



1995 Action Plan
for Canada's National Climate Change
Voluntary Challenge and Registry Program

Commitment to the Environment

“The goal of improved environmental quality around the world is one we share with many. The public — and our employees, dealers and suppliers — expect us to be accountable to the environment. It’s part of being in business. It’s the responsible thing to do.

The linkage of environmental responsibility to our business is clear. Quite simply, environmental success is critical to our business success. GM’s environmental initiatives are driven by the GM Environmental Principles that serve as our philosophy with regard to the environment. They build on past successes — and opportunities — and look to the future. They comprehend the vehicles we produce, our manufacturing facilities, our dealers and many of our education initiatives.

Our focus remains to demonstrate our commitment to the environment and sustainable development through all of our actions worldwide.”

*V. Maureen Kempston Darkes
President and General Manager
General Motors of Canada Limited*

General Motors Environmental Principles

As a responsible corporate citizen, General Motors is dedicated to protecting human health, natural resources and the global environment. This dedication reaches further than compliance with the law to encompass the integration of sound environmental practices into our business decisions.

The following environmental principles provide guidance to General Motors personnel worldwide in the conduct of their daily business practices:

- *We are committed to actions to restore and preserve the environment.*
- *We are committed to reducing waste and pollutants, conserving resources and recycling materials at every stage of the product life cycle.*
- *We will continue to participate actively in educating the public regarding environmental conservation.*
- *We will continue to pursue vigorously the development and implementation of technologies for minimizing pollutant emissions.*
- *We will continue to work with all government entities for the development of technically sound and financially responsible environmental laws and regulations*
- *We will continually assess the impact of our plants and products on the environment and the communities in which we live and operate with a goal of continuous improvement*

***GM of Canada 1995 Action Plan
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Company Profile

General Motors of Canada has a workforce of over 35,000, 12 manufacturing plants and parts distribution, sales and service offices throughout Canada. GM Canada's manufacturing operations include:

- *GM Autoplex in Oshawa, Ontario, the largest vehicle manufacturing complex in North America. Two Car Assembly Plants produce mid-size vehicles — Buick Regal coupes and sedans and Chevrolet Lumina sedans and Chevrolet Monte Carlo coupes. The Truck Assembly Centre builds full-size GMC and Chevrolet two-wheel and four-wheel drive, extended cab pickup trucks. Fabricating facilities produce batteries, suspensions, plastic injection moulding, plastic fascia and bumpers, engine and sheet metal stampings.*
- *Car Assembly Centre in Ste. Therese, Quebec, where the Chevrolet Camaro Z28 and Pontiac Firebird Trans Am sports cars are built.*
- *Diesel Division in London, Ontario, where diesel electric locomotives and military light armoured vehicles are built.*
- *Engine, Foundry and Components Plants in St. Catharines, Ontario.*
- *Transmission and Trim Plants in Windsor, Ontario.*

In Ingersoll, Ontario, a joint venture between GM of Canada and Suzuki Motors of Japan —CAMI Automotive – produces Geo Metro, Pontiac Firefly and Suzuki Swift sub-compact coupes and sedans as well as two-wheel and four-wheel drive Geo Tracker, Pontiac Sunrunner and Suzuki Sidekick sport utility vehicles.

Other operations in Canada include a Cold Weather Development Centre at Kapuskasing, Ontario; Canadian Service Parts Operations in Oshawa and Woodstock, Ontario; Vancouver, B.C., Edmonton, Alberta; Winnipeg, Manitoba; Pointe Claire, Quebec; and Moncton, New Brunswick; and Canadian Export Operations.

GM of Canada distributes vehicles in this country through over 900 dealers. Our brands include Chevrolet, Geo, Oldsmobile, Pontiac, Buick, Cadillac, GMC trucks, as well as Saturn and Saab automobiles and Isuzu light trucks. To support these dealerships we have Zone Sales Offices located in Vancouver, Calgary, Winnipeg, Ontario East/West (Toronto), Montreal, and Moncton.

Our Canadian purchasing staff, in conjunction with GM's Corporate purchasing team, procure components and services globally as part of GM's worldwide sourcing strategy. GM Corporation purchases over \$5 billion worth of goods and services annually from Canadian suppliers. Since May 1992, GM has placed over \$5 billion of net new business with Canadian suppliers. In fact, much of the economic recovery which Canada is experiencing is driven by the automotive industry. With over 85% of our production exported, GM of Canada alone represents over 10% of total Canadian manufacturing shipments at \$14 billion annually.

Executive Summary

GM has made the goal of reducing the environmental impacts of its products and processes a top priority. General Motors of Canada recognizes Canada's international commitment to stabilize greenhouse gas emissions at 1990 levels by the year 2000 and to fulfilling its obligations under the Framework Convention on Climate Change. To further these objectives, significant changes in the behavioural and consumption patterns of all Canadians will be necessary. GM of Canada believes that steps toward meeting these objectives will be achieved most efficiently and with the lowest cost to the Canadian economy and society first by voluntary approaches and then secondly by broad-based market driven measures which encourage a gradual shift in behavioural patterns and economic activities to less greenhouse gas emitting pursuits. Command and control measures should be undertaken only where there is overwhelming evidence that they are required and where voluntary approaches and economic instruments have been attempted but have failed to yield the necessary reductions in greenhouse gas emissions.

We strongly support the voluntary approach and believe that it must be the cornerstone of Canada's response to the climate change issue. We view the Voluntary Challenge and Registry (VCR) Program as a key element of Canada's Action Program on Climate Change. Within this Action Plan, General Motors of Canada highlights our progress in reducing greenhouse gas emissions from our facilities and our products. This Action Plan shares a number of energy efficiency and conservation initiatives we have undertaken to help reduce emissions from our operations. Significant progress has been achieved in our facilities to date.

Since 1990:

- Total energy consumption has been reduced by 17%
- Energy consumption per vehicle produced has been reduced by 16.5%
- On site generation of CO₂ has been reduced by 25%
- Energy efficiency initiatives have saved 172 million KWH & avoided 86,000 tons of CO₂ emissions

Tremendous progress has also been made toward reducing the impact of the automobile on the environment and improving fuel economy. GM's average vehicle fuel economy has more than doubled over the past two decades. However, fuel economy improvements have been offset by a change in individual behavioural patterns including the selection of vehicles and their patterns of use. Consumers have tended to drive more because with improved fuel efficiency of the vehicle, the cost per kilometre has been reduced. While GM of Canada remains committed to continued improvements in vehicle fuel efficiency and in developing alternative fuel vehicles to help reduce greenhouse gas emissions from automobiles, the issue of increased vehicle kilometres traveled cannot be solved by the automakers.

The automotive industry has made great strides in reducing greenhouse gas emissions from our products and our facilities and we are committed to seeking further reductions. The voluntary approach will encourage us to explore new and innovative technologies and assist in bringing them to our operations and to the customer in the most cost effective manner. We, along with our colleagues at the Motor Vehicle Manufacturers' Association have actively participated in the development of the National Action Program on Climate Change through our involvement in the Measures Working Group and Climate Change Task Group. GM of Canada is also an active member of the Canadian Industry Program for Energy Conservation (CIPEC) and the NRCan Ministers Advisory Council on Industrial Energy Efficiency. Our involvement with the original Energy, Mines and Resources Energy Innovator program dates back to 1992. We have also been a key participant in the Transportation and Climate Change Collaborative co-sponsored by the Ontario Roundtable on the Environment and Economy and the National Round Table on the Environment and the Economy.

Introduction

This action plan describes our progress to date, highlights a number of success stories and outlines our strategy for further improvements in energy efficiency and reductions of greenhouse gas emissions.

The report describes:

- Energy Use in Our Facilities
 - Energy Efficiency Initiatives
 - Success Stories and Case Study
 - Strategy for Further Improvement in Energy Efficiency in Our Facilities

- Energy Use in Our Vehicles

Energy Use in Our Facilities

We have already done much to improve energy efficiency and reduce greenhouse gas emissions from our manufacturing, warehousing and office facilities. Energy programs date back many years at GM and are driven by both environmental concerns and energy costs. Performance statistics are tracked on a monthly basis and energy usage data is reported internally to the GM Environmental and Energy Staff and externally to Stats Canada and to CIPEC. We are working with Stats Canada and CIPEC to enhance current reporting mechanisms including the Industrial Consumers of Energy (ICE) reporting form in order to avoid duplication and administrative burden.

Energy consumption is a function of facility size, weather conditions, and production volume and mix. Rising production levels in response to favourable economic conditions will result in an increase in total energy usage with a large decrease in energy usage per unit of production. Energy consumption for GM of Canada facilities is highlighted in *Table 1*.

Table 1

Energy Consumption for GM of Canada (Units in Billion BTUs)

	1990	1991	1992	1993	1994	'90 – '94 Reduction
Natural Gas	9,673	9,142	9,243	9,711	8,951	7.5%
Electricity	5,702	5,445	4,787	5,066	4,814	15.6%
Coal	853	841	594	604	710	16.8%
Coke	1,601	1,342	1,428	1,258	408	74.5%
Fuel Oil	107	161	100	37	71	33.6%
Total	17,936	16,931	16,152	16,676	14,954	16.6%

As highlighted on **Chart 1** vehicle assembly plant production levels have remained fairly level over the period 1990 to 1994. However, a significant increase is anticipated in 1995 with vehicle production approaching the one million unit level as a result of most of our assembly facilities operating at a steady state. **Chart 2** highlights total consumption by various types of energy for GM of Canada for the time period 1990 through 1995. Total energy consumption has been reduced by 17% from 1990 to 1994. Total energy consumption per vehicle produced has been reduced by 16.5% from 1990 to 1994 (See **Chart 3**). The distribution pattern for the types of energy consumed has also changed significantly over the same timeframe. As highlighted in **Chart 4**, the use of coke has been reduced significantly from 1990 to 1994 with the phase down of our St. Catharines Foundry. It is anticipated that the use of coke will virtually be eliminated by the end of 1995 when the St. Catharines Foundry is closed. CO₂ on site generation at GM of Canada operations has been reduced by 25% since 1990 (See **Chart 5**).

Chart 1

Vehicle Assembly Plant Production

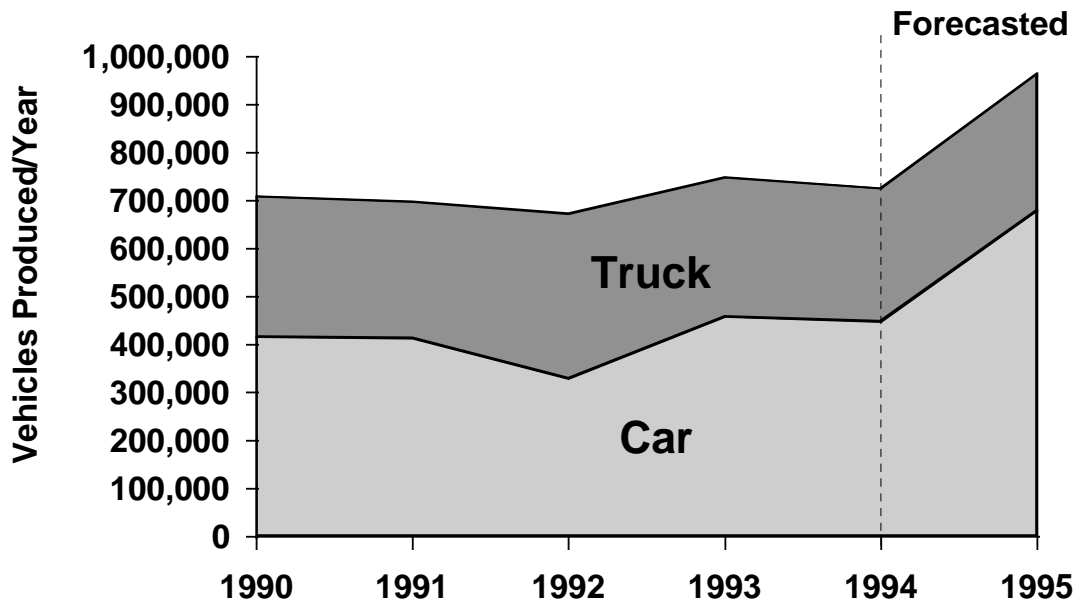


Chart 2

Energy Consumption Mix

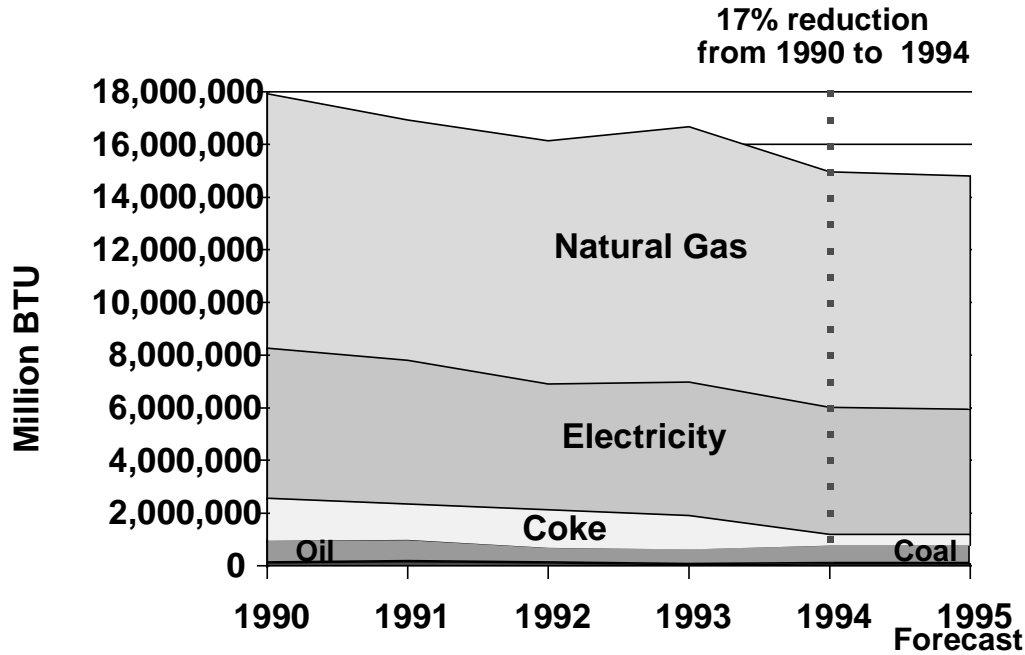


Chart 3

Energy Consumption Per Vehicle Produced

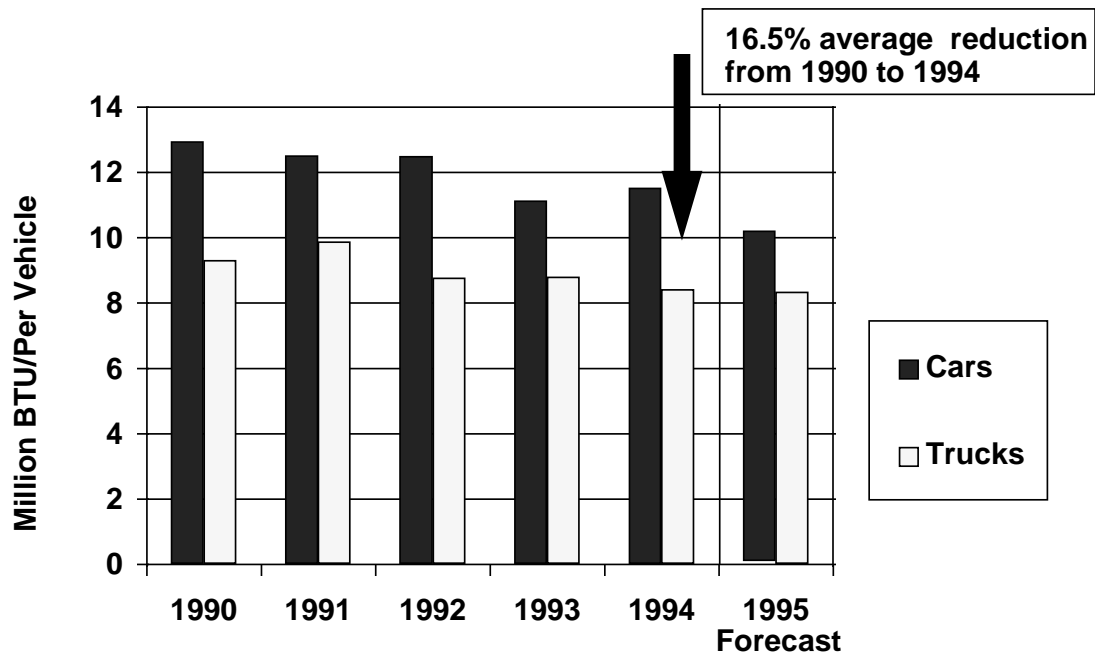


Chart 4

Energy Consumption Distribution

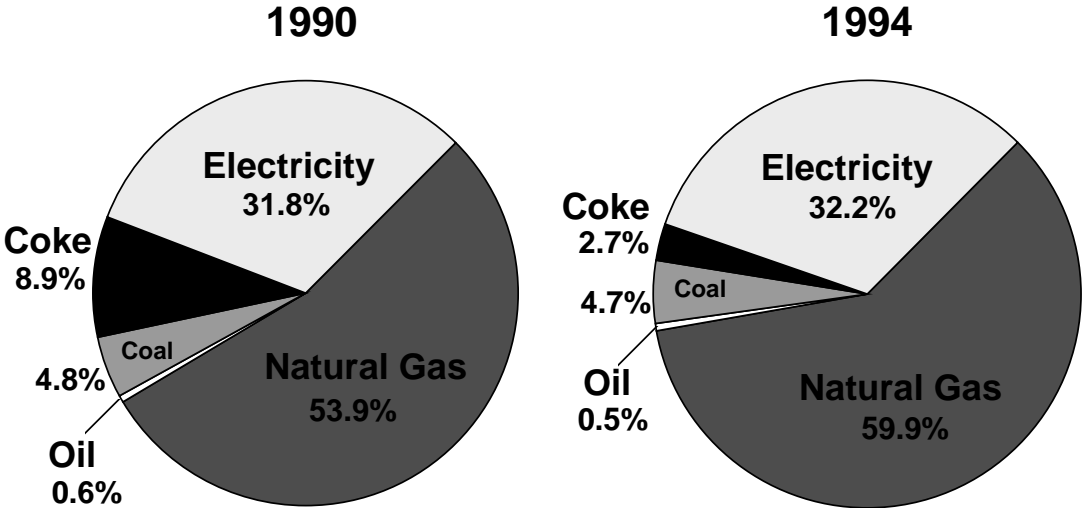
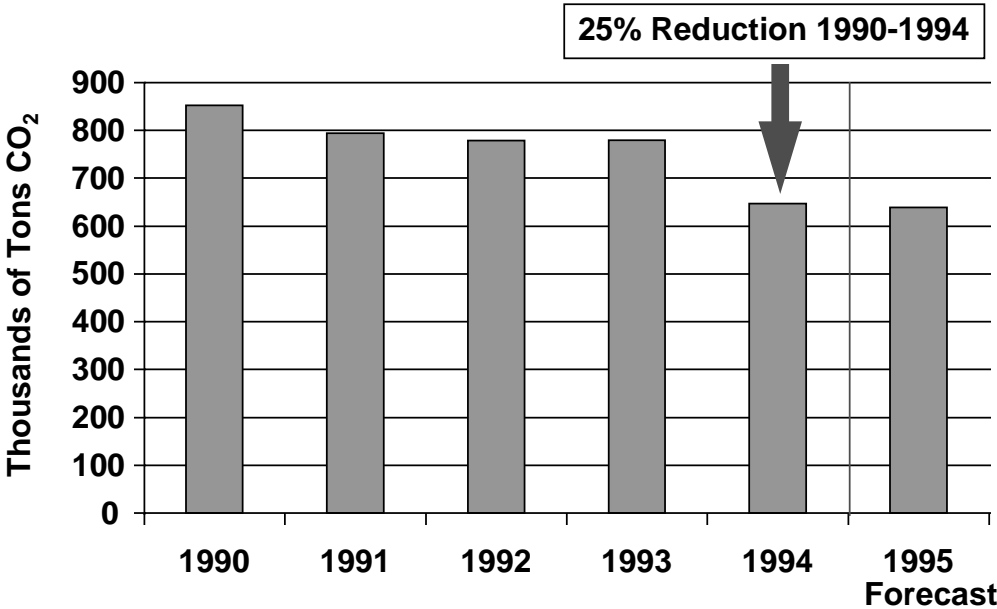


Chart 5

CO₂ On Site Generation



Energy Efficiency Initiatives

Energy efficiency and conservation has been imbedded in our engineering specifications and practices since the early 1970's. Since 1990, we have significantly reduced our non-production load by minimizing energy use equipment during non-production periods (i.e., between shifts, weekends, holidays, and vacation shut down) at our manufacturing facilities and we have implemented a number of energy efficiency projects in conjunction with NRCan's Energy Innovators Program. These projects include process improvement technologies, energy management systems, peak load shifting, variable speed drives, high efficiency lighting and motors, solar walls, new paint technologies and thermal ice storage systems. **Table 2** provides a summary of energy efficiency projects.

Table 2

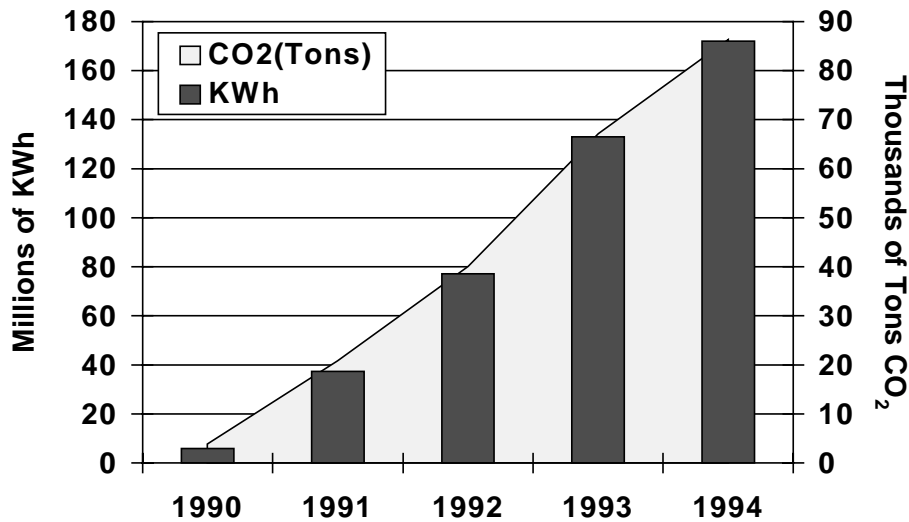
Summary of Energy Efficiency Projects

Project Year	KW Saved
1990 Projects	675
1991 Projects	1,976
1992 Projects	1,476
1993 Projects	2,070
1994 Projects	1,540
Total	7,728

Non-production load at the Oshawa Autoplex facilities has been reduced by 5.5 megawatt on average per year. Between 1990 and 1994 our efforts have eliminated 7.7 megawatt of peak demand (enough power to supply 4,000 homes) result in a savings of over 172 million kilowatt hours and avoiding more than 86 thousand tons of CO₂ emissions (See **Chart 6**).

Chart 6

CO₂ Emissions Avoided and KWh Saved (Cumulative)



Special Projects and Ongoing Energy Efficiency Efforts

Employee Communications and Awareness

To promote energy efficiency and conservation among employees, GM of Canada has introduced and sponsored a number of initiatives including “Energy Efficiency and Conservation Week” to improve awareness of the need to conserve energy. An annual “Energy Efficiency Conference” brings together GM of Canada energy coordinators to exchange ideas. The GM of Canada Annual “Energy Efficiency Championship” provides an opportunity for plants and operations to demonstrate what they have done in this vital area. GM of Canada’s efforts are well recognized within the larger GM family. Over the past three years GM of Canada has received first place awards at the “GM Corporate Energy Efficiency Championship” in the categories of employee involvement in energy efficiency and conservation, utility monitoring systems, lighting, compressed gas and energy management systems.

We use a number of communication tools to raise awareness and promote energy efficiency with our employees. They include technology transfer seminars, energy newsletters, articles in local plant publications and an annual letter from the President to all employees stressing the importance of conserving energy at work, at home and while driving their vehicle.

Success Stories

- A particularly innovative project involved a new paint spray booth fan control system at the Oshawa Truck Assembly Centre. The control system cut the power requirement of the booth fans in half, saving 1.2 MW.
- Oshawa Battery Plant projects included heating, ventilation and air conditioning performance optimization for penthouses, battery charge tables control automation and fuel substitution for lead melting pots. The three projects combined saved 778 KW.
- Concrete slab heating controls for receiving docks at our Oshawa Autoplex manufacturing facilities resulted in saving 558 KW.
- A central air supply control system upgrade at the Oshawa Car Assembly Plants saved 3.6 million KWh.
- A centrally controlled energy management system for process and facility was recently installed as an integral part of the retooling of the Windsor Transmission Plant. The system saved 20 Million KWh.
- In our Oshawa Wastewater Treatment Plant and Battery Plant, GM of Canada employs a patented solar panel system – SOLARWALL – to pre-heat fresh air for distribution throughout the building. The system saves energy by utilizing the sun while improving the indoor air quality for employees. By mounting the solar panels onto the south wall, heat losses from the building through the wall are picked up by the air stream and returned to the building. Additional solar radiation is available when snow is on the ground as the sunlight is reflected off the snow onto the panels.
- The energy-efficient air conditioning system in use at GM of Canada's Canadian Headquarters in Oshawa, Ontario is an innovative energy management technology for providing comfort in buildings. The technology allows utility costs to be reduced by shifting part of the electrical load to off-peak hours. Thermal ice cooling storage is provided by using conventional ice-making equipment to charge the storage medium during night-time hours. During on-peak periods, indoor cooling is provided by circulating chilled liquid from the thermal storage medium to cool the air.
- Lighting retrofits resulted in large reductions in energy use. In the Windsor Trim Plant, for instance, a conversion to metal halide lamps cut power consumption by 1.2 MW per year. A similar retrofit in the Oshawa chassis plant resulted in a 0.5 MW reduction in energy consumption.

Case Study

National Parts Distribution Centre Lighting Retrofit

Billed as one of the largest energy conservation lighting conversion projects of its kind in Ontario, to date, it was carried out with no interruption to day-to-day business, took a team of 14 electricians three months to complete – but as far as everyone at GM of Canada’s National Parts Distribution Centre in Woodstock is concerned, it was well worth the wait. NPDC’s warehouse and parking lot areas were converted to High Pressure Sodium (HPS) lighting, replacing the previous fluorescent system. The one million square foot building has a ceiling height of 30 ft. and much of the area contains 22 ft. high stocking shelves with 6 to 15 ft. wide aisles. Completed last December, the new lights resulted in lighting levels in the warehouse being doubled, which contributes to both quality in the workplace and efficiency. In the parking lot areas it resulted in lighting levels being increased dramatically, which represents a tremendous security feature and benefit. Annual savings to GM are expected to be over \$500,000 and as an added benefit of these new lights, there will be a reduction in the heat emitted, which means a lot in the middle of July in a non-air-conditioned warehouse. Power usage in the entire building was reduced by more than 50 per cent and 8,546 fluorescent fixtures were replaced by 2,194 high efficiency HPS fixtures. We also anticipate a minimum reduction in maintenance costs of \$200,000 a year. As well as there being fewer lamps to change, the longer lamp life with superb lumen maintenance (84% at 30,000 hours and above with super sodium as opposed to 70% at 24,000 hours with standard HPS) means less frequent changes. As a result of the project, 10.5 million kilowatt hours are saved per year, meaning 5.4 million kilograms of CO₂ emissions are avoided annually.

Community Action

There are a number of other voluntary actions we have taken to reduce greenhouse gas emissions. Situated on the north shore of Lake Ontario, behind GM of Canada’s headquarters in Oshawa, Ontario – a building which was designed specifically to respect and preserve its natural surroundings – is the McLaughlin Bay Wildlife Reserve, a positive example of what business can do for the environment. Open to the public, the 100-acre reserve is being developed cooperatively by representatives of GM of Canada and area environmentalists, with the support of local government and a great deal of enthusiasm from citizens, including employees, company retirees, youth groups, service clubs and schools, among many others. They have joined in clean-up projects and have helped develop over three miles of walking trails, as well as beginning a long-term reforestation program. To date over 35,000 trees have been planted on the reserve with the help of a variety of partners.

GM of Canada has also participated in and supported community action programs which contribute to energy savings and environmental improvements. For example, the company is a participant in the Oshawa’s Green Conservation Action Program (Green Cap) which is sponsored under the Ontario Ministry of Environment and Energy’s Green Communities initiative.

Strategy for Further Improvement in Energy Efficiency in Our Facilities

Elements of our energy efficiency improvement strategy will include continued operational improvements, investment in more energy efficient equipment and process technology where it is economically feasible, employee awareness programs, and the designation of an Energy Efficiency liaison with the Industrial Energy Innovator initiative. We will continue to provide timely information and feedback to energy end users, stress the need for continuous improvement, monitor and provide internal targets for reduction. We are challenging our employees to meet or exceed a target of 1% reduction in energy consumption per year for the period 1990 to the year 2000.

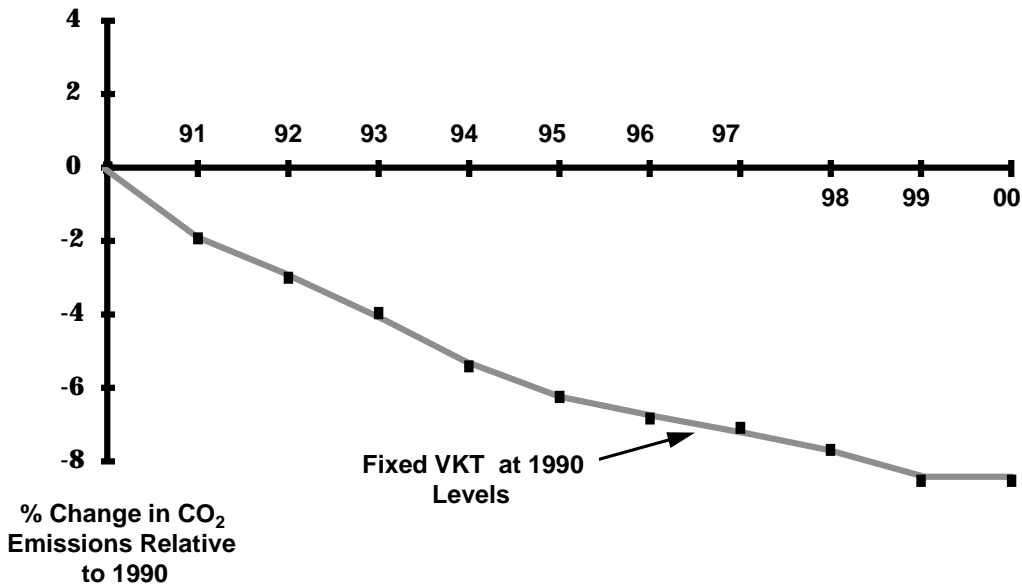
Energy Use in Our Vehicles

Tremendous progress has been made toward reducing the impact of the automobile on the environment and improving fuel economy. GM has made significant improvements in vehicle fuel economy over the past two decades, more than doubling the fuel economy of our cars across the entire fleet, primarily by reducing weight and size of the vehicles significantly as well as with aerodynamics and powertrain improvements. GM of Canada's corporate average fuel consumption (CAFC) rating for passenger cars has improved by 11.6% over the 1983-1994 timeframe. This is the greatest improvement of any of the major automakers in Canada. Today's average car is 1000 pounds lighter than a 1975 model. Our joint venture facility, CAMI Automotive, in Ingersoll, Ontario produces the Geo Metro/Pontiac Firefly sub-compact passenger cars. When it comes to fuel consumption, the 1996 Geo Metro is the most economical vehicle sold in North America in 1995. The Metro consumes an estimated 5.4 litres/100 km (52 miles per imperial gallon) in the city and 4.3 litres/100 km (66 miles per imperial gallon) on the highway – based on Transport Canada approved testing methods, equipped with the 1.0 L engine.

We are committed to continually improving the fuel economy of the vehicles we manufacture. In fact, if the technology of the vehicle alone were considered, we are making significant progress through natural fleet turnover where older less fuel efficient vehicles are replaced with newer more fuel efficient cars. In fact, if vehicle kilometres travelled could be frozen at 1990 levels, a net CO₂ reduction of 8% from 1990 by 2000 would result. The societal challenge then is to reduce vehicle kilometres travelled by providing transit alternatives, educating the public and other approaches. (See *Chart 7*).

Chart 7

% Change in CO₂ Emissions 1990 Through 2000



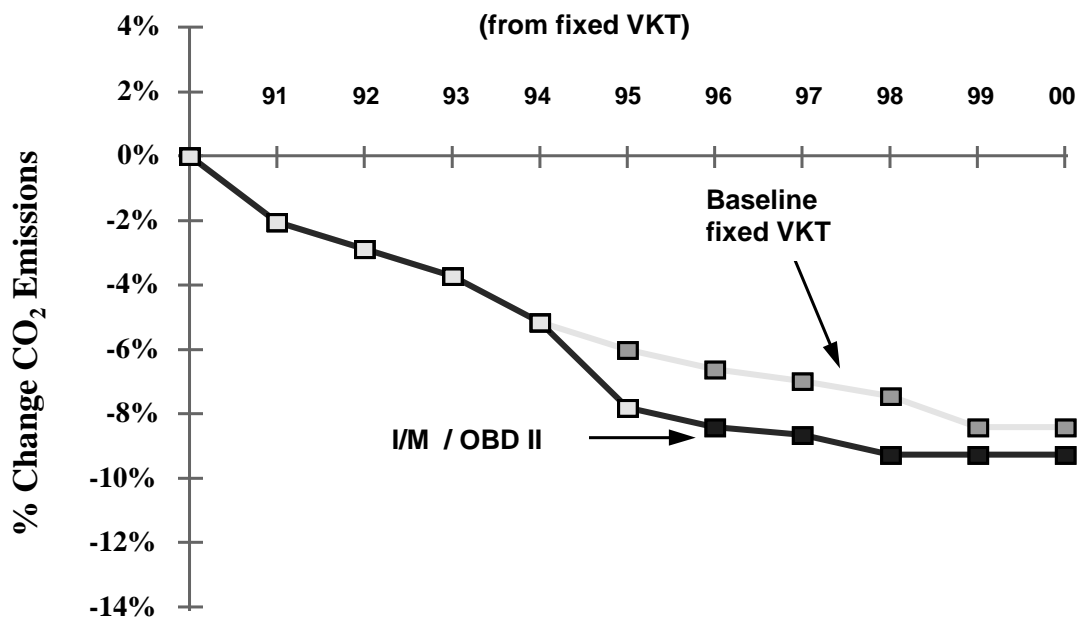
Reduction Options and Their Impact

Excellent opportunities exist for further reductions in greenhouse gas emissions from the auto sector through government implementation of vehicle inspection and maintenance programs across Canada, and the introduction by auto manufacturers of the next generation of On-Board Diagnostic (OBD-II) systems (See *Chart 8*).

The first OBD systems (OBD I) monitored a limited number emission related systems for *failure*. OBD II takes that a step further by looking for *deterioration* as it checks more emissions-related subsystems and provides more detailed diagnostic information for technicians. When the vehicles computer detects a fault that might be related to emissions, the system creates a failure record of the conditions present at the time the system detected something wrong. The vehicle's computer stores the trouble codes with specific information that technicians can tap into to diagnose a problem when the vehicle is serviced. OBD II takes diagnostics to a much higher level of sensitivity and sophistication and in doing so, ensure improved fuel economy. This technology is now in place on every 1996 GM car and light duty gasoline-powered truck. Inspection and Maintenance Programs can identify which older vehicles (without OBD-II systems) are not functioning as designed. The combined results of OBD-II on new vehicles and Inspection and Maintenance programs for older vehicles can result in significant reductions in CO₂ emissions from motor vehicles.

Chart 8

Impact of Inspection & Maintenance & OBD II



GM is investing billions of dollars in research to improve fuel efficiency and reduce tailpipe emissions further, develop alternative fuel technologies and seek new materials and power train technologies. An excellent example of this research is the 1,400 pound, 100 miles per U.S. gallon Ultralite Concept car unveiled in 1992 to illustrate technologies appropriate for "ultra-fuel efficiency". The Ultralite is however, still a concept vehicle and carries the penalty of a very high cost to manufacture. While the 100-mpg automobile is not "just around the corner", we are committed to moving in this direction and implementing new technologies into future product programs as they become cost effective. Further extensive research, such as that being carried out by the Magnesium Institute in Montreal, will be necessary to perfect the development of new light weight materials.

Vortec Engines

A new series of engines, called Vortec, are part of an overall upgrade of General Motors' truck engines for the 1996 model year. The Vortec 4.3 litre V-6, introduced in the 1992 model year, was the lone Vortec until 1996. For the 1996 model year, another V-6 and three V-8 engines join the Vortec engine family.

Improvements to the engines include sequential fuel injection, a simplified version of multi-port fuel injection; higher compression ratios; 100,000-mile spark plugs and wires; advanced electronic controls; mass airflow meters; and a silicon-molybdenum alloy exhaust manifold for high-temperature endurance. This means that for 1996 the refashioned engines will breathe better, deliver more power, require less maintenance and provide better fuel economy while emitting fewer pollutants. *Chart 9* shows comparisons between several 1996 Vortec engines and engines of equivalent horsepower for 1995. Fuel economy improvement for the new series of Vortec engines is anticipated to be in the 15-20% range.

Chevrolet 1/2 Ton (C1500) Pickup 2WD

<u>1995</u>		<u>1996</u>		<u>DIFFERENCES</u>
5.7L (L05) Engine 200 HP		VORTEC 4.3L (L35) Engine 200 HP		1.4 Litre Smaller Displacement Identical Horsepower Improved by 2.4L/100km Improved by 1.5L/100km Improved by 2L/100km
<u>L/100km</u>	17.0 City (17 MPG)	<u>L/100km</u>	14.6 City (19 MPG)	
<i>E4 Trans</i>	12.1 Hwy (23 MPG) 14.8 Combined (19 MPG)	<i>E4 Trans</i>	10.6 Hwy (27 MPG) 12.8 (22 MPG)	

5.7L (L05) Engine 200 HP		4.3L (L35) Engine 200 HP		1.4 Litre Identical Improved by 2.7L/100km Improved by 2.3L/100km Improved by 2.5L/100km
<u>L/100km</u>	17.1 City (17 MPG)	<u>L/100km</u>	14.4 City (20 MPG)	
<i>M5 Trans</i>	12.0 Hwy (24 MPG) 14.8 Combined (19 MPG)	<i>M5 Trans</i>	9.7 Hwy (29 MPG) 12.3 Combined (23 MPG)	

Alternative Fuel Vehicles

Beginning with the 1997 model year, all General Motors four cylinder Chevrolet S-Series and GMC Sonoma compact pickup trucks sold in Canada and the U.S. will be built as flexible alternative fuel vehicles, allowing them to be operated on gasoline or a combination of gasoline and ethanol (up to 85% ethanol). This is the largest single-model alternative fuel vehicle production program by any auto manufacturer in the world and its introduction represents potential major benefits for both the environment and the consumer. General Motors has been developing alternative fuel technology for more than 25 years as an integral part of a long-term strategy to improve air quality and fuel economy and to develop alternate modes of transportation. Our long-term strategy also includes the ongoing development of gaseous, alcohol, hybrid and electric vehicles. GM of Canada has played a critical role in developing alternative fuel technology. Our product engineering staff is the GM Corporate Centre of Expertise for alternative fuel vehicle design and development.

Cleaner, More Fuel Efficient Locomotive Engines

Since 1990 in Ontario and 1992 in California, rail commuters have been pulled along by the cleanest and quietest diesel-powered freight or passenger locomotives in North America – products of GM of Canada’s London Diesel Division. The Ontario Government’s GO Transit system and Southern California Regional Rail Authority’s Metrolink service have attracted thousand of motorists to commuter rail daily. They recorded a significant improvement in fuel economy over previous models and noise emission was also reduced, allowing for quieter service along routes close to residential areas.

Elimination of CFC’s

Consistent with the international efforts underway to curb the use of ozone-depleting chemicals, GM phased out all chlorofluorocarbons (CFCs) in new vehicle air conditioners at the beginning of the 1995 model year by going to a non-ozone depleting refrigerant (R134-a). GM of Canada also led the way in the automotive industry when, at the beginning of the 1990 model year, it began installing specialized equipment in all of its dealerships for use in the recovery of CFC-12 during servicing of auto air conditioners. Instead of venting it to the atmosphere, the recovery equipment’s “continuous loop process” permits the service technicians to capture, purify and reuse refrigerant. Similar equipment was installed in GM of Canada assembly plants and other facilities which service vehicle air conditioners. All parts-degreasing operations have been converted to non-CFC cleaners and GM also continues its efforts to find substitute chemicals and processes to reduce or eliminate ozone-depleting chemicals from other manufacturing and component processes.

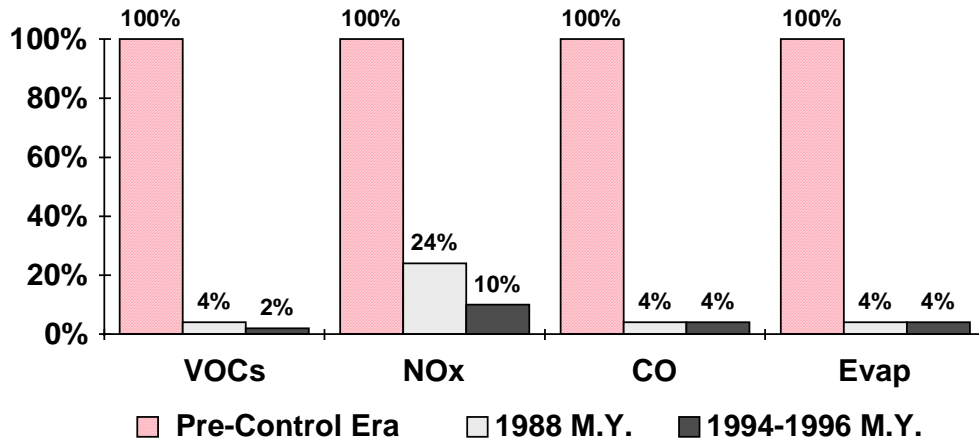
Other Initiatives

Urban Smog

We have also made significant advances in recent years in reducing tailpipe emissions from today's cars and light duty trucks. On 1996 GM vehicles, hydrocarbons (HC) are reduced 98%, carbon monoxide (CO) by 96% and oxides of nitrogen (NOx) are reduced 90% from uncontrolled levels (See *Chart 10*). The implementation of OBD-II technology provide further emission reductions and automakers are committed to continuing to make further reductions in the remaining small proportion of its smog-causing tailpipe emissions from automobiles.

Emissions from Motor Vehicles Have Been Substantially Reduced

New Passenger Car Emissions



For further information regarding the GM of Canada Action Plan for Canada's Climate Change Voluntary Challenge and Registry (VCR) Program, or for more information regarding the company's environmental policies, please contact:

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