

PerkinElmer Works With Enovity's Boiler Efficiency Program to Achieve Better than Expected Energy Savings



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Joe Batdorf, Facilities & EHS Manager, PerkinElmer



PerkinElmer Check Presentation

(from left: Mike Holunga, Brian Giambattista, and Joe Batdorf of Perkin Elmer; Jill Arroyo of PG&E; and Keelan McClymont of Enovity.)

PROJECT DETAILS

Facility: PerkinElmer, Santa Clara, CA

Facility Type: Commercial and Industrial

Facility Activity: Medical Device Manufacturing

Plant Operating Hours: 24/7

Completion Date: August 23, 2010

Natural Gas Savings: 17% of total fuel

Boiler Efficiency Program Incentive: \$50,760

Final Installation Cost: \$198,000

Payback Period: 2.7 years

THE BIG PICTURE

PerkinElmer is a global leader in both human health and environmental health. They believe that a healthier future starts with the work we do today, and they're committed to protecting the quality of the environment to ensure clean air and drinking water for future generations. So what does the company mission statement have to do with the boiler system at the PerkinElmer facility in Santa Clara, California? As it turns out, the two are closely related.

THE CHALLENGE

The PerkinElmer facility fabricates flat panel X-ray detectors for medical devices and the two boilers operate 24/7 to provide hot water for office space heating and fabrication room humidity controls. The boilers were nearing the end of their useful life and according to Joe Batdorf, Facilities and EHS Manager for the Santa Clara facility, “We had extremely old, inefficient boilers and [participating in the Boiler Efficiency Program] looked like a very good cost savings opportunity.” Furthermore, the Bay Area Air Quality Management District had recently updated regulations that require opera-

tors to reduce the nitrogen oxide emissions (NOx) from boilers. The compliance deadline was fast approaching. In addition to old, inefficient equipment and the updated air quality regulations, Batdorf also had to address corporate goals and specific targets for reducing greenhouse gas emissions. It was time for an energy efficiency assessment, and following an introduction facilitated by a contractor working with PerkinElmer, Batdorf was introduced to Enovity's Boiler Efficiency Program.

THE EVALUATION

Enovity prepared a report for PerkinElmer outlining the recommended project that would reduce energy consumption, utility costs, and greenhouse gas emissions. The project consisted of replacing the two existing atmospheric hot water boilers with two new, high-efficiency condensing boilers. In conjunction with other modifications and controls upgrades to operate the system with lower hot water temperatures, the new boilers were estimated to have a combustion efficiency of 90% or better. The incentive provided by the Boiler Efficiency Program reduced the projects payback period from 3.6 years to 2.7 years.



Before: One of the existing atmospheric boilers.



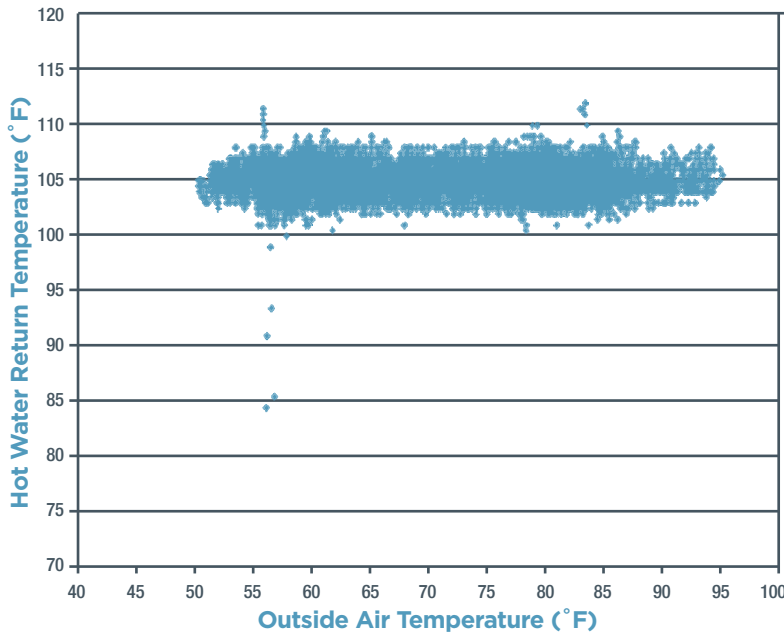
After: Two new condensing boilers have same footprint as one of the old units.

CONDENSING BOILERS

Condensing boilers improve the efficiency of boiler systems by capturing the latent heat present in the water vapor produced during the combustion process. When boiler hot water return temperatures are below the dewpoint, the water vapor condenses to liquid water and the latent heat is captured instead of escaping out of the exhaust stack. For PerkinElmer, the average return water temperature decreased from 158° to 105°, which resulted in increased efficiency from 73% to 92%.

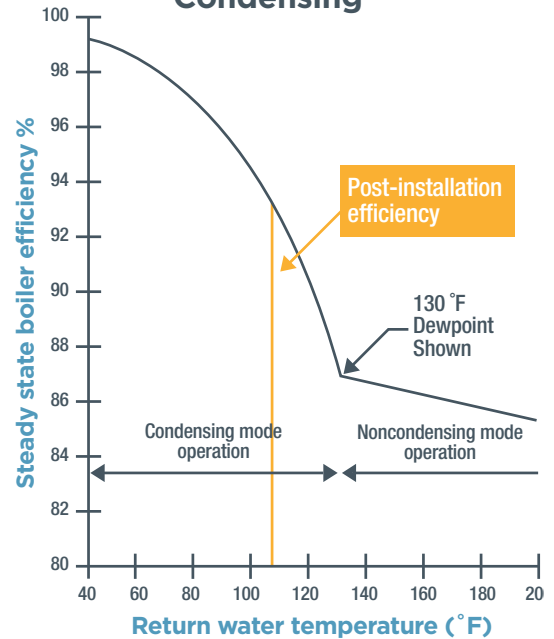


Hot Water Return Temperature for PerkinElmer*



*Post-installation return water temperature for the newly installed condensing boilers at PerkinElmer.

Improved Efficiency from Condensing*



*Typical efficiency curve for hot water boilers showing improved efficiency at lower return water temperatures as a result of condensing.

THE RESULTS

Throughout the project, Enovity Project Engineer Tim Huang worked closely with the contractor to ensure efficiency parameters were met when the equipment was installed. “Tim called me all the time. He also worked directly with the design engineer and the installation contractors, which shortened the lines of communication,” says Batdorf about working with Huang. Post-installation measurements of hot water temperatures and combustion efficiency indicated that the system performance and efficiency were better than the projected targets. The final annual utility cost savings were \$55,356. The annual natural gas energy savings for the project, 50,760 therms, were 14% greater than the pre-installation energy savings calculations. The final report also detailed the annual greenhouse gas reduction achieved by the project, which was equivalent to 85 passenger cars not being driven for one year.

“50,760 therms of savings is not a lot for an industrial facility but for a commercial facility it’s a lot of savings because they are running 24/7.”

Tim Huang, Project Engineer, Enovity

INTRODUCTION TO THE BOILER EFFICIENCY PROGRAM

The Boiler Efficiency Program, implemented by Enovity through a contract with Pacific Gas and Electric Company (PG&E), provides no-cost technical services, cash incentives and rebates to identify and implement energy efficiency improvements for boiler systems. Through this program, our team of boiler efficiency experts delivers evaluations, recommendations, implementation assistance, and measurement and verification for boiler energy efficiency projects to numerous commercial, municipal, institutional, hospitality, healthcare, manufacturing, industrial, agricultural, and food processing facilities throughout PG&E territory.

To find out more, call **(415) 983-3648**, or visit **www.BoilerEnergyEfficiency.com**, to get started.

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