

NYC Cancer Center

Case Study: Chilled Water Plant Optimization



Energy
Savings pa

5.9%



Total Plant
Capacity

**1,200
TR**



Emissions
Reductions
p.a

**26
tCO2**



Energy
Reduction

**63,077
kWh**

Exergenics' chilled water optimization software can be applied across a wide range of building types and facilities, including large hospitals. Its sophisticated algorithms analyze historical trend logs from a site's chilled water system to deliver optimized control strategies that reduce plant energy consumption. This data-driven, low-risk solution was implemented at a New York City hospital with no impact on patient comfort or operations. The simple payback period demonstrates that this technology is industry-leading in its ability to save energy and reduce CO₂ emissions.

Seamless Plant Optimization

No Black Box. No Training. No Security Issues

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The Challenge...

Hospitals are often energy-intensive to ensure they maintain high-quality and reliable healthcare. The heating, ventilation, and air conditioning (HVAC) system is the main consumer of electricity, accounting for approximately 52% of the energy consumed in the facility. As the USA transitions to a low-carbon society, the health sector is seeking low-risk, high-impact technologies to realize healthcare decarbonization.

The EXERGENICS Way



Data & Documentation

Exergenics utilized existing Building Management System (BMS) and metering data to establish a baseline performance model. This included correlations between cooling load, ambient wet-bulb temperature, and plant energy use, creating a robust foundation for comparison and optimization analysis.



Strategy Development

A predictive optimization model was developed to analyze how variations in load and ambient conditions affected energy performance. The model identified optimal control points for condenser water temperature and other parameters to maximize plant efficiency while maintaining operational stability.



Strategy Implementation

Exergenics implemented a Dynamic Condenser Water Temperature Reset Algorithm within the site's BMS. The algorithm automatically adjusts condenser-water setpoints in real time, minimising energy consumption across both chillers and cooling towers while ensuring full system reliability.



Measurement & Verification

Performance was verified following IPMVP Option B (Retrofit Isolation). Over a 12-month period, measured results confirmed a 5.9% energy reduction (63,077 kWh) and 26 tCO₂ avoided, with an exceptional model accuracy of $R^2 = 0.987$, validating Exergenics' optimization impact.



ConEdison Rebate Incentive

Four months after implementation, the savings were measured and verified against the pre-optimization baseline. The results were validated by ConEdison for the Real Time Energy Management (RTEM) rebate.

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