

## **The Canadian Salt Company Limited**

2007 Case Study

Pugwash, Nova Scotia, Canada

This major producer of food grade and industrial salt operates a large underground salt mining and refining facility in Pugwash. Incorporated in Nova Scotia in 1960 it is a major business in the area with 200 full time employees. The plant operates 24 hours a day, 7 days a week. The Nova Scotia operation is one of seven production facilities owned by the company and is the largest producer of salt in Canada.

Early in 2006, the company requested an Opportunity Assessment as part of the Eco-Efficiency Program for Manufacturers. Based on the results of the Opportunity Assessment, the company also undertook an Implementation Assessment. The assessments were conducted by Neill and Gunter (Nova Scotia) 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 operations include a large underground mine and a surface based salt refining plant, which was the focus of this work. Annually the plant produces 1 million tonnes of salt which is marketed in Canada, the USA and the Caribbean. The plant operates 2 boilers with a combined capacity of 55,000 lbs of steam per hour burning no. 6 fuel oil. The plant is also a major user of electricity however the electrical system was not part of this opportunity assessment.



### **The Assessments**

Plant engineers felt that a significant opportunity to improve the efficiency of their operations existed in the boiler plant and salt refining process. They undertook the Opportunity Assessment to examine the operation and to quantify the opportunities. The assessment identified five opportunities which appeared to be feasible and could lead to annual fuel savings of more than \$115,000. The Implementation Assessment focused in detail on each of the opportunities including; installing an oxygen trim system on the boilers to minimize excess air in the boiler, recovering heat from blow down steam, insulating brine evaporation pans, recovering energy from flash steam and using waste heat to pre-heat brine. The in depth assessment revealed that the potential annual savings would be in excess of \$235,000 and the payback periods for the various projects would range from 2 months to 4 years.

## Assessment Results

Based upon the Implementation Assessment report the Canadian Salt Company proceeded with four of the five opportunities and report that the savings are meeting or exceeding those estimated. The report provided; equipment quotations, process flow schematic diagrams and detailed costing for each opportunity.

In summary, the combined potential savings for all of the opportunities are estimated at:

Potential energy savings:  
28179 GJ/yr                      \$236,000/yr

Reduction in GHG Emissions : 2228 T/yr

**Barry Blake, P.Eng., Engineering Superintendent** at Canadian Salt said, "The Eco-Efficiency Program for Manufacturers was well suited to our needs, providing us with a fresh set of qualified eyes to look for improvement opportunities. The program was also easy to use and provided the type of technical and financial information needed to justify implementation to corporate headquarters staff who control the purse strings."

The Eco-Efficiency Program for Manufacturers is working for The Canadian Salt Company. It has identified significant opportunities for improving 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.

Phone: (902) 497-6562

Fax: (902) 860-2887

Email: [g.archibald@dal.ca](mailto:g.archibald@dal.ca)

2 Vidito Drive  
Dartmouth, NS, B2T 1H7  
[www.dal.ca/eco-efficiency](http://www.dal.ca/eco-efficiency)

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