



Calgary Italian Bakery Ltd. (CIBL)

Taste the Tradition is the Calgary Italian Bakery's commitment. Founded in 1962, the company continues today as a family owned and operated business serving western Canada. One of the largest, independent bakeries in the region, Calgary Italian Bakery Ltd. (CIBL) employs over 80 staff dedicated to making a full complement of bakery products - English muffins, bread, buns, pastries - for retail, the broader public sector and restaurants. The company prides itself on making product of the highest quality in a safe food environment with an emphasis on superb customer service and community engagement.

Alberta Agriculture and Forestry and Provision Coalition partnered with CIBL on a food and resource conservation initiative to explore and resolve food loss + waste and related utility consumption within their operation. This initiative involved piloting of Provision Coalition's on-line Food Loss + Waste Toolkit in tandem with a facility food waste prevention assessment conducted by Enviro-Stewards.

OVERALL FOOD AND RESOURCE CONSERVATION OPPORTUNITIES

- **\$191,000 in resource savings identified with an aggregate payback of 0.6 years (\$47,340 investment required)**
- **110,500 kg of food waste (42%) can be reduced**
- **360,000 kWh of electricity (18%), 134,000 m³ of natural gas (32%) can be saved and Scope 1 & 2 Greenhouse Gas emissions can be reduced by 561 tonnes/year (23%)**

PROVISION COALITION'S FOOD LOSS + WASTE (FLW) TOOLKIT

The FLW Toolkit, which is part of Provision's online Sustainability Management System, is the only Canadian resource accessible by all food and beverage manufacturers to assist in quantifying in-plant avoidable food waste, calculating its dollar value, and conducting a root cause analysis to developing cost effective FLW reduction strategies.



Food Loss + Waste Assessment & Conservation Opportunities

Applying Provision's FLW toolkit, coupled with the assessment, assisted CIBL staff to understand how much and where food waste is generated within its facility. With that information in hand, reduction strategies and solutions were developed.

In total, CIBL's production process results in approximately 265,000 kg of food waste per year, primarily from their bread line (49%) and English muffin production (36%). The toolkit and concurrent assessment revealed six quantified and four unquantifiable food waste conservation opportunities. Of those quantified, the potential savings for CIBL is 111,000 kg or \$126,000 per year.

Significant food waste savings - 25,000 kg or \$19,000 per year - was identified with improved bread line dough transfer, where 35-50% of bread dough waste and 20% of facility-wide waste originates.



**Improved bread line dough transfer
will generate food waste savings of
25,000 kg or \$19,000 per year**

**Total quantified potential savings
for CIBL is \$126,00 per year**

Approximately 50% of English muffin waste is characterized as deformed, undersized and misshaped, with the total of these products accounting for approximately 35% of the facility-wide waste. Improving the forming process and conveyance of dough prior to proofing through process modification and possibly equipment upgrade will improve English muffin consistency resulting in a \$31,000 of savings per year and a reduction of 25,000 kg in waste.

Burned muffins account for 20% of waste in this category. The cause is to be further determined; however, rectifying this area of loss would result in an 8,000 kg reduction of waste, equivalent to \$10,000/year in savings.

Approximately 55% of bread waste was classified as crushed product (sliced bread, unsliced bread, sliced bread (bagged) and large loaves). Investigating waste at the bread slicer and bagger could result in a reduction of 50,000 kg/year of food waste from crushing and \$63,000/year in savings.

Utilities Assessment & Conservation Opportunities

A concurrent utility conservation assessment was also undertaken at CIBL that included identifying the associated energy and water reductions where food waste was occurring.

The assessment revealed eighteen utility conservation opportunities (electricity, natural gas, water) within the operation. The total value of implementing the conservation measures is estimated at \$48,000, plus approximately \$17,000 in greenhouse gas-related savings.

Food loss + waste is a global issue.

According to the Food and Agriculture Organization of the United Nations, roughly one third, or approximately 1.3 billion tonnes of the food produced in the world for human consumption every year, gets lost or wasted.

In Canada, the numbers are comparable, with 40 percent of the food produced wasted - a loss that is valued at \$31 billion dollars annually. With this challenge comes opportunity for Canadian food and beverage manufacturers to continue to optimize operations, reduce costs and overall environmental impact.

The utility breakdown as a percentage of total cost at CIBL was: 68% on electricity, 29% on natural gas and 3% on water. The largest consumers of electricity were the air compressors, estimated at close to 19% of the facility-wide consumption, followed by conveyors, vacuums and miscellaneous motors at nearly 14% of consumption.

Establishing and minimizing the bun oven preheat requirement would reduce unnecessary runtime and result in a reduction of 11,000 kWh/year of electricity, and 20,000 m³/year of natural gas, which translates into savings of \$5,400/year, and \$4,000/year, respectively. The payback for this opportunity is immediate.

Minimizing exhaust and make-up air flow rates could result in a reduction of 38,000 kWh/year of electricity, 75,000 m³/year in natural gas and \$20,000/year in savings.

Reducing compressed air leaks and optimizing the compressed air system operations could result in a reduction of 198,000 kWh/year of electricity and \$20,000/year in savings.

“This project has provided us with valuable insight on how to improve our operations. The Calgary Italian Bakery Ltd. has a long-standing commitment to the community and our role as a local business. We understand now that with a few relatively simple process changes and upgrades we can find significant production savings for the company and the environment.”

Louis J. Bontorin, VP Sales and Administration, Calgary Italian Bakery Ltd.

This project is funded in part through *Growing Forward 2 (GF2)*, a federal-provincial-territorial initiative.

This case study was funded by Alberta Agriculture and Forestry.

For more information, contact:

Victor Cheng, PhD
Senior Industry Development Officer - Clean Energy
Bio-Industrial Opportunities Section
Alberta Agriculture and Forestry
780.638.3158
victor.cheng@gov.ab.ca

Meena Hassanali
Director of Industry Programs
Provision Coalition
519.822.2042 ext. 303
mhassanali@provisioncoalition.com

PROJECT PARTNERS:



Provision Coalition is Canada's premier food and beverage manufacturer sustainability organization. At Provision, the latest sustainability advances, resources and solutions are shared with food and beverage businesses across the country. To learn more about Provision's Canadian food loss + waste strategy and the online Sustainability Management System and Support Program, visit www.provisioncoalition.com.