

“Global Warming is really a social and economic problem. It is also the greatest opportunity for creativity and innovation we have ever had. We are all part of the problem. We can all be part of the solution. Rather than fearing change, we must embrace it.”

Dr. Andrew Weaver, Canadian Climate Scientist and member of B.C. Provincial Parliament



**Sustainable Development**

*EMS Rooftop, November 21 2012*



**Energy**

# 1.0



## Sustainable Development Energy

### WORKING GROUP MEMBERS:

Adrienne Allam  
Hugh Briggs  
Gerald Debenetti  
Vanessa DeGiacomo-Zwaresch  
Brad Doff  
Andrea Goold  
Scott Hoffman  
Larry Hogard  
Marv Lassi  
Kristin Maenpaa  
Curniss McGoldrick  
Kerstin Muth (Chair)  
Tim Pagee  
Karen Pasko  
Raphael Shay  
Bill Willis  
Tim Wilson

### GOAL:

To promote the wise use of energy and the transition to a carbon-neutral future. By 2020, the community of Thunder Bay will reduce greenhouse gas emissions by 20% below 2009 levels.

### WHY IT MATTERS:

Energy is required by everyone to live and work. Using energy wisely results in many benefits such as reduced home and business operating costs and a cleaner environment. All forms of energy have environmental impacts, especially those produced from fossil fuels. The production and combustion of fossil fuels produces toxic substances that impact air and water quality. They also produce carbon dioxide, which is a greenhouse gas (GHG).

Greenhouse gases trap the sun's heat in the atmosphere, making the earth warm enough to sustain life. The combustion of fossil fuels from human activities has increased the amount of GHG in the atmosphere, especially in the past 100 years. As a consequence the atmosphere has become warmer, impacting the earth's climate and resulting in increased global average temperatures, melting of the Arctic ice cap and glaciers, and more severe weather events. It is necessary to reduce our dependence on fossil fuels.

Local governments are important partners in building Canada's green energy future and reducing Canada's GHG emissions. Policies and initiatives undertaken by communities can have a significant impact on energy use. Focusing on conservation, efficiency and increased use of renewables are strategies that municipalities are embracing across Canada.

Thunder Bay first conducted a GHG Emissions Inventory in 2007, using a baseline of 2005<sup>1</sup>. Emissions per capita were an average of 13.1 tonnes. In 2011 a second Inventory found a reduction to 8.3 tonnes per capita. This can be explained by some conservation, but is mainly due to a downturn in the economy and a significant reduction of energy use in the industrial sector, as well as a decline in the GHG intensity of electricity by almost 50% due to the phasing out of the use of coal as a fuel to generate electricity in Ontario.

<sup>1</sup> The Energy Working Group will use 2009 as the baseline year on a go-forward basis, as it offers the most complete data set.

# 1.0 Sustainable Development

## Energy

### OBJECTIVES and RECOMMENDED ACTIONS

**A. By 2020, total municipal operations energy consumption (GJ) is 20% below 2009 levels and total community energy consumption (GJ) is 20% below 2009 levels.**

#### ACTIONS FOR CORPORATION

- Adopt higher energy efficiency standards for new buildings and renovations that minimize the environmental impact of the capital projects and energy demands of city facilities
- Continue to implement the Strategic Approach to Corporate Energy Management Plan
- Develop a Local Improvement Charge (LIC) incentive program to facilitate energy efficiency upgrades to private property
- Update and revise the Green Fleet Plan to meet new goals and best practices
- Create processes to track staff travel claims and work to reduce mileage and flights

#### ACTIONS FOR COMMUNITY

- Promote Net-Zero Guide for homes and business
- Support development of the demonstration Net-Zero home
- Thunder Bay Hydro, Union Gas and the City of Thunder Bay continue to develop strategies for residential and commercial consumers to reduce energy use
- Thunder Bay Hydro will develop a web-based software to allow residents to track their time of use details online
- Develop a long range energy plan for the community
- Promote use of fuel efficient vehicles and alternative fuels when technically feasible
- Promote electric vehicles and install at least one electric charging station at a municipal site
- Promote other measures that reduce kilometres travelled by vehicles such as land-use planning, public transport, and active transport

**B. Renewable energy is increasingly used to meet local demand.**

#### ACTIONS FOR CORPORATION

- Continue to implement renewable energy projects such as rooftop/land-mount solar projects
- Pursue opportunities to increase generation capacity for renewable energy sources

#### ACTIONS FOR COMMUNITY

- Encourage Confederation College to develop a clean energy centre with programs for energy efficiency, renewable energy and sustainable buildings ranging from industrial to residential applications
- Increase renewable energy capacity with community partnerships
- Develop and maintain a registry of renewable energy projects

#### WHAT YOU CAN DO:

- Have a home energy audit and implement recommended retrofits
- Buy ENERGY STAR® labelled products
- Most buildings constructed in the 1960s and 1970s or earlier are not well insulated. A retrofit of an older building can save up to 75% on space heating costs. It will also save on cooling costs.
- Cooling: A 26°C summer setting will save you about 10% electricity use over a 22° C.
- Reducing the phantom load can reduce electricity use by 8% in a typical Thunder Bay household
- When it comes time to buy a new car, choose a more efficient vehicle. Average fuel efficiency of many new mid-sized vehicles is about 8 litres/100km. The efficiency of many new compact vehicles is less than 6 litres/100 km.
- Maintain proper tire pressure and conduct regular maintenance on your vehicle
- Avoid idling your vehicle



### HIGHLIGHTS:

#### Thunder Bay Airport Solar Park

The solar park generates enough renewable energy to power 15,000 homes over the next twenty years. The renewable energy generated offsets approximately 7,500 metric tonnes of carbon dioxide equivalent a year. That has an impact that is equivalent to taking about 1300 cars off the road or recycling 2300 tons of waste each year!

#### Corporate Energy Management Plan

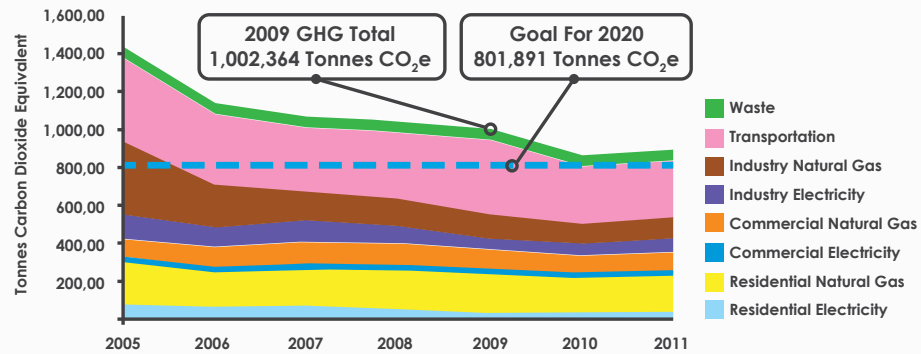
In December 2011, Thunder Bay City Council approved a Corporate Energy Management plan entitled "The Strategic Approach to Corporate Energy Management". This plan outlines strategic initiatives that will manage the Corporation's energy use and create a Corporate "energy-wise" culture.

Table 1. Ontario Greenhouse Gas Electricity Coefficient

Year	Greenhouse Gas Electricity Coefficient
2005	0.23 kg CO <sub>2</sub> e/kWh
2010	0.13 kg CO <sub>2</sub> e/kWh

Source:  
National Inventory Report  
1990-2010 - Environment Canada

Figure 1. GHG Emissions for Thunder Bay 2005 – 2011



Overall Canada's GHG emissions have declined from 2005 to 2010 by 6%.

Figure 2. Thunder Bay 2011 GHG Emissions

