RECOGNITION IN EXCELLENCE

FOR PRODUCTS AND PROJECTS THAT IMPROVE ENVIRONMENTAL, SUSTAINABILITY, AND ENERGY MANAGEMENT
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ANNOUNCING THE 2016 WINNERS

2016 Judging Panel

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Each year since the inception of the Environmental Leader Product and Project Awards program, the range and quality of the entries has risen. With the bar set high, the pool of 2016 entrants did not disappoint. The community of providers continues to address the rising demand for cost-effective solutions to address complex environmental, sustainability, and energy management challenges. And end-user organizations are becoming more creative in applying the available solutions to get real results.

The overall quality of the entries this year really stood out. Several judges who have been involved in the program for multiple years noted the trend towards higher-quality submissions, with a greater degree of innovation and demonstrated results.

Within this top-notch, diverse pool of entries, several themes among the winners emerged:

**Manufacturers are using Design for Sustainability to reduce lifecycle impacts.** About 25% of the winners were focused on how existing products or new products for existing applications were designed to be more resource-efficient throughout the product lifecycle, with significantly less material intensity in production, and lower energy, water and waste impacts during use.

**Information technology is enabling smart solutions.** More than in previous years, many of the entries are software products, or feature software components as part of a “smart” solution. This ranges from cloud-based software platforms to manage enterprise sustainability, to application of Internet of Things (IoT) and Big Data technologies to optimize energy management systems in real-time.

**Energy management use cases remain prominent.** Nearly a third of the winners were either products or projects focused on energy management, for industrial and commercial applications, as well as use in consumer settings. This isn’t surprising considering the tangible benefits and strong ROI that’s been demonstrated from energy efficiency initiatives.

The Environmental Leader Product & Project Awards have shown us once again that innovation is alive and well when it comes to solving thorny sustainability and environmental problems at global, regional, facility, and individual consumer levels. We congratulate these winning companies for their achievements in enabling a more sustainable world across environmental, financial and social dimensions.

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Paul Nastu
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Business Sector Media
3M
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AkzoNobel’s Marine Coatings
Business, International
Carbon Credits
Big Ass Solutions
Essence
Big Ass Solutions
Haiku Light
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DePuy Synthes Companies of Johnson & Johnson
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FoundationFootprint
FoundationFootprint
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GridPoint Energy
Management System
Hilton Worldwide
LightStay
Ingersoll Rand
Thermo King Truck and Trailer Refrigeration Units in Europe
Ingersoll Rand
CenTraVac Water Chiller Models CVHH and CDHH
Lakeshore Recycling Systems
Lakeshore Recycling Systems Sustainable Business Model
Leidos
AMPLIFY - Application Management Platform for Energy Efficiency Programs
Panasonic Industrial Devices Sales Co. of America
Panasonic Vacuum Insulation Panel (VIP)
Petro-Canada Lubricants Inc.
Hydrex XV
Quantis
Life Cycle Perception Game
Rapport
Rapport
Source Intelligence
Supply Chain Compliance Tool
SunPower Corporation
Cradle to Cradle Certified SunPower E and X Series DC Panels
Thinkstep Compliance Limited
BOMcheck Substances Declarations Web Database
Thinkstep Compliance Limited
EC4P
Trane
Sintesis
UL EHS Sustainability
CR360
Urjanet
Urjanet Utility Data Service
Waste To Energy Partners
Bolder Black
WeNow
WeNowBox
Advanced Micro Devices
25x20 Energy Efficiency Initiative
ALDI Inc.
ALDI Energy Management System: Siemens Rollout
Ameresco
Minneapolis-St. Paul International Airport
Arby’s, Ecova, Powerhouse Dynamics, and Weathermatic
How Arby’s Leveraged Ecova and a Partnered Water Meter Solution to Save over 7M Gallons of Water
Caesars Entertainment
Enterprise Waste Diversion Project
Consumer Technology Association and National Cable & Telecommunications Association
Voluntary Agreement for Ongoing Improvement to the Energy Efficiency of Set-Top Boxes
Domtar
Plymouth K-Lime
Dow Water & Process Solutions
Camp de Tarragona DEMOWARE Municipal Wastewater Reuse Project
General Motors
Chevrolet Volt Battery Secondary Reuse Project
Hartsfield-Jackson Atlanta International Airport
Energy Management Program
IHS
Repsol EMISphere
Jackson Family Wines
Tesla Stationary Energy Storage System
Leidos
Hawaii Energy Conservation and Efficiency Program
MillerCoors
MillerCoors Irwindale Solar Array
Timberland
Empowering Haitian Farmers through Tree Planting
US Business Council for Sustainable Development
United States Materials Marketplace
3M's Petrifilm Plates are used by food and beverage manufacturers to test production samples for bacteria such as E.coli, salmonella, and staphylococcus aureus. Created for use by food processors, reference labs, and government labs around the world, they are shelf stable and nearly as thin as paper.

When compared to traditional petri-dish and agar methods, 3M Petrifilm Plates use 75% less energy and 80% less water, emit 75% less greenhouse gas and produce 66% less waste, 3M says. In addition, they cut labor costs by an average of 45% and deliver an average increase of 80% efficiency in quality assurance personnel. Results are also delivered in half the time of most traditional agar methods and use 85% less space from the bench top to the incubator.

3M conducted an emission inventory study to examine the reductions in energy demand, blue water consumption, and greenhouse gas emissions. By using 3M Petrifilm Plates instead of agar plates in 2015,
What the Judges Said...

This technology appears groundbreaking from a design for environment perspective, saves organizational time and operating expenses, does not diminish product safety or quality. A great blend of lean and green in a highly regulated market space.”

In developing Petrifilm Plates, 3M conducted a life cycle analysis study to examine the reductions in energy demand, blue water consumption, and greenhouse gas emissions. By using 3M Petrifilm Plates instead of agar plates in 2015, food processing industry customers saved more than 46 million gallons of water, 436 million MJ of energy, and 33 million kilograms of carbon dioxide equivalent greenhouse gas in customer use and disposal as well as 10 million pounds of regulated waste, the company said.

www.3m.com/foodsafty
AKZONOBEL’S MARINE COATINGS
BUSINESS, INTERNATIONAL
CARBON CREDITS

AkzoNobel’s marine coatings business, International, developed the first carbon credits methodology for international shipping to recognize and reward ship owners for investing in clean technology. Despite being an environmentally efficient method of transport, shipping still emits over one billion tons of greenhouse gas emissions each year. Proven technologies such as sustainable hull coatings exist to help cut ships’ emissions, but commercial incentives are needed to encourage owners to install them, according to AkzoNobel.

The carbon credits methodology, developed in partnership with the nonprofit Gold Standard Foundation, is based on ship owners converting existing vessels from a biocidal anti-fouling system to a premium, biocide-free advanced hull coating. AkzoNobel’s Intersleek range of products include Intersleek1100SR, a biocide-free, slime release coating.

Carbon credits are awarded based on the amount of carbon dioxide reduced. Credits earned are either sold to generate cash or passed onto stakeholders to offset their emissions.

Alternatively, credits can be used to voluntarily offset other sources of CO2 emissions within an organization, the company says.

AkzoNobel handles all the administrative requirements for customers. Using independent UN-accredited auditors to verify fuel and emissions savings gained to earn carbon credits ensures greater rigor and transparency of fuel saving claims, according to the company.

Each carbon credit awarded
[ cont’d on next page> ]
What the Judges Said...

This is a great technology to help reduce impacts of shipping, and the development of a carbon credit system will help attract customers to adopt this technology. This could be a very impactful project.”

The first carbon credits were awarded in February 2016. More than 126,000 carbon credits have been issued since, equaling more than $500,000. On average, each of the 16 vessels included in the first issue achieved savings of over 1,250 tons of fuel and 4,000 tons of CO2 per year, resulting in the award of 126,785 credits by the Gold Standard Foundation.

Based on the average 10% CO2 savings recorded in this first carbon credits issue, the full fleet of over 4,500 vessels currently using AkzoNobel’s Intersleek that were also eligible for carbon credits already achieved total annual CO2 reductions of 17 million tons. That represents around 1.5% of the global emissions from shipping, based on the Third International Maritime Organization Greenhouse Gas Study.

The carbon credit program represents a first for shipping and for the global transportation industry, the company says, adding that it is the only carbon credit-generating methodology approved for assets that move across national boundaries.

www.international-marine.com/carboncredits
Big Ass Solutions’ Essence ceiling fan is built to work in tandem with HVAC systems to offset energy usage. Air conditioning large public spaces can be challenging and expensive. Open floor plans and vaulted ceilings, while visually appealing, are difficult to heat and cool efficiently. Traditional ceiling fans don’t provide enough air movement to offset air conditioning or keep people comfortable such spaces, Big Ass Solutions says.

Essence provides up to a 10°F cooling effect so users can raise their thermostat setpoints and reduce HVAC run-time, saving up to 30% on air conditioning costs, according to the company. In the winter, Essence moves slowly to push warm air down from ceilings without creating drafts. Getting warm air off the ceiling means heaters work less, saving up to 30% on heating costs.

Unlike the systems developed in the United States during the 1970s and 1980s, Essence allows building owners to keep residents and customers cool without wasting energy. Big Ass Solutions engineers replaced the traditional, geared ceiling fan motor with a maintenance-free, permanent magnet drive. The fan’s motor contains an array of microprocessors.
What the Judges Said...

"Internal microprocessor control has been needed in destrat fans for some time now. This product’s automated options brings the technology into the ‘smart’ world. Sleek new design has also been needed in this arena. It allows for a wider acceptance in applications where design is just as important as efficiency."

that monitor the motor drive circuit’s power and temperature conditions, optimizing performance. Essence also has optional features such as wireless wall controls and SmartSense, an integrated system that automates the fan’s operation.

The Essence fan’s unobtrusive design has customizable color options, decals, and custom color-matching with a 10-year warranty. It is energy-efficient, has a lightweight frame, and silent, making it an option for spaces like schools, office buildings, and performance venues that often require lower noise levels, the company says. Essence also gives architects and engineers a way to reduce the amount of ductwork in their designs. This helps decrease costs and materials during construction.

www.bigasssolutions.com
The Haiku Light is an LED fixture containing built-in technology designed to maximize convenience and efficiency for end-users. High-efficiency LEDs and an onboard occupancy sensor save energy by directing the light to turn on only when a user is in the space. The fixture utilizes Active Light Equalization technology to adjust its brightness as ambient light levels change, conserving energy while lighting remains consistent.

Haiku Light fixtures are more efficient and functional than existing smart bulbs in the lighting market, the company says. Light's occupancy sensor is located in the fixture itself rather than tied to a separate occupancy sensor. In addition, since the fixtures can be wirelessly grouped together no matter which room entrance is used, the lights will turn on automatically and simultaneously in an occupant's presence. Automation means nobody has to worry about forgetting to turn off lights, the company says.

The Haiku Light fixtures don’t have to be grouped to the same electrical circuit to work together so a retrofit can be done by installing the lights in existing cans or flush mounts, and then grouping them. Each fixture has 16 brightness settings, meaning there is no dimmer switch required for

[ cont’d on next page> ]
Combining the high efficiency of LED, with built-in occupancy sensors and ambient level sensors, is brilliant.

Personalizing light levels. A die-cast outer housing also acts as a heat sink, extending the LEDs’ lifespan beyond 50,000 hours.

The lights can also be grouped together and controlled simultaneously using the standard remote control, the optional Haiku Wall Control, or a conventional light switch. Users can segment sets of fixtures so that only the lights they need in the moment are drawing power. Active Light Equalization means that spaces only use as much light as they need, even when they’re on for long periods of time.
To address water risk in the investor community, Bloomberg LP, the Natural Capital Declaration, and the UN Environment Programme Finance Initiative created a quantitative Water Risk Valuation Tool or WRVT for short. This tool demonstrates the feasibility of environmental, social and governance integration in the context of water risk, using familiar financial valuation approaches.

The WRVT provides a standard methodological approach for integrating water risk in financial valuations. Paired with data from the World Resources Institute’s Aqueduct database, the tool allows users to examine how water risk might impact valuations for gold and copper mining companies. It models potential asset stranding based on conditions of future physical water scarcity, and estimates the effects of this water risk factor on earnings and share price.

Utilizing financial and operating data on the Bloomberg Terminal, the WRVT provides three unique outputs to users. One is the water risk exposure of a company’s production on both the overall enterprise-level and the individual mine asset level. Another output is a comparison of discounted cash flow model share prices with — and without — incorporating water risk considerations. The third output is cost analysis allowing incorporation of a so-called “shadow price” of water derived from a Total Economic Value framework, which captures a wider variety of factors such as health and ecological ones that represent the value of water supplies to other users.

The WRVT’s open-source methodology approach allows for a variety of user-types.

[ cont’d on next page ]
The Water Risk Valuation tool is unique in its ability to model the potential impact on earnings and share price from water-constrained mining operations. The open-source tool can be used not only by financial and industry analysts but by corporate staff to help identify water risks and opportunities, and act on them appropriately.

Users do not need to possess any prior knowledge or data on the issues or companies observed. Other data-driven water risk tools take a close look at capital and operational expenditures, but they are geared for the corporate user and do not roll the risk exposure up to company valuation impacts, Bloomberg LP says. In addition, other tools require users to provide key data elements in order to run them.

The Water Risk Valuation Tool received very positive feedback, Bloomberg LP says. The tool also received invitations to present privately and at numerous forums throughout 2015, including the UNEP FI Annual General Meeting in Paris and the World Forum on Natural Capital in Edinburgh. Since its launch, the tool received increased interest and requests. Its page is one of the highest hit sites on Bloomberg’s Sustainability webpage, the company reported. The WRVT has been integrated into the environmental risk assessment process at major financial institutions. It has the potential to be expanded and adapted to other sectors.

www.bloomberg.com/bcause
The Joint Reconstruction Attune Total Knee system from DePuy Synthes Companies of Johnson & Johnson is a surgical replacement knee that came out of one of the company’s largest research and development projects. It contains proprietary fixed bearing technology called the Attune Logiclock Tibial Base designed to optimize size and fit for patients. Johnson & Johnson redesigned the process for the Logiclock’s entire life cycle, adding efficiencies and reducing material usage.

The Attune Total Knee System aims to address the clinical needs of patients, surgeons, and hospital providers. Other fixed bearing knee replacement products contain polyethylene inserts held with a perioral locking mechanism, meaning the insert and implant must always be the same size, according to the company. The Logiclock Tibial Base has a centralized locking mechanism, allowing surgeons to use a tibial base that can be upsized or downsized two sizes compared to the insert. Surgeons match the femoral size to the insert size each time, picking the best fit for patients and optimizing stability.

Looking at the Logiclock’s life cycle, Johnson & Johnson saw room for improvements in the foundry casting process required for the tibial base components, which uses large amounts of alloy. Johnson

[ cont’d on next page ]
What the Judges Said...

This is a great project that shows with some lifecycle analysis, process optimization, and renewable energy investment, the environmental impacts of manufacturing can be reduced significantly.

Johnson redesigned the process. That resulted in an average reduction of 5 kilograms overall metal consumption per single runner system, equivalent to a 33% reduction per component, the company reported. In addition, the production facility that produces the Logiclock installed a 3 megawatt wind turbine that generates approximately 40% of the site’s electrical energy annually, resulting in a 31% carbon dioxide reduction per part produced.

A new process was created to make the cleaning and passivation line more efficient, resulting in a 24% reduction in water usage as well as a reduction in the total amount of cleaning chemicals used. The company says these reductions in the Attune Knee System Logiclock Tibial Base production were significant improvements in the past year.

https://www.depuyssynthes.com/hcp/knee/products/qs/ATTUNE-Knee-System
The Joint Reconstruction Attune Total Knee system from DePuy Synthes Companies of Johnson & Johnson is a surgical replacement knee that came out of one of the company’s largest research and development projects. This system includes Intuition Instrumentation that combines the surgical process with efficient instruments so surgeons can balance the soft tissue and control the implant’s position and fit for each patient. Attune Intuition also creates efficiencies from start to finish.

Using the pillars of design clarity, precise control, and efficiency, the Attune Intuition Instrumentation has colored touch points and high contrast markings. Surgeons have precise control over the knee replacement implant. Design features like red actuators, high contrast markings and quick set/release functions mean surgeons spend less time spent finding instruments.

Through its innovative design, the Attune Intuition reduced the number of instruments required to implant the Attune Knee by 36% compared to competitor SIGMA HP instruments, according to the company. There was a reduction in the amount of packaging by 25% because fewer trays were needed to transport and store instruments. Two sheets of Surgical Blue Wrap per surgical
What the Judges Said...

"Excellent holistic approach to identify effective improvements and results. Multiple auxiliary benefits realized. Ultimately, the patient wins."

procedure were also saved. Less energy and water is used from start to finish during surgery with the Attune Intuition Instrumentation. The energy required for the cleaning and sterilization of instruments was 22% less than SIGMA HP instruments, using 55.7 MJ compared to SIGMA's 71.2 MJ. The water required for the cleaning and sterilization of instruments was 25% less than its competitor, using 174 liters of water compared to 233.

https://www.depuyssynthes.com/hcp/knee/products/qs/ATTUNE-Knee-System
The Ecometrica Platform is end-to-end sustainability management software that allows businesses, governments, and organizations to make smarter decisions and build long-term value. The platform combines sustainability, environment, risk, and business management with geospatial intelligence and mapping applications. When paired with Ecometrica’s expert analyst support, companies can measure their level of environmental impact, and take appropriate steps to mitigate risks and pursue opportunities.

The company uses business intelligence and satellite data to help customers reach their goals of reducing carbon emissions and impacts on natural capital assets like forests and water, tracking supply chain activity, verifying sustainable product sourcing, and reporting to established sustainability frameworks.

Ecometrica has a single software as a service product maintained across their entire customer base so all customers benefit from the company’s two-weekly development cycle. They also offer full customer support and an experienced analyst team that can answer queries as well as help with data collection, entry, and interrogation. Ecometrica’s databases contain terabytes of data, and tens of thousands of emission and conversion...
What the Judges Said...

"This platform, while competitive with other SaaS models, offers enhanced benefits related to use of geospatial data and built-in compliance assurance by recognized independent auditors. As an end-to-end environmental accounting and sustainability management solution, this tool may set the standard for sustainability data management."

Factors. The company experienced 100% year-on-year growth in 2015.

The Ecometrica Platform is the only sustainability software with audit-ready assurance from a Big Four auditor (PwC), according to the company. For the largest customers who get their accounts externally audited, this means avoiding costly pre-audit fees that often run into hundreds of thousands of dollars per year.

A multinational alcoholic beverages company used the Ecometrica Platform’s mapping modules to assess the vulnerability of barley in its supply chain. That project allowed the company to create a 20-year plan so they can re-position, grow, and harvest barley in the region despite the meteorological changes that are likely to occur during that time.

www.ecometrica.com
The Enablon platform is an enterprise-class cloud-based solution for holistic environmental, health, and safety (EHS) risk and sustainability management. More than 1,000 global companies and 1 million users worldwide rely on Enablon. The platform has scalability, predictive analytics, mobile apps, and is part of a worldwide ecosystem of more than 80 content, technology, and service partners. The software platform offers a way for organizations to be sustainable, compliant, efficient, and resilient. It enables nine value drivers, each composed of a suite of integrated applications that organizations can use to meet objectives such as safe operations, green facilities, brand protection, business efficiency, and materials for life. Beyond collecting and managing energy and environmental metrics, creating dashboards and reports, the Enablon platform helps companies solve business challenges, provide measurable return on investment on initiatives designed to improve environmental performance and achieve energy efficiency, improve decision-making, and transform regulatory and business requirements into opportunities that create value. The Enablon platform has helped leading firms achieve measurable benefits. Since
What the Judges Said...

"This is a solid platform that is broad enough to collect metrics across a number of different areas relevant to environmentally minded organizations. It is quite robust and provides leading performance in the EHS and sustainability management system space."

deploying Enablon, the Danish brewing company Carlsberg achieved the several performance improvements in five years, reducing total energy use by 9%, reducing carbon dioxide emissions by 17%, and reducing water use by 3%. Between 2007 and 2014, the global professional services company Accenture achieved a 42.5% carbon emissions reduction per employee. The company also used the Enablon platform to improve energy efficiency across 500 global locations. It helped determine the next place where smart meters or LED lights should be installed based on factors such as locations trending hotter, kilowatt consumption, and kilowatt hours per meter.
FoundationFootprint is cloud-based workflow software that automates the collecting and updating of sustainability goal data and the dissemination of progress information to stakeholders. The software actively manages the processes of collecting data, guiding users through the review process from supplier through to global approver, and fully automates the in-depth analysis and reporting of the data.

The software is designed to compliment real world processes and capture the knowledge and wisdom of the people involved. FoundationFootprint is easy to use, intuitive, and doesn’t require hours training, according to the company. Each individual goal is managed as a business case that requires a sponsor, a budget, and a clearly defined return on investment. Teams communicate through FoundationFootprint so their knowledge and experiences are captured in the system and retained within the organization.

Automatic alerts of deviations from expectations ensure that stray goals receive timely attention in order to increase overall success rates. A single-page management view across all goals shows an organization wide year-to-date ROI of their sustainability journey at any time.
What the Judges Said...

"It has managed to differentiate itself by going beyond meeting data management and reporting requirements to provide a more holistic business management solutions, with the capability to manage and report sustainability initiatives as individual business cases."

For the last three years, National Australia Bank has conducted their annual global sustainability reporting using FoundationFootprint. The software took six weeks to implement globally, from project kick-off to reporting global carbon footprint figures to the bank’s executives.

FoundationFootprint integrated 69 suppliers across nine countries in four weeks, capturing thousands of emission sources and indicators across global operations. The software also halved the time taken to complete corporate and global level reviews through automated team notifications. Audits by KPMG in three countries found only two human errors across the global exercise, which were not material in size.

https://foundationfootprint.com/el-top-product/
GridPoint’s Energy Management System of hardware, software, and services gives end-users tools for achieving their sustainability goals. Many businesses measure and report carbon emissions but lack insight into ways they can proactively lower energy consumption and emissions. GridPoint addresses this by collecting data from individual energy-consuming assets, providing detailed visibility into a site’s energy profile, and offering intelligent building control.

Low-cost submetering and monitoring sensors collect real-time, granular energy data from assets such as heating, air conditioning, ventilation and cooling, lighting, and refrigeration. The system also collects data about renewable energy sources and environmental conditions. That data is aggregated in a cloud-based software platform called GridPoint Energy Manager, enabling tools like smart alarms, facility diagnostics, and project tracking. The company’s professional services offer customers data-driven insights.

The data GridPoint collects optimizes operational expenses by diagnosing malfunctioning equipment and remotely troubleshooting issues before technicians are dispatched. In addition, GridPoint’s Energy Management System customers can make smarter capital purchases based on real, asset-level consumption data. With a constant feedback loop of real-time data, customers can adjust dynamically to changing site conditions and combat operational drift to maintain savings over time, the company says.

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Deployed at more than 11,000 sites, GridPoint has collected more than 100 billion customer data points and adds 75 million daily. GridPoint’s solutions have saved customers over $250 million in energy expenses, reduced over 3.4 billion kilowatt-hours, and eliminated over 3.1 billion pounds of carbon dioxide equivalent to date, according to the company. Customers currently include five of the top 10 retailers by total sales, three of the top 10 casual dining restaurants, four of the top 20 quick serve restaurants, leading commercial and industrial enterprises, and major government and educational institutions. National retail customer VF Outlet reported savings of 26% across sites since installation, with some stores reaching 30% individually. GridPoint’s EMS has enabled VF Outlet to significantly reduce operating costs.

www.gridpoint.com
LightStay is Hilton Worldwide’s proprietary corporate responsibility performance measurement platform. It was developed to calculate and analyze the environmental and societal impact of every Hilton Worldwide branded hotel in their communities. The platform measures, amongst other things, energy use, water use, waste output, and carbon output at every Hilton Worldwide hotel around the globe.

Each Hilton hotel is required to track and complete improvement projects throughout the year. The LightStay environmental and energy management system simplifies energy, water, and waste performance into simple scores, and also provides information on trending and benchmarking. The tool allows hotels to track their goals and progress against those goals. Although it makes complex calculations in the background, LightStay’s simplified user interface makes it accessible to team members.

LightStay tracks historical energy and weather data to forecast future energy consumption levels and predict the impact of performance on cost. This allows hotels, owners, and management groups to take corrective action. The system cross-references the data hotels submit with expected performance to send automatic alerts to hotels when performance falls below expected levels.

The platform measures across more than 200 building and [cont’d on next page> ]
What the Judges Said...

Hilton is to be applauded for its LightStay initiative. The company not only had the vision to have ambitious sustainability goals, but developed and effectively implemented LightStay as the enabling technology to achieve them.

The platform has helped Hilton Worldwide aggregate information across more than 4,600 hotels in 102 countries. LightStay has allowed every Hilton hotel to be certified to the ISO 14001 environmental management standard and the ISO 50001 energy management standard. In the six years since LightStay was initially launched as a brand standard, Hilton Worldwide has reduced energy consumption by 14.5%, water consumption by 14.1%, and waste output by 27.6%. LightStay has also allowed Hilton Worldwide to save an estimated $550 million during that time.

http://cr.hiltonworldwide.com/
Ingersoll Rand and Chemours refrigeration experts co-developed the refrigerant R452A, a new fluid with lower global warming potential. The entire range of Thermo King truck and trailer refrigeration units operated by road transport companies carrying perishable goods across Europe is now qualified for operation with the refrigerant.

The goals in developing refrigerant R452A include matching the needs of the refrigerated transport sector, reducing the direct greenhouse contribution by 50% compared to the refrigerant primarily used until early 2015, and anticipate legislation in Europe that aims to reduce the use of high greenhouse impact gases.

Initially introduced in January 2015 on refrigerated units covering long haul fleets only, refrigerant R452A’s availability was extended by Thermo King to all other products ranges including rigid trucks and refrigerated vans within 12 months. Starting in January 2016, due to the high adoption rate in 2015, Thermo King Europe standardized its production with R452A supplied by default for all new equipment delivered from its European production sites.

This new lower global warming impact refrigerant has several advantages for the sector,
The development of this new, sustainable refrigerant, and the proof of its value through the Thermo King implementation, is a leader in the transportation sector. Best of all, it can be used in existing equipment, saving the cost of replacement.

which transports food and pharmaceutical products. The existing fleet can adopt the replacement refrigerant easily, according to Ingersoll Rand. There is no need to modify the specifications of the refrigerated vehicles, change the operation instructions, or modify the refrigeration equipment hardware. The operation cost of the equipment isn’t impacted, either.

The shift is almost transparent from an operation and maintenance point of view, Ingersoll Rand says. Each customer can implement a conversion plan of its existing fleet at an optimum pace. Customers also avoid the maintenance restrictions applicable to high global warming impact refrigerant in Europe and pay less in countries where global warming impact-based taxes apply.

http://europe.thermoking.com/r-452a-refrigerant/
The Trane CenTraVac water chiller from the industrial company Ingersoll Rand are large capacity units that produce chilled water for commercial and industrial applications worldwide. New legislation in Europe, the Middle East, and Asia requires the use of products with refrigerants that dramatically reduce greenhouse gas emissions. The CVHH and CDHH chillers were designed to help customers meet these requirements for large chilled water applications, while delivering improved efficiency, at both the unit and system level.

The CVHH and CDHH models use a new low pressure, non-flammable refrigerant called R-1233zd(E), which has an ultra-low global warming potential of less than 1 and enables best-in-class efficiency, according to Ingersoll Rand. This reduces impacts to the environment, resulting in lower greenhouse gas emissions compared to current chiller designs. The refrigerant also enables the use of a direct drive centrifugal compressor with refrigerant economizer to exceed other chiller offerings by over 10% in overall unit efficiency.

The direct drive, multi-stage centrifugal compressor enables a wide operating range so the chiller can be utilized for comfort and industrial cooling as well as system designs like thermal storage or heat recovery, further reducing overall energy usage. In addition, the design eliminates almost all risk of refrigerant leakage because the chiller operates in a vacuum. A versatile design means the chiller can meet the need for standard cooling as well as for energy-saving system options like thermal storage or heat recovery, which are becoming more common.
An improvement on existing technology using varying attributes of other products and design. Has wider applicability for value across other industries. Such product development and design should be applauded.”

plant infrastructures that leverage photovoltaics and wind turbines.

The CVHH and CDHH models have earned product-specific Type III Environmental Product Declaration registration, which provides third party verification of their environmental impacts by Underwriters Laboratories in accordance with ISO 14025.

A life cycle assessment of the chillers considered all phases of an expected 25-year service life from upstream production of raw materials to the final recycling and disposal of the unit at the end of its service life.

Two high-profile government projects have used the chiller to meet their sustainability objectives without compromising efficiency and system requirements: Venice’s Marco Polo Airport Expansion and France’s Eurotunnel Chiller Plant. In both cases, local government agencies evaluated other chiller options with low-GWP refrigerants, but none met the low life cycle costs needed for the projects, Ingersoll Rand says.

LAKESHORE RECYCLING SYSTEMS
SUSTAINABLE BUSINESS MODEL

Lakeshore Recycling Systems is a waste and recycling solutions company in the Chicago metro area that does not own nor operate a landfill. Instead, Lakeshore Recycling Systems manually sorts every waste and recycling load separately that enters their multiple transfer stations. The company siphons and filters recyclable material by passing it through a conveyor system that combines technology with skilled line workers.

Lakeshore Recycling Systems seeks to expand a positive ecological footprint throughout its community, and support the goal of making Illinois a zero-waste state. The company streamlines routes, educates customers and K-12 students on recycling, and utilizes compressed natural gas trucks to collect recyclable material. They add environment-friendly emission vehicles to their fleet each year. In addition, organic recycling is offered an option to residents interested in combining their food scraps with yard waste that the company reclaims as compost.

They built a new innovative single-stream facility in Chicagoland, which the company says directly impacts its community by helping to protect the environment and adding 100 new jobs. The company facilities are structured to divert up to 90% of construction and demolition recyclable material that would have otherwise been sent to landfills.

The company invests aggressively in cutting-edge technologies. Tablets were installed in each truck to increase efficiency and resolution if a customer has a question regarding a container pick-up. The tech easily photographs containers and retains real-time route
The planet has no more room for landfills. We need to see more people repurposing waste like Lakeshore.

Lakeshore Recycling Systems says they are the first hauler in the Chicagoland marketplace to implement RFID chips. RFID chips in containers let the company know if a pickup is needed outside of a customer’s traditional pickup schedule. This helps pinpoint any potential missed pickup locations. It also allows the company to track and bill residents based on use rather than a traditional sticker system.

With their waste-sorting approach, Lakeshore Recycling Systems says they pull nearly 60% recyclable material from conventional waste streams, and process nearly 6,000 tons of solid waste material daily. The addition of their newest single-stream facility is expected to bring the company’s diversion rates to over 2.2 million tons per year for Chicago and the immediate surrounding area.

www.lrsrecycles.com
AMPLIFY is Leidos’ application management platform product. The software is designed to improve the participation experience as well as the accuracy of reporting in commercial energy efficiency programs. It reduces the multi-hour task of completing an energy efficiency rebate application and compiling all the necessary documentation to a few minutes.

The platform lets users select proposed equipment, determine their program eligibility, and submit a completed application. It allows for near real-time tracking of energy savings capture and pipeline analysis. The software also screens equipment and project details to ensure compliance with published program guidelines.

The online application allows participants to directly configure their projects through a series of intuitive steps that utilize user-friendly features such as drop-down menus and search functions. The AMPLIFY software allows non-experts to configure a custom energy efficiency project with precise savings estimates, and then receive a near instant pre-approval. Independent program evaluators in multiple states performed a technical evaluation on AMPLIFY that revealed near perfect realization rates, according to Leidos.

Leidos calls AMPLIFY “the Turbo Tax of the commercial lighting industry” because the software gives commercial customers easier access to their portion of approximately $2 billion in annual rebates. By enabling facility owners to capture program rebates that offset the often higher cost of efficient technologies, the platform pushes the market toward greener technologies, Leidos says.

[ cont’d on next page ]
What the Judges Said...

The AMPLIFY platform is directly at the nexus of energy efficiency and customer service, which makes it an exceptionally valuable product. It solves a real-life challenge — the barriers perceived by consumers in filling out rebate paperwork — that prevents energy projects from getting done and prevents consumers in participating in energy efficiency.”

The software’s five components include a CRM/utility account to monitor potential energy efficiency projects and house eligibility information, a tracking and reporting system that documents the application process, and an automated application submission that facilitates instant pre-approvals. There is also an extensive manufacturers’ equipment specifications database as well as a component that automates the process of applying for energy efficiency rebates for non-residential lighting projects anywhere in the United States and Canada.

To date, Leidos has validated more than 12,000 commercial equipment applications, verified 750,000 megawatt hours in annual energy savings, and approved $120 million in incentives. In addition, Leidos conducted more than 300,000 lighting estimates with AMPLIFY and the underlying technology. More than 50 FORTUNE 500 companies are using the software as part of their facility investment strategies.

www.leidos.com/infrastructure/energy-management-efficiency
Panasonic Vacuum Insulation Panels are an insulating material for industrial refrigerators and freezers that consist of aligned glass fibers encased in a foil-like cover and vacuum sealed. The panels are made from 75% recycled material, do not off-gas, have a very low global warming potential, are fire resistant and entirely recyclable.

Each panel has a patented fiberglass recyclable core encased in a laminate film with several layers of nylon, aluminum, polyethylene terephthalate, ethylene vinyl alcohol copolymer, and linear low density polyethylene or a similar laminate layer construction. A moisture absorbent is positioned between the fiber glass material to capture molecules. The fiberglass is compressed by heated pressure, put under a vacuum, and sealed by the laminate film.

Panasonic’s panels have a design that weighs less than competing products, and offers the lowest K-factor in the thinnest footprint while maintaining a targeted reliability of 35 years, according to the company. Unlike foam cores, the fiberglass ones used in these panels provide some flexibility.

These panels’ characteristics allow refrigeration OEMs to use the panels to meet or exceed United States Department of Energy and Energy Star standards as well as reduce end user’s energy consumption and costs. The panels have been implemented in volume as insulation for refrigerators and freezers.

The panels provide help residential and commercial refrigeration equipment OEMs to increase interior capacity while reducing energy consumption by up to 24% or more. For the same thickness, the panels’ thermal performance is 25 times that of glass wool, and 12 times that...
An interesting product with big implications for industrial refrigerators. The fact that it can save 24% over conventional insulation and is made from recycled materials, and is totally recyclable is a great benefit.”

Panasonic Vacuum Insulation Panels have an R-Value of 60 per inch.

Vacuum Insulation Panels can be easily integrated into the refrigeration equipment walls along with spray foam for structural support. In addition to energy savings, the internal space capacity for a household refrigerator can be increased by about 4% to 5% with the panels. The panels recently started being applied in thermally efficient refrigerators that don’t require a traditional cooling system, allowing for efficient operation without a compressor. Panasonic says the panels are being explored for applications beyond refrigeration such as insulation for buildings.

Panasonic estimates more than 1 million refrigerators are sold annually that use Vacuum Insulation Panels, about 12% of refrigerator shipments with an estimated energy consumption savings of 20% per refrigerator.

Made by Petro-Canada Lubricants, Hydrex XV is a semi-synthetic hydraulic fluid designed for use in heavy-duty hydraulic systems. The newly reformulated product is used in a number of industries, including construction, mining, forestry and mills, drilling, and waste management. It offers advanced wear protection, extreme weather performance, improved efficiencies, and extended oil life, according to the company.

The wear protection of Hydrex XV leads to operational advantages that include less unplanned downtime due to maintenance and mechanical failure, reducing costs for repairs and offline equipment.

Hydrex XV’s long oil life also means operations can extend drain intervals, resulting in fewer complete change-outs and lower oil usage overall.

Most maintenance managers do not dedicate much time to their hydraulic product purchases, Petro-Canada Lubricants says. However, hydraulic fluid can contribute directly to operational productivity, efficiency, and sustainability. Hydrex XV can lower costs through increased fuel and energy efficiencies. The hydraulic fluid maintains optimal fluid viscosity across wide temperature ranges.

With a high viscosity index and low pour point, Hydrex XV works in extreme temperatures and ranges beyond the abilities of its competitors, the company says. Systems can start at temperatures as low as -34°C/-29°F and run as high as 90°C/194°F. This allows for product consolidation so operations invest in fewer fluids to keep them running, and there is less idling in heavy equipment as operators start and stop throughout the day.

Hydrex XV also contributes to more uptime related to oil change-outs. Its resistance to oxidation minimizes sludge and leads to significantly longer oil life than leading global competitors. In competitive testing, Hydrex XV had the...
If diesel fuel usage is reduced by 5%, productivity increased by 6%, and fewer fluid changes required, this is a winner in the hydraulic fluid category. I would certainly pay a premium for these kinds of results.”
The Life Cycle Perception Game is a business game designed by Quantis to educate through dynamic dialogue and demonstration. It aims to engage colleagues and consumers, to create common language for sustainability, and to compare personal perceptions of products’ environmental performance to factual footprint results. The game can be played by a range of participants from neophyte to sustainability expert or environmental footprint practitioners.

Product environmental footprinting is a complex concept rarely understood by the corporate functions it impacts. The Life Cycle Perception Game includes three teaching tools that, when used together, create a more effective learning experience than a traditional lecture approach, Quantis says. These key tools are interaction, connection, and critical thoughts.

The game includes four stages of play. Participants start by constructing the product life cycle according to their own perceptions by positioning a collection of cards representing life cycle stage. Users then allocate different tokens to indicate the relative contribution of each environmental impact such as carbon, water, and biodiversity to each stage. The solution disc is revealed with the product’s true environmental assessment and highlights gaps in perception. An ideation stage provides brainstorming scenarios to find solutions to the product’s hotspots.

The Life Cycle Perception Game helps to make an entire firm more aware of the intricacies of life cycle assessments, the relationships that a product’s life cycle has with various parts of business operations, and life cycle thinking. The game engages all internal stakeholders involved in a product’s life, not just the people who design it. It can also be used to engage external stakeholders like investors or consumers.

This tool can be applied both to life cycle assessment or communication workshops. The game offers a way to host consumer focus groups.
What the Judges Said...

“...This product looks fun and engaging. The need for a common language up and down supply chains is critical and this gamification begins to create a common vernacular. I think it can definitely be a great tool in any learning environment, from schools to corporations.”

leading to better understanding their perception of products’ environmental profiles. When it’s time to choose the most sustainable innovations, comparing the environmental metrics to consumers’ perceptions and expectation metrics helps maximize return on customer and environmental benefits, the company says.

In education, more than 1,000 students have played the game during their training program. The game received the approval of the United Nations Education Program for Development. Quantis plans to open this tool more globally in European universities.

Currently the game is being deployed by a variety of organizations, from small enterprises to multi-nationals, to raise product environmental footprint awareness and engagement. Quantis says the game has been played by more than 12,000 people and adopted globally by more than 50 corporate firms such as Danone, Nestlé, and Total. The game also helped 15 teams to develop around 100 eco-design products.

RAPPORT

Rapport is sustainability software designed and priced for small and midsized businesses that helps organizations measure their environmental footprint, engage employees and suppliers in reducing impact, and share data with customers. The platform, which captures the extended footprint of a supply chain, has been called “the QuickBooks of sustainability.”

Supply chain sustainability reporting presents two major challenges, according to Rapport. One is noncompliance due to onerous processes and supply chain survey fatigue. Another is suppliers over-reporting impact, compelling customers to take on their entire footprint instead of only that’s associated with what was actually purchased.

When large companies like Home Depot and Walmart reach further into their own ecosystems to measure impact, they put increasing pressure on their small and midsized suppliers to share their own environmental data. Rapport makes it simple for suppliers to track environmental metrics such as carbon emissions, water, and solid waste as well as attribute the percentage of their footprint to each customer, and accurately share data in real time, the company says.

A Rapport customer can solicit a supplier’s environmental metrics directly from the platform. Once entered, the data is automatically allocated into the Rapport customer’s footprint. Suppliers, who do not need to be Rapport customers, see a basic analysis of their own footprints and also receive a free 30-day trial offer. The software provides protection for suppliers that want to share data and keep private the share of total business represented by any one customer.

The software gives businesses a picture of their impact, offers tips on increasing efficiency and saving money, and provides an effective solution for compliance. Large companies get the data they need in real time as well as an accurate accounting of the collective impact of their operation and supply chain ecosystem.

Priced at $99 per site per month, Rapport is affordable for small and midsized businesses that often lack the budget for enterprise sustainability software as well as the technological resources required to deploy it. Rapport’s data management methodology allows companies to identify and allocate environmental impact, and the intensity of different corporate locations, organizational functions, employee groups, product lines, and suppliers. Companies can

[ cont’d on next page ]
What the Judges Said...

"What I like about this product is the target market — the small- to mid-sized business upstream in a large company’s supply chain. These companies play a huge role in supporting large enterprise supply chain sustainability initiatives. It’s a nimble tool that offers them a chance to collect, collate, and report sustainability data fills an important void."

Maine-based Baxter Brewing uses Rapport to identify opportunities for reducing waste. Water is Baxter’s primary product ingredient and since deploying Rapport, Baxter reduced water consumption from 4.3 to 3.5 gallons per gallon of beer. They also reduced the amount of solid waste produced from one dumpster pick up per week to one per month. This is helping the brewery progress toward its goal of being a zero waste brewery.

WEX, a provider of payment processing and information management services to the United States commercial and government vehicle fleet industry, had been suffering from supply chain sustainability survey fatigue, according to Rapport. One of its biggest customers required them to fill out three surveys annually, straining limited resources. Deploying Rapport mitigated the challenges of data collection, analysis, and reporting. The platform helped WEX increase its supply chain sustainability index score by 30%, enhancing its standing and giving it an improved position for renegotiating its contract, according to Rapport.
Source Intelligence developed a software solution and service called the Supply Chain Compliance Tool that helps companies meet their requirements to file compliance reports, and further validate their claims that they are ethically, socially, and environmentally responsible.

Product companies face increasing pressure to demonstrate improved corporate social responsibility. Governments are enacting new compliance regulations. Investors and stockholders demand that companies reduce their exposure to risk. NGOs and consumers want companies to be more responsible. A key issue for manufacturers and retailers is determining whether products contain raw materials or are otherwise sourced from suppliers connected to human trafficking and human rights violations, regions on government watch lists or posing environmental damage.

Tracking and validating hundreds of thousands of supply chains are monumental tasks. Source Intelligence has a cost-effective platform and an open network that allows suppliers to post their compliance information for Source Intelligence to validate, and for end-users to create their own custom dashboards for analysis and report generation, according to the company.

Source Intelligence’s solution tracks major compliance issues for companies and can be provided as separate products: conflict minerals, human rights issues, restricted substances that are environmentally harmful, and anti-corruption. The software as a service platform enables customers and their suppliers to join the network, and for suppliers to easily upload their compliance information for verification and analysis.

The proprietary software can quickly flag products that may contain source materials or components from problem locations. The platform also has demonstrated scalability. It began as a solution for conflict minerals reporting and now encompasses smelter verification, anti-slavery and human rights tracking, anti-corruption, restricted substances, and other corporate social responsibility needs.

The software provides real-time monitoring and tracking.

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SOURCE INTELLIGENCE
SUPPLY CHAIN COMPLIANCE TOOL
What the Judges Said...

"This is a universal solution for a challenging responsibility. It offers both platform and content for validation and reporting. Productivity gains, and the platform’s massive database helps quickly identify solutions and new ideas."

Source Intelligence created the world’s largest database of suppliers, the company says. The solution provides customers a location for their suppliers to file compliance information, resolve gaps in data to better understand supply chain risks, and a customizable dashboard makes it possible to analyze the supplier data and generate comprehensive reports to meet various regulatory requirements. The solution also reduces the need to hire and train internal staff for time-consuming due diligence, validation, assessment, and compliance reporting.

Publicly traded U.S. companies must file annual reports under the Dodd-Frank Act to determine to the best of their abilities whether their products contain conflict minerals. The majority of companies that filed the most complete and comprehensive reports used Source Intelligence, the company says. The platform has been the most listed third-party provider among filers under the Dodd-Frank rules.

www.sourceintelligence.com
SunPower makes solar photovoltaic systems. Their E-Series and X-Series Direct Current Solar Panels received Cradle to Cradle Certified™ Silver certification, one of the most rigorous product eco-labels that make products eligible for additional points under the latest version of U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) certification standard. These are currently the only solar panels to earn this designation, the company reported.

A team from SunPower and McDonough Braungart Design Chemistry assessed the panels’ performance in five certification categories: material health, material reutilization, renewable energy use, water stewardship, and social fairness. The certification was part of the company’s ongoing efforts to integrate sustainability into every aspect of its products and operations, from non-hazardous materials to landfill-free factories to supply chain sustainability.

SunPower says its systems generate more power in the same space as conventional solar technologies, reducing their physical footprint. They need roughly 30 percent less land or roof space to generate the same amount of power as a conventional system. For the 250-megawatt California Valley Solar Ranch project, the solar arrays, substation and facility buildings are confined to 1,500 acres. The remaining 3,200 acres of the site is a permanent conservation easement for a range of protected species.

The company uses a "Light on Land" approach that minimizes its environmental footprint in ground-mounted installations and seeks to rehabilitate disturbed land. Their PV panels have the lowest degradation rate, and their long-lived products have an expected lifetime of 40 years. SunPower also says it offers a faster, more resource-efficient robotic cleaning solution that uses 75 percent less water compared to traditional cleaning methods.

Their high-efficiency products generate more power for a given area, SunPower says. Sustainable manufacturing is a priority for the company, which has the industry’s first and only certified landfill-free factories, producing Cradle to Cradle Certified™ solar panels. Their design criteria takes into account sustainable land use practices, and the company’s goal

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SunPower is an industry leader in the solar panel market. The SunPower E-Series and X-Series Direct Current Solar Panels are unique in achieving the Cradle to Cradle Certified™ Silver designation. No other solar photovoltaic panels have achieved this certification. The production of these panels with less water continues to be important worldwide.

SunPower is also trying to reduce its environmental footprint by ensuring their products are Restriction of Hazardous Substances (RoHS) and Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) compliant. Their E-Series and X-Series Direct Current Cradle to Cradle Certified™ Silver solar panels, which do not contain lead or cadmium, are the only non-hazardous panels in the industry by the U.S. definition, the company says. Although their panels have the lowest degradation rate and the longest warranty, the company has a system to take back, reuse, and responsibly recycle them.

SunPower’s life cycle assessment estimates an average of 10 to 12 grams of carbon dioxide equivalent are emitted per kilowatt-hour generated by their Cradle to Cradle Certified™ Silver solar panels. For comparison, coal emits over 1,000 grams per kilowatt-hour. As of 2015, SunPower estimated that 35 terawatt-hours of clean, renewable energy have been generated by SunPower photovoltaic systems. Based on the U.S. Environmental Protection Agency’s Greenhouse Gas Equivalencies Calculator, this is equivalent to avoiding more than 20 million tons of carbon dioxide, or the combustion of more than 26 billion pounds of coal.

www.sunpower.com
Thinkstep Compliance Limited’s BOMcheck is a centralized web database for substances declarations. In order to sell products globally, manufacturers need to ensure their suppliers understand, comply with, and stay up-to-date on an increasing number of substance regulations. U.S.-listed companies also need to collect and analyze conflict minerals data from their suppliers annually. The BOMcheck Substances Declarations Web Database is designed to save time and costs.

BOMcheck stays updated with the strictest regulation for each relevant substance, Thinkstep Compliance Limited says. It provides tools, training, and chemicals guidance to help suppliers create and share standardized, high quality declarations. Suppliers and manufacturers share one tool and one web database system. The tool provides access to regulatory compliance declarations, full materials declarations, and conflict minerals declarations. The web database system allows suppliers to manage their data securely, and manufacturers can download suppliers compliance declarations in standard formats.

Substances in the Full Materials Declaration tool are color-coded to show substances that are regulated around the world and substances that are at risk of becoming regulated in the next few years. The confidentiality tools enable suppliers to restrict access to their Regulatory Compliance Declarations and Full Materials Declarations to certain customers, and to add new customers to confidentiality settings at any time. Suppliers can also attach test reports or other documentation to support their materials declarations.

The 2015 BOMcheck screening explains why 95 of 168 Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulated substances are not found in materials and articles in the electrotechnical industry. The Regulatory Compliance Declaration tool provides concise chemicals guidance for suppliers to identify materials and articles that are at risk of containing the remaining 73 regulated substances. If the guidance indicates the supplier parts are not at risk, then suppliers can claim compliance without additional efforts.

There are several other web-based systems, but none of them allow
Managing chemical inventory information with respect to compliance is a major activity in companies. BOMcheck solves the problem of submitting supplier data one time and sharing it with many different customers. It can be part a larger corporate and supply chain initiative to reduce the use of hazardous substances.”

suppliers and manufacturers to share a centralized database, according to Thinkstep Compliance Limited. Instead, each manufacturer purchases its own system to gather data separately from its own suppliers. The other systems are also expensive in comparison to BOMcheck’s pricing structure, the company says. In addition, BOMcheck is verified as compliant to the IPC 1752A industry standard for materials declarations while other systems are not. The BOMcheck Substance List Working Group implements the European Chemicals Agency (ECHA) 2015 REACH Regulation recommendations for the electrotechnical industry, and reduces supplier time and effort for REACH compliance by 66%, according to the company. In January 2016, BOMcheck became the first system to achieve compliance with the new REACH compliance obligations published by ECHA in December 2015, the company says. In February 2016, BOMcheck began including a materials risk database that helps suppliers investigate compliance risks.

Currently more than 750 manufacturers use BOMcheck to gather materials declarations from over 5,500 suppliers worldwide for several million parts.
Thinkstep Compliance’s EC4P system is a confidential web application that guarantees manufacturer compliance with the Waste Electrical and Electronic Equipment Directive (WEEE), batteries and packaging regulations in all 28 EU Member States as well as European Free Trade Association countries.

Understanding and managing WEEE, batteries and packaging legal exposure across Europe is challenging for manufacturers. Training staff to understand the requirements, stay updated on changing regulations, carry out registration and product reporting, and pay the correct fees on time for each country can be expensive and time consuming. The EC4P system manages compliance through one central repository, joining and maintaining WEEE, batteries and packaging compliance scheme memberships where required.

EC4P’s centralized approach helps manufacturers take control of WEEE compliance by arranging authorized representatives in each member state as required. The system gathers company sales data and reports it in accordance with the compliance arrangements made in each country, paying the appropriate registration and recycling fees on the companies’ behalf. A certificate is issued to the company to confirm compliance with the regulations in the relevant European countries.

The application reduces operational costs by removing the need to employ compliance officers in each country across Europe, reducing the resources needed to understand WEEE, batteries and packaging regulations in each country, and allowing companies to pass WEEE collection costs onto
The solution simplifies the regulatory complexity. Excellent design, proof beyond concept, and client testimonials. Any product that can demonstrably prove that time can be saved and efficiencies gained for data collation and reporting — especially across multiple sectors and geographies — has my vote.”

business end users. EC4P also offers a web-based alternative for B2B manufacturers so they can avoid joining expensive WEEE compliance schemes in each country.

Thinkstep Compliance’s ability to arrange authorized representatives in each member state has helped solve “stop sell” situations for companies struggling with distributor WEEE compliance issues when selling into EU Countries, the company says. Manufacturers are no longer limited to partnering with distributors who agree to manage WEEE compliance for products they import and sell. A manufacturer can partner with any distributor in a particular country.

More than 150 manufacturers rely on EC4P to manage WEEE, batteries and packaging obligations across Europe. They include the American enterprise virtualization and storage company Nutanix, which has been a Thinkstep Compliance customer for eight years. Nutanix reported that Thinkstep’s well-established, auditable, and programmatic path to compliance allowed the company to quickly start selling into EU member states in a matter of a few weeks.

www.EC4P.com
Trane’s Sintesis air-cooled chillers are designed to lower environmental impact with next-generation, low global warming potential refrigerants and high-efficiency operation. The chillers operate on either R-134a refrigerant or Opteon XP10 (R-513A) to lower their environmental impact. They offer building owners and businesses choices for reducing greenhouse gas emissions and reaching their sustainability goals, the company says.

Sintesis chillers are designed to operate with either R-134a or Opteon XP10 (R-513A), a non-flammable, low global warming potential refrigerant with a 50% reduction in global warming potential. The chiller is also designed to minimize refrigerant use and leakage. The evaporator and condenser coil design require up to 40% less refrigerant charge than earlier chiller designs due to innovations including compact, high-efficiency, integrated, low refrigerant charge evaporator, and micro-channel coil design. This makes it easier to earn a point under the LEED Energy and Atmosphere credit for enhanced refrigerant management.

Trane ice-enhanced cooling systems use less expensive electricity and require less of it. Cooling costs for ice-enhanced chiller plants can be reduced substantially by making and storing ice during nighttime.

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What the Judges Said...

Solid product with tangible environmental and cost benefits. This chiller provides greater energy efficiency and greater reliability than any other chiller currently on the commercial market.”

hours when utility rates are usually at their lowest. The ice is used to help cool buildings during peak-rate daytime hours. The Sintesis chillers also reduce the environmental impact since nighttime electricity consumed often comes from a greater mix of renewable and cleaner sources including wind energy and natural gas-powered electrical plants.

The micro-channel design used in Sintesis chillers eliminates brazed copper U-bend connections and their potential for refrigerant leaks, helping maintain peak chiller efficiency. The chillers are optimized for both full- and part-load performance, with efficiencies up to 25% better than required by the ASHRAE 90.1-2013 standard for integrated part load value.

www.trane.com/sintesis
UL EHS SUSTAINABILITY
CR360

cr360 is software from UL EHS Sustainability, a division of the global independent safety science company Underwriters Laboratories, that helps major companies from multiple sectors deliver on their EHS and sustainability goals. The software is used to manage sustainability, supply chain, and environmental health and safety (EHS) information. It allows clients to gather information easily across global operations, reducing costs by removing the need for manual data collection.

Using UL EHS Sustainability’s tools, sustainability and EHS managers can track and share progress against targets. Access to accurate data on energy consumption enables efficiency improvements. The ability to engage internal and external stakeholders with performance dashboards and analysis helps companies make quantifiable improvements in how sustainability information is used for performance management, reporting, and communications.

The cr360 platform allows companies to collect, manage, and communicate their EHS, sustainability and supply chain information. It has live interactive maps and publicly available performance dashboards so clients can give stakeholders intuitive online access to sustainability information. This integrated, streamlined approach lets leading multinationals ensure regulatory compliance and manage their performance across EHS and sustainability. In addition, the software offers clients additional UL products and services such as safety training and occupational health product lines.

cr360 provides mobile capabilities for on-site auditing and self-assessments. Using the company’s native iOS apps, users can upload information and images in the field, which then syncs automatically with their cr360 system when the device reconnects to the Internet. The platform lets companies track a single meter reading in 15-minute intervals from across the world and record near misses.

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The cr360 system is clearly a step above others in the scope and scale of the system. With over 1 million users across more than 200 companies, it has proven to be a true global system that meets the EHS and sustainability system needs of corporations.

The cr360 system is CDP-accredited, GRI-certified and is a SASB ERP Partner. It is also one of the two initial software providers that integrated RobecoSAM’s DJSI XBRL framework used by companies such as Sprint, Crédit Agricole, and The Linde Group.

More than 200 global companies use cr360 to obtain industry rankings and accreditations, with millions of professionals working with the system on a daily basis. Mexican banking and financial services holding company Banorte, was the first Latin American company to enter the CDP A list in 2015. Another, Deutsche Bank, achieved ISO14064 accreditation of GHG reporting. CBRE, the world’s largest real estate investment manager, uses cr360 as a centralized system for its EPC risk mitigation project as well as for auto-generating reports and data exports, UL EHS Sustainability says.

http://www.ulehssustainability.com/
Urjanet’s Utility Data Service is a platform that provides companies and energy solutions providers with automated utility data for energy management. The platform helps end-users reach their sustainability goals by providing crucial data that organizations need to report on key sustainability metrics and reduce energy costs.

With 4.5 billion meters, hundreds of thousands of tariffs, and more than 27,000 utilities — each with unique data formats, data structures, content and semantics — organizations struggle to get the energy data they need. Slow, poor quality data also makes it difficult for organizations to proactively and efficiently manage their utilities consumption and spending.

Energy management and sustainability teams struggle to collect and manage utility data from thousands of invoices.

Urjanet’s fully-automated utility data platform simplifies the collection, normalization, and delivery of utility data. The platform has connectors into the most popular energy management, sustainability and business applications, the company says. Its global utility data network is comprised of connections to thousands of utilities around the world.

Urjanet’s Utility Data Service platform reduces operational expenses by leveraging cloud-based technologies that automatically collect, normalize, and deliver utility data. It also reduces an organization’s overhead while improving efficiency. Organizations can easily start working with utility data to uncover numerous opportunities for energy reduction and cost savings.

The platform was engineered to overcome the massive challenges inherent in the complexity of utility data. An advanced semantic database and processing architecture intelligently collect and aggregate terabytes of data from thousands of utilities across the world so the data becomes useful for end-users as well as energy and sustainability solutions providers.

Leading energy and

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Urjanet has been successful with its Utility Data Service because it focuses on solving the specific, difficult problem of collecting and managing utility consumption and cost data with a unique solution that works well. This is a practical solution that has delivered real value to customers and the environment.

Sustainability solutions providers use Urjanet to improve operational efficiency, profits and customer satisfaction. Half of all energy and sustainability solutions providers rely on Urjanet for utility data, according to the company. Some of the world’s biggest brands use the platform to gain insights into their energy consumption and spending.

With Urjanet, Cox Enterprises has saved millions on its $100 million annual electricity and natural gas spend. A senior director there estimated that, depending on the market, the company could see anywhere from 10% to 30% in savings. The automotive products company Mubea reduced water usage by 3 million gallons annually with Urjanet. Utility and energy management company Ecova expanded its global reach and increased operational efficiency by integrating Urjanet into its C&I solutions portfolio, including facility optimization, sustainability reporting, and energy supply management.
Bolder Black, made by Waste to Energy Partners, is a recycled alternative to carbon black manufactured in the United States, which is an essential component in most rubbers and black plastics. Carbon black comes from the incomplete combustion of petroleum, creating a large environmental footprint. Bolder Black is produced from waste tires using a proprietary process, reducing greenhouse gas emissions and diverting tires from landfills or incinerators.

Waste to Energy Partners transforms waste tires into a 100% post-consumer recycled direct substitute for virgin carbon black with a process that is 90% more efficient in terms of water and electricity consumption, and generates significantly less greenhouse gas emissions than commercial alternatives.

Companies using Boulder Black quickly and efficiently achieve measurable supply chain sustainability improvements, and they can also market the recycled content and lower lifecycle impacts of their products, according to the company.

Bolder Black addresses two environmental problems. Traditional production of virgin carbon black is extremely resource-intensive and results in high greenhouse gas emissions. At the same time, Americans produce more than 300 million waste tires annually. When tires go to landfills or get incinerated it creates environmental and health problems. Waste to Energy Partners’ product diverts tires from the waste stream, improving a dirty yet necessary industry.

The manufacture of Bolder Black produces valuable syngas and liquid fuel byproducts, the company says. Syngas production at their Missouri facility powers the entire process and generates approximately 5 mega-watts of excess electricity, sufficient to power an emerging high tech corridor as well as meet the municipal power demand. The production of Bolder Black is also highly scalable and the company plans to co-locate production at customer sites so they benefit from the product and the on-site waste-derived energy.

Bolder Black is the only recycled colorant that can enable a black plastic product to be 100% post-consumer recycled product, according to the company. Rubber manufacturers have no alternative to virgin carbon black for structural fillers for their products without...
What the Judges Said...

“A highly innovative product with potential for positive impact across many industries. It kills two big birds with one product: waste reuse and product substitution. This is a great concept to initiate movement towards a circular economy.”

Bolder Black, which can replace up to 35% of the material used. While the product is currently cost-competitive with virgin carbon black, the growing supply of waste tires ensures its long-term operational cost stability compared to fluctuating fossil fuels.

Over one million tires destined for environmentally harmful disposal have been converted by Waste to Energy Partners into 3,500 tons of Bolder Black for the rubber and plastics industries. This translates into offsets equivalent to over 150 million gallons of water, 70 gigawatt-hours of electricity and 450,000 tons of carbon dioxide equivalent. Product substitution is quick, seamless, and involves only one change in the production recipe.

In addition to Bolder Black production, more than 2 million gallons of oil byproduct have been produced and sold from the company’s Missouri facility. Bolder Black customers receive water, electricity, and greenhouse gas emissions savings in their supply chains, which can be mapped directly to metrics in frameworks like CDP, GRI and DJSI. Some customers have increased their market share by starting to offer products such as tires and electronics featuring recycled materials that would have been impossible before Bolder Black, the company says.

www.wastetoenergypartners.com
The WeNowBox is a small plug-in adapter for cars that works with a dedicated app to change driving habits and solve the climate impact of vehicles. The patent-pending system accurately measures energy consumption, provides coaching for drivers to help them reduce their fuel consumption, taking into account behavior and mobility contexts, and neutralizes carbon dioxide as it is emitted through offsetting.

WeNow features a real-time certification system for Zero net CO2 emission cars.

Coaching services improve climate awareness and help drivers reduce their fuel consumption up to 15% to earn money. The device and app make it possible to monitor fuel efficiency and motivate a community of drivers with gaming initiatives safely (to earn more) and with choice of compliant projects (VCS, Gold, CCBA) such as Rimba Raya in Indonesia.

The automotive market is struggling to address emissions and aggregate pollution levels.

Awareness of the importance of corporate social responsibility has been growing over the last 10 years and a number of companies have become role models. However, many companies need to move from traditional corporate social responsibility programs to more strategic ones, and to quantify and design metrics for measuring their impacts, WeNow says. Their system helps measure, reduce, and neutralize carbon dioxide emissions in a certifiable manner for individual cars.
What the Judges Said...

A good product for helping companies reduce miles traveled as well as offsetting emissions from employee travel. The real-time system monitors three concepts: measure, reduce, and neutralize. It has great possibility.

Beta testing in 2015 demonstrated the accuracy of the system’s fuel consumption measurement, efficiently monitoring each trip. In 2016, a thousand WeNowBox devices were produced with ambitious other orders in discussion.

The company’s app is available on iTunes and Google store and WeNowBox are developed both in Bluetooth and 3G technologies. A version of the app requested by Microsoft Group is also in development for Windows phones.

The company says it is in the process of signing partnership agreements in France and other European countries. WeNow is also developing strategies with best global companies in the carbon credits voluntary market and with insurers, involving new disruptive business models.

www.wenow.com
ALDI INC.

ALDI ENERGY MANAGEMENT SYSTEM: SIEMENS ROLLOUT

ALDI INC.

ALDI ENERGY MANAGEMENT SYSTEM: SIEMENS ROLLOUT

ALDI is a global discount supermarket chain that deployed the Siemens Site Controls Energy Management System (EMS) at nearly 1,500 of its retail locations. This energy management program reduces energy usage at the stores. Most of the installations were retrofits at existing stores where thermostats or third-party energy management systems were replaced, but Siemens also installed its Site Controls EMS in newly constructed stores.

ALDI selected Siemens after an initial 16-site pilot in 2012 validated the system’s ability to reduce consumption at its stores, and a 180-site rollout in 2013 demonstrated that results could be replicated across an entire region. Working closely together, ALDI and Siemens successfully installed the remaining sites in fewer than 10 months. ALDI will also install the system in new stores as it continues to expand across the U.S.

Features of the Site Controls EMS include continuous KPI reporting, client services for continuing training and coaching on best practices, daily re-prioritization of the most inefficient sites and assets so the most important tasks are worked first, and daily analytics to detect failed or abused assets for immediate corrective action. The energy management program also leverages advanced cloud-based technology, building on the grocer’s initiatives to reduce carbon emissions — such as the installation of solar panels — at dozens of retail stores and four distribution centers.

The Site Controls EMS reduces energy usage at stores by monitoring and controlling key energy-consuming devices such as heating, ventilation and air conditioning units, indoor lighting, store signage, indoor and outdoor temperature sensors, and refrigeration units. The system also monitors energy output and performance of on-site solar panels. The Site Controls Enterprise Portal, a cloud-based data analytics platform, provides ALDI enterprise-level dashboards, KPIs, and outlier reporting to quickly pinpoint and resolve issues that would otherwise drive excessive consumption or negatively impact customer comfort. The system can also help lower maintenance costs by streamlining the identification of problems, intelligently dispatching and remotely validating work performed by HVAC service technicians.

[ cont’d on next page ]
The project has three phases. For the first, consistency and control via temperature set points and lighting schedules become consistent, and additional savings are gained through alarm integration and occupancy sensors. Phase 2 involves the reactive investigation of underperformers. Outliers and hot or cold concerns were investigated for prescriptive advice to place more informed dispatch calls. The third and final phase improves the reporting and proactive investigation of underperformers. More accurate and detailed energy reporting provide insight into trouble areas for action to be taken. Additional energy team members can also proactively support investigation of issues to further drive savings.

ALDI estimates that its stores made up a significant portion of its total carbon emissions. With the Site Controls EMS now installed, ALDI anticipates reducing carbon emissions by an additional 29,000 metric tons per year — the annual equivalent of removing 6,100 cars from the road or of providing electricity for 4,000 homes. The energy cost savings associated with the project also exceeded ALDI’s capital investment criteria, providing a favorable return on investment.

ADVANCED MICRO DEVICES
25X20 ENERGY EFFICIENCY INITIATIVE

AMD develops microprocessors, the “brains” of computing devices, with a focus on designing ones that offer more performance while minimizing energy use. Recognizing the pervasive energy constraints of computing, the company announced an ambitious target in 2014 to improve the energy efficiency of its advanced processing units (APUs) 25-fold by 2020. The initiative challenged AMD to develop innovative technologies that could dramatically boost energy efficiency.

The 25x20 Energy Efficiency Initiative focuses cross-functional engineering resources across multiple entities and levels of AMD on the goal. It requires the development of new processor architectures, power efficient technologies, and power management techniques. The commitment was initially obtained at the executive level including approval from the CEO, who provided overall direction to the different functions. Coordination is required on software, silicon hardware design, architecture, and platform/silicon bringup activities.

Having such an ambitious goal rallied the AMD teams. While microprocessor design is very complex, AMD’s executives and engineers drove a focused and diligent effort to develop greater energy efficiency into next generation products. The effort was coordinated with teams across AMD including R&D and major business units. Cross-functional project teams identified opportunities for improvement, analyzed their feasibility, and integrated the most promising enhancements into AMD designs. The final designs are subjected to rigorous validation tests and additional design revisions before production.

In 2015, AMD introduced its 6th Generation A-Series APU, code-named “Carrizo,” which achieved a 2.4-fold improvement in energy efficiency compared to the prior generation, and put the company ahead of pace for achieving the 2020 goal. When the project goal is reached, PCs will be able to accomplish a task in one fifth of the time as today’s products while consuming on average less than one fifth the power. Using an automotive analogy, the 25x20 goal would be like turning a 100-horsepower car that gets 30 miles per gallon into a 500-horsepower car that gets 150 miles per gallon. [cont’d on next page> ]
What the Judges Said...

"This is an ambitious, cross-organizational approach to problem solving. The life cycle product footprint for carbon emissions reduction is demonstrable. AMD demonstrated real world advancements in this space."

Per gallon within six years.

With efficiency gains from manufacturing improvements forecast by Moore’s law waning, AMD design teams need to dramatically boost energy efficiency through other methods such as improved architecture and power management. The engineers succeeded in outperforming the gains predicted by Moore’s Law, and AMD’s 25x20 goal will outpace the historical energy efficiency improvement trend from 2000 to 2014 by at least 70%. The project is kept on track through regularly reporting on progress to the company’s executive team as well as communicating progress publicly.

Making microprocessor development more energy efficient reduces greenhouse gas emissions. AMD says its carbon footprint analysis of the Carrizo processor demonstrated that users upgrading from the previous generation processor can expect a 50% decrease in carbon emissions from computing. When scaled to an enterprise refresh of 100,000 notebook computers, the company says the savings amount to 4.9 million kilowatt-hours and 3,350 metric tons of greenhouse gases equal to powering 461 U.S. homes for a year.

Ameresco is an independent provider of comprehensive services, energy efficiency, infrastructure upgrades, asset sustainability, and renewable energy solutions for businesses and organizations in North America and Europe. The company led an energy savings and sustainability project at Minneapolis-St. Paul International Airport. The Metropolitan Airports Commission hired Minneapolis-based GreenMark in March 2012 to explore the possibility of developing a major solar energy generation facility at Minneapolis-St. Paul International Airport. GreenMark helped identify potential solar solutions and developers. Through a competitive request for quotation, approximately 30 companies were shortlisted. Ameresco won the competitive request for proposals and was contracted to lead the airport solar project in partnership with a number of Minnesota-based entities.

Ameresco installed solar panels on two parking ramps at Minneapolis-St. Paul International Airport Terminal 1-Lindbergh. The 3-megawatt solar, custom steel superstructure supports more than 8,700 solar panels. Lights were changed out. Among four Terminal 1 parking ramps, 7,743 metal halide light fixtures were converted to energy-saving LED technology. Ameresco replaced stairwell lighting, retrofitted light fixtures, and installed new rental car area, and top level lights. Four electric vehicle charging stations were installed at two ramps, bringing the total number of charging stations at the airport to 12. Ameresco is providing a 20-year guarantee as well as operations and maintenance services.

During the design phase, engineers had to consider significant snowfall, frigid temperatures, and Federal Aviation Administration regulations on airport glint and glare. The project was completed on a 15-month construction schedule, and completed on time despite harsh weather conditions. During construction of the energy savings and sustainability project, more than [cont’d on next page>]
Great impact and results for very collaborative initiatives. An excellent project that had financials aligned with energy efficiency. The creative funding options were fully utilized, and adverse weather conditions did not prevent the project from being completed on time.”

253 jobs were created. Local union labor, local installation, and local product companies were utilized. The project is the largest integrated solar and lighting project at an airport in the world, according to Ameresco.

Ameresco worked with nine governmental entities to coordinate project driven reallocation of qualified energy conservation bonds. Through the bonds, grants, and partnerships, Ameresco assisted Minneapolis–St. Paul International Airport in identifying financing to offset costs of the project. The positive annual cash flow to the airport is more than $170,000, and the 30-year net present value is more than $10 million.

Through Minneapolis–St. Paul International Airport’s partnership with Ameresco, the airport saves the equivalent of 6,813 metric tons of carbon dioxide per year. The green benefit from this carbon reduction is about equal to the emissions generated by 1,434 vehicles each year.
Arby’s, the largest quick-service sandwich chain in the United States, sought to implement a comprehensive, irrigation management program as part of its leadership efforts around energy and water efficiency. The company chose Powerhouse Dynamics and Weathermatic, technology providers in energy management and smart irrigation, along with the energy and sustainability management services provider Ecova to implement an integrated solution.

With water prices across the portfolio increasing at 8% annually, Arby’s identified a need to actively manage water consumption. However, Arby’s was challenged to manage consumption with minimal insight into usage or control of irrigation usage, typically managed by outside landscapers.

Ecova audited five Arby’s sites to identify opportunities for water consumption and cost reduction, and discovered opportunities for low-cost efficiencies. Increased expenses and concerns around water also expanded the focus to irrigation controls since irrigation generates 40% of Arby’s total water consumption on average.

In addition, through discussions with restaurant management, Arby’s recognized the need to offer a single online platform to monitor and manage their sites rather than multiple platforms. Arby’s brought Weathermatic, Powerhouse and Ecova together to identify a solution to actively manage irrigation usage in a single user-friendly system.

In 2015, Arby’s integrated the Weathermatic irrigation control system into its existing energy management system called SiteSage. Weathermatic is a connected system that offers an online platform to monitor and manage the irrigation system. SiteSage is an asset and energy management platform developed by Powerhouse Dynamics that Arby’s had already implemented across.
What the Judges Said...

"A good example of using data to recognize a potential vulnerability, working with partners to identify an appropriate technical solution, and implementing the solution at scale to drive significant environmental and economic savings. It should set an example for others to follow."

its more than 1,000 company-owned sites. The ultimate goal was to integrate the Weathermatic system into the SiteSage platform for one view into energy and water data for the benefit of all companies.

Arby’s strategic energy management advisor Ecova worked together with Weathermatic and Powerhouse to identify key data to bring into SiteSage from the Weathermatic system. Then Weathermatic and Powerhouse coordinated to make it happen. The resulting solution combined energy, asset, and water management that had not been available prior to this project. The combined offering improves operating efficiencies, and controls water and energy consumption.

The initial 85-site pilot with Weathermatic and Powerhouse Dynamics saved 7.4 million gallons of water through the course of one year — enough water to fill more than 11 Olympic-sized pools. Pilot sites saw a 40 to 70% reduction in irrigation, which equates to a total water reduction of 25% per site on average. This savings equaled an average of $1,150 per site annually in sewer and water charges.
Caesars Entertainment Corporation is the world’s most diversified casino-entertainment provider and the most geographically diverse U.S. casino-entertainment company. In 2008, the company established a goal of diverting 25% of all waste from landfills by 2014. The project started with data collection and on-site waste sorting to recover recyclables and assets, but the Caesars team understood early on that creative solutions would be needed to achieve diversion goals. Having good data was the cornerstone of the project.

At the time, it wasn’t clear how easily the company could achieve the goal given the complexity of integrated resort operations. Caesars began data collection and initiated new programs. In 2013, Caesars conducted an analysis of all 2012 data, calculating an enterprise diversion rate of 23.6%. Although on pace to achieve its goal, the company realized there was still an opportunity to better manage waste. During the following two years, Caesars placed a renewed emphasis on educating employees and guests, standardizing best practices, rolling out unique recycling and cradle-to-cradle strategies, and collecting data for anything diverted, donated or reused on its property.

Working with waste vendors, Caesars collected weights and required that invoices must include tonnage data. The company identified property leads who were responsible for collecting weights for anything being diverted, and shifted the focus to increasing diversion. Caesars shared best practices, completed dumpster dives to characterize waste streams, started diverting high volume wastes such as organics, and initiated programs like recycling hotel room soaps. They also formed partnerships with companies such as BluMarble, which uses glass bottles from Caesars’ waste streams to create products sold in Caesars’ retail stores.

The project took a tremendous commitment to collecting accurate data at over 40 properties by working with property staff and multiple vendors to ensure weights for everything leaving the properties was captured. Entire compactors were emptied, sorted, and weighed to characterize waste streams and better address diversion.

The company trialed innovative technologies such as macerating water-filled organic waste to create a liquid slush that could be sent down sewer lines. Through partnerships with nonprofits, the company recycled more than [cont’d on next page> ]
The Caesars Waste Diversion Project was an example of impacting ‘what gets measured gets done,’ and the importance of goal setting. I particularly like the cradle-to-cradle recycling effort. This model should be implemented by more companies."

100,000 pounds of toiletries per year. Caesars also educated kitchen staffs on the importance of food diversion to improve upstream sorting, and initiated asset recovery to regain reusable assets such as silverware from waste streams.

The project established a framework for data collection that allows the company to calculate accurate diversion rates. In 2013, Caesars’ waste diversion rate surpassed 35%, exceeding its goal a year early. Then, in 2014, the company achieved a record 44.3% diversion rate. Cradle-to-cradle opportunities to take waste from their compactors to their retail shops resulted in this higher diversion rate, and delivered over $4 million of bottom-line value. Caesars’ new diversion targets are to achieve 50% waste diversion by 2020 and 60% by 2025.

Caesars is now looking at upstream strategies to minimize waste creation while continuing to evolve its diversion program. The project provides a platform for the reuse of waste otherwise delivered to landfills, helps reduce Scope 3 emissions, and lowers operating costs. It also inspires workforce pride through partnerships with organizations such as Clean the World, which has recycled and delivered more than 1,685,900 bars of soap collected from Caesars properties to developing countries to fight diarrheal disease since 2010.
In 2012, the pay-TV industry initiated the Set-Top Box Voluntary Agreement to increase the energy efficiency of set-top boxes by up to 45%. The Consumer Technology Association worked in concert with the National Cable and Telecommunications Association and other partners to establish ambitious commitments. The agreement’s 15 signatories included all of America’s major service providers, industry organizations, and STB manufacturers, including Cisco, EchoStar Technologies and ARRIS.

The Set-Top Box Voluntary Agreement set rigorous standards such as requiring that at least 90% of all new boxes purchased and deployed after 2013 meet EPA Energy Star 3.0 efficiency levels, and for “light sleep” functionality to be downloaded to more than 10 million devices already in use. In addition, independent audits and field verification tests are performed annually to provide transparency, public accountability, and objective updates on the agreement’s progress.

A steering committee was established to coordinate and govern the voluntary agreement.

At least once a year the committee meets to evaluate the agreement’s effectiveness, create an annual report, and evaluate current and future developments that may affect energy efficiency. An expanded voluntary agreement was adopted in 2013, adding NGO efficiency advocates including the Natural Resources Defense Council. It encompassed additional energy efficiency commitments and expanded provisions for transparency and accountability.

Through its first two years, the voluntary agreement
What the Judges Said...

What appears to be a common household device that touches homes everywhere can, if managed properly, yield amazing results. Excellent example of collaborative agreement among a variety of manufacturers, service providers, government, and consumer stakeholders resulting in substantial reductions in environmental and energy footprints.

Reduced national annual set-top box energy consumption by 1.4 terawatt-hours (4.4%), saved consumers more than $500 million in energy bills, and avoided nearly three million metric tons of carbon dioxide, according to the Consumer Technology Association and the National Cable & Telecommunications Association. Overall, 95% of service providers’ set-top box purchases in 2014 met Energy Star Version 3.0 standards, and 62% already met the even more stringent set of Tier 2 energy efficiency levels, which will be the new baseline for the 90% procurement commitment in 2017. The associations that established the voluntary agreement say that, compared to national energy-use projections without the agreement, American consumers saved more than $1 billion in energy bills and avoided six million metric tons of carbon dioxide over two years.

Domtar designs, manufactures, markets and distributes pulp, paper, and personal care products. The company’s mill in Plymouth, North Carolina, implemented a project to reduce waste to landfill by more than 90% and create a new product for the local agricultural community.

The pulp and paper making process generates significant amounts of manufacturing waste, including boiler ash, causticizing residuals, and wastewater treatment residuals. These waste streams are typically managed separately, and can have individual characteristics such as high pH that make them difficult to handle and reuse, Domtar says.

Domtar has a goal to reduce total waste to landfill from its pulp and paper mills 40% by 2020 from 2013 levels. The company’s Plymouth mill recognized the potential value of several of their individual manufacturing byproducts. In partnership with North Carolina State University’s local agricultural research station and affiliated consultants, the mill conducted extensive laboratory and field studies to find the optimal blend of residual byproducts for improving local agricultural soils and crops.

The mill experimented with different blends of what have always been seen as wastes until they discovered the optimal quantities to balance out the extreme properties of each byproduct. They developed Plymouth K-Lime, an effective, lower-cost alternative to conventional fertilizer, according to Domtar. Plymouth K-Lime, which is now registered with the North Carolina Department of Agriculture, was named after two nutrients needed for crop growth: potassium, which has the chemical symbol K, and lime. Domtar sells K-Lime to local farmers, and the company says that the product saves them approximately $35 per acre over conventional fertilizers.

[ cont’d on next page ]
What the Judges Said...

The Domtar K-Lime project epitomizes the practical application of technology to improve sustainability across environmental, economic, and social dimensions. Taking materials that were being sent to the landfill and finding some sort of beneficial use for them is such a great example of sustainable innovation.”

Demand is so great that the product is sold out for the next 6 to 9 months.

The project helped the Plymouth mill reduce landfill operating expenses by approximately $150,000 per year and avoid future capital expenses to construct new landfill cells of about $3 million every five years, Domtar says. It also contributes to environmental improvements by nearly eliminating manufacturing waste sent to landfill from the mill. Landfill operations went from five days a week to one and the project eliminates nearly 190 tons of waste to landfill per day. In addition, K-Lime strengthens Plymouth’s rural community by helping local farmers reduce their operating costs.

http://gropro-va.com/index.html
The Dow Chemical Company’s Dow Water & Process Solutions is participating in one of 10 European Union-funded projects that aims to stimulate innovation and improve cohesion in Europe’s water reuse sector. Situated in a water-stressed region of Spain, the Camp de Tarragona petrochemical complex and surrounding municipalities face competing water demands across the agricultural, industrial, and residential markets. The DEMOWARE project seeks to demonstrate how water stress in a European region can be mitigated by fostering industrial water reuse.

With the help of advanced water treatment technologies, the Camp de Tarragona Advanced Water Reclamation Plant onsite treats wastewater from the Spanish cities of Salou, Tarragona, and Vilaseca for reuse in the complex’s industrial operations, which ultimately reduces strain on limited, local freshwater resources.

The Camp de Tarragona petrochemical complex handles 19,000 cubic meters per hour, and previously used freshwater from the Ebro River Basin to power its industrial processes. The water reclamation plant, operated by Veolia and the government-owned water supplier AITASA, now makes it possible to reclaim and reuse municipal wastewater in operations. DOW FILMTEC™ reverse osmosis elements help treat the wastewater. Once it has the required quality, the wastewater is fed through a pipeline to various plants within the complex for alternative industrial use.

The reclamation plant uses Veolia’s technology as a pre-treatment. Dow Filmtec BW30XFR-400/34i extra fouling resistant membranes are used in the system’s first pass, and Dow Filmtec LE-440i low-energy membranes are used in the second pass. The extra fouling resistance membranes increase equipment lifetime and reduce operational expenses. The low-energy membranes produce a high-quality final product water at 33% lower pressure, which reduces energy demand, according to Dow.
An effective solution identified by using multiple industries that complement each other. This was a good project that eliminated the need for pretreating water for industrial use. It also enabled the reuse of water in a carbon cracker operation in a water-stressed area of Spain.”

Dow Water & Process Solutions’ goal was to develop a system to treat wastewater with high-enough quality to be used in cooling tower operations. Thanks to the project, the ethylene cracker cooling tower uses up to 40% reclaimed water and has reduced chemical usage by 23%. Depending on the season, this frees up more than 200 cubic meters per hour of water rights for the municipality. Wastewater generated by the cooling towers has been reduced up to 49%. The final target is to serve 90% of the complex’s water demand with reclaimed water.

Growth in Tarragona has resulted in competition for freshwater resources from the Ebro River Basin, an area protected by the UNESCO. By reclaiming municipal wastewater for industrial purposes, the complex is able to minimize water stress and preserve freshwater to meet municipal, tourism, and agricultural demands. This project is a milestone in the improvement of European industrial sector efficiency and municipal processes, Dow Water & Process Solutions says.
General Motors, which makes the Chevy Volt extended range electric car, is piloting a project to reuse the car’s batteries at the end of their useful lives. Five of them are helping keep the lights on at General Motors’ LEED-Gold Enterprise Data Center in Milford, Michigan. Coupled with a 74-kilowatt solar array and two wind turbines, these batteries now supply power to the data center office and power the lights in the adjacent parking lot, delivering net-zero energy on an annual basis.

After a battery has reached the end of its useful life in a vehicle, it still has up to 80% of its storage capacity remaining so GM is leveraging that remaining capacity. Having a secondary use extends the battery’s life while delivering energy, waste reduction, and economic benefits.

GM first displayed this uninterruptable power supply and grid power balancing system during GM’s Electrification Experience in 2012. The ABB research center in Raleigh, North Carolina, conducted the research and development of the project and ABB’s Medium Voltage business unit in Lake Mary, Florida, was used as proof-of-concept testing, market research and product development.

This is the first real-world business application for this type of secondary use battery system, the automaker says. GM worked with Empower Energies, a renewable energy services platform focused on the commercial-scale segment, to install the solar and wind turbines into the project portfolio. The batteries also provide back-up power to the building in the event of an outage and store energy when it’s unneeded. Excess energy is sent back to the grid that supplies the Milford campus.

GM has committed to use 125 megawatts of renewable energy by 2020. Renewable energy sources mean the new Enterprise Data Center building has net-zero energy use.

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What the Judges Said...

"Creative solution identified and implemented. This is a great secondary use for spent batteries. Nice integration of reuse of batteries with solar and wind power to supply emergency backup power."

annually, reducing the facility’s power loss to 17%. The solar array and wind turbines that are part of this project generate approximately 100 megawatt hours of energy annually, and move GM toward the company’s goal. This project also is an example of reuse, supporting GM’s total waste reduction commitment of 40% by 2020.

The automaker intends to use the project as a living lab to understand how the battery redistributes energy at this scale. While the batteries can be used to provide back-up power for four hours in the event of an outage, it will be primarily used to analyze the storage of renewable energy and redistribution of that energy throughout the day. GM is also working with partners to validate and test systems for other commercial and non-commercial uses.

The Hartsfield-Jackson Atlanta International Airport is the most-traveled airport in the world with more than 100 million passengers annually. In 2011, the airport established a Sustainable Management Plan that laid the groundwork for its first-of-a-kind Energy Management System. Using specialized software, the airport began tracking and managing utility performance for all of its assets.

The Sustainability Management Plan calls for a 20% reduction in Emissions by 2020, a 20% reduction in water and energy intensity by 2020, and a 90% reduction in waste by 2020 by building the a waste management facility. Senior management, along with internal and external stakeholders, supported the establishment of management protocols, operational controls, and accountability. This led to the airport's Energy Management System getting accredited to the ISO 50001 standard. This certification created a mechanism for continuous improvement.

Through the efforts of planning, design, and construction, the airport completely changed airfield lights to LED, and completed other energy and water efficiency projects. The facilities are designed to silver, gold, and platinum LEED standards.

To incorporate energy and environmental improvements outside the control of the airport, the Hartsfield-Jackson Atlanta International Airport is also leading the development of an airport eco-district, where waste, climate action, transportation, and utilities stakeholders work together to solve sustainability and environmental issues. The eco-district has already helped to
What the Judges Said...

"Airports consume large amounts of energy. This is a great example of how an airport can use data to manage both consumption and cost of energy as well as setting goals that move the airport industry forward. This initiative is impressive."

reduce stakeholders’ individual energy footprints and reduce emissions for the community, the airport says.

Many of these efforts are firsts for airports in the United States and the world. Some of them include being the first U.S. airport to have its energy management system certified to ISO 50001, being the first in the world to create an airport eco-district, and being the first airport to completely retrofit an airfield to LED lighting. The Hartsfield-Jackson Atlanta International Airport is also a pioneer in waste management with a facility that repurposes 90% of waste from airport. Implementing energy efficiency projects, engaging stakeholders, and managing utility use improves utility performance and the environment around the airport, and sets a precedent for other airports.

http://www.atlanta-airport.com/
Repsol, an integrated global energy company based in Madrid, Spain, had legacy processes for calculating air emissions that were disparate, labor intensive, and time consuming. To address these issues, Repsol launched a project called EMISphere with IHS, a company that provides information and analysis to support the decision-making process of businesses and governments in numerous industries.

Before the project, each Repsol facility had its own process to create the required regulatory reports and documentation. Many consisted of a series of steps to copy information from source systems, then create and maintain hundreds of spreadsheets. Each process required a host of manual tasks, leaving room for human error and providing only limited visibility across the company.

Repsol had many systems in refineries, but needed to have that information centralized for a corporate-wide view of compliance. The company chose to work with IHS and implemented an enterprise-level solution called Environmental Information Management System or EMIS for short. For the EMISphere project, Repsol used the IHS Sphera Essential Process Data Manager to move data from its process information, laboratory information management systems, and production systems directly into EMIS. The system enabled automation for scheduling, validating, and applying rules and calculations to process data.

Annual air and water emission reports at each facility were produced in three weeks instead of three months through data automation. The company now has 99% automation for compliance-related tasks. Complex business rules for each facility’s regulatory requirements have been incorporated into the system, eliminating most manual tasks and resulting in improved data integrity, quality, and accuracy.

The system performs more than 1 million calculations daily, integrated over 4,000 signals integrated, and stores 5 million emissions calculations annually. More than 100 customized business rules have been implemented. This means the staff can focus on quality assurance and quality control tasks, analysis, or improvement initiatives rather than data entry.

[ cont’d on next page> ]
What the Judges Said...

"This new environmental management system seems like it will be very beneficial for organizations in reporting emissions and environmental impacts. This is the type of product that delivers great value in advancing corporate sustainability programs."

In addition, the system reduced reliance on spreadsheets and manual processes, increasing audit execution as well as the traceability of environmental information. The enterprise-level system now delivers more than 70 tailored reports. Repsol was also able to mitigate compliance risks due to staff changes because vital knowledge was retained, the company says.

The EMISphere implementation was expanded to five additional locations. The second phase was an ambitious venture because multiple project teams were assuming parallel responsibilities with demanding deadlines. Yet that challenge became a benefit as non-health, safety and environment staff across sites became involved in the environmental management process, creating opportunities for improvement.

With the IHS waste modeling capability, Repsol was able to establish a homogenous waste management process, meet the demands of stringent European multimedia emissions regulations, and trace emissions to the asset level. The company now has reliable data and can gain additional insights from it.

JACKSON FAMILY WINES
TESLA STATIONARY ENERGY STORAGE SYSTEM

Jackson Family Wines is a family-owned wine company in Santa Rosa, California. In 2015, JFW installed 21 Tesla Energy stationary energy storage systems for a total of 4.2 megawatts of storage capacity. JFW was among the first companies in the nation to collaborate with Tesla on this initiative designed to reshape the way energy is managed for more sustainable operations.

JFW has had a strategy for energy efficiency since 2008, when the company began baselining energy usage. Through energy efficiency initiatives alone, the company has documented savings greater than $15 million. They also reduced the energy and water required to produce a gallon of wine. Once these energy efficiency savings were realized and each winery was as efficient as possible, JFW committed to reinvesting the savings in onsite renewable energy.

After agreeing to commitments, JFW and Tesla Energy began systematically evaluating all potential winery locations for peak electricity demand. They also right sized the battery systems to shave as much peak as possible, maximizing energy usage efficiency and helping to stabilize the local electric grid.

JFW was the first wine company to install Tesla’s stationary energy storage systems, and is currently one of Tesla’s largest installations. The batteries are installed at six wineries throughout California, including Kendall-Jackson in Sonoma and Napa, La Crema and Stonestreet in Sonoma, and Carmel Road in Monterey. The Tesla battery packs help offset some of the most costly — and energy intensive — wine-making practices such as refrigeration and cooling, compressed air, lighting, and process water treatment. The Tesla battery packs are expected to reduce electricity costs across the pilot wineries by up to 10%.

The company’s sustainable energy management goal is to source 50% of annual winery electricity usage from onsite 

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renewables by 2021. The Tesla solution contributes to JFW offsetting about 40% of annual winery electricity usage from onsite renewable generation and storage. The installations work in conjunction with the 6.5 megawatts of onsite solar generation installed last year across eight JFW wineries in California that now generate 9 million kilowatt-hours of electricity annually. JFW says that the integration with the Tesla battery systems will result in about $2 million in savings each year.

This partnership demonstrates that energy storage is a viable option for wineries to provide significant cost savings. As a result of the deployment, and the subsequent performance data collection and analysis, JFW will be able to explore the development of self-sustaining microgrids that use on-site solar systems to generate electricity during the day, and run their wineries at night using excess solar electricity stored in the Tesla Energy batteries.

http://www.jacksonfamilywines.com/

Jackson Family Wines’ commitment to sustainability goes one step further by successfully piloting energy storage. They are on the forefront of the intelligent energy system revolution. This is a great pilot to be studied and replicated at more wineries in the future.”
Since 2009, Leidos has administered the Hawaii Energy program, an electric ratepayer-funded energy conservation and efficiency program serving Hawaii, Honolulu, and Maui counties in the state under the direction of the Hawaii Public Utilities Commission. Energy efficiency plays a key part in achieving the state’s goal of achieving a 100% renewable energy portfolio standard by 2045.

Hawaii has the highest energy prices in the country so this program is designed to empower residents to use less energy and lower their electric bills, ultimately reducing the state’s dependence on imported oil. Leidos, a defense company that provides scientific, engineering, systems integration, and technical services, was selected by the Hawaii Public Utilities Commission to serve as the first-ever third-party administrator of its Public Benefits Fee, the collection of electric utility customer payments used to facilitate energy efficiency programs in Hawaii. The company oversees design and implementation of a wide range of commercial and residential rebate offers as well as training and educational clean energy initiatives.

Leidos regularly collaborates with trade, government and non-profit allies and clean-energy policy working groups to understand the local market, collect feedback and improve program design. Due to the program’s continued success, the Hawaii Public Utilities Commission awarded Leidos additional funding in 2014 to expand market transformation efforts, including research on demand response, smart grids and electric vehicle charging.

Through a portfolio of financial incentives, education and training opportunities, and collaboration with key community organizations and leaders, Hawaii Energy reduced energy usage by 855,000 megawatt-hours and is projected to save customers in excess of $1.2 billion.

Every year, the Hawaii Energy Conservation and Efficiency Program achieves new clean energy goals. This past program year marked the introduction of the Clean Energy Ally program for industry professionals, which recruited and trained more than 220 individuals from 140 companies. In addition, Hawaii Energy increased the Peer Group Comparison program to reach 240,000 households while...
I am very familiar with Hawaii Energy and the great work they are doing for the state. There is much to appreciate with this project, especially the way that existing conditions and economic realities are driving innovation. The amount of energy they have saved for the state is very impressive.

improving customer experience through the use of web-based services and enhanced tools. Hawaii Energy also established a Strategic Energy Management process to assist large institutional energy users in planning and executing effective energy management as a critical part of business operations.

Hawaii Energy aims to achieve the most energy savings per dollars spent for the best return of ratepayer funds of any previous efficiency program in the state. In the last six years, the energy-saving efforts of participants resulted in an estimated $965 million in electric bill savings. This is nearly 3 billion kilowatt-hours in energy savings, which is equivalent to five years of current photovoltaic generation or 90,000 electric vehicles driven for a year.

In the last program year, tens of thousands of residents and businesses helped to achieve an estimated $443 million in lifetime electric bill savings or 1.5 billion kilowatt-hours, equal to eliminating 2.2 million barrels of oil or 1.3 million tons of greenhouse gas emissions — at a total program cost of 2.4 cents per kilowatt-hour.

MillerCoors, a joint venture between SABMiller and Molson Coors Brewing Company, formed in 2008. Since then, the company has been committed to finding new and innovative ways to brew beer more sustainably. On March 12, 2015, MillerCoors commissioned a photovoltaic solar array with over 10,000 panels at their Irwindale brewery in California, the largest of any brewery in the country, according to the company.

For nearly 10 years, MillerCoors researched the benefits solar energy could have at their facility. The high initial cost of PV solar panels and reliability of the panels proved an initial challenge. However, the solar industry’s technology has continually improved over the years, and the panels produced today are much more reliable and efficient, producing more energy per panel. The increased reliability and efficiency, reduced cost of installation, and federal and state incentives justified this project through improved savings and a higher internal return rate.

The PV solar array project came about as an opportunity to reduce the company’s carbon footprint as well as mitigate increasing electrical costs. The installation of the PV solar array also significantly increased MillerCoors’ energy independence.

The company began by clearing 10 acres of land to accommodate the installation of the entire system including three large transformers, four inverters, 10,620 panels, and 3,500 feet of copper wiring to interconnect back to the brewery facility. MillerCoors bored several thousand holes to support the construction of the system. They also modified their existing medium voltage electrical system to accommodate the tie-in to the solar array.

The solar panels have the capacity to produce up to 3.2 megawatts DC of energy each hour. This provides enough energy to meet on average 8% percent of the Irwindale Brewery’s electrical needs. The array also generates electricity without producing any carbon emissions, and helps offset

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MillerCoors secured and implemented the installation of a very large PV system with demonstrable cost savings and environmental benefits. This is an excellent example of thinking lean and green, especially in California, which is facing unprecedented water shortages and rising energy costs.

The system provides approximately 5.5 million kilowatt-hours of renewable and sustainable energy each year. By installing photovoltaic panels, MillerCoors has seen immediate benefits, including reducing the company’s emissions of greenhouse gases, carbon dioxide, and nitrogen oxides. The reduction in emissions is due to reduced usage of other pollutant sources to generate energy. Over the course of 20 years, MillerCoors anticipates seeing emissions offsets of 132,400,000 pounds of carbon dioxide, 91,000 pounds of nitrogen oxides, 23,000 pounds of sulfur dioxide, and 26,000 pounds of particulates.

In addition to helping provide cleaner air, MillerCoors has been able to reduce water usage. The solar array replaced irrigated landscape and reduces the water impacts of local power plant cooling, with the goal of reducing consumption by 695,100,000 gallons over a 30-year period.

Once known as the richest agricultural country in the Caribbean, Haiti has been wracked by instability and natural disasters, and is now one of the most severely deforested countries in the world. In 2010, the outdoor lifestyle brand Timberland made a Clinton Global Initiative commitment to plant 5 million trees in five years in Haiti. That tree planting commitment evolved into a sustainable business and agroforestry model that changed farmers’ lives and is helping create a greener future for Haiti.

A key focus for Timberland over the past 10-plus years has been tree planting. Timberland’s project in Haiti is one of several around the globe that supports this commitment. To date, Timberland has planted more than 8.5 million trees. In Haiti, Timberland sought to create lasting value beyond the trees themselves. The company worked with local partners to form the non-profit Smallholder Farmers Alliance. Timberland collaborated with the alliance to create a sustainable, long-term solution that would empower Haitians to play an active role in driving economic development, even after Timberland’s five-year commitment ended.

Small-scale farming is the main source of income for two-thirds of Haiti’s working population. Timberland and the Smallholder Farmers Alliance created an agroforestry model where farmers tend to a network of nurseries that produce one million trees annually, totaling five million trees in five years. In return, the farmers receive much-needed training, crop seeds, seedlings, and tools that help restore tree cover and increase the farmers’ crop yields.

In addition to planting 5.2 million trees, the project increased productivity and incomes for the farmers. The business model helped 3,200 farmers increase productivity on their farmlands an average of 40%, resulting in an

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"Excellent collaborative social entrepreneurial project in Haiti. Positive social, economic, and environmental benefits for a country that desperately needs them. The project addresses deforestation by engaging with farmers in a win-win approach."

increased household income of 50% on average. It also increased access to education and healthcare, including an estimated 3,400 additional Smallholder Farmers Alliance member children placed in school.

Timberland’s sustainable business model tackles two issues: deforestation and compromised agriculture. The project is creating new markets for food. Most recently, the development of an export model for the “superfood” moringa is underway with the U.S. brand Kuli Kuli, which started being sold at Whole Foods markets in February 2016. This model has the potential to completely change the dynamics of international development and sourcing, proving that collaboration, creativity, and long-term thinking can help to rebuild a country, Timberland says. The company is currently investigating opportunities to replicate the model and scale it to cotton and rubber so the brand can use these materials in its own supply chain.

The United States Materials Marketplace is a project from the US Business Council for Sustainable Development, World Business Council for Sustainable Development, and Corporate Eco Forum to scale up business-to-business materials reuse across the United States, supporting the shift to a circular, closed-loop economy. Using a cloud-based software platform, Materials Marketplace participants work with resource experts to reuse or exchange unwanted materials, from textile scraps to hydrochloric acid to offspec wood flooring.

The three business organizations were seeking ways to help their member companies’ shift from traditional linear waste flow systems to approaches that identify new circular uses for the broad range of materials flowing through businesses and cities worldwide. Such approaches would be instrumental in helping companies identify hot spots in their material flows where reuse is impossible and redesign may be necessary to achieve true circularity.

The idea for a pilot project originated at a Corporate Eco Forum event in June 2014 that brought together leading thinkers and actors who were focused on making circular business processes a reality. The project received early and enthusiastic support from General Motors and Nike. After several months of recruitment, 23 of the corporate members joined the pilot. These companies come from a diverse mix of sectors that include cement, primary metal, chemicals, and consumer products.

The key to the Materials Marketplace is a secure cloud-based software platform where project members share materials data, are guided to potential connection by the project team, can negotiate trades, and be made aware of obstacles. The platform allows companies to brainstorm new supply chain pathways for reusing ubiquitous materials such as plastics, chemicals, and wasted transportation and logistics space. The Corporate Eco Forum and the World BCSD’s Global Network of 65 national business councils offers a path to scale the marketplace system. It could also be linked globally through a cooperative structure that would allow for national ownership and responsibility for each marketplace as well as the ability to share results and outcomes with all other co-op countries.

Initial results from the pilot, which ran from June to August 2015, include 23
What the Judges Said...

Backing from large organizations with additional resources gets this reusable scrap materials marketplace rolling and finds alternative uses that may not have been considered or thought feasible in the past. This is a very innovative program that has great collaboration with partner companies.”

participating companies, 78 facilities engaged, 150 materials — 2.4 million tons total — uploaded to the marketplace, 59 materials being sought, 68 recommended matches and 19 transactions in development, with another 49 possibilities that were still pending action at the close of the pilot. The project is now an ongoing initiative.

As of October 31, 2015, a total of 150 materials were available in the Marketplace pilot project, totaling 2.4 million tons per year of underutilized materials. Of this total, members were pursuing transactions involving more than 2 million tons. This figure demonstrates a tremendous opportunity for environmental, social, and economic improvement, the US Business Council for Sustainable Development says. Chemicals, packaging, and metals are the top three material categories identified by the 23 participants in the project to date. The marketplace also includes more than 50 wish list entries, which are materials that project participants are seeking from other project participants.

Results from the pilot lay the groundwork for significant expansion, according to the council. The project has been formally launched as an ongoing initiative by the US BCSD, WBCSD and CEF, which will be inviting external companies to join the effort going forward. The project team’s goal is to have more than 100 companies participating by the end of 2016.
Peter Bussey is lead Research Analyst for Environment, Health and Safety (EHS) and sustainability management at LNS Research. He analyzes industry trends and best practices, and advises EHS business leaders and technology providers in applying those insights in their organizations. Pete brings over 30 years of experience focused on EHS management in manufacturing, consulting and information technology organizations.

Before LNS, he headed EHS and sustainability go-to-market initiatives at SAP, the global enterprise software company. Pete’s prior industry experience includes corporate and facility EHS practitioner positions at Alcoa, and EHS management consulting to Fortune 500 industrial clients while at Michael Baker Corporation and Arthur D. Little.
Adam Brennan

Adam Brennan is the Unit Leader – Sustainable Chemical Management at C&A, based in Hong Kong, he specialises in environmental protection, chemical management and resource efficiency. He graduated out of Reading University in the UK with an MSc in Renewable Energy and Sustainability. Adam has worked in a consultancy, a brand and a manufacturer giving him a holistic understanding of environmental issues in the Asian supply chain.

Adam spent 5 years at sporting goods brand PUMA based in Vietnam, where he was a key part of the PUMA.Safe Environmental Affairs team. He was primarily responsible for project managing PUMA’s unique and world’s first Environmental Profit & Loss (E P&L) account. He also managed a number of capacity building and technical assistance programs across the Asian supply chain, notably – SAVE – a cleaner production and resource efficiency program. Following this Adam joined Saitex as Sustainability Director of their Vietnam denim operations which included a cut and sew facility and laundry. Traditionally polluting activities became a pastime as new technology was introduced to create one of the world’s first closed loop laundry systems, along with being the first laundry to achieve BlueSign certification.

At C&A, Adam is responsible for the Sustainable Chemical Management team whom works to eliminate hazardous chemicals from the global supply chain. He represents C&A at the Zero Discharge of Hazardous Chemicals (ZDHC) Brand Council and is an active member of both the Wastewater and Auditing focus areas along with Asian stakeholder activities.

Mark Buckley

Mark Buckley directs Staples’ global environmental and sustainable business practices. He is responsible for driving the company’s sustainability efforts in these areas: the development of more sustainable products, packaging and services; customer recycling solutions; internal waste reduction; the development of global carbon reduction and renewable energy strategies; as well as environmental education for customers and associates focused on sustainable business solutions. A 26-year Staples veteran, Buckley has been in this role for 14 years and was previously vice president of facilities management and purchasing at Staples where he directed company-wide recycling and energy conservation programs. He holds a Bachelor’s degree in biology from St. Anselm’s College. He is an active member of several...
environmental and non-profit organizations. These include; the Boreal Business Forum, the Forest Legality Alliance, the Carbon Canopy, Advisory Council for the Product Stewardship Institute, Advisory Board Belantara Foundation, Board of Earth Force a US based environmental education organization and Board member of the John Andrew Mazie Foundation.

Drew Campbell
Deputy Director of the Sustainability Performance Office at the United States Department of Energy (DOE)

Drew Campbell is the Deputy Director of the Sustainability Performance Office at the United States Department of Energy (DOE). His work focuses on coordinating, reporting and analyzing DOE’s sustainability efforts to reduce energy use, water consumption, and greenhouse gas emissions and increase renewable energy use, recycling and sustainable buildings across the DOE complex. His work has helped DOE become a top 5 sustainable federal agency and has secured DOE’s spot as a leader in the federal sustainability arena.

Prior to his time with the Sustainability Performance Office, Drew worked in the Office of Energy Efficiency and Renewable Energy (EERE) as a senior policy adviser and oversaw a budget of over $100 million in funding for resources that promote energy efficiency and renewable energy technologies.

In 2009, during the American Recovery and Reinvestment Act, Drew served as a member of the Department’s Recovery Act team that provided approximately $3.2 billion in block grants to cities, communities, states, U.S territories, and Indian tribes to develop, promote, implement, and manage energy efficiency and conservation projects.

Prior to joining EERE, Drew was a policy adviser for the Chief Information Officer on Cyber Security legislation issues. He has been with the Department since 2005.

Drew holds a Bachelor’s degree in Communication and Public Relations from George Mason University.

Paul Campbell
Director Sustainability/Green Leadership Sears Holdings Corporation

Paul Campbell is currently Director, Sustainability and Green Leadership, for Sears Holdings Corporation.

Paul began his career with SHC in 2004 as a Senior...
Manager, Home Services Business Development. In 2007 he was named Director, Home Appliances Operations, and led the team responsible for executing the federal appliance stimulus programs. He transitioned to overseeing strategic relationships with energy industry partners including the EPA in 2011, and assumed ownership of corporate sustainability in 2012.

Prior to joining Sears Holdings, Paul worked for GE Plastics where he held roles in operations management and Six Sigma quality. He began his career in project management and maintenance reliability as part of Amoco Oil Company’s Refining Division.

Paul has a BS in Mechanical Engineering from the University of Illinois where he remains an active member of its Alumni Association.

Ellen Edwards is Energy Manager in Facilities Management at the University of Colorado in Boulder, CO. After growing up in the Kansas City area, she attended the University of Kansas receiving a degree in Architectural Engineering. During college she interned for a consulting engineering firm where she accepted a mechanical engineering position after graduation. During her time as a consulting engineer, she performed plug load studies for a local real estate management firm which provided her first exposure to Energy Management. After starting a family, she took a position within Facilities Management at a local KC University as a Utilities Analyst. After the addition of her second child, she accepted a position with Trane as a sales engineer where she was exposed to energy modelling and construction contracting. During her time with Trane, she was offered a partnership in a mechanical contracting company which she accepted. Projects included major office renovations and partnerships with General Contractors on new construction. Feeling a need to get back into engineering and energy, she accepted a position as an Energy Engineer with a national energy services company. Ellen developed energy conservation projects for clients such as K-12 school districts, city and county governments, and higher education that led to a position with Sprint Real Estate as Energy Program Manager. Desiring a move to Colorado, she accepted her current position at CU Boulder. Ellen’s personal time is spent with her two sons and the family pets, enjoying the Colorado outdoors.

Josh Prigge
Associate Director of Regenerative Development, Fetzer Vineyards
At Fetzer Vineyards, Josh Prigge guides the vision and execution of game-changing regenerative measures at the world’s first Zero Waste-certified wine company. Prior to joining Fetzer Vineyards, Prigge was the Sustainability Coordinator at Hawai’i Pacific University, and also served as President of the Sustainability Association of Hawai’i.

Dennis J. Hu
Director
Environmental Health and Safety (EHS) and Systems Safety Engineering (SSE), Ball Aerospace & Technology

As Director of EHS and SSE, Dennis is responsible for all environmental, health, safety matters for Ball Aerospace & Technologies Corp. This includes regulatory compliance, occupational safety, permitting, emergency response, systems safety engineering, EHS management systems and program development, sustainability, and external relationships.

Since joining Ball Aerospace in 2015, Dennis has used his previous experiences to help continue to drive program and process efficiency improvements in the aerospace industry. This includes an approach to risk-based management of issues with a focus on increasing EHS compliance and improving EHS culture while reducing operational costs. He has a proven track record of building and leading diverse, multi-functional teams to success.

With over 23 years of experience, he has worked in both industry and consulting helping companies solve complex EHS and regulatory problems. Prior to joining Ball Aerospace, Dennis served as Director of EHS for Newalta Corporation responsible for all U.S. oil and gas operations. Prior to Newalta, he served as the Northeast Regional EHS Team Leader for BASF Corporation, supporting multiple chemical manufacturing and research and development facilities. In addition, Dennis has extensive consulting experience working for Environmental Resources Management (ERM) serving varied industry clients as a project manager and consultant.

Dennis has an MBA, with distinction, from New York University’s Stern School of Business with specializations in Finance, Change Management and Social Impact and Innovation and a B.S. in Environmental Engineering and Public Policy from Washington University’s School of Engineering and Applied Science in St. Louis, Missouri.

Dennis has been active in numerous EHS professional organizations including the Aerospace Industries Association, Air & Waste Management Association, National Association of Environmental Professionals, National Association for Environmental Management, Colorado Environmental Management Society and the Rocky Mountain EHS Peer Group. Additionally, Dennis has been involved in community organizations and charities such as Big Brothers and Sisters, Junior Achievement, St. Louis Science Center and is currently serves as a Board Member of the Denver Ronald McDonald House Charities and sits on the Executive External Advisory Panel of the Mountain and Plains Education and Research Center for Health, Work and Environment with the Colorado School of Public Health. He has been a guest speaker at numerous professional and charitable events.
Stephen Illes speaking on topics including technical EHS issues, managing organizational change, EHS culture, strategic planning and charitable giving.

Stephen Illes
Partner, ERM

Stephen Illes is a Partner at ERM, the world’s leading EHS and Sustainability consultancy with 5000 employees in over 140 offices in 40 countries. Mr. Illes leads the SAP Information Solutions practice in North America that is focused on helping clients achieve EHS&S excellence with the power of SAP solutions. ERM’s client engagements bring expertise in technology, EHS&S expertise, and business best practices to deliver a holistic solution for our clients. Prior to joining ERM, Mr. Illes had a 19 year career with SAP and SAP partner, TechniData in leadership roles in the area of EHS and Sustainability. His most recent role as Vice President in the SAP Extended Supply Chain Line of Business solution management team globally responsible for business development in the areas of Product Safety and Stewardship; Environment, Health and Safety; and Sustainability solutions. A specific focus over the past 4 years was to grow the Product Safety and Stewardship software and subscription business and bring to market content, managed service, and cloud supply chain network solutions. Prior to SAP Stephen was the CEO of TechniData America, an SAP EHS service and development partner, with specific responsibility for strategic business development and client relations in North America. Prior to joining TechniData America, Stephen was SAP's first EH&S solution manager in North America responsible for launching the initial SAP EHS release and developing the solution strategy with customers and the development team. Stephen’s over 30 years of EH&S experience includes EHS positions at a major chemical company and he ran EHS consulting practices with Shaw and Michael Baker.

Dave Meyer
Senior Consultant
BSI EHS Services and Solutions

Dave Meyer is a Senior Consultant with BSI EHS Services and Solutions, a full service environmental, health, safety (EHS) and sustainability consulting firm. Dave’s principal focus is to help organizations achieve environmental sustainability program excellence, leverage regulatory compliance risks, and optimize organizational effectiveness. Dave has over 35 years of progressive experience in environmental sustainability, environmental performance and metrics, responsible sourcing and green supply chain management, corporate responsibility EHS
management systems planning and implementation (ISO 14001, OHSAS 18001), permitting and multimedia compliance and environmental liability auditing.

Dave’s expertise extends across many industry sectors: renewable energy, clean tech, food & beverage, semiconductor, consumer electronics, chemicals/plastics, pharma/biotech, mining, oil/gas, aerospace, forest products, transportation, public works, transportation, financial, legal and government. Dave is presently an advisory board member for the Sustainable Business Forum and 2Degrees Network Sustainable Supply Chain Working Group and is a co-editor for Sustainable Brands Supply Chain Issues Focus Series.

BSI EHS Services and Solutions provides a comprehensive range of strategic, management and technical consulting solutions – assessment, compliance, risk management, reporting, training, communication and more – partnering with clients to achieve their environmental, health, safety and sustainability short-term needs and long-term goals.

Rob Threlkeld is Global Manager, Renewable Energy for General Motors. In this role he manages the more than 100 megawatts of renewable energy that make up GM’s global renewable energy portfolio and assesses the feasibility of future projects as they pertain to GM’s overall sustainability strategy. Threlkeld is responsible for negotiating long-term power purchase agreements with projects underway at various facilities across the globe, including opportunities associated with battery storage, behind-the-meter applications and EV integration. Threlkeld is actively involved in the Solar Energy Industries Association and the Renewable Energy Buyers Alliance. His certifications include Certified Hazardous Material Manager (CHMM), Certified Energy Manager (CEM) and Business Energy Professional (BEP). Threlkeld began his career at General Motors in 2000 as manager of the powerhouse and wastewater treatment plant operations at GM’s Lordstown (Ohio) Assembly Complex. He holds a bachelor’s and master’s degree in civil engineering from Purdue University in West Lafayette, Indiana.
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