



# RELIABLE

## BC Hydro

BC Hydro – Vancouver, BC, Canada

Utility providing energy solutions to more than  
1.6M customers in British Columbia

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BC Hydro upgrades existing aging Bailey control system at their Burrard Generating Station in Port Moody, delivering higher levels of control and efficiency.

## BC Hydro gets upgrade from aging Bailey control system to Foxboro DCS

BC Hydro provides high-value, reliable power to fuel economic growth and development throughout Canada's British Columbia province. The utility provides energy solutions to more than 1.6 million customers in a socially responsible way, balancing its users' energy needs with environmental concerns. BC Hydro has constructed a world-class integrated hydroelectric system of close to 11,500 megawatts (MW) of generating capacity — over 87% of which is hydroelectric. Due to this efficient, reliable system, British Columbians enjoy some of the lowest electricity rates in the world.

### BC Hydro's challenge

To continue delivering reliable power with the least possible environmental impact to its growing base of commercial and residential customers, BC Hydro implemented an ambitious environmental improvement and plant modernization initiative. A vital element: migration to a modern digital control system at the utility's Burrard Generating Station in Port Moody, on Vancouver Harbor. Supplementing the utility's 32 hydroelectric facilities, Burrard is one of two thermal plants that supply critical base load support to the electrical grid in years of low water run-off or during maintenance outages. The station's six gas-fired, combustion-engineering boilers generate 155 MW of electrical power each. However, its obsolete Bailey control system was becoming increasingly difficult to maintain. It also jeopardized operation of the selective cathodic reduction technology installed in 2000 to reduce nitrogen oxide emissions by 90%.

Besides repairing these deficiencies, other upgrade objectives included improving and optimizing unit heat rates, centralizing plant controls in one room, providing a real-time focus for plant operation, and improving process control, all while sustaining the required availability. Requirements also included a BMS and upgraded boilers.

### Upgrade and easy migration to a Foxboro DCS

After comparing proposals from Bailey, Fisher, and Schneider Electric, BC Hydro determined that a Foxboro plug-in migration solution would provide the greatest reliability and performance at the lowest cost with the least interruption of service.

## Goals

- Replace obsolete Bailey control system to increase efficiency and reliability of power generation
- Improve and optimize unit heat rates
- Centralize plant controls in one room
- Provide a real-time focus for plant operation and improve process control

## Challenges

- Continue delivering reliable power with the least possible environmental impact to its growing base of commercial and residential customers

## Solutions

- Foxboro™ Distributed Control System (DCS)
- Foxboro Measurement & Instruments

## Results

- Provides clean energy to more than 1.6 million customers
- Decreased maintenance time/effort; burner management system (BMS) checkout was reduced from three weeks to three days
- Reduced upgrade costs by half and shortened downtime from weeks to days



Rather than “bulldoze” the existing infrastructure — a costly and highly disruptive alternative — BC Hydro was able to implement the Foxboro DCS on its legacy racks without rewiring. The Foxboro migration solution simply replaced the Bailey I/O modules with Foxboro DCS electronics packaged in the exact same form factor. Most of the actual migration then involved simply substituting the repackaged Foxboro DCS I/O modules for those from Bailey. This unique approach reduced upgrade costs by almost half and shortened downtime from weeks to days.

Schneider Electric also provided the BMS design and the boiler/generator coordinated controls, as well as balance-of-plant controls and seamless integration with data from new safety systems and other on-site third-party systems. In addition, Schneider Electric handled the upgrading of Foxboro intelligent field transmitters and intelligent valve positioners.

### Delivering higher levels of control and efficiency

The migration enabled Burrard’s system engineers to retain existing field wiring terminations, system enclosures, and power supplies. Their new system delivers a major leap in functionality and ease of use in startup, runup, rundown, and runback sequences.



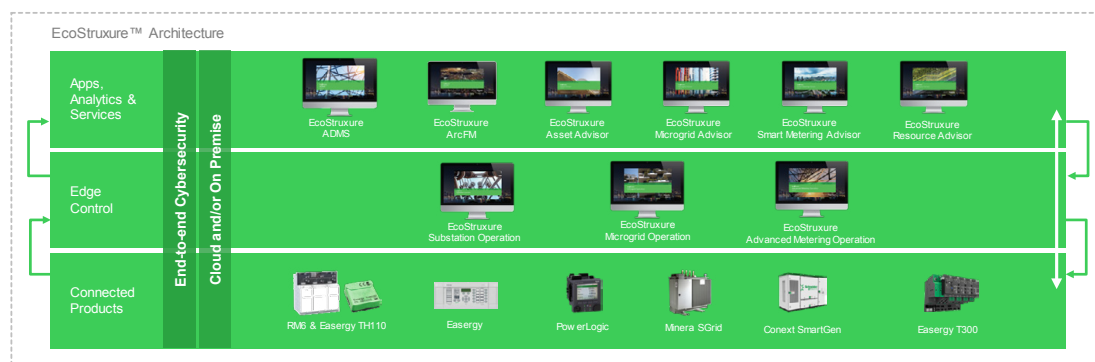
Huitt Manering, principal engineer and task manager says, “Schneider Electric developed a new discrete I/O module to meet our requirements, and the result was a well-designed card that was delivered on time for our first installation. Our BMS migration from Bailey Symphony to the Foxboro Distributed Control System went very smoothly. Checkout of the new BMS was substantially complete within three days — as compared to approximately three weeks for the initial Bailey BMS commissioning.”

Burrard operations personnel report the new Foxboro DCS is delivering levels of control and efficiency higher than they have ever experienced before.

“Our BMS migration from Bailey Symphony to the Foxboro Distributed Control System went very smoothly. Checkout of the new BMS was substantially complete within three days.”

— Huitt Manering,  
Principal Engineer and  
Task Manager, BC Hydro

**EcoStruxure™** Grid  
Innovation At Every Level



# EcoStruxure™

## Innovation At Every Level

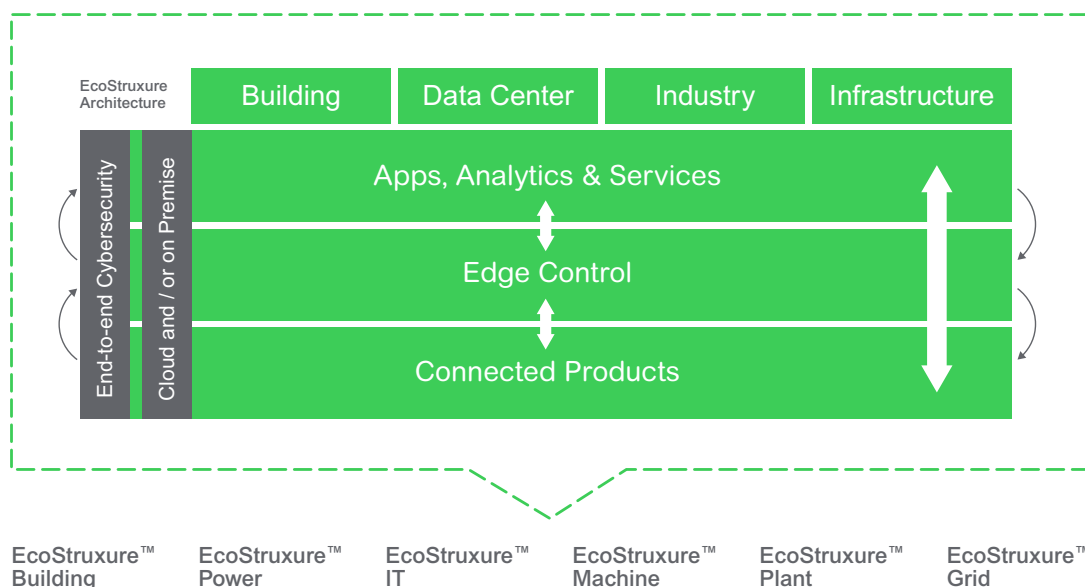
### IoT-enabled solutions that drive operational and energy efficiency

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.

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