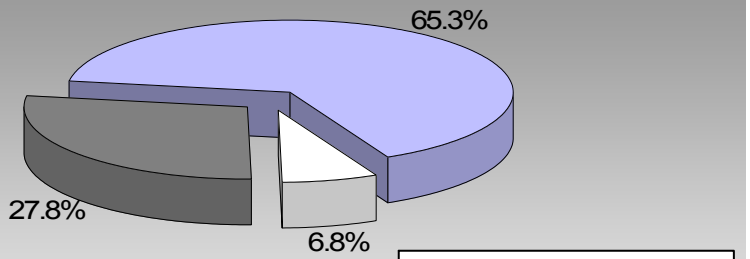
Kelowna City
Updated 2007 Community Energy and Emissions Inventory

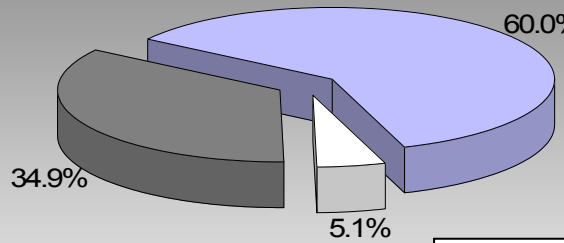
BC's Community Energy and Emission Inventories...supporting efforts towards Complete, Compact, Energy-Efficient Communities

Where are the majority of our community's emissions coming from?

Kelowna City
2007 GHG Emissions Sources

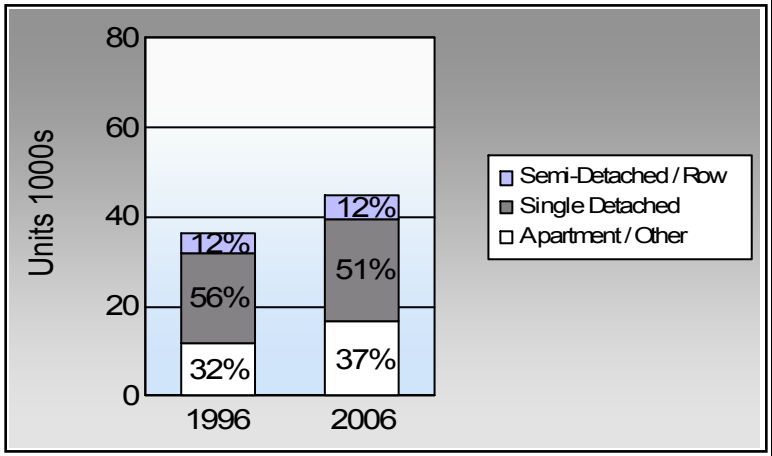


Total for BC Communities



Are we living more compactly?

Housing Type



In BC, single family detached housing made up 49% of housing in 2006.

Are we driving less?

Commute To Work

	1996	2006
	81.4%	79.3%
	7.1%	7.8%
	2.2%	2.9%
	5.5%	5.6%
	2.5%	3.0%

In BC, 10% of people took transit, 7% walked, and 2% cycled to work in 2006.

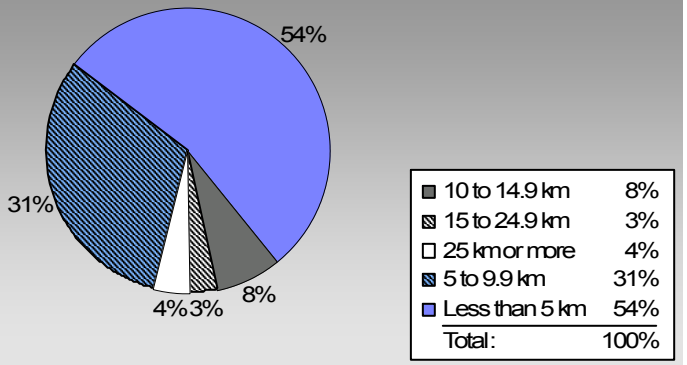
Residential Density

Kelowna City: 10.1 people per net ha

BC municipal average: 7.4 people per net ha

Are we living closer to where we work?

Commute Distance



In BC, 41% of people lived within 5km of their work in 2006.

For more information and to provide feedback on your Community Energy and Emissions Inventory (CEEI) Report see back page.

Sectors

On Road Transportation		Vehicles	Consumption	Measurement	Average-VKT(km)	Energy (GJ)	CO2e (t)
Small Passenger Cars	Gasoline	24,521	31,667,103	Litres	12,798	1,108,349	75,492
	Diesel Fuel	693	707,915	Litres	13,675	27,113	1,933
	Other Fuel	< 10	4,088	Litres	10,868	157	6
				Small Passenger Cars		**1,135,619**	**77,431**
Large Passenger Cars	Gasoline	14,566	30,117,719	Litres	17,015	1,054,120	71,579
	Diesel Fuel	293	654,448	Litres	17,728	25,065	1,786
	Other Fuel	36	82,827	Litres	14,505	3,172	127
				Large Passenger Cars		**1,082,357**	**73,492**
Light Trucks, Vans, SUVs	Gasoline	31,301	94,413,925	Litres	20,321	3,304,487	225,704
	Diesel Fuel	2,165	5,767,039	Litres	20,867	220,878	15,756
	Other Fuel	206	515,263	Litres	13,718	19,735	789
				Light Trucks, Vans, SUVs		**3,545,100**	**242,249**
Commercial Vehicles	Gasoline	204	906,748	Litres	14,422	31,736	2,120
	Diesel Fuel	802	3,929,471	Litres	22,055	150,499	10,574
	Other Fuel	40	126,092	Litres	11,794	4,829	193
				Commercial Vehicles		**187,064**	**12,887**
Tractor Trailer Trucks	Gasoline	10	57,153	Litres	12,142	2,000	134
	Diesel Fuel	1,047	36,708,618	Litres	91,588	1,405,940	98,781
	Other Fuel	11	27,800	Litres	9,009	1,065	43
				Tractor Trailer Trucks		**1,409,005**	**98,958**
Motorhomes	Gasoline	717	867,276	Litres	3,081	30,355	2,028
	Diesel Fuel	112	148,120	Litres	5,172	5,673	399
	Other Fuel	12	17,582	Litres	2,189	673	27
				Motorhomes		**36,701**	**2,454**
Motorcycles, Mopeds	Gasoline	1,504	642,471	Litres	5,492	22,486	1,500
				Motorcycles, Mopeds		**22,486**	**1,500**
Bus	Gasoline	67	602,249	Litres	22,571	21,079	1,416
	Diesel Fuel	154	3,220,055	Litres	38,169	123,328	8,665
	Other Fuel	< 10	33,649	Litres	15,902	1,289	52
				Bus		**145,696**	**10,133**

	Gasoline:	5,574,612	379,973
	Diesel:	1,958,496	137,894
	Other Fuel:	30,920	1,237
On Road Transportation Totals	**All Fuels:**	**7,564,028**	**519,104**

Buildings

	Type	Connections	Consumption	Measurement	Energy (GJ)	CO2e (t)
Residential	Electricity	49,316	512,613,266	Kilowatt Hours	1,845,406	3,140
	Natural Gas	31,160	2,517,233	GigaJoules	2,517,233	128,379
			Residential		**4,362,639**	**131,519**
Commercial/Small-Medium Industrial	Electricity	4,674	360,564,852	Kilowatt Hours	1,298,032	2,284
	Natural Gas	3,735	1,678,748	GigaJoules	1,678,748	85,616
			Commercial/Small-Medium Industrial		**2,976,780**	**87,900**
Wholesale	Electricity	1	291,854,400	Kilowatt Hours	1,050,675	1,751
			Wholesale		**1,050,675**	**1,751**

	Electricity:	4,194,113	7,175
	Natural Gas:	4,195,981	213,995
	Propane:		
	Wood:		
	Heating Oil:		
Buildings Totals	**Buildings:**	**8,390,094**	**221,170**

Solid Waste

	Mass (t)	CO2e (t)
Community Solid Waste	115,000	54,265

Grand Total		CONSUMPTION		ENERGY (GJ)	CO2e (t)
	Diesel Fuel	51,135,666	L	1,958,496	137,894
	Electricity	1,165,032,518	kWh	4,194,113	7,175
	Gasoline	159,274,644	L	5,574,612	379,973
	Natural Gas	4,195,981	GJ	4,195,981	213,995
	Other Fuel	807,301	L	30,920	1,237
	Solid Waste	115,000	T	0	54,265
Total of Transportation / Buildings / Solid Waste:				**15,954,122** GJ	**794,539** tonnes

Memo Items

Buildings	Type	Connections	Consumption	Measurement	Energy (GJ)	CO2e (t)
Large Industrial	Electricity	8	69,203,127	Kilowatt Hours	249,131	415
	Natural Gas	21	581,328	GigaJoules	581,328	29,648
				Large Industrial	**830,459**	**30,063**

Kelowna City
Updated 2007 Community Energy and Emissions Inventory

Supporting Indicators

Below you will find supporting indicators for which data is provided. These are the first five supporting indicators for which data is provided as a part of the updated 2007 CEEI. Columns with all zeros indicate data unavailable in these CEEI reports. Thirteen additional supporting indicators are under consideration for future reports (see next page). Local government feedback is requested on all supporting indicators. Please take the time to complete the short CEEI Survey at http://www.env.gov.bc.ca/cas/mitigation/ceei/index.html or contact us directly at CEEIRPT@gov.bc.ca

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	20,305	36	22,480	56	22,780	51
Semi-Detached House	1,710	3	2,365	6	2,280	5
Row House	2,735	5	2,795	7	3,110	7
Apartment, Duplex	1,925	3	1,825	5	3,735	8
Apartment, 5 storeys or higher	455	1	490	1	770	2
Apartment, under 5 storeys	8,520	15	9,415	24	11,270	25
Other Single Attached House	50	0	65	0	110	0
Movable Dwelling	740	1	605	2	855	2

Residential Density

* Net of Crown land, parks, Indian Reserves, water features, airports, ALR,waste disposal sites.

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
Population	120,812.0
Net Land Area (ha) *	11,993.8
Residential Density (people per net ha)	10.1

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		2001		2006	
	People	%	People	%	People	%
Car, Truck, Van as Driver	30,450	81	32,700	82	38,680	79
Car, Truck,Van as Passenge	2,655	7	2,395	6	3,795	8
Public Transit	820	2	1,105	3	1,390	3
Walked	2,055	6	2,135	5	2,745	6
Bicycle	930	2	1,090	3	1,440	3
Motorcycle	75	0	105	0	155	0
Taxicab	40	0	70	0	60	0
Other Method	370	1	235	1	515	1

Commute Distance

Shorter commute distances generally reduce GHG emissions by increasing the likelihood of people walking, cycling or using transit. Commute distance is also indicative of the 'completeness' of a community from an employment perspective.

	2006	
	People	%
Less than 5 km	22,375	54
5 to 9.9 km	12,955	31
10 to 14.9 km	3,130	8
15 to 24.9 km	1,215	3
25 km or more	1,745	4

Parks and Protected Greenspace

* Total is net of Indian Reserves

** The quantity of parkland may be underestimated

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

	2009	
	Area (ha)	%
National Parks	0.0	0.0
Provincial Parks / Protected Areas	319.7	0.8
Local Parks	1,206.9	2.9
Agricultural Land Reserve	8,630.6	20.6
Other land use	31,847.0	75.8
Total Land Area	42,004.2	100.0

Supporting Indicators Under Consideration

The following supporting indicators are under consideration for inclusion in future CEEI reports. The 2007 CEEI reports provide these 'placeholder' indicators to give indication of data that may be provided in the future by the Province on an ongoing basis to assist in monitoring actions to reduce GHG emissions and energy consumption. Please submit feedback to CEEIRPT@gov.bc.ca (see survey on CEEI website).

On-Road Transportation (and Land Use)

Proximity to Transit	Persons, dwelling units (du) and employment within 400m of a quality transit stop/line
Proximity to Services	Persons and dwelling units (du) within 400m of services (e.g. grocery store, school, other retail etc.)
Transit Ridership	Annual per capita transit ridership

Buildings

Residential; Public Building Energy Intensity	Average energy use per person per square metre of floor space
Floor Space	Average residential dwelling unit size

Solid Waste (and Water)

Waste Diversion	Tonnes of waste diverted
Avoided Waste Emissions	Tonnes of CO2e of avoided future emissions due to reduced waste since 2007
Water Use	Per capita residential water use

Land-Use Change

Impervious Surface Cover	% change in impervious surface cover
Tree Canopy Cover	% change in tree canopy cover

Community and Renewable Energy Supply

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)

This is your local government's Updated 2007 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 every two years. CEEI Reports are one of the many resources available through the Climate Action Toolkit (<http://www.toolkit.bc.ca>), 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, and fulfill Milestone One requirements for those local government members of the Federation of Canadian Municipalities' (FCM's) Partners in Climate Protection (PCP) program.

A first in North America!
CEEI is a first in North America and a first step for BC communities. The 2007 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 and medium from large industrial buildings, including updated land-use change and new agricultural sectors as 'memo items', and the first of a suite of 'supporting indicators'. 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.

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For More Information:

- The full list of all BC local government Updated 2007 CEEI Reports, CEEI Data Summary Report, Technical Methods and Guidance Document, and additional information on the Secondary Indicators are available at: <http://www.env.gov.bc.ca/cas/mitigation/ceei/index.html>.

- For guidance on target setting and community actions, go to <http://www.toolkit.bc.ca> and <http://www.cd.gov.bc.ca/lgd/greencommunities/targets.htm>.

We Need Your Feedback:

- To continue to guide us on CEEI, particularly now with the new Indicators. Please take the time to complete the short CEEI Survey at <http://www.env.gov.bc.ca/cas/mitigation/ceei/index.html> or contact us directly at CEEIRPT@gov.bc.ca