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Environmentally Sustainable Business Practices

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DISTRICT HEALTH UNIT

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1. Introduction

The interactions between humans and the environment are multiple and complex. A prime example of this relationship is the phenomenon known as climate change. There is now scientific consensus that this global issue is a result of human activity. Hence, the global and local implications of climate change have become motivators for change on many levels; personal, governmental and organizational.

Many have embraced philosophies to support such change. Two in particular, sustainability and the triple bottom line, have become popularized in recent years. These schools of thought continue to permeate organizations and individuals, while becoming integrated into decision-making.

1.1 Sustainability

Sustainability is a term that was coined over 30 years ago. In 1983, the United Nations convened the World Commission on Environment and Development (WCED), otherwise known as the Brundtland Commission. Their mandate was to address growing concern regarding “the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development”[1]. In 1987, their report entitled “Our Common Future” was recognized for defining sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”[2]. This interpretation is the most well known and cited definition.

1.2 Triple Bottom Line

Sustainability is often described as the goal of the triple bottom line framework. The triple bottom line reporting framework demands consideration for not only economic, but environmental and social factors as well. This framework is most often used for reporting and evaluating performance. Evaluating environmental impacts can be accomplished by analyzing resource consumption and ecological footprints. The social implications can be determined by analyzing employees and local communities. Economic considerations, otherwise known as “the bottom line”, are no longer the only measure of success. Overall, this framework is important because it promotes consideration and accountability for environmental and social attributes.

Considerations for environmental impacts and social responsibility continue to permeate everyday lifestyles, as well as business management approaches. Many organizations are now choosing to evaluate decisions based on the triple bottom line framework and strive towards sustainability. Often included in these “green” approaches are concepts such as carbon neutrality, zero-waste, and balancing carbon release and sequestration. Going “green” strategies and concepts continue to evolve and are gaining popularity among various audiences. This shift will undoubtedly continue to become further integrated in personal choices, communities and organizations.

1.3 Simcoe Muskoka District Heath Unit

As an active role model in its communities, the Simcoe Muskoka District Health Unit plays an important role in influencing the health and well-being of many people. Integral to this, is the role of the environment on human health. As outlined in the 2007-2010 Strategic Plan, the Simcoe Muskoka District Health Unit's vision includes a "healthy environment that is sustained through public policy and actions to ensure clean air, land and water".

As a public health agency, the Simcoe Muskoka District Health Unit is committed to protecting public health. There is now the opportunity to demonstrate a moral and ethical responsibility to promote and endorse environmental leadership. Environmentally sustainable business practices can demonstrate responsibility to mitigate climate change, both with respect to environmental impacts and as a means to protect public health. In fact, the new Ontario Public Health Standards specifically address climate change as a health hazard issue to be addressed through health promotion and policy development.

Further integrating the importance of the environment into agency decision-making would demonstrate an excellent commitment to complement its mission and vision. It would provide for the opportunity to showcase the values of the agency, specifically; working together, accountability and excellence.

It would also support the three components of the Strategic Plan; Programs, People and Partnerships. With respect to 'Programs', environmentally sustainable business practices directly relate to the identified emerging areas of public health including the built environment and health, as well as environmental health hazards. Secondly, the goal of 'People' is to provide a healthy working environment. To achieve a green shift, staff will need to collaborate and share the responsibility of working towards a greater goal. Lastly, this initiative would support the element of 'Partnership'. It would create opportunities for external collaboration and the development of both local and large-scale partnerships.

Environmentally sustainable business practices directly relates to a number of Simcoe Muskoka District Health Unit programs and committees. These include, but are not limited to, the Health Hazard Program within Health Protection Service, Healthy Living, Corporate Service, Environmental Health Working Group, Workplace Wellness Committee, Building Healthy Communities Committee and Infrastructure Review Committee.

Becoming more environmentally responsible would be a rewarding and challenging goal for the Simcoe Muskoka District Health Unit. It would provide the opportunity to set a positive example in the community while realizing economic benefits. The resources identified in this report aim to provide guidelines and suggestions for future "green" directions. Change is not only a destination, but a journey from which much can be learned and accomplished.

2. Green Office Best Practices

Executive Summary

It is becoming increasingly clear that everyone has a part to play when it comes to the environment and sustainability. The Simcoe Muskoka District Health Unit can make choices and develop policies to reduce its ecological footprint and follow sustainable business practices. These goals go hand in hand with the Simcoe Muskoka District Health Unit's role in promoting and protecting the health of its communities. The health unit must also continue to be a role model and demonstrate its commitment to important issues such as climate change and sustainability.

Tackling these issues will require efforts from all staff. Management has a key role to play in promoting change. Their actions are most important for the promotion and endorsement of policies and initiatives. Staff participation and support are also integral to any initiative. Through their everyday decisions and behaviours, they influence many outcomes. Encouraging staff to feel empowered about their ability to make a difference can produce positive results.

Best practices specific to the agency and staff members are outlined with respect to the following categories:

- Waste & Recycling
- Energy
- Water
- Transportation
- Green Procurement

Overall themes that are identified include:

- Minimize resource use
- Maximize resource efficiency
- Support and promote diligent and responsible behaviour
- Ensure adequate and supportive infrastructure is in place
- Use the triple bottom line framework to guide decision making
- Include and evaluate sustainability and environmental criteria in all procurement

2.1 Introduction

Sustainability and climate change issues are becoming increasingly important to Canadians and others worldwide. In 1987, sustainable development was defined by the Brundtland Commission as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”[2]. Since then, this concept has evolved to become a philosophy for institutions, businesses and everyday life. In addition, climate change is now highly recognized for its potential and widespread effects. Therefore, it is becoming clear that these issues are inherently integrated. As a result, together, sustainability and climate change have become powerful motivators for change.

It is now evident that an increasing number of people are turning to “green” choices. At the same time, concerns for the environment and sustainability have also provided the opportunity for economic advantages. Now, many offices, businesses and organizations are aiming high and green.

Reaching these goals, however, requires efforts from all staff. Management plays an important role in endorsing and promoting these goals. Standards and policies that support these initiatives must first be supported by management to ensure compliance and tangible results. Encouraging staff to feel empowered about their ability to make a difference will be a critical role for management. Staff support and participation are also essential to any successful operation, including green initiatives. This is because staff members’ decision making and behaviours have valuable input in the success of such initiatives. Through their everyday decisions and behaviours, management and staff can positively influence many outcomes. The following section outlines best practices specific to both the agency and staff members for a variety of categories.

The Simcoe Muskoka District Health Unit is committed to excellence in promoting and protecting health. Therefore, considerations for the environment and sustainable business practices are important components that support this mission. This section of the report is a comprehensive compilation of best practices to help the Simcoe Muskoka District Health Unit operate sustainably and reduce its ecological footprint.

2.2 Waste & Recycling

In 2006, 6,732,545 tonnes of waste was disposed of from Ontario's industrial, commercial & institutional (IC&I) sources[3]. This is roughly equivalent to filling over 5.7 million transport trucks[4]. It is estimated that the primary components of IC&I waste are paper (23%) and organics (11%), both of which have the capacity to be diverted[5]. In essence, there are still many things that end up in the garbage that could be avoided. This situation is even more critical in light of Ontario's limited landfill capacity. It is extremely challenging and time consuming to zone new landfills or increase the capacity of existing ones. Therefore, it is important to examine waste production and reduction at the source.

2.2.1 Paper

Paper is an essential component in offices that is often taken for granted. Unfortunately, unsustainable forest practices and irresponsible behaviour may jeopardize this previously-considered renewable resource. Although there are certification systems such as the Forest Stewardship Council that promote responsible forestry, not all paper suppliers in the industry meet their criteria. In addition, although it is well-known that paper is recyclable, not everyone chooses the blue bin. Estimates indicated paper waste accounted for nearly 76% of the solid waste in federal offices[6]. A reduction in paper consumption and increases in recycling rates should be a relatively easy target to achieve.

Agency

- Set default on printers, photocopiers and/or fax machines (if applicable) to print:
  - Double-sided
  - Black & white
  - Draft setting (saves toner)
- Purchase paper as per green procurement policy:
  - Minimum 30% recycled content
  - Preferably unbleached
  - Preferably certified (i.e. FSC, SFI, CSA)
- Maximize electronic avenues of communication as alternatives to print via:
  - Scanning
  - Electronic faxes
  - Emailing
- Minimize unnecessary & excessively printed documents:
  - Memos
  - Meeting Agendas
  - HR packages
- Ensure staff are properly trained with all office equipment to reduce wasteful errors

- Provide signage near office equipment regarding:
    - Reducing paper consumption
    - Recycling
    - Instructions for proper use of equipment
- Eliminate unnecessary/multiple subscriptions (newspapers, newsletters, magazines, junk mail, flyers)

Staff

- Adjust settings to maximize printed area
    - Adjust margins
    - Reduce scale
    - Shorten text and/or gaps to minimize number of pages
- Reuse single-sided paper:
    - To print drafts, if necessary
    - As scrap pads or bind into notebooks
    - For use in fax machine and/or photocopier
- Maximize electronic avenues of communication as alternatives to print via:
    - Scanning
    - Electronic faxes
    - Emailing
- Review, edit or add track changes to documents on-screen rather than printing
- Receive training on office equipment to reduce wasteful errors and ask for assistance/further training if questions remain
- Be diligent in how much or which type of paper needs to be used
- Minimize unnecessary and/or excessive documents for printing/photocopying:
    - Memos
    - Meeting Agendas
    - HR packages
    - Draft documents

2.2.2 Solid Waste

As previously mentioned, Ontario's landfills do not have the capacity to handle its solid waste. For the Simcoe Muskoka region, reduced landfill capacity is an important issue considering both the large present and projected population growth rates. In September 2007, Simcoe County estimated that existing landfill sites had approximately 9.3 years of remaining capacity[7]. Similarly, in August 2007, the District of Muskoka estimated that the remaining disposal capacity for existing sites was less than 10 years[8]. Whether reducing consumption at the source or diverting it through recycling or composting, reducing the amount of solid waste going to landfills is an important agency and personal responsibility.

Agency

- Encourage re-usable cutlery & food containers
- Ensure green bin/organics program (within the municipality or through a 3rd party) or composter exists to divert:
    - Food Waste
    - Paper towels
    - Toilet paper rolls
    - Beverage containers (where applicable)
- Ensure garbage pick-up procedures are efficient:
    - Have bins emptied into one large bag when possible to reduce number of garbage bags used
- Purchase garbage bags as per green procurement policy:
    - Biodegradable, if available
- Encourage suppliers to take back any packaging
- Ensure adequate quantity and access to recycling bins throughout offices, inside and outside
- Increase the frequency of recycling pick-up and reduce frequency of garbage pick-up
- Where possible, ensure a fridge, sink, microwave and/or dishwasher is available to encourage staff to bring in waste-free lunches
- Ensure system for disposal of special items (batteries, light bulbs, etc.)

Staff

- Make a conscious effort to bring and/or use re-usable cutlery, beverage & food containers in reusable bags (during lunches and/or breaks)
- Participate in a green bin program (use composter or take home) for organic waste:
    - Food Waste
    - Paper towels
    - Toilet paper rolls
    - Any other materials accepted by the service provider
- Bring reusable coffee mugs
- Act responsibly before generating waste & when disposing products

2.2.3 Recycling

Residential recycling programs have been given a lot of attention and resources by municipalities in order to meet Ontario's 60% waste diversion goal. However, in 2006 65% of Ontario's waste sent for disposal actually came from non-residential sources[3]. Unfortunately, the diversion rate from non-residential sources was only 12%, as compared to residential sources at 29%[3].Therefore, more attention needs to be paid to increasing IC&I recycling rates. However, it is also important to consider that recycling is an energy-intensive process and is driven by market demand. Therefore this makes recycling a second choice only to reducing consumption at the source and remains an important component of waste diversion strategies.

Agency

- Ensure a recycling program is in place (within the municipality or through a 3rd party) to recycle:
    - Glass
    - Plastic
    - Paper
    - Any other materials accepted by the service provider
- Ensure adequate number and placement of bins
- Provide multiple bins for easy sorting
- Create specialized bins/areas for other recyclables (i.e. toner, ink cartridges, electronics)
- Ensure accurate and proper signage exists regarding what is accepted for recycling

Staff

- Ensure all recyclable materials aren't thrown out
- Ensure awareness of bin locations and recycling capacity
- Bring old toners/ink cartridges to be refilled instead of being thrown out, where possible
- Follow rules regarding what is accepted for recycling (can bring home if it is not accepted at work)

2.2.4 Office Supplies

In every office there are key items that can be found on desks and supply shelves. These office supplies range from as small as paperclips, to as large as the desks themselves. Most notably, a great deal of small consumables such as disposable pens, staples and markers are thrown in the garbage. It has been estimated that a disposable pen in a landfill will remain there after 50 000 years[9]. Considering that the BIC Corporation sold its 100-billionth pen in 2005[10], it is evident that relatively small things have the capacity for a large impact. These supplies can easily be managed in a more sustainable fashion. This can be achieved by considering the product's properties and life-cycle prior to its purchase, as well as the efficient use of resources by staff.

Agency

- Ensure old furniture and technology is re-used, recycled or donated
- Determine if old/unused technology/equipment can be returned to supplier
- Purchase of office supplies as per green procurement policy (i.e. refillable pens, pencils, paperclips, etc.)
- Avoid excessive packaging from suppliers and where possible, have it returned to supplier and/or reused

Staff

- Make a conscious effort to not be wasteful when using or ordering supplies

- Use and reuse:
    - Refillable pens & pencils
    - File folders
    - Rechargeable batteries instead of disposable batteries
    - Binders
    - Envelopes
- Purchase of office supplies as per green procurement policy (i.e. reusable, repairable, durable)
- Use solar power instead of battery power (i.e. calculators)
- Have a central location for office supplies that can be reused/shared among staff
- Use of whiteboards vs. paper flip-charts

2.2.5 Key Messages

- Minimize waste
- Minimize unnecessary purchases/product use in offices
- Maximize product longevity
- Maximize amount of materials that can be recycled
- Maximize diversion of organic materials from garbage into composting/green bin where possible
- Maximize electronic avenues instead of hard copies
- Ensure adequate and appropriate organic and recycling bins
- Purchase from companies promoting minimal packaging
- Return old products in packaging from new shipments
- Buy in bulk to reduce materials for packaging & need for transportation

2.3 Energy

Energy is a critical component of everyday operations to any size office or business. To be put into context, one petajoule is approximately the energy required to operate the Montreal subway system for one full year[11]. In 2005, Canada's commercial and institutional sectors accounted for 1153 petajoules of energy use and 65 megatonnes of greenhouse gases. Of this, offices ranked highest in energy demand at 35% of total energy use[12]. Considering the fact that 74% of Ontario's power generation is derived from non-renewable energy sources[13], it is becoming increasingly important to look to renewable sources and focus on energy conservation.

2.3.1 General

The Government of Canada has recognized the need to take further action to reduce greenhouse gas emissions and air pollution. In 2006, amendments to the Energy Efficiency Act were tabled to raise efficiency standards for a variety of consumer products. These amendments were slated to come into force between 2007 and 2010. It was estimated that "the amendments will have an impact equivalent to eliminating the energy use of all households for one year in a city the size of Barrie, Ontario"[14]. Therefore, Energy Star, an international labelling system for energy efficient products, will continue to play an integral role in consumer choice.

Agency

- Preference given to energy efficient/Energy Star certified products as per green procurement policy, including but not limited to the following:
    - Heating & cooling systems
    - Fridges, microwaves and other appliances
    - Computers, printers, fax machines, etc.
- Invest in renewable energy systems for buildings (where & when feasible):
    - Solar, wind, geothermal, low-impact hydro, biomass, bio-gas, etc.
- Purchase/invest in green power (where & when feasible)

Staff

- Be conscious of energy use in general
- Take the stairs instead of the elevator
- Purchase energy efficient/Energy Star certified products as per green procurement policy, including but not limited to the following:
    - Heating & cooling systems
    - Fridges, microwaves and other appliances
    - Computers, printers, fax machines, etc.

2.3.2 Heating & Cooling

In 2005, it was estimated that space heating and cooling accounted for more than 57% of Ontario's commercial and institutional energy use[15]. As well, it was shown that 98% of Ontario establishments were at least partially space-heated and 91%, the highest of all provinces, were at least partially air-conditioned[16]. These estimates would also be reflective of buildings in the Simcoe Muskoka region, as its climate includes both cold winters and hot summers. Although they may use different resources, heating and cooling systems are mostly energy intensive. Curbing this energy use can be accomplished through new technologies, as well as simple changes in office settings.

Agency

- Increase standard summer temperatures by 1 – 2 degrees
- Decrease standard winter temperatures by 1 – 2 degrees
- Where possible, ensure shades/blinds are available to cover windows
- Use and/or purchase programmable thermostats, where possible
- Virtualize servers (fewer physical servers (IT) draw less power and reduce cooling needs)
- Review dress code to ensure staff can be comfortable with set office temperatures and/or address the use of personal heating/cooling equipment
- Consider
    - High performance window glazing/coating to reduce heat transfer
    - Use of Energy Star/high emissivity/highly reflective roofing
    - Green/vegetated roofs

Staff

- Where available, draw shades/blinds to shield sunlight from heating office
- Where available, open shades/blinds to allow sunlight to help heat office
- Dress appropriately for the temperature inside the office
- In temperature controlled areas, keep windows and doors closed

2.3.3 Technology

In 2005, it was shown that auxiliary equipment (any stand-alone equipment powered directly from an electrical outlet) accounted for 15% of office energy use in Ontario[15]. It was also estimated that 55% of auxiliary equipment were computers[16]. Unfortunately, these computers and other equipment left plugged in can still draw power even if it they are off. This is known as standby power or phantom load. Although there are no current estimates for commercial buildings, standby power accounts for approximately 5-10% of total electricity use in most homes and 1% of global carbon dioxide emissions[17]. Considering the large number of computers and auxiliary equipment in general, it is important to recognize their energy consumption both “off” and “on”. In fact, just one computer left on all day costs $115 – $160 annually, releases 1500 pounds of CO_2 and needs 10-150 trees to offset these emissions[18].

Agency

- Photocopiers, printers, computers and monitors can be altered to:
    - Default sleep modes
    - Automate screen savers
    - Set energy saving modes
- Choose LCD monitors over CRT monitors as per green procurement policy (LCD use 1/3 less energy)
- Encourage staff to turn off equipment when not in use
- Maximize number of power bars to reduce draining unnecessary electricity from phantom loads

- Purchase timers for equipment that does not need to be on after hours
- Consider computer software that automatically turns computers off at set times

Staff

- Be diligent in turning off equipment when not in use, i.e.:
  - Monitors when not in use (>10 minutes)
  - Computers at lunchtime, out of office and at night (>1 hour)
  - All printers, copiers and other electrical equipment are switched off at night (except 'always on' equipment)
- Unplug anything that is not being used

2.3.4 Lighting

In 2005, within the commercial and institutional settings in Ontario, 12.7% of energy use was devoted to lighting[15]. In 2007, the Government of Canada announced that by 2012 it would ban the sale of inefficient incandescent light bulbs to help reduce greenhouse gas emissions. This is supported by the fact that standard incandescent bulbs waste 90% of their energy by producing heat, not light[19]. Now, it has been estimated that new technologies can reduce energy consumption between 30% and 70%[20]. These technological advancements, combined with awareness and small behavioural changes, make lighting an easy way to reduce energy consumption.

Agency

- Where appropriate, invest in:
  - Dimmers
  - Sensors
  - Timers
- Minimize excessive/unnecessary outdoor lighting
- Maximize natural light in offices
- Ensure lighting is compact fluorescent or LED (as opposed to incandescent)
- Ensure all lighting systems are energy efficient
- Ensure adequate number of light switches so that entire spaces are not controlled by a single breaker
- Where possible, invest in a lighting system that allows for partial use (i.e. turn on one tube when multiple tubes present)
- Minimize light pollution:
  - Minimize excessive/unnecessary outdoor lighting (i.e. use motion sensors)
  - No vanity lighting

Staff

- Maximize natural light
- Turn off lights when not needed or when leaving for more than 5 minutes
- Take advantage of multiple light switches to only light up specific areas as needed
- Use task lighting when appropriate

2.3.5 Key Messages

- Minimize energy use
- Maximize energy efficiency
- Ensure temperature controls are balanced to save energy while still ensuring a comfortable work environment
- Invest in technologies that are more energy efficient (i.e. Energy Star)
- Old, inefficient products are replaced within a reasonable time frame
- Minimize demand for energy through efficient building design
- Reduce demand for energy from the grid and encourage renewable energy production
- Minimize energy demand through passive solar heating and lighting

2.4. Water

Water is one of the most basic necessities in life. In Canada, there is a significant amount of freshwater, however, it only accounts for 7% of the world's renewable freshwater supply[21]. Unfortunately Canada's water resources are often used inefficiently. In 2004, the average Canadian's daily domestic freshwater use per capita was estimated at 329 litres, 65% more than Europeans[21]. Focusing on conservation and improved technologies would ensure that this important resource does not become compromised.

2.4.1 Bathroom

Outdated toilets can waste up to 20 litres of water per flush[22]. Assuming only 2 flushes per day for 100 staff members, as much as 4000L of water is potentially being flushed away. This would be equivalent to taking forty 5-minute showers[23]. Improved technologies can easily reduce the amount of water used to flush the toilet and during hand-washing. Therefore, updating bathroom facilities is an easy way to help save water without requiring a change in behaviour.

Agency

- Where possible, invest in:
  - Low/ultra-low or dual flush toilets (using 6L or less per flush)
  - Waterless or low-flush urinals (using 3.8L/flush or less)
  - Low-flow faucet aerators (using less than 8.5 L/minute)
  - Sensor/automatic toilets
  - Sensors for faucets to help:
    - Reduce run time between closing taps with paper towel
    - Reduce dripping/wasted water from not properly closing taps
- Ensure proper leak reporting system is in place and that leaks are fixed in timely manner

Staff

- Reduce run time between closing taps with paper towel
- Ensure taps are properly shut off
- Report leaks in a timely manner
- Do not use toilets or sinks to dispose of:
    - Garbage
    - Medication
    - Non-biodegradable items/substances

2.4.2 Kitchen

Tap water is a safe and affordable commodity in Canada however it is often taken for granted. Imagine, a kitchen sink leaking one drop per second wastes about 10,000 litres of water per year, or the equivalent of 166 baths[22]. Unfortunately there is also a continued trend towards the purchase of bottled water. Canadian data shows that annual per capita consumption of bottled water increased from 28.4 litres in 1998 to 66 litres in 2006[24]. Although very profitable, bottled water is not considered sustainable. This is due to the exploitation of water sources, the energy intensive nature of the plastic manufacturing process and the fact that many bottles end up in landfills. In fact, it was estimated that for every litre of bottled water, three litres of water was used for its production[25].

Agency

- Encourage efficient use of dishwasher (if applicable)
- Where applicable, invest in:
    - Dishwashers (using 38L or less)
- Encourage drinking tap water (versus bottled water):
    - Purchase NSF certified filter for tap water if there are any aesthetic concerns

Staff

- Choose economy and air dry settings on dishwasher and only run when full
- Choose to drink tap water versus bottled water
- Firmly close taps to ensure no leaks or drips

2.4.3 Maintenance

Maintaining the office surroundings may not always be the responsibility of the tenant. However, when appropriate, it is diligent to make an effort to ensure that maintenance is being performed in a sustainable manner. The use of water to maintain grounds in particular can be quite wasteful. In fact, it is estimated that more than 50% of water applied to lawns and gardens is lost to evaporation or run-off and most only require one inch of water per week[26].

Agency

- Reduce and/or eliminate lawn watering:
    - If necessary, use rain basins to catch water run-off from buildings for watering purposes
- Do not use irrigation systems that use potable water
- Consider capturing storm water and recycling it for:
    - Flushing toilets
    - Irrigation (i.e. use of rain basins)
- Ensure native plants are used in landscaping
- Minimize outdoor impervious surfaces (i.e. paving)

2.4.4 Key Messages

- Minimize water use
- Maximize water efficiency
- Encourage consumption of tap water versus bottled water
- Where possible, maximize low-flow or highly water efficient products to reduce demand for potable water
- Reduce unnecessary and/or wasteful uses of water
- Use storm water as a resource to reduce demand for potable water

2.5 Transportation

Commuting to and from work and traveling for work plays a large role environmentally and economically. In 2006, 79.2% of workers in Ontario used cars to get to work[27]. In fact, during 2005, Ontario contributed 36% of all greenhouse gases and 40% of all nitrous oxide emissions from on-road transportation in Canada[28]. The burning of fossil fuels from transportation contributes to climate change and smog, which ultimately affects human health. Therefore, it is important to consider new green technologies and encourage active transportation to reduce our current dependence on a non-renewable resource.

2.5.1 Commuting and Work-related Travel

Transportation is an important issue to address due to the significant environmental and economic impacts. This is an area of particular focus for the health unit given that the Simcoe Muskoka region spans a large area. Many staff members commute significant distances to and from work. Secondly, many staff positions require travel for work purposes. In addition, this travel is often frequent and far, as office locations and destinations can be quite distanced. Given the cost of fuel and release of harmful emissions, it is important to continue pursuing efficient and alternate means of transportation.

Agency

- Encourage carpooling:

    - Set up a carpooling system to match staff home locations to potential car-sharers in their area
    - Have designated/preferential parking for carpoolers
- Encourage active transportation:
    - Where possible, provide the following supports:
        - Change rooms
        - Bike racks
        - Storage
        - Shower(s)
        - Bike Share program for offices
    - Endorse initiatives to support buying/using bikes (i.e. bike maintenance, bike buddies)
    - Ensure supportive infrastructure is in place:
        - Sidewalks
        - Appropriate lighting
- Encourage public transportation:
    - Inquire about corporate bus pass discount for staff
    - Keep copies and/or provide internet link to bus routes and schedules
    - Office locations have easy access to public transportation with frequent service
    - Consider purchasing a supply of Greyhound/GoTransit tickets for staff travel
- Where operationally feasible, support working/occasional working from home
- Maximize teleconferencing/videoconferencing and ensure all offices have this capability
- Ensure that fleet is:
    - Properly maintained
    - Fuel efficient
    - “Green” (i.e. hybrid, electric, etc.), if possible
- Give preference to offices that are in a central location (to reduce time spent driving for employees, deliveries, etc.)
- Endorse activities to promote staff education regarding:
    - Personal vehicle maintenance
    - SMDHU mileage costs
    - “Green” transportation options
    - Environmental impacts

Staff

- Maximize active transportation (i.e. cycling, walking, etc.)
    - Choose active means of commuting for those that live within close proximity to offices
    - Choose active transportation in combination with other options (public transportation, carpooling, etc.) for those that do not live in close proximity to offices
- When possible, maximize use of public transportation
- Be diligent in trying to reduce mileage:
    - Combine multiple tasks/locations/meetings in one trip/day
    - Maximize use of teleconferencing/videoconferencing

- Always carpool, when possible

- When using personal vehicles:
  - Ensure proper vehicle maintenance
  - Tires are properly inflated
  - Maximize use of cruise control to reduce sudden acceleration

2.5.2 Key Messages

- Minimize mileage
- Maximize travel/trip efficiency
- Maximize fuel efficiency
- Maximize alternatives to single occupancy vehicle use:
  - Maximize active transportation, carpooling and/or public transportation
- When possible, choose “green” options for fleet and maintenance
- Ensure all vehicles are properly maintained
- Provide information regarding fuel efficiency and vehicle maintenance to staff
- Appropriate infrastructure & location is required to support sustainable behaviours

2.6 Other

Greening philosophies and practices are increasing in popularity at home and at work. This is not surprising considering a 2007 poll indicated that overall, Canadians ranked the environment as their top personal concern (19%), followed by health care (13%)[29]. There are now many opportunities to incorporate green and sustainable options and many are embracing a shift towards these philosophies.

2.6.1 Buildings

The buildings in which organizations choose their offices can now be seen as a reflection of a commitment to sustainability. A third party certification system known as LEED (Leadership in Energy and Environmental Design) was originally developed in 1998 by the United States Green Building Council to foster sustainable green building and development practices. In 2004, the Canada Green Building Council launched LEED Canada. As of July 2008, there were 108 certified LEED Canada projects, with both Ontario and British Columbia having the highest number of projects at 35 each[30]. The concept behind LEED is quickly gaining popularity, both provincially and nationally. In fact, Ontario has an additional 300 projects that are registered and awaiting certification[31]. Therefore, green buildings should be taken into consideration, as they have shown significant environmental and financial benefits.

Agency

- Choose LEED certified/environmentally friendly buildings, when possible
- Ensure recycling/garbage cans available outside building

- Ensure timely and appropriate repairs for leaks, cracks, drafts, etc.
- Ensure property maintenance follows green procurement principles
- Maximize landscape to provide opportunities for shade, reduced ultra-violet exposure and protection from inclement weather
- Preference given to operable windows to maximize ventilation
- Maximize use of renewable plant materials:
    - Bamboo flooring, wool carpets, straw board, wheatgrass cabinetry, cotton batt insulation, linoleum flooring, poplar OSB, sunflower seed board
- Ensure that there are none of the following:
    - CFC-based refrigerants in HVAC systems
    - Halons in fire suppression equipment

2.6.2 Miscellaneous

Agency

- Maximize indoor air quality:
    - Develop a scent-free/sensitive policy
    - Maximize low-emitting materials (low in volatile organic compounds)
        - Adhesives & sealants
        - Paints and coating
        - Carpet
        - Composite wood and laminate adhesives
- Maximize outdoor air quality:
    - Develop an anti-idling policy for all offices and staff during work hours
    - Maximize trees/greenery for outside grounds/landscape
- Develop policy to complement suggestions from role-modeling healthy eating practices while conducting health unit business:
    - Organic, local, sustainable, fairtrade foods
- Ensure hazardous materials are disposed of and handled properly
- Establish a green office board (physical or virtual) or on public website to share:
    - Achievements, statistics, goals and/or results
    - Green ideas, events
    - Motivation
    - Policy statement(s)
    - Links to resources

Staff

- Follow guidelines for handling and disposal of hazardous material
- Any gifts purchased will follow green procurement policy:
    - Environmentally friendly gifts

- Participate and/or contribute to green office board (physical or virtual) or on public website to share:
    - Achievements, statistics, goals and/or results
    - Green ideas, events
    - Motivation
    - Policy statement(s)
    - Links to resources
- Maximize indoor air quality:
    - Consider the use of air cleaning plants:
        - Some recommended indoor varieties are: Peace Lilly, Dracaena, mother-in-law's tongue, English ivy, Chinese fern and parlour palms.
    - Support a scent-free/sensitive work environment
- Organize a materials exchange among offices and staff (i.e. give/trade unwanted things)

2.7 Green Procurement

Over the past years, an increasing number of organizations, businesses and governments have developed policies on environmentally friendly purchasing. Green procurement refers to the purchase of products and services that have a lesser or reduced effect on the environment and human health. In a recent survey, 76% of participating Canadian government departments or agencies had a green purchasing policy[32]. There is a growing trend towards the establishment of green procurement policies and it is imperative that environmental and human impacts are seriously taken into consideration during purchasing.

2.7.1 Purchasing

- Include sustainability criteria in procurement and contracts:
    - Evaluate costs and benefits on whole-life cycles
    - Evaluate with respect to purchase, operational costs, consumables and disposal
    - Use triple bottom line framework (equal consideration for environmental, social and economic factors)
- Traditional requirements must still be incorporated into assessments:
    - Operational requirements
    - Price competitiveness
    - Quality
    - Availability
- Ensure proper assessment of whether new goods and services are actually needed
- Choose lasting and durable products versus disposable or one-time use
- Buy in bulk with respect to products and number of shipments/orders

- In general, preferred products should:
    - Be reusable or contain reusable parts
    - Be recyclable or contain recycled/post-consumer materials
    - Make efficient use of resources and energy
    - Produce fewer polluting by-products and safety hazards during use/disposal versus comparable products
    - Have a long service life and/or can be economically and effectively repaired as opposed to replaced
- In general, preferred suppliers are those who:
    - Are local
    - Are committed to responsible environmental operations
    - Make a concerted effort to follow sustainable business practices
    - Demonstrate corporate social responsibility
- Partner with landlords who are:
    - Committed to responsible environmental operations
    - Willing to consider acting/partnering on green projects/options (i.e. upgrades)
- Ensure built-in service agreements consider green/sustainable practices
    - Building maintenance
        - Pesticide/chemical-free
        - No potable water use for watering
        - Clippings & rakings put in piles for composting (not in plastic bags for garbage)
    - Cleaning services (i.e. environmentally friendly cleaning products)

2.7.2 Key Messages

- Take environmental factors/impacts into consideration during purchasing and contract decisions
- Use triple bottom line framework for decision making
- Avoid unnecessary purchases; opt for reusable versus consumable
- Choose durable and useful products
- Work with landlords to enhance sustainability of offices
- Ensure products and services from outside parties reflect green principles

2.8 Conclusion

There are some main themes that can be applied to future green initiatives. These include minimizing use and maximizing efficiency of resources, endorsing and supporting responsible behaviours, using a triple bottom line framework to guide decision-making and ensuring adequate infrastructure is in place to support these initiatives.

The best practices outlined in this report serve as a guide for the agency to implement policies and procedures related to reducing environmental impacts and promoting sustainability. In addition, staff members play an important role in everyday operations and serve as a medium to communicate an organization's values and goals. The best practices also serve as a guide for staff to make a difference through their everyday choices.

The Simcoe Muskoka District Health Unit shows a great deal of promise in reducing its ecological footprint and operating sustainably. Undoubtedly, management will play an integral role in supporting and endorsing a change in organizational behaviour and culture. Similarly, staff members will play an integral role in supporting and realizing such a change. These changes are also happening within other organizations, both locally and globally. Together, the Simcoe Muskoka District Health Unit can play its part in protecting our environment and our health.

3. Environmental Impact Analysis and Sustainability Strategy

Executive Summary

As a role model for its communities, the Simcoe Muskoka District Health Unit needs to demonstrate environmental leadership and responsibility. In fact, there exist many opportunities for the Simcoe Muskoka District Health Unit to reduce its ecological footprint while benefiting from an economic advantage.

In determining target areas for initial action, it is important to consider the environmental impact of the action, potential for reduction of environmental impact, cost of implementing reduction strategies, potential impact on staff and ability to evaluate success. Based on these five criteria, initiatives that reduce paper, petroleum and energy consumption are recommended as key areas where the health unit can target initial efforts to reduce its ecological footprint. Baseline data and proposed solutions are explored in this section of the report for each category. If all initiatives and targets are successfully met, projections outlined in Table 1 show that there would be significant environmental and economical benefits.

Table 1. Projected environmental emission reductions and economic savings associated with successful implementation of all suggested green initiatives.

	Environmental Emission Reductions			**Economic**
Initiatives	CO_2	SO_2	NO_x	Savings (CDN $)
Paper Conservation	5.9 T	20 kg	17 kg	$ 1,344
Petroleum Reduction	54.5 T	--	174 kg	$ 92,475
Electricity Conservation	20.4 T	86 kg	37 kg	$ 1,279
Total	80.8 T	106 kg	228 kg	$ 95,098
Total Emissions Equivalencies	Annual greenhouse gas emissions from 27.7 passenger vehicles.			
	Carbon sequestered annually by 34.3 acres of pine/fir forest.			
	CO_2 emissions from the energy use of 13.4 homes for one year.			

It is important to note that there are a variety of options when pursuing a green agenda. The three areas of focus only reflect a small sample of ideas and concepts that the Simcoe Muskoka District Unit Health Unit can incorporate when establishing a Green Office Plan. The green office best practices component of the report will help the Simcoe Muskoka District Health Unit in developing a realistic and comprehensive Green Office Plan. Although there are many “greening” options, the three areas covered in this section are useful as starting points. This is because these changes are relatively simple and could be implemented immediately. These will also assist in building staff support and recognition for green initiatives.

3.1 Introduction

Environmental stresses from intense forestry, high water consumption and pollution are putting pressure on the planet. The environment is dynamic and in response, it is changing. As health impacts of climate change become more evident, there is increased public pressure to reduce our impact on the environment. Humans must adapt to inevitable change and modify schools of thought to embrace sustainability. Achieving sustainable development will require the effort of all Canadians. It will require individuals, corporations and government to change the way we work, live and play.

Canadians are starting to make changes at home to reduce their impact on the environment. However, there is also much to be done in the commercial and institutional sectors. The environmentally responsible management philosophy to apply remains the same;

1. To make the most efficient use of resources, and
2. To minimize the ecological footprint.

The term ecological footprint is used to describe the demand for resources. In other words, it is a measure of "how much bio-productive area (whether land or water) a population would require to sustainably produce all the resources it consumes and to absorb the waste it generates, using prevailing technology"[33]. Ecological footprints help determine the extent of environmental impacts and therefore are often referred to in many "greening" plans. The incorporation of these key principles into the culture of an organization is essential for the creation of a "Green" office.

The Simcoe Muskoka District Health Unit acts as a role model for its communities. Therefore, it is important for the Simcoe Muskoka District Health Unit to demonstrate leadership and responsibility for the issues and behaviours it endorses. It is important to note that these endeavours include a societal component. However, societal impacts, both negative and positive, are often difficult to quantify. Therefore, for the purposes of this section, potential societal benefits are recognized but not further explored. This section will discuss the next steps that can be taken by the Simcoe Muskoka District Health Unit in its continuing efforts to reduce its ecological footprint and go "Green".

3.2 Green Office Plan

3.2.1 Vision

Simcoe Muskoka District Health Unit will become a leader in environmentally sustainable business practices.

3.2.2 Goal

To reduce the Simcoe Muskoka District Health Unit ecological footprint through education, technology and green procurement.

3.2.3 Objectives

Apply sustainability principles and minimize the ecological footprint of Simcoe Muskoka District Health Unit buildings and infrastructure by:

- Increasing resource efficiency
- Decreasing resource consumption
- Increasing recycling capacity
- Increasing green procurement

3.2.4 Strategic Framework

The SMDHU will achieve its objectives by:

- Developing and delivering effective programs
- Securing staff, management and corporate support for environmentally sustainable business practices
- Identifying and addressing barriers to achieving its objectives
- Demonstrating leadership by making health unit facilities models of environmentally sustainable business practices and sharing best practices
- Identifying baseline values and setting targets
- Benchmarking, monitoring and reporting regularly on its progress in meeting targets
- Actively educating SMDHU staff to reinforce positive and sustainable behaviours

It is also important to note that education is a key component to fostering sustainable behaviour. The suggested mechanisms to reduce the ecological footprint of the organization inherently include an educational component and are not explicitly addressed in this report.

3.2.5 Plan Components

As in any important corporate endeavour, planning is essential for success. A Green Office Plan has five critical components;

1) Agency support
2) Environmental impact assessment
3) Development of an environmental action plan
4) Implementation and communication
5) Evaluation.

The first step in the creation of a Green Office Plan (GOP) is to gain support from the agency. This is a crucial step because, in order for projects to succeed, they must first be endorsed and supported at the senior management level. The support will acknowledge that time and resources need to be allocated to green initiatives. Management support can also increase staff involvement and participation. The second step is to undertake an environmental impact assessment. This requires examining current practices and gathering baseline data on consumption of materials and resources.

Once complete, the next step in the process is to prioritize potential action items and create a green action plan. Once initiatives are developed and commitments are established, these actions must be properly implemented and communicated. Lastly, it is important to critically evaluate the success of any initiative. This can be accomplished by looking at baseline values and reporting on whether targets were achieved. Feedback should also be gathered to identify the strengths, weaknesses and comments for future initiatives.

It is important to continue to build on successes to maintain corporate, management and staff participation. In determining priorities, it is important to consider the following criteria:

1) Environmental impact of the activity
2) The potential for reducing the environmental impact
3) The cost of implementation
4) The potential impact on staff
5) The ability to evaluate success

Based on these five criteria, initiatives that reduce paper, petroleum and energy consumption are key areas where the health unit can begin to reduce its ecological footprint. The environmental impacts of current and target areas are detailed with respect to carbon dioxide (CO_2), sulphur dioxide (SO_2) and nitrogen oxides (NO_x). These chemicals were chosen due to their negative environmental impacts. Carbon dioxide and nitrogen oxides are both greenhouse gases that contribute to climate change. Sulphur dioxide is also important as it contributes to air pollution and acid rain.

3.3 Paper Consumption

3.3.1 Introduction

The integration of the computer into the business world was heralded as the beginning of the "paperless" office. In actuality, as computers appeared on every desktop and photocopiers in every office, paper consumption began to skyrocket. The emergence of e-mail further accelerated paper consumption. According to a 1999 study on a number of business offices, the introduction of e-mail coincided with an increase in paper consumption by an average of 40% in less than five years[34].

In addition to being the largest component of the office's solid waste stream, a cursory evaluation of paper consumption within the health unit suggests there is significant potential for reducing our ecological impact. This reduction can be accomplished through technical changes, as well as simple changes in individual habits.

3.3.2 Baseline Data

In 2007, the Barrie office alone used approximately 1.3 million sheets of paper that did not contain any post-consumer recycled content. This represents enough paper laid end to end, to stretch approximately 350 km, which is a distance equivalent to a return trip from the southern to northern boundary of the health unit. It is estimated that the entire health unit consumed roughly 1.6 million sheets in 2007. The environmental and economic implications of this consumption are outlined in Table 2a.

While many of the printers and photocopiers currently have the capacity for duplex printing, it is currently being under-utilized. Data was collected from two photocopiers and three printers (Clinical, HPS, Tobacco) in the Barrie office from the machine memory. Initial estimates show the percentages of double-sided documents from printers and photocopiers are 18 % and 30% respectively. As well, the percentage of documents duplexed on printers varies considerably between programs areas, with rates ranging from 3 % to 25 %.

3.3.3 Solution

Multi-page documents represent a significant proportion of the health unit's paper consumption. A significant reduction in paper consumption can therefore be achieved by modifying the default setting on office printers to a duplex setting. A further reduction in our ecological impact can also be achieved by purchasing paper with a minimum 30% post-consumer recycled content. In addition, modifying the print quality default setting on office printers to "draft" will reduce toner consumption. These technical changes will have a limited impact on staff and any future cost associated with upgrading to machines capable of duplexing will be offset by savings from reduced paper consumption.

In addition to the reductions that can be attained through technical methods, further reductions in paper consumption can also be achieved by encouraging staff to adopt environmentally friendly printing and photocopying behaviour. Educational messages would encourage staff to: "Think before you print or photocopy, store documents electronically and e-mail rather than printing", as well as messages with regard to "how to" duplex, have the potential to significantly reduce paper consumption. For this potential to be realized,

staff support is essential. An effective method of obtaining staff support for green initiatives is the ability to communicate back to staff that their efforts are producing tangible results. As a result, program evaluation is an essential part of any office greening program.

3.3.4 Monitoring

The primary tool for evaluating overall efficacy in paper consumption initiatives will be a measure of the amount of paper purchased as compared to baseline data. Secondary indicators can also provide important insight into the various components of the paper reduction program. The monitoring of printer and photocopier usage will determine proportional paper consumption and duplexing by device and program area.

3.3.5 Projected Ecological and Economic Impact

Through the implementation of such initiatives to reduce paper consumption, a conservative projection is that the health unit can reduce its overall paper consumption by 20%. Based on a 20% reduction in paper consumption and the purchase of paper containing 30% post-consumer recycled content, the health unit would save 84 trees annually. The projected environmental and economic benefits from these changes are outlined in Table 2b. In fact, a 20% reduction in paper consumption will mitigate any additional cost of purchasing paper with a higher recycled content.

Table 2. Environmental and economic implications of current and projected paper consumption. a) Baseline values for paper consumption in 2007. b) Projected values of a target reduction of 20% and the purchase of 30% post-consumer recycled paper.

a)

	Environmental Emissions			**Economics**
Baseline	CO_2	SO_2	NO_x	Cost (CDN $)
Paper	20.6 T	95 kg	67 kg	$ 11,840

b)

	Environmental Emission Reductions			**Economics**
Target - 30% Recycled/20% Reduction	CO_2	SO_2	NO_x	Savings (CDN $)
Paper Conservation	5.9 T	20 kg	17 kg	$ 1,344
Emissions Equivalencies	Annual greenhouse gas emissions from 2 passenger vehicles.			
	Carbon sequestered annually by 2.5 acres of pine/fir forest.			
	CO_2 emissions from the energy use of 0.99 homes for one year.			

3.4 Petroleum Consumption

3.4.1 Introduction

Transportation is one of the largest sources of air pollution in Canada. The combustion of fossil fuels has negative impacts on the environment and the health of Canadians[35]. In Ontario, transportation accounts for 65% of nitrogen oxides, 35% of volatile organic compounds, 20% of particulate matter and 27% of greenhouse gas emissions[36].

Table 3: Estimated Illness Costs of Air Pollution for the Simcoe Muskoka Region[37].

	2008	2026
Premature Deaths	220	360
Hospital Admissions	578	817
Emergency Visits	2154	2422

In 2005, it was estimated that within the Simcoe Muskoka region, air pollution was responsible for 220 premature deaths and millions of dollars in health care costs. As shown in Table 3, it is projected that by 2026, air pollution-related premature deaths will increase to 360. In addition, there are projected increases for the number of hospital admissions and emergency visits. This may also result in concurrent increases in health care and lost productivity costs[37]. Therefore, there exists a great need to address the issue of transportation with respect to the environment, as well as from an economic perspective.

3.4.2 Baseline Data

In 2007, health unit staff submitted approximately 1.3 million kilometres in billable mileage; a distance roughly equivalent to two return trips to the moon. The environmental and economic implications of this amount of mileage are outlined in Table 4a. At a cost of $0.44 /km, this translates into a cost of $590,000*.

*Actual cost to the health unit after cost sharing and tax rebates was $477,800.

3.4.3 Solution

In addition to having a considerable ecological impact, vehicle transportation has a significant economic impact on the operating costs of the health unit. In 2007, transportation costs accounted for 11% of the health unit's operating budget (excluding staff salary and benefits) and were the second largest line item on the budget after occupancy costs. By implementing initiatives that target transportation and petroleum consumption, the health unit can reduce its environmental impact, as well as the economic impact of transportation on its operating budget.

Initiatives that could help achieve these goals include developing a carpooling system and leasing hybrid and/or more fuel efficient vehicles. Overall, encouraging work practices that reduce the need to travel can be achieved through telephone or videoconferencing. Similarly, educating employees about responsible commuting will create an awareness that can be translated into work and everyday life.

3.4.4 Monitoring

The overall efficacy of a mileage reduction initiative will be evaluated by monitoring monthly office and service area mileage submissions as compared to baseline data.

3.4.5 Projected Ecological and Economic Impact

A comparison for 2006 (1,517,493 km - 290 FTE staff) and 2007 (1,340,219 km – 303 FTE staff) reveals a 15.5% reduction in billable mileage while taking into consideration the different number of FTE (full time equivalent) staff. This reduction was observed without actively pursuing a "green" agenda. Therefore, with the incorporation of the above recommendations, a decrease in billable mileage of at least 15% from 2007 levels should be feasible. At $0.46/km in 2008, this would translate into annual savings of $92,475.11. The projected savings would only increase as cost of fuel continues to rise. This would also result in significant environmental benefits from decreased emissions as outlined in Table 4b.

Table 4. Environmental and economic implications of current and projected petroleum consumption. a) Baseline values for petroleum consumption in 2007. b) Projected values for petroleum consumption for a target reduction of 15%.

a)

	Environmental Emissions			**Economics**
Baseline	CO_2	SO_2	NO_x	Cost (CDN $)
Petroleum	363 T	---	491 kg	$ 590,000

b)

	Environmental Emissions Reduction			**Economics**
Target 15% Reduction	CO_2	SO_2	NO_x	Savings (CDN $)
Petroleum Reduction	54.5 T	--	174 kg	$ 92,475
Emissions Equivalencies	Annual greenhouse gas emissions from 19.9 passenger vehicles.			
	Carbon sequestered annually by 24.6 acres of pine/fir forest.			
	CO_2 emissions from the energy use of 9.6 homes for one year.			

3.5 Electrical Consumption

3.5.1 Introduction

Electricity is undoubtedly an integral part of any office as it is critical to everyday operations. Unfortunately, nearly all of the energy consumed in Canada is derived from fossil fuels and other non-renewable resources[38]. This significantly contributes to greenhouse gas emissions, which are drivers of climate change. In Canada, Ontario is the highest energy-consuming province. Between 1990 and 2003, Ontario experienced a 17% increase in energy consumption due to its growing population[38]. Therefore, targeting energy consumption and efficiency would be an effective way to reduce reliance on non-renewable resources while saving on cost.

3.5.2 Baseline Data

In 2007, it is estimated that the health unit consumed 900 Megawatt hours of electricity. From an economic perspective, this represents an annual cost of approximately $53,000 (based on $0.059/kWh). The environmental and economic implications of this consumption are outlined in Table 5a.

3.5.3 Solution

There exist many strategies for reducing electrical consumption, as well as increasing electrical efficiency. The two avenues that will be explored include air conditioning and computer monitors.

Firstly, exploring the cooling system for the health unit offices can help reduce electrical consumption in the summer months. This is because air conditioning is an energy intensive and seasonal process. By increasing the temperature at which the air conditioning functions, electrical consumption can be lowered while still maintaining a comfortable work environment.

Secondly, computer monitors provide another opportunity to reduce energy. Currently, there are 183 CRT monitors and 153 LCD monitors among the offices. Of these, approximately 60% are on for seven hours a day. By comparison, typical LCD monitors use one third less energy when in use and 20% less on standby than CRT monitors. Implementing a monitor replacement plan could include replacement of monitors in batches to decrease electrical consumption throughout the year.

3.3.4 Monitoring

The overall efficacy of electrical conservation initiatives will be evaluated by monitoring monthly office electrical consumption data and comparing it to baseline data.

3.4.5 Projected Ecological and Economic Impact

With respect to air conditioning, a pilot study was undertaken last year. In the summer of 2007, a small study was conducted and the temperature for air conditioning was increased by 1-2 degrees. The electrical consumption was compared for six offices; Alliston, Collingwood, Cookstown, Orillia, Midland and Gravenhurst. In 2006, during the summer months of June, July and August, electricity consumption totalled 138,186 kWh. By comparison, in 2007 the summer months totalled 126,482 kWh. There were noted decreases of 5% in June, 11% in July and 12% in August. Therefore, the decrease of 11,703kWh amounted to an average 8.5% reduction during those months. At a cost of $0.059/kWh, the savings during that period amounted to $690.51. Table 5b shows that there are significant economic and environmental benefits to permanently continuing this initiative during the summer months.

Secondly, with respect to computer monitors, the replacement of CRT monitors with LCD monitors would also prove to be beneficial, both financially and environmentally. Specifically, if all remaining CRT monitors were replaced with LCD monitors, electrical consumption would be reduced by 9,991.8 kWh/yr and result in annual savings of $589.52. The environmental and economic benefits from such a change are outlined in Table 5b. It is important to note that such an endeavour would need to avoid further negative environmental effects through proper recycling and donations. The example to replace all CRT monitors simply outlines the concept of energy efficiency. Its goal is not to create additional environmental disposal burdens or unwarranted purchases.

Table 5. Environmental and economic implications of current and projected electricity consumption. a) Baseline values for electricity consumption in 2007. b) Projected values for electricity consumption by continuing the air conditioning program in addition to the replacement of CRT monitors with LCD monitors.

a)

	Environmental Emissions			**Economics**
Baseline	CO_2	SO_2	NO_x	Cost (CDN $)
Electricity	850 T	3.5 T	1.5 T	$ 53, 000

b)

		Environmental Emission Reductions			**Economics**
Initiatives		CO_2	SO_2	NO_x	Savings (CDN $)
Electricity Conservation	Air Conditioning	11 T	46 kg	20 kg	$ 690
	Monitors	9.4 T	40 kg	17 kg	$ 589
	Total	20.4 T	86 kg	37kg	$ 1,279
Emissions Equivalencies		Annual greenhouse gas emissions from 5.8 passenger vehicles.			
		Carbon sequestered annually by 7.2 acres of pine/fir forest.			
		CO_2 emissions from the energy use of 2.8 homes for one year.			

3.5 Conclusion

A variety of green initiatives will allow the Simcoe Muskoka District Health Unit to reduce its ecological footprint. Table 6 outlines the total projected environmental and economical benefits of the initiatives discussed related to paper, petroleum and electricity.

Table 6. Projected environmental emission reductions and economic savings associated with successful implementation of all suggested green initiatives.

	Environmental Emission Reductions			**Economic**
Initiatives	CO_2	SO_2	NO_x	Savings (CDN $)
Paper Conservation	5.9 T	20 kg	17 kg	$ 1,344
Petroleum Reduction	54.5 T	--	174 kg	$ 92,475
Electricity Conservation	11 T	46 kg	20 kg	$ 690
	9.4 T	40 kg	17 kg	$ 589
Total	80.8 T	106 kg	228 kg	$ 95,098
Emissions Equivalencies	Annual greenhouse gas emissions from **27.7 passenger vehicles**.			
	Carbon sequestered annually by **34.3 acres** of pine/fir forest.			
	CO_2 emissions from the energy use of **13.4 homes** for one year.			

Moving towards sustainable and environmentally friendly business practices is becoming an increasing priority for many workplaces. This shift will only be realized through a change in day to day operations and behavioural practices. However, such change is realistic and feasible once accepted and practiced by all staff. The recommendations in this section of the report are simply a preliminary recommendation for action. There are many strategies to consider when establishing a Green Office Plan. The complementary best practices section will support any decision making or policy changes that will need to be made. Over time, this shift will provide for increased opportunity to role model and improve corporate social responsibility. Overall, moving towards environmentally sustainable business practices will be both a challenging and important endeavour for the Simcoe Muskoka District Health Unit but will result in many environmental, financial and social benefits.

4. Identifying Opportunities

4.1 Introduction

In order for the Simcoe Muskoka District Health Unit to reduce its ecological footprint, various resources must first be identified. The following section outlines possible tools and mechanisms to support such a goal. Topics to be covered include tools for benchmarking, as well as options for internal and external support.

4.2 Setting Targets and Goals

Success is measured by looking to the past as a means of comparison. Gathering baseline data will be essential in identifying benchmarks and future targets. Specifically, these baseline values can be used in a footprint analysis. A footprint analysis evaluates what resources are being consumed in relation to what is available. Therefore, this can be used as a tool to compare the agency's progress and evaluate the success of its green initiatives.

The Office Footprint Calculator
www.thegreenoffice.com/carbon/index.php
The office footprint calculator considers energy use, waste stream and purchasing patterns. The use of exact figures is encouraged but the option to input averages is provided. The annual footprint is reported in tons of CO_2 and global acres, a unit of land with average biological productivity.

Office Ecological Footprint Calculator
www.epa.vic.gov.au/ecologicalfootprint/calculators/office/introduction.asp
This calculator helps compare the impacts that different activities or everyday decisions in the office may have. Categories including the office building, utilities, transportation, food, goods and recycling are taken into consideration. The ecological footprint is reported in global hectares and provides a breakdown ranking the footprint categories. Employee footprints, as well as a target setting tool, are provided for benchmarking.

4.3 Internal Support

Internal support is vital to the start-up and maintenance of initiatives. For green initiatives in particular, financial support is important due to greater upfront capital costs. To overcome financial constraints, revolving funds or cost-sharing mechanisms can be developed.

4.3.1 Revolving Funds

Revolving funds would involve putting aside an initial sum of money for a fund dedicated to environmental and sustainability initiatives. The savings accrued would then be reinvested in the fund to support further projects. Therefore, investing in these projects could be done in a fashion that becomes self-sustainable.

4.3.2 Cost-sharing

Considering that the Simcoe Muskoka District Health Unit leases its office spaces, it is unrealistic to think that building modifications would be taken on by the agency alone. However, it is realistic to work with landlords and discuss strategies to accommodate potential projects. For example, the landlord might recognize that projects would increase the efficiency and value of their space and agree to cover all costs. Alternatively, it may not be financially feasible for the landlord to do so. In this situation, an agreement to split certain costs could be discussed and negotiated.

4.4 External Support

An increasing number of people and organizations are recognizing the importance of the environment and how everyday decisions make a difference. There are external sources that provide funding for a variety of projects, recognizing that financial burdens are often the most challenging barrier to overcome. Many programs are designed to alleviate some of the financial stress from choosing green alternatives, while others use financial incentives as motivation for behaviour change. These external supports vary in source, goal and outcome, but all provide an opportunity to stimulate change. The following are a list of programs that the Simcoe Muskoka District Health Unit may wish to consider for additional support. They range from building design and construction, product rebates and opportunities to partner with municipalities for projects. All opportunities outlined below are explored in further detail in the Appendices.

4.4.1 Potential Agency Projects

- Electricity Retrofit Incentive Program (ERIP)
- High Performance New Construction
- Load Management - Demand Response (DR) Programs
- Conservation Fund
- Community Conservation Initiatives Program
- ecoENERGY Retrofit Incentive for Buildings
- ecoENERGY for Renewable Heat
- Ontario Solar Thermal Heating Incentive (OSTHI)
- Building Design Programs
- Hydro One - Double Return Program

4.4.2 Rebates

- Enbridge
- ecoAUTO Rebate Program

4.4.3 Partnering with Municipalities

- Municipal Eco Challenge Fund (MECF)
- Green Municipal Fund

4.5 Conclusion

There are a variety of resources that the Simcoe Muskoka District Health Unit can draw upon. Many tools are available for free as internet resources, especially those for collecting baseline values and benchmarking. As money is often a critical component to any decision, internal and external funding opportunities must be further explored. As more people make the shift towards sustainability, an increasing number of high quality resources are becoming available. It is now the responsibility of the agency to take advantage of the knowledge and tools, and apply them within to support the goal of a reduced ecological footprint.

5. Identifying Challenges

5.1 Introduction

Undertaking any successful initiative requires thoughtful planning. Before reaching the implementation stage, careful consideration must be given to any gaps, challenges and barriers that may hinder the success of a program. These considerations need to be applied to the development of a green office plan for the Simcoe Muskoka District Health Unit.

The Simcoe Muskoka District Health Unit now has many resources to draw upon. The previous sections provided a preliminary green office plan which was complemented by best practices for both the agency and staff. Therefore, the final step in preparing for the development of this type of initiative requires the identification of any gaps, challenges and barriers. Once identified, these issues will need to be addressed during the development stage of the plan. It should be noted that many of the following topics identified were gathered through direct office visits and informal consultations with staff members.

5.2 Gaps

5.2.1 Lack of Easily Accessible Information

It is difficult to move forward without having a strong sense of the original starting point. During the informal assessment of the Simcoe Muskoka District Health Unit's offices, a great deal of required information was not easily accessible. There is not a sole source or person with the needed information. Instead, the information and details seemed disconnected and difficult to access. For example, data related to buildings, fleet, procurement and other areas often took a great deal of time and effort to assemble. This information should be in an organized and practical folder that can easily be accessed by staff.

5.2.2 Difficulty in Accurately Gathering Baseline Data

In addition to the difficulty in accessing information, there were questions regarding the accuracy of the information provided. A main component of a green office plan is gathering baseline data to have for future comparison. Determining consumption of resources, including utilities (water, electricity, natural gas, etc.) and waste (garbage, recycling and organics), will prove to be challenging for many areas. It will be complicated to gather accurate data because many offices have utilities included in their lease agreements and do not get billed directly. Other offices may even share these services or utilities and pay just a portion of the bill. This complicates any true assessment when using billing as an estimate to determine consumption.

Lastly, comparing and compiling information among offices is complicated by the fact that each office may differ with respect to garbage recycling, cleaning services and utilities. For example, some offices must contract services to dispose of trash and recycling while others may be serviced by the municipality. In addition, the capabilities of each office's provider may differ. This may result in discrepancies with respect to what materials are accepted in each recycling program.

5.2.3 Differences Among and Within Offices

Each Simcoe Muskoka District Health Unit office is unique in its staff and building. In some respects, there may be limited sharing of information between and within some offices. Day to day operations differ among offices as each will run in a manner that is best suited for their particular environment. With respect to “greening” offices, some staff members have personally taken the initiative to promote behaviours or standards that, for example, reduce energy consumption. There are few current top-down directives and going “above and beyond” requires individual staff motivation and effort.

5.2.4 Clear Agency ‘Lead’ for Green Initiatives

Executive Committee has determined that it is important to assess our sustainability and office practices, as a component of Infrastructure Review and as an environmentally responsible agency. Clear ‘ownership’ and a lead person to develop, implement, monitor and evaluate a plan are not in place. Components of this work fall within a variety of areas including infrastructure renewal, facilities, environmental health working group and workplace wellness committee, but there is not yet a clear process or resource assignment to move the components of this recommendations and suggestions into implementation.

5.3 Challenges

5.3.1 Lack Consistency Among Offices

It is logical that each location would slightly differ in how the offices conduct day-to-day operations. However, there are many areas that should be addressed through the development of policies and/or standards. For example, procurement often differs among office locations. This leads to inconsistency with the amount of products purchased with high recycled content (i.e. toilet paper, paper towel, copy paper). Similarly, each location may be working with a different cleaning service and hence the cleaning supplies can vary dramatically. In addition to procurement, there are inconsistencies with temperature settings. In some offices, staff members have access to the thermostat(s) and temperatures can vary greatly. It has been suggested that a policy around setting a standard temperature for heating and air conditioning and which prohibits staff from personally adjusting it should be in place. Lastly, there are staff in some offices who have sensitivities to scents and there is no official policy to cover this matter to date.

5.3.2 Lack Designated Management in Each Office

The Simcoe Muskoka District Health Unit head office in Barrie is the main location of most managers. Therefore, many outer offices lack a designated manager in charge of that location. This may be a challenge in developing and enforcing policies or standards. Staff members may be unsure of whose role and responsibility it would be to manage some of the possible future "green" initiatives. In addition, conflicts could arise regarding new standards and there might not be management present in every office to resolve the issue. For instance, conserving energy by turning lights off and taking advantage of natural light has been known to conflict with Health & Safety. Similarly, there could be conflict for different ways to conserve energy. For example, choosing between using natural light and turning off light may conflict with drawing blinds to reduce cooling needs. Therefore, explicit statements would need to be included in the development of such policies and standards to make roles and responsibilities clear.

5.3.3 Proposed Ideas May Not Be Realistic or Available for the Region/Office

The Simcoe Muskoka region spans a large area with multiple municipalities. Many areas differ with respect to the type and availability of services and products. For instance, composting may be challenging in the offices where the municipality would not service (because it is commercial and not residential) or where the municipality does not provide the service at all. If access via municipal services is not possible, it may still be challenging for many offices to keep a composter on site. Issues about space, cost and responsibility would need to be addressed.

It is also uncommon for contracted services to include composting for the commercial sector. Many preferred products could also potentially be more difficult to get to remote locations. Restrictions from companies and the balance between additional and potentially inefficient deliveries must be compared with cost and practicability.

For the "green" ideas that tackle transportation, office location can be a key factor. Many offices have noted that their present location is not ideal for staff members or the public to access. These locations could be more conducive to active transportation if there were proper sidewalks nearby or were in a more central location. This is also true for those that would otherwise choose public transportation. Many locations are somewhat remote and currently inaccessible by public transportation.

Lastly, some recommendations may be challenging because important components are built-in features of the existing buildings. For example, thermostats, HVAC systems, lighting and plumbing are areas that can have a major impact. Unfortunately, due to leasing and landlords which differ from office to office, the Simcoe Muskoka District Health Unit may not be able to incorporate many proposed building modifications. Even if some of these suggestions were approved, it is likely that any costs incurred would have to be partially, if not fully, covered by the Simcoe Muskoka District Health Unit.

5.4 Barriers

A variety of barriers can be suggested as to why people would not adopt the recommendations for a more environmentally friendly and sustainable workplace. This may be due to:

Convenience: It may be easier not to do adopt it.

Comfort: People may not see a reason to change (“If it isn’t broken, don’t fix it”).

Cost: This could involve additional costs, with respect to time and money.

Motivation: People may lack personal motivation to adopt behaviour change.

Management: There may be a lack of support and/or leadership.

Perception: There may be differences in perceived benefits/costs.

5.5 Conclusion

There are bound to be issues to overcome in any corporate endeavour. The recommendations for the Simcoe Muskoka District Health Unit to reduce its ecological footprint and operate sustainably will need to overcome its own challenges. This task may prove difficult at times but overall, the goal is attainable. To overcome barriers, gaps and challenges must first be addressed by the agency. Many of these issues will also need to be assessed as a component of the infrastructure analysis, which should incorporate these recommendations and key concepts into future planning.

Standardization of policies and procedures will be critical in realizing change in the organization. Although there is current interest, it is mostly from the bottom-up and is scattered. The agency will need to provide leadership and support to its staff members to see the organization start to move forward. With the coordinated actions of staff members and management, the Simcoe Muskoka District Health Unit has the capacity to overcome its challenges and make positive steps towards environmentally sustainable business practices.

6. Conclusion

6.1 Vision

The Simcoe Muskoka District Health Unit recognizes the important relationship between the environment and public health. The Simcoe Muskoka District Health Unit believes that protecting the environment is an important priority, to be accomplished by:

- Minimizing resource use
- Maximizing resource efficiency
- Including sustainability and environmental criteria in decision-making
- Supporting and promoting responsible behaviour
- Implementing and endorsing green initiatives

6.2 Potential Actions and Implementation

In order to realize this vision, the Simcoe Muskoka District Health Unit must prioritize areas of focus and create an action plan. This plan requires both short term and long term planning that encompasses recommended areas of action. The table below is a potential plan outline to be considered for implementation. The short term options are opportunities for immediate action and change. Looking to the future, the action plan should be accomplished over 2 years.

Short Term →	→	→ Long Term

Staff Education & Engagement
• Adjust print setting/conserving paper.
• Reuse single-sided paper for drafts, scrap pads, use for fax/copier.
• Educate & encourage staff to turn off equipment when not in use (power bars).
• Notify of/create specialized bins/areas for special recyclables (toner, ink cartridges, electronics, light bulbs, batteries).
• Signs regarding recycling guidelines.
• Encourage stairs over the elevator.
• Create internal green committee **Actions.**
• Default printers, photocopiers, fax machines to double-sided, B&W, draft.
• Purchase paper with recycled content.
• Shades/blinds available to cover windows.
• Default sleep modes, screen savers, energy saving modes.
• Set up a carpooling system to match staff willing to connect with potential car-sharers in their area.
• Incentives/programs/education to promote carpooling and other alternatives to single occupant driving.
• Provide multiple recycling bins.
• Adjust summer/winter temperature 1-2°C.
• Fuel efficient fleet.
• All new equipment is energy efficient/Energy Star.
	• Establish a green office board.
	• Minimize unnecessary/excessively printed documents (memos, agendas, HR packages).
	• Eliminate unnecessary/multiple newspaper/letter/magazine subscriptions.
	• Increase frequency of recycling and reduce frequency of garbage pick-up.
	• Furniture, technology equipment re-used, recycled, donated, returned to supplier.
	• Use timers for equipment that does not need to be on after hours.
	• Use of biodegradable garbage bags.
	• Green bin/organics program in place.
	• Choose CFL or LED lighting as opposed to incandescent lighting.
	• Low/ultra-low or dual flush toilets.
	• Waterless or low-flush urinals.
	• Low-flow faucet aerators.
	• Automatic toilets/faucets (using sensors).
	• Preferential parking for carpoolers.
	• Use programmable thermostats.
	• Tele-/videoconference (all offices capable).
	• Priority to highly recycled/post-consumer & environmentally friendly products.
	• Faxes go directly into email (not printed).
	• HR intro package/intranet for new staff to know about environmental initiatives and policies.
	• Begin tracking data for some areas of interest.
		• Policy Development:
		  • Green Procurement
		  • Anti-idling
		  • Teleconference/ carpooling/meetings
		  • Temperature settings/staff use of personal space heaters/fans, etc.
		  • Scent-free/sensitive
		  • Complementary to Healthy Eating Practices policy (sustainable, organic, fair-trade, local)
		  • Printing (amount, certified paper, etc.)
		  • Infrastructure requirements
		• Renewable energy systems for buildings.
		• Purchase/invest in green power.
		• High performance window glazing/coating.
		• Energy star/highly reflective roofing.
		• Green/vegetated roof.
		• Hybrid fleet.
		• Replace all CRT monitors with LCD.
		• Computer software that automatically turns computers off at set times.
		• Bus pass discount for staff.
		• Pre-purchase greyhound/go transit or tickets for staff travel.
		• Innovative/pilot projects/use grants, etc.
		• Green office board on public internet with resources.
		• Create a consistent and accurate method for tracking office data and progress.

6.3 Ideas for Implementation

Sustainability requires that we begin changing our behaviours. Staff members have been enthusiastic and eager to begin implementing new green practices. They recognize and value the role of the health unit in demonstrating leadership on sustainability issues.

There are existing structures within the health unit that can support the implementation of a 'green' plan. An implementation plan can be phased in over a number of years. Preliminary discussions with committees and some key agency staff have provided guidance on an approach to implementing some of the recommendations of the report. There are a variety of potential means for providing support to these initiatives.

6.3.1 Existing Supports and Potential Roles

Executive Committee

- Provide the overall support and recognition for the need to move in a 'green direction'.
- Support an environment that encourages creativity and explores new approaches to business practices.

Management Teams

- Support staff to implement practices.
- Support an environment that encourages creativity and explores new approaches to business practices.

Staff

- Participate in green activities.
- Support green concepts.
- Energize the implementation.

Environmental Health Working Group

**Note: This committee has reviewed and provided feedback on the report

- Support the development of an implementation plan.
- Assist in health unit policy development.
- Develop key messages for staff education.
- Partner with Workplace Wellness on staff initiatives.
- Explore funding possibilities for specific initiatives.

Workplace Wellness Committee

- Partner with Environmental Health Working Group to implement staff education.
- Develop staff challenges for transportation initiatives.
- Explore existing initiatives that can be easily implemented.

Building Healthy Communities Committee

- Support the implementation of a green plan.
- Promote the plan to staff and to the community.

Infrastructure Review

- Include green criteria and considerations within recommendations.

Corporate Service

- Include components of the green plan in operational planning.
- Develop appropriate policies.
- Facilitate office participation through program assistants or 'office champions'.
- Implement components of the plan.

6.3.2 Areas for Action

Activities and supports for the green plan can occur across the agency, through services and programs and within offices. The plan could be implemented over a number of years. As an initial step, a couple of relatively easy to achieve objectives could be established.

Focus #1: Paper

Target	Possible Indicators	Key Messages	Potential Roles
To reduce paper consumption by 20%.	• Percentage of double-sided documents. • Number of pages printed. • Number of pages photocopied. • Amount of paper purchased/used over a given amount of time.	• Paper is derived from an important natural resource. • Amount of paper used and its 'tree' equivalency. • Reducing consumption is preferred over recycling. • Only print necessary documents. • Maximize electronic options & alternatives (i.e. adjust page settings, track changes).	*Executive Committee* • Provide the overall support and recognition. *Management Teams* • Support staff to implement practices. • Create environment for 'paperless' meetings to become the norm. *Staff* • Participate in paperless meetings and reduce printing. • Support the concepts. • Energize the implementation. *Environmental Health Working Group* • Develop key messages for staff education. • Implement staff education. • Ongoing updates and reporting on success of initiative. *Workplace Wellness Committee* • Partner with Environmental Health Working Group to implement staff education. *Corporate Service* • Facilities and/or office representatives can report on indicators. • Provide technical and facility support.

Focus #2: Transportation

Target	Possible Indicators	Key Messages	Potential Roles
To reduce vehicle travel during work by 15%.	• Billable mileage. • Number of carpoolers for meetings, etc. • Number of teleconferences versus meetings requiring travel.	• Vehicle use is a significant contributor to air pollution and climate change. • Choose active transportation as an alternative to driving. • Carpool with others. • Reducing vehicle travel also extends vehicle life.	*Executive Committee* • Provide the overall support and recognition. *Management Teams* • Support staff to implement practices. *Staff* • Participate in transportation challenges. • Support the concepts. • Energize the implementation. *Environmental Health Working Group* • Develop key messages for staff education. • Implement staff education. • Report on success of initiative. *Workplace Wellness Committee* • Partner with Environmental Health Working Group to implement staff education. • Develop staff challenges for transportation initiatives. *BHC Committee & Healthy Living* • Promote active transportation as an alternative to driving. *Corporate Service* • Provide billable mileage statistics. • Develop appropriate policies for meetings, carpooling, teleconference, etc.

This type of an approach would build momentum and increase awareness of environmental issues. This also encourages and engages staff while fuelling further creativity and energy. Ideally, sustainability would become further integrated into the workplace and staff could also transfer key learnings to change behaviours at home and in the community.

6.4 Recommendations

1. Advocate for environmentally responsible and sustainable choices within the health unit and its communities.

2. Endorse the implementation of an action plan.

3. Support and develop the recommended areas for policy development.

4. Develop effective communication systems for green initiatives within the agency.

5. Engage staff to adopt behaviour changes.

6. Ensure that resources, information and progress are shared internally and externally to promote and facilitate change.

6.5 Moving Forward

The Simcoe Muskoka District Health Unit has the opportunity to reduce its environmental impact while being a community leader and role model. Actively advocating for environmental and social responsibility will be an important milestone for the health unit. Learning from these experiences can not only be translated into everyday life but provide an opportunity to engage the communities of Simcoe Muskoka to act responsibly and promote change. People can choose to make small changes and together we can all make a difference.

7. Glossary

Alternative Energy
Energy derived from sources that do not deplete natural resources (i.e. solar, wind, geothermal) and serve to replace or supplement traditional fossil fuel sources.

Anthropogenic
Resulting from or produced by human beings.

Anthropogenic Emissions
Emissions of greenhouse gases, greenhouse gas precursors and aerosols associated with human activities (i.e. burning of fossil fuels, deforestation, land-use changes, livestock, fertilization, etc.).

Baseline
Reference for measurable quantities from which an alternative outcome can be measured (i.e. a non-intervention scenario used as a reference in the analysis of intervention scenarios).

Biodegradable
A product compiled of natural materials that can be broken down into simple compounds and absorbed back into the ecosystem without harm if it has moisture, heat, and micro-organisms.

Biodiversity
The total diversity of all organisms and ecosystems at various spatial scales.

Biofuel
Any liquid, gaseous, or solid fuel produced from plant or animal organic matter. Second-generation biofuels are products such as ethanol and biodiesel derived from ligno-cellulosic biomass by chemical or biological processes.

Carbon Dioxide (CO_2)
A naturally occurring gas. A by-product of burning fossil fuels from fossil carbon deposits (i.e. oil, gas and coal), burning biomass and of land use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1.

Carbon Capture
Technological solutions for capturing and storing carbon dioxide as it is released into the atmosphere, thereby preventing its greenhouse effect.

Carbon Footprint
The impact that human activities have on the environment in terms of the amount of greenhouse gases produced, measured in tons of carbon dioxide.

Carbon Neutral
A product or process that does not add more carbon dioxide to the atmosphere over its life cycle. Neutrality can be achieved by balancing the amount of carbon released by an equal amount of carbon that is sequestered or offset.

Carbon Offset
A carbon offset negates the overall amount of carbon released into the atmosphere by avoiding the release or removing it elsewhere (i.e. through a renewable energy or energy conservation project).

Carbon Sequestration
Capture and long-term storage of carbon dioxide. Typical sequestration methods include capturing carbon through plants, the ocean or pumping it into the ground.

Composting
The process of producing nutrient rich soil by mixing degradable material, such as food waste, with bacteria in soil. Composting is a way to reduce the amount of waste that reaches landfills.

Climate Change
Climate change refers to a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes, external forces or to persistent anthropogenic changes in the composition of the atmosphere or in land use.

Ecological Footprint
The area of land and water that a human population uses to produce the resources it consumes and to absorb its wastes.

Ecosystem
A system of living organisms interacting with each other and their physical environment.

Energy
The amount of work or heat delivered. Primary energy (also referred to as energy sources) is the energy embodied in natural resources (i.e. coal, crude oil, natural gas, uranium) that has not undergone any anthropogenic conversion.

Energy Efficiency
Ratio of useful energy output of a system, conversion process or activity, to its energy input. Also refers to cutting down on wasted energy. Obtaining the same results without affecting the services provided, often achieved by technological advance.

Environmentally Sustainable Technologies
Technologies that are less polluting, use resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies that they substitute. They are also more compatible with nationally determined socio-economic, cultural and environmental priorities.

Fossil Fuels
Fuels found in the Earth's strata that are derived from the fossilized remains of animal and plant matter over millions of years. Fossil fuels include coal, oil, and natural gas. Fossil fuels are considered to be non-renewable since they are consumed much faster than their natural production.

Global Warming
The gradual increase, observed or projected, in global surface temperature, as one of the consequences of radiative forcing caused by anthropogenic emissions.

Green Building
A building that minimizes impact on the environment through resource conservation and contributes to the health of its occupants.

Green Energy
Another way to describe renewable energy. It ensures that energy is sourced through sustainable methods rather than from those, such as fossil fuels, that run out.

Green Roof
Contained green space on, or integrated with, a building roof. Green roofs maintain living plants in a growing medium on top of a membrane and drainage system. Green roofs have the capacity to reduce storm water runoff from a site, moderate temperatures in and around the building, have thermal insulating properties, and provide habitat for wildlife and open space for humans.

Greenhouse Effect
The **greenhouse effect** is the heating of the surface of a planet or moon due to the presence of an atmosphere containing gases that absorb and emit infrared radiation. Greenhouse gases are almost transparent to solar radiation but strongly absorb and emit infrared radiation. Thus, greenhouse gases trap heat within the surface-troposphere system[39].

Greenhouse Gas (GHG)
Greenhouse gases are those gaseous constituents of the atmosphere, both natural and anthropogenic, which absorb and emit radiation. Water vapour (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) and ozone (O_3) are the primary greenhouse gases in the Earth's atmosphere. Moreover, there are a number of entirely human-made greenhouse gases in the atmosphere, such as the halocarbons and other chlorine and bromine containing substances.

Greenwash
The act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service.

Hybrid Vehicle
A vehicle that uses two or more distinct power sources to propel the vehicle (i.e. an internal combustion engine and an electric battery powered motor).

Landfill
A solid waste disposal site where waste is deposited below, at or above ground level.

LEED
A green building rating system developed by the U.S. Green Building Council. LEED™ (Leadership in Energy and Environmental Design) evaluates a building from a systems perspective. By achieving points in different areas of environmental performance based on self-assessment, a building achieves a level of "certification" under the system

Nitrous Oxide (N_2O)
A greenhouse gas. The main anthropogenic source of nitrous oxide is agriculture but important contributions also come from sewage treatment, combustion of fossil fuel, and chemical industrial processes. Nitrous oxide is also produced naturally from a wide variety of biological sources in soil and water.

Post-Consumer Waste
Materials that have already been used and returned through a recycling program and are then reclaimed for use in another product.

Pre-Consumer Waste
Materials generated in manufacturing and converting processes, such as manufacturing scraps, that are used to produce recycled products.

Recycling
The collection and reprocessing of materials into new products, as a way to reduce resource use and the amount of waste that enters landfills.

Renewable Energy Sources
Energy sources that replenish themselves naturally within a short period of time and generally have a minimal impact on the natural environment. Sources of renewable energy include solar energy, hydroelectric power, geothermal energy, wind power, ocean thermal energy, wave power, wind power and fuel wood.

Retrofitting
Retrofitting means to install new or modified parts or equipment, or undertake structural modifications, to existing infrastructure.

Sink
Any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas or aerosol from the atmosphere.

Sustainable Development (SD)
The concept of sustainable development was introduced in the World Conservation Strategy (IUCN 1980) and had its roots in the concept of a sustainable society and in the management of renewable resources. Adopted by the WCED in 1987 and by the Rio Conference in 1992 as a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations. SD integrates political, social, economic and environmental dimensions.

VOC
Volatile Organic Compounds are materials that evaporate readily from commonly occurring sources (i.e. vehicle exhausts, cleaning agents, furniture polish and fabric softeners). In the presence of sunlight, these VOCs can react with nitrogen oxides to create ground level ozone and photochemical smog.

Waste management
The collection, transport, processing and disposal of waste materials from human activity.

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10. Appendix

A. Preferable Purchasing Criteria

Preference given to environmentally friendly products, including but not limited to:

- Low volatile organic compounds (VOCs)
- Non-aerosol
- Biodegradable
- Non-toxic
- Hypo-allergenic
- Derived from renewable sources
- Not tested on animals or not containing animal products
- Do not contain ammonia, chlorine, dioxin, phosphates, benzene or hydrochloric acid
- Product and/or its packaging are recyclable/reusable
- Made with a high recycled/post-consumer content
- Concentrated form/solutions

Preference given to the following certification/labelling systems, including but not limited to:

- Canadian Standards Association (CSA)
- EcoLogo /Environmental Choice products
- Energy Star
- Fair Trade
- Forest Stewardship Council (FSC)
- Green Seal
- ISO 14001
- Sustainable Forest Initiative (SFI)

B. Certification & Labelling Systems

EcoLogo/ Environmental Choice

http://www.ecologo.org/en/

EcoLogo is North America's oldest environmental standard and certification organization. EcoLogo helps you identify, trust, buy, and sell environmentally preferable ("green") goods and services by setting standards and certifying products in more than 120 categories. This program was launched by the Canadian federal government in 1988, has grown to serve buyers and sellers throughout the United States, Canada and around the world. It is the only North American standard approved by the Global Ecolabeling Network as meeting the international ISO 14024 standard for environmental labels.

Energy Star

http://oee.nrcan.gc.ca/energystar/english/consumers/index.cfm

The international Energy Star symbol is a simple way for consumers to identify products that are among the most energy-efficient on the market. Energy Star is a joint program of the U.S Environmental Protection Agency and the U.S Department of Energy. Natural Resources Canada's Office of Energy Efficiency promotes the international Energy Star symbol across Canada. The Energy Star symbol identifies products as high efficiency performers in their category. Energy Star is a dynamic government/industry partnership that makes it easy for businesses and consumers to save money and protect the environment.

Fair Trade

http://transfair.ca/en/node (Canada)

TransFair Canada is a non-profit certification and public education organization promoting Fair Trade Certified to improve the livelihood of developing world farmers and workers. Fair Trade is similar to a normal supply chain model of business. There are producers, importers, processors, retailers and consumers. The difference is the monitoring and certification at the core of the system which guarantees that the supply chain is built on and functions according to standards of fairness, transparency and accountability.

Forest Certification Systems

- Sustainable Forestry Initiative (SFI)
  http://www.sfiprogram.org/ppp/index.php
- Canadian Standards Association (CSA)
  http://www.csa-international.org/product_areas/forest_products_marking/Default.asp?language=english
- Forest Stewardship Council (FSC)
  http://www.fsc.org/

Voluntary third party certification systems have been developed due to increased environmental awareness and corporate social responsibility. Certification systems promote responsible forestry through defined standards. In general, these systems follow a similar set of components, a preliminary assessment which includes a third party audit and certification declaration followed by continuous monitoring. Overall, the goal of sustainable forest management certification is to assure purchasers and consumers that forest products are from well-managed forests that comply with the given environmental, social and economic requirements.

Green Seal (U.S)

http://www.greenseal.org/

Founded in 1989, Green Seal is a non-profit organization that provides science-based environmental certification standards. Green Seal works with manufacturers, industry sectors, purchasing groups and governments at all levels to "green" the production and purchasing chain. They utilize a life-cycle approach, which includes evaluating a product or service beginning with material extraction, continuing through manufacturing and use, and ending with recycling and disposal. Products only become Green Seal certified after rigorous testing and evaluation, including on-site plant visits.

ISO 14000

www.iso.org/iso/iso_catalogue/management_standards/iso_9000_iso_14000/iso_14000_essentials.htm

The ISO 14000 family addresses various aspects of environmental management. The very first two standards, ISO 14001:2004 and ISO 14004:2004 deal with environmental management systems (EMS). ISO 14001:2004 provides the requirements for an EMS and ISO 14004:2004 gives general EMS guidelines**.** The other standards and guidelines in the family address specific environmental aspects, including labelling, performance evaluation, life cycle analysis, communication and auditing.

C. Questions to Guide Decision Making

Things to consider:

Assess Need:

- Can we lease, share or swap instead of purchasing?
- Are we paying for features we don't need and won't use?
- Is upgrading, reconditioning or extending the useful life of our current model a better option?

Manufacturing:

- Does the supplier have good environmental credentials?
- How was the product manufactured?
- Does the product contain recycled materials?
- Does it come with too much packaging?
- Where is it made and distributed from?

Product Characteristics:

- Does the product have an environmental, energy rating or water-rating label?
- What is the quantity of energy or materials it will use?
- Does the product have Energy Star features or a ‘sleep’ mode for when it is not being used?
- Does it contain harmful chemicals or toxins?
- Can a comparable product be chosen with more environmentally friendly & sustainable qualities?

Life cycle-considerations:

- How long will this particular product last?
- Will it be easily repaired or upgraded?
- Can repairs be done locally or does it need to be shipped elsewhere?
- Can this product be recycled, sold or donated when we've finished with it?

D. Sample Policy to Support Green Procurement

** Adapted from Commission for Environmental Cooperation (2005).
"Environmental Purchasing Policies 101"

Simcoe Muskoka District Health Unit:
Environmentally Preferable Products and Services

1.0 Purpose

Simcoe Muskoka District Health Unit recognizes that every one of our purchases has an impact on the environment. As a result, the purchasing decisions of our employees and contractors can positively or negatively affect the environment.

The goal of this policy is to reduce the adverse environmental and health impacts of our purchasing decisions. This will be accomplished by buying goods and services from manufacturers and vendors who share our commitment to the environment and human health. By including environmental considerations in our purchasing decisions, along with our traditional concerns with price, performance and availability, we will remain fiscally responsible while promoting practices that improve public health and safety, reduce pollution and conserve natural resources.

2.0 Defining environmentally preferable

Simcoe Muskoka District Health Unit interprets environmentally preferable purchasing as seeking products and services that have a reduced adverse effect on human health and the environment when compared to competing products and services serving the same purpose. This comparison will consider all phases of the product's life cycle, including raw materials acquisition, production, manufacturing, packaging, distribution, operation, maintenance and disposal, including potential for reuse or ability to be recycled.

In practice, this means seeking products that have reduced environmental impacts because of the way they are made, used, transported, stored, packaged and disposed of. It means looking for products that do not harm human health, are less polluting, minimize waste, maximize use of bio-based or recycled materials, conserve energy and water and reduce the consumption or disposal of hazardous materials. When determining whether a product is environmentally preferable, the following environmental attributes should be considered:

- Bio-based
- Biodegradable
- Carcinogen-free
- Chlorofluorocarbon (CFC)-free
- Compostable
- Durable

- Energy efficient
- Heavy metal free (i.e., no lead, mercury, cadmium)
- Less hazardous
- Locally manufactured/produced
- Low volatile organic compound (VOC) content
- Low toxicity
- Made from rapidly renewable materials
- Persistent, bioaccumulative toxic (PBT)-free
- Recyclable
- Recycled content
- Reduced greenhouse gas emissions
- Reduced packaging
- Refurbished
- Reusable
- Upgradeable
- Water efficient

2.0 Balancing environmental considerations with performance, availability & financial cost

The Simcoe Muskoka District Health Unit is committed to buying environmentally preferable goods and services as long as they meet our performance needs and they are available within a reasonable period of time at a reasonable cost.

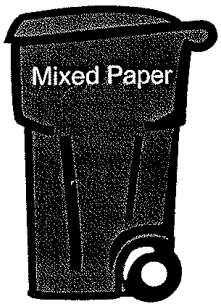
When comparing cost, the Simcoe Muskoka District Health Unit will not focus exclusively on the initial price. Instead, we will calculate and compare total costs over the life of the item, which includes the initial cost along with maintenance, operating, insurance, disposal, replacement and potential liability costs. Examining life cycle costs will save money by ensuring we are quantifying the total cost of ownership before making purchasing decisions.

The Simcoe Muskoka District Health Unit recognizes that competition exists not only in prices, but also in the technical competence of suppliers, in their ability to make timely deliveries and in the quality and performance, including environmental performance, of their products and services. Balancing these potentially competing factors means that the initial cost is never the only consideration. It also means that we will sometimes pay more for higher performing goods and services, including those with superior environmental performance.

E. Examples of Recycling Guidelines

Recycling guidelines outlined by the waste management company that services the Barrie office.

RECYCLE PROGRAM



Mixed Paper
Acceptable:

- office paper
- letterhead
- envelopes
- files
- brochures
- Newspaper
- magazines
- flattened boxes
- junkmail
- telephone books
- any 100% paper fibre
- Newspaper inserts

Not Acceptable:

- wax paper
- drink boxes
- milk cartons
- pizza boxes

Mixed Beverage Containers
Acceptable:

- aluminum & tin cans
- glass bottles & jars *(clear & coloured)*
- rigid plastic containers *(codes 1 & 2)*
- water bottles

Not Acceptable:

- broken glass
- ceramics
- window glass

WASTE MANAGEMENT

From everyday collection to environmental protection, Think Green.℠ Think Waste Management.

CANADIAN WASTE SERVICES INC.

170 Claireville Drive
Etobicoke, Ontario
Canada M9W 5Y3
(416) 213-8005
(416) 213-8032 (Fax)

PROGRAM DO'S AND DON'TS

FOR OFFICE PAPERS

DO INCLUDE

-WHITE AND COLOURED BOND PAPER
-COMPUTER PAPER
-NCR PAPER
-ENVELOPES (including window)
-MANILA ENVELOPES
-POST-IT NOTES
-FILE FOLDERS
-PHOTOCOPY PAPERS
-WRITING PAD PAPER
-NEWSPAPERS
-MAGAZINES
-TELEPHONE BOOKS
-STAPLED AND PAPER CLIPPED PAPERS
-THERMAL FAX PAPER

DON'T INCLUDE

-FACIAL TISSUES
-PAPER TOWELING
-HANGING FILE FOLDERS
-CARBON PAPER
-LUNCH BAGS
-BLUEPRINTS

FOR BEVERAGE CONTAINERS

DO INCLUDE

-ALUMINUM CANS
-STEEL CANS
-RIGID PLASTIC CONTAINERS
-BOTTLES

DON'T INCLUDE

-POLYSTYRENE CUPS
-POLYSTYRENE CREAMERS

CANADIAN WASTE
A WASTE MANAGEMENT COMPANY

RECYCLING UPDATE

The following paper products are acceptable in your mixed paper desk-side bin.

Brochures	Boxboard	Business Cards	Carbonless Paper
Computer Paper	Fax Paper	Magazines	Manuals
Newspaper	Non-bound Books	Non-padded envelopes	Photocopy Paper
Post-it-notes	Shredded Paper	Telephone Books	Window envelopes
Wire bound books	Writing Paper		

Paper clips and staples are acceptable

Aluminium cans/tin cans and pop cans are acceptable in labelled toters along with plastic containers. Acceptable plastic **must** have these symbols and one of the following numbers on the bottom of the container.

PET

HDPE

LDPE

PP

F. Methodology - Green Office Plan

a. Paper Calculations

Assumptions: a) Standard of 5 lbs/ 500 sheets

Baseline: 1.6 million sheets
1.6 million sheets x 5 lbs/ 500 sheets = 16,000 lbs

Target 1: 20% reduction from 1.6 million sheets = 1,280,000 sheets
1.28 million sheets x 5lbs/ 500 sheets = 12,800 lbs

Table A: Projected ecological and economic impact of a 20% reduction in paper consumption and use of paper with 30% recycled content for the Simcoe Muskoka District Health Unit. Ecological impact values were calculated using the Environmental Defense Fund Paper Calculator with a baseline value of 1.6 million sheets.

	Baseline Paper		20% Reduction	**Difference** (Baseline - Target)			20% Reduction and 30% Recycled Content	**Difference** (Baseline - Target)	
Wood Use	28 tons		22 tons	6 tons	**38 trees**		16 tons	12 tons	**84 trees**
Sulphur Dioxide	209 lbs		167 lbs	42 lbs	**8 18-wheelers/yr**		166 lbs	43 lbs	**8 18-wheelers/yr**
Greenhouse Gases	45,522 lbs CO_2 equiv.		36,416 lbs CO_2 equiv.	9,106 lbs CO_2 equiv.	**<1 car/yr**		32,370 lbs CO_2 equiv.	13,152 lbs CO2 equiv.	**1 car/yr**
Nitrogen Oxides	147 lbs		118 lbs	29 lbs	**<1 18-wheeler/yr**		110 lbs	37 lbs	**<1 18-wheeler/yr**
Particulates	99 lbs		80 lbs	19 lbs	**2 buses/yr**		70 lbs	29 lbs	**3 buses/yr**
Cost *	$11,840		$9,472	$2,368			$10,496	$1,344	

* Projected economic impact is based on an estimated cost of $37.00 per 5000 sheets for paper with 0% post-consumer recycled content and $41.00 per 5000 sheets for paper with 30% post-consumer recycled content.

- Environmental impact estimates were made using the Environmental Defense Fund Paper Calculator (www.papercalculator.org).
- Emissions equivalencies were calculated using the U.S EPA Greenhouse Gas Equivalencies Calculator (www.epa.gov/cleanenergy/energy-resources/calculator.html)

b. Petroleum Consumption

Assumptions:

a) Average fuel efficiency in Ontario is 10.3 L/100km (Office of Energy Efficiency, 2008)
b) Emissions of 2.63 kg CO_2 /L fuel burnt (Environment Canada, 2002)
c) Emissions of 1.39 g NO_x /mile (Office of Transportation and Air Quality, 2000)
    - 1 mile = 1.609344 km
    - 0.864 g/km

Baseline: 1,340,219 km
1,340,219 km x 10.3L/100 km = 138,043 L

CO_2:
138,043 L x 2.63 kg CO_2/L fuel burnt = 363,053 kg CO_2
= 363 T CO_2

NO_x
0.864g/km x 1,340,219 km = 1,157,949 g NO_x
= 1,158 kg NO_x

15% Reduction: 1,139,186 km
1,139,186 km x 10.3L/100 km = 117,336 L

CO_2:
117,336 L x 2.63 kg CO_2/L fuel burnt = 308,594 kg CO_2
= 308 T CO_2

NO_x
0.864g/km x 1,139,186 km = 984,256 g NO_x
= 984 kg NO_x

- Emissions equivalencies were calculated using the U.S. EPA Greenhouse Gas Equivalencies Calculator (www.epa.gov/cleanenergy/energy-resources/calculator.html)

c. Electrical Consumption

Assumptions:

a) Total operational hours/year = 1820
b) Percentage of computers in use = 60%
c) LCD monitors consume 25W
d) CRT monitors consume approximately 75 W
e) Cost of $0.059/kWh

CRT Monitors : Total in all offices = 183
183 monitors x 1820 hr/yr x 60% in use x 75/1000 kWh
= 14 987.7 kWh/yr

LCD Monitors: Total in all offices = 153
153 monitors x 1820 hr/yr x 60% in use x 25/1000 kWh
= 4 176.9 kWh/yr

Baseline: Total = 14 987.7 kWh/yr + 4 176.9 kWh/yr
= 19 164.6 kWh/yr

Target: Total = 336 LCD
336 monitors x 1820 hr/yr x 60% in use x 25/1000 kWh
= 9 172.8 kWh/yr

Difference: 19 164.6 kWh/yr – 9 172.8 kWh/yr
= 9 991.8 kWh/yr

= 9 991.8 kWh/yr x $0.059/kWh
= $589.52

- Environmental impact estimates were made using the Ontario Clean Air Alliance Air Quality Impact Calculator (http://www.electricitychoices.org)

- Emissions equivalencies were calculated using the U.S. EPA Greenhouse Gas Equivalencies Calculator (www.epa.gov/cleanenergy/energy-resources/calculator.html)

G. Information Required for Footprint Analysis

a. The Office Footprint Calculator

http://www.thegreenoffice.com/carbon/index.php

- How many people work in your office?

A) TRANSPORTATION

BUS
- How many people take the bus to work?
- What is the average one-way commute of people who take the bus?

LIGHT RAIL
- How many people take light rail (subway, metro, trolley, etc.) to work?
- What is the average one-way commute of people who take light rail?

TRAIN
- How many people take the train to work?
- What is the average one-way commute of people who take the train?

CAR & TAXI
- How many people take their car or a taxi to work?
- What is the average one-way commute of people who take a car or taxi?

AIRPLANE
- How many miles do employees fly each month?
- What percent of those miles fall into each of the following categories?
  - Short Flights (<300 miles)/Medium Flights (300 to 1000 miles)/Long Flights (>1000 miles)

B) FACILITY, ENERGY & WASTE

BUILDING
- How would you describe your building?
  - Concrete and/or steel
  - Wood
  - Designated Green Building (e.g. LEED Certified)
- What is the size of your building?
- How many years old is your building?

PAVING
- How much of the land directly surrounding your building is covered by parking lot, sidewalk, or other impervious space?

ELECTRICITY
- How much electricity does your office use per month? (KwH)
- How much of this electricity is from clean, renewable sources? (%)

NATURAL GAS
- How much natural gas does your office use per month? (Therms)

WASTE

- How much waste does your office generate per week and what percentage is recycled or composted?
  - Lbs per Week
  - % Recycled
    - Paper and cardboard
    - Aluminum
    - Other metal
    - Glass
    - Plastic

WATER

- How much water does your office use per month? (Gallons)

C) PRODUCTS & SERVICES

SUPPLIES

- How much paper is used in your office? (# Reams)
- What is the average post-consumer recycled content of the paper used?

TECHNOLOGY

- How many desktop computers are in your office?
- How many laptop computers are in your office?
- How many phones, faxes, and other business machines are in your office?
- How many CDs or floppy discs does your office use?

FURNITURE

- What is the approximate weight of the wooden furniture in your office?
- What is the approximate weight of the plastic and metal furniture in your office?
- What percentage of your office furniture is made from recycled or certified renewable materials?

JANITORIAL

- How many gallons of cleaning or hygiene products are used in your office?

BREAKROOM

- How many cups of non-organic or non-Fair Trade Certified coffee/tea are consumed?
- How many small appliances (e.g. microwaves, toasters) does your office have?
- How many large appliances (e.g. fridges, stoves) does your office have?

SERVICES

- How many total nights do people stay in hotels?
- Within your office, how much is spent on dry cleaning or external laundry service?

FOOTPRINT RESULTS:

- Global Acres
- Tons of CO_2
- **%** Non-Electricity
- **%** Electricity
- **#** Planets to Sustain

b. The Office Ecological Footprint Calculator

http://www.epa.vic.gov.au/ecologicalfootprint/calculators/office/introduction.asp

A) BUILDING

- What is the floor area occupied by your office?
- How many levels or storeys is the building in total?
- Do you have information about any green design features of the building?
  - Recycled aggregate in concrete
  - Average percentages of extenders in concrete (fly ash or slag)
  - Use of second hand building materials
  - Use of recycled building materials
- What is the ground area of the base of the building?
- What area outside the building is associated with gardens/driveways/car parking?
- What is the expected life of the building?
- How many employees work in your office?

B) ENERGY AND WATER

- How much electricity does your office use per month?
- Does your office purchase energy supplied from renewable sources that is Green Power? What %?
- How much natural gas does your office use per month?
- How much water does your office use per month?

C) FOOD EXPENDITURE

- How much does your office spend on catering and business lunches per month?
- How much does your office spend on beer, wine & spirits per month?
- How much does your office spend on milk per month?
- How much does your office spend on tea, coffee, sugar & biscuits per month?

D) TRAVEKL TO & FROM WORK

- How many staff travel by car (no passengers)?
- How many staff travel by car (with passengers)?
- How many staff travel by bus?
- How many staff travel by rail?
- How many staff travel by motor cycle?
- How many staff travel by scooter?
- How many staff travel by bicycle/walking?

E) TRAVEL WHILE AT WORK

- At work, how many return trips are made using - public transport? Taxi?
- Does your office own or lease company vehicles (car or motorcycle/scooter?)
- How much does your office spend on fuel OR how far do people travel by car or motorcycle/scooter?
- Enter amount spent on fuel per month OR kilometres travelled per month

- Complete the following table
    - Percentage of 'Office Use' → vehicles proportion of use vs. other vehicles in the fleet
    - Vehicle type
        - Hybrid (4.5 - 6 litres)
        - Small (6.5 - 9 litres) < 6-cylinder
        - Medium (9 - 15 litres) 6-cylinder
        - Large (more than 15 litres)> 6-cylinder
        - Motorcycle
        - Scooter
    - Number of vehicles
    - % of total office use
    - Fuel type used
    - Fuel price per litre
    - % of travel with more than driver only
- How many kilometres do staff in your office travel by airplane for business purposes each month?
    - International Flights? Domestic Flights?

F) CONSUMABLE ITEMS

- How much paper manufactured in Australia does your office purchase per month?
- How much imported paper does your office purchase per month?
- What is the average recycled content, across all offices, of paper purchased per month?
- How much is spent on printed materials & publications produced for your organization/month?
- What percentage of the printed materials and publications is made from recycled content?
- How much does your office spend on subscriptions to publications per month?
- How much does your office spend on computers and printer equipment per month?
- How much does your office spend on other stationary?

G) RECYCLING

- What percentage of paper used in your office is recycled?
- What percentage of cans and bottles is recycled?
- What percentage of IT equipment is recycled or reused?
- What percentage of toner cartridges is recycled or reused?

FOOTPRINT RESULTS:

- Global hectares (breaks down into land: energy, cropping, gazing, forest and occupied)
- Soccer fields
- GHA per employee
- Breaks down footprint by impact activity & ranks within each activity
    - Building
    - Utilities
    - Food
    - Travel to & from work
    - Travel
    - Goods
    - Recycling

H. Summary of Funding Opportunities

a. Potential Agency Projects

Electricity Retrofit Incentive Program (ERIP)
http://business.everykilowattcounts.com/inst/programs-incentives-rebates.php?pir=ERIP

This program wants to influence decisions in favour of the most efficient equipment choices. ERIP focuses on lighting, motors, heating, ventilation, air conditioning and electricity systems.

Prescriptive track: This track has predefined technologies with corresponding per-unit or performance-basis savings measures. These projects tend to involve replacements and upgrades to existing systems. The incentive is based on what is installed.

Custom track: This track is for businesses using a more specific solution to electricity efficiency retrofitting. For these projects, all technology equipment and systems are evaluated on the basis of their power and energy performance improvement. The incentive offered is based specifically on the level of improvement. The incentives are based on the results of calculations from each track's specific worksheet.

High Performance New Construction
http://business.everykilowattcounts.com/inst/programs-incentives-rebates.php?pir=HPNC

High performance is a collection of design strategies and technologies for reducing energy consumption, improving the indoor environment and minimizing the environmental impact of a building. Design assistance and attractive financial incentives are available to encourage builders and developers to incorporate high-performance strategies like sustainable building practices and energy-efficient features in their new construction and major renovation projects.

Prescriptive equipment incentives and basic track (up to 25%):

Applicant/owner incentives of $250 per kilowatt (kW) are available.

Advanced track (26 to 50%):

Applicant/owner incentives of $300/kW and architect incentives of $50/kW.

High-performance (HP) track (greater than 50%):

Applicant/owner incentives of $400/kW and architect incentives of $100/kW.

Load Management - Demand Response (DR) Programs
http://business.everykilowattcounts.com/inst/programs-incentives-rebates.php?pir=LM

By design, demand response programs enable participating organizations to reduce their consumption of electricity, typically during times of the year and day when electricity consumption has proved to be relatively high. Since a reduction in demand achieves the same goal as an equal increase in supply but without the accompanying pollution or greenhouse gas emissions, demand response is a cleaner and more cost-effective option.

Demand Response 1 – The Voluntary Peak Shedding Program
Demand Response 2 – The Contractual Load Shifting Program
Demand Response 3 – The Contractual Peak Shedding Program

Conservation Fund
http://www.powerauthority.on.ca/cfund/Page.asp?PageID=122&ContentID=6293

The Ontario Power Authority established the Conservation Fund in 2005 to provide funding for action-oriented, sector-specific electricity conservation pilot projects to help to build a culture of conservation in Ontario. Contributions vary by project up to a maximum of $400,000.

Community Conservation Initiatives Program
http://www.mei.gov.on.ca/english/energy/conservation/?page=CCI

The CCI program supports incorporated not-for-profit organizations that deliver innovative energy conservation initiatives to their local community. CCI is intended to help raise awareness about electricity conservation, engage energy consumers to undertake conservation actions and foster long-term behavioural change toward energy conservation. The maximum CCI contribution available to each project is $50,000.

ecoENERGY Retrofit Incentive for Buildings
http://oee.nrcan.gc.ca/commercial/financial-assistance/existing/retrofits/index.cfm?attr=0

Natural Resources Canada's Office of Energy Efficiency offers the ecoENERGY Retrofit Incentive for Buildings, the commercial/institutional component of the ecoENERGY Retrofit financial incentives for existing homes, buildings and industrial processes. The incentive could include $10 per gigajoule of estimated energy savings or 25 percent of eligible project costs.

ecoENERGY for Renewable Heat
http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm

Incentives are offered to the industrial/commercial/institutional sector to install active energy-efficient solar air and/or water heating systems. Incentive payment will be based on a rate per square metre of collector area multiplied by a collector-specific performance factor.

Ontario Solar Thermal Heating Incentive (OSTHI)
http://www.mei.gov.on.ca/english/energy/conservation/?page=OSTHI

OSTHI is an Ontario Government program that provides an incentive in the form of a rebate to Ontario organizations in the commercial, industrial or institutional sectors who install a qualifying solar water or solar air heating system. It provides up to 25% of eligible project costs, to a maximum incentive of $80,000 per installation. The corporate maximum incentive for multiple installations is $2 million. In the case of municipalities and not-for-profit applicants, the total project funding from all levels of government is limited to

100% of eligible project costs. To qualify, an applicant must first be approved for a Contribution Agreement under the ecoENERGY for Renewable Heat program. OSTHI funding is conditional upon the project being approved by ecoENERGY for Renewable Heat to receive an incentive under the federal program, and the applicant being in compliance with the Contribution Agreement.

Building Design Programs
https://portal-plumprod.cgc.enbridge.com/portal/server.pt?open=512&objID=374&PageID=0&cached=true&mode=2&userID=2#DesignAssistanc

Design Assistance Program (DAP)
This program offers a fixed incentive of $4,000 for design activities aimed at improving a building's energy and environmental performance – whether it is a new building, an addition to an existing building or a major renovation.

New Building Construction Program (NBCP)
This program helps offset the costs of designing more energy efficient buildings for commercial, institutional or multi-family use. It provides an incentive for energy savings that will result from adding efficiency measures to a reference design building. They pay $0.075/$m^3$ of projected annual natural gas savings to a maximum of $15,000.

Hydro One - Double Return Program
http://www.hydroonenetworks.com/en/efficiency/double_return/default.asp

All of Hydro One Networks' transmission-connected and commercial/industrial customers with interval meters are eligible for this program and are automatically enrolled (unless participating in other OPA-sponsored demand reduction programs). It takes reducing the company's average peak consumption between 7:00 a.m. and 7:00 p.m. by a minimum of 5% over the program period and they will be rewarded with a cheque for double what was saved in delivery charges.

b. Rebates

Enbridge
https://portal-plumprod.cgc.enbridge.com/portal/server.pt?open=512&objID=285&PageID=0&cached=true&mode=2&userID=2
Receive a $15.00 rebate on the purchase of a programmable thermostat.

- Receive a $50 Rebate on the purchase and installation or rental/lease when converting a current non-natural gas water heater to a natural gas water heater.
- Receive a $100 mail-in rebate when replacing a heating system with an ENERGY STAR® high-efficiency natural gas heating source.

ecoAUTO Rebate Program
http://www.tc.gc.ca/programs/environment/ecotransport/ecoauto.htm

As part of the Government of Canada's plan to protect the environment, the ecoAUTO Rebate Program encourages Canadians to buy new fuel-efficient vehicles. It offers rebates from $1000 to $2000, to people who, beginning March 20, 2007, buy or enter a long-term lease (12 months or more) for a fuel-efficient vehicle that meet the required criteria.

c. Partnering with Municipalities

Municipal Eco Challenge Fund (MECF)
http://www.mei.gov.on.ca/english/energy/conservation/?page=mecf

The Municipal Eco Challenge Fund (MECF) is a $20 million grant program designed to help municipalities undertake infrastructure projects that will conserve energy and reduce greenhouse gas (GHG) emissions. The fund is split into two application streams: standard retrofit projects and showcase/demonstration retrofit projects. Municipalities can apply for a grant to cover up to 25% of retrofit costs, up to a maximum of $100,000. Municipalities can also apply to cover up to 50% of "showcase" retrofit costs, up to a maximum of $500,000.

Green Municipal Fund
http://sustainablecommunities.fcm.ca/GMF/GMF-Funding-Projects.asp

FCM offers low-interest loans or low-interest loans combined with grants to implement leading examples of sustainable development projects. GMF can offer financing for up to 80 per cent of the eligible costs of some capital projects. GMF interest rates for municipal governments are Government of Canada bond rate for the equivalent term minus 1.5 per cent.

I. Funding Program Details by Category

a. New Construction

Program	Purpose	Funding	Criteria	Process	Link
High Performance New Construction Ontario Power Authority	• Provide assistance to incorporate conservation and demand management measures into the design, construction and operation of new and substantially renovated buildings. • Measures are designed to save energy through improved efficiency and peak demand management. • High Performance is a collection of design strategies and technologies for reducing energy consumption, improving the indoor environment and minimizing the environmental impact of a building.	PRESCRIPTIVE* • Basic Track (0% - 25%) Applicant/ Owner Incentives: $250/kW * Must be eligible for a minimum of $1,000 in incentives. CUSTOM** • Advanced Track (26- 50%) Applicant/ Owner Incentives: $300/kW • High-Performance Track (50+%) Applicant/ Owner Incentives: $400/kW Architect/Design Team Incentive: $100/kW ** Must be eligible for a minimum of $10,000 in incentives. • Convertible Incentives: Applicant/Owner Incentives for Advanced & High Performance convertible into a 4% interest rate buy-down for financing up to 10 years.	• Applies to multi-unit residential, agricultural, government, institutional and commercial projects. • Project must be : ○ Located in Ontario (excluding 416 area code) ○ Conform to Part 3 of the Ontario Building Code ○ Be intended for commercial, institutional, industrial or multi-unit residential occupancy • Applications will be accepted for approval through October 2010, and projects must be completed, evaluated, and delivering energy savings by December 2012. • Buildings that obtained a building permit between August 2007 and March 2008 will also be eligible.	1. Architect & Owner learn about early adopter success stories and the program through marketing, sector associations, trade allies and/or industry events. 2. Owner accesses best practices clearinghouse to learn about business case for developing high performance buildings. Architect accesses clearinghouse to learn about Cost-Risks-Benefits Reports for specific HP CDM measures. 3. Owner/Architect participate(s) or attend(s) a sector-specific charette to learn integrated design process. Owner runs early-stage decision support software tools to calculate HP financial, valuation and productivity benefits. Architect runs early-stage design support software tools to see how changes to boilerplate design improve energy performance. 4. Owner/Architect apply for modeling support to evaluate incremental cost/savings for multiple HP scenarios. 5. Owner selects an incentive option and applies to program, providing modeling data to establish project baseline, energy savings and incremental costs. 6. NCP Program Manager evaluates application and modeling data; issues an approved incentive commitment letter and reserves funds for the project. Owner builds out project. 7. After installation/any required 3rd party commissioning is completed, NCP-PM verifies project and incentives to Owner and Architect are processed. Profile projects are invited to become a case study.	www.powerauthority.on.ca/Page.asp?PageID=122&ContentID=5189&SiteNodeID=131 & https://www-opa.hpnc.ca/portal/server.pt

b. New Construction & Renovations

Program	Purpose	Funding	Criteria	Process	Link
Design Assistance Program Enbridge Gas	• Offers a fixed incentive for design activities aimed at improving building's energy and environmental performance – whether it is a new building, an addition to an existing building or a major renovation.	• It offers applicants a fixed DAP™ incentive of $4,000.	Applicants can include: • Enbridge pre-approved DAP™ advisers • Architects • Professional engineers • Building owners or developers DAP incentive must be used for at least 2 of: • Employing an Enbridge pre-approved DAP™adviser to assist in the design process, • Developing energy simulation models, • Undertaking an environmental performance assessment using either LEED™ or Green Globes™, • Examining and evaluating design alternatives to improve energy and/or environmental performance, • Following an integrated design process, • Assisting in the preparation of a Commercial Building Incentive Program (CBIP) application. To qualify for a DAP™ incentive a project must be a : • New structure, OR • New addition to an existing structure. • Renovation that upgrades the structure to meet MNECB Mandatory Provisions. • The project must conform to Part 3 of the Ontario Building Code. • Intended for commercial, institutional or multi-unit residential occupancy. • Must be located within Enbridge Distribution franchise territory.	1. Before the design process starts – a qualified proponent submits an Enbridge DAP™ Application Form with information on the applicant, design team and project. 2. Enbridge reviews and approves qualified projects and assigns a DAP™ Reference Number. 3. After the project design is finalized – the applicant submits a DAP™ Summary Report Form, including the following: • DAP™ Reference Number. • Description of actions taken to improve building environmental and energy performance. • Certification by a professional member of the design team that the design is complete and the claimed actions were undertaken.	https://portal-plumprod.cgc.enbridge.com/portal/server.pt?open=512&objID=3744&PageID=0&cached=true&mode=2&userID=2#DesignAssistance

Program	Purpose	Funding	Criteria	Process	Link
New Building Construction Program Enbridge Gas	• Helps offset the costs of designing more energy efficient buildings for commercial, institutional or multi-family use. • The program provides an incentive for energy savings that will result from adding efficiency measures to a reference design building.	• Pay $0.075/m³ of projected annual natural gas savings to a maximum of $15,000.	• Applicant must be an owner or developer of a qualified project. • Project must be: ○ A new structure ○ A new addition to an existing structure, OR ○ A major renovation that upgrades the structure to meet MNECB Mandatory Provisions.	1. Applications for New Building Construction incentives must be submitted after the qualified project design is finalized. 2. A successful application is a three-step process centred on modeling building energy performance and accurately assessing project costs. ** An applicant can apply for both a Design Assistance Program incentive and a New Building Construction Program incentive for the same qualified project.	https://portal-plumprod.cgc.enbridge.com/portal/server.pt?open=512&objID=374&PageID=0&cached=true&mode=2&userID=2#NBCP

c. Renovations & Upgrades

Program	Purpose	Funding	Criteria	Process	Link
Electricity Retrofit Incentive Program Ontario Power Authority	• Influence the decision in favour of the most efficient equipment choices. • Focuses on the areas of lighting, motors, heating ventilation and air conditioning and overall electricity systems.	PRESCRIPTIVE TRACK • Predefined technologies with corresponding per-unit or performance-basis savings measures. • Projects will tend to involve replacements and upgrades to existing systems. • Incentive is based on what is installed. CUSTOM TRACK • For businesses using a more specific solution to electricity efficiency retrofitting. • All technology equipment and systems are evaluated on the basis of their power and energy performance improvement. • Incentive offered is based specifically on the level of improvement. • Incentives are based on the results of calculations from each track's specific worksheet.	• Must be customers of a participating LDC. • Applicants may be owners or tenants of business premises supplied by a participating LDC. • If you are a tenant, you must obtain permission from the property owner for installation of the measures for which an incentive is claimed. • Incentives will be available for pre-approved projects that result in measurable reductions in electrical peak demand. • These projects may be completed using energy efficient technologies prescribed by the program or may be based on innovative custom initiatives.	Two ways to get started: 1. Use the self-serve method by reviewing the documentation below and printing or downloading the application and appropriate documents and submitting to your local participating LDC. –OR– 2. Contact your Local Distribution Company. Click here for the list of participating LDCs. Check here to see if your LDC is participating.	http://business.everykilowattcounts.com/inst/programs-incentives-rebates.php?pir=ERIP

Program	Purpose	Funding	Criteria	Process	Link
Load Management - Demand Response Programs Ontario Power Authority	• Enable participating organizations to reduce their consumption of electricity, typically during times of the year and day when electricity consumption has proved to be relatively high. • Since a reduction in demand achieves the same goal as an equal increase in supply – but without the accompanying pollution or greenhouse gas emissions associated with many types of generation – demand response is a cleaner and more cost-effective option.	• Summer ○ Jun. 1 – Sep. 30 ○ $100/MWh • Shoulder ○ Oct. 1 – Nov. 30 ○ April 1 – May 31 ○ $105/MWh • Winter ○ Dec. 1 – Mar. 31 ○ $115/MWh	Participant must: • Be formed or incorporated in the Province of Ontario, or have an extra-provincial license qualifying it to carry on business in the Province of Ontario; • Be the owner of, or have Enforceable Rights in respect of, a Project having a Voluntary Curtailment Magnitude equal to or greater than 0.5 MW but less than 100 MW. • Be based on one or a combination of : a) Load Interruption: Reduce electricity consumption in response to a dispatch or pricing signal. (i.e. control equipment that will allow lighting and appliances, such as AC, to be cycled on and off); b) Load Shifting: Control the level of energy usage at a given time by shifting load consumption from a period of peak demand to an off-peak period; c) Behind Meter Generation: Generate electricity that serves the electricity requirements of a load that would otherwise have been served from the IESO-Controlled Grid. This generation is located behind the revenue meter that is used to measure the consumption of electricity of the load from the IESO-Controlled Grid. Any generation of electricity into the IESO-Controlled Grid or a Local Distribution System is ineligible to be included in a Curtailment.	1. Fill in General application form describing some basic required contact information. 2. For each Project the Applicant submits, the Applicant needs to complete a Project form. A Project can be a single load or a collection of unique Loads. 3. The Applicant will be able to set a strike price for each particular Project. This allows an Applicant to submit two very different processes, each with different business cases, and different strike prices under the same Application. 4. At the Load level, each Load is considered to be the group of similar end-use-devices. The Load form asks specific questions on how the group of end-use-devices will be metered and verified. Each Load will require a unique Load form.	http://business.everykilowattcounts.com/inst/programs-incentives-rebates.php?pir=LM

Program	Purpose	Funding	Criteria	Process	Link
ecoENERGY Retrofit Incentive for Buildings Natural Resources Canada's Office of Energy Efficiency	• The commercial/ institutional component of the ecoENERGY Retrofit financial incentives for existing homes, buildings and industrial processes. • Help implement energy saving projects that reduce energy-related greenhouse gases and air pollution, thereby contributing to a cleaner environment.	• The eligible incentive is based on the lowest of the following three amounts: ○ $10 per gigajoule (277.8 kilowatt hours) of estimated annual energy savings; ○ 25 percent of eligible project costs ○ $50,000 per project ($250,000 per organization). • Pays the total eligible incentive after completion of the approved project and verification of the work. • The estimated payback of your investment must be at least one year, after taking into account incentives from all external sources.	• Organizations that own, manage or lease the following types of buildings can apply: ○ Commercial and institutional buildings, including those owned by not-for-profit and religious organizations. ○ Provincial, territorial and municipal buildings. ○ Multi-unit residential buildings (with a common entrance and at least four storeys or a footprint of 600 square metres or more). ○ Mixed-use commercial/residential buildings and institutional buildings, including those owned by not-for-profit and religious organizations, provincial, territorial and municipal buildings. • EcoENERGY Retrofit scheduled to end March 31, 2011.	1. Access the latest version of the application guide and forms. 2. Use an experienced individual or service provider to conduct a pre-project energy audit of each affected building at your own expense. 3. Complete and sign the application form. Submit the required documents. 4. Proposals are evaluated as soon as they are received, and applicant will be notified if more information is required. 5. After the Government of Canada has signed a Contribution Agreement, applicant will have 12 months to implement project. Applicant will be notified in writing when they can begin incurring eligible costs. 6. A final report and invoices must be sent within 120 days after completing the project. A representative may be sent to verify or audit the project. 7. If the completed project meets the program's criteria, a cheque will be issued.	http://oee.nrcan.gc.ca/commercial/financial-assistance/existing/retrofits/index.cfm?attr=0

Program	Purpose	Funding	Criteria	Process	Link

ecoENERGY for Renewable Heat
 	
Natural Resources Canada's Office of Energy Efficiency
	• Increase the use of renewable thermal energy by industry, commercial businesses and institutions.
	• Boost the amount of renewable thermal energy created for these sectors.
	• Contribute to cleaner air by helping Canadian businesses use less fossil fuel-based energy for space and water heating in buildings across the country.
		• Offer an incentive to industrial, commercial and institutional purchasers of solar heating systems.
		• Incentive will be based on a rate per square metre of collector area multiplied by a collector-specific Performance Factor and Incentive Rate.
			• Businesses, industries and public institutions are eligible.
			• Program runs from April 1, 2007 to March 31, 2011.
			• The following buildings qualify:
			  ○ Commercial, industrial, and institutional buildings.
			  ○ Buildings wholly or partially used for residential purposes if the building has a common entrance and at least four above-ground storeys or exceeds 600 m^2 in area.
				1. ecoENERGY for Renewable Heat program application form must be completed, signed and sent to the program at the address below. If the application is completed by someone other than the applicant, this person must also sign the applicant form. A copy of the application form can be obtained from the Forms page.
				2. Only completed applications will be processed. In the event that NRCan requires clarification about the data presented in the application, applicant will have 30 days to respond. If the data is not remitted within 30 days the file will be closed.
					http://ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm

Program	Funding	Criteria	Link
Rebates Enbridge Gas	• $15 Rebate on Programmable Thermostats. • $50 Water Heater Rebate Offer for New Customers Only. • $100 Rebate for ENERGY STAR® Natural Gas Heating System Upgrades.	• Only residential or commercial customers with natural gas heating systems rated under 225,000 BTU are eligible. • Must replace an existing water heating system by installing a new (purchase or rental) natural gas water heating system and establishing a new Enbridge Gas Distribution account between October 1, 2008 and March 31, 2009.	https://portal-plumprod.cgc.enbridge.com/portal/server.pt?open=512&objID=285&parentname=CommunityPage&parentid=10&mode=2&in_hi_userid=2&cached=true

Program	Purpose	Funding	Criteria	Process	Link
Ontario Solar Thermal Heating Incentive Ontario Government (Ministry of Energy)	• Provides an incentive in the form of a rebate to Ontario organizations in the commercial, industrial or institutional sectors who install a qualifying solar water or solar air heating system.	• Provides a maximum incentive of $80,000 per installation. • Incentive payment is based on a rate per square meter of collector area multiplied by a collector-specific performance factor. • Incentive rate table and collector-specific performance factors can be found on the federal government's ecoENERGY for Renewable Heat program website. • The corporate maximum incentive for multiple installations is $2 million.	• Be an Industrial, Commercial or Institutional entity situated in Ontario • Have submitted to NRCan, an application to ecoENERGY for Renewable Heat postmarked on or after June 20, 2007, the date that the OSTHI Program was announced by the Government of Ontario. • OSTHI is planned to operate from June 20, 2007 to March 31, 2011.	• An applicant must submit to NRCan: ○ Signed *ecoENERGY for Renewable Heat* application Form. ▪ For solar water heating ▪ For solar air heating ○ A signed OSTHI Consent and Release Form. • Both federal and provincial forms must be submitted together to *ecoENERGY for Renewable Heat*. • During its application review process, NRCan will inform OSTHI program administrators of the applicant's project details. • When a project has been approved for funding, NRCan will inform OSTHI program administrators of its funding decision, and Ontario will issue its own Contribution Agreement for the OSTHI incentive. NRCan will also issue a Contribution Agreement to the applicant.	http://www.mei.gov.on.ca/english/energy/conservation/?page=OSTHI

Program	Purpose		Link
Commercial Incentives Enbridge Gas	• Incentives for existing buildings are available to you regardless of how you achieved natural gas savings. • Offers free technical advice and financial rebates for implementing energy efficiency improvements. • Introduce you to independent businesses that can help you with your specific energy needs.		https://portal-plumprod.cgc.enbridge.com/portal/server.pt?open=512&objID=361&parentname=CommunityPage&parentid=2&mode=2&in_hi_userid=2&cached=true#programconditions
	Funding	**Criteria**	**Process**

Retrofit Incentives	One time incentives are calculated on projected first year's natural gas savings using the following rates:
	• MultiCHOICE Incentive
	  ○ $0.10/m3; saved up to $30,000 limit* (3 measures or more)
	• Retrofit Incentive
	  ○ $0.05/m3 saved up to a $100,000 limit* (regardless of the number of measures)
		• Must meet Simple Payback of 1-1/2 years or greater unless otherwise approved.
		• Projects involving Operational Improvements, Steam Traps, Showerheads, Controls and Novitherm Panels with less than 1-1/2 years Simple Payback are exceptions and may qualify.
		• Incentive paid must not exceed 50% of the project capital cost.
			• Incentives remitted upon project completion.

Monitoring & Targeting	• Incentives at a rate of $0.05/m3 saved based on12 months of operational improvements.		
Water Conservation	• Free commercial kitchen pre-rinse spray valve to eligible facilities.		
Condensing Boilers	• $0.10/m3 of estimated natural gas savings for condensing boiler technology. • Incentives are a one–time payment based on estimated first year natural gas savings, up to a maximum of $30,000 per building, for projects with simple payback greater than 1.5 years.	• Boiler must be an upgrade (i.e. replacing a conventional atmospheric efficiency boiler with a condensing efficiency boiler). • Boilers must be 90% Combustion Efficiency or greater.	• Enbridge pre-approval required.

Audit Incentives	• Customer incentives based on lowest of:
	  A) $0.01/m3 of most recent full calendar year of natural gas consumption of the building(s).
	  B) 1/2 the cost of the audit up to $5,000.
	  C) 1/3 the cost of the audit up to $5,000 if customer's audit incentives from other sources.
	• Audit incentive payments are "capped" at $15,000 per customer. However, if substantial work is implemented from audits funded by Enbridge, Enbridge may at its sole discretion provide additional audit incentives.
		• Incentive formula also applies to Steam Saver Surveys and Operational Energy Assessment Audits (M&T) provided by approved third parties.
		• For multi-residential a minimum of 25% of natural gas savings identified must be implemented to receive the audit incentive.
		• Minimum natural gas consumption of 150,000 m3 per year for each facility is required to qualify for an audit incentive.
			• Audit incentive application and audit scope must be pre-approved by Enbridge and must materially meet the requirements of Enbridge's HVAC Building Energy Audit Report Outline.

d. Miscellaneous

Program	Purpose	Funding	Criteria	Process	Link
Conservation Fund Ontario Power Authority	• Provides funding for action-oriented, sector-specific electricity conservation pilot projects, thereby helping to build a culture of conservation in Ontario. • Goals: ○ Build marketplace capability for the design, delivery, marketing and uptake of conservation programs. ○ Test new or unique conservation program elements. ○ Use the results from pilot projects to help inform the development of future conservation programs.	• Increased the maximum allowable funding from $250,000 to $400,000, in recognition of the potential of pilot projects to deliver significant results. The level of funding awarded will depend on the potential of the approach being investigated and/or its sophistication.	• Funding is provided to incorporated organizations operating in Ontario. (i.e. business corporations, non-profit corporations, foundations or co-operative corporations, and may on a case-by-case basis include organizations in the broader public sector). • Projects must be consistent with the strategic objectives of the OPA to develop, coordinate and stimulate electricity conservation. • Projects must help promote the development of a culture of conservation. • Projects must meet the goals of the Fund as described in the Fund Guidelines. • Projects must demonstrate a benefit to one or more sectors of Ontario's economy.	1. Applicant reads guidelines, templates and projects. 2. Applicant discusses idea with OPA staff. 3. Staff ask applicant to submit EOI. 4. Internal discussion of EOI. 5. Staff meet with applicant. 6. Invitation to submit full proposal.	http://www.powerauthority.on.ca/cfund/Page.asp?PageID=122&ContentID=6293

Program	Purpose	Funding	Link
Community Conservation Initiatives Program Ministry of Energy and Infrastructure *under review for 2009	• Supports incorporated not-for-profit organizations that deliver innovative energy conservation initiatives to their local community. • Intended to help raise awareness about electricity conservation, engage energy consumers to undertake conservation actions, and foster long-term behavioural change toward energy conservation.	• In general, the maximum CCI contribution available to each project is $50,000.	http://www.mei.gov.on.ca/english/energy/conservation/?page=CCI

J. Additional Ideas for Implementation

Component	Possible actions	Key Points
How to determine areas for staff education and engagement	• Survey monkey	• Determine what is "do-able" and what people are willing to do.
	• Evaluate meeting efficiency	• Why/how people meet? (i.e. team meetings) • Are there different ways to run/schedule meetings?
	• Challenge each program or office to determine one area of action they would commit to changing	• Everyone is different. What pledge best suits your work environment?
Staff Education – *Voluntary actions to record and report on number of participants and outcome*	• Carpooling & voluntary matching system	• How many days this month can you commit to carpool? • Can you get to work one way by walking and carpool the other?
	• Minimal printing (reducing use, not just recycling)	• Do not print agendas for any meetings for one month! • Even better, try paperless meetings!

	• Active transportation to work	• Commit to active transportation at least:
		  ○ To & from work – Once a month?
		  ○ During lunch – Twice a month?
		• Commit to a Commuter Challenge i.e. Clean Air Commute

	• Transportation for work purposes	• Mileage reduction challenge (by %) i.e. among PHIs, agency-wide etc. • Education re: effect on car & emissions • No idling!
	• Recognizing local and sustainable options for food	• 100km diet once a week
	• Reducing energy use	• The monitor and computer need to sleep too! Be sure to shut down before you leave! • Appoint someone to ensure unnecessary lights are out! • Earth Hour → participate during work hours if possible
	• Minimizing waste and maximizing recycling/green bin	• Waste free lunches once a week, if not more! • Bring your re-usable mugs to Tim Horton's once a week. • Confused about what you can recycle? Here are the facts…. • We may not all have a green bin at work but commit to taking any leftovers home for your hungry green bin!