

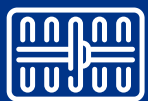
Crown Casino Melbourne

Case Study: Chilled Water Plant Optimisation



Energy Savings pa

12.3%



Total Plant Capacity

5,600 TR



Emissions Reductions

561 tCO₂



Yearly Cost Saving

\$105,160

This landmark 658-room hotel and entertainment complex operates one of the largest commercial air conditioned spaces in the southern hemisphere.

Exergenics' machine learning optimisation engine was deployed to enhance chilled-water plant performance, achieving a 12.3% improvement in energy efficiency, equivalent to a 701,069kWh annual reduction in cooling energy consumption and an estimated 561 tCO₂e reduction in greenhouse gas emissions.

Seamless Plant Optimisation

No Black Box. No Training. No Security Issues

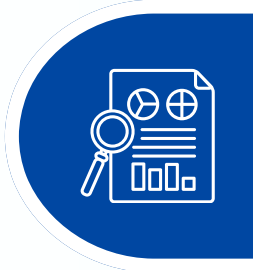
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The Challenge...

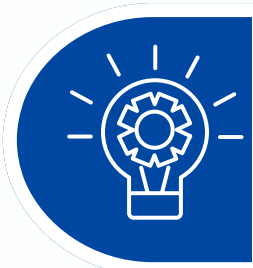
The facility's chilled-water plant supports a 24/7 hospitality and gaming environment with highly variable load demands. The client had already invested heavily in traditional BMS retrocommissioning and was running an advanced Fault Detection and Diagnostics program, so it was thought little could be done to improve efficiency. Exergenics was tasked with extracting efficiency from the plant systems Crown operates using the latest in Machine Learning techniques and unique thinking towards control parameters and opportunities.

The EXERGENICS Way



Data & Documentation

Data was sourced from the building's data warehousing platform and reviewed with the FM team to identify key performance trends and areas for opportunity. This enabled the development of a validated energy baseline model for accurate benchmarking and success criteria for optimisation strategies.



Strategy Development

Exergenics optimisation strategy focused on balancing chiller loading and condenser-water temperature to maximise efficiency within existing operational limits. In this environment, gamer and occupant comfort is paramount, so strict constraints were placed on the model to ensure efficiency gains were achieved within tight bounds of operation.



Strategy Implementation

The site implemented Exergenics' optimisation recommendations in June 2022 via the BMS, by the incumbent contractor, Honeywell. Integration required no hardware changes and maintained continuous cooling throughout deployment, ensuring zero downtime or disruption to operation.



Measurement & Verification

Measurement and Verification (M&V) under IPMVP Option B confirmed a 12.3% improvement in chilled-water plant efficiency, delivering a 561 tCO₂e annual emissions reduction and \$105,180 in verified cost savings.

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