EcoStruxure™
Innovation At Every Level

DIGITAL

Quenching a growing thirst

Kunming CGE Water Supply Co., Ltd. – Kunming, China

Efficient and sustainable water distribution system with
EcoStruxure™ for Water and Wastewater

se.com/water

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The Modicon family of PLCs is part of the Edge Control portfolio of the Schneider Electric IoT-enabled architecture. Modicon controllers manage complex interfaces across assets and devices or directly into the cloud, with embedded safety and cybersecurity, providing performance and scalability for a wide range of industrial applications.

Smart, safe water

With a history dating back nearly 1,300 years, Kunming is now the capital and largest modern city in China's southern Yunnan province. Its municipal water company, Kunming CGE Water Supply (KMCGE), services a population of nearly four million residents with its 10 treatment plants, with a total water supply capacity of 1.58 million cubic meters per day, and a water distribution network that stretches over more than 4,000 kilometers. As the city grows, KMCGE must also continue to expand the scale of its water supply.

Delivering a safe and stable water supply while optimizing production and operational efficiencies are the challenges faced by most water utilities. To make sure it could support the rapid urban development of Kunming, KMCGE recognized that it needed to leverage the power of digitization to effectively manage its water supply. It sought to tap into the rich cache of available data to coordinate network pipe pressure, the rational distribution of water resources, and better energy management.

Digital water distribution

A reliable urban water supply system is one of the foundations of normal life that enable residents and industrial enterprises alike to function and thrive. After years of building an increasingly complex water supply network, along with the continuous development of its information technology, and improvements at the managerial level, KMCGE's production scheduling system also needed an overhaul. It needed to be able to coordinate between water distribution and energy management, enable remote operation, and reduce operating costs, all while providing reliable customer service to the people of Kunming.

Goal

Ensure a safe, stable, and more efficient municipal water supply while increasing sustainability and reducing overall operating costs.

Story

Kunming Water applies the latest digital technologies to its water distribution platform to reduce leakage and energy waste and improve operational and maintenance efficiencies so it can continue to supply high-quality drinking water to a growing urban population.

Solution

A fully integrated EcoStruxure for Water & Wastewater solution, including automation, low and medium-voltage products, and leading-edge industrial software from AVEVA.

Results

- Better operational management through increased digitization and visualization
- Improved visualization of energy usage
- A safer, more reliable, sustainable, and efficient water distribution process

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Schneider Electric built KMCGE's original water distribution management system back in 2009, incorporating the latest industrial software technologies available at the time, including Citect SCADA (now AVEVA Plant SCADA) and Ampla MES (now AVEVA Manufacturing Execution System). Since it was commissioned over 10 years ago, the system has played a pivotal role in improving the efficiency of KMCGE's water distribution network.

When it came time to upgrade the system, KMCGE wanted a new production scheduling system that would not only include the data accessed by the existing system, but also integrate a whole host of additional data on its water sources, plants, transmission and distribution networks, energy use, and water quality. It also needed access to data on the operational and maintenance status of its equipment, and more timely, accurate, and complete data to better manage the operation of the utility.

This time, KMCGE again turned to Schneider Electric and our expertise in smart water solutions. To meet KMCGE's needs, Schneider proposed an EcoStruxure for Water & Wastewater solution that builds on KMCGE's installed base, including Modicon M340 PACs, Altivar ATV1200 and ATV630 variable speed drives, medium and low-voltage power distribution systems, integrated with AVEVA System Platform software and EMS+, an energy management services platform.

"Schneider Electric has been our partner for many years. Based on our specific requirements, they provided us with a complete digital solution, from production control to operation scheduling," says Yu Cheng Huang, Assistant Manager, Water Supply and Distribution Control Center, KMCGE.

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The building blocks of a smart power and automation system

With its ability to integrate the performance of the connected devices and edge products, AVEVA System Platform provides KMCGE with a "digital core" for its updated water distribution management platform, incorporating lean management and centralized control capabilities.

To help achieve KMCGE's sustainability goals, the utility is using EMS+, Schneider Electric's next generation energy management platform. The EMS+ system's modular design means it can be tailored to KMCGE's specific requirements and ambitions. In this case, it collects and centralizes key data on water sources, water plants, pumping stations, distribution networks, and water quality. This wealth of data is then made available for analysis and reporting to help KMCGE formulate and refine effective water supply plans and make production scheduling more

transparent, flexible, and efficient, ultimately optimizing the entire process, from production to distribution.

Using the Modicon M340 PAC, with its mature technology and a user-friendly interface, KMCGE operators are armed with a full range of monitoring and analysis functions for efficient operation and maintenance, from production control to energy use.

The low and medium-voltage smart power distribution solutions, including BlokSeT™ intelligent low-voltage switchboards, PIX medium-voltage air-insulated switchgear, MiCOM protection relays, MasterPact MT air circuit breakers and other equipment ensure the reliability of KMCGE's power supply while also collecting important data and monitoring operational status through their digital capabilities.

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Seeing is believing

The smart power distribution and automation solution built on Schneider's EcoStruxure architecture and platform has provided KMCGE with a complete digital solution that has improved its operations – with real-time control and more efficient maintenance – and reduced its energy usage and overall operating costs. Key to these results are the critical visualization capabilities that AVEVA System Platform and the EMS+ system provide.

By reshaping the digital core of KMCGE's water management system, it has optimized its water distribution and plant efficiency to provide a safer, more reliable, and sustainable water supply for residents.
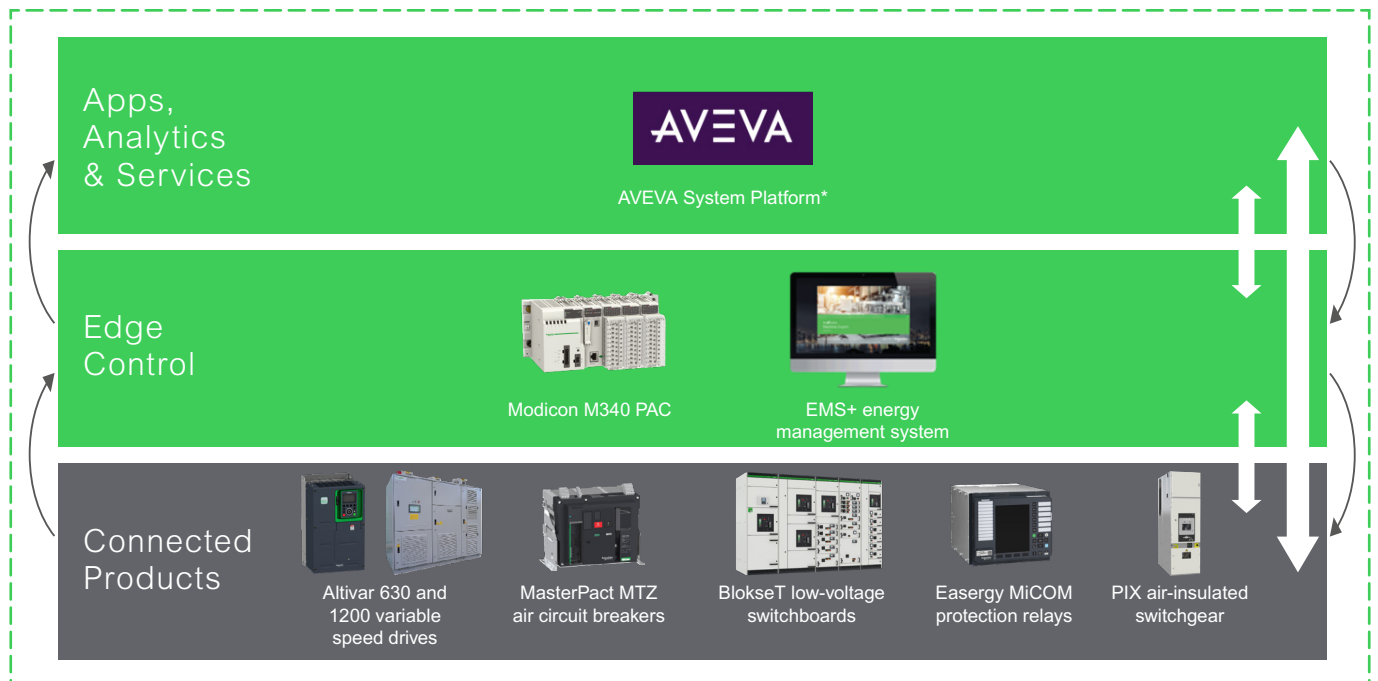
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EcoStruxure™ for Water and Wastewater

Apps, Analytics & Services

AVEVA System Platform*

Edge Control

Modicon M340 PAC   EMS+ energy management system

Connected Products

| Altivar 630 and 1200 variable speed drives | MasterPact MTZ air circuit breakers | BlokseT low-voltage switchboards | Easergy MiCOM protection relays | PIX air-insulated switchgear |

*The Schneider Electric industrial software business and AVEVA have merged to trade as AVEVA Group plc, a UK listed company. The Schneider Electric and Life is On trademarks are owned by Schneider Electric and are being licensed to AVEVA by Schneider Electric.

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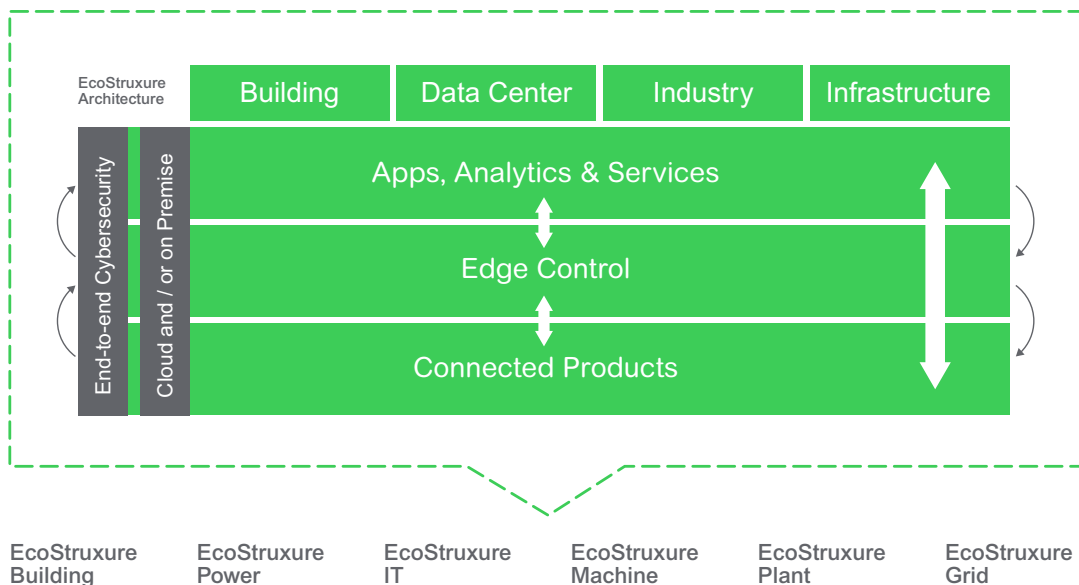# Eco**Struxure**™

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

EcoStruxure Architecture	Building	Data Center	Industry	Infrastructure

End-to-end Cybersecurity	Cloud and / or on Premise	Apps, Analytics & Services
		Edge Control
		Connected Products

EcoStruxure Building	EcoStruxure Power	EcoStruxure IT	EcoStruxure Machine	EcoStruxure Plant	EcoStruxure Grid

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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Experience the Industries
of the Future

Learn more about EcoStruxure for
Water and Wastewater

Modicon, the industrial edge
control for IIoT

Leading-edge industrial software
from AVEVA

See our other customer stories

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