

Bremer Energy Consulting Services, Inc.

[www.bremerenergy.com](http://www.bremerenergy.com)

The second area that I have seen success is with the “Treasure Hunt” concept, which is a 3 day event with the engagement of company employees to identify operational energy reduction opportunities inside their organization during normal operating hours and non operating hours. As you increase the involvement of members inside your organization, the snowball approach for energy reduction starts occurring. If you can teach members how to think about energy improvements as a program and part of their day-to-day job, then the philosophy of continuous improvement will occur. Take a comprehensive approach and look at energy initiatives and opportunities in the form of a program. Once this philosophy and concept is established, the energy tools are identified, and the engagement of the workforce is developed, then you will see sustainable results.



**The City of Norfolk**, Virginia’s Energy Group got off to a fast start by recruiting members of the City’s Green Team to become the core energy group for the city. The Green Team already included volunteer representatives from departments across city government. These so-called “early adopters” had demonstrated commitment to integrating sustainability into municipal operations. As a result, the city’s Energy Group completed audits of 3.5 million square feet -- about 100 buildings -- and rolled out a new energy management software system in about 36 months.

**Denise Thompson,**

**Sustainability Manager**

City of Norfolk, VA

[www.norfolk.gov](http://www.norfolk.gov)

The group also took immediate action where cost-effective, adopting Green Fleet and Vehicle/Equipment Idling Policies, installing

occupancy sensors in City Hall restrooms, and managing City Hall lighting based on daily schedules and building occupancy patterns.

The restroom lighting project paid for itself in about a year, and we now use automated controls rather than manual breakers to manage lighting in the 50 year-old City Hall.



**In looking to reduce** its energy use, Cambridge – Isanti Public Schools partnered with the Class 5 Energy’s Schools for Energy Efficiency (SEE) program in April 2004. The district was looking for a way to reduce their energy use by engaging people and changing behaviors.

Rather than hiring someone from the outside, they looked for an energy champion within. They hired a long-standing teacher within the district who was retiring to serve as their Energy Efficiency Coordinator(EEC). She worked to coordinate energy saving efforts across the entire district; administration, building and grounds, kitchen staff, teachers, and of course the students.

Her familiarity with the district protocols and also knowing the culture and people helped her immensely. Even though the EEC was spearheading things, the district viewed this as a team effort. Every time the EEC wanted to present a quarterly utility tracking results, every lead building operator would attend the meeting. Not only did they review results, they shared ideas and created lists of what they could do differently to try and reduce energy use.

**Ann Arney, Director of Business  
Development and Marketing**

Class 5 Energy  
[www.class5energy.com/](http://www.class5energy.com/)

The Schools for Energy Efficiency program also put a large emphasis on get the teachers and students involved via various activities and tasks they could help with in their individual classrooms. Their efforts have paid off immensely: they were one of the first districts in the state of Minnesota to reduce their energy use by 30 percent.

In another project, Class 5 Energy sought grant funding in 2010 to test a comprehensive behavioral and operational energy efficiency program for the healthcare market. Ridgeview Medical Center was selected in May of 2011. For 18 months, a CLASS 5

program consultant worked with Ridgeview's leadership and employees to implement and evaluate the program, which was modeled after CLASS 5's successful Schools for Energy Efficiency (SEE) program. During the pilot, Ridgeview Medical Center followed a step-by-step plan which focused on gaining leadership support and buy-in, identifying and implementing no- and low- cost operational strategies, and utilizing tools and materials for employee awareness and engagement. In addition, CLASS 5 provided utility tracking so Ridgeview was able to measure energy and cost savings.

The results showed that saving money through behavior-based strategies is not only possible for healthcare organizations but can provide significant savings without major financial investments. Ridgeview Medical Center saved more than \$75,000 and reduced energy use by 6 percent without affecting patient comfort or safety.



**Eastman Chemical Company** is a global specialty chemicals company that manufactures and markets a broad portfolio of chemicals, fibers, and plastics. The company believes energy efficiency is a critical part of operating sustainably and was recognized as a 2012 Energy Star Partner of the Year for continuing to build upon its sound energy management foundation.

To achieve the corporate goal of a 25 percent improvement in energy intensity over ten years, Eastman sites worldwide are successfully executing energy efficiency projects through increased employee engagement and the use of Energy Star resources. For example, Eastman took advantage of the Energy Star portfolio Manager to benchmark energy performance of office buildings and entered those buildings in EPA's 2012 Energy Star National Building Competition: Battle of the Buildings.

**Sharon Nolen, Corporate Energy  
Program Manager**

[Eastman Chemical Company](http://www.eastman.com)  
[www.eastman.com](http://www.eastman.com)

As one of the largest chemical manufacturing sites in North America, Eastman's Tennessee Operations (TNO) site in Kingsport, Tennessee, has two identical, side-by-side buildings on the TNO campus. Eastman used the Energy Star tool and personalized the Battle of the Buildings in an internal competition that positioned employees in each building vying for the top in energy saving activities.

A third building, occupied by the corporate energy staff, was also entered in the competition. The competitive activities of measuring, tracking, and reporting unnecessary usage encouraged a personal commitment to promoting energy conservation that resulted in substantial energy savings. With a goal to obtain a 20 percent reduction in Energy Usage Intensity (EUI) from the previous year, employees had to control their own energy consumption. (EUI represents the energy consumed by a building relative to its size.) The site energy team sent a monthly e-mail to building occupants informing them of their progress (from mid-year 2012 through year-end) and providing additional energy saving tips. Building changes were made that included replacing lighting with more energy-efficient lights, relocating thermostats for better heating and cooling control, and reducing intake air during night hours. These changes not only improved building efficiency but also improved the work environment.

Employees expressed appreciation for improved lighting and work environment comfort. In addition to lighting and HVAC changes that were made, employee due diligence produced additional savings with the following actions:

- Office lights, including task lights and personal lamps, were turned off at the end of the work day
- Break room lights and TVs were turned off when not in use
- Early arrivers used limited lighting versus lighting the entire building
- Conference room lighting was turned off when not in use
- Individual computers were set to “hibernate” versus “lock” mode at the end of the work day, which only uses 3 watts versus approximately 43 watts.

The result? Using Energy Star’s Battle of the Buildings competition as a rallying point to focus on office energy efficiency was a fun way to increase energy awareness, accountability, and sustainability. The competition resulted in energy use intensity reductions of 27 percent, 26 percent and 9 percent for the respective buildings, for an average reduction among the three of 21 percent, and achievement of the program’s goal.



**Hawthorn Suites by Wyndham** in Alexandria, Virginia, began purchasing RECs in 2012 equivalent to 100 percent of their electricity use. This was done as part of a broader initiative by their management company, Saunders Hotel Group (SHG), which implanted

this effort company-wide. Two major hurdles needed to be overcome in order to see this idea come to fruition – creating a certain level of understanding about RECs and what purchasing them means and the additional cost associated with RECs.

Decoupling the environmental benefits of green energy from the energy itself is downright confusing. Analogues are tough to come by for intangible RECs, and if individuals or companies purchasing them are confused, there it gets even worse when communicating the effort to customers. Something tangible, for instance, a wind turbine or a solar panel, is obvious. However a commoditized positive externality is not. Electrons are impossible to track – you could not tell whether your electricity was coming from a power plant that was located next door vs. one located 200 miles away.

**Megan Falkenberry,**  
**Environmental Program Coordinator**

EcoLogical Solutions  
[www.ecological-solutions.net](http://www.ecological-solutions.net)

Similar to water, electricity follows the path of least resistance.

Complicating the issue even further is the fact that a company can buy RECs nationally – not just from projects in their geographical region or electric sub-grid, and their claims to using green energy are just as valid as the business with solar panels on the roof. (Purchasing the RECs carries with it a claim to the green benefits – a business that installs solar on their roof behind the meter, but that sells the RECs, cannot claim to be using green energy). In order to eliminate confusion, clarify actions to laymen within the company (specifically Hawthorn Suites' management and SHG's management), and ultimately guests of the hotel, EcoLogical Solutions (SHG's environmental consultant) conducted training and helped create marketing materials that relate the effort into everyday, relatable comparisons.

The most important effort was creating an avenue to communicate the effort to guests so the hotel would see this purchase as additional value. Each individual guest has a carbon footprint associated with his or her stay, and every meeting conducted has one as well. However, by choosing a hotel that is offsetting 100 percent of the electricity on site, that footprint is significantly reduced .

“Your decision is equivalent to planting 340 tree saplings” is easier to understand for a guest who stayed one night than an explanation of the intricacies of various states' renewable portfolio standard or mapping out the path of green vs. brown electrons.

Once past the first hurdle (what the heck are these things), the issue of cost needs to

be addressed. There are a variety of sources of RECs, and likely as many sellers of RECs as there are projects creating them. It is critical to understand the pros and cons of purchasing from various entities, various generation types, and various generation locations. The most common sources for green energy purchases are direct through utility companies or enlisting a broker for RECs. A common misconception is that going through your local utility results in actual green electrons making it to your business. John Powers of Renewable Choice Energy dispels this myth: While some utility green power programs make an effort to source RECs from local renewable facilities, many simply couple RECs purchased from distant wind farms with your local delivered (i.e. “dirty”) power. There is nothing wrong with this practice—you are still helping renewables get built somewhere in the country—but there is a misconception that since it’s being sold by your local utility it must be locally sourced.

We worked with SHG to marry the desire to support renewable energy with the need to be fiscally responsible. They solicited bids from three REC brokers, who not only are able to shop pricing all around the country, but have access to projects providing additional positive benefits beyond the green energy itself. Renewable Choice Energy was contracted by SHG to procure Green-e Certified American Wind RECs for 100 percent of their electricity load. Specifically, Hawthorn Suites is purchasing just over 1000 RECs for 2012, and the cost is just 1 percent more than they are spending on electricity. Hawthorn has also contracted for Choice Carbon offsets to match 100 percent of their natural gas use in 2012, which added 1.4 percent to their total natural gas expenditure.



**The CBRE Green Knights Energy Matrix** is a collection of energy programs that have been implemented across the various department lines. The aim of the matrix is to identify, prioritize and develop an annual action plan with supporting real world examples on how to begin, implement, and sustain energy savings initiatives.

The tool provides examples that have been used for all CBRE Energy Managers as well as a method to prioritize their efforts and avoid reinventing the wheel. To keep the tool dynamic, it has been converted into an online sorted database where initiatives can be sorted by area of interest, level of difficulty, or expected savings.

**Dipal Patel, Energy Manager**

CBRE

[www.cbre.com](http://www.cbre.com)

The tool was developed and organized by a group of energy and sustainability managers through an internal energy committee that convenes monthly to collaborate on new energy ideas, technologies and case studies.

The matrix tool can be used on small one site projects as well as portfolio wide energy programs. The progress can be measured through the completion of the levels identified within the tool, or by identifying the depth of the program by outlining the multiple areas that have been pursued. This tool will enable energy managers to learn from the work being done across the organization.



**In the year and half** following the release of ISO 50001, I have seen how software used for ISO 50001 can achieve the following 3 key energy efficiency results:

- Fast certification to ISO 50001, e.g. 3-4 months.
- A 50 percent reduction in the time spent managing ISO 50001
- An extra 5 percent in energy savings as a result of automated action-tracking.

What I mean here is the use of professional, properly thought out IT support for ISO 50001 – not home-built solutions developed with an ad hoc approach – often based on a combination of spreadsheets, web tools and documents.

**Dr. Paul F. Monaghan, CEO**

Enerit Ltd

[www.enerit.com/](http://www.enerit.com/)

Professional software support can be delivered by:

- A custom software development project delivered by the IT department
- Contracting with an IT company for custom-built software
- Buying or subscribing to an ISO 50001 product that has adequate flexibility for your needs.

University College Cork (UCC) became the first University in the world to achieve ISO 50001 certification by using ISO 50001 software to implement their energy management system. They achieved certification in just three months. In the initial 6 months of implementing its ISO 50001 EnMS, UCC achieved substantial energy savings: Electrical



consumption was reduced by 5.14 percent and Natural Gas reduced by an estimated 8 percent (after weather factors are taken into account). UCC estimate that in the first year, they will achieve annual savings of 5.5 percent in electricity consumption and 8 percent in gas consumption with projected annual cost savings of €212,955.

A pharmaceutical company also used ISO 50001 software to become the first site worldwide of the global corporation to achieve ISO 50001 certification. The pharmaceutical company's Energy Champion had this to say: "We recently introduced ISO 50001 software and were certified to the ISO 50001 standard in just 3 months. The software frees up 40- 50 percent of the time devoted to administrating the standard. I now dedicate that extra time toward actively pursuing new energy saving opportunities. As a result, the software is helping me to reduce our organization's energy bill by up to 5 percent year-on-year. More importantly, it helps prevents our bill from creeping back up again, i.e. the processes that were put in place, stay in place".

The long-term savings of using software for ISO 50001 can be enormous. The savings result from: savings of time by reducing administrative drudgery; increased energy savings through closer control of the energy management plan and finding more energy saving opportunities by more productively using the time saved on administration.



**Liberty Property Trust** is a \$6.2 billion real estate investment trust which owns 79 million square feet of office and industrial space in over 20 markets throughout the US and the UK. Founded in 1972 and headquartered in Philadelphia, Liberty develops, acquires, leases and manages properties with the mission to enhance people's lives through extraordinary work environments. Committed to sustainable development, Liberty has 48 LEED projects representing over 10 million square feet, and 98 Energy Star certified buildings with an average portfolio score of 74 (as of October 2012).

**Sara Volpe**

**VP of Marketing & Communications**

eSight Energy, Inc.  
[www.esightenergy.com](http://www.esightenergy.com)

With such a vast portfolio of buildings Liberty required a solution to enable them to bring together all of their energy data. They needed both a solution for collection and measurement of the energy related data across site, but also a way to bring this data together into a central database. Liberty required the ability to measure and verify that data with a view to identifying areas of



potential savings, reducing overall energy usage across their buildings, and driving down cost. This would only be possible through transparency of the data. Liberty also required integration of the solution with their SharePoint portal already in place throughout the organization. This would enable data to be accessed and displayed through a common interface. In addition, there were a number of peripheral data streams that were required for integration to the solution. These included degree days, occupancy, cost data and multiple utility types including electricity and natural gas data.

Liberty required all of this information to be seamlessly collected and accessible through a single centralized solution that could be accessed and used from any of their property locations.

Liberty selected eSight for their Energy Management Suite and exp US Services for their hardware and data collection partner. eSight Energy and exp are business partners that ensured Liberty was able to select a complete, end-to-end solution that integrated seamlessly. eSight was installed onto a server at Liberty's HQ in Philadelphia. Data is collected from Tridium Jaces, and transferred to a Niagara AX Supervisor on a scheduled basis. This data is automatically imported to eSight for M&V and targeting for savings.

eSight provides Liberty with the ability to analyze data across all buildings as they are rolled onto the project at a top level, but also provides them with quick and easy granular drill-down capability at the click of a button.

Using the eSight Alarms facility, Liberty is able to receive energy alarms in a user-friendly format and distribute associated reports regarding alarms out across site automatically. eSight provides the ability to normalize data and report on energy usage in conjunction with other factors such as occupancy and degree days.

Since implementing their corporate sustainability project in 2008, Liberty Property Trust achieved: 17.9 percent reduction in energy, \$4.6 Million in savings, 48 LEED projects, and 98 Energy Star labels.



**In 2012, HY-TEK Bio**, a Maryland-based tech startup, was funded by Baltimore City to perform a demonstration of its clean energy technology. The target was the exhaust gas generated by a 3MW methane-fired electrical power plant on the grounds of Baltimore City's Back River Waste Water Treatment Plant east of Baltimore City. The goal of the

demonstration was to reduce greenhouse gas emissions from the 3MW power plant and produce algae for conversion to biofuel.

HY-TEK Bio's technology consists of a multi-element patent-pending process that captures the exhaust gas from the burning of any fossil fuel, methane or biomass for the purpose of generating energy and injects the exhaust gas into specially designed and constructed closed photo bioreactors filled with a special strain of algae especially isolated from nature for use in this process. The algae consume the CO, CO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub> in the exhaust gas and vents only oxygen from the photosynthesis process.

A dedicated facility was constructed adjacent to the 3MW power plant and exhaust gas was captured, compressed and fed to the bioreactors. The CO<sub>2</sub> content of the exhaust gas entering the HY-TEK Bio bioreactors was 11.8-12 percent and the NO<sub>x</sub> component was 120 ppm. The content of the gas venting the top of the bioreactors was 1.8 percent CO<sub>2</sub> and 0 ppm NO<sub>x</sub>. That's a sustained 85 percent reduction in CO<sub>2</sub> and 100 percent mitigation of NO<sub>x</sub> in just 9' of algal culture.

**Bob Mroz, President & CEO**

HY-TEK Bio, LLC  
[www.hytekbio.com](http://www.hytekbio.com)

The size of the bioreactors used were 18" diameter by 10' tall with 9' of algal culture. These bioreactors were designed and constructed especially for this demonstration project. The size of HY-TEK Bio's normal bioreactors are 4' by 20' and are made of a patent-pending mylar laminate with re-enforcing fibers to contain the 1800 gallons and 8 tons of algal culture for industrial scale mitigation. These large mylar bioreactors are extremely strong yet very inexpensive, reducing the cost of closed photo bioreactors by a factor of 95 percent. The HY-TEK Bio bioreactors use LED lighting matched to the Photosynthetic Active absorption of the algae used and a patent-pending technology allows the full photosynthesis capability of the LED light source to be deployed with 90 percent reduction in energy consumption and 98 percent reduction in heat generation.

In addition, HY-TEK Bio's bioreactors use a patent-pending full-floor air diffuser system to inject the exhaust gas into the algal culture with rapid dissolution of the exhaust gas chemistry into the algal culture for instant access by the algae. The demonstration project was concluded the end of November 2012 and was a 100 percent success, mitigating Greenhouse Gas emissions from the power plant while producing a limited amount of algae for conversion to biofuels.

**Lesson Learned 1:** The technology can be scaled up easily to industrial scales.

**Lesson Learned 2:** Compressing flue (exhaust) gas creates carbonic acid which will destroy standard air compressors in short order... solution found and deployed.

**Lesson Learned 3:** The use of waste water as a nutrient to grow algae is not a viable option when high growth rates are required because raw sewage simply does not contain adequate levels of nutrient for the rapid growth rates needed for mitigation performance.

**Lesson Learned 4:** Growing algae is easy. Extracting it (removing the water) is labor intensive even with the latest technologies. Solution in the works.

**Lesson Learned 5:** With the advent of the large, inexpensive mylar closed photo bioreactors, 90 percent energy saving LED lighting system and full-floor, micro-bubble air diffusers, open pond cultivation systems will soon become yesterday's news.

**Lesson Learned 6:** The specially isolated algae used (HTB-1) has high market value as a skin conditioning pharmaceutical, an Omega-3 source for nutraceuticals, a thickener for cosmetics and paints, a source for bio-degradable bioplastics, a food supplement for both human and animal food products and, oh yes, biofuel.

**Lesson Learned 7:** The mylar bioreactors are already being ordered as inexpensive tanks to hold water, fuels, food grains and other needed commodities in storm and flood ravaged areas of the world that can be inexpensively shipped in cardboard boxes by air to the affected sites as well as for fermentation tanks for wineries, breweries and lab processes, and the 90 percent energy-saving LED light technology is already being ordered for the reduction of energy use in greenhouses.



**Everyone knows** that low-income families, who spend a great percentage of their income on utility costs, are least likely to implement money-saving energy efficiency (EE) measures; having the time available to address the complexities of an EE retrofit is an

issue in households where everyone is working and sometimes two jobs to make ends meet. Also, dealing with energy auditors, contractors, understanding utility company incentives, and applying for rebates, incentives, etc. can be daunting tasks, and gaining access to financing to implement the EE measures is next to impossible due to the perceived risk of lending to the low-income population.

As a consequence, the underserved remain...underserved.

**Lesson 1: A Simple Way to Serve the Underserved is to SIMPLIFY**

The entire EE retrofit process needed to be streamlined and simplified. To address this situation, iCAST launched ResourceSmart, a turn-key EE program that takes care of the entire end-to-end process with one phone call. From energy audit to modeling of EE options to selection of EE options and project implementation, through offering financing options, managing rebates, and incentives, to final inspections and tracking of program results, ResourceSmart made EE easily accessible for our low-income and senior fixed-income citizens.

**Ravi Malhotra, President**

iCAST

[www.icastusa.org](http://www.icastusa.org)

As might be expected with the roll-out of any new program, almost immediately we began learning new lessons.

**Lesson 2: Money – It May Not Buy Happiness, but It Will Buy EE**

Knowledgeable staff, a cadre of skilled contractors, and the ability to simplify the process are useless unless there is a source of money. As a result of Lesson 2, we started to create our own revolving loan funds, secured with loan loss reserve funds and administered by partner CDFI's, to provide EE loans to low income EE program recipients.

**Lesson 3: Show Them the Money**

Not only did our CDFI and investors expect to be repaid, they wanted to understand how that was going to happen – particularly in the case of borrowers often perceived to be “risky.” Advanced energy audits, the employment of advanced modeling techniques to assess available savings, and the ability to track results are needed to build credibility with investors. Lesson 3 taught us that EE options must be rigorously selected so that our lenders can be shown that savings on utility bills will be sufficient to repay the loans they provide. Showing your lender

where the money to repay them is coming from will result in loans. We thought we were off to the races until...

### **Lesson 4: In Theory, There Is No Difference Between Theory and Practice... in Practice, There Is**

EE audits, modeling of EE options and calculations of savings do an excellent job of accounting for the impact of the EE technology. Unfortunately, they do nothing to account for the behavior of people. New windows will not perform well if recipients persist in leaving them open. A new programmable thermostat set at 84 degrees in winter has little impact on utility bills, even with the best boiler installed. New CFL and LED lamps, if left burning constantly, aren't providing the maximum possible savings. Lesson 4 was an especially bitter pill to swallow because our recipients' ability to repay loans rests on their abilities to achieve the savings we've modeled. While the technology was working, the occupants weren't.

So we developed a "Behavior Change Education" program with the help of building scientists, sociologists and psychologists that is now an integral part of all of our EE project implementations.

### **Lesson 5: It's ALL about the People**

At six months and one year post-implementation, we compare utility billing history to "pre" figures. If savings are not per expectations, we re-visit both the installed technology and the occupants to see if the problem resides with the technology or the people. Even if it is a technology issue, more often than not, it is because the maintenance was not done right. So educating the staff on O&M practices also became part and parcel of the EE program.

Learning these lessons has allowed us to create a simple, streamlined and comprehensive approach that appeals to both program recipients and lenders. ResourceSmart is attracting both new customers and investors, and we are well on the way to becoming a self-sustaining nonprofit.



**Idaho National Laboratory (INL)** completed five internally funded Strategic Investment Projects for Sustainability. These projects cost \$810k, provided over \$77k in annual energy savings, and solved identified maintenance and repair issues.

These five projects were developed from completed building audits and included:

- Exterior LED Lighting Fixtures at Research Office Building
- Plumbing Fixtures upgrades at IRC Office Building
- Installed new CO2 Controls in Engineering Research Office Building
- Interior Lighting Upgrade in Willow Creek Building
- Replaced Chiller in Willow Creek Building.

### **INL Fleet Upgrade – Efficiency Improvements**

The INL Site exceeded the Fleet Fuel Goals for both alternative fuel increases and petroleum fuel decreases. Alternative fuel use is up a cumulative of 154 percent (194,429 gallons) from the FY 2005 baseline and petroleum fuel use is down a cumulative 20.3 percent (747,777 gallons) from the FY 2005 baseline. Primary factors facilitating these changes include:

- Revitalized the INL bus fleet with 52 new motor coaches designed to run on B20 and have improved fuel mileage by up to 50 percent (3 mpg to 6 mpg)
- Reported quarterly to flex fuel vehicle custodians their percentage of E85 usage compare to unleaded usage and encouraged the use of the appropriate flex-fuel. This method of encouraging self-governing through information led to increased E-85 fuel use
- Increased overall bus efficiencies by implementing express routes and eliminating underutilized routs. This was performed in conjunction with expanding the successful Park and Ride concept to include all INL Site bus operations Expanded the use of innovative technology to track and reduce fuel usage such Global Positioning System (GPS), Radio Frequency Identification (RFID) fuel rings, and data loggers to monitor engine performance and driver habits.

**Ernest L. Fossum, Energy Manager**

Idaho National Laboratory

[www.inlportal.inl.gov/portal/server.pt/community](http://www.inlportal.inl.gov/portal/server.pt/community)

### **SMC Lighting Upgrades**

The Specific Manufacturing Process (SMC) and INL Test Area North replaced 147 High Pressure Sodium and Metal Halide lighting fixtures with 32 watt fluorescent fixtures, reducing the lighting load by 26.7 kW. This activity represents a retrofit of 1/3 of SMC's identified lighting for upgrade, the balance to be retrofit in FY 2013 and FY 2014.

### **Cool Roof Installations**

INL replaced a total of 21,869 ft<sup>2</sup> of roofing on four buildings with new roofing that meets

the Secretary of Energy's requirement for "cool roofs" and eliminated over \$260k of deferred maintenance. MFC ESPC Project INL independently verified the energy savings obtained from INL ESPC Project #2 at the Materials and Fuel Complex (MFC). This analysis used actual on-site utility data to independently validate the calculated savings provided by the ESCo.

The analysis concluded that INL has actually eliminated 581,675 gallons of #2 fuel oil with a corresponding increase in 11,340 MWh of electricity as expected. This utility transition resulted in \$2.2M in annual validated energy savings as contractually agreed upon.



**Our objective** was to improve energy efficiency of the lighting loads in railways' residential quarters over the entire Indian Railways by replacing ICLs with energy efficient CFLs.

The main task was to promote energy efficient CFL by removing technological and cost barriers. The project involved procurement of new CFLs and replacement of 60W and 100W Incandescent Lamps (ICL) with more energy efficient 14 W and 20W CFL bulbs of equivalent lumen in residential application. Under this project, 1.41 million new CFL were distributed, covering 400,831 Railway Quarters, among railways employee spread across India with a maximum replacement of 4 CFL bulbs per household. The stakeholders meetings were conducted at different places and delivery of CFLs were made on door-to-door basis to every household.

Further, public awareness programs were also organized to encourage consumers to deposit fused CFLs after their useful life at select locations for onward transmission to M/s C-Quest Capitals for environmentally safe disposal as per extant guidelines. Bureau of Energy Efficiency, India, monitored the entire implementation of this project.

The project contributes to sustainable development as it brings forward an energy efficient technology, which would otherwise not have such a large market penetration in India.

The project resulted in direct energy saving of 112500 MWh per annum and is expected to generate 486,130 units of Certified Emission Reductions (CERs) equivalent including 3 percent share of Indian Railways.

**Sanjay Kumar,**  
**Dy Chief Vigilance Officer**  
Indian Railways  
[www.indianrailways.gov.in](http://www.indianrailways.gov.in)



4,00,831 households have directly benefitted from this project as they received free CFLs that would give them sustained saving over the years in terms of energy bills. Further, disposal or recycling of the ICLs and CFLs would require an informal/formal recycling industry, which would create additional employments and generate additional income to the recyclers.

The replacement of ICLs with CFLs has reduced energy consumption by approx. 75 KWh per CFL per annum and thereby carbon emissions from upstream fossil fuel power generation. It resulted in reduction of approx. 90,000 tonnes of CO2 emission (CER Equivalent) per year. Clearly the use of CFLs will avoid the production of glass, utilization of energy in ICL bulb production, etc.

In addition one of the key benefits of this project is exemplified in the fact that India faces a chronic energy deficit. The country is straining its resources to build more fossil fuel plants to meet the ever- growing demand for electricity. The saving through this project would help in improving the power supply for agricultural, domestic and industrial, commercial users in India.



**In recent years**, our company has invested heavily in the development of energy efficiency products, namely, energy consumption monitoring and management systems for both residential and business sectors, which help to reduce energy consumption and operational costs, and contribute to sustainability. Two years Ago, we allied ourselves with a Portuguese banking entity that has branches all over the world, developing project in Europe considered pioneering due to its innovative nature, its large dimension and the integrated way that different facilities in different environments and geographies are managed.

Through a solution composed by a system of energy and environment monitoring equipment and energy management software, the banking group now has the ability to view

and manage in real time energy consumption of all its network of buildings and agencies. ISA, with its energy management software Kisense, currently monitors and manages 358

**Pedro Mendes, Director of Marketing & Communication**

ISA-Intelligent Sensing Anywhere

[www.isasensing.com](http://www.isasensing.com)



agencies and 19 buildings daily, centralizing all of the global energy information of the banking group. Over time this energy management solution has allowed the company to aggregate information, view and analyzes the consumption and its tendencies, detect opportunities, waste, discover savings and fulfill goals.

This is achieved through network monitoring by the virtual energy manager, reports, alarm setting and monthly visits to agencies and buildings for training and information.

Besides this, our client has developed initiatives for employees and other facility users--such as security or maintenance--about more effective behaviors and attitudes, through communication campaigns and satisfaction surveys which have provided visible results: 100 percent of employees showed to have knowledge of the energy efficiency system installed in bank, and 75 percent pointed out that they are not only having more conscious attitudes at work, but also in their homes.

The results are quite satisfactory for both companies, which strive daily to make the project a success. These attitudes have strengthened the improvement of the saving results: the forecast for the first year was 6 per cent, but eventually turned into more than 10 per cent of energy savings. In 2012 the savings were above 15 percent - still closing final numbers.

Currently the banking group has already reduced its energy consumption by 15 percent, which represents savings of around 600,000 Euros per year, assuring a payback in less than 2 years.



**Don't give up on the solar dream.** Solar photovoltaic (PV) systems are expensive for any company, nonprofit or individual to invest in. The return on investment can take years. However, in August 2012, I wrote a grant for our company to install a roof-mounted 115 KW solar PV system, which would produce about 152,640 KWh of electricity annually. To put that into perspective, the solar PV system would produce electricity that is the equivalent of reducing 108 metric tons of CO<sub>2</sub>, sequestering carbon from 88 acres of forests, or supplying electricity to 13 homes

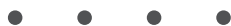
**Lisa Evenson, Sustainability Manager**

KI

[www.ki.com](http://www.ki.com)

each year. The solar PV system would supply about 27 percent of our building's total energy needs, saving us annually about \$17K a year.

In the end, we were awarded a \$175K to help pay for the costs of the system. With the additions of federal tax incentives, the system was approved by the executive team with a 1.6 year payback.



**Understanding the business** risks associated with climate change and the need to reduce its carbon footprint, L'Oréal has implemented a variety of renewable energy strategies to halve its CO2 emissions, on an absolute basis between 2005-2015. As a result of its practices in the measurement, management and reporting of its carbon emissions, L'Oréal has been recognized among a select group of corporations by the Carbon Disclosure Project (CDP) Carbon Disclosure Leadership Index (CDLI) and ClimateCounts.

This past December, for example, L'Oréal became operational with four new US solar installations including a 1,303 kWp rooftop system on its Clark, New Jersey Research & Innovation laboratory,

a phase II 761 kWp ground-mounted and rooftop system at its Franklin, New Jersey manufacturing facility, a phase I 851 kWp rooftop system at its Cranbury, New Jersey Distribution Center and a 2,402 kWp 600, 000 square foot roof-top system at its Monmouth Junction, New Jersey Distribution Center. With the addition of these new solar installations, we estimate that in 2013 the company will be among the top 10 companies with the greatest solar capacity in the US.

With initiatives such as these, we have succeeded in reducing our own GHG emissions by 31.1 percent since 2005.



**Pamela Alabaster,**  
**SVP Corporate Communications**  
**Sustainable Development & Public Affairs**  
L'Oreal USA  
[www.lorealusa.com](http://www.lorealusa.com)

**Lumenor Energy Services** was tasked with reducing the energy consumption on lighting at a 150,000 sq. ft. storage and refrigerated warehouse facility. The existing lighting consisted of a combination of 350 & 450 Watt Metal Halides, and T12/T8 linear fluorescent tubes throughout the warehouse, offices, storage areas, and conference rooms as is common in facilities this size.

**David Matten, Managing Partner**

Lumenor Energy Services, LLC

[www.lumenorenergy.com](http://www.lumenorenergy.com)

We recommended our LES-T8 linear tube which received an IES Progress Report Selection as replacement for all offices and common areas and our DesignLights Consortium (DLC) listed 94.5W LED High Bay as direct replacement to the roughly 200 high bay fixtures located 25 feet above finished floor.

Additionally, all fixtures and rooms were wired with motion sensors to reduce energy usage during periods of inactivity. As a result of the completed retrofit the facility reduced its consumption on lighting usage by over 80 percent (450W down to 94.5W pre-motion) and was able to upgrade to cutting edge LED technology improving the aesthetics dramatically.

The project had an initial 3.2 year ROI through our aggressive green pricing platform, but the end result was closer to 2 years once the \$40,000 utility incentive arrived.



**The Minnesota Historical Society** has an innovative sustainability initiative that aims to address energy, waste, water, and other resources within the state-wide history organization. The initiative, called More for the Mission, represents the role of sustainability in conserving resources that can directly contribute to the mission of preserving culture and history.

**Shengyin Xu, Sustainability Specialist**

Minnesota Historical Society

[www.mnhs.org](http://www.mnhs.org)

The initiative centers on a sustainability audit that tracks greenhouse gas emissions and cost data for energy, waste, water, and paper and wood product use. Utilizing this audit data, the More for the Mission program recommends and prioritizes sustainability

strategies across a diverse portfolio of 26 historic sites and landmarks that contain over 100 structures. In an economic context of reduced funding for cultural organizations like the Minnesota Historical Society, the data allow us to focus on the most environmental impact reductions while investing the lowest capital.

Initial strategies all targeted return-on-investments of 20 percent or higher. Further, the metrics allows the organization to track and measure progress toward its sustainability goals. As a result of the metrics, our organization has completed a series of over 50 heating, cooling, ventilation, lighting, and building improvements throughout its historic sites. From these initial projects, we will reduce greenhouse gas emissions by 15 percent from 2010 levels, and save \$360,000 annually on utility bills.

With our initial successes, we are leveraging tracked cost-savings to fund and implement even larger reductions in energy, waste, and water usage in the coming years. Measuring our sustainability efforts allows us to ensure success, and to propagate further sustainability initiatives. We have been working with our network of professional history and cultural organizations to make this approach a national model and establish a means to benchmark within our industry. We have found that sustainability is an issue that is growing in significance for a diverse range of industries, including cultural institutions like the Minnesota Historical Society.



**Noesis Energy chose** a freemium model, providing free tools for all energy professionals. We had a theory: energy and facility managers and consultants want to be in control of their energy spend, and given a robust and accessible way to do so, they will start tracking it.

**Scott Harmon, CEO**

Noesis Energy

[www.noesisenergy.com](http://www.noesisenergy.com)

We were right! In just six months, Noesis attracted over 6,500 registered users, who are using Noesis to manage more than twenty thousand facilities and representing over a billion square feet. That user-base includes everyone from the facility manager that oversees a single, 10,000 square foot building to the portfolio manager who oversees millions of square feet across hundreds of facilities. And they both effectively manage energy cost using Noesis' free standards-compliant tools to perform critical tasks such as calculating

weather-normalized baselines and benchmarking energy use. By lowering barriers and making energy management accessible to all, Noesis has filled a void in the energy industry.

But it doesn't stop there; energy managers not only need a clear picture of their facilities' performance, but also the tools that support improved energy efficiency through choosing the right projects and measuring results. So, in late 2012 we launched Projects, a suite of features that enable users to identify, prioritize, and track energy efficiency projects. Whether in the initial stages of analysis or seeking to perform measurement and verification, a Noesis user can consider the benefits of energy savings projects and have the tools to present a compelling business case for their energy conservation measures.

The Projects feature has grown over 50 percent month-over-month since launch. Experienced professionals or the "accidental energy manager" alike can utilize Noesis' simple yet powerful tools to bring energy management into executive level decision making. Whether explaining the effect of weather on budgeting, executing portfolio level energy analysis, prioritizing energy conservation measures, or tracking the impact of completed projects, Noesis' tools enable energy managers to take a seat at the table with the CFO. In 2013, we'll continue to build out our platform to bring all of the pieces of the energy efficiency value chain together.



**This past year** I learned something that I already knew. As Edwin Land, of Polaroid fame, once guided, sometimes we need not so much to have a new idea as to stop having an old idea.

**Karl R. Rabago, Principal**

Rabago Energy LLC  
[www.rabagoenergy.com](http://www.rabagoenergy.com)

While I served as vice president of distributed energy services at Austin Energy, the municipal utility for the city of Austin, Texas, we faced strong growth in our local solar program. We were getting increasingly desperate to find a way to ease pressure on rebate budgets, reduce subsidies (especially from low income to high income customers) over time, fairly compensate customers making investments in solar, and deal with the fact that increasingly inexpensive solar can cause a pretty serious short-term revenue problem for the utility.

Our old idea was rebates plus net metering. And we couldn't solve our problem with that formula. So we tossed out our old idea and had a new one. We used analysis to figure out what distributed solar energy is actually worth--and it turns out to be worth a lot more than it costs. And we created a brand new kind of retail solar tariff that appears to address all our problems. Under the "Value of Solar" rate that we developed, the utility credits solar customers with the full Value of their solar energy generation--about 2 cents per kiloWatt hour more than the retail residential price.

In return, the utility charges the customer the full cost of their consumption of electricity, as if the customer had no solar system in operation. The award winning Value of Solar rate not only eliminates cross subsidies, but also encourages energy efficiency and treats the utility and the solar customer fairly. The new idea was waiting for us--all we had to do was stop having our old idea.



**Our client, OCTAL**, a global leader in the packaging industry, has seen tangible business benefits including cost savings, competitive advantage, strengthened partner relationships, and increased employee retention from being the first in its industry to track and publicly disclose the company's waste, water, and carbon footprint as well as an in-depth product-level carbon footprint.

**Amy Haddon, VP of Communications**

[Renewable Choice Energy  
www.renewablechoice.com](http://www.renewablechoice.com)

Through the analytical, tracking, and disclosure process, OCTAL has identified numerous operational and market opportunities stemming from the development of a plastic that requires 67 percent less energy to produce than the average product available on the market today. OCTAL makes PET (polyethylene terephthalate), the material used in the production of clear plastic packaging – everything from fruit, bakery, and yogurt containers to soft drink and water bottles. Up until 2008, it was business as usual in the plastic manufacturing market – until OCTAL came along and created a new paradigm in the packaging industry.

The conventional manufacturing process for PET sheets involves nine steps from beginning to end. It typically depends on up to five reactors and requires separate processes for resin and sheet production and is very energy intensive. OCTAL set out to do it differently using less energy and with a smaller carbon footprint. But beyond just

creating a revolutionary product, OCTAL took steps to conduct its business operations in the most sustainable and transparent way possible. OCTAL brought us in to help provide an analysis of its overall sustainability efforts and to reduce its carbon footprint.

“We needed a consistent methodology to evaluate what we were doing and to identify areas for improvement. We also wanted to be as transparent as possible in all of our operations and wanted objective, third- party expertise with a series of disclosure efforts,” says Mohammed Razeem, OCTAL’s Project Engineer – Sustainability. “In this competitive business environment and difficult global economy, businesses need to differentiate themselves in smart ways that really stand out. We believe it’s not enough to just measure and manage – disclosure is really the most important piece of the sustainability commitment,” explains Razeem. “OCTAL is in the business of making DPET™ and we lean on our sustainability experts to guide us through the complexities of carbon measurement and disclosure.”

The future is bright for OCTAL. Since the DPET technology hit the market at the end of 2008, the company has grown rapidly. The company’s sales are projected to exceed US\$ 1 billion in 2013. It has offices in the US, UK, Europe and China in addition to the facilities in Oman. Even though they are becoming a global powerhouse, management meets quarterly with small groups of 20 employees at a time to have an open discussion and to brainstorm new ideas. OCTAL believes in efficiency in all areas of business and has seen great improvements—environmentally and financially—since implementing their sustainability strategy.



**At SC Johnson**, consumers worldwide rely on us to make familiar brands they trust like Windex, Glade and OFF!. Inclusive of that responsibility is a commitment to deliver these trusted products with a minimal environmental footprint. That’s quite a charge, but sometimes these issues are best tackled with simple solutions and the courage to execute. In our case, that means wind power.

Recently, SC Johnson made the decision to power our largest global manufacturing facility – which is the size of

**Kelly M. Semrau,**  
**Senior VP, Global Corporate Affairs,**  
**Communication & Sustainability**

SC Johnson  
[www.scjohnson.com](http://www.scjohnson.com)



36 football fields – solely on clean energy. This effort was part of a larger goal to increase renewable energy use at SC Johnson to 44 percent of total electricity by 2016. To move us closer to these objectives, we commissioned two 415-foot Vensys wind turbines in December 2012 and became the only manufacturer in the country to install this state-of-the-art technology.

Today, the project is the largest onsite, company-owned wind turbine project in the Midwest.

But how can two turbines really make a difference? Now, the heart of our global manufacturing is powered with clean energy virtually all the time thanks to the two turbines, coupled with existing cogeneration units. This is cutting carbon by 6,000 metric tons and generates enough energy to power more than 700 homes each year. Each turbine features a permanent magnet, gearless generator which means less maintenance and higher energy yields than the more traditional gearbox-type system.



**With the technology of “fracking,”** America has now an abundance of natural gas, and our natural gas is a clean burning energy source. The residential market has its high efficiency condensing boilers and water heaters, operating in the mid 90 percent efficiency range, and venting cool exhaust into the atmosphere. The larger commercial and industrial natural gas consumers also have an option to increase their natural gas energy efficiency. It is called Condensing Flue Gas Heat Recovery.

**Sid Abma, CEO**  
Sidel Systems USA Inc.  
[www.sidelsystems.com](http://www.sidelsystems.com)

This technology is designed to recover the heat energy from the waste exhaust gases, making this energy available to yet be used back in the building or facility where it was combusted. This recovered energy can be used for building space heating, or as heated domestic or industrial process or plant washdown water. At a hotel or university this recovered heat energy can even be put into the swimming pool water. At a power plant this recovered heat energy could be used to heat hundreds of acres of algae ponds or commercial greenhouses, where biofuels and or food can be produced for local or export.



The cooled CO<sub>2</sub> exhaust would then be provided for these plants as CO<sub>2</sub> enrichment (fertilizer), and these plants in turn would produce O<sub>2</sub> (oxygen) for our atmosphere. All the WATER that is being created during this heat recovery process can be used efficiently.

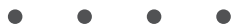
Increased natural gas energy efficiency = reduced utility bills = profit

Increased natural gas energy efficiency = reduced global warming

Increased natural gas energy efficiency = reduced CO<sub>2</sub> emissions

Increased natural gas energy efficiency = water conservation

What natural gas is not wasted today, will be there to be used another day.



**UC Berkeley's new initiative** to save energy on campus enables students, faculty, and staff to make informed decisions about energy use that will reduce energy costs and return funds to teaching and research. One component of the initiative shows energy consumption and conservation in action through dashboards installed for almost 70 campus buildings. Stakeholders use the dashboards to track the cumulative effects of electricity saving measures such as turning off the lights at night, using energy saving features on computers, or other similar actions.

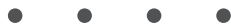
The dashboard can also save energy by making it easier to spot problems. Shortly after the initial rollout, the dashboards achieved their first success, when the keen eyes of a building occupant identified

an energy anomaly. In the first week of June, Duncan Callaway, an assistant professor in the Energy Resources Group, contacted myPower (the initiative outreach component) by email with a simple question: Why did the base load power at Barrows Hall bump up immediately after graduation and not go back down?

Professor Calloway and his students had noticed the spike when they checked the dashboard – where electricity use jumped seemingly overnight on May 17th. The newly created Energy Office – another component of the initiative – used data and analytic capabilities of the dashboard software to sort through possible causes of the increased use. They quickly found an equipment problem that was the cause and resolved the issue, returning the equipment to its previous work settings.

**Lisa McNeilly,**  
**Director of Sustainability**  
University of California, Berkeley  
[www.sustainability.berkeley.edu](http://www.sustainability.berkeley.edu)

The immediate impact was visible with the drop in use in early July. How much did we save? According to the Energy Office, without the dashboard and assuming this problem had gone unnoticed, the annual avoided costs could have been as high as \$45,000. According to Vice Chancellor Ed Denton, “This shows us how the customers who pay attention can be very helpful to us in achieving the goal of reducing energy use and greenhouse gas emissions.”



**2012 seemed to be the year** to concentrate on little things. A growing tide among our grocery retail customers was to leverage their energy data to better understand why consumption baselines change, rather than spend the big bucks on flash-in-the-pan lighting retrofits. Come to find out it was “death by a thousand cuts” that made the most impact on utility consumption costs. And surprisingly, the insights were found by looking at their maintenance data.

In retail environments, maintaining an appealing customer experience means that you have to react fast to issues that may arise. But in doing so, sometimes service technicians’ quick fixes and adjustments only address cosmetic issues and not the underlying cause. Short-sighted changes can drive incremental energy consumption due to incorrect and or overcompensating changes made to critical HVAC and refrigeration systems.

**Art Quinn,**  
**Director of Professional Services**

Verisae  
[www.verisae.com](http://www.verisae.com)

If this should occur, the baseline utility consumption may result in a slight change a fraction of a percent and go undetected, with management chocking up increases to seasonal weather or increased consumer traffic. When the new baseline becomes the new norm, this oftentimes leaves the underlying issue unchecked for months and or years while driving up consumption. Common feedback heard from clients who make the effort to analyze their energy data is that this issue is widespread and can account for why when energy projects are performed at sites they begin to lose their impact on a sites baseline utility consumption in about 14 to 16 months after going live.

Correlating events, from maintenance, energy, and the store environment, allows for the understanding of change. After all, energy, equipment and store data is your data, so why

not look at it before you shoot the budget on the next trendy project. You might already have the next big ROI project in hand to address. The trend is clear, the next big thing in 2013 is in fact small; the incremental but sustainable improvements that can be found in big data.



**We're getting more** and more clients who say being "green" is their number-one priority. They want energy savings, and they want it in a way that is easy to install in their home. So I set out to create wall and roof panels that were relatively inexpensive – a prepackaged "green" product that would be affordable to more people. I also wanted to create a product that could be used in a passive home. And people want long-lasting products and long-lasting energy savings, so we made sure to develop a product that would not only meet today's codes, but is likely to meet codes 10 years from now.

Our True Roof Vented Panels and True Wall Panels have R-values that are really unheard of – 66 in our roof panels and 38 in our wall panels. This means they are highly efficient, and they're easy to install.

The win here is that our business has grown about 60 percent in the last year, and about 30 percent of that is attributable to these new products. "Green" customers want products like these, and our goal was to give them what they want, not just for today but for 10 or 20 years down the road. By being proactive and forward thinking, we were able to create a product customers were asking for, and increase business substantially.

**Andrew Button,**  
**General Manager**

Yankee Barn Homes  
[www.yankeebarnhomes.com](http://www.yankeebarnhomes.com)

## Auditing & Reporting

**During 2012** we have become increasingly aware of the importance of data as a driver of sustainability at institutions of higher education. More than 200 institutions have completed their AASHE Sustainability Tracking, Assessment and Rating System ([stars.aashe.org](http://stars.aashe.org)) which means we have thousands of datapoints describing how campuses are advancing sustainability in their education, research, operations and administrative actions. In addition we have seen our Campus Solar Photovoltaic Installations database grow as more campuses have become electricity generators. The database now includes more than 300 campuses that collectively have installed capacity for generating 175 megawatts of electricity. Although we have had great stories to tell about interesting things that are happening in campus sustainability we now are producing data that shows the significance of those efforts and their impact.

**Paul Rowland, Executive Director**

[Association for the Advancement of Sustainability  
in Higher Education \(AASHE\)](http://www.aashe.org)

[www.aashe.org](http://www.aashe.org)



**Most would agree** that the corporate sustainability movement has been knocking on the door for years; 2012 was the year it kicked the door down. Some will argue that the concept of sustainability has always been at the core of efficient business practices, but this year more companies than ever before included sustainability as part of their annual reports.

**Bob Kimball, Marketing Director**

[Dakota Software  
www.dakotasoft.com](http://www.dakotasoft.com)

For most, this was in response to investor demands or the outcry from consumers. Regardless of the cause, it's clear that transparency and accountability related to resource utilization and environmental impacts are becoming the norm. The consensus appears to be that it will take a concerted effort of government oversight and private sector leadership to make meaningful change to our collective environmental impact. Companies that hope to thrive in tomorrow's economy will either embrace this or suffer under the weight of regulatory obligations and public scrutiny.

From an Environmental, Health and Safety Information Management System (EHS IMS) standpoint, we completed more custom applications for our clients in 2012 than in the previous five years combined. Our client base has always been one of our driving forces for product innovation, but this recent trend seems to stem from an increased desire for companies to consolidate environmental KPIs and give decision makers global insight into their environmental impacts.

Beyond that, but related to sustainability trends, our clients are now looking for tools to help them stay ahead of regulatory mandates. Dakota's core software solutions have always been centered around EHS compliance. We've been preaching the benefits of proactive compliance, meaning identifying the requirements applicable to specific location and then proactively addressing them rather than relying on backward-looking audits, for nearly a decade now. While its clear compliance remains the foundation of corporate sustainability efforts, it's gratifying to see that our clients are making the move beyond compliance and taking on roles as leaders in environmental stewardship and Corporate Social Responsibility.



**2012 saw environmental performance** emerge as a critical driver of shareholder value and customer loyalty, and is increasingly viewed by executives as being intertwined with commercial success. As a result, more companies issued sustainability reports in 2012 than in any previous year.

**Ory Zik, CEO**

Energy Points

[www.energypoints.com](http://www.energypoints.com)

But despite an increase in reporting activity, few organizations are able to translate their environmental sustainability reports into actionable intelligence. These reports often measure sustainability by using domain-specific engineering units, including kWh, mBTU and tons of carbon. These metrics fail to account for critical elements of sustainability, like location or resource scarcity.

The imperative for reporting, combined with the ineffectiveness of current measurements, has driven demand for a universal metric for measuring environmental sustainability – one that combines simplicity with accuracy in an actionable way. Businesses need a universal language that serves as a common denominator for the multiple metrics

currently used in the industry, and that takes into account the time and location of the resources being consumed.

This is why we launched EnergyPoints Analytics™ in 2012, to address the market need for a universal measurement of sustainability initiatives that would provide actionable intelligence. Currently in use by Fortune 1000 companies and universities such as Harvard, Energy Points converts all energy resource domains into a single, common unit of measurement based on the primary energy used to generate each resource. This provides businesses with a one-to-one comparison of resource consumption, regardless of the unit of measurement.



**At CLT envirolaw** we worked with a global events company to successfully implement a sustainable management system in compliance with ISO20121. ISO20121 is an international management standard designed to help organizations in the events sector make their operations, products or services more sustainable. The standard promotes ethical business principles such as stewardship, inclusiveness, integrity and transparency.

**Colleen Theron, Director**

CLT Envirolaw  
[www.clt-envirolaw.com](http://www.clt-envirolaw.com)

We learnt a number of valuable lessons during the development of the sustainable management system. Top management buy-in is a fundamental first step. Sustainability is viewed by many as “green” and therefore costly. Sustainability covers more than environmental measures. It is about learning about the strengths and weaknesses of your business, according to the views of those who can influence it and are influenced by it, almost like an organizational 360 appraisal.

To create buy in from the top management we held a workshop to ensure that they understood what sustainability meant for their organization. To help explain the potential benefits of adopting a sustainable approach we used ROI figures (such as the amount of money that could be saved on reducing waste and energy costs). During the year we spent time ensuring that ROI was captured throughout the management of the system. These benefits have been confirmed now that the sustainability management system

has been fully operational for several months. Other ROI benefits have been retaining and attracting employees.

Getting comprehensive information before setting a strategy is crucial. A key part of this is stakeholder engagement. We ran a stakeholder forum for the company to get all the stakeholders involved in the strategy. The forum helped educate interested parties on the benefits of managing sustainability issues and ideas for overcoming any barriers. The organization learnt how their staff, customers, suppliers and venues perceived them. They also learned how important sustainability is, which issues should be managed first, and which measures could be implemented. It is a partnership process.

We found that companies further down the supply chain had very innovative suggestions for measures that could be implemented into the sustainability strategy. By collaborating with the suppliers, the company became more innovative. An example was using recycled banners to manufacture school bags which were shipped by a supplier for a charity in Africa. A system is required to ensure legal compliance and to manage risk before best practice can be considered. We developed a legal register and risk management tool that covered a range of sustainability risks for the organization.

Although a number of legal registers are available online that can be purchased, these are not usually integrated (e.g. a separate environmental register, health and safety register, etc), tailored or produced by lawyers. The creation of the sustainability legal register tool was an organic process and integrated a variety of issues, including energy, waste, health and safety, and governance. We used our legal experience to identify the applicable legal obligations, risk levels for potential non-compliance and the control procedures required to mitigate these risks. The register also captures recent social and economic legal issues such as data protection, governance and corporate reporting obligations. This register provided part of the foundation for the sustainability audit and helped to determine what sustainability issues should be managed as part of the sustainable management system.

A sustainable management system requires sustainability to be fully integrated throughout an organization's business decisions. Developing a sustainable procurement policy was seen as key, together with addressing human rights issues. We started working on implementing due diligence processes as required by the UN Guiding principles for Business and Human rights, tailored to the company's labor policy and also addressing procurement issues. This will create a trickle-down approach, where the key suppliers will check their suppliers and so-on. Through complete integration, the organization is now looking at how these lessons can be integrated more broadly in the business. The



value of implementing ISO20121 was the creation of a system with principles that are becoming fully implemented into every aspect of their business.



**Our company holds** ISO 9001 (Quality) and ISO 14001 (Environmental) Registrations across Canada. Having these globally recognized registrations enable us a competitive advantage in the market place while ensuring we meet our customer expectations and minimize the negative impacts to the environment associated with running our business.

**Susan D'Souza, National Manager**

Staples

[www.staplesadvantage.ca](http://www.staplesadvantage.ca)

One key component to having these registrations is utilizing our internal auditors. We have been fortunate to have passionate, engaged employees who volunteer to be part of our internal audit team. It is important to conduct internal audits as they help gauge the health of your Quality and Environmental Management Systems.

When we recruit internal auditors we reinforce that it is truly a win-win situation. First, the company benefits from their auditing expertise to help identify areas we need to improve upon and hence foster our Continual Improvement (CI) Mindset.

Second, for the auditors, we are investing in them to acquire new knowledge and skills to further build their capability development. Lastly, by being an internal auditor, the opportunity exists for them to broaden their understanding of the business and learn specifics of the department they are auditing. They can leverage this opportunity to help identify areas of interest and carve out their own future career path.

In order to maximize the benefits of your internal audit program, it is critical to ensure your auditors are properly trained and deemed competent. After all, the quality and depth of your internal audit findings directly correlates to the competency of the auditor.





**Walsh & Associates, Inc.**, has always been committed to sustainability and reducing the company's environmental footprint. Over the past ten years, we've rolled out multiple projects to reduce resource consumption across the board, including energy efficient lighting and the largest solar array in Missouri in 2011.

These improvements helped us significantly reduce our energy bills, going from spending \$35,000 for electricity to \$4,000 in 2012. This year, we wanted to be able to quantify our sustainability beyond cost measures. Cost is a poor indicator of sustainability, because it does not factor in the time, location and scarcity of a resource being consumed.

### **Randall Lewis, Director of Operations**

Walsh & Associates, Inc.  
[www.walsh-assoc.com/](http://www.walsh-assoc.com/)

For example, water is cheaper in New Mexico than it is in Chicago, yet it's scarce in New Mexico, and more plentiful in Chicago. Saving money on water consumption in New Mexico doesn't necessarily equate to sustainability, because cost doesn't allow for true a comparison. In 2012, we implemented Energy Points to convert all resource consumption into one universal metric, enabling us to make direct, one-to-one comparisons of our sustainability projects that were previously impossible.

By converting all resources into one metric, we're able to count energy as a currency and understand the fundamental environmental impact of any project. This true measure of environmental impact, integrated with the financial impact of our conservation projects, provides a holistic and balanced look at our sustainability initiatives.

## Strategy & Leadership

**We know that the world** of 2050 is going to hold somewhere between 9 and 10.5 billion people, the majority of whom are going to be living in cities. This presents a huge range of challenges. These people are going to have to be fed and housed, and be given access to transport, telecommunications, energy, employment and social services, to name a few.

**Simon Mills,**

**Head of Sustainable Development**

City of London

[www.cityoflondon.gov.uk](http://www.cityoflondon.gov.uk)

Currently a third of the little economic growth we have in this country is coming from the low-carbon green-growth sector – a sector that is

responsible for employing 940,000 people, which is a larger slice of employment than car manufacturing, arms and aerospace put together!

I think the days when you could claim that sustainability is a cost are long gone. Fundamentally, I believe sustainability is a tool with which you can unpick complex problems and deliver long term, effective resource-efficient solutions. If this wasn't the case, you wouldn't see such a high take-up of sustainability amongst businesses – it makes pure business sense, both in terms of reduced costs and more importantly, in terms of the enhanced ability to actually solve problems and identify new markets and new products.

As I said, there is a whole range of issues that needs addressing, and if you can invest in the companies that are finding solutions to those issues, you are quite literally going to 'clean up' – both environmentally and economically! Air quality for example is a very significant issue for the UK. Our NOx levels currently exceed agreed thresholds, and we're facing fines from the European Union at the moment as a result. Water and energy supplies are also vitally important, as is the sewage network – which needs a thorough overhaul.

In terms of London, all of these issues need to be addressed in a systemic way, and I think perhaps that the best way greater London can actually address these is for direct dialogue to take place between the mayor of London and solution providers, because I don't think we are going to see national government really getting its act together to deliver the solutions that London needs.



**We work** with some of the world’s largest companies to help make them be more bike-friendly. That sounds relatively lightweight. But being bike-friendly has serious and long-lasting impact on sustainability efforts. Companies are proving that an integrated bike program is an important part of an organization’s sustainability plan. Why? Because bikes, as simple as they may be, support the triple bottom line:

**Amy Harcourt, Principal**

[Bikes Make Life Better, Inc.](#)

[www.bikesmakelifebetter.com](http://www.bikesmakelifebetter.com)

**People:** Riding a bike makes people more fit, healthy and productive

**Planet:** Riding a bike reduces CO2 emissions and air pollution

**Profit:** Riding a bike to work saves employees and employers a lot of money

Bikes, in an organizational setting, address initiatives like employee wellness, alternative transportation and environmental affairs, in a fiscally responsible way. When organized into a fully integrated program, bikes become an engine of sustainability. And that’s why a growing list of corporate and educational leaders have implemented comprehensive and integrated bike programs. They know that the return on investment is real and measurable.

The list includes such leaders as Kimberly-Clarke, Google, Facebook, General Mills, Apple, Hewlett Packard, Williams-Sonoma, Stanford, Duke and Princeton.

Facebook, for example, has made a serious commitment to its bike program as a way to achieve 50 percent alternative transportation on its Silicon Valley campus. They’ve focused on providing sustainable green transportation alternatives to their employees, as well as helping their local neighborhood do the same. Their efforts have included a large fleet of bicycles for employees to use on or off campus; covered and secure bike parking throughout campus; help in re-striping the roads around their neighborhood for the safety of all cyclists in the area; an on-site bike hub for employee bike repairs, education and motivation; and Bike- to-Work Day challenges and activities.

Facebook is not alone. A large number of companies and universities have similar stories to tell. As these programs evolve and companies begin to measure and report on the impact on the triple bottom line, more companies will implement bike programs. We are at the beginning of a clear trend in the adoption of corporate bike programs – for three good reasons: people, planet and profit.



**What is a retailer** with over 4,000 private label food products to do? Especially when they already know that the ingredients that go into these 4000 products are the source of the biggest environmental challenge they face?

The sustainability-related low-hanging fruit has been tackled, but still there are 4000 private label products looming large as an obstacle to advancing their sustainability agenda. The best scenario would be if all 4000 products used roughly the same ingredients, came from roughly the same suppliers, and were processed roughly the same way. Then they could take 1 or 2 products, run product-level LCAs, and extrapolate the results to the other 3998 products in order to figure out where the major hotspots are found.

**Sara Pax, President**  
Bluehorse Associates  
[www.bluehorseassociates.com](http://www.bluehorseassociates.com)

But let's be honest, this never happens. The 4000 products fall into dozens of different product categories like dairy, breads, frozen meals, and so on; therefore, there are an endless number of ingredients, packaging materials, or combinations of the two that could be impactful.

As Tesco found out last year, doing product-level LCAs, or carbon-footprinting, on 1000s of individual products is neither efficient nor insightful. A new methodology was needed to bring the 4000-product problem down to a manageable size.

We found a way to tackle this problem by performing a detailed and scientific, yet business-focused, Product Portfolio Analysis (PPA). We took the ingredients' percentages of the 4000 products (not individual recipes, just the highest weight ingredients for each product), and grouped them into some 150 categories (organized logically by the client), and then ran carbon footprints on the ingredients and packaging materials of each aggregated category. We then aligned the results with sales volumes to calculate where the biggest hotspots were in the entire portfolio, and then drilled back down to the product level by allocating carbon emissions back to the ingredients by product.

In the end 13 products were identified: they represent just 0.3 percent of the product portfolio and only 3 percent of units sold, but, these 13 products represent 15 percent of the total carbon emissions. The process required creative thinking on our end - and some flexibility on the client's end - to ensure that we got the maximum insight and most useful results out of the time and money being spent.

# Introducing a strategic sustainability plan that puts money back in your budget.

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Corporate office savings

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Let our in-house experts develop a tailored energy and sustainability plan that delivers tangible results for your business.

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- > **Control:** Monitor your operations from shop floor to top floor.
- > **Optimization:** Execute targeted efficiency projects with demonstrable ROI.
- > **Performance:** Access robust reporting software to ensure optimum performance.



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**Schneider**  
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We explored and tested different calculation methods to achieve these results, which, in the words of the client, “provided actionable data that will enable us make a huge impact on our sustainability work moving forward.” Product Portfolio Analysis is a new term in sustainability that is, unfortunately, being bandied around quite freely. Indeed, it means vastly different things to different people. In our case, the project took about 90 days and delivered detailed numbers as well as various summary reports, tables, charts, and presentation materials.

The PPA delivered numbers by product category, by general food group, by detailed food group, by ingredients and by packaging materials, and where necessary, by product. The project was not designed to provide us with a secure long term consulting contract. It was designed and completed to provide the client with valuable, accurate, and actionable data that will help them implement a long-term sustainability strategy to reduce their costs, their waste, and their impacts.

The 4000-product problem was tackled with precision and care and identified the 13 products that the client can target as a next step in the sustainability analysis process. These 13 products represent a diverse range of the original 4000, and we know that they reflect the highest impact products based on ingredients and packaging materials.

The retailer is now ready to dig deeper. A series of detailed product- level LCAs will now identify hotspots in these supply chains that provide areas of opportunity for improvement. The retailer can proceed with this next step without fear or risk that something important is being missed among the 3987 other products, and without basing budgets and goals on unproven assumptions and competitive pressures. This is the science of sustainability metrics being put to good use for business. This is sustainability metrics delivering valuable and actionable insights to drive intelligent resource-efficient business decisions.



**ISC-Audubon worked** with the Charlotte Mecklenburg Housing Partnership to create Brightwalk at Historic Double Oaks. This neighborhood revitalization project is the first Audubon Lifestyles Certified Community redevelopment project. Not only has the project utilized state of the art energy efficiency for all homes on site,

**Ronald G. Dodson, Chairman**

ISC-Audubon  
[www.isc-audubon.org](http://www.isc-audubon.org)



but the entire project is based on an approved Ecological Design site redevelopment plan.

In addition all of the construction/demolition materials were captured, crushed and reused onsite for road base and building base needs. In addition to the use of ecological-based land planning, native plants were used in the landscape to reduce needed management inputs and to benefit local species of urban wildlife.

A mix of section 8 housing, apartments, market rate homes and apartments, along with needed commercial enterprise and mass transportation needs have been filled. Brightwalk at Historic Double Oaks is the national model being espoused by HUD as the sustainable community redevelopment approach that should become the national standard.

The development is a part of the cities, Statesboro Avenue redevelopment efforts, with the goal to not only redevelop a “place” using the principles of sustainability, but to inspire the people of the community to become more personally engaged in sustainability.



**The City of Roanoke’s** Parks Division operates six 16’ Batwing Toro 580-D units to keep its 1200 acres of Park turfgrass mown. During February of 2012, with the assistance of Blossman Gas of Bedford, VA, the City’s Outdoor Power Equipment (OPE) mechanics injected with propane one of the standard 65hp Mitsubishi Diesel Toro 580-D engines. Blossman Gas supplied on-site technical installation support as well as the Powershot 2000 propane injection kit via Diesel Performance Products. Fuel usage for the propane-injected 580-D was tracked during the month of April 2012 and then compared with the same fuel usage from April 2011.

**Dwayne R. D’Ardenne,**  
**CGM Street & Landscape Superintendent**

City of Roanoke  
[www.roanokeva.gov](http://www.roanokeva.gov)

Results demonstrated an ROI of less than 3 months on the \$730 Powershot 2000 kit. The specific data showed the propane-injected 580-D unit reduced by 54 percent Diesel fuel usage from an average 3.16 gallons per hour in 2011 to 1.44 gallons per hour in



2012. Given the fact that propane is over \$1.00 per gallon cheaper than Diesel fuel, the propane-injected 580-D unit also reduced by 38 percent total fuel cost from an average of \$10.67 per hour in 2011 to \$6.56 per hour in 2012.

Financial considerations aside, operators praised the propane-injected 580-D unit as having noticeably increased torque and horsepower while mowing the thick, wet grass that is typical of Roanoke's spring season.

From an environmental standpoint, the propane-injected 580-D no longer emits visible black diesel soot from the tailpipe. Cleaner emissions means the unit can now be run during Virginia DEQ declared Air Quality/Ozone Action days.

As of December 2012, four of the six Toro 580-D units have been propane injected while the remaining two 580-D have been slated for replacement during fiscal year 2013.



**Our planet's** natural infrastructure is collapsing worldwide, with staggering implications for business as usual. Two-thirds of our planet's land and water ecosystems are now significantly degraded due to human activity, and climate change is accelerating the damage. The UN estimates that our collective mismanagement of natural assets is costing the global economy an estimated \$6.6 trillion a year – nearly 11 percent of GDP – through effects like contamination of water supplies, loss of fertile land to soil erosion and drought, and supply chain disruptions from deforestation and overfishing. Unless things change dramatically, these costs could skyrocket to \$28 trillion by 2050 – a figure that would eclipse the economic damage expected from climate disruption.

**P.J. Simmons, Chairman**

Corporate Eco Forum

[www.corporateecoforum.com](http://www.corporateecoforum.com)

Still, only today's most farsighted companies grasp what's at stake. Against this backdrop, the Corporate Eco Forum (CEF) set out in September 2011 to shine a global spotlight on the enormous business value of nature by leveraging the power of our influential membership, comprised of nearly 80 Fortune and Global 500 companies. In partnership with The Nature Conservancy, we announced an initiative to catalyze a major round of private sector commitments that would underscore the business logic of safeguarding

critical ecosystems. Our goal was to weave together stories from a diverse set of powerful companies into a compelling narrative that would send a resounding message to business leaders worldwide: that safeguarding Earth's natural assets is emerging as a top business imperative in the 21st century. We set our sights on the "Rio+20" Earth Summit as a world stage to tell the story. Just 9 months later, we had collected 24 commitments from companies totaling \$500 billion in revenues including Alcoa, CH2M HILL, The Clorox Company, Coca-Cola, Darden Restaurants, Dell, Dow Chemical, Duke Energy, Ecolab, EKO Asset Management, Enterprise Rent-A-Car, FEMSA, General Motors, Hanesbrands, Kimberly-Clark, Lockheed Martin, Marriott International, Nike, Patagonia, TD Bank, Unilever, The Walt Disney Company, Xerox, and Weyerhaeuser.

We showcased their efforts in an e-report released at Rio+20, *The New Business Imperative: Valuing Natural Capital*. Designed for a senior executive audience, the report makes a straightforward business case for safeguarding critical forest, freshwater and marine systems that produce goods and services pivotal to long-term business continuity and global economic growth. By outlining a versatile and practical action framework highlighting the best-available tools for companies wishing to incorporate ecosystems and biodiversity into business strategy, the report enables business leaders to consider both short and long-term actions that protect ecosystems and advance core business interests by reducing risks, controlling costs, protecting brands, and fueling growth.

The response to our collection of commitments was overwhelmingly positive, and the initiative was held up as an example of meaningful action by the private sector that contrasted with governments' lackluster results at Rio. While the initial results were promising, we know that our initiative will only succeed in accelerating truly transformational change if it continues to scale. At the Clinton Global Initiative (CGI) in September 2012, we announced a new commitment to mobilize another round of private sector commitments from CEF and CGI members, while also opening the platform to companies in Mexico, Australia and India. Underpinning our commitments platform will be a concentrated effort to connect the dots with thought leaders and organizations seeking to standardize natural valuation approaches and metrics, such as those represented by the TEEB for Business Coalition



**In 2012**, we recognized a team of our employees for a truly outstanding achievement – finding new ways of reducing energy and reaping \$44 million in recurring savings. This

particular accomplishment is a great example of how we are constantly generating value from our approach of sustainable growth, by which we mean creating shareholder and societal value while reducing our environmental footprint along the supply chains in which we operate.

**Dawn Rittenhouse, Sustainability**

**Director**

DuPont

[www.sustainability.dupont.com](http://www.sustainability.dupont.com)

Here are some of the many ways stories like this contribute to our sustainable growth mission.

- 1. Footprint goals:** The company as a whole is closer to reaching our greenhouse gas targets because of the innovative work of teams like this one.
- 2. Financial incentive:** Our bottom line benefits from the recurring savings of the reduction programs.
- 3. Valuing employees:** This team was recognized by the business president and CEO of the company at our annual internal awards ceremony for sustainable growth excellence.
- 4. Giving back:** As part of the award the team has been rewarded \$5,000 to donate to the nonprofit or NGO of their choice.
- 5. Stakeholder engagement:** To select the winners of this award we called upon a panel of internal employees and external stakeholders to decide which of 28 nominations were truly excellent.
- 6. Sharing best practice:** This team, in our Chemicals & Fluoroproducts business unit, was able to secure enormous financial savings through energy reductions despite constant changes in its business structure from reorganization and acquisitions. This learning can be shared for company-wide adoption at a powerful scale. Every year we celebrate the accomplishments of six teams just like this one, generating exponential value from the work of our employees around the world.



**Strive for excellence**, not perfection. Engage your constituents in the journey and be open and honest about your achievements as you progress. When people can understand how you're genuinely trying to make progress, people will be far more realistic about expectations and far more forgiving if/when you make some mistakes on the way. Don't wait until stakeholders come to you to make change, or until legislation tells you to do things differently. Be the driver of the CSR agenda that works for your organization, where you ask yourself questions how your organization can do good, rather than how to be "less bad." Be a seeker, not a follower. Do good, be fair and realize that you are part of something bigger.

**Daan Elffers, Founder**

EMG (ElcaMediaGroup)

[www.emg-csr.com](http://www.emg-csr.com)



**Unfortunately**, the economy has taken a bit of a beating on the company and as a result of the shortsightedness of our CEO resulted in the cutbacks of our sustainability initiatives. Although he fully admits the benefits, results, and cost savings of the initiatives, he never really embraced the concepts and potential, and was more interested in sound bites for the investment community than understanding the significance, importance, and benefit of CSR and the resulting corporate governance. As a result the CSR report this year to the shareholders is basically a reprint of last year's report with no new net gains or initiatives. Should be an interesting AGM this year.

**Anonymous**



**While working** at a local college, I was deeply engaged in our sustainability initiatives and lead the instructional team's sustainability task force. I was enabled to help create many new educational programs and outreach programs.

**Joanne Gorski, President**

Sustainable Insights, LLC

[www.sustainableinsightsllc.com](http://www.sustainableinsightsllc.com)

Sustainability was identified as one of the college's "Strategic Directions" and everyone was trying to figure out just what that meant

to the organization. Being a Strategic Direction dictated that the college must have a measurable metric that is reported on in the annual score card, to the Board of Directors, and to our stakeholders. The measure chosen was the number of sustainability events held for the year. There was no definition of how you define a sustainability event, or what criteria a sustainability event needs to meet. It was just a number that would be reported. I was asked to identify the number of sustainability events held that year.

I questioned the individual who was responsible for the achievement of the metric, and found that I would need to figure it out on my own. I ended up putting together a spreadsheet listing the events with all the details, hoping the information would be useful in the future. The college did have a draft of a sustainability plan, but it was never published internally or to the public. Just a few individuals had access to the document. The organization never got serious about meaningful sustainability metrics. We had all kinds of sustainability-related things that we were doing. But we never measured them, quantified them, dedicated adequate resources to them, published them, or followed the continuous improvement process to ensure they created meaningful change.

Meanwhile, I became very engaged in the importance of sustainability and took the initiative to become well-credentialed and networked in sustainability. Realizing we had a significant issue, I drafted a sustainability plan that followed best practices and had meaningful metrics. I reviewed it with my Executive Dean who thought it was a good proposal to begin a meaningful discussion, and he circulated it to the executive team.

We were politely told the college had more important things to work on at that time. Tough times hit the public educational sector with serious budget cuts from the state legislature. People were stretched tightly with higher workloads, so they focused upon the metrics that they must deliver; metrics that were included in their job descriptions and performance reviews.

Sustainability was moved from a “Strategic Direction” to a value of the college. Values are considered important, but they are not measured. The Sustainability Task Forces stopped meeting. My Executive Dean retired. And I left the college to start my own sustainability consulting firm.



**Oak Ridge National Laboratory (ORNL)** is committed to advancing highway-ready electric vehicles (EVs) and demonstrating their cooperative interaction with the electric grid via the use of renewable power and battery storage. ORNL has installed 25 solar-assisted EV charging stations on its main campus. This research project provides ORNL support to DOE's renewable Energy Consumption goal of 7.5 percent of annual electricity consumption from renewable sources by FY 2013.

In addition, the solar-assisted EV solar charging stations' 47 kW array provides enough energy annually to offset the electricity required to drive 25 Nissan Leafs almost 10,000 miles per vehicle per year. ORNL's 25 solar-assisted EV charging stations reduce greenhouse gas emissions and are estimated to displace approximately 47.2 metric tons (104,000 pounds) of carbon per year.

**Teresa A. Nichols,**  
**Sustainable Campus Initiative Co-Lead**

Oak Ridge National Laboratory  
<http://sustainability-ornl.org>

During FY 2011 and FY 2012, 125 stations were installed across the state of Tennessee. DOE's EV Project deployed 8,300 EVs—the largest deployment in history.

We also used an integrated approach to water resource management that included replacing old once-through cooling practices with the latest cooling technologies, installation of the latest water conservation devices, discovery and repair of water leaks, and an implementation of a new site-wide focus by all staff to reduce and conserve water.

This approach includes improvements in new construction; renovations and retrofits; operations and maintenance; cross-campus water quality management efforts; and research and development activities.

Significant savings were realized in FY 2012 that resulted in a water intensity of 114G/SF, which exceeds the FY 2020 goal (a reduction of 35 percent relative to FY 2007 baseline). Elimination of Once-Through Cooling Water in the Central Compressed Air Plant has saved 145 million gpy and around \$200,000 per year in water use and discharge.

In fiscal year 2012, we added four existing and two new construction buildings to our High Performance Sustainable Building (HPSB) portfolio, making a total of 17 HPSBs.

The sustainable features in the existing building renovations included enhanced lighting control, roofing upgrades, low-flow plumbing upgrades, HVAC upgrades, continued recycling efforts, and energy performance evaluations.

We're on track to achieve and/or exceed the Executive Order 13514 target for 22 buildings meeting guiding principles by FY2015.

Lastly, Oak Ridge Leadership Computing Facility team houses, manages, and supports DOE's Office of Sciences' Cray XK7 Titan supercomputer in a 350,000 square-foot Leadership in Energy and Environmental Design (LEED)-certified facility. Titan is an in-place upgrade of the Cray XT5 Jaguar system, (which claimed the fastest supercomputer rank in November 2009).

In November 2012, Titan was recognized as the fastest supercomputer in the world, with a demonstrated performance of 17.59 PF (quadrillions of floating point operations per second). This same system is also highly energy efficient, reflected in its award as the #3 most efficient machine on the November 2012 edition of the Green500 list; the system produces more than 2.1 million floating point operations per Watt.



**Stop trying** to get your CxO passionate about sustainability. It's a waste of your CxO's time, and of your own energy. As sustainability advocates and change leaders, our mission is not to get our CxO passionate about sustainability but, rather, to connect sustainability to our CxO's passion.

That passion may include reducing costs, increasing sales, delighting customers, or a more engaged workforce. Fortunately, sustainability can advance each of these goals

– and more. To do so requires a shift in our mindset and focus from that of being a “sustainability leader” to one of being a “business leader” that builds and draws upon a sustainability arsenal to address business problems and pain points.

It requires moving from passion-based strategies and initiatives, to monetary-based ones. When I had the privilege of leading sustainability across HP, I often backed into sustainability initiatives instead of leading with them. If the company was focused on

**Engelina Jaspers,**  
**Former Sustainability VP**  
[www.linkedin.com/in/engelinajaspers](http://www.linkedin.com/in/engelinajaspers)



reducing bottom-line costs, I might recommend an energy reduction initiative engaging all 320,000 employees dispersed across 50+ geographic locations as a way to save money (and energy). Often the programs and payback were no-brainers. The motivation for employees was environmental, the motivation for the company was both monetary and environmental.

The result was a triple win... for the company, for the employee and for the environment. Focusing on the business benefits of sustainability will help smooth the way to greater receptivity and a more well- entrenched sustainability commitment.



**I'm a project manager** at an environmental nonprofit in Minneapolis – our mission is to build partnerships to collaboratively solve environmental problems. As you probably can imagine, there are a lot of environmental issues we work on in which bringing together key stakeholders to cooperate and work together can be a challenge. Government, business, industry, environmental advocates, and everyone in between don't always see eye to eye. Sometimes I think I'm one of the luckier people in our organization, because I lead our work with businesses and sustainability, and I'm consistently amazed, inspired, and heartened by the willingness – and not only willingness but desire and excitement – of all members of the Twin Cities sustainability community to come together, listen and learn from one another, and collaborate to find solutions.

**Georgia Rubenstein,**  
**Manager of Environmental Projects**

Environmental Initiative  
[www.environmental-initiative.org](http://www.environmental-initiative.org)

The bulk of my work in 2012 was focused on coordinating an event series about sustainability issues. I love wandering the room during the breakout sessions at the event, listening to a facilities manager share lighting tips with a communications director, or a ten-year sustainability director sharing reporting and goal-setting tips with the self-appointed head of a company's brand new green team.

These events attract not only sustainability staff, but technical experts from local government, lawyers and consultants, supply chain managers and purchasers. But once they're all in the same room, all differences get put aside and the playing field is level.

Everyone, regardless of their position or tenure, knows they have something to learn about this exciting, complex, and rapidly evolving field, and come to our events ready to share what they know and learn what they can from their peers (and sometimes even competitors).

I think the fact that sustainability is inherently about something larger than us – something that, by definition, goes beyond just the bottom line and profit motives – brings out the best in people, encouraging sharing and collaboration.



**Collaborating with** other Health Authorities across British Columbia, Fraser Health Authority (FHA) has implemented an Energy & Environmental Sustainability strategic framework focused on 3 themes: Economic Stewardship; Environmental Stewardship; Community / Social Stewardship.

Under those themes, FHA is focusing on 10 key topic areas: Culture of Stewardship; Energy Conservation & Climate Neutral; Zero Waste; Active Transportation; Regenerative Design; Water Conservation & Restoration; Sustainable Procurement; Zero Toxicity; Healthy Land & Food; Transparent Reporting.

Under “Culture of Stewardship” the strategy is to use both a direct peer support program and a social media based program called the “GreenCare Community,” which was focused on behavioral change. After two years the GreenCare Community site has roughly 4,000 health care staff registered. This represents 10 percent of our work force. The successes involve the number of social commitments to reduce personal energy consumption and carbon footprints. In addition the site brought together a large number of staff to participate in the yearly bike to work campaign, which greatly boasted participation. Lastly, we found the newsletter associated with the social media to be a very effective way of communication to the wide geographic region. It was more effective than the corporate newsletter.

**Glen Garrick, Energy & Environmental Sustainability Manager**

Fraser Health Authority  
[www.fraserhealth.ca/](http://www.fraserhealth.ca/)

The challenges involve providing enough dynamic content to keep the staff returning to the site. As well, we have found a majority of our staff simply prefer to read and not engage on the site, which limited any success in sharing best practices and collaborations.

Lastly, we found it difficult to identify key performance indicators that would measure the business value of social media within health care. We are currently re-designing the GreenCare Community social media site so that it offers more business value. It is hoped that we will double our engagement levels by year-end. Integrating a social media campaign into core business functions is an underestimated and yet key to success. “Build it and they will come,” is a movie line that does not apply to the use of social media in business. Social media needs to be integrated within business processes AND taken to the doorstep of each employee through relevancy and continuously refreshed value. If done correctly, social media can be a tipping point for cultural change within your business / organization.



**Alison Rowe, Global Executive**  
**Director Sustainability**

Fujitsu

[www.fujitsu.com/global/solutions/sustainability/](http://www.fujitsu.com/global/solutions/sustainability/)

In my experience, companies that want to look as if they are sustainable tend to create large teams to take responsibility for sustainability. Ideally, a company’s sustainability team should be small, and aim to ensure that everyone is taking responsibility for sustainability, not just an appointed department.

At Fujitsu, we don’t have a large team, but we’ve made sure that all of our business functions take responsibility for sustainability within their respective departments. Whether this is around operational efficiency, product manufacturing, or even sales – all parts of our business are responsible. We have a sustainability board, that governs that in our company, and we also have a sustainability leadership team, and then the sustainability team is small and flexible and have really a governance and coordination role, and the KPI’s (key performance indicators) and delivery is done right across the business. So for me, they’re the sort of signs to say that it’s integrated, rather than a big team sitting separately.



**Lenovo's climate change strategy** focuses on five key areas where Lenovo can demonstrate effective influence in driving and facilitating absolute reductions in carbon emissions and a global transition to a low carbon economy. Lenovo's strategy includes five areas of influence: internal operations, energy suppliers' operations, supply chain operation, customers, and actions of government, public, and non-profit organizations.

Lenovo's understanding of its internal greenhouse gas (GHG) impact has been accomplished by tracking, measuring and reporting greenhouse gas emissions from internal operations since 2006. We have also been collecting necessary information about our suppliers and products throughout our value chain since 2009. We have learned that gathering GHG emissions data and establishing GHG baseline of its supply chain has greatly helped us identify several emissions-related opportunities for Lenovo, such as being involved in green logistics in Asia and supporting product carbon footprint rules establishment in China.

**Anderson Gao, Gong Xun**

**& Son Stenclova**

**Carbon Champions**

Lenovo Sustainability

[www.lenovo.com/environment](http://www.lenovo.com/environment)

We recognize the impact of transportation in our supply chain on our climate change goals and we're taking steps to reduce this impact. Lenovo is shipping almost two personal computers per second to customers around the world. If we laid just one quarter's PC shipments end to end, it would be about 1.5 times circumference of the earth. Imagine the environmental impact of moving products globally 24 hours and 7 days a week in this highly complicated logistics network. This is why Lenovo Global Logistics' environmental sustainability strategy is focused on driving green freight and logistics and delivering the most transparent and credible product transportation carbon emission measurement and reporting systems in the industry to support Lenovo's overall sustainability and climate change strategies.

Lenovo Global Logistics joined US EPA SmartWay program in 2008 and requests its North American carriers comply with EPA SmartWay standards. In Asia Pacific, Global Logistics joined Green Freight Asia Network's (GFAN) steering committee in January 2013. This is the platform for us to learn cross-industry green best practices, shape sustainability standards in Asia Pacific and identify opportunities to road test GFAN standards and methodologies with domestic transportation in China. Lenovo Global Logistics is working on the project to setup product transport carbon emission baseline and measurement system in China domestic for FY 2012/2013.

We are also focusing on developing logistics supplier sustainability training system and green carrier certificate programs in China. Our goal is to champion green freight and green logistics in China and collaborate with cross-industry partners to reduce the environmental impact in product transportations.

We're also focused on the carbon impact of our products and recognize that the existence of a universally accepted method for establishing product carbon footprint (PCF) will promote targeted product energy reduction actions and allow for product differentiation. To this end, we are engaged in the development of PCF protocols and tools with external partners. Lenovo participated as a member of the Stakeholder Advisory Group for the World Resources Institute (WRI) & World Business Council for Sustainable Development's (WBCSD) development of the Product Accounting & Reporting Standard. Lenovo is also engaged with other members of the information and communication technology (ICT) industry, academia and Energy Star in the development of a tool to simplify and expedite determination of the PCF for ICT products through the Product Attribute Impact Algorithm (PAIA) project. It is hoped that this work will move the industry towards a standard method for establishing PCF.

Internally Lenovo continues to work on quantifying the lifetime impact of its products. The carbon footprint of Lenovo's products will help identify lifecycle areas where GHG emissions can be effectively reduced. Internal guidance has been developed to support quantifying the product life cycle GHG emissions of Lenovo's products. This document is written in accordance with external standards and each business unit must follow this guide in assessing the life cycle emissions of its products. In FY 2011/2012 Lenovo started working on the Product Carbon Footprint (PCF) China Standard Project in cooperation with the Ministry of Industry and Information Technology of the People's Republic of China. Lenovo has been supporting the project in the following four areas: Product Category Rule, Desktop PCF, Notebook PCF and PCF Certification.

Among other concrete supporting activities Lenovo provided product carbon footprint training to more than 200 components' suppliers and successfully performed the first facility-based GHG verification by CESI for the manufacturing site in Shenzhen. It's Lenovo's intention that these activities in support of our overall carbon strategy will drive direct results in carbon reduction and improvements in Lenovo's climate change impacts.



**2012 was the year** of making sustainability employee engagement fun. Our clients – which range from Fortune 500 companies to leaders in the sustainability industry – are leveraging interactive technology to drive behavior change at scale, and having fun while doing it. Here are the four things we've seen make an employee sustainability initiative a success for any company, regardless of what industry they're in.

**Susan Hunt Stevens,  
Founder & CEO**

Practically Green  
[www.practicallygreen.com](http://www.practicallygreen.com)

**1. Make it accessible:** It's about engaging your workforce when it makes sense for them.

For companies that have line workers, or even workers on different continents, a successful sustainability initiative should allow all of its employees the ability to feel like they can participate and contribute at a time and place that works for them. One of our clients, whose workforce includes casino workers that do not work in an office or sit behind a computer, was able to leverage our mobile platform. As a result, they are able to reach a part of their employee base that would have previously been excluded.

**2. Make it visible:** Bring recognition to the everyday actions that may otherwise go unnoticed. Most people may not know that their coworker has reduced the power settings on their computer, or carpooled to work. By highlighting these individuals and the actions they've taken, it begins to create new social norms. This is one of the main principles behind professor and author Robert Cialdini's work, included in his book "Influence: The Psychology of Persuasion." Cialdini argues that people are more likely to do something that they see other people doing. This is one of the main attributes of our platform, and one that continues to be a significant driver for our clients to help their employees take that first step towards sustainability, and then the next.

**3. Make it social:** We have a saying that Practically Green is no fun without friends. By leveraging your social network it allows employees to see people they know and trust suggest, recommend, and pose questions to help move the conversation forward about ways to integrate sustainability into their daily lives. For one of our clients, a Fortune 500 technology company, their CSO makes a point to frequently comment when employees accomplish actions, and encourages them to share details about how they did it, and what resources or vendors they used as a way to engage others to share their stories as well.

**4. Make it competitive:** Good old-fashioned competition is still a great way to get

people engaged. Different things motivate different people. For some it's being number one on the leader board, for others it's about earning badges and points. And for others, it might be on a personal level (setting goals and meeting them). Whatever the reasoning, one thing that's universal is the fact that people are more likely to keep coming back to something if they are having fun doing it. For another technology company we work with, they decided to organize their teams around their executive management members, and all of their direct reports throughout the company. Needless to say, this group of highly motivated people loves to challenge one another and make interoffice challenges – both for their own team and against other teams – fun for their employees.



**Last year** was a breakthrough year for us, as we met our Carbon20 target eight years early, launched an aggressive new sustainability strategy and unveiled our new vision and purpose to make a difference by providing innovative solutions for healthier lives and happier homes.

**David Challis, Director of Global Sustainability,  
Environment, Health & Safety**

Reckitt Benckiser  
[www.rb.com/home](http://www.rb.com/home)

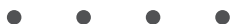
Our goal for the Carbon20 initiative, launched in 2007, was to improve lifecycle greenhouse gas emissions per dose by 20 percent by 2020. This performance was based on emissions throughout an RB product's lifecycle, from raw material sourcing to disposal, and the equivalent to taking 3 million cars off the road.

Carbon20 was an exciting journey for everyone at RB. It pushed our level of innovation and reminded us that even though every solution may not be a "big idea," each can be tremendous in moving the needle toward a goal. A great example of this is the redesign of the French's Mustard cap to be one gram lighter, which saved 275,000 pounds of plastic and 1,600 tons of carbon each year.

The success we've experienced with Carbon20 inspired us to set another round of ambitious sustainability goals. By 2020, we've committed to deliver a 1/3 reduction in water use, 1/3 further reduction in carbon footprint and have 1/3 of our net revenue coming from more sustainable products. We've also committed to assess the sustainability



impacts from 100 percent of our innovations. As a leading global CPG company, we take pride in our innovative heritage and agility as a company to quickly respond to changing demands. Carbon20 represents a clear showcase of RB's driven attitude toward any goal, and we are all very excited to see the novel ideas to come.



**We do not believe** that good sustainability practices force a choice between improved environmental outcomes and operating efficiency. The best practices will integrate the two.

**Michael Manzella, Senior VP & Chief Sustainability Officer**

RR Donnelley  
[www.rrdonnelley.com](http://www.rrdonnelley.com)



**While reflecting** on an insightful white paper on *"The Sustainability Chasm"* by leaders at IBM, I was hit by the realization that even startups building software to advance sustainability must contribute to the solution.

As CEO of Sphere E, a start-up developing software to empower diverse enterprises to "buy smart" to reduce costs and footprints, I challenged our core team to figure out how we could be part of the solution rather than part of the problem. Using a 2010 survey of 130 professionals in large private and public section organizations responsible for planning and implementation of sustainability initiatives conducted by Gartner in collaboration with TRIRIGA, IBM identified the "Sustainability Chasm" as the gap between "Achievers" (have implemented energy and environmental management projects and are meeting their sustainability goals), "Planners" (are evaluating opportunities to meet their sustainability goals) and "Stragglers" (have no clear energy or environmental strategies).

**Deborah Dunning, Co-Founder & CEO**

Sphere E  
<http://www.sphere-e.com/>

As most organizations are in the latter groups, we see this as a problem requiring attention

by all thought leaders. So our eight founders, all active in the sustainability arena, came up with a software product development plan design to foster collaboration with product manufacturers and purchasers. The leadership work of Michael Zimmer, an environmental risk management expert, Eva Schmincke, a product performance evaluation expert, Kelly Ross, a software market and sales expert, and others, enabled our core team to devise and implement these key strategies. They tell the story of how we are working to ensure that we've crossed the chasm and how we see helping others do so.

**Validated Learning Experiments** – to see if our understanding of user problems is accurate and to learn if our proposed solution is of value. First we conducted a survey of building professionals with the goal of learning how many of the would value an LCA (life cycle assessment) based web-tool led by Linda Sorrento, recently appointed Executive Director of the National Academy of Environmental Design. We were encouraged by the 18 percent response rate and by the research findings. 60 percent of the respondents said they would find the ability to source expert verified performance data on all products in one web-tool valuable and to have access to LCA-benchmarked product performance data with another 30 percent saying these would be highly valuable.

**Public Concept Presentations** – to learn if our planned web-tool content and software functionalities will be useful and used by diverse groups.

Then we moved to the next level of collaboration by creating a slide deck to present at Greenbuild and post on our website. The comments we received from several hundred leaders are helping to shape a highly useful software tool. While many might consider doing this risky, we were grateful for the collaborative feedback and felt protected by our patent award by USPTO.

**Agile Development** – to learn as we go from our user groups, so that we develop our web-tool to product evaluation/comparison/selection efficient and effective.

Now we are developing our software as a service using the “Agile Method” for product development on which Fred Engel, our team member and software consultant is an expert. In exchange for valuable feedback on web-tool content and functionalities, we provide collaborators – participants in our Leadership Program – with free software use and related training for a period of time.

The Sphere E story is all about collaboration to produce more efficient and environmentally responsible procurement of virtually all products and services. We are working to

bridge the “sustainability chasm” by going beyond simply reporting data on product performance to offer valuable insights made possible through creative collaboration with other leadership entities. We are creating a BIG DATA management system for the procurement of products and services to support making wise decisions on the use of resources – money, people and time. We hope the collaborative results will contribute to the ability of many entities-to move beyond the “sustainability chasm” and adopt a new paradigm leading to next generation sustainability initiatives.



**Embedding sustainability** into your corporate culture enables your business not only to survive but to thrive and flourish. Sustainability is an emerging field where it is evident that a company can improve its performance by instilling a corporate culture of Sustainability Leadership. Empowering your leaders and managers to cultivate a sustainability mindset, inspire and motivate their employees will result in your staff reaching their full potential.

Hence by unlocking this hidden talent, your company will realize cost savings and a favorable bottom line.

**Susan D’Souza, National Manager,  
Quality & Sustainability**

Staples  
[www.staplesadvantage.ca](http://www.staplesadvantage.ca)

In order to reap the many benefits of sustainability, it is crucial to align your sustainability initiatives with your business objectives. Having the commitment from your executive team to support your vision coupled with strong employee engagement to drive your sustainability programs is the key to success.

To maximize benefits from sustainability, it must be entrenched in all areas of your organization and in all levels from the CEO to the mailroom. By integrating sustainability in your corporate vision, weaving it in your departmental objectives and scorecards, and leveraging your employee engagement, then sustainability will be the key enabler to achieve your business goals.



**Good things** come in all sizes. A lot of the CSR success stories come from large public companies and their energy savings or employee engagement stories. Less often do you

hear success stories from the little guys – the smaller B2B vendors who also care about doing good in their businesses but who have fewer resources and no public pressure. SweetRush is one such company, and we have succeeded by turning our existing skills toward CSR projects.

Five years ago while working at an environmental NGO, I met Andrei Hedstrom, CEO of a small private learning and training company. With a new baby in his life, Andrei became deeply concerned about the future of her planet. One day, he called me for a chat, and a new clarity emerged in the conversation: it was time. SweetRush was ready for its sustainability transformation. Now, SweetRush has a healthy baby of its own: the Good Things Initiative (GTI).

**Brooking Gatewood,  
Sustainability Strategist**

SweetRush, Inc.

[www.sweetrush.com](http://www.sweetrush.com)

Four factors stand out as contributing to the successful implementation of this new program for SweetRush in 2012.

- 1. SweetRush is no stranger to change.** The company began in 2001 with a focus on B2B marketing, and has evolved to become a leading vendor for custom content, project management, and consulting services in the eLearning industry. During the recession, SweetRush went virtual to save office expenses, and employees adapted so well that we've stayed virtual by popular demand!
- 2. Alignment with existing company culture.** Prior to our recent rebrand, "We Care" was the SweetRush tagline. This culture of caring – for each other, clients, and community – was deeply part of SweetRush culture. Bringing in a sustainability program was easy to sell as an extension of this existing ethos.
- 3. CEO leadership.** Andrei's passion and the respect he holds amongst employees were crucial for acceptance of this new strategic direction. Andrei had been planting seeds for years toward a green future for SweetRush, and most employees' eco-education came directly from his evangelism.
- 4. Alignment with business strategy.**

By fall of 2011 when we began pushing this initiative, most of our Fortune 500 target clients had sustainability programs in place – key for our B2B strategy. Moreover, research showed a gap in effective implementation of these programs – especially for employee engagement and supplier sustainability standards – and none of our competitors had

acted on this gap. Even for skeptics, the case was clear for applying our expertise to clients' sustainability programs as means of market differentiation and diversification. So adding a stronger focus on both internal sustainability and client-facing corporate responsibility services simply made good business sense.

Over the course of 2012, we developed the (GTI) through three main channels:

- 1. Internal employee education & engagement:** We shared content on sustainability & CSR basics & initiative details via internal educational memos and team conversations. A special volunteering day upgrading a schoolyard in Costa Rica was a key team bonding and momentum-building event for the initiative.
- 2. A total rebrand:** We built a new public identity, first with Facebook & LinkedIn, brochures, and launching a beautiful new website, brand, and blog in late 2012. The result: over 400 percent increase in web-hits since our Facebook launch!
- 3. Integration with core strategy:** Ensuring leadership & resource commitment, particularly in marketing and business development.

GTI helps us test new technical skills through pro bono projects (e.g. a free online sustainability game coming summer 2013!)

A success story: We won a bid on a major client project because our CSR commitment differentiated us from the pack. The GTI is a win-win-win: for us strategically and ethically, for our clients who get more impact from their CSR input, and for the people and planet who benefit. Good things indeed!



**Symantec's lesson learned** in 2012 was on the power of engagement, transparency and active communication. From our inclusive materiality process to the expansion of the Corporate Responsibility in Action blog, 2012 was the year to make stakeholder and employee engagement front and center.

The following are just some of the successful and valuable initiatives in 2012 that helped drive the performance and direction of the company's sustainability efforts:

Symantec utilizes a materiality process and matrix that helps guide the development of our corporate responsibility strategy and programs. We hear from employees, customers, partners, advisors, NGO and academic communities, and use these ideas, suggestions, concerns, and questions to focus their efforts. Our latest materiality analysis helped guide a valuable shift in strategy to focus more deeply on a smaller set of material issues than in previous years, and to group these material issues into the broad categories of Our People, The World, and Your Information.

**Lora Phillips, Senior Manager,  
Global Corporate Responsibility**

Symantec

[www.symantec.com](http://www.symantec.com)

In 2012, Symantec set out to retain our position as a CSR thought leader, and knew that candid insights from stakeholders would help. As we planned the 2012 Corporate Responsibility Report, feedback was gathered from various stakeholders. Not only did these stakeholders provide valuable feedback that helped to structure our priorities and goals, but specific stakeholder feedback is interspersed throughout the report, to directly show how their concerns and suggestions were incorporated into the latest report.

In addition to integrating stakeholder feedback into the 2012 Report, Symantec focused their energy on communication tools, like their blog, Corporate Responsibility in Action, and quarterly newsletter, Corporate Responsibility Snapshot. The Corporate Responsibility in Action blog allows us to continuously update internal and external stakeholders on Symantec's environmental and social initiatives, gather stakeholder feedback, and highlight those at all levels of the organization who help bring CR at Symantec to life.

The blog has been very successful as an internal tool featuring articles from Symantec thought leaders, philanthropic partners, and employees across the company's global community. Employees read and comment on entries and share their own experiences. The Corporate Responsibility Snapshot has been redesigned to reflect the material issues included in the Our People, The World, and Your Information framework. Each issue contains a feature story for each of these three categories, ensuring that each edition reflects the broad, complex range of issues that Symantec tracks as part of its sustainability journey.

This increased focus on stakeholder engagement and transparency has resulted in enhanced communication tools, a refined approach to materiality, and more opportunities for dialogue. In addition, it has given us an opportunity to directly address stakeholder concerns in the form of goals and priorities for our coming year.



**A university** must spend millions of dollars in building a sustainable institution of higher education for new programs and projects, such as solar arrays, wind power installations, etc. Right? “Not so!” is the answer the sustainability team at Urbana University would give, based on their personal experience.

Without spending a penny from the University, Urbana University in Urbana, Ohio, has made great strides toward its commitment to “Walking the Talk” of sustainability. It accomplished the following just during 2012.

- Completed a 500-kW solar array – supplying 18 percent of our electricity through third-party finance and ownership;
- Received \$100,000 grant from the Wege Foundation in recognition of our sustainability efforts and accomplishments;
- Awarded Tree Campus USA membership by the Arbor Day Foundation;
- Established a successful 20-acre native prairie, converted from mowed grass, on campus;
- Doubled material recycled through Terracycle from 2010;
- Launched our first Sustainability Management certificate program;
- Tripled enrollment in our Environmental Science course from fall, 2011, to spring, 2013;
- Released first Annual Sustainability Report;
- Scheduled completion of campus-wide energy retrofit in 2013 to increase energy efficiency by 30 percent.

### **Tingting Cai, Assistant Professor**

Urbana University

[www.urbana.edu](http://www.urbana.edu)

So how did Urbana University do it? And what lessons were learned?

**1. Collaboration reaps tremendous harvests.** Our sustainability team collaborates with and includes members from companies such as GreenTech Advisors, Cameron-Cole, LLC, Environmental Services, Inc., and Sodexo Corporation; government agencies, such as the U.S. Fish and Wildlife Service; non-profit organizations such as ISC-Audubon; and Urbana University faculty and administration as well as students. Members from outside our university gave us invaluable advice in finding third party financial support for our solar- array project and planned energy retrofit. The U.S. Fish and Wildlife Service funded and carried out our habitat conversion.

**2. Determined leadership and persistence are key** to doing the “impossible”:



gathering the support needed for building collaboration and accomplishing otherwise unreachable goals. Urbana University's president, Dr. Stephen Jones, and board member, Ron Dodson, have worked tirelessly on the agenda of "Walking the Talk" of sustainability ever since Dr. Jones arrived at Urbana University four and a half years ago. Their persistent dedication to enhancing the sustainability of our university has made all these achievements possible.

**3. Building the base is essential** for success in the journey toward campus sustainability. Support and help from students, faculty, and staff are necessary to develop a sustainable path toward our sustainability goals. Without this campus-wide support, we would not have been able to triple enrollment in our Environmental Science course, double our recycled materials, or launch our certificate program. The involvement of our students was also critical to our achievement of Tree Campus USA membership.

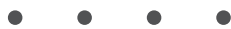
## Sustainability

**Avoid a starring role** in Groundhog Day... Sustainability professionals talk endlessly about building the business case and rightfully so. In the wake of numerous organizational changes here, I have found the need to replay some of those conversations, hence the movie reference. It is not a given that having once made the business case successfully, it will be enduring and forever accepted. There's no sustainability Mt. Rushmore at most companies.

Many businesses are incredibly dynamic and conditions can change, often rapidly, so the sustainability business case has to be refreshed and then replayed for the new

audience. I had to put aside some of my initial frustration and get back to basics: know your audience; get all of the data and metrics in order; benchmark if possible; appeal to the interests of the group or individuals receiving the information and speak their "language."

This exercise also highlights the importance of the work we do in building a sustainability culture, where more individuals have a basic understanding of sustainability and can apply the sustainability thinking to their jobs. Success in culture building can make that next showing of Sustainable Groundhog Day a more pleasant experience.



**Perhaps the biggest challenge** we have faced is the understanding of CSR. I realize that CSR and sustainability can be vague terms with flexible definitions. In the Arab region, most companies limit their definition to an act of philanthropy. So you will find companies asking why they did not receive an Arabia CSR Award even though they signed a check worth millions for a local NGO. I tell them that philanthropy is

**Bruce Klafter, Head Corporate  
Responsibility & Sustainability**

Applied Materials  
[www.appliedmaterials.com](http://www.appliedmaterials.com)

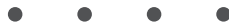
**Habiba Al Marashi, President & CEO**

Arabia CSR Network  
[www.arabiacsrnwork.com](http://www.arabiacsrnwork.com)

great, especially in countries where governments are not rich enough, but that’s only one part of CSR.

It’s only when companies realize its full potential that they understand that money spent for CSR is not an expense but a much-needed investment that brings value to the organization and its external stakeholders. The other challenge that I commonly hear from people in the business is the lack of buy-in from senior leadership. Who hasn’t faced a boss, or a board of directors that wants nothing to do with contributing to sustainability issues, especially while the organization is going through difficult economic times? However, if you are an industrial company, isn’t it in your best interest to invest in the health, safety and capacity building of your workers? If you are a financial institution, isn’t it in your best interest to be transparent and show how you are tackling corruption? What business leaders have to realize is that many issues of sustainability already affect our business and will eventually do so even more. So we have to get rid of the feeling of doubt and denial in our minds.

Another critical challenge is the lack of benchmarking and comparative credibility of CSR initiatives taken by hundreds of organizations in the MENA region. This is where we – the Arabia CSR Network – have played a role. The Arabia CSR Awards recognizes and honors those organizations that stand above the rest in terms of their sustainability strategies, business ethics and governance. We issue detailed case studies on the winners every year so that others can learn from these best practices.



**At Banorte**, we seek to be a pioneer and innovator in sustainability best practices in Mexico. Following our partnership agreement between our company and the International Finance Corporation signed in 2009, we have worked to design and implement a Social and Environmental Management System (SEMS).

With a footprint of more 1300 branches and \$114 billion USD assets under management , Banorte is the third-largest financial institution in Mexico by loans and deposits. Our sustainability commitment is achieved through a four-pillar framework: Environmental Responsibility, Community Commitment, Equality and Governance and Value Chain.

**Lorena Gomez,**  
**Sub Director, Value Chain**  
Banorte  
[www.banorte.com](http://www.banorte.com)

As part of this work, we implemented the most ambitious program of environmental and social risk evaluation in Mexico.

#### Key Requirements for Success

**1. Integration of sustainability** into the bank's DNA. At Banorte, we consider sustainable development as a fundamental component of the proper administration of the banking business, and this company-wide commitment is an integral part of our desire to be a responsible bank. The SEMS process is a reflection of the values of our organization. At Banorte we promote sustainable practices for both the bank and its customers, which certainly strengthens our profitability, minimizing any negative social, environmental and reputational risks that could be generated by our financial activities or operations of our customers. Balancing financial priorities with environmental and social issues is an essential element of corporate responsibility, as well as being fundamental to risk management and shareholder protection.

**2. Like any other initiative**, it is critical to co-design a risk-management process with the different areas of the Bank. The design of the SEMS plan involved more than 16 areas of the Bank including Risk, Strategic Planning, Human Resources, Credit, Corporate and Business Banking and Legal, and Corporate Responsibility, among others, which ensured the smooth running and success of the project to incorporate the needs and interests of all stakeholders.

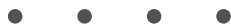
**3. Involving outside partners** to build internal capacity is key. The SEMS was designed and implemented with the support of the University of the Environment (Universidad del Medio Ambiente) also known as UMA, a leader in sustainability education and training in Mexico. After a selection process that included a global search for the most appropriate partner, Banorte chose to UMA to help co-design this important project, and their staff continues to serve as a full-time in-house consultant for our credit analysis and provides us with outside expertise for projects that require it.

**4. Importance of effective knowledge sharing** during training sessions. In training key staff members on the SEMS process, we worked to establish a common language in terms of sustainability by focusing on basic concepts and awareness among all staff members involved. The knowledge sharing was engaging and enjoyable so that key concepts could be easily learned. As an example, we performed a simple analysis of the life cycle of an everyday product. Finally, the support of the Management Directorship helped participants to have all the available and necessary resources.

**5. Importance of strong communication** during implementation of the initiative. In order to maintain an open channel, SEMS participants were given training evaluations, to improve the quality and content of future sessions. The Environmental Coordinator responsible for the SEMS project also made sure that her information was readily available for any questions and follow-up before and during the implementation of the process.

#### Key Challenges to Keep in Mind

Ability to provide clarity to a broader organizational audience when sustainability risk management systems are complex. In order to address this issue required designing a reductionist model that integrated with the existing credit analysis practices of involved staff members. This required a constant conversation in order to get at the key required questions that capture and analyze all factors related to the social environmental risks associated with a particular project. Investing time and setting goals in the short-term while recognizing that the SEMS is a process of long-term continuous improvement. While at times those of us in the Corporate Responsibility field would like to see a project like the SEMS project implemented very quickly, projects involving organizational change no matter how committed an organization is to Corporate Responsibility take time as they require extra effort from staff, and a greater resilience and flexibility to the change. For Banorte, this requires patience, finding the right way to make sure that initiatives such as SEMS can truly take hold and be successful in order to contribute to Mexico and to make our organization stronger for the long-term.



**Caesars Entertainment** believes the problems facing the planet demand real action today. At the center of the company's CodeGreen sustainability initiative are tangible, low-carbon solutions that are implemented to reduce water, energy and waste consumption at all Caesars resorts. The company's portfolio is predominately comprised of older structures that require retrofits to achieve improved efficiencies. To date, the company has invested more than \$70 million in such work. Viewed as a unique opportunity to trail blaze in the gaming and entertainment industry, Caesars has developed practices that deliver financial benefits (i.e. energy cost savings) and provide returns on employee and guest satisfaction.

Core to the company's broader CodeGreen strategy, energy and water reduction deliver a consistent and solid return on investment and propel the company toward achieving

its environmental goals. During the past five years, the company has reduced its energy consumption by over 20 percent on a per-square-foot basis and is on target to achieve its absolute carbon reduction goal of 10 percent between 2007 and 2013 despite organic growth. Through the development and implementation of a three “S” (simplify, scale and save) strategy, Caesars has sharpened its focus on targeting high-value, replicable efficiency opportunities that can be characterized, developed and implemented across the enterprise. Evaluated and prioritized based on environmental and economic impact, each property participates in these efforts which makes scalability key when considering a course of action.

**Eric Dominguez, Director,  
Energy & Environmental Services**

Caesars Entertainment Corporation

[www.caesars.com](http://www.caesars.com)

Prioritizing the many opportunities that exist based not only on their long-term potential, but also on their near-term probability for success helps to direct the actions taken at Caesars. Reason would suggest that changing out light bulbs is much easier than installing a solar generator, yet many times people want to focus on opportunities that appear more exciting, but are often filled with complexities. From an environmental and execution standpoint, replacing halogen MR-16 lights with more energy efficient light-emitting diode (LED) technology will have a greater impact and probability of near-term success than installing solar panels or wind turbines.

Putting clear priorities into action, Caesars is nearing completion of one of its largest, single-lamp, lighting retrofit efforts to date. Tasked with changing over 65,000 halogen MR-16 lamps, the initiative stands to save the company nearly 19 million kWh and more than \$1.6 million a year. In addition to sole energy savings, the LED bulbs that were installed last more than four and a half years (or 40,000 hours) longer than traditional bulbs, reducing the overhead costs of purchasing new bulbs as well as eliminating the associated waste stream. This project alone will avoid using an estimated 1.3 million traditional replacement bulbs as well as the associated time to replace these bulbs—a considerable labor savings benefit that is frequently overlooked.

Working with executive leadership (including finance) to understand the implication of each action, or lack thereof, has fueled Caesars Entertainment’s work to invest in a more sustainable future.

**Ingersoll Rand established** aggressive operational sustainability goals which required engaging all parts of the organization, not just manufacturing and EHS. To help meet these goals, the Ingersoll Rand Center for Energy Efficiency and Sustainability (CEES) worked with Cleargreen Advisors to create an internal sustainability “engine”—the One Step Forward program, which aims to educate, engage, and empower IR’s 52,000 employees around the world to lead projects that deliver positive EHS and sustainability impacts.

**Mark Major, Co-Founder**

Cleargreen Advisors

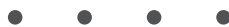
[www.cleargreenadvisors.com](http://www.cleargreenadvisors.com)

Participants learned about sustainability’s relevance to the business, participated in a sustainable design exercise, walked the floor seeking challenges and opportunities in their own workplaces, and proposed and outlined real projects to both improve sustainability and deliver business value.

Once participants have completed all these steps, they become company Sustainability Champions. The company observed profound change triggered in the Champions, noticing that they walk away from the Champion orientation thinking, ‘I can actually do something.’ And they’ll commit to a small individual action of their choosing which is later connected to bigger, work-related projects.

When the workshop concludes, work begins on sustainability projects. Managed and funded at the site level, sustainability projects bring together Champions from all functions who share interest in the project and/or have relevant expertise. Projects often break through silos, and bring together people who had previously rarely spoken, let alone worked together. They also provide new leadership and growth opportunities because they stretch employees beyond their standard job responsibilities.

Since launching in early 2012, Ingersoll Rand has created a network of 335 Sustainability Champions across 14 sites in the United States, Puerto Rico, and Europe. These employees have generated nearly 500 site-specific sustainability project ideas which are helping Ingersoll Rand enhance business performance and deliver on its sustainability goals.





In 2012, Ecolab achieved a milestone in its 3-year journey to increasing awareness and execution among more than 26,000 sales associates on how to communicate value. As customers across different markets and regions increase their efforts to measure and report environmental performance, Ecolab viewed this trend as an opportunity to actually trademark the way associates communicate value.

**Melissa Callejo, Program Manager,  
Marketing**

Ecolab

[www.ecolab.com](http://www.ecolab.com)

In November, a dedicated eROI team led by Melissa Callejo trademarked the term “eROI.”

The goal of eROI is to deliver sustainable business value to customers in the form of case studies, business reviews and executive summaries. The eROI sustainability initiative had a dedicated program manager, Melissa Callejo, with four distinct work streams:

- **Building the business case.** The idea of enhancing how we communicate value based on emerging sustainability drivers was a culture change. Outlining the benefits, current value capture state, process and tools to implement a change was critical for a successful program.
- **Engaging senior management.** Gaining commitment from senior management, specifically VP of Sustainability, CMO, CEO and sales and marketing, needed careful time and attention. Understanding the market sustainability needs and making the program relevant to drive company growth, credibility and customer success created a healthy discussion before program implementation.
- **Building tools and processes.** To overcome the activation of change, tools and processes were built to facilitate the value capture process. These tools included case study forms eROI handbook, calculators, branded templates and RACI diagram. Building tools and processes helped with change management throughout the different business units.
- **Recognizing eROI advocates.** Senior leadership supported a global recognition plan and the program manager created a communications plan to feature top case studies as well as case study developers. These recognition strategies help build the program’s content across all Ecolab markets worldwide. To help with the trademark of eROI, Ecolab’s legal team guided the eROI team to ensure consistent execution of the trademark in case studies and other customer-facing collateral.

Since the inception of the program, more than 300 eROI case studies are in Ecolab’s arsenal. In addition, using the eROI value approach, the eROI project team created an eROI Web Counter, Ecolab’s online monitoring and detection program called 3D

TRASASR Technology for Cooling Water. Since the inception of this technology, Ecolab has helped customers save more than 1.8 trillion liters of water. By providing products and services that enable customers to optimize their water and energy use and reduce waste streams, Ecolab's impact is multiplied exponentially. We feel that eROI value capture program represents a tremendous opportunity to differentiate Ecolab as a leader in helping customers achieve both performance and sustainability goals. eROI case studies are being developed across our business segments to serve as tools to showcase evidence of our delivered value and accelerate sales.

I feel that US trademark registration is an important milestone because more than 200 of our eROI case studies come from US sites. Our customers are hungry for information about how our solutions help reduce their environmental footprint.



**Sustainability is a journey**, with three stages. The first is the wise use of resources, the second is thinking systemically and achieving zero waste. The third is when business practices actually are regenerative and refresh the Earth.

This year I started a research project seeking companies that have made it to the third stage of sustainability. The good news is that I've found about a dozen, so far. They are in all industries, but what they all have in

**Kathryn Alexander, President & CEO**

Ethical Impact L3C  
[www.ethicalimpact.com](http://www.ethicalimpact.com)

common is that they have made nature a partner in their business. They are constantly asking "what would nature do" and tweaking their business practices to replicate her actions. The Permaculture Credit Union lends money for impact, not profit. They make loans only if the impact is large. Impact trumps yield and this strategy has allowed them to grow and profit without the reliance on fees that the rest of the financial world seems to deem necessary.

Regenesis Group is a land development company that helps develop site and even regional development plans that are designed to allow nature to successfully evolve in concert with human habitation. By integrating watershed and land formation into the desired use they ensure the long-term success of the project and the long-term health of the ecosystem.

Reflective Images is a jewelry company that uses free trade gold and gem stones. Over the years they have developed an international network of indigenous people who harvest gold and gems without harming the Earth. This benefits not only the environment, but makes a reasonable living possible for thousands of people who are normally shut out of the profits in the jewelry industry, creating a win- win-win situation.

These examples are important, because in so much of what we do in sustainability today, the Earth has no voice. We work hard to reduce our impact, but we have yet to really grapple with what it will take to partner with nature to create a healthy planet. We still justify pollution, the destruction of pristine forests and salmon spawning grounds instead of investing the same amount of time and money in seeking true alternatives. In each of the examples above the potential for industry transformation is apparent. By using the needs of nature as the discipline for rethinking how they do business, each business has the potential to become a market leader.

If we really follow the path of sustainability to its logical conclusion, we will remake the face of business on this planet. Zero waste, alone, practiced with the understanding that everything we don't use must become food for something else, is a game changer. We saw that in the story of Interface Carpets. Money is made, cost is reduced, new products, processes and tools all increase the profit margins of those companies willing to go the extra mile. These companies are unique because they are not agricultural or tightly tied to agricultural practices. They are important because they prove that any company in any industry has the potential to make breakthroughs in their sustainable business practices.



**Many people complain** about large multinational corporations because they have enormous power, but it's that same power that can make a dramatic positive difference in the world.

Consider world trade, for instance. Around 50 percent of world trade – 50 percent! – is done within these multinational companies. If you compare that to the power of countries, multinationals are clearly becoming much more influential, because they have the capability to move money across the world in seconds, and achieve things in the financial sector so much more quickly than countries can.

The biggest issue, of course, is how to hold these companies accountable for sustainability and CSR. But who can hold those people accountable? If, for example, you are in Africa, living with the consequences of activities by an oil company, who do you go to? Who gives you access to justice? The answer may lie in international legislation, established by the United Nations for example, that puts pressure on these countries to address sustainability. These things will take time, but we need to get to a situation where there's more equality and cooperation between several countries on these issues.

**Giuseppe van der Helm,  
President of the Board**

European Sustainable Investment Forum  
(EUROSIF)  
[www.eurosif.org](http://www.eurosif.org)

Ensuring large multinationals abide by common regulations is a crucial step, but because that will take a long time, we need to already now work on helping large companies find their soul. Ethics need to be championed, and we should also work on developing their conscience, and their commitment to justice – both social and environmental justice.

So who can best help with this? It's the stakeholders. These are people who are concerned about the company, and want the best for the company because in helping them they are helping themselves. If you don't know the answer yourself, don't sit and wait. Use the help that is out there. Use your stakeholders' motivation, their knowledge, their thinking, their ideals and their conscience. If a CEO is not on board with creating a sustainable business, it's almost inevitable that efforts will fail. Cultural change in business must come from the top.

I've been doing this work for six years now, and coming from a life in business, it's in my blood. I know a good business case when I see one, and sustainability is definitely a good business case. But while there are plenty of numbers to back this up, we should not forget the moral and ethical side as well. Companies tend to shy away from that argument, because morals are about right and wrong, and nobody wants to be told they are wrong. But CSR is more than simply compliance with legislation. A company does have a soul, and that means a CEO has to think about how the company behaves. You sit down with your stakeholders and open up a discussion about how you will meet your moral obligation to be sustainable.

So it shouldn't be a one man show, but the fact is that it starts there. It should filter through the organization, and live through the organization. Then, when the company is drenched in sustainability, a CEO leaving won't change this, because the company is now living

and breathing it. One of the things we also recommend is that bonuses for management and the board be based on both long-term performance and CSR performance. This is because the board cannot realize these goals by themselves. They're just a few people; it's the organization that has to perform. So if they can make sure those smart, measurable goals are the same throughout the organization, and reward their people for their performance in realizing those targets, they will then get their own bonuses and take care of good reporting in the organization at the same time.



**The latest new word** on the street in regard to sustainability is resiliency. Reminds me of my machine design days about the classification of metals in that they have both a certain level of “hardness” (sustainability) and “toughness” (resiliency). I associate hardness with wear characteristics and the quality of endurance in a particular environment or set of specified conditions. Very similar concept to a measure of a business’s sustainability - its assessed ability to readily weather its business environment and prosper in that environment.

**Deni Albrecht,**  
**Leader of Sustainability**  
KENCO  
[www.kencogroup.com](http://www.kencogroup.com)

Paralleling the good quality of hardness, usually a metal must also have a measure of toughness. This gives it a recovery factor when severe conditions produce an abnormal shape-bending impact. Its survivability is relative to its measure of toughness. We metal nerds know this as plastic deformation or bending like a gum stick - but not breaking.

The quality of resiliency in relation to sustainability is the same concept. It's not enough anymore just to look and be sustainable (People, Planet, Profit...) but an organization must possess and demonstrate resiliency. Simply put: it must be able to quickly and efficiently return to normalcy when hit with an unexpected wave of reality. “How good is your contingency plan?” comes to mind.

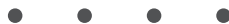


**As part of NREL's** National Renewable Energy Laboratory's living laboratory concept, staff members recently began plugging their cars into solar powered electric (EV) charging stations that were installed in NREL's new parking garage.

Researchers are monitoring their energy use and collecting data that will enable the development of valuable load evaluation and prediction models. These models are of interest to utilities, businesses, and agencies and will encourage the deployment of energy monitoring equipment.

**Lissa Myers,**  
**Transportation Program Manager**  
National Renewable Energy Laboratory  
[www.nrel.gov/sustainability](http://www.nrel.gov/sustainability)

In February 2012, 18 double-pedestal charging stations were installed (36 GE DuraStation Level II). These accommodate most commercially available plug-in passenger vehicles including the Nissan LEAF, Chevy Volt, Mitsubishi iMiev and the Toyota Prius Plug-in Hybrid. The Level II chargers are capable of charging a vehicle in four to eight hours, which is about four times as fast as a Level I charger. In just over seven months, more than 15 NREL staff members have signed up to be a part of the research effort and are regularly using the charging stations to charge their personal vehicles. An informal survey of staff participating in the program identified the ability to charge at work as the main reason for purchasing a plug-in vehicle. New automotive dealer incentives have spurred additional interest in participation with five of the EV charging station users signing up in November 2012 alone.



**We have a very simple philosophy.** Whatever we do – and this doesn't just apply to sustainability – anything that the company undertakes always has an internal standard of performance. And that's the same no matter where we operate. A Nokia product sold in India or China has the same characteristics as one sold in the United States, Germany, Spain, Finland or wherever. It's a key principle that enables us to maintain a global standard of quality.

Specifically, though, our journey of sustainability began in 1991, with our signing the International Chamber of Commerce's Charter of Sustainable Development. This document has sixteen points, which we took on board and began implementing across

the company. Soon after that we developed our first official company-wide environmental policy. Since then, our work has gradually evolved so that now it also incorporates social responsibility. Sustainability for us, clearly means environmental responsibility and social responsibility. It is a dual responsibility, meaning both environmental and social responsibility. Each of the business units and teams in the company are held accountable not only for financial results but also for how they are meeting our environmental and social requirements.

My team's role is to make sure that everyone in the business units as well as our leadership team knows and understands the performance criteria to be met by each of the units. Whether they are dealing with an R&D decision on what type of materials to use or what technologies

to choose, considering operational issues around the transport of finished goods, or observing how we receive goods from other companies, the decision criteria must always include sustainability alongside other decision-making features. This is integrated into the way that we make our decisions.

Beyond that, it is the CEO who is ultimately responsible for Nokia's sustainability performance. The journey started with us looking first at what we do as a company and how we could lower the environmental impact of our own operations: our factories, our offices and so forth. That was our starting point. Very soon we discovered that the biggest environmental impact was made not within our own operations, but elsewhere in the product lifecycle.

We undertook the first lifecycle assessment in the industry, and found that the biggest environmental impact actually occurs in the use phase, with phone charging. Periodically we conduct new life cycle assessments to determine where the most significant environmental impacts of our products are and then focus our improvement efforts on them.

We have since made significant efforts to help where we can with that, with innovative steps around making the charging of our phones much more efficient, to the point where today our phone charging technology is even hundreds of times more efficient than it used to be. This was the second phase.

## **Markus Terho, Head of Sustainability**

Nokia

[www.nokia.com/people&planet](http://www.nokia.com/people&planet)



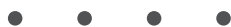
The third phase was looking at the product-related environmental impact issuing from the companies supplying Nokia – that is, those companies making the parts, materials, and sub-assemblies that are used in the final mobile device – and how we manage that impact. More recently, in the past three or four years, we’ve added a fourth phase to our journey, which looks at how we can help the people who use our products to utilize them for something positive, in the categories of health, education, their livelihood or decreasing their personal environmental impact. So that’s been our journey: from looking firstly at our own operations, then our products, then our supply chain, and now that of the consumer.



**The economics of sustainability** require organizations to adjust their thinking and execute in a more forward thinking manner. It’s not about changing logos or renaming products to sound “green.” And it doesn’t happen overnight. The mind set and the behaviors permeate an entire business over time. Our research is quantitative, based solely on publically disclosed data. We analyze observed and reported energy, water and waste in a company with respect to revenues generated. This tells us the resource intensity for each of these factors. It also gives us an understanding of the resource efficiency of a company, that is, how effective they are at turning a liter of water or a kilojoule of energy into a unit of revenue.

**Gerrit Heyns, Partner**  
Osmosis Investment Management  
[www.osmosisim.com](http://www.osmosisim.com)

We have found that companies that are relatively more resource-efficient than their peers also tend to have better operating margins, return on assets and return on equity. Essentially they provide better shareholder value.



**We began our sustainability journey** some 12 years ago. What we did at the outset was to identify where the risks which would affect our sustainability and reputation were in the company. This was a very important thing to do. We spent almost a year on this, creating

a risk map for the entire company: looking at strategy risk, marketing risk, operational risk, human resource risk and others. In doing this, we realized that those risks that related to corporate reputation and corporate sustainability seemed to fall between a number of different departments. No single department was taking ownership for this risk; and when risk has no owner, you have a problem. This was a key discovery for us in turning around our thinking on sustainability.

The second milestone was defining the company's sustainability goals, and developing a global plan to communicate these internally. We defined our core pillars of sustainability in a report which became an important communication

tool to show the comprehensive internal policy, internal procedure and internal auditing of our CSR activity. This was key to help us gain our reputation on transparency.

The third milestone came in 2006 when the Board of Directors created a committee, run by independent board members, to track and follow everything within the company relating to reputation and corporate sustainability.

The fourth milestone was stakeholder engagement. We worked very closely with the CSR committee representatives so that we could continue to understand all the requirements of sustainability in order to further the improvement of our ongoing CSR reporting and policy development.

The fifth milestone came with the international recognition we received for our CSR activity. While we are a Spanish company, we are well aware that we are also a global company with locations across Europe and Latin America. Projects such as The Carbon Disclosure Project and our involvement with the UN Global Compact have been instrumental in our achieving these results.

Finally, in my mind the sixth most significant milestone for Telefónica has been what we are doing in relation to social innovation in business. We started our journey by identifying risk, but now we are trying to create social ecosystems to help the business create more partnerships. Essentially, understanding a company's corporate culture is key to understanding its behavior in relation to its sustainability. The more transparent you are, the more trusted you will be. And it's clear that the more sustainable you are, the more you will reduce your risk exposure in the market.

**Alberto Andreu,**  
**Global Head of CSR & Reputation**

Telefonica  
[www.telefonica.com](http://www.telefonica.com)

**Our aim** is to embed the environment across all aspects of our business. The TD Forests program, launched in 2012, illustrates how we put that approach into practice.

TD Forests came about when, having met our goal to be carbon neutral and with our ongoing energy reduction program well established, we began to ask ourselves “What next?” To help answer that question, we turned to our customers – we wanted to get a better sense of what they expected of TD and how they viewed environmental issues.

Here’s what we learned:

- Despite concerns over economic hardship and uncertainty, the environment was identified as a top issue of long-term concern.
- More than 90 percent of respondents said that protection of forest habitat was vitally important.
- When we asked our customers how we could best improve our environmental performance, they responded overwhelmingly with a single request – use less paper.

This inspired TD Forests and the two simple components that define the program: 1)Reduce the total amount of paper we use and ensure that the paper we purchase comes from sustainably managed forests and, 2)Grow the area of protected natural forest ecosystems across North America.

**Karen Clarke-Whistler,**  
**Chief Environment Officer**

TD Bank Group

[www.td.com/about-tdbfg/our-business/index.jsp](http://www.td.com/about-tdbfg/our-business/index.jsp)

Through these two components we are able to embed the TD Forests programs across all aspects of our business.

How? We aim to:

- Reduce the environmental impact of our business operations.
- Support responsible resource development through industries that we finance.
- Develop green product options for our customers.
- Engage our employees and communities to provide measurable environmental benefit.

Using less paper, for example, speaks to reducing the environmental impact of our business operations and the development of green product options for our customers,

including enhanced online statements and other e-banking services.

But let's face it, despite these actions we'll continue to use a lot of paper. That's why it's equally important to educate our suppliers and employees on best practices in sustainable forest management. Modern forestry techniques incorporate practices to ensure that managed forests are replanted to provide a renewable and sustainable natural resource. Programs such as the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI) provide certifications of sustainable forest management. Our focus on growing the area of protected natural forest ecosystems engages our employees and communities in various initiatives aimed at improving the environment. The fact is, through the TD Friends of the Environment Foundation (TD FEF) we've been supporting community environmental initiatives – many focused on forest conservation, biodiversity and education – for more than 20 years.

Two flagship TD FEF programs – TD Green Streets and TD Tree Days– have been expanded to include all of North America and now fall under the TD Forests umbrella.

In 2012:

- More than 475 organizations received TD Green Streets grants to help green their communities through tree planting, inventory, maintenance and educational initiatives.
- TD Tree Days engaged 3,600 employees along with other volunteers in planting more than 40,000 trees in more than 130 North American communities.

A key part of the TD Forest program is a new partnership with the Nature Conservancy of Canada (NCC) and The Nature Conservancy (TNC) in the U.S. through which we are helping to protect the equivalent of more than two football fields of natural North American forest ecosystems each day. By protecting forests, we're helping to protect not only trees but everything among them – the entire ecosystem.

Why do we feel embedding the environment across all aspects of our business is important? Fundamentally, it's about building an environmental culture – of not simply looking at the environment from a philanthropic or risk perspective, but making it part of our DNA.



**Back in 2009, Tesco** worked with some select members of the Tesco Sustainable Dairy Group (TSDG) to calculate the life-cycle carbon footprint of the milk sold in our stores, and we were the first retailer to share this information with customers by carbon labeling milk. This work showed us that around three quarters of the greenhouse gas emissions associated with milk are linked to the dairy farm, largely due to emissions of methane (a potent greenhouse gas) from dairy cattle. Therefore, if we are to reduce the carbon footprint of dairy products, then the farm is the key place to focus.

**Helen Fleming,  
Climate Change Director**

Tesco plc  
[www.tescopl.com](http://www.tescopl.com)

Over the last year, Tesco has collaborated with our milk processors, Arla and Wiseman, the agricultural consultancy, Promar International, and the environmental consultancy, Environmental Resources Management, to extend this work and calculate the greenhouse gas emissions from over 400 of our TSDG dairy farms. These carbon footprints are calculated from accurate information on the “inputs” to the farm (e.g. feed types and volumes) which is taken from the farm’s financial records. The results have enabled us to understand the variations in carbon footprints between farms, and to identify the best practices on farms with lower carbon footprints.

From this we have developed a set of best practice guidelines for our farmers aimed at reducing greenhouse gas emissions as well as saving them money.

We have shared this information with the participants in the form of a farmer-friendly report explaining the individual farm’s carbon footprint, giving a breakdown by source, and benchmarking against the rest of the group. The report also sets out nine best practice measures, and shows their impact to reduce carbon emissions and save cost for an average 1 million liter farm. For example, we have calculated that removing soya from the diet of high-yielding cows would save the average farm 89 tonnes of carbon (CO<sub>2</sub>e) and over £2,500 per year with minimal impact on the cow’s milk yield.

We have followed this up with a series of carbon reduction workshops around the country to help farmers understand the practical opportunities to reduce emissions on farm. This is an on-going project and we aim to repeat the carbon footprinting exercise later this year to understand the progress that has been made.

Using real, farm-specific data to calculate the carbon footprints builds trust with farmers and gives credibility to the results. For buy farmers, finding ways to turn complex data into easy to understand communications is essential. Investing time to discuss and debate the findings and the practical cost / carbon saving options is key to gaining buy-in.

## Facilities

In 2009 BMO's Corporate Real Estate team embarked on a mission to control its energy consumption risks, for both electricity and natural gas. This undertaking led to a fruitful partnership with Automated Logic Corporation (ALC) Canada, Chubb Edwards and, eventually, The University of Manchester ["the BMO partnership"].

Together, the BMO partnership translated building automation technology concepts used on large-scale office towers and data centers into small-scale, modular, efficient installations that are drastically simplified from any existing iteration of the aforementioned technology. Where service vehicles and their corresponding impact on the environment once attended every notable service call, new, innovative automated technology was put in place that allowed remote assessment and diagnosis and, more often than not, the execution of a remote solution to solve a facility's problem.

**Hailey Unterman,**  
**Program Manager, Environmental**  
**Research & Development**

BMO Financial Group  
[www.bmo.com](http://www.bmo.com)

This dynamic approach to building facilities management was piloted within a comparative research setting on ten different permutations of retail banking facilities; all varying in building age, layout, human traffic level and base building equipment. Specific and detailed building data related to lighting, electrified signage, temperature, humidity, exhaust, human traffic patterns and utility consumption were assessed to create the solution. The BAS allows remote access to view, triage and provide diagnostic assessment; and when necessary, an appropriate "pin-pointing" and equipment specific on-site service action is taken in a seamless, controlled way.

The pilot program was initially designed to reduce electricity consumption by 20 percent and natural gas consumption by 15 percent. The statistically validated outcome varied from the engineered projections with a 25 percent electricity consumption reduction and no significant natural gas reduction. This data is based on a ten-branch average.

Building automation systems implementations are now the norm, with over 50 building automation systems in new and existing retail facilities in 2012. More than 50 installations are planned for 2013.



**East River Housing Corporation** (ERH) operates a large boiler house, supplying heat and hot water to over 2,700 apartments, a shopping mall, and a parking garage in Manhattan.

Their three large boilers combusted No. 6 fuel oil, burning over 2 million gallons per year. Beginning in 2011, ERH undertook a Boiler Modernization project, replacing one boiler with a state-of-the-art unit and refurbishing the other two, including replacing the burner with new low NOx burners. At the same time, the boilers converted to natural gas with No. 2 fuel oil as a backup.

**Marc Karell, Owner**  
Climate Change & Environmental Services  
[www.ccesworld.com](http://www.ccesworld.com)

The conversion to natural gas and changes to the physical boilers were completed in middle of 2012. ERH has saved nearly \$2 million in costs in the last 7 months of 2012, and is estimated to save over \$4 million annually once surcharges for initial natural gas usage expire. The savings are based on both the cost differential between natural gas and No. 6 fuel oil and the improved combustion efficiency (up to 35 percent improvement) of the new/upgraded boilers. The Boiler Modernization Project will also result in a large environmental benefit. Emissions of greenhouse gases have decreased by about 67 percent, of ultrafine particulate matter by about 90 percent, of NOx by about 85 percent, and of sulfur dioxide by over 99 percent. This is an important improvement to the air quality of a highly populated urban area.



**According to the US Green Building Council**, more than one quarter of all Americans walk through the doors of a school every day, yet instead of walking into places of opportunity, millions enter buildings where the air they breathe is filled with toxins and classrooms are poorly lit. Many children are learning in buildings that are compromising their health and ability to succeed. Further, there is extensive research that demonstrates a strong correlation between a safe, comfortable classroom environment and student achievement (Earthman, 2004). Yet most school superintendents do not look toward their facilities when they seek solutions to improve student achievement and to help fund their primary educational function.

In 1965, the Wisconsin legislature created 12 Cooperative Educational Service Agencies (CESAs) as a conduit between the state superintendent and local school districts. What does that have to do with sustainability/energy efficiency? Before 2004, the answer was “not much.” But CESA 10 in northwest Wisconsin is determined to change that. Over the last 7 years, while serving 30 primarily rural districts, CESA 10’s Energy Management (EM) service has saved over \$5 million in utility costs, putting much needed funds back into schools’ budgets. We see about a 20 percent cumulative savings off the customer’s utility bills over the 3 year contract and the program has proven success in districts serving 400 students to over 5000 students.

As an educational non-profit, we are in a position to offer energy efficiency services to a unique client at a very low cost. Educational Service Agencies exist in 45 states across the country, and nearly all include core services like special education. But very few focus on school facilities, much less energy efficiency and sustainability. CESA 10’s Facilities Management department is unique in that it offers a wide range of energy and sustainability services statewide. One service we provide districts is a “shared savings” arrangement whereby EM staff partner with the district staff to reduce energy consumption. Since the customer’s primary function is not energy efficiency or even the “bottom line,” like a typical business, it’s important that the risk is entirely on us; if we don’t save schools energy, they don’t pay a bill.

**Tad Beeksma, CEM,**  
**Manager, Energy Management**  
**and Sustainability Services**  
Cooperative Education Service Agency 10  
[www.cesa10.k12.wi.us/ems](http://www.cesa10.k12.wi.us/ems)

So how do we make it work for all parties? Each building gets a pair of experts—one focused on building operations and one focused on training building occupants about their critical behavioral role in energy conservation. Energy Managers specializing in the technical side of building operations work directly with facilities staff to understand the buildings at all levels to determine how best to fine tune the operations while training facility staff in techniques related to energy conservation, building controls systems, and scheduling for efficiency. Our goal is to provide a comfortable and efficient building where everyone can do their job effectively using only as much energy as needed. If we are doing our jobs right, schools barely even know we are there.

Seven energy managers with more than 150 years of combined experience in building operations work in the program. Our staff stays up to speed with the industry’s best

practices, as it is very difficult for schools to prioritize those activities. To change behavior and culture, presentations are given to all staff, from office and food service workers to teachers, including information about how utilities charge for energy, ideas on how to save energy, and updates on savings.

Teacher classroom audits and help with Energy Teams are also offered as part of the partnership. Every Monday during the school year E-tips are emailed to remind all school staff of current efforts and to give them a reminder or a new way to save energy. Dr. Connie Biedron, administrator of a small district in rural northwest Wisconsin, said the energy specialists at CESA 10 have helped them to save more than \$150,000 while becoming better masters of their energy consumption.



**At Diageo**, the world's leading premium drinks business with brands such as Johnnie Walker, Smirnoff and Captain Morgan, we understand that putting the principles of sustainability and responsibility into practice means accounting for our material, social and environmental impacts in every aspect of our business.

Our newest Scotch whisky distillery, Roseisle in Speyside, Scotland, has made a substantial contribution in moving towards achieving these goals.

**Michael Alexander, Head  
of Environment (Comms & Policy)**

Diageo  
[www.diageo.com](http://www.diageo.com)

**The Challenge:** For the second half of 2012, the entire whisky category accounted for over a third of Diageo net sales. In the faster growing markets of Asia, Diageo delivered strong double-digit top line growth. Growth was also seen across Latin America and Africa. As a result, approximately 10 million new consumers were introduced to the brand, which saw net sales up 38 percent and volume up 32 percent. Increasing production to meet this demand, while at the same time reducing Diageo's environmental footprint, was a challenge for Roseisle distillery.

**The Solution:** Roseisle is the first malt whisky distillery to generate renewable energy from all its co-products; because of this, its environmental impact is significantly lower than a distillery of an equivalent size. Roseisle has an onsite bioenergy and effluent treatment facility and Diageo works in partnership with Dalkia Utilities to operate the facility. No

other malt whisky distillery has a plant such as this on the same scale. Roseisle utilizes environmental technologies that are new to the distilling industry, such as biomass boilers to raise steam from the spent grains, and waste water treatment by anaerobic digestion and membrane filtration. The co-products produced in the distilling process at Roseisle are all used to generate bioenergy that is then used back in the distillery. Over 50 percent of the distillery's energy consumption is made up from renewable sources processed at the onsite bioenergy plant. Energy consumption has been minimized by recovering as much heat as possible from co-products and recycling hot streams. Renewable energy at Roseisle is generated from liquid and solid by-products – barley husks, yeast and water – produced during distillation and dust and rootlets from the maltings germination process. This is separated into liquid, producing energy in the form of biogas, and dried solids which form a biomass fuel source.

The distillation process also generates waste heat as hot water, so having one of Diageo's maltings close to the distillery also allows for additional opportunities for waste heat recovery. The hot water is pumped to the maltings, where it is used to pre heat the kilning air, reducing the amount of fossil fuel required for that process. Combined, biomass burning and waste heat recovery offset the fossil fuel requirement of the Roseisle

#### **The Results:**

- Approximately 10,000 tonnes of CO<sub>2</sub> per annum is being saved from the use of renewable fuels
- 3,000 tonnes of CO<sub>2</sub> is saved from off-setting fuel at the malting plant
- Over 50 percent of new distillery energy is produced from sustainable, renewable sources;
- Water consumption has been minimized by introducing a closed loop on the distillery condensers;
- Environmental impact from effluent discharge is now lower than existing outflow before the distillery was built.

Roseisle Distillery can therefore be said to have virtually no environmental impact to the discharge waters. Roseisle is designed to build on the best practice from Diageo's 27 other malt and grain distilleries to improve efficiency and performance, building on centuries of distilling experience and knowledge.

Roseisle is the first malt whisky distillery to generate renewable energy from all the co-products and has proven the technology for implementation at other sites.



**EH Controls, Inc.** has been installing the Siemens EcoView Energy Management System as an energy reduction and facilities management solution. What started two years ago with one local Tim Hortons restaurant has grown to nearly 20 installations for Tim Hortons franchise owners in London, Canada.

**Peter Croppo, Business Development**

[EH Controls, Inc.  
www.ehcontrols.com](http://EH Controls, Inc. www.ehcontrols.com)

Tim Hortons is the largest fast food provider in Canada with most stores open 24/7. Typical results are energy reductions in the 5–10 percent range with a recent owner showing 6.8 percent reductions annually with a payback in the 18–24 month range.

The data is provided by the local hydro/utility provider with 150–175 kWhr/day reductions over the past cooling season.



**Gotham 360** is full-service energy advisory firm that helps manage sustainable decisions and practices for some of the largest hospitals and universities in the New York City area. One of these hospitals, a participant in Mayor Bloomberg’s PlaNYC Challenge, pledged to reduce emissions by 30 percent by the year 2017, and has already managed to reduce emissions by over 30 percent, 5 years before the deadline.

**Jennifer Kearney, Director**

[Gotham 360 LLC  
www.gotham360.com](http://Gotham 360 LLC www.gotham360.com)

This reduction was achieved largely through sustainability promotion and communication efforts, as well as various retrofits and upgrades, such as renewal of the chiller and boiler plants, and heating, ventilation and air conditioning setbacks. This hospital is paving the way for all hospitals to operate more efficiently, and ultimately, more sustainably.



**One of our biggest opportunities** to lessen carbon emissions and increase energy efficiencies was in our facilities. We established and are on track to reach our goals

to reduce building energy consumption, greenhouse gas emissions and annual energy expenses by 10 percent each, over the course of 2012, from a 2009 baseline.

Focusing on facilities and energy, Johnson Controls helped identify our seven largest energy-consuming owned buildings where energy usage, energy costs and greenhouse gas emissions could all be reduced. HVAC retrofits and building envelop improvements were a major focus for these properties. Major lighting retrofit projects also occurred broadly across our portfolio. In most cases, the change was to a more efficient conventional bulb, and where feasible, LED bulbs were installed.

**Catherine McGlown,**  
**Corporate Social Responsibility**

Humana  
[www.humana.com](http://www.humana.com)

We installed solar panels on top of our corporate headquarters building as a small but important part of our 2012 sustainability commitment to reduce our energy usage and carbon footprint by 10 percent. The solar array consists of 33 photovoltaic panels that produce about 15,000 kilowatt hours of electricity per year. This might be small by commercial standards, but it helps sequester as much carbon annually as an 8.5 acre pine forest – or as much carbon as recycling 8,000 pounds (4 tons) of waste instead sending it to the landfill.

Several Humana locations in Louisville participated in a program called S.H.A.R.E. (Stop Holding and Recycle Everything). Associates swapped unused office supplies for items needed by their areas. Working with the Humana Foundation and employee network resource groups, we were able to donate some items that were not internally redistributed.

These activities have helped Humana rank No. 72 in the Newsweek Green rankings of 500 US publicly traded companies for two years in a row. In the health care industry Humana ranked No. 12 (out of 51 companies) and was the category's #1 health insurer.



**Since leading the way** in greening buildings can be intimidating, easing companies on this journey is essential to the successful adoption of best practices. LEED-based requirements and policies can be introduced before a building owner decides to apply for

a LEED certification. Instituting performance management programs helps stakeholders work collaboratively towards a greener built environment.

What started as an unassuming janitorial baseline survey for one of our clients, evolved into a comprehensive Green Housekeeping Program. The gap analysis revealed 4 suppliers fully compliant (100 percent) with LEED-EBOM green cleaning requirements, four with a compliance score above 90 percent, a score which can easily be improved through simple changes, and 3 companies with a score below 86 percent.

Leveraging their peers' performance, suppliers not fully compliant were asked to improve their practices and procedures, and 6 out of 7 agreed to do it cost neutral. Encouraged

by these positive outcomes, we shifted our attention inward and moved onto the next goal, that of developing and implementing a formal green housekeeping program, encompassing cleaning activities performed both by janitorial contractors as well as our own property managers. The program is currently reviewed by the stakeholders and is soon to be rolled-out across the country.

Once launched, stewardship is essential, where cleaning personnel, building management, occupants, and visitors share the responsibility of maintaining a healthy and productive indoor environment.

Three key learnings, emerging from this exercise, point to the likelihood of successful implementation of sustainability practices.

**1. Use survey results wisely:** leveraging the feasibility of meeting LEED requirements can act as a positive peer pressure and help negotiate suppliers' compliance at no additional cost.

**2. Break big, audacious goals** in smaller, manageable steps/actions – starting with a simple baseline survey and gradually progressing towards a performance management program was the key to successfully obtaining stakeholders' (e.g., client, maintenance personnel, custodial companies, etc.) support.

**3. Performance monitoring** a measure for program' success: developing a formal program with specific goals and activities (including owners, frequency,

**Alina Racoviceanu,**  
**Director of Sustainability**

SNC-Lavalin Operations & Maintenance

[www.snclavalinom.com](http://www.snclavalinom.com)



status), and a comprehensive performance monitoring process helps track program’s implementation and progress towards targets, while measuring its outcomes and benefits.



**Employees in the manufacturing area** exposed to the noise level of compressors complained about the noise of the compressors. We have high quality inlet silencers on the compressors since we manufacturer them and sell them. But employees were not totally satisfied with our exposed compressors.

We took time this year to delve into the details a bit more to further reduce the noise pollution and disturbance. Noise can be awfully distracting, cause stress, fatigue from vibrations, and even disturb people’s sleep patterns. We found that we could take our existing tube silencer and shrink it to fit more compatibly, space-wise. So now we have reduced material by roughly half and have slightly improved the extra silencing capabilities. In 2013, they will become a new product that can be coupled with our filter silencers to reduce inlet sound up to 10 decibels and the exhaust 14 decibels on a screw compressor. The extra silencer never needs to be changed or cleaned so the ROI is immediate in the moral of your employees. The decibels at our 2” connection 10 HP screw compressor never exceeds 80 decibels!

**Travis Solberg, Sustainability Steward**

Solberg MFG  
[www.solbergmfg.com](http://www.solbergmfg.com)



**I would characterize 2012** as a year of shifting from disclosure to performance. Our work across the Americas, EMEA and the Asia-Pacific region has shown that organizations from Brazil to India to China are using sustainability as a primary lever to accelerate business performance.

**John Hoekstra**

**Director, Sustainability Services**

Schneider Electric  
[www.schneider-electric.com](http://www.schneider-electric.com)

One of my favorites has been our work to partner with an iconic US-based household brand that’s

known around the world. By bringing together a cross-functional team, we developed a global facilities sustainability strategy to guide centralized, consensus driven efforts around resource conservation and Sustainability ROI (SROI) creation (i.e., quantification of benefits beyond direct financial).

Assessments of facilities across energy, water, waste and other resource conservation measures not only generated over 10 percent and \$2 million in savings, but provided a sustainable funding model for rolling out a consistent approach across all four regions of the world with opportunity save over \$10MM USD by performance in 2013.

Not only do these initiatives reinvest in old and new manufacturing infrastructure, but they demonstrate a commitment to retailers, investors, employees and other stakeholders seeking to trust the brand for generations to come.



**The countries** that are most advanced are the ones where there is a sustainability-minded building industry that combines with government policy which understands the macro-economic benefits of green building.

Governments that understand that buildings that use less energy and less water are ultimately better for people and more productive for businesses understand that the country benefits from implementing policy that supports green building.

**Jane Henley, CEO**  
World Green Building Council (WGBC)  
[www.worldgbc.org](http://www.worldgbc.org)

Germany is definitely a leader. There's also some fantastic policy coming out of California now, especially around energy efficiency. At a city level, there are some interesting programs emerging in Portland with the Eco-Districts Program, which is also now starting to take off around America, showing that city governments are thinking about sustainability in existing neighborhoods and districts within their cities.

There are some great things happening in Australia at the higher end of the market in the commercial sector. In Scandinavia, high standards of green building are common practice and have been for a long time. They haven't necessarily been that vocal about it, but over the last few years they have established a GBC in most of Scandinavia and

are seeing their practice remaining extremely high in comparison to the rest of the world; they are now exporting those skills to the global market.

I'm also impressed by the work that is happening in Abu Dhabi, where they have taken a comprehensive and fascinating approach. They have adopted high standards of green building over the last two years, but what they've come up with is not just a green building rating system, but also a whole support system and education system that is focused on energy and water demands management projected through to 2020. Because they generate all their energy from fossil fuels they have looked at how they can manage an appropriate growth trajectory, and are rolling out a program called Estidama to manage their capacity to meet the demands for energy and water.

This approach is very similar to Singapore's, which is very government driven but also involves the private sector. Singapore has committed to reducing energy intensity by 35 percent by 2030. Much of this will be achieved through energy- efficiency standards in existing buildings. They can't keep building new power stations and don't want to be energy dependent on their neighbors, so it makes sense to focus on demand-side management. They see it as energy security issue, in that the efficiency of the built environment will deliver security for their people.

As we've seen, it's the countries where green building is driven from the top down which are delivering results on improving sustainability. We know that it's not possible in all countries as not all countries have governments like that, but we're still seeing what we can do to facilitate this where possible.

What we need are leaders who are committed to taking a long term-view of sustainability in every aspect of society. In countries with political cycles that change every three or four years this can be extremely hard to do, as decisions about the built environment are often made based on immediate, short-term market conditions. The fact is we need to create frameworks that ensure quality extends through the whole life of the building, rather than ones that fluctuate with changing policy and market environments.

Incentives for industry to act are only really needed to overcome inertia and change economic paradigms in the short term. The building industry is set up to meet demand. Companies like Google understand the business benefits of occupying space that meets its business needs but which also contributes to staff productivity. Companies that look beyond a building simply providing a roof and a place to house staff see their building as a core service to their business and are driving the shift in the building industry. Tenants understanding the benefits of a green building to their business is the key.

## Supply Chain

In its 2010-2012 Sustainable Development Plan, Cascades committed to increase the social responsibility performance of its supply chain. Multiple initiatives were implemented to facilitate this effort and, as a reward, Cascades received a 2012 Green Supply Chain Award, which recognizes companies who make sustainability a core part of their supply chain strategy and work to achieve measurable sustainability goals within their own operations.

One major development last year was that we started working with EcoVadis, a sustainable supply chain management platform company, to survey and evaluate its suppliers' performance using 21 parameters in categories such as fair business practices, labor practices and environment. The final score to this evaluation is one of the criteria involved in the choice of a supplier. As a result, Cascades was able to share precious information with its suppliers about their own strengths and weaknesses, and to assess where there is room for improvement.

**Melanie St-Pierre,**  
**Communications and Sustainability Advisor**

Cascades  
[www.cascades.com](http://www.cascades.com)

While the process, of course, does not dictate changed supplier practices, it successfully raised their awareness about their ecological footprint, and Cascades has faith that the experience will have a significant positive impact on the environment. Additionally, Cascades granted Sustainable Supplier Awards to its suppliers that take on sustainable development initiatives.

By developing and testing new technologies, products and procedures, the winners ultimately allow Cascades to improve its environmental, social and economic performance, which is why this incentive is so important.



At **CRedit360**, we've been helping some of the largest companies in the world manage sustainability data from within their operations and through their supply chains for over 10 years. As outlined in the 2012 Insider Knowledge Report, the supply chain is the new frontier for sustainability risks and opportunities. With the advent of the WBCSD GHG Protocol Scope 3/Value Chain standard, companies are under increasing pressure to calculate emissions outside the boundaries of their own operations. Studies indicate as much as 80 percent of a company's emissions can be within these 15 very diverse Scope 3 categories. However, when it comes to supplier engagement, the question our clients keep asking is, "Where do we start?"

**Iain McGhee, Commercial Director**

CRedit360

[www.credit360.com](http://www.credit360.com)

Understanding the emissions from their supply chain wasn't a simple "software challenge" – we feel the secret is in leveraging secondary data and expertise. In short, we needed to collaborate. In the fall of 2012 we teamed up with the Carbon Trust to launch the Value Chain Manager. By bringing decades worth of detailed product footprinting and secondary data sets such as LCA and EIO factors into our software, we're now helping companies process procurement data and supplier surveys to efficiently calculate emissions.

Perhaps the biggest lesson we've learned when looking at supply chain emissions is that accuracy isn't necessarily your primary objective. With so many suppliers and so much data, you have to tackle the problem from a different direction: use industry averages and libraries of existing product footprints to give you broad brush results, and this will then guide you to your hotspots. Once you know your hotspots, you can focus time and resources on improving data accuracy, and perhaps most importantly, reducing emissions and costs by engaging with your key suppliers.



**Corporate sustainability programs** are receiving a boost from their supply chains' adoption of engine oil that is recycled and re-refined from reclaimed oil. That's what we're witnessing in 2013, and it's both good for the environment, protects engines and is good for business.

**Curt Knapp**

Safety-Kleen Systems (EcoPower Engine Oil)

[www.ecopoweroil.com](http://www.ecopoweroil.com)

Consider the private or public fleet that switches to re-refined engine oil with hundreds or thousands of vehicles in service in cities and on the highways. The environmental impact is remarkable. For example, our re-refineries have processed since 1988 more than 2.5 billion gallons of used engine oil into high-quality lubricants. And this has avoided greenhouse gas emissions of over 19 million metric tons. That's equal to carbon sequestered in growing more than 490 million trees for 10 years in an urban environment.\*

Companies are addressing their sustainability goals through their supply chains. When an automotive or truck fleet switches to re-refined engine oil, it can protect engines and protect the environment, while reducing greenhouse gas emissions and the company's carbon footprint. And that's a change for the better.

The more you learn about re-refined engine oil, the more it makes sense. EcoPower takes 85 percent less energy to produce than oil made from virgin crude. And with a closed-loop process, used oil is re-refined over and over again. It's making engine oil a renewable resource. And it also reduces dependence on foreign oil.

According to the U.S. Environmental Protection Agency, "Re-refined oil is subject to the same stringent refining, compounding, and performance standards as virgin oil. Extensive laboratory testing and field studies conducted by the National Institute of Standards and Technology, the U.S. Army, the U.S. Department of Energy, the U.S. Postal Service, and EPA concluded re-refined oil is equivalent to virgin oil, passes all prescribed tests, and can even outperform virgin oil." \*\*

EcoPower is made by Safety-Kleen, the largest oil re-refining company in North America. And it meets or exceeds the industry standards set by API and SAE. Plus, it has been approved by or meets the oil requirements of engine OEMs, including Cummins, Detroit-Diesel, Caterpillar, Mack, Mercedes-Benz, Navistar, Volvo and others.

\* From EPA Calculator (CO<sub>2</sub>e) <http://www.epa.gov/cleanenergy/energy-resources/calculator.html> and Safety-Kleen's Lifecycle Analysis.

\*\* EPA Buy-Recycled Series-Vehicular Products; <http://www.epa.gov/osw/conservation/tools/cpg/pdf/vehicle.pdf>



**L'Oréal wants** its growth to be responsible and shared, having a positive socio economic and environmental impact on countries and communities; this is the reason why L'Oréal considers biodiversity conservation as one's fundamental component of sustainable economic development.

That's why, for L'Oréal, respecting, protecting and valuing biodiversity are the cornerstones of the worldwide policy of sustainable sourcing. L'Oréal was amongst the first companies worldwide to commit to operating in full respect of the principles of the Convention on Biological Diversity. Well before the implementation of the Nagoya Protocol, L'Oréal Research has been tracking the issues of Access and Benefit Sharing very seriously, believing that a responsible use of biodiversity offers vast potential for innovation, is highly valued by consumers, and is a greater lever for social inclusion along supply chain.

**Pamela Alabaster**  
**SVP Corporate Communications**  
**Sustainable Development & Public Affairs**

L'Oreal USA  
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From 2008, every raw material is, therefore, evaluated on biodiversity criteria and every new material comes from supply chain channels, offering reliable guarantees of traceability and sustainability. For example, strong efforts have been implemented to limit impacts on deforestation, and based on its palm oil and paper management policy, L'Oréal was ranked best in class in its category (personal care products) by the Forest Footprint Disclosure project in 2009, 2010 and 2012. Although L'Oreal is a low volume purchaser, (1000 tonnes in 2011) the issue of sustainable sourcing has been taken very seriously. L'Oréal is a member of the Roundtable on Sustainable Palm Oil since 2007, and since 2010 sources 100 percent of its palm oil from Certified Sustainable Palm oil sources (Segregated Model).

L'Oréal has also been implementing a stringent forestry certification policy for its packaging. Today, over 90 percent of L'Oréal's cardboard boxes are certified, over half by the FSC. The same approach has been adopted by L'Oréal's printers, and 92 percent of their sites are now FSC-certified.

At the same time, the group conducts actions aimed at reducing the weight and volume of its packaging. As flagship projects of the L'Oréal's "Solidarity Sourcing Programme", the procurement of shea butter in Burkina Faso and argan oil in Morocco, have demonstrated



how sustainable sourcing of biodiversity can be a powerful lever for social inclusion, especially among the most vulnerable people in low income zones, strongly impacted by climate change.

We believe that our objective of seducing a new billion consumers can only be achieved if the important environmental and social challenges are taken into account. Climate change and biodiversity loss are two of the worlds dire challenges, and the impacts of environmental degradation are the most severe for people living in poverty.



**Last year** we surveyed four hundred small and medium sized manufacturers from Sweden on the topic of supplier relationship management and sustainability practices. We learned that more than 50 percent of buying firms have had sustainability initiatives for more than five years. In addition, 30 percent of purchasing professionals noted that they have been very involved with the sustainable supply management issues.

Global demand of consumers to have more sustainable products in their shopping bag has also impacted Swedish SMEs to manufacture environmentally friendly and socially responsible products in cooperation

with their suppliers. Data collected from several manufacturing sectors predominately from computer/electronic/optical products followed by bakery/farinaceous products uncover that responsible supply and purchaser-supplier cooperation boost sustainability performance of suppliers.

The effect of responsible supply on sustainability performance is twice stronger than the outcome of cooperation on performance. This difference designates the higher willingness of suppliers to enhance sustainability performance for actual purchasing than to cooperate with buyers on CSR plans.

Swedish SMEs practice responsible supply by observing environmental purchasing, human rights and safety issues regarding suppliers. Sustainable supply management reveals its impact in performance improvement of supplier through using sustainable energies and commitment to sustainability standards. Responsible purchasing from

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suppliers forms the trust and commitment of purchaser toward suppliers and eliminates the unnecessary costs of purchasers due to risk of CSR failure. Grouping purchasers on the level of dependency on suppliers indicates that purchasers show lower levels of trust in, commitment to, and cooperation with suppliers in highly dependent situations.

The survey results have overwhelming emphasis on responsible purchasing as an effective approach to improve purchaser-supplier relationship and boost the sustainability performance of suppliers.



**This is a real-life example** of how Ocean Spray, a \$2.2 billion-dollar agricultural cooperative and household-name fruit juice and food manufacturer, cut carbon emissions from its distribution operations in the US southeast by 20 percent while driving down the transport costs of supplying that market by 40 percent. It did this by making simple and inexpensive changes to the company's logistics practices.

Freight transport accounts for 15 percent of corporate carbon emissions, making it one of the largest

**Jason Mathers,**  
**Senior Manager, Supply Chain Logistics**

Environmental Defense Fund  
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sources of business-related CO<sub>2</sub> pollution in the US. Long-entrenched inefficiencies in transportation arrangements also cause unnecessary consumption of fuel, not to mention avoidable expense. Ocean Spray, an agricultural cooperative owned by more than 700 cranberry growers in North America and Chile, and 35 Florida grapefruit growers, is one of North America's largest producers of bottled juices and juice drinks. Over the years, the company has made a conscious effort to identify and act upon opportunities to drive down its transportation costs. As a direct result, with only a modest investment of time and money, the company significantly reduced its carbon footprint and intends to continue doing so.

Ocean Spray decided to open a new distribution center in Lakeland, Florida, in 2011. By centralizing supply closer to demand, Ocean Spray reduced the number of truck-miles needed to distribute its products to customers, resulting in lower transportation costs and, as a significant additional benefit, a reduction in carbon emissions. Additionally,

the location of the new Lakeland distribution center created an intriguing opportunity to further reduce carbon emissions and costs. Working through an existing logistics partner, Wheels Clipper, Ocean Spray became aware that another juice company was paying to move empty rail cars via the CSX railroad from New Jersey to Florida, on their way back after delivering product—something the freight industry calls a “back haul.” These backhaul situations occur all the time, and they present a great chance to maximize efficiency by filling empty trucks or trains that are returning to where they are needed, reducing expenditure of money and fuel all around. Wheels Clipper and its customer were looking for a partner to take advantage of the empty backhaul capacity. Much of Ocean Spray’s product coming into the Lakeland distribution center originated in New Jersey. It seemed a perfect fit.

But there were two challenges in this particular situation. First, it involved switching a large amount of Ocean Spray freight from road to rail, which meant substantially increasing the size of each shipment, since rail boxcars can take up to three times the cargo of a standard freight truck. Second, the Wheels Clipper customer they’d be coordinating with was one of Ocean Spray’s juice manufacturing competitors. Luckily, both companies decided they could work together, with Wheels Clipper acting as a firewall, so that no sensitive information would leak out on either side. They all agreed to give it a try. Over a 12-month period, Ocean Spray shifted 80 percent of its freight traffic between New Jersey and Florida—616 truckloads or 308 boxcars— over to the new backhaul route.

As a result, it saved an estimated 40 percent on transportation costs in that lane, or about \$200 per load. It also saved over 1,300 metric tons of carbon dioxide, giving a 68 percent reduction, equivalent to saving over 100,000 gallons of fuel. Added to the benefits from the new distribution network, Ocean Spray has reduced its carbon footprint for these operations by 20 percent. The initial impetus for these changes was cost-savings and efficiency, with the reduction in carbon emissions coming as an added benefit. In the future, however, Ocean Spray plans to include carbon savings when evaluating its transportation decisions.



**Indirect or Greenhouse Gas** (GHG) Scope 3 Emissions will be an emerging Sustainable Supply Chain topic because of California Assembly Bill 32(AB 32): Global Warming Solutions Act passed in 2006.

A recent AB 32 implementation deliverable, the November 2012 California Cap & Trade auction drew bidders from numerous industries ranging from energy distribution, refineries and paper mills as well as airlines, food and beverage companies. For the first time the Chief Financial Officers (CFO), Chief Supply Chain Officers (CSCO), and Chief Procurement Officers (CPO) have a vested interest and now must assign value to GHG, Scope 3 Emissions because of downstream Cap & Trade auction implications. Further evidence of CFO, CSCO and CPO awareness includes commodity broker and investment banking activity in this 2012 Carbon auction. CXO's are very mindful of potential manufacturing, sales distribution and logistics costs inputs and will take action.

**John Wilkerson, CPSM**  
**Sustainable Supply Chain Researcher**

National Graduate School  
[www.ngs.edu](http://www.ngs.edu)

I am convinced that as the US recovers and expanded sustainability communication across all stakeholders, the initial November 2012 California Cap & Trade auction will serve as a catalyst for increased stakeholder receptiveness and collaboration. Lesson learned: business executives act quickly on relevant and pressing topics.



**Increasing energy efficiency** in the supply chain needs a coherent strategy, a successful program supported by intuitive tools and constant exchange about improvements. For our customer Siemens, energy efficiency has been extremely important since the early 1990s. Siemens has since systematically reviewed its own production facilities to identify where resources were being wasted. More recently Siemens has started to look at its complex, internationally networked supply chains which rely to a significant extent on bought-in materials.

**Jeff Yorzyk, Regional Director**

PE International  
[www.pe-international.com](http://www.pe-international.com)

Siemens introduced a Code of Conduct for suppliers and an energy efficiency program to help suppliers increase energy efficiency, reduce carbon emissions and reduce water use. Their Energy Efficiency Program for suppliers is a four stage approach dividing suppliers

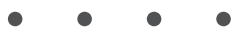
in four categories to reflect the differences in structure in its supplier base. Suppliers go through an intuitive self-assessment for energy and environmental efficiency powered by SoFi software from PE International. Suppliers can go online and use the Siemens EEP4S self-assessment tool to quickly calculate the energy efficiency of their production site/business premises and their carbon footprint. On this basis a catalog of suggested actions is produced that will enable the supplier to optimize energy and resource efficiency. Some suppliers also receive individually tailored analysis and consulting from certified Siemens engineers who will spend several days at the supplier's production site/business premises and carry out an in-depth investigation.

Siemens found that the Energy Efficiency Program leads to energy savings of up to 17 percent in the supply chain. Improved supplier cost structures ensure long-term competitiveness. Furthermore, program participants will ensure their status as a Siemens supplier in the medium term and improve their reputation for sustainability.

One case study of a German supplier that provides Siemens with cast steel parts showed that the program already had an impact during the analysis phase when cost-cutting measures were proposed. For instance, the firm will save \$14,000 a year by performing individual pre-heater adjustments. Siemens also organized in-person feedback rounds with suppliers.

The direct feedback was critical as Siemens found out that despite the initial effort, the mostly medium-sized companies reported that the program helped them to clearly identify areas where they could improve their energy efficiency. Suppliers also suggested improvements for the program such as for Siemens to use its recognized expertise in energy efficiency to provide a "know-how pool" for suppliers. For example Siemens could use its unique position in the market with regards to a number of areas ranging from logistics to electricity.

Finally, most suppliers noted that raising employees' awareness to act energy-efficiently and helping suppliers train their employees both for environmental protection and for responsible energy use is critical to a supply chain program.



**In 2011, we introduced** the Sustainability Index into our business as part of an overall company commitment to develop a more sustainable supply chain and improve the

sustainability of the products our customers buy. The Index is a measurement and reporting system for products and suppliers and has been in development for several years.

The goals of the index are simple: to improve the sustainability of the products our customers love, to integrate sustainability into our core business, to create business value by increasing quality, efficiency and resiliency in the supply chain, and to increase our customers' trust in us and the brands we carry. The Index was developed on the foundation of The Sustainability Consortium (TSC), a group of more than 100 member companies, including suppliers, academics, NGOs, and other retailers (and competitors) such as Kroger, Tesco, Best Buy, Ahold and others. The Consortium is developing key performance indicators and informational tools for categories of products to establish the "common language" necessary to evaluate product and supplier sustainability performance, while driving innovation where it matters most.

These tools for our buyers, in the form of Index scorecards, allow them to evaluate supplier and product performance against the biggest issues and opportunities in their category and provide actionable recommendations for how to work through the supply chain to improve and drive innovation. We've rolled these tools out to more than 150 product buyers and over 190 categories across grocery and general merchandise. We're integrating The Index into our business in a meaningful way. Today, buyers from across Walmart are using The Index in buying decisions; in fact, using The Index is now part of our buyers' sustainability objectives on their annual evaluations. We also set the course to support TSC's expansion to China to develop tools that can also be leveraged on a more global scale. More than 1000 suppliers, representing about 70 percent of sales within the categories we are currently evaluating, have also used The Index to evaluate, and often improve, their products. Buyers are using these tools in their buy trips, business planning and other business processes. This is becoming part of what it means to be a merchant at Walmart.

Now our focus is on expanding the categories covered by the Index so that we can reach our goal of buying 70 percent of the goods we sell in US stores and in US Sam's Clubs from suppliers who use the Index. And we'll continue our expansion globally this year, with a goal of rolling the Index out to three international markets in 2013.

**Jeff Rice,**  
**Senior Director of Sustainability**

Walmart  
[www.walmart.com](http://www.walmart.com)

We've learned a lot through this process, and we'll continue to learn. Integrating sustainability into the way we buy merchandise is no easy task, but the opportunity to become an even stronger business while improving sustainability globally is huge and it's worth the effort.



**Need to read** the print in the “instructions” worksheet of the EICC conflict minerals V2 template. In Part (b), EICC/GeSI SID template expands the Rev 2 terms and conditions beyond Rev 1.

The following language is pulled directly from the Rev 2 terms and conditions in the ‘Instructions’ worksheet, cell A62: “In consideration for access and use ... THE USER hereby agrees to and does ... (b) indemnify, defend and hold harmless EICC and GeSI, ... from any and all claims ... suits, damages, judgments ... resulting from or arising out of the List or any Tool or use thereof.”

**Kiami Rogers,**  
**RoHS Compliance Manager**  
Maxim Integrated Products  
<http://www.maximintegrated.com>

Breaking down the language in the Terms & Conditions:

1. In consideration for access and use: These terms apply to anybody who downloads or uses the form.
2. THE USER: The company accessing or using the form.
3. Agrees to and does: Implied acceptance without signature or agreement.
4. Indemnify: Compensate EICC/GeSI for losses or damages resulting from judgments, levies and executions.
5. Defend: Agrees to provide financial and legal support to protect against claims, actions and suits.
6. From any and all [claims, etc.]: An open-ended commitment without time-limit or cap on financial liability.
7. Arising out of the List or any Tool or use thereof: Not limited to this form or this use of the list.

We believe this language would make THE USER liable to defend and compensate EICC and GeSI for any legal or contract actions taken by anybody in the world in relation to this



or “any Tool” that EiCC/GeSI has already distributed or might distribute in the future. The language is overly broad.

## Workplace

**How many companies** do you know that are 100 percent virtual? By this I mean that all employees work 100 percent of the time from their homes, no one ever commutes, and in fact, there is no office to which to commute?

Besides freelancers and other independent contractors, there are not very many entities that can claim this. Our firm is one example of a company that has achieved this. We only have five employees, but there is no reason that this model cannot be extended to medium sized service firms as well. Because all of our employees work full time from their homes, we eliminate the gasoline consumption, automobile tailpipe emissions, and loss of productivity associated with commuting to and from offices. We also operate 100 percent virtually with our clients, partners, contractors, and suppliers. Instead of meeting with our clients and others in person, we primarily use conference calls, email, ftp exchange of large documents, digital recordings of calls, webcasts, and other methods to efficiently communicate and collaborate.

This minimizes fuel consumption, emissions, and productivity loss from business travel. What's more, in our homes, we all practice recycling and various energy saving techniques. The benefits to our firm of this approach include reduced operating expenses, improved employee satisfaction and retention, enhanced employee productivity, and improved employee quality of life. We are able to recruit nationally for employees, rather than recruit locally.

With regards to the benefits to society, can you imagine the savings in gasoline consumption, emissions, and productivity if a large percentage of small and medium-sized service firms adopted this way of conducting business? While many companies today allow a partial telecommute (e.g., employees commute to offices a few days per week), the full telecommute for all employees remains relatively rare. We have found that operating this way simply requires the will to do it. Our firm plans to continue to use this model of environmental stewardship and productivity, and we hope that other service businesses adopt it as well.

**Steve Hoffman, President & CEO**

Hoffman Power Consulting

[www.hoffmanpower.com](http://www.hoffmanpower.com)

## Design & Innovation

**We were the first** company in the electronics industry to change our view on how we manage materials that go into our products. Typically, what consumer electronics companies do is form a list of materials that are not permitted to be used in their products, which they then send to their suppliers with instructions to comply. This is actually a very old-fashioned way of doing things, which we did until the mid-nineties when we had a clear change of viewpoint and direction.

As of the mid-nineties, we have wanted to know about every substance involved in the components, parts, sub-assemblies, or even the very materials that we use. A simple piece of plastic has several different materials in it, so our aim is to know exactly what is in our products, right down to that level.

**Markus Terho, Head of Sustainability**

Nokia

[www.nokia.com/people&planet](http://www.nokia.com/people&planet)

When we first undertook this initiative, many said it would be impossible to ascertain all this. They thought nobody would give us the information, or that it would be impossible to manage, or that it would be very costly and our business would suffer. This has never happened! However, it took us a long time - more than six years in fact – to build this capability. It has helped us significantly. Many external requirements have been initiated by regulators in Europe, the USA, China and other parts of the world, such as new materials being added to a restricted list, or totally banned from use in certain applications or products. Now, when the discussion on the policy front starts and scientists start to look at new evidence and debate whether a certain substance should be regulated or not, we can immediately go into our component database and see where we use this substance, and evaluate whether it can be replaced by something else.

We also look at how much effort will be required to tweak it in the future. We have now developed this capability to provide a full material declaration – a 100 percent breakdown – of what materials are in a component or a part that one company might supply to another.

With this information, we have created a standardized system incorporated into our supply chain, which lets us intelligently manage substances of concern in our products

and ensure that the highest global standards are met. It's been good to see some other electronics manufacturing companies following our lead on this.

We are also very active with regard to cooperation within the electronics industry supply chain. We make sure we manage risk factor areas, such as working conditions, workplace safety, environmental impact and ambitions of the company, and how information about these areas is exchanged within the supply chain. We look at how Nokia, with its many suppliers, can categorize and assess risk with certain types of manufacturing processes, materials and locations, for example. Nokia has also been an active participant in the Global e-Sustainability Initiative (GeSI), which is an industry-wide effort to help the biggest players in the industry work for example with the same information about products and materials. We've been able to simplify that process quite radically, so that instead of every company having to seek out information for itself, it is all commonly available among companies using the same system and approach. With things like this, where we have taken an approach of developing something based on our needs, we always try to look at how we might be able to help the wider industry in areas we feel are important.

Leading sustainability is not about pushing certain ideas onto others, but rather looking at how we can work with others to make a better impact on the industry as a whole, and create a better end result.



**I think that green roofs** have really epitomized the struggle that we are facing Jan 31, 2013 7:20 PM with regards to sustainable technology and sustainable business, at the moment. I was standing on a green roof recently when I had an epiphany about this. I was thinking, why are these green roofs necessary? Couldn't the drains have separated different types of waste water in the first place? Street water is relatively clean and could go straight into the Thames.

**Simon Mills, Head of Sustainable  
Development**

City of London  
[www.cityoflondon.gov.uk](http://www.cityoflondon.gov.uk)

The answer is that when Joseph Bazalgette—the genius who designed the drainage system of London—designed the system, he couldn't have separated street drainage because in his time, the 1880s, the water coming off the streets would have been putrid, due to there being the best part of a quarter of a million horses roaming the

streets of London! Can you imagine the infrastructure that was necessary to support a quarter of a million horses?

There were the grain merchants, the farriers, the blacksmiths, the vets, the stableyard hands and the coach manufacturers, to name only a few. Just think about how much infrastructure and how much money was tied up in supporting this particular form of transport and technology! And yet within twenty years it had gone, replaced by the internal combustion engine – a massive piece of disruptive technology.

This tells me two things about our situation today. The first is that it's incredibly difficult for city planners to know where disruptive technology is going to come from, and how it may transform the way cities work. The lesson might be never to lock yourself in to any particular design parameter because it will ultimately be replaced in the long term. The second issue, which I think is a more significant one, is what if the grain merchants, the farriers, the blacksmiths etc. had had the same access that the oil companies of today have for lobbying parliament, and influence in the media? We'd still have horses and carts on the streets, and the internal combustion engine would never have got off the ground!

We are certainly facing this issue today, where people who have invested massively in the existing infrastructure and paradigms are mounting a very effective defense of the status quo. Honestly, I think that environmental technology companies today are facing a far tougher fight than the manufacturers of the internal combustion engine faced at the turn of the 20th century. But they will prevail! The fact is you cannot prevent the march of history. We are facing a tsunami of challenges going forward with the additional 2 or 3 billion people who are going to need housing and feeding and watering and energy, and we simply cannot deliver services using existing models. So the future must be a green one.



**It's not often** that a company in an established, rather conservative and predictable industry can reenergize the market with a breakthrough product that embodies high performance, innovative design and sustainability, but in 2012 we feel that we literally broke the mold in the retail motor oil marketplace. Last fall, we introduced the nation's first retail motor oil -- ECO ULTRA Synthetic Blend Motor Oil -- packaged in sustainable flexible, stand-up pouches. Compared to conventional hard plastic bottles, the new

durable 1- quart FlexPak™ offers consumers a faster, easier and cleaner way to change their oil and gives retailers a unique opportunity to bring customers an exciting, high-performance product in an environmentally responsible package.

We partnered with Atlanta-based Star Packaging Corporation to produce the tough, three-layer ECO ULTRA FlexPak, and Innovative Packaging Network to engineer the pour-spout. Already widely used and accepted in food and household products, flexible packages require less raw material to make than hard plastic bottles. The FlexPak's smaller size and lighter weight significantly reduces freight costs. One truckload of unfilled ECO ULTRA FlexPaks is equivalent to 26 truckloads of unfilled rigid plastic containers. Drained and flattened, the FlexPak also significantly reduces landfill waste.

**John Q. Wesley II, CEO**

Universal Lubricants

[www.universallubes.com](http://www.universallubes.com)

So, what lessons have we learned this past year? We've learned that "business as usual" is not necessarily business at its best and that taking bold steps outside your industry's comfort zone can reenergize employees, business partners and customers. We've learned that the secrets to success can be found when you listen to customers and choose the right business partners. And, we've learned that consumers want to choose products that are good for the environment without sacrificing product quality and performance.



**We are seeing** mounting evidence of the important role manufacturing processes play in decreasing environmental impacts in life cycle stages beyond manufacturing. There are the direct impacts on the product life cycle that we have begun to understand, including the resources consumed and costs incurred to make the product. But, there are also secondary impacts that manufacturing processes have on other life cycle stages.

For example, the quality of the finished product can affect the operational efficiency or service life of many products and thus impact the resources consumed and costs incurred during the use phase. This relationship creates an inherent trade-off since the improved quality necessary to reduce impacts during subsequent life cycle phases typically requires more resources during manufacturing.

However, understanding this relationship allows manufacturers the opportunity to further optimize the entire life cycle of their products, particularly for those products that have greater impacts during use than manufacturing phases (e.g., automobiles, aircraft, or wind turbines). Cultivating an understanding of the effect of manufacturing processes on impacts across life cycle allows manufacturers to meet the challenges of their increasing responsibility for larger portions of the product life cycle.

**David Dornfeld,**  
**Will C. Hall Family Chair in Engineering**  
**and Professor of Mechanical Engineering**

University of California, Berkeley  
[www.lma.berkeley.edu/](http://www.lma.berkeley.edu/)

The Laboratory for Manufacturing and Sustainability (LMAS) at University of California - Berkeley has become interested in finding ways to utilize the opportunities presented by manufacturing to improve product life cycles. One area of research focuses on identifying strategies and technologies that leverage manufacturing processes to reduce the life cycle impacts of a product.

Specifically, this means further processing or more expensive processes (which often require increased resource use) in the manufacturing phase to create even larger resource savings during product use or end-of-life phases and thereby reducing the overall impacts during the product life cycle. We have studied this effect in the finish of gears in automotive drivetrains. Recent studies have shown that surface roughness and other characteristics created by manufacturing precision influence the efficiency of these gear meshes among other factors.

We found that even slightly reducing the surface roughness of a gear mesh in the drivetrain of an automobile can translate to an order-of-magnitude reduction in the resources consumed over the life of the car. The next research question is: how much can we leverage manufacturing processes and decisions to optimize the product life cycle? We are currently trying to answer this question by continuing our research in “leveraging” through a variety of case studies. Through work with our industrial partners, our goal is to develop tools that will enable manufacturers to better understand the effect of their decisions on the product life cycle. In this way, we hope that manufacturers can start to exploit the importance of manufacturing on the product life cycle to create better, more sustainable products.



## Waste & Recycling

**Producing aluminum** from recycled content takes only 5 percent of the energy needed to produce new metal. For Alcoa, recycling is not only an environmental imperative – it is a business imperative.

In 2008, when the US used beverage can recycling rate was only 54 percent, Alcoa set a goal to achieve a rate of 75 percent by 2015. By 2011, however, the rate had increased only to 65 percent and the US continued to lag behind the rest of the world, wasting millions of dollars in the process. We had to refine our approach.

In February, we sponsored the Action to Accelerate Recycling Summit with attendees representing over 70 percent of the soft drink industry, 90 percent of the glass container industry, and all of the aluminum can sheet industry. The Summit was a clear demonstration that large scale sustainability goals require a new approach to problem solving – collaboration over competition.

The Summit was a success, not only because it solidified the common ground among all businesses in the packaging value-chain, but because it established the key relationships needed to solve complex multi-stakeholder problems like recycling. As a result of the Summit, Alcoa, Alcoa Foundation and Keep America Beautiful announced “Action to Accelerate Recycling” at the 2012 Clinton Global Initiative – reaffirming our goal to increase the US recycling rate to 75 percent by 2015 with \$2 million of funding to generate awareness, create incentives and provide recycling access and infrastructure.



**Burns & McDonnell’s St. Louis office** embarked upon a sustainability-themed awareness campaign to help educate our employee-owners about energy efficiency, water savings, transportation, recycling and waste reduction and how they can take little steps both at home and at work to make a difference. As a result, the office implemented a single-

**Kevin Anton,**

**Chief Sustainability Officer**

Alcoa

[www.alcoa.com](http://www.alcoa.com)

stream recycling program and now all non-food items are recycled.

In addition, trash cans have been removed from all individual work stations and are now only located in common areas, such as breakrooms.

As an office without a cafeteria, this step is a no-brainer. By removing desk-side trash cans and embracing single-stream recycling, we will capture 100 percent of our recyclable waste. We have renamed our few remaining trash containers as food containers, and the waste to be collected in them will be less than 0.01 percent of our total collected waste.

Since implementing single-stream recycling and removing the trash cans from individual workstations, total office recycling increased from 3 tons to more than 13 tons in the last quarter of 2012.



**Take-back recycling** programs for all types of recyclable items are materializing in retailers nationwide. In a recent Omnibus and Attitude & Usage study, commissioned by Call2Recycle, battery and cellphone recyclers cited “convenience” as a major motive for participation.

Batteries and cellphones, among other products, are primarily collected at retail outlets where consumers already shop. As a product stewardship organization managing the only no-cost battery and cellphone collection program in North America, we realize that consumers will integrate recycling into their daily routines when collection programs are convenient and accessible. Well-designed recycling programs can also increase store traffic, enhance the store reputation and generate customer loyalty while having a major impact on the environment.

Additional findings:

- 54 percent in the US and 45 percent in Canada consider retailers a key source

**Tom Zychinski, Vice President**

Burns & McDonnell  
[www.burnsmcd.com](http://www.burnsmcd.com)

**Carl Smith, CEO/President**

Call2Recycle  
[www.call2recycle.org](http://www.call2recycle.org)

for learning about recycling programs.

- 18 percent of Americans and 24 percent of Canadians participate in retail “take back” programs for the collection and recycling of batteries and cellphones.
- 80 percent of survey respondents said they had positive feelings about stores that offer take-back programs.
- 51 percent in the US and 56 percent in Canada go beyond replacing what they just recycled to shop and buy other items.

According to the response data, consumer support of product recycling is heavily influenced by three key factors: the mode of product collection; how accessible the collection program is for consumers; and their general awareness of take-back programs.



In **2012**, EPA’s Responsible Appliance Disposal (RAD) program celebrated six years and 50 partners. EPA launched the RAD program in 2006 as a voluntary partnership program to protect the ozone layer and climate system. In its first year, RAD partnered with nine utilities. Six years later, RAD has grown to include 43 utilities, four retailers, one manufacturer, and two state affiliates.

**Melissa Fiffer,**  
**RAD Program Manager**  
US Environmental Protection Agency  
[www.epa.gov/rad](http://www.epa.gov/rad)

Through the RAD program, partners collect old refrigerant-containing appliances (refrigerators, freezers, window air-conditioning units, and dehumidifiers) from consumers and responsibly dispose of them with the help of an appliance recycler. The appliance recycler uses best environmental practices to ensure that refrigerant and insulation foam/blowing agent are recovered and properly handled; durable goods are recycled; and hazardous materials such as PCB capacitors, mercury switches, and used oil are disposed of properly.

RAD partners strive to go above and beyond the regulatory requirements under the Clean Air Act through recovery and management of insulation foam. The substance that expands the insulation foam, i.e., the blowing agent, is typically a substance that can harm the ozone layer and/or climate system if not properly handled at the appliance’s end-of-life. RAD partners and recyclers have three main approaches for handling appliance foam to achieve greater environmental benefits: manual, semi-automated, and fully automated.

The automated processes include recovery of the blowing agent. From 2007 through 2011, RAD partners have helped recycle nearly three million appliances. Partners' proper handling of the refrigerant and insulating foam has resulted in avoided emissions of about 2.3 million pounds of chemicals that harm the ozone layer. Partners have also prevented emissions of about 6.4 million metric tons of carbon dioxide equivalent. That's equivalent to the greenhouse gas emissions of 1.3 million passenger cars for one year.

Permanently removing old, inefficient appliances from the electricity grid also yields significant energy savings. On average, refrigerators collected by RAD utility partners in 2011 were over 20 years old. From 2007 through 2011, utility partners reduced total energy use by roughly 13 billion kilowatt-hours (kWh), equivalent to nearly 9 million metric tons of carbon dioxide equivalent. This has saved consumers across America a cumulative total of \$1.5 billion.



**At General Motors**, we don't keep our best environmental practices a secret. If something is beneficial for us, as a company, we think it's likely beneficial for others, as well, if we share our best practices. It's part of the reason why we laid out a blueprint for reducing waste. When it comes to efficiently operating GM facilities, our team possesses a competitive spirit that pushes us to get the most out of our facilities by using the least amount of energy. It is because of this drive that last year we were named an EPA Energy Star Partner of the Year and 54 of our plants met Energy Star's Challenge for Industry.

**Al Hildreth, Energy Manager**

General Motors

[www.gm.com](http://www.gm.com)

Here are 10 ways your company can better manage its energy output.

- 1. Engage Objective Experts:** The best judges are those with no immediate stake in the results. In 2012, we contracted an independent third party to validate our global energy, water, greenhouse gas, production usage, and environmental data for all of our manufacturing and major non-manufacturing facilities.
- 2. Set Goals:** Goals are an integral part of running a successful business. We set energy and environmental goals and then integrate them into our manufacturing

business plans. Each of our facilities develops their own energy efficiency plan to meet their objectives.

**3. Benchmark:** Using external benchmarking resources from EPA Energy Star , we identify plants that are within the top 25th percentile of automobile companies so that opportunities can be prioritized and best practices identified and shared globally.

**4. Invest in Energy Efficiency:** GM allocates monies for high-return efficiency projects. We collect proposed projects from facilities and prioritize them based on return on investment and probability of successful implementation. This year, we spent \$20 million on energy efficiency in the US, and as a result reduced manufacturing energy intensity by 8 percent from the previous year.

**5. Monitor – Constantly:** Across all of our US facilities, we monitor about 2.5 million points of energy data per minute. That's a lot of data, and to adequately manage it we, in conjunction with Science Applications International Corporation, Inc. operate a dashboard system called Energy OnStar. Assisted by the third party, plants compare hourly performance of heating, ventilating and air conditioning equipment and their energy use to identify opportunities on a real-time basis. As a result of seeing this feedback, we implemented more than \$3 million worth of energy savings at our U.S. facilities this year via Energy OnStar.

**6. Measure Performance:** We keep employees informed of our energy, water and CO2 intensity performance on scorecards, helping us determine how we're tracking against monthly and annual goals. Any performance with less than a "green" status requires a countermeasure to be developed to correct it, which is also tracked with additional emphasis to ensure achievement.

**7. Involve and Reward Employees:** We use a formal employee suggestion system. Not a slip of paper dropped in a suggestion box, but a process where US employees' active involvement pays off – literally. Employees who suggest an improvement to an existing process can receive a portion of the implemented savings up to \$20,000. We've implemented many employee ideas in the last year, yielding hundreds of thousands of dollars in energy, water, and carbon reduction savings.

**8. Share Best Practices throughout Organization:** Reducing energy consumption is a global team effort and requires collaboration from all levels.

We use a global web-based system where plants and offices around the globe can input energy, water, and carbon-reduction best practices for all GM team members to learn from and improve upon.

**9. Be Transparent:** We calculate greenhouse gases through a web-based global system that shows energy effect on carbon emissions and water intensity. This information is reported publicly to the Carbon Disclosure Project (CDP) and in our annual Sustainability Report.

**10. Communicate:** GM communicates progress, shares results, discusses the implementation of ideas, and tells stories of its global energy and water efficiency gains through a variety of channels like our internal e-newsletters, employee intranet, and our environmental blog. A project isn't complete unless it's talked about, since that often inspires and sparks other ideas.



**As a solid waste district employee** who deals mostly with businesses, I tour many recycling facilities. They have all been most gracious and open about showing their operations. Some of them are truly recycling what they say they are recycling. However, there are others where I ask two or three different employees from the same facility exactly what they are recycling, and I get two or three different answers. There is a disconnect here, and it may be from rapidly changing markets, but there is no way to be sure why all employees at a facility would not know exactly what is being recycled at their own facility.

**Anonymous**

Recently I visited a recycling facility of a major waste hauling company. They said they were recycling plastic containers #1 - #7. When I did not see bales of anything but plastic containers #1 and #2, they admitted that they disperse plastics #3-#7 into the bales of #1 and #2 plastics and call it "contamination."

What is really happening then to those plastic containers #3-#7? The recycling manager at the facility admitted she did not know. When I teach businesses about recycling now I tell them to follow the trail. Before contracting with a company to pick up your recyclables, make sure you know where everything is going and what happens to it once it gets there.

Make an appointment to tour the recycling facility and see the process for yourself. Be aware that markets change and what a facility decides to recycle may change periodically as well.



**Great Forest works** with corporate clients to divert as much as 50,000 tons of material from landfills daily. We find that in many cases, businesses can easily increase recycling rates by centralizing waste and recycling collection points on typical office floors.

A simple pilot of this centralized system demonstrated measureable results. We worked with a large financial services firm to quantify the success of this program across five floors of one of their commercial buildings in NYC. The office floors had a traditional two-bin recycling set up. Each desk had two bins—a small black bin for trash and a blue bin for paper. There were also central bins for paper, bins for trash, and bins for bottles and cans in pantries.

The first thing we did was to conduct a compliance evaluation of the existing program (to see how the bins were being used) and a material

content review (to see how much recyclables were in the trash and vice versa). Next, the centralized program was implemented. All blue and black deskside bins were removed (about 1000 in total across the five floors). Central recycling stations were set-up in select locations throughout each floor. Each recycling station included a bin for trash, a bin for paper, and a bin for bottles/cans. Signage for these central stations were clear, visible and color coded.

Employees were informed of the change, and cleaning staff was trained on new collection procedures. We then conducted a follow-up compliance evaluation and material content review to see if the centralized collection program improved recycling as expected. We found the percentage of recyclables in trash dropped by 75 percent with the centralized collection system.

**Amy Marpman,**  
**Director, Recycling Services**

Great Forest Inc.  
[www.greatforest.com](http://www.greatforest.com)



**Percentage of recyclables in trash:**

Traditional Recycling Program (with deskside bins): 30 percent

Centralized Collection Pilot (without deskside bins): 7 percent

Compliance (how employees use bins) also increased: 25 percent increase in correct use of trash bins, and 5 percent increase in correct use of paper bins. By centralizing collection points for waste and recyclables, this financial firm ended up capturing more recyclables than they were with the traditional recycling set-up. This centralized system works because it makes people get up (literally) and think about what they are throwing away. With deskside bins, busy employees were not paying as much attention to which bins they were discarding items into.

We have worked with other corporate clients to implement central collection systems. Each time we see the centralized system implemented, we find there is initial employee pushback with the removal of deskside bins. However, as with any new program, employees get used to the new system, especially when they learn that their efforts are really working. Additional benefits to the centralized collection system includes a reduction in labor for collection of trash and recyclables (cleaning staff no longer need to spend time emptying bins across the floors), and a significant reduction in the use of small bin liners (saving 1000 small liners a day).



**Recycling is a key strategy** in the sustainability programs of many large organizations, especially in the Consumer Packaged Goods space. Improved recycling is more a sustained behavior change program than a logistical exercise or a marketing campaign.

**Daniel Gilbert, Solid Waste  
& Recycling Program Manager**

ISS Facility Services  
[www.us.issworld.com](http://www.us.issworld.com)

In order to improve recycling rates, efforts must focus on making it as easy and convenient to recycle as it is to pitch it. It helps to add a reward for consumers who do the right thing and have a sincere desire to use recycled materials in your own products or packaging, so people can see that you are walking the talk.



**Sometimes being the best** you can be at something is not about effort but about using your head. We embarked upon a project to ensure that our London office was recycling all of its waste and made the lofty objective that all our waste was to be recycled and attempt to achieve a “Zero to Landfill” waste stream with high recycling rates.

We started with education and signage and increased our recycling figures by 20 percent but the achievement of those objectives was still some way away. We started to look at the process and realized that our staff were confused and our waste transfer agent was not feeding back the problems they were facing with contaminated waste, so we embarked upon a review that involved all stake holders and realized that we needed to look at the whole picture.

**Richard Naylor, European Facilities**

**Manager**

[Legg Mason](#)

[www.leggmason.com/](http://www.leggmason.com/)

We found that many streams were not being recorded as they were collected by other agents and that separate bins for each stream made it easy for staff to dispose of waste correctly, so simplifying the process certainly achieved results.

Once we had consolidated our figures and tied all of the different streams together we were surprised to see that we were hitting our targets of 70 percent recycling; we were in a position to be the best in our building and could announce that we were “Zero to Landfill.”

The lesson learned is that lots of effort is of no use unless you understand what you produce as waste and who collects it. To ensure that you are fairly represented in your waste figures look at all the streams and record and report them all.



**When you study** the problem of ocean pollution – which is mostly plastic – what you learn is that the only real solution is prevention. As you and I know, there’s no practical way of going there and cleaning up the Great Pacific Garbage Patch. It’s not an island; it’s a soup, so the main issue is that any clean-up effort is impractical.

**Adam Lowry, Co-Founder**

[Method](#)

[www.methodhome.com](http://www.methodhome.com)

The real solution is preventing the plastic from getting into the ocean in the first place. And if you're going to do that, one of the very best ways to do it is to simply use the plastic that's already on the planet. However, recycling rates in the US and UK are very low. It's estimated that less than half – perhaps as low as 25 percent – of plastics get recycled, which means for every pound of plastic that's recycled, three pounds end up in landfills or in the environment somewhere.

So what we need to get better at is closing the material loop, and using the plastic that's already on the planet. This is something that Method has done for many years. There's no virgin plastic material in any of the PET we make. On its own, this is not something that's very interesting for the mainstream consumer to think about.

What we wanted to achieve through the ocean plastic project was simultaneously raise awareness about this important issue and point to the solution. Essentially, we have created a product that people said would be impossible. People would say there's no way you can take plastic out of the middle of the ocean and make useable, recyclable packaging from it. Well, we've done just that, and you can buy it at your regular supermarket. By demonstrating that the impossible is possible, we're removing the excuse that any company has for not using 100 per cent post consumer recycle plastic, like we do.

I believe that getting people to follow your lead and adopt your innovations is the most important – and often the trickiest – step in the sustainability process. What I mean by that is that you could have a perfectly sustainable product, but if nobody uses it, that – in my mind – is not innovative. So what we have to do is create products that are more sustainable but are also products that people love and love to use.

I truly believe adoption is the most important part of the innovation process. Once we have people using our products, that then gives us license to do the next big innovation. This helps us bring consumers with us on the sustainability journey, so we can arrive at our destination quicker than if we spent our time dreaming up the “perfect” product that nobody actually used.



**Nestle Waters** is third-largest non-alcoholic bottler, behind Coke and Pepsi, and the largest bottler of water. We have a deep concern about the fate of our bottles after the

consumer is finished with them. If the bottles we sell end up in the recycling bin, that's good for us: they have a chance to come back to our factory as recycled plastic, which is a hedge against volatility in the commodities market. And, of course, environmentally, if you reuse stuff, you're not creating new stuff.

But there are problems with this: in the US, only about 50 percent of households have curbside recycling, and about half of the people who have good access to curbside recycling do it. So if we want our bottles back, we have to do something that involves a much bigger system than us.

**Michael Washburn,**  
**VP for Sustainability**

Nestle Waters  
[www.nestle-watersna.com/en](http://www.nestle-watersna.com/en)

With that in mind, we're proposing EPR – extended producer responsibility – for packaging. Companies that use specific packaging types, like us, or those that sell packaged dog food or packaged cereal, all of their packaging would have a fee – far less than a penny per container – that would be charged to the consumer when they purchase the product. We're talking about something that looks like \$25 or \$30 a year, less than people pay for recycling now.

Those fees would be paid to the retailer, and that money would be collected by a new entity called Producer Responsibility Organization (PRO). This would be a non-profit entity set up by the industry. With the money, PRO would provide bins, make loans to invest in new recycling centers, educate the public, etc.

Consumers would be paying less, because the local government would no longer charge for recycling. Everyone would have a bin provided by PRO, everyone would get educated about what goes in the bin. We think we can improve recycling rates, decrease materials diverted to landfill, and be able to expand and update the rusty, old materials recovery facilities. We realize some people don't like the plan – the waste haulers hear “change” and don't rush to the table, people hear “fee” and automatically shut down. But we believe we can do the whole process more cheaply through this model and get a better result.

We also realize this is big-idea stuff. We're not tinkering around the edges of things. We believe we can take care of the vast majority of the stuff that's going to the landfill.

So what have we learned throughout the process of trying to make this happen?

**Lesson 1. Be FOR something.** Companies are extremely adept at being against other people's good ideas. So I think Nestle Waters has distinguished itself by not only being for something and talking about it, but by then doing something about it.

**Lesson 2. Be clear about your purpose.** Companies are going to be expected to do that more and more often. It's no longer enough to just join trade organizations and say why other people's ideas are bad. We have to be able to put aside our differences and work together, not just with others in the space but within the company, from leadership down and from the field up.

**Lesson 3. Go find the space that's closest to you and fill it.** Fill it with an idea, a proposal, and lead. You'll solve a problem, you'll get credit for solving the problem, and even if you don't solve the problem right away, you'll change the narrative.



**In the food industry,** looking for opportunities to reduce your waste stream can be challenging. Some of the characteristics of the materials used in packaging for instance, to make them applicable for Food Transfer, also make them unsuitable or at least less desirable for recycling.

OSI operates primarily in the Meat industry, and the industry standard for shipping bulk meat from the primary processor to the further processor is a plastic lined corrugate combo. Each combo holds

2000 pounds of fresh meat, the plastic liner keeps the moisture under control. After dumping the meat out, if the corrugate is dry and unsoiled it can be recycled, but the liner, given that it has been exposed to meat, is now treated by the recyclers like "medical waste." Therefore, most processors discard the soiled bag in with the landfill waste or incinerate the bag which brings its own problems with air quality.

**Larry Glaser, AVP, Director of  
Operations Support, Sustainability Lead**

[OSI Industries LLC  
www.osigroup.com](http://www.osigroup.com)

In 2012 after a long search, we found a recycler who was willing to work with us and collect the plastic liners from our facilities, clean them and then recycle them as clean plastic. We do not gain any rebate on the recycling transaction because our recycler has to put in a significant amount of labor into cleaning the plastic liners, but we reduced our waste to landfill by 35 percent. For additional motivation, we reduced the number of waste pick-ups at the factory, saving money, and topped off a Carbon Savings with the reduction of truck trips for waste removal. All in all, a win, win, win.



**Every year**, hospitals generate an average of 33 lbs. of waste for each hospital bed – an astonishing 5.9 million tons of waste overall. To combat this growing tide of medical waste, Practice Greenhealth – the nation’s leading membership and networking organization for organizations that have made a commitment to sustainability – has been working with its members to reduce waste both upstream (in procurement) and downstream (reusing and recycling).

In 2012, one of these efforts was to help hospitals reprocess medical instruments rather than continue the common practice of throwing away instruments after a single use. Last year, approximately one-quarter of Practice Greenhealth’s member hospitals diverted 512 million tons of instruments from landfills simply through reprocessing, which involves sterilization of metal instruments for use in more than one medical procedure. This simple step saved these 300 hospitals more than \$18 million – a clear indication of the strong business case for reuse in health care. Many other medical-related items used day-to-day in health care (for example, the gowns that doctors and nurses wear) have the potential to be re-used.

**Laura Wenger, RN, Executive Director**

Practice Greenhealth  
[www.practicegreenhealth.com](http://www.practicegreenhealth.com)

Practice Greenhealth sees a growing trend of more reusable instruments, devices and medical items as the health care industry moves to align operations with the greater aim of community sustainability and reduce costs. This will result for healthier hospitals for patients and staff in 2013 and beyond.



**According to the Natural Resources Defense Council**, 40 percent of all food produced goes to waste. Composting food at supermarkets is one way to reduce the environmental impact of waste. However, starting a composting program can be a daunting task and requires all stakeholders to work collaboratively to achieve a positive outcome.

The sustainability team for Whole Foods Market was interested in pursuing composting solutions for its Illinois stores. Prior to 2011, there were no sites available to process large-scale commercial food waste in Illinois. As interest from conscientious grocers grew, Illinois approved legislation outlining a permitting process.

Whole Foods Market took advantage of this opportunity and decided to launch a new composting initiative in Chicago. Whole Foods Market approached Waste Management (WM) to develop a customized program for food waste and help turn it into useful soil enrichment material. WM trucks would collect all compostable material and mix it with yard waste. After a six-month processing period, the waste would be converted into beneficial compost for use in landscaping.

**Anita Kedia,**  
**Business Development Manager**  
Waste Management  
[www.wmsustainabilityservices.com](http://www.wmsustainabilityservices.com)

WM consultants conducted store visits and waste assessments to determine the prime candidates for a composting pilot program in Chicago. In February 2011, WM and Whole Foods Market rolled out the pilot program at the Sauganash and Schaumburg stores.

WM took these steps to help Whole Foods Market achieve its sustainability efforts:

- Trash compactors were replaced with composting compactors.
- Smaller commercial containers were used to collect trash.
- All personnel were trained on the new composting program.
- Appropriate signage was posted for employees and customers.
- The composting compactors were co-branded by Waste Management and Whole Foods Market to demonstrate project partnership.
- WM provided ongoing monthly data to help monitor store progress.

By the end of 2011, the composting program implemented by WM included eight Whole Foods Market locations, which increased the average diversion rate from 10 percent to 80 percent by composting over 2,660 tons of food scraps. In 2012, WM added additional stores in the Midwest region and composted over 4,765 tons of food scraps! The ongoing program will implement other innovative recycling solutions in 2013.



## Water Management

**At Anheuser-Busch InBev** (AB InBev), the world's largest brewer, we are driven by our dream to be the Best Beer Company in a Better World. As part of this, through our local company Ambev, we launched the CYAN Movement in Brazil in 2010.

The initiative aims to create a network of partners who work together to promote awareness about the importance of water conservation. Today, almost three years after CYAN was launched, we are working with non- governmental organizations, education institutions, water utilities, government agencies and other companies – all important stakeholders who have contributed to the Movement's success.

**Hugh Share, Senior Global Director**

Beer & Better World, Anheuser-Busch InBev

[www.ab-inbev.com](http://www.ab-inbev.com)

The Basin Project, a partnership with the World Wildlife Fund and part of CYAN, is a great example. It is an ongoing campaign that brings together local communities, employees, government agencies and other stakeholders to preserve and recover springs, aquifer headwater and replenishment areas. We're helping protect the Corumbá- Paranoá Basin, an at-risk watershed near our Brasilia brewery through activities like water quality testing, restoration projects, education and awareness campaigns and helping to build the capacity of the local water basin committee.

Prior to launching the project, we learned that awareness about the state of the water basin was low. Once we educated people and identified who was interested, we invited them to brainstorm on what could be done. The local community was on board from the start, and to date, more than 6,500 people have engaged in the project by monitoring streams, planting more than 5,200 saplings and participating in workshops and other events.

We've also had success with other CYAN initiatives, including the CYAN Bank. For this project, we partnered with local water authorities to encourage households to reduce home water consumption. The more water is saved, the more points households earn towards online purchases. We're rewarding people for using less. The key lesson learned here is that being proactive and up front in approaching critical stakeholders is likely to result in positive feedback, support and most importantly, results. To date, the CYAN

Bank has saved more than 170 million liters of water.

Finally, CYAN's achievements and lessons, while locally focused, are also applicable outside of this particular geographic region and could be used as a template for other projects in at-risk watersheds. Its successes to date are rooted in deep engagement and highlight the benefits of collective action, and we believe it creates a model for how to work with multiple stakeholders to reduce shared water risks.



**Water utilities** around the world are faced with enormous infrastructure challenges that will demand better strategies for delivering the expected efficiencies that have become the standard within other more progressive industry environments. And like all companies, American Water is challenged to find innovative ways to operate at the lowest possible cost for the benefit of the company and its customers.

We have taken a proactive approach to leveraging the company's position and expertise to validate innovations using the company's large and geographically diverse footprint, ultimately becoming an early-adopter of new technologies for industry use. This program, called the Innovation Development Process (IDP), fills a vital need to seek innovative, cost effective, and sustainable solutions that can benefit all water utilities.

It combines research and development, technical expertise, and infrastructure assets with innovations from both within American Water and from external business partners to create greater efficiencies in the areas of drinking water and wastewater.

Through American Water's IDP, the company has tested new approaches and technologies to create greater efficiencies in water reuse, desalination, wastewater operations, and bioenergy. The initiative is set to reap significant results given numerous innovative approaches, including Smart Earth Technologies (SET). Due to requirements by local Public Utilities Commissions, American Water's three million metered customers must be replaced every 10- 20 years, resulting in \$40-\$50 million per year capital cost. In

**Paul Gagliardo,**

**Manager-Innovation Development**

American Water  
[www.amwater.com/](http://www.amwater.com/)

addition, American Water is planning an upgrade to the meter system through a move to AMR/AMI from touch pad or manual read types.

The SET hosted solution provides for the commoditization of meters via a standardized communications platform, creating interoperability, which allows for the inclusion of all meter vendor equipment and systems in a district without the need for radical modifications to products. This allows for a seamless transition as well as inclusion of all legacy meters into the network with minimal impact.

The SET platform, which incorporates a Universal Data Translator (UDT), is able to receive all data from the water distribution network, including pressure, water quality, leak detection and flow, not just meters. This fact makes the system a powerful tool not only for meter reading and billing purposes, but will allow for the collection of real-time system data from which predictive analytics can be performed to better manage and operate the system.

Mixing of meter types and vendors within a service area does add complexity, but, this requirement of interoperability also drives incumbent meter vendor prices to alignment with best-in-class pricing models as well as drive innovation in the field related to accuracy and precision at very low and high flows, which in turn reduces non-revenue water losses. In addition to collecting meter data, a UDT also creates the foundation so all other end points in the system can be read and analyzed via the same system to make a truly intelligent grid for the water system of tomorrow.



**Kohler and Lowe's**, two of Shelton Group's clients, presumed that consumers must not be aware of the need to conserve water – and how these companies' products could help them do so. We knew, however, from more than eight years of market research, that knowledge does not change behavior. We advised these companies that the issue was not one of awareness, but of action. In fact, two-thirds of Americans say they're concerned about fresh water supplies and feel personally responsible to conserve them, but they simply aren't acting on those concerns.

Our goal was to wake people up to the moment that using water becomes wasting water by making the issue visible, uncomfortable, and graspable. This goal had three prongs:

- Turn that moment into something they think about every time the water flows.

- Use key tenets of behavior change to increase consumer willingness to change personal habits.
- Influence purchasing decisions with regard to water-conserving products.

To achieve this, Shelton decided on an innovative approach – collaboration in a PSA campaign with strong online and social media components. Shelton donated its work, and four sponsors (Kohler, Lowe’s, Bosch and Proctor & Gamble) agreed to help offset production costs. We built a relevant, human, humorous and emotionally accessible public service campaign called Wasting Water is Weird – to shift consumers from automatic behaviors (“I’ll just let the water run while brushing my teeth”) to conscious choices (“That’s weird. I’ll shut it off.”).

**Tim Wirtz, PR Director**

Shelton Group

[www.sheltongrp.com](http://www.sheltongrp.com)

The campaign highlighted the moment using water becomes wasting water – that’s the moment Rip the Drip shows up. His presence makes people uncomfortable – just like they learn to feel about their own wasteful actions. Rip the Drip made things weird for water wasters from August 2011 through July 2012.

Three commercials; out-of-home advertising including billboards, mall signage and bus shelters; and online banners featured on sites like The New York Times and Amazon all directed consumers to the campaign website, where two keys to the campaign could be found:

- Prescriptive steps for taking action
- Engagement between consumers and sponsor brands

The multi-channel approach generated a large number of exposures and allowed a variety of audiences, including multiple generations, to engage with the issue and with the sponsors. Each sponsor had a page on the site devoted to sharing information about their brand’s sustainability commitment and water-conserving products, along with links to their respective websites to learn more about or purchase products. In addition to the campaign website, we created social media presence for our main character, Rip the Drip, via Facebook, Twitter and YouTube. Links to the social media pages were prominently featured on the campaign website.

In addition to driving traffic to the campaign website, Rip’s social media pages were a

place for interaction between Rip, the sponsors and consumers, racking up over 150,000 video views, thousands of likes and followers and roughly 70,000 posts. Campaign elements were placed in 121 markets, 290 stations and numerous consumer and news websites, with 432 million impressions overall, the equivalent of a \$6 million ad buy. The real win was evident in Shelton's Green Living Pulse™ 2012: 29 percent of respondents who had seen the campaign said it caused them to change their water usage habits.



**The City of Greeley** promotes many water conservation programs to residents and businesses. Here are a few of our highlights from 2012 programs. These initiatives could be easily implemented through a municipal government or a commercial entity wishing to become more water efficient.

- In May, an apartment complex retrofitted 394 Niagara Stealth toilets (0.8 gallons per flush (gpf)) and saved almost 6 million gallons of water in the first six months of the retrofit.
- The city provides a water conservation rebate and toilet-recycling program. Toilet rebates have increased to 449 1.28 gpf toilets to residential customers. Many of these toilets were not thrown away, but recycled, ground up and used as an ingredient in the road base for the city's street department.
- An irrigation audit program helps customers save water outdoors. In 2012, 301 properties had irrigation audits. Staff also created a program and helped with watering scheduling at those that needed assistance or a follow up audit. This follow up was critical for large properties. Conservation staff met with and guided HOA board members and contractor staff during irrigation upgrades at several subdivisions per audit recommendations. Those who participate in the program are also eligible for rebates on system upgrades.

**Natalie Stevens, Marketing Technician**

City of Greeley Colorado Water Conservation

[www.greeleygov.com/wc](http://www.greeleygov.com/wc)

## Marketing

As a marketing and communications professional, I think one of the most important trends in sustainability is the recognition that behavior change is the new golden ring. To actually change someone's behavior, or your own, takes more than information. It takes more than advertising. It takes understanding of what it means to be a human. And that's where the exciting intersection of behavioral sciences and marketing is occurring.

This is the golden age of understanding how humans make decisions, as new scientific discoveries illuminate the underlying biological and psychological processes. But it's not just about understanding brain function. Creating change requires holistic plans, communications and choice architecture that channels people into new behaviors, creating more sustainable habits. It's about appealing to unconscious drivers, emotional drivers, and rational drivers to create powerful messaging, but even then it's not enough if you mistake a communications plan for an engagement or behavior change plan. Only with the addition of behavior change strategies, based on the latest understanding, can communications truly be effective and create lasting results.

It's time for clients to stop asking for marketing plans that don't address behavior change strategies, advertising campaigns that don't include behavioral nudges, and employee engagement programs that don't offer prescriptive solutions. It's time for marketing professionals to re-imagine our role as well, and become behavior change experts. That's why, for the past four years, I've immersed myself in understanding and applying behavioral science to marketing. If we're to truly minimize our environmental impact, it's time for this new approach to take hold and become the new standard for success.



When we started sustainability at Walmart, one of the overriding challenges was assuring that the good we did fit within the context of business. I was determined that sustainability achieve its potential as one of the greatest business strategies, and in doing so, create

**Karen Barnes,**  
**VP of Insight, Partner**  
Market Perspectives  
[www.mprandc.com](http://www.mprandc.com)

far greater social good. For this to be the case, we must separate efforts that would be good solely for society from those that would be good for both the business and society.

The former should be addressed by a company's PR team and the latter, within a sustainability strategy. For example, charitable donation to a local non-for-profit may be good for society but in the context of business would be limited by the store's philanthropic budget. A counter example where the store addressed low high school graduation rates by offering jobs to students so long as they stay in high school addressed both a societal need and the business need for a larger, more motivated work force. This second example isn't limited by a budget. It makes sense in both good and bad economic times. It can be expanded into other communities with similar dynamics. It would be classified as business sustainability—the type that places sustainability in a strategic context within the corporation.

**Andy Ruben, Co-Founder**

[yerdle](#)

[www.yerdle.com](http://www.yerdle.com)

In the first three years of Walmart's sustainability efforts, hundreds of these efforts took shape—right sizing packaging, auxiliary power units on trucks, air intake ducts on HVAC units, ROHS compliance in electronics. All of these efforts met the same bar of strategic in nature. There was no limit to how many efforts the company should address.

So, how did we know when efforts like this made sense? The simple litmus test we used was the question, "Would this still make sense if nobody ever knew about the effort?"

When the answer was "no," we would say it wasn't ready. When the answer was "yes," it was full steam ahead.

The "no's" became critical to provide feedback for the organization. They reinforced sustainability as a business strategy. "No's" are actually "Not ready yet's." Often times, the kernel of the idea was there, but wasn't complete from a business sense.

These ideas that required PR to make the ROI, often had the right social value, however they lacked the business strategy that would allow them to serve shareholders. Early on, ideas around sustainable seafood fit this description. It was apparent something had to be done but it took months to push beyond PR based efforts.

In the end, Walmart's sustainable seafood efforts included NGO and foundations allowing smaller and larger players to thrive. The effort resulted in improve fishing practices,



better seafood and mitigated costs. This ultimately not only served society but also the business. In this way, this simple litmus test allowed leaders across the business to drive sustainability as a strategy.



I recently stayed in a 5 star hotel at Broadbeach on the Gold Coast in Australia. The hotel chain runs a sustainability programme whereby for a certain number of towels and bathrobes that are reused by guests in the bathroom, the chain plants a specified number of trees. They chose the usual way of communicating their programme and request for cooperation by placing a tent card on the vanity basin. The card instructed guests to hang up their towels and bathrobes on the towel rails and bathrobe hooks provided to participate in the programme. Unfortunately this global and heavily publicized programme had one floor, the room I was staying in had not a single towel rail or bathrobe hook in the bathroom!

**Chris Knop**

**Independent Management Consultant**

This sustainability initiative was an epic failure which, until I brought it to their attention, had not been picked up by any of their staff or the General Manager. It was clear that room design standards did not allow for guests or the company to fulfill their sustainability objectives. The lessons here are to include all relevant departments in your sustainability programme planning, and to thoroughly conduct end to end trials before communicating with stakeholders.

## Green IT

**Con Edison data center customers** saved more than 5,000 MWh of electricity from 2010 to 2012 by taking advantage of the company's energy efficiency incentives.

Data centers – from small server closets to whole-building co-location facilities – are energy intensive and critical to important sectors of New York City's economy, such as media companies, financial services firms, and technology service providers. Because mission-critical computing equipment requires so much energy, data centers are excellent candidates for energy efficiency upgrades. And since New York City has the second largest concentration of data centers in the nation (trailing only the San Francisco Bay area) Con Edison saw an opportunity to significantly relieve congestion on the electrical grid by marketing energy efficiency to these customers.

**Sibbie Kurian, Account Executive**

Con Edison  
[www.coned.com](http://www.coned.com)

The company foresaw the opportunity as a model for implementing energy-efficiency initiatives in mission-critical equipment. The question for the utility was which message to pitch to these customers. Would the goal be improved productivity, lower energy costs, or reduced environmental impacts?

Con Edison offers financial incentives to business owners on a sliding performance scale, and gave its customers the freedom to maximize innovation - the more energy they saved on an upgrade, the more cash back they could potentially receive toward the cost of the project. We have awarded more than \$500,000 in incentives for a wide variety of upgrades that have reduced the energy usage of New York- based business' IT operations.

IT-based strategies for energy efficiency include server virtualization and consolidation, server refresh, PC power management, and uninterruptible power supply (UPS) upgrades.

Airflow management strategies include replacement of computer room air conditioning (CRAC) units, and optimization of cooling equipment through VFDs, set points, and aisle configuration. For many customers in the program, more efficient data center equipment

has meant reduced cooling needs. The overall reduction in energy usage by businesses has produced lower operational costs, short payback periods and a higher return on investment for their projects.

Another benefit for customers has been more space. Through projects that reduced the space they need for their computing equipment, many customers have freed up room for other business operations or for rental space.

We have learned several important lessons. One is that it's important to listen carefully to these customers and align goals with their needs and core competencies. Data center customers' affinity for technology has helped shape the program, and the customers' need for higher productivity per kilowatt has helped us develop a successful energy-efficiency initiative.



**Our research mission requires** energy-intensive laboratories and computing equipment that ranks among the fastest in the world. The computing equipment isn't just energy intensive, it also generates heat—heat that must be removed to ensure optimal performance. Balancing the growing demand for computing power needed to fulfill our scientific mission with our goal of reducing total power consumption is a critical challenge faced by PNNL, and indeed all national laboratories.

**Mike Moran,**  
**Sustainability Program Manager**  
Pacific Northwest National Laboratory  
[www.sustainable.pnnl.gov](http://www.sustainable.pnnl.gov)

To operate efficient data centers, we find creative ways to minimize the proportion of power used for cooling, lighting, and other infrastructure components, compared to the power used to operate the computing equipment.

To monitor results, we must begin with accurate measurement methods. At PNNL, we measure the efficiency of our three major data centers with the power utilization effectiveness (PUE) metric. A PUE is the total power entering the data center divided by the power used to run the IT equipment within it. An average data center has a PUE of 2.0, which means that the data center energy demand is two times greater than the

energy necessary to power the IT equipment. As an example, the data center in our user facility averaged 1.87 PUE in 2011. The Information Services Building averaged 1.6 PUE, and the Computational Science Facility averaged 1.2 PUE.

Our goal is to achieve a PUE of 1.4 or lower at all three data centers by 2015.

Data center energy efficiency improvements we made in 2011 include:

- Conducted a data center consolidation assessment that led to a prioritized list of equipment to move and computer rooms to close.
- Decreased energy costs by virtualizing servers across campus. The usage of computers increased while the footprint decreased. 43 percent of servers in the U.S. are virtual, compared with 80 percent at PNNL.
- Installed rear-door heat exchangers to cool high-density, high-performance computing in the Computational Science Facility data center. These are twice as efficient as computer room air conditioning units. This data center continued to yield remarkable efficiency benefits from use of a novel geothermal system deployed in 2009.
- Reduced energy use 14 percent in the Information Services Building data center by upgrading the uninterruptible power supply.

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