

Boston
Scientific

300

Global Headquarters

IOT

Making the data work

Boston Scientific Corporation – Marlborough,
Massachusetts, U.S.

EcoStruxure™ Building Advisor creates a more sustainable
corporate campus.

schneider-electric.com/ecostruxure-building

Life Is On

Schneider
Electric



Boston Scientific, a worldwide developer, manufacturer, and marketer of medical devices, opened a new corporate headquarters and integrated EcoStruxure™ Building Advisor as part of a strategic initiative to reduce energy waste and work toward creating a more sustainable corporate campus.

Boston Scientific's two founders joined forces in 1979 to bring more accessible, lower-cost, and lower-trauma medical options to patients. Today, Boston Scientific is an industry-leading developer, manufacturer, and marketer of medical devices used in a range of interventional specialties.

From the outset, the company's mission has been to transform lives through innovative medical solutions that improve the health of patients around the world. Boston Scientific may be best known for developing the drug-eluting stents used to open clogged arteries.

Boston Scientific is dedicated to ensuring its facilities are running at peak operating performance to minimize energy waste and promote a sustainable culture and environment. The company installed a building management system (BMS) to gain a more holistic view of its facilities and to start optimizing building performance. After experiencing significant benefits from the integrated building system monitoring and control, Boston Scientific realized an additional opportunity to further improve its efficiency through leading-edge analytics software.

Leveraging system information

Office space occupies most of the square footage at the Boston Scientific headquarters campus. Labs, R&D, a machine shop, mechanical spaces, training areas, a fitness center, and a 9,000 square foot daycare occupy the rest.

The challenges facing facilities staff usually relate to HVAC equipment and maintaining comfort levels. That means ensuring all the equipment — from chillers and pumps to air handling units (AHU) and terminal zones — performs optimally day in, and day out.

Systems and equipment are located throughout the campus. For instance, a chiller plant and boiler room occupy the first floor

Goal

Reduce energy consumption and create a more sustainable campus.

Story

Quickly troubleshoot and pinpoint operational issues and effectively implement efficiency and sustainability measures.

Solution

Integration of EcoStruxure™ Building Advisor managed service for more proactive building maintenance with sustainable efficiency programs to maximize building performance and lower energy costs.

Results

- Pinpoints issues, trends, averages
- Prioritizes issues and suggested actions
- Assigns dollar value to energy opportunities
- Tracks and validates energy metrics
- 40% reduction in avoidable cost related to faults

in one building. Terminal units are located throughout each floor. AHUs sit on the rooftop. And a trigen unit located in a parking lot provides on-site, high-efficiency production of electricity and heat.

The BMS delivers a holistic view of systems and equipment. Then the BMS ties together information ranging from temperatures and flows to relative humidity and current so that facilities' staff can monitor everything from a central location.

Adding intelligence

The Schneider Electric EcoStruxure™ Building Advisor solution was deployed across the five buildings that make up Boston Scientific's corporate campus to identify, prioritize, and drive continuous improvement of its buildings' performance. The data created by Boston Scientific's existing BMS can now be converted into

actionable intelligence with the ability to identify and prioritize energy cost saving actions and maintenance recommendations from an energy, maintenance, and comfort standpoint.

Tasked with monitoring over 1,000 pieces of equipment, the system logs more than 9,000 system data points every five minutes into cloud-based data storage for analysis. The automated diagnostics pinpoint which equipment and systems have irregularities and outputs a prioritized listing based upon Boston Scientific's energy cost, issue severity, and comfort impact. This allows building faults to be quickly identified and actionable measures to be implemented to remedy noted issues. The BMS and EcoStruxure Building Advisor work together to get the right information to the right person at the right time for more informed decision-making.

40%

reduction in avoidable cost related to faults

51%

reduction in energy-related faults

49%

reduction in faults causing improper zone conditions



“The added value that this level of analytics brings to a facility is almost immeasurable because it is so simple. It is really just maximizing the data that the BMS already continuously generates... making the data work for you and providing the means of understanding these facilities and a way that we can continually bring real value to our customers ... helping them do more with less.”

— Nicolette Fondl, Account Executive, Schneider Electric



5-building campus

(645,000 total sq. ft.)

\$30,000 – 40,000

annual cost savings (with additional savings expected through ongoing energy efficiency measures)

“Boston Scientific wants to do what’s right for the environment by minimizing our energy footprint as much as possible. When the utility invoices start to drop, I know we’re doing the right thing.”

— Greg Lamson,
Senior Facilities Engineer,
Boston Scientific

EcoStruxure™ Building Advisor is like a microscope that funnels information down to a single point, enabling more efficient operations so that equipment runs as originally designed. And when equipment runs at peak efficiency, energy use drops and frees up an organization’s money for other things.

Analytics in action

From the analytics information, multiple stakeholders are able to drive action across the campus’ facilities. Schneider Electric remote service and branch teams examine the information to provide ongoing technical support and repair services. The Boston Scientific engineering team assesses the recommendations to act upon and resolve high-priority energy efficiency and maintenance initiatives.

Additionally, the utility company also accesses the analytics information to validate qualification for participation in an energy incentive awards program.

Specific repair measures highlighted include adjusting errant temperature sensors causing improper, automatic override of time-of-day schedules, repairing stuck dampers, and implementing new control sequences to provide proper economizer or time-of-day schedule operations. Additionally, the EcoStruxure Building Advisor platform has identified chronic low chilled water temperature differential as a potential savings opportunity on the primary chilled water and condenser water system.

Savings in focus

With EcoStruxure Building Advisor, the Boston Scientific headquarters has achieved an annual cost savings of approximately \$30,000 – \$40,000 to date. During the first year of operation, a total electric savings of 160,184 kWh was realized, and an additional 137,200 kWh in the second year — the equivalent of carbon sequestered by 5,257 tree seedlings grown for 10 years or removing 43.2 cars from

the road. Boston Scientific was additionally able to secure a \$33,264 performance incentive from National Grid as a reward for enhanced energy efficiency throughout the campus.

This project has also resulted in a 40 percent reduction in avoidable cost related to faults, including a 51 percent reduction in energy-related faults as well as a 49 percent reduction in faults causing improper zone conditions. The engineering team continues to gain valuable insights from the system and anticipates realizing additional cost savings through future energy reduction measures.

Schneider Electric EcoStruxure™ Building Advisor has optimized operational performance, reduced energy expenditures, and created more environmentally friendly, higher-performing buildings across the Boston Scientific corporate campus. Through the cost savings and energy incentives, Boston Scientific has offset the cost of EcoStruxure Building Advisor and is able to invest saved dollars into additional programs and initiatives that further the core mission of the organization.

160,184 kWh

electric savings in first year

6,407 therms

gas savings in first year

137,200

additional kWh electric savings in second year

\$33,264

performance incentive from the electric utility to-date



EcoStruxure™ Building
Innovation At Every Level



EcoStruxure™

Innovation At Every Level

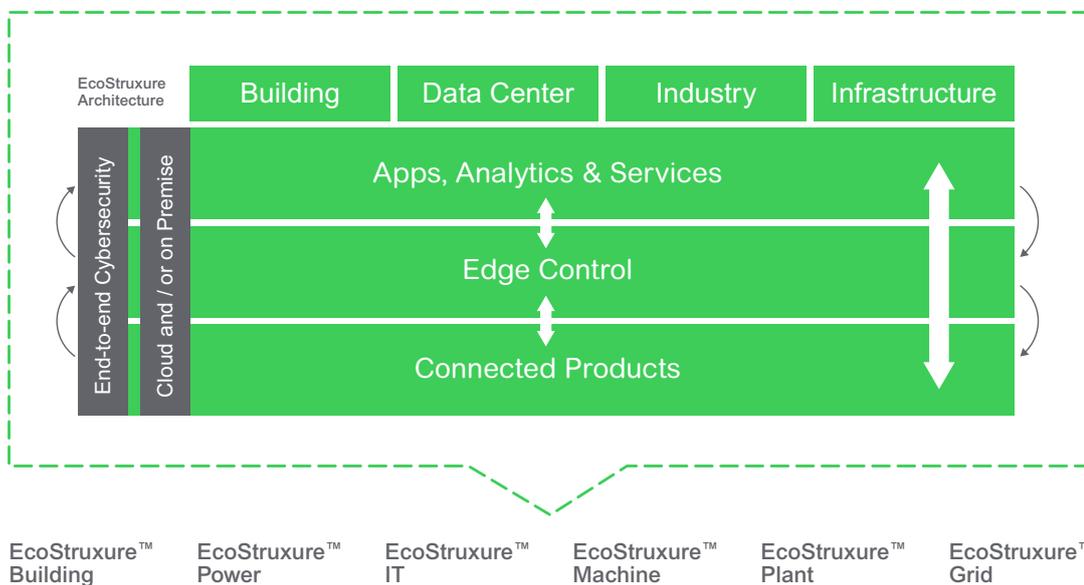
IoT-enabled solutions that drive operational and energy efficiency

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

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Schneider Electric

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

www.schneider-electric.com

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