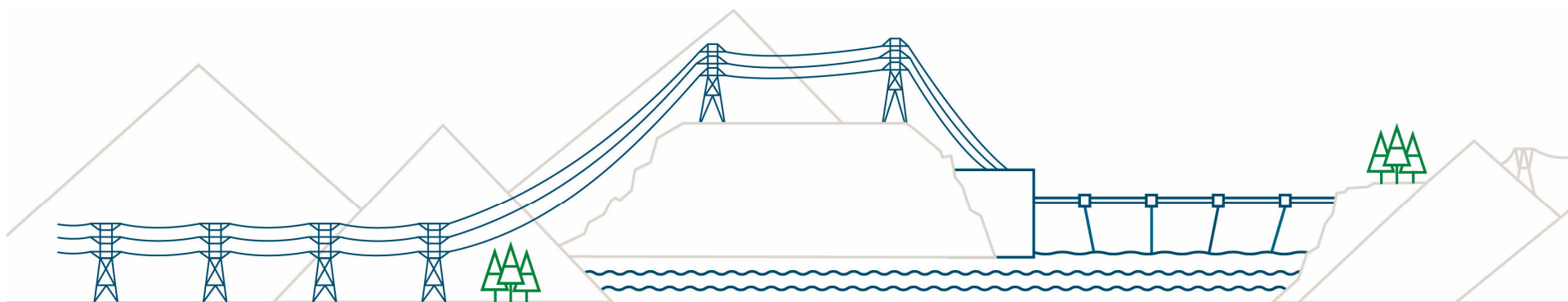


2021 Integrated Resource Plan (IRP) Technical Advisory Committee (TAC) Meeting #4



July 22, 2020

Welcome

Basil Stumborg, BC Hydro

Virtual meeting etiquette

These principles should make our meetings more effective

- As with in-person meetings, continue to have members participate and alternates observe
- Keep the conversation respectful by focusing on ideas, not the person
- Stay curious about new ideas
- Share the air time – to ensure everyone gets heard

- To minimize distractions – keep yourself on mute
- We'll use the chat box to seek input and ask questions
- We'll not be recording these sessions, and ask for others not to record

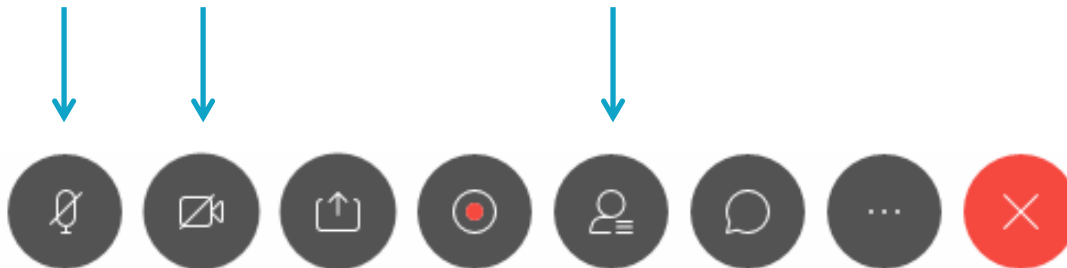
Cisco Webex reminders



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



Open the chat panel:
• to ask questions
• to provide feedback

Audio connection trouble?
See the alternative options here

Electrification

Kathy Lee, BC Hydro

Sanjaya De Zoysa, BC Hydro

Purpose and agenda today

Clarify the approach to address electrification in the IRP

- IRP and linkage with electrification plan
- Goal of IRP electrification analysis
- Navius report – some materials, discussion
- LNG and mining electrification – levels and implications

Electrification in the 2021 IRP

IRP focuses on actions to serve electrification load

- IRP is BC Hydro's long-term plan to meet its load serving obligations, subject to BCUC review
- BC Hydro's electrification plans are not generally subject to BCUC review
 - Greenhouse gas (GHG) reduction regulation exempts (non-rate) electrification undertakings
 - Rate designs with electrification objective subject to BCUC approval
- BC Hydro's near-term electrification plans will be set out in the next revenue requirement application (RRA), and will be an input into the IRP
 - Load impact from electrification plans should be captured in load forecast and load uncertainties analyzed in the IRP

Electrification plans

Many initiatives may come out of the Comprehensive Review

- Initiatives may include:
 - Rate design intended to support electrification
 - Tariff changes that impact customer connections
 - BC Hydro infrastructure investments (transmission, charging infrastructure)
 - BC Hydro low carbon electrification (LCE) programs and other load attraction initiatives
- The above initiatives would inform BC Hydro's near-term electrification plans:
 - Support an F2022+ LCE program budget for initiatives under the greenhouse gas reduction regulation
 - Support rate design applications

Goal of IRP electrification analysis

Allows system impacts and solutions to be evaluated

- IRP will be using electrification scenarios provided by Navius consulting
- IRP will not be choosing a level of electrification
- Main IRP questions addressed:
 - What system resources will be needed to respond to different levels of electrification
 - Timing, volume of that need (system and regional)
 - Costs and benefits (e.g. \$/t CO₂e, rate impacts) of levels of electrification
 - Ability of BC Hydro to meet rapid electrification load growth
 - Impacts of different strategies to meet rapid load growth
 - Build in advance of need
 - Create options and react to need
 - Wait and react when need arises

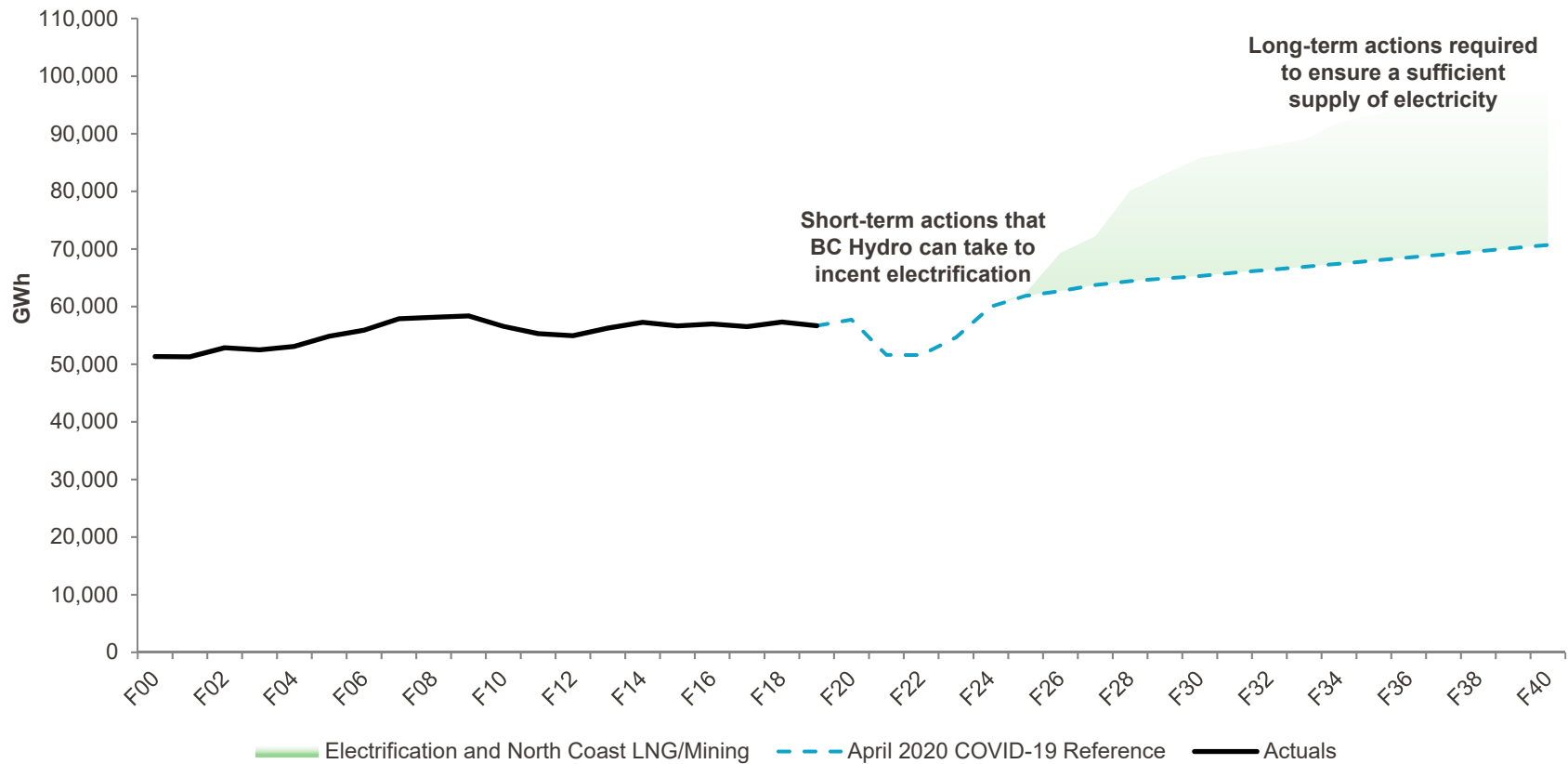
Goal of IRP electrification analysis

Seeking comments on general approach, before looking at the load impacts

- Load impacts to come on following slides
- Questions for TAC members on this general approach
 - Has BC Hydro missed any important considerations?
 - Additional comments or concerns on this general approach?

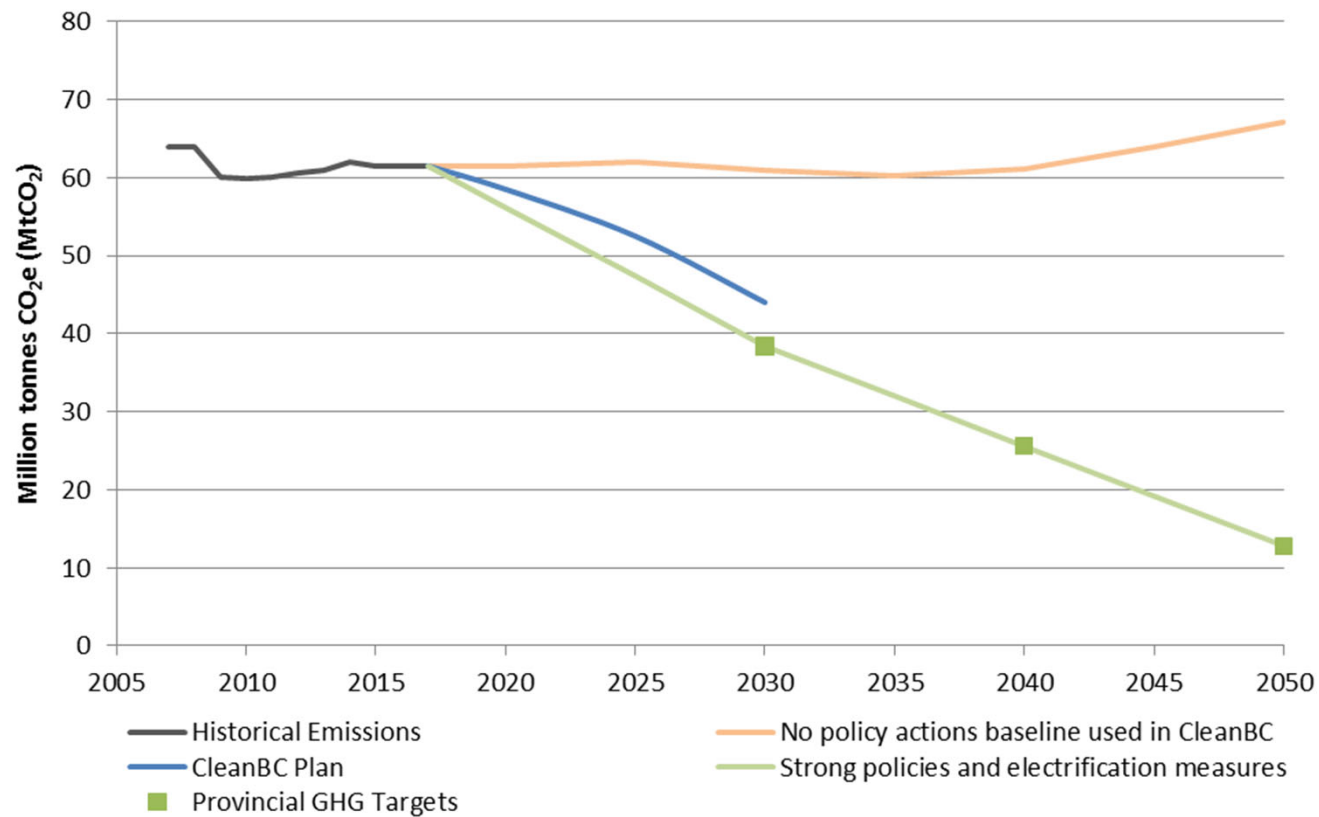
Electrification could have a significant impact on load

IRP takes a long-term view, but will be influenced by actions taken over the next few years



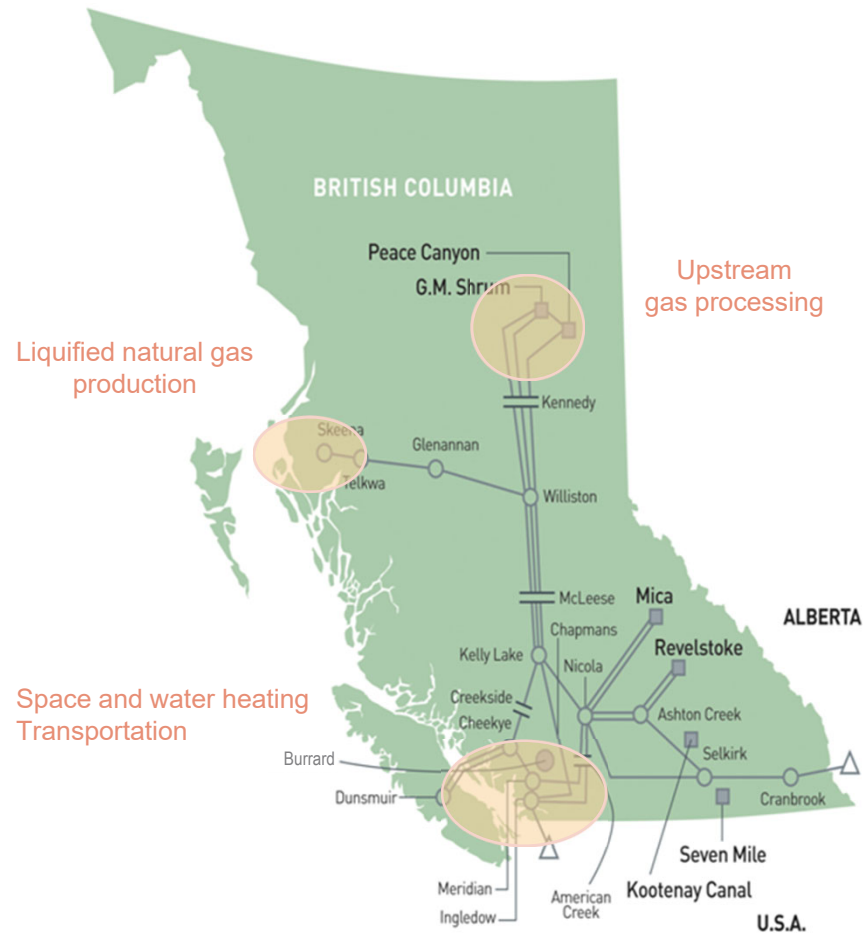
Provincial GHG reduction targets

Additional GHG reductions are required beyond CleanBC



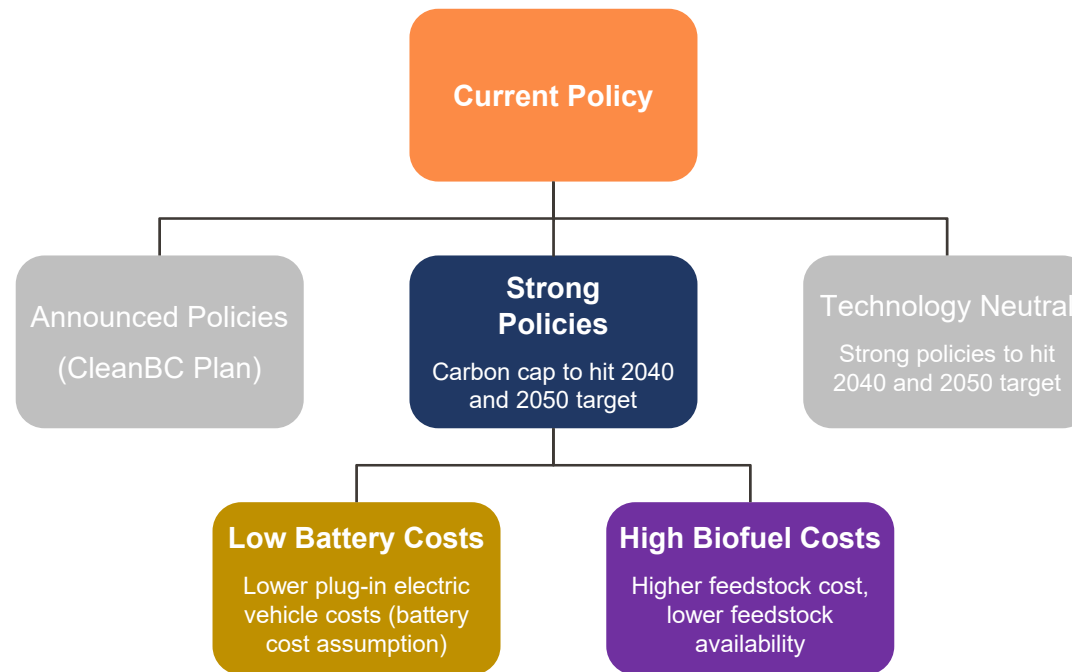
Regional load impacts

Electrification of various economic sectors will have a geographic distinction



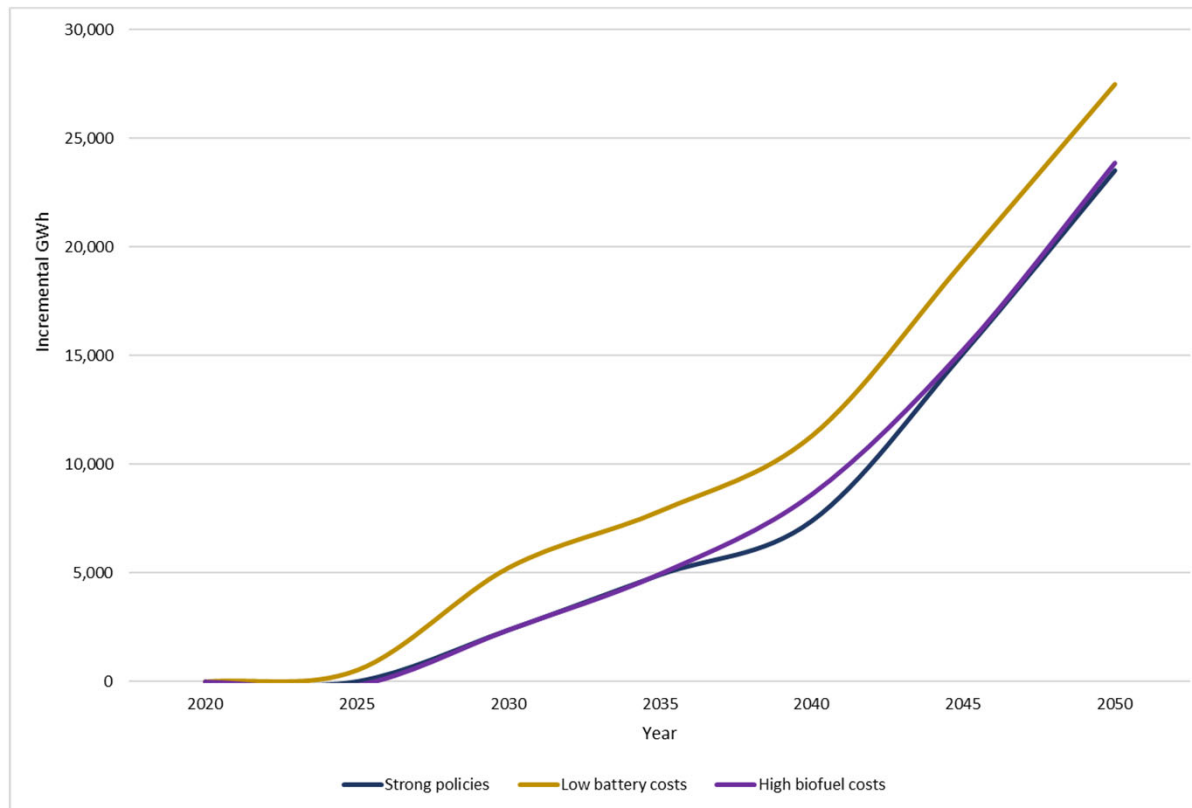
Navius electrification scenarios

Scenarios examine impact of various sensitivities while achieving provincial GHG targets



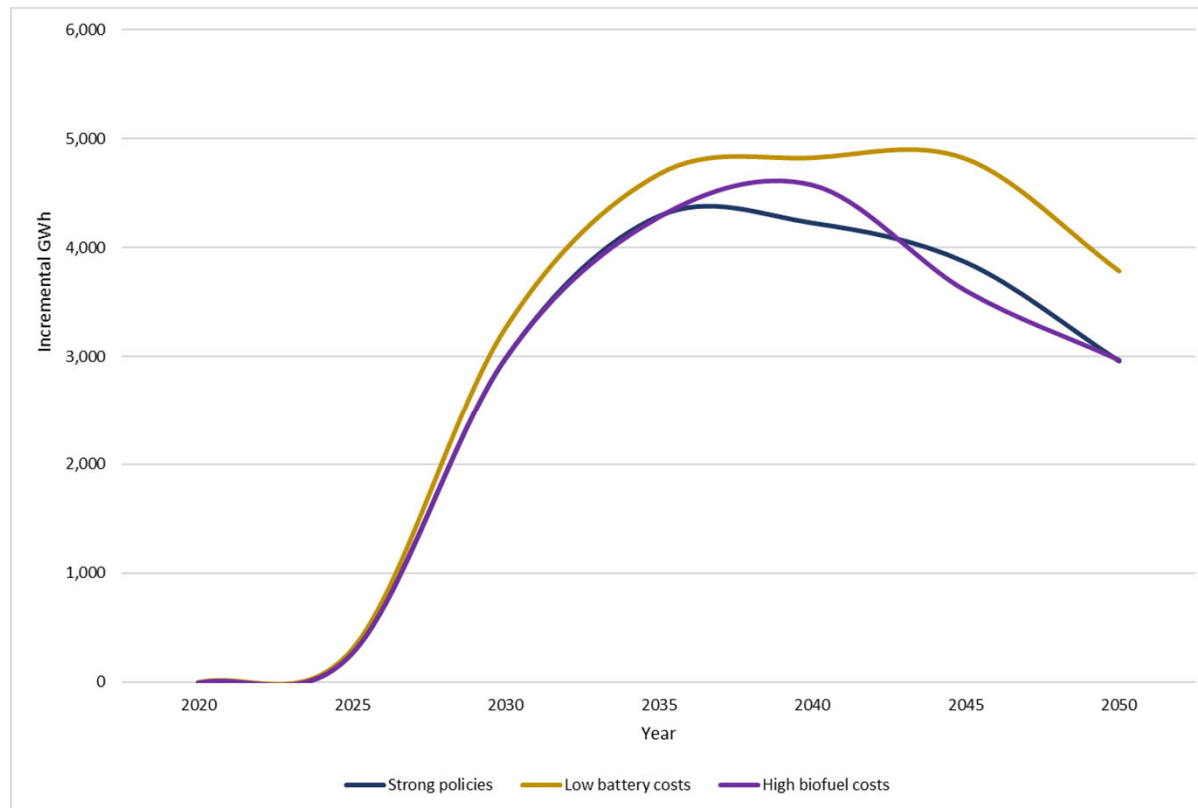
Incremental load impacts of electrification scenarios

Impacts are incremental to load growth in the reference forecast



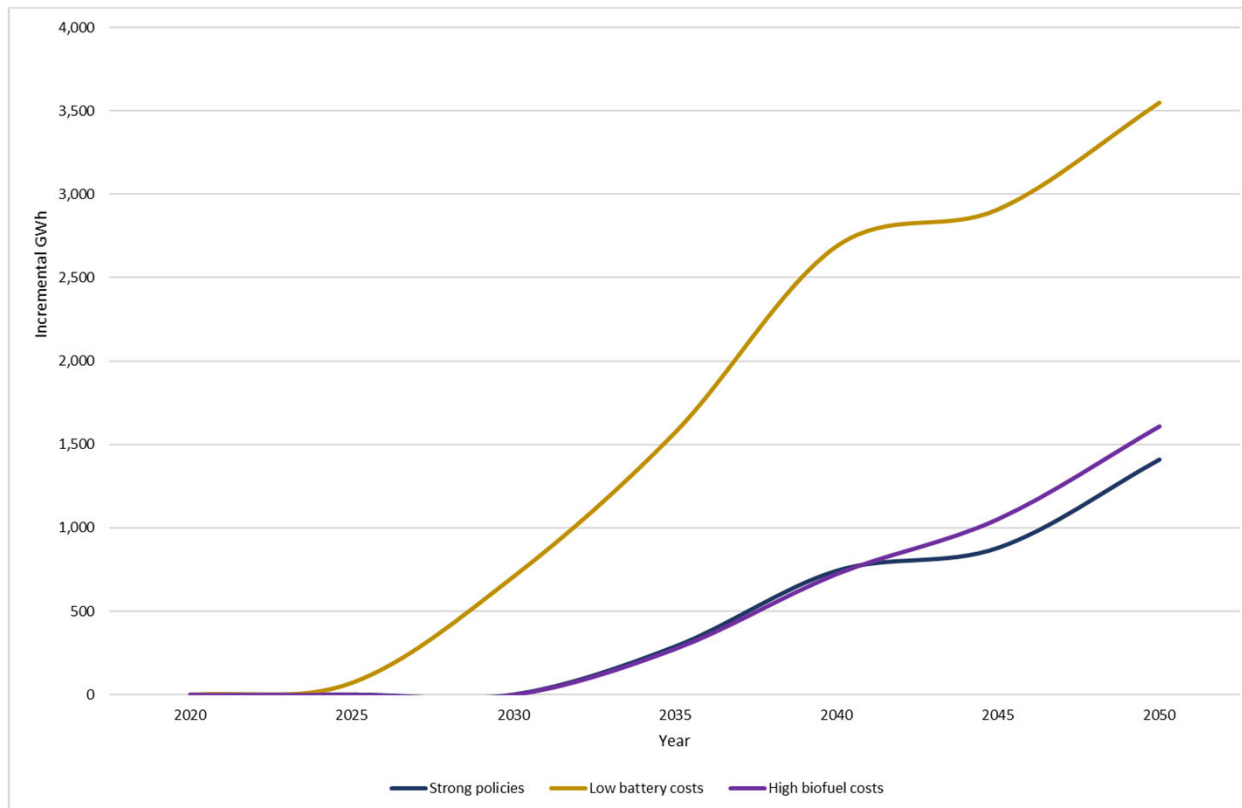
Load impacts of building electrification

Majority of impacts can be expected in the Lower Mainland and Vancouver Island load centers



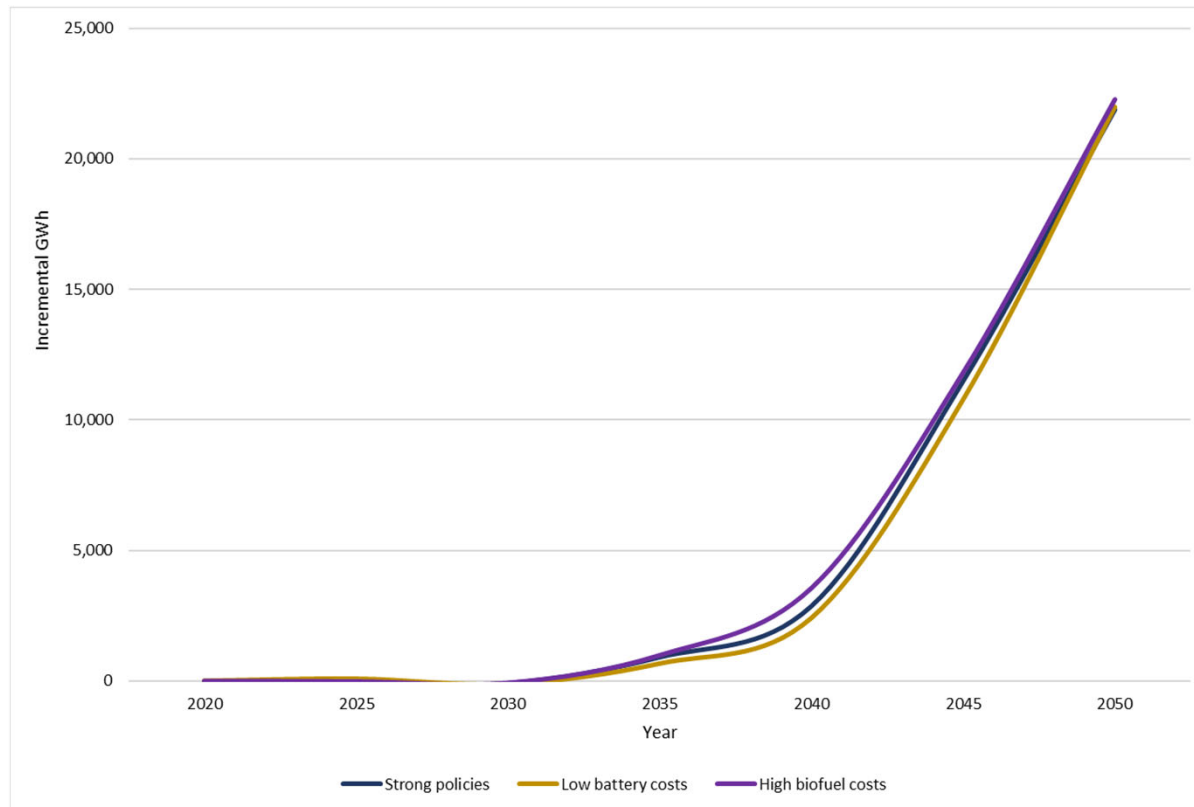
Load impacts of heavy duty vehicle electrification

Majority of impacts can be expected in the Lower Mainland and Vancouver Island load centers



Impacts of electrification in the natural gas industry

Majority of impacts will be in the Peace region



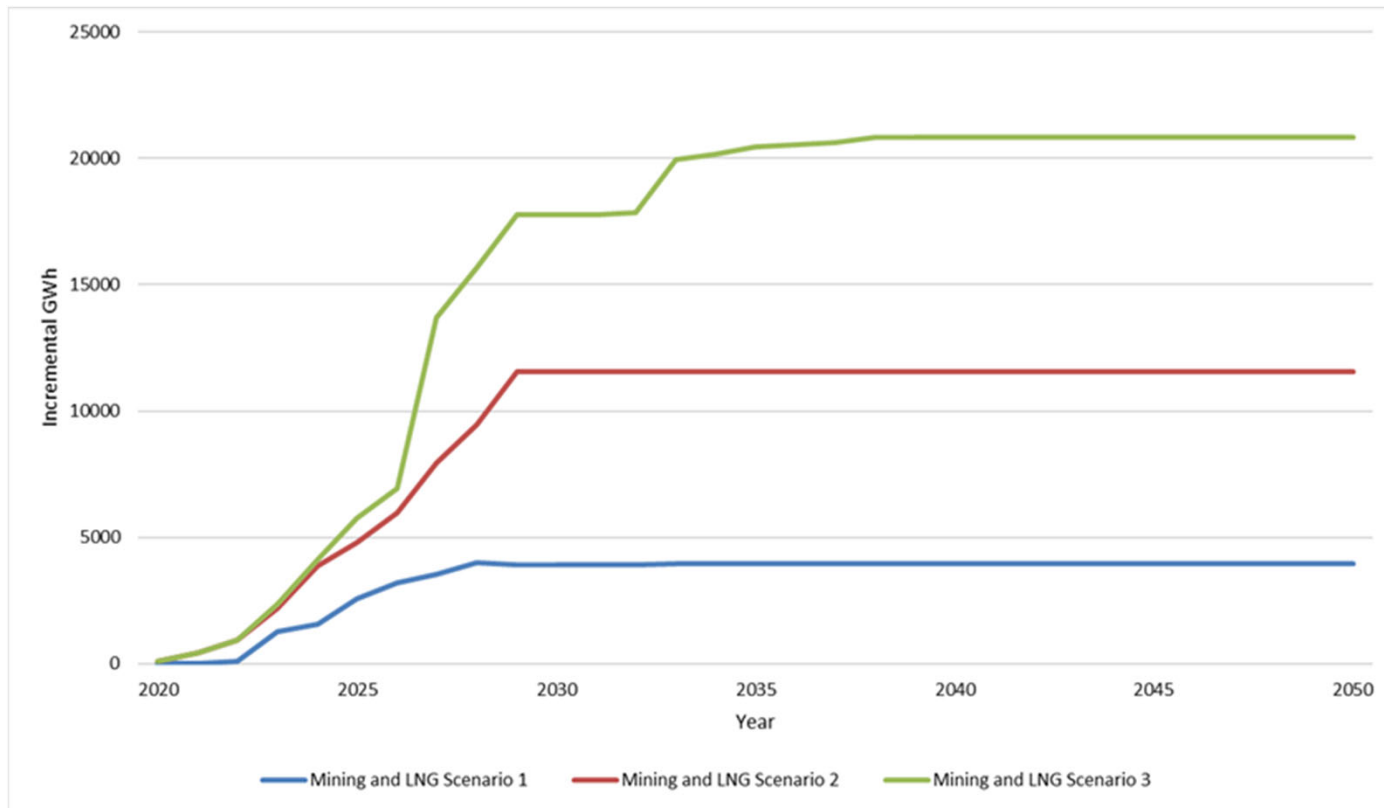
Mining and LNG electrification scenarios

Electrification of new industrial facilities could add load over and above Navius electrification scenarios

- These scenarios look at loads incremental to the reference load forecast
- The load impacts are additive to the Navius electrification work that looked at a world aligned with the reference load forecast
- Three scenarios that looked at electrification of additional mines and LNG facilities in the North Coast region have been developed
- They have been paired with assumptions about increasing levels of upstream gas processing loads

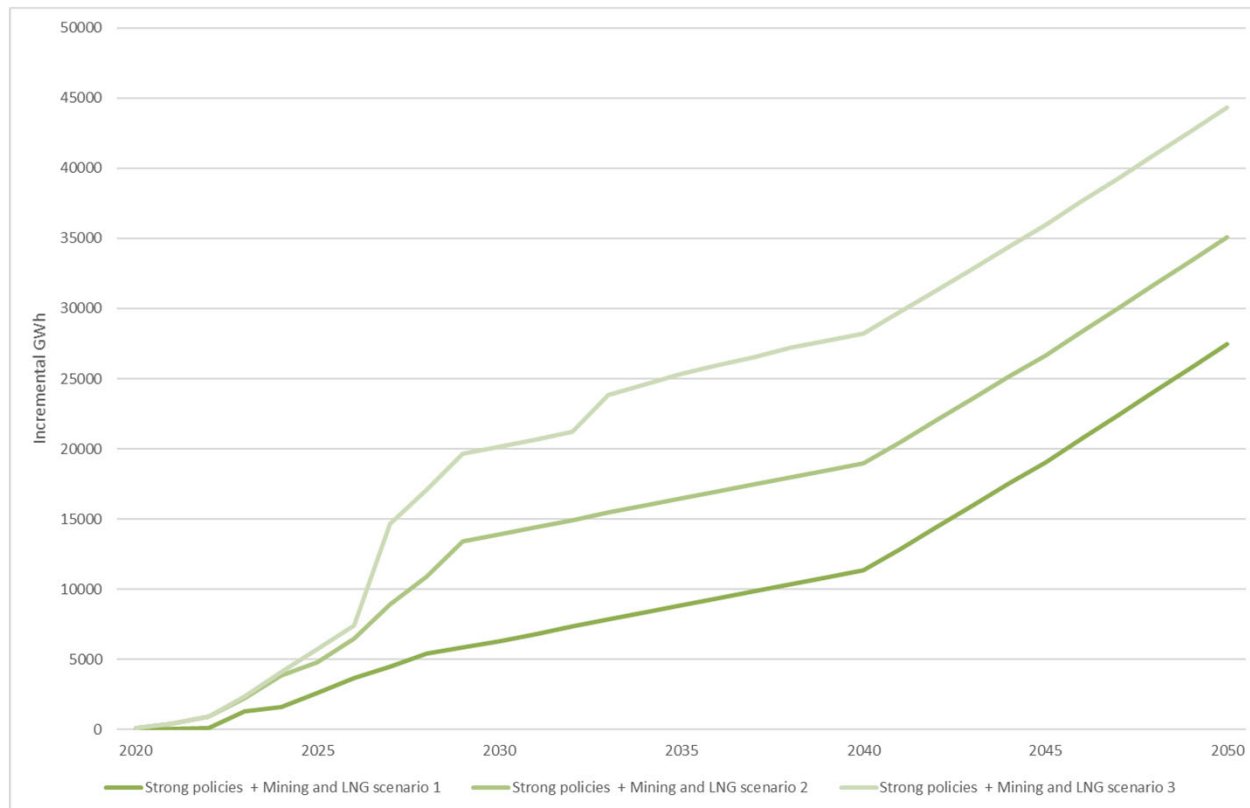
Incremental demand from North Coast mining and LNG scenarios

Loads could potentially unfold in the next 10 years



Summary of electrification, and North Coast loads being considered for this IRP

The scenarios provide a wide range of potential loads





BC Hydro

Power smart