

EFFICIENCY

Schneider Electric aids utility in leveraging demand response strategy for efficiency

Electric Utility, USA

EcoStruxure™ ADMS* targets grid-side demand reduction program.

schneider-electric.com/building-demand-response

Life Is On

Schneider
Electric



Background

As is happening with many energy suppliers, leaders of a large U.S. electrical utility in the Carolinas are rethinking their strategy for future operations. The rapid aging of many generating stations, combined with changing business models and new, stricter environmental regulations, has influenced the way in which the utility plans to meet the energy needs of its customers.

Even as energy demand continues to rise, many of its generating stations are on the forecast for retirement. To compensate, the utility will not only need to construct additional generation facilities, but also to adopt nontraditional measures such as peak demand load shedding to continue providing reliable power to its customers.

But in one instance, rather than replacing two combustion turbine generation facilities, the utility has applied an alternative strategy, focusing instead on the demand side of the equation.

The utility targeted a grid-side demand reduction program through a partnership with Schneider Electric, a global specialist in energy management.

Demand response strategies help manage peak power

The utility sought to reduce 310 megawatts of peak energy demand through distribution system demand reduction. To accomplish this, the utility implemented a comprehensive Distribution System Demand Response (DSDR) program aimed at reducing voltage on feeders during peak power periods, which in turn reduces the overall required megawatt generation on the supply side.

The initial step in this first-of-its-kind approach required developing a robust infrastructure to facilitate communications between thousands of electrical devices and a master control center, via cellular and fiber optic networks. The utility then undertook feeder conditioning activities on the distribution network, which included installing switches, sensors, and other technologies to stabilize the feeders and support better voltage control.

The critical component was implementing a EcoStruxure ADMS* solution to manage operation of connected devices from primary and backup control centers. The distribution system uplift combined with the EcoStruxure ADMS* enabled the utility to

Goal

To plan and deploy new measures that will ensure that energy demands are met without replacement of current assets.

Story

Aging infrastructure at the utility meant that it would not be able to meet future energy demands of its customers. Rather than replacing two combustion turbine generation facilities, the utility focused instead on the demand side of the equation.

Solution

- EcoStruxure ADMS*

Results

- Distributed system reduction in excess of 310 MW.
- Solution provided new tools for dynamic visualization, monitoring, and control of the utility's widely dispersed distribution network.
- Utility's system responded flawlessly to record energy demands during the polar vortexes that swept across the region.

achieve the desired megawatt reduction on the distribution system, automatically, over 34,000 square miles of service territory.

The DMS software deployed by the utility and developed by Schneider Electric securely integrated with the utility's Supervisory Control and Data Acquisition (SCADA) system — also developed by Schneider Electric — as well as with its Outage Management (OMS) and Geospatial Information (GIS) systems to produce a well-integrated and high performance solution.

This comprehensive solution provided new tools for dynamic visualization, monitoring, and control of the utility's widely dispersed distribution network.

Delivering reliable power despite extreme weather conditions

The utility and Schneider Electric used an intensive measurement and validation mechanism to gauge results, which included distribution system reductions in excess of 310 megawatts.

In real-world application, the utility's system responded flawlessly to record energy demands during the polar vortexes that swept across the eastern Carolinas. While other utilities had to shed customer load on one of the coldest days of the year to meet overall demand, this utility was able to successfully reduce the overall system voltage, alleviate the demand on its generation fleet, and spare tens of thousands of customers from the hardship of power outages.

The utility's effective deployment of DSDR is a prime example of how tight collaboration between utilities and solution providers like Schneider Electric can yield optimized network performance to strategically reduce demand on an electrical network without interrupting service, and, ultimately, to support a utility in delivering reliable, safe, and affordable power to its customers.

>310
MW

Distributed system reduction

34,000
sq. miles

Service territory area

EcoStruxure™ Grid Innovation At Every Level



EcoStruxure™

Innovation At Every Level

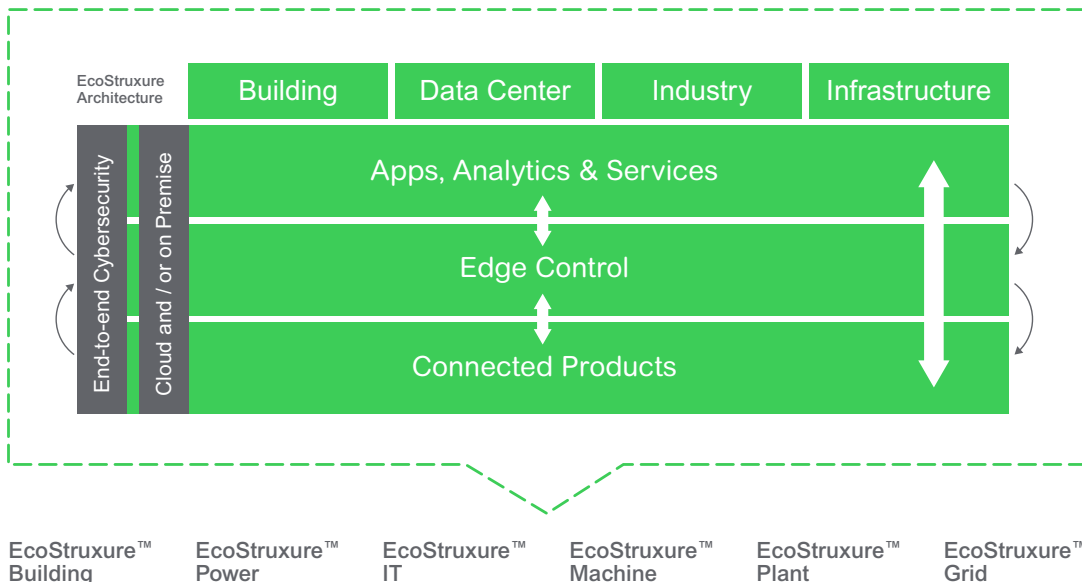
IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is Schneider Electric's open, interoperable, IoT-enabled system architecture and platform.

EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers.

EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level including Connected Products, Edge Control, and Apps, Analytics & Services. EcoStruxure™ has been deployed in 480,000+ sites, with the support of 20,000+ system integrators and developers, connecting over 1.6 million assets under management through 40+ digital services.

One EcoStruxure architecture, serving 4 End Markets with 6 Domains of Expertise



Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision-making throughout operations.

Edge Control

Mission-critical scenarios can be unpredictable, so control of devices at the edge of the IoT network is a must. This essential capability provides real-time solutions that enable local control at the edge, protecting safety and uptime.

Apps, Analytics & Services

Interoperability is imperative to supporting the diverse hardware and systems in building, data center, industry, and grid environments. EcoStruxure enables a breadth of agnostic Applications, Analytics, & Services for seamless enterprise integration.

Find out more about EcoStruxure

schneider-electric.com/ecostruxure

Learn More



Discover EcoStruxure™



Discover EcoStruxure™ for Grid



EcoStruxure™ solution for utilities



Contact us to start your journey



Smarter, faster power restoration



Self-Healing Smart Grid Solution
Re-energizes Network in Less
Than a Minute

Schneider Electric

Boston ONE Campus
800 Federal Street
Andover, MA 01810 USA
Phone: + 1 978 794 0800

www.schneider-electric.com

January 2019

*Formerly known as Schneider Electric ADMS

©2019 Schneider Electric. All Rights Reserved. Life Is On Schneider Electric is a trademark and the property of Schneider Electric SE, its subsidiaries and affiliated companies. All other trademarks are the property of their respective owners.

998-20420382_GMA-US

Life Is On

Schneider
Electric