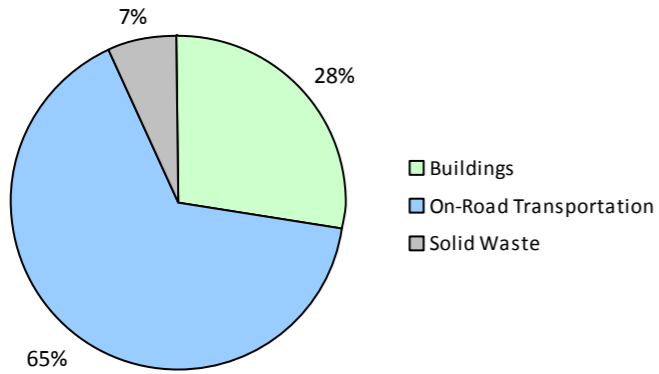


### Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

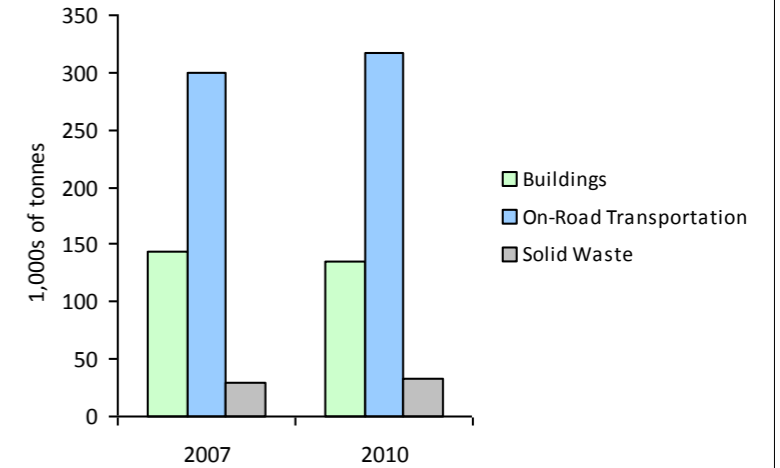
2010 GHG Emissions Sources (Total for this Community)



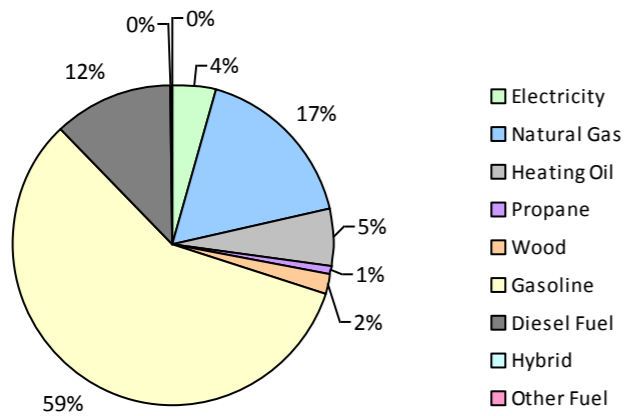
2010 GHG Emissions Sources (Total for BC)



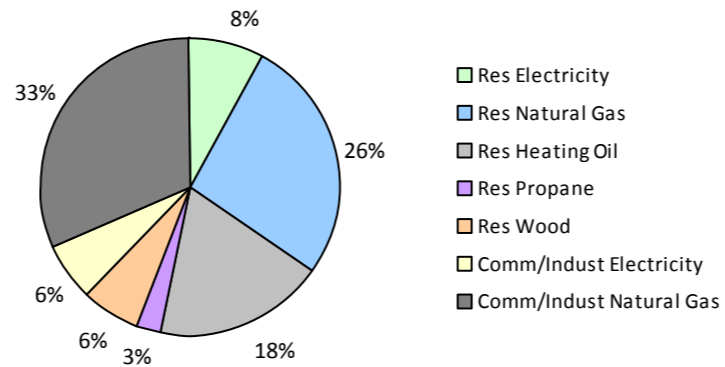
GHG Emissions Comparisons for this Community



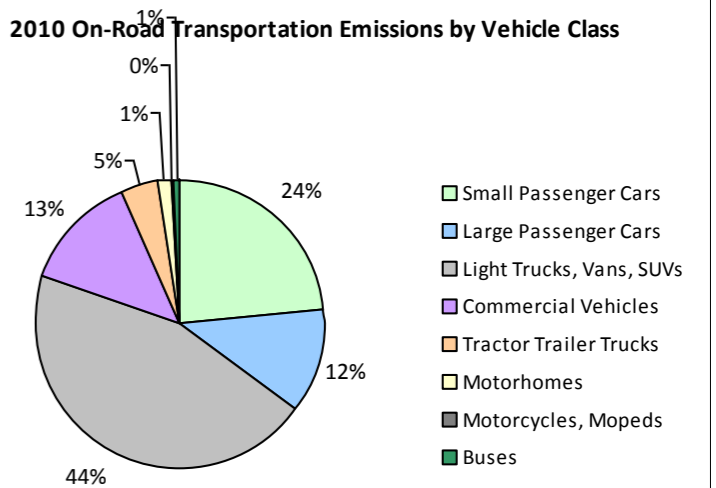
2010 Total Emissions by Fuel Type



2010 Building Emissions by Subsector



2010 On-Road Transportation Emissions by Vehicle Class



# Nanaimo 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	14	12,520 L	19,100	438	29	52	58,112 L	21,100	2,034	130
	Gasoline	19,340	29,656,366 L	16,400	1,037,973	70,460	20,093	32,138,108 L	17,200	1,124,833	72,134
	Diesel Fuel	571	1,073,948 L	27,700	41,133	2,933	545	976,500 L	26,300	37,400	2,590
	Other Fuel			21,600	54	3			22,400	387	24
Large Passenger Cars	Hybrid	67	78,916 L	22,100	2,762	185	265	402,193 L	27,700	14,077	896
	Gasoline	8,870	16,256,425 L	16,200	568,975	38,606	8,476	15,883,994 L	16,600	555,941	35,661
	Diesel Fuel	98	125,016 L	13,500	4,788	341	111	127,880 L	12,400	4,897	338
	Other Fuel	31	75,629 L	18,400	1,913	117	11	26,881 L	19,600	681	42
Light Trucks, Vans, SUVs	Hybrid	10	17,762 L	22,600	622	42	42	97,120 L	25,700	3,399	220
	Gasoline	20,824	52,907,574 L	18,000	1,851,764	126,547	23,011	60,619,630 L	18,800	2,121,688	137,423
	Diesel Fuel	774	1,700,233 L	12,600	65,119	4,629	590	1,527,399 L	15,700	58,499	4,042
	Other Fuel	142	288,316 L	12,000	7,294	442	93	185,043 L	11,500	4,681	283
Commercial Vehicles	Hybrid								23,000	96	7
	Gasoline	1,405	4,384,783 L	18,700	153,468	10,305	1,630	5,337,064 L	19,600	186,797	11,941
	Diesel Fuel	2,005	8,431,720 L	22,400	322,935	22,689	2,383	11,146,361 L	25,400	426,905	29,103
	Other Fuel	76	174,772 L	12,500	4,422	268	52	124,185 L	13,000	3,141	190
Tractor Trailer Trucks	Gasoline			13,200	793	53			16,600	541	34
	Diesel Fuel	384	6,014,615 L	36,200	230,360	16,185	377	5,554,925 L	34,700	212,754	14,505
	Other Fuel			26,900	465	28			21,700	372	22
Motorhomes	Gasoline	427	997,395 L	16,400	34,909	2,329	422	990,737 L	16,400	34,676	2,204
	Diesel Fuel	241	735,570 L	16,600	28,173	1,979	240	757,952 L	16,500	29,029	1,978
	Other Fuel			16,100	535	33			16,900	448	28
Motorcycles, Mopeds	Gasoline	1,081	257,503 L	5,300	9,013	601	1,239	341,371 L	6,200	11,949	758
Buses	Gasoline	115	373,371 L	20,600	13,069	878	114	387,959 L	21,100	13,578	868
	Diesel Fuel	84	248,575 L	92,500	9,521	669	100	307,101 L	92,700	11,762	802
	Other Fuel			11,300	162	9			9,100	126	7
<b>Totals</b>		<b>56,559</b>	<b>123,811,009 L</b>	<b>17,323</b>	<b>4,390,660</b>	<b>300,360</b>	<b>59,846</b>	<b>123,811,009 L</b>	<b>18,233</b>	<b>4,860,691</b>	<b>316,230</b>

## Nanaimo City 2010 Community Energy and Emissions Inventory

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

Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Residential	Wood	N/A	435,979 GJ	435,979	8,833	N/A	422,044 GJ	422,044	8,551
	Heating Oil	N/A	364,316 GJ	364,316	25,681	N/A	352,672 GJ	352,672	24,119
	Propane	N/A	62,892 GJ	62,892	3,837	N/A	60,882 GJ	60,882	3,714
	Natural Gas	12,287	760,754 GJ	760,754	38,159	13,299	706,713 GJ	706,713	35,448
	Electricity	34,490	452,885,643 kWh	1,630,387	11,323	36,560	454,204,518 kWh	1,635,135	11,356
Commercial/Small-Medium Industrial	Natural Gas	1,728	944,910 GJ	944,910	47,397	1,430	856,074 GJ	856,074	42,941
	Electricity	3,902	339,629,546 kWh	1,222,665	8,491	4,125	340,568,226 kWh	1,226,045	8,515
<b>Totals</b>		<b>52,407</b>		<b>5,421,903</b>	<b>143,721</b>	<b>55,414</b>		<b>5,259,565</b>	<b>134,644</b>

Solid Waste		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Community Solid Waste	Solid Waste	0	42,723 t	N/A	29,135	0	35,920 t	N/A	32,921
<b>Totals</b>		<b>0</b>			<b>29,135</b>	<b>0</b>			<b>32,921</b>

### Memo Items

Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	CO2e (t)	Connections	Consumption	Energy (GJ)	CO2e (t)
Large Industrial	Natural Gas	1		0	0				
	Electricity	5		0	0	3		0	0
<b>Totals</b>		<b>6</b>			<b>0</b>	<b>3</b>			<b>0</b>

## Nanaimo 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: 81,456)			2010 (Population: 85,512)		
	Consumption	Energy (GJ)	CO2e (t)	Consumption	Energy (GJ)	CO2e (t)
Hybrid	109,198 L	3,822	256	557,425 L	19,606	1,253
Gasoline	104,833,417 L	3,669,964	249,779	115,698,863 L	4,050,003	261,023
Diesel Fuel	18,329,677 L	702,029	49,425	20,398,118 L	781,246	53,358
Other Fuel	538,717 L	14,845	900	336,109 L	9,836	596
Wood	435,979 GJ	435,979	8,833	422,044 GJ	422,044	8,551
Heating Oil	364,316 GJ	364,316	25,681	352,672 GJ	352,672	24,119
Propane	62,892 GJ	62,892	3,837	60,882 GJ	60,882	3,714
Natural Gas	1,705,664 GJ	1,705,664	85,556	1,562,787 GJ	1,562,787	78,389
Electricity	792,515,189 kWh	2,853,052	19,814	794,772,744 kWh	2,861,180	19,871
Solid Waste	42,723 t	0	29,135	35,920 t	0	32,921
<b>Grand Totals</b>		<b>9,812,563</b>	<b>473,216</b>		<b>10,120,256</b>	<b>483,795</b>

### 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	17,615	39	18,630	61	19,115	57
Semi-Detached House	1,165	3	1,215	4	1,475	4
Row House	1,360	3	1,485	5	1,430	4
Apartment, Duplex	1,410	3	1,350	4	2,775	8
Apartment, 5 storeys or higher	800	2	820	3	1,020	3
Apartment, under 5 storeys	4,970	11	5,845	19	6,735	20
Other Single Attached House	50	0	150	0	105	0
Movable Dwelling	660	1	1,180	4	870	3

#### 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	22,485	78	23,165	80	27,125	79
Car, Truck, Van as Passenger	2,220	8	1,885	7	2,460	7
Public Transit	860	3	865	3	1,160	3
Walked	2,065	7	2,045	7	2,445	7
Bicycle	560	2	570	2	695	2
Motorcycle	60	0	65	0	140	0
Taxicab	20	0	45	0	30	0
Other Method	465	2	285	1	415	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	334	4
Local Parks	744	8
Agricultural Land Reserve	418	5
Other land use	7,438	83
Total Parks and Protected Area	1,078	12
Total Land Area	8,934	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	334	4
Local Parks	744	8
Agricultural Land Reserve	418	5
Other land use	7,438	83
Total Parks and Protected Area	1,078	12
Total Land Area	8,934	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	15,560	54
5 to 9.9 km	7,855	27
25 km or more	2,575	9
15 to 24.9 km	1,040	4
10 to 14.9 km	2,005	7

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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](mailto: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](mailto: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,