

Farmers Co-Operative Dairy Limited - 2008 Case Study **Farmers Cheese Division** Truro, Nova Scotia, Canada

Farmers Co-op operates a cheese processing plant in Truro. The Cheese Division opened in 1961 it is a long standing business in the area with 50 full time employees. The plant operates 24 hours a day, 7 days a week.

Early in 2006, the company's chief power engineer attended an NRCan Dollars to \$ense Workshop and became sensitized to the opportunities for improving energy efficiency and learned that the Eco-Efficiency Program for Manufacturers could assist in quantifying the opportunities and determining the changes necessary to capture the potential savings. An Opportunity Assessment was conducted and based on the results, the company also undertook an Implementation Assessment. The assessments were conducted by Stantec Consultants Limited. This two-step incentive program is designed to stimulate implementation of cost efficient opportunities within small and medium sized manufacturers (SMEs) and to demonstrate the benefits of "greening" our industry.

The Process

The company operates an industrial milk processing plant which converts whole milk to a variety of cheese and powdered milk products. It includes a cold storage facility where both raw and finished product is stored, a production area, offices and an anaerobic digester that treats plant wastes. Annually the plant processes over 40 million litres of milk which is converted to cheese and powdered milk. The plant is a large energy user, consuming both no. 6 and no. 2 oil, propane and electricity. There are two boilers, a 500 hp and an 80 hp, a 75 hp air compressor and significant cold storage capacity.



The Assessments

Plant management felt that a significant opportunity to reduce energy consumption existed. They undertook the Opportunity Assessment to examine the operation and to identify and quantify the opportunities. The assessment identified eight areas/opportunities which the consultant estimated could produce savings of more than \$0.5 million/yr for fuel and electricity. The Implementation Assessment studied two of these in detail and provided suppliers quotes and detailed feasibility plans for both. Two opportunities not included in the implementation assessment are being implemented internally: upgrading to high efficiency premium motors and recovery and reuse of compressor heat for space heating.

Assessment Results

The in-depth assessment revealed that the potential annual savings for the two opportunities studied would be just over \$200k/yr with implementation costs of \$540k. The major opportunity



studied involved the use of biogas as a boiler fuel. Since neither of the existing boilers have the capability of utilizing the biogas, the replacement of the small boiler with a new 50hp unit was recommended. This capital intensive project has yet to make it to the capital budget, but holds the prospect of a 2.5 year payback period. The smaller project involved the installation of a vacuum pump to replace steam in the drying process. The capital cost for this project was just under \$40k and will pay for itself in less than 2 years. Implementation is scheduled for completion in June, 2008.

In summary, the combined potential savings for these two major opportunities are estimated at:

Potential energy savings:	20,377 GJ/yr	\$221,000/yr
Reduction in GHG Emissions :	2422 T/yr	

Mitch King, Chief Power Engineer at the Cheese Plant said, “The Eco-Efficiency Program for Manufacturers was an extremely effective tool in helping us to identify and prioritize energy efficiency improvements and to gain access to the time of an experienced practitioner in energy saving process equipment. We were able to learn from the approach for future work and the fact that our share of the cost was only \$2000 (25%) was an important factor in moving forward.”

The Eco-Efficiency Program for Manufacturers is working for Farmers Cheese Division. It has identified significant opportunities for improving energy efficiency, environmental performance and at the same time improving the bottom line for the company.

The Eco-Efficiency Program for Manufacturers is aimed at small and medium sized manufacturers (SMEs) in Nova Scotia and is designed to increase awareness for pollution prevention and eco-efficiency and to stimulate implementation of cost-efficient opportunities. The cost of hiring a qualified consultant to identify eco-efficiency and pollution prevention opportunities is offset by the program. There is a cost shared arrangement with the program contributing 75% and the participating company contributing the 25% balance. The program is also intended to help build capacity in the consulting community throughout the province.

Cooperating agencies and program sponsors for the program have been Environment Canada (Atlantic Region), Atlantic Canada Opportunities Agency, Natural Resources Canada, Nova Scotia Department of Environment, Nova Scotia Economic Development, Nova Scotia Department of Energy and Nova Scotia Power Inc. The program is delivered by Dalhousie University's Eco-Efficiency Centre - a university - based extension service established to enhance the efficiency of individual businesses while encouraging the cooperative and collective efforts of groups of companies.

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