Winds of change: the new energy revolution
Siemens AG

Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability, and internationality for more than 165 years. Siemens is a leading supplier of solutions for the energy, infrastructure, manufacturing, and health industries. It serves the electric power industry with a wide array of efficient power generation, transmission, and distribution solutions. Through Fluence, its joint venture with AES, Siemens is also a leading supplier of utility and commercial battery energy storage systems.

Through its Energy Management division, Siemens partners with utilities, electric transmission and distribution system operators, energy service providers, and large energy users to provide expertise and innovative energy management technologies that create value through digitalization. Its Digital Grid business accomplishes this by delivering grid control and data management solutions; automation, protection, power quality, and cyber-secure communication solutions; power system planning solutions; and business advisory services.

Siemens has delivered award-winning digitalization and distributed energy technology solutions in the areas of Distributed Energy Resource Management Systems (DERMS), microgrids, and renewable integration. Siemens’ microgrid controllers and management system software have been implemented in projects throughout the world for a wide variety of customer and system requirements. In 2016, Siemens completed an implementation of its renewable integration control solution, and in 2018, Siemens will complete a major implementation of its integrated DERMS solution for a leading North American utility.

With the launch of MindSphere, the cloud-based, open operating system for the Internet of Things (IoT), Siemens now offers a unified IoT platform and extensions specially designed for the energy and utility sectors. In a world that is moving faster than ever before, MindSphere can help power system operators make their systems as efficient, reliable, and sustainable as possible, and also take advantage of the potential offered by innovative, digitally enabled solutions—from the control room to the grid automation system, and all the way to the consumer.

With its presence in over 200 countries, Siemens is playing a constructive role in helping businesses across the energy value chain to realize profound benefits and increased returns through digitalization and the declining costs of solar PV, battery energy storage, and other types of distributed energy resources. Siemens is the only global technology leader intimately involved in all aspects of the energy value chain as well as grid, factory and facilities automation. With its unrivaled vantage point and technology leadership, Siemens can help your company unlock the value of digitalization through more efficient operations and entirely new revenue streams.

**SIEMENS AG Key Figures**

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<td>Geographic Reach</td>
<td>200 countries</td>
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<tr>
<td>Number of Employees</td>
<td>351,000</td>
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<tr>
<td>Total Revenue (FY 2017)</td>
<td>€83.0 billion</td>
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<td>Net Income (FY 2017)</td>
<td>€6.2 billion</td>
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With global demand for biofuels on the rise, the Industry Leadership Award in Bioenergy recognizes a recent innovation that is market-competitive and ecologically sound, with minimal undesirable impacts. UPM Biofuels, a division of UPM, the world’s largest producer of graphic papers, fills this tall order with its revolutionary wood-based low-emission UPM BioVerno biofuel.

UPM BioVerno is a unique wood-based renewable diesel made by converting crude tall oil (CTO), a natural wood extract and a residue of its parent company’s pulp making process, into biofuel suitable for transportation. The product was developed based on in-house research begun in 2008. Unlike first-generation biofuels, UPM BioVerno has no blending limit, so it is suitable for current distribution systems and all diesel engines without modification. It boasts up to 80% lower greenhouse gas emissions than fossil diesel, as well as cleaner combustion and lower tailpipe emissions. Key to the success of UPM BioVerno is its sustainability: it is a forest industry residue, with no need to log additional forest areas for fuel production or divert raw materials from food production.

Judges were particularly taken with the fact that the product is already in commercial production at the company’s biorefinery in Lappeenranta, Finland.

It is the first commercial-scale facility of its kind, located next door to the UPM Kaukas pulp and paper mill. The company broke ground on the biorefinery in 2012, started production in early 2015, reached break-even late in 2015, and improved its profitability further in 2016.

The renewable aspect of the product as well as the potential scale had an impact on the judging panel. “For such a small company, the production is impressive,” remarked one judge, noting that UPM Biofuels directly employs approximately 100 people. Judges see “big potential” on the horizon as UPM Biofuels plans its next biofuel investment.

GRID EDGE AWARD

Siemens AG
Germany

Disruption is happening at the edge of the grid. US solar installations are expected to reach two million by 2018; energy storage should achieve annual installations of 40 GW by 2022; and electric vehicle sales are predicted to hit 41 million by 2040. These resources are changing the traditional one-way flow of electricity between utilities and their customers, and bringing a new challenge for distribution utilities: they must carefully manage and orchestrate power in order to maintain grid stability and reliability.

To better control these resources, German technology powerhouse Siemens has developed a Distributed Energy Resource Management System (DERMS), a software solution that enables utilities to visualize, manage and economically optimize energy resources on the grid. Judges felt that Siemens brings “credibility, copious resources and a strong reputation for flexibility and scalability” to an important new market.

Siemens’ DERMS ensures network safety and reliability in the event of intermittency, helping utilities keep supply and demand in balance and avoid outages. The system is designed for ease of integration, enabling utilities to easily enroll customer assets, manage asset information and integrate that information throughout utility systems. Its DERMS also enables utilities to leverage the many available economic benefits of distributed energy by providing clarity on all energy source data. Components of the company’s DERMS solution are now in operation with utilities including Hawaiian Electric Co. and Arizona Public Service.
Grid Edge is a highly competitive category, reflecting the increasing impact of the distributed energy revolution as it changes the way utilities operate. In selecting Siemens, judges recognized its DERMS as a clever integration of two of the company’s core competencies: utility control products and management of grid edge devices. Judges concurred that Siemens’ involvement “represents the maturity of a growing industry” and is a “natural step in the direction of solving a large problem.”

CORPORATE SOCIAL RESPONSIBILITY AWARD

Staples
United States

Staples is an office supply retailer, but thanks to the “massive impact and impressive scale” of its CSR program, its impact on the energy industry is undeniable. In a category that engendered passionate discussion and debate among the judges, this global giant emerged as the CSR winner for embedding CSR programs into nearly every aspect of its business, within the cultures of all stakeholders—associates, business partners and customers.

Staples is conscious of its potential impact on the environment and is committed to sustainable business practices, “in its own products and the products its customers use,” said a judge. In 2015, it sold $5.2 billion of green products representing 29% of its product sales. It offers customers easy recycling solutions, collecting nearly 57 million ink and toner cartridges and 26.5 million pounds of eWaste. It also maximizes energy efficiency; the company has been named as an Energy Star Partner of the Year by the US Environmental Protection Agency and the US Department of Energy for eight consecutive years.

As a retailer with more than 3,200 locations worldwide, Staples is also committed to making a difference in the communities where their customers and associates live and work. The company promotes education and career skills development in countries across the globe through donations, grants, special programs, associate volunteering and cause marketing campaigns. In 2016 alone, the company donated more than $11 million to nonprofit organizations; enabled over 12,000 associates to direct $2.3 million in grants to 1,000 organizations in 24 countries; and helped over 36,000 people in North American communities impacted by disasters.

Judges observed that a CSR program as comprehensive as Staples’ requires a significant financial commitment and sweeping participation to have such a global impact. They elected to honor Staples for “setting the bar for other organizations” and “pushing the limits of sustainability.”

CONSTRUCTION PROJECT OF THE YEAR

Spectra Energy Partners
United States

Spectra Energy is a repeat winner of this award for excellence in project execution and management, first receiving it in 2014 for installing a new gas pipeline right in the middle of New York City. In 2017, the company is honored for its Sabal Trail Transmission Project, a 515-mile interstate pipeline delivering natural gas supplies to Florida. Like the northern project before it, Sabal Trail was completed on time and within budget.

The $3.2 billion privately-funded Sabal Trail project is one of the nation’s largest natural gas pipelines, capable of delivering 830 million cubic feet per day to Florida. The project aimed to increase reliability of the region’s energy delivery system, provide supply liquidity to electric generation customers in the Southeast, and positively impact local economies.

The “complicated” pipeline, which crosses 25 counties in three states, required Spectra Energy to bring its significant permitting and constructing resources to the task. Judges remarked on the company’s “resilience and long-term commitment” to the project; it completed more than three years of community and political engagement, routing considerations and permit proceedings before beginning construction.