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# Annual Report 2002

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**CANADA'S CLIMATE CHANGE**  
voluntary challenge & registry inc.

## Readers' Comments and Requests

We welcome your comments, questions and requests. Please visit our web site at [www.vcr-mvr.ca](http://www.vcr-mvr.ca) or contact us at:

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Other publications available from VCR Inc. include:

- VCR Inc. Annual Report 1998
- VCR Inc. Annual Report 1999
- VCR Inc. Annual Report 2000
- VCR Inc. Annual Report 2001
- VCR Inc. Annual Report 2002
- VCR Inc. Registration Guide 1999
- VCR Inc. Guide to Entity & Facility-Based Reporting
- Champion News (bi-monthly)

*Toutes publications du bureau de MVR Inc. sont disponibles en français.*

## Mission

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*To provide, through leadership, the means for promoting, assessing and recognizing the effectiveness of the voluntary approach in addressing climate change.*

## Mandates

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To recruit broad participation from all sectors of the Canadian economy with the support of the Council of Champions and in conjunction with sector organizations.

To record and document participation, action plans, best practices and achievements.

To analyze actions and achievements and consider their potential for further progress, and to provide the related support to participants as their involvement deepens.

To recognize, publicize and promote participants making significant progress towards Canada's reduction objectives, with the support of the Technical Advisory Committee.

To contribute to the development and implementation of standards and procedures for measuring the impact of reduction activities.

To provide a national registry for initiatives which lead to early voluntary action to reduce GHG emissions.

To prepare progress and annual reports, and identify issues for consideration in the evolution of VCR Inc.

## Retrospective 2002

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In a year that culminated in the ratification of the Kyoto Accord, it is significant to report that growth in voluntary participation has continued unabated. The success indicators we laid out in our 2001 - 2003 Strategic Plan two years ago and in the associated 2002 Business Plan have been achieved, and in many cases surpassed.

You are one of 931 entities to have submitted 2179 documents for posting in the Challenge Registry. By doing so, you have provided a wealth of information and documented best practice in the measurement, reporting and ultimate mitigation of Greenhouse Gas emissions. Even more impressive is the fact that 233 of you successfully reached Champion-level reporting status, 111 Gold, 78 Silver, and 44 Bronze, a full year ahead of plan. This is, in large measure, a result of the accomplishments of the 59 organizations and programs linked to the registry.

Use of our web site has expanded at a phenomenal rate, 170% per year over the past two years. Our most recent annual survey reveals that 93% of registry participants actively visit our web site and consider it to be equal to Champion News as a source of information about our activities. That's up from 65% two years ago and confirms our belief in this inexpensive yet comprehensive means of communication.

Our Champions in Action initiative members have provided Peer Reviews for the Action Plans of four organizations. One of them, Dupont, has signed a formal Understanding with VCR and has been awarded Champion in Action status by our Board.

An inherent objective over the life of VCR has been to build the capacity of our data warehouse and web site in a way that would support more comprehensive registry elements. The Baseline Protection Initiative and Credit Registries are prime examples of this planning process. Late in 2002 we posted our new Guide to Entity and Facility-Based Reporting on our web site. It is an electronic document that will be revised regularly throughout the year as new standards are established. It will provide continuous support for the capacity of our registrants to respond to increasing demands for detailed standardized GHG emissions information. As a result, together we will be better prepared to face the reporting challenges of a post-Kyoto ratification environment with diligence, efficiency, and uniformity.

Over 2003 we will be developing our 2004 - 2007 Strategic Plan by analyzing and clarifying our future role. The old adage "may you live in interesting times" has taken on a whole new meaning! Thank you for your support and interest during 2002. We look forward to working with you in the coming year.



James Burpee  
Chair, VCR Inc. Board of Directors



Robert A. Flemington, P. Eng.  
President, VCR Inc.

## Table of Contents

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Chapter One: Analysis of Sector Participation within Canada's GHG Profile .....	8
1.1 Context .....	8
Chart 1 Sources of GHG Emissions in 2000 .....	8
Chart 2 Canadian GDP and GHG Emissions .....	9
Chart 3 Canada's GHG Emissions 2000 .....	9
Table 1 National 2000 GHG Emissions Inventory Breakdown .....	10
1.2 METHODOLOGIES .....	11
1.3 Electricity Generation .....	13
Chart 4 Electric Utilities Historic Actual Thermal Generation .....	13
1.4 Fossil Fuels .....	13
1.4.1 Upstream Oil and Gas .....	13
Chart 5 Upstream Oil and Gas Emissions Intensity Trends .....	14
1.4.2 Downstream Oil and Gas .....	14
Chart 6 Energy and Emissions Intensity Index Trends for CPPI Member Refineries .....	14
1.4.3 Oil Sands and Heavy Oil Upgrading .....	15
Chart 7 Emissions Intensity Trends in the Oil Sands and Heavy Oil Upgrading Sector .....	15
1.4.4 Energy Pipelines .....	16
Chart 8 Energy Pipeline GHG Emissions .....	16
1.4.5 Natural Gas Distribution .....	16
1.4.6 Coal Mining .....	16
Chart 9 Primary Canadian Coal Industry GHG Emissions Trends .....	17
1.5 Manufacturing and Mining .....	17
1.5.1 Cement .....	17
Chart 10 Cement Manufacturing Emissions Intensity Trend .....	18
1.5.2 Chemicals .....	18
Chart 11 Global Warming Potential vs. Product Output from CCPA Member Operations .....	18
1.5.3 Metal Mining .....	19
Chart 12 Metal Mining Direct Emissions Intensity Trends .....	19
1.5.4 Nonferrous Metal Smelting and Refining .....	19
Chart 13 Nonferrous Metal Smelting and Refining .....	20
1.5.5 Primary Aluminium .....	20
Chart 14 Primary Aluminium Emissions Trends .....	20

1.5.6	Pulp and Paper .....	21
	Chart 15 Pulp and Paper Direct Emissions and Direct Emissions Intensity Trends .....	21
1.5.7	Steel .....	21
	Chart 16 Steel Industry Energy Intensity Trends .....	22
1.5.8	Textiles .....	22
	Chart 17 Textiles Industry Direct Emissions Intensity and Energy Intensity Trends .....	22
1.5.9	Transportation Manufacturing .....	23
	Chart 18 Canadian Auto Manufacturing Trends .....	23
1.6	Commercial Transportation .....	23
1.6.1	Airlines .....	23
	Chart 19 Airlines Emissions Intensity Trends .....	24
1.6.2	Railways .....	24
	Chart 20 Railway Emissions Intensity Trends .....	25
1.6.3	Commercial Trucking .....	25
	Chart 21 Commercial Trucking Emissions Intensity Trends .....	25
1.7	Institutional and Commercial .....	26
	Chart 22 Trends in Institutional and Commercial Buildings .....	26
1.7.1	Federal Government .....	27
1.7.2	Provincial and Municipal Governments .....	27
1.7.2.1	Provincial Governments .....	27
1.7.2.2	Municipal Governments .....	27
1.7.3	Education .....	27
	Chart 23 Emissions Trends in Schools .....	28
1.7.3.1	Community Colleges .....	28
1.7.3.2	School Boards .....	28
1.7.3.3	Universities .....	28
1.7.4	Health Services .....	28
	Chart 24 Emissions Intensity Trends in Health Services .....	29
1.7.5	Accommodation and Food Services .....	29
	Chart 25 Emissions Intensity Trends in Accommodation & Food Services .....	29
1.7.6	Retail Industries .....	30
	Chart 26 Emissions Intensity Trends in Retail .....	30
1.7.7	Offices .....	30
	Chart 27 Emissions Intensity Trends in Offices .....	31
1.8	Households .....	31
	Chart 28 Household Greenhouse Gas Emissions .....	32
1.9	Agriculture .....	32
	Chart 29 Energy Emissions Trends in Canadian Agriculture .....	33

Chapter two: <i>Challenge Registry</i> .....	35
Chart 30 Number of Registered Organizations 1997 - 2002 .....	35
Chart 31 VCR Inc. Champion level Reporters 1999 - 2002 .....	36
2.1 Linkages and Partnerships .....	36
Chart 32 Percentage of Sector GHG Emissions Represented at VCR Inc. (2002) .....	36
Table 2 Linkages and Partnerships .....	37
Table 3 Number of Linkages and Partnerships .....	37
2.2 Champions In Action (CIA) .....	38
2.3 Engagement Strategies for Small to Medium Sized Enterprises (SMEs) .....	38
2.3.1 Environmental Supply Chain Management (ESCM) .....	38
2.3.2 Chamber Challenge .....	39
2.3.3 Individual Action Registry .....	39
 Chapter three: <i>Canadian GHG Reduction Registry</i> .....	 41
3.1 Baseline Protection Initiative .....	41
3.2 Greenhouse Gas Emission Reduction Trading (GERT) Pilot .....	41
3.3 Activities Implemented Jointly (AIJ) .....	41
3.4 Technology Early Action Measures (TEAM) .....	41
3.5 Validated Registered Emissions Reductions (RERs) .....	42
 Chapter four: <i>Credit Registry</i> .....	 44
 Chapter five: <i>Leadership Awards</i> .....	 46
5.1 Leadership Award Winners .....	47
 Chapter six: <i>Communications</i> .....	 52
6.1 Website .....	52
Chart 33 Monthly Hits and User Sessions .....	52
6.2 Guide to Entity and Facility Based Reporting .....	52
Chart 34 Total Number of Registration Guide Downloads .....	53
6.3 Champion News .....	53
6.4 Annual Report .....	53
6.5 Progress Reports .....	53
6.6 VCR Inc. 2002 Stakeholder Survey .....	53
Table 4 Satisfaction Quotient of Executive Contacts .....	55
Table 5 Satisfaction Quotient of Technical Contacts .....	55

Chapter seven: VCR Inc. Structure .....	57
Chart 35 VCR Inc. Organizational Structure .....	58
7.1 2002 Council of Champions .....	58
7.2 2002 Board of Directors (as at December 31, 2002) .....	59
7.3 Members of VCR Inc.'s Technical Advisory Committee (TAC) .....	60
7.4 2002 Funding Partners .....	61
7.5 List of Registrants by Level of Reporting (as at December 31, 2002) .....	61
7.5.1 Champion in Action .....	61
7.5.2 Gold .....	61
7.5.3 Silver .....	62
7.5.4 Bronze .....	62
7.5.5 Other Registrants .....	63
 <i>Appendices: List of Acronyms, Greenhouse Gases and Measurement Units .....</i>	 <i>69</i>
Table 6 List of Acronyms .....	69
Table 7 Greenhouse Gases .....	70
Table 8 Measurement Units .....	70



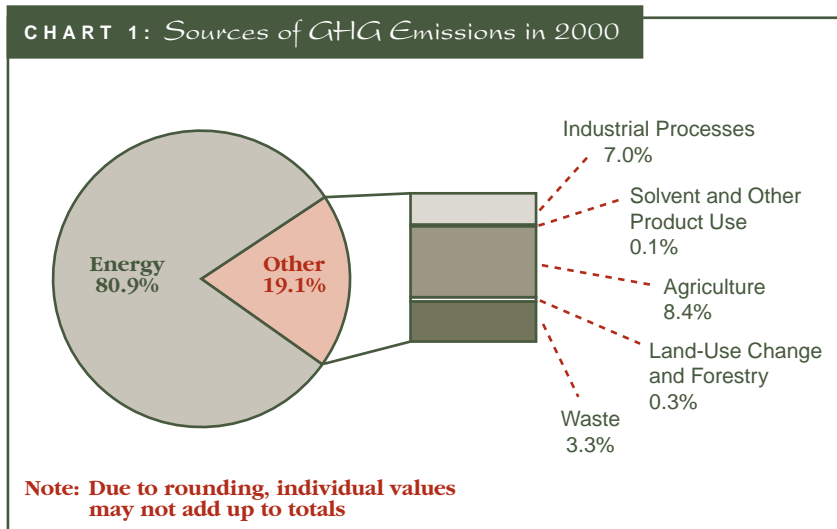


**Strong Sector Participation**

# Analysis of Sector Participation within Canada's GHG Profile

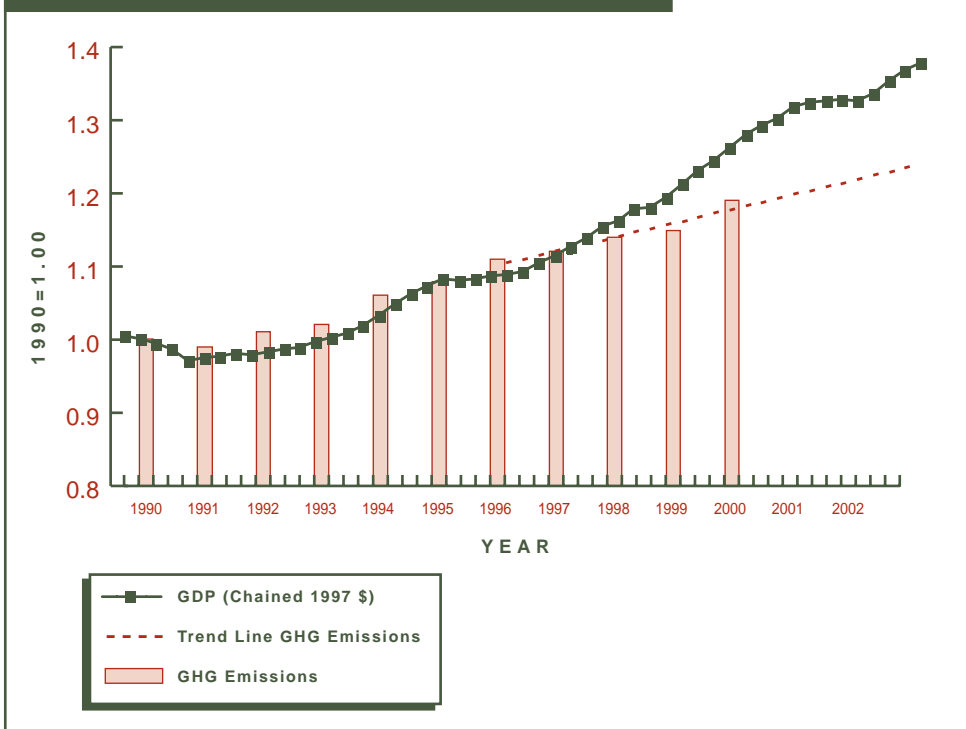
## 1.1 Context

Canada's Greenhouse Gas Inventory totaled just under 726 million tonnes CO<sub>2</sub> equivalent in 2000, about 20% higher than it was in 1990. The vast majority of these emissions (73%) occur as a result of energy consumption at the "burner tip": driving your car, heating and cooling your home and other buildings, finding and bringing natural resources to market, manufacturing goods, and providing services within our economy. An additional 7% are fugitive emissions involved in the production and transportation of energy itself. Hence, about 80 % of our national GHG footprint is directly related to energy production and consumption.



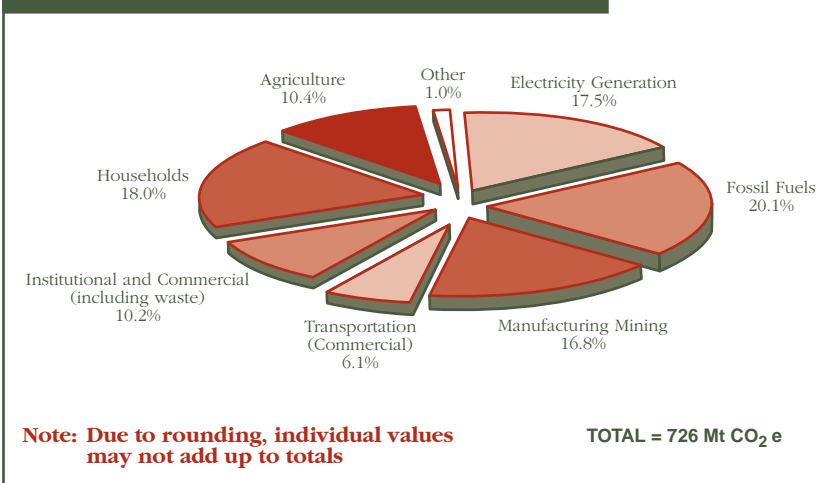
Source: Olsen, K., et al. *Canada's Greenhouse Gas Inventory 1990-2000*, Environment Canada, June 2002.

CHART 2: Canadian GDP and GHG Emissions



Sources: Olsen, K. et al. *Canada's Greenhouse Gas Inventory 1990-2000*, Environment Canada, June 2002. Statistics Canada, Table 380-0002: Gross Domestic Product (GDP), expenditure-based, September 2002.

CHART 3: Canada's GHG Emissions 2000



Source: VCR Inc. estimates, 2002.

Chart 3 and the supporting detailed information in Table 1 serve to illustrate and quantify the GHG impact of the primary sectors of our economy. It is estimated that, excluding households and the farming community, more than 76% of the ability of the remaining sectors to reduce our national GHG annual inventory is represented by the Action Plans of those companies, governments, and other organizations documented in our Challenge Registry.

**TABLE ONE: National 2000 GHG Emissions Inventory Breakdown**

Sector	Section	Details	2000 GHG Emissions (Mt CO <sub>2</sub> e)	Portion of National Total	Estimate of Sector GHG Emissions Coverage within Registry
Electricity Generation	1.3	Includes all generation facilities operated by utility companies and steam generation facilities.	127.0	17.5%	100.0% <sup>1</sup>
Fossil Fuels	1.4	Includes mining, production, transformation and pipeline transportation related to oil, gas and coal.	146.3	20.1%	95.0% <sup>2</sup>
Manufacturing and Mining	1.5	Includes aluminum, cement, chemical, forest products, general manufacturing, mining, steel, textiles, vehicles and parts manufacturing.	122.4	16.8%	72.0% <sup>3</sup>
Commercial Transportation	1.6	Includes air, marine, rail, off-road and road vehicles (including fleet vehicles).	44.1	6.1%	26.0% <sup>4</sup>
Institutional and Commercial	1.7	Includes energy and waste related emissions from federal, provincial and municipal governments, education and health institutions, commercial, service and retail industries.	73.8	10.2%	35.9% <sup>5</sup>
Households	1.8	Includes residential space and water heating (43.6 Mt), and personal vehicle transportation (86.8 Mt)	130.4	18.0%	–
Agriculture	1.9	Includes non-combustion related emissions (mostly methane and nitrous oxide).	75.3	10.4%	–
Other			7.0	1.0%	–
<b>Total<sup>6</sup></b>			<b>726.2</b>	<b>100.0%</b>	<b>76.3%<sup>7</sup></b>

1 Canadian Electricity Association

2 Weighted average using oil, gas and coal sector statistics.

3 VCR Inc. estimation, 2002.

4 VCR Inc. estimation, 2002.

5 Assume 100 per cent of government emissions, in addition to 10 per cent of other buildings.

6 Due to rounding, individual totals may not add up to exact totals.

7 VCR Inc. registrants represent 76% of the GHG emissions from all sectors except Households, Agriculture and Other.

In our 2000 Annual Report, we began tracking the relationship between Canada's Gross Domestic Product (GDP), a measure of the strength and size of our economy, and the GHG emissions generated as a result of this economic activity. It was noted that 1997 marked the first year that Canada successfully de-coupled the generation of GHG emissions from our economic growth. Chart 2 illustrates that the trend has continued, providing clear evidence that the efforts to reduce GHG emissions made by all sectors of our economy are having a positive and significant effect.

The following sector profiles contain performance indicators that measure progress. Included is an estimate of the quantity of avoided annual emissions achieved as a result of energy management and other reduction activities undertaken within the sector since 1990. The term 'unavoided annual emissions' is used when the GHG emission intensity has increased since 1990. The methodologies used for these calculations are described below.

## 1.2 Methodologies

Direct emissions estimates are based on several different sources. Non-energy emissions estimates were based primarily on data reported by Environment Canada through the national inventory.<sup>8</sup> A select few non-energy emissions estimates were derived from CIEEDAC<sup>9</sup>, Challenge Registry reporting and internal estimates. Energy-related emissions, which comprise over 80% of Canada's total inventory, were derived from many different sources, including internal estimates<sup>10</sup>, end-use energy publications<sup>11</sup>, Challenge Registry reporting, and the national inventory. For energy-related emissions, virtually all sources (including the national inventory, all end-use energy publications, and most internal emissions estimates) based emissions estimates on energy consumption data from Statistics Canada's Quarterly Report on Energy Supply-Demand in Canada (QRES). This publication tracks energy flows through the entire economy, from imports and production through exports and end-use consumption.

Indirect emissions were also based on several sources. A few estimates were based on the same end-use energy publications described above, but these sources did not always base estimates on regional emissions intensity. Estimates for most sector profiles were based on internal estimates. These estimates used average provincial and territorial electricity emission factors based on energy consumption and electricity generation reported in the QRES. In order of preference, VCR Inc. used internal estimates (regional average emission factors), Challenge Registry reporting, end-use energy publications, and internal estimates (national average emission factors). Where no reasonable estimate of indirect GHG emissions was possible, they were not included in the sector profile.

8 Olsen, K., et al. Canada's Greenhouse Gas Inventory 1990-2000, Environment Canada, June 2002.

9 Nyboer, J. and Laurin, A., Development of Greenhouse Gas Intensity Indicators For Canadian Industry 1990 to 2000, Prepared for Environment Canada and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

10 VCR Inc. internal emissions estimates were calculated using emission factors published by Environment Canada in the latest national inventory.

11 Natural Resources Canada, End-Use Energy Data Handbook 1990 to 2000, June 2002.

Natural Resources Canada, Energy Efficiency Trends in Canada 1990 to 2000, June 2002.

Nyboer, J. and Laurin, A., Development of Greenhouse Gas Intensity Indicators For Canadian Industry 1990 to 2000, Prepared for Environment Canada and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

Nyboer, J., Development of Energy Intensity Indicators For Canadian Industry 1990 to 2000, Prepared for Canadian Industry Program for Energy Conservation and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

Nyboer, J., A Review of Energy Consumption in Canadian Oil Sands Operations, Heavy Oil Upgrading 1990, 1994 to 2000, Prepared for Regional Infrastructure Working Group and Canadian Industry Program for Energy Conservation, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

Nyboer, J., A Review of Energy Consumption in Canadian Oil Refineries 1990, 1994 to 2000, Prepared for Canadian Petroleum Products Institute and Canadian Industry Program for Energy Conservation, Canadian Industrial Energy End-use Data and Analysis Centre, Simon Fraser University, November 2001.

'Avoided annual emissions' and 'Unavoided annual emissions' represent the difference between actual emissions in 2000 and those that would have occurred had no reduction initiatives been undertaken since 1990. (Unavoided annual emissions are reported when emissions intensity has increased.) The preferred methodology for avoided annual emissions is:

$$(1990 \text{ emissions intensity} - 2000 \text{ emissions intensity}) \times 2000 \text{ production}$$

Other similar calculations are used if the emissions intensity or production data is not available. If no reasonable method of estimating avoided emissions is available, it is not included in the sector profile. It should be noted that 'Avoided annual emissions' represents the net impact of all actions across the sector, including both voluntary and policy initiatives, and those initiated by both registered and non-registered entities.

'Action Plans' refers to the number of organizations in the sector that have an action plan registered in the VCR Challenge Registry. There are three minimum criteria for a registered action plan: senior management commitment, commitment to regular reporting, and a base year quantification.

'Champion level' refers to the top level of reporters within the Challenge Registry, who have earned Bronze, Silver or Gold Champion level Reporter status. Champion level Reporter status is earned by registering rigorous reports, as described in the [VCR Challenge Registry Guide to Entity & Facility-Based Reporting](#). Gold status also requires demonstrated reduction actions that have reduced total GHG emissions, and/or GHG emissions intensity or energy intensity between the registrant's current reporting year and base year.

'% of sector emissions' refers to the portion of the sector's total GHG represented by entities registered in our Challenge Registry. This ratio is estimated based on the ratios of registered and unregistered production, energy consumption, and / or direct input from a representative sector trade organization based on their detailed knowledge of the sector participants.

## 1.3 Electricity Generation

Total Direct Emissions: 126.9 Mt CO<sub>2</sub> e

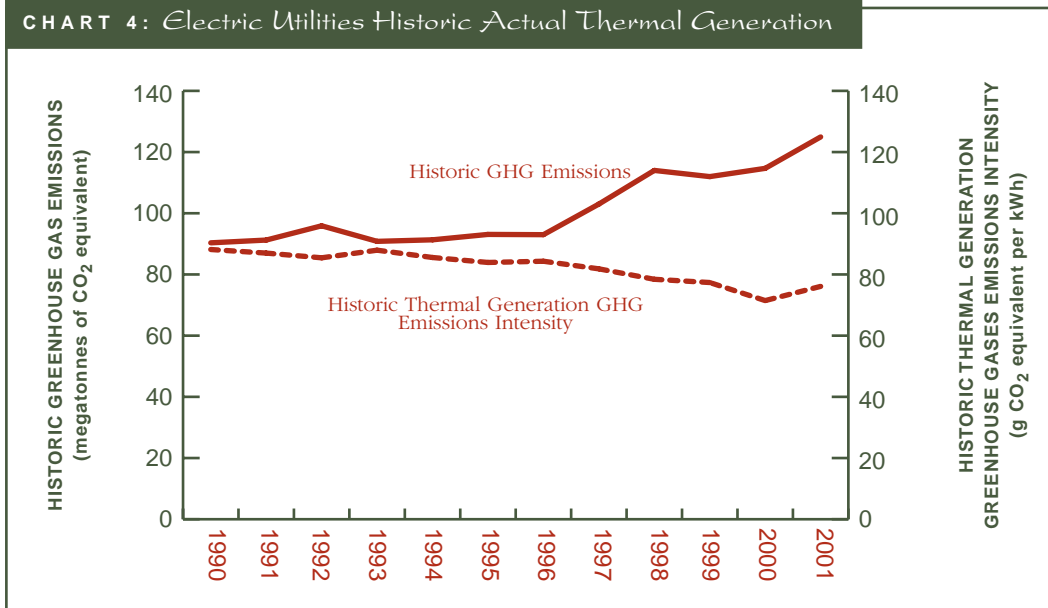
1999 Avoided Emissions<sup>12</sup>: 20.4 Mt CO<sub>2</sub> e from Reference Case

Sector Engagement: 18 Action Plans

13 Champion level

Virtually 100% of sector emissions<sup>13</sup>

CHART 4: Electric Utilities Historic Actual Thermal Generation



Source: Canadian Electricity Association, January 2003.

## 1.4 Fossil Fuels

Direct Emissions: 143.9 Mt CO<sub>2</sub> e

Indirect Emissions: 23.0 Mt CO<sub>2</sub> e

Total Emissions: 166.9 Mt CO<sub>2</sub> e

### 1.4.1 Upstream Oil and Gas

Direct Emissions: 55.3 Mt CO<sub>2</sub> e

Indirect Emissions: 18.7 Mt CO<sub>2</sub> e

Total Emissions: 74.0 Mt CO<sub>2</sub> e

Avoided annual emissions: 3.9 Mt CO<sub>2</sub> e<sup>14</sup>

Sector engagement: 52 Action Plans

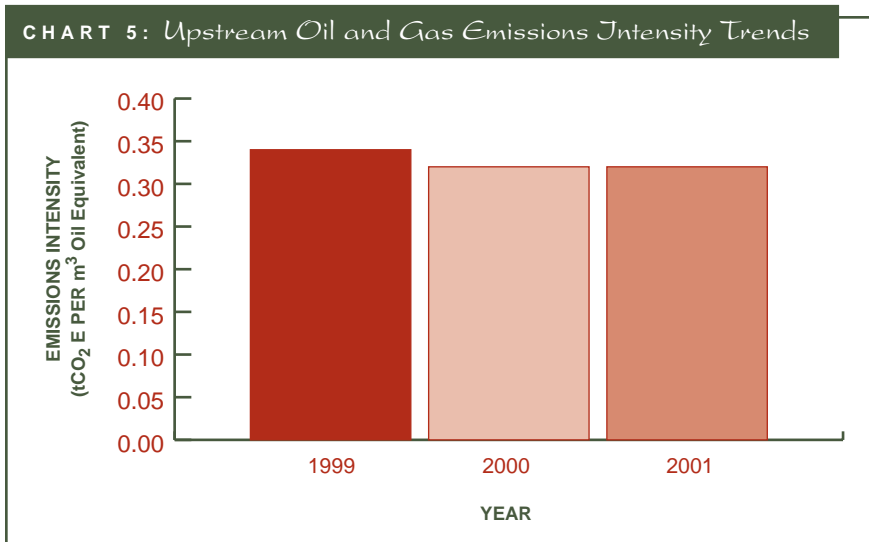
42 Champion level

93% of sector emissions

<sup>12</sup> From 1998 Reference Case, as outlined in Canadian Electricity Association, [Overview of 1998 Electricity Sector Submissions of 1997 year end data to Canada's Voluntary Challenge Program](#).

<sup>13</sup> Not all Canadian electricity-generating companies report to VCR Inc.

<sup>14</sup> This avoided emission calculation is based on survey data from a Canadian Association of Petroleum Producers publication, [2002 Stewardship Progress Report Changing Behavior](#) (December 2002). VCR Inc. estimated avoided emissions by multiplying the change in emissions intensity 1999 to 2001 (expressed as a percentage) by 2001 emissions (all data from CAPP's stewardship report). Actual avoided emissions, taking into account all emission reductions over 10+ years rather than two, are likely to be much more significant.



Source: Canadian Association of Petroleum Producers, *2002 Stewardship Progress Report, Changing Behaviour*, December 2002.

### 1.4.2 Downstream Oil and Gas

Direct Emissions: 16.8 Mt CO<sub>2</sub> e<sup>15</sup>

Indirect Emissions: 1.8 Mt CO<sub>2</sub> e

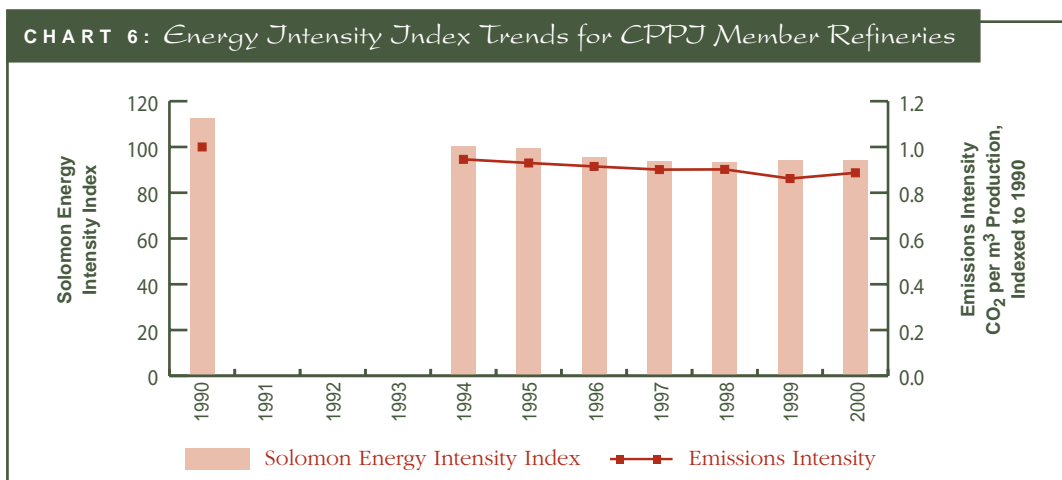
Total Emissions: 18.6 Mt CO<sub>2</sub> e

Avoided annual emissions: 2.7 Mt CO<sub>2</sub> e

Sector engagement: 9 Action Plans

6 Champion level

100% of sector emissions



Source: Nyboer, J., *A Review of Energy Consumption in Canadian Oil Refineries 1990, 1994 to 2000*, Prepared for Canadian Petroleum Products Institute and Canadian Industry Program for Energy Conservation, Canadian Industrial Energy End-use Data and Analysis Centre, Simon Fraser University, November 2001.

15 Nyboer, J and Laurin, A, *Development of Greenhouse Gas Intensity Indicators for Canadian Industry, 1990 to 2000*, Prepared for Environment Canada and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002, Appendix, SIC Code 3611.



### 1.4.3 Oil Sands and Heavy Oil Upgrading<sup>16</sup>

Direct Emissions: 13.2 Mt CO<sub>2</sub> e<sup>17</sup>

Indirect Emissions: 4.5 Mt CO<sub>2</sub> e<sup>18</sup>

Total Emissions: 17.7Mt CO<sub>2</sub> e

Avoided annual direct emissions: 5.1 Mt CO<sub>2</sub> e<sup>19</sup>

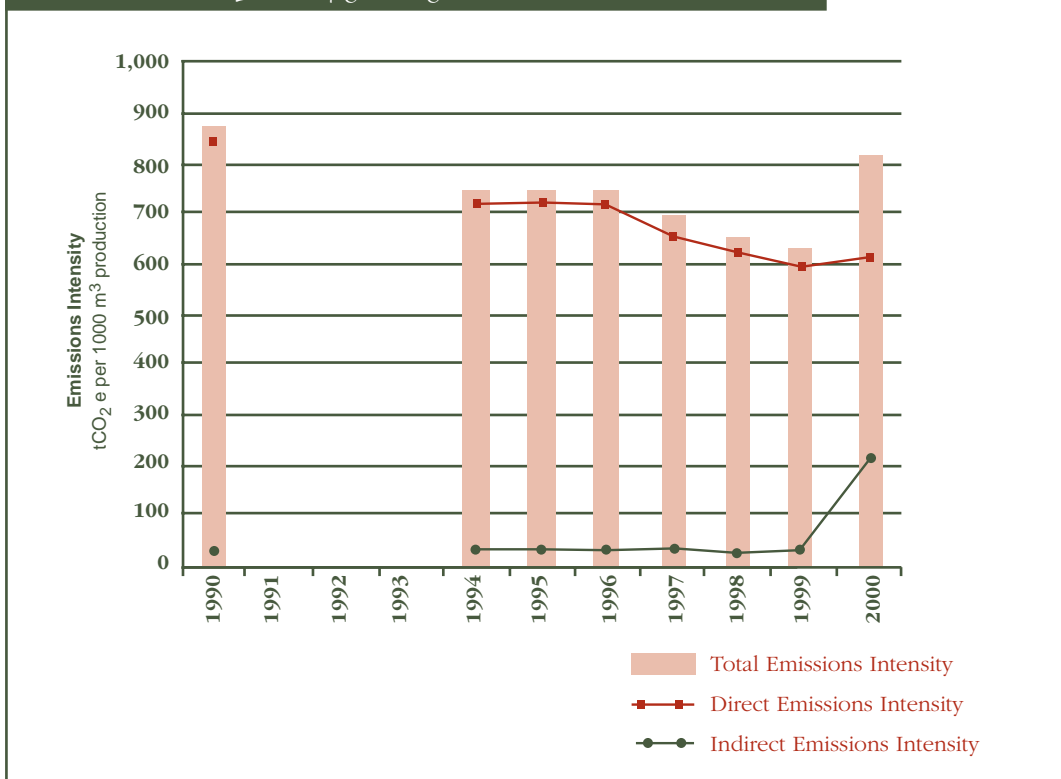
Avoided annual total emissions: 1.2 Mt CO<sub>2</sub> e<sup>20</sup>

Sector engagement: 5 Action Plans

5 Champion level

100% of sector emissions

**CHART 7: Emissions Intensity Trends in the Oil Sands and Heavy Oil Upgrading Sector**



Source: Nyboer, J., *A Review of Energy Consumption in Canadian Oil Sands Operations, Heavy Oil Upgrading 1990, 1994 to 2000*, Prepared for Regional Infrastructure Working Group and Canadian Industry Program for Energy Conservation, Canadian Institute for Energy End-use Data and Analysis Centre, Simon Fraser University, March 2002.

<sup>16</sup> Emissions estimates for this sector are also included in Upstream Oil and Gas.

<sup>17</sup> Nyboer, J., *A Review of Energy Consumption in Canadian Oil Sands Operations, Heavy Oil Upgrading 1990, 1994-2000*, Prepared for Regional Infrastructure Working Group and Canadian Industry Program for Energy Conservation, Canadian Institute for Energy End-use Data and Analysis Centre, Simon Fraser University, March 2002, Appendix A, Table 4: CO<sub>2</sub> Emissions by Source Type 1990, 1994 to 2000, Environment Canada Coefficients.

<sup>18</sup> Ibid.

<sup>19</sup> Both avoided direct emissions and avoided total emissions are derived from production and emissions intensity reported in *A Review of Energy Consumption in Canadian Oil Sands Operations, Heavy Oil Upgrading 1990, 1994-2000*, Appendix A, Tables 5, 7a and 7b (Environment Canada coefficients).

<sup>20</sup> Ibid.

### 1.4.4 Energy Pipelines

Direct Emissions: 14.2 Mt CO<sub>2</sub> e

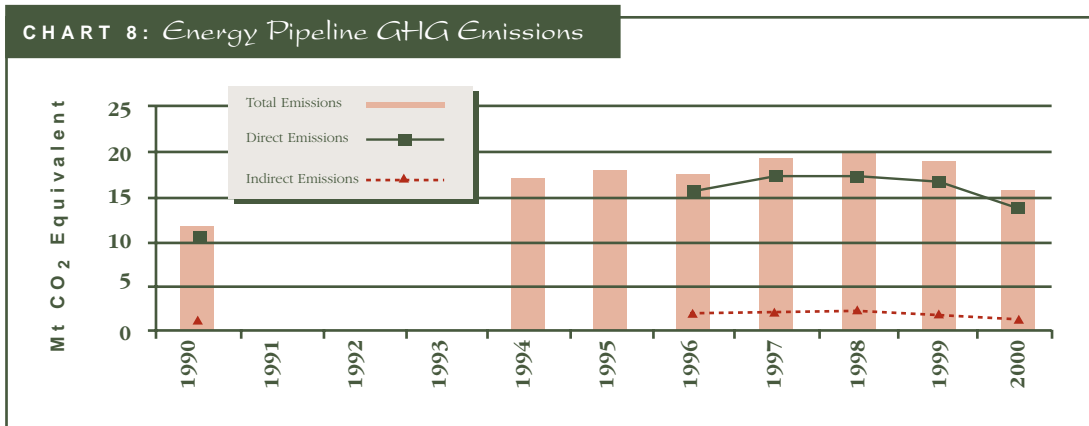
Indirect Emissions: 1.8 Mt CO<sub>2</sub> e

Total Emissions: 16.0 Mt CO<sub>2</sub> e

Sector engagement: 15 Action plans

9 Champion level

100% of sector emissions



Source: Canadian Energy Pipeline Association, *Seventh Report to the Climate Change Voluntary Challenge and Registry*, April 2002.

### 1.4.5 Natural Gas Distribution

Direct Emissions: 2.4 Mt CO<sub>2</sub> e<sup>21</sup>

Indirect Emissions: 0.3 Mt CO<sub>2</sub> e

Total Emissions: 2.7 Mt CO<sub>2</sub> e

Sector Engagement: 9 Action Plans

6 Champion level

100% of sector emissions

### 1.4.6 Coal Mining

Direct Emissions: 2.2 Mt CO<sub>2</sub> e

Indirect Emissions: 0.4 Mt CO<sub>2</sub> e

Total Impact: 2.6 Mt CO<sub>2</sub> e

Avoided annual emissions: 0.3 Mt CO<sub>2</sub> e

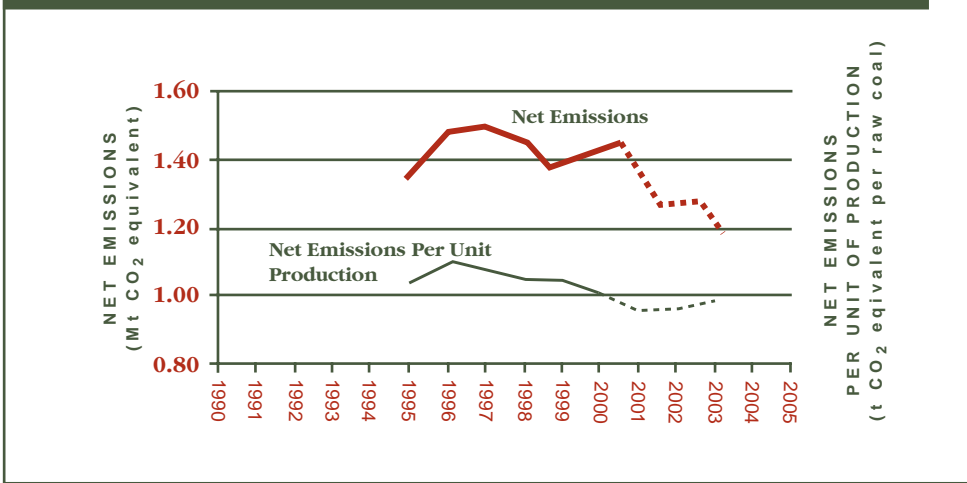
Sector Engagement: 3 Action Plans

3 Champion level

98% of sector emissions

21 Direct and indirect emissions estimates for the Natural Gas Distribution sector are based on the difference between emissions derived from energy consumption data reported in Statistics Canada's *Quarterly Report on Energy Supply-Demand in Canada* (combined distribution and transmission into one sector) and direct emissions data reported by the Canadian Energy Pipeline Association on behalf of its members, who represent virtually all energy pipeline transmission in Canada.

CHART 9: Primary Canadian Coal Industry GHG Emissions Trends



Source: VCR Inc. estimates based on Challenge Registry reporting.

## 1.5 Manufacturing and Mining

Total Direct Emissions: 122.4 Mt CO<sub>2</sub> e  
 Total Indirect Emission: 28.8 Mt CO<sub>2</sub> e  
 Total Emissions: 151.2 Mt CO<sub>2</sub> e

230 Action Plans  
 64 Champion level  
 75% of sector emissions<sup>22</sup>

Total annual emissions reductions from energy conservation: 11.9 Mt CO<sub>2</sub> e<sup>23</sup>  
 Total annual emissions reductions from N<sub>2</sub>O abatement at DuPont Canada Inc.'s Maitland site: 9.9 Mt CO<sub>2</sub> e<sup>24</sup>

### 1.5.1 Cement

Direct Emissions: 10.0 Mt CO<sub>2</sub> e<sup>25</sup>  
 Indirect Emissions: 0.3 Mt CO<sub>2</sub> e  
 Total Emissions: 10.3 Mt CO<sub>2</sub> e

Avoided annual emissions reduction: 0.7 Mt CO<sub>2</sub> e

Sector engagement: 7 Action Plans  
 2 Champion level  
 75% of sector emissions

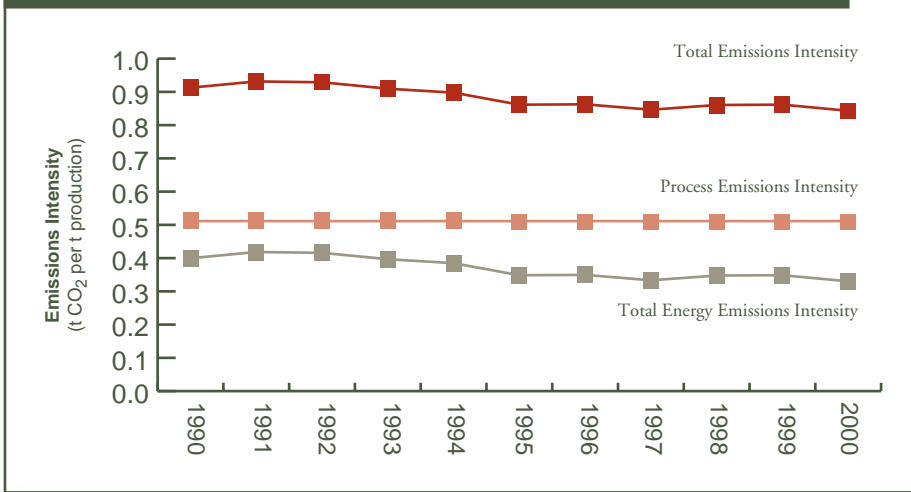
22 According to Natural Resources Canada, "75% of industrial energy is represented by CIPEC members." (<http://oee.nrcan.gc.ca/cipec/ieep/cipec/achievements/achievements.cfm>, October 12, 2001.) The VCR Inc. Challenge Registry is closely tied to CIPEC and virtually all CIPEC participants are also registered in the VCR Inc. Challenge Registry. Energy use is assumed to be directly related to GHG emissions.

23 Natural Resources Canada, *Energy Efficiency in Canada 1990 to 2000*, June 2002, p. 21

24 DuPont Canada Inc., *Action Plan*, October 2002, Appendix.

25 This includes 3.3 Mt CO<sub>2</sub> e energy-based emissions (VCR Inc. estimate, 2003) as well as 6.7 Mt CO<sub>2</sub> e process emissions (CIEEDAC, March 2002).

**CHART 10: Cement Manufacturing Emissions Intensity Trend**



Sources:

Nyboer, J. and Laurin, A., *Development of Greenhouse Gas Intensity Indicators for Canadian Industry 1990 to 2000*, Prepared for Environment Canada and Natural Resources Canada, Canadian Institute for Energy End-use Data and Analysis Centre, Simon Fraser University, March 2002, Appendix A, SIC Code 3521.  
 Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

## 1.5.2 Chemicals

Direct Emissions: 14.2 Mt CO<sub>2</sub> e

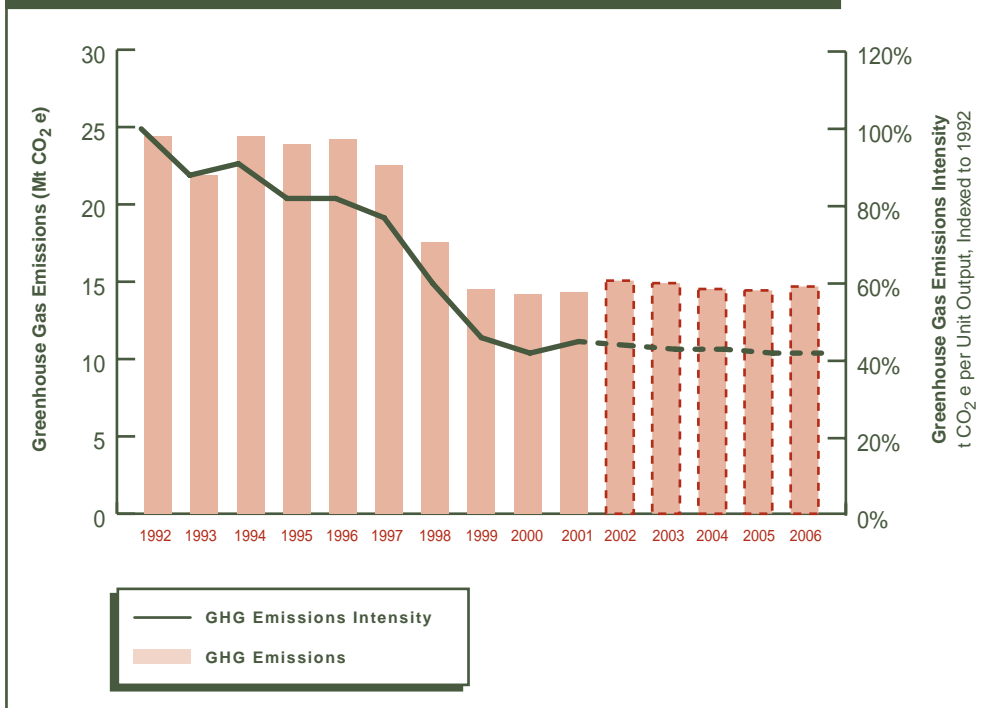
Avoided annual emissions: 9.5 Mt CO<sub>2</sub> e

Sector Engagement: 71 Action Plans

12 Champion level

100% of sector emissions

**CHART 11: Global Warming Potential vs. Product Output from CCPA Member Operations**



Source: Canadian Chemical Producers' Association, *Reducing Emissions 10, 2001 Emissions Inventory and Five Year Projections*, 2002, p. 29, Figure 5.4 Global Warming Potential vs. Product Output of Emissions from CCPA Member Operations.

### 1.5.3 Metal Mining

Direct Emissions: 3.1 Mt CO<sub>2</sub> e  
Indirect Emissions: 2.2 Mt CO<sub>2</sub> e  
Total Emissions: 5.3 Mt CO<sub>2</sub> e

Avoided annual emissions: 0.6 Mt CO<sub>2</sub> e

Sector Engagement: 15 Action Plans  
4 Champion Level  
+90% of sector emissions

CHART 12: Metal Mining Direct Emissions Intensity Trends



Source: Nyboer, J., *Development of Greenhouse Gas Intensity Indicators for Canadian Industry 1990 to 2000*, Prepared for Environment Canada and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

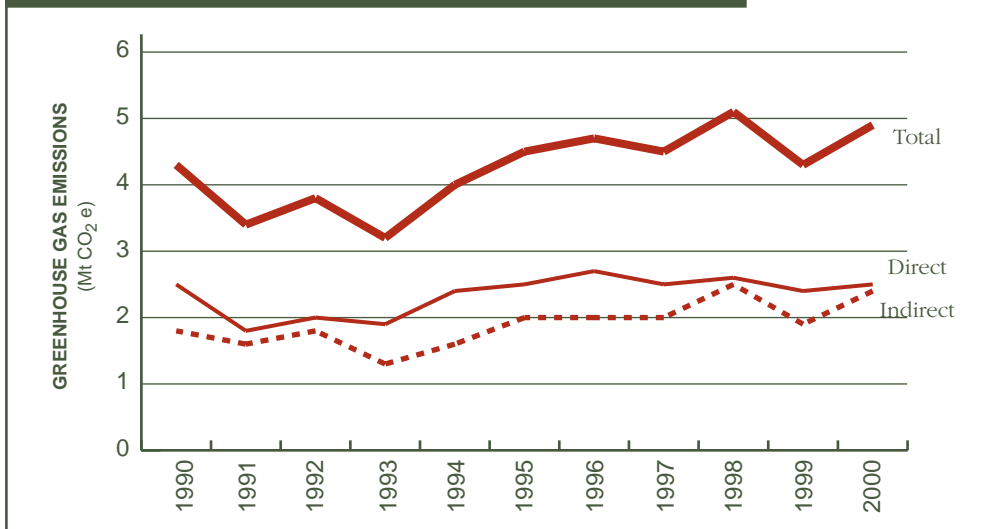
### 1.5.4 Nonferrous Metal Smelting and Refining

Direct Emissions: 2.5 Mt CO<sub>2</sub> e  
Indirect Emissions: 2.4 Mt CO<sub>2</sub> e  
Total Emissions: 4.9 Mt CO<sub>2</sub> e

Avoided annual emissions: 0.5 Mt CO<sub>2</sub> e

Sector Engagement: 7 Action Plans  
3 Champion level  
+90% of sector emissions

CHART 13: Nonferrous Metal Smelting and Refining<sup>26</sup>



Source: Natural Resources Canada, *Energy End-Use Data Handbook 1990 to 2000*, June 2002.

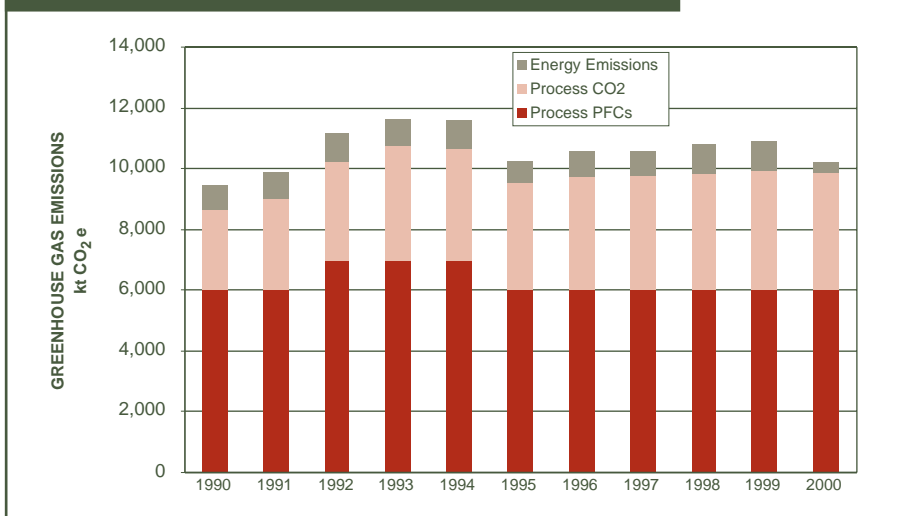
### 1.5.5 Primary Aluminium

Direct Emissions: 10.2 Mt CO<sub>2</sub> e  
 Indirect Emissions: Negligible  
 Total Emissions: 10.2 Mt CO<sub>2</sub> e

Avoided annual emissions: 4.1 Mt CO<sub>2</sub> e

Sector Engagement: 5 Action Plans  
 5 Champion level  
 100% of sector emissions

CHART 14: Primary Aluminium Emissions Trends



Sources: Nyboer, J. and Laurin, A., *Development of Greenhouse Gas Intensity Indicators for Canadian Industry 1990 to 2000*, Prepared for Environment Canada and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002. Olsen, K, et al., *Canada's Greenhouse Gas Inventory 1990-2000*, Environment Canada, June 2002.

26 This sector profile does not include Aluminium.

## 1.5.6 Pulp and Paper

Direct Emissions: 11.1 Mt CO<sub>2</sub> e

Indirect Emissions: 9.7 Mt CO<sub>2</sub> e

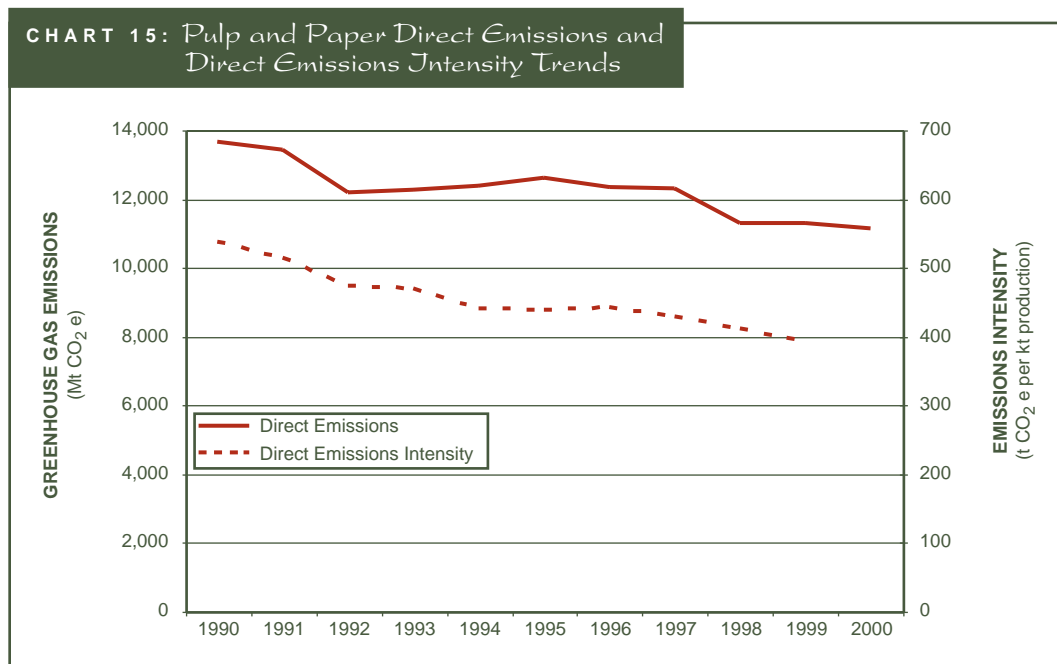
Total Emissions: 20.8 Mt CO<sub>2</sub> e

Avoided annual emissions<sup>27</sup> : 2.4 Mt CO<sub>2</sub> e

Sector engagement: 28 Action Plans

17 Champion level

+75% of sector emissions



Source: Nyboer, J. and Laurin, A., *Development of Greenhouse Gas Intensity Indicators for Canadian Industry 1990 to 2000*. Prepared for Environment Canada and Natural Resources Canada, Canadian Institute for Energy End-use Data and Analysis Centre, Simon Fraser University, March 2002.

## 1.5.7 Steel

Direct Emissions: 15.7 Mt CO<sub>2</sub> e

Indirect Emissions: 2.0 Mt CO<sub>2</sub> e

Total Emissions: 17.7 Mt CO<sub>2</sub> e

Avoided annual emissions: 3.5 Mt CO<sub>2</sub> e

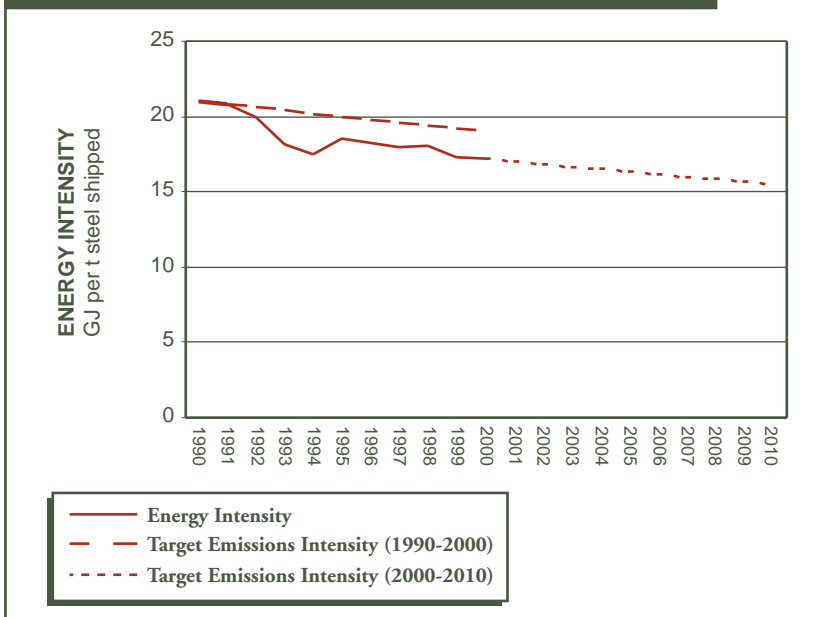
Sector Engagement: 12 Action Plans

2 Champion level

+90% of emissions

<sup>27</sup> Complete 2000 production information was unavailable, so the avoided annual emissions calculation is based on 1999 results. The Direct, Indirect and Total Emissions above are based on 2000 data.

CHART 16: Steel Industry Energy Intensity Trends



Source: Nyboer, J., *Energy Intensity Indicators for Canadian Industry 1990 to 2000*, Prepared for Canadian Industry Program for Energy Conservation and Natural Resources Canada, Canadian Industry End-use Database and Analysis Centre, Simon Fraser University, March 2002.

### 1.5.8 Textiles

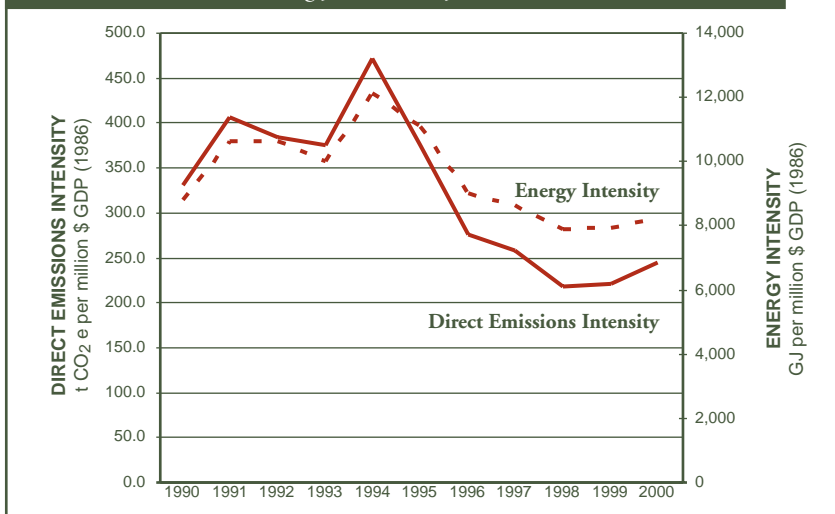
Direct Emissions: 0.7 Mt CO<sub>2</sub> e  
 Indirect Emissions: 0.5 Mt CO<sub>2</sub> e  
 Total Emissions: 1.2 Mt CO<sub>2</sub> e

Avoided annual emissions: 0.1 Mt CO<sub>2</sub> e

Sector Engagement: 23 Action Plans  
 4 Champion level reporters  
 60% of sector emissions

Sources: Natural Resources Canada, *Energy End-Use Data Handbook 1990-2000*, June 2002.  
 Nyboer, J., *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2000*, Prepared for Canadian Industry Program for Energy Conservation and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

CHART 17: Textiles Industry Direct Emissions Intensity and Energy Intensity Trends





## 1.5.9 Transportation Manufacturing

Direct Emissions: 1.0 Mt CO<sub>2</sub> e

Indirect Emissions: 0.6 Mt CO<sub>2</sub> e

Total Emissions: 1.6 Mt CO<sub>2</sub> e

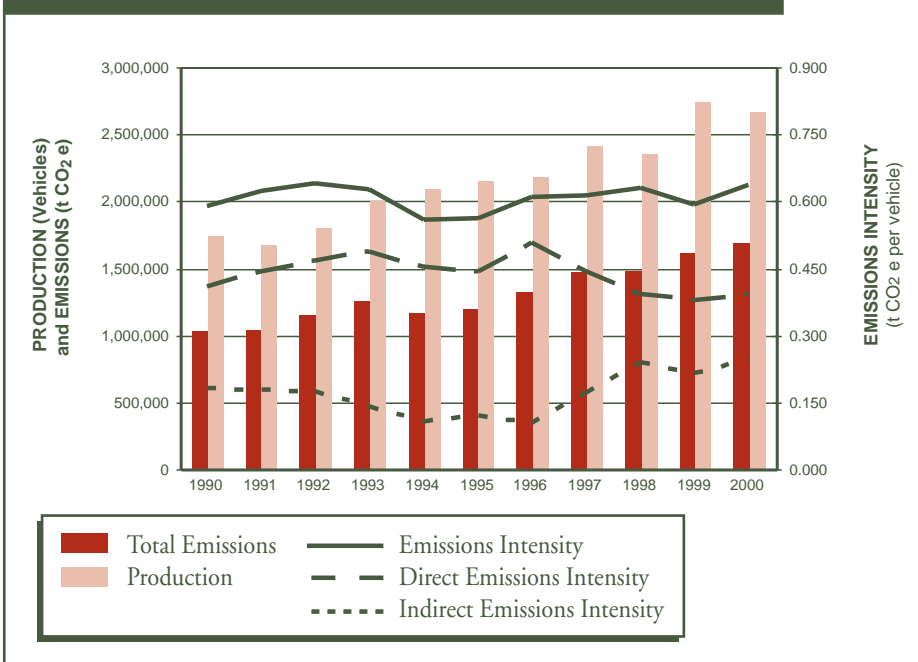
Avoided annual emissions: 0.03 Mt CO<sub>2</sub> e

Sector engagement: 8 Action Plans

4 Champion level

100% of sector emissions

CHART 18: Canadian Auto Manufacturing Trends



Sources:

Nyboer, J. and Laurin, A., *Development of Greenhouse Gas Intensity Indicators for Canadian Industry 1990 to 2000*, Prepared for Environment Canada and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

Nyboer, J., *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2000*, Prepared for Canadian Industry Program for Energy Conservation and Natural Resources Canada, Canadian Industrial Energy End-use Database and Analysis Centre, Simon Fraser University, March 2002.

VCR Inc. estimates, 2003.

## 1.6 Commercial Transportation

### 1.6.1 Airlines

Direct Emissions: 16.8 Mt CO<sub>2</sub> e

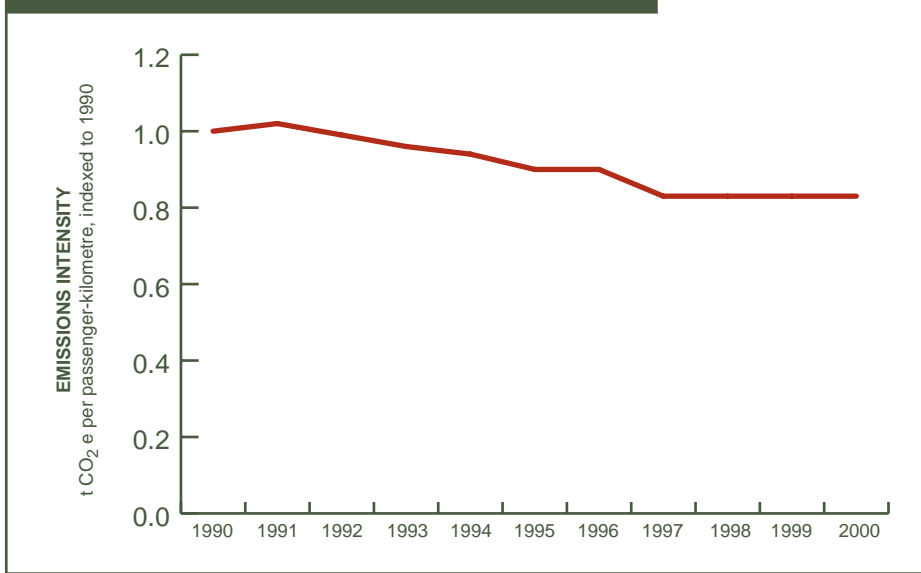
Avoided emissions: 3.5 Mt CO<sub>2</sub> e

Sector engagement: 1 Action Plan

No champion level reporters

70% of sector emissions

CHART 19: Airlines Emissions Intensity Trends



Source: Natural Resources Canada, *End-Use Energy Data Handbook - 1990 to 2000*, June 2002.

## 1.6.2 Railways

Freight Emissions: 6.5 Mt CO<sub>2</sub> e

Passenger Emissions: 0.2 Mt CO<sub>2</sub> e

Total Emissions: 6.7 Mt CO<sub>2</sub> e

Avoided Freight Emissions: 2.3 Mt CO<sub>2</sub> e

Avoided Passenger Emissions: 0.1 Mt CO<sub>2</sub> e

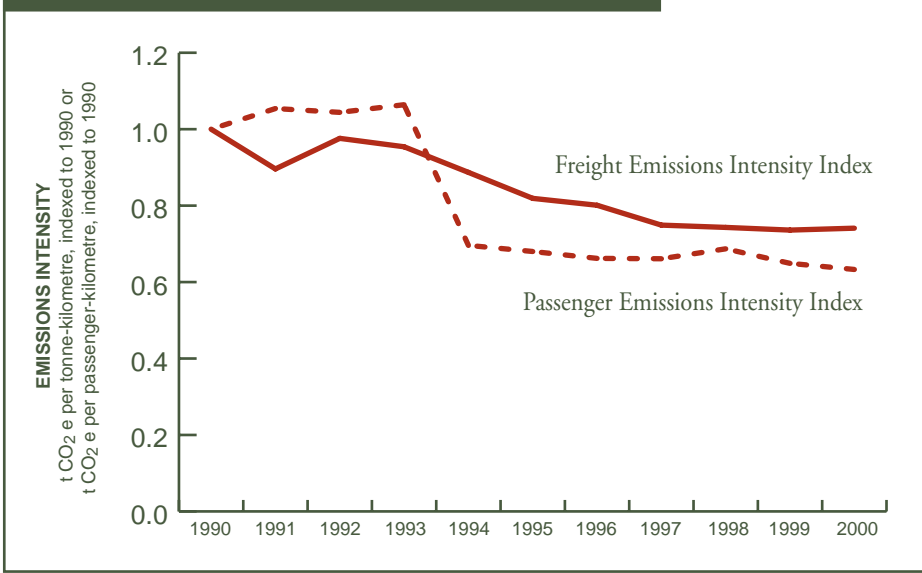
Total avoided emissions: 2.4 Mt CO<sub>2</sub> e

Sector engagement: 55 Action Plans

1 Champion level reporter

100% of sector emissions

**CHART 20: Railway Emissions Intensity Trends**



Source: Natural Resources Canada, *End-Use Energy Data Handbook - 1990 to 2000, June 2002.*

### 1.6.3 Commercial Trucking

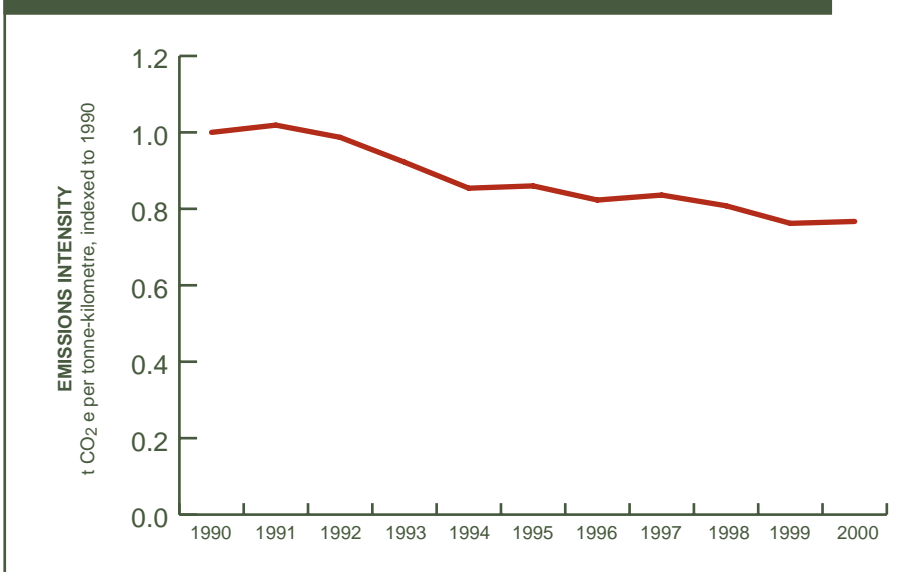
Direct Emissions: 20.7 Mt CO<sub>2</sub> e

Avoided annual emissions: 4.8 Mt CO<sub>2</sub> e

Sector engagement: 5 Action Plans

2 Champion level

**CHART 21: Commercial Trucking Emissions Intensity Trends**



Source: Natural Resources Canada, *End-Use Energy Data Handbook - 1990 to 2000, June 2002.*

## 1.7 Institutional and Commercial

Direct Emissions: 73.8 Mt CO<sub>2</sub>

Indirect Emissions: 32.3 Mt CO<sub>2</sub> e

Total Emissions: 106.1 Mt CO<sub>2</sub> e

Unavoided annual emissions (buildings): 1.4 Mt CO<sub>2</sub> e<sup>28</sup>

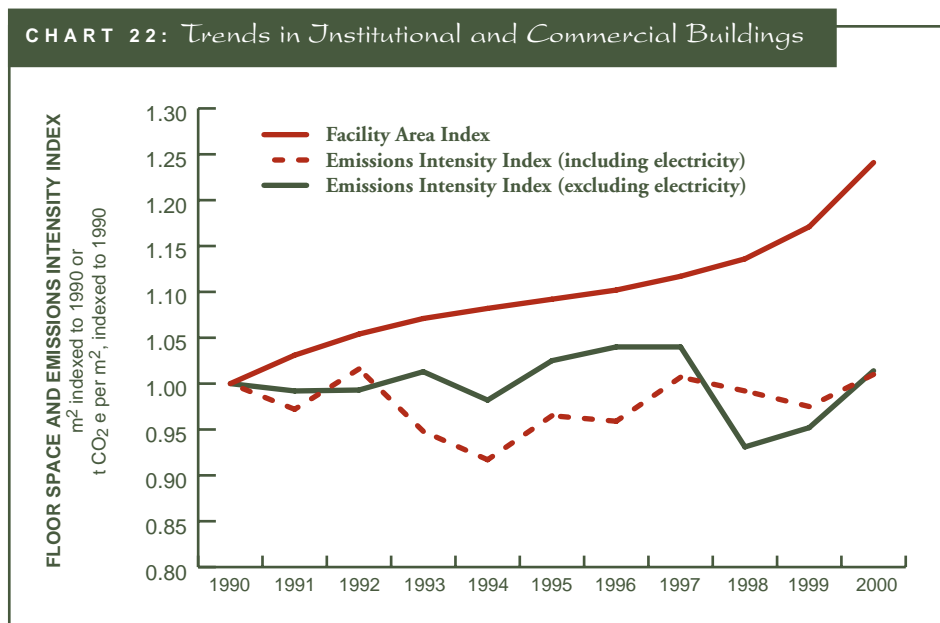
Unavoided annual emissions (waste disposal): 4.0 Mt CO<sub>2</sub> e<sup>29</sup>

Avoided annual emissions (school bus transportation): 0.4 Mt CO<sub>2</sub> e

Sector Engagement: 506 Action Plans

92 Champion level

35.9% of sector emissions



Source: Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

28 Emissions for Institutional and Commercial buildings grew faster than energy consumption and faster than facility area. In *Energy Efficiency Trends in Canada 1990 to 2000*, Natural Resources Canada attributes this trend to fuel switching from electricity to heavy fuel oil as well as increasing emissions intensity for electricity supply (p. 16).

29 According to *Canada's Greenhouse Gas Inventory 1990-2000*, emissions growth from landfills was significant. While landfill gas capture has increased 33% over the decade and population grew by only 11%, methane emissions attributed to landfilled waste "increased by nearly 22% between 1990 and 2000." pp. 27-28.

### 1.7.1 Federal Government

Direct Emissions: 1.45 Mt CO<sub>2</sub> e  
Indirect Emissions: 0.63 Mt CO<sub>2</sub> e<sup>30</sup>  
Total Emissions: 2.08 Mt CO<sub>2</sub> e

Avoided annual emissions: 0.82 Mt CO<sub>2</sub> e<sup>31</sup>

### 1.7.2 Provincial and Municipal Governments

Direct Emissions: 28.7 Mt CO<sub>2</sub> e<sup>32</sup>  
Indirect Emissions: 1.3 Mt CO<sub>2</sub> e  
Total Emissions: 30.0 Mt CO<sub>2</sub> e

Sector Engagement: 72 Action Plans  
8 Champion level

#### 1.7.2.1 Provincial Governments

Sector Engagement: 11 Action Plans  
4 Champion level  
100% of sector emissions

#### 1.7.2.2 Municipal Governments

Direct Emissions (landfills and sewage treatment): 24.7 Mt CO<sub>2</sub> e  
Sector Engagement: 61 Action Plans  
4 Champion level  
37% of sector emissions

### 1.7.3 Education

Direct emissions (buildings): 6.0 Mt CO<sub>2</sub> e  
Direct emissions (school buses): 1.0 Mt CO<sub>2</sub> e  
Indirect emissions (buildings): 2.2 Mt CO<sub>2</sub> e  
Total emissions: 9.2 Mt CO<sub>2</sub> e

Avoided annual emissions (buildings): 0.1 Mt CO<sub>2</sub> e  
Avoided annual emissions (school buses): 0.4 Mt CO<sub>2</sub> e  
Total avoided annual emissions: 0.5 Mt CO<sub>2</sub> e

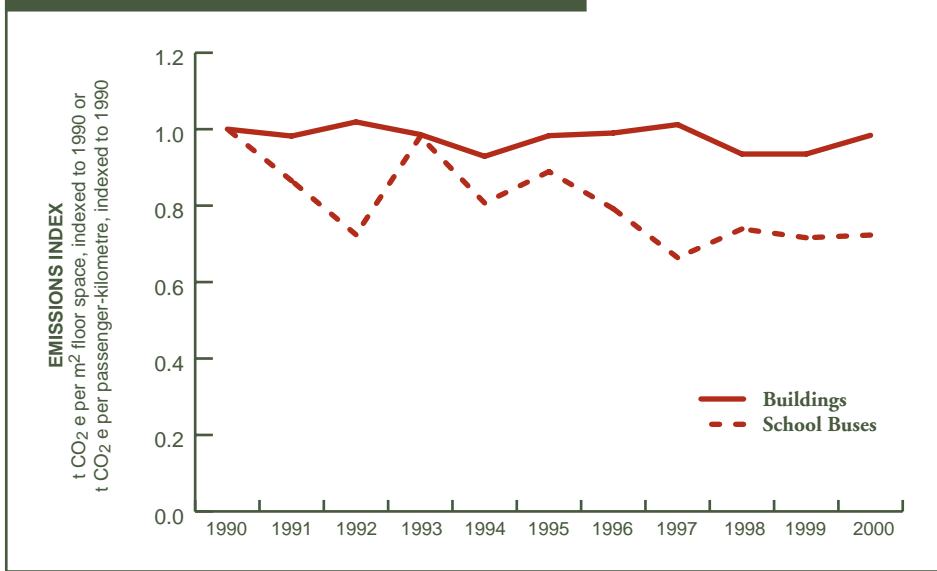
Sector engagement: 35% of sector emissions (Education and Health combined)

30 The indirect emission estimate shown here is based on the federal government's reported electricity consumption multiplied by the national average emission factor calculated by VCR Inc. The indirect emissions estimate reported in the Federal House In Order report (October 2002) is much higher (1.58 Mt CO<sub>2</sub> e) since it is based on a marginal emission. Their published marginal emission factor of 150.5 t CO<sub>2</sub> e per TJ assumes simple-cycle natural gas generation meets the marginal load.

31 Natural Resources Canada, [Federal House In Order Annual Report on Emissions Reductions from Federal Operations](#), October 2002, p. 10.

32 This includes 24.7 Mt CO<sub>2</sub> e attributed to emissions from waste (landfills and sewage).

CHART 23: Emissions Trends in Schools



Source: Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

#### 1.7.3.1 Community Colleges

Sector engagement: 67 Action Plans  
26 Champion level

#### 1.7.3.2 School Boards

Sector engagement: 94 Action Plans  
10 Champion level

#### 1.7.3.3 Universities

Sector engagement: 37 Action Plans  
10 Champion level

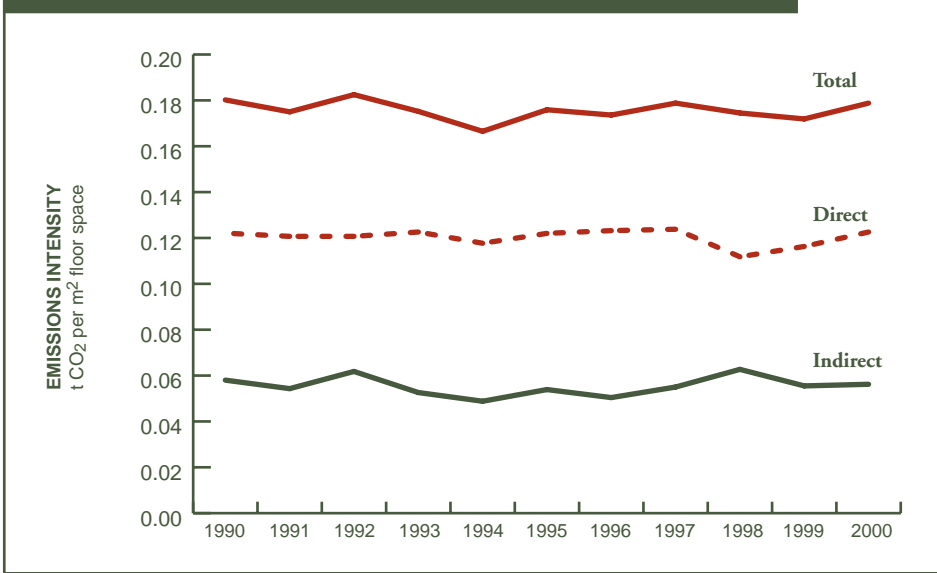
### 1.7.4 Health Services

Direct Emissions: 4.8 Mt CO<sub>2</sub> e  
Indirect Emissions: 2.2 Mt CO<sub>2</sub> e  
Total Emissions: 7.0 Mt CO<sub>2</sub> e

Avoided annual emissions: 0.05 Mt CO<sub>2</sub> e

Sector engagement: 86 Action Plans  
16 Champion level  
35% of sector emissions (Education and Health combined)

**CHART 24: Emissions Intensity Trends in Health Services**



Source: Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

### 1.7.5 Accommodation and Food Services

Direct Emissions: 2.4 Mt CO<sub>2</sub> e  
 Indirect Emissions: 2.8 Mt CO<sub>2</sub> e  
 Total Emissions: 5.2 Mt CO<sub>2</sub> e

Unavoided annual emissions: 0.1 Mt CO<sub>2</sub> e<sup>33</sup>

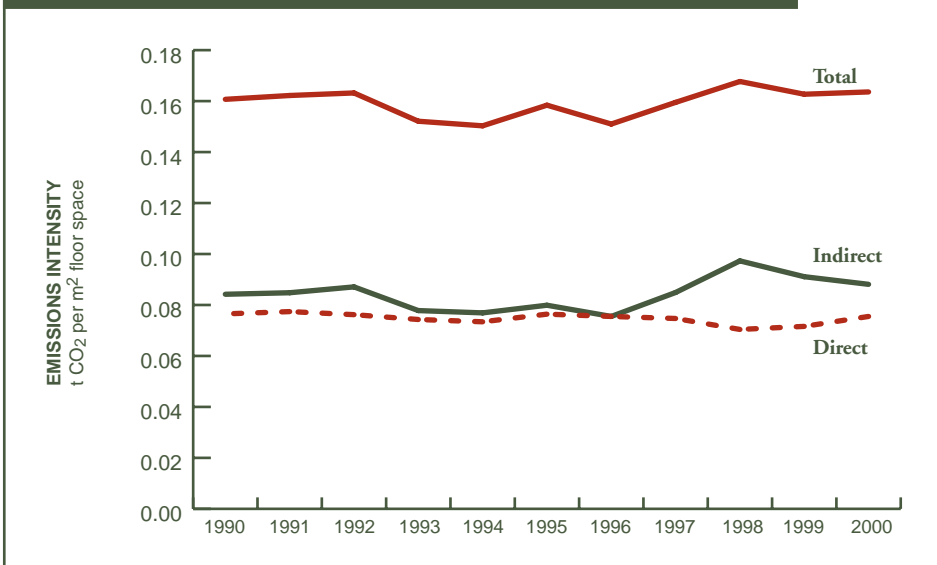
Sector engagement: 31 Action Plans

5 Champion level

33% of sector emissions (all service and retail sectors combined)

Source: Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

**CHART 25: Emissions Intensity Trends in Accommodation and Food Services**



33 While the energy efficiency of this sector has improved by 3.4% over the last decade, significant increases in heavy fuel oil consumption overwhelmed the original savings. As well, natural gas consumption growth slightly outpaced sector growth.

### 1.7.6 Retail Industries

Direct Emissions: 6.0 Mt CO<sub>2</sub> e

Indirect Emissions: 8.5 Mt CO<sub>2</sub> e

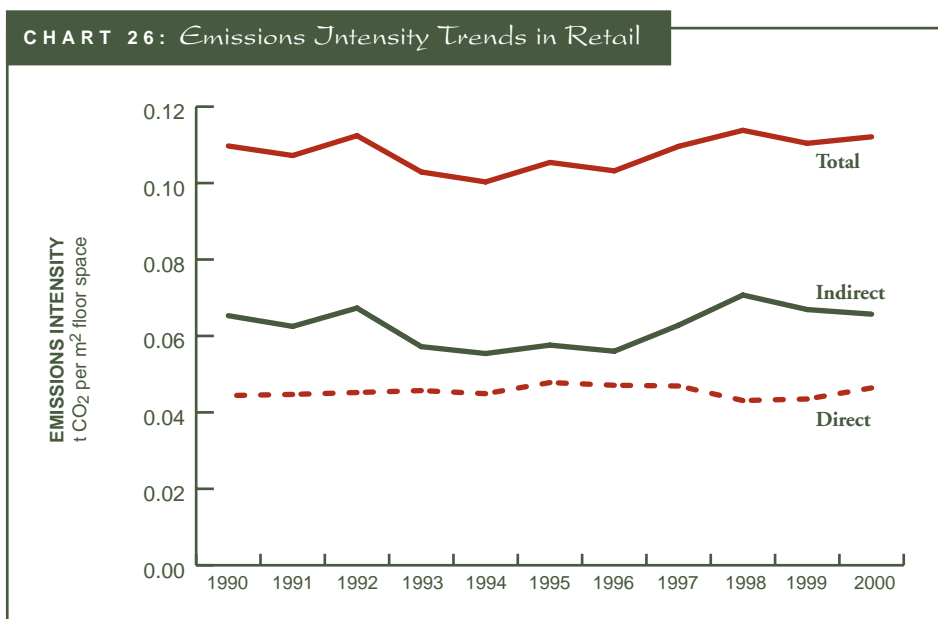
Total Emissions: 14.5 Mt CO<sub>2</sub> e

Unavoided annual emissions: 0.3 Mt CO<sub>2</sub> e<sup>34</sup>

Sector engagement: 25 Action Plans

7 Champion level

33% of sector emissions (all service and retail sectors combined)



Source: Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

### 1.7.7 Offices<sup>35</sup>

Direct Emissions: 7.7 Mt CO<sub>2</sub> e

Indirect Emissions: 7.1 Mt CO<sub>2</sub> e

Total Emissions: 14.8 Mt CO<sub>2</sub> e

Unavoided annual emissions: 0.4 Mt CO<sub>2</sub> e<sup>36</sup>

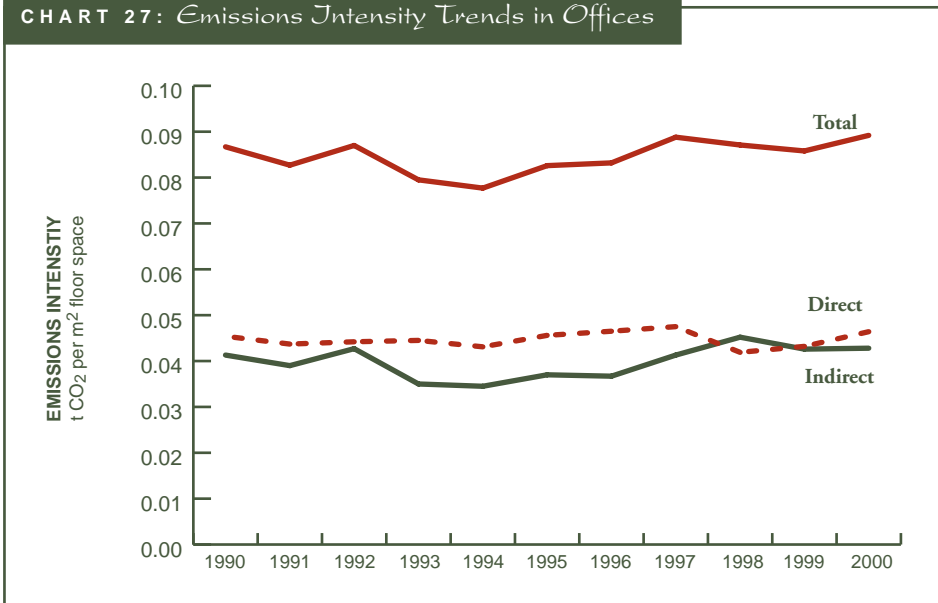
34 Retail industries expanded by 17.3% during the past decade, and reduced their energy intensity by 1.5%. However, much of the conservation was in energy sources with low emissions intensity, such as electricity. Growth of both natural gas and heavy fuel oil consumption outpaced this sector's expansion and caused the emissions intensity to increase.

35 Offices is not a sector in itself. Office emissions documented here could be attributed to a broad range of sectors such as commercial services, commercial transportation, education, fossil fuels, governments, non-government organizations and retail. Offices have similar energy and emissions profiles, despite different sectors served. Offices are included in this section for information purposes only.

36 Office area expanded by 37% during the past decade, with no corresponding reduction in energy intensity. Fuel switching and the overall expansion of fossil fuel use spawned emissions growth of 41%.



CHART 27: Emissions Intensity Trends in Offices



Source: Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

## 1.8 Households

Direct Emissions (residences): 43.6 Mt CO<sub>2</sub>

Direct Emissions (personal transportation): 86.8 Mt CO<sub>2</sub>

Indirect Emissions: 25.6 Mt CO<sub>2</sub> e

Total Emissions: 156.0 Mt CO<sub>2</sub> e

Avoided annual emissions (residences): 6.5 Mt CO<sub>2</sub> e<sup>37</sup>

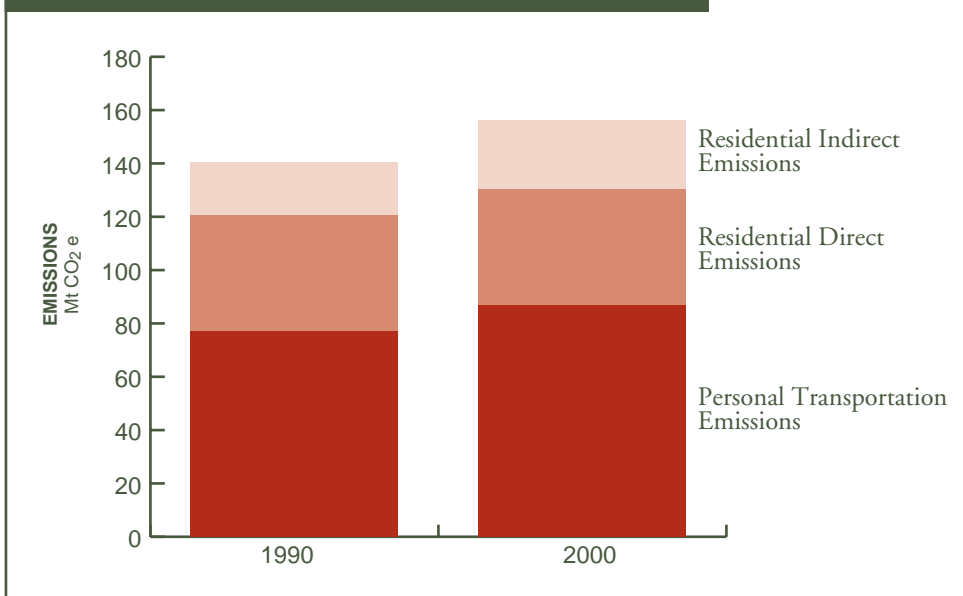
Unavoided annual emissions (personal transportation): 1.7 Mt CO<sub>2</sub> e<sup>38</sup>

Total annual avoided emissions: 4.8 Mt CO<sub>2</sub> e

37 This estimate is based on change in emissions per m<sup>2</sup> residential area. It would be slightly lower (6.1 Mt CO<sub>2</sub> e) on a per household basis. Heating systems are becoming more efficient, however, many more households have air conditioning, and despite a cooler summer than in 1990, indirect emissions associated with space cooling were 25% higher in 2000. Major appliances (refrigerator, freezer, stove, washer, dryer, dishwasher) surged ahead with energy efficiency improvements of more than 20%, but growing use and electrical consumption from small appliances (24%), including home entertainment systems, computers and small kitchen appliances, has sapped much of the gain.

38 This calculation was based on a passenger-kilometre basis. While energy efficiency for each vehicle class improved, the impact of increased use of light trucks (including SUVs) compared to cars caused this significant increase in emissions.

CHART 28: Household Greenhouse Gas Emissions



Sources:  
 Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.  
 VCR Inc. estimates, 2002.

## 1.9 Agriculture

Direct Emissions: 75.3 Mt CO<sub>2</sub>e<sup>39</sup>

Indirect Emissions: 3.4 Mt CO<sub>2</sub>e

Total Emissions: 78.7 Mt CO<sub>2</sub>e

Unavoided emissions (energy consumption): 0.6 Mt CO<sub>2</sub>e<sup>40</sup>

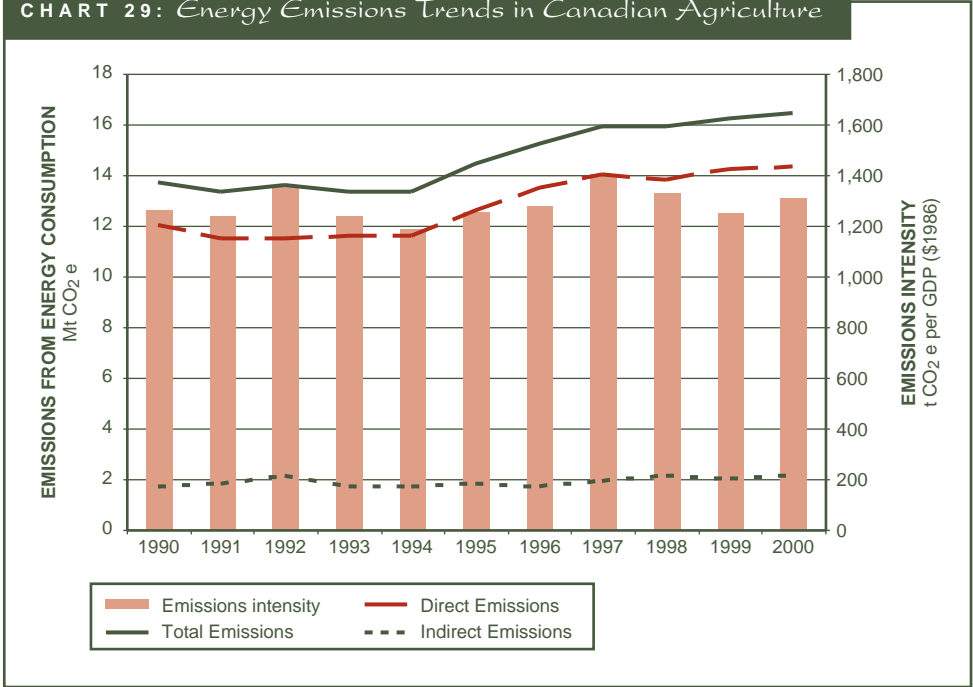
Avoided emissions (livestock management including feed and manure): potentially several Mt CO<sub>2</sub>e

Avoided emissions (soil management including fertilizer application and sequestration): potentially several Mt CO<sub>2</sub>e

39 This includes 60.4 Mt CO<sub>2</sub>e from non-energy sources. Livestock and fertilizer are large sources of N<sub>2</sub>O and CH<sub>4</sub>.

40 This figure is based on emissions per agriculture GDP. The significant increases in diesel, natural gas and electricity consumption have not led to similar increase in farm income.

**CHART 29: Energy Emissions Trends in Canadian Agriculture**



Source: Natural Resources Canada, *End-Use Energy Data Handbook 1990 to 2000*, June 2002.

***Significant progress has been made in standardizing reporting metrics***



## Challenge Registry

Our overriding objective is to **Challenge** both current and potential registrants, from all economic sectors and geographic regions, to record and undertake actions that will contribute towards the reduction of Canada's GHG emissions.

The Challenge Registry is Canada's only publicly accessible national registry of voluntary greenhouse gas baselines, targets, and reductions based on individual entities and/or facilities. As a public forum for sharing voluntary GHG emissions reduction information, this registry is at the heart of VCR Inc.'s core function. The **Registry** component of our operations serves to record the actions planned and executed by our registrants, providing them with the opportunity to exchange information and to share best practices with their peers.

Any entity with operations in Canada can register annual Action Plans. Hundreds of organizations have registered reports, each describing emission baselines, reduction projections, targets, measures to achieve targets, and/or current and historical results, as well as education, training and awareness activities related to GHG emissions reductions.

By the end of 2002, more than 2100 documents by 931 registrants had been posted in the Challenge Registry. These reports can be viewed in their entirety by accessing the Challenge Registry within the VCR Inc. web site ([http://www.vcr-mvr.ca/Challenge/index\\_e.cfm](http://www.vcr-mvr.ca/Challenge/index_e.cfm)). They may be browsed by entity name, by headquarters location, by sector, and by report type. In addition, VCR Inc. has internal search engines that allow the organization, on a fee for service basis, to undertake more detailed analysis of the information contained in these reports, such as entity operations by region.

The level of reporting across all sectors has continued to improve dramatically. All registered reports are scrutinized and the most rigorous reporters are assigned Bronze (44), Silver (78) or Gold (111) Champion level Reporter status. All publicly registered reports are also considered for our VCR Leadership Awards.

CHART 30: Number of Registered Organizations and Posted Documents 1997-2002

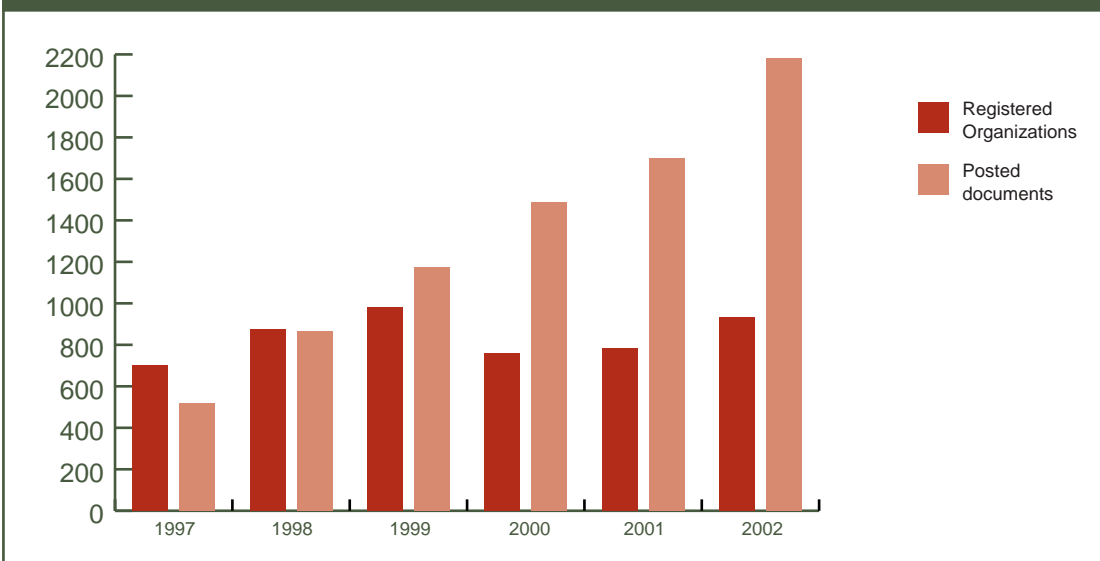
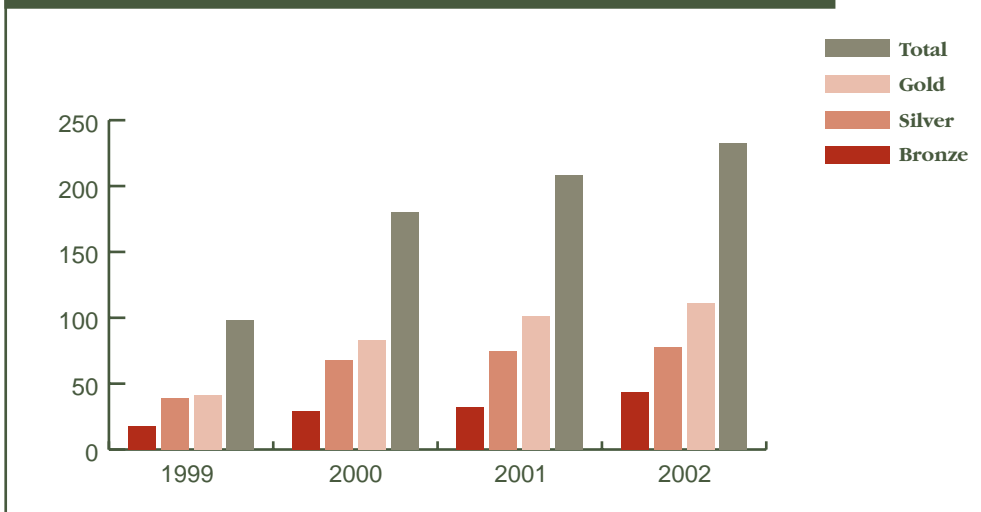


CHART 31: VCR Inc. Champion Level Reporters 1999-2002



A complete list of Gold, Silver, and Bronze Champion level Reporters and all other Registrants is located at the back of this report as *List of Registrants by Level of Reporting*.

## 2.1 Linkages and Partnerships

Chart 32 Percentage of Sector GHG Emissions Represented at VCR Inc. illustrates the degree of engagement for major sectors of our economy and is consistent with our continuing effort to engage new sectors and to link with new GHG reduction programs across Canada.

The 59 Associations and programs listed in Table 2 were active during 2002 in the process of helping to engage their constituents in the voluntary challenge.

CHART 32: Percentage of Sector GHG Emissions Represented at VCR Inc. (December 2002)



**TABLE TWO: Linkages and Partnerships**

1. Action By Canadians (ABC)	31. Cement Association of Canada
2. Air Transport Association of Canada (ATAC)	32. Clean Air Canada Inc. (CACI)
3. Alberta Food Processors Association (AFPA)	33. Clean Development Mechanism & Joint Implementation Office (CDM/JI)
4. Aluminium Association of Canada (AAC)	34. Climate Change Calculator
5. Association of Canadian Community Colleges (ACCC)	35. Clean Nova Scotia – Climate Change Centre
6. Atomic Energy of Canada Limited (AECL)	36. Climate Change Central – Alberta
7. Automotive Parts Manufacturers' Association (APMA)	37. Climate Change Secretariat
8. Baseline Protection Initiative	38. Coal Association of Canada (CAC)
9. Better Buildings Partnership	39. Department of Foreign Affairs and International Trade (DFAIT)
10. Canadian Association of Oilwell Drilling Contractors (CAODC)	40. ÉcoGEsté
11. Canadian Association of Petroleum Producers (CAPP)	41. Electro-Federation of Canada
12. Canadian Chamber of Commerce	42. Environment Canada
13. Canadian Chemical Producers' Association (CCPA)	43. Federation of Canadian Municipalities (FCM/PCP)
14. Canadian College of Health Service Executives (CCHSE)	44. FleetSmart
15. Canadian Electricity Association (CEA)	45. Forest Products Association of Canada (FPAC)
16. Canadian Energy Pipeline Association (CEPA)	46. GHG Verification Centre
17. Canadian Fertilizer Institute (CFI)	47. Greenhouse Gas Emissions Reduction Trading (GERT) Pilot
18. Canadian Foundry Association (CFA)	48. Hamilton Chamber of Commerce
19. Canadian Gas Association (CGA)	49. Industry Canada - Environmental Supply Chain Management Pilot (ESCM)
20. Canadian Home Builders' Association (CHBA)	50. Mining Association of Canada (MAC)
21. Canadian Industry Program for Energy Conservation (CIPEC)	51. National Pollutant Release Inventory (NPRI)
22. Canadian Lime Institute (CLI)	52. Natural Resources Canada - Office of Energy Efficiency (OEE)
23. Canadian Petroleum Products Institute (CPPI)	53. New Directions Group (NDG)
24. Canadian Public Health Association (CPHA)	54. Ontario Centre for Environmental Technology Advancement (OCETA)
25. Canadian School Boards Association (CSBA)	55. Pembina Institute for Appropriate Development
26. Canadian Standards Association (CSA)	56. Petroleum Services Association of Canada (PSAC)
27. Canadian Steel Producers Association (CSPA)	57. Railway Association of Canada (RAC)
28. Canadian Textiles Institute (CTI)	58. Technology Early Action Measures (TEAM)
29. Canadian Trucking Association (CTA)	59. World Energy Council (WEC)
30. Canadian Vehicle Manufacturers Association (CVMA)	

**TABLE THREE: Linkages and Partnerships**



## 2.2 Champions In Action (CIA)

In October 2000, the VCR Inc. Board of Directors approved the next step in continuously improving the impact of voluntary activities on GHG emissions reductions, through the creation of a level of participation and reporting beyond Champion-level reporting, called the Champions in Action (CIA) Initiative.

The purpose of this initiative is to improve the impact of VCR Inc. registrants' activities on greenhouse gas (GHG) emission reductions and to provide Canadian organizations and governments with the ability to test the design and implementation of emerging approaches intended to accelerate early action to reduce GHG emissions.

Participating entities are working toward entering into an agreement with performance targets for Canadian entity-wide GHG emission reductions. VCR Inc. reviews, approves, tracks and reports over time, the achievement of these agreements. One member, DuPont Canada Inc., has completed this process.

### **2002 Champions in Action Participants are:**

Alberta-Pacific Forest Industries Inc.  
Alcan Inc.  
DuPont Canada Inc.  
EnCana Corporation  
EPCOR Utilities Inc.  
Falconbridge Limited  
General Motors of Canada Ltd.  
Government of Alberta  
Government of Canada  
Irving Oil Limited  
Ontario Power Generation Inc. (OPG)  
Petro-Canada  
Shell Canada Limited  
Suncor Energy Inc.  
Syncrude Inc.  
TransAlta Corporation  
TransCanada

## 2.3 Engagement Strategies for Small to Medium Sized Enterprises (SMEs)

During 2002 VCR Inc. was involved in three initiatives that test strategies to encourage SMEs to engage in the process of reducing GHG emissions, primarily through energy management techniques.

### **2.3.1 Environmental Supply Chain Management (ESCM)**

The Environmental Supply Chain Management (ESCM) Pilot is a five-year program in partnership with Industry Canada, Climate Change Central in Alberta, and a series of host companies. It is designed to explore and develop the capacity for supply chain projects to reduce GHG emissions. It aims at raising awareness of ESCM as a potential means to identify and reduce greenhouse gas



emissions in SMEs and to showcase success stories based on lessons learned. Other objectives include equipping suppliers to monitor emissions and encourage the reporting of GHG emissions. During 2002 the initial two host companies, Suncor and Shell, explored methods for influencing their suppliers to track and reduce their GHG emissions.

### **2.3.2 Chamber Challenge**

In the Fall of 2002, VCR Inc. was instrumental in establishing a pilot Task Force, within the Hamilton Chamber of Commerce, working to engage SMEs in reporting on improved energy efficiency and greenhouse gas emission reductions. Using the Hamilton Chamber of Commerce as the local catalyst, and in cooperation with the Office of Energy Efficiency, we are providing workshops to help inform and further engage SMEs. The pilot is intended to provide the groundwork for a national implementation at Chambers across Canada.

### **2.3.3 Individual Action Registry**

At the smallest end of the SME spectrum are individual households. Individuals can find the tools on our web site to progress through an on-line registration process. The result is the creation of an Individual Action Plan that estimates the GHG impact of normal household activities including choice of personal transportation.

*Preparing for more rigorous accountability*



## *Canadian GHG Reduction Registry*

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The Canadian GHG Reduction Registry was created at the request of Natural Resources Canada to satisfy the need to track emissions reductions associated with the Baseline Protection Initiative that forms a part of the First Business Plan within the new National Implementation Strategy. In addition, the Reduction Registry is available to a variety of initiatives that involve the assessment of the veracity of project, facility, or entity-based GHG emission reductions. For example, it is the on-going registry for the Greenhouse Gas Emission Reduction Trading (GERT) pilot and for Activities Implemented Jointly (AIJ), projects funded by industry and coordinated by the Department of Foreign Affairs and International Trade, CDM and JI office.

### *3.1 Baseline Protection Initiative<sup>41</sup>*

The Baseline Protection Initiative (BPI) is an initiative under Canada's First National Climate Change Business Plan that was announced by federal, provincial and territorial energy and environment ministers in October 2000. Officially launched in March 2001, the BPI ensures that organizations that act early to reduce greenhouse gas emissions are not disadvantaged should potential climate change policies based on emission levels be implemented. BPI registrants can have their emissions baselines adjusted to reflect the reduction actions they have taken since January 1, 1990.

### *3.2 Greenhouse Gas Emission Reduction Trading (GERT) Pilot*

The Greenhouse Gas Emission Reduction Trading (GERT) Pilot was launched by a multi-stakeholder partnership in June 1998. The Pilot provided practical experience with a market-based approach to emissions trading. An emission reduction trading system provides industry, governments and other organizations with the opportunity to buy and sell emission reductions. By encouraging investment in lower-cost reductions, this approach has the potential to help Canada meet GHG reduction targets at a reduced overall cost. The pilot discontinued operations in June of 2002 and VCR Inc. is providing an on-going registry service to GERT to ensure that the projects it has reviewed and the associated registered emission reductions are maintained into the future.

### *3.3 Activities Implemented Jointly (AIJ)*

In the pilot phase of joint implementation, which was launched in 1995, the Conference of the Parties of the UNFCCC identified projects referred to as Activities Implemented Jointly (AIJ). These activities were pursued mainly with the objective of gaining experience, and do not generate emission reduction credits. Such projects are registered within VCR Inc.'s Reductions Registry.

### *3.4 Technology Early Action Measures (TEAM)*

The Technology Early Action Measures (TEAM) program participants register their projects within our Reductions Registry as a condition of federal funding.

For detailed information on TEAM, please visit the website at [http://www.climatechange.gc.ca/english/actions/action\\_fund/techno.shtml](http://www.climatechange.gc.ca/english/actions/action_fund/techno.shtml).

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41 For more information on the Baseline Protection Initiative, visit the program web site at: [http://www.nccp.ca/NCCP/baseline\\_pro/index\\_e.html](http://www.nccp.ca/NCCP/baseline_pro/index_e.html).

TEAM brings together partners from all levels of government, industry and communities to encourage investment in innovative technology to reduce GHG emissions. Eligible projects demonstrate innovation in the transportation, energy, agriculture and various industrial sectors and fall into three main areas:

- Working with Canadian industry to reduce their greenhouse gas emissions;
- Supporting community-based implementation of greenhouse gas emission reduction technologies; and
- Transferring Canadian greenhouse gas reduction technologies to other countries, particularly developing nations.

To achieve the greatest results, TEAM assigns top priority to projects that demonstrate significant financial partnering with a number of interested parties, such as the private sector, provinces, and municipalities.

### *3.5 Validated Registered Emissions Reductions (RERs)*

Throughout 2002 we were actively involved in the development of standardized approaches to the measurement and reporting of GHG emissions and removals. As a member of the Canadian Standards Association's Canadian Advisory Committee supporting the development of ISO guidelines for GHG measurement, monitoring, reporting, validation, registration, verification and certification, we were able to incorporate emerging concepts into our own registration instructions. In addition, our work with Champions in Action and with the GHG Emissions Reduction Trading (GERT) Pilot resulted in the development of a standardized reporting format and a methodology for validating and registering GHG emission reductions.

In order to provide a service for entities wishing to have project-based emission reductions validated and registered in the VCR Reductions Registry, we developed a validation protocol that involves:

- A standardized application form and submission of supporting documents describing the project, its emission reductions, and the results of a third party review.
- A VCR Inc. staff review of relevance, completeness, consistency, transparency and accuracy.
- Eligibility for registration: projects must result in emission reductions that are real, measurable and verifiable.

Written notice will be provided to the applicant if there are any deficiencies. If there are no deficiencies, VCR Inc. will provide notice of intent to register the project, and post the project information in the Reductions Registry for public comment. Thirty days after the project information has been posted, and having received no legitimate challenge to the ownership or validity of the reductions claimed, VCR Inc. will begin tracking the ownership of its registered emission reductions (RERs).

Annually, at the anniversary of registration of the project, and upon receiving an application and an acceptable proponent-funded third party GHG audit report, a set of RERs of identified vintage will be registered without the requirement of a grace period.

In order to ensure that this initiative is self-supported, a pre-arranged cost (based on billable hours) for the validation process will be paid by the proponent. In addition, the owner of the emission reductions will be charged a \$200 transaction fee when the initial project is registered, when ownership of the RERs is transferred, and each time RERs are modified or new ones are created.



***Steps on the road to sustainable development***

## *Credit Registry*

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VCR Inc.'s Canadian GHG **Credit Registry** was designed to post and track government sanctioned Registered GHG Emission Reductions (RERs). Rules for the creation of domestic credits have not yet been set.

International negotiations concerning the ground rules under which useable credits might be created are continuing. It is anticipated that the resulting Clean Development Mechanism and Joint Implementation (CDM/JI) projects will generate credits, which will be registered here.

In the meantime, entities that have posted RERs in our Reductions Registry and wish to transfer ownership to VCR Inc. for permanent retirement may do so through our Credit Registry.



***Leadership is the key to achievement***

## Leadership Awards

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VCR's annual Leadership Awards are granted based on the results achieved and reported in an Action Plan by registrants, with the intention of recognizing them for their outstanding contributions toward meeting Canada's commitment to reduce GHG emissions. The independent judging panel is drawn from the membership of VCR's Technical Advisory Committee.

The members of VCR's Council of Champions, selected special guests, media, all Leadership Award winners from previous years, current award winners, and those receiving Honourable Mention, are invited to VCR's annual Council of Champions Meeting and Leadership Awards Ceremony held in March of every year. Self-financed through table sponsorships and ticket sales, it is a gala celebration held, since its inception, at the Canadian Museum of Civilization in Hull, Québec.

It has become customary for the Ministers of Natural Resources Canada and of Environment Canada to present the awards to the recipients. Invitations are mailed out in early January. Those selected to receive an Award or Honourable Mention are contacted directly in advance of the event.

VCR Inc.'s Technical Advisory Committee has developed the following selection criteria for the awards as guidance for its judging panel:

### Minimum Selection Criteria

- Registered with VCR ; and
- Have submitted an Action Plan between October 31st of the current year and November 1st of the previous year.

### Other Considerations

- Representation of different sectors in selecting award candidates; and
- Best submission from a new registrant.

### Specific Selection Criteria

Depth of commitment to GHG emission reduction as expressed in:

- a) Senior management support, and the development of corporate actions and policies (i.e. Does the organization operate other environmental programs in concert with those described in the VCR Action Plan? Does the organization have a good history of energy management? Has the organization implemented purchasing policies that promote environmental awareness? Has the organization reported thoroughly?).
- b) Education, training and awareness programs for employees.
- c) Indication of successful results related to the reduction of GHG emissions.
- d) Quality of results reported regularly, achievement of targets, and overall impact on the organization's GHG emissions.
- e) Innovation in addressing GHG emission reduction.

Leadership within the organization's sector as expressed in:

- a) Cooperation and participation with related government (federal, provincial, territorial and municipal) and/or industry programs.
- b) Promotion of the climate change challenge to peers, through trade associations, and/or to the general public.



- c) Assisting peers in planning actions to address GHG emission reductions.
- d) The organization's efforts result in an increased number of participants (at all levels of engagement) in VCR or in a related energy efficiency program addressing the climate change challenge.

Throughout the judging process, special emphasis is placed on finding organizations that have demonstrated commitment, action and leadership within their economic sector. Recognition for commitment and action is granted to eligible registrants based on their Action Plans and/or Progress Reports. In this case, VCR's judging panel members pay close attention to the Results Achieved section of the reports under review.

Those recipients in the category of Association and Individual Leadership are drawn from a list of nominees chosen because of their dedicated activity as advocates for the voluntary climate change challenge.

## 5.1 Leadership Award Winners

### **Best New Submission**

- 2002 Famz Foods
- 2001 Honda of Canada Mfg.
- 1999 Northwest Territories Power Corporation
- 1998 Encal Energy Limited

### **Individual Leadership Award**

- 2002 Peter Chantraine, DuPont Canada Inc.
- 2001 Bob Page, TransAlta
- 2000 Sadettin Yilmaz, Natural Resources Canada  
Ken Ogilvie, Pollution Probe
- 1999 Rahumatula Marikkar, Interface Flooring  
John Donner, Government of Alberta
- 1998 The Honourable Anne McLellan, role as Minister of Natural Resources Canada (November 1993 to June 1997)

### **Association Leadership Award**

- 2002 Aluminium Association of Canada
- 2001 Mining Association of Canada
- 2000 Canadian Chemical Producers' Association
- 1999 Canadian Industry Program for Energy Conservation
- 1998 Canadian Association of Petroleum Producers

## *Sector Leadership Awards*

### **Automotive Manufacturing**

- 2002 Honda of Canada Mfg.
- 2001 General Motors of Canada Ltd.
- 2000 DaimlerChrysler Canada Ltd.  
General Motors of Canada Ltd. (HM)
- 1999 Ford Motor Company of Canada, Ltd.  
General Motors of Canada Ltd. (HM)

### **Electric Utilities**

- 2002 Manitoba Hydro
- 2001 Northwest Territories Power Corporation
- 2000 BC Hydro
- 1999 EPCOR  
Northwest Territories Power Corporation (HM)
- 1998 TransAlta

### **Cement**

- 2002 St. Lawrence Cement Co. (HM)

### **Commercial**

- 2000 Van City Savings Credit Union  
Novotel Canada Inc. (HM)

### **Chemicals**

- 2002 DuPont Canada Inc.
- 2001 Dow Chemical Canada Inc.
- 2000 NOVA Chemicals  
DuPont Canada Inc.
- 1999 Dow Chemical Canada Inc.  
NOVA Chemicals (HM)
- 1998 DuPont Canada Inc.

### **Education – Colleges and Universities**

- 2002 Kwantlen University College
- 2001 University of Lethbridge
- 2000 New Brunswick Community Colleges
- 1999 Langara College (HM)
- 1998 Southern Alberta Institute of Technology

### **Education – School Boards**

- 2002 School District 43 (Coquitlam)
- 2000 School District 43 (Coquitlam)
- 1999 Rocky View School Division no. 41

### **Forestry, Pulp and Paper**

- 2002 Alberta-Pacific Forest Industries Inc.
- 2001 Tembec – Spruce Falls Operations  
Alberta-Pacific Forest Industries Inc. (HM)
- 2000 Abitibi-Consolidated Inc.
- 1999 Spruce Falls Inc.  
Stora Enso Port Hawkesbury Limited (HM)
- 1998 MacMillan Bloedel Limited

## **General Manufacturing**

- 2002 Husky Injection Molding Systems Ltd.
- 2001 Consoltex Inc.
- 2000 IBM Canada Ltd.  
Orenda Aerospace Corporation (HM)
- 1999 Husky Injection Molding Systems Ltd.  
Kodak Canada Inc. (HM)  
IBM Canada (HM)  
Metroland Printing, Ltd. (HM)

## **Health Services**

- 2002 The Scarborough Hospital
- 2001 Brandon Regional Health Authority
- 2000 University of Alberta Hospital
- 1999 Glenrose Rehabilitation Hospital and Energy Centre (HM)

## **Integrated Oil and Gas Corporations**

- 2002 Shell Canada Limited  
Petro-Canada (HM)
- 2001 Suncor Energy Inc.  
Imperial Oil (HM)  
Shell Canada Limited (HM)
- 1999 Suncor Energy Inc.

## **Governments**

- 2000 Alberta Government  
Government of British Columbia (HM)
- 1999 Government of Canada (HM)  
City of Regina (HM)
- 1998 Alberta Government  
City of Ottawa

## **GHG Reduction Technology**

- 2002 PEI Energy Corporation

## **Metal Mining**

- 2002 INCO Limited  
Luscar Ltd. (HM)
- 2000 INCO Limited  
Luscar Limited (HM)  
Falconbridge Limited (HM)
- 1999 Cominco Ltd.  
INCO Limited (HM)  
Luscar Limited (HM)  
Falconbridge Limited (HM)
- 1998 Dofasco

## **Nuclear Technology**

2000 Atomic Energy of Canada Ltd.

## **Oil and Gas – Refiners and Upgraders**

2000 Syncrude Canada Ltd.

Irving Oil (HM)

Petro-Canada (HM)

## **Oil and Gas – Downstream**

2000 Syncrude Canada Ltd.

Irving Oil Limited (HM)

1999 Irving Oil Limited (HM)

1998 Petro-Canada

Husky Oil Operations Limited

## **Oil and Gas – Upstream**

2002 ConocoPhillips Canada

BP Canada Energy Company (HM)

2001 ExxonMobil Canada Ltd.

2000 Startech Energy Inc. (ARC Resources Ltd.)

Burlington Resources Canada Energy Ltd.

1999 Mobil Canada Ltd.

Koch Oil Co. Ltd. (HM)

1998 Syncrude Canada Ltd.

## **Oil and Gas – Pipelines and Natural Gas Distribution**

2002 Gaz Métropolitain

2001 BC Gas

2000 SaskEnergy and TransGas

1999 TransGas Limited

SaskEnergy Incorporated (HM)

TransCanada (HM)

1998 Enbridge Consumers Gas

## **Primary Metals Manufacturing**

2002 Dofasco

2001 Stelco Inc.

2000 Dofasco

## **Small and Medium Sized Enterprise (SME)**

2002 NRI Industries

2001 Yukon Development Corporation

2000 Enviros RIS Canada

## **Transportation**

1999 Canadian National Railway Company (HM)



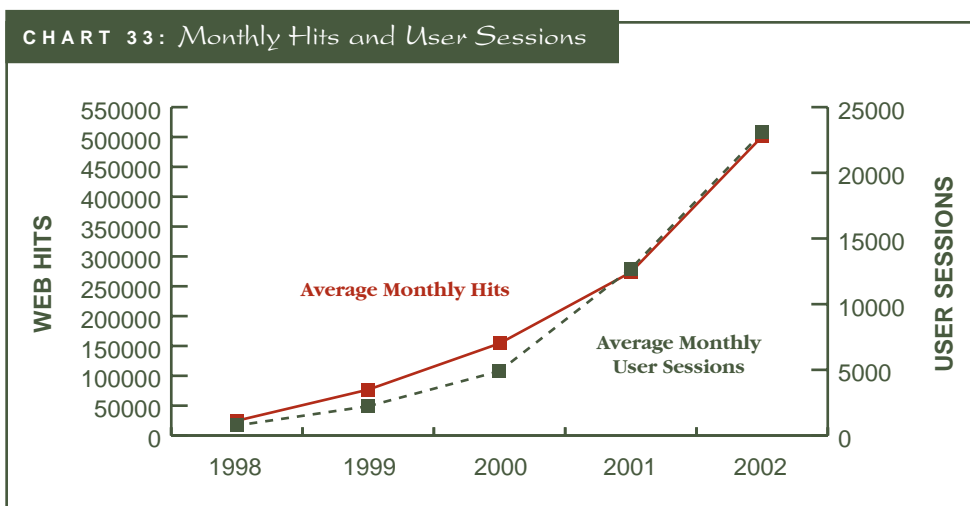
**Web-based communication comes of age**

## Communications

### 6.1 Website

The VCR Inc. Web site acts as a highly interactive communications medium, reaching all target audiences and providing an enormous amount of information at a very low cost. It is also very flexible and can be changed quickly to reflect current activity.

Chart 33 illustrates that use of our site has expanded at an annual rate of over 170% for the past two years.

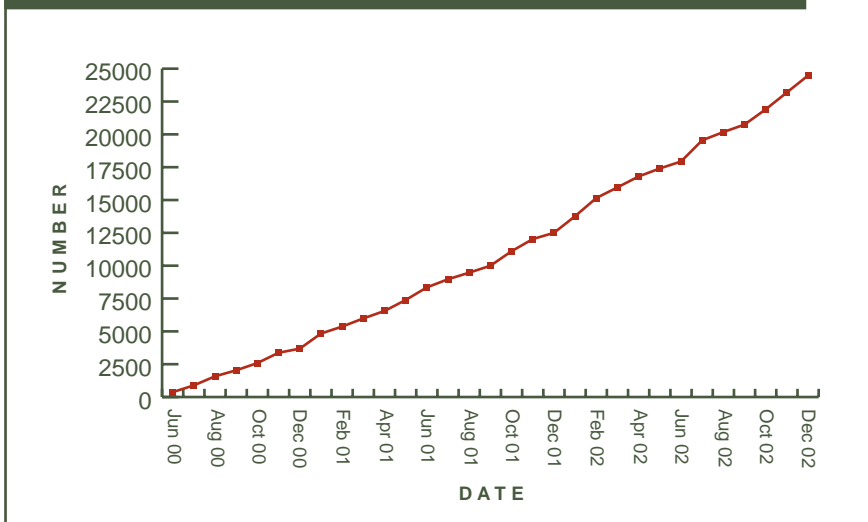


### 6.2 Guide to Entity and Facility Based Reporting

Our Guide to Entity and Facility Based Reporting is intended to walk registrants through the process of submitting their Action Plans using built-in templates, user-friendly instructions and multiple user-friendly registration submission options. It is a web-based document that is modified periodically throughout the year.

From baseline development, through target setting, to the documentation of achieved results, this guide provides complete information about VCR, the Champion level Reporting System, as well as other informative and useful features including how to prepare a comprehensive Action Plan to reduce GHG emissions. It also includes other reporting tools that will assist in the preparation of an Action Plan, such as up-to-date emissions factors, a Champion reporting checklist, and a listing of trade association resources.

CHART 34: Total Number of Registration Guide Downloads



### 6.3 Champion News

Published every second month, *Champion News* is distributed to all VCR Inc. registrants and other interested parties by mail or electronically by email. The newsletter is also available on-line at the website address: [www.vcr-mvr-ca](http://www.vcr-mvr-ca) under the *News* Section. Its purpose is to keep readers apprised of VCR activities with information on a variety of topics from success stories to welcoming new registrants to the announcement of new VCR Inc. initiatives.

The current readership of the newsletter is approximately 2500, and is constantly increasing.

### 6.4 Annual Report

Issued annually in conjunction with the Annual Council of Champions meeting and Leadership Awards Ceremony, VCR Inc.'s Annual Report contains an interesting and revealing synopsis of activities and initiatives undertaken throughout the previous year.

### 6.5 Progress Reports

VCR's Progress Reports are distributed electronically on a monthly basis to an interested group of roughly 175 readers, including Council of Champions/Board of Directors members, association heads, government officials and VCR Inc.'s Technical Advisory Committee members. Its purpose is to keep VCR Inc.'s closest stakeholders apprised of the Corporation's progress on a more detailed month-to-month basis. It has become a valuable vehicle for on-going communication with the principals behind the ever-growing list of linkages and partnerships.

### 6.6 VCR Inc. 2002 Stakeholder Survey

COMPAS was commissioned to conduct a survey to measure stakeholder awareness and satisfaction with the activities of VCR Inc. This survey is a follow-up to ones undertaken in February-March 1999, December 1999, December 2000, and December 2001.

Two versions of the questionnaire were developed: a short version for use with senior executive stakeholders, and a longer version for use with the technical contact person in stakeholder organizations. The survey was administered using an on-line methodology.

In total, 1,019 invitation letters were emailed out on November 1<sup>st</sup>: 646 to technical stakeholders and 373 to executive stakeholders. In total, 221 surveys were completed on-line. This represents an overall response rate of 22%.

#### Familiarity and Perceived Importance

- 82% of technical stakeholders claim to be at least *moderately* familiar with the activities of VCR Inc. (45% say *very* familiar). Familiarity is higher and stronger among executive stakeholders: 89% are at least moderately familiar (52% say *very* familiar). Familiarity among technical stakeholders is virtually identical to what it was in previous surveys in terms of level, but higher in terms of intensity (45% claim to be very familiar with the activities of VCR Inc. vs. 33-35% in previous years). Among executive stakeholders familiarity, in both level and intensity, is identical to what it was last year.
- 87% of technical stakeholders consider VCR Inc.'s work to be important: almost equal numbers consider the work to be moderately important (44%) and very important (43%). Executives have similar views in terms of both level and intensity.

Since last year, there has been a slight decrease in the number of technical stakeholders who consider the work to be at least moderately important (87% vs. 91% in Fall 2001), though there has been no change in the number who consider it to be very important. The number of executives who consider the work to be important has not changed significantly since last year.

- 79% of technical respondents view participation in VCR Inc. as at least moderately important to their organization (35% say *very* important). Executives are more likely to view participation as important (86%). The overall importance of participation among technical stakeholders has changed little over time (76-79% range), though the number who view participation as *very* important has been increasing since last year, reversing the gradual decrease that had been taking place since Fall 1999 and attaining the high point it was at in the baseline survey. Similarly, executive perceptions in this area have changed little over time, though the number who view participation as *very* important is higher than it has been in previous years (39% vs. 31-33% in previous years).

#### Perceptions of Satisfaction and Benefits

- 59% of the technical stakeholders say that their expectations have been met with respect to participation in the activities of VCR Inc. However, satisfaction tends to be moderate (45%) rather than strong (14%). Approximately one-quarter think that their expectations have been *somewhat* met. Executive stakeholders express slightly greater satisfaction: 66% say their expectations have been met (16% say greatly, 50% say satisfactorily), while 19% say they have been somewhat met. The number of technical stakeholders indicating that their expectations have been met is slightly lower than it was last year (59% vs. 61% in Fall 2001), but the number indicating that they have been *greatly* met has been increasing gradually since Fall 2000. In a similar way, while the number of executive stakeholders indicating that their expectations have been met is lower than it was last year (66% vs. 70% in Fall 2001), the number who say their expectations have been *greatly* met has at least doubled compared to previous years (16% vs. 5-8% in previous years).



- 72% of technical stakeholders say that participation in VCR Inc. helps their organization achieve or promote its emission reduction targets. This compares to 79% of executives. Results for technical stakeholders are similar to what they were last year (75%). Compared to last year, fewer executive stakeholders think that participation in VCR Inc. helps their organization achieve or promote its emission reduction targets (79% vs. 84%). However, this change is small compared to fluctuations in executive perceptions over past years: 79% vs. 84% in 2001, 71% in Fall 2000, 80% in Fall 1999, and 69% in February 1999.
- In terms of benefits associated with participation in VCR Inc., technical stakeholders focus most often on public recognition (18%), access to information, and promoting awareness (13% each). Executive stakeholders tended to focus on the same benefits but put more emphasis on access to information (21% vs. 13%), and promoting the voluntary approach (11% vs. 4%), and less on monitoring and gauging progress (3% vs. 10%). The importance attributed to public recognition is almost identical to what it was last year, after having increased gradually in significance since Fall 2000. Promoting awareness has been declining in significance over the past three years.

**TABLE FOUR: Satisfaction Quotient of Executive Contacts**

"To what extent has participation in VCR Inc. met your organization's expectations?"											
	Multiplier	1998		1999		2000		2001		2002	
		Percent	Quotient	Percent	Quotient	Percent	Quotient	Percent	Quotient	Percent	Quotient
Greatly	1.5	7.0	10.5	9.0	13.5	5.0	7.5	8.0	12.0	16.0	24.0
Satisfactorily	1.0	45.0	45.0	56.0	56.0	59.0	59.0	62.0	62.0	50.0	50.0
Somewhat	0.5	28.0	14.0	18.0	9.0	18.0	9.0	17.0	8.5	19.0	9.5
Not at all	-1.0	6.0	-6.0	4.0	-4.0	2.0	-2.0	6.0	-6.0	0.0	0.0
Total		-	63.5		74.5	-	73.5	-	76.5	-	83.5

Source: VCR Inc. 2002 Stakeholder Survey, *Perceptions of Satisfaction and Benefits*, Compas Inc., December 2002.

**TABLE FIVE: Satisfaction Quotient of Technical Contacts**

"Overall, how satisfied are you with your working relationship with VCR Inc.?"											
	Multiplier	1998		1999		2000		2001		2002	
		Percent	Quotient	Percent	Quotient	Percent	Quotient	Percent	Quotient	Percent	Quotient
Very Satisfied	1.5	17.0	25.5	31.0	46.5	28.0	42.0	34.0	51.0	48.0	72.0
Somewhat Satisfied	1.0	49.0	49.0	38.0	38.0	33.0	33.0	39.0	39.0	26.0	26.0
Neither	0.5	23.0	11.5	22.0	11.0	34.0	17.0	26.0	13.0	21.0	10.5
Somewhat Dissatisfied	-0.5	5.0	-2.5	2.0	-1.0	1.0	-0.5	2.0	-1.0	0.0	0.0
Very Dissatisfied	-1.0	2.0	-2.0	4.0	-4.0	1.0	-1.0	0.0	0.0	0.0	0.0
Total		-	81.5	-	90.5	-	90.5	-	102.0		108.5

Source: VCR Inc. 2002 Stakeholder Survey, *Perceptions of Satisfaction and Benefits*, Compas Inc., December 2002.

*A unique and robust corporate structure*



## VCR Inc. Structure

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VCR Inc. reports to a Council of Champions (2002 Council Members listed in section 7.1) comprising senior representatives from leading industry organizations and government bodies supporting the corporation. The Council currently consists of 48 members, who represent over 75% of the opportunity for business and government operations to reduce GHG emissions in Canada. Each Council member serves as the 'champion' of the voluntary challenge in his/her sector or region.

VCR Inc.'s Board of Directors (2002 Board of Directors listed in section 7.2) is drawn from the Council. Industry representatives are elected on an annual basis at the Council of Champions Meeting, while the federal minister of Natural Resources Canada appoints government representatives. The Board receives guidance from the following three committees:

The *Governance Committee* was established to permit review of the issues related to the election and nomination of board members and to assess the performance of the Technical Advisory Committee. It consists of a Chair and two other board members.

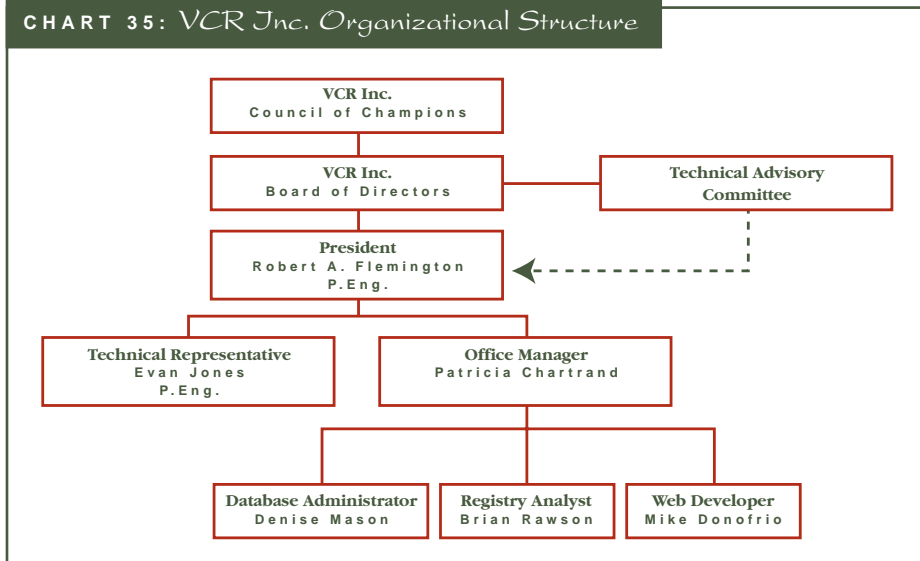
The *Audit Committee* was created to review the audited year-end financial statements and reports and to meet with the auditors. Much like the Governance Committee, it comprises a Chair and two board members. It is their responsibility to satisfy themselves, on behalf of the Board, that VCR Inc.'s financial requirements are met.

The *Technical Advisory Committee (TAC)* (2002 TAC Members listed in section 7.3) was established to provide, at the request of the Board, recommendations concerning technical issues. It consists of representatives from academia, labour, environmental non-government organizations, the aboriginal community, industry and governments.

The VCR Inc. office was created to support the Council of Champions in the development of an engagement strategy to recruit more organizations, more partnerships with associations, and more awareness of the voluntary approach by all Canadians. In this regard, the Board provided input to, and approved, the 2001-2003 Strategic Plan. In addition, an annual Business Plan based on this strategy is reviewed and endorsed by the Board in conjunction with the presentation of an annual budget.

For the year ending 2002, the office comprised six staff members: President, Office Manager, Technical Representative, Database Administrator, Registry Analyst and Web Developer.

CHART 35: VCR Inc. Organizational Structure



## 7.1 2002 Council of Champions

George Anderson  
Deputy Minister of Natural Resources  
Government of Canada

Graham Bojé  
Vice-President, Manufacturing  
Shell Canada Limited

Norman B. Brandon  
Deputy Minister  
Government of Manitoba

Grete Bridgewater  
Manager  
Environmental Programs  
Canadian Pacific Railway (CPR)

Jim Burpee  
Chairman and Chief Executive Officer  
Integran Technologies Inc.

Alex Campbell  
Deputy Minister  
Sustainable Development  
Government of Nunavut

David Colcleugh  
President, CEO & Chairman  
DuPont Canada Inc.

Peter Cooke  
Senior Consultant  
Lafarge Canada Inc.

Ken Crane  
Director of Environmental Services  
Luscar Ltd.

Paul Dean  
Deputy Minister of Environment and  
Labour  
Government of Newfoundland and  
Labrador

John Donner  
Assistant Deputy Minister  
Climate Change  
Department of Environment  
Government of Alberta

Jack Ebbels  
Deputy Minister of Energy and Mines  
Government of British Columbia

Tim W. Faithfull  
President and Chief Executive Officer  
Shell Canada Limited

David Ferguson  
Deputy Minister  
Natural Resources & Energy  
Government of New Brunswick

Bob Flemington  
President  
VCR Inc.

Daniel Gagnier  
Vice-President  
Corporate and Environmental Affairs  
Alcan Inc.

Daniel Graham  
Deputy Minister of Natural Resources  
Government of Nova Scotia

Vaughn Hibbits  
Vice President  
Administration  
Honda of Canada Mfg.

Arthur Irving Jr.  
Irving Oil Limited

Boris Jackman  
Executive Vice President  
Petro-Canada

Byron James  
Deputy Minister  
Environment and Local Government  
Government of New Brunswick

Paul Jelley  
Deputy Minister of Development &  
Technology  
Government of Prince Edward Island

Wayne Kenefick  
President  
Canadian Lime Institute (CLI)

Hugh Klaassen  
Corporate Operating Officer  
Paramount Resources Ltd.

Ron E. L'Esperance  
Deputy Minister of the Environment &  
Labour  
Government of Nova Scotia

Phil Lachambre  
Executive Vice President and Chief  
Financial Officer  
Syncrude Canada Ltd.

David Lewin  
Senior Vice President  
EPCOR Utilities Inc.

J. Norm Lockington  
VP Technology  
Dofasco Inc.

Kevin Lyden  
President  
UPM-Kymmene Miramichi Inc.

Larry MacDonald  
Senior Vice-President  
Manufacturing East  
NOVA Chemicals

Brian Maynard  
Deputy Minister of Mines & Energy  
Government of Newfoundland and  
Labrador

Brian McConaghy  
Vice President  
Health, Safety & Environment  
TransCanada

Bob McLeod  
Deputy Minister of Resources  
Wildlife & Economic Development  
Government of the Northwest  
Territories

Chris Micek  
Manager  
Environment  
Health & Safety  
Agrium

Alan Nymark  
Deputy Minister of Environment  
Government of Canada

Robert Page  
Vice-President  
Sustainable Development  
TransAlta Corporation

Normand Pellerin  
Assistant Vice President  
Environment  
Canadian National Railway Company  
(CN)

Jane L. Peverett  
President & CEO  
Union Gas Limited

Ken J. Plourde  
Director  
Forest Strategies  
Alberta-Pacific Forest Industries Inc.

Bryne Purchase, Ph D  
Deputy Minister of Energy  
Ministry of Environment and Energy  
Government of Ontario

Angus Robertson  
Deputy Minister of Economic  
Development  
Government of Yukon

Terry Scott  
Deputy Minister  
Environment and Resource  
Management  
Government of Saskatchewan

Larry Spanner  
Deputy Minister of Industry and  
Resources  
Government of Saskatchewan

Norm Stewart  
Vice President  
Government Relations and General  
Council  
Ford Motor Company of Canada, Ltd.

Derek Thompson  
Deputy Minister of Environment  
Lands & Parks  
Government of British Columbia

Christian L. Van Houtte  
President  
Aluminium Association of Canada

Tayce Ann Wakefield  
Vice President  
General Motors of Canada Ltd.

Steve Williams  
Executive Vice President  
Corporate Development and CFO  
Suncor Inc.

## 7.2 2002 Board of Directors (as at December 31, 2002)

George Anderson  
Deputy Minister of Natural Resources  
Government of Canada

Graham Bojé  
Vice-President  
Manufacturing  
Shell Canada Limited

Jim Burpee  
Senior Vice President  
Electricity Production  
Ontario Power Generation Inc.

Alex Campbell  
Deputy Minister  
Sustainable Development  
Government of Nunavut

Peter Cooke  
Senior Consultant  
Former Executive VP  
Cement North America  
Lafarge Corporation  
Lafarge Canada Inc.

John Donner  
Assistant Deputy Minister  
Climate Change  
Department of Environment  
Bureau of Climate Change  
Government of Alberta

Bob Flemington  
President  
VCR Inc.

Byron James  
Deputy Minister  
Environment and Local Government  
Government of New Brunswick

Hugh Klaassen  
Corporate Compliance Officer  
Paramount Resources Ltd.

Norm Lockington  
Vice President  
Technology  
Dofasco Inc.

Kevin Lyden  
President  
UPM-Kymmene  
Miramichi Inc.

Brian McConaghy  
Vice President of Health, Safety &  
Environment  
TransCanada Pipelines Limited

Alan Nymark  
Deputy Minister of Environment  
Government of Canada

Jane Peverett  
President and CEO  
Union Gas Limited

Bryne Purchase, Ph D  
Deputy Minister  
Ministry of Energy, Science and  
Technology  
Government of Ontario

Norm Stewart  
Vice President  
Government Relations and General  
Council  
Ford Motor Company of Canada, Ltd.

Stephen Williams  
CFO  
Suncor Inc.

## Former 2002 Board Members

Peter Harrison  
Deputy Minister of Natural Resources  
Government of Canada

W. Warren Holmes  
Senior Vice President  
Canadian Mine Operations  
Falconbridge Limited

Michael O'Brien  
Executive Vice President  
Corporate Development and CFO  
Suncor Inc.

## 7.3 Members of VCR Inc.'s Technical Advisory Committee (TAC)

Les Aalders  
VP Engineering and Maintenance  
Air Transport Association of Canada

David Bell  
Director  
York University

Steve Blight  
Assistant Director  
Regulatory and Economic Analysis  
Branch  
Environment Canada

Keir Brownstone  
General Manager  
Greensaver

Peter Chantraine  
Manager, Energy and Environment  
DuPont Canada Inc.

Catherine Cobden  
Vice President Environment  
Forest Products Association of Canada

Bob Flemington  
President  
VCR Inc.

Paul Gregory  
Program Officer  
Partners for Climate Protection  
Program  
Federation of Canadian Municipalities

Paul Griss  
Independent Environmental Consultant  
Baldon Group Inc.

Paul Hansen  
Manager  
Environmental Affairs  
DaimlerChrysler Canada Inc.

Lyle Hargrove  
Director of CAW Health and Safety  
Training Fund  
Canadian Auto Workers

Dianne Humphries  
Manager  
Sustainable Development  
Suncor Inc.

Rick Jennings  
Director  
Energy Policy Branch  
Energy Division  
Government of Ontario

Evan Jones  
Technical Representative  
VCR Inc.

Marc Lemieux  
Conseiller principal  
Environnement  
Affaires réglementaires  
Gaz Métropolitain

Peter Love  
Executive Director  
Canadian Energy Efficiency Alliance

Scott McCoombs  
Energy Engineer  
Department of Environment  
Government of Nova Scotia

Tim McIntosh  
Director  
Demand Policy and Analysis  
Natural Resources Canada  
Government of Canada

Tom Michelussi  
Altus Environmental Engineering  
Limited

Ron O. Nielsen  
Manager  
Environmental Affairs and Sustainability  
Alcan Primary Metal Group  
Alcan Inc.

Joel R. Nodelman  
Manager  
Sustainable Development  
EPCOR Utilities Inc.

Susan Olynyk  
Senior Energy Specialist  
Dofasco Inc.

Jim Reffle  
Director  
Environmental Health & Chronic  
Disease Prevention  
Middlesex-London Health Unit

Betty Rozendaal  
Independent Consultant

Duane Smith  
Climate Change Technologies Officer  
TEAM Operations Office  
Technology Early Action Measures  
(TEAM)

## 7.4 2002 Funding Partners

Alberta-Pacific Forest Industries Inc.	Government of Canada – Department of Natural Resources Canada
Alcan Aluminium Ltd.	Government of Manitoba
Aluminium Association of Canada	Government of New Brunswick
Canadian Association of Petroleum Producers	Government of Newfoundland and Labrador – Department of Energy and Mines
Canadian Chemical Producers' Association	Government of Newfoundland and Labrador – Department of Environment and Labour
Canadian Electricity Association	Government of Nova Scotia – Department of Environment and Labour
Canadian Energy Pipeline Association	Government of Nova Scotia – Department of Natural Resources
Canadian Fertilizer Institute	Government of the Northwest Territories
Canadian Gas Association	Government of Nunavut
Canadian Lime Institute	Government of Ontario
Canadian National Railway	Government of Prince Edward Island
Canadian Pacific Railway	Government of Saskatchewan – Department of Energy and Mines
Canadian Petroleum Products Institute	Government of Saskatchewan – Department of Environment and Resource Management
Canadian Steel Producers Association	Government of Yukon
Canadian Vehicle Manufacturers' Association	Irving Oil Limited
Cement Association of Canada	Luscar Ltd.
Dupont Canada Inc.	Ontario Power Generation Inc.
EnCana Corporation	Shell Canada
EPCOR Utilities Inc.	Suncor Energy Inc.
Falconbridge Limited	Syncrude Canada Ltd.
Forest Products Association of Canada	TransAlta Corporation
General Motors of Canada Inc.	TransCanada
Government of Alberta	
Government of British Columbia – Department of Energy and Mines	
Government of British Columbia – Department of Environment, Lands and Parks	
Government of Canada – Department of Environment Canada	

## 7.5 List of Registrants by Level of Reporting

(as at December 31, 2002)

### 7.5.1 Champion in Action

DuPont Canada Inc.

### 7.5.2 Gold

Alberta-Pacific Forest Industries Inc.	DuPont Canada Inc.
Alliance Pipeline Ltd.	Enbridge Inc.
ATCO Gas	EnCana Corporation
ATCO Pipelines	EPCOR Utilities Inc.
Atomic Energy of Canada Limited (AECL)	ExxonMobil Canada Ltd.
BC Gas Utility Ltd.	Falconbridge Limited
Bison Transport	Famz Foods
BP Canada Energy Company	Ford Motor Company of Canada, Ltd.
Brandon Regional Health Authority	Gaz Métropolitain
Burlington Resources Canada Energy Ltd.	General Motors of Canada Ltd.
Calpine Canada	Glenrose Rehabilitation Hospital and Energy Centre
Camosun College	Government of Alberta
Canadian Chemical Producers' Association (CCPA)	Government of British Columbia
Canadian Natural Resources Limited	Government of Canada
Canadian Petroleum Products Institute (CPPI)	Honda of Canada Mfg.
Capilano College	Humber College of Applied Arts and Technology
Cégep de Saint-Jérôme	Husky Energy Inc.
Chevron Canada Resources	Husky Injection Molding Systems Ltd.
Chinook Group Limited	IBM Canada Ltd.
City of Calgary	Imperial Oil Ltd.
City of Ottawa	Inco Limited
ConocoPhillips Canada	Irving Oil Limited
Consoltx Inc.	La Cité collégiale
DaimlerChrysler Canada Inc.	Langara College
Delta Meadowvale Resort & Conference Centre	Luscar Ltd.
Devon Canada Corporation	Manitoba Hydro
Dofasco Inc.	Mikro-Tek
Dow Chemical Canada Inc.	Mining Association of Canada (MAC)
	NAL Resources
	New Brunswick Community College - Campbellton Campus
	New Brunswick Community College - Dieppe
	New Brunswick Community College - Edmunston Campus
	New Brunswick Community College - Miramichi Campus
	New Brunswick Community College - Moncton Campus

New Brunswick Community College - Saint John  
 New Brunswick Community College - St. Andrews Campus  
 New Brunswick Community College - Woodstock  
 Nexen Canada Ltd.  
 Noranda Inc.  
 Northwest Territories Power Corporation  
 NOVA Chemicals  
 Ontario Power Generation Inc. (OPG)  
 Orenda Aerospace Corporation  
 Oxy Vinyls Limited  
 Pacifica Papers Company  
 Panasonic Canada Inc.  
 Pengrowth Corporation  
 Penn West Petroleum Ltd.  
 Petresa Canada Inc.  
 Petro-Canada  
 PrimeWest Energy Trust  
 Prince Edward Island Energy Corporation  
 Rocky View School Division No. 41  
 Rouge Valley Health System  
 SaskEnergy  
 SaskPower  
 School District No. 43 (Coquitlam)  
 SGT 2000 inc.  
 Shell Canada Limited  
 Shiningbank Energy Ltd.  
 Simon Fraser University  
 Sir Sandford Fleming College  
 Southern Alberta Institute of Technology (SAIT)  
 St Marys Cement Co.  
 Star Oil & Gas Ltd.  
 Stelco Inc.  
 Stora Enso Port Hawkesbury  
 Summit Resources Limited  
 Suncor Inc.  
 Syncrude Canada Ltd.  
 Tembec Paper Group - Pine Falls Operation  
 Tembec Paper Group - Spruce Falls Operations  
 The Scarborough Hospital  
 TransAlta Corporation  
 TransCanada  
 University College of the Fraser Valley  
 University of Alberta Hospital  
 University of British Columbia  
 University of Lethbridge  
 University of Ottawa  
 Unocal Canada Limited  
 VanCity Savings Credit Union  
 Yukon Development Corporation

### 7.5.3 Silver

Abitibi-Consolidated Inc.  
 Agrium  
 Aluminerie Alouette inc.  
 ARC Resources Ltd.  
 ATCO Electric  
 Atlantic Health Sciences Corporation  
 BC Hydro  
 Bowater Mersey Paper Company Limited  
 British Columbia Institute of Technology (BCIT)  
 Cambridge Memorial Hospital  
 Canadian Electricity Association (CEA)  
 Canadian Forest Products Ltd. (Canfor)  
 Canadian Hunter Exploration Ltd.  
 Canadian National Railway Company (CN)  
 Canlan Ice Sports Corp.  
 Cégep de Lévis-Lauzon  
 Cégep Marie-Victorin  
 Celanese Canada Inc.  
 Cement Association of Canada  
 Centra Gas Manitoba Inc.

City of Regina  
 Collège François-Xavier-Garneau  
 Commission scolaire des Hautes-Rivières  
 Commission scolaire des Patriotes  
 Domtar Inc.  
 Edmonton Regional Airports Authority  
 EMCO Building Products Ltd.  
 Enviros RIS Canada  
 EOG Resources Canada Inc.  
 Express Pipeline Ltd.  
 Genesis Exploration Ltd.  
 Grand & Toy Limited  
 Hamilton Health Sciences Corporation  
 Howe Sound Pulp and Paper Limited Partnership  
 Imperial Tobacco Canada  
 Koch Canada, L.P.  
 Kruger Inc.  
 Kwantlen University College  
 Methanex Corporation  
 Metroland Printing, Publishing and Distributing  
 - Wolfedale Division  
 Newmont Canada Limited  
 Norske Skog Canada  
 Northrock Resources Ltd.  
 Nova Scotia Power Inc.  
 Novotel Canada Inc.  
 Novotel Ottawa  
 NRI Industries Inc.  
 Papiers Stadacona Ltée  
 Paramount Resources Ltd.  
 PCS Potash Corporation Allan Division  
 PCS Potash Cory Division  
 PCS Potash Patience Lake Division  
 PCS Potash Rocanville Division  
 Pembina Pipeline Corporation  
 Queen Elizabeth II Health Sciences Centre (QE II)  
 Red River College  
 Regina Roman Catholic Separate School Division No. 81  
 Richland Petroleum Corporation  
 Rife Resources Ltd.  
 Riverside Forest Products, Armstrong Plywood  
 Royal Roads University  
 Shell Chemicals Canada Ltd.  
 Signalta Resources Ltd.  
 Simon Fraser Health Region  
 St. Lawrence Corp.  
 Stanton Regional Health Board  
 Talisman Energy Inc.  
 Teck Cominco Limited  
 Tembec Inc.  
 The Body Shop  
 Toronto Dominion Centre Leaseholds Limited  
 Triumph Energy Corporation  
 University of Calgary  
 University of Western Ontario  
 Vancouver Community College  
 Weldwood of Canada Ltd.  
 Westcoast Energy Inc.  
 Winnipeg Health Sciences Centre

### 7.5.4 Bronze

Acadia University  
 Albarrie Canada Limited  
 Alcan Inc.  
 Alcoa - Aluminerie de Baie-Comeau  
 Alcoa - Aluminerie de Bécancour inc.  
 Alcoa - Aluminerie de Deschambault  
 Anadarko Canada Corporation  
 Archean Energy Ltd.  
 ATOFINA Canada Inc.  
 Avalon West School Board



Bayer Inc. - Rubber Division  
 Bentofix Technologies Inc.  
 BHP Billiton Diamonds Inc. - Ekati Diamond Mine  
 Business Depot Ltd.  
 Cadillac Fairview Corporation Ltd - Ontario Portfolio  
 Collège de l'Outaouais  
 College of the North Atlantic  
 Dominion Energy Canada Ltd.  
 Fording Coal Limited  
 Government of Québec  
 London Life Insurance Company  
 M & I Heat Transfer Products  
 McLeod Harvest Inc.  
 Metroland Printing, Publishing and Distributing  
   - Tempo Division  
 Moosehead Breweries Ltd.  
 Norfolk General Hospital  
 North West Catholic School Division No. 16  
 Ottawa-Carleton District School Board  
 PCS Potash New Brunswick Division  
 Pioneer Natural Resources Canada Inc.  
 Regina Health District  
 Sabre Energy Ltd.  
 Saint Mary's University  
 School District No. 44 (North Vancouver)  
 Seven Oaks General Hospital  
 Solutia Canada Inc.  
 St. Boniface General Hospital  
 St. James-Assiniboia School Division No. 2  
 St. Lawrence Cement Inc.  
 Town of New Glasgow  
 Upton Resources Inc.  
 Volvo Canada Ltd.  
 West Fraser Timber Co. Ltd.  
 Weyerhaeuser Canada Ltd.

## 7.5.5 Other Registrants

1213763 Ontario Inc.  
 20 Vic Management Inc.  
 3170497 Canada Inc.  
 3M Canada Company  
 715 Victoria S.E.C.  
 Accuride Canada Inc.  
 Agassiz School Division No.13  
 Agence Métropolitaine de Transport  
 Agmont Inc.  
 Air Canada  
 Air Products Canada Inc.  
 Airborne Pollution Control Inc.  
 Akita Drilling Ltd.  
 Akzo Nobel Chemicals Ltd.  
 Alberta College of Art & Design  
 Alberta Hospital Edmonton  
 Algoma Steel Inc.  
 Algonquin College of Applied Arts and Technology  
 Alpha Corporate Centre  
 AltaGas Utilities Inc.  
 Aluminium Association of Canada (AAC)  
 Amtrak  
 Ancast Industries Ltd.  
 Annapolis Valley Regional School Board  
 Apache Canada Ltd.  
 Applewood, Chevrolet Oldsmobile Cadillac  
 Armadale Properties Limited  
 Arnaud Railway  
 ASCOLECTRIC Limited  
 Ashland Chemicals Canada  
 Aspen View Regional Division No. 19  
 Association of Canadian Community Colleges (ACCC)  
 Athabasca Northern Railway Ltd.  
 Athabasca Oil Sands Developers

Atlantic Shopping Centres  
 Atlas Cold Storage  
 Atlas Specialty Steels Inc.  
 Augustana University College  
 Aur Resources Inc.  
 Banff Centre  
 Barrick Gold Corporation  
 Barrie-Collingwood Railway  
 Basell Canada Inc.  
 BASF Canada Inc.  
 BC Cancer Agency  
 Beachville Lime Limited  
 Beaulieu Canada Inc.  
 Beaux Properties International Inc.  
 Beaver Drilling Ltd.  
 Bennett Fleet  
 Bentall Real Estate Services  
 Best Western International, Inc. (Canada)  
 BIOX Corporation  
 Bishop's University  
 Black Gold Regional Division No. 18  
 Black Knight Inn  
 Black Photo Corporation  
 Boehme Filatex Canada Inc.  
 Boeing Toronto Ltd.  
 Bombardier Inc.  
 Boundary School Division No. 16  
 Bowater Canadian Forest Products Inc.  
 Brandon School Division No. 40  
 British Columbia Power Exchange Corp. (Powerex)  
 Broan-Nutone Canada  
 Bruce-Grey Catholic District School Board  
 Brunswick Hotel  
 Buanderie centrale de Montréal inc.  
 Buffalo Trail Regional Division #28  
 Burin Peninsula School Board  
 Burlington Northern (Manitoba) Ltd.  
 Burlington Northern Santa Fe  
 Burnbrae Farms  
 Burrowing Owl Investment Corp.  
 Calgary Board of Education  
 Calgary Co-operative Association Limited  
 Calgary Regional Health Authority (CRHA)  
 Cambior inc.  
 Cambridge Shopping Centre Ltd.  
 Cambridge Towel Utilities  
 Cameus Holdings Inc.  
 Canad Inns  
 Canada Hair Cloth Company  
 Canadian American Railroad Co.  
 Canadian Association of Oilwell Drilling  
   Contractors (CAODC)  
 Canadian Association of Petroleum Producers (CAPP)  
 Canadian Centre for Architecture  
 Canadian College of Health Service Executives (CCHSE)  
 Canadian Energy Pipeline Association (CEPA)  
 Canadian Fertilizer Institute (CFI)  
 Canadian Forest Oil Ltd. (CFO)  
 Canadian Gas Association (CGA)  
 Canadian Industry Program for Energy  
   Conservation (CIPEC)  
 Canadian Pacific Railway (CPR)  
 Canadian Steel Producers Association (CSPA)  
 Canadian Textiles Institute (CTI)  
 Canadore College of Applied Arts and Technology  
 Cape Breton and Central Nova Scotia Railway  
 Capital Railway  
 Cargill Animal Nutrition  
 Carleton Condominium Corporation No. 68  
 Carriage House Inn Ltd.  
 Cartier Railway Company  
 Casco Inc.

Cavalier Textiles  
 Cégep de Chicoutimi  
 Cégep de Matane  
 Cégep de Saint-Hyacinthe  
 Cégep de Sept-Iles  
 Cégep Joliette - De Lanaudière  
 Centra Gas British Columbia Inc.  
 Central Manitoba Railway  
 Central Québec School Board  
 Central Western Railway  
 Centre de santé de la MRC d'Asbestos  
 Centre hospitalier Fleury  
 Centre hospitalier Jonquière  
 Centre hospitalier régional de Rimouski  
 Centre hospitalier universitaire de Québec  
 Champion Drilling Inc.  
 Champion Pet Foods Ltd.  
 Chemical Lime Company of Canada  
 Chemin de fer Baie des Chaleurs  
 Chemin de fer Charlevoix Inc.  
 Chemin de fer de la Matapédia et du golfe  
 Children's and Women's Health Centre of British Columbia  
 Children's Hospital of Eastern Ontario  
 Chinook Health Region  
 CHSLD Biermans-Triest  
 CHSLD de Lachine, Nazaire-Piché et Foyer Dorval  
 CHSLD du Plateau Mont-Royal  
 CHSLD Lucille-Tesdale  
 CHUM - Hôpital Notre-Dame  
 CHUM - Hôpital Saint-Luc  
 CIBA Specialty Chemicals  
 CIBC Development Corporation  
 City of Abbotsford  
 City of Brantford  
 City of Burnaby  
 City of Campbell River  
 City of Cold Lake  
 City of Coquitlam  
 City of Delta  
 City of Edmonton  
 City of Greater Sudbury  
 City of Guelph  
 City of Hamilton  
 City of Kamloops  
 City of Kitchener  
 City of Lachine  
 City of Langley  
 City of London  
 City of Mississauga  
 City of New Westminster  
 City of North Vancouver  
 City of Port Alberni  
 City of Port Moody  
 City of Surrey  
 City of Thunder Bay  
 City of Toronto  
 City of Vancouver  
 City of Victoria  
 City of Weyburn  
 City of Whitehorse  
 City of Winnipeg  
 City of Yellowknife  
 Clearview School Division No. 71  
 CLIC Properties Inc.  
 Coal Association of Canada (CAC)  
 Coast Hotels and Resorts  
 Coats Bell Division of Coats Canada Inc.  
 Cognis Canada Corporation  
 Collège de Limoilou  
 Collège de Rosemont  
 Collège de Shawinigan  
 Collège Jean-de-Brébeuf  
 Collège Lionel-Groulx  
 Collège Notre-Dame de l'Assomption  
 College of New Caledonia  
 College of the Rockies  
 Collins & Aikman  
 Commerce Place Building  
 Commission scolaire de la Région-de-Sherbrooke  
 Commission Scolaire de Laval  
 Commission scolaire des Affluents  
 Commission scolaire des Rives-du-Saguenay  
 Commission scolaire Marguerite-Bourgeoys  
 Commission scolaire Marie-Victorin  
 Complexe Cité du Havre inc.  
 Complexe hospitalier de la Sagamie  
 Complexes Sportifs Terrebonne inc.  
 Compost Management  
 Concordia Hospital  
 Confederation College  
 Country Style Food Services Inc.  
 County of Strathcona  
 Coyle & Greer Awards Canada Ltd.  
 Crompton Co.  
 Crown Cork and Seal Canada Inc.  
 Crystal Lakes School Division No. 120  
 CSX Transportation Inc.  
 Cullen Gardens and Miniature Village  
 Cytec Canada Inc.  
 D.W. Inglis Limited (O/A Canadian Tire Associate Store)  
 Degussa Canada Inc.  
 Delmar Chemicals Inc.  
 Denim Swift  
 Denro Management Ltd.  
 Destaron Property Management  
 Difco Performance Fabrics Inc.  
 District of North Vancouver  
 District of Hudson's Hope  
 District of Saanich  
 Division Scolaire Franco-Manitobaine No. 49  
 Downie Timber Ltd.  
 Dufferin-Caledon Health Care Corporation  
 Dundee Realty Management Corporation  
 Durez Canada Company Ltd.  
 Durham College of Applied Arts & Technology  
 Dynea Canada Ltd.  
 E & N Railway Company (1968) Ltd.  
 East Central Alberta Catholic Separate Schools Regional  
 Division # 16  
 École des Hautes Études Commerciales  
 École Polytechnique de Montréal  
 Ecologix Heating Technologies Inc.  
 Edmonton Catholic Schools  
 Edmonton Public Schools  
 Eka Chemicals Canada Inc.  
 Elk Island Catholic Separate Regional Division No. 41  
 Elk Island Public Schools Regional Division No. 14  
 Enmax Corporation  
 Ensyn Technologies Inc.  
 Envirogard Products Ltd.  
 ESSAG Canada Inc.  
 Essex Terminal Railway Company  
 ESSROC  
 Ethyl Canada Inc.  
 Eurocan Pulp and Paper Co.  
 F.F. Soucy Inc.  
 Fabrene Inc.  
 Fairmont Hotels and Resorts  
 Famous Players Inc.  
 Fanshawe College  
 Federated Co-operatives Limited (FCL)  
 Federation of Canadian Municipalities (FCM/PCP)  
 Feliz Enterprises Ltd.  
 Ferroequus Railway Co. Ltd.

Fibrex Insulations Inc.  
 Fielding Chemical Technologies Inc.  
 Fifth & Fifth Building  
 Fifth Avenue Place (Calgary) Ltd. & 735832 Alberta Ltd.  
 Finer Space Corporation  
 First Real Properties Limited  
 Fleetline Products Limited  
 FMC of Canada Limited  
 Foothills Pipe Lines Ltd.  
 Forest Products Association of Canada (FPAC)  
 Fort Garry School Division No. 5  
 Fortis Properties Corporation  
 Four Seasons Hotel - Toronto  
 Fraser Health Authority  
 Freightliner of Canada Ltd.  
 FuelMaker Corporation  
 George Brown College of Applied Arts and Technology  
 Georgian College of Applied Arts and Technology  
 Gestion Plaza Côte-Des-Neiges  
 GO Transit  
 Goderich-Exeter Railway Co. Limited  
 Golder Associates Ltd.  
 Goldlist Properties Inc.  
 Government of New Brunswick  
 Government of Newfoundland and Labrador  
 Government of Nova Scotia  
 Government of Ontario  
 Government of Saskatchewan  
 Government of the Northwest Territories  
 Government of Yukon  
 Grand Erie District School Board  
 Grand River Hospital  
 Grande Prairie Public School District No. 2357  
 Grant MacEwan Community College  
 Graymont (NB) Inc.  
 Graymont (Qc) Inc.  
 Graymont Western Canada Inc.  
 Great Canadian Railtour Company Ltd.  
 Great Western Railway Ltd.  
 Greater St. Albert Catholic Schools  
 Greater Vancouver Regional District (GVRD)  
 Greenarm Corporation  
 Greenhouse Emissions Management Consortium (GEMCo)  
 Greif Containers Inc.  
 Grenfell Regional Health Services  
 Grey Gables, Home for the Aged  
 GWL Realty Advisors Inc.  
 H.J. Heinz Company of Canada Ltd.  
 H.L. Blachford Ltd.  
 H.R. West Holdings Inc.  
 Halifax Regional Municipality  
 Halton Catholic District School Board  
 Health Care Corporation of St. John's  
 Health Labrador Corporation  
 Heating Refrigeration and Air Conditioning Institute (HRAI)  
 Hercules Canada Inc.  
 High Prairie School Division No. 48  
 Hillsborough Resource Limited  
 Hollyburn International  
 Homestead Land Holdings Limited  
 Honeywell Ltd.  
 Hôpital Charles LeMoine  
 Hôpital du Haut-Richelieu  
 Hôpital Général Juif de Montréal  
 Hôpital Laval  
 Hôpital Sainte-Croix  
 Hôpital Sainte-Justine  
 Hôpital Santa Cabrini  
 Hotel Inter-Continental (Montréal)  
 Hub Meat Packers Ltd. - Sunrise Brand  
 Hudson Bay Mining and Smelting Co. Ltd.  
 Hudsons Bay Company  
 Humber River Regional Hospital  
 Humboldt Rural School Division No. 47  
 Hunt Oil Company of Canada, Inc.  
 Huntsman Chemical Company of Canada Inc.  
 Huntsman Corporation Canada Inc.  
 Huron Central Railway  
 ICOM Information & Communications Inc.  
 IMC Potash  
 Imperial Home Decor Group  
 Inland Cement Limited  
 Innovation Place  
 Institut de Cardiologie de Montréal  
 Institut de Réadaptation de Montréal  
 Institut universitaire de gériatrie de Montréal  
 Interface Flooring Systems (Canada), Inc.  
 International Paper Industries Ltd.  
 IOGEN Corporation  
 Iron Ore Company of Canada  
 ITT Sheraton Centre Toronto  
 Ivaco Rolling Mills  
 Ivanhoé Cambridge  
 J.L. de BALL Canada Inc.  
 JemPak Canada Inc.  
 Jewish Eldercare Centre  
 JNE Consulting Ltd.  
 John Abbott College  
 Jones Packaging Inc.  
 Kamsack School Division No. 35  
 KC Environmental Group Ltd.  
 Keewatin-Patricia District School Board  
 Kelowna Pacific Railway Ltd.  
 Kimberly-Clark Nova Scotia  
 Kindred Industries  
 Kingston General Hospital  
 Kiwanis Senior Citizens Homes Ltd.  
 Kodak Canada Inc.  
 Kolter Property Management Limited - Toronto Portfolio  
 Kraft Canada Inc.  
 Kronos Canada Inc.  
 La Centrale de chauffage Enr.  
 La Chambre de commerce et d'industrie de Laval  
 La Commission scolaire des Portages-de-l'Outaouais  
 La Régie régional de Montréal-Centre  
 Labatt Breweries of Canada  
 Lafarge Canada Inc.  
 LaGran Canada Inc.  
 Laidlaw Inc.  
 Lakeland & Waterways Railway  
 Lakeshore School Division No. 23  
 Lambton College  
 Landmark Properties Inc.  
 Landwest School Division No. 123  
 Langley School District No. 35  
 Larco Hospitality Management Inc.  
 Le 4060 St-Laurent  
 Le Conseil scolaire de district du Centre-Sud-Ouest  
 Leamington District Memorial Hospital  
 Legacy Real Estate Investment Trust  
 Lehigh Inland Cement Ltd.  
 LePage  
 Lethbridge Community College  
 Lewisporte-Gander School District  
 Lincoln Fabrics Ltd.  
 Lloydminster Public School Division  
 London Health Sciences Centre  
 Loyalist College of Arts & Technology  
 M & M Meat Shops  
 Mackenzie Northern Railway  
 Maison Mère des Frères de l'Instruction Chrétienne  
 Maksteel  
 Malaspina University College  
 Malette Kraft Pulp & Power

Maple Leaf Foods Inc.  
 Maple Lodge Farms Ltd.  
 Marathon Canada Ltd.  
 Marathon Pulp Inc.  
 Maritime Electric Company, Limited  
 Maritime Paper Products Ltd.  
 MARSULEX Inc.  
 McFadzen Holdings Limited  
 MDS Nordion Inc.  
 Memorial University  
 Merit Ford Alpine Limited Partnership  
 Metcalfe Realty Company Limited  
 Metro Toronto Condominium Corporation No. 1235  
 Metro Toronto Condominium Corporation No. 961  
 Mines Wabush  
 MintoUrban Communities Inc.  
 Molson Breweries  
 Montréal Children's Hospital  
 Moose Jaw Roman Catholic Separate School  
 Division No. 22  
 Moose Jaw School Division No. 1  
 Morgan Falls Power Company  
 Mount Saint Vincent University  
 Municipality of Chelsea  
 Murphy Oil Company Limited  
 Nabors Drilling Limited  
 Nacan Products Limited  
 National Silicates Ltd.  
 NCE Resources Group Inc.  
 Nestlé Canada Inc.  
 New Brunswick Community College - Bathurst Campus  
 New Brunswick Community College of Craft and Design  
 New Brunswick East Coast Railway  
 New Brunswick Power  
 New Brunswick Southern Railway Company Limited  
 Newfoundland and Labrador Hydro  
 Newfoundland Power  
 Nexen Chemicals Canada Ltd.  
 Nexfor Inc.  
 Nitrochem  
 Norfolk Southern Corporation  
 Nortel Networks  
 North Island College  
 Northern Gateway Regional Division No.10  
 Northlands Park  
 Northwest Catholic District School Board  
 Northwoodcare Incorporated  
 Nova Scotia Community College  
 Nova Scotia Textiles, Limited  
 Nova Ski Ltd. (Ski Martock)  
 Novotel Toronto Centre  
 Nu-Air Ventilation Systems Inc.  
 Okanagan University College  
 OMG Belleville Limited  
 ONDEO Nalco Canada Co.  
 ONDEO Nalco Energy Chemicals Canada Inc.  
 Ontario Centre for Environmental Technology  
 Advancement (OCETA)  
 Ontario Northland Transportation Commission  
 Ontario Southland Railway Inc.  
 Orica Canada Ltd.  
 Orion Bus Industries  
 Ottawa Central Railway  
 Ottawa Hospital / L'Hôpital d'Ottawa  
 Ottawa Valley Railway  
 Oxford Automotive  
 Oxford Properties Group Inc.  
 Pacific Northern Gas Ltd.  
 Parkland Refining Ltd.  
 PCC Properties (Calgary) Ltd. & ARCI Ltd.  
 PCI Chemicals Canada Inc.  
 PCS Potash Lanigan Division

Peace Wapiti School Board No.33  
 Peel Condominium Corporation No. 304  
 Pembina Hills Regional Division No. 7  
 Pembroke General Hospital Inc.  
 Peoples Park Tower Inc.  
 Petrobank Energy and Resources Ltd.  
 Petroleum Services Association of Canada (PSAC)  
 Pétromont Inc.  
 Placer Dome North America Ltd.  
 Polytainers Inc.  
 Polywheels Manufacturing Ltd.  
 PPG Canada Inc.  
 Precision Drilling Limited  
 Prévost Car Inc.  
 PRO-ECO Ltd.  
 Procter & Gamble Inc.  
 QIT- Fer et Titane inc.  
 Québec Cartier Mining Company  
 Quebec North Shore & Labrador Railway Company  
 Quebec Southern Railway  
 Québec-Gatineau Railway Inc.  
 Queen's University  
 R.J. Burnside International Limited  
 R.R.S.L. Properties Inc.  
 Railway Association of Canada (RAC)  
 Rainbow District School Board  
 Ramada Hotel & Convention Centre (Regina)  
 Ramada Hotel & Golf Dome (Saskatoon)  
 Raylo Chemicals Inc.  
 Reagens Canada Limited  
 Recochem Inc.  
 Red Deer College  
 Regent Resources Ltd.  
 Régie régionale de la santé et des services sociaux  
 de la Montérégie  
 Regina School Division No.4 of Saskatchewan  
 Region 7 Hospital Corporation  
 Regional District of Central Kootenay  
 Reichhold Chemicals, Inc.  
 Réno-Dépôt inc.  
 Résidence Mance-Décary  
 Resort Municipality of Whistler  
 Rhodia Canada Inc.  
 River East School Division No.9  
 Riverside Apartments Corporation  
 Roberval and Saguenay Railway Company  
 Rohm and Haas Canada Inc.  
 RohMax Canada Inc.  
 Royal Alexandra Hospital  
 Royal Bank of Canada  
 Royal Host Corp.  
 Royal Ottawa Health Care Group  
 Royal Victoria Hospital  
 Ryerson Polytechnic University  
 S.C. Johnson and Son, Limited  
 Safety-Kleen  
 Saint Luke's Place  
 Sakai Spice (Canada) Corporation  
 Sandman Hotel (Downtown Calgary)  
 Sandman Hotel (Grande Prairie)  
 Sandman Hotel (Red Deer)  
 Sandman Hotel (West Edmonton)  
 Sandvik Tamrock Loaders Inc.  
 Sask Central School Division No. 121  
 Saskatchewan Minerals  
 Saskatchewan Valley School Division No. 49  
 Saskatoon (West) School Division No.42  
 Scapa Tapes North America - Renfrew  
 School District No. 2 (Northern Peninsula/Labrador South)  
 School District No. 3 (Corner Brook-Deer Lake-St. Barbe)  
 School District No. 33 (Chilliwack)  
 School District No. 34 (Abbotsford)

School District No. 37 (Delta)  
 School District No. 38 (Richmond)  
 School District No. 46 (Sunshine Coast)  
 School District No. 57 (Prince George)  
 School District No. 61 (Greater Victoria)  
 School District No. 62 (Sooke)  
 School District No. 63 (Saanich)  
 School District No. 64 (Gulf Islands)  
 School District No. 67 (Okanagan Skaha)  
 School District No. 71 (Comox Valley)  
 School District No. 75 (Mission)  
 Scott's Food Services Inc.  
 Sears Canada Inc.  
 Second Placement Inc.  
 Seine River School Division No. 14  
 Séminaire de St-Hyacinthe  
 Seven Oaks School Division No. 10  
 Sheridan College  
 Sherritt International  
 Simcoe County District School Board  
 Simmons Canada Inc.  
 Slater Steel Inc.  
 Sleeman Brewing and Malting Co. Ltd.  
 Smurfit-Stone Container Corporation  
 Sobeys - A Banner of Sobeys Group Inc.  
 Sobeys Capital Inc.-Sobeys Ontario  
 Société de transport de la communauté urbaine de Montréal  
 Soeurs Franciscaines Missionnaires de Marie  
 Soprema Inc.  
 SORENTEC Itée  
 South East Health District  
 South Simcoe Railway  
 South Westman Regional Health Authority  
 Southern Manitoba Railway  
 Southern Ontario Railway  
 Southern Railway of British Columbia Ltd.  
 Spinrite Inc.  
 St-Jean PhotoChemicals Inc.  
 St. Anne-Nackawic Pulp Company Ltd.  
 St. Clair College of Applied Arts & Technology  
 St. Joseph's Auxiliary Hospital  
 St. Lawrence & Atlantic Railroad (Quebec) Inc.  
 St. Mary's General Hospital  
 St. Mary's Hospital Center  
 St. Marys Paper Ltd.  
 St. Paul Education Regional Division No. 1  
 St. Thomas-Elgin General Hospital  
 Standard Products (Canada) Limited  
 Stedfast Inc.  
 Stepan Canada Inc.  
 Sterling Pulp Chemicals, Ltd.  
 Stock Exchange Tower  
 Sudbury Catholic District School Board  
 Sulco Chemicals Limited  
 Sun Valley Foods  
 Suncurrent Group  
 Superior Propane Inc.  
 Sydney Steel Corporation  
 Taylor Munro Energy Systems Inc  
 TD Canada Trust  
 Teknion Furniture Systems  
 Tennis 13 Inc.  
 Textiles Monterey inc.  
 Thames Valley District School Board  
 The Avalon East School Board  
 The Hospital for Sick Children  
 The Owners: Condominium Plan No. 8310913  
 The Woodbridge Group  
 Tilbury Cement Limited  
 Timmins and District Hospital  
 Tony Graham Motors Limited  
 Toronto Catholic District School Board  
 Toronto Community Housing Corporation  
 Toronto District School Board  
 Toronto East General Hospital and  
 Orthopaedic Hospital, Inc.  
 Toronto Grace Hospital  
 Toronto Hydro  
 Toronto Terminals Railway Company Limited  
 Town of Banff  
 Town of Canmore  
 Town of Collingwood  
 Town of Didsbury  
 Town of Fort Smith  
 Town of Perth  
 Town of Port Hope  
 Town of Quispamsis  
 Town of Swan River  
 Town of The Pas  
 Township of Scugog  
 Toyota Motor Manufacturing Canada Inc.  
 Trans Mountain Pipe Line Company Ltd.  
 Trans-Northern Pipelines Inc  
 Trillium Railway Co. Ltd  
 TrueNorth Energy  
 TRW Automotive  
 Turpin Group Inc.  
 Ultramar Limited  
 Union Carbide Canada Inc.  
 Union Gas Limited  
 Université de Moncton  
 Université de Montréal  
 Université du Québec - École de technologie supérieure  
 Université du Québec à Chicoutimi  
 Université du Québec à Hull  
 Université du Québec à Montréal  
 Université Laval  
 University College of Cape Breton  
 University of Alberta  
 University of Guelph  
 University of Manitoba  
 University of New Brunswick - Fredericton Campus  
 University of Northern British Columbia  
 University of Regina  
 University of Saskatchewan  
 University of Toronto  
 University of Victoria  
 University of Waterloo  
 University of Winnipeg  
 UPM-Kymmene Miramichi Inc.  
 Vancouver General Hospital  
 Vancouver Island Health Authority - South (VIHA-S)  
 Vancouver School Board - School District No. 39  
 VCR Inc.  
 Venator Group Canada Inc.  
 Versacold Corporation  
 VFT Inc.  
 VIA Rail Canada Inc.  
 VicWest Steel  
 Village of Anmore  
 Village of Fort Simpson  
 Ville de Boucherville  
 Ville de Laval  
 Ville de Montréal  
 Ville de Montréal-Est  
 Ville de Québec  
 Vision Quest Windelectric Inc.  
 Wabash Alloys Ontario  
 Wabush Lake Railway  
 Warrington Property Group Incorporated  
 Waterloo Region District School Board  
 West Coast Express

West Edmonton Mall Ltd.  
Westaim Corporation  
Western Gas Tower Building  
Western Health Care Corporation  
Western Québec School Board  
Westmount Square 9093-8119 Québec Inc.  
Westwind School Division No. 74  
White Pass & Yukon Route  
Williams Energy (Canada) Inc.  
Winchester District Memorial Hospital  
Windsor & Hantsport Railway  
Windsor-Essex Catholic District School Board

Winners Apparel Ltd.  
Winnipeg Technical College  
Wisconsin Central Ltd.  
Workers' Compensation Board (Alberta)  
Wyeth-Ayerst Canada Inc.  
Yellowknife Education District No. 1 of  
the Northwest Territories  
York Condominium Corporation No. 288  
York Condominium Corporation No. 382  
York Condominium Corporation No. 56  
York University  
Yorkdale School Division No. 36  
Zellers Inc.

## Appendices: List of Acronyms, Greenhouse Gases and Measurement Units

Table 6 List of Acronyms

AIJ	Activities Implemented Jointly
BPI	Baseline Protection Initiative
CAPP	Canadian Association of Petroleum Producers
CCPA	Canadian Chemical Producers' Association
CDM	Clean Development Mechanism
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIA	Champions In Action
CIEEDAC	Canadian Industrial Energy End-use Database and Analysis Centre
Co.	Company
CPPI	Canadian Petroleum Products Institute
ESCM	Environmental supply-chain management
GDP	Gross Domestic Product
GERT Pilot	Greenhouse Gas Emission Trading Pilot
GHG	Greenhouse gas
HM	Honourable Mention
IAP	Individual action plan
Inc.	Incorporated
IPCC	Intergovernmental Panel on Climate Change
ISO	ISO is not an acronym, but a derivative of the Greek word for equal. ISO standards are international quality and / or environmental standards developed by the International Organization of Standardization.
JI	Joint Implementation
Jr.	Junior
Ltd.	Limited
Mfg.	Manufacturing
P. Eng.	Professional Engineer
QRESD	Quarterly Report on Energy Supply-Demand in Canada (a Statistics Canada publication summarizing energy imports, exports, production and consumption)
RER	Registered Emission Reduction
SME	Small to medium sized enterprises
SUV	Sport Utility Vehicle (a type of light truck)
TAC	Technical Advisory Committee
TEAM	Technology Early Action Measures
VCR	Voluntary Challenge and Registry
VCR Inc.	Canada's Climate Change Voluntary Challenge and Registry Incorporated

**TABLE SEVEN: Greenhouse Gases<sup>42</sup>**

Symbol	Name	Global Warming Potential
CO <sub>2</sub>	carbon dioxide	1
CO <sub>2</sub> e	carbon dioxide equivalent (a standard measure of global warming potential)	1
CH <sub>4</sub>	methane	21
N <sub>2</sub> O	nitrous oxide	310
C <sub>x</sub> H <sub>y</sub> F <sub>z</sub> (HFCs)	hydrofluorocarbon	varies from 140 to 11,700
C <sub>x</sub> F <sub>y</sub> (PFCs)	perfluorocarbon	varies from 6,500 to 9,200
SF <sub>6</sub>	sulphur hexafluoride	23,900

For more details, please review the global warming potentials published in our [Challenge Registry Guide to Entity & Facility-Based Reporting](#), available at [www.vcr-mvr.ca](http://www.vcr-mvr.ca).

**TABLE EIGHT: Measurement Units**

Symbol	Name
EII	Energy Intensity Index (or in the context of petroleum products, the Solomon Energy Intensity Index)
g	grams
GJ	gigajoule
kt	kilotonnes (1,000 tonnes)
kWh	kilowatt hour
m <sup>2</sup>	square meter
m <sup>3</sup>	cubic meter
m <sup>3</sup> OE	cubic meter oil eq
Mt	megatonne = 1,000 kilotonnes = 1,000,000 tonnes
MW	megawatt
MWh	megawatt hour
t	tonne = 1,000 kilograms = 1,000,000 grams

42 These global warming potentials represent the standards used by Environment Canada for determining GHG emissions in the preparation of Canada's National GHG Inventory. These were originally published by the IPCC in 1996. While these factors were updated by the IPCC in 2001, the new emission factors have yet to be adopted by Environment Canada. The factors published in 1996 will likely remain the official standard until the end of the first Kyoto budget period (2012).



