Transitioning to a low carbon economy

Presentation to the Standing Senate Committee on Energy, the Environment and Natural Resources

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BC Hydro

Provincial Crown Corporation serving 95% of the population of British Columbia

- 1 million utility poles
- 31 dams
- Over 300 substations
- 4 million customers
- 325,000 individual transformers
- A network of over 77,000 kms of transmission and distribution lines
Energy Supply Overview

Last year, 98% of the energy generated in British Columbia was renewable or clean

<table>
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<tr>
<th>Project Type</th>
<th>Number</th>
<th>GWh / year</th>
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<tbody>
<tr>
<td>Heritage Hydro</td>
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<td>Biogas</td>
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<td>Biomass</td>
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<td>Energy Recovery Generation</td>
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<td>Municipal Solid Waste</td>
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<td>Non-Storage Hydro</td>
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<td>Solar</td>
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<td>Storage Hydro</td>
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<td>Wind</td>
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Our Mission

To provide reliable, affordable and clean electricity throughout British Columbia, safely

• Reliable
  • 10 Year Capital Plan – average of over $2 billion per year in investments to upgrade and maintain aging infrastructure, meet growing demand and modernize grid.

• Clean
  • *Clean Energy Act*
    • Self Sufficiency
    • 66% of new demand met through demand side measures (Rates, Codes and Standards, Conservation Programs)
    • 93% Clean/Renewable Generation

• Affordable
  • 10 Year Rates Plan – framework to keep rates low and predictable for customers.
Key Questions / Challenges

• Balance between “reliable, affordable, clean”
  • Recent changes to government policy on water rentals, net income and dividends
  • 10 Year Rates Plan
  • Low commodity prices impacting large industrial customers

• Integration and back-up of intermittent renewables
  • Large Hydroelectric system with multi-year storage
  • Clean Capacity Resources
  • Freshet and Freshet Rate

• High cost of displacing diesel generation in some remote communities
  • Conservation opportunities

• Cost of natural gas vs. electricity
Step 1
A renewable and clean electricity supply

- Conservation / Power Smart

- Expansion of Hydroelectric System – Mica Units 5 & 6, Site C, Revelstoke Unit 6

- Investment in Transmission Infrastructure (e.g. Interior to Lower Mainland Transmission Line)

- Phase out of Burrard Thermal

- Partnership with Independent Power Sector – biomass, small hydro, wind, etc.
Step 2

Identify opportunities to use renewable/clean electricity instead of more carbon intensive fuels

- Dawson Creek / Chetwynd Area Transmission Project (DCAT): natural gas developers powering their facilities with electricity instead of gas

- 3,000 electric vehicles and 30 fast charging stations

- Low Carbon Fuel Credits

- Shore power rate

- Displacing diesel generation in remote communities
  - Recent example: biomass project with Kwadacha First Nation
Future Opportunities

- LNG

- Peace River Electricity Supply Project: additional transmission capacity in the South Peace Region to electrify natural gas production

- BC/Alberta: Restoration of existing intertie and/or a second intertie

- Expand network of fast charging stations for electric vehicles

- Expand the mandate of “demand side management” – invest in customers and reduce emissions