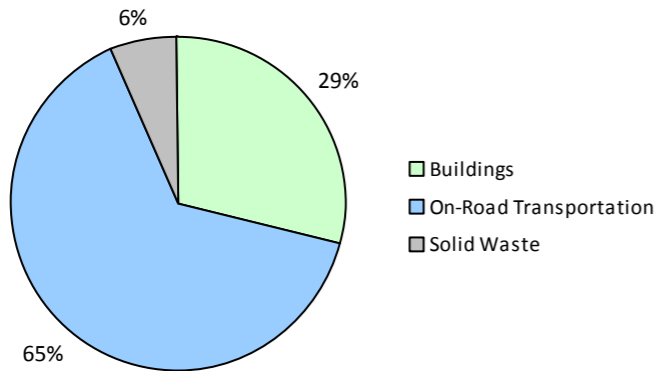


Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

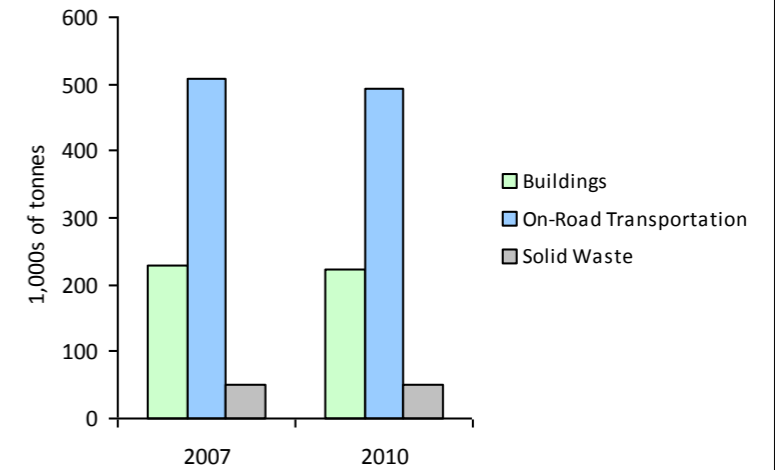
2010 GHG Emissions Sources (Total for this Community)



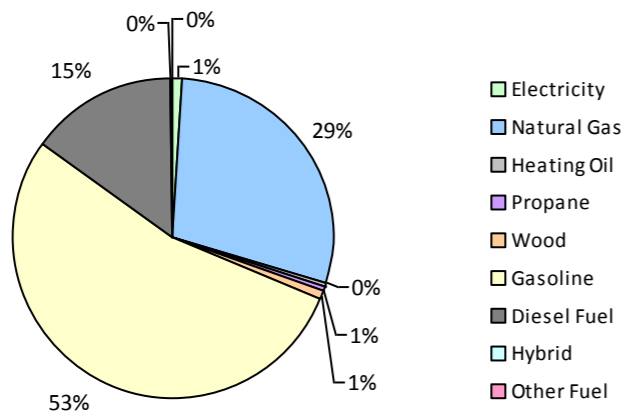
2010 GHG Emissions Sources (Total for BC)



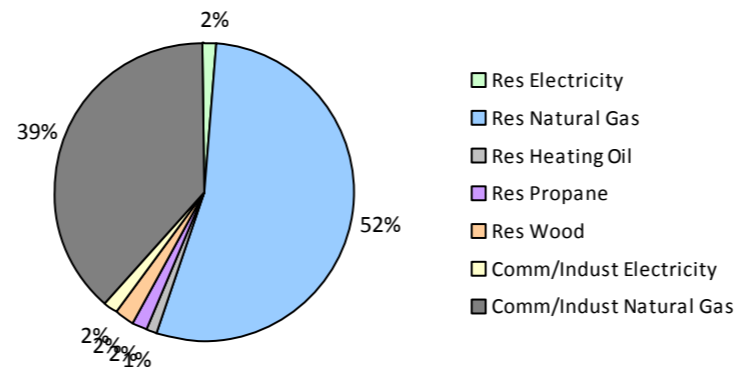
GHG Emissions Comparisons for this Community



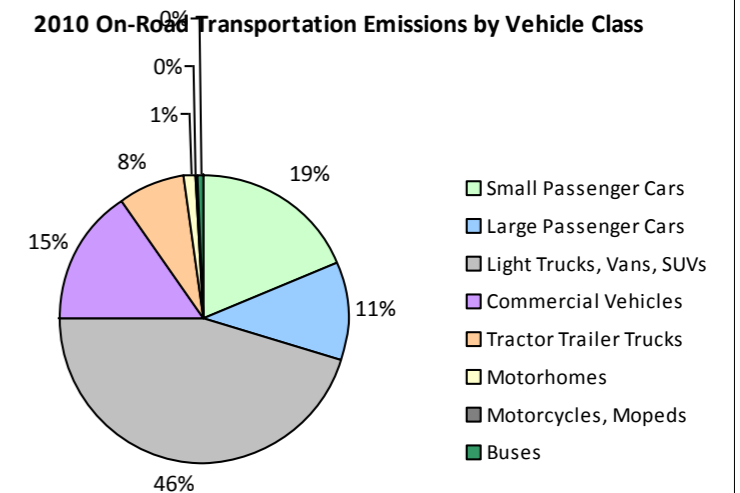
2010 Total Emissions by Fuel Type



2010 Building Emissions by Subsector



2010 On-Road Transportation Emissions by Vehicle Class



Kelowna City 2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

Core Items

On-Road Transportation		2007					2010				
		Connections	Consumption	Avg VKT (km)	Energy (GJ)	CO2e (t)	Connections	Consumption	Avg VKT (km)	Energy (GJ)	CO2e (t)
Small Passenger Cars	Hybrid	21	19,480 L	19,900	681	46	58	64,366 L	21,100	2,253	144
	Gasoline	24,104	38,224,898 L	16,500	1,337,871	90,703	25,125	40,006,983 L	16,600	1,400,245	89,728
	Diesel Fuel	640	1,066,149 L	24,800	40,833	2,911	682	1,098,410 L	23,900	42,070	2,913
	Other Fuel			15,300	138	7			16,100	280	17
Large Passenger Cars	Hybrid	80	105,816 L	25,100	3,702	247	243	348,611 L	25,300	12,202	776
	Gasoline	12,835	24,375,979 L	16,600	853,160	57,914	12,350	23,244,105 L	16,500	813,545	52,202
	Diesel Fuel	154	214,274 L	14,400	8,206	585	123	166,165 L	14,500	6,363	440
	Other Fuel	14	29,303 L	16,000	741	45			13,700	279	17
Light Trucks, Vans, SUVs	Hybrid	41	80,772 L	24,500	2,826	191	118	271,452 L	26,400	9,501	612
	Gasoline	30,015	86,809,027 L	20,100	3,038,317	207,293	32,497	93,983,001 L	20,100	3,289,406	212,846
	Diesel Fuel	1,298	3,483,599 L	15,300	133,422	9,482	970	3,096,191 L	19,800	118,585	8,190
	Other Fuel	233	526,043 L	13,300	13,309	805	120	238,570 L	11,700	6,036	365
Commercial Vehicles	Hybrid								35,400	292	18
	Gasoline	2,469	9,110,956 L	22,000	318,883	21,416	2,967	11,101,765 L	22,300	388,562	24,842
	Diesel Fuel	3,206	15,532,927 L	26,200	594,912	41,798	3,654	19,580,934 L	29,200	749,950	51,125
	Other Fuel	97	233,772 L	12,500	5,915	357	64	160,235 L	13,200	4,054	246
Tractor Trailer Trucks	Gasoline			23,500	1,914	129	10	60,078 L	25,200	2,103	135
	Diesel Fuel	1,011	22,654,055 L	56,800	867,650	60,962	841	14,277,977 L	41,800	546,847	37,280
	Other Fuel	17	61,957 L	12,800	1,568	95			12,200	671	41
Motorhomes	Gasoline	553	1,566,525 L	19,400	54,828	3,662	513	1,473,864 L	19,600	51,585	3,283
	Diesel Fuel	372	1,406,363 L	20,000	53,863	3,784	322	1,269,004 L	20,100	48,602	3,313
	Other Fuel	21	60,583 L	19,500	1,533	93	15	41,470 L	18,900	1,050	63
Motorcycles, Mopeds	Gasoline	1,577	381,074 L	5,300	13,338	891	1,893	534,053 L	6,200	18,693	1,185
Buses	Gasoline	97	272,029 L	18,300	9,521	639	113	302,518 L	17,500	10,588	677
	Diesel Fuel	181	956,202 L	32,200	36,622	2,574	115	604,612 L	18,900	23,156	1,579
	Other Fuel			12,000	196	11			20,500	388	24
Totals		79,036	207,171,783 L	18,858	7,393,949	506,640	82,793	207,171,783 L	18,903	7,547,306	492,061

Kelowna City 2010 Community Energy and Emissions Inventory

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Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Residential	Wood	N/A	260,269 GJ	260,269	5,273	N/A	250,518 GJ	250,518	5,075
	Heating Oil	N/A	35,274 GJ	35,274	2,486	N/A	33,952 GJ	33,952	2,322
	Propane	N/A	62,346 GJ	62,346	3,804	N/A	60,010 GJ	60,010	3,661
	Natural Gas	31,160	2,517,233 GJ	2,517,233	126,264	32,225	2,367,359 GJ	2,367,359	118,747
	Electricity	56,480	579,524,541 kWh	2,086,287	3,131	52,804	612,885,874 kWh	2,206,387	3,745
Commercial/Small-Medium Industrial	Natural Gas	3,735	1,678,748 GJ	1,678,748	84,206	3,840	1,733,257 GJ	1,733,257	86,940
	Electricity	6,670	529,301,756 kWh	1,905,485	2,835	6,692	542,803,993 kWh	1,954,093	3,371
Totals		98,045		8,545,642	227,999	95,561		8,605,576	223,861

Solid Waste		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Community Solid Waste	Solid Waste	0	96,821 t	N/A	49,520	0	84,823 t	N/A	49,214
Totals		0			49,520	0			49,214

Memo Items

Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Large Industrial	Natural Gas	21	581,328 GJ	581,328	29,159	16	432,972 GJ	432,972	21,718
	Electricity	1		0	0	1		0	0
Totals		22		581,328	29,159	17		432,972	21,718

Kelowna City 2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

Totals for Transportation, Buildings and Solid Waste

Fuel Type	2007 (Population: 114,660)			2010 (Population: 121,306)		
	Consumption	Energy (GJ)	CO2e (t)	Consumption	Energy (GJ)	CO2e (t)
Hybrid	206,068 L	7,209	484	684,429 L	24,248	1,550
Gasoline	160,740,488 L	5,627,832	382,647	170,706,367 L	5,974,727	384,898
Diesel Fuel	45,313,569 L	1,735,508	122,096	40,093,293 L	1,535,573	104,840
Other Fuel	911,658 L	23,400	1,413	440,275 L	12,758	773
Wood	260,269 GJ	260,269	5,273	250,518 GJ	250,518	5,075
Heating Oil	35,274 GJ	35,274	2,486	33,952 GJ	33,952	2,322
Propane	62,346 GJ	62,346	3,804	60,010 GJ	60,010	3,661
Natural Gas	4,195,981 GJ	4,195,981	210,470	4,100,616 GJ	4,100,616	205,687
Electricity	1,108,826,297 kWh	3,991,772	5,966	1,155,689,867 kWh	4,160,480	7,116
Solid Waste	96,821 t	0	49,520	84,823 t	0	49,214
Grand Totals		15,939,591	784,159		16,152,882	765,136

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	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

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	
	Units	%	Units	%	Units	%
Car, Truck, Van as Driver	30,450	81	32,700	82	38,680	79
Car, Truck, Van as Passenger	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

Parks and Protected Greenspace

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

	2009	
	Units	%
National Parks	0	0
Provincial Parks / Protected Areas	320	1
Local Parks	1,207	3
Agricultural Land Reserve	8,631	21
Other land use	31,847	76
Total Parks and Protected Area	1,527	4
Total Land Area	42,004	100

* 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	
	Units	%
National Parks	0	0
Provincial Parks / Protected Areas	320	1
Local Parks	1,207	3
Agricultural Land Reserve	8,631	21
Other land use	31,847	76
Total Parks and Protected Area	1,527	4
Total Land Area	42,004	100

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

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

Kelowna City
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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) <http://www.cscd.gov.bc.ca/lgd/greencommunities/carip.htm>, and on the <http://toolkit.bc.ca> 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.

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 (<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, 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:

<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, 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,