

B.C. Context



The Evolving Future of Electricity in B.C.



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Provincial Initiatives Updates

- ◆ **UN Declaration**
- ◆ **UN Declaration Act Action Plan**
- ◆ **Section 3 Alignment**



Ministry of
Energy, Mines and
Low Carbon Innovation

Provincial Initiatives Updates

- ◆ Ministerial Mandate Letter
- ◆ Climate Aligned Energy Framework
- ◆ BC Hydro Task Force
- ◆ June 15th Announcement - “Clean power to electrify B.C.’s future”



Prepared for the Indigenous Clean Energy Opportunities Engagement



BC's Energy Mix

Ministry of Energy, Mines and Low
Carbon Innovation

June 27, 2023

Purpose

Issue: In alignment with CleanBC and StrongerBC plans, BC needs to make decisions around its energy system to support climate-aligned energy framework (Mandate Letter direction).

Energy infrastructure requires lengthy decision, permitting and construction timelines.

Background: BC's clean economy and climate goals will create additional demand for clean energy for industry, buildings and transportation.

Investments are needed to meet energy demand so that BC's energy system will continue to be:

- Affordable;
- Reliable;
- Resilient; and
- A contributor to economic, climate and reconciliation goals.

Purpose: This deck will cover:

- Global energy context;
- BC's current energy supply mix; and
- Considerations for BC's energy future.

Energy 101: Terms & Concepts

Energy versus capacity

- **Energy** is how much is consumed or produced over a period of time
- **Capacity** is the maximum sustainable amount of energy that can be produced or delivered at any instant

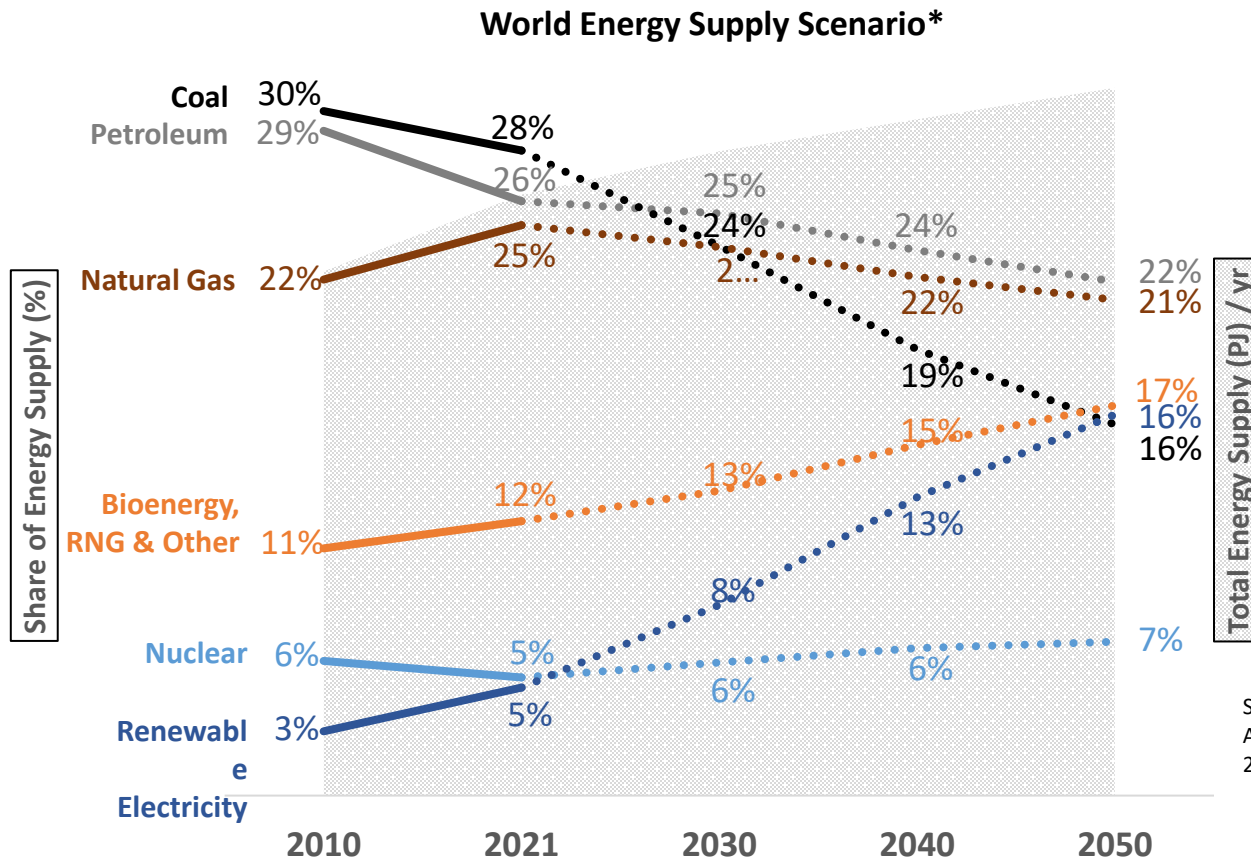
Intermittent energy versus firm energy

- **Intermittent energy** is an energy source that has varying output due to natural changes and is not dispatchable when needed
- **Firm energy** refers to energy that is available at all times or on demand

Energy Security or Reliability

- Defined as the uninterrupted availability of energy sources at an affordable price
- Energy security has many aspects:
 - *Short-term*: ability to react to sudden changes in supply or demand; and
 - *Long-term*: investments in line with economic development and environmental needs.

The World's Energy System is Decarbonizing







*Based on stated policies.

- No jurisdiction is fully meeting their stated climate commitments.

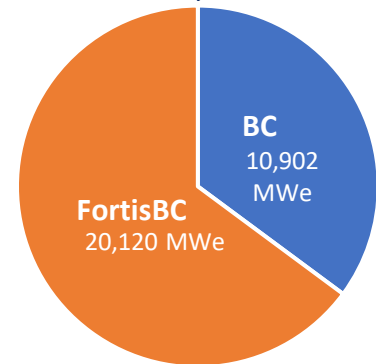
Source: International Energy Agency World Energy Outlook 2022, Stated Policies Scenario.

BC's System is Integrated and Diverse

- BC's energy system is a mixture of 4 energy sources with supporting infrastructure of pipelines and wires (*Appendix 2*).
- About 67% of current energy needs are met by fossil fuels; electricity is less than 20% BC's current energy mix.
- The natural gas grid plays a key role in BC's energy system, delivering about twice the energy that the BC Hydro system can deliver during peak demand periods (*Appendix 3*).

Type	How much?	Who is using it?	From Where?
 Refined Petroleum (Gas at the pump)	38%	<ul style="list-style-type: none"> • 77%: transportation • 22%: industry 	<ul style="list-style-type: none"> • 30% refined in BC, remainder imported (Alberta & US)
 Fossil Natural Gas	29%	<ul style="list-style-type: none"> • 60%: industry • 40%: built environment 	<ul style="list-style-type: none"> • 100% from BC production
 Wood waste, Biofuels & Renewable Natural Gas	17%	<ul style="list-style-type: none"> • 88%: industry • 12%: residential & transportation 	<ul style="list-style-type: none"> • Wood waste vast majority • RNG 0.1% of this category
 Electricity	16%	<ul style="list-style-type: none"> • 43%: industry • 57%: built environment 	<ul style="list-style-type: none"> • 90% hydroelectricity • 7% wood waste & fossil gas • 3% wind & solar

FortisBC & BC Hydro Peak Energy Demand
(MW – equivalent)
December 27, 2021

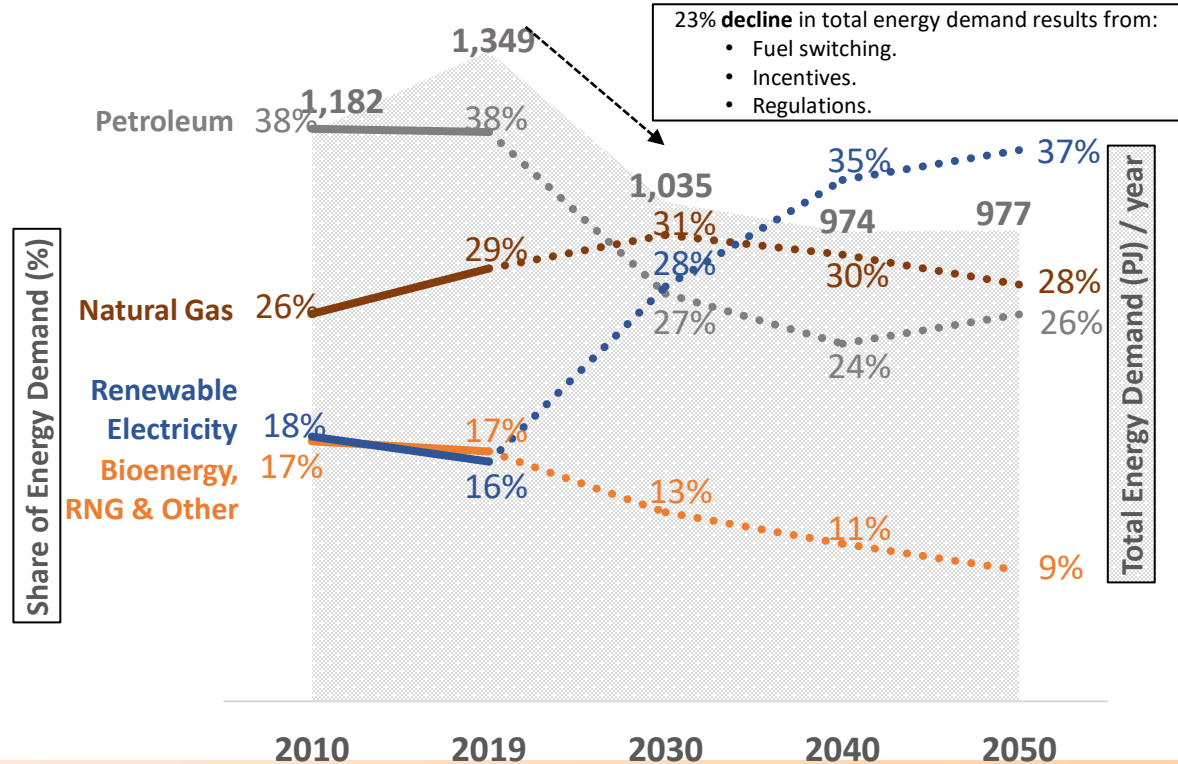


■ BC Hydro Peak Electrical Demand (MW)

A Pathway for BC's Future Energy Needs

Growing our clean economy and meeting our GHG targets will require more clean energy, new energy efficiency measures to reduce energy use, and changes to our energy mix.

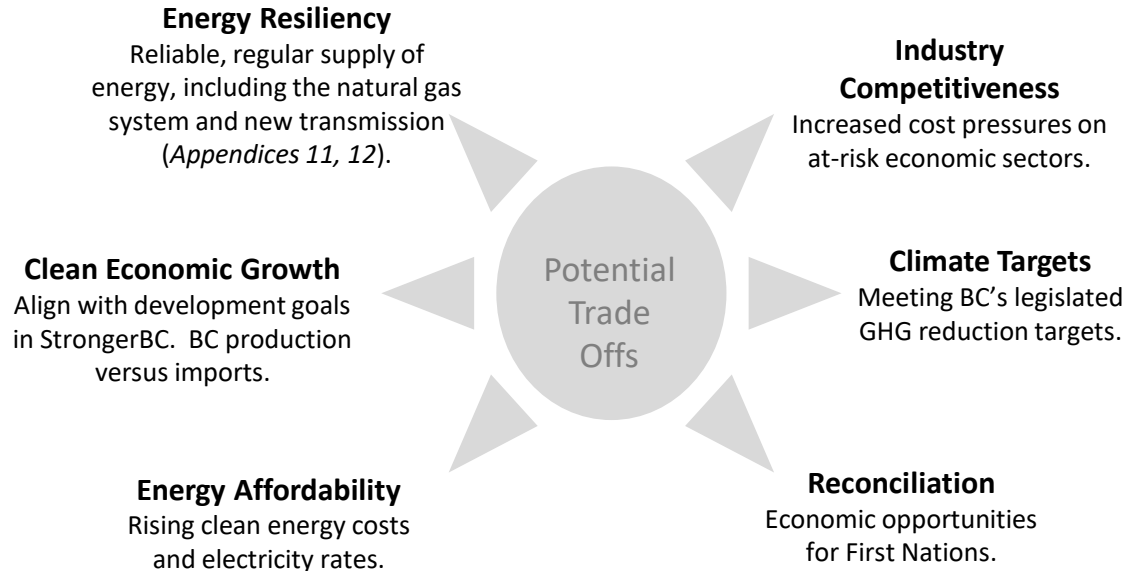
The **CleanBC Roadmap** model produces one possible pathway for BC's energy future.



Source: Canada Energy Regulator (2010-2019); CleanBC Modeling (2020-2050).

Considerations for BC's Future Energy

- Energy is foundational to a modern industrial economy and is a powerful engine of economic and social development.
- BC's current energy system is dynamic, complex, and highly interconnected. We rely on energy produced in other jurisdictions, and others rely on energy produced here.



Current Indigenous Involvement

Power Projects

- Partner with private sector or owner of generation projects
- Mostly smaller run-of-river hydro
- BC Hydro procurement stopped with suspension of Standing Offer Program
- New Call for Power and Indigenous-focused procurement announced June 15

Impact Benefit Agreements

- Lump sum and annual payments
- Contracting opportunities
- Training

Off-grid communities – diesel displacement

- Community energy planning
- Upgrade building and equipment efficiency
- Small scale renewables to reduce diesel generation

Reconciliation

DRIPA Action Plan 4.43

- “Co-develop recommendations on strategic policies and initiatives for clean and sustainable energy...” [EMLI].
- Indigenous Clean Energy Opportunities engagement

Challenges:

- Investment in run-of-river hydro has led to expensive power with poor output profile.
- Co-development for procurement takes time

Opportunities:

- Equity interest in BC Hydro infrastructure
- Development/partnerships in new generation
- Production of low-carbon fuels
- Energy efficiency – new construction and retrofits

Summary

Key Takeaways:

- BC's diverse energy supply mix provides an elevated level of energy security
- The natural gas system is a key component of our energy system, providing reliability and resiliency, particularly during peak demand
- 2030 Roadmap measures decarbonize energy pathways and promote switching to lower carbon energy sources
- Energy efficiency drives affordability and emission reductions
- Emerging opportunities for Indigenous clean energy
- Competing demands for BC's limited electricity may exhaust cost-effective supplies sooner than expected and limit clean growth
- Upcoming decisions on clean energy may require trade-offs related to affordability, industrial competitiveness, energy security/resiliency, and reconciliation



Thank you!