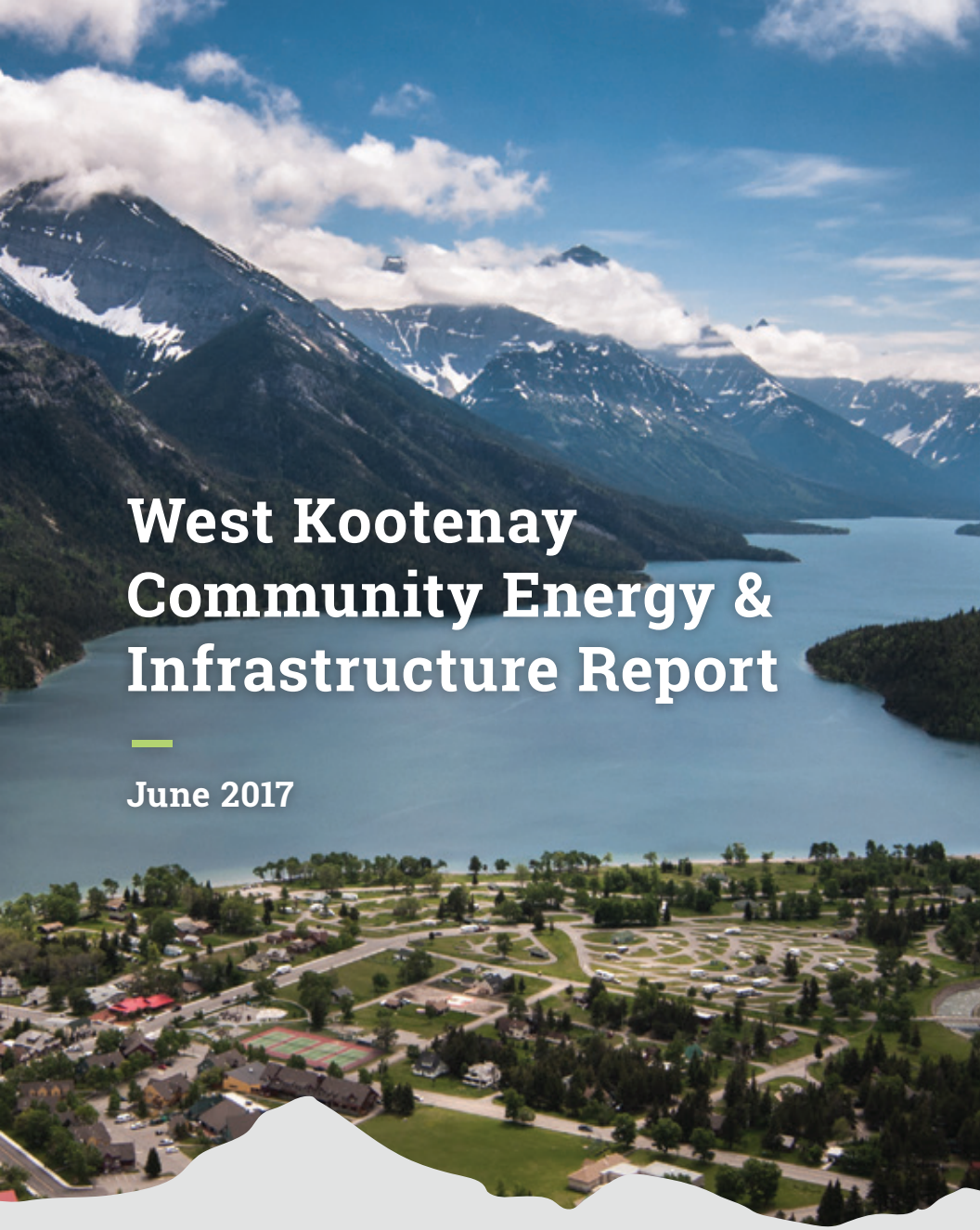


West Kootenay Community Energy & Infrastructure Report

June 2017

WEST KOOTENAY EcoSociety

PUBLISHED JUNE 2017

West Kootenay EcoSociety
206-507 Baker St. Nelson, BC V1L 4J2
info@ecosociety.ca
250.354.1909
www.ecosociety.ca

© West Kootenay Community EcoSociety, 2017

Table of Contents

About the West Kootenay EcoSociety 4

Purpose 5

Regional Carbon Pollution Reduction Programs 6

City of Castlegar 10

Town of Creston 12

Village of Kaslo 14

Village of Nakusp 16

City of Nelson 18

Village of New Denver 20

City of Rossland 22

Village of Salmo 24

Village of Silverton 26

Village of Slocan 28

City of Trail 30

Comparison of Residential Building Emissions by Community 32

Canadian Cities with Developed Strategies for 100% Renewable Energy by 2050 33

- Vancouver, British Columbia 34
- Oxford County, Ontario 35

About the West Kootenay EcoSociety

Founded 1994, the EcoSociety is a non-profit, community-driven organization. EcoSociety works to bring local residents together to protect the natural environment while building just, equitable, healthy, and livable communities in the West Kootenay region.

Along with its other community programs like the Nelson Farmers' Markets, the Kokanee Creek Nature Centre and Kootenay Rideshare, the EcoSociety is organizing a 100% Renewable Kootenays initiative. The initiative's goal is to phase-out fossil fuels and transition to 100% renewable energy by 2050 in West Kootenay cities, in order to do our part to address the climate crisis, while building strong communities and good, green jobs. This transition must take place at the community energy level, including electricity, heating and cooling, and transportation at minimum. This way we can help to prevent the worst impacts of climate pollution, like drought, flooding and other extreme weather events.

This transition must also support low-income people, provide justice and reconciliation for Indigenous Peoples, and retrain workers from the fossil fuel industry to green jobs that will be around for the long-term.

The West Kootenay EcoSociety authored this report as part of its 100% Renewable Kootenays initiative.

Purpose

The purpose of this report is to provide information to residents and decision-makers in the West Kootenays to determine the region's starting point for phasing-out fossil fuels and transitioning to renewable energy and energy efficiency strategies.

The communities highlighted in this report were selected to give a broad representation of the West Kootenays. For this report's purposes, the West Kootenay region includes the communities of Rossland to the west, Nakusp to the north, Creston to the east, to the US border to the south.

This report will highlight:

- Residential heating use from 2007 to 2012 in each community in CO2 equivalent in tonnes, CO2 e (t).
- The carbon pollution reduction, renewable energy and energy efficiency policies, strategies, regulations, and incentives that each community has already adopted.
- Noteworthy community projects that reduce carbon pollution or support renewable energy and energy efficiency.
- The work of other Canadian cities that have adopted goals of going 100% renewable by 2050 and their developed strategies to implement renewable energy and energy efficiency.

Regional Carbon Pollution Reduction Programs

Greenhouse Gas Reduction Targets Act

The Province of BC has instigated province wide targets of greenhouse gas reductions of 33% from 2007 levels by 2020, and 80% from 2007 levels by 2050.

BC's Climate Action Charter

This province-wide initiative has been signed by all West Kootenay Local Governments listed in this report. Signatories to the Charter agreed to be working towards carbon neutrality in their operations by 2012, measure and report their community's greenhouse gas (GHG) emission profile, and create more energy efficient communities through policies and incentives. In return, the Local Governments are eligible to receive the Climate Action Revenue Incentive Program (CARIP) that grants them 100% of the carbon taxes cities pay to move forward with achieving Charter goals. However, the cities are not legally required to achieve their targets.

Official Community Plans (OCP)

Under the Local Government Act, all communities are authorized to develop their own OCPs. OCPs guide development and land use. No bylaws can be adopted that do not meet OCPs' policies but not all works outlined in OCPs will take place. This includes climate change goals and targets, as well as land use and infrastructure, and transportation patterns, which have the ability to reduce GHG emissions.

Local Government (Green Communities) Statutes Amendment Act (Bill 27) is legislation that requires communities to include targets, policies and actions in their OCPs regarding the reduction of GHG emissions as of 2010.

BC Carbon Tax Act

This act adds a surcharge to fuels sold in BC for the purpose of encouraging a reduction in fuel consumption. Since 2011, gasoline has been charged at a rate of 6.67¢ per litre.

Accelerate Kootenays

Launched in April of 2017, Accelerate Kootenays is a community-driven, Electric Vehicle (EV) charging network including 40 communities in Columbia Basin & Kootenay-Boundary regions. It is a 2-year, $1.5 million initiative of the Regional Districts of East Kootenay, Central Kootenay and Kootenay Boundary with support from Columbia Basin Trust, the Federation of Canadian Municipalities, the Province of BC, FortisBC, BC Hydro, and Powertech Labs.

The project, facilitated by the Community Energy Association, will create an electric vehicle (EV) charging station network so EV travel to and within the region is convenient and reliable. With 13 DC Fast Charging stations that take 30 minutes for an 80% charge, and 40 Level 2 Charging stations that take 4-6 hours for an 80% charge, the plan will support EVs on 1,870 km of roads. The program completion date is set for December 2018.

Energy and Emissions Plans

The Local Governments in the West Kootenays serviced by FortisBC have Strategic Community Energy and Emissions Plans (SCEEP). Nakusp and Silverton (with New Denver participating) have Community Energy and Emission Plans (CEEP) through BC Hydro. Nelson has its Low Carbon Path to 2040. These energy and emissions planning documents are leading multi-year roadmaps on projects that implement the improvement of energy efficiency, reducing GHG emissions, and developing local renewable energy solutions.

Residential Building Carbon Emissions

The Community Energy and Emissions Inventory (CEEI) data is collected by the Province of BC from local governments for setting and monitoring emissions reduction as per their Climate Action Charter commitments, which are to be included in their official community plans.

This data includes the following subsections: buildings, land-use change – deforestation, solid waste, agriculture, and on-road transportation. However, based on the data that is available to the public a residential heating analysis was done, and even so it was not possible to be definitive in the results. Inaccuracies in this section are due to wood, heating oil, and propane consumption values being estimated from the best information available at the time, as outlined by Enerficiency Consulting for the Province of BC in 2010.

See the comparison of residential carbon emissions over time of West Kootenay communities from CEEI data on page 32.

BC Energy Step Code

Announced April of 2017, the BC Energy Step Code "establishes a set of incremental performance steps for new buildings that aims to communicate the future intent of the Building Code and improve consistency in building requirements across BC to transition to net zero energy ready buildings by 2032." This will become available in December 2017.

FortisBC Rebates and Savings Programs

FortisBC is the electrical utility for the majority of Local Governments listed in this report. FortisBC also provides natural gas to some communities in the service area. Natural gas is not available to Nakusp, New Denver, Silverton, Slocan nor Kaslo.

FortisBC offers numerous programs to allow residents within their service area to reduce their consumption of natural gas, such as a rebate for upgrading an electric furnace to a heat pump to heat your home, or a walkthrough energy assessment for businesses at a reduced price for a medium-sized building.

BC Hydro Rebates and Savings Programs

BC Hydro has a series of home renovation rebates ranging from insulation installed by a licensed contractor to purchasing a ductless heat pump. This program is available to BC Hydro and FortisBC customers.

BC Hydro also operates a net metering program, which allows home or business owners, who generate more electricity than they use from renewable resources, to receive credit per kWh for energy that is fed into the grid. This program is currently available to the public who connect to the BC Hydro distribution system, such as residents of Nakusp, New Denver and Silverton.

Other Utilities

Nelson Hydro is the electrical provider for Nelson. More information about its energy savings programs can be found in the City of Nelson report section.

City of Castlegar

Douglas Johnson, Wikimedia Commons

With a population of 7,816 and 57% of the population employed in 2011, the three largest industries are retail, business services, and manufacturing employing 16%, 14% and 15% of the population respectively. The City's electricity and natural gas services are supplied by FortisBC. Castlegar's governance structure is comprised of a mayor and six councillors, and has an annual operating budget of $17.6 M as of 2016.

Castlegar's Documented Support for Renewable Energy

Policy	"[T]he City is committed to taking steps to reduce emissions by: … Aiming for a 33% emissions reduction by 2020 below 2007 levels." – City of Castlegar OCP
Strategy 1	"Encourage the incorporation of renewable energy as part of all new development." – City of Castlegar OCP
Strategy 2	The city will encourage energy efficient forms of development through "access to multiple transportation modes such as transit and cycling". – City of Castlegar OCP

Castlegar's Sustainability Guiding Documents

- City of Castlegar – OCP
- Pedestrian and Bicycle Master Plan
- Integrate Community Sustainability Planning: Community Assessment

Existing Regulations & Incentives

- Anti-Idling bylaw

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	5053	0.04	23	1.17	9	0.37	1.58	7,492
2010	4782	0.04	20	1.00	9	0.34	1.38	7,843
2012	4726	0.02	20	1.00	9	0.38	1.40	7,910

Highlighted Project: Anoxic Zone at the South Sewer Treatment plant

In 2016, Castlegar completed construction of an Anoxic Zone at the South Sewer Treatment plant. It is an innovative project that has resulted in major energy savings at the plant and has allowed one treatment train to be temporarily turned off until required by Castlegar's city growth.

Town of Creston

With a population of 5,306 and 40% of the population employed in 2011, the three largest industries are healthcare and social services, agriculture and resource industries, and business services employing 21%, 12% and 10% of the population respectively. The Town's electricity and natural gas services are supplied by FortisBC. Creston's governance structure is comprised of a mayor and six councillors, and has an annual operating budget of $10.2 M as of 2015.

Creston's Documented Support for Renewable Energy

Policy	10% reduction from 2007 baseline levels in community-wide emissions by 2020; and 20% reduction from 2007 baseline levels by 2030. – Creston OCP
Strategy 1	The transportation system is transitioning toward the use of renewable energy sources and non-motorized options. – Cultivating Creston ICSP
Strategy 2	"[T]he Town will work first to reduce energy demand through compact land use, active transportation planning, small-scale and cluster development and efficient buildings, and then look to meet the remaining energy demand through local renewable energy sources." – Creston OCP

Strategy 3 Encourage energy efficient, *Residential Infill Development* and densification within currently serviced areas, with a focus on the Residential Growth Containment Area (RGCA). – Creston OCP

Strategy 4 Encourage the design and construction of energy efficient new buildings, and retrofits in existing residential, commercial and institutional buildings and infrastructure – Creston OCP

Strategy 5 Continue to support incentive programs that target the reduction of *GHG* emissions (eg. a wood stove exchange program). – Creston OCP

Creston's Sustainability Guiding Documents

- Cultivating Creston Integrated Community Sustainability Plan (ICSP)
- Town of Creston "Freshly Picked Future" OCP

Existing Regulations & Incentives

- Woodstove Exchange Program
- Ultra Low Flow Toilet Rebate Program

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	4495	0.04	23	1.16	23	0.94	2.14	4,998
2010	4488	0.04	20	1.01	21	0.85	1.90	5,307
2012	4327	0.02	21	1.05	24	0.95	2.02	5,295

Highlighted Project: Electric Vehicle Charging

Creston recently has installed three Level 2 - 240V charging stations, which have the ability to charge an electric vehicle to 80% in 4-6 hours. The installation of these stations has made Creston an EV connected community along Hwy 3. In 2017, the existing Level 2 chargers will be supplemented with a DCFC 600V charging station which has the ability to charge an electric vehicle to 80% in 20-30 minutes.

Village of Kaslo

With a population of 1,026 and 51% of the population employed in 2011, the three largest industries are manufacturing, healthcare and social services, and business services employing 16%, 14% and 13% of the population respectively. The Village's electricity is supplied by FortisBC. Kaslo's governance structure is comprised of a mayor and four councillors, and has an annual operating budget of $1.7 M as of 2015.

Kaslo's Documented Support for Renewable Energy

Policy	"Council shall encourage the use of renewable energy technologies and safe alternate energy systems to reduce carbon emissions." – Kaslo OCP
Strategy	"Explore the feasibility of renewable energy sources; e.g. micro-hydro electricity generation on Kaslo River, solar, geothermal and hydro-thermal." – Sustainability Strategy for the Village of Kaslo

Kaslo's Sustainability Guiding Documents

- Sustainability Strategy for the Village of Kaslo
- Village of Kaslo – OCP 2011

Existing Regulations & Incentives

- Village of Kaslo Outdoor Burning Regulation Bylaw No. 1102, 2010 and Amendment Bylaw No. 1150, 2014
- City yard and garden debris pick-up twice a year

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	7894	0.06	No Natural Gas Service		34	1.34	1.41	1,133
2010	7959	0.06			35	1.39	1.45	1,055
2012	7905	0.03			40	1.58	1.62	1,030

Highlighted Project: Fiber Optics High Speed Internet

With the installation of fiber-optic cable, Kaslo infoNet (KiN) Society has recently doubled download speeds for communities along the North Arm of Kootenay Lake. This allows the area to enjoy a "true urban-quality internet service" which can help foster telecommuting in the area, thus reducing the need for commuting.

Village of Nakusp

Keystan; Wikimedia Commons

As of 2016 the Village had a population of 1,604. The Village's electricity is supplied by BC Hydro, however it has no natural gas service. Nakusp's governance structure is comprised of a mayor and four councillors, and has an annual operating budget of $4.4 M as of 2017.

Nakusp's Documented Support for Renewable Energy

Policy	[W]ork collaboratively with our partners and community members to reduce the combined greenhouse gas emissions of the rural areas by 15% from baseline levels (2007) by 2020 and by 25% from baseline levels (2007) by 2030. – Nakusp OCP
Strategy 1	"Voluntary reduction of personal vehicle transportation emissions by promoting use of public transit where available, more efficient vehicles, use of alternative fuels and by encouraging walking and cycling. – Nakusp OCP
Strategy 2	The Village of Nakusp "[e]ncourages the investigation and development of renewable energy supply options such as district energy, ground source heat pumps, solar, heat recovery systems, etc." – Nakusp OCP

Nakusp's Sustainability Guiding Documents

» Nakusp OCP

Existing Regulations & Incentives

No specific energy nor related infrastructure regulations or incentives were highlighted at the time of publication.

Residential Buildings: Per Capita Energy Consumption

Year	Electrical Consumption (KWh)	Electrical CO2e (t)	Natural Gas Consumption (GJ)	Natural Gas CO2e (t)	Heating Oil, Propane, Wood* Consumption (GJ)	Heating Oil, Propane, Wood* CO2e (t)	Total CO2e (t)	Pop.
2007	8394	0.22	No Natural Gas Service		23	0.92	1.13	1,517
2010	8344	0.21			21	0.86	1.07	1,563
2012	8112	0.11			24	0.96	1.07	1,556

Highlighted Project: Micro Hydro

In 2012, the Village of Nakusp won the Climate and Energy Action Award for Corporate Operations. One of the three reasons they were recognized was their implementation of a spur of renewable energy projects including micro hydro, solar, and waste heat.

The micro hydro generation station is able to generate 50 kW on a continual basis. The water that is drawn to power the station then feeds into the village's water treatment plant, and into the water distribution system.

City of Nelson

Shawn; Wikimedia Commons

With a population of 10,230 and 63% of the population employed in 2011, the three largest industries are business services, retail, and health care and social services employing 15%, 14% and 12% of the population respectively. The City has its own electrical utility, Nelson Hydro, while natural gas is supplied by FortisBC. Nelson's governance structure is comprised of a mayor and six councillors. It has an annual operating budget of $38.8 M as of 2015.

Nelson's Documented Support for Renewable Energy

Policy	"Renewable energy is installed in 75% of buildings constructed annually by 2020." – Low Carbon Path to 2040
Strategy	"Nelson is already exploring the potential for District Energy and renewable heat. Due to steep terrain, there may also be micro-hydro opportunities in Nelson." – Low Carbon Path to 2040

Nelson's Sustainability Guiding Documents

- Low Carbon Path to 2040: Community Energy and Emissions Action Plan
- Nelson Path to 2040 – Sustainability Strategy
- City of Nelson Greenhouse Gas Reduction Plan – Corporate Operations

Existing Regulations & Incentives

- EcoSave Energy Retrofit Program Bylaw No. 3235: this program encourages the community to reduce carbon pollution by retrofitting residential and commercial buildings through rebate and on-bill financing incentives.

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	4629	0.02	27	1.35	4	0.17	1.54	9,559
2010	4453	0.02	23	1.17	4	0.15	1.33	10,175
2012	4512	0.01	23	1.13	4	0.17	1.30	10,261

Highlighted Project: Nelson Solar Garden

With the excitement around this community renewable energy project, the Nelson Solar Garden is fully subscribed and investors include renters, homeowners, churches, schools, the local college, co-ops and businesses.

At an investment of $923 a panel, which each panel may produce as much as 300 kWh/yr, this project is the first of its kind in Canada where investors will see the solar generation credit returned to their Nelson Hydro electricity bill.

Project completion is set for spring of 2017.

Village of New Denver

With a population of 473 in 2016, and 41% of the population employed in 2011, the two largest industries are retail, healthcare and social services employing 18%, 10% of the population respectively. There was a three way tie for the third largest industry: business services, educational services, and manufacturing, each employing 7.7% of the population. The Village's electricity is supplied by BC Hydro, however, the village has no natural gas service. New Denver's governance structure is comprised of a mayor and four councillors, and has an annual operating budget of $1.4 M as of 2017.

New Denver's Documented Support for Renewable Energy

Policy	"Council policy is to encourage the use of renewable energy technologies and safe alternate energy systems to reduce carbon emissions." – Village of New Denver OCP
Strategy	"New Denver's future built and natural environment must respect the diverse natural setting and must optimize recreational and economic opportunities for all[.]" – Village of New Denver OCP

New Denver's Sustainability Guiding Documents

- The Village of New Denver OCP
- Food Charter
- Sustainable Community/Resilience Action Plan

Existing Regulations & Incentives

No specific energy nor related infrastructure regulations or incentives were highlighted at the time of publication.

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	8386	0.22			43	1.71	1.93	500
2010	8261	0.21	No Natural Gas Service		41	1.65	1.86	501
2012	8081	0.11			45	1.81	1.92	506

Highlighted Project: Solar Photovoltaics on New Denver Secondary School

Jillian Trainor, Arrow Lakes News

In October 2015, the project of installing photovoltaics on New Denver's Lucerne Elementary Secondary School came to a close by having four students volunteer their time to install the panels.

By receiving $50,000 from the Carbon Neutral Capital Planning grant and matching it to total $100,000 School District 10 was able to install enough solar photovoltaics to power the equivalent of what six homes would use. Two thirds of the photovoltaics are installed at Lucerne Elementary.

During the school year, the power will be used to power the school, however, during the summer months, a portion of the power will be fed back into the grid through BC Hydro's Net Metering program.

City of Rossland

With a population of 3,556 and 65% of the population employed in 2011, the three largest industries are manufacturing, healthcare and social services, and retail employing 16%, 16% and 13% of the population respectively. The City's electricity and natural gas services are supplied by FortisBC. Rossland's governance structure is comprised of a mayor and six councillors, and has an annual operating budget of $7.4 M as of 2015.

Rossland's Documented Support for Renewable Energy

Policy 1	GHG reduction target of 33% below Rossland's 2007 GHG emissions' levels by 2020." – Rossland OCP
Policy 2	Rossland Street Light Policy No. 07-03
Strategy	Rossland will "Support the development of low impact alternative and renewable energy sources, such as wind power, micro hydro, solar, biomass or geothermal projects" – Rossland OCP

Rossland's Sustainability Guiding Documents

- City of Rossland – OCP 2008
- Visions to Actions: Strategic Sustainability Plan
- Rossland Active Transportation plan
- Corporate GHG Reduction Plan

Existing Regulations & Incentives

- Sustainability bylaw – Requires the City to have a "Rossland Sustainability Commission" to implement the Visions to Action Strategic Sustainability plan.
- Anti-idling section of the Good Neighbour bylaw, No. 2430
- City of Rossland Tree Retention bylaw No. 2389, 2008
- 2016 Climate Action Reserve Fund bylaw No. 2625

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	5799	0.05	30	1.51	11	0.45	2.01	3,326
2010	5819	0.05	27	1.36	10	0.41	1.81	3,550
2012	5487	0.02	27	1.36	11	0.45	1.83	3,582

Highlighted Project: Public Electric Vehicle Charging Stations

In 2012, the City installed two 240V chargers, which have the ability to charge a standard electric vehicle in 4-6 hours. Having been the first in the region to have charging stations available, Rossland was able to showcase this infrastructure by locating it in the center of town for all to use free of charge.

Village of Salmo

Monte Comeau

With a population of 1,139 and 42% of the population employed in 2011, the three largest industries are construction, agriculture and resource industries, and manufacturing employing 15%, 14% and 10% of the population respectively. The Village's electricity and natural gas services are supplied by FortisBC. Salmo's governance structure is comprised of a mayor and four councillors, and has an annual operating budget of $1.3 M as of 2015.

Salmo's Documented Support for Renewable Energy

Policy

"[E]ncourage alternative energy development in the surrounding area that is compatible with the area's natural resources and with sustainability principles. – Sustainable Salmo OCP 2017

The Village of Salmo shall establish a Climate Action Reserve Fund to provide a source of funds for funding climate mitigation and adaptation strategies..." – Climate Action Reserve Fund Policy A-005 2016

Strategy

"The age of the structures may present challenges to providing sound and healthy living environments, but they also present opportunities for renovations, to improve things such as...energy efficiency." – Sustainable Salmo OCP 2017

Salmo's Sustainability Guiding Documents

- Sustainable Salmo OCP/ICSP
- Village of Salmo 2015 – 2019 Strategic Plan

Existing Regulations & Incentives

No specific energy nor related infrastructure regulations or incentives were highlighted at the time of publication.

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	7331	0.06	21	1.04	2	0.07	1.17	1,038
2010	6665	0.05	19	0.93	2	0.07	1.05	1,122
2012	6423	0.03	19	0.95	2	0.07	1.04	1,158

Highlighted Project: LED Street Light Implementation

In October 2016, the Village of Salmo converted 31 streetlights to LED. In 2017, Salmo completed Phase 2 of 3 of its streetlight conversion, which is primarily residential. Next year, Salmo is scheduled to complete its final phase. It is expected that in five years the savings in energy costs will cover the capital and installation costs of the lights.

Village of Silverton

With a population of 195 and 36% of the population employed in 2011, the three largest industries are agriculture and resource industries, construction, and business services employing 25%, 16.7%, and 16.7% of the population respectively. The Village's electricity is supplied by BC Hydro, however, the Village has no natural gas service. Silverton's governance structure is comprised of a mayor and four councillors, and has an annual operating budget of $0.9 M as of 2015.

Silverton's Documented Support for Renewable Energy

Policy

"[W]ork toward carbon neutrality by focusing on energy efficient community design and retention of green space.
– Silverton OCP

Strategy 1

"[E]nsure future settlement patterns reduce dependency on private automobiles and encourage other forms of transportation such as walking, cycling and transit."
– Silverton OCP

Strategy 2

"[S]upport mixed use and medium density development in lands adjacent to where services and amenities are available."
– Silverton OCP

Silverton's Sustainability Guiding Documents

» Village of Silverton OCP - 2010

Existing Regulations & Incentives

No specific energy nor related infrastructure regulations or incentives were highlighted at the time of publication.

Residential Buildings: Per Capita Energy Consumption

Year	Electrical		Natural Gas		Heating Oil, Propane, Wood*		Total CO2e (t)	Pop.
	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)		
2007	9884	0.26	No Natural Gas Service		67	2.67	2.93	189
2010	9712	0.25			61	2.45	2.70	198
2012	9556	0.13			69	2.75	2.88	196

Highlighted Project

No specific energy nor related infrastructure project was highlighted at the time of publication.

Village of Slocan

With a population of 296 and 51% of the population employed in 2011, the three largest industries are business services, retail, and manufacturing employing 17%, 17% and 14% of the population respectively. The Village's electricity is supplied by FortisBC, however, it has no natural gas service. Slocan's governance structure is comprised of a mayor and four councillors, and has an annual operating budget of $0.7 M as of 2014.

Slocan's Documented Support for Renewable Energy

Policy	"[R]eduction of community greenhouse gas emissions by 33% over 2007 levels by 2020 and by 80% over 2007 levels by 2050." – Village of Slocan OCP
Strategy	Council will: "[e]ncourage the use of renewable energy technologies and alternate energy systems to reduce carbon emissions." – Village of Slocan OCP

Slocan's Sustainability Guiding Documents

- Village of Slocan – OCP 2011
- Community Sustainability and Transition Plan

Existing Regulations & Incentives

No specific energy nor related infrastructure regulations or incentives were highlighted at the time of publication.

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	9926	0.08			25	1.00	1.08	324
2010	9963	0.08	No Natural Gas Service		25	0.99	1.07	314
2012	9691	0.04			29	1.16	1.21	297

Highlighted Project

No specific energy nor related infrastructure project was highlighted at the time of publication.

City of Trail

With a population of 7,705 in 2016, the employed population was 52% in 2011. The three largest industries are retail, manufacturing, and business services employing 17%, 16% and 11% of the population respectively. The largest single employer is Teck Metals Ltd. whose Trail plant is one of the world's largest zinc and lead smelting operations. The City's electricity and natural gas services are supplied by FortisBC. Trail's governance structure is comprised of a mayor and six councillors, and has an annual operating budget of $17.3 M as of 2017 after transfers.

Trail's Documented Support for Renewable Energy

Policy 1	The City of Trail's objective is to meet a "GHG reduction of 33% below Trail's 2007 GHG emissions' levels by 2020" – City of Trail OCP
Policy 2	Anti-Idling Policy for the City's fleet, PWO14.3

Strategy

In supporting the reduction of GHGs the City of Trail will "encourage projects and development that aim for a carbon neutrality and demonstrate new energy efficient technologies". – City of Trail OCP

Trail's Sustainability Guiding Documents

» City of Trail – OCP 2010

Existing Regulations & Incentives

No specific energy nor related infrastructure regulations or incentives were highlighted at the time of publication.

Residential Buildings: Per Capita Energy Consumption

	Electrical		Natural Gas		Heating Oil, Propane, Wood*			
Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	Total CO2e (t)	Pop.
2007	5333	0.04	27	1.36	15	0.58	1.98	7,438
2010	5069	0.04	24	1.18	14	0.55	1.77	7,581
2012	4998	0.02	26	1.27	15	0.61	1.90	7,643

Highlighted Project: Columbia River Skywalk

The Columbia River Skywalk pedestrian bridge has made the community of Trail more walk-able and bike-able. The bridge has reduced the length trip time from the downtown core to East Trail on foot or on bike.

Comparison of Residential Building Emissions by Community

The data in this table is from the Community Energy and Emissions Inventory database. It is intended to demonstrate the approximate CO2 equivalent emissions per capita in each community based on:

- the nature of the condition and type of the residential housing stock,
- regional climate,
- collected consumption values for electricity and natural gas, and
- calculations of wood, propane and heating oil consumption.

Further information on CEEI data can be found on page 8.

		Residential Buildings							
		Electrical		Natural Gas		Heating Oil, Propane, Wood*		Total CO2e	
	Year	Consumption (KWh)	CO2e (t)	Consumption (GJ)	CO2e (t)	Consumption (GJ)	CO2e (t)	(t)	Pop.
Castlegar	2007	5053	0.04	23	1.17	9	0.37	1.58	7,492
	2010	4782	0.04	20	1.00	9	0.34	1.38	7,843
	2012	4726	0.02	20	1.00	9	0.38	1.40	7,910
Creston	2007	4495	0.04	23	1.16	23	0.94	2.14	4,098
	2010	4488	0.04	20	1.01	21	0.85	1.90	5,307
	2012	4327	0.02	21	1.05	24	0.95	2.02	5,295
Kaslo	2007	7894	0.06			34	1.34	1.41	1,133
	2010	7969	0.06	No Natural Gas Service		35	1.39	1.45	1,055
	2012	7905	0.03			40	1.58	1.62	1,030
Nakusp	2007	8094	0.22			23	0.92	1.13	1,517
	2010	8344	0.21	No Natural Gas Service		21	0.86	1.07	1,563
	2012	8112	0.11			24	0.96	1.07	1,556
Nelson	2007	4629	0.02	27	1.35	4	0.17	1.54	9,559
	2010	4453	0.02	23	1.17	4	0.16	1.33	10,175
	2012	4512	0.01	23	1.13	4	0.17	1.30	10,261
New Denver	2007	8386	0.22			43	1.71	1.93	500
	2010	8261	0.21	No Natural Gas Service		41	1.65	1.86	501
	2012	8081	0.11			45	1.81	1.92	506
Rossland	2007	5799	0.05	30	1.51	11	0.45	2.01	3,326
	2010	5819	0.05	27	1.36	10	0.41	1.81	3,550
	2012	5487	0.02	27	1.35	11	0.45	1.83	3,582
Salmo	2007	7331	0.06	21	1.04	2	0.07	1.17	1,038
	2010	6665	0.05	19	0.93	2	0.07	1.05	1,122
	2012	6423	0.03	19	0.95	2	0.07	1.04	1,158
Silverton	2007	9684	0.26			67	2.67	2.93	189
	2010	9712	0.25	No Natural Gas Service		61	2.45	2.70	198
	2012	9556	0.13			69	2.75	2.88	196
Slocan	2007	9926	0.08			25	1.00	1.08	324
	2010	9963	0.08	No Natural Gas Service		25	0.99	1.07	314
	2012	9691	0.04			29	1.16	1.21	297
Trail	2007	5333	0.04	27	1.35	15	0.58	1.98	7,438
	2010	5069	0.04	24	1.18	14	0.55	1.77	7,581
	2012	4998	0.02	26	1.27	15	0.61	1.90	7,643

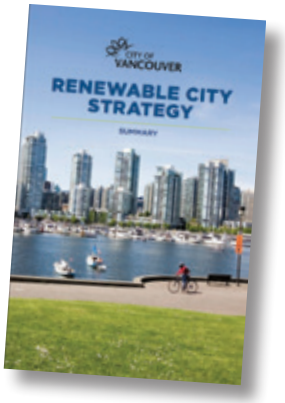
Canadian Cities with Developed Strategies for 100% Renewable Energy by 2050

Two Canadian cities have already adopted the goal of transitioning to 100% renewable energy by 2050 at the community energy-level (heating and cooling, transportation, and electricity) and have developed strategies to reach this goal, while other cities are beginning to adopt goals or consider adopting goals and strategies.

Vancouver, BC was the first city to pledge to go 100% renewable and is the largest city in Canada to make this commitment. The City developed a strategy of using energy demand side management programs, which promote users to lower their energy consumption, in addition to introducing renewable energy generation within the City. It adopted this goal in March 2015 and released its strategy in November 2015. It also aims to be the Greenest City in the world by 2020.

Oxford County, ON is a rural regional municipality made of five townships, two towns and one city. It adopted this goal of 100% renewable energy by 2050 at the community energy-level in 2015 and released its draft strategy in 2016.

Vancouver, British Columbia



With a population of 603,502 and 62% of the population employed in 2011, the three largest industries are business services, health care and social services, and retail trade employing 26%, 10%, and 9% of the population respectively. The City's electricity is supplied by BC Hydro and natural gas services are supplied by FortisBC. Vancouver's governance structure is comprised of a mayor and ten councillors, and has an annual operating budget of $1.322 billion for 2017.

Vancouver's Documented Support for Renewable Energy

Policy

"Derive 100% of the energy used in Vancouver from renewable sources before 2050", and "[r]educe greenhouse gas emissions by at least 80% below 2007 levels before 2050" – Renewable City Strategy 2015-2050, 2015

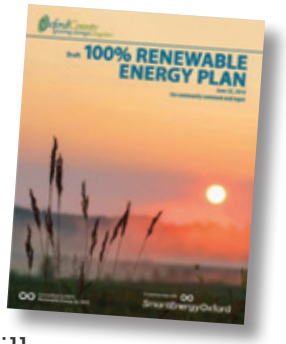
Summary of Strategies

1. "Reduce energy use: Advance energy conservation and efficiency programs which are the most cost-effective way to a renewable energy future;
2. Increase the use of renewable energy: switch to renewable forms of energy that are already available to us, and make improvements to our existing infrastructure to use it to its fullest potential; and
3. Increase the supply of renewable energy: increase the supply of renewable energy and build new renewable energy infrastructure". – Renewable City Strategy 2015- 2050, 2015

Vancouver's Sustainability Guiding Documents

- Renewable City Strategy 2015-2050
- Greenest City 2020 Action Plan
- Transportation 2040 Plan

Oxford County, Ontario



As of 2016, Oxford County, made of eight municipalities, had a population of 110,862 with 40,902 being located in Woodstock, the only official city in the area. The County's electricity is supplied by Hydro One, and natural gas services are supplied by Union Gas. Oxford County's governance structure is comprised of the eight mayors from each Area Municipality and two elected city councillors from the City of Woodstock. The head of the council is the Deputy Warden who is elected every four years. The County has an annual operating budget of $231.4 M as of 2016.

Oxford County's Documented Support for Renewable Energy

Policy

"The County of Oxford hereby commits to the achievement of 100% Renewable Energy by 2050" – Motion passed by Council on Jun 24, 2015.

Strategy

"Focus is on program planning with each municipality at a high level…"The 100% [Renewable Energy] plan must be formed up within the structure of existing regulatory and planning framework"; "[E]xisting departments and processes must be partners as opposed to barriers"; "[M]unicipalities must lead by example" – Draft 100% Renewable Energy Plan, 2016

Oxford County's Sustainability Guiding Documents

- Draft 100% Renewable Energy Plan
- Future Oxford Community Sustainability Plan
- 2015-2018 Strategic Plan: Vibrant Communities

TECHNICAL SUMMARY

West Kootenay EcoSociety compiled this report through research, as well as conversations and correspondence with local government representatives. For more information on methods used to compile this report visit www.ecosociety.ca/communityenergyreport

This report was made possible thanks to the support of:

Real Estate Foundation of BC, Lush Cosmetics, and EcoSociety's amazing network of supportive individuals and businesses.

WEST KOOTENAY
EcoSociety

www.ecosociety.ca