



Bainbridge High School

Boiler Control Retrofit

Bainbridge High School

Bainbridge High School (BHS) is Bainbridge Island School District's only comprehensive high school. The school serves approximately 1,300 students in grades 9-12. BHS has been recognized by US News & World Report as well as Newsweek Magazine as one of the top schools in the United States. Both publications rank the school as #5 in Washington State and #247 (US News & World Report) and #201 (Newsweek) in the nation. BHS boasts a graduation rate of 95.2% and is a magnet school for transfer students and families looking for a school that prioritizes making every student college and career ready. This stellar reputation not only applies to BHS students and teachers; the facility team is also constantly on the lookout for projects and programs that will save the District money and enhance the learning environment of the school. With the mandate to find projects that will put savings back in the District's general fund, Bernard Mejia, Maintenance Lead for the District, and his team proposed replacing the aging and failing boiler controls for BHS to save on utility costs, reduce equipment run time and improve overall facility functionality.

\$267,540

Avoided utility cost (2014 vs. 2015)

36%

Reduction in Utility Spend

230 Hours

Reduction in equipment operating hours (2014 vs 2015)

42%

Reduction in Run Time

Boiler Retrofit

The boilers, installed in 1998, for BHS had been oversized in the anticipation of a plant expansion that never occurred. The size coupled with the aging boiler control board had led to a degradation of the HVAC system, causing poor functionality and operation of the plant. The system pumps, and other equipment, were running 24/7 and the night setback had stopped following a schedule. To control the boilers, the District staff had manually overridden them to operate in low fire mode in order to stop them from short cycling. To address what they felt was wasteful equipment operation, Mejia and his team developed a project plan around modernizing the boiler control to save on propane and electrical use.

To improve energy usage at the school, the District teamed up with ATS Automation to replace the original boiler controller, as well as program and tune the system with energy savings in mind. The original Siemens boiler PLC was replaced with Alerton's VLC-1688 programmable controller. Boiler control was then integrated into the existing Alerton system for District staff to be able to schedule and troubleshoot from their centralized BAS.

“We knew the system didn't have to operate the way it had been over the years, now my team is able to focus on other areas of improvement for the school's operation.”

- Bernard Mejia, Maintenance Lead
Bainbridge Island School District

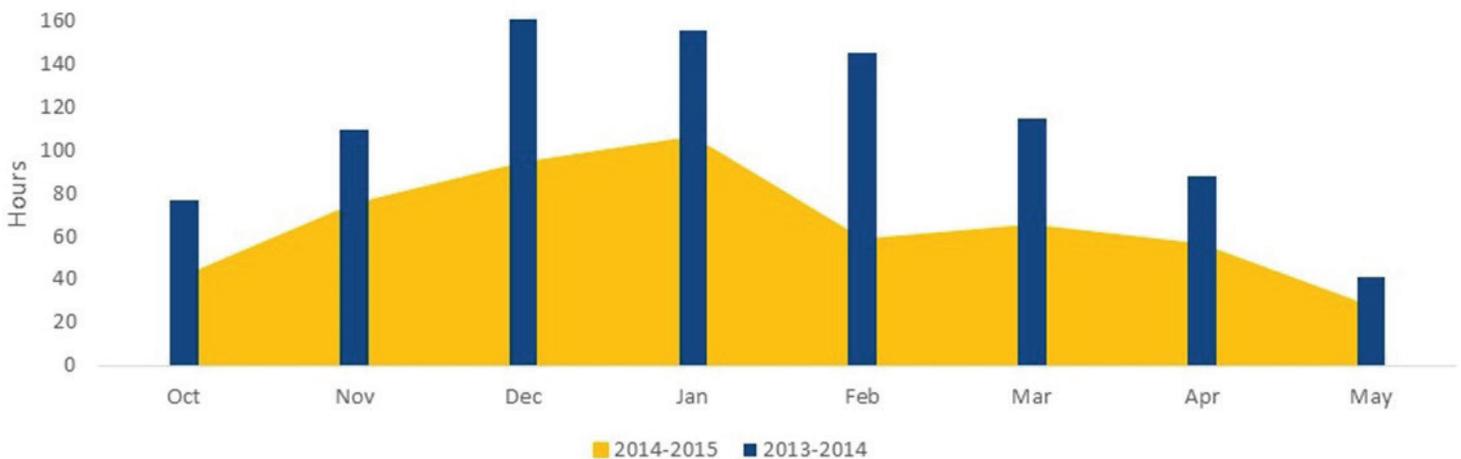
Additionally, a new operating sequence for the 3-way valves was developed, night setbacks were initiated and an aggressive scheduling plan was implemented. Now the pumps run on a schedule instead of operating 24/7, as they had been before the project was complete. The District also limited the number of individuals that could schedule the system. Now there are only two individuals in charge of scheduling the schools which has reduced the chance of the buildings running while unoccupied.

Savings

This boiler control project was completed over the summer of 2014. When comparing the high school's utility cost from 2014 to that of 2015 there was a 36% decrease in spend. This decrease was equivalent to \$267,540 in utility savings that was put back into the District's general fund. In addition to reduced spending, equipment runtime decreased by 42% when comparing the winter months of 2014 to 2015.

By having ATS install and integrate the new boiler control into the existing Alerton building automation system, the District re-established control over their boiler plant while leveraging the existing control system and extensive control knowledge of ATS engineers.

Boiler Run Hours Before and After



About ATS

ATS, established in 1986, specializes in custom engineered and installed Building Automation Systems control solutions for buildings' mechanical and electrical systems, allowing owners to reduce energy consumption and maximize effectiveness of facilities management personnel. ATS has offices and provides services in Washington, Idaho, Montana, Colorado, Wyoming and Alaska. Contact your local ATS representative to find out how you can start running your building more efficiently and economically. Visit www.atsinc.org to find the location near you.

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