



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

CLEAN ENERGY RESEARCH CENTRE
Faculty of Applied Science

Collaborating for Sustainable Clean Energy

May 13, 2011





a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

CLEAN ENERGY RESEARCH CENTRE
Faculty of Applied Science

In partnership with:





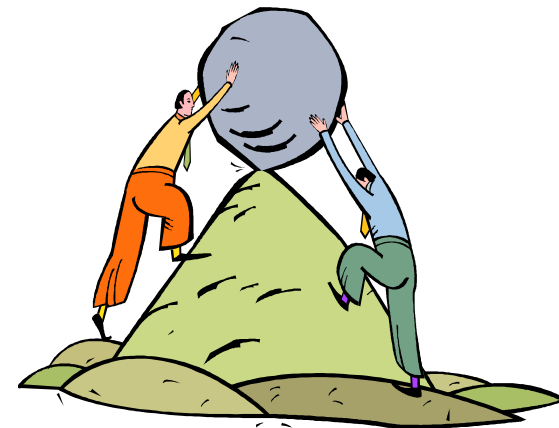
Priorities and Opportunities for BC's Clean Energy Future

Les MacLaren, Assistant Deputy Minister
13 May 2011

The Global Challenge

Balancing:

- ✓ Increasing Energy Demands
- ✓ Increasing Environmental Demands
- ✓ Social and Economic Demands





BC Priorities

The BC Energy Plan:

- Environmental Leadership
- A Strong Commitment to Energy Conservation & Efficiency
- Energy Security
- Investing in Innovation

Climate Action Plan:

- Revenue neutral carbon tax, Western Climate Initiative (WCI), carbon neutral government, renewable and low carbon fuel standards, etc.

Clean Energy Act objectives include:

- Electricity self-sufficiency, goals for conservation and electricity from clean sources
- Maintaining competitive electricity rates
- Becoming a net exporter of clean electricity
- Meeting BC's greenhouse gas reduction targets
- Switching to lower emission energy sources
- First Nations and rural community development
- harnessing BC's clean power potential to create jobs throughout BC



BC's Conservation and Energy Efficiency Actions

- Energy Efficiency Incentives:
 - home energy retrofits
 - programs and incentives for businesses and industry
 - transportation actions (renewable and low carbon fuels, tailpipe emission standards, incentives for cleaner transportation options)
 - support for community action on energy and emissions
 - government action – leading by example





Developing New Clean Power Supply in BC

2006 Call For Tender

- Competitive bid process
- 7100 GWh of firm electricity purchased
- Includes first wind farm for BC—102 MW, \$190 million

2008 Clean Power Call

- 19 Projects, 2,500 GWh (wind and small hydro)
- Additional 2,500 GWh in proposals

Bioenergy Call

- Phase 1: 4 projects, 579 GWh
- Phase 2 : 6 small-scale community projects (~14 MW total) and larger-scale projects (8 recently selected for EPA negotiations)

Standing Offer Program for clean electricity <15MW

Net Metering Program (up to 50kw)



BRITISH
COLUMBIA

Canada's
Pacific Gateway

www.canadaspacificgateway.com



Investing in Innovation

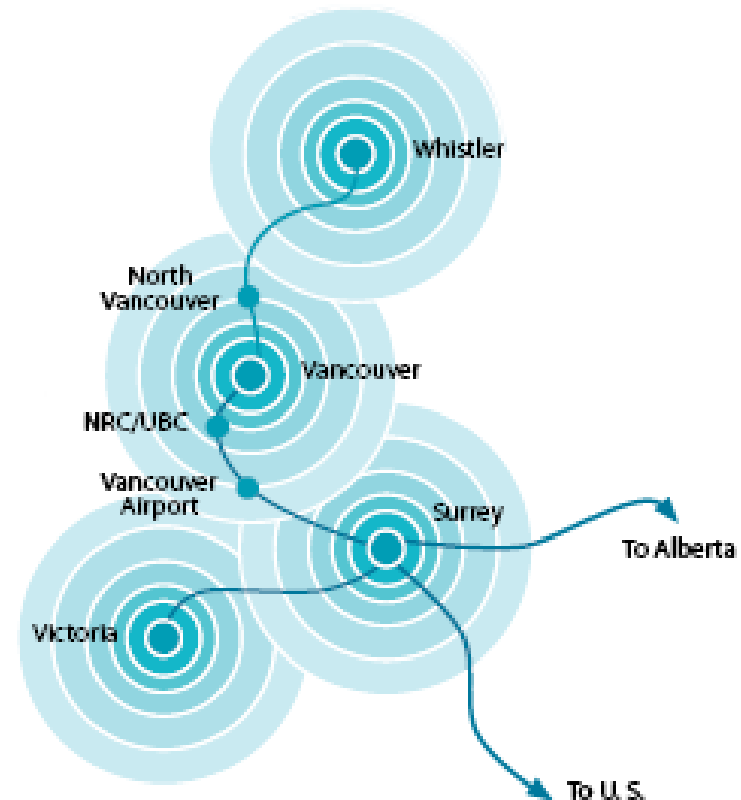
- **Innovative Clean Energy (ICE) Fund** encourages the development of clean energy and energy efficient technologies in the electricity, alternative energy, transportation, and oil and gas sectors.
- **BC Bioenergy Strategy** takes advantage of B.C.'s abundant sources of renewable energy, such as beetle-killed timber, wood wastes and agricultural residues.





Low Carbon Transportation

- Renewable & Low Carbon Fuel Requirements
- Tailpipe Emission Standards
- Electric vehicle deployment and charging infrastructure
- Compressed natural gas
- Liquefied natural gas
- Hydrogen + Fuel Cell development





Further Support for Clean Energy Development

Solar BC

\$5 million to fund solar thermal installations

BC Renaissance Capital Fund

\$90M in 09/10 and 10/11 to attract VC funds to BC

Venture Capital Program

30% refundable tax credit

Climate Action and Clean Energy Fund

\$100 million over 3 years

- \$5 million for First Nations Clean Energy Business Fund

- \$15 million to LiveSmart for Small Business





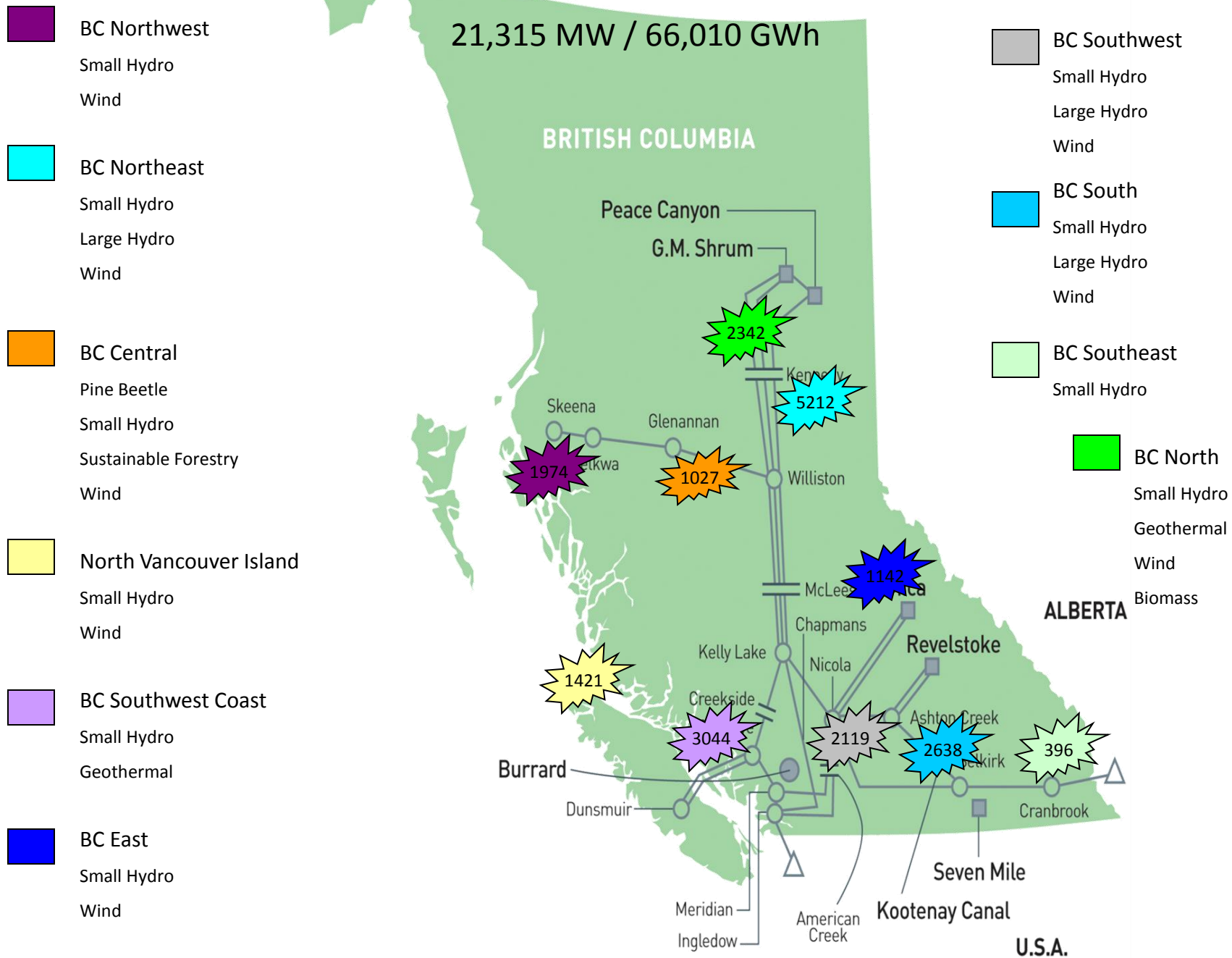
BC's Cleaner Energy Resource Profile

Resources for electricity, transportation, heating/cooling

- Natural Gas
- Biomass
- Biogas
- Energy Recovery Generation
- Geothermal
- Hydro Energy
- Hydrogen
- Solar Energy
- Tidal Energy
- Wave Energy
- Wind Energy



WREZ Qualifying Resource Areas in British Columbia





Clean Technology Sector in BC

- Employs Over 22,000 People
- 1300 Clean Technology Companies
- Largest sectors include power generation, energy efficiency, transportation, waste and wastewater, biofuels and biochemicals
- Average company age is 15 years
- Early adopter markets in US and EU
- B.C. is home to 24 Clean Tech Research Centres and Institutes and has 17 Canada Research Chairs





BC's Low Carbon Future

Plug into BC's Green Economy:

- abundant resources
- proactive policies and legislation
- academic and industrial clean tech talent
- local, regional and international markets

We have all the right ingredients!

