ABOUT FLOWENERGY

FlowEnergy offers next generation solutions for energy efficient, cost effective, and comfortable buildings. We consider each element of your energy ecosystem and how they work together. Based on your energy consumption, we reverse engineer a tailored optimization strategy that complements and enhances your existing infrastructure.

Our sister company, Flow Control Industries, has a long history of market-shifting firsts. FlowEnergy builds on that proven performance with innovations that make a real difference. Because we know that today's best is just tomorrow's benchmark, we never stop pushing the boundaries to deliver more effective and efficient solutions.

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ARIZONA WESTERN COLLEGE

CASE STUDY

Keeping a growing campus cool in the hottest and sunniest city in the United States is challenging. Arizona Western College engaged with FlowEnergy to optimize both their chilled water plant and distribution system using SmartValve technology for major energy savings and improved comfort across campus.

THE PROBLEM

Arizona Western College (AWC) struggled for years with poor control of their chilled water system. Low Delta-T at their central plant greatly handicapped the available cooling capacity, forcing AWC to use all three chillers during the summer months, leaving no redundancy in a location where a loss of cooling means evacuating the college. Even with pumps and chillers operating at 100%, AWC could not reliably deliver chilled water to critical buildings on the far side of campus including the student union and dorms. All the while utility costs continued to increase year after year. AWC contacted FlowEnergy to learn if it was possible to maximize their existing cooling infrastructure. Otherwise, to effectively cool the campus, the college would need to invest millions in a new chilled water plant.

FAST FACTS

LOCATION
Yuma, Arizona

INDUSTRY
Higher Education

CAMPUS SIZE
650,000 square feet
across 31 buildings

PROJECT TYPE
Chilled water system
optimization

ANNUAL SAVINGS
2,500,000 kWh
$230,000

CASE STUDY

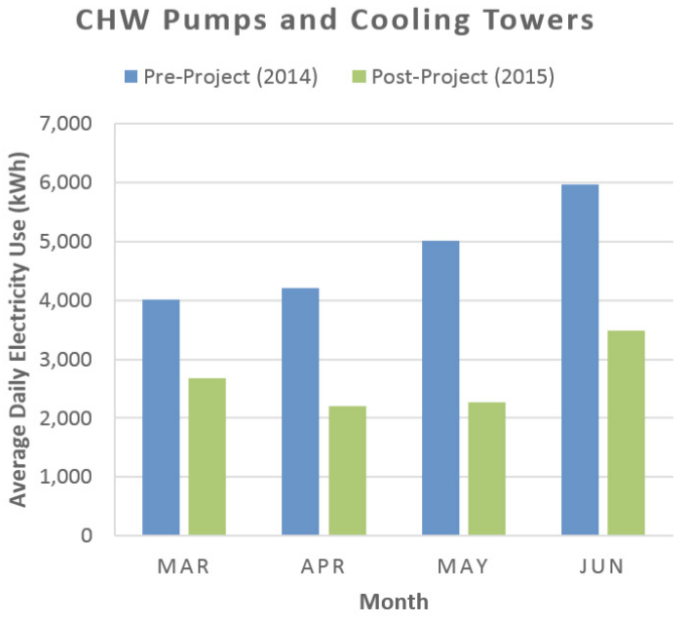
FlowEnergy

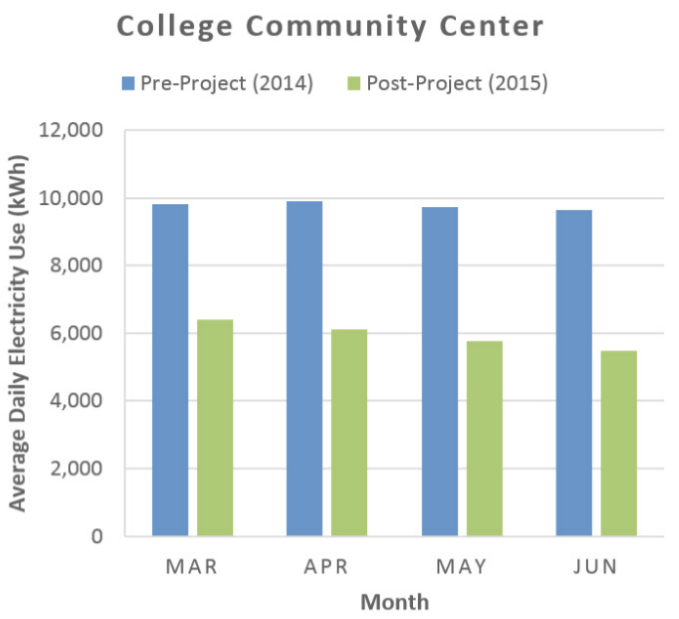
THE SOLUTION

FlowEnergy performed a detailed site-survey and hydraulic model of the chilled water system. We quickly identified design flaws in the plant piping and made changes to the decoupler and cooling tower connections. But the real savings came from installing our SmartValve system at every air handling unit (AHU). These high-performance, precision control valves maximize heat transfer at every coil by delivering the exact flow needed to meet the cooling load, resulting in stable control and a high Delta-T. Optimizing the chilled water system on the distribution side results in energy savings at both the building level and at the central plant:

- Eliminates unnecessary reheat and parasitic cooling load caused by poor AHU temperature control.
- Reduces AHU fan energy with chilled water control that meets and maintains design temperature setpoints.
- Reduces chilled water pumping energy by increasing Delta-T and reducing flow across campus.

FlowEnergy's Surge software platform enabled engineers to view real-time data and make control changes from the cloud for a smooth integration process. Only after SmartValves were installed across campus could AWC benefit from a new variable-primary pumping arrangement at the central plant and a recommissioned 450,000 gallon thermal energy storage tank.





Electricity savings at the chiller plant and the largest building on campus (College Community Center)

FlowEnergy

CASE STUDY

"We are extremely pleased with the results of our FlowEnergy project. Their SmartValve technology reduced annual electricity use by 15% and simultaneously delivered comfort to all buildings. The cafeteria used to be a sauna, now it's cool and comfortable."

- Steve Eckert, Director of Facilities @ Arizona Western College

THE RESULTS

While the energy savings are terrific, it's the improved comfort that AWC values most, as their optimized system is now effectively cooling all buildings. Further, the reduction in comfort complaints frees up time for the facilities team to focus on preventative maintenance.

- Recovered 600 tons of stranded cooling capacity which AWC used to add three new buildings to the chilled water system.
- 2.5 million kWh in annual electricity savings (15% of total electricity bill) and 15% reduction in peak demand charge.
- $275,000 utility rebate, the largest in Yuma County history.
- Improved comfort for students and faculty. The facilities staff reports a reduction in hot-calls from 10 per day to a couple per week.
- Delta-T at the central plant increased from 5-7 °F to 12-14 °F. This allows AWC to operate with a spare chiller and spare pump during the summer.
- The FlowEnergy Surge software platform constantly watches energy consumption to identify problematic units and new savings opportunities.