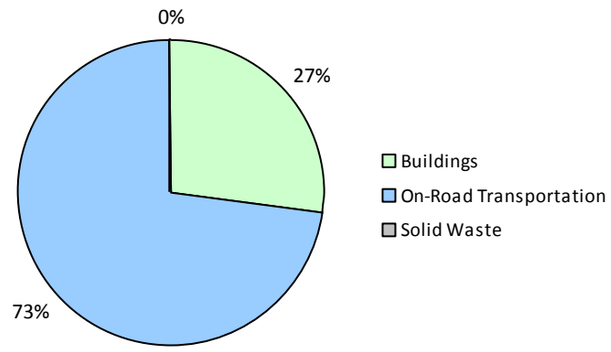
North Cowichan District Municipality

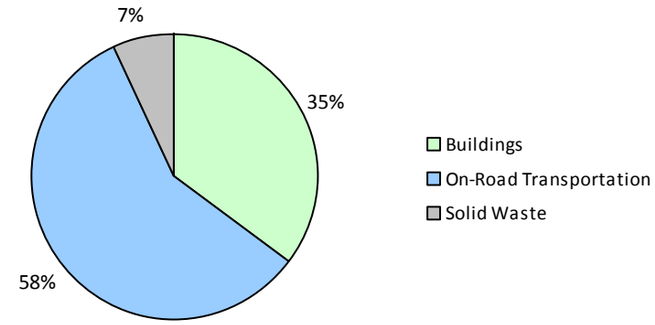
2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

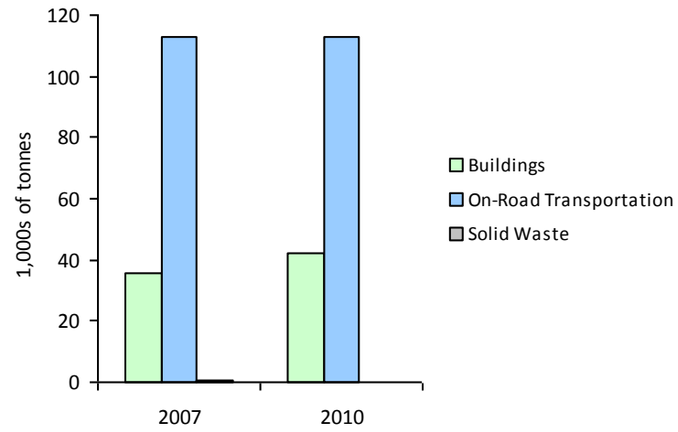
2010 GHG Emissions Sources (Total for this Community)



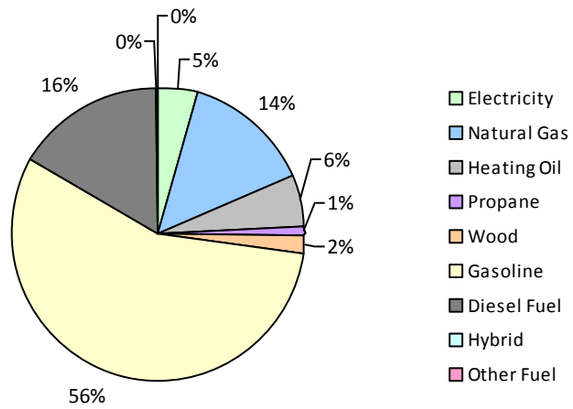
2010 GHG Emissions Sources (Total for BC)



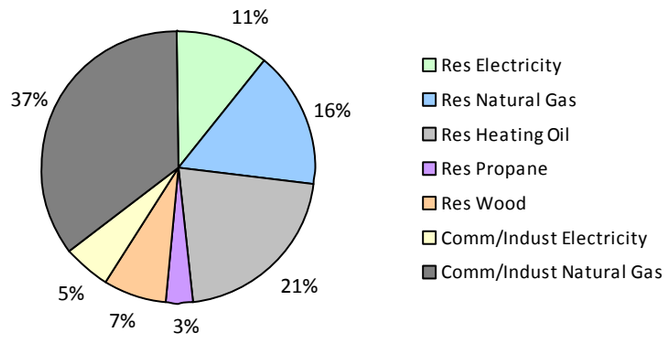
GHG Emissions Comparisons for this Community



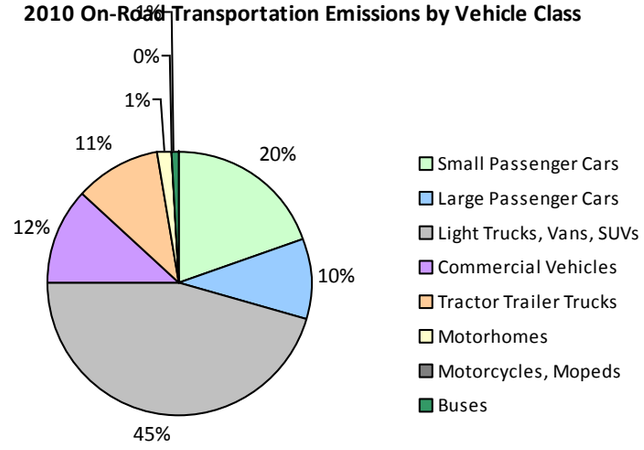
2010 Total Emissions by Fuel Type



2010 Building Emissions by Subsector



2010 On-Road Transportation Emissions by Vehicle Class



North Cowichan District Municipality

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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			20,900	306	20	26	27,501 L	20,500	964	61
	Gasoline	6,044	8,901,986 L	15,700	311,570	21,186	6,265	9,483,827 L	16,300	331,934	21,317
	Diesel Fuel	191	323,192 L	25,400	12,378	883	204	336,707 L	24,600	12,896	893
Large Passenger Cars	Hybrid	23	27,863 L	21,700	975	66	66	86,654 L	23,100	3,033	193
	Gasoline	2,863	4,927,104 L	15,100	172,449	11,723	2,749	4,769,665 L	15,400	166,939	10,724
	Diesel Fuel	34	49,476 L	15,500	1,895	134	44	60,824 L	14,500	2,330	161
Light Trucks, Vans, SUVs	Hybrid			17,100	145	10	14	30,640 L	23,600	1,072	70
	Gasoline	7,812	19,191,661 L	17,200	671,708	45,967	8,627	21,794,381 L	17,800	762,803	49,466
	Diesel Fuel	402	837,290 L	11,900	32,067	2,279	302	725,408 L	14,300	27,783	1,919
	Other Fuel	50	99,767 L	11,700	2,524	153	27	50,713 L	11,200	1,284	77
Commercial Vehicles	Gasoline	689	2,112,069 L	18,200	73,922	4,964	668	1,956,126 L	17,400	68,464	4,376
	Diesel Fuel	742	2,598,776 L	19,300	99,534	6,992	908	3,443,137 L	21,300	131,872	8,989
	Other Fuel	15	33,501 L	12,200	848	51	12	23,373 L	11,000	591	36
Tractor Trailer Trucks	Gasoline			109,000	918	61			112,600	948	60
	Diesel Fuel	243	5,760,102 L	52,700	220,611	15,500	183	4,646,122 L	55,600	177,946	12,131
Motorhomes	Gasoline	168	390,194 L	16,500	13,656	910	169	400,252 L	16,600	14,008	890
	Diesel Fuel	97	297,211 L	16,700	11,383	800	89	277,497 L	16,600	10,629	724
	Other Fuel			14,300	50	3					
Motorcycles, Mopeds	Gasoline	387	90,788 L	5,200	3,177	212	431	115,896 L	6,000	4,056	257
Buses	Gasoline	21	65,679 L	18,800	2,300	154	16	46,892 L	18,300	1,641	106
	Diesel Fuel	54	254,104 L	18,200	9,732	684	53	268,045 L	19,600	10,265	699
	Other Fuel			9,800	170	11			11,500	131	9
Totals		**19,835**	**45,960,763 L**	**16,706**	**1,642,318**	**112,763**	**20,853**	**45,960,763 L**	**17,271**	**1,731,589**	**113,158**

North Cowichan District Municipality

2010 Community Energy and Emissions Inventory

Monitoring and reporting on progress towards greenhouse gas emissions reduction targets

Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Residential	Wood	N/A	159,829 GJ	159,829	3,238	N/A	154,720 GJ	154,720	3,135
	Heating Oil	N/A	133,444 GJ	133,444	9,406	N/A	129,179 GJ	129,179	8,835
	Propane	N/A	23,020 GJ	23,020	1,404	N/A	22,284 GJ	22,284	1,360
	Natural Gas	2,110	110,758 GJ	110,758	5,555	3,013	136,139 GJ	136,139	6,828
	Electricity	12,286	186,568,594 kWh	671,646	4,664	12,811	187,634,381 kWh	675,483	4,691
Commercial/Small-Medium Industrial	Natural Gas	241	182,954 GJ	182,954	9,177	248	303,486 GJ	303,486	15,223
	Electricity	1,198	86,130,928 kWh	310,071	2,153	1,270	92,908,980 kWh	334,472	2,323
Totals		**15,835**		**1,591,722**	**35,597**	**17,342**		**1,755,763**	**42,395**

Solid Waste		2007				2010			
		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Community Solid Waste	Solid Waste	0	2,738 t	N/A	580	0	2,783 t	N/A	0
Totals		**0**			**580**	**0**			**0**

Memo Items

Buildings		2007				2010			
		Connections	Consumption	Energy (GJ)	C02e (t)	Connections	Consumption	Energy (GJ)	C02e (t)
Large Industrial	Natural Gas	1		0	0				
	Electricity	4		0	0	4		0	0
Totals		**5**			**0**	**4**			**0**

North Cowichan District Municipality

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: 28,799)			2010 (Population: 29,837)		
	Consumption	Energy (GJ)	C02e (t)	Consumption	Energy (GJ)	C02e (t)
Hybrid	27,863 L	1,426	96	144,795 L	5,069	324
Gasoline	35,679,481 L	1,249,700	85,177	38,567,039 L	1,350,793	87,196
Diesel Fuel	10,120,151 L	387,600	27,272	9,757,740 L	373,721	25,516
Other Fuel	133,268 L	3,592	218	74,086 L	2,006	122
Wood	159,829 GJ	159,829	3,238	154,720 GJ	154,720	3,135
Heating Oil	133,444 GJ	133,444	9,406	129,179 GJ	129,179	8,835
Propane	23,020 GJ	23,020	1,404	22,284 GJ	22,284	1,360
Natural Gas	293,712 GJ	293,712	14,732	439,625 GJ	439,625	22,051
Electricity	272,699,522 kWh	981,717	6,817	280,543,361 kWh	1,009,955	7,014
Solid Waste	2,738 t	0	580	2,783 t	0	0
Grand Totals		**3,234,040**	**148,940**		**3,487,352**	**155,553**

North Cowichan District Municipality

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	6,670	41	7,165	68	7,405	66
Semi-Detached House	500	3	640	6	740	7
Row House	580	4	715	7	780	7
Apartment, Duplex	280	2	205	2	405	4
Apartment, 5 storeys or higher	0	0	0	0	0	0
Apartment, under 5 storeys	1,265	8	1,360	13	1,540	14
Other Single Attached House	20	0	55	1	35	0
Movable Dwelling	375	2	340	3	375	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	8,540	83	8,675	84	9,520	82
Car, Truck,Van as Passenger	735	7	710	7	1,005	9
Public Transit	70	1	40	0	110	1
Walked	605	6	625	6	760	7
Bicycle	150	1	165	2	95	1
Motorcycle	30	0	15	0	40	0
Taxicab	10	0	0	0	0	0
Other Method	110	1	105	1	95	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	37	0
Local Parks	527	3
Agricultural Land Reserve	6,326	31
Other land use	13,231	66
Total Parks and Protected Area	564	3
Total Land Area	20,122	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	37	0
Local Parks	527	3
Agricultural Land Reserve	6,326	31
Other land use	13,231	66
Total Parks and Protected Area	564	3
Total Land Area	20,122	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	4,490	46
5 to 9.9 km	2,270	23
25 km or more	1,730	18
15 to 24.9 km	610	6
10 to 14.9 km	755	8

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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,