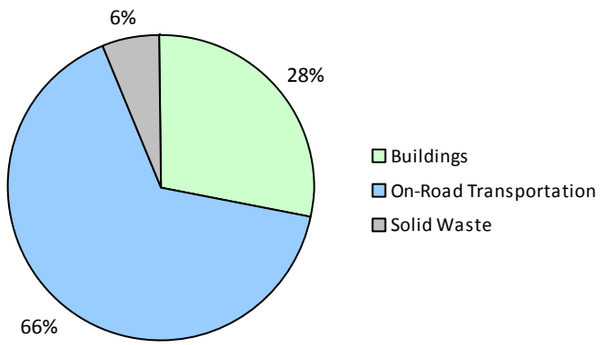
Armstrong City

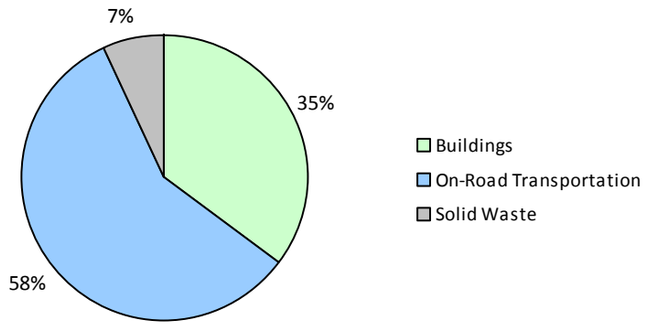
2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

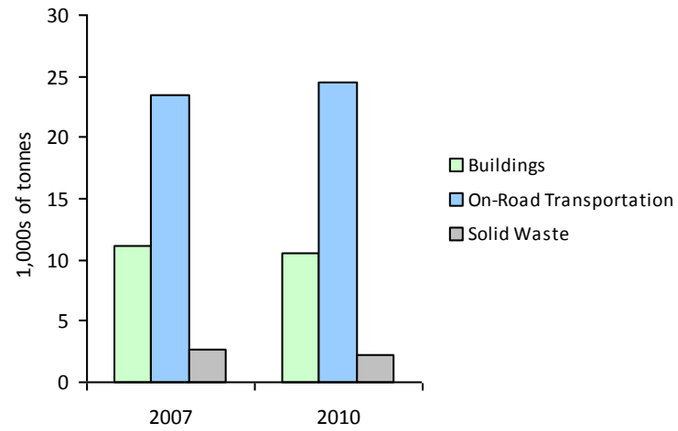
2010 GHG Emissions Sources (Total for this Community)



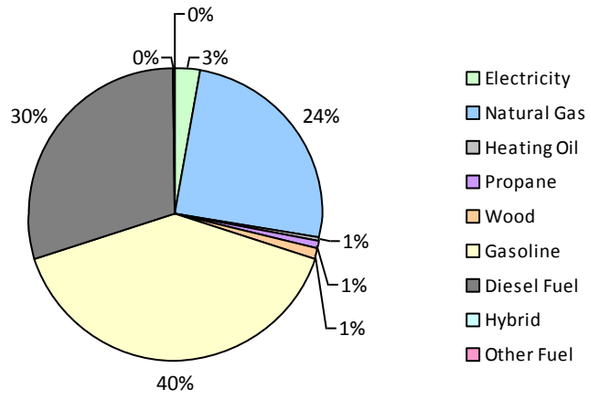
2010 GHG Emissions Sources (Total for BC)



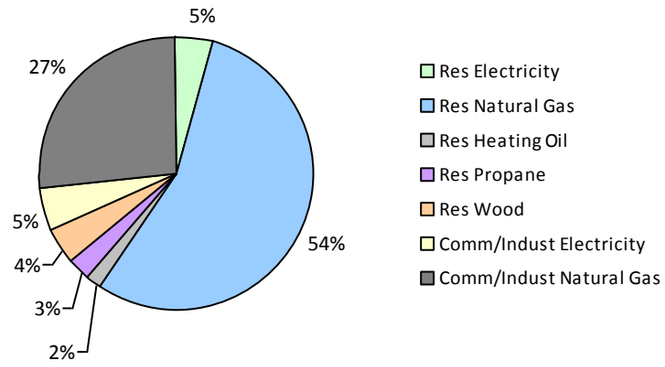
GHG Emissions Comparisons for this Community



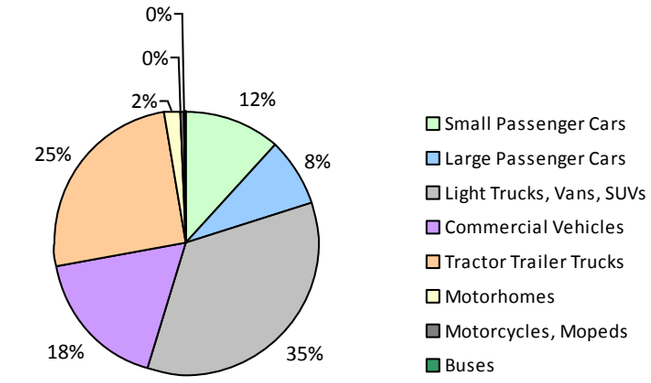
2010 Total Emissions by Fuel Type



2010 Building Emissions by Subsector



2010 On-Road Transportation Emissions by Vehicle Class



Core Items

On-Road Transportation		2007					2010				
		Connections	Consumption	Avg VKT (km)	Energy (GJ)	C02e (t)	Connections	Consumption	Avg VKT (km)	Energy (GJ)	C02e (t)
Small Passenger Cars	Hybrid								16,000	69	4
	Gasoline	841	1,180,379 L	14,800	41,313	2,817	837	1,232,706 L	15,600	43,145	2,772
	Diesel Fuel	37	61,678 L	24,400	2,362	168	42	65,455 L	22,900	2,506	173
Large Passenger Cars	Hybrid			14,600	70	4			21,500	215	14
	Gasoline	538	958,472 L	15,600	33,547	2,287	514	880,508 L	15,100	30,817	1,984
	Diesel Fuel			12,700	437	31			12,200	353	25
	Other Fuel			19,700	77	3					
Light Trucks, Vans, SUVs	Gasoline	1,265	3,152,686 L	17,100	110,344	7,571	1,373	3,464,782 L	17,400	121,267	7,879
	Diesel Fuel	92	225,892 L	13,800	8,653	615	69	180,129 L	14,900	6,899	476
	Other Fuel	13	26,670 L	12,000	675	40			11,600	406	24
Commercial Vehicles	Gasoline	135	392,580 L	17,200	13,740	922	163	476,701 L	17,400	16,684	1,067
	Diesel Fuel	235	978,093 L	22,500	37,461	2,632	279	1,254,153 L	24,600	48,034	3,274
	Other Fuel			12,800	240	15			14,100	81	5
Tractor Trailer Trucks	Diesel Fuel	91	2,211,525 L	56,700	84,702	5,951	99	2,391,280 L	57,800	91,586	6,243
Motorhomes	Gasoline	27	77,520 L	19,700	2,713	181	36	106,180 L	20,300	3,717	236
	Diesel Fuel	21	80,511 L	20,200	3,083	217	23	92,916 L	20,200	3,558	242
	Other Fuel			17,900	69	4			16,000	146	9
Motorcycles, Mopeds	Gasoline	60	12,137 L	4,400	425	28	79	21,435 L	5,900	750	48
Buses	Gasoline			23,900	383	26	12	30,657 L	16,000	1,074	68
	Diesel Fuel								16,400	326	22
Totals		**3,355**	**9,358,143 L**	**17,523**	**340,294**	**23,512**	**3,526**	**9,358,143 L**	**18,144**	**371,633**	**24,565**

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Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Residential	Wood	N/A	21,270 GJ	21,270	431	N/A	20,473 GJ	20,473	415
	Heating Oil	N/A	2,870 GJ	2,870	202	N/A	2,763 GJ	2,763	189
	Propane	N/A	5,054 GJ	5,054	308	N/A	4,865 GJ	4,865	297
	Natural Gas	1,585	120,186 GJ	120,186	6,028	1,661	114,405 GJ	114,405	5,739
	Electricity	2,034	19,083,847 kWh	68,702	477	2,142	20,366,861 kWh	73,321	509
Commercial/Small-Medium Industrial	Natural Gas	192	62,073 GJ	62,073	3,114	186	57,021 GJ	57,021	2,860
	Electricity	321	22,689,231 kWh	81,681	567	320	22,252,358 kWh	80,108	556
Totals		**4,132**		**361,836**	**11,127**	**4,309**		**352,956**	**10,565**

Solid Waste		2007				2010			
		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Community Solid Waste	Solid Waste	0	3,039 t	N/A	2,728	0	2,037 t	N/A	2,242
Totals		**0**			**2,728**	**0**			**2,242**

Memo Items

Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Large Industrial	Natural Gas	1		0	0	1		0	0
Totals		**1**			**0**	**1**			**0**

Armstrong 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: 4,350)			2010 (Population: 4,514)		
	Consumption	Energy (GJ)	C02e (t)	Consumption	Energy (GJ)	C02e (t)
Hybrid	0 L	70	4	0 L	284	18
Gasoline	5,773,774 L	202,465	13,832	6,212,969 L	217,454	14,054
Diesel Fuel	3,557,699 L	136,698	9,614	3,983,933 L	153,262	10,455
Other Fuel	26,670 L	1,061	62	0 L	633	38
Wood	21,270 GJ	21,270	431	20,473 GJ	20,473	415
Heating Oil	2,870 GJ	2,870	202	2,763 GJ	2,763	189
Propane	5,054 GJ	5,054	308	4,865 GJ	4,865	297
Natural Gas	182,259 GJ	182,259	9,142	171,426 GJ	171,426	8,599
Electricity	41,773,078 kWh	150,383	1,044	42,619,219 kWh	153,429	1,065
Solid Waste	3,039 t	0	2,728	2,037 t	0	2,242
Grand Totals		**702,130**	**37,367**		**724,589**	**37,372**

Armstrong City

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	1,080	42	1,230	72	1,295	73
Semi-Detached House	125	5	50	3	145	8
Row House	70	3	150	9	85	5
Apartment, Duplex	45	2	20	1	25	1
Apartment, 5 storeys or higher	10	0	0	0	0	0
Apartment, under 5 storeys	165	6	230	13	205	12
Other Single Attached House	0	0	0	0	15	1
Movable Dwelling	20	1	25	1	5	0

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	1,275	82	1,255	79	1,415	82
Car, Truck,Van as Passenger	110	7	120	8	130	8
Public Transit	10	1	10	1	10	1
Walked	150	10	155	10	145	8
Bicycle	15	1	30	2	20	1
Motorcycle	0	0	10	1	0	0
Taxicab	0	0	0	0	0	0
Other Method	0	0	15	1	10	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	0	0
Local Parks	3	1
Agricultural Land Reserve	158	30
Other land use	365	69
Total Parks and Protected Area	3	1
Total Land Area	526	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	0	0
Local Parks	3	1
Agricultural Land Reserve	158	30
Other land use	365	69
Total Parks and Protected Area	3	1
Total Land Area	526	100

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

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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,