

Food & Beverage



BENEFITS

- ▶ Natural gas savings of over \$94,000/year
- ▶ State funding successfully obtained
- ▶ Payback of less than 2 years
- ▶ Reduced steam use

Thermal Oxidizer Exhaust Heat Recovery

The plant is one of many that manufactures fresh bread and roll products servicing the Northeast region of the United States. It is equipped with three manufacturing lines that operate continuously on a 24/5 basis. Building make-up air is heated with natural gas; tray wash water is heated with natural gas and electricity; and domestic hot water (DHW) is heated with steam.

Thermal Energy International (TEI) helped the facility to obtain funding from New York State Energy Research and Development Authority (NYSERDA) to evaluate the feasibility of displacing natural gas consumption with waste heat from the plant's existing thermal oxidizer exhaust. Following TEI's study which projected energy savings of over \$94,000 annually, NYSERDA assisted in financing the project's implementation.

TEI engineers built a heat recovery system to deliver waste heat to two existing gas-fired make-up air units and three boiler make-up water streams. In addition, the initiative included:

- installation of a glycol heating distribution system
- modifications to existing make-up air units
- installation of three new make-up water heat exchangers
- installation of one new heat exchanger for DHW

Natural gas metering of building make-up air and tray wash water was conducted after the new system became fully operational. In comparison with historical natural gas consumption, a payback of less than two years was projected. Although difficult to measure, the facility has also reduced its use of steam as a result of the recovered heat used for DHW.