

# Climate Change

## Edmonton's Strategic Direction: Reduce Community-Wide Greenhouse Gas Emissions

### Background

Community-wide emissions of greenhouse gases (GHG) to the atmosphere, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxides (NO<sub>x</sub>), are increasing, mainly due to the burning of fossil fuels to provide energy and heating for our homes, businesses, industry and transportation needs. At the same time, as human activity has been increasing the atmospheric concentration of these greenhouse gases, global temperatures have been increasing.

Over the last 100 years, the average annual mean surface temperature of the globe has increased by between approximately 0.6 – 0.8 degrees Celsius, while Canada's annual average temperature has increased 1.3 degrees. This is referred to as global warming. The 1990's produced 8 of the world's 10 warmest years. Rising temperatures also affect precipitation and wind patterns. This is why global warming is more accurately referred to as climate change.

The scientific community predicts that unless GHG emissions are reduced, climate change impacts will include more extreme weather events, changing precipitation patterns, increased temperatures and ecosystem changes that will affect our environmental, social and economic systems. Alberta's sixth year of record drought provides an example of these potential negative impacts.

The contributions to Edmonton's community-wide GHG emissions are primarily from activities taking place in the industrial, commercial and residential sectors.

Canada is a signatory to the 1997 Kyoto Protocol, under the United Nations Framework Convention on Climate Change (UNFCCC), which would commit Canada to reduce GHG emissions to 6 per cent below 1990 levels by 2008 to 2012. In December 2002, the federal House of Commons approved a resolution for Canada to ratify the Kyoto protocol, which was followed by formal ratification. In November 2002, the federal government released their *Climate Change Plan for Canada*, which provides a framework of a national plan implementation strategy to achieve Canada's Kyoto target.

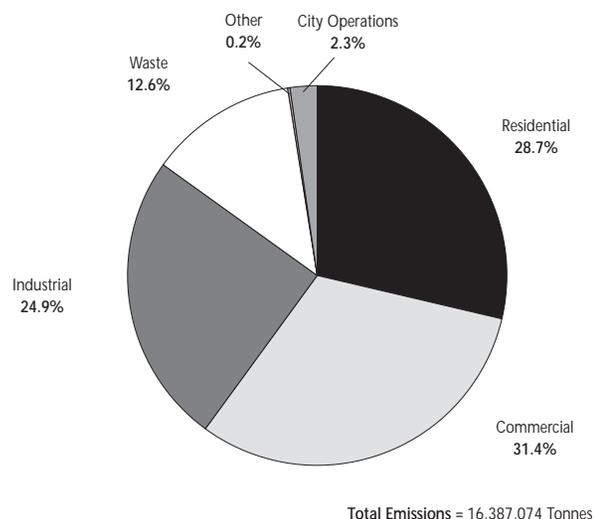
In October 2002, the Alberta Government released its *Albertans & Climate Change: Taking Action* plan to address global warming and climate change. To date this includes promotion of energy conservation and voluntary actions to reduce GHG emissions. A program is underway for audits and cost-effective retrofits for all government buildings over 1000 m<sup>2</sup>. The province's CO<sub>2</sub> Diet Program encourages government staff to reduce GHG emissions at work and at home.

A cornerstone of Alberta's plan is to reduce energy consumption through changes in behavior and practices in energy use. The Alberta Government established Climate Change Central (C3) to support GHG emission reduction activities throughout the province.

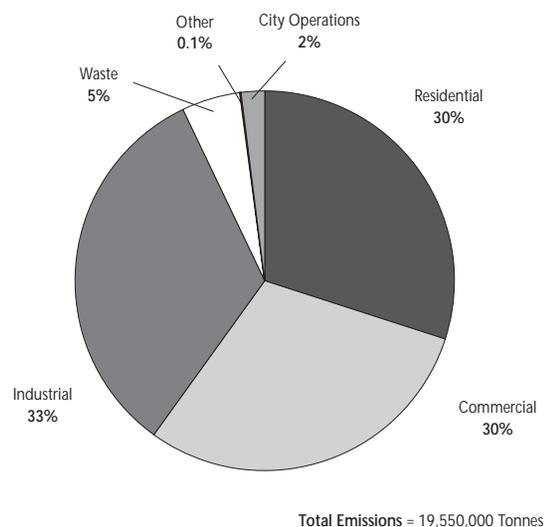
Alberta Environment has instructed C3 to establish an Office of Energy Efficiency to lead consumer-related initiatives and programs encouraging energy conservation. Alberta also is implementing a province-wide energy conservation awareness campaign and public education strategy aimed at promoting energy conservation.

In 1995, Edmonton committed to the Voluntary Challenge and Registry (VCR). The City is a founding member of the Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) Program. The program requires a commitment for greenhouse gas reduction from member municipalities and provides support in addressing the issue.

**Figure 2a: Community-Wide Greenhouse Gas Emissions 1990**  
CO<sub>2</sub> equivalents



**Figure 2b: Community-Wide Greenhouse Gas Emissions 2001**  
CO<sub>2</sub> equivalents



**Note:** Assumptions regarding the 2001 industrial/commercial split have been made because electricity consumed is not as clearly identified by end use compared to the 1990 baseline.

In 1999, City Council accepted a GHG Emissions Strategy for city operations and in 2000 endorsed a resolution urging federal, provincial and territorial governments to make climate protection a priority. Council also recognized that with City operations contributing only about 3 per cent of Edmonton’s total GHG emissions, a broader community-wide approach was needed. In 1999 a “CO<sub>2</sub>RE Team” was set up consisting of City staff, stakeholders and community-wide representatives. A stakeholder-driven consultative approach was used to develop a multi-sector long-term strategy with challenging but realistic and accomplishable community-wide goals. *Edmonton’s Greenhouse Gas Reduction and Energy Strategy* was launched with City Council support to key stakeholders in early 2002. It is one of the most comprehensive, stakeholder-driven community-wide GHG emission reduction strategies in the world. It provides an unparalleled opportunity to invest in our own community and establish a legacy for Edmontonians.

As shown by the charts, Edmonton’s community-wide GHG emissions are divided primarily among the three main sectors, industrial, commercial and residential.

## Status

The CO<sub>2</sub>RE Strategy Vision states:

Edmontonians have accepted the challenge of reducing greenhouse gas (GHG) emissions and are adopting measures and lifestyles that significantly reduce the production of greenhouse gases.

The CO<sub>2</sub>RE Strategy’s primary goals are:

- A community-wide reduction of up to 6% in GHG emissions (from 1990 levels) by the year 2010.
- A community-wide 20% reduction in GHG emissions (from 1990 levels) by the year 2020.
- Achievement of GHG emission reductions beyond Canada’s international commitments and completion of the long-term transition towards sustainable energy use by the year 2050.

With the CO<sub>2</sub>RE Strategy completed, the next steps are development of a formal coordinating body and business model, a general business case for financial support and initial sector action plans and early actions.

To achieve the CO<sub>2</sub>RE Strategy goals, the organization would need to be capable of sustaining the development and delivery of services, programs and initiatives across Edmonton's economic sectors to 2020 and beyond. This includes establishment of a Board of Directors, three sector working tables and an energy futures advisory table. A "CO<sub>2</sub>RE Information Hub" would be developed to act as a central energy efficiency and GHG emission reduction how-to information resource:

- A multi-sector, how-to energy efficiency/GHG reduction database with company services and product information including resources and tools on a CO<sub>2</sub>RE Web site;
- A call-in contact line to provide specific information, how-to resources and services;
- Sector-specific how-to publications and training packages;
- A CO<sub>2</sub>RE GHG Registry and membership function.

Development of initiatives and implementation will be concentrated in six areas identified in the CO<sub>2</sub>RE strategy:

- Increase energy efficiency awareness, information and training for all sectors;
- Identify ways to improve energy efficiency of existing infrastructures and current practices, and promote market transformation programs;
- Promote alternative fuels, other energy sources and new technologies;
- Promote enabling policies, incentives, market transformation initiatives and regulatory changes to facilitate and support action.
- Encourage partnerships, input and maintain a community-wide approach;
- Establish supporting GHG monitoring, verification and reporting procedures.

Energy efficiency improvements are a proven technology offering excellent economic and environmental returns. A comparison of the CO<sub>2</sub>RE strategy to other initiatives indicates that its implementation would generate substantial long-term economic, societal and environmental benefits.

After a commitment for 2003 start-up funding is secured, organizational development can be initiated. The Interim Secretariat/Office of the Environment will complete the work required with a targeted official CO<sub>2</sub>RE Strategy opening campaign scheduled for spring 2003. Initial organizational development should be completed in the second quarter 2003 with fully operational status achieved by the third quarter 2003.

Planned early actions, which can be delivered during the first half of 2003, include:

1. An official community launch of the CO<sub>2</sub>RE Strategy in early 2003 including a public recruitment drive and call for board members and working table volunteers.
2. Energuide Home Energy Audits (EGH) of different types and ages of houses to identify costs and savings and GHG reduction potentials for Edmonton homes.
3. Develop a CO<sub>2</sub>RE Membership function to provide information to individual and corporate sectors and track GHG reductions.
4. Implement a compact fluorescent lighting marketing campaign.

In addition to being a sound environmental strategy with a range of additional societal benefits, the energy efficiency and GHG emission reduction outlined in the CO<sub>2</sub>RE Strategy make good economic sense.

## Emerging Issues

Currently both the federal and provincial governments are developing energy efficiency and GHG emission reduction action plans, initiatives and programs. This should provide the CO<sub>2</sub>RE Strategy and organization with opportunities to secure funding for programs and initiatives and to work with both levels of government as major stakeholder, partner and delivery agents for developing government programs.

Governments, business and individuals must all accept their responsibility to help reduce the greenhouse gas emissions responsible for climate change. Through our combined actions we are all contributing to the problem and we all have opportunities to contribute to the solution.

## Additional Information

Alberta's Climate Change Central  
**[www.climatechangecentral.com](http://www.climatechangecentral.com)**

Enersmart Alberta  
**[www.altaenergysolutions.com](http://www.altaenergysolutions.com)**

Environment Canada — GHG's  
**[www.ec.gc.ca/pdb/ghg/ghg\\_home\\_e.cfm](http://www.ec.gc.ca/pdb/ghg/ghg_home_e.cfm)**

Natural Resources Canada  
**[www.oee.nrcan.gc.ca](http://www.oee.nrcan.gc.ca)**

## References

The CO<sub>2</sub>RE Team, 2001. *Edmonton's Community-Wide Greenhouse Gas Emissions Reduction and Energy Plan. Part 1: Strategy Document*. Developed by the CO<sub>2</sub>RE Team. Coordinated by the City of Edmonton, Office of the Environment. Edmonton, Alberta. 30 p.

*The CO<sub>2</sub>RE Business Plan 2002* — Interim Secretariat, Office of the Environment, City of Edmonton.