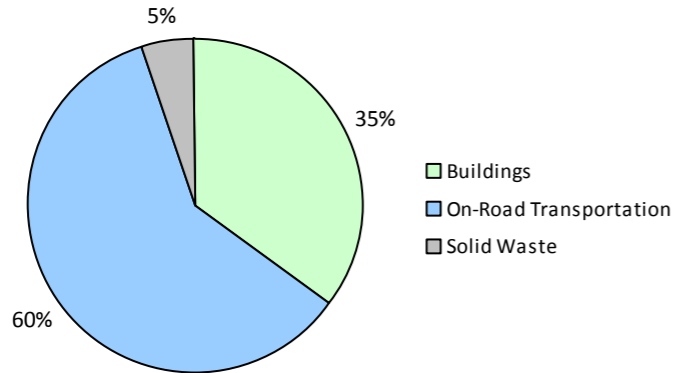


Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

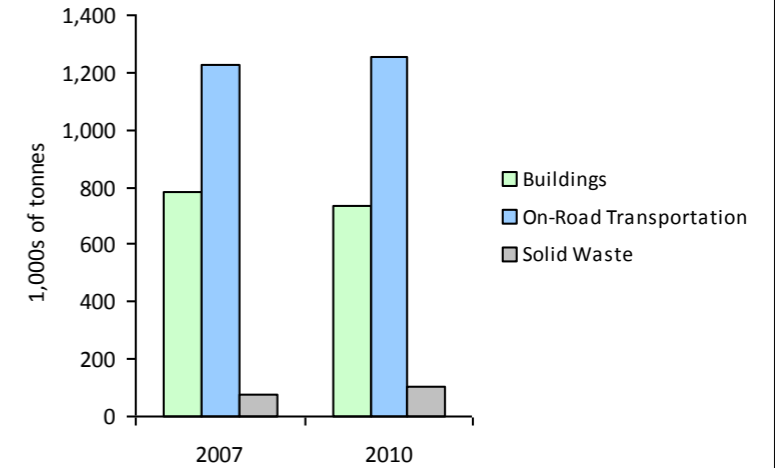
2010 GHG Emissions Sources (Total for this Community)



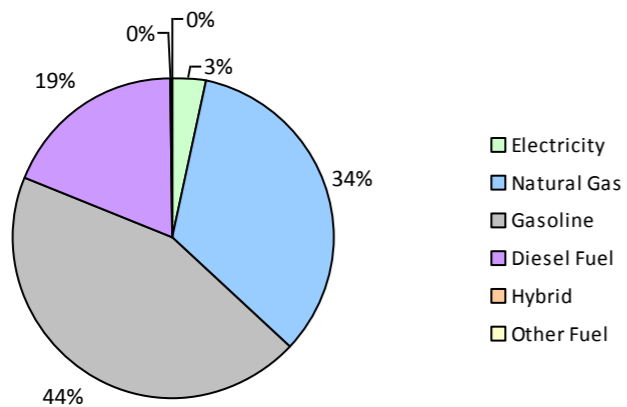
2010 GHG Emissions Sources (Total for BC)



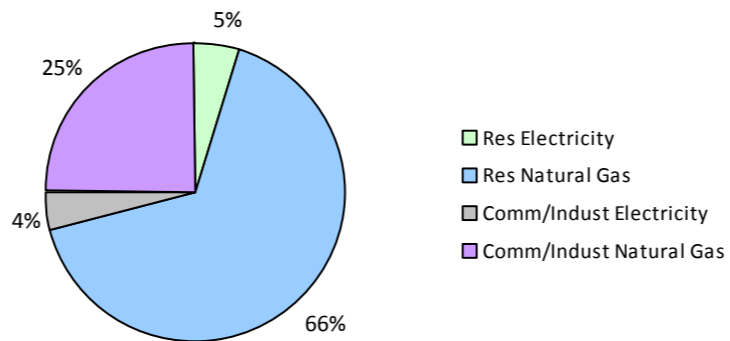
GHG Emissions Comparisons for this Community



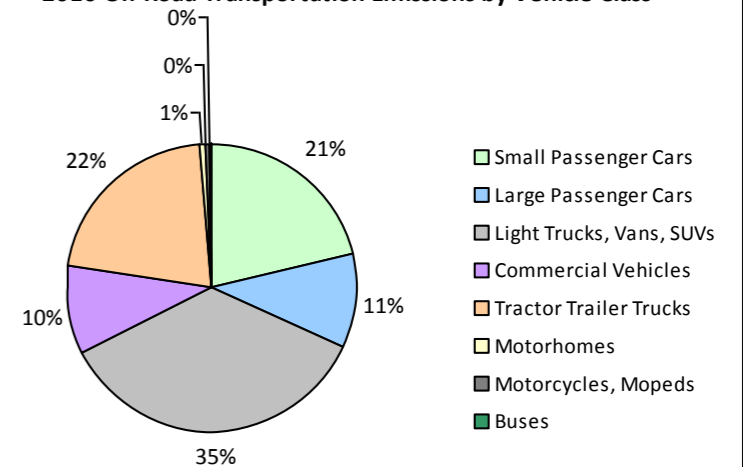
2010 Total Emissions by Fuel Type



2010 Building Emissions by Subsector



2010 On-Road Transportation Emissions by Vehicle Class



Surrey 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	96	72,217 L	16,200	2,527	169	238	189,771 L	15,600	6,642	422
	Gasoline	84,495	112,248,026 L	14,000	3,928,681	265,918	89,756	117,364,486 L	13,800	4,107,758	262,970
	Diesel Fuel	1,429	1,621,390 L	16,900	62,099	4,427	1,487	1,683,433 L	16,700	64,476	4,464
	Other Fuel	10	13,307 L	14,300	336	21	26	39,173 L	15,300	991	60
Large Passenger Cars	Hybrid	251	360,132 L	26,700	12,605	844	1,007	1,705,639 L	29,300	59,698	3,798
	Gasoline	36,576	56,703,528 L	13,600	1,984,625	134,186	37,553	57,374,111 L	13,500	2,008,095	128,458
	Diesel Fuel	310	401,766 L	13,800	15,387	1,094	296	384,837 L	14,100	14,739	1,019
	Other Fuel	40	65,056 L	11,800	1,646	100	14	18,943 L	9,800	479	29
Light Trucks, Vans, SUVs	Hybrid	118	154,869 L	16,600	5,420	366	391	554,747 L	16,500	19,416	1,251
	Gasoline	81,284	172,830,202 L	15,300	6,049,057	411,976	92,525	190,889,889 L	15,000	6,681,146	431,764
	Diesel Fuel	1,192	2,949,001 L	14,700	112,947	8,041	1,332	3,668,472 L	18,500	140,502	9,722
	Other Fuel	421	841,686 L	12,000	21,294	1,290	250	478,807 L	11,600	12,115	734
Commercial Vehicles	Hybrid						10	24,368 L	20,800	853	54
	Gasoline	6,658	17,750,694 L	16,000	621,274	41,703	7,053	18,742,193 L	16,000	655,976	41,926
	Diesel Fuel	6,988	25,992,081 L	18,700	995,498	69,943	8,317	30,403,012 L	18,700	1,164,435	79,381
	Other Fuel	473	1,004,916 L	11,600	25,426	1,540	326	662,083 L	11,200	16,751	1,014
Tractor Trailer Trucks	Gasoline	26	165,200 L	21,200	5,783	387	29	240,886 L	28,300	8,431	539
	Diesel Fuel	5,255	98,183,412 L	47,200	3,760,424	264,208	5,340	103,151,427 L	49,100	3,950,699	269,324
	Other Fuel			21,300	486	30			29,000	472	29
Motorhomes	Gasoline	985	2,338,685 L	16,900	81,854	5,473	981	2,327,663 L	17,000	81,467	5,189
	Diesel Fuel	506	1,597,129 L	16,900	61,170	4,296	478	1,560,395 L	16,800	59,764	4,073
	Other Fuel	30	74,915 L	16,600	1,896	115	17	42,767 L	16,700	1,082	66
Motorcycles, Mopeds	Gasoline	2,935	719,213 L	5,500	25,172	1,680	3,480	978,741 L	6,300	34,256	2,172
Buses	Gasoline	271	1,185,241 L	27,600	41,484	2,786	299	1,247,817 L	26,600	43,674	2,793
	Diesel Fuel	172	1,431,866 L	31,900	54,840	3,853	107	732,282 L	27,900	28,047	1,912
	Other Fuel	22	83,550 L	18,900	2,115	128	17	57,821 L	16,900	1,463	87
Totals		230,543	498,788,082 L	15,322	17,874,046	1,224,574	251,329	498,788,082 L	15,214	19,163,427	1,253,250

Surrey 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	Natural Gas	94,656	10,424,718 GJ	10,424,718	522,903	98,645	9,612,323 GJ	9,612,323	482,154
	Electricity	125,077	1,361,870,444 kWh	4,902,730	34,048	136,265	1,454,699,350 kWh	5,236,913	36,369
Commercial/Small-Medium Industrial	Natural Gas	8,342	3,849,239 GJ	3,849,239	193,078	8,110	3,686,220 GJ	3,686,220	184,901
	Electricity	14,802	1,233,810,889 kWh	4,441,716	30,846	16,454	1,273,641,033 kWh	4,585,104	31,842
Totals		242,877		23,618,403	780,875	259,474		23,120,560	735,266

Solid Waste		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Community Solid Waste	Solid Waste	0	270,939 t	N/A	78,341	0	222,683 t	N/A	105,624
Totals		0			78,341	0			105,624

Memo Items

Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Large Industrial	Natural Gas	104	2,171,481 GJ	2,171,481	108,921	83	1,634,273 GJ	1,634,273	81,975
	Electricity	8		0	0	8	76,373,083 kWh	274,943	1,909
Totals		112		2,171,481	108,921	91		1,909,216	83,884

Surrey 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: 422,873)			2010 (Population: 462,345)		
	Consumption	Energy (GJ)	CO2e (t)	Consumption	Energy (GJ)	CO2e (t)
Hybrid	587,218 L	20,552	1,379	2,474,525 L	86,609	5,525
Gasoline	363,940,789 L	12,737,930	864,109	389,165,786 L	13,620,803	875,811
Diesel Fuel	132,176,645 L	5,062,365	355,862	141,583,858 L	5,422,662	369,895
Other Fuel	2,083,430 L	53,199	3,224	1,299,594 L	33,353	2,019
Natural Gas	14,273,957 GJ	14,273,957	715,981	13,298,543 GJ	13,298,543	667,055
Electricity	2,595,681,333 kWh	9,344,446	64,894	2,728,340,383 kWh	9,822,017	68,211
Solid Waste	270,939 t	0	78,341	222,683 t	0	105,624
Grand Totals		41,492,449	2,083,790		42,283,987	2,094,140

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	57,995	37	64,060	55	56,790	43
Semi-Detached House	2,750	2	3,175	3	3,505	3
Row House	9,210	6	10,820	9	15,000	11
Apartment, Duplex	9,585	6	13,385	12	23,320	18
Apartment, 5 storeys or higher	2,450	2	2,665	2	2,610	2
Apartment, under 5 storeys	17,360	11	19,770	17	28,050	21
Other Single Attached House	180	0	170	0	160	0
Movable Dwelling	1,320	1	1,665	1	1,705	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	
	Units	%	Units	%	Units	%
Car, Truck, Van as Driver	102,180	78	123,320	79	140,295	76
Car, Truck, Van as Passenger	9,990	8	12,130	8	16,315	9
Public Transit	13,480	10	12,955	8	20,040	11
Walked	3,900	3	4,390	3	4,830	3
Bicycle	835	1	995	1	765	0
Motorcycle	190	0	215	0	320	0
Taxicab	145	0	120	0	180	0
Other Method	985	1	1,080	1	1,610	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	217	1
Local Parks	2,198	7
Agricultural Land Reserve	9,296	29
Other land use	20,688	64
Total Parks and Protected Area	2,414	7
Total Land Area	32,399	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	217	1
Local Parks	2,198	7
Agricultural Land Reserve	9,296	29
Other land use	20,688	64
Total Parks and Protected Area	2,414	7
Total Land Area	32,399	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	40,315	26
5 to 9.9 km	31,325	20
25 km or more	20,695	13
15 to 24.9 km	36,475	24
10 to 14.9 km	24,560	16

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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,