

Anheuser-Busch



"Anheuser-Busch is continually committed to improving the energy efficiency of its processes. In 2002, NYSERDA awarded the Baldwinsville brewery a grant to install an energy-efficient condensing heat exchanger or CHX. This improved system helped the brewery to reduce energy use, emissions and manufacturing costs."

Anheuser-Busch
Spokesperson



Anheuser-Busch Baldwinsville, Onondaga County

Background

Anheuser-Busch, Inc. located in Baldwinsville, is housed in a 1.5 million square-foot industrial building. The manufacturing plant operates around the clock seven days a week, and produces 8 million barrels of beer annually. The plant has an annual electric consumption of more than \$5 million, and uses \$10 million of natural gas.

The central boiler plant consists of four 100,000-lb/hr boilers that supply steam and hot water for process uses. The boilers are 28 years old and operate continuously to produce steam at 125 psig. The peak load is approximately 300,000 lb/hr in the winter and 200,000 lb/hr in the summer.

A condensing heat exchanger system installed 15 years ago recovers heat from the boiler flue gas. Over time, the surface of the heat exchanger tubes collected mineral deposits which interfered with the heat transfer process, and consequently the system performed at only 40% of its total capacity. Furthermore, the interference in the heat transfer process caused uneven thermal stresses, which in turn resulted in heat exchanger tube failure. The Teflon® coating, which protects the heat exchanger tubes from acid corrosion was compromised due to cracks and leaks in the tubes. Without the Teflon coating, the tubes experienced progressive deterioration.

Objectives

Anheuser-Busch requested the assistance of the New York State Energy Research and Development Authority (NYSERDA) through the FlexTech Program. Joseph R. Loring & Associates, a NYSERDA FlexTech Contractor, undertook a study of the facility. NYSERDA was able to cost-share the \$13,000 study, contributing **\$6,500**. The study evaluated opportunities to reduce fuel consumption at the brewery.

Recommendations

- Replace the condensing heat exchanger with a 400-GPM unit and two Plate and Frame Heat Exchangers. Savings: \$552,270 – Payback 2.2 years.
- Install a tank-and-tube blowdown system heat exchanger to recover energy from the continuous blowdown drain water. Savings: \$47,152 – Payback 0.8 years.

Results

Anheuser-Busch applied to NYSERDA's Industrial Process & Productivity Improvement Program and was awarded **\$250,000** to help install the first recommendation. A plate-and-frame heat exchanger and a new condensing heat exchanger were installed to correct the deficiencies of the old system. The new system configuration has reduced Anheuser-Busch's annual fuel consumption by approximately 6% saving an estimated \$427,000 annually with a cost of \$995,491 to implement. The net simple payback of the measure is 2.3 years.