



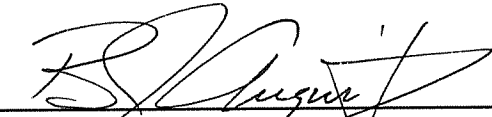
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Halifax Regional Council
March 22, 2005

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:



Brad Anguish, P.Eng., Director, Environmental Management Services

DATE: March 8, 2005

SUBJECT: **Corporate Greenhouse Gas Emission Plan and Climate Change
Strategy Updates**

INFORMATION REPORT

ORIGIN

March 30, 2004, Information Report, "Climate Change and Greenhouse Gas Reduction Strategies".

BACKGROUND

On March 30, 2004, staff provided Regional Council with an update on the corporate Greenhouse Gas Emission Reduction Plans and Climate Change Strategies, components of Climate SMART.

Climate SMART (Sustainable Mitigation Adaptation Risk Toolkit), a leading edge collaborative partnership involving the public and private sectors was officially launched in 2004.

This project is now well underway and key deliverables include:

- Climate Change Strategy for HRM (Mitigation and Adaptation);
- Greenhouse Gas Emission Reduction Management Plan (PCP Milestones);
- Community Based Vulnerability and Risk Management;
- Climate Change Adaptation Planning and Management Options Guide;
- Cost/ Benefit Adaptation Assessment; and
- Communications and Outreach.

A \$35,000 in-kind contribution from HRM will leverage more than \$500,000 in total funding to complete the above deliverables by early summer 2005.

A key project linking directly into the front end of Climate SMART is the **Greenhouse Gas Emissions Inventory, Forecast and Target Report**. This project is cost shared 50-50 through the Federation of Canadian Municipalities (FCM) Green Municipal Enabling Funds (GMEF) and assists HRM in completing Milestones #1 and #2 of the federal Partners for Climate Protection program.

An RFP for this work was issued, closed and awarded this past summer to the International Council of Local Environmental Initiatives (ICLEI).

Over the past few months ICLEI has worked closely with the HRM Project Team representing several business units and others towards the completion of this report.

Partners for Climate Protection (What is it?)

As a quick background, in 1997, HRM officially joined the Federation of Canadian Municipalities (FCM) 20% Club, committing to reduce its GHG emissions. The program is now called Partners for Climate Protection and includes completing the following five Milestones:

1. GHG Inventories
2. GHG Targets
3. Local Action Plan
4. Implementation Plan
5. Monitoring

This is a voluntary commitment and a municipality may adjust its targets at any time to reflect new opportunities or challenges. In 1997, HRM Council committed to a 20% GHG emission reduction below 1990 levels by 2007.

DISCUSSION

Climate Change (Global Warming) is a well documented environmental issue, locally, nationally and internationally.

The major contributor is increased levels of greenhouse gases, invisible gases that let sunlight in but trap the earth's heat creating the greenhouse effect and warming.

The most abundant greenhouse gas is carbon dioxide (CO₂). While CO₂ is naturally released into the atmosphere, it is also a primary by-product released when fossil fuels such as oil, gas, coal and wood are burned.

Greenhouse Gas Emissions Inventory, Forecast and Target Report

The International Council of Local Environmental Initiatives (ICLEI) Report provides a detailed assessment of present greenhouse gas emission inventories, forecasts and proposed targets for both corporate HRM and the community as a whole. The report is recommending that HRM take a very aggressive approach (optimistic scenario) and aim to reduce its greenhouse gas emissions by a 20% reduction from 1997 levels by 2012. The original HRM commitment was a 20% reduction below 1990 levels by 2007.

Staff plan to return later this year after the completion of the Local Action Plan with a more detailed GHG Emission Reduction Target and time frame recommendation for Regional Council's consideration. Detailed financial assessments, cost benefits, cost recovery and funding strategies will be included at this point. An Executive Summary has been provided in Attachment #1, and electronic copies of the ICLEI report (121 page document) are available upon request.

BUDGET IMPLICATIONS

Funding for the HRM Greenhouse Gas Emissions Inventory, Forecast and Target report is budgeted in the Environmental Management Services 2004-05 Operating Budget.

Through the FCM Green Municipal Enabling Fund Project #5248, this phase of the project has a 50% cost sharing agreement, resulting in a net cost to HRM of approximately \$30,000 (plus applicable HST) after cost shared funding has been received.

The ICLEI report indicates that substantial capital investment in the range of several millions of dollars will be required to meet the GHG reduction targets and pay back periods.

Staff will be returning to Council with capital investment details, financing and funding strategies as part of the overall Local Action Plan, in the latter part of 2006.

Staff will also be investigating potential federal Kyoto and GHG emission reduction funding and opportunities that could assist HRM in meeting these targets.

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

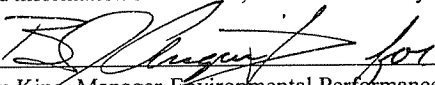
ALTERNATIVES


1. Regional Council could decide to forego the voluntary Partners for Climate Protection 20% corporate greenhouse gas emission reduction target. Greenhouse gas reductions can bring substantial fiscal, social, human health and environmental benefits, therefore staff does not recommend this alternative at this time.
2. Regional Council could decide to direct staff to focus on a less ambitious target of greenhouse gas emission reduction. Until more detailed costs, cost benefit, cost payback and other related data comes forth in the Local Action Plan it maybe premature to look at a less ambitious target. Therefore, staff does not recommend this alternative at this time.

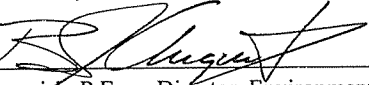
ATTACHMENTS

Attachment #1: Executive Summary - HRM Greenhouse Gas Emissions Inventory, Forecast and Target Report

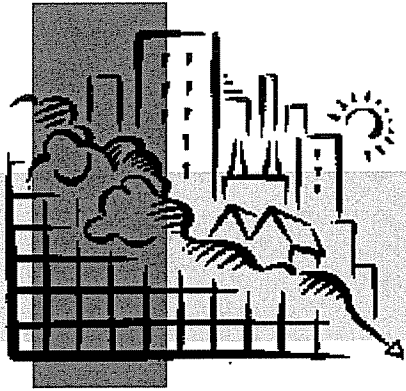
Additional copies of this report, and information on its status, can be obtained by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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ICLEI
ENERGY SERVICES



Halifax Regional Municipality

**GREENHOUSE GAS EMISSIONS INVENTORY,
FORECAST & TARGET**

EXECUTIVE SUMMARY

February 28, 2005



HALIFAX
REGIONAL MUNICIPALITY

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EXECUTIVE SUMMARY

In 1997, the Halifax Regional Municipality (HRM) joined the Partners for Climate Protection (PCP) Program and committed to taking action on climate change. The PCP, led by the Federation of Canadian Municipalities (FCM) and ICLEI-Local Governments for Sustainability, is a network of more than 121 Canadian municipal governments who have committed to reducing greenhouse gases (GHG) in their corporate operations and in the community-at-large. PCP is the Canadian component of ICLEI's international Cities for Climate Protection (CCP) Campaign that includes more than 600 communities making similar efforts.

Up to half of Canada's GHG emissions are under the direct or indirect control or influence of municipal governments.

Up to half of Canada's GHG emissions are under the direct or indirect control or influence of municipal governments. Municipalities are a key component to the Federal government's commitment to the Kyoto Protocol, which involves a 6% reduction in GHG emissions from 1990 levels by 2008 to 2012. When HRM joined the PCP, it made a commitment to reduce its corporate emissions to 20% below 1997 levels by 2007. This report recommends HRM extend its target to the year 2012 to allow enough time to design and implement a local action plan, and verify the results. With similar target years, HRM can work in stride with the Federal government and take advantage of any programs it establishes to help achieve the Kyoto commitment.

This report also suggests that HRM establish a community target of 20% reductions from 1997 levels by 2012. The PCP recommended target is a 6% reduction target, so this would set HRM as a leading municipality among the PCP and municipalities internationally.

A 20% community target would set HRM as a leading municipality among the PCP and internationally.

HRM has already made some strides towards achieving GHG reductions. Measures such as building retrofits, fleet downsizing, traffic light retrofitting, water loss reduction, and waste management have already resulted in 10,000 tonnes of avoided GHG emissions annually and measures at the community level amount to nearly 20,000 tonnes. However, HRM needs to take a much more aggressive approach in order to achieve this target. This approach needs to focus on the key local drivers, such as the use of cleaner fossil fuels for energy production, transportation and corporate building and fleet stock. IES's assessment of various measures and approaches to reduce GHG emissions concludes that these aggressive targets can be met, and the next step is to develop a plan to achieve them. The plan will support HRM's corporate theme priority as a healthy, vibrant, sustainable community.

HRM contracted ICLEI Energy Services (IES) complete the first two milestones of the PCP program. The milestones are as follows:

- Milestone One: Create a GHG Emissions Inventory and Forecast
- Milestone Two: Set a Reduction Target
- Milestone Three: Develop a Local Action Plan
- Milestone Four: Implement the Local Action Plan
- Milestone Five: Measure Progress and Report Results

Through the Climate SMART initiative, HRM is working to achieve milestone three, four and five. Climate SMART partners were a part of the project team brought together to provide input into the first two milestones and they will carry the initiative forward via the development of a local action and implementation plan and a strategy to measure progress and report results.

This document profiles the GHG inventories and forecasts that were completed for HRM's corporate operations and community-at-large. The report also describes the

IES worked with a team of HRM and Climate SMART partners.

GHG emissions reduction targets that are recommended as a result of this work. The Executive Summary was created as a compliment to the full technical report, which describes results in more detail, as well as the methodology, data sources, and forecasting techniques.

IES worked with a project team of HRM and Climate SMART staff to gather energy consumption and waste information. With this information an inventory of 1997 and 2002 GHG emissions was established for both corporate operations and the community at large. The measures that have already been implemented and those that have potential were also examined to generate forecasts of future GHG emission scenarios. The scenarios are described as:

- (Business as Usual (BAU) -- no further emission reduction measures put in place.
- Planned – moderate uptake of measures that are already planned.
- Minimum – moderate uptake of measure that are already planned or easily implemented.
- Typical – includes measures with greater impact that require additional effort and investment.
- Optimistic - includes measures with even greater impact that require morel effort and investment.

Complete details of the analysis are available in the full technical report.

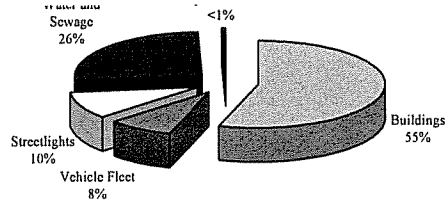
The following two pages present a brief overview of the results of this analysis for both corporate operations and the community-at-large. Complete details of the analysis are available in the full technical report.

CORPORATE INVENTORY, FORECASTS & TARGET

Between 1997 and 2002, HRM's corporate GHG emissions increased by 18%.

Between 1997 and 2002, HRM's corporate GHG emissions increased by 18%, from 86,400 tonnes to 102,100 tonnes. This increase can be attributed to the growing infrastructure needs of community that grew by 5% during the same time period and local economic growth. Figure 1 illustrates the percentage contribution of each of sector of HRM's corporate operations total emissions profile. Buildings represent over half of the GHG emissions from corporate operations, followed by water and sewage operations and streetlighting. This distribution illustrates those sectors that offer the most potential for GHG reductions.

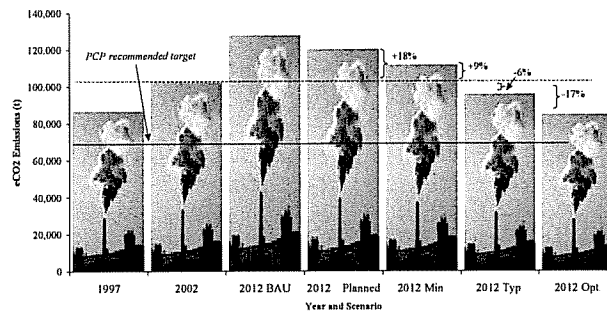
Figure 1 - 2002 Corporate GHG Emissions Distribution



HRM's efforts to date have already resulted in 10,000 tonnes of annual GHG savings through measures such as building retrofits, fleet downsizing, traffic light retrofitting, water loss reduction efforts, and waste management.

ICLEI Energy Services worked with the project team to gather information about the energy efficiency and emission reduction measures that have been put in place, are planned, or could be implemented to help HRM reduce GHG emissions in the future. HRM's efforts to date have already resulted in 10,000 tonnes of annual GHG savings through measures such as building retrofits, fleet downsizing, traffic light retrofitting, water loss reduction efforts, and waste management. However, there is a lot more GHG reduction potential remaining. Different 'scenarios' or forecasts were generated to estimate the future emission potential in corporate operations. Figure 2 illustrates the results of this analysis and demonstrates there is great potential to reduce GHG emissions to well beyond 2002 levels by 2012.

Figure 2 - Corporate GHG Emissions Scenarios



In order to meet the corporate target HRM already adopted, GHG emissions will need to go beyond what is outlined in the Optimistic Scenario. This could be feasible if the Region is strategic in managing its future growth or goes beyond the measures recommended in this report. HRM will be building a new wastewater treatment facility, metro transit garage, recreation center and fire halls. These new facilities present the region with an opportunity to significantly reduce their energy use and GHG emissions by applying alternative technologies to reduce their impact on growth. Therefore, it is recommended that the Region retain its current corporate target of 20% below 1997 levels by 2012. This is comparable to 33% below 1997 per capita levels.

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COMMUNITY INVENTORY, FORECASTS & TARGET

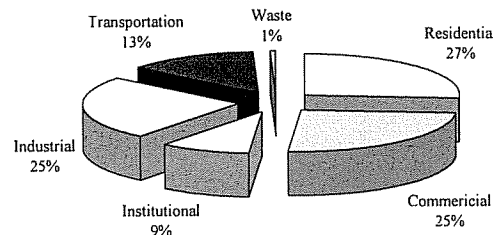
Greenhouse gas emissions from the community-at-large increased by 29%.

Greenhouse gas emissions from the community-at-large increased by 29%, from 5,364,000 tonnes in 1997 to 6,921,000 tonnes in 2002. Similar to the corporate sector increase, this increase can be attributed to the fact that both the population and local economy have growth. Per capita emissions increased by only 14% during this timeframe, from 15.44 tonnes to 17.57 tonnes.

Figure 3 illustrates the percentage contribution of each sector in HRM's community GHG profile. There is a relatively even split between the residential, commercial and industrial sectors, followed by the transportation, industrial and waste sectors.

Figure 3 - 2002 Community GHG Emissions Distribution

This distribution demonstrates that it would be most effective to gear GHG reduction efforts at the residential, commercial and industrial sectors.

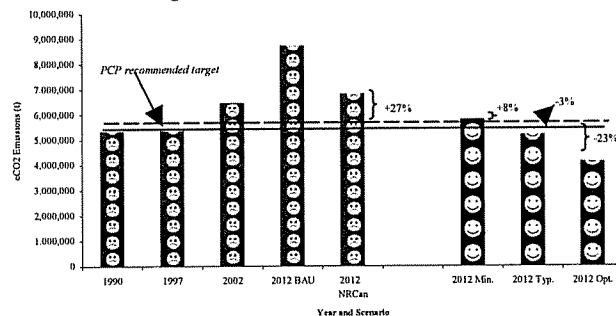


By working with the project team, IES analyzed some of the measures already implemented at the community level. These community measures amounted to nearly 20,000 tonnes of annual GHG savings already achieved.

These community measures amounted to nearly 20,000 tonnes of annual GHG savings already achieved.

However, there is much more potential to achieve significant GHG reductions in the community at large. Some forecasts were developed to examine the future potential for GHG emissions reductions (Figure 4).

Figure 4 - Community GHG Emissions Scenarios



Three scenarios with different types and levels of measure implementation demonstrate that there is a great potential for significant emission reductions in the community-at-large. It is recommended that HRM adopt a community target that is similar to their corporate target, 20% below 1997 by 2012. This is comparable to a 33% reduction in 1997 per capita levels.

It is recommended that HRM adopt a community target that is similar to their corporate target, 20% below 1997 by 2012.

NEXT STEPS

It is recommended that HRM Council formally adopt the corporate and community targets suggested in this report. The next step is to focus on creating a Local Action Plan to achieve the targets, implement the plan, and then monitor and verify to ensure the plan is achieving the results it set-out. At this point HRM should revisit and revise its targets. Climate SMART partners have been involved in the work presented by IES in this report, and will continue to work with HRM on the development of the action and implementation plan.

Special Note – HRM staff has reserved a formal decision on the target and time frame recommendations of this report until more detailed information is brought forward in the Local Action Plan.