airmaster

Case Study //

833 Collins Street, Melbourne

Located in the heart of Melbourne's Docklands precinct, the 14-storey low rise ground scraper features a fully connected floor plan and dynamic central atrium space providing natural light penetration. The building was completed in 2009 and is home to 6,500 ANZ employees with a net lettable area of 85,450m2.

The Challenge //

Built with a heavy focus on energy efficiency, 833 Collins Street is recognised as a Green Star rated building and utilises best practice design throughout including a fully operational Tri Generation Plant. Other environmental efficiencies include a facade coefficient, specialised lighting systems, natural light harvesting, blackwater recycling, solar panels, rainwater harvesting, and landscaped roofing.

To further continue the building's high energy efficiency standards, it was recommended that the operating plant be reviewed to ensure full optimisation. This review would not only maintain energy savings but would also provide the client with measurement and verification of the plant's performance, detailed reporting, and plant diagnostics.

The Solution //

Airmaster deployed the award-winning plant optimisation solution, PlantPRO to be installed at this site to both optimise the operation of the central plant and to provide advanced measurement and reporting capabilities to the facility.

Control strategies included active lift optimisation through a combination of chilled water and condenser water reset and further enhanced with variable speed primary pumping control. In addition to this, optimised chiller sequencing was employed to ensure the best fit chiller is always sequenced for the given building load.

The deployment of PlantPRO at 833 Collins Street was the first integration with a Siemens Building Management System (BMS). Integration was seamless and used BACNet IP for communications between the two systems.

PlantPRO was installed in December 2017 and operated in Measurement and Verification mode for the first three months so it could learn the characteristics of the plant while still being controlled by the BMS. Data gathered through PlantPRO was then used as a baseline to compare plant efficiency once PlantPRO took over control.

In March 2018, PlantPRO took full control of the chiller plant. An immediate improvement in running costs was seen and maintained over the next several months of operation.

The Results //

Although comparative operating data was predominately over the winter months, it was clear that a downward trend in energy consumption was forming with even more significant energy savings seen over Spring 2018 (Figure 1).

To date, the site is tracking at 30% energy savings compared to the same time 12 months prior as demonstrated in the below table. Over 11 months, these energy savings equate to 273,164 kWh or $35,400.00 based on the Q4 2018 Vic Commercial Buildings Retail Blended Supply Rates. Verified reporting predicts that the return on investment will be within 24 months of PlantPRO installation.

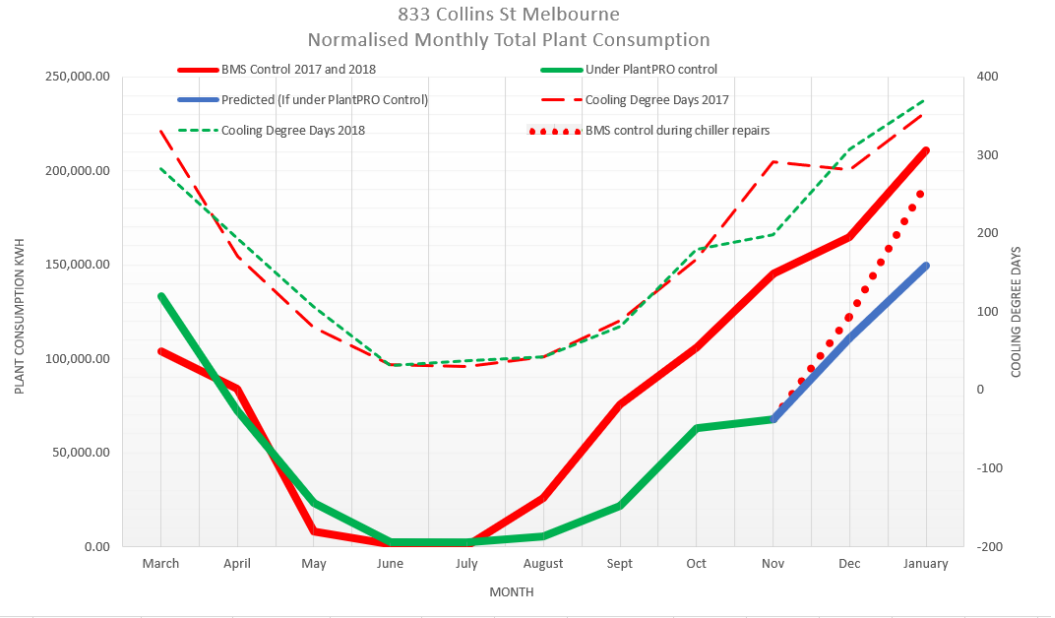

Figure 1 - Normalised Monthly Total Plant Consumption.

(Note: In December 2018 and January 2019, the plant was under Manual BMS control to facilitate the repair of chillers as indicated in dotted red)

About Us //

Airmaster is an award-winning technical solutions company, delivering end-to-end management of heating, ventilation,air conditioning, industrial and process cooling and building automation across Australia and South East Asia. Based in Melbourne and with 12 branches Australia-wide, Airmaster's commitment to sustainability is achieved through a proactive, integrated approach to helping organisations achieve energy efficiency in innovative ways.

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