

SAFETY

Harnessing the power of sugar

WILMAR SUGAR - Queensland, Australia

How EcoStruxure™ Plant is improving safety, efficiency, and productivity with an easy-to-use solution.

se.com/ecostruxure-plant

Life Is On

Schneider
Electric



Schneider Electric's [Modicon M580 Safety PLC](#) is part of the Edge Control portfolio of Schneider Electric's IoT-enabled architecture: [EcoStruxure Plant](#).

Introduction

Owning and operating eight sugar mills in Queensland, Wilmar Sugar Australia is the country's leading manufacturer of raw sugar. The company crushes about 15.5 million tonnes of sugarcane each year, producing more than two million tonnes of raw sugar.

Wilmar is also Australia's leading producer of renewable energy from biomass. Electricity is generated at each mill in on-site industrial boilers by burning bagasse – the fibrous material left over after the juice has been extracted from sugarcane. Bagasse is burned at temperatures of up to 800°C to produce steam. High-pressure steam is used to drive alternator turbines, generating power for the milling process and the electricity grid.

Combined, Wilmar's eight mills produce about 600,000 megawatt hours of electricity a year, with significant quantities exported to the Queensland power grid. Annually, Wilmar exports enough electricity to power more than 80,000 Australian homes for a year.

Wilmar's Invicta Mill is one of Australia's largest sugar mills, crushing about 3.2 million tonnes of sugarcane a year to produce about 500,000 tonnes of raw sugar. A major upgrade of Invicta Mill's boiler control system was required to ensure the ongoing safety and reliability of the site's power production capabilities.

Schneider Electric was able to provide a robust and reliable control system solution for the site's boilers. The system had to be capable of coping with 24/7 operating conditions during the six-month crushing season, as well as allow Wilmar to embed safety protocols into the associated software.

The Challenge

The Invicta Mill has been at its current site for 98 years. However, this plant, equipment and control systems have all been thoroughly modernised.

During the crushing season, which runs from June to November, sugar mills operate continuously. This means that during the off-season, a large program of maintenance and upgrade works is completed. This work is undertaken in accordance with Wilmar's ongoing improvement strategy.

Goal

Provide a robust and reliable control system for the site. The system had to be capable of coping with the mill's 24/7 operating conditions as well as allow Wilmar Sugar to embed safety protocols into the associated software.

Story

Wilmar Sugar Australia is the country's leading manufacturer of raw sugar and a leading producer of renewable energy from biomass. Annually, Wilmar exports enough electricity to the grid to power more than 80,000 Australian households.

Solution

Schneider Electric's EcoStruxure Plant architecture, which includes Modicon M580 Safety PLCs, protection relays, graphical interfaces and AVEVA's Citect SCADA software.

Results

Simplifying Wilmar Sugar Australia's control systems into one interface, Schneider Electric has enabled the sugar and energy producer to improve safety, efficiency and productivity with a system that is easy to use.

As part of this strategy, Wilmar noted that Invicta Mill's existing boiler control system equipment was reaching its end of life and required replacing. An upgrade was planned to simplify the control systems and embed safety procedures into the system, itself. The ideal solution was a control system that would enable Wilmar to have a complete view of all the factory's systems in one easy-to-use interface.

The Solution

Having worked with Schneider Electric for about a decade, Wilmar's electrical systems managers were already familiar with the quality and performance of Schneider Electric products and solutions.

Wilmar chose to install new Schneider Electric Modicon M580 Safety PLCs at its Invicta Mill, replacing multiple controllers which were previously monitored individually.

The M580 Safety PLCs use the same software tools, wiring methods, and X80 I/O structure as the M580 ePAC, also in use at Wilmar factories. This reduces the spare parts inventory and maintenance costs.

AVEVA's Citect SCADA software provides the user-interface for factory controls at Wilmar's mills. With the help of mobile devices, the software enables remote access to the systems, so even when employees are not on site, they can receive alerts, or log into the system to check equipment. This means production personnel are able to make immediate adjustments to the sugar milling process with ease and accuracy, whether they are on or off site.

At the heart of the Schneider Electric solution is the EcoStruxure Plant architecture. This architecture includes Schneider Electric protection relays, graphical interfaces as well as Citect SCADA software which brings all the control systems together, creating a unified picture of exactly what equipment is running and how efficiently. The seamlessly integrated EcoStruxure Plant architecture creates a system which operates efficiently and robustly, with minimal input.



The Outcome

By simplifying Wilmar Sugar Australia's control systems into one interface, Schneider Electric has enabled the sugar and energy producer to improve safety, efficiency, and productivity with a modern system that is easy to use.

In particular, installation of the M580 Safety PLCs has allowed Wilmar to increase factory automation, driving better efficiencies through improved operational performance.

"Schneider Electric's EcoStruxure Plant provides us with a more thorough picture of our infrastructure," says Russell Brown, Wilmar's General Manager for Asset Management. "We have been able to combine our automation, connectivity, and software into one system which allows us real-time control and visibility."

"The Schneider Electric team really understands our business needs," Russell continued. "Throughout our long-term relationship they have been excellent to work with."

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- Russell Brown,
General Manager
for Asset Management,
Wilmar Sugar

EcoStruxure™ Plant

Innovation At Every Level



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EcoStruxure™

Innovation At Every Level

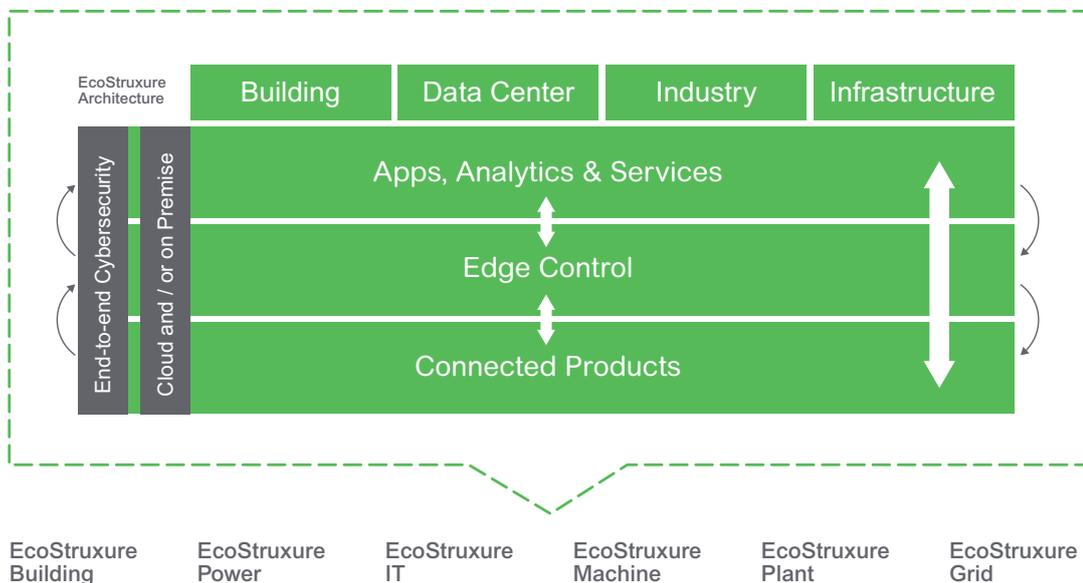
IoT-enabled solutions that drive operational and energy efficiency

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

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