UPDATE ON GENERATION AND TRANSMISSION STATUS IN BRITISH COLUMBIA

Ed Higginbottom
Senior Policy Advisor
BC Hydro

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OBJECTIVES

- Update RETI on
  - Resource potential and procurement processes in British Columbia
  - Status of transmission development from British Columbia

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BC CLEAN ENERGY ACT

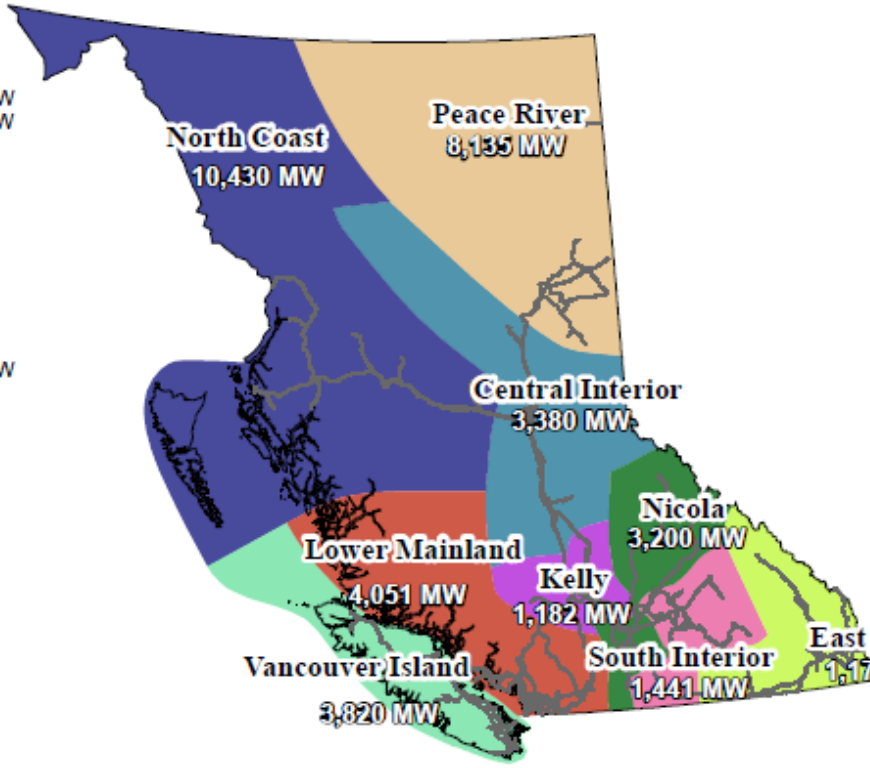
BC Energy Objectives:

- Reduce increase in electricity demand by 66% by 2020 using DSM
- Reduce GHG emissions
- Achieve self-sufficiency by 2016 and 3000 GWh insurance by 2020
- Maintain:
  - at least 93% clean or renewable resources,
  - infrastructure necessary to transmit
- Be a net exporter of electricity from clean and renewable sources

BC Clean Energy Act ensures that infrastructure will be built if market conditions warrant

INVENTORY OF BC RESOURCE POTENTIAL

36,812 MW
123,266 GWh/year



North Coast
Small Hydro - 4,043 MW
Wind Onshore - 3,830 MW
Wind Offshore - 2,031 MW
Geothermal - 270 MW
Ocean - 256 MW

Vancouver Island
Small Hydro - 676 MW
Biomass - 92 MW
Wind Onshore - 1,417 MW
Ocean - 1,634 MW

Lower Mainland
Small Hydro - 2,971 MW
Biomass - 3 MW
Wind Onshore - 414 MW
Geothermal - 340 MW
Ocean - 323 MW

Peace River
Small Hydro - 929 MW
Large Hydro - 912 MW
Biomass - 60 MW
Wind Onshore - 6,207 MW
Geothermal - 28 MW

Central Interior
Small Hydro - 659 MW
Biomass - 743 MW
Wind Onshore - 1,978 MW

Nicola
Small Hydro - 814 MW
Biomass - 66 MW
Wind Onshore - 2,300 MW
Geothermal - 20 MW

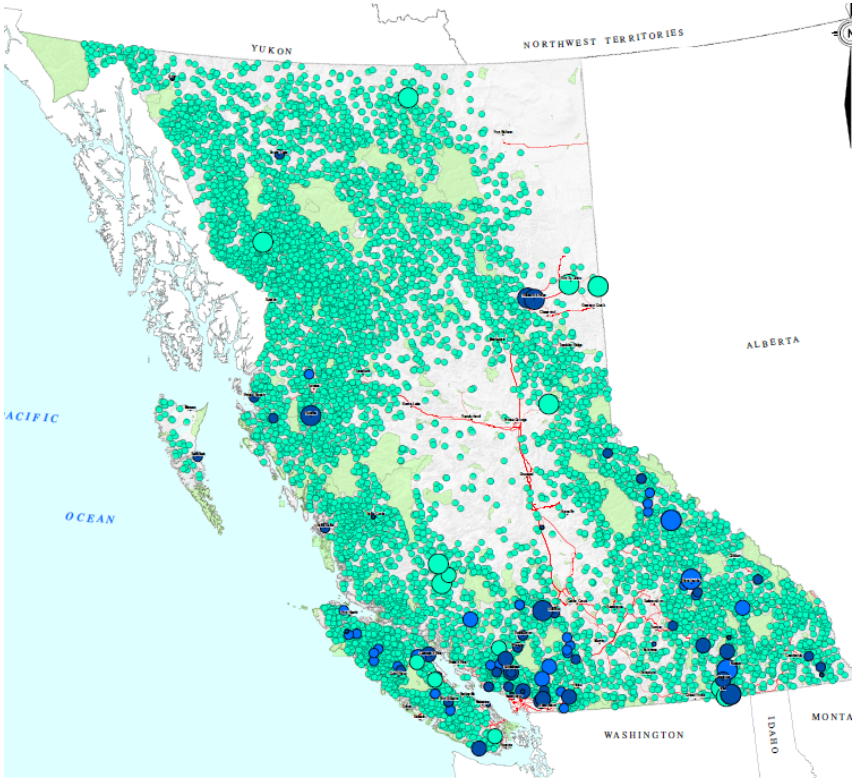
Kelly
Small Hydro - 298 MW
Biomass - 160 MW
Wind Onshore - 724 MW

East Kootenay
Small Hydro - 995 MW
Wind Onshore - 138 MW
Geothermal - 40 MW

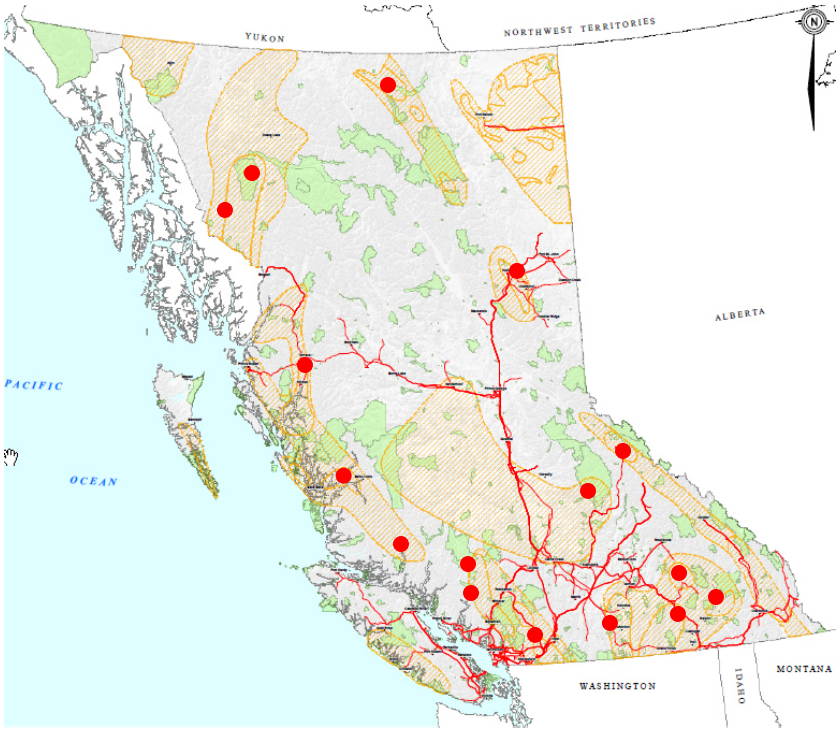
South Interior
Small Hydro - 524 MW
Biomass - 6 MW
Wind Onshore - 871 MW
Geothermal - 40 MW

Updated May 7, 2010

GIS Map of Hydro Potential



GIS Map of Geothermal Potential



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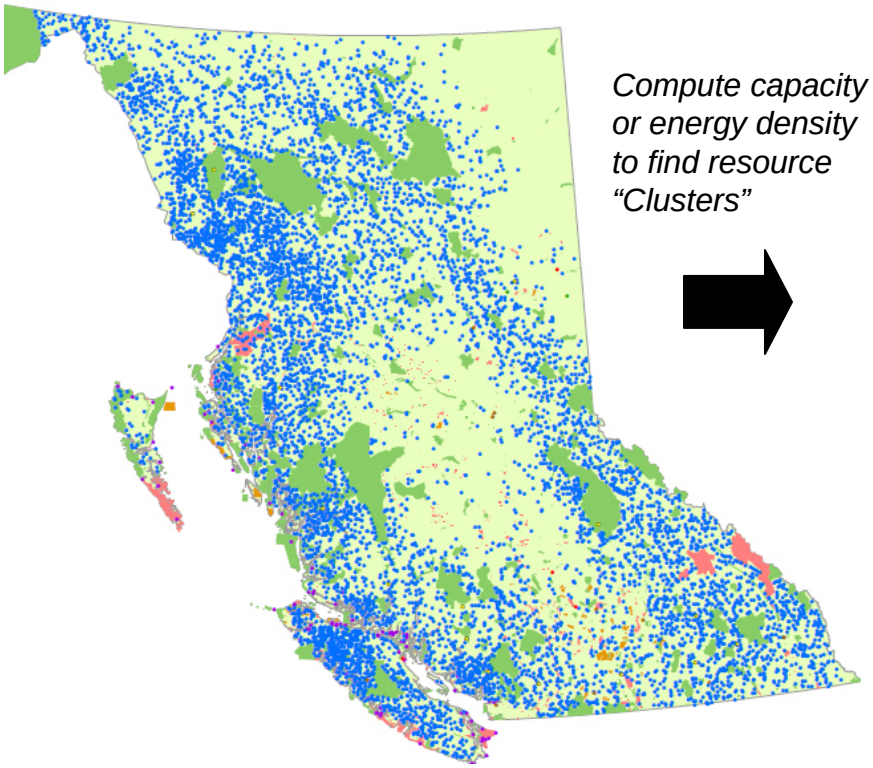
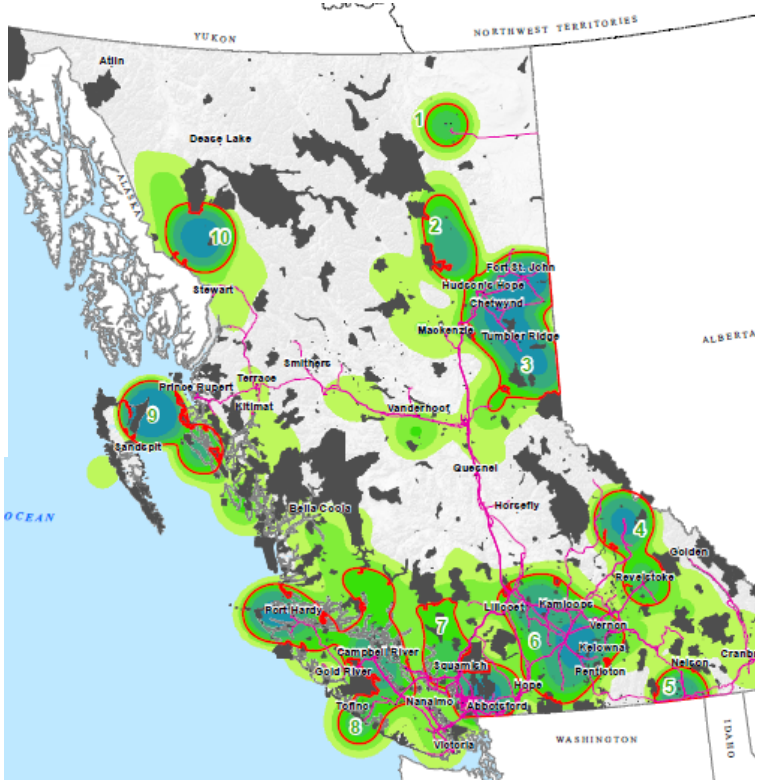
GIS Map of All Generation Resources



Compute capacity or energy density to find resource "Clusters"

Energy Density Map



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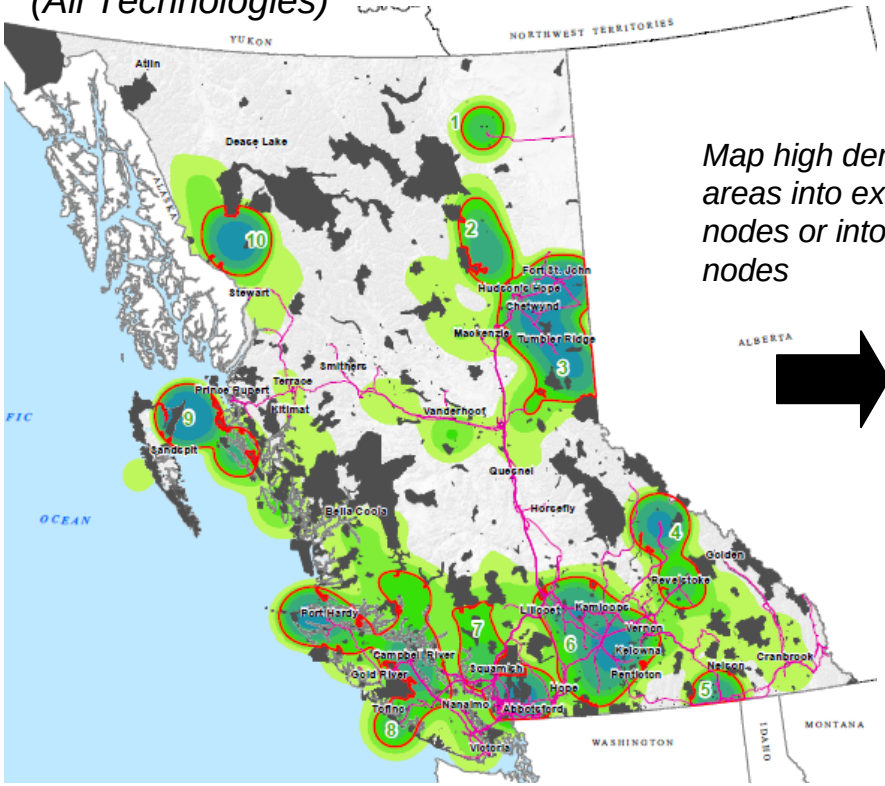
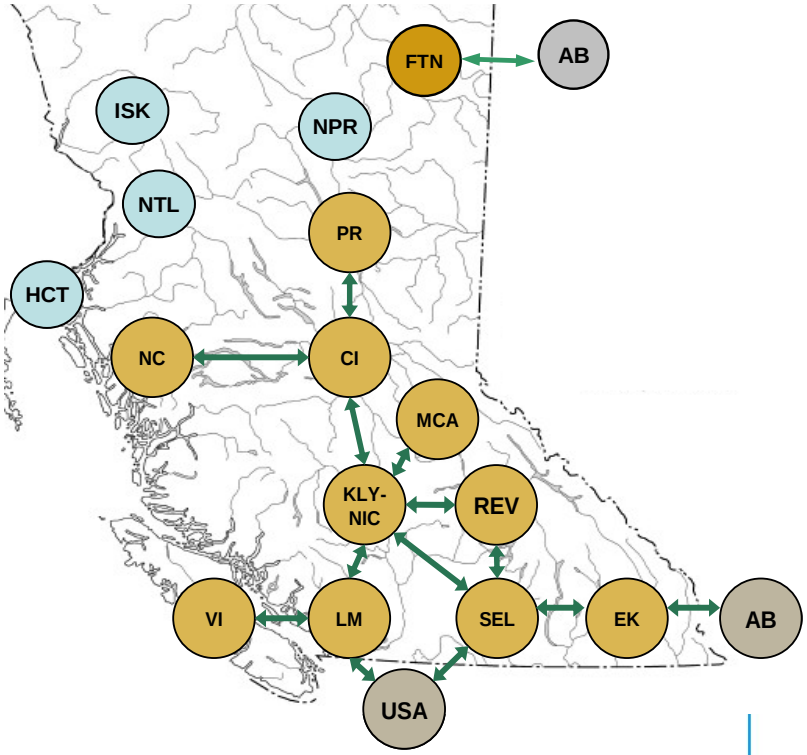
New Potential Generation Resources

(All Technologies)



Map high density areas into existing nodes or into new nodes



Potential Resources Capacity Density with Exclusion Zones considered

Nodal Simulation Model

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LEGEND	
Node	**Demand/Supply Zone**
CI	Central Interior
EK	East Kootenay
FTN	Fort Nelson
KLY-NIC	Kelly – Nicola
HCT	Hecate
ISK	Iskut
LM	Lower Mainland
MCA	Mica
NC	North Coast
NPR	North Peace River
NTL	Northern Transmission Line
PR	Peace River
REV-ACK	Revelstoke – Ashton Creek
SEL	Selkirk
VI	Vancouver Island
AB	Alberta Interconnection
AB1	Alberta Interconnection
USA-1	United States Interconnection
USA-2	United States Interconnection

Transmission Line

Compensation addtion (capacitor, SVC or reactor) or other upgrade to existing line

2000 MW **Path Capacity**

T43 2034 **Transmission Reference No. and In-Service date**

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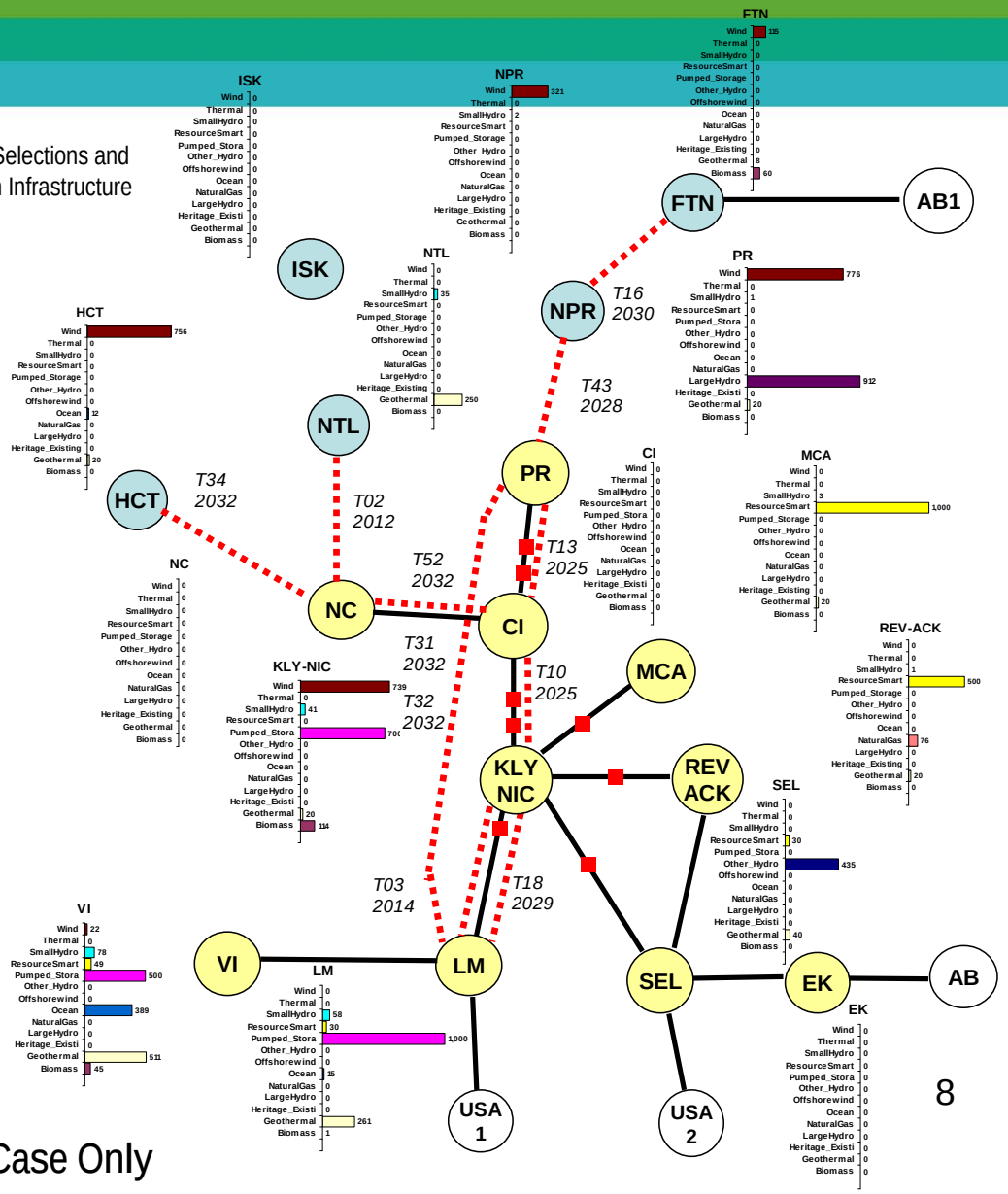
Generation Resource Selections and Required Transmission Infrastructure



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ENERGY ACQUISITION IN BRITISH COLUMBIA

- Through integrated resource planning BC Hydro determines need for additional capacity or energy and issues Calls for Power
- BC Hydro has been the only purchaser of energy: IPPs preferred selling to the provincial utility
- BC Hydro's interconnection queue is not used in the same manner as in other jurisdictions
- Queue positions are not a good indicator of likely development
- Clean Energy Act allows BC Hydro to purchase energy specifically for export

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CLEAN POWER CALL

- In June 2008 BC Hydro issued a Clean Power Call for 5,000 GWh/year of firm energy
- CPC results:

	Proponents	Projects	Energy
Response	43	68	17,000 GWh/year
EPA awarded	25	27	3,266 GWh/year

- In addition to this energy, BC Hydro will acquire up to 1,000 GWh of bioenergy in Phase 2 of its Bioenergy Call

The acquisition of this energy and construction of BC Hydro's own projects mean that by 2020, BC Hydro will, in all by the driest years, have surplus energy available for export

BRITISH COLUMBIA'S FIRMING AND SHAPING CAPABILITIES

- Can integrate intermittent generation at source with flexibility of the hydro system and through portfolio diversity
- Maximizes transmission utilization
- Ability to deliver a firmed and shaped zero emission energy product when most valued to customer
- Providing firming and shaping products to wider region allows integration of larger volumes of intermittent energy at lower cost
- Additional transmission capacity between Canada and the US would assist in realizing full benefits

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BC SHAPED ENERGY PRODUCT

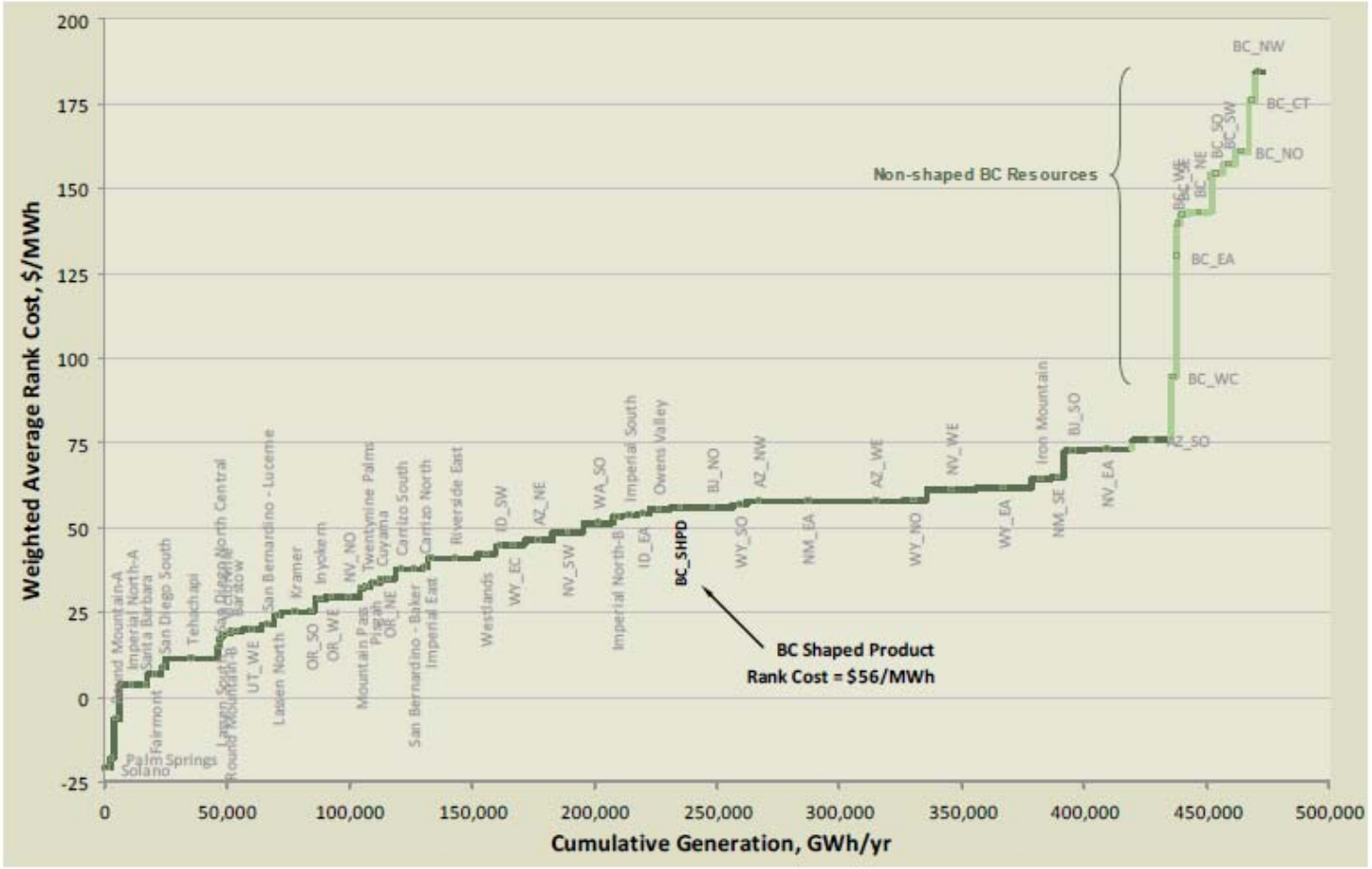
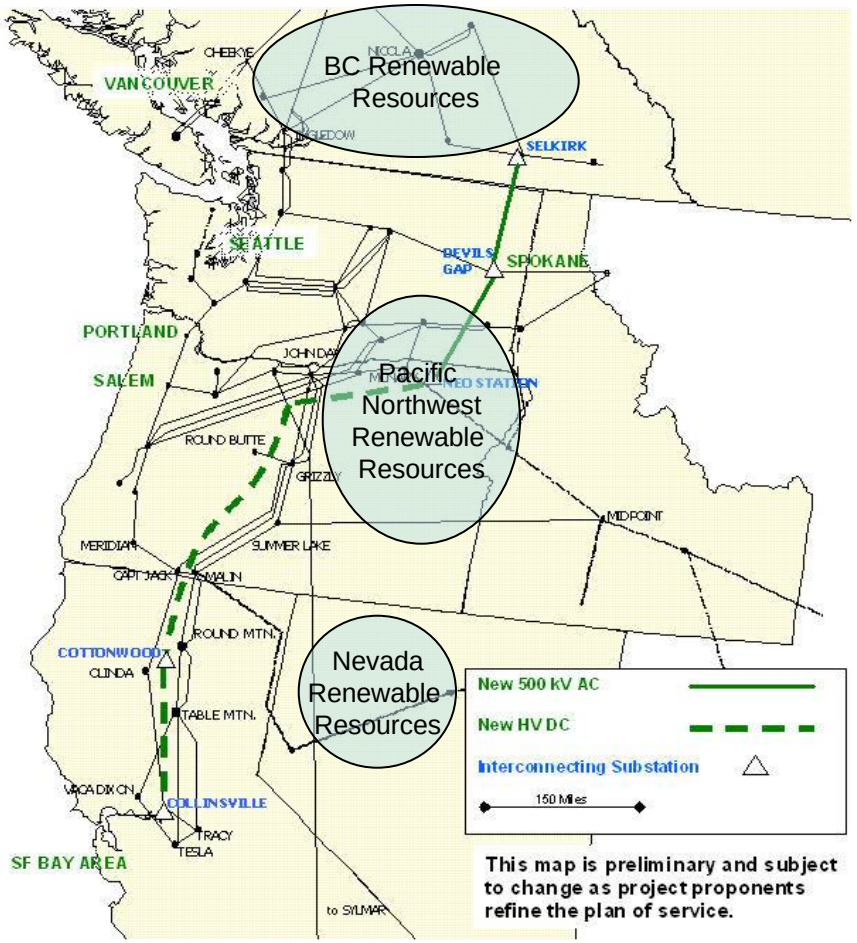


Figure 7-7. BC Shaped Resource Compared to Reference Case Assumptions.

CANADA-NORTHERN CALIFORNIA (CNC) TRANSMISSION LINE

- On August 16, 2006 a WECC Regional Project Planning Process was initiated for a High Voltage Transmission line connecting Northern California, the Pacific Northwest and Canada.
- This proposed line is intended to provide three main benefits:

1. Provide access to significant incremental renewable/GHG-free resources in Canada and the northwestern United States.
2. Improve regional transmission reliability.
3. Provide other market participants with beneficial opportunities to use the facilities.



QUESTIONS

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