

# enercase

## Condensing Heat Recovery



Are your  
energy dollars  
flying up your  
chimney?

heat recovery



**uniongas**

A Spectra Energy Company

### Rothsay, a division of Maple Leaf Foods, boosts boiler efficiency with ConDex heat recovery systems

#### Summary

Rothsay maximized boiler heat recovery at its Moorefield rendering plant by adding five ConDex indirect condensing economizer systems. Installed inside the exhaust stacks, the units recover both sensible and latent heat energy from flue gases, re-using it to pre-heat combustion air, boiler intake, and make-up water. This will save an estimated \$400,000 a year on its natural gas bill.



#### Background

Rothsay produces over 45,000 tons of ingredients supplied to pet foods and animal feed suppliers per year at its facility in Moorefield. Year round it runs three shifts a day, 5 ½ days a week.

To meet corporate performance metrics and to reduce its environmental impacts, the company is committed to continuously improving its energy efficiency. Its parent company, Maple Leaf Foods, participates in the Carbon Disclosure Project, providing annual reports on its greenhouse gas emissions for the investment community. Plant managers are constantly looking for ways to reduce the volume of natural gas required to transform a ton of raw material into products.

#### Challenge

The Moorefield plant is the biggest consumer of natural gas in the Maple Leaf chain. Most of its raw materials – pork and poultry offals and feathers – are high in water content, so the extraction process requires a large amount of steam.

## Solution

In 2003, Union Gas helped fund a comprehensive energy savings audit at the plant. Following a more specialized engineering analysis of the boiler plant, Rothsay managers decided to pursue flue gas heat recovery as an opportunity to realize important efficiency gains. Their strategy was to increase the amount of steam produced for every m<sup>3</sup> of natural gas.

Another plant in the Maple Leaf Food network was already seeing impressive results from a ConDex heat recovery system. So Power House Chief, Dave Turton, engaged Combustion & Energy Systems Ltd. to install the system directly in the stacks of his three boilers. The highly efficient Triple Stage ConDex Systems recover more than five million BTU/ hour of energy from the flue gases by condensing the flue gases below the dew point. This energy is returned to the boiler operation where it is used to heat combustion air, boiler feedwater, and make-up water.

Based on the positive results achieved at these two facilities, Maple Leaf is completing a third installation in Brandon, Manitoba and is investigating two other potential placements.



### Business Benefits

- Estimated annual fuel savings - 700,000 m<sup>3</sup> gas
- Annual dollar savings - \$400,000
- Payback less than two years
- Low maintenance and long equipment life

### Environmental Benefits

- Annual CO<sub>2</sub> emission reduction – 2,350 tons
- Annual NO<sub>x</sub> emission reduction – 1.56 tons

**Condensing heat recovery can be used to recover flue gas heat from boilers, ovens, dryers, incinerators and turbines. The technology is used in a wide variety of industrial, commercial and institutional facilities including:**

- Automotive manufacturing
- Silicone production
- Edible oils plants
- Central steam plants
- Hospital & university heating systems
- Chemical production
- Paper making



## Wins & Highlights

- ConDex Energy Recovery System reduces energy use by an estimated 6%
- Recovered heat substitutes for purchased energy
- Simple project payback < 2 years
- \$50,000 Union Gas financial incentive for equipment

Rothsay is installing metering and monitoring equipment to better manage gas and hydro usage at Moorefield. This will provide better information for energy efficiency calculations and planning.



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Condensing Heat Recovery

Flue gas  
economizers  
recover waste  
energy and  
bottom line  
savings



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“ Union Gas has worked with all of our southwestern Ontario plants to improve energy efficiency. With their help, we have been able to push forward ever more aggressive energy reduction projects.

Union Gas Account Manager, Harry VandenBrink, has helped Maple Leaf Foods access engineering and design assistance as well as financial incentives for equipment.

Dave Turton  
Chief Engineer/Maintenance Manager,  
Rothsay, Moorefield, Ontario

Visit [uniongas.com/enertalkmlf](http://uniongas.com/enertalkmlf) for our EnerTalk video on the Maple Leaf Foods/Rothsay energy recovery project.

### Union Gas - Working with you

Union Gas Account Manager, Harry VandenBrink, has helped Maple Leaf Foods access engineering and design assistance as well as financial incentives for equipment. Union Gas paid for two-thirds of the cost of the energy audit at Moorefield and provided \$50,000 towards the installed cost of the ConDex heat recovery systems.

### Call the energy experts at Union Gas

Union Gas is committed to providing industrial, institutional, and commercial energy users with information on energy efficiency, technologies, services and incentives. If you would like to learn more about Union Gas' EnerSmart support for energy audits, feasibility studies and installation of energy efficient equipment, contact your Account Manager or visit our website at [enersmart.com/largebusiness](http://enersmart.com/largebusiness)

EnerSmart. For the profit in energy efficiency.™



Energy efficiency projects pay you year after year!