CSIRO SYNERGY BUILDING
CASE STUDY

Location: Canberra, Australia
Usage: Office and Laboratory
Energy Savings: 4.3%

Number of Chillers: 3
System Type: Air Cooled

OVERVIEW

CSIRO and i-Hub have recently developed the Data Clearing House, a single location for accessing energy and building data for CSIRO assets, intended for widespread adoption by the industry. Exergenics was engaged in September 2021 to validate the technology by interfacing to the system and extracting data from the Synergy Building for use in their cloud-based chilled water optimisation software.

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 CSIRO's Data Clearing House 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.

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