

Corporate Climate Change Action Plan

**2004 ANNUAL
REPORT**



With the adoption of the Corporate Climate Change Action Plan in 2004 Vancouver is leading municipalities across Western Canada toward achieving the goals of the Kyoto protocol and beyond. The City of Vancouver has set an ambitious goal of reducing corporate greenhouse gas emissions by twenty per cent below 1990 levels by 2010. This report details the progress made in 2004 toward achieving that goal.

The greenhouse gas emission reduction measures detailed in the corporate Climate Change Action Plan fall into 5 main categories:

1. Civic Facilities
 - Energy Performance Contract
 - Supporting Alternative Energy
 - Energy Efficient Purchasing Policy
 - Green Design for New and Replacement Civic Facilities
2. Corporate Fleet
 - Vehicle Right-Sizing
 - Shift to Diesel Vehicles
 - Shift to Biodiesel Fuel
 - Driver Training Program
 - Fleet Demand Management
 - Other Technologies and Fuels for Consideration
3. Street/Park Lighting and Traffic Control Signals
 - Track and implement technological improvements
4. Corporate Waste Reduction and Landfill Gas Recovery
 - Expand waste reduction and landfill gas recovery programs
5. Corporate Demand-Side Management (DSM)
 - Develop DSM programs for staff energy use and commuting

Civic Facilities:

In September 2004, the City hired an Energy Projects Manager. Working within the Facility Design and Management group the Energy Projects Manager has developed a greenhouse gas (GHG) reduction plan that incorporates two approaches to implementation:

1. City administrated, self funded whereby the City identifies the upgrades, funds low risk projects, and manages the implementation work.

In December 2004, City Council approved interim funding of \$1.5 million to complete

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5 self-administered retrofits within civic facilities. These projects will include retrofits to lighting and heating/cooling systems. This funding will be fully recovered through energy savings over an average of 7 years.

2. Energy Performance Contracts whereby the City will partner with a Contractor requiring the contractor to audit energy use, propose an upgrading program, finance, and implement the upgrade and guarantee the savings. Thus, the Contractor will be required to assume all of the technical and financial risks.

A Request for Qualifications for Energy Performance Contracting Program for Civic Facilities was issued on December 13, 2004. The proposals received are under review by the evaluation committee.

The interdepartmental Energy Committee is in the process of being formed.

Preliminary discussions with Finance and Accounting to determine the opportunities and feasibility of establishing a savings sharing fund to support the energy performance contract have also taken place.

Supporting Alternative Energy:

The generation of additional green energy at civic facilities is a consideration addressed in all facility design and retrofit projects. Preliminary investigation into creating a district energy system in the southeast false creek neighbourhood is underway.

In 2004, Vancouver purchased green power certificates in an effort to support energy generation that has a low impact on the environment. This purchase represents 10 percent of the total energy used by Vancouver City Hall.

Energy Efficient Purchasing Policy:

Policy AF-013-01 requiring the purchase of equipment, supplies, and appliances with product specifications compliant with Energy Star and



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Natural Resources Canada Office of Energy Efficiency guidelines and recommendations was adopted by City Council on November 2, 2004.

Green Design for New and Replacement Civic Buildings:

The green building program at the City of Vancouver was launched July 8, 2004 with a staff planner hired and working in September. In the 4 months following this appointment, the demands on the program have grown significantly, with many new directions and opportunities being pursued, as well as the continued pursuit of Council endorsed objectives.

As of July 8, 2004, all new civic buildings over 500 sq.m. are to be developed to a LEED Gold standard with full certification under the new Canadian Green Building Council (CAGBC). Additionally, a 30% improvement in baseline energy prerequisites is now required for all of these buildings, mandating an additional 4 LEED points. To date, two buildings are currently being designed to a LEED Gold standard -- the new #1 Kingsway Community Centre at Main and Kingsway and the new Hillcrest Curling Centre at Hillcrest Park.

Green buildings have also made a significant mark in the Official Development Plan for Southeast False Creek(SEFC). The ODP was approved on March 1, 2004, with all buildings being designed to a LEED Silver standard and all buildings in the 2010 Athlete's Village being designed to a LEED Gold standard. A motion was put forward to ensure that a demonstration building (likely the community centre) should be developed to a LEED Platinum standard, along with an environmental and sustainability education centre. An additional motion was put forward to ensure that SEFC would be the first community in the False Creek basin to develop a neighbourhood energy system for both heat and electrical energy. This motion coincides with a significant new work item for the Green Building program -- the development of one of the largest neighbourhood/district energy systems in the world. This "precinct" would include SEFC, the new Great Northern Way Campus, the Providence Health Care Site, the remaining lands south of CityGate, the remaining "Concord" development



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parcels, the plaza of nation site, and the new Trillium and Cooper Park sites. This piece of work is an enormous step toward sustainability and energy load and cost mitigation, as well as a significant improvement of energy provision with limited GHG production.

Energy Bylaw Improvements

In 2004, the City improved its energy bylaw to conform to the ASHRAE 90.1 2001 standard. This is the most stringent energy bylaw in the country and coincides with the prerequisite for LEED Canada. This standard is 13% more efficient than the previous energy standard. Currently, this is supported as the baseline for all non-civic green buildings. However, new recommendations will be coming forward to Council in 2005 for new rezonings and "higher buildings" that will look at the opportunity to further increase this energy performance.

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Corporate Fleet:

Right Sizing

A new policy is currently being drafted for reviewing vehicle requirements to ensure that appropriate vehicle choices are made by Departments. During the formation of the current replacement program, vehicles were reviewed and many areas were able to downsize some of these vehicles. There are still some challenges within some City departments to downsize vehicles, and a further review of the operational requirements is required to justify the current vehicle selections.

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Common standards

A policy on common vehicle standards has not yet been drafted. A detailed list of applications that outline the functions and vehicle requirements must be developed, before common vehicle standards can be developed. In some areas, other operational concerns of the department may pose a challenge to having standard vehicle specifications.



Clean Diesel Vehicles

Clean diesel technology is advancing, and engine manufacturers appear to be on track to meet the new 2007 emission regulations for medium and heavy duty vehicles. There will be a phase-in of the new standards between 2007 and 2010, and the full standards will be in effect in the 2010 model year.

One important part of the 2007 emission regulations is the introduction of ultra-low sulphur diesel in the summer of 2006 throughout North America. Ultra-low sulphur diesel will allow advanced catalytic converters to be used on diesel engines, and this will greatly reduce common air contaminant emissions. As part of our research into the feasibility of retrofitting catalysts onto older vehicles, the City will be taking part in a diesel oxidation catalyst retrofit trial that is partially funded by Environment Canada and the GVRD.



Delaying Replacements for Clean Diesels

Equipment Services will review vehicles scheduled for replacement in 2005 and 2006 to determine if it will be possible to further extend the service life of these vehicles, on a unit by unit basis, until 2007 certified engines are available.

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Biodiesel Fuel

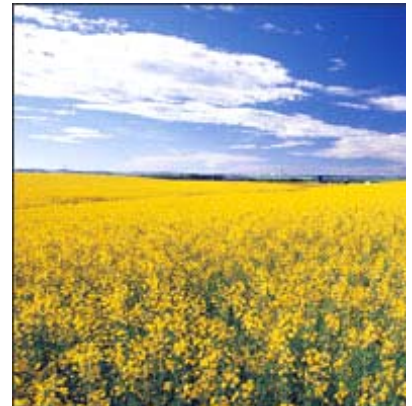
In 2004, the City completed a limited biodiesel demonstration trial with 5 other municipalities. The trial confirmed the results of existing studies on biodiesel, and was very successful.

The provincial government provided a provincial tax exemption to the biodiesel portion of fuel blends, up to 50% biodiesel, last spring. This has helped to further reduce the incremental cost of biodiesel versus petroleum diesel, but a lack of local supply and availability of biodiesel is affecting the further use of this fuel.

One outcome of the City's activities around biodiesel was the formation of the Biodiesel Working Group, in association with the National Fleet Challenge - BC. The working group has

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brought together more than sixteen agencies, including local governments, the GVRD, provincial ministries, and federal departments in order to further the development of biodiesel awareness in the region. This working group has led to the development of a \$300,000 biodiesel market development project, significantly funded by the Federal government, for the further development of the biodiesel market in this region. The first major part of this project is a “Biodiesel 101” Workshop that will be held at the Round House Community Centre on March 30, 2005. The project will also help offset some of the incremental costs of biodiesel for the first municipal biodiesel buyers, including the City of Vancouver.



The City, along with several other members of the Fuel Purchasing Cooperative, has included biodiesel as part of the tender call for the next fuel purchasing contract. The RFP issued by the cooperative is expected to help encourage the further development of the biodiesel market in the region. A major producer has announced that they intend to produce biodiesel in the region, and it is expected that there may be other opportunities for production facilities (both community based and commercial) in the near future.

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Driver Training programs

The driver training program is yet to be developed. The City’s previous driver trainer retired last year, and the position is in the process of being filled. Staff have been in communication with Natural Resources Canada with regards to the new municipal “Smart Driver” program currently in development, and it is hoped that the City will be able to be a pilot site for this new national program.

Fleet Demand Management

A review of the opportunities for centralizing and pooling vehicle fleets is yet to be completed. Significant analysis of current vehicle operating requirements is needed, and current systems to gather this data will require additional resources. Options for automating this data collection can be



pursued, but there would be some costs associated with this program

Other Technologies and Fuels:

Hybrids

Preliminary evaluation of the City's hybrids has indicated a significant reduction in fuel consumption versus similar conventional vehicles.

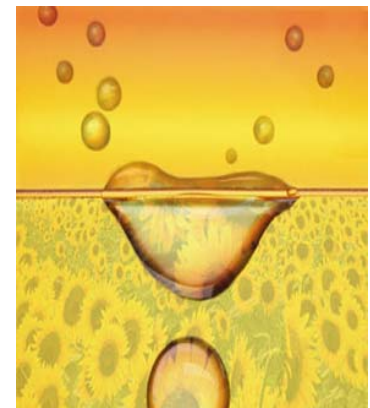
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However, the cost savings associated with this reduced fuel consumption does not offset the significantly higher capital costs of these vehicles (a hybrid is currently about twice the cost of the City's conventional compact sedans). The City is planning on piloting the new Ford Escape hybrid in Parking Enforcement where this type of vehicle is suitable for both the type of driving (constant stop and go) and the cargo requirements (these units will be used to transport a number of bicycles for patrol at once, so the large secure cargo area of the Escape is required). Further analysis will be undertaken and reported back to Council at a later date.



Ethanol

The City is still studying ethanol blended fuels. There are new processes being developed that are more efficient and that use non-food portions of crops (cellulose) to produce ethanol. As these new processes are developed, it is expected that the greenhouse gas reduction potential of ethanol blended fuels will improve. Currently, a 10% ethanol blend will reduce overall GHG emissions by approximately 2-4%, while it is expected that a 10% cellulose ethanol blend will reduce overall GHG emissions even more.



Natural Gas and Propane

The City is continuing to review natural gas and propane. It is expected that the efficiency of current spark-ignition natural gas engines will improve by 2007, and that further improvements will continue. It may be possible that natural gas engines may start approaching the efficiency of diesel engines.

Low Speed Electric Vehicles

The City is continuing to review low speed electric vehicles. There are still concerns regarding the crash ratings of these vehicles, and there may be some new products coming to the market that are crash-rated in the near future.

Fuel Cell Vehicles

The City is taking part in the Vancouver Fuel Cell Vehicle demonstration and it is expected that the City will take possession of a fuel cell Focus soon. Fuel cell vehicles continue to be developed, and commercialization of these technologies for automotive use is still years away.

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Micro Compact Cars

Mercedes Benz began importing the smart fortwo micro compact car last fall. The City now has thirteen smart cars in service or on order, and units will be entering service in Parking Enforcement and other areas over the coming months.

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Street/Park Lighting and Traffic Control Signals:

The conversion of Vancouver's traffic control signals from incandescent bulbs to energy efficient light emitting diodes (LED) was completed in 2004. This has resulted in an energy savings of 6,157,000 kilowatt hours in 2004. This translates to a financial savings of \$355,000 per year.

Complete

Vancouver is testing three types of electronic ballasts for street lights. BC Hydro is monitoring this project to measure real energy savings. If proven, this technology could result in a 20% energy savings.

Additionally, the City continues to monitor the lighting industry to take advantage of improvements in lighting technologies. New designs for reflectors, flat glass luminaires, and better design tools offer inviting possibilities. Improvements in these areas can result in

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reduction of the amount of power required to light any given area.

Corporate Demand Side Management:

The Civic Employee Sustainability Programs Coordinator was hired in September 2004. A wide range of programs to help staff move toward incorporating sustainability objectives in their everyday lives and business practices are under development. These include the resurrection of the Sustainability Lecture series, the development of an employee behaviour change incentive program, and energy and waste reduction strategies.

Development of a comprehensive Transportation Demand Management (TDM) strategy is underway. This strategy will seek policy and procedural improvements to commuting options, work-related travel options, parking management, and an evaluation of the efficiency and cost saving effect to the environment of the compressed work week. In partnership with TransLink, a discounted transit pass program was approved by City Council in November 2004 with implementation in 2005. The development of a strategy for moving forward on the creation of a Sustainable Purchasing Policy has been completed and, with Council approval, the strategy will be put into motion in 2005.

Summary:

The City of Vancouver has embarked on an ambitious plan to reduce corporate greenhouse gases by 20 per cent below 1990 levels in 2010. By focusing efforts on Civic Facilities and Corporate Fleets, the City has made significant progress toward achieving that goal. In the first year of the plan's mandate, the ground work for reducing greenhouse gas emissions in our civic facilities through the implementation of energy performance projects has been laid and indeed some projects are already underway. Building internal capacity to implement the action plan has been a major step toward achieving our goals.

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The creation and implementation of an Energy Efficient Purchasing Policy is a small but significant achievement signalling the beginning of the development of an official procurement policy embodying the principles of sustainability. Successful lobbying for the importation of micro-cars has led to the inclusion of thirteen of these vehicles into our fleet. Efforts toward building a biodiesel procurement and distribution network will have significant pay-off in reducing fuel use and greenhouse gas emissions.

While a lot of headway has been made, much work remains. 2005 promises to be an important year in truly incorporating the principles of sustainability in staff's everyday work lives, continuing to build on initiatives in making our facilities more energy efficient, and making changes in our corporate fleet.

