

RELIABILITY

Keeping the trains
on track

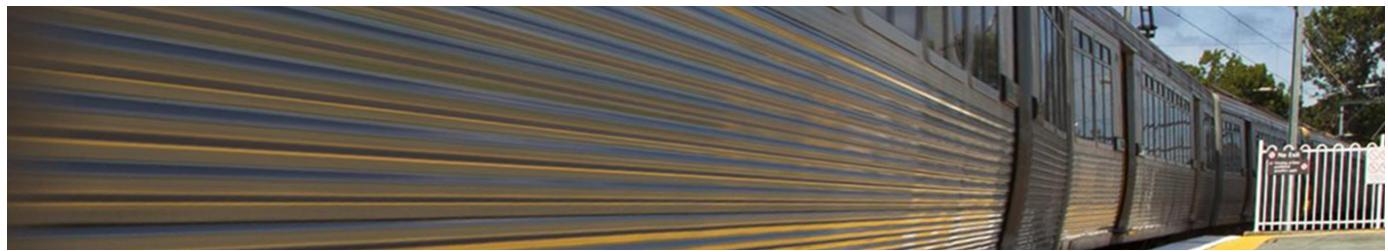
Queensland Rail – Brisbane, Australia

How EcoStruxure™ Power helps reduce the number of power system incidents through a new electrical substation.

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Life Is On

Schneider
Electric



Tackling challenges on a busy train network

Queensland Rail operates passenger services throughout Queensland, Australia. It is responsible for nearly 51 million customer journeys each year and about 8,000 km of track.

The operator used to experience power system incidents affecting the running of its railway network. With 1.5 million visitors expected to descend on the state for the 2018 Commonwealth Games, a major international multi-sport event, a much more reliable system was needed.

To master this challenge, Queensland Rail decided to upgrade its network and install a second substation for its inner-city services at the busy Fortitude Valley station in Brisbane. The location presented an extra difficulty as the available space allowed for just a 24-square foot (7.3 m^2) container. As a result, solutions used for the substation needed to be compact, while still able to function reliably, efficiently, and effectively.

Powering Queensland's railway with EcoStruxure

Schneider Electric was tasked with designing, supplying, and installing the substation.

To meet the tight specifications, the Schneider team proposed a range of powerful solutions for the switchroom, based on the EcoStruxure Power architecture and platform. This included a gas-insulated GHA switchgear, MiCOM protection relays, and a suite of backup protection and automation functions.

The 27.5 kV/ 200 A model of GHA switchgear was chosen for its compact design and high dependability, operating reliability, maximum operator safety, and ergonomic operator guidance. Paul Rourke, project manager for Queensland Rail, said: "This GHA equipment from Schneider Electric has been the only solution to fit a substation in the inner city."

To ensure the substation retained its critical power, the Gutor PXC industrial UPS system – ideal for harsh environments with vibrations – was built into the LV Spacial SF switchgear cabinet.

Goal

Reduce the number of power system incidents which caused delays on Queensland Rail's busy inner-city network.

Story

The rail network previously experienced several electrical incidents causing train delays. An upgrade to improve reliability, including the new substation, was required before the 2018 Commonwealth Games.

Solution

A new substation using a range of solutions based on EcoStruxure Power, including a gas-insulated switchgear, protection relays, an industrial UPS system, a compact enclosure, and monitoring and control software.

Results

Queensland Rail has seen a reduction in the number of incidents which impact the entire inner-city network. The upgrade passed the stringent test of coping with an extra 1.5 million passengers during the Commonwealth Games.

The substation is monitored and controlled remotely through Citect SCADA software, giving complete visibility of the system.

Schneider Electric built the contained switchroom at one of its manufacturing facilities and field service employees tested all of its components. Final delivery involved two cranes lifting the container and slotting it into place.

Destination: Reliability

The implementation of compact, highly reliable technology from Schneider Electric has enabled Queensland Rail to enhance the reliability of its services.

First of all, as the substation was assembled at Schneider Electric facilities, on-site work was minimized and Queensland Rail avoided as many interruptions to commuters as possible. As Paul Rourke said: "Working with Schneider Electric, we were confident of completing this project within our time frame and with minimal impact on our customers." Thanks to the methodology used, engineering, installation, and commissioning costs were reduced and CapEx was lowered.

As well as the savings made during the upgrade, the substation offers lower maintenance costs, as all live parts are sealed to prevent exposure to pests and corrosive atmospheres.

It's not only the budget seeing the benefits. Since the substation was installed, the rail operator has experienced fewer power incidents, resulting in less delays on its entire inner-city network.

What's more, in the event of any safety incident, Queensland Rail is able to quickly de-board passengers from the trains if necessary. This is thanks to the Citect SCADA software allowing the operator to respond to safety incidents in real time, as well as safely earth the system from the remote control center.

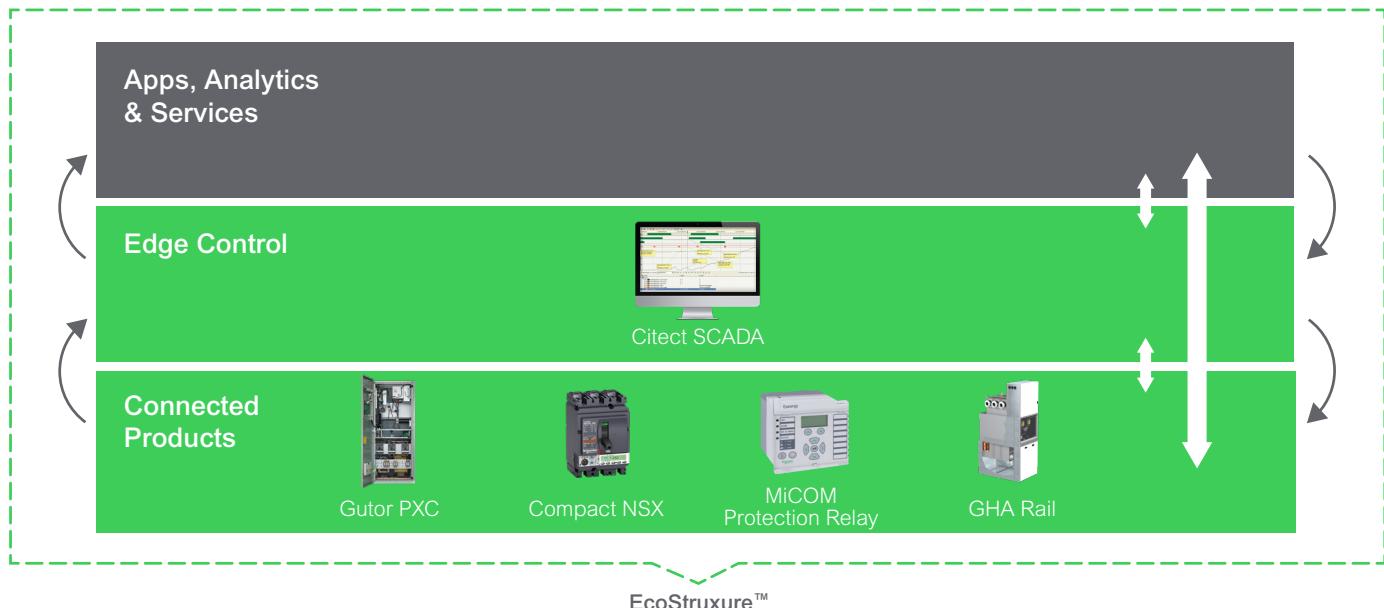
Paul Rourke said: "This solution will ensure that our network has high on-time running (OTR), which is something both ourselves and our commuters will appreciate."

Queensland Rail is now planning to use Schneider Electric solutions for another upgrade which will see four substations kitted out with the same switchgear.

"We have increased patronage on the trains and we need more trains and more power to cope with the demand."

— Paul Rourke,
Project Manager,
Queensland Rail

EcoStruxure Power



EcoStruxure™

Innovation At Every Level

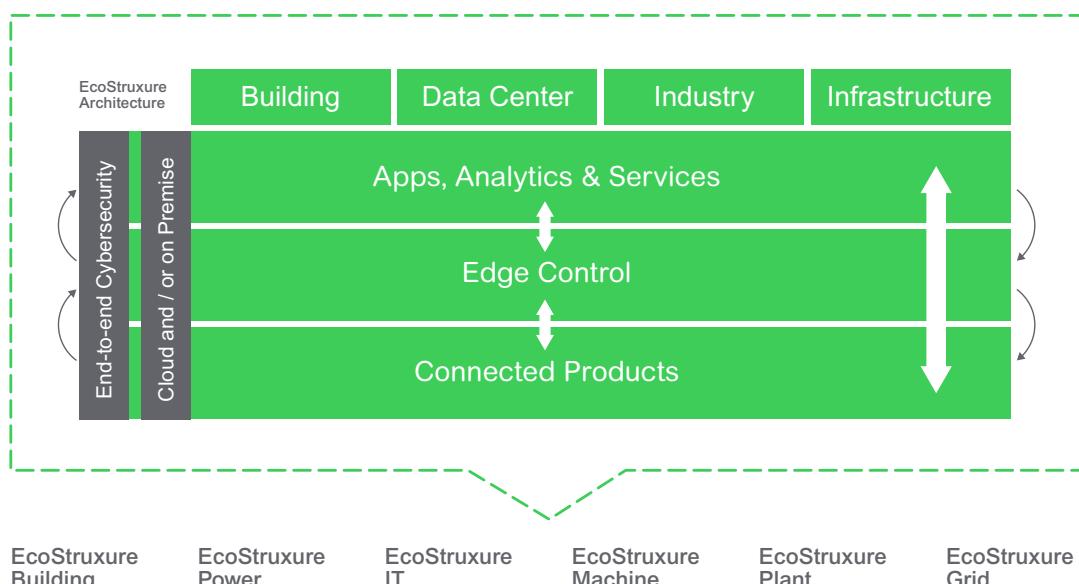
IoT-enabled solutions that drive operational and energy efficiency

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



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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

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Watch how EcoStruxure helped Queensland Rail get ready for the Commonwealth Games



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See the guidelines for modernizing existing electrical switchgear in LV and MV networks



Explore our range of gas-insulated switchgear for secondary distribution systems

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