



# Foshan City, China

## China's Foshan City Achieves 70% Energy Savings Through Automated Streetlights

*The Utilities Department of Nanhai District, Foshan City Works with Guangdong Rongwen Energy Science and Technology Group Co., Ltd to improve Energy Use and Reduce Costs.*

### Overview

Guangdong Rongwen Energy Science and Technology group is a leading ESCO company in China dedicated to providing intelligent LED street lighting solutions to municipalities worldwide. Rongwen is managing over 180,000 smart LED street lights, delivering improved energy-savings and lower maintenance costs.

Rongwen retrofitted 14,051 units of LED streetlights in Foshan City, a prefecture-level city in the People's Republic of China's central Guangdong province. The area under the city's jurisdiction covers 3,840 km<sup>2</sup> (1,480 sq mi) and has a population of 7.1 million, of which 3.6 million reside in the city limits.

### The Challenge

The Utilities Department of Nanhai District tasked Rongwen with two main projects:

- Providing the best solution for the city's energy saving program
- Providing LED products procurement, construction, streetlights and alley lights installation and commissioning, personnel training, energy-saving monitoring & verification, etc.

The power line based streetlight network would be shared by other devices such as traffic lights and electric signs, risking signal interference to the iLon Smart server.

The project required the replacement of high wattage HPS streetlights with lower wattage "DL" LED streetlights using a LonWorks control and management system. The proposed system could save up to 70 percent of the energy consumed with the existing system. The project required more than a 66 percent energy saving rate and only 2% failure rate, with the average illumination above the national standard during the 10 years EMC contract year.



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Rongwen was responsible for the management and maintenance of the streetlights, poles, cables, cabinets and IOT smart control system provided by Rongwen, ECHELON and Streetlight.Vision.

The biggest challenges facing the project included:

- Investigating potential power line interference before the installation started
- Optimizing streetlight control networks
- Collecting previous power consumption data
- Designing a cost-effective and energy-efficient LED streetlight network
- Investigating 3G coverage

## The Solution

Because of its proven reliability and interoperability, Rongwen uses LonWorks technology, based on the ISO/IEC 14908 control networking standard, in all of its EMC LED streetlight projects, including nearly 200,000 light points.

Each streetlight has an integrated intelligent control module capable of receiving commands and sending data to the iLon Smart server for streetlight management and maintenance. Rongwen used Customer Management System (CMS) provided by Streetlight.Vision to manage the system. The CMS supports dimming lights to 80 percent after 10 p.m., 50 percent after midnight, and 30 percent during the early morning hours and 6 am, plus the ability to change schedules during holidays.

Zhixiong Lee, general manager of Rongwen, was looking for a solution that was reliable, efficient, and environmental-friendly. "The key reason for us to continue using LonWorks control technology in our projects is it guarantees the best performance, which is very important for EMC projects," Lee said. "By integrating CMS into the project, it can significantly reduce electricity consumption at least by 30 percent and lower maintenance cost by at least 40 percent. That's a total of at least a 70 percent savings in energy when we combine COB LED, LonWorks, and CMS technologies."

## The Result

The project has proven to be overwhelmingly successful with improved energy efficiency and environmental responsibility. Current results include:

- Reduced energy consumption by 66% to 75%
- Saved 3432 million Kwh per year
- Lowered failure rates to less than 2%
- Reduced maintenance costs by 30%
- Lowered installation costs by 20%



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