January 2024

Customer Success Story

Swire Properties Boosts Energy Efficiency and Sustainability with Trane's Leading Climate Solution at One Island East

I. Project Overview

Swire Properties Limited sought to revamp its chiller system at One Island East (OIE), a 68-storey triple Grade-A office tower located in the business hub of Taikoo Place, Quarry Bay.

To achieve this goal, they partnered with Trane Service Hong Kong, a leading heating, ventilation, and air conditioning (HVAC) provider, to upgrade the existing chiller plant with seven ultra-high-efficiency Trane® CenTraVac® Water-cooled Centrifugal Chillers. This upgrade would not only significantly enhance energy efficiency to reduce energy consumption and save operating costs, but also minimize the OIE's carbon footprint.

II. The Mission

The primary objective of this project is to upgrade from their decade-old constant-speed water-cooled chillers to modern variable speed models that could deliver significant improvements in energy efficiency. The project team had faced with these major challenges:

- Optimizing the plant's cooling capability to achieve annual energy saving of 700,000 kWh without sacrificing the comfort level of office tenants
- Overcoming site constraints for the delivery and installation of the new chillers
- Ensuring an uninterrupted supply of chilled water to tenants 24/7 during the upgrade
- Supporting Swire Properties' Sustainable Development (SD) 2030 Strategy to integrate sustainable development into every facet of its business

Despite all these challenges, Trane was able to deliver a comprehensive and effective solution that met the client's needs and exceeded their expectations.

III. Trane's Solution

Trane Service Hong Kong, renowned for supplying innovative HVAC solutions and ethical business practices, was the preferred partner for this project. Trane's strategic approach included:

- Detailed site assessments to ensure new chiller compatibility with the existing architectural framework and piping system.
- A guarantee of continuous chilled water provision to tenants throughout the transition phase.

Trane proposed the installation of seven ultra-high-efficiency CenTraVac® Water-cooled Centrifugal Chillers with a combined capacity of 8,520 tons of refrigeration (TR), featuring variable speed drives and an eco-friendly hydrofluoroolefin (HFO) refrigerant R514A. This refrigerant has a negligible Global Warming Potential (GWP) of less than 2. Moreover, leveraging a low-pressure technology, Trane was able to significantly decrease refrigerant leaks while enabling net-zero greenhouse gas emissions, helping Swire Properties to fulfill its commitment to environmental responsibility and sustainability.

IV. Project Implementation

Trane's implementation of the project started with meticulous planning and unfolded as follows:

- **Chiller Selection**
  The project was aimed to maintain a 24-hour supply of chilled water and avoid any disruption to the chilled and condensed water systems. Hence, an intensive review of the spatial dynamics was conducted to ensure seamless integration of the new chillers. The Trane team then carefully selected three most suitable CenTraVac® models based on the site conditions and customer needs.

- **Energy Optimization**
  The Trane CenTraVac® chillers feature excellent performance, with full-load coefficient of performance (COP) values reaching up to 6.44, exceeding the standard rating by 9.15%. The part-load COPs were equally impressive, surpassing the statutory requirements by 18% to 20%.

  Trane's expert technicians have made significant progress in the OIE project by successfully installing three chiller units with a combined capacity of 1,560TR, all while minimizing disruption to the building's operations. Installation of a 1,030TR unit is currently underway, and the entire project is expected to be completed by August 2024.

- **One-stop Service**
  Trane is committed to delivering not just the equipment but a seamless one-stop service experience, which encompasses meticulous installation, rigorous testing and commissioning, as well as preventive maintenance and repairs of the chiller system, to prevent unexpected downtime and ensure reliability, energy efficiency, and customer satisfaction.

V. Key Outcomes

The OIE project demonstrates Trane's dedication to environmental responsibility and innovative HVAC solutions, bringing about these notable positive impacts:

- **Enhanced Energy Efficiency**
  The state-of-the-art Trane® CenTraVac® chillers have led to remarkable energy savings, surpassing the client's initial target, and significantly reduced the building's carbon emissions.

- **Sustainability Milestone**
  By adopting the ultra-low GWP refrigerant R514A, Swire Properties has made a significant step towards reducing the building's carbon footprint, aligning with its sustainable development goals. The OIE building now boasts an energy-efficient chiller plant that not only ensures lower operating costs but also exemplifies the building owner's commitment to green initiatives.

- **Maintained Business Continuity**
  The project is being carried out while minimizing disruption to the daily operations of all building tenants despite the challenging setting and strict spatial constraints. Owing to proper planning and precise execution, the building's business continuity has been maintained throughout the process.

In summary, Trane's cutting-edge CenTraVac® chiller solution and client-centric one-stop service have not only met Swire Properties' immediate needs for energy efficiency but also successfully positioned the OIE building as a sustainable property. This has set a precedent for future similar projects and reinforced Trane's reputation as a provider of innovative and environmentally conscious climate solutions.