HOSPITAL, US SOUTHEAST

Cooling tower fans slowed significantly

14.0% less chilled water plant energy over twelve months, measured against an IPMVP Option B adjusted baseline

The hospital's four chiller plant had a fixed condenser water setpoint near 73 °F. On any day above about 60 °F wet bulb the towers could not reach it, so all five tower fans sat at full speed for most of the cooling season.

Exergenics modeled the plant from its own BMS trend data and replaced the fixed setpoint with a condenser water reset that follows wet bulb and load. The site's controls team programmed it into the existing BMS in August 2025. Nothing else on the plant changed.

424,423 kWh
saved over 252 days compared

0.710 to 0.611
plant kW/ton

114.6 t
CO_2e avoided

Facility
Acute care hospital

Plant
3 × 484 TR and 1 × 908 TR chillers, five cooling towers with 55 hp fans

Strategy
Dynamic condenser water temperature reset

Controls
Existing BMS, programmed by the site team

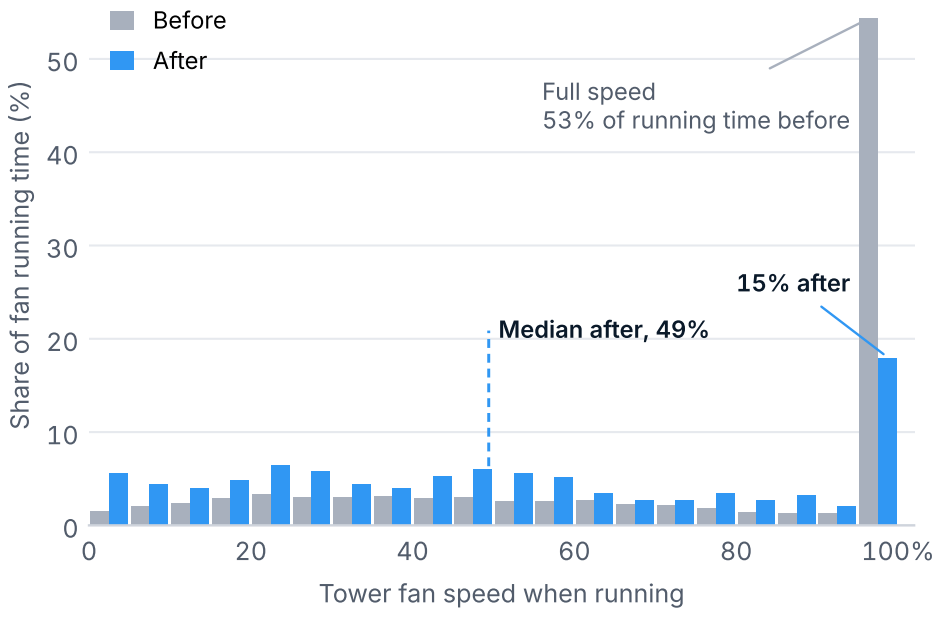
Baseline
January 2024 to August 2025

Commissioned
August 2025

Measured
August 2025 to August 2026

Data
15 minute BMS trends

Half the fan speed, most of the time



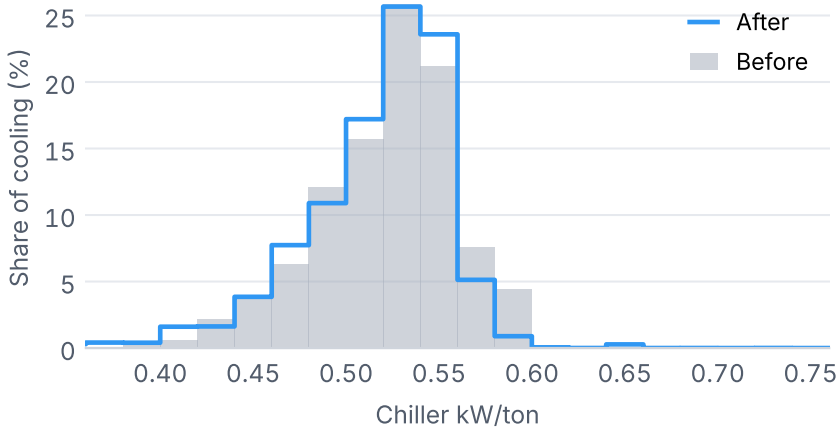
How the five tower fans spent their running time, before and after the change, compared at the same wet bulb and the same cooling load.

Before, the fans ran at **full speed for more than half** of their running time, chasing a setpoint they could not reach.

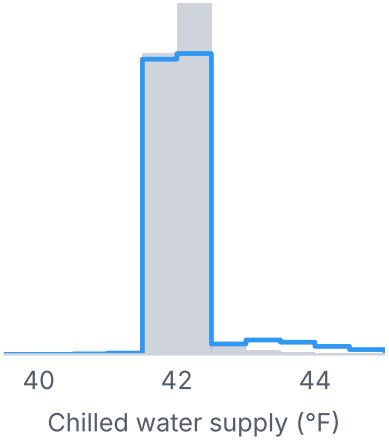
After, the median fan speed is 49%. Fan power falls roughly with the cube of speed, so a fan at half speed draws around an eighth of its full power.

The chillers did not pay for it

Slower fans let the condenser water run a little warmer in hot weather, which would normally make the chillers work harder. Compared at the same wet bulb and load, chiller efficiency is unchanged, and the hospital gets the same chilled water.



Chiller kW/ton, weighted by cooling delivered. Median 0.528 before, 0.525 after.



Chilled water supply. Median 42.0 °F before and after.

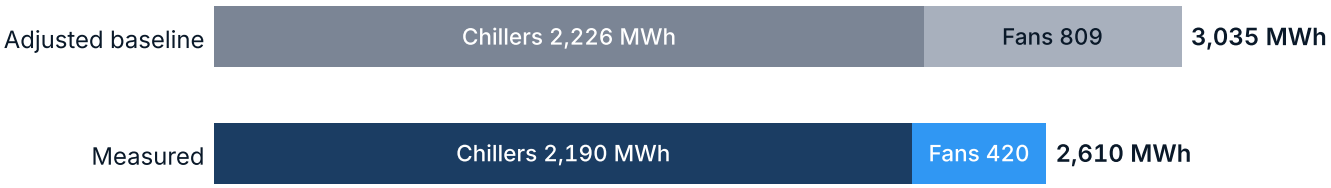
Where the saving landed

Almost all of it is tower fan energy. Chiller energy held steady.

389 MWh
less tower fan energy, down 48%

92%
of the total saving

22.5%
saving from June to August 2026, when the plant works hardest. All 90 summer days came in below the adjusted baseline.



Plant electricity over the 252 days compared: the adjusted baseline (what the plant would have used, run as before, for the same cooling and weather) against what it actually used.

How it was measured

IPMVP Option B, with the boundary around the four chillers and five tower fans. A baseline model of daily plant energy against cooling delivered and weather was fitted to 459 days before the change (R^2 0.95) and used to predict what the plant would have used on each reporting day. Days with no cooling, cold days outside the model's range, and a period of on-site works when the strategy was switched off were left out of the comparison.