

# **Annapolis Legion Social Centre**

**Annapolis, Nova Scotia**

**September 5<sup>th</sup>, 2008**

November 4<sup>th</sup>, 2008

Dear Ron,

The Eco-Efficiency Centre staff was pleased to have the opportunity to visit the Annapolis Legion Social Centre on September 5<sup>th</sup>, 2008. The purpose of the review was to evaluate the ongoing energy and environmental activities at the Centre and to identify opportunities that may enhance those good practices and lead to greater sustainability. Please find enclosed a copy of our review outlining our findings.

We were pleased with the environmentally friendly practices such as the use of CFL lighting in some areas and recycling wherever possible. These good practices are a strong indicator of eco-efficiency awareness. Hopefully, the information contained in our report will encourage your staff to keep up the good work and seek other eco-efficiency opportunities.

When we become aware of information that we feel would be beneficial to your organization we will forward this information for your consideration. We are interested in being informed of any actions that you have taken or are planning to take as the result of any suggestions or information we have included in this report. We plan to make a follow-up call to see how your environmental initiatives are progressing and to offer assistance.

We would like to take this opportunity to thank you for your participation in our review program.

Best Regards,

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## **Green Business Practices and Sustainability**

Nova Scotia is one of only a few provinces that has made environmental and sustainability goals into law. The Environmental Goals and Sustainable Prosperity Act ([http://www.gov.ns.ca/legislature/legc/bills/60th\\_1st/3rd\\_read/b146.htm](http://www.gov.ns.ca/legislature/legc/bills/60th_1st/3rd_read/b146.htm)) was passed in 2007, with 21 specific goals to improve air, land, and water quality and to address climate change. This Act recognizes that the health of the environment, the economy, and the people of Nova Scotia are interconnected. The Act along with Opportunities for Sustainable Prosperity, the province's current economic development strategy (<http://www.gov.ns.ca/econ/ofsp>), will help us have one of the cleanest and most sustainable environments in the world by 2020, with economic performance equal to or above the Canadian average. An annual progress report (<http://www.gov.ns.ca/nse/egspa/docs/EGSPA2008ProgressReport.pdf>) for the Environmental Goals and Sustainable Prosperity Act shows where we are now, and where we plan to go to reach our objectives.

To meet these goals every business in Nova Scotia—from tourism operations and supermarkets, to small offices and large manufacturers—needs to improve the efficiency and effectiveness of how they use their resources, whether it's energy, water, or materials. Adopting sustainable/green business practices will help companies enhance their productivity, their competitiveness and sustainability, as well as reduce their costs, risks and liabilities. It gives companies more credibility with their clients, with lending institutions and regulatory agencies, as well as with the general public who share an increasingly strong view that the quality of the environment is essential to maintaining a high quality of life for future generations. Operating a green business is a smart decision and makes good business sense.

The first steps towards becoming a green and sustainable business are basic – a company must engage both senior management and staff to be successful. This includes providing education and training opportunities. Many practices that can be implemented are behavioural changes that cannot simply be demanded of staff. Secondly, any requirements legislated by municipal, provincial, and federal authorities must be considered an absolute priority—companies must be in compliance with environmental regulations.

After these first steps are completed, the possibilities are endless—there are many relatively simple opportunities that are low-cost/no-cost alternatives, and do not necessarily involve sophisticated technology. They could be changes in house-keeping and operating practices such as: material storage and inventory, maintenance, materials substitution, material recovery, recycling and reuse of materials, green purchasing, and resource conservation (particularly of energy, water and materials).

The Eco-Efficiency Centre is pleased to support your organization's efforts to become a more efficient, environmentally-aware and competitive business.

## 1.0 Introduction: The Eco-Efficiency Centre

The Eco-Efficiency Centre (EEC) is an educational and environmental management outreach organization for small and medium-sized businesses in Nova Scotia. It promotes eco-efficiency, pollution prevention, resource conservation, reuse, recycling, and good environmental practices, and helps businesses cut costs, become more competitive, and reduce environmental impacts. The uniqueness of the EEC's approach is that it fosters individual and collective action, particularly within industrial parks and business districts.

The EEC evolved from an interdisciplinary research project investigating industrial parks as ecosystems. During that project, a need for a mechanism to disseminate timely and relevant environmental information to small and medium enterprises was identified. Along the way the EEC has garnered international recognition as well as two national awards for innovation in pollution prevention and two provincial awards for education in waste reduction.

Originally established in 1998 as a partnership between Dalhousie and Nova Scotia Power, the EEC took a major step in 2005, and became one of the new interdisciplinary research and development centres based in the Dalhousie Faculty of Management. The EEC was endorsed by the University Senate in April of 2005. Other current funding partners include Atlantic Canada Opportunities Agency (ACOA), RRFB Nova Scotia, and HSBC Bank Canada.

A second important mandate of the EEC is the education and mentoring of students. Since 1998, the EEC has hired over 50 students from Engineering, Commerce and Environmental Studies programs – exposing them to a variety of research, networking and one-on-one experiences with businesses and challenging them to have a greater sense of responsibility towards resource conservation and waste reduction. Students are made more aware of eco-efficiency and industrial ecology, and are better equipped for employment in environmental and management consulting industries in the region. The EEC also provides a focal point for other university based activities such as class projects and thesis research.

### 1.1 Services provided

- ◆ Undertake integrated “Environmental and Energy” reviews – awareness tools for companies that provide guidance on practices that can avoid or minimize waste, particularly through eco-efficiency and resource conservation strategies.
- ◆ Respond to requests for information, and provide relevant information on eco-efficiency, pollution prevention and resource conservation opportunities to businesses.
- ◆ Encourage networking and co-operative efforts among businesses through projects like the Nova Scotia Materials Exchange (online database for businesses to list wanted and available surplus/waste by-products), and “Industrial Speed-Dating” (events designed to foster networks among businesses in the use of by-products).
- ◆ Deliver the Eco-Efficiency Business Assistance Program – a program for manufacturers designed to stimulate implementation of cost efficient opportunities related to environmental issues. The cost of hiring a qualified consultant to identify eco-efficiency, energy and materials efficiency and pollution prevention opportunities is offset by the program.
- ◆ Deliver the Eco-Efficiency Technology Program – a program to help extend more value to the EEC's current services by providing companies with access to advice, information and expertise on eco-efficient techniques and practices; diagnostic services to assist in the

assessment of technology that will enhance the eco-efficiency of industrial processes and products; and linking researchers with businesses for further investigations.

- ◆ Deliver the Partners in Engine Emission Reduction (PEER) program – a program encouraging businesses with fleets to adopt policies and practices to reduce their vehicle idling.
- ◆ Develop many business-relevant materials, such as fact sheets, checklists, a green business kit, a pollution prevention guidebook, and a comprehensive website.
- ◆ Develop success stories/case studies of Nova Scotia businesses, and promote these stories as a means to encourage other businesses.
- ◆ Host an annual “Environmental Excellence in Business” breakfast to recognize Nova Scotia companies using innovative thinking and proactive strategies in approaching how they can reduce their "ecological footprint".
- ◆ Organize and cooperate in offering, training sessions and workshops, roundtables and networking events, aimed at the business community.
- ◆ Assist in the delivery of the HSBC Bank Canada “*Business and the Environment Lecture Series*” at Dalhousie University – a program highlighting leaders in the business community and companies who have recognized that business is inextricably linked to the environment and furthermore that their sustainability ultimately depends on a healthy environment.
- ◆ Provide information through regular newspaper columns, press releases, publications, presentations, e-newsletters, and other mechanisms.

## 1.2 Important Notes

This report summarizes the results of the Eco-Efficiency Centre's review of your company. The reviews are **awareness tools** that are intended to provide some guidance to businesses on practices, which can avoid or minimize waste, particularly through pollution prevention, eco-efficiency, and resource and energy conservation strategies.

All information gathered from a business is confidential. Businesses will remain anonymous in any summary reports or presentations prepared by the Eco-Efficiency Centre unless consent is received from those businesses. In cases where businesses are making significant proactive strides to reducing waste, conserving energy, water and materials, and employing pollution prevention techniques we believe it will be beneficial for businesses to promote this. The EEC believes that promoting success stories can help other businesses improve their eco-efficiency. However, this will only occur with consent from a business.

This review is a non regulatory audit, therefore it cannot be expected to draw conclusions either certifying compliance, or identifying non-compliance with regulatory requirements.

*Disclaimer: The product information in this report was provided solely as a service to Nova Scotia companies. This information may not include all available services or suppliers and does not represent an endorsement by the Eco-Efficiency Centre. All users of this information are responsible for insuring that any company with whom they contract for products or services complies with the requirements of municipal, provincial and federal law.*

## **2.0 Annapolis Legion Social Centre Energy and Environmental Review**

### **2.1 Annapolis Legion Social Centre**

The Legion Social Centre is located in Annapolis Royal, NS. The building was originally built in 1942 by the department of National Defense. The bar and pool room area are opened seven days per week from 10:00am until 12:00 pm. The building footprint is 12000 square feet.

When the Eco-Efficiency Centre visited this facility, we found that the Social Centre had implemented some environmentally sound practices, and should be commended for doing so.

### **2.2 Current Good Environmental Practices**

We were very pleased with the good energy and environmental practices currently taking place at the Social Centre:

- Temperature is reduced after hours
- A few double paned windows have been installed
- A few compact fluorescent bulbs have been installed.

### **2.3 Energy Reduction Opportunities**

The high cost of producing energy has virtually the entire world looking for cheaper sources of fuel supplies to meet their short and long-term needs. Fossil fuels are limited and we must practice energy conservation and increase efficiency wherever possible. Our buildings need to be better insulated, drafts around doors and windows need to be eliminated, and our heating/cooling equipment must be maintained and operated at peak efficiency. Once we have done this we can then look to enhance our present systems with new alternative technologies such as wind, solar, etc.

Understanding your energy bills and how your energy dollars are spent each month can help identify energy and cost savings opportunities. Acting on these opportunities can increase your cash flow and as energy costs rise, you will be less affected. Tracking and graphing your energy use is very important and can help you; understand where, when and how energy is being used, become aware of energy use trends, budget for energy more accurately, notice billing errors and unusual energy use activity and benchmark your energy use against similar facilities.

- Energy cost of various fuels

Note: The Social Centre is heated oil fired hot water baseboards. One boiler in the kitchen area supplies hot water and steam. Two boilers in the basement provide heat to the rest of the building. Most hot water piping is uninsulated. The thermostat in the pool room seemed to be the only temperature control. The boilers are on constantly from Jan to mar. Last year around 20000 litres were used.

It is difficult to directly compare the cost of energy from various sources because electricity is billed in kilowatt hours (kWh), oil in litres, wood in cords, etc. For instance is electricity at \$0.1067 per kilowatt hour cheaper or more expensive than oil at \$0.80 per litre? Or a kWh of electricity produces 3413 BTUs of energy while a litre of oil will produce over 36000 BTUs. Consider that a baseboard heater is nearly 100% efficient at converting electricity to heat whereas a boiler may only

be 70% efficient at converting oil to heat. To compare the various forms of energy, the comparisons must be made on an equivalent basis such as cost per million BTUs or per gigajoule (GJ).

Plug your fuel costs into the following calculator to compare.

This calculator allows you compare the energy cost of various heating fuels								
To change the numbers in this sheet locate your cursor over the sheet and double click. Please change only the values in blue.								
Purchased fuel				Units to produce 1000000 BTUs	Cost of units to produce 1000000 BTUs	Equipment fuel conversion efficiency	Fuel cost to produce 1000000 BTUs	Fuel cost to produce one gigajoule
Type	Cost per unit	Unit	BTU value per unit					
Electricity	\$0.1000	kw-hr	3413	293.00	\$29.30	100%	\$29.30	\$27.78
Fuel oil #2	\$1.0000	L	36681	27.26	\$27.26	75%	\$36.35	\$34.40
Propane	\$0.8500	L	23978	41.71	\$35.45	85%	\$41.71	\$40.00
Natural Gas	\$0.4000	m <sup>3</sup>	35618	28.08	\$11.23	85%	\$13.21	\$12.28
Coal	\$250.0000	ton	16000000	0.06	\$15.63	70%	\$22.32	\$16.23
Hardwood	\$200.0000	cord	22000000	0.05	\$9.09	60%	\$15.15	\$10.89
Wood pellets	\$220.0000	ton	16000000	0.06	\$13.75	85%	\$16.18	\$14.38
Gasoline	\$1.2600	L	33022	30.28	\$38.16	75%	\$50.88	\$50.40
GS heat pump	\$0.1000	kw-hr	3413	293.00	\$29.30	300%	\$9.77	\$9.26

□ Understanding your electrical costs

Note: The Social Centre is billed for its electricity use on a commercial rate without a demand charge. The cost each month is about \$1200 for electricity. We didn't see any bills.

You may find these links helpful:

This Nova Scotia Power site describes how your power bill energy and demand cost is determined: [http://www.nspower.ca/about\\_nspi/rates\\_regs/regulatory\\_initiatives/definitions/SmallGeneral.shtml](http://www.nspower.ca/about_nspi/rates_regs/regulatory_initiatives/definitions/SmallGeneral.shtml)

This Nova Scotia Power site allows you to view your electrical usage history for the past two years and see annual trends after you register. Note\*\* Bills will only be sent electronically after you register. [https://www.nspower.ca/customer\\_service/business/online.shtml](https://www.nspower.ca/customer_service/business/online.shtml)

**Did you know?**

*Every kilowatt hour of electricity produced by a coal fired generating plant releases 0.95 kilograms of CO<sub>2</sub> into the atmosphere. Only 35% of the energy in the coal is actually converted to usable electricity.*

□ Wall, ceiling and window insulation

Note: Most of the windows are single paned, recycled from Cornwallis, with storm windows on the outside. There are some double paned windows in the dining hall. Most are tight fitting. The wall insulation is not known. There is some blown-in insulation in the ceiling but the R-value is not known.

More heat would be kept in the building if the insulation values in the wall and ceilings were

increased. Windows would be the last item to replace because of the cost. Storm windows help to reduce the heat loss.

- Temperature setback as night

Note: One thermostat was seen in the pool room. Unsure if this controls the temperature in the rest of the building.

Reducing the temperature setting in the unoccupied areas can save large amounts of heating energy. The closer the room temperature is to the outside temperature the less energy is required to maintain the temperature.

The following calculator can provide a rough idea of the savings possible by reducing the inside temperature in an office area during non-working hours. It assumes no infiltration of air or air exchange which is not realistic.

This calculator allows you to compare heating costs for a given time period, such as overnight, when your thermostat setting is reduced. This calculator keeps all values the same for both scenarios and allows the temperature setting inside the building to

**To change the numbers in this sheet locate your cursor over the sheet and double click. Please change only the values in blue.**

<b>Setback thermostat savings</b>	Existing	Setback	Savings
Thermostat setting (°F)	72	50	
Outside air temperature (°F)	32	32	
Electrical energy rate (kWh)	\$0.106	\$0.106	
Hours per week that set back temperature could be used	140	140	
Percent savings for time period temperature setting is reduced			55.00%
Reduction in greenhouse gases due to energy savings (kg)			3078

- Incandescent bulbs versus compact fluorescent lights (CFLs)

Note: Some incandescent bulbs have been replaced with CFLs

Compact fluorescent lights reduce energy costs by 75% while providing the same amount of light, much less heat and they last up to 10 times longer than incandescent. The energy savings also lower demand cost and the longer life leads to maintenance savings. Additional savings are achieved in air conditioning. Every watt of electricity used produces heat which usually needs to be removed through air conditioning. CFLs use only ¼ as much power as is required by incandescent lights so only ¼ as much heat is produced.



All incandescent bulbs should be replaced with CFLs to reduce energy costs.

The bar room uses incandescent bulbs in the ceiling fans. You can save about \$25 for each bulb, if they continue to operate the same hours, by replacing them with CFLs.

You can use this same calculator to determine the savings in other areas incandescent are used.

This calculator allows you determine savings in both energy and dollars by using compact fluorescent light bulbs to replace standard incandescent light bulbs

**To change the numbers in this sheet locate your cursor over the sheet and double click. Please change only the values in blue.**

<b>Incandescent to compact fluorescent lighting savings</b>	Existing	Proposed	Savings
Existing lighting - incandescent (Watts)	<b>60</b>		
Proposed retrofit - fluorescent (Watts)		<b>13</b>	
<b>Data</b>			
Operating hours per day	<b>14</b>	14	
Operating days per week	<b>7</b>	7	
Operating weeks per year	<b>52</b>	52	
Total operating hours per year	5096	5096	
Bulb cost (\$)	<b>\$0.50</b>	<b>\$2.00</b>	
Bulb life (hours)	750	10000	
Average electrical energy rate (\$)	<b>\$0.1000</b>	\$0.1000	
<b>Savings per bulb</b>			
Energy consumption (kWh) = (watts per bulb x operating hours)/1000 watts	306	66	
Annual energy cost per bulb (\$) = (kWh x electrical rate for energy)	\$30.58	\$6.62	
Annual bulb replacement cost (\$)	\$3.40	\$1.02	
Annual energy and bulb replacement costs (\$)	\$33.97	\$7.64	<b>\$26.33</b>
<b>Total savings</b>			
Total number of bulbs to be replaced	<b>12</b>	12	
Electrical demand (kW)	0.7	0.2	0.6
Total annual energy consumption (kWh)	3669	795	2874
Total annual energy cost (\$)	\$366.91	\$79.50	
Total annual cost for replacement bulbs (\$)	\$40.77	\$12.23	
Total annual energy and bulb replacement costs (\$)	\$407.68	\$91.73	<b>\$315.95</b>
<b>Reduction in greenhouse gases due to energy savings (kg)</b>			<b>2730</b>

*Reduction in maintenance labour to change bulbs will provide additional savings*

**Did you know?**

*Replacing one 60W incandescent bulb with a 13W CFL will keep more than 300 kg of CO<sub>2</sub> out of the atmosphere over the life of the bulb.*

- Efficient T8 fluorescent tubes vs T12 fluorescent tubes

Note: Most fluorescent tubes are T12s,

Electronic ballast T8 fluorescent fixtures use 30 to 50 percent less energy than standard T12 (magnetic ballast) fluorescents, have higher color rendition, and operate without the hum and flicker associated with fluorescent fixtures. T8 fluorescent tubes will not provide savings if they are installed in a T12 fixture without also changing the ballast to electronic. The entire fixture does not need to be changed; just the ballast and the tubes.

The following calculator allows you to determine roughly what you can save by replacing T12s with T8s.

This calculator allows you to see how much you can save in both energy and dollars by using T8 tubes and ballasts in place of T12 ballast and tubes.  
**To change the numbers in this sheet locate your cursor over the sheet and double click. Please change only the values in blue.**

<b>T8 compared to T12 lighting savings</b>	Existing	Proposed	Savings
Existing lighting - T12 (4 tube x 40 watt)	40		
Proposed retrofit - T8 (2 tube x 32 watt)		32	
<b>Data</b>			
Operating hours per day	3	3	
Operating days per week	5	5	
Operating weeks per year	52	52	
Total operating hours per year	780	780	
Bulb cost (\$)	\$1.35	\$2.10	
Bulb life (hours)	20000	20000	
Number of bulbs per fixture	4	4	
Ballast factor	1.19	0.88	
Average electrical energy rate (\$)	\$0.1000	\$0.1000	
<b>Savings per fixture</b>			
Energy consumption (kWh) = (watts per bulb x operating hours)/1000 watts	149	88	
Annual energy cost per bulb (\$) = (kWh x electrical rate for energy)	\$14.85	\$8.79	
Annual bulb replacement cost (\$)	\$0.05	\$0.08	
Annual energy and bulb replacement costs (\$)	\$14.90	\$8.87	\$6.04
<b>Total savings</b>			
Total number of fixtures to be replaced	120	120	
Electrical demand (kW)	4.8	3.8	1.0
Total annual energy consumption (kWh)	17821	10543	7278
Total annual energy cost (\$)	\$1,782.14	\$1,054.31	
Total annual cost for replacement bulbs (\$)	\$6.32	\$9.83	
Total annual energy and bulb replacement costs (\$)	\$1,788.46	\$1,064.14	\$724.32
Reduction in greenhouse gases due to energy savings (kg)			6914

*Reduction in maintenance labour to change bulbs will provide additional savings*

Conserve Nova Scotia has provided funding for a program called Smart Lighting Choices, in which they will be investing \$1 million to help subsidize the cost difference between energy-efficient, high performance T8 (HPT8) lighting products and regular T8 lighting products. Conserve Nova Scotia is partnering with electrical distributors province wide to offer an instant rebate on qualifying HPT8 products. For more information on this new program please see: <http://www.conservens.ca/slc>

For more information on T8 fluorescent lighting please see:  
<http://www.lrc.rpi.edu/programs/NLPIP/lightingAnswers/t8/abstract.asp>

For more tips on lighting improvements please see the “Eco-Efficiency and Responsible Lighting Use” fact sheet at  
[http://eco-efficiency.management.dal.ca/Files/Business\\_Fact\\_Sheets/lighting\\_fs.pdf](http://eco-efficiency.management.dal.ca/Files/Business_Fact_Sheets/lighting_fs.pdf)

□ Exit lighting

Note: All of the EXIT signs we saw appeared to have incandescent lighting  
 The following calculator will help determine how much can be saved by replacing the incandescent bulbs in the Exit signs with LEDs.

This calculator allows you determine savings in both energy and dollars by replacing incandescent light bulbs in EXIT signs with light emitting diode (LED) bulbs.

**To change the numbers in this sheet locate your cursor over the sheet and double click. Please change only the values in**

<b>Incandescent to LED bulbs in EXIT signs savings</b>	Existing	Proposed	Savings
Existing lighting - incandescent (Watts)	<b>30</b>		
Proposed retrofit - LED (Watts)		<b>2.5</b>	
<b>Data</b>			
Operating hours per day (by law EXIT signs must be lit 24 hours per day)	<b>24</b>	24	
Operating days per week	<b>7</b>	7	
Operating weeks per year	<b>52</b>	52	
Total operating hours per year	8736	8736	
Bulb cost (\$)	<b>\$1.00</b>	<b>\$10.00</b>	
Bulb life (hours)	1500	50000	
Average electrical energy rate (\$)	<b>\$0.1000</b>	\$0.1000	
<b>Annual savings per sign</b>			
Energy consumption (kWh) = (watts per bulb x operating hours)/1000 watts	262	22	
Annual energy cost per bulb (\$) = (kWh x electrical rate for energy)	\$26.21	\$2.18	
Annual bulb replacement cost (\$)	\$5.82	\$1.75	
Total energy + bulb replacement costs (\$)	\$32.03	\$3.93	<b>\$28.10</b>
<b>Total annual savings</b>			
Total number of bulbs to be replaced (EXIT signs often have more than one bulb)	<b>10</b>	10	
Electrical demand (kW)	0.3	0.0	0.3
Total energy consumption (kWh)	2621	218	2402
Total energy cost (\$)	\$262.08	\$21.84	
Total cost for replacement bulbs (\$)	\$58.24	\$17.47	
Total energy + bulb replacement costs (\$)	\$320.32	\$39.31	<b>\$281.01</b>
<b>Reduction in greenhouse gases due to energy savings (kg)</b>			<b>2282</b>

*Reduction in maintenance labour to change bulbs will provide additional savings*

- Ensure that all computers are using energy saving features

Note: Two desktop computers were in the office.

Most new computers have an Energy Star approved power management option that can help your computer use 70% less electricity than computers without enabled power management features. This option is only effective if it's on: Make sure your computer's power management option is enabled. Spending a large portion of time in low-power mode not only saves energy, but helps equipment stay cooler and last longer.



A conventional computer system, on for 24 hours, has an annual electrical cost of \$165. An energy-efficient system on for 24 hours has an annual electrical cost of \$84. An energy-efficient computer system shut off at night has an annual electrical cost of \$28 saving about \$60. While atypical laptop draws about 25 watts and costs less than \$5 to run if operated 40 hours per week for 52 weeks.

A common misunderstanding about computer monitors is that turning the monitor on and off uses more energy than just leaving it on. Turning off your monitor when your computer is not in use is the best way to save energy. Screensavers use the same amount of energy as leaving the monitor on.

- Phantom load energy use

A phantom load, sometimes referred to as standby power, is the power still being consumed by any device while it is switched off. Microwaves, computers and printers that are left on draw energy to power their lights and clocks. In some businesses this can be as much as 20% of the electrical bill.

You can eliminate this load by pulling the plug on equipment when it is not used or by using power bars with a shut off switch on them. This will enable you to easily switch that individual machine or

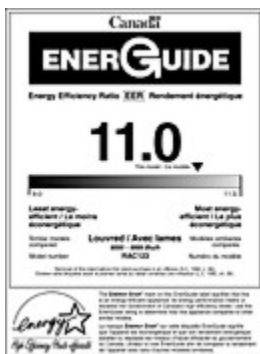
system off when it's not in use, which will reduce energy use and costs.

This calculator will help you determine how much it costs for electrical energy for each of the appliances used in your business

**To change the numbers in this sheet locate your cursor over the sheet and double click. The sheet will become accessible. Please change only the values in blue**

Appliance	Quantity	Watts	Hours per day used	Number of days used per year	Electricity rate	Cost	Phantom Load (Watts)	Annual phantom Load (\$)
Computers	2	150	3	365	\$0.100	\$32.85	25	\$38.33
A/C unit in bar	1	600	4	365	\$0.100	\$87.60	0	\$0.00
TV	0	0	1.5	365	\$0.100	\$0.00	0	\$0.00
Video lottery terminals	3	0	0.5	260	\$0.100	\$0.00	0	\$0.00
	0	0	8	260	\$0.100	\$0.00	0	\$0.00
	0	0	8	260	\$0.100	\$0.00	0	\$0.00
	0	0	10	365	\$0.100	\$0.00	0	\$0.00
Refrigerator	1	65	24	365	\$0.100	\$56.94	0	\$0.00
Microwave	1	1000	0.25	365	\$0.100	\$9.13	5	\$4.33
	0	0	0	365	\$0.100	\$0.00	0	\$0.00
	0	0	0	365	\$0.100	\$0.00	0	\$0.00
	0	0	0	365	\$0.100	\$0.00	0	\$0.00
	0	0	0	100	\$0.100	\$0.00	0	\$0.00
	0	0	0	365	\$0.100	\$0.00	0	\$0.00
						\$187	30	\$42.66

□ EnerGuide/ENERGY STAR



Over the past two decades, appliance manufacturers have made significant improvements to the energy efficiency of their appliances. For example, on average, today's refrigerators and freezers use at least 60 percent less energy than those built in 1984; dishwashers use at least 50 percent less. In part, these improvements are a result of energy efficiency regulations in Canada and the influence of initiatives such as the ENERGY STAR and EnerGuide programs. EnerGuide labels allows you to compare the energy efficiency of the many different models of household appliances or heating and cooling products sold in Canada by stating the highest and lowest figures for similar models.



ENERGY STAR goes one step further and identifies specific models that meet or exceed premium levels of energy efficiency.

If you would like additional information on Canada's EnerGuide Program and ENERGY STAR please see the following website

<http://oee.nrcan.gc.ca/energystar/english/participants/estar.cfm?attr=12>

## 2.4 Water Reduction Opportunities

There are many reasons to conserve water; even though Atlantic Canada appears to have an abundant supply. Many people are unaware that of all the water in the world, 97.5% is salt water. The remaining 2.5% is fresh, but a significant amount is tied up in the polar ice caps. This leaves

less than 1% of the world's water supply available to meet the fresh water demands of all living things. We must consider not only the growing demand for our water, but also factors such as water pollution and drought, which can affect the amount and quality available for our use. The increasing need to improve and sustain our water resources for environmental reasons is also limiting the amount of water available for other uses. Not only is it necessary to think about using our existing supplies wisely; we also must consider costs. It costs money to supply, treat, dispose of and then re-treat water.

- Low flow rinse valve

Note: An older style rinse valve is used in the kitchen for a few hours each week.

- Faucet aerators

Note: Aerators were used on some faucets. Did not read the flow rating.

Faucet aerators are available with several flow volumes. Each faucet should be checked to determine the water flow. They are usually imprinted on the aerator and should be less than 2.5 gpm. They are available as low as 0.5 gpm. Low flow units can reduce water use at the faucets by 50% and also reduce watering heating costs by 50%.

- Low flush toilets

Note: Five 13L per flush toilets were noticed

Low flush toilets (6L per flush) reduce water requirements for each flush by about 60%. Water consumption in an old toilet can be reduced without buying a new one. Install "toilet dams" included in your greening your business toolkit on 18L toilets at the store. Toilet dams are water retention devices that can save five litres of water per flush. Toilet dams are inexpensive at a cost of less than \$10 per set. Another common retrofit is the installation of toilet bags (displace water) on existing toilets.

Not all low flush (or regular) toilets are created equal. Please visit the following website to see effectiveness ratings for various makes and models. The last few pages provide the rating.

[http://cwwa.ca/pdf\\_files/MAP%2010th%20Edition%20August%202007.pdf](http://cwwa.ca/pdf_files/MAP%2010th%20Edition%20August%202007.pdf)

#### **Did you know?**

*A dripping faucet at 1 drop/second wastes between 3300 – 10000 litres/year. A running toilet can waste as much as 200,000 litres/year (NRCAN, 2005).*

For more information on water conservation please refer to the "Eco-Efficiency and Responsible Water Use" fact sheet

[http://eco-efficiency.management.dal.ca/Files/Business\\_Fact\\_Sheets/water\\_fs.pdf](http://eco-efficiency.management.dal.ca/Files/Business_Fact_Sheets/water_fs.pdf)

## **2.5 Hazardous Materials Opportunities**

Hazardous materials are chemical substances found in industry and many households. Hazardous materials come in the form of flammables, combustibles, poisons, explosives, and radioactive materials. They are found in many of the materials we use to enhance our lives, such as: paint, motor oil, antifreeze, fire extinguishers, smoke alarms, cleaning supplies, cell phones, and batteries. Although these materials contribute to the improvement of everyday living, they can also be

hazardous to health and the environment if not handled properly.

The Workplace Hazardous Materials Information System (WHMIS) is a comprehensive plan for providing information on the safe use of hazardous materials used in Canadian workplaces. It was created in response to the Canadian workers' right to know about the safety and health hazards that may be associated with the materials or chemicals they use at work.

Any business or organization that uses hazardous materials produces hazardous waste and ultimately has both legal and social responsibilities in terms of material acquisition, use, storage, and disposal. Reducing costs associated with employee right-to-know, accurate reporting, regulatory compliance and waste management are all daily concerns for these businesses.

The most effective way to reduce hazardous waste generation is to reduce or eliminate the use of hazardous materials. The immediate benefits are reduced workplace health hazards to employees, reduced disposal costs, and reduced effect on the environment.

- Consider environmentally friendly products for general cleaning

Note: Comet, bleach used for cleaning.

Switching to environmentally friendly cleaners is becoming an increasingly common action taken by businesses today. By substituting current cleaners with more environmentally friendly alternatives businesses can reduce their environmental footprint and improve the indoor air quality for employees and guests. The Canadian

green-certification program is called "Environment Choice Program" or EcoLogo. This certification identifies products that have undergone stringent assessments, verifying that these products are less harmful to the environment. The Environmental Choice Program has established strict limits on traditional chemicals contained in cleaning products (such as phosphates) as well as the biodegradability of the product. If you wish to replace chemicals and need assistance finding an alternative please call the Eco-Efficiency Centre and we will be glad to help.



**Did you know...?**

*Over 2000+ products and services have met or exceeded the standards of this program and now bear the EcoLogo symbol. For cleaners, this program has strict limits on phosphates, alkyl-phenol ethoxylates, chelating agents, aquatic toxicity, and biodegradability.*

For some EcoLogo approved cleaning products please visit the following websites:

Bebbington Industries Burnside at (902) 468-8180

[http://www.bebbingtonindustries.com/down\\_east.html](http://www.bebbingtonindustries.com/down_east.html)

Swish Maintenance

[www.enviro-solution.com/productselection/industrial.html](http://www.enviro-solution.com/productselection/industrial.html)

For more information about this environmental choice program, visit:

[http://www.ecologo.org/en/certifiedgreenproducts/?category\\_id=21#21](http://www.ecologo.org/en/certifiedgreenproducts/?category_id=21#21)

## 2.6 Waste Management Opportunities

Waste presents one of the biggest challenges to human civilization. While goods are produced, discarded materials need to be efficiently collected, treated, recycled, or disposed. Every sector of the economy needs to address the issue of waste management and every business needs to have a program in place to manage environmental issues related to such things as energy use, water use, solid waste disposal, hazardous materials use, and awareness training. Your company may be familiar with other types of management programs, such as quality management programs, workplace health and safety programs, or risk management programs. An environmental management program fulfills a similar role providing a structure for planning and managing environment issues and showing due diligence within a company. It can be simple program for most small businesses.

In many environmental programs, a pollution prevention approach, to avoid or minimize the creation of pollution and waste, is the cornerstone of the program, and for good reason. If businesses don't create waste or pollution, they don't have to devote time and resources to manage and dispose of it. Actions taken to prevent waste at the source tend to be relatively inexpensive and more effective than end-of-pipe treatment processes because they can recover wastes in a useful form. If your business already avoids creating waste or pollutants, then you are using pollution prevention practices.

### □ Organics

***Law: The Provincial Government has banned all organic waste from disposal at all landfill operations in the province. It is the responsibility of all businesses and others to segregate all of their organic waste regardless of the quantity and ensure that it is disposed of (composted) in an environmentally acceptable manner.***



For information on organics separation please see the Eco-Efficiency Centre fact sheets.

Eco-Efficiency and Composting

[http://eco-efficiency.management.dal.ca/Files/Business\\_Fact\\_Sheets/composting\\_fs.pdf](http://eco-efficiency.management.dal.ca/Files/Business_Fact_Sheets/composting_fs.pdf)

Eco-Efficiency and Organic Waste Management

[http://eco-efficiency.management.dal.ca/Files/Business\\_Fact\\_Sheets/organic\\_waste\\_fs.pdf](http://eco-efficiency.management.dal.ca/Files/Business_Fact_Sheets/organic_waste_fs.pdf)

### □ Disposal of fluorescent lights

Fluorescent lights contain a very small amount of mercury which is sealed within the bulb or tube. They are not regulated and can be sent to landfill. However it would be better for the environment to save them and take them to a hazardous waste collection site.

Coal-fired power plants release a lot of mercury into the environment. Many people in the industry say the amount of mercury the bulbs save through energy conservation, by burning less coal, is more than the mercury in the bulbs, and even if some goes into the landfill, overall there's a net reduction.

To find a household hazardous waste location, please see the following website:

<http://www.rrfb.com/pages/programs/hhwinfo.cfm>

- Purchase post consumer recycled paper products

Purchase paper products (office paper, toilet tissue, paper towels, facial tissue, table napkins, etc.) made with a high percentage of recycled post-consumer content paper. Purchasing post consumer recycled products creates markets for recycled paper which conserves natural resources and energy. Buying “recycled” products is essential to increase the market, therefore making it possible for recycled paper to compete with virgin paper.

When purchasing paper towel purchase unbleached or chlorine free alternatives. When paper towels are bleached with elemental chlorine (chlorine gas), chlorinated compounds, such as dioxins and furans, are released into the atmosphere. These compounds are strong carcinogens and mutagens.

For more information on environmentally-friendly tissue and paper towel, please visit:

[www.greenseal.org/resources/reports/CGR\\_tissuetowel.pdf](http://www.greenseal.org/resources/reports/CGR_tissuetowel.pdf)

#### A few facts about recycling:

- ♻️ Making paper uses more water per tonne than any other product in the world
- ♻️ Recycled paper saves 60% energy vs. virgin paper
- ♻️ Each tonne of paper recycled saves 7000 gallons of water, 17 trees, and prevents 60 lbs of air pollution.
- ♻️ Paper can only be recycled 6-7 times, because each cycle shortens its fibres, reducing its mechanical resistance.
- ♻️ Recycled aluminium saves 95% energy vs. virgin aluminium
- ♻️ Recycled aluminium reduces pollution by 95%
- ♻️ Glass can be recycled an infinite number of times

## 2.7 Awareness Training

Employee awareness is one of the most important elements for successful implementation of a waste reduction and resource conservation program in the workplace. It is critical to have employees involved in the planning and implementation of environmental practices and policies. Most staff will react positively to these improvements if they understand what is behind the issues and are given the opportunity to prepare for the changes.

Environmental awareness is everyone’s responsibility. By taking a proactive approach to environmental issues, a strong message can be sent in terms of public relations. A strong commitment to a positive ecological perspective can be very appealing to customers and clients and can also benefit the environment.

- Develop an Environmental Policy

An environmental policy is a statement of an organization’s commitment to improving its environmental performance. Improving the organization’s environmental performance has numerous benefits including creating a healthier safer workplace, improving the bottom line, and enhancing one’s image in the community. The key to making sure that the policy works in your organization is to ensure that members and visitors are aware of it.

More information on developing an environmental policy and samples can be found at:  
[http://www.gov.ns.ca/enla/pollutionprevention/docs/ENV\\_POLICY\\_factsheet.pdf](http://www.gov.ns.ca/enla/pollutionprevention/docs/ENV_POLICY_factsheet.pdf)

- Inform members of the Social Centre's environmental practices

Note: Everyone seemed to be very receptive to improving the buildings operation. This should include waste separation, water conservation and energy conservation. The efforts of your members will be crucial to the success of any new environmentally friendly practices you initiate.

For more information on involvement please refer to the "Eco-Efficiency and Greening Employees" fact sheet at

[http://eco-efficiency.management.dal.ca/Files/Business\\_Fact\\_Sheets/employees\\_fs.pdf](http://eco-efficiency.management.dal.ca/Files/Business_Fact_Sheets/employees_fs.pdf)

### 3.0 Available Government Funding

Nova Scotia Power

[www.nspower.ca/customer\\_service/business/cicustom/](http://www.nspower.ca/customer_service/business/cicustom/)

Conserve Nova Scotia

<http://www.conservens.ca/commercial>

Natural Resources Canada - ecoENERGY Retrofit Incentive for Buildings

<http://oee.nrcan.gc.ca/commercial/financial-assistance/existing/retrofits/index.cfm?attr=0>

### 4.0 Environmental Excellence in Business Awards

The Eco-Efficiency Centre hosts an annual Environmental Excellence in Business breakfast to coincide with Canadian Environment Week. The breakfast is an opportunity for the Centre to recognize Nova Scotia companies working on economic and environmental improvements. These companies use innovative thinking and proactive strategies in approaching how they can reduce their "ecological footprint". They recognize that paying attention to the environment is simply good business. These companies serve as role models for other businesses in Nova Scotia. The breakfast event also serves to encourage networking between business, government and the academic community. For more information on the breakfast or nominations please visit

[http://eco-efficiency.management.dal.ca/Events/Regular\\_Events/Annual\\_Breakfast](http://eco-efficiency.management.dal.ca/Events/Regular_Events/Annual_Breakfast)

### 5.0 Nova Scotia Materials Exchange

The Nova Scotia Materials Exchange is Nova Scotia's online marketplace to buy, sell, trade or donate useable materials that would otherwise end up in landfills. The Exchange is



**One person's  
waste is  
another's  
treasure.**

a free service that seeks to reduce waste by promoting the exchange of reusable materials. Companies with surplus or by-product materials can list such materials on the website. This is a good way for businesses to save money on disposal fees, and reduce their impact on the

environment. The Eco-Efficiency Centre manages the Nova Scotia Materials Exchange website on behalf of RRFB. The Nova Scotia Materials Exchange website can be found at [www.nsmaterials.com](http://www.nsmaterials.com).

## 6.0 Closing

Thank you again for participating in the Eco-Efficiency Centre's environmental and energy review program. We hope that the information provided will help your business develop cleaner, greener, more cost efficient practices. The Eco-Efficiency Centre staff is available to help you research specific questions related to energy conservation technologies, hazardous materials substitution and waste reduction opportunities. If you have any questions or require any additional information feel free to contact us at **902-461-6704**.

### Contact:

The Eco-Efficiency Centre  
 2 Vidito Drive (Burnside Industrial Park)  
 Dartmouth, NS, B3B 1P9  
 Tel: 902-461-6704  
 Fax: 902-461-6703  
 Email: [eecentre@dal.ca](mailto:eecentre@dal.ca)  
 Web: [www.dal.ca/eco-efficiency](http://www.dal.ca/eco-efficiency)

## 7.0 Contact List

For further information we suggest you review the contact sheet for companies that can provide additional information or products that will aid your company in obtaining even greater eco-efficiency. Also, our website contains a great deal of useful Business Resources to improve the environmental standards at your workplace. Please visit [www.dal.ca/eco-efficiency](http://www.dal.ca/eco-efficiency) to view these resources.

Issue	Company	Address	Telephone	Website Email
<b>Composting and Recycling Containers</b>	Caster - Rack Systems Ltd.	15-109Ilsley Avenue, Dartmouth, NS B3B 1S8	(902) 468-5502	<a href="mailto:info@caster-rack.com">info@caster-rack.com</a>
	Lee Valley Tools	100 Susie Lake Cr. Bayer's Lake Industrial Park	(902) 450-1221	<a href="http://www.leevalley.com">www.leevalley.com</a>
	Richard's Packaging	24 Borden Ave Burnside Industrial Park	(902) 468-8211	n/a
	The Bin Doctor Limited	39 Gurholt Drive Dartmouth, NS B3B 1J8	(902) 462-7468	<a href="http://www.bindoctor.com">www.bindoctor.com</a>
	Waste Resource Containers	109 Ilsley Ave Unit #15 Burnside Industrial Park	(902) 468-9495	n/a
<b>Computer Recycling</b>	Computers for Schools/ The Technology	NovaKnowledge 3770 Kempt Road	(902) 424-3596 General	<a href="http://cfs-ope.ic.gc.ca/Default.asp">http://cfs-ope.ic.gc.ca/Default.asp</a>

	Recycling Program (TRP)	Halifax, NS B3K 4X8	Inquires (902) 424-5229 Michael Nicksy	<a href="mailto:nicksymd@gov.ns.ca">nicksymd@gov.ns.ca</a>
	Computer Re-Marketing Inc.	3559 Robie Street Halifax, NS	(902) 468-9607	<a href="http://www.pc700.com/roncarrier@pc700.com">http://www.pc700.com/roncarrier@pc700.com</a>
	Nova Scotia's Technology Recycling Initiative (reBOOT)	386 Windmill Rd. Dartmouth, Nova Scotia	(902) 465-5000	<a href="http://www.lakecityemployment.com/techrecycling.html">www.lakecityemployment.com/techrecycling.html</a> <a href="mailto:cfyles@lakecityemployment.com">cfyles@lakecityemployment.com</a>
<b>Energy Assessments</b>	Dumac Energy Limited	752 Bedford Highway, Halifax, NS B3M 2L9	(902) 457-1300	<a href="http://www.dumac.ns.ca/index.htm">http://www.dumac.ns.ca/index.htm</a>  <a href="mailto:dumac@dumac.ns.ca">dumac@dumac.ns.ca</a>
	Enerscan Engineering Incorporated	22 Julie's Walk Halifax, NS B3M 2Z7	(902) 445-4433	<a href="http://www.enerscanengineering.com">http://www.enerscanengineering.com</a> <a href="mailto:info@enerscan.ca">info@enerscan.ca</a>
	Johnson Controls	99 Rocky Lake Dr., Suite 20 Bedford, NS B4A 2G3	(902) 835-9971	<a href="http://www.johnsoncontrols.com/">http://www.johnsoncontrols.com/</a>
<b>Environmental Education</b>	Clean Nova Scotia	126 Portland Street, Dartmouth, NS B2Y 1H8	(902) 420-3474	<a href="http://www.clean.ns.ca">www.clean.ns.ca</a>
	Ecology Action Centre	2705 Fern Lane Halifax, NS B3K 4L3	(902) 429-2202	<a href="http://www.ecologyaction.ca/">http://www.ecologyaction.ca/</a>
	NovaKnowledge	Suite 304 Purdy's Wharf Tower One 1959 Upper Water Street Halifax, NS B3J 3N2	(902) 494-1510	<a href="http://www.novaknowledge.ns.ca/">http://www.novaknowledge.ns.ca/</a>  <a href="mailto:events@novaknowledge.ns.ca">events@novaknowledge.ns.ca</a>
	Natural Resources Canada (NRCan)	Ottawa, ON	(613) 995-0947	<a href="http://www.nrcan.gc.ca">www.nrcan.gc.ca</a>
<b>Environmentally Friendly Cleaners</b>	Bebbington Industries	44 Wright Avenue Dartmouth, NS B3B 1G6	(902) 468-8180	<a href="http://www.bebbingtonindustries.ca">www.bebbingtonindustries.ca</a> <a href="mailto:info@bebbingtonindustries.ca">info@bebbingtonindustries.ca</a>
	Janitor's Market	95 Akerley Boulevard Unit C-D Halifax, NS B3B 1R7	(902) 468-8082	<a href="http://www.janitorsmarket.com">www.janitorsmarket.com</a>  <a href="mailto:janmarket@ns.sympatico.ca">janmarket@ns.sympatico.ca</a>
	Swish Maintenance	81 Wright Avenue Unit 14 Dartmouth, NS B3B 1H4	(902) 468-3756	<a href="http://www.swishclean.com">www.swishclean.com</a>
<b>General Information</b>	Atlantic Canada Opportunities Agency (ACOA)	1801 Hollis Street, Suite 600 Halifax, NS B3J 3C8	(902) 426-6743	<a href="http://www.acoa-apeca.gc.ca/e/en/index.aspx">http://www.acoa-apeca.gc.ca/e/en/index.aspx</a>
	Environment Canada - Atlantic	45 Alderney Drive Dartmouth, NS B2Y 2N6	(902) 426-7231	<a href="http://www.ns.ec.gc.ca/">www.ns.ec.gc.ca/</a>

	Halifax Regional Municipality (HRM)	P.O. Box 1749, Halifax, Nova Scotia B3J 3A5	(902) 490-4000	<a href="http://www.halifax.ca">www.halifax.ca</a>
	Halifax Regional Water Commission	P.O. Box 8388 Halifax, N.S. B3K 5M1	(902) 490-4820	<a href="http://www.hrwc.ns.ca/">http://www.hrwc.ns.ca/</a> <a href="mailto:cust_inq@hrwc.ns.ca">cust_inq@hrwc.ns.ca</a>
	Nova Scotia Environmental Industries Association (NSEIA)	1 Research Drive Woodside Industrial Park Dartmouth, NS B2Y 4M9	(902) 463-3538	<a href="http://www.nseia.ns.ca/">www.nseia.ns.ca/</a>
	Nova Scotia Department of Environment and Labour	PO Box 697 5151 Terminal Road Halifax, Nova Scotia B3J 2T8	(902) 424-5300	<a href="http://www.gov.ns.ca/enla/">www.gov.ns.ca/enla/</a>
	Nova Scotia Power Inc.	P.O. Box 910 Halifax, NS B3MJ 2W5	(902) 428-6230 Toll-free 1-800-428-6230	<a href="http://www.nspower.ca/">http://www.nspower.ca/</a>
<b>Hazardous Waste Disposal</b>	Atlantic Industrial Cleaners	11 Brown Ave., Dartmouth, NS B3B 1Z7	(902) 481-8008	<a href="http://www.enviro-systems.com">www.enviro-systems.com</a> <a href="mailto:aic@envirosystems.ca">aic@envirosystems.ca</a>
	Barrington Environmental Services	25 Akerley Boulevard Dartmouth, NS B3B 1J7	(902) 468-8848	n/a
	Envirosystems	11 Brown Avenue Dartmouth, N.S. B3B 1Z7	(902) 481-1513 Contact: Louise Martin	
	Safety-Kleen Canada Inc.	380 Bluewater Road Bedford, NS B3B 1J3	(902) 835-8078	<a href="http://www.safetykleen.com">http://www.safetykleen.com</a> <a href="mailto:chuck.stager@safety-kleen.com">chuck.stager@safety-kleen.com</a>
<b>Lighting Retrofit</b>	Harris and Roome	3600 Joseph Howe Drive Halifax, N.S. B3K 5M7	(902) 457-8730	<a href="http://www.graybarcanada.com/hr_default.asp">http://www.graybarcanada.com/hr_default.asp</a>
	Litemor Distributors	90 Raddall Avenue, Dartmouth, NS B3B 1T2	(902) 468-1043	
	McLoughlan Supplies Ltd.	201 Brownlow, Unit 24 Dartmouth, NS B3B 1W2	(902) 425-8533	n/a
	Osram Sylvania Lighting Services	2001 Drew Road Mississauga, ON L5S 1S4	Toll-free 1-800-663-4268	<a href="http://www.sylvania.com">www.sylvania.com</a>
	Rockingham Electric Ltd.	11 Pettipas Drive, Dartmouth, NS B3B 1K1	468-3000	
<b>Solid Waste Recycling</b>	Advanced Recycling Ltd.	Halifax, NS	(902) 450-5633	n/a
	Beazely Ltd. (Scrap Metal)	124 Cow Bay Rd, Eastern	(902)-465-6053	

		Passage, NS B3G 1M5		
	Dan X-Incorporated- The Bulb Eater	48 Trider Cr. Dartmouth, NS B3B 1R6	(902) 446-3950	<a href="http://www.danxonline.com">www.danxonline.com</a> <a href="mailto:emerson@bulbeater.com">emerson@bulbeater.com</a>
	Dartmouth Metal & Bottle Ltd	14 Dawn Dr, Dartmouth, NS B2Y 3Y2	(902) 468-1995	n/a
	Harbour Metal Recycling Ltd.	191 Joseph Zatzman Drive, Unit 1 B3B 1M5	(902) 468-6787	n/a
	HRM Solid Waste Resources	21 Mount Hope Ave. Halifax, NS B3J 3A5	(902) 490-4000	n/a
	John Ross & Sons Ltd. (Metal)	171 Chain Lake Drive, Halifax, NS B3S 1B3	(902) 450-5633	n/a
	Marc's Bottle Exchange and Recycling Inc.	5321 #7 Hwy Porter's Lake, NS	(902) 827-3636	
	Miller Waste Systems	50 Chain Lake Drive Halifax, NS B3A 2A1	(902) 490-6640	<a href="http://www.millergroup.ca/">www.millergroup.ca/</a>
	RRFB - Resource Recovery Fund Board	14 Court Street, Suite 305 Truro, NS B2N 3H7	Toll-free 1-877-313-7732	<a href="http://www.rrfb.com">http://www.rrfb.com</a>
	Sackville Bottle Exchange and Recycling	446 Sackville Drive Sackville, NS	(902) 865-9010	
	Scotia Recycling Limited	5 Brown Ave., Dartmouth, NS B3B 1Z7	(902) 468-5650	<a href="http://www.scotiarecyclin&lt;br/&gt;g.com/">http://www.scotiarecyclin g.com/</a> <a href="mailto:rcaldwell@scotiarecyclin&lt;br/&gt;g.com">rcaldwell@scotiarecyclin g.com</a>
	White Star Plastics Recycling	8-1246 Rocky Lake Drive Waverley, NS B2R 1R5	(902) 860-3615	<a href="mailto:whitestar@istar.ca">whitestar@istar.ca</a>
	Youth Live Recycling and Enviro Depot	947 Mitchell	(902) 490-7370	n/a
<b>Waste Haulers</b>	ACM Waste Removal	Halifax, NS	(902) 497-7808	n/a
	Burnside Recycling	66 Simmonds Drive Dartmouth, NS B3B 1P6	(902) 468-9190	n/a
	Enviro-Waste Ltd.	Lwr Sackville, Sackville, NS B4C 2S9	(902) 864-4213	n/a
	Green Waste System Inc.	16 Evergreen Pl, Halifax, NS B3N 1R2	(902) 477-8800	n/a
	Waste Management of	20 Simmonds	(902) 468-9111	<a href="http://www.wm.com">www.wm.com</a>

	Canada Corporation	Drive Dartmouth, NS B3B 1R3		
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