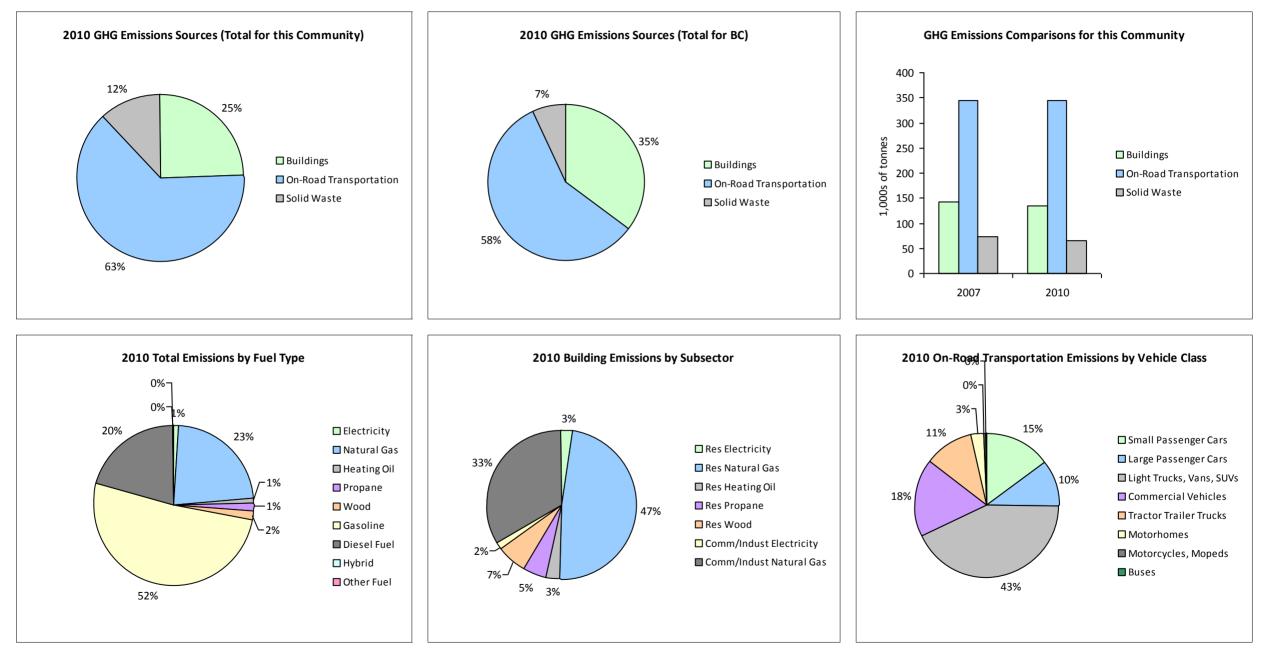


### 2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets





# 2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

# **Core Items**

				2007					2010		
<b>On-Road Transportation</b>		Connections	Consumption	Avg VKT (km)	Energy (GJ)	C02e (t)	Connections	Consumption	Avg VKT (km)	Energy (GJ)	C02e (t)
Small Passenger Cars	Hybrid	19	15,806 L	17,900	554	38	34	30,139 L	18,100	1,055	67
	Gasoline	15,644	21,961,398 L	14,800	768,649	52,300	15,718	22,085,103 L	14,800	772,979	49,665
	Diesel Fuel	579	865,561 L	22,000	33,151	2,364	595	862,790 L	21,200	33,044	2,287
	Other Fuel			12,400	88	5			17,100	222	14
Large Passenger Cars	Hybrid	38	39,830 L	21,300	1,394	93	153	195,232 L	22,400	6,834	435
	Gasoline	9,762	16,740,679 L	15,000	585,923	39,879	8,958	15,071,120 L	14,800	527,489	33,924
	Diesel Fuel	135	185,951 L	14,200	7,122	506	112	149,967 L	14,400	5,744	397
	Other Fuel			12,300	295	18			11,600	117	6
Light Trucks, Vans, SUVs	Hybrid	13	27,818 L	26,800	973	67	51	119,239 L	25,900	4,174	269
	Gasoline	22,763	57,507,134 L	17,600	2,012,750	137,834	24,455	60,903,141 L	17,500	2,131,610	138,342
	Diesel Fuel	1,557	3,777,254 L	13,800	144,669	10,278	1,142	3,107,850 L	16,000	119,031	8,214
	Other Fuel	198	418,396 L	12,400	10,585	641	123	229,944 L	11,000	5,818	352
Commercial Vehicles	Hybrid								14,800	114	7
	Gasoline	2,119	6,715,962 L	18,900	235,058	15,783	2,499	7,906,749 L	18,900	276,736	17,689
	Diesel Fuel	2,940	12,493,909 L	23,200	478,517	33,620	3,525	16,530,762 L	25,900	633,127	43,160
	Other Fuel	96	226,417 L	12,400	5,728	348	66	143,544 L	11,500	3,632	219
Tractor Trailer Trucks	Gasoline			10,600	497	33			10,800	301	19
	Diesel Fuel	708	14,431,770 L	49,500	552,736	38,835	709	14,609,348 L	50,900	559,537	38,145
	Other Fuel			36,300	236	14			21,400	659	40
Motorhomes	Gasoline	756	2,125,548 L	19,200	74,394	4,967	758	2,158,541 L	19,300	75,548	4,805
	Diesel Fuel	453	1,692,901 L	19,700	64,838	4,555	464	1,799,075 L	19,700	68,904	4,697
	Other Fuel	27	77,168 L	19,000	1,952	119	18	54,527 L	19,800	1,378	84
Motorcycles, Mopeds	Gasoline	1,134	254,903 L	5,200	8,921	596	1,330	347,270 L	6,100	12,154	771
Buses	Gasoline	69	200,529 L	18,300	7,018	471	67	190,912 L	18,100	6,683	428
	Diesel Fuel	87	424,805 L	17,600	16,270	1,144	77	371,455 L	27,600	14,226	970
	Other Fuel			12,100	431	27			12,500	195	12
Totals		59,097	140,183,739 L	16,851	5,012,749	344,535	60,854	140,183,739 L	17,145	5,261,311	345,018



# 2010 Community Energy and Emissions Inventory

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			20	007				2010	
Buildings		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Residential	Wood	N/A	458,557 GJ	458,557	9,290	N/A	441,377 GJ	441,377	8,942
	Heating Oil	N/A	62,025 GJ	62,025	4,372	N/A	59,702 GJ	59,702	4,083
	Propane	N/A	109,446 GJ	109,446	6,677	N/A	105,345 GJ	105,345	6,427
	Natural Gas	20,751	1,397,552 GJ	1,397,552	70,102	20,906	1,268,875 GJ	1,268,875	63,646
	Electricity	42,989	497,850,353 kWh	1,792,260	2,363	42,334	539,184,291 kWh	1,941,062	3,364
Commercial/Small-Medium Industrial	Natural Gas	2,554	954,660 GJ	954,660	47,887	2,498	903,849 GJ	903,849	45,338
	Electricity	6,442	391,665,752 kWh	1,409,996	1,724	6,415	307,882,605 kWh	1,108,376	2,012
Totals		72,736		6,184,496	142,415	72,153		5,828,586	133,812

				2007				2010	
Solid Waste		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Community Solid Waste	Solid Waste	0	81,477 t	N/A	73,286	0	92,078 t	N/A	65,246
Totals		0			73,286	0			65,246

# Memo Items

			:	2007				2010	
Buildings		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Large Industrial	Natural Gas	13		0	0	10		0	0
	Electricity	3	54,458,318 kWh	196,050	256	3	38,522,640 kWh	138,681	231
Totals		16		196,050	256	13		138,681	231

				2007				2010		
Agriculture		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption		Energy (GJ)	C02e (t)
Enteric Fermentation	Methane	28,805	1,657 t	0	34,797					
Totals		28,805			34,797	0				



### 2010 Community Energy and Emissions Inventory

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### Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

				2007				2010	
Land-use Change - De	eforestation	Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Agriculture	Deforestation	1	0 ha	0	647				
Settlement	Deforestation	8	0 ha	0	4,295				
Totals		9			4,942	0			

# Totals for Transportation, Buildings and Solid Waste

	2007 (Pop	oulation: 81,322)		2010 (Population: 82,760)				
Fuel Type	Consumption	Energy (GJ)	C02e (t)	Consumption	Energy (GJ)	C02e (t)		
Hybrid	83,454 L	2,921	198	344,610 L	12,177	778		
Gasoline	105,506,153 L	3,693,210	251,863	108,662,836 L	3,803,500	245,643		
Diesel Fuel	33,872,151 L	1,297,303	91,302	37,431,247 L	1,433,613	97,870		
Other Fuel	721,981 L	19,315	1,172	428,015 L	12,021	727		
Wood	458,557 GJ	458,557	9,290	441,377 GJ	441,377	8,942		
Heating Oil	62,025 GJ	62,025	4,372	59,702 GJ	59,702	4,083		
Propane	109,446 GJ	109,446	6,677	105,345 GJ	105,345	6,427		
Natural Gas	2,352,212 GJ	2,352,212	117,989	2,172,724 GJ	2,172,724	108,984		
Electricity	889,516,105 kWh	3,202,256	4,087	847,066,896 kWh	3,049,438	5,376		
Solid Waste	81,477 t	0	73,286	92,078 t	0	65,246		
Grand Totals		11,197,245	560,236		11,089,897	544,076		



2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

**Supporting Indicators** 

No new supporting indicator data have been provided in the 2010 reports. Work is currently underway to produce a complete second round of data for the indicators below in the 2012 reports (available in 2014). In the interim, we are including the same supporting indicator data that was provided in the 2007 reports. Feedback is requested on all supporting indicators; please contact us directly at

#### Housing Type - Private dwellings by structural type

Housing type is important for reducing building-related GHG emissions and energy consumption. A trend toward fewer single family dwellings indicates an increase in residential density, which is known to reduce transportation-related GHG emissions.

	1996		2001		2006		
	Units	%	Units	%	Units	%	
Single Detached House	22,115	41	22,135	65	23,130	66	
Semi-Detached House	940	2	860	3	915	3	
Row House	2,120	4	2,045	6	2,180	6	
Apartment, Duplex	550	1	570	2	580	2	
Apartment, 5 storeys or higher	355	1	510	2	645	2	
Apartment, under 5 storeys	4,800	9	5,465	16	5,650	16	
Other Single Attached House	165	0	200	1	195	1	
Movable Dwelling	1,285	2	2,100	6	1,950	6	

#### Parks and Protected Greenspace

Parks and protected greenspaces are important for the protection and enhancement of community carbon sinks.

2009		
Units	%	
0	0	
137,078	15	
366	0	
84,523	9	
719,772	76	
137,444	15	
941,739	100	
	0 137,078 366 84,523 719,772 137,444	

\* Total is net of Indian Reserves
\*\* Quantity of parkland may be underestimated

#### **Residential Density**

Increasing residential densities is known to reduce vehicle use resulting in fewer transportation-related GHG emissions. There are many additional benefits from more compact development.

	2009	2009		
	Units	%		
National Parks	0	0		
Provincial Parks / Protected Areas	137,078	15		
Local Parks	366	0		
Agricultural Land Reserve	84,523	9		
Other land use	719,772	76		
Total Parks and Protected Area	137,444	15		
Total Land Area	941,739	100		

#### Commute to Work - Employed labour force - by mode of commute

An increase in the number of people choosing to walk, cycle and use transit reduces GHG emissions. More compact, complete, connected communities should see an increase in the use of these transportation modes.

	1996	1996			2006	
	Units	%	Units	%	Units	%
Car, Truck, Van as Driver	20,515	78	20,775	79	23,140	76
Car, Truck, Van as Passenger	1,750	7	1,705	7	2,850	9
Public Transit	295	1	165	1	285	1
Walked	2,720	10	2,520	10	3,140	10
Bicycle	580	2	590	2	730	2
Motorcycle	35	0	70	0	110	0
Taxicab	40	0	30	0	30	0
Other Method	360	1	320	1	320	1

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2010 Community Energy and Emissions Inventory

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### **Supporting Indicators Under Consideration**

Work is currently underway to produce a complete second round of supporting indicators for the 2012 reports (available in 2014). These reports will new data for the five supporting indicators included in the 2007 and 2010 Reports:

- Housing Type: Private dwellings by structural type
- Commute to Work: Employed labour force by mode of commute
- Commute Distance
- Residential Density
- Parks and Protected Greenspace

And in addition, the 2012 reports we are working to be able to include:

- Proximity to Transit
- Building Energy Intensity
- Building Floor Space
- Waste Diversion

We are continuing to work towards reporting on even more supporting indicators in the future including:

- Proximity to Services (e.g destinations such as grocery store, school, other retail etc.)
- Transit Ridership
- Water Use
- Impervious Surface Cover: % change in impervious surface cover
- Tree Canopy Cover: % change in tree canopy cover
- District Energy: # and energy output (e.g. buildings connected, energy consumed in GJ or kWh) of district energy systems by energy type e.g. renewable or non-renewable)
- On-Site Renewable Energy: # and energy output (in GJ or kWh) from households producing and/or consuming on-site renewable heat (e.g. biomass, solar thermal, geo-exchange) and/or electrical (e.g. solar photovoltaic, small wind, small scale hydro) energy
- Energy Recovery from waste energy (GJ or kWh) recovered from waste (e.g. from landfill gas, sewage treatment, industrial operations, farm)

Please give us feedback by contacting us directly at CEEIRPT@gov.bc.ca

Many local governments have been undertaking a significant amount of climate action in both the corporate and community-wide spheres, as demonstrated in both the public reports from the Climate Action Revenue Incentive Program (CARIP) <u>http://www.cscd.gov.bc.ca/lgd/greencommunities/carip.htm</u>, and on the <u>http://toolkit.bc.ca</u> website. These two resources may be helpful to those who are interested in learning from other BC local governments. The toolkit also contains additional information and resources including decision-support/planning frameworks and tools for undertaking actions to reduce GHG emissions and energy consumption.



2010 Community Energy and Emissions Inventory

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### This is your local government's 2010 Community Energy and Emissions Inventory (CEEI) Report

#### What is a CEEI Report?

CEEI Reports are a result of a multi-agency effort to provide a province-wide solution to assist local governments in BC to track and report on community-wide energy consumption and greenhouse gas (GHG) emissions as well as supporting indicators every two years. CEEI Reports are one of the many resources available through the Climate Action Toolkit (<u>http://www.toolkit.bc.ca</u>), a web-based service provided through the ongoing collaboration between UBCM and the Province.

#### Why does my local government need a CEEI Report?

A community energy and GHG emissions inventory can be a valuable tool that helps local governments plan and implement GHG and energy management strategies, while at the same time strengthening broader sustainability planning at the local level. CEEI reports fulfill local governments' Climate Action Charter commitment to measure and report their community's GHG emissions profile, establish a base year inventory for local governments to consider as they develop targets, policies, and actions related to BC's Local Government Act requirements, fulfill Milestone One requirements for those local government members of the Federation of Canadian Municipalities' (FCM's) Partners in Climate Protection (PCP) program, as well as supporting local government efforts to monitor progress towards Regional Growth Strategy objectives.

#### A first in North America!

CEEI is a first in North America and a first step for BC communities. The 2010 CEEI Reports are based on best available province-wide data. The accuracy and detail of CEEI reports will continue to improve to meet increasing local and provincial government information needs. Improvements have been made from the original draft 2007 CEEI Reports posted in Spring 2009. These include estimates for residential heating oil, propane and wood use, breaking out small from large industrial buildings, including updated land-use change and new agricultural sectors as 'memo items'. Following the 2010 CEEI Reports, inventories will be generated every two years, and will continue to improve as government information needs, international protocols and new data sources emerge.

#### For More Information

The full list of all BC local government 2010 CEEI Reports, User Guide, Technical Methods and Guidance Document, and additional information on the Supporting Indicators are available at: <a href="http://www.env.gov.bc.ca/cas/mitigation/ceei/index.html">http://www.env.gov.bc.ca/cas/mitigation/ceei/index.html</a> For guidance on target setting and community actions, go to <a href="http://www.toolkit.bc.ca">http://www.toolkit.bc.ca</a> and </a>

#### We Need Your Feedback

To continue to guide us on CEEI, please take the time to contact us directly at CEEIRPT@gov.bc.ca

#### Notice to the Reader

This CEEI Report uses information from a variety of sources to estimate GHG emissions. While the methodologies, assumptions and data used are intended to provide reasonable estimates of greenhouse gas emissions, the information presented in this report may not be appropriate for all purposes. The Province of BC and the data providers do not provide any warranty to the user or guarantee the accuracy or reliability of the data contained in this report. The user accepts responsibility for the ultimate use of such data. We need your help to make these reports better,