

Collins Square Precinct

Commercial Real Estate

The Challenge

Collins Square is a vibrant commercial, mixed-use precinct featuring a business hub, 48 retail outlets, and 32 commercial tenants. Covering an area of roughly five acres with six towers and a heritage-listed building, it is one of the largest commercial developments in Australia and the largest in the Melbourne central business district of Victoria. The vision for Collins Square was to create a city within a city, seamlessly integrating commercial office space with convenience retail.

When Walker Corporation, the development's owner, wanted to strengthen competitiveness in a crowded commercial building market, they chose to focus on slashing the precinct's carbon footprint, particularly as it related to energy use. Doing so not only aligned with the company's business values, it made the precinct more attractive to government and corporate tenants that sought more sustainable spaces in which to conduct business.

Partnering with Optimal Group, Capstone's Australian distributor, allowed the company to implement highly reliable, cogeneration and trigeneration systems across all parts of Collins Square. Walker Corporation achieved their ambitious efficiency goals and carbon emissions reductions. They also significantly reduced energy costs in what was to become the first precinct-wide, distributed power system of its kind in the country.



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— Chris White, Head of Operations
Asset Management for Walker Corporation

Power Profile

Customer

Walker Corporation

Location

Docklands, Victoria, Australia

Commissioned

2010–2018

Fuel

Pipeline Natural Gas

Technologies

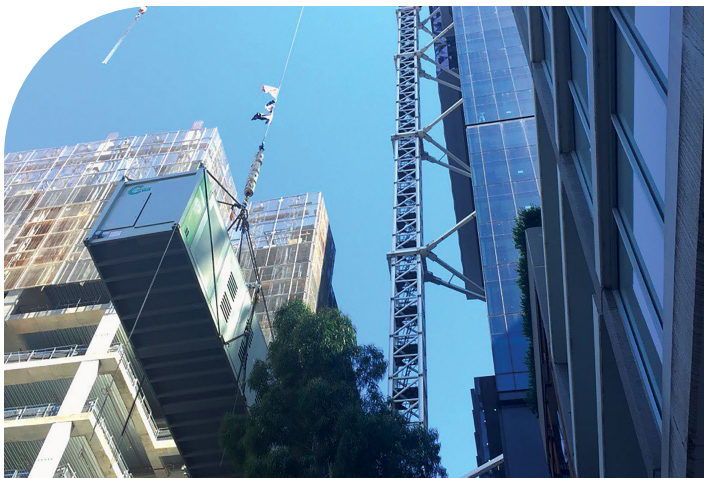
- 2 C200 Microturbines
- 4 C600 Microturbines
- 7 C65
- PLC Remote Monitoring
- 4 Absorption Chillers
- 1 C1000 Control System
- Factory Protection Plan

Capstone Green Energy Distributor

Optimal Group Australia

A photograph of the Collins Square Precinct at night, showing several modern skyscrapers with illuminated windows and facades. The image is overlaid with a semi-transparent green filter.

**Smarter Energy
for a Cleaner Future**



A C600 microturbine inside a C1000 enclosure houses three modularly configured 200kW microturbine engines. In this way, the system can adapt to electrical demand fluctuations and provide reliable power while also reducing energy cost.

The Solution

For Collins Square's facility managers, cogeneration and trigeneration were critically important to meeting and exceeding emissions reduction goals for the entire precinct. Each tower generates part of its own electrical demand using a natural gas-fueled C600 microturbine system. The Capstone C600 turbine stems from the C1000 range, which is a fully contained power plant that includes all switchgear, protection relays and synchronization systems. Further, the C600 is modularly configured using three 200 kW microturbine engines, allowing the system to seamlessly and efficiently adapt to fluctuations in electrical demand—a key challenge for commercial facilities, particularly during changing seasons. The added redundancy of the microturbine allows it to operate part of the system when powering a partial load or when being serviced.

For added functionality and efficiency, the system is configured to capture the waste heat produced during the onsite generation and use it for both for heating and cooling in the respective buildings.

Beyond the microturbine's significant energy efficiency and very low carbon emissions, the technology has low noise levels—another feature designed to help keep tenants comfortable. The company also gave preference to the microturbines to keep the power plant and infrastructure consistent across the entire precinct.

The Results

The Collins Square development represents the highest concentration of environmentally sustainable buildings in the southern hemisphere. The consistency in energy strategy and technology across all towers was key to helping achieve the sustainability goals (not to mention simplifying maintenance needs).

One of the key drivers of the years-long initiative was to achieve a good NABERS rating (National Australian Built Environment Rating System), which is the Australian commercial building rating standard for energy efficiency. To date, each tower has achieved a 5-star NABERS efficiency rating, with one of the towers now exceeding 6 stars due to ongoing tuning and the installation of 100 kW of solar PV working alongside the turbines. Further, the system's configuration, using turbines with the heat recovery system, is expected to reduce emissions by 65% when compared to using utility-provided electricity.

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