



ENHANCING ENERGY EFFICIENCY IN A LARGE-SCALE MANUFACTURING FACILITY

CLIENT OVERVIEW

Situated in Deer Creek Canyon, the client's 700,000-square-foot facility represents a significant investment in the Denver metropolitan area, boasting the largest contiguous office space in both the city and the state of Colorado. Equivalent in size to a towering high-rise, the facility could accommodate 2,500 astronautical engineers and occupies a sprawling 100-acre site.

BENEFITS

The initiative yielded a significant improvement in chiller efficiency, estimated at over **USD \$9,700** annually. This translates to a reduction of approximately **97,000 kWh** in energy consumption, resulting in a corresponding decrease of **82,000 lbs. of CO2 emissions**. To put this into perspective, the emissions reduction is equivalent to the environmental impact of burning **112,000 pounds of coal** in the United States.

By implementing targeted maintenance strategies and leveraging third-party expertise, the client achieved tangible energy savings while contributing to environmental sustainability—a testament to their commitment to efficiency and innovation in manufacturing operations.



THE PROJECT

Tasked with cooling operations for satellite manufacturing, the facility employs a water-cooled system supported by chillers and cooling towers. This setup creates a central cooling plant capable of meeting the substantial year-round cooling demands of the facility, even during winter. In summer, the cooling towers expel heat from condensing water, while in winter, they leverage outside air conditions for free cooling, optimizing efficiency.

THE CHALLENGE

Two of the chillers, labeled as Chillers 2 and 3, present maintenance challenges due to their similar age and service life. Initially, Chiller 2 outperformed Chiller 3 in energy efficiency, prompting the facility management team to prioritize maintenance on Chiller 2. However, the team lacked precise metrics on the energy savings achieved through maintenance, necessitating third-party evaluation.

THE SOLUTION

To ensure accurate assessment and garner senior management buy-in, the facility team engaged a third-party perspective, leveraging the expertise of Kaizen from Copper tree for performance evaluation. By employing Kaizen's methodology, the team established a benchmark for energy efficiency improvements, laying the groundwork for future assessments. This approach not only validated the facility's efforts but also provided a framework for future initiatives, ensuring consistent and measurable progress.