Siemens Digital Grid

The changing energy landscape has put the U.S. power industry at a unique crossroads, one of challenge but also possibility.

- The matter of aging infrastructure is critical. Nationally, much of the energy infrastructure is outdated or nearing retirement. The nation's grid itself is only starting to transition out of the age of Edison and there are some transmission connections in the United States that are more than 100 years old
- As residential consumers become "prosumers", creating their own energy and managing its usage, this shift in the electricity industry creates a need to balance residential, traditional and alternative sources of power generation while maintaining safe electrical operation.
- Today's energy technologies are creating large amounts of data both inside and outside of a utility's walls and the public is expecting their interaction with energy to become more and more digital. Often, the data being gathered lacks the intelligence behind it needed to make the right decisions. The energy industry needs to keep up with the needs of its consumers while understanding the value not just big data, but "smart data" can bring to improve modern-day energy systems.
- As the proliferation of decentralized generation and renewables continue to grow, the question remains on how to manage and control inherently intermittent resources.
- And security concerns at the software, infrastructure, and environmental levels continue to threaten the quality and availability of power.

For the energy industry, it is vitally important to anticipate these market dynamics and actively decide when and how to address challenges and seize opportunities. Siemens Digital Grid partners with leading utilities worldwide to provide expertise and innovative technologies.

In North America, Digital Grid has worked with more than 1,000 leading energy industry customers to deliver proven solutions and services that improve operational efficiencies, enhance reliability and resiliency, and empower customers to better manage their energy use. In the U.S., Siemens Digital Grid is providing intelligent technologies to customers including California Independent System Operator Corporation (ISO), Direct Energy, CenterPoint, Consolidated Edison, American Electric Power, and many other utilities and communities across the country.

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- In the U.S., Siemens is partnering with Blue Lake Rancheria, a Native American reservation in northern California, Humboldt State University and Pacific Gas & Electric to design and install a low-carbon community microgrid to power the government offices, economic enterprises, and critical Red Cross safety shelter-in-place facilities across 100 acres. Siemens microgrid management software will help monitor and control on-site generation resources including a solar array, biomass fuel cell system, battery storage and diesel generators. The microgrid will allow the reservation to operate independently of the grid and is estimated to reduce 150 tons of carbon per year.
- Siemens introduced energy market management software to support the operation of the growing western Energy Imbalance Market (EIM), allowing the California ISO to more efficiently exchange and share energy resources, including renewables like wind and solar, based on generation and demand needs. Siemens software is a key component of the EIM system that allows the ISO to analyze the energy requirements of the grid every five minutes and automatically determine the lowest-cost generation to meet demand while maintaining the security of the grid. The software provides system operators greater insight into the power grid to monitor generation and demand across the entire six-state EIM region.
- In New York, Siemens is installing storm-hardening technology that will help ConEd keep the power flowing for customers in sections of Lower Manhattan during severe flooding. The new automation system will separate and control underground power switches so the utility can continue deliver power to parts even when flooding may have caused outages in other areas. ConEd is the first utility in the U.S. to use this type of technology.
- ConEd also partnered with OMNETRIC Group, a smart grid solution provider and Siemens and Accenture joint venture, to implement Siemens EnergyIP in support of the utilities' advanced metering infrastructure project for more than 3.9 million electric and 1.3 million gas customers. Siemens' meter data management platform enables utilities to meet the challenges of mass market advanced metering, as well as underpinning the integration and analysis of resulting data into actionable insight.
- Siemens introduced Microgrid Software as a Service (MSaaS) designed for smaller power operators like university campuses, industrial and commercial sites, municipalities, and utilities who intend to service to multiple microgrid end-users. The software allows microgrid operators to dynamically manage and control distributed energy resources with integrated weather and load forecasting. With this hosted software service, small power operators will experience improved grid resiliency, better power quality and greater ability to add sustainable power sources to their energy mix at a more affordable cost all with easier implementation

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