



WELCOME to the WEBINAR

Green Energy as a Rural Economic Development Tool Project

1:30-3:00pm PDT, February 20, 2014

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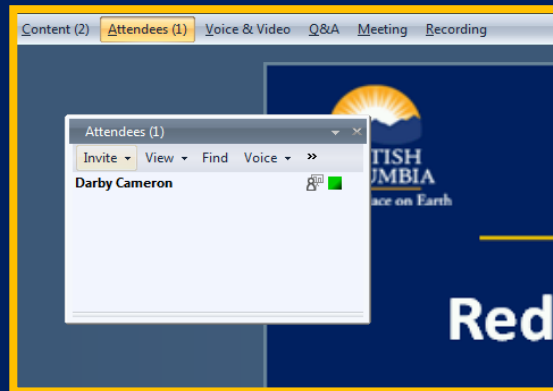
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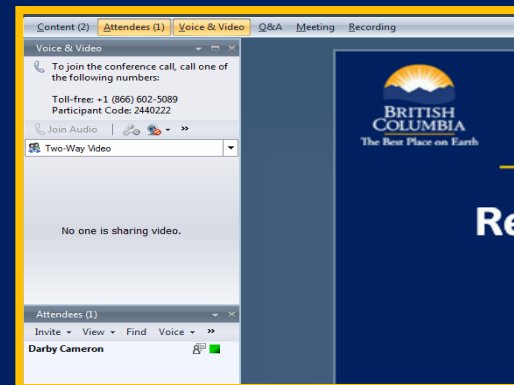
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1. Click on the desired Menu option on the top left...

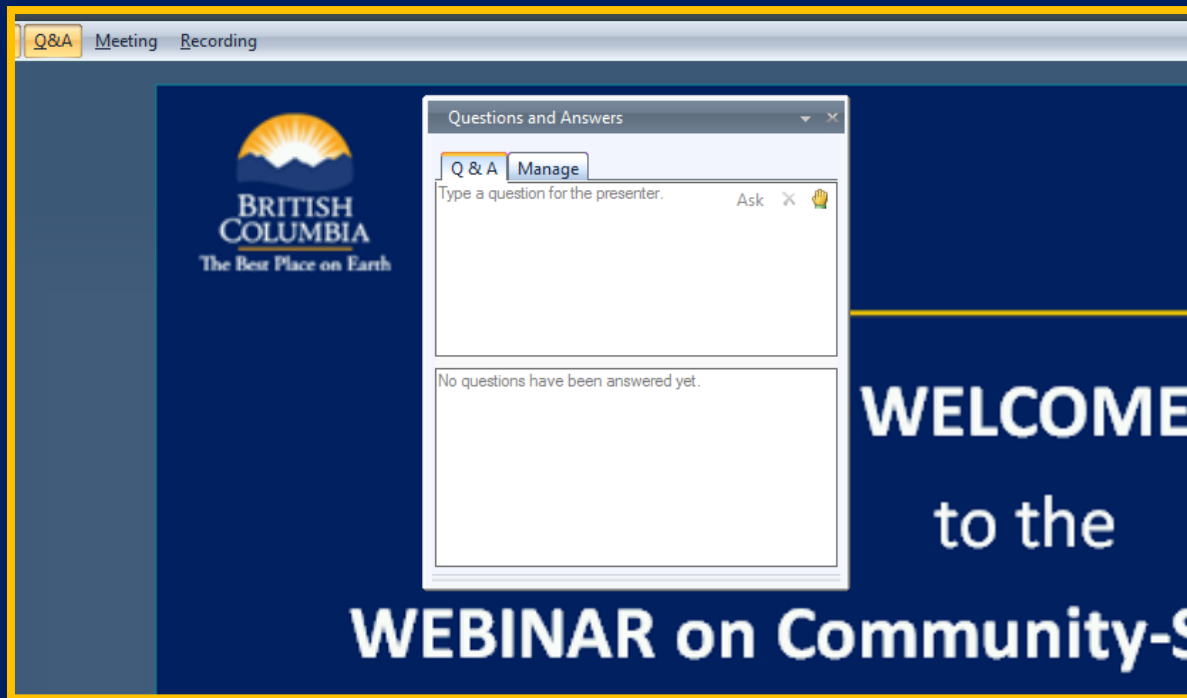


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The LiveMeeting Environment: Q&A

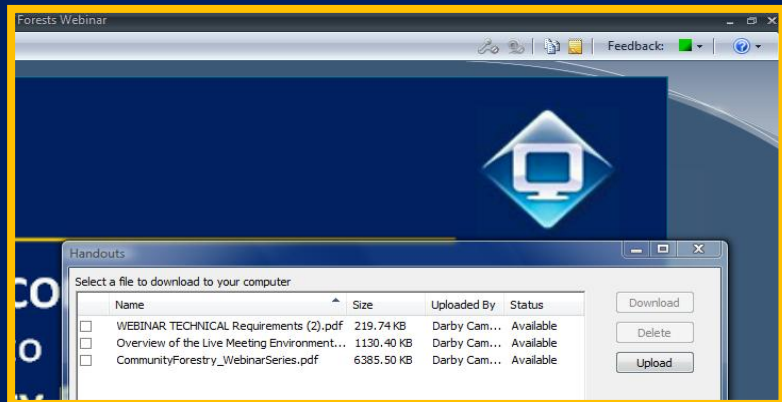
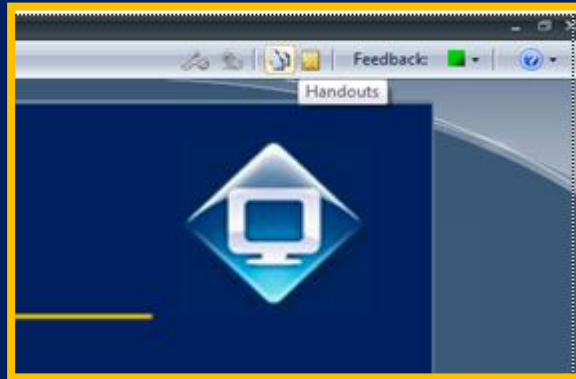
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The LiveMeeting Environment: Handouts

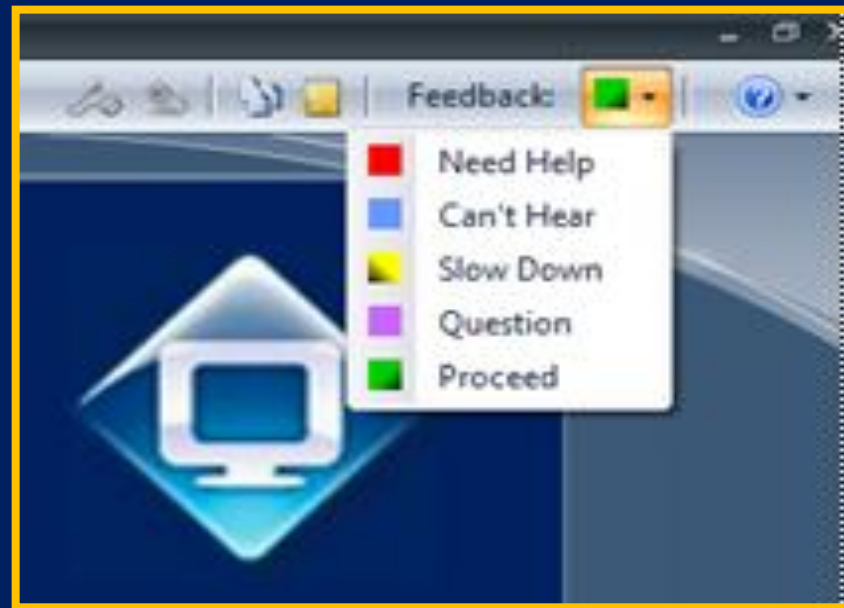
You can access a .pdf of today's PowerPoint presentation and other useful documents by:

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2. In the pop-up handouts box, indicate the document you desire and click download.



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Presenters

Marc Imus

Director, Community Economic Development – Jobs, Tourism and Skills Training

Gord Borgstrom

Consultant, Southern Interior Beetle Action Coalition

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Webinar Agenda

1:30-1:40	Live Meeting Orientation & Economic Development Webinar Series Orientation	Josh Thompson, Economic Development Division
1:35-1:40	Webinar Intro, Bios & Agenda	Marc Imus, Community Economic Development
1:40-1:55	Project Overview	Marc Imus, Community Economic Development
1:55-2:30	Project Outcomes and Deliverables	Gordon Borgstrom, Southern Interior Beetle Action Coalition
2:30-2:55	Discussion	
2:55-3:00	Close	Josh Thompson, Economic Development Division

Quick Poll



Green Energy as a Rural Development Tool Project

**Marc Imus, Director
Ministry of Jobs, Tourism & Skills Training**

**Gordon Borgstrom, Project Lead
Green Energy as a Rural Development Tool Project &
Consultant, Southern Interior Beetle Action
Coalition**



Ministry of
Jobs, Tourism
and Skills Training



CARIBOO CHILCOTIN
BEETLE ACTION COALITION



Southern Interior
Beetle actions
Coalition

Canada's Rural Partnership
 Government of Canada / Gouvernement du Canada

Green Energy as a Rural Development Tool Project

Presentation Overview

- Project Purpose & Objectives
- Project Funding Partners
- Project Information & Tools Available

Renewable Energy Impacts in BC: Quick Facts



**Created
18,000
person-years
of
employment**

**\$2 billion to
economy**

**\$378 million
to
government
for public
services**

**27 recent
projects =
3,800 person-
years of
construction
employment**

**125 First
Nations
participating**



Green Energy as a Rural Development Tool Project

Project Purpose:

To increase rural knowledge of green energy opportunities and to develop new tools that will facilitate increased rural benefits from green energy development in the Mountain Pine Beetle epidemic zone of BC.



Photo: Lake Country Micro-Hydro Facility

Green Energy as a Rural Development Tool Project

Major Project Components & Objectives:

- 1) To create & circulate green energy information resources & analysis tools to rural communities & First Nations to assist with the identification & development of green energy development opportunities in their respective communities.
- 2) To work directly with a number of small communities & First Nations in the MPB epidemic zone to assist them in furthering their proposed green energy development projects/concepts.
- 3) To work with green energy industry organizations & businesses to identify & implement actions to increase rural benefits from green energy development in BC interior.
- 4) To organize & deliver a series of regional outreach & knowledge extension activities throughout rural BC.

Green Energy as a Rural Development Tool Project

Project Funding Partners:

- BC Ministry of Jobs, Tourism & Skills Training – Pine Beetle Epidemic Response Branch
- Canada's Rural Partnership (Government of Canada)
- Cariboo-Chilcotin Beetle Action Coalition
- Columbia Basin Trust
- Omineca Beetle Action Coalition
- Southern Interior Beetle Action Coalition (Project Manager)

Green Energy as a Rural Development Tool Project

Aligns with BC Energy Plan – A Vision for Clean Energy

Leadership & BC Bioenergy Strategy:

- new technologies & solutions to “green the grid” and provide clean remote energy
- all new electricity generation projects will have zero net greenhouse gas emissions
- clean or renewable electricity generation continues to account for at least 90% of total generation
- take advantage of BC’s abundant sources of renewable energy (including wood waste from mountain pine beetle)

Green Energy as a Rural Development Tool Project

The Green Energy Project compliments other initiatives by the Province & Local Governments:

- BC Climate Action Toolkit – reports and guides
- Community Energy Planning (i.e. energyexplorer.ca)
- Smart Planning for Communities (Fraser Basin Council)
- Community Energy & Emissions Planning Guide
- Integrated Resource Recovery – utilization of waste to generate power
- BC Energy Map - <http://www.toolkit.bc.ca/Resource/BC-Energy-Map-0>

Green Energy as a Rural Development Tool Project

Project website: www.ruralbcgreenenergy.com



RURAL BC GREEN ENERGY

GREEN ENERGY AS A RURAL ECONOMIC DEVELOPMENT TOOL PROJECT

[Home](#) [About](#) [Project Reports & Tools](#) [Project Case Studies](#) [Videos & Presentations](#) [Contact & Links](#)

GREEN ENERGY DEVELOPMENT... *learn about the opportunities*

Green energy development and transitioning British Columbia to the vision of being a green energy powerhouse are priorities for the Government of British Columbia as reflected in the BC Energy Plan and the Climate Action Strategy.

Rural communities, First Nations and the provincial government are all interested in exploring how green energy development can contribute to regional and community economic growth and diversification. This is especially true in the interior of BC where - as a result of the Mountain Pine Beetle (MPB) epidemic - local governments and First Nations are keenly interested in facilitating economic growth and diversification. There is also considerable interest amongst many rural communities and First Nations in the MPB epidemic zone to explore the options of creating and operating community-owned green energy utilities.

[Share](#) [More info](#)

District of Lake Country Micro-Hydro Power Plant

[DOWNLOAD THE LATEST PROJECT REPORT \(PDF\)](#)

About the Project
The four major components and objectives of the project will be outlined on this page, where you can also read the latest project progress report.

[Learn More](#)

Project Reports & Tools
This page includes a Green Energy resources guidebook, feasibility studies, business analysis, local government guidebook and more....

[Learn More](#)

Green Energy as a Rural Development Tool Project

Key Tabs:

- About the Project
- Project Case Study Reports
- Project Reports & Tools
- Videos & Presentations



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[Project Case Study Reports](#)

Read about the process of bringing a community green energy project to fruition...challenges, highpoints and words of wisdom.

[Learn More](#)

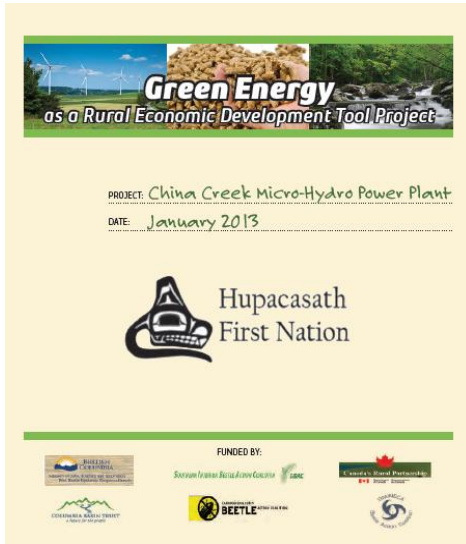
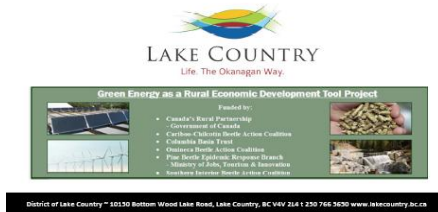
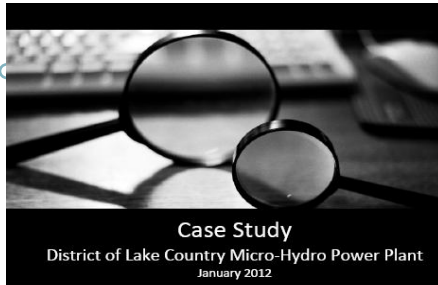


[Videos & Presentations](#)

A picture tells a thousand words. These short video clips include a brief tour of successful green energy projects and interviews with key project champions.

[Learn More](#)

Green Energy as a Rural Development Tool Project



Project Case Study Reports Tab:

Detailed Case Study Reports (12 – 15 pages) that provide detailed descriptions of the development of the project; funding sources; timelines; construction costs; revenue/cost savings; and lessons learned.

Completed 4 Case Study Reports:

- 1.) District of Lake Country Small-Hydro
- 2.) Upnit Power - China Creek Small Hydro
- 3.) Lillooet Recreation Centre Biomass Heating
- 4.) Village of Granisle Firehall Biomass Heating

Green Energy as a Rural Development Tool Project



Green Energy Projects and Utilities:
An Investment and Governance Guide
for BC Local Governments and First Nations

Volume 1:
Making Investment and Governance Decisions

Prepared by



Powering our Province:
An Analysis of the Clean Energy Business & Workforce
Opportunities for Communities in British Columbia

July 2012

Prepared by:



Project Reports & Tools Tab :

- Green Energy Information Resources Guide
- Green Energy Projects and Utilities: An Investment & Governance Case Study Guide for BC Local Governments and First Nations
- Powering our Province: An Analysis of the Clean Energy Business & Workforce Opportunities in British Columbia

Green Energy as a Rural Development Tool Project



Wood Biomass Heating Systems

There is increasing interest in BC in biomass heating systems especially those fueled using wood products like pellets and wood chips. While there are a number of biomass heating projects currently in operation in BC there are still a number of common misconceptions about biomass heating systems.

How much biomass fuel is required?

Very common initial questions are:

- How much fuel do these systems require?
- Do we need a large fuel storage system?
- Will there be fuel delivery trucks arriving every second day?

The answers to these questions of course depend on the size of the system and the fuel source (wood pellets or wood chips). However, generally the size of the fuel storage unit and the frequency of fuel delivery are much smaller and less frequent than people expect. Depending on the size of the system, on-site storage and season fuel deliveries could be as infrequent as a truckload every four months or as frequent as weekly. The table below provides some general information on the volume and price of bio-mass fuels compared to fossil fuels. So for example the table for elementary school uses less than half a rail car of pellets to heat the entire school for a year.

<p>One power pole = 1 cubic metre of wood</p> <p>One power pole = 797 lbs or 0.344 tonnes of bone dry chips</p>	<p>One bone-dry tonne of chips creates about 28 Gigajoules of energy</p> <p>One tonne of green wood chips (60% moisture) creates about 14 Gigajoules of energy</p>	<p>1 tonne of Pellets costs about \$200</p> <p>1 Bone dry tonne of chips costs about \$80</p> <p>1 tonne of green chips costs about \$50</p>
<p>One 8 train chip truck = 25 bone dry tonnes of chips or 40 tonnes of green chips</p>	<p>A typical medium size BC home consumes about 100-120 Gigajoules GJ of thermal energy for heating</p> <p>A typical large BC home would consume about 4 to 50 tonnes of pellets or 8 to 10 tonnes of chips for heating.</p> <p>NASCO School - Previously used about 80000 kg of Propane - approximately cost \$45000/yr. Now completely converted to biomass heating and uses 48 tonnes/yr of pellets - approximate cost \$5000/yr.</p>	<p>1 Gigajoule of Natural Gas costs about \$11 for residential customers and \$18 GJ for commercial customers (subsidized cost)</p> <p>1 Gigajoule of Heating Oil costs about \$28 for residential customers</p> <p>1 Gigajoule of Fuel Oil (L2) (residential) costs about \$14 for residential customers (\$200/tonne)</p> <p>1 Gigajoule of Green Wood Chips (0.71 tonnes) costs about \$4.88 for residential customers (\$50/tonne)</p>
<p>One tonne of pellets = 0.3 bone dry tonnes of chips or 2 tonnes of green chips</p> <p>One tonne of pellets creates about 28 Gigajoules of energy (e.g. 1900 home).</p>		

Project Reports & Tools Tab (cont.):

- Biomass Fact Sheet
- “Micro”- Hydro Overview (in progress)

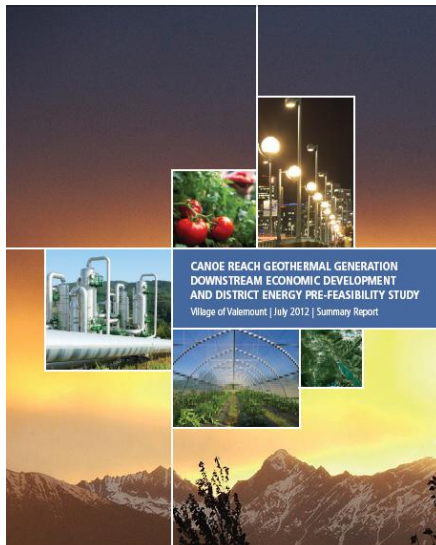
Green Energy as a Rural Development Tool Project



City of Armstrong:
Fortune Creek Small Hydropower
Feasibility Study
FINAL REPORT
Prepared by:
Dobson Engineering and
Urban Systems
304 – 1353 Ellis Street
Kelowna, BC V1Y 1Z9

DOBSON
Engineering Ltd.

URBAN
systems



02/01

MMI GROUP

Project Reports & Tools Tab (cont.) :

Feasibility Studies:

- City of Armstrong Micro-Hydro
- District of Clearwater Micro-Hydro
- Simpcw First Nation Micro-Hydro
- Village of Valemount - potential use of “waste” heat from a proposed geothermal power plant
- Village of Telkwa Biomass Heating
- North Thompson Green Energy Opportunity Scan

Green Energy as a Rural Development Tool Project



Videos Tab :

Four Videos on the website:

- 1.) District of Lake Country Micro-Hydro Power Plant, Lake Country, BC
- 2.) Hupacasath First Nation – Upnit Power, China Creek Small Hydro, Port Alberni, BC
- 3.) The UNBC Bioenergy Project, Prince George, BC
- 4.) Fink Machine Bio-mass District Heating Project, Enderby, BC

Green Energy as a Rural Development Tool Project

Regional Meetings & Extension

Now trying to raise awareness of the project deliverables and tools through a variety of means:

- Held six regional workshops around the province in the late spring 2013
- Participating in webinars
- Participating in Conferences (e.g. UBCM, Sustainable Communities conference in Kelowna)
- Article in January 2014 issue of Municipal World magazine

Green Energy as a Rural Development Tool Project

Thanks

Questions?

Please Visit the website

www.ruralbcgreenenergy.com

**Please pass along to folks that might
be interested**

Discussion

What types of information are you or your organization looking for to assist in developing a green energy project?

THANK YOU

for your participation in this webinar

Resources

Rural BC Green Energy—<http://www.ruralbcgreenenergy.com/>

Contacts

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