UNIVERSITY OF MELBOURNE
CASE STUDY

Location: Melbourne, Australia
Number of Chillers: 3 x Water-Cooled
Simulated Energy Savings: 5.5%

Energy Saved: 41,700 kWh
Carbon Abatement: 40t CO2e *
Measured Energy Savings: 6.3%

OVERVIEW

The University of Melbourne has committed to achieving net-zero emissions by 2025 and becoming climate positive by 2030. To achieve these objectives, the University seeks to embed sustainable practices throughout its operations, with a key workstream being the upgrade and retrofit of existing infrastructure. The University engaged Exergenics to model the Law Building's chilled water plant, leveraging existing operational data to generate an optimisation recommendation. The project was implemented into the existing BMS in March 2021.

CHALLENGE

With every chilled plant being unique, human optimisation is time consuming and there is a serious shortage of engineers skilled to do this work. Optimal setpoints for chilled water plants can deliver significant energy savings without equipment upgrades or new controllers, but these setpoints are challenging to find.

SOLUTION

Exergenics' novel cloud-based AI optimisation achieved significant savings within a month, in three simple steps.

1
MODELLED CHILLER PLANT & GENERATED CONTROL STRATEGY

Historical BMS data from The University of Melbourne data lake trained Exergenics' plant simulation algorithms, and site knowledge was leveraged to place constraints on the model. Multiple optimisation loops were deployed to identify optimal chilled water plant setpoints for the building in a matter of weeks.

2
CONTROL STRATEGY IMPLEMENTATION

Exergenics' optimised setpoint recommendations were sent in a simple format to the building's incumbent BMS contractor to integrate into their existing BMS controller in a matter of days.

3
MEASUREMENT & VERIFICATION

9 months after implementation the energy savings were measured and verified against the baseline energy consumption, showing the savings outperformed the pre-commission simulated savings.

* Carbon abatement figures are based on Victorian grid emissions intensity factor (0.96 kgCO2e/kWh), as per the National Greenhouse Accounts Factors – August 2021

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