

District Energy Sector in British Columbia



British Columbia has district energy projects located throughout the province, and a significant number of B.C. companies operating within the district energy sector.



By locally producing and distributing heat – and in some cases heat and electricity – to users within a neighbourhood or community, district energy systems are an efficient way to heat and cool buildings and reduce greenhouse gas emissions. District energy will help B.C. meet the objectives set out under the B.C. Energy Plan: A Vision for Clean Energy Leadership (www.energyplan.gov.bc.ca) and the BC Climate Action Plan. (www.livesmartbc.ca/government/plan.html).

District energy in B.C. is supported by a range of initiatives:

- ▶ \$25 million for the Innovative Clean Energy Fund to help bring near-commercial clean energy technologies to local and international markets.
- ▶ Refundable tax credits of 30 per cent for investments in eligible small businesses in British Columbia's clean energy sector (www.tted.gov.bc.ca/TRI/ICP/VCP/Pages/default.aspx).
- ▶ \$90 million in the B.C. Renaissance Capital Fund to finance early-stage ventures in target sectors of the B.C. economy, including clean technologies (www.bccrcf.ca)
- ▶ The Power Smart Sustainable Communities Program offers funds towards studies to determine the viability of a district energy system, as well as capital incentives to aid in implementation of the system.
- ▶ The BC Bioenergy Network (www.bcbioenergy.ca), an industry-led initiative that acts as a catalyst for deploying near-term bioenergy technologies.

British Columbia has implemented several initiatives to shift to a low carbon economy:

- ▶ Legislation to reduce greenhouse gas emissions by 33 per cent by 2020.
- ▶ Commitment to become electricity self-sufficient by 2016 and to counter global warming by generating clean, renewable power and meeting 50 per cent of incremental resource needs through conservation by 2020.
- ▶ North America's first Carbon Tax, which applies to fossil fuels (including home heating fuel) encourages individuals and businesses to make more environmentally responsible choices, reduce their use of fossil fuels and reduce greenhouse emissions.



B.C.'s district energy systems range from natural gas, biomass boilers and gasification plants, to geexchange systems and flexible boiler systems adaptable for use with various fuel sources.



Geoexchange energy systems use ambient energy in the ground and groundwater to provide efficient space heating and cooling.

CURRENT DISTRICT ENERGY PROJECTS IN B.C.

CITY	OPERATOR
Burnaby	Simon Fraser University
Kelowna	Okanagan College
	University of British Columbia-Okanagan
Langley, Surrey	Kwantlen Polytechnic University
North Vancouver	Lonsdale Energy Corporation
Prince George	City of Prince George
	University of Northern British Columbia
	Prince George Regional Hospital
Revelstoke	Revelstoke Community Energy Corp.
Vancouver	BC Children's Hospital
	Central Heat Distribution Ltd.
	Southeast False Creek/Olympic Village
	St Paul's Hospital
	University of British Columbia
Victoria	Vancouver Athletes' Village
	Dockside Green
	University of Victoria
Whistler	Whistler Athletes' Village

SELECTED LISTING OF B.C.'S DISTRICT ENERGY SECTOR

COMPANIES
Central Heat Distribution Ltd.
Compass Resource Management Ltd.
Corix Utilities Inc.
DEC Design Mechanical Consultants Ltd.
Dockside Green Energy LLP
EBA Engineering Consultants Ltd.
FVB Energy Inc.
GeoTility Systems Corp.
Hemmera Energy Inc.
Kerr Wood Leidal Associates Ltd.
Lonsdale Energy Corporation
MEG Geothermal Corp.
Nexterra Systems Corp.
Pacific Regeneration Technologies Inc.

Quesnel Community and Economic Development Corporation
Revelstoke Community Energy Corporation
Terasen Energy Services Inc.
TerraSource
TRAK International
ASSOCIATIONS AND RESEARCH ORGANIZATIONS
BC Sustainable Energy Association
Canadian District Energy Association
Canadian GeoExchange Coalition
Community Action on Energy and Emissions Initiative
Community Energy Association
GeoExchange BC
The Centre for Environmental Research in Minerals, Metals, and Materials (The University of British Columbia)

DOCKSIDE GREEN ENERGY LLP

<http://docksidegreenenergy.com>

Dockside Green – a mixed-use sustainable community in Victoria, B.C. – houses residential, commercial and light industrial occupants, and utilizes heat and hot water generated on-site by a renewable energy district heating system. The centralized biomass-gasification heating plant, custom-built by B.C.-based Nexterra Systems Corp., generates heat using locally sourced waste wood. Dockside Green is the first residential project in North America to use this technology, which is helping the entire development achieve greenhouse gas emission neutral status from a building energy perspective.



KWANTLEN POLYTECHNIC UNIVERSITY

www.kwantlen.ca/home.html

Kwantlen Polytechnic University's Institute for Sustainable Horticulture (ISH) will have, once completed, an environmentally certified laboratory building (489 m²) and geothermal research greenhouse (714 m²), which will enable a range of research and innovation initiatives in "green" technology. New geexchange energy prototypes for horticulture greenhouses will be developed by ISH in collaboration with engineering partners. Developing complementary geexchange systems will cut greenhouse gas emissions and dramatically lower heating and cooling costs, which will substantially reduce the cost of growing food in greenhouses. The technology and products from this line of research are patentable, exportable and will position Canada to lead in green energy technologies.



REVELSTOKE COMMUNITY ENERGY CORPORATION

www.cityofrevelstoke.com

The Revelstoke Community Energy Corporation is a wholly owned subsidiary of the City of Revelstoke. The corporation operates a 1.5MW wood residue-fuelled combustor/boiler producing hot water for a district energy system that heats a number of public and private buildings in Revelstoke's city core, and also provides low pressure steam to operate the dry kilns at Downie Street Sawmills. The project is a unique cooperative arrangement between the City and the sawmill in that Downie has agreed to provide wood residues to fuel the biomass boiler, and has agreed to buy steam energy for its dry kilns – both on 20 year contracts.



GEOEXCHANGE BC

www.geoexchangebc.com

GeoExchange BC is a non-profit industry association advancing the use of geoexchange systems, and includes contractors, consultants and engineers, manufacturers and suppliers. Geoexchange systems provide green and efficient heating and cooling that can be effectively used in a range of settings, serving individual buildings or entire communities through district energy systems.

GeoExchange BC is dedicated to consumer education, promotion, responsible design and proper installation of low-temperature, ground source energy systems. They provide education, professional development, training and resources for growing the geoexchange and heat pump industry in B.C.



LONSDALE ENERGY CORPORATION

www.lonsdaleenergy.ca

The Lonsdale Energy Corporation (LEC) is a public utility governed and regulated by the City of North Vancouver, B.C. It uses a district heating system, made up of a series of facilities that heat and distribute hot water through underground pipes, to provide thermal energy to its local customers. The boilers in this system, can be adapted to use a variety of fuels. To date, 1,700 residential units are connected to the system as well as several commercial/retail premises.



LEC plans to add a variety of energy sources to those presently used by the district energy system including electrical-based heat pumps. Recently, 120 hydronic solar panels were connected to one of LEC's facilities. As well, LEC is exploring using heat pump technology with a heat reclaiming system. This project is highly innovative in its use of both a proven technology, such as the stack heat reclaiming system with the innovative use of solar energy, and a customized heat pump technology showing the flexibility of district energy heat systems.

FOR MORE INFORMATION

▶ JANICE LARSON

Director, Renewable Energy Development
Ministry of Energy, Mines and Petroleum Resources
250 952-0706 Janice.Larson@gov.bc.ca