Energy 2011: Surviving a Year of Surges and Slumps

In a year of energy-market gyrations, the global energy industry in 2011 was jolted by a series of surprises. Soaring midwinter heating-oil demand strained supplies along the blizzard-stricken American East Coast. Uncertain Mideast oil shipments amid the Arab Spring uprisings sent world oil prices above $120 a barrel. Increased anxieties about nuclear power followed the Fukushima Daiichi accident and radiation leak.

The prolonged economic slump in the advanced manufacturing nations helped restrain oil and natural-gas demand and thus prevented a long-lasting price spike, even as emerging markets recovered strongly. Yet energy agencies began to foresee that an eventual economic recovery might send oil prices soaring again—with some analysts warning of an eventual oil-price shock, as supplies might once again threaten to fall short of relentless global demand. The balance between supply and demand remains delicate—underscoring the industry’s need for continued innovation and productivity gains, to help ensure that additional sources of energy are ready to power the economy once a restored economy intensifies its energy requirements.

Throughout the volatility of 2011, the global energy industry rose to the challenge. Its companies, communities and individuals persevered in meeting their day-by-day task of satisfying the world’s voracious appetite for energy—and in pursuing their long-range challenge of planning to meet future energy demand.

With its Global Energy Awards for 2011, Platts this year again recognizes the leaders and visionaries who are shaping the industry’s future. Every category in the competition saw a spirited contest, often making it very difficult for our judges to choose an eventual winner. With its wide array of breakthrough technologies and ingenious innovations, the competition illustrated that the global energy industry remains driven by the spirit of innovation—a reassuring prospect, as the industry will need to summon its finest minds and its most creative technologies to fulfill its mission of fueling a re-energized global economy.
CEO Of The Year
Andrew Liveris
Dow Chemical
United States

A clear winner emerged in the always-crowded category for the leading energy-industry CEO this year. Recognizing his success in fulfilling Dow Chemical’s strategic business goals, and applauding his thought leadership on far-sighted issues in public policy, this year’s award hails the achievements of Andrew Liveris.

Now serving as the president of the International Chemical Company Association (ICCA), Liveris is the worldwide voice of the chemical industry. He has earned global renown—including a top-level White House appointment—as a champion of business success and job creation through renewed industrial competitiveness.

Liveris has driven Dow’s transformation, through a strategic plan launched in 2005, from a commodity chemicals player to a high-performance science and technology solutions provider. Under Liveris’ guidance, the 114-year-old company—manufacturing more than 5,000 products at 188 sites in 35 countries—is an industry pacesetter in innovation, with an annual R&D budget of $1.7 billion.

Dow’s ambitions have broadened under Liveris’ leadership. Dow’s 2009 acquisition of Rohm and Haas, a premier specialty-chemical company, has provided Dow with substantial cost synergies. Expanding its portfolio of joint ventures, Dow’s plans for Sadara, an initiative with Saudi Aramco, will create one of the world’s largest integrated chemical facilities. Liveris has also directed Dow’s plans to invest more than $500 million in new efforts for ethane cracking and ethylene supply on the US Gulf Coast, with an additional $4 billion in future investments in that region.

Liveris has intensified Dow’s focus on energy efficiency and sustainability, with the company poised to become a key driver of renewable and alternative energy solutions. The company has made major investments in building lithium-ion batteries for electric vehicles and innovative building-integrated solar energy systems. Dow has committed $100 million to an Energy Intensity Improvement Fund, and has funded nearly 40 projects worldwide that will reduce the company’s energy use and greenhouse-gas emissions.

The company’s environmental commitment was underscored by its recent inclusion in the Dow Jones Sustainability Index for the 11th time, and by its inclusion in the Carbon Disclosure Leadership Index for the sixth time. A new Dow collaboration with The Nature Conservancy aims to show that protecting the environment is part of a far-sighted business strategy.

Liveris this year published “Make it in America: The Case for Reinventing the Economy,” on reinvigorating manufacturing to strengthen the long-term health of the US economy. In addition to his service on the President’s Export Council, Liveris was named last summer by President Obama as co-chair of the new Advanced Manufacturing Partnership, an alliance of industry, universities, and the federal government to invest in emerging technologies and competitiveness.

Liveris’ outstanding commitment to public service, as well as business success, has led to his recognition as CEO of the Year.

Rising Star of the Year—Individual
Arno Harris
Recurrent Energy
United States

Through his leadership roles at Recurrent Energy and within the solar industry, Arno Harris is helping shape the future of clean energy in North America. Under Arno’s leadership, Recurrent Energy has since 2006 become a leading solar developer in North America. By attracting talented professionals from the conventional energy industries, and by motivating them with a vision of solar at multi-gigawatt scale, Arno has demonstrated industry-leading vision.

The global electronics giant Sharp Corporation in 2010 agreed to acquire Recurrent. With Sharp’s financial
strength and technological leadership, Recurrent gained a partner that could support its internal expertise in development, permitting, engineering and project finance. Recurrent remains an independent subsidiary of Sharp, with its own leadership, but also with a network that allows it to execute quickly on its vision for distributed generation and utility-scale solar.

Recurrent has navigated the acquisition successfully, and is pursuing even larger projects that are driving the mainstream adoption of solar power. Arno has shifted the company’s focus away from rooftop installations and commercial power agreements to focus on utility-scale solar.

Through his service on the board of the Solar Energy Industries Association (SEIA), Arno’s advocacy of renewable energy sources is helping shape a new vision of a sustainable and affordable energy future.

Lifetime Achievement Award
Sheila Hollis
United States

A pioneer in the practice, teaching and application of law and energy policy, Sheila Hollis has worked tirelessly for almost 40 years in government, academic and professional organizations to promote a strong, resilient energy policy.

A charter member of the US Government’s Senior Executive Service at age 30, she became the first director of the Office of Enforcement for the Federal Energy Regulatory Commission, serving from 1977 to 1980.

As a lawyer in private practice, she has chaired the American Bar Association’s 11,000-member Section of Environment, Energy and Resources, and she chaired the Board of Editors of the ABA Journal from 2007 to 2010. Sheila has also served as the chair of the American Bar Association Fund for Justice and Education. She serves as Chair of the ABA’s Gavel Awards Committee, and she is a delegate to the World Justice Program, developing rule-of-law principles in environmental law.

Lifetime Achievement Award
Richard Kelly
United States

Dick Kelly, the retired Chairman and CEO of Xcel Energy—an electric and natural-gas utility operating in eight states, with its headquarters in Minneapolis—spent his entire 43-year career in the energy business. Recognized for his leadership in environmental stewardship and corporate citizenship, he is the son of an employee at the Public
Service Company of Colorado, where Dick started as a summer meter reader during college, before joining the company’s auditing department.

Moving up through the ranks, he developed a deep understanding of the energy business. As a rising executive, Dick was instrumental in completing the two mergers that created Xcel Energy. He also played an important role in resolving the 2003 bankruptcy of NRG Energy, an Xcel subsidiary and, at the time, the third-largest independent power producer in the world.

Under Dick’s leadership, Xcel established a national reputation for environmental stewardship. The company today is the nation’s No. 1 provider of wind energy, and it ranks in the Top 10 for solar capacity. Since 1998, the company has voluntarily made investments to reduce air-pollution emissions, and the company recently announced plans to further reduce emissions in Colorado, enabling it to meet Colorado’s carbon-reduction goal of 20% by 2020. Thanks to the company’s ambitious energy conservation effort, customers since 1992 have conserved energy equivalent to the output of 13 medium-sized power plants.

Under Dick’s leadership, Xcel made strong efforts to further the viability of renewable energy. The company is now actively pursuing research on advancing wind energy through new energy-storage technologies, including a wind-to-hydrogen demonstration project that is operating in Colorado and a project in Minnesota that stores wind power in large batteries.

In solar energy, Xcel is a founding member of the Solar Technology and Acceleration Center in Colorado, which tests and demonstrates advanced solar technologies. The company also conducted a demonstration project at its Cameo Generating Station that connects thermal energy from a parabolic-trough concentrating solar plant with the steam cycle of the coal-fired plant.

Xcel has also made significant investments in SmartGridCity, a pilot project in Colorado that tests “smart grid” technologies. In Minnesota, Xcel is testing renewable technologies, including electric cars, along the Energy Innovation Corridor between Minneapolis and St. Paul.

Beyond his service to Xcel, Dick has served on the boards of the Electric Power Research Institute, the Nuclear Energy Institute, and the National Advisory Council of the National Renewable Energy Laboratory. From June 2010 to June 2011, he was chairman of the Edison Electric Institute. Dick also served as a member of the National Advisory Council of the National Renewable Energy Laboratory.

**Lifetime Achievement Award**

**Art Rosenfeld**

**United States**

Dedicating his 35-year career to the pursuit of energy efficiency, Art Rosenfeld has helped build the foundation of California’s energy policy—and the world’s knowledge of energy efficiency—by promoting the idea that using energy more efficiently is cheaper and smarter than building additional power plants. Art has earned renown throughout the energy industry for his dedication to maximizing efficiency and protecting the environment.

Art received his Ph.D. in Physics in 1954 at the University of Chicago, serving as the final graduate student of Nobel Laureate Enrico Fermi. Joining the Department of Physics at the University of California at Berkeley, Art rose to eventually oversee the Nobel Prize-winning particle physics group at Lawrence Berkeley National Laboratory, where he served until 1974. He then changed his research focus to the efficient use of energy, forming the laboratory’s Center for Building Science, which he led until 1994. He is now the laboratory’s Distinguished Scientist Emeritus.

The author of almost 400 scientific and technical papers, Art has served as Senior Advisor to the U. S. Department of Energy’s Assistant Secretary for Energy Efficiency and Renewable Energy, as well as Commissioner on the California Energy Commission. He is the co-founder of the American Council
for an Energy Efficient Economy; the University of California's Institute for Energy Efficiency; and the Washington-based Center for Energy and Climate Change Solutions.

Art's scientific achievements have earned him the Szilard Award for Physics in the Public Interest (1986); the Carnot Award for Energy Efficiency from the US Department of Energy (1993); and the Berkeley Citation (2001) from the University of California. In 2006, he received the Enrico Fermi Award, the oldest and one of the most prestigious science and technology awards given by the US government. In 2008, The Economist magazine awarded him its “Innovator of the Year” award in the field of Energy and Environment. In 2010, he was voted into the National Academy of Engineering. This year, he received the Global Energy Prize from Russian President Medvedev in recognition of his advances in the area of energy efficiency.

In March 2010, Art won a singular distinction: More than 50 influential leaders in the field of energy efficiency proposed naming a new unit of measurement to characterize electricity savings. Named “the Rosenfeld,” one unit is equal to 3 billion kilowatt-hours per year, representing the electrical output of one 500-megawatt coal-fired power plant.

Rising Star Award—Company
SeaMicro
United States

An innovator in computer hardware, SeaMicro is emerging as an innovator with an extremely strong position in a critical part of the energy industry: the field of reducing energy consumption. A four-year-old company, SeaMicro has developed technology that reduces, by as much as 75%, the power consumed by computer servers—a part of the information-age electronic backbone that already devours more than 2.5% of all the electricity produced in the United States.

To achieve such energy savings, SeaMicro re-envisioned how a server works, conceiving of it as an ultra-high-densi-ty, low-power, single-box cluster computer. SeaMicro’s innovations integrate various parts of the computing process into a single system, helping SeaMicro’s technology deliver computing while it consumes just a small fraction of the electricity of traditional systems. Reducing servers’ electricity consumption will be all the more important amid the shift to “cloud computing,” which puts a greater emphasis on servers.

SeaMicro’s sales have been doubling every quarter and, based on existing sales and projections, the company may be the fastest-growing hardware company in the history of Silicon Valley. The company has won quick recognition for its innovative approach—including being named as a “Top Ten Clean Tech Company” by the Wall Street Journal.

Based in Sunnyvale, California, SeaMicro was backed by venture-capital firms, several leading public companies, and the largest grant awarded by the US Department of Energy—a $9.3 million merit-based grant—as part of the federal stimulus package (the “American Recovery and Reinvestment Act.” SeaMicro also was awarded a merit-based grant from the state of California.

Energy Producer of the Year
Petrobras
Brazil

Continuing its outstanding record of energy exploration and oil production, Petrobras has won broad recognition in the industry for its remarkable advances in making oil discoveries in so-called “pre-salt reservoirs.” The company has developed advanced technologies to speed wells in these areas into production, with output in those pre-salt areas already at 150,000 barrels a day. By 2020, production in pre-salt areas is projected to be the equivalent of 40% of Brazil’s total oil output.

Petrobras drilled 52 wells in pre-salt areas since between 2005 and 2010, with a success rate of 88% last year. Costs are dropping as the company gains experience and scale in this effort: The first well drilled in the pre-salt areas required 15 months and $240
million—but the most recent wells took just 80 days and $80 million.

More than 1,000 offshore wells are likely to be drilled, with total output likely to reach an eventual peak of more than 6 million barrels a day. Exploration in the pre-salt areas is the foundation of Petrobras’ strategic vision for 2020: to be one of the five largest integrated energy companies in the world.

Downstream, to meet growing demand, four refineries are being built in Brazil, and more than $70 billion will be invested in refineries in the next four years—along with $16 billion for upgrading quality in existing refineries. Petrobras has been accomplishing its increased output while maintaining strong health, safety and environmental standards, earning the company a place in the Dow Jones Sustainability Index since 2006.

Industry Leadership of the Year
Chesapeake Energy Corporation
United States

The increased use of plentiful, relatively clean-burning natural gas has the potential to reshape the American economy and society—and Chesapeake Energy Corporation is positioning itself to help lead the transition toward a greater use of natural gas as the fuel for motor vehicles. By reducing the nation’s dependence on gasoline—and thus high-cost imported oil—such an effort to promote the use of compressed natural gas (CNG) and liquefied natural gas (LNG) to fuel vehicles could help the United States approach energy independence.

To fulfill Chesapeake’s recently announced “Energy Independence Initiative”—which calls for increased domestic oil and natural gas liquids production and investments in “green energy” fuels through advanced gas-to-liquid (GTL) processes—Chesapeake has created the Chesapeake NG Ventures Corporation (CNGV). The company will invest $1 billion to stimulate the adoption of CNG, LNG and GTL fuels—and the first step in that process is investing in a nationwide corridor of CNG and LNG fueling stations, to reassure consumers that they can gain ready access to those fuels.

An enhanced fueling infrastructure will help overcome concerns that CNG and LNG supplies will not be available. CNGV’s new $150 million investment will speed the construction of LNG fueling stations along Interstate highways—increasing the number of stations to 74 by 2012, and between 250 and 300 locations over time. That will be about one-fifth of the number needed for a complete coast-to-coast LNG refueling network.

Once the market reaches a “tipping point,” consumers will be willing to switch to such natural-gas-fueled vehicles—and manufacturers will adapt to supply that new market. Chesapeake’s drive for CNG- and LNG-powered vehicles could thus lead to increased vehicle manufacturing—and hence new jobs—even as reduced US dependence on high-cost imported oil makes US energy supplies more secure.

Chesapeake’s new initiative could be a game-changer for the US economy, energy policy and foreign policy—a leadership initiative that has earned the company this year’s award for Industry Leadership.

Downstream Operations of the Year
Gail India Limited
India

Fueling the world’s second-most-populous nation will require vast amounts of energy, delivered in an environmentally sustainable way—and Gail India Ltd. is growing to meet that challenge. Having started as a gas transmission company, Gail has continued expanding its network of natural-gas pipelines and has organically developed into an integrated energy company in the hydrocarbon sector. For its prodigious efforts, fast-paced growth and increasing profitability, Gail has won recognition in the category of “Downstream Operations of the Year.”

Almost three-quarters of gas transmissions in India flow through Gail’s pipelines, in a market where natural gas seems destined to be an ever-more-important fuel. As Gail approaches a pan-
India presence, it has been diversifying from transmissions into the areas of liquefied petroleum, gas processing plants and an expanding petrochemical plant.

Recognizing that a growing population and intensifying urbanization will require more clean-burning fuel supplies, Gail has imaginative plans to tap into a new source of natural gas: urban landfills. Pursuing a partnership with the municipality of Delhi, Gail has earmarked 10 acres for a pilot project for the extraction of landfill gas—a pilot project that, if successful, could be replicated across India.

Along with increasing fuels supplies, Gail’s landfill-gas initiative could help restrain the rate of global warming, by capturing methane gas that would otherwise be released into the atmosphere. Gail’s efforts to convert waste plastics into fuel could also capture a potentially valuable resource.

Already a fast-growing enterprise, Gail and its urban landfill-gas project seems to epitomize the spirit of innovation and zeal for growth that seem likely to give Gail a first-mover advantage in many areas. The company’s ambitions for growth are optimistic, but Gail’s imaginative efforts to diversify its operations give it a good chance of continuing its brisk recent pace of expansion.

Power Company of the Year
Southern Company
United States

A well-managed company with a strong financial base, Southern Company has the operational acumen and the economic resources to fulfill its broad-scale ambitions—and thus has solid credentials to claim the 2011 award in the category of “Power Company of the Year.”

Southern’s well-diversified power-generation base includes the full range of sources for energy production: coal, oil, hydropower and nuclear, along with newer technologies like solar and biomass. The company maintains its traditional reliance on coal, yet its newest ventures—a 30-megawatt solar photovoltaic plant in New Mexico and a 100-megawatt biomass-fueled plant in Texas—position Southern as a significant innovator in renewable energy, as well.

It takes self-confidence to expand a utility’s commitment to nuclear energy in the wake of the Fukushima Dai-ichi accident in Japan, but Southern is pushing forward with its plans to build two new, state-of-the-art nuclear units that will start generating power in 2016. Another large-scale project is a 582-megawatt coal gasification plant, which will remove 65% of the carbon dioxide from coal before it is burned as a fuel.

As befits a company that has intensified its environmental efficiency—generating 40% more electricity over the past decade, while reducing emissions by 70%—Southern has consistently invested in environmentally imaginative technologies. The National Carbon Capture Center in Alabama is uniting industry, government and university scientists in the search for ways to reduce carbon emissions in the atmosphere. While working toward a breakthrough in that complex area, Southern is helping consumers reduce their electricity use through “smart meters” as well as load-management and conservation programs.

A well-diversified, financially strong utility that strives to deliver customer satisfaction as well as shareholder value, Southern Company continues to take the kind of energy-supply and environmental-protection measures that have earned it 2011’s award as “Power Company of the Year.”

Commercial Technology of the Year
GlassPoint
United States

An innovative approach to maximizing the extraction of hard-to-reach oil deposits—using low-cost solar technologies—is the factor that made GlassPoint the winner in the closely contested category of “Commercial Technology of the Year.” GlassPoint has devised a way to use cost-competitive techniques to harness solar power, rather than to use costly carbon-based...
fuels, to create steam for injection into oil wells in the process of Enhanced Oil Recovery (EOR).

Natural gas is often purchased for EOR’s steam-injection process: As much as 60% of the operating cost of a heavy oil field is typically for natural gas for EOR. Reducing that cost while accomplishing the same goal—extracting more of a field’s underground oil deposits—increases the efficiency of oil production. Moreover, using solar power rather than natural gas is a hedge against the risk of gas-price increases, while allowing that gas to be used for other purposes.

GlassPoint’s development of innovative “glasshouse” architecture allows it to use lightweight, low-cost, prefabricated components. More effective protection for the reflective mirrors within the durable “glasshouse” reduces maintenance and repair costs. Better still, the ability to use mass-manufactured components that can be assembled on-site reduces installation costs and speeds the installation process.

In an era when oil deposits are increasingly difficult to extract, EOR seems destined to play an ever-more-important role: Worldwide, the $20 billion market for EOR will be essential to maximizing the use of the world’s finite oil resources. The US Department of Energy has estimated that the full use of EOR could produce an additional 240 billion barrels of recoverable oil, which might otherwise sit untapped. GlassPoint’s new solar-powered techniques to boost EOR could thus contribute to increasing long-term US oil production, allowing precious natural gas to be used for other purposes, and reducing American dependence on costly foreign imports of oil.

Construction Project of the Year
Shell International
Netherlands

Building the world’s largest gas-to-liquids (GTL) plant—with fully integrated production that extends from drilling gas at an offshore gas field to producing finished products that are immediately ready for market—requires vast scale and engineering ingenuity. Shell International succeeded in that construction feat by completing the Pearl GTL project, in the Persian Gulf off the coast of Qatar, which shipped its first product in June 2011.

The scale of the project challenged the capabilities of even one of the world’s foremost construction operations. The Pearl GTL effort, a joint effort by the company and Qatar Petroleum, has the capacity to produce 260,000 barrels of oil-equivalent per day. The wide range of its products includes cleaner-burning diesel and kerosene, base oils for top-tier lubricants, naphtha, and normal paraffin that is used to produce detergents. The Pearl plant will produce enough fuel per day to power more than 160,000 automobiles, and enough synthetic base oil per year to make lubricants for 225 million cars.

At its peak, the Pearl project required more than 52,000 people—exhausting the capacity of the local workforce and requiring laborers to be brought in from more than 50 countries. Since some of the workforce had no experience in the oil and gas industry—and, in some cases, no experience at all in construction—the company created a training center, which largely focused on workplace safety and supervisors skills. Maintaining Shell’s strong safety culture helped the Pearl project achieve a record-breaking 77 million man-hours worked without any injuries leading to lost work-time.

Organizing a construction project at this vast scale—drilling a total distance of 97 miles below the sea floor, with wells using enough steel to build two-and-a-half Eiffel Towers, with a control room hosting 200 computer servers using 12 million lines of software code—was an engineering challenge of the first magnitude. Yet the Pearl GTL project bested the industry’s usual well-drilling time of about 75 days, completing the 22 Pearl GTL wells in an average of 45 days (with one well completed in just 28 days).

For its mastery of scale, skill and speed, Shell International’s vast project merited this year’s “Construction Project of the Year” award.
Insight
December 2011

Global Energy Awards

Engineering Project of the Year
Areva
United States

Ensuring the safety of a nuclear power plant requires exacting standards and allows a zero margin for error. A critical safety-improvement program—the first-ever modernization of a US nuclear power station’s instruments and controls (I&C) systems, changing them from analog to digital technologies—was a project of such critical importance that its successful completion won the “Engineering Project of the Year” award for Areva Inc.

Like almost all nuclear power plants, Unit 1 of the Oconee Nuclear Station in Greenville, SC—owned by Duke Energy—was built in an era when analog controls were considered state-of-the-art technology. Now that digital control are replacing analog—and now that analog is approaching obsolescence, as fewer manufacturers and suppliers can provide replacement parts—conversion to digital is essential as the US nuclear industry seeks to extend the useful life of its reactors.

Areva in 2010 became the first and only supplier to receive US Nuclear Regulatory Commission (NRC) approval for a full plant-specific application of a safety-related digital I&C system. The Oconee project was its first such effort, and thus it was a precedent-setter for the American nuclear industry.

Thanks to Areva’s highly skilled engineering team and precise project management, Duke Energy in June 2011 completed the full-scope modification of its Reactor Protection System and Engineered Safeguards Protection System (RPS/ESPS) at Oconee 1. With the success of that upgrade to digital technologies, Duke Energy will soon pursue similar upgrades at the two additional reactors at the Oconee power station.

Because of the careful regulatory safeguards under which nuclear power must operate, Areva worked closely with the NRC staff, holding weekly consultations to review progress, diagnose potential problems and address questions. The result of the project is improved safety and reliability of the systems that monitor critical systems and initiate an automatic reactor shutdown in case of any early detection of problems. Now that the feasibility and safety of an analog-to-digital upgrade project have been proven, other nuclear power plants can follow the example of Areva, helping extend the life of the reactors that contribute to the US electricity supply.

Community Development Project of the Year
Gas Natural Fenosa
Spain

An innovative community-outreach initiative in Argentina by Gas Natural Ban—a local subsidiary of Spanish-based Gas Natural Fenosa—illustrates that community-focused efforts are not just the civic-minded thing to do in the short term: They can also be a sound business strategy to boost profitability for the long term. Gas Natural’s design of a socially inclusive business model—offering a hand up, not a handout, that helps transform the everyday lives of the poor—won overwhelming support among our judges in the category of “Community Development Project of the Year.”

Gas Natural found that reaching out to the impoverished Cuartel V neighborhood, on the outskirts of Buenos Aires, provided a way to deliver energy supply to an under-served community—while also creating a loyal, bill-paying customer base. Cuartel V had subsisted for decades with almost no drinking-water systems, sewage networks or gas-distribution pipelines. Residents long relied on bottled gas for their energy needs, enduring its vastly higher costs—and its occasional safety problems—because gas connections were unavailable.

Gas Natural, in collaboration with the nonprofit Fundacion Pro-Vivenda Social, invested about $1.7 million to build a gas-distribution network that now serves more than half of the district. Cuartel V’s families have benefited not just from the dramatically lower cost of piped-in gas, but also by
the ability to heat their houses and by the increase in neighborhood housing values.

The 20,000 or more residents of Cuartel V now are steady customers of Gas Natural, which enjoys an expanded service territory that has increased the company’s revenues. Moreover, neighboring areas, seeing the improved quality of life in Cuartel V, have asked for additional natural-gas services, as well—opening up further revenue opportunities.

Gas Natural’s corporate reputation has also been strengthened, as the company’s inclusive business model in Cuartel V is the subject of a chapter in a book by two Harvard Business School professors, “Business Solutions for the Global Poor,” and has been featured at a Harvard conference on best practices in corporate social responsibility. Corporate reputation is an intangible asset that enhances a company’s value, and Gas Natural’s efforts in Cuartel V have succeeded in building up the company’s reputational capital as well as expanding its base of reliable customers.

**Green Energy Generator of the Year**

**E.ON Climate & Renewables Germany**

Planning for new energy-generation capacity requires long-term investment and continuous refinement of technological know-how—especially when dealing with newer energy systems. E.ON Climate & Renewables has had the perseverance to pursue a promising, renewable energy source with vast potential: wind power, especially in rugged offshore settings. More than 96% of the world’s operational offshore wind installations are located in European waters, and the Dusseldorf-based E.ON has delivered a remarkable 46% of that capacity.

It can take a decade or more to take an offshore wind farm through the planning, design, permitting, construction and grid-connection stages, but E.ON has committed more than $1.4 billion to this fast-growing segment of the energy market. The company has now grown to be the Number Three player by capacity in the global offshore wind industry.

The company’s expertise and economies of scale are driving down the costs of wind projects across the entire value chain. Offshore wind poses greater operational challenges than onshore wind—another area where E.ON has gained significant experience, as the operator of the world’s largest onshore wind farm: a 781.5-megawatt facility in Roscoe, Texas. Yet E.ON is making farsighted investments in hardware and efficiency-focused operational techniques that may soon make offshore wind power a critical part of the world’s energy supply.

The environmental benefits of expanding offshore wind are increasingly significant. The 60 turbines E.ON’s Robin Rigg offshore wind farm, completed in 2010 in a challenging tidal location off the coast of the UK, have a capacity of 180 megawatts, displacing 230,000 tons of greenhouse-gas emissions per year. E.ON is now building the far larger London Array, which will be the world’s largest offshore wind project when completed in 2013, generating 1 gigawatt—enough to meet the needs of 750,000 homes—while displacing 1.9 million tons of greenhouse-gas emissions per year.

In a world thirsting for increased energy supplies, it takes strategic foresight and operational stamina to be a pioneer in developing innovative technologies. E.ON has demonstrated admirable staying-power in this fast-growing sector of the energy industry, and its imaginative efforts have earned this year’s award for “Green Energy Generator of the Year.”

**Petrochemical and Blendstock Company of the Year**

**Braskem Brazil**

In a bold leap of innovation, Braskem opened the world’s first “green ethylene” plant in September 2010 in Triunfo, Brazil—using sugar cane to produce a projected 200,000 tons of “green plastic” each year. This
advance in “sustainable chemistry” is potentially transformational, ushering in an era of green plastic in a traditional industry where making breakthrough innovations has sometimes proven to be difficult.

Using a renewable and affordable raw material, Braskem’s production of green plastic at the Triunfo plant will help meet the growing demand for plastic—especially in the developing world—in a way that is both economically viable and socially responsible. Using plentiful sugar cane as an alternative to traditional fossil-fuel feedstocks will help reduce some of the pressure on global oil and gas supplies.

The idea of “green plastics” is a relatively new one, and Braskem has actively reached out—in both its home market of Brazil and internationally—to stakeholder groups to discuss the positive aspects of sustainable chemistry. Propelling its message of greater sustainability, Braskem has proactively pursued stakeholder-engagement programs with employees, clients, suppliers, consumers, the news media policymakers and financial analysts.

This advance into sustainable chemistry reinforces Braskem’s reputation for far-sighted planning and its culture of accountable corporate governance. The company, formed in 2002 as part of a major restructuring of the Brazilian petrochemical industry, has been attentive to building a strong corporate reputation, even as it has continued to generate impressive growth and ample margins. The investment in environmental responsibility through the new Triunfo plant enhances Braskem’s renown among advocates of a “greener” plastics industry.

Sustainable Technology of the Year
LanzaTech
United States

In a technical breakthrough that holds great promise for sustainability, LanzaTech has used a clever technique to convert a waste product—waste gas, which would otherwise add to the problem of greenhouse-gas emissions—to make fuel-grade ethanol. By developing a genetic modification system to create a gas-fermentation microbe, LanzaTech has made a dramatic advance along the biotechnology frontier, with a potentially transformational impact on the world’s energy industries.

LanzaTech’s technique avoids what has been, until now, a major problem for ethanol: the fact that it has been made mostly by using corn or other foodstuffs—and thus diverting food that is desperately needed by the world’s increasingly hungry population. That food-or-fuel choice has put upward pressure on world food prices and causing food shortages in impoverished nations. LanzaTech’s technology may help avoid that serious moral dilemma.

As shown in a pilot project now under way at a steel mill in China, LanzaTech’s process can convert even highly contaminated industrial emissions into usable fuel. Preventing the emission of such contaminants will reduce a factor that aggravates climate change, while using waste for transportation fuels—instead of draining the world’s finite oil and gas supplies—could help ease future fossil-fuel shortages.

In the ethanol market, in particular, LanzaTech’s waste-gas-to-ethanol process could potentially produce nearly 11 billion gallons of ethanol just from steel-mill gases in China. If used in other countries and other industries—like petrochemicals, refining, coal and the paper industry—the environmental and economic benefits could be revolutionary.

Capturing value from what has long been seen as a waste product, LanzaTech’s innovation suggests that advanced technology can indeed contribute to energy security, avoid aggravating climate change, and promote green growth and create green-collar jobs. By harnessing biotechnology in the most imaginative of ways, LanzaTech is the strong winner in this year’s competition for “Sustainable Technology of the Year.”
The most cost-effective kilowatt is the one that’s never generated in the first place. The Ontario Power Authority (OPA), through the “saveONenergy” initiative that began in 2004, has helped create a culture of conservation in Canada’s most populous province, persuading consumers to reduce their individual energy use to help reduce overall electricity demand. The public-education program has been a key part of OPA’s far-reaching effort to reduce peak demand and thus to avoid having to build additional power plants in the province.

Having invested $1.7 billion in conservation programs, OPA saved ratepayers an estimated $3.8 billion in avoided costs between 2006 and 2010. By 2016, that savings is likely to amount to about $6 billion, if the campaign continues to help OPA avoid unneeded supply-infrastructure spending. OPA met its 2007 interim target of reducing electricity use by 1,350 megawatts, with peak demand reduced by 1,700 megawatts since 2006.

OPA’s program is demonstrating that reduced electricity use can simultaneously save consumers money on their electric bills, protect ratepayers from excessive construction costs and restrain greenhouse-gas emissions. Persuading the public to join the saveONenergy pledge—vowing to use energy more wisely, to make well-informed choices about energy use and to retire inefficient appliances—will be a critical factor in helping OPA keep its promise to shut down Ontario’s coal-burning power plants and thus be coal-free by 2014. The province has emerged as North America’s energy-efficiency leader by adopting aggressive energy-conservation targets, aiming to reduce peak-demand energy use by 7,100 megawatts and 28 terawatt-hours annually by 2030.

Along with the public-education initiative, OPA has paid for ambitious energy-efficiency programs through dedicated funds for innovation and advanced technology. Experimenting with new conservation methods that are in the pre-commercial stage, OPA has made an investment of $23 million and has leveraged that sum to gain more than $100 million in funding from other sources. By combining far-sighted investment and persuasive arguments for energy conservation, OPA’s successful conservation and efficiency efforts have created a win-win outcome: saving consumers money in the short term, while steering Ontario toward a coal-free future for the long term.

Creating a corporate culture that focuses on energy awareness requires a sustained effort, and Staples has mobilized a years-long campaign to persuade all its stakeholders that energy efficiency is good for the environment and good for society—and also good for the company’s bottom line. The world’s largest office-supplies company has pursued a comprehensive program of adopting advanced technologies and encouraging energy-conscious behavior, and it has reaped benefits that have both reduced its environmental impact and rewarded its shareholders.

Through a far-reaching “Staples Sustainability Program” that champions sustainability and reduces waste, the company has put energy efficiency at the heart of its operations. Its agenda has included the adoption of “smart grid” technologies, advanced lighting controls, heating and air-conditioning optimization techniques, automated demand-response technologies and “green IT” initiatives. In environmental terms, Staples exceeded the goal it set when it became one of the first US companies to make a public commitment to reduce its carbon footprint: By 2010, the company reduced its carbon use by more than the 7% target (measured against a 2001 baseline), even as the business grew by more than 200%.

Positive environmental results have translated into smart savings. Across its US facilities, Staples had been spend-
ing more than $82 million per year for electricity and natural gas, but the efficiency program gained incremental efficiencies of $3.8 million per year (and a total impact, measured against the baseline, of $13.2 million per year). The savings have gone straight to shareholders’ bottom line, delivering about 2 cents per share of increased earnings.

The benefits of increased efficiency are not just financial: Staples finds that employee morale is higher and the customer experience has been enhanced by the improved efficiencies, and the visible energy-and-environment campaign has added reputational value for a company whose image is one of innovation and reinvestment. By enhancing its corporate reputation through positive public-relations moves—like championing the federal “Energy Star” program and sponsoring competitions to motivate students, entrepreneurs and employees to find even more ways to save energy—Staples has reinforced a maxim of the corporate-responsibility movement: that doing the right thing to strengthen society is often synonymous with doing the right thing to strengthen corporate profitability.

**Deal of the Year**

**Chesapeake Energy Corporation**

**United States**

In a dramatic stroke of energy diplomacy, Chesapeake Energy Corporation—the largest independent oil producer in the United States—reshaped the contours of international energy exploration with two landmark deals with the same partner: CNOOC, the state-owned China National Offshore Oil Corporation. Because of the historic nature of these two transactions and the joint ventures that will follow, Chesapeake—which is also this year’s award-winner for Industry Leadership—has also been awarded the prize for “Deal of the Year.”

The two agreements for oil and natural-gas drilling tracts, signed in October 2010 and February 2011, give rich rewards to both partners. The first—for $2.2 billion in cash, plus future drilling carries—allows CNOOC to acquire a 33.3% interest in Chesapeake’s 600,000-net-leasehold-acre tract in the Eagle Ford Shale project in South Texas. The second—for $1.3 billion in cash plus future drilling carries—allows CNOOC to acquire a 33.3% interest in Chesapeake’s 800,000-net-leasehold-acre tract in the Denver Julesburg and Powder River basins in Colorado and Wyoming.

The transactions are the largest-ever Chinese purchase of US energy assets. They give Chesapeake a strong business partner, additional capital to accelerate drilling in those resource-rich areas, and added cash-flow to pursue its strategic financial objective of repurchasing some of its outstanding debt. It gives CNOOC an active interest in a specific, high-profile and probably very productive assets—plus growth in its long-term reserves, easing China’s fears of having little access to energy supplies.

CNOOC’s deals with Chesapeake also go a long way to make up for the embarrassment that China suffered in 2005, when an American political uproar prevented CNOOC from moving forward with an $18.5 billion offer to acquire Unocal. To prevent such a US outcry this time, the new Chesapeake-CNOOC deals were carefully structured and thoroughly explained to lawmakers, who seemed to appreciate the deals’ potential to create American jobs, provide additional tax revenues and increase US oil production at a time of concerns about the flow of energy supplies from overseas.

The deals represent a coup for Chesapeake and its CEO, Aubrey K. McClendon, as the firm has singlehandedly transformed US-China energy cooperation—and helped strengthen overall US-China economic relations. Seldom does a single set of transactions have such a serious commercial, diplomatic and energy-policy impact. For its pioneering efforts to create an international partnership that may have wide-ranging energy and economic implications for years to come, Chesapeake has certainly eclipsed all other competitors in the 2011 award category for “Deal of the Year.”