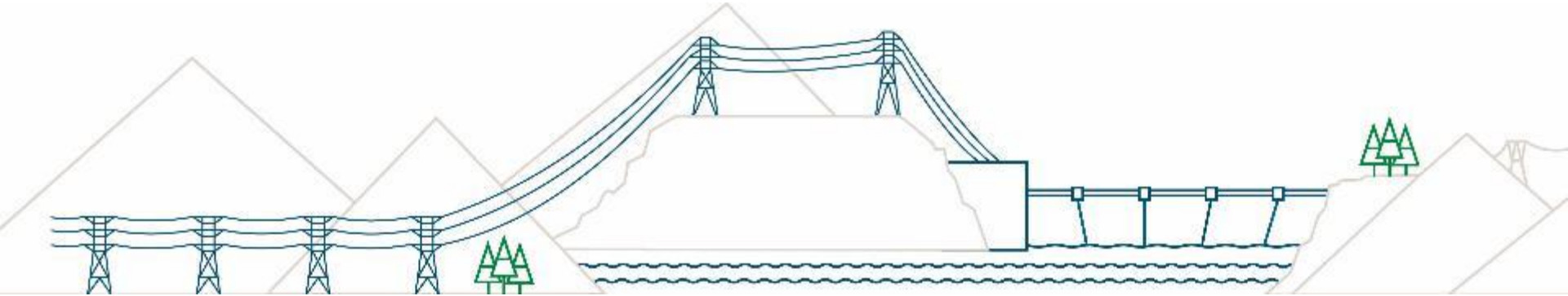
Electrification Plan Engagement



April 12, 2021

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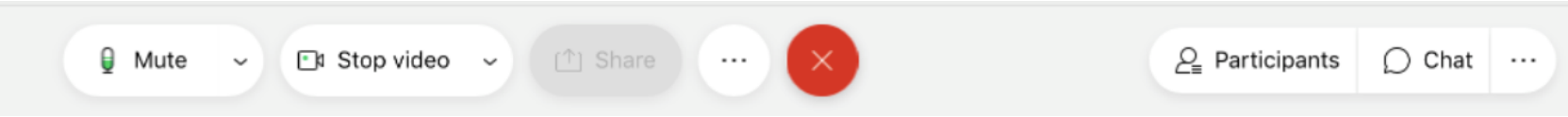
Cisco Webex reminders

We'll be using a few basic tools, which you can find if you hover your mouse over the bottom of the screen

Mute/unmute your mic
& turn your video on/off

View the
participant list



Audio connection trouble?
See the alternative options here

Open the chat panel:

- to ask questions
- to provide feedback

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Virtual meeting etiquette

- Be respectful by listening to others and sharing time so that everyone gets heard
- Stay curious about new ideas
- Use the chat function to seek input and ask questions
- We are not recording these sessions, and kindly ask that others do not record

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Introductions and Outline

- **Today: Industry**
- April 13: Transportation
- April 14: Homes and buildings (the built environment)

- Each session will begin with an overview
- We've included breaks for questions and comments

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Purpose

To provide an overview of our load growth strategy

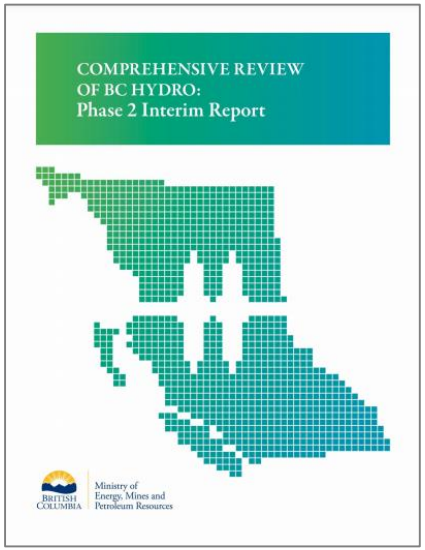
In these sessions we'll cover existing and new potential electrification initiatives in:

- Industry
- Transportation
- Homes and buildings (the built environment)

We're seeking your feedback on:

- opportunities for load growth
- barriers to electrification
- potential new BC Hydro actions to grow our load

Policy and Regulatory Context



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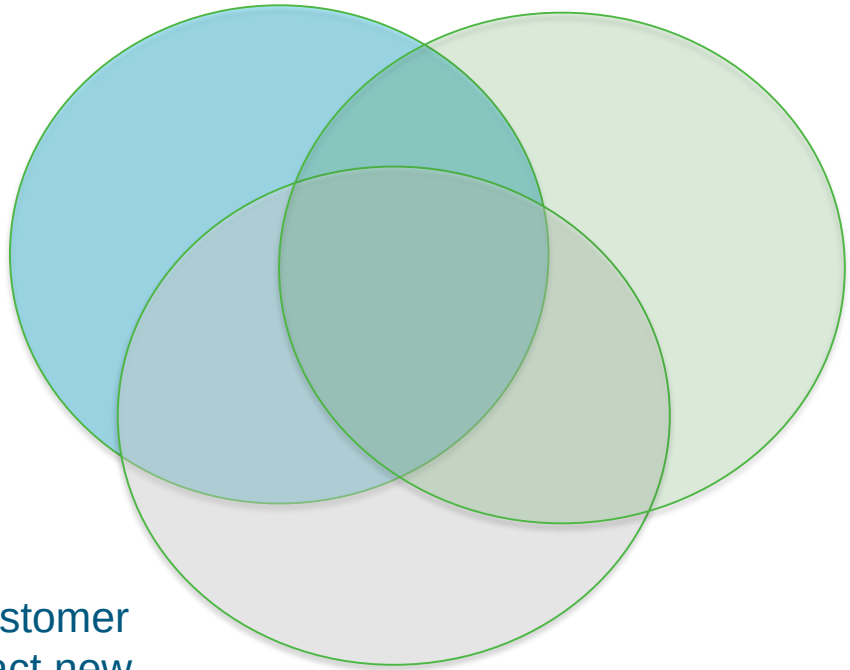
We're developing a plan to grow our load

To keep rates affordable



To reduce emissions and meet provincial GHG targets

To support customer growth & attract new industries to BC

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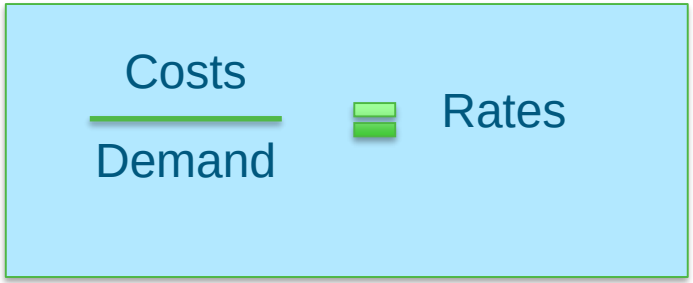
Load growth can improve affordability

- Maintaining and growing our load is a critical part of how we keep our rates affordable and competitive for customers.
- Many of our costs are fixed, which means they stay the same whether we sell more or less electricity.
- By growing our load and our revenues, we can reduce upward pressure on rates and improve affordability.

The Affordability Equation



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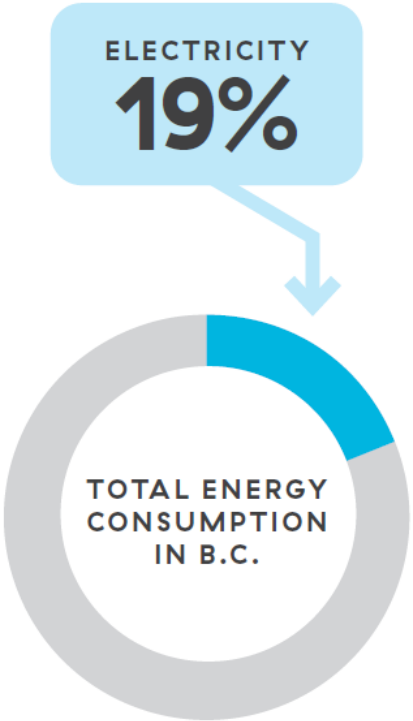
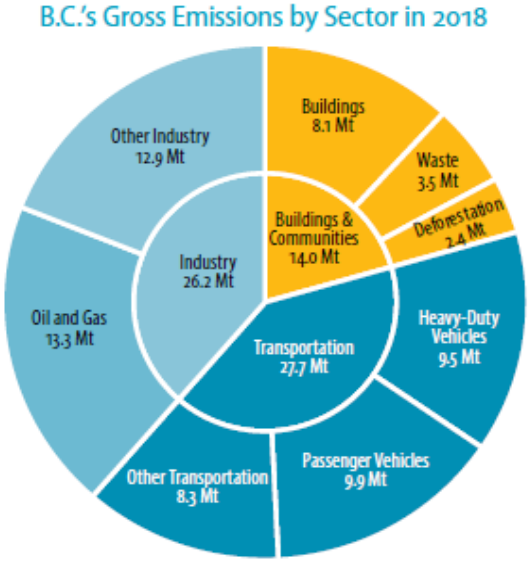
Load Growth Can Reduce Emissions



By switching from fossil fuels to clean electricity we could reduce emissions across BC



2020 Climate Change Accountability Report (gov.bc.ca)

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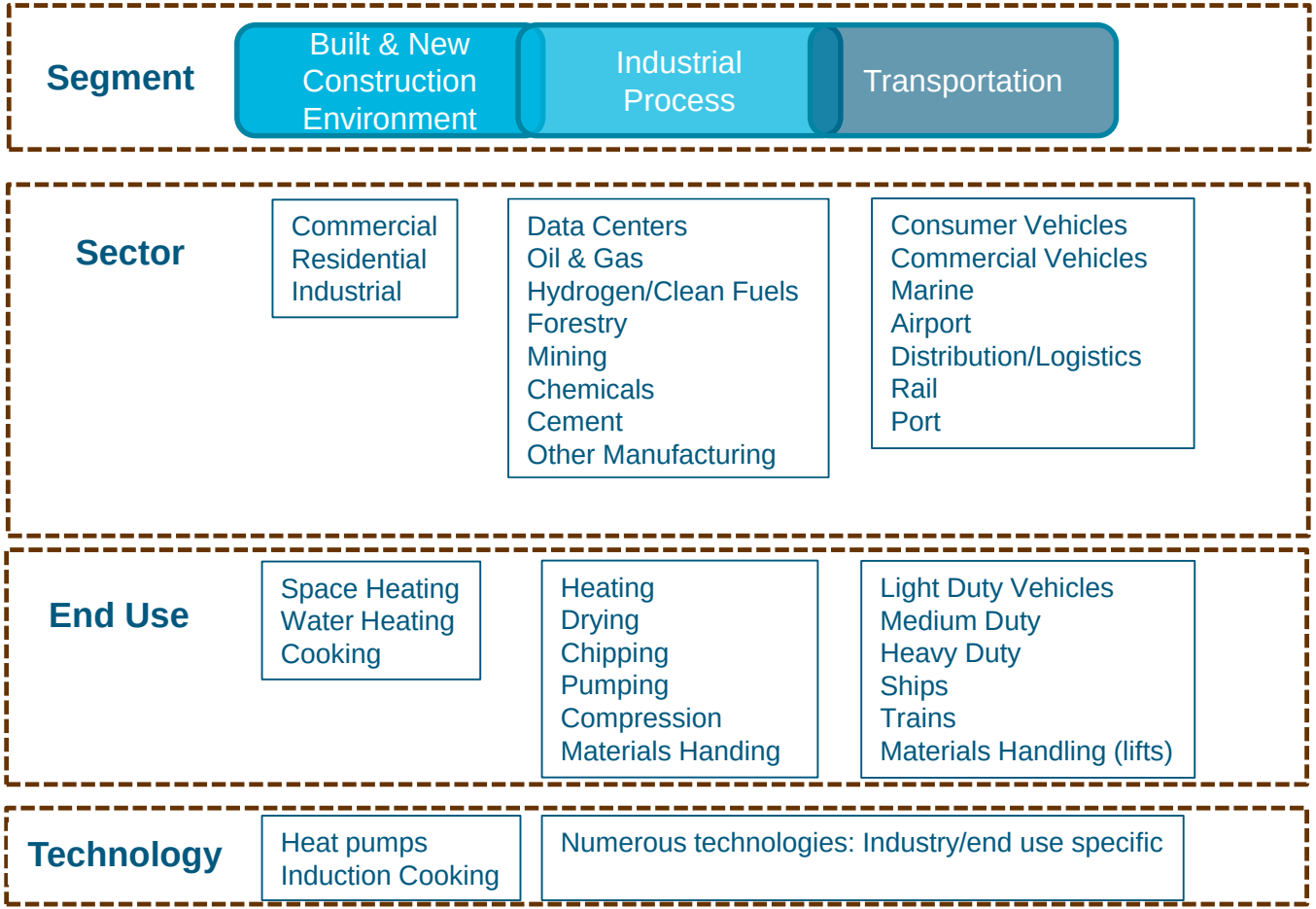
Emission reduction opportunities



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Load growth

- BC’s traditional resource-based industrial sectors will continue to play a leading role, but there is also significant interest from emerging energy-intensive sectors including clean technology, hydrogen, and data centers
- These emerging sectors can locate globally but are attracted by BC Hydro’s clean, reliable, and affordable hydroelectric power

We’re already taking action

BC Hydro has been supporting electrification by:

- Connecting customers and attracting new electricity consuming businesses
- Offering Low Carbon Electrification programs
- Introducing new rate designs
- Expanding the transmission system to enable gas producers to use grid electricity instead of self-supplying with natural gas
- Deploying EV charging stations

Governments are key partners

Better Homes
Better Buildings
Go Electric BC
CleanBC Industry Fund
CleanBC Industrial Incentive Program

Investing in Canada Infrastructure Program: Green Infrastructure Stream

Our approach is to build on these partnerships and address barriers and gaps

Barriers to electrification

We're drawing on our DSM experience addressing barriers to energy efficiency

Barriers	Description
Awareness	Are customers aware of electrification opportunities and any relevant programs or incentives and do any myths or misconceptions need to be dispelled?
Acceptance	Do customers accept that low carbon electrification measures are attractive solutions that contribute to a better home, transportation alternatives, building or process and reduce GHG emissions?
Affordability	The costs of purchasing, installing and operating low carbon electrification measures can be more expensive than customers can justify or customers lack access to upfront capital to proceed with a project.
Availability	Are low carbon electrification technologies and professional services available in the customer's region?
Accessibility	Are the products or professional services available, but too difficult to find or access? Is BC Hydro's grid accessible? Is the time, cost and process to connect a challenge?

What will the plan cover?

- Initial five year strategy to grow existing and secure new load
- The plan will include:
  - New and expanded programs
  - New infrastructure investments
  - Rate design to support electrification
- The plan will include targets for load growth and emission reductions

When will the plan be complete?

The plan:

- will be completed this summer and included in BC Hydro's next Revenue Requirements Application
- will be an evolving framework

We’d like your feedback

We’re seeking input on:

- opportunities for load growth
- barriers to electrification
- potential new BC Hydro actions to grow our load

Questions?

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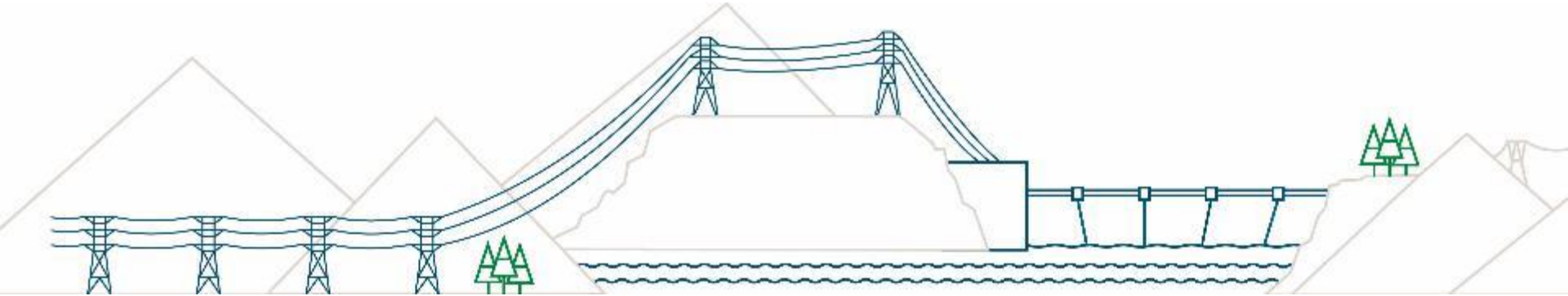
Electrification Plan Engagement

Industry



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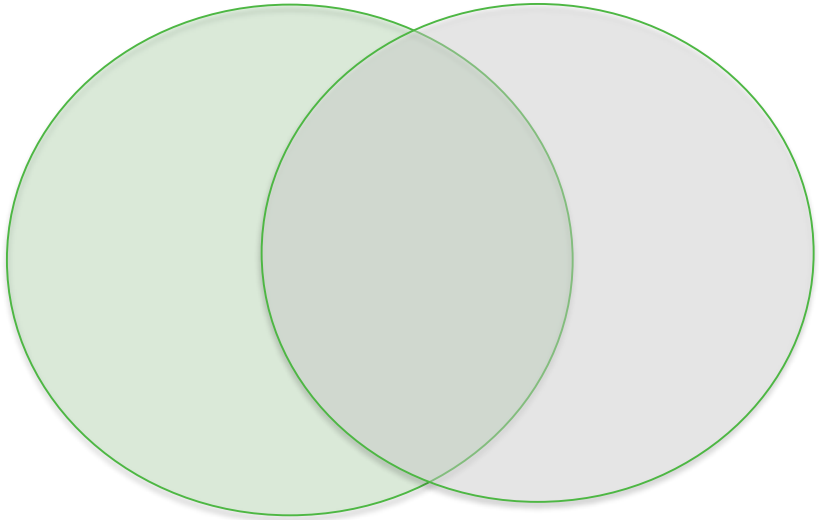
Two Views of Industrial Load Growth

Low Carbon Electrification (LCE): reducing and avoiding emissions by using electricity instead of fossil fuels



Load Attraction: new electricity–intensive industrial investment

- traditional resource industries and manufacturing
- non-resource, internationally mobile

Our Approach

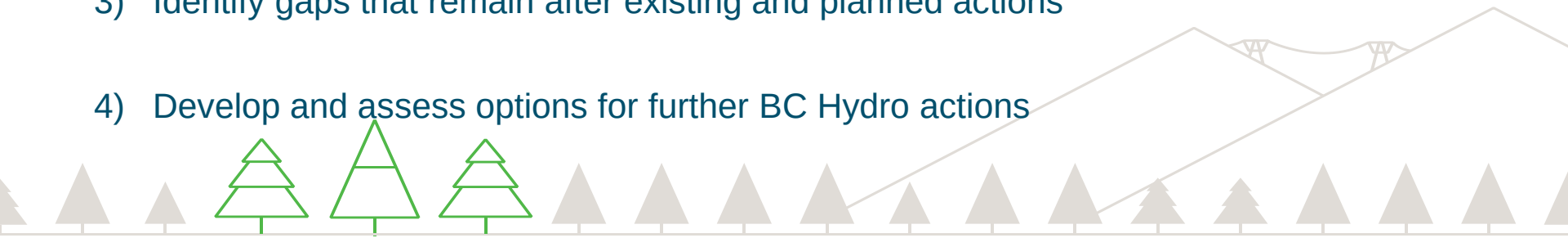
Building on our experience with Demand Side Management (DSM), we:

1) Identify opportunities

2) Focus on key barriers to customer electrification

3) Identify gaps that remain after existing and planned actions

4) Develop and assess options for further BC Hydro actions



Industrial Load Growth

- **Opportunities**
- Barriers
- Current BC Hydro actions
- Potential future BC Hydro actions

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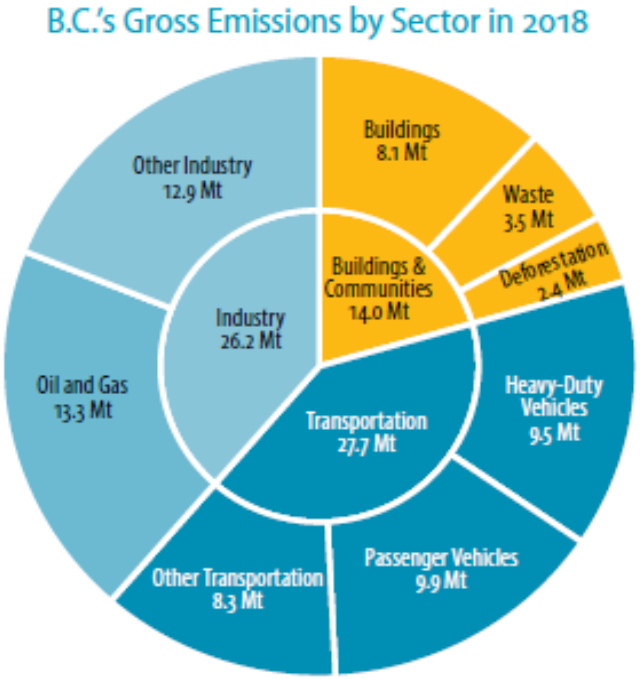
Industrial GHG Emissions



2020 Climate Change Accountability Report (gov.bc.ca)

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LCE: Upstream gas and LNG

UPSTREAM OIL & GAS

Grid supply for e-drive compressors

LIQUEFIED NATURAL GAS

Grid supply for e-drive liquefaction compressors and other equipment

LCE: Mining, Forest Products and Manufacturing

MINING

Trolley-assist for haul trucks

Underground equipment

Pumping

Hydraulic shovels

FOREST PRODUCTS

Electrification of diesel mobile equipment (e.g., harvesters, chippers)

MANUFACTURING

Conversion of boilers and other processes to electricity

Load Attraction Opportunities

- Traditional resource-based industries and manufacturing
- Emerging industries:
    - Hydrogen and synthetic fuels
    - Carbon capture, storage and sequestration
    - Data centres

Industrial Load Growth

- Opportunities
- **Barriers**
- Current BC Hydro actions
- Potential future BC Hydro actions

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Barriers – What Are Customers Saying?

Affordability

- Capital costs of electrification projects
- Capital costs of connecting to BC Hydro's system
- Operating cost gap, especially relative to natural gas

Accessibility

- BC Hydro's connection process is too complex and timelines are long
- Technology risk – limited experience with new equipment and applications, with unforeseen consequences

Awareness

- For internationally mobile non-resource industries, BC and BC Hydro are unknowns and our processes are difficult to navigate

Opportunities and Barriers Questions & Comments

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Industrial Load Growth

- Opportunities
- Barriers
- ➢ **Current government and BC Hydro actions**
- Potential future BC Hydro actions

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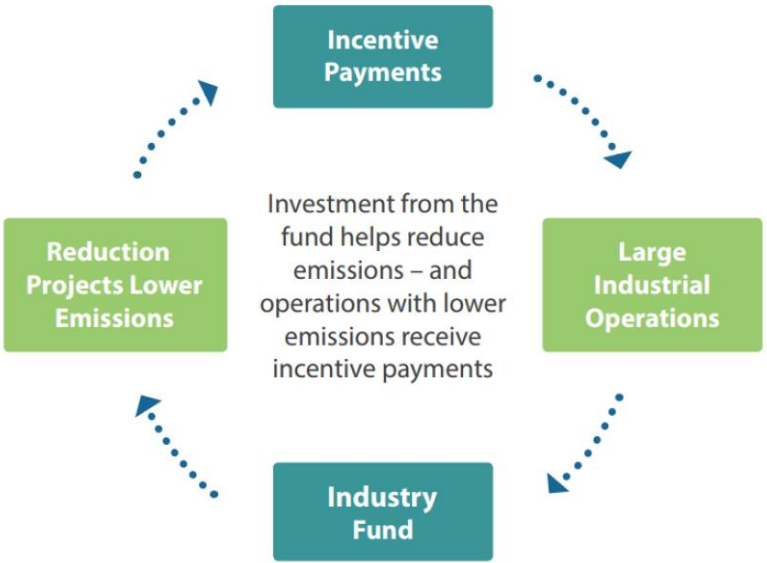
Government Actions

- Industry Fund
- Industrial Incentive Program



Other programs:

- BC Carbon Offsets
- Clean Growth Infrastructure Royalty Program

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Infrastructure Funding

Support from Canada to advance industrial electrification

Investing in Canada Infrastructure Program

$83.6 M for the Peace Region Electricity Supply (PRES) project

$84.4 M for the CleanBC Facilities Electrification Fund

CleanBC Facilities Electrification Fund

Reducing the cost to connect to our clean electricity grid

- $84.4 M of federal infrastructure funding for customer interconnection projects that reduce/avoid greenhouse gas emissions
- 50% of eligible interconnection costs to a maximum of $15 M per project
- Projects must meet cost and fuel switching load thresholds

Low Carbon Electrification Program

Supporting fuel switching to clean electricity

- BC Hydro introduced its Low Carbon Electrification (LCE) program in F2018.
- Enabled by the Greenhouse Gas Reduction Regulation - introduced in 2012, and amended in 2017 to include electrification initiatives.
- LCE initiatives to support industrial electrification have included:
  - feasibility studies
  - research and pilots
  - project implementation incentives
- Opportunities are identified by customers, our industrial energy manager network and our customer-facing employees

Industrial Rate Options for Electrification

Various rates and rate options designed to reduce customer operating costs

- Indirect Interconnection Service
- Freshet Rate
- Incremental Energy Rate
- CleanBC Industrial Electrification Rates

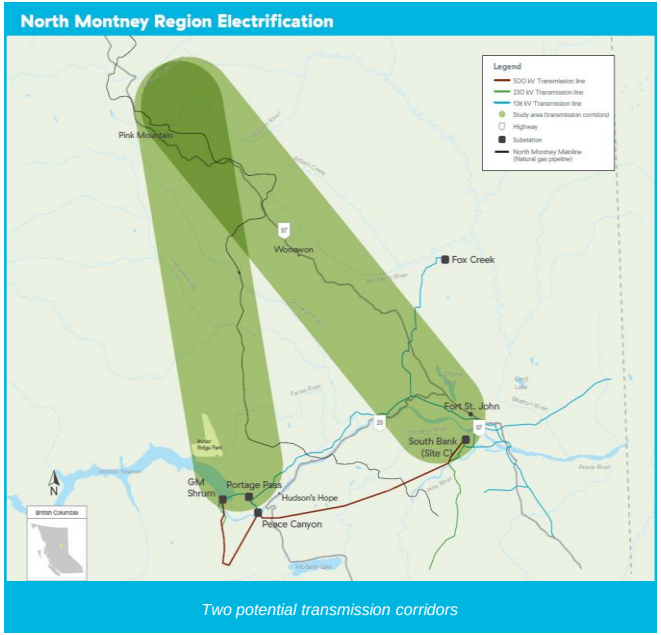
Interconnections Process Improvements

Key themes:

- Providing more options to the customer
- Flexible and adaptive processes
- Prioritizing interconnection work
- Improving queue management

North Montney Region Electrification

Electrifying industry with clean, reliable and affordable electricity



Two potential transmission corridors

New approach to connecting customers

- Proposed extension of transmission infrastructure into the North Montney Region
- Reduce GHGs and foster economic growth
- Seeking federal funding to offset infrastructure costs
- Expression of Interest process launched to assess customer interest, their electrification requirements and commitment to electrify

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Industrial Load Growth

- Opportunities
- Barriers
- Current government and BC Hydro actions
- ➢ **Potential future BC Hydro actions**

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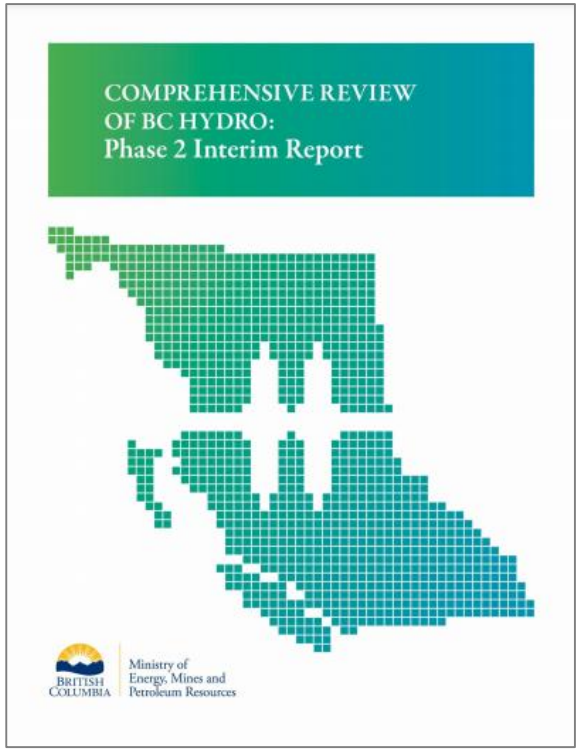
Comprehensive Review – Industry Considerations



- Considered LCE and Load Attraction Together
- Implemented Recommendations:
  - CleanBC Industrial Electrification Rates
  - Rescind NTL Tariff
- Considerations in Interim Report
  - Flattening Tier 2 Transmission Service Rate
  - Amendments to interconnection tariffs
  - 100% clean electricity

Possible New BC Hydro Actions

Expanded Low Carbon Electrification program funding

- Pre-feasibility and feasibility assessments
- Electrification road maps
- Research and pilots
- Project incentives

Possible New BC Hydro Actions

Low Carbon Electrification and Load Attraction

- Rate design
- Interconnection process improvements

Possible New BC Hydro Actions

Load Attraction

- Proactive promotion of BC and BC Hydro in other jurisdictions
- Sector-specific marketing and business development teams
- Load attraction strategy including Expression of Interest to market existing BC Hydro and existing brownfield sites with surplus capacity
- Funding to offset customer connection costs

Questions and Comments?

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Next Steps

We want your input!

- Online feedback open until April 26
- BC Hydro will include the electrification plan and funding requirements in the Fiscal 2023+ Revenue Requirements Application

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