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Ricky Kwan
Head of Technical Services
S.H.K. Real Estate Management Company Ltd.

Case Study

Sun Hung Kai Centre Exceeds Energy Savings Goal with Johnson Controls

10 percent reduction in energy consumption of central chiller plant with YORK® Chillers, Metasys® Central Plant Optimization 10 software and 24/7 Connected Services

Summary

As one of the largest real estate developers in Hong Kong, Sun Hung Kai Properties is one of the pioneers in Hong Kong in the application of new green technologies. The facility management team of Sun Hung Kai Centre wanted to further reduce the building's energy consumption and carbon footprint by five percent. Johnson Controls proposed the implementation of a comprehensive building solution that included its Metasys® software, Central Plant Optimization™ 10 (CPO10), and proprietary remote monitoring tool, Connected Services. The team at Johnson Controls was able to surpass Sun Hung Kai Centre's energy conservation goals and yielded impressive energy savings for the building.

The Story

Sun Hung Kai Properties was one of the first developers in Hong Kong to establish the ISO 14001-certified environmental management systems across their construction and property management businesses. Since 2011, the company has followed green building standards for all new projects in an effort to benchmark their developments to global best practices. To date, the Group has 23 buildings and sites pre-certified or certified under the US Building Council's Leadership in Energy and Environmental Design scheme (LEED), and 22 buildings and sites under the Hong Kong Building Environmental Assessment Method (BEAM) green building.

Headquarters of the Group, the Sun Hung Kai Centre is a mixed-use development comprising 53 floors. It is one of the few buildings in Hong Kong that has achieved the "Excellent" certificate awarded by the Hong Kong Environment Technology Centre, and received the ISO 50001 energy management system certification. In line with its green commitment, the developer wishes to have a sustainable energy solution that can further improve their chiller plant energy consumption by five percent and further lower their carbon footprint.

The owners were looking to implement the new solution without any disruptions to the indoor environment, as well as minimize the modification work required.

As Johnson Controls had previously helped the building owners to retrofit the chiller plant with new energy-efficient YORK® YK chillers, Sun Hung Kai Properties again reached out to Johnson Controls to design a comprehensive solution.

Case Summary

Customer Challenges:

- Lower energy consumption levels by 5% and reduce carbon foot print
- Optimize chiller plant efficiency without disruptions to the indoor environment
- Minimize modification work required

Our Solution:

- *Metasys®* Central Plant Optimization™ 10 (CPO10) software, integrated with existing Johnson Controls YORK® YK centrifugal chillers
- Johnson Controls' fault-diagnostic tool, Connected Services

Customer Benefits:

- 10 percent reduction in energy consumption
- Reduction in CO₂ emissions by over 300 tons, equivalent to the carbon sequestered by 1,350 trees
- Payback time of only 2 years

Creating an Optimized Building Management System

The central chilled water plant consumes about 40% of the total energy consumption in buildings. To help Sun Hung Kai Centre realize the greatest cost and energy savings, Johnson Controls developed a service strategy that looked at optimizing the performance of the central plant equipment and components as a single, integrated system. At the same time, the proposed solution had a payback time of only two years.

Central Plant Optimization™ 10 (CPO10) software powered by *Metasys®* was introduced and integrated with existing YORK® YK centrifugal chillers. Designed to optimize performance and savings, the CPO10 software incorporates best practices from world-class chiller plants and is used for thousands of plant configurations. With CPO10, chillers with different tonnage and starters can be utilized depending on building load and ambient conditions, hence optimizing the performance of the chiller plant.

Johnson Controls also introduced its proprietary fault-diagnostic software, Connected Services, which allows for remote monitoring of chillers round the clock. With that, Sun Hung Kai Centre gets real-time information on their chiller plant performance, as well as new chiller insights through monthly, customized reports which indicate the health of the chillers.

Commitment to a Better Living Environment

With the latest building management system implemented by Johnson Controls, the Sun Hung Kai Centre continues to meet its stringent green building certification criteria.

To date, the new solution has enabled Sun Hung Kai Centre to achieve chiller plant energy savings of 10 percent, resulting in annual savings of close to USD 75,000 for the property. This translates into a reduction of 300 tons in CO₂ emissions, equivalent to the carbon sequestered by 1,350 trees.

"The Johnson Controls team gave us valuable counsel and with their solutions, we were able to achieve energy and cost savings of 10 percent and reduce our carbon foot print by 300 tons annually. We are deeply impressed by their level of expertise and professional service," concluded Ricky Kwan, Head of Technical Services, S.H.K. Real Estate Management Company Ltd.