
British Columbia VCR Progress Report

Statement of endorsement



October 31, 2001

Dear Robert Flemington:

I am pleased to submit the British Columbia Government's Progress Report on Climate Change to Canada's Voluntary Challenge and Registry (VCR) Inc. This progress report communicates the British Columbia government's actions taken to meet its commitment to reducing greenhouse gas emissions from its own operations by 16 percent between 2000 and 2005.

Significant steps have been taken on many fronts to reduce greenhouse gas emissions in 2000/01. Nine facilities in BC Parks have been fitted with renewable energy sources such as solar panels and micro-hydro, and the government has ordered 60 hybrid vehicles, in an unprecedented move to encourage the use of this technology. Improvements to the operating efficiency of provincially funded buildings resulted in a 4 percent reduction in energy use.

This government is committed to reducing greenhouse gas emissions from its operations, and continually improving the range of activities to meet this commitment. Taking action on greenhouse gas emissions is a positive step for British Columbia's environment, economy and future generations.

Best regards,

A handwritten signature in black ink, appearing to read 'JM', with a long horizontal flourish extending to the right.

Honourable Joyce Murray
Minister of Water, Land and Air Protection
Government of British Columbia

Executive Summary

This progress report outlines the British Columbia government's continued commitment to reduce greenhouse gas emissions from government operations. The government will continue to work towards a reduction of greenhouse gas emissions (GHG) for the period 2000 to 2005.

From 1990 to 2000 there was a slight increase in greenhouse gas emissions (129,105 CO₂e to 131,825 CO₂e). The primary factor in that increase was the increased marginal emission factor for electricity emissions.

One of the results from actions taken by the provincial government to reduce greenhouse gas emissions was a reduction in energy use per employee from 68 GJ in 1999 to 65 GJ in 2000. Many of the other actions taken in 2000/01 are expected to result in reductions in greenhouse gas emissions over the next 5 years. Those actions include:

- **Vehicles:** Forty percent of lease orders for the 2001 government fleet were for alternative fuel vehicles or "greener" vehicles. This includes 60 hybrids, which at the time was the largest order by any organization in Canada.
- **Buildings:** A 4% reduction in energy use was achieved through increased energy efficiency measures.
- **Renewable Energy:** seven photovoltaic systems, one solar heating system and one micro-hydro project have been purchased and are being installed to replace diesel generation in parks throughout the province. A photovoltaic system was installed in one government office building.

These, together with a range of activities for both direct and indirect emission reduction, are outlined in the following report. These activities are expected to reduce greenhouse gas emissions to 113,000 tonnes CO₂e per year by 2005, approximately 6% below what they were in 1990, or 16% below what they were in 2000.

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Background

British Columbia Government Profile

The British Columbia provincial government is one of British Columbia's largest enterprises in operational terms. It employs approximately 38,000 civil servants across the province, with around 11,000 located in the Capital Regional District on Southern Vancouver Island.

In the fiscal year ending March 31, 2001, greenhouse gas emissions from government buildings and vehicles (excluding Crown corporations) were estimated at 131,825 tonnes of carbon dioxide equivalent. This represents 0.2% of total emissions in the Province of British Columbia.

Action Plan objectives

The Government of British Columbia submitted an Action Plan for Canada's Voluntary Challenge and Registry Program in 2000. The key objective of the action plan was direct greenhouse gas emission reductions from government operations, but also included supporting actions such as green procurement, employee education and low emission employee commuting.

Implementation/ Management System Description

An interdepartmental Assistant Deputy Minister (ADM) level committee was formed in 1999 to coordinate the provincial government's response to climate change. The committee includes representatives from 15 ministries and agencies. This committee oversaw the development of the government's VCR action plan.

A Greening Government Steering Committee was also formed in 2000 to coordinate the development and implementation of this action plan. The steering committee, which reports to the ADMs committee, is comprised of representatives from the Ministry of Water, Land and Air Protection, the Ministry of Transportation, the Purchasing Commission (Ministry of Management Services), BC Buildings Corporation, the Ministry of Energy and Mines and the Crown Agencies Secretariat.

A target review will be conducted each year up to 2005. All British Columbia government programs are currently under review. The target of reducing GHG emissions by 16% between 2000 and 2005 will be reviewed in 2002 and any necessary adjustments will be made.

Review Process

The review process involves analysis on a quarterly basis by the Greening Government Steering Committee. This committee draws on reports from the various Greening Government initiatives to identify any necessary revisions to actions and will identify any new areas that could be included in the baseline inventory. The recommendations of this committee go to the ADMs Committee on Climate Change for approval.

Within the third quarter of each year, the recommendations approved by the ADMs Committee on Climate Change proceed to the relevant deputy ministers for approval. If there are substantial changes these are then presented to the Minister of Water, Land and Air Protection and, if necessary, Cabinet for final approval

Base Year Quantification and Projection

The base year quantification of GHG emissions was established and reported in the November 2000 British Columbia VCR Action Plan. The greenhouse gas emission sources from government operations are primarily related to the operation of the government vehicle fleet and energy use in government buildings. The base year quantification was based on fleet and building estimates.

Vehicle fleet

The 1990 baseline emissions for cars and light trucks were established using actual 1990 odometer data (vehicle kilometre travelled - VKTs) and estimated average fuel economy of the vehicles that made up the 1990 fleet. In the absence of similar 1990 data for medium and heavy trucks, 1990 emissions for these vehicles was derived by "backcasting" using the actual 1999 fuel consumption data for medium and heavy trucks and the average growth rate of government between 1990 and 1999 (1.06%/year).

VKT data from reimbursed employee travel using personal vehicles and rentals is not available for 1990. An estimate of 1990 emissions from these sources was prepared by backcasting from the 1999 estimate using the average growth rate of government between 1990 and 1999.

Little to no growth was assumed in government operations from 2000 to 2005. As a result the emission projection for the vehicle fleet was expected to remain constant at about 47,000 tonnes per year in the absence of reduction measures.

Buildings

In last year's action plan the 1990 GHG emissions data was derived from an assumption that the owned or leased space was 1,804,626 m² for government operations.

Detailed energy use data were available for 1990 for a subset (more than half) of the total space. An estimate of energy consumption for the entire building inventory was prepared by applying the energy use per m² factors from the subset to the remainder of the buildings. Estimates of greenhouse gas emissions were prepared by applying emission factors by fuel type from the Voluntary Challenge and Registry Registration Guide 1999 to the fuel use estimates. By far the dominant greenhouse gas emission from building energy use is CO₂; however, methane and nitrous oxide emissions are also included in the inventory.

Emission factors for electricity use were drawn from BC Hydro's September 2000 Climate Change Progress report to the VCR. The average emission intensity of electricity generated by BC Hydro is very low (30 tonnes CO₂e/GWh) compared to the average of Canadian utilities (200 tonnes CO₂e/GWh) or to average U.S. utilities (650 tonnes CO₂e/GWh). The emission intensity of the BC Hydro system varies considerably from year-to-year due to changes in water availability and fossil fuel generation. The electricity emission factors used in this update for 1990, 1999 and 2000

are derived from BC Hydro's June 2001 submission to the VCR. Because 1990 emissions were unusually low (a high water year) an average of 1989 to 1993 emission factors was used to estimate 1990 emissions from electricity used in buildings.

The projected emissions for business as usual in the 1999 Action Plan were based on the following assumptions:

- No growth in building stock beyond 2000 and no turnover of existing stock
- In the absence of more detailed breakdown of the sources of energy efficiency improvements, a simple one-to-one correlation between reductions in energy intensity and reduction in GHG intensity.

In the absence of GHG reduction measures, emissions from buildings would be expected to increase to 91,472 tonnes CO₂e by 2005. This increase reflects expected changes to electricity emissions as new, primarily thermal generation is brought on to meet the load growth.

YEAR	Emission Factor (tonnes CO ₂ e/GJ)
1990	0.00830
1999	0.00717
2000	0.01159
2005	0.01778

The marginal emission rate is steadily increasing, reflecting increased use of fossil fuel. So at the margin, each year, as we use electricity it will cost us more in greenhouse gas emissions.

Current targets

The current target is to reduce greenhouse gas emissions of government operations by 16% of 2000 levels by 2005. As mentioned previously this target will be reviewed by 2002 to reflect any changes as a result of current reviews within government.

Verification of results

The Government of British Columbia emission calculations in the areas of buildings and vehicles are based on fuel use, energy use, and floor space of owned buildings. While the Government of British Columbia VCR Progress Report is not audited as a separate document, the data provided in this report is derived from individual ministries and agencies whose numbers are subject to audit by the Auditor General of British Columbia. The Auditor General reports to the Legislature and is responsible for ensuring accountability within the government.

In addition, energy consumption of buildings is a key performance indicator for the British Columbia Building Corporation (BCBC). Results are reported annually. BCBC will also be introducing a performance measure related to GHG emissions this year.

Overview of Results

Previous progress

A major initiative introduced in 1999 was a commitment by the Ministry of Transportation (former Ministry of Transportation and Highways) to shift 100 percent of its vehicle fleet to alternative fuels. The 2000 Action Plan reported that one-quarter of Ministry of Transportation vehicles had been replaced with natural gas or propane vehicles, resulting in an estimated annual reduction of 250 tonnes of CO₂e.

In addition, the former Ministry of Environment, Lands and Parks purchased emission reductions from a solar heating project at the Lillooet Recreation Centre. The ministry brought the project through the Greenhouse Gas Emission Reduction Trading (GERT) Pilot for review. The emission reductions are approximately 20 tonnes CO₂e/year. The ministry specifically undertook this investment to test the applicability of emission trading to small projects.

British Columbia has participated and continues to work, both provincially and at the national level, to advance research, development and deployment of cleaner technologies. In March 2000 the province provided \$300,000 in seed funding to establish Ethanol BC.

Overview of current results

The Government of British Columbia has influenced the reduction of GHG emissions through a number of activities. The most obvious of these are government operations: operating government vehicles and the energy used in government buildings. However, the government has also taken a leadership role in reducing GHGs on a broader level. Activities include promoting innovative environmental technologies, supporting community-based actions, providing climate change information and education to the public, and influencing construction and design teams for buildings through policies. These important influences are not included in the VCR emissions inventory, nor will they count towards the British Columbia government target.

Many GHG emission reduction activities have additional benefits beyond combating climate change. These include reducing contaminants that affect human health and ecosystems. Further, many activities are often fiscally neutral or save money. For example, energy efficiency can save money and at the same time reduce GHG emissions and emissions of other air contaminants (e.g., fine particulates). Encouraging the public to reduce energy consumption reduces GHG emissions, and reduces electricity bills, providing greater financial benefits for British Columbians.

Indirect Emissions

In addition to buildings and the vehicle fleet, there are several indirect sources of emissions related to government operations. These include employee commuting, and greenhouse gas emissions related to the manufacture and transportation of supplies. These sources have not been included in the inventory because the government does not have direct control over these emissions. However, since the government has some influence over indirect emissions, education and other supporting measures are planned to improve performance in these areas.

Vehicle Fleet Results

Overall fleet results

Several activities were initiated or completed in 2000/01 to reduce the GHG emissions from the government vehicle fleet. All ministries involved in leasing vehicles were provided with information regarding what types of actions would reduce greenhouse gas emissions and the cost implications of those actions. Tools were developed for fleet managers that provided GHG and cost impact, on a vehicle by vehicle basis, as well as for a five-year fleet plan. The following ministries prepared five-year action plans to meet a target of reducing their GHG emissions by 16%:

Ministry of Community, Aboriginal and Women's Services (former Ministry of Municipal Affairs)

Ministry of Children and Family Development (former Ministry for Children and Families)

Ministry of Water, Land and Air Protection (former Ministry of Environment, Lands & Parks)

Ministry of Transportation (former Ministry of Transportation and Highways)

Ministry of Sustainable Resource Management (former Ministry of Environment, Lands & Parks and several other ministries)

Ministry of Attorney General

Ministry of Public Safety and Solicitor General (former Ministry of Attorney General)

Ministry of Human Resources (former Ministry of Social Development and Economic Security).

The actions implemented in 2000/01 included reducing the number of kilometres travelled, leasing and renting alternative fuel vehicles (AFV) and hybrid vehicles (gas-electric), switching from SUVs and other heavy vehicles to more efficient, smaller vehicles, and using ethanol blends of gasoline. Each ministry was responsible for adopting the measures that best suited their operational needs. In addition, the Ministry of Transportation has demonstrated leadership through its commitment to switching 100% of its fleet to alternative fuel vehicles, and has provided staff education on climate change issues.

During 2001 BCBC also established a target of eliminating the use of fossil fuels in vehicles by 2010.

Fuel use by the government fleet increased by 0.37% and greenhouse gas emissions by 0.27%. The total GHG emission reduction from the government fleet was 47,178 tonnes CO₂e. This is in comparison to 47,053 tonnes CO₂e in 1999 (See Tables 1 & 2).

Table 1: Fuel Use by Fuel Type (litres)

Year	Vehicle Source	Aviation	CNG	Diesel	Gasoline	Propane	Total
1990	Government	22,808	5,445	2,125,145	12,987,819	318,910	15,460,127
	Personal/ Rental				3,910,341		3,910,341
	Total Fleet	22,808	5,445	2,125,145	16,898,160	318,910	19,370,745
1999	Government	25,344	5,736	2,390,990	12,369,756	315,919	15,107,745
	Personal/ Rental				4,175,610		4,175,610
	Total Fleet	25,344	5,736	2,390,990	16,545,366	315,919	19,283,355
2000	Government	26,753	14,535	2,409,722	12,349,719	373,975	15,174,704
	Personal/ Rental				4,175,610		4,175,610*
	Total Fleet	26,344	14,535	2,409,722	16,525,329	373,975	19,350,314

*2000 data have assumed the same personal/rental car use as 1999.

2000 fuel use has increased by 0.35%

Table 2: Greenhouse Gas Emissions by Gas Type (tonnes – CO₂e)

Year	Vehicle Source	Carbon Dioxide	Methane	Nitrous Oxide	Total
1990	Government	36,994	76	649	37,719
	Personal/Rental	9,228	21	255	9,504
	Total Fleet	46,222	97	904	47,223
1999	Government	36,262	75	568	36,905
	Personal/Rental	9,854	22	272	10,148
	Total Fleet	46,116	97	840	47,053
2000	Government	36,384	83	563	37,030
	Personal/Rental	9,854	22	272	10,148
	Total Fleet	46,238	105	835	47,178

The year 2000 emissions have increased by 0.27%

Vehicle Kilometres Travelled reduction

Reductions in vehicle kilometres travelled (VKT) varied with each ministry depending upon their operational requirements. Where possible, ministries did reduce VKT through teleconferencing and ridesharing.

Alternative fuel vehicle and hybrid vehicle leasing

The British Columbia government ordered 60 hybrid vehicles, 28 natural gas vehicles, and 105 propane vehicles this year (2000/01). While these vehicles were ordered during this reporting year, the vehicles were not delivered until after April 1, 2001, and the reduction of GHG due to their operation will not be seen until the next progress report.

Table 3: Government of The Province of BC Alternative Fuel/ Light Vehicle Fleet Profile

YEAR	# OF ATF VEHICLES ACQUIRED	# OF HYBRID ELECTRIC VEHICLES ACQUIRED	APPROX. TOTAL # OF LIGHT FLEET VEHICLES	TOTAL % OF ATF/ HYBRID VEHICLES IN FLEET
Current	133	60	3650	15.7%
2000	149	2	3800	10.0%
1996	11	0	5000	4.6%
1993	220	0	5200	4.2%

Vehicle-switching

This action involves switching from SUVs to smaller vehicles when the larger vehicles are not required. There were 167 vehicles leased that represent choices of a smaller vehicle rather than a large vehicle. This represents 26% of the leases for regular gas vehicles.

Use of ethanol blends of gasoline

Ethanol is derived from plant sources such as wood waste or grains. Because plants remove CO₂ from the atmosphere, the burning of biofuels is not included in the emission inventory. Conventional vehicles can burn a mix of ethanol and gasoline, if the ethanol is in low concentration (5-10%). The current methodology does not allow a calculation of the ethanol use.

Future vehicle fleet

The provincial government will provide information about, and access to, fuel-efficient and alternative fuel vehicles. In addition the province will continue to work with industry to ensure access to fuel and mechanical services to support ministries in achieving their five-year targets.

In 2002 the provincial government will develop and implement a strategy to reduce GHG generated by the use of rental and personal use vehicles.

Building Results

Overall building results

In recent years the pace of energy efficiency activity has slowed due to the absence of quick-payback opportunities and the decline in the availability of capital. However, interest in accelerating the pace has been re-established through BCBC's Greenhouse Gas Action Plan, which the Corporation is in the process of completing. In addition, government employees have been encouraged to adopt energy saving techniques in their work spaces and purchase energy efficient office equipment.

The British Columbia government's energy consumption in 2000 relative to 1999 declined by approximately 103,000 GJ or 4%. This resulted in a decrease from 68 GJ/employee in 1999 to 65 GJ/employee in 2000. Despite the decline in energy consumption, the overall GHG emissions increased by 2,600 tonnes CO₂e or 3.2%, largely due to the increased marginal emission factor for electricity. The energy intensity (GJ/m²) also decreased by 2.1%.

Renewable energy in parks

In 2000/2001 \$220,000 was provided to install renewable energy in BC Parks facilities. Nine projects were funded. While these systems were ordered and installed during this reporting year, the reduction of GHG due to their operation will not be seen until the next progress report. These projects have the additional benefit of demonstrating innovative technologies.

Green power procurement for government facilities

A decision was made to proceed with purchasing eco-logo certified green power for government buildings from West Kootenay Power for 2001/2002. The purchase will prevent 1,400 tonnes CO₂e from being emitted to the atmosphere. Green power comes from a variety of lower-impact sources, such as photovoltaic, micro hydro systems, and wind. The amount of power that can be purchased is currently limited to the energy used by offices in the West Kootenay Power region of operation. The provincial government will continue to work with BC Hydro and other utilities to increase the availability of green power.

The provincial government, through BCBC installed a photovoltaic panel in one of the government buildings in Victoria. The reduction of greenhouse gas emissions will not be seen until the next progress report, however it does have the additional benefit of publicly demonstrating a renewable energy application.

Table 4: 1990 Building Emissions

(Total floor space: 1,804,627m²)

Energy Type	Energy (GJ)	Greenhouse Gas Emissions (tonnes CO ₂ e)
Gas	907,320	46,273
Diesel #1	306	24
Heating oil (#2)	141,440	10,891
Heating oil (#5)	8,510	3,735
Steam	26,775	2,101
Propane	54,590	3,412
Electricity	796,904	6,614
Total	1,975,845	73,050

Table 5: 1999 Building Emissions

(Total floor space: 2,045,001 m²)

Energy Type	Energy (GJ)	Greenhouse Gas Emissions (tonnes CO ₂ e)
Gas	1,340,317	68,356
Diesel #1		0
Heating oil (#2)	9,014	694
Heating oil (#5)		0
Steam	15,693	1,231
Propane	55,148	3,447
Electricity	1,160,697	8,325
Total	2,580,869	82,052

Table 6: 2000 Building Emissions

(Total floor space: 2,005,198 m²)

Energy Type	Energy (GJ)	Greenhouse Gas Emissions (tonnes CO₂e)
Gas	1,278,041	65,180
Diesel #1	0	0
Heating oil (#2)	26,496	2,040
Heating oil (#5)	0	0
Steam	17,765	1,394
Propane	51,962	3,248
Electricity	1,103,038	12,785
Total	2,477,302	84,647

Table 7: Buildings - Energy Use

Year	Energy Use (GJ)	% Change vs 1999	GHG Emissions (tonnes)	% Change vs 1999
1990	1,975,845	-	73,050	-
1999	2,580,869	-	82,052	-
2000	2,477,302	-4.0	84,647	+3.2%

Supporting Activities

The Government of British Columbia has not only taken a leadership role in taking measures to reduce greenhouse gases, but is also involved in numerous projects aiming at public awareness, research, and pilot projects. These include the initiatives listed below.

Provincial, regional, and national initiatives

Employee commuting

In 2000/01 lockers and bike racks were installed in additional government office locations to encourage cycling. Employee and site surveys have been carried out for the Victoria area, where the majority of British Columbia government employees are located, to determine commuting activities. The results of these surveys will assist the British Columbia government in determining how best to support alternative commuting activities.

Propass, an initiative the provincial government developed in partnership with the local transit system and other Victoria employers, has substantially increased the transit ridership of employees of the provincial government and other businesses.

Green procurement

In the past several years there has been growing use of the internet for communications within and external to government. These changes include phone and address information, travel claims on line, and numerous other documents. These initiatives have resulted in reduced use of paper for internal processes and the production of government phone books. The government is planning to implement an e.procurement program in 2002 that will substantially reduce paper flow by digitizing forms and data in the procurement process.

An extensive study was undertaken to determine the framework required to develop and implement a comprehensive green procurement framework for the provincial government. This information will be used to inform the most appropriate next steps in implementing green procurement and lifecycle assessment processes for government.

Green Buildings Program

Green Buildings BC is a provincial initiative established to improve the performance and reduce the environmental impact of provincial facilities and, in the process, foster the growth of British Columbia's environmental industry. The initiative targets both new and existing provincial buildings through the New Buildings Program, The Retrofit Program and the Rating System initiative.

The *New Buildings Program* is facilitating the development of a new approach to the design and construction of government-funded facilities. This new approach results in significantly higher performance buildings and lower operating costs than would be the case using conventional practices, but without increasing capital costs. This program's focus is the development of a green (i.e. high performance) building policy framework that will guide the design and construction of all new provincially-funded buildings, a process that is being informed by a series of pilot projects.

The program's first four pilots include three schools and one post secondary institution. The pilots have shown that significantly higher performance is achievable in a variety of areas such as: energy, water and materials use; indoor air quality, storm water management, etc. The pilots, for example, reveal substantial reductions in energy use over conventional projects, ranging from 39% to 58% better than the Model National Energy Code for Buildings. The focus of the New Buildings Program during 2001/02 will be to secure pilot projects in multi-residential facilities, hospitals and other health care facilities.

The ***Retrofit Program*** was launched to help British Columbia's educational and health care institutions procure building retrofits that pay for themselves through the cost savings generated by reducing the energy/water used and waste generated. To date, a number of institutions have commenced the planning or implementation of retrofit projects. Estimates available for 10 of these institutions indicate that retrofits of their facilities will save approximately \$6.7 million in annual operating costs through projected capital investments amounting to \$56.9 million. The GHG emissions from the schools and health care institutions are not included in the British Columbia government emission inventory, but the results are nonetheless significant.

Rating System Initiative: In September 2000, the Green Buildings BC program, BCBC, the City of Vancouver and the Greater Vancouver Regional District commissioned a study to determine what would be the best Green Buildings Rating System for British Columbia. The study determined that the most appropriate was the US Green Buildings Council (USGBC), LEED rating system. The results of the study were shared with the building industry represented by architects, engineers, building managers and developers.

The four commissioning agencies accepted the recommendations of the study and subsequently commissioned a follow-up study to develop a British Columbia version of LEED reflecting the British Columbia context and acceptable to the USGBC who owns the rights to the system. Once a British Columbia version of LEED is developed it will be up to each agency to determine whether they will adopt LEED within their own sphere of responsibility. BCBC and the Green Buildings BC program are facilitating a small number of pilot projects using LEED to identify the issues involved in requiring its use.

Heat Pumps in Social Housing

Funds (\$100,000) were provided to BC Housing in spring 2001 to allocate to social housing societies for the purchase and installation of ground source or air source heat pumps in social housing projects. BC Housing is allocating the funds based on the potential reduction in GHG emissions, feasibility of the site for heat pump installation and the site's potential for building public awareness of advantages of heat pumps. Regional distribution is another criteria – the heat pumps will be installed in the Vancouver area as well as in two areas outside of the Lower Mainland.

Emission trading

A national process is in place to determine a domestic greenhouse gas emissions trading system. British Columbia has been actively involved in co-chairing the committee tasked with developing Canada's domestic emission trading system with a federal counterpart.

BC Buildings Corporation also participated in the GERT pilot, acting on behalf of the Comox Valley School District and the Capital Health Region to sell the emission reductions that these two institutions have achieved through energy efficiency projects (i.e., total of 3700 tonnes CO₂e). BCBC is also hoping to demonstrate that energy retrofits undertaken under its Retrofit Program have value beyond energy savings, thereby making participation in its Retrofit Program more attractive to other British Columbia educational and health care institutions.

Climate change research initiatives

The provincial government funded a portion of the set up and administration costs for the British Columbia Climate Change Impacts and Adaptation Research Node (\$25k). The Government of British Columbia carried out substantial work on the development of a series of climate change indicators (to be completed in early 2002).

Education, training and awareness

Staff education

The Government of British Columbia has carried out the following actions to inform staff about climate change impacts, the government's response and individual actions that assist in addressing climate change.

To reach all government employees there are two particularly valuable websites available to staff:

- The British Columbia Climate Change website provides information on climate change and its effects, and projected impacts on the climate, weather, habitat and fish and wildlife species in British Columbia, together with the government's response to reduce climate change.
- The Greening Government website provides information on VCR actions, including information on how government is reducing emissions through changes to vehicles, renewable energy, energy efficiency measures in buildings and other supporting actions. It also provides information and links to other related websites to support individual actions in addressing climate change. The efforts of those ministries that have taken some extra steps in moving towards reducing greenhouse gas emissions are acknowledged on this website.

Staff are also encouraged to participate in Clean Air Day, Commuter Challenge and Bike to Work Week events. This past year the following provincial government offices participated in the bike to work and/or commuter challenge:

Intergovernmental Relations Secretariat
Ministries of Water, Land and Air Protection and Sustainable Resource Management
(former Ministry of Environment, Lands and Parks and several other ministries)

British Columbia Assets and Land Corporation
Ministry of Attorney General
Ministries of Health Planning and Health Services (former Ministry of Health)
Ministry of Community, Aboriginal and Women's Services (former Ministry of Municipal Affairs)
Transportation Financing Authority
ICBC.

Many regional offices throughout the province also participated in the local bike to work and commuting challenge activities.

The Ministry of Transportation conducted a series of regional staff meetings about climate change and the reasons for the fleet conversion to alternate fuel. Briefings occurred in Prince George, Nelson, Vancouver, Nanaimo and Kamloops. Staff received a presentation and instruction on the causes and impacts of climate change as well as what the ministry was doing to address the issue through changes to its fleet.

The Purchasing Commission held numerous information sessions with the fleet managers to provide them with an overview of climate change and the projected impacts, information regarding the target of 16% reduction in GHG emissions by 2005, and tools to assist them in making decisions regarding choice of vehicles.

Public education and outreach (PEO)

The following activities ensured that the public was informed about climate change as well as providing opportunities to become actively involved in addressing climate change through their own actions:

Knowledge Network TV Series & Videos: A contribution agreement was signed with Knowledge Network in fiscal year 2000/01. Three one-hour episodes on climate change and British Columbia were produced and were aired on the Knowledge Network in October 2001. A one-hour video of the series, accompanied by a teacher's guide, will also be developed for use by high school teachers.

Outreach Partnership (PEO Hub): The provincial Ministry of Water, Land and Air Protection is facilitating a working partnership amongst federal, provincial and local governments, industry and environmental organizations to improve information-sharing and identification of opportunities for the development and delivery of climate change PEO activities across British Columbia.

Climate Change Teacher Training and Mentoring Program: The Ministry of Water, Land and Air Protection, The Habitat Conservation Trust Fund (WILD BC), BC Hydro and the Pembina Institute for Appropriate Development entered into an agreement in March 2001 to provide climate change training to secondary school teachers across British Columbia. The agreement includes delivery of a free copy of Pembina's *Climate Change Awareness and Action Education Kit* to every secondary school in British Columbia, conditional upon participation in a teacher-training workshop. The program will also include ongoing mentoring and support for teachers following the workshops. The program completion date is June 2003.

Commuter Challenge: British Columbia's Commuter Challenge (June 4-8, 2001) is part of the Canadian Commuter Challenge and Clean Air Day activities (June 6, 2001). The Commuter Challenge is a week-long, friendly competition among Canadian cities to see which one can cut its air pollution the most by using active and sustainable transportation (such as cycling, walking, public transit and van or carpooling). Eight communities across British Columbia participated in the Commuter Challenge and final results of the challenge were generated on June 13, 2001.

Clean Air Day Community Support: The province worked with many partners (NGOs, local governments and other agencies) to raise awareness about climate change, its implications for British Columbia and co-benefits of actions (e.g. local air quality and human health). Activities include participation in workplace Commuter Challenge, and other community based public events (fairs, school activities, media).

Websites: The Climate Change and Greening Government websites, mentioned previously under education of staff are accessible to the general public and provide indication of actions that can be taken by individuals as well as organizations to reduce greenhouse gas emissions.

Supply-side management

The Government of British Columbia has undertaken several activities to reduce greenhouse gas emissions through supply-side management. These activities (detailed in the Results Achieved section) include ordering hybrid and alternative fuel vehicles to be purchased by the government's vehicle leasing company, and purchasing green power from West Kootenay Power.

Demand-side management

The demand-side management activities (detailed in the Results Achieved section) include the recent renewable energy projects in BC Parks facilities, and the use of online forms for staff members and online information for the public as an alternative to printed documents.

External contacts

The Government of British Columbia is having a significant positive influence over external contacts through its GHG emission reduction activities. This influence includes the demonstration of green technology such as renewable energy in BC Parks and use of hybrid and alternative fuel vehicles. Purchasing and leasing green technology also encourages the manufacturers to continue to provide those technologies.

When the Government of British Columbia ordered 60 Toyota Prius', it was the largest order of hybrid vehicles in Canada. That order is expected to influence other organizations, including other governments, to make similar orders.

Future Targets and Additional Activities

Future targets

In 2005 a new target for 2010 will be determined. This is in keeping with the Government of British Columbia's commitment to support the federal government's House in Order Action Plan.

Ongoing and future initiatives

Future activities specific to buildings and the vehicle fleet are discussed in the Results sections. Additional activities not previously noted are listed below.

The provincial government will be developing an Environmental Management strategy that encompasses decisions regarding operations, infrastructure and suppliers. Proposed activities in 2001/02 include:

- Further auditing of environmental impact. A baseline for waste per employee will be developed.
- Accountability Framework that defines annual targets, reporting system and feedback loop.
- Building employee capacity and knowledge through providing information regarding green buildings, energy efficiency, vehicle use, alternative fuel vehicles, green procurement, employee commuting.
- Establishing an Environmental Management System in one or more ministries.

In addition, activities supporting changes to the vehicle fleet, energy efficiency in government buildings, reducing GHG emissions through procurement activities and supporting alternative commuting will continue to be implemented.

Conclusion

The Government of British Columbia has taken many measures to reduce greenhouse gas emissions from its operations. Further activities have been undertaken that encourage the public, suppliers, and other contacts to reduce their greenhouse gas emissions and provide sound alternatives. However, there is room for improvement, and so the Government of British Columbia remains committed to continuing to improve the range of activities taken to reduce greenhouse gases.

**Table 8: Summary of Greenhouse Gas Emissions From Government Operations
(tonnes CO₂e)**

Year	Source	Carbon Dioxide	Methane	Nitrous Oxide	Total
1990	Fleet	46,222	97	904	47,223
	Buildings	73,050	-	-	73,050
	1990 Total	119,272	97	904	120,273
1999	Fleet	46,116	97	840	47,053
	Buildings	82,052	-	-	82,052
	1999 Total	128,168	97	840	129,105
2000	Fleet	46,238	105	835	47,178
	Buildings	84,647	-	-	84,647
	2000 Total	130,885	105	835	131,825