

# FortisBC Resource Planning Engagement Session – North Interior

May 20, 2021

# The energy to think differently



# Agenda for the session

1. Welcome, introductions and session overview **(10 min.)**
2. FortisBC's initiatives in the North Interior **(15 min)**
3. Brief overview of the resource planning process **(10 min)**
4. Energy planning landscape in BC **(45 min)**
  - **Discussion: How does the energy landscape in BC impact you?**
5. Break **(10 min)**
6. Demand forecasting methodology and critical uncertainties **(45 min)**
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7. Exploring future demand scenarios **(35 min)**
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8. Ongoing resource planning work **(5 min)**
9. Wrap-up and next steps **(5 min)**

# Partners and communities



- We serve the communities in which we live and work.
- We are committed to building strong relationships to support our community partners & business operations.
- Understanding, respect, open communication and trust are key values embedded in our Statement of Indigenous Principles.



# Why strong Indigenous relationships are important to FortisBC

- Statement of Indigenous Principles created in 2001
- We are continually working to build mutually beneficial relationships with Indigenous communities, their leadership and their members.
  - Commitment to early and transparent engagement
  - Awareness training for FortisBC staff
  - Opportunities for economic partnerships and employment for Indigenous peoples
- We support the United Nations Declaration on the Rights of Indigenous Peoples and the Truth & Reconciliation Commission's Calls to Action
- Progressive Aboriginal Relations Certification (PAR)



Progressive  
Aboriginal  
RELATIONS

COMMITTED



Energy at work



FORTIS BC™

# FortisBC overview



- Largest energy provider in the province
- Our infrastructure serves **57 Indigenous Communities** and crosses **150 Traditional Territories**
- We serve **1.2 million** customers providing:
  - electricity
  - natural gas
  - renewable gas
  - propane
  - alternative energy solutions
- We employ **2,400** people

# Sustainability in all we do

Our sustainability framework:

- supporting our customers
- working with our partners and communities
- protecting the environment
- investing in our employees

***Sustainability is not  
something we do. It's how  
we do everything.***





# Our 30BY30 commitment

## What is 30BY30?

It is our target to reduce our customers' GHG emissions by **30%** overall by the year **2030**





# Focus of today's session

- To better understand your energy priorities and plans for the future
- To gather your input on our upcoming Long Term Gas Resource Plan (LTGRP)



# Speaker introductions



Ken Ross, Manager, Resource Planning  
& DSM Reporting



Anda Telman, Manager, Resource  
Planning



Matt Mason, Community &  
Indigenous Relations Manager



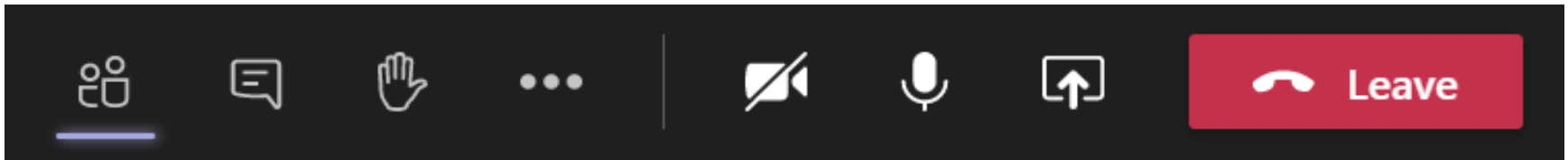
Randy Sharpe, Manager,  
Community & Indigenous Initiatives

# Communities & organizations registered

- Cariboo Regional District
- City of Prince George
- District of Mackenzie
- Duz Cho Group of Companies
- Kamloops Chamber of Commerce
- Lheidli T'enneh First Nation
- McLeod Lake Indian Band
- Peace River Regional District
- Regional District of Fraser-Fort George
- Skeetchestn Natural Resources Corporation
- Tk'emlúps te Secwépemc
- Town of Creston
- University of Northern British Columbia
- Village of Clinton
- West Moberly Corporate Alliance

# Housekeeping

- We encourage you to participate through video
- When you're not speaking, mute yourself to reduce background noise
- We will have plenty of breaks for questions and discussion but feel free to speak up at any time throughout the presentation
  - We encourage you to use the hand-up function to indicate you'd like to speak
  - When we call upon you, feel free to un-mute yourself and speak clearly
  - You may also use the chat functionality if you'd prefer
- The session audio/video will not be recorded, however, the chat history will be saved for note-taking purposes





# Safety reminders

- Ensure you're comfortable at your workstation
- If you need to, stand-up and stretch
- Take breaks as needed, we will also have a break within the agenda



# Disclaimer for an open dialogue

- The input provided during this workshop may become public during our regulatory proceedings
- However, we will not attribute input to any specific individual or community
- We encourage you to provide further input during the formal regulatory proceedings – even if your opinions have changed
- We intend to provide the presentation and meeting notes from today's session on our website
- You will have an opportunity to review these notes prior to us publishing them online

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# FortisBC Initiatives in the North Interior

## Energy Efficiency and Conservation

Partnering with Fort Nelson First Nation & Tk'emlúps te Secwépemc to make homes more energy efficient, more comfortable and more affordable to operate

- Energy Conservation Assistance Program
- Indigenous Community Conservation Program (for renovations)
- Indigenous community New Home Program (new construction)





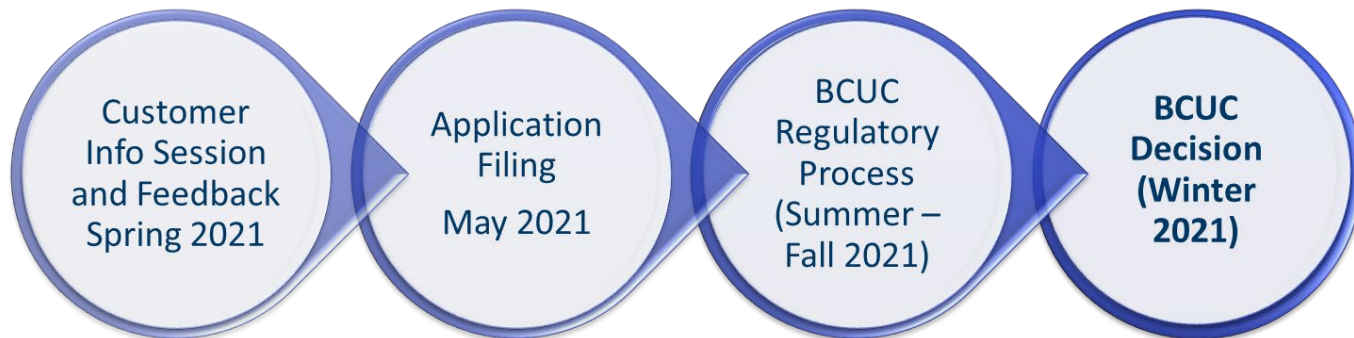
# FortisBC Initiatives in the North Interior

## Fort Nelson Common Rates Application (2021)

Exploring options to incorporate Fort Nelson customers into the provincial FortisBC rate base

### Benefits:

- Rate stability over time for Fort Nelson customers
- A broader customer base to absorb localized infrastructure investments
- Limits the impact of changes in Fort Nelson customers' natural gas demand volume on rates



# FortisBC Initiatives in the North Interior

## Work in the Community

### Kamloops Community Giving Day (2020)

- Supporting the Kamloops Therapeutic Riding Association



### Community Giving Day at Hallis Lake, Quesnel (2020)

- Low mobility trail restoration



# FortisBC Initiatives in the North Interior

## Inland Gas Upgrade Project (IGU)

- Investing in the resiliency of our system
- Indigenous and local partnerships on the project
- Upcoming project activities in the region:
  - Mackenzie (Ongoing)
  - Prince George (2021)
  - Kamloops (2022)
  - Quesnel (2022+)
  - Williams Lake (2022+)



# Questions for clarification





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# Brief overview of the resource planning process



# Purpose of resource planning

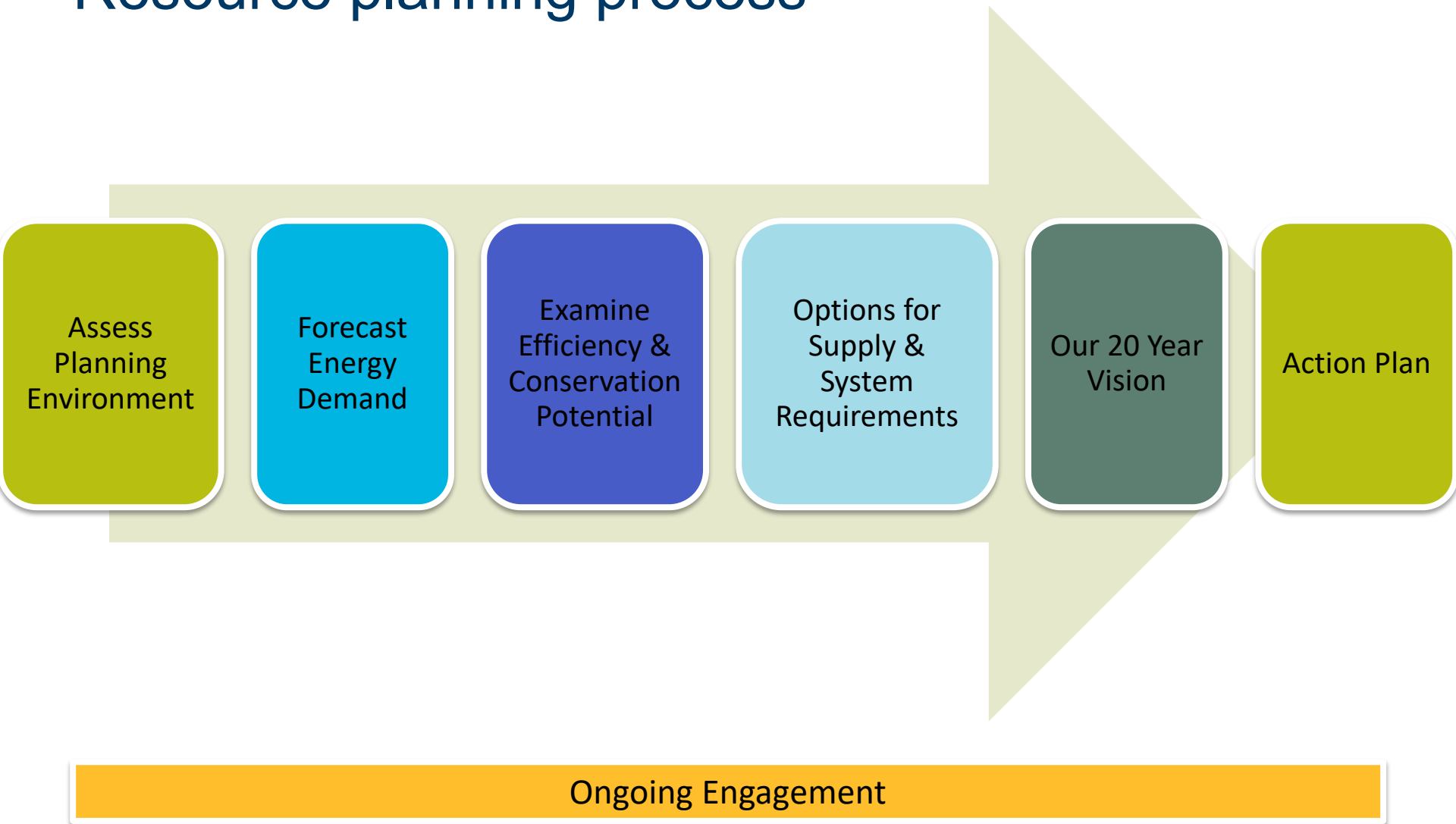
- The LTGRP **looks ahead 20 years** and provides a road map for securing safe, reliable and cost-effective energy resources.
- Represents an important component in our **overall utility planning**.
- Requirement of the Utilities Commission Act (UCA). Seeking **acceptance** from the British Columbia Utilities Commission (BCUC).
- The last plan was submitted in December 2017 and accepted in February 2019.
- The next plan will be submitted in March 2022.

Energy at work  FORTIS BC™

FortisBC 2017 Long Term Gas Resource Plan



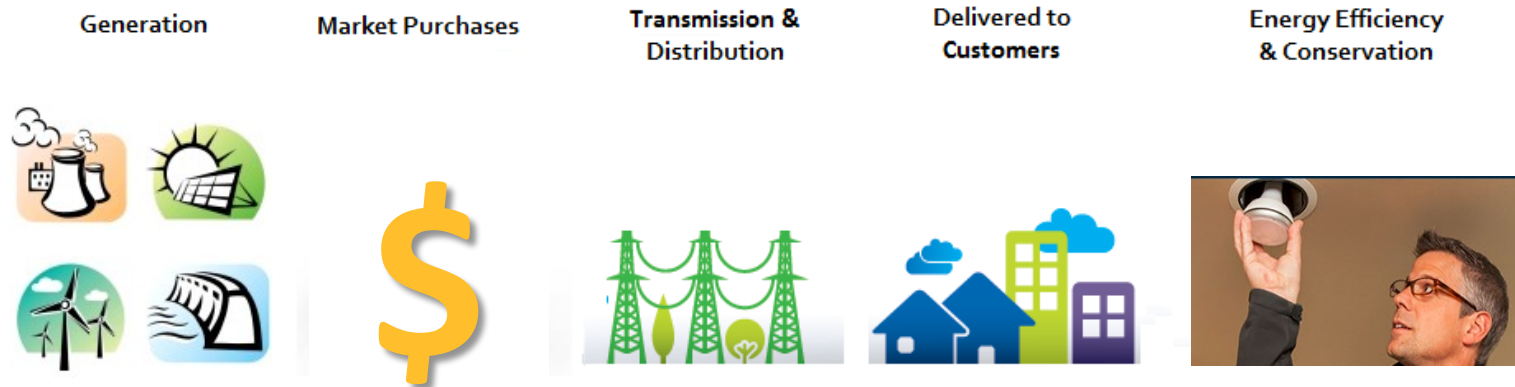
# Resource planning process





# Natural gas vs. electricity resource planning

## Electricity



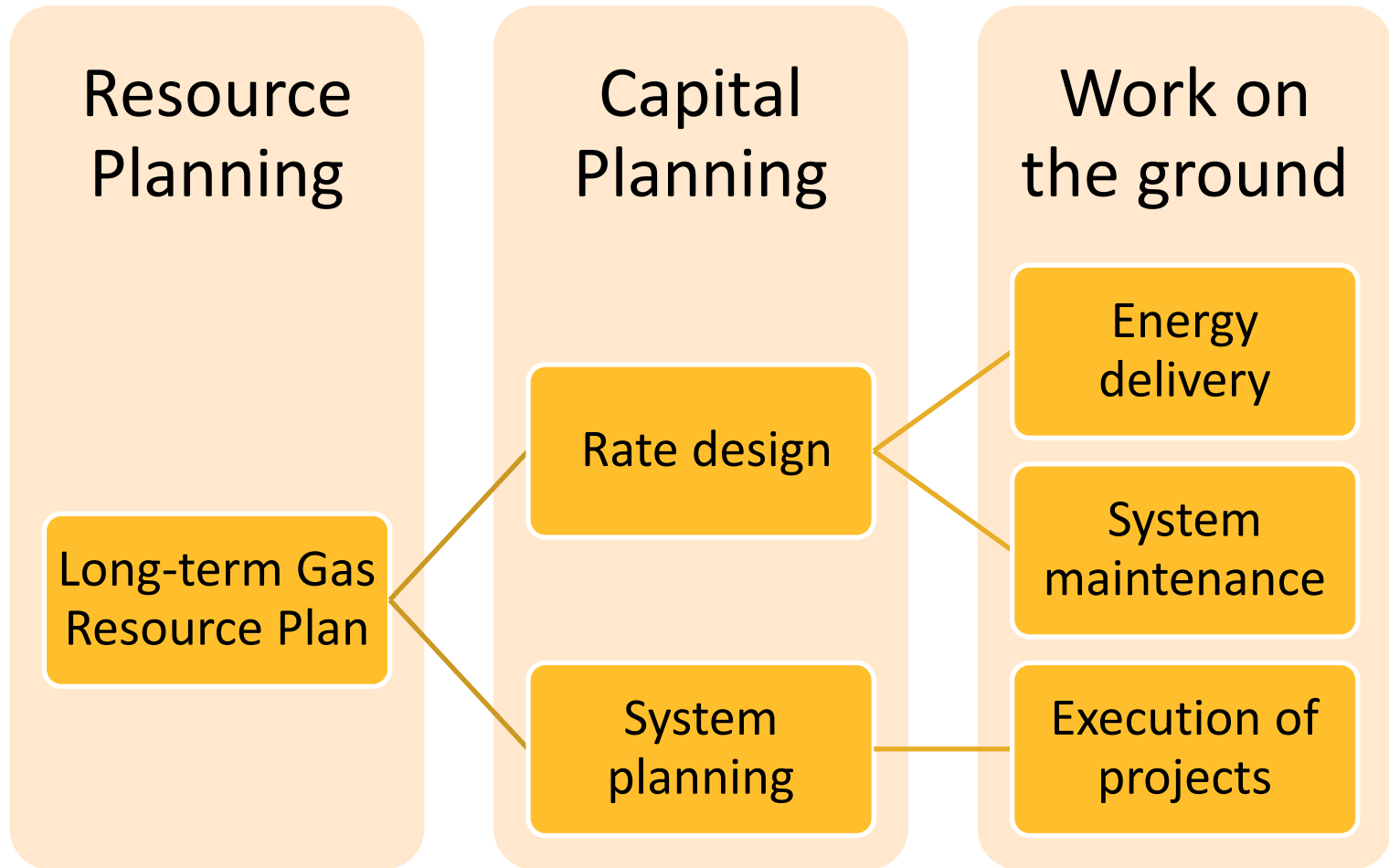
## Natural Gas



# Resource planning objectives

- Ensure cost effective, secure and reliable energy for customers
- Provide cost-effective demand-side management and cleaner customer solutions
- Ensure consistency with provincial energy objectives
  - Example: Clean Energy Act and CleanBC
- Address prior British Columbia Utilities Commission (BCUC) directives

# Resource planning and day-to-day operations



# How input provided today will be actioned through our resource planning process

- Community energy planning → • Energy demand forecasts
- Community energy priorities → • Actions to meet customer needs
- Partnership opportunities → • Exploratory follow-up discussions





# Questions for clarification



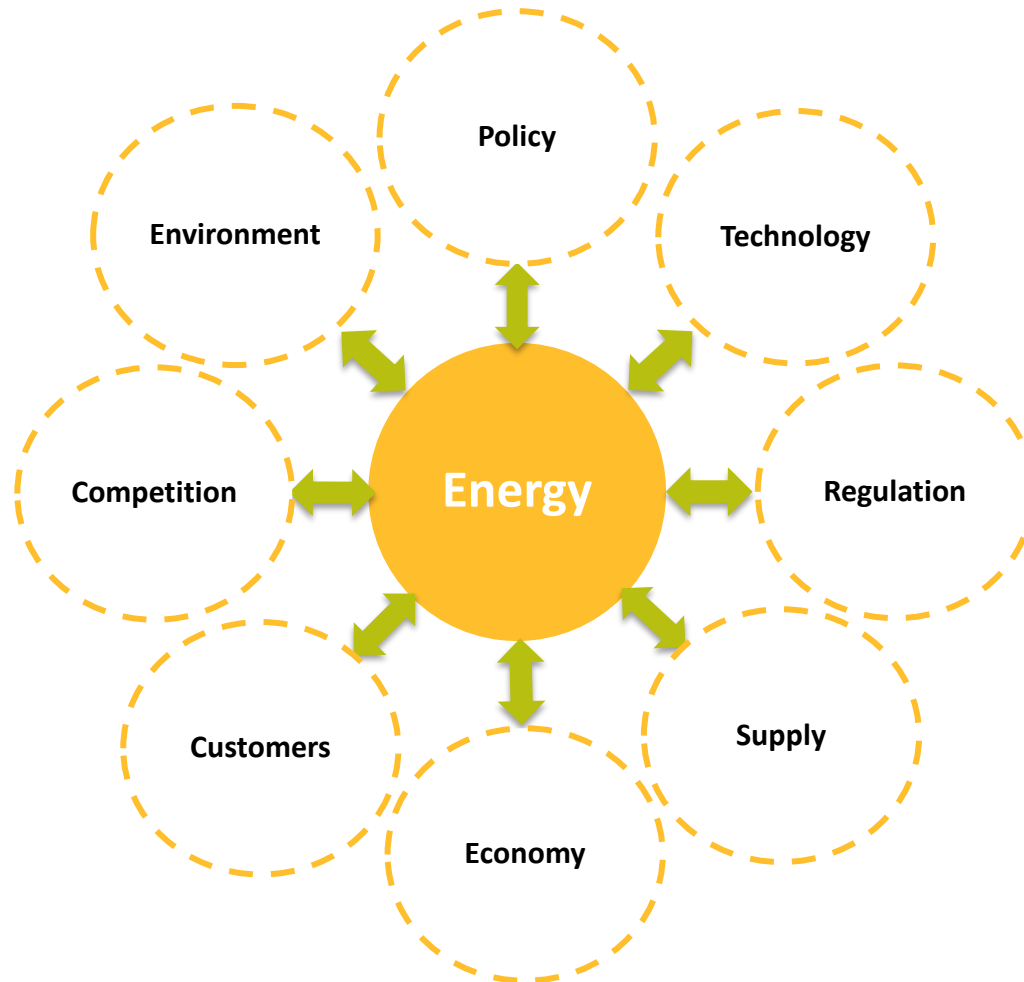
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# Energy planning landscape in BC

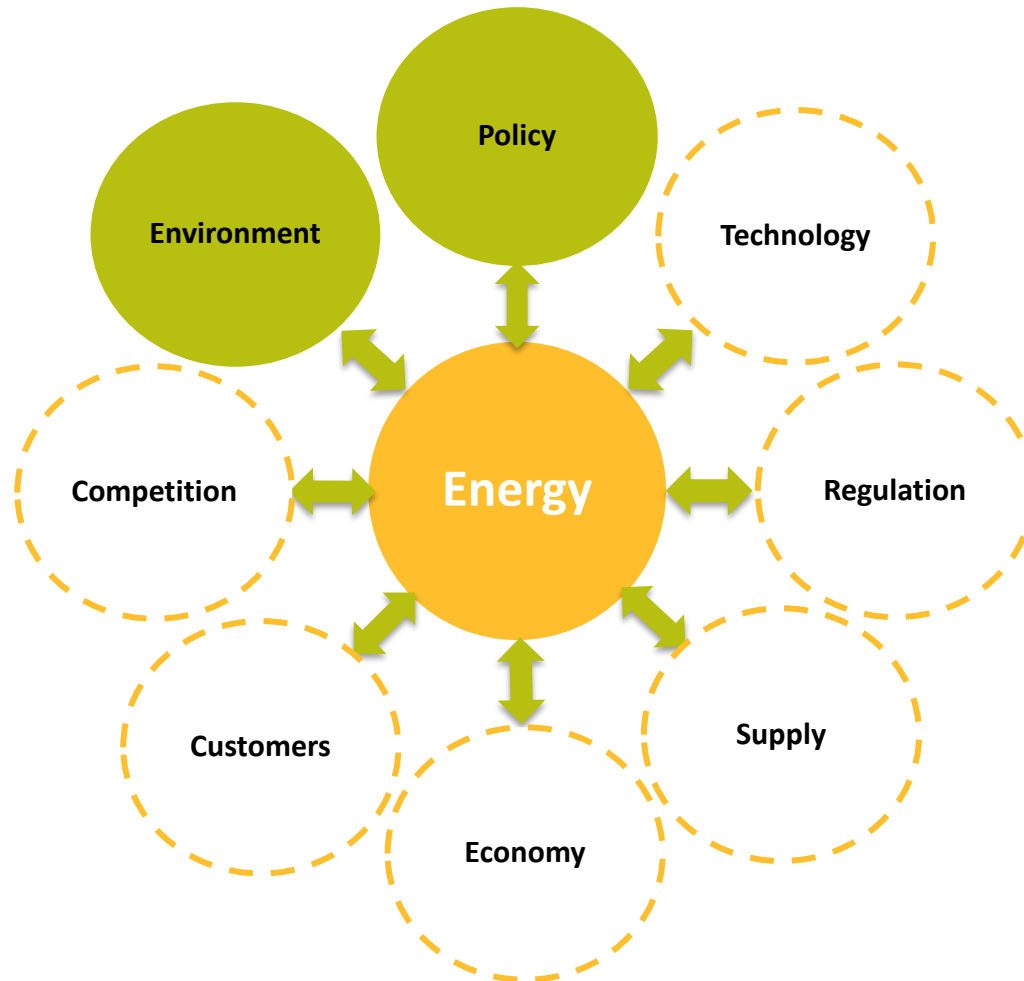


# Energy planning framework



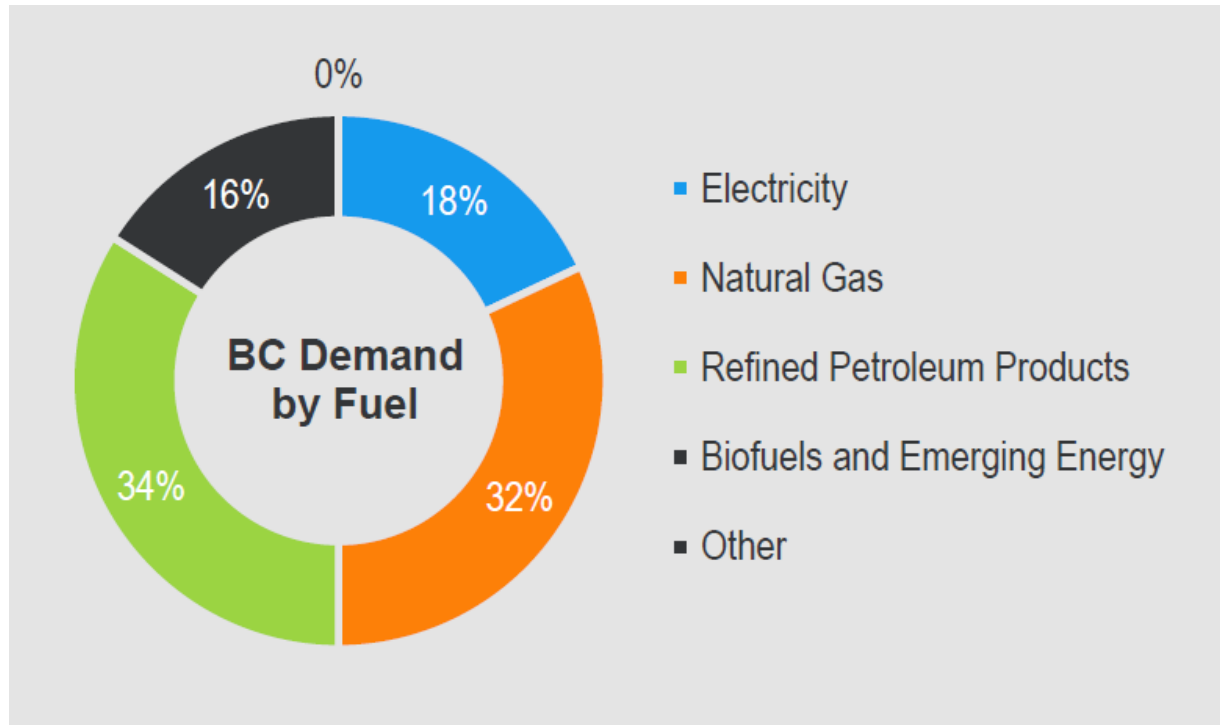


# Energy planning framework



# Energy demand in BC by fuel

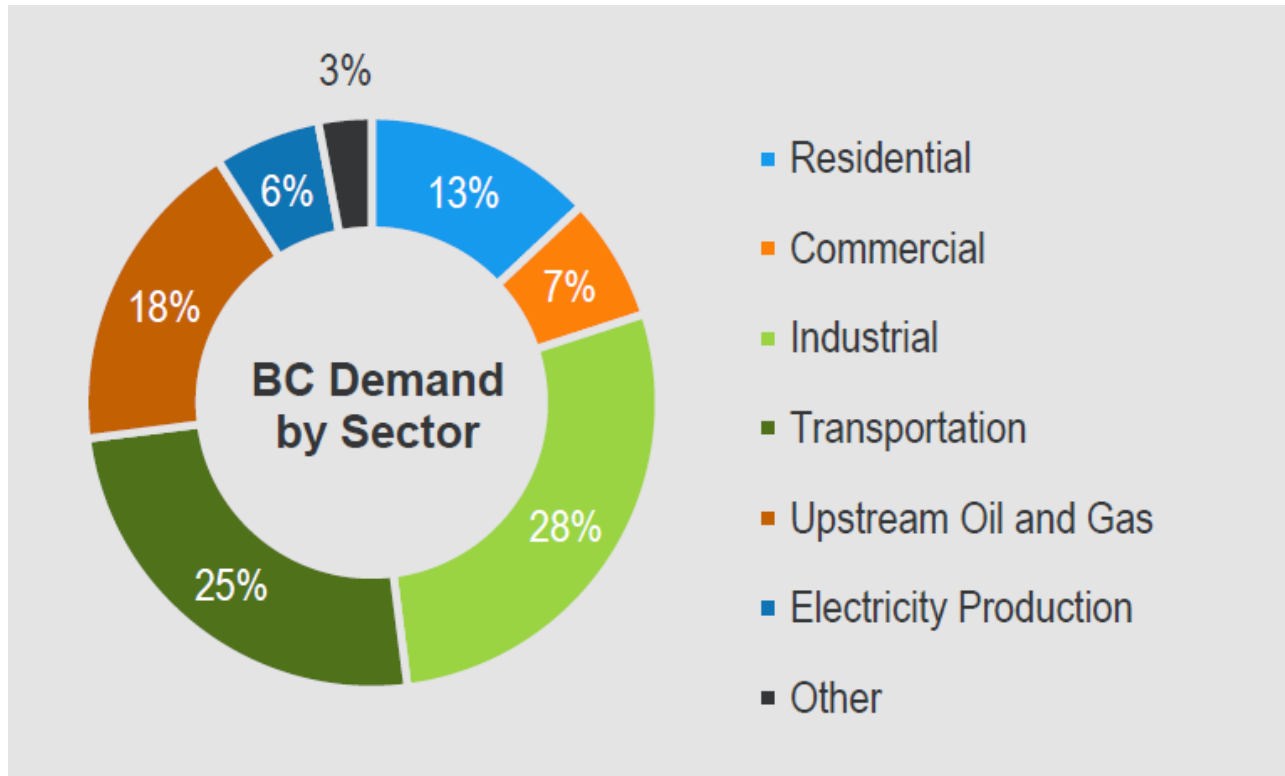
Refined petroleum products account for largest share



Source: Canada Energy Regulator – Canada's Energy Future 2019 and CanESS (CANSIM)

# Energy demand in BC by sector

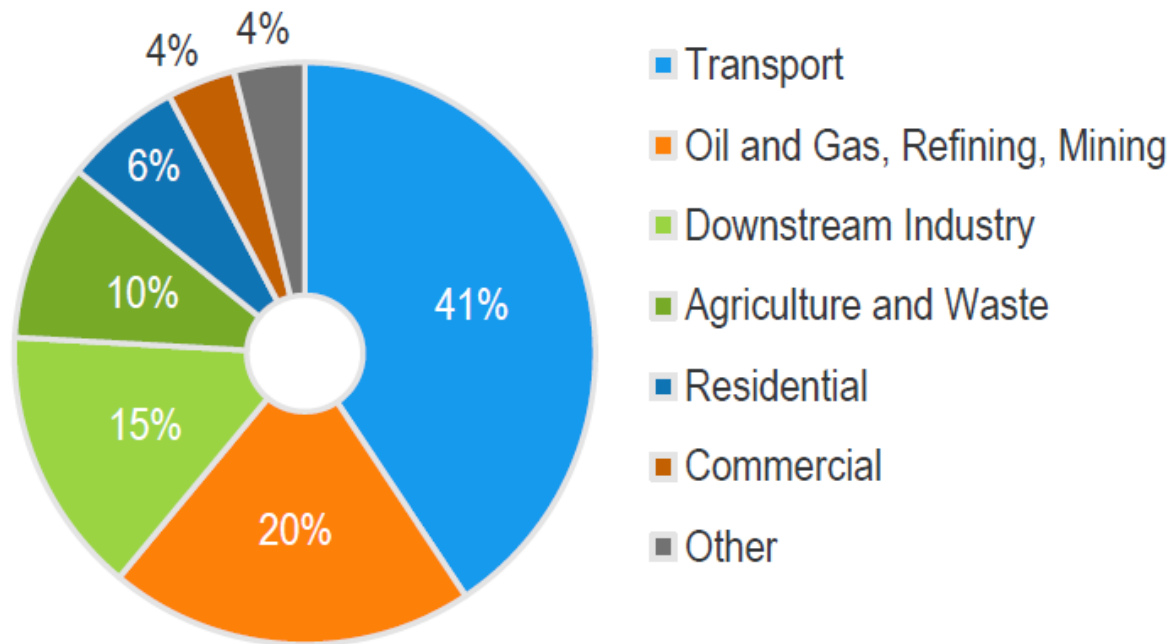
Industry consumes a significant amount of energy



Source: Canada Energy Regulator – Canada's Energy Future 2019 and CanESS (CANSIM)

# GHG emissions in BC by sector

Industry & transportation are the biggest contributors



Source: BC GHG Inventory



# Clean Growth Pathway to 2050

## Sharing goals to lower GHGs and drive economic growth

FortisBC has always been:

- offering solutions to help customers reduce GHGs
- collaborating with industry, public, government and regulators
- helping inform the CleanBC consultation process



# Pillars of our Clean Growth Pathway to 2050



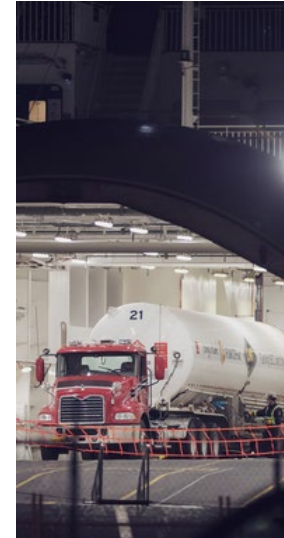
**Energy  
efficiency**



**Renewable  
gas**



**Zero and  
low carbon  
transportation**



**Global LNG**

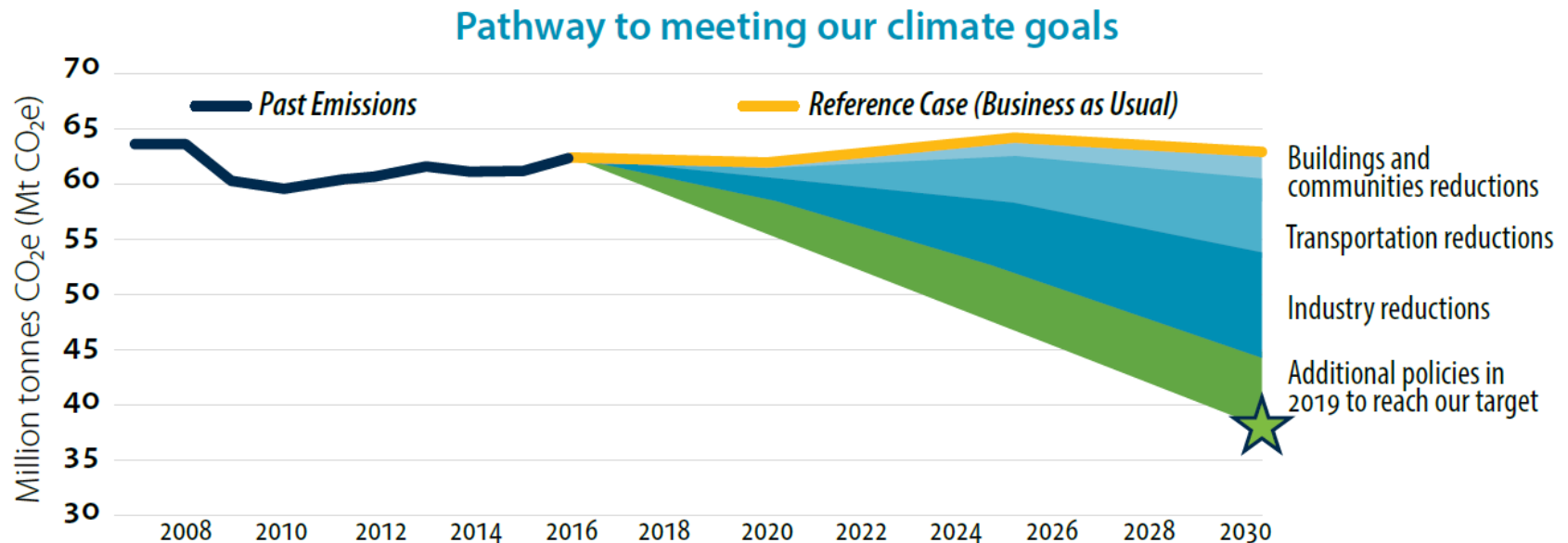
# CleanBC

- CleanBC is the provincial climate and economic plan to achieve greenhouse gas emissions by 2030.
- Plan outlines specific actions in the following categories:
  - Better buildings
  - Reducing pollution from industry
  - Cleaner transportation
  - Reducing emissions from waste
  - Clean energy jobs
- FortisBC is a critical partner to achieve the BC Government's goals.



# CleanBC GHG emissions reduction target

40% reduction in GHG emissions by 2030

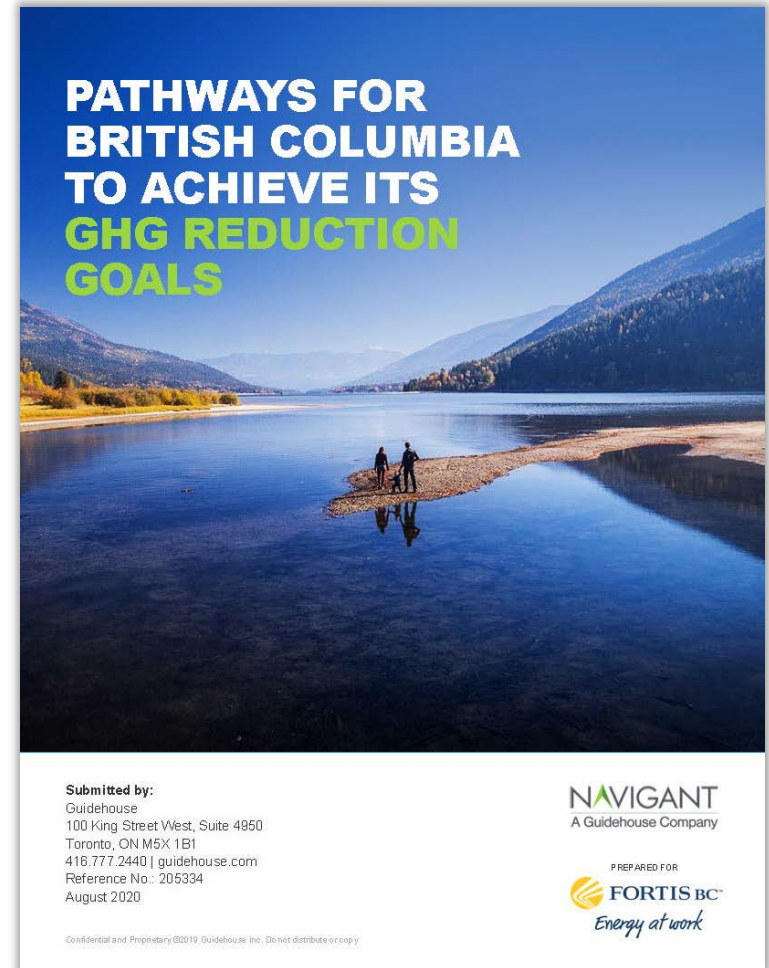




# Alternative pathways

FortisBC commissioned  
Guidehouse to:

- develop pathways for BC to achieve an 80% GHG reduction
- compare two options to get there including Electrification and Diversified Pathways
- analyze GHG reductions, costs, reliability and risks to British Columbians



# Electrification & Diversified Pathways

## Electric Pathway



### Energy efficiency

- Both pathways have similar energy efficiency assumptions



### Fuel switching

- 100% of buildings heat & water to electric. Electric heat pumps key.



### Transportation

- Both assume 100% LD vehicles to EV
- Significant role for EVs in medium and heavy duty (MD/HD) vehicles



### Energy supply

- 3% renewable gas
- 45% electricity

## Diversified Pathway



### Energy efficiency

- Gas heat pumps key



### Fuel switching

- NG to renewable gas
- Small percentage NG to electric



### Transportation

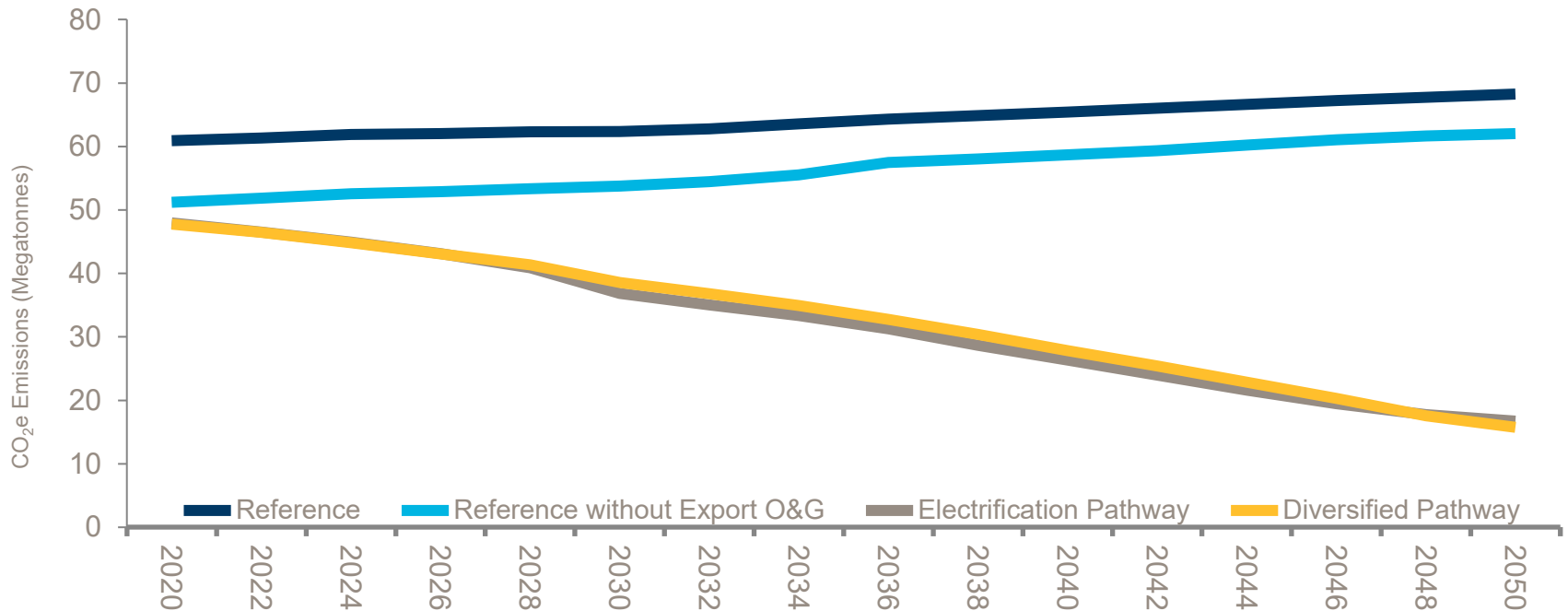
- Significant role for NG in MD & HD vehicles



### Energy supply

- 14% renewable gas
- 37% electricity

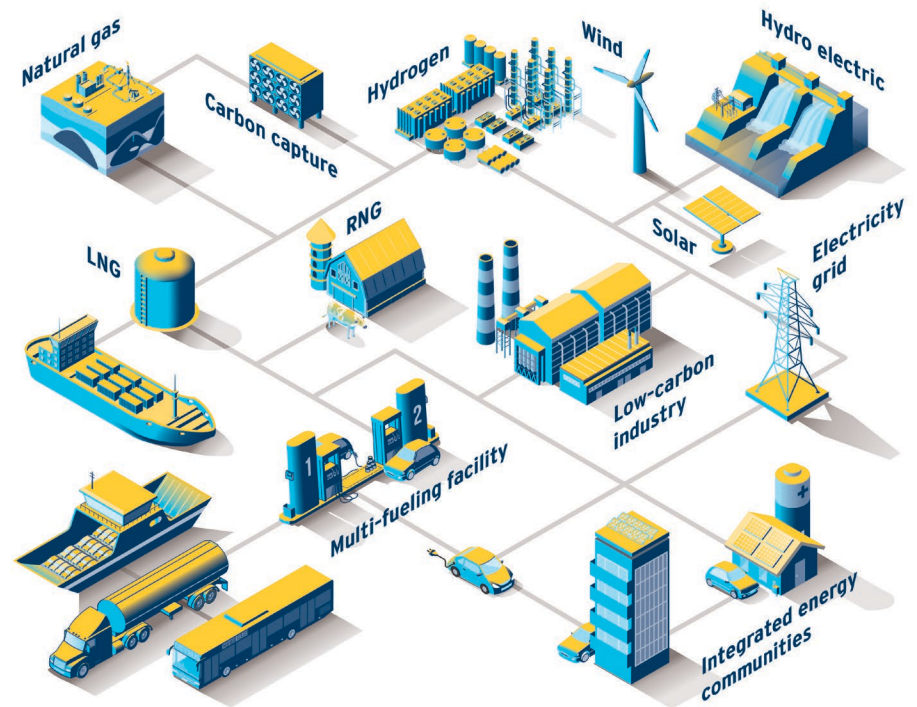
# Both pathways achieve the same level of GHG reductions



Oil and Gas sector emissions attributable to exports are excluded from both the Reference Case emissions and Pathway emissions

# A diversified approach to climate action

- Achieves the Province's **80%** reduction target
- Reduces de-carbonization costs
- Considers peak day demand and related infrastructure
- Provides resiliency and reliability
- It's not either/or, **it's both/and**

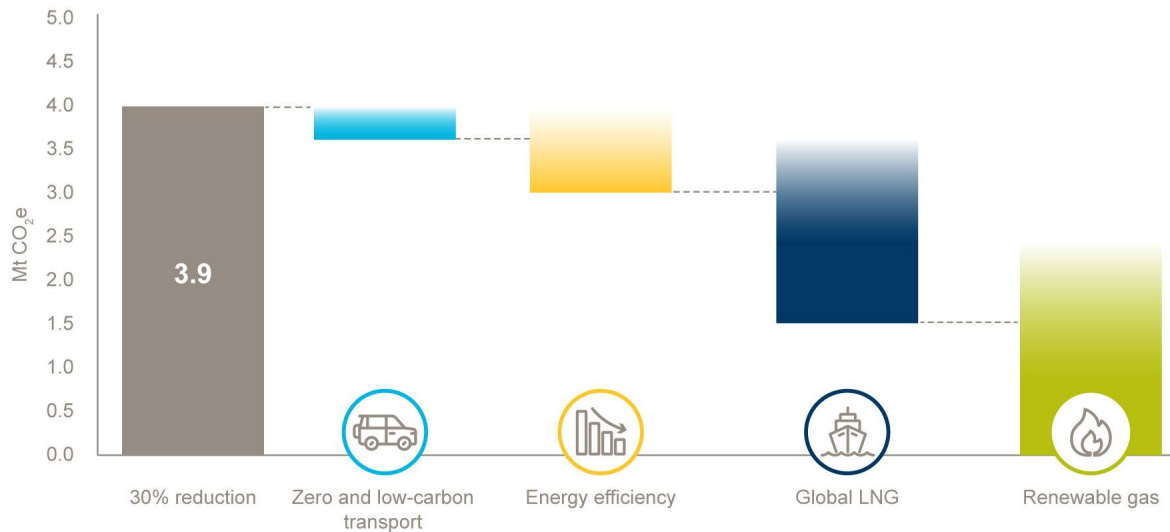


# Our commitment to reducing emissions

We set an ambitious emissions reduction target

Our **30BY30 target** will:

- reduce our customers' GHG emissions by **30%** by **2030**
- be a milestone that we measure our progress by

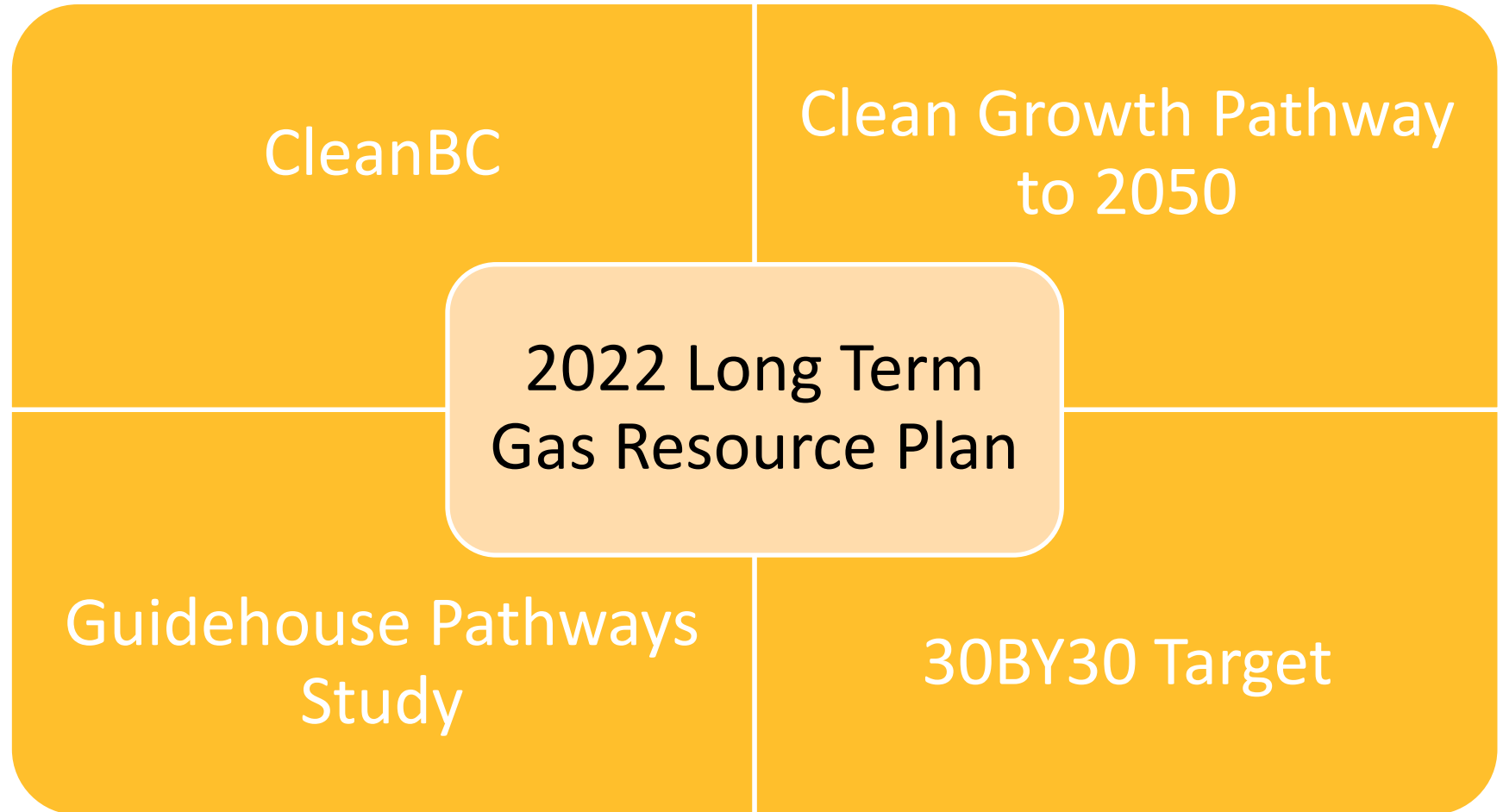




# Clean Growth Innovation Fund

- Investing **\$4.9 million per year**, over the next four years (until 2024), in innovative emissions-reducing projects
  - Renewable natural gas
  - Carbon and methane capture technologies
  - Energy efficiency
- Organizations can **apply for project funding**, with applications being reviewed based on:
  - the amount of co-funding secured from the applicant and/or third parties
  - estimated emissions that will be reduced in BC
  - estimated cost benefit for our customers
  - relevant experience of the project team

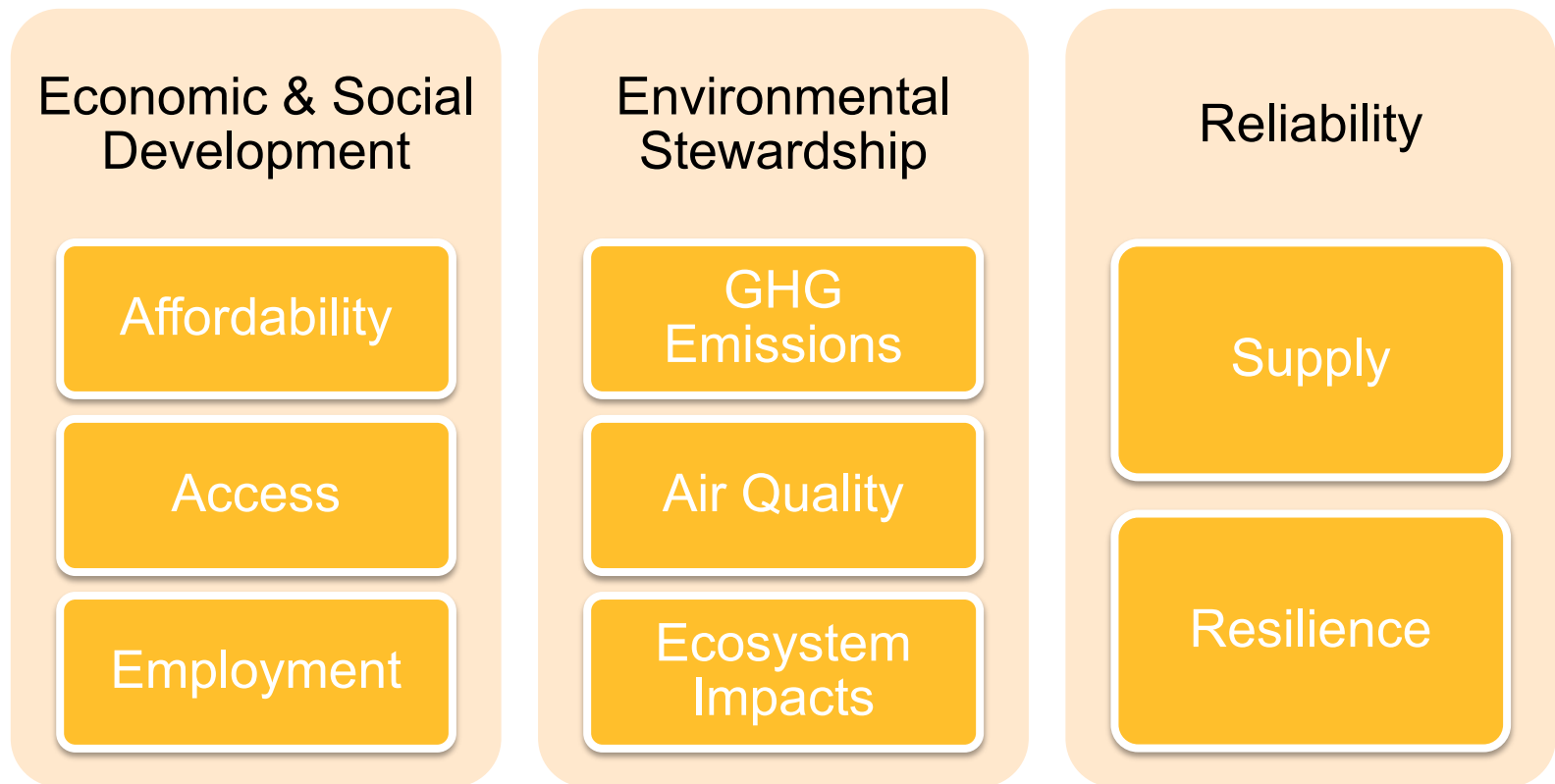
# Resource planning considerations



# Questions for clarification



# Discussion: How does the energy landscape in BC impact you? What are the challenges and opportunities you face?



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# Break



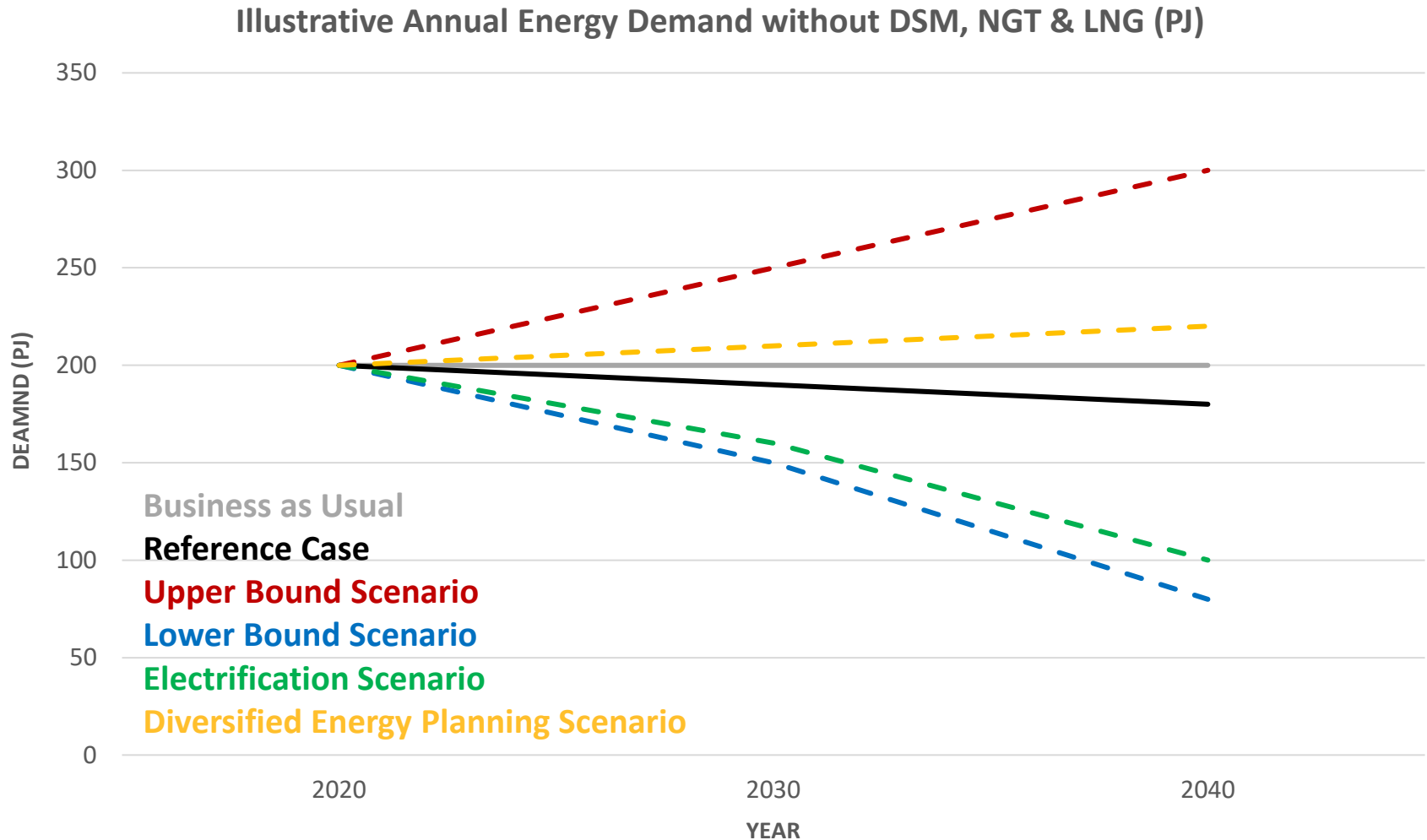
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# Demand forecasting methodology and critical uncertainties

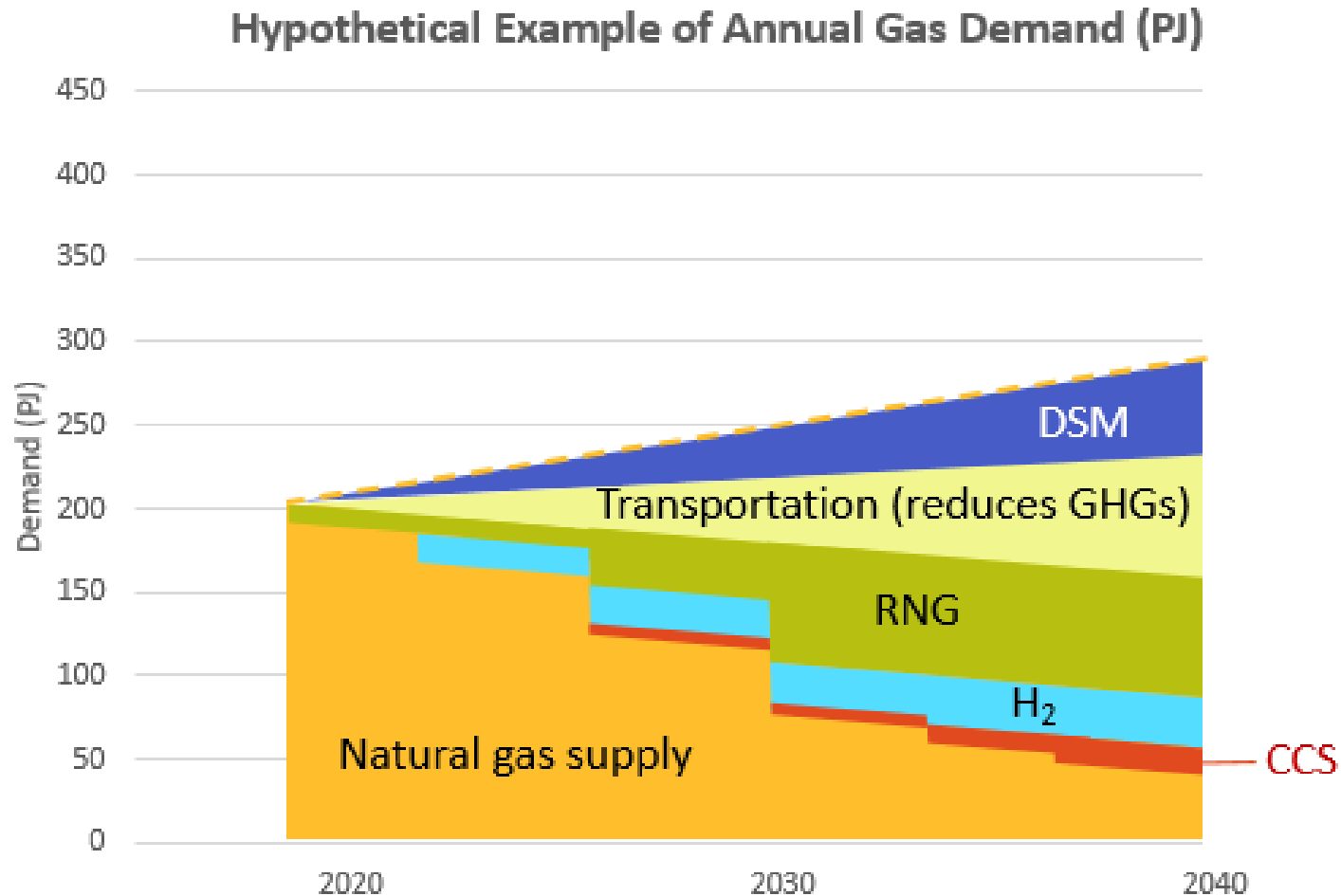


# Demand forecast taxonomy



# Demand and supply balance

## Key to meeting GHG targets

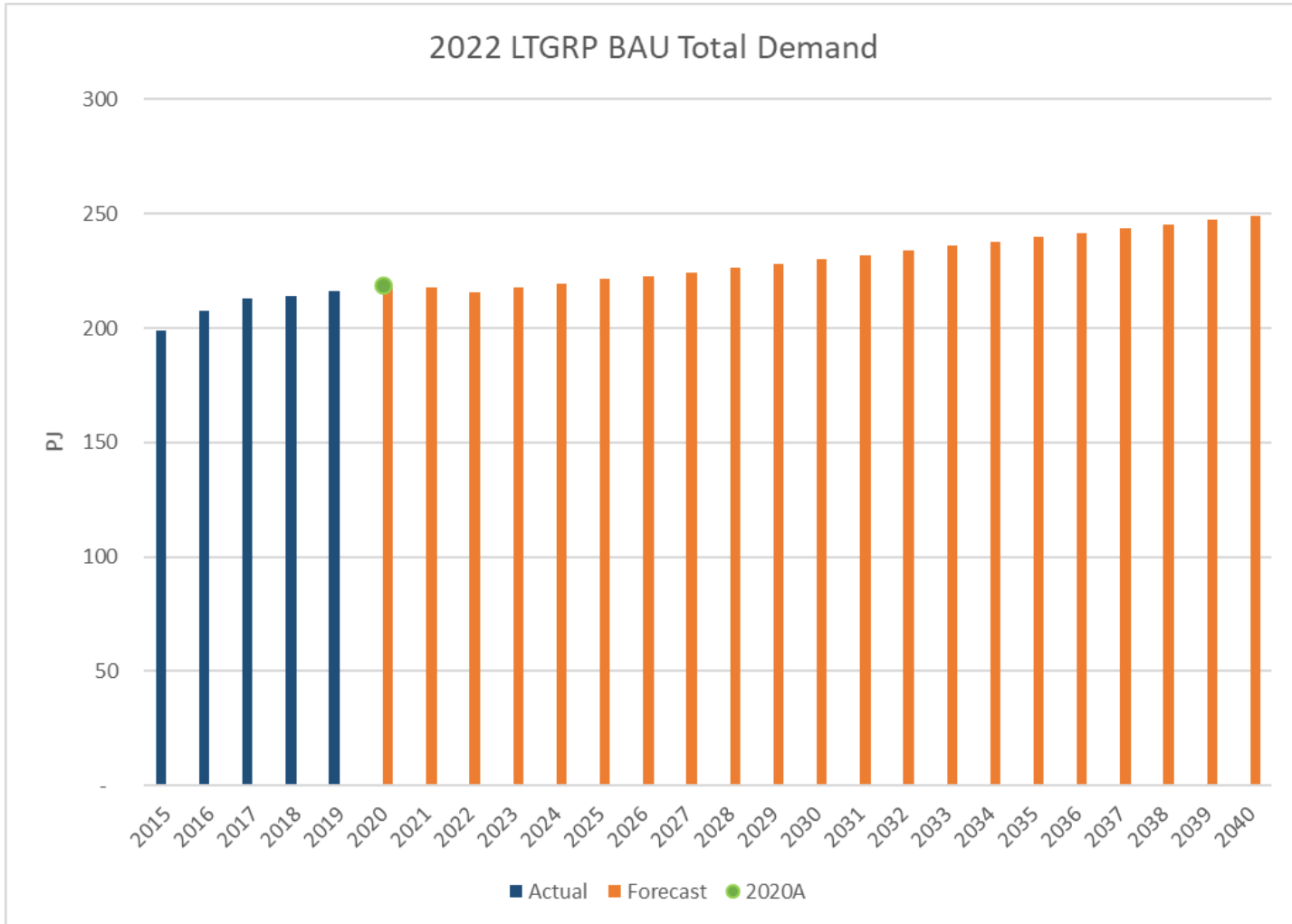




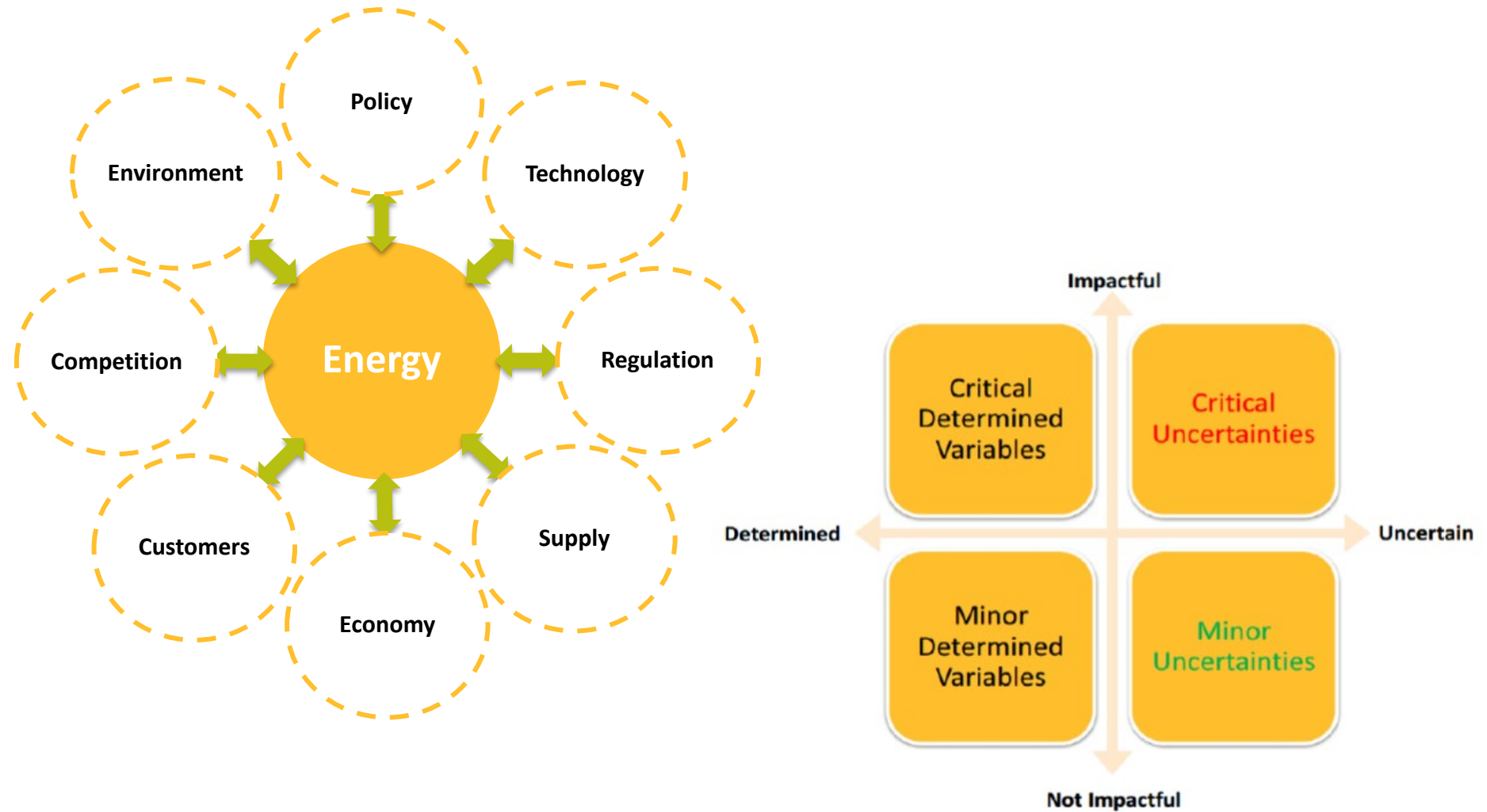
# Business As Usual (BAU) forecast

- Forecast created based on historical trends
- Formerly called the Traditional Forecast
- Assumes similar historical trends will extend into the future and no new changes will occur beyond what we know from looking at the past
- All the drivers intrinsic to the historic demand would continue on exactly the same trajectory they are on now
- Includes the residential, commercial and industrial sectors only, does not include transportation

# Business As Usual (BAU) forecast

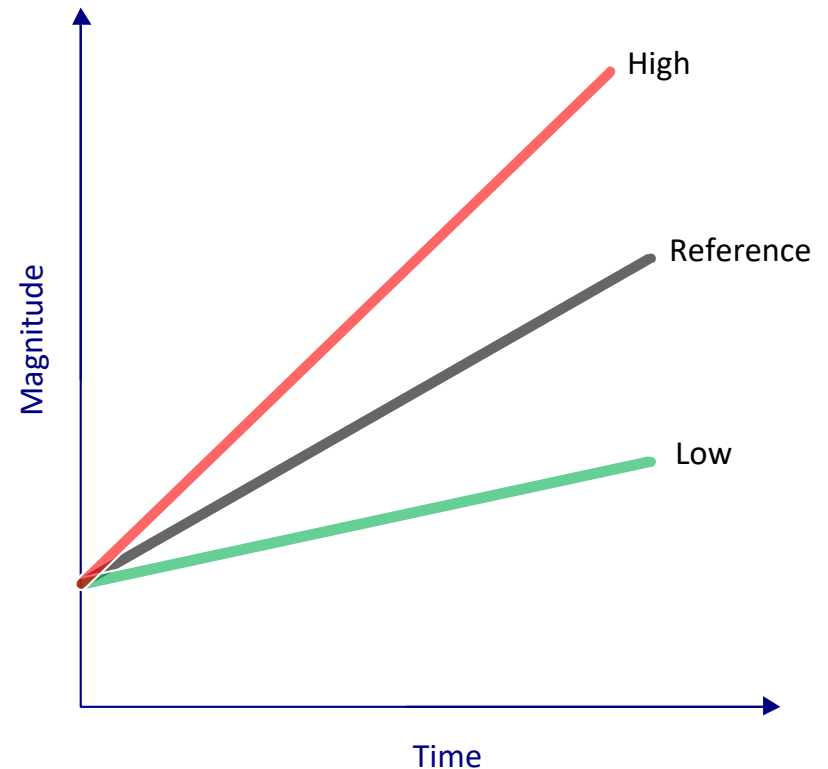


# Identifying critical uncertainties



# Critical Uncertainty input assumptions

- Several trajectories, or “settings”, for each Critical Uncertainty are developed.
- The various settings capture the uncertainty over what the value of these variables may be in the future under different conditions.
- Scenarios are developed by combining different settings for all the Critical Uncertainties.



# Critical Uncertainties for the 2022 LTGRP



**Demand:** variables that impact the annual load that FEI needs to meet.



**Supply & GHG Mitigation:** variables that impact the supply mix that FEI may use to meet demand while reducing GHG emissions relative to if the demand was met with traditional natural gas only.



**Transportation:** demand for compressed natural gas (CNG) and liquefied natural gas (LNG) in the natural gas for transportation sector. Demand for these fuels impact FEI's system and GHG emissions as CNG and LNG displace fuels with higher carbon intensities.



# Demand-Side Critical Uncertainties

| Critical Uncertainty                   | Description   | Impact  |
|--|---|---|
| <b>Appliance Standards</b>             | Minimum energy performance standards for energy-using appliances.   | More stringent standards, demand for natural gas decreases.                   |
| <b>Carbon Price</b>                    | Provincial carbon tax applied to natural gas.   | Carbon price increases, demand for natural gas decreases (and vice versa).    |
| <b>Customer Growth</b>                 | Number of customer accounts by rate class forecasted by FortisBC. Based on confidence intervals of historical data.                                   | Number of customer accounts increase, demand increases (and vice versa).      |
| <b>Natural Gas Price</b>               | Commodity price for traditional natural gas.  | Gas price increases, demand for natural gas decreases (and vice versa).       |
| <b>New Construction Code</b>           | Energy Step Code is the relevant building code for new construction. The energy-requirements are applied to relevant building types and end-uses.     | Code increases in stringency, demand for natural gas decreases.               |
| <b>Non-price Driven Fuel Switching</b> | Fuel switching caused by signals other than prices, such as incentives and policies to encourage customers to switch from natural gas to electricity. | As the target for fuel switching increases, demand for natural gas decreases. |
| <b>Retrofit Code</b>                   | Estimated impact and timing of a retrofit code based on publicly available information.   | Code increases in stringency, demand for natural gas decreases.               |

# Natural Gas for Transportation Critical Uncertainties

| Critical Uncertainty                               | Description   | Impact  |
|--|---|---|
| <b>Natural Gas for Transportation (NGT) Demand</b> | FortisBC's forecasted demand for compressed natural gas (CNG) and liquefied natural gas (LNG) by the transportation sector. | Increase demand for CNG and LNG increases FortisBC's load while providing GHG reduction opportunities as CNG replaces diesel and LNG replaces marine bunker fuel. |
| <b>Liquefied Natural Gas (LNG) Export Demand</b>   | Export of LNG to other jurisdictions.   | Increase demand for LNG Export increases FortisBC's load while also providing GHG reduction opportunity as LNG replaces fuels that burn more GHGs.                |

# Supply-Side & GHG Mitigation Critical Uncertainties

| Critical Uncertainty                      | Description  | Impact   |
|---|--|--|
| <b>Carbon Capture &amp; Storage (CCS)</b> | A carbon is captured from either the combustion of traditional natural gas or from the atmosphere. The captured carbon is then sequestered, or stored, underground so it is not emitted. | CCS lowers overall GHG emissions, no impact on natural gas demand.   |
| <b>Hydrogen (H2) Supply</b>               | Hydrogen used as a fuel source.  | H2 displaces traditional natural gas thereby helping to meet demand while lowering GHG emissions.          |
| <b>Renewable Natural Gas (RNG) Supply</b> | Renewable natural gas used as a fuel source.   | RNG displaces traditional natural gas thereby helping to meet demand while lowering GHG emissions.         |
| <b>Syngas &amp; Lignin Supply</b>         | Syngas and lignin used as fuel sources.  | Syngas & lignin displace traditional natural gas thereby helping to meet demand while lower GHG emissions. |

# Questions for clarification



# Discussion: Which critical uncertainties are of most interest to you and why? Which ones represent new opportunities or challenges for you?

## **Demand-Side:**

- Appliance Standards
- Carbon Price
- Customer Growth
- Natural Gas Price
- New Construction Code
- Non-price Driven Fuel Switching
- Retrofit Code

## **Supply-Side & GHG Mitigation:**

- Carbon Capture & Storage (CCS)
- Hydrogen (H<sub>2</sub>)
- Renewable Natural Gas (RNG)
- Syngas & Lignin

## **Transportation:**

- Compressed Natural Gas (CNG)
- Liquefied Natural Gas (LNG)
- Liquefied Natural Gas (LNG) Exports

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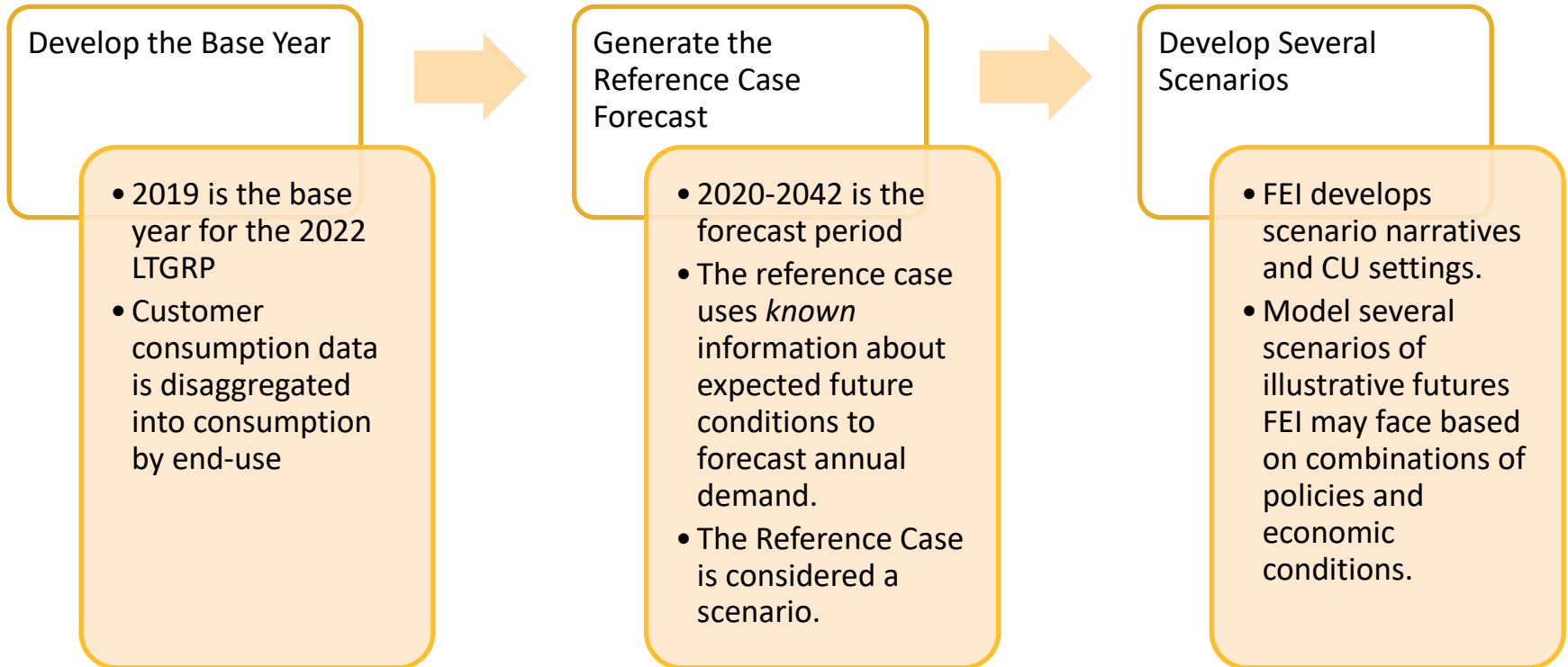


# Exploring future demand scenarios

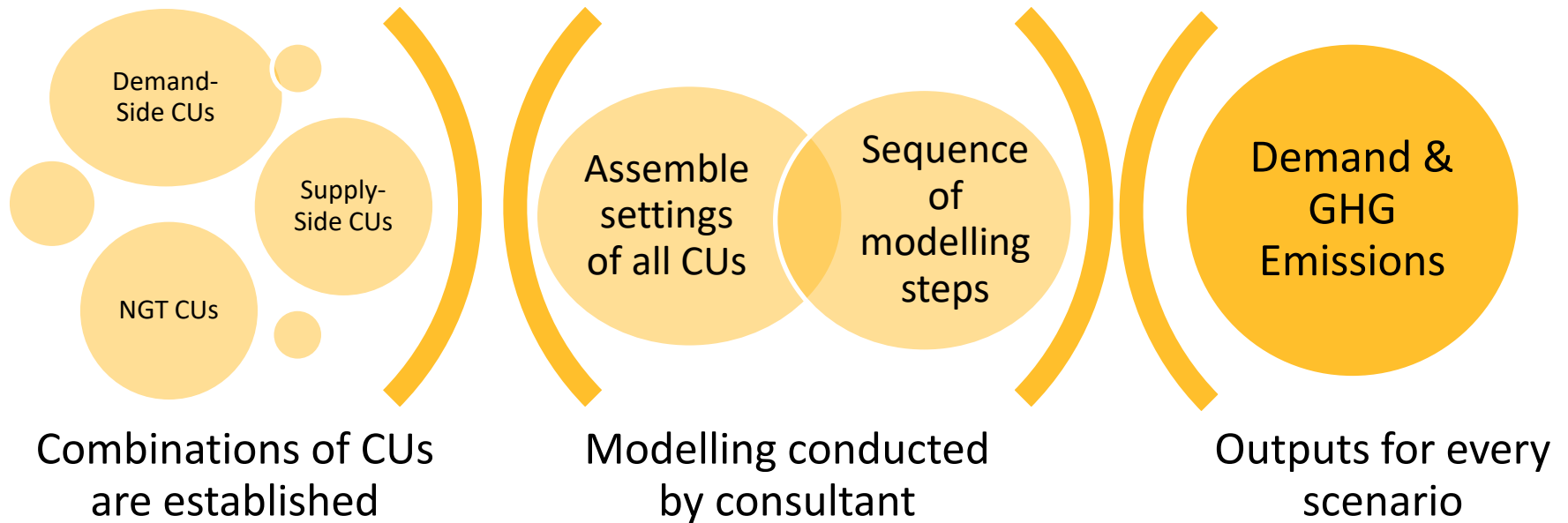


# Purpose of scenario analysis

- Scenarios are not designed to predict the future, but rather to consider possible futures. The result is not an accurate picture of tomorrow, but better decisions about the future.
- The purpose of developing several, distinct scenarios is to provide a range of futures to support planning. Probabilities are not assigned to the scenarios.



# Building scenarios from Critical Uncertainties



# Demand scenario analysis

- Lower Bound Scenario
- Upper Bound Scenario
- Reference Case
- Diversified Energy Planning Scenario
- Deep Electrification Scenario
- Economic Stagnation Scenario
- Price-based Regulation Scenario

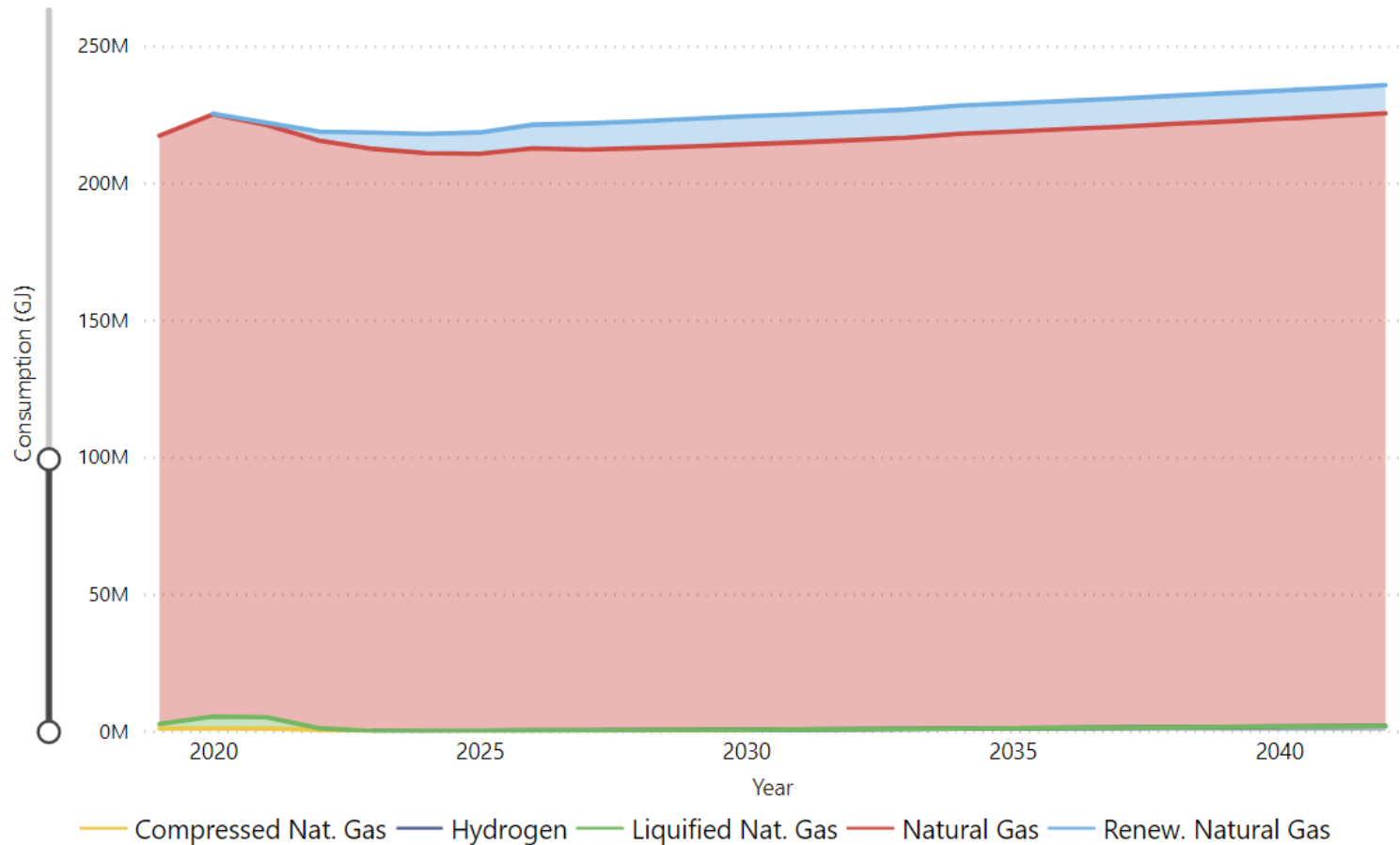
# Reference Case Scenario

- The Reference Case incorporates expected continuation of current policies and market conditions, including known expected changes in codes, standards, carbon price, etc. and trends in changes in building stock.
- This scenario is the starting point for the various other scenarios that we create
- In the past, we planned to the Reference Case but for this plan this is no longer the case

| Critical Uncertainty   | Setting   |
|------------------------|-----------|
| Appliance Standards    | Reference |
| CCS                    | Reference |
| Carbon Price           | Reference |
| Customer Growth        | Reference |
| Fuel Switching         | Reference |
| Hydrogen Supply        | Reference |
| LNG Export Demand      | Reference |
| NGT Demand             | Reference |
| Natural Gas Price      | Reference |
| New Construction Code  | Reference |
| Retrofit Code          | Reference |
| RNG Supply             | Reference |
| Syngas & Lignin Supply | Reference |

# Reference Case Scenario: All Piped Fuels

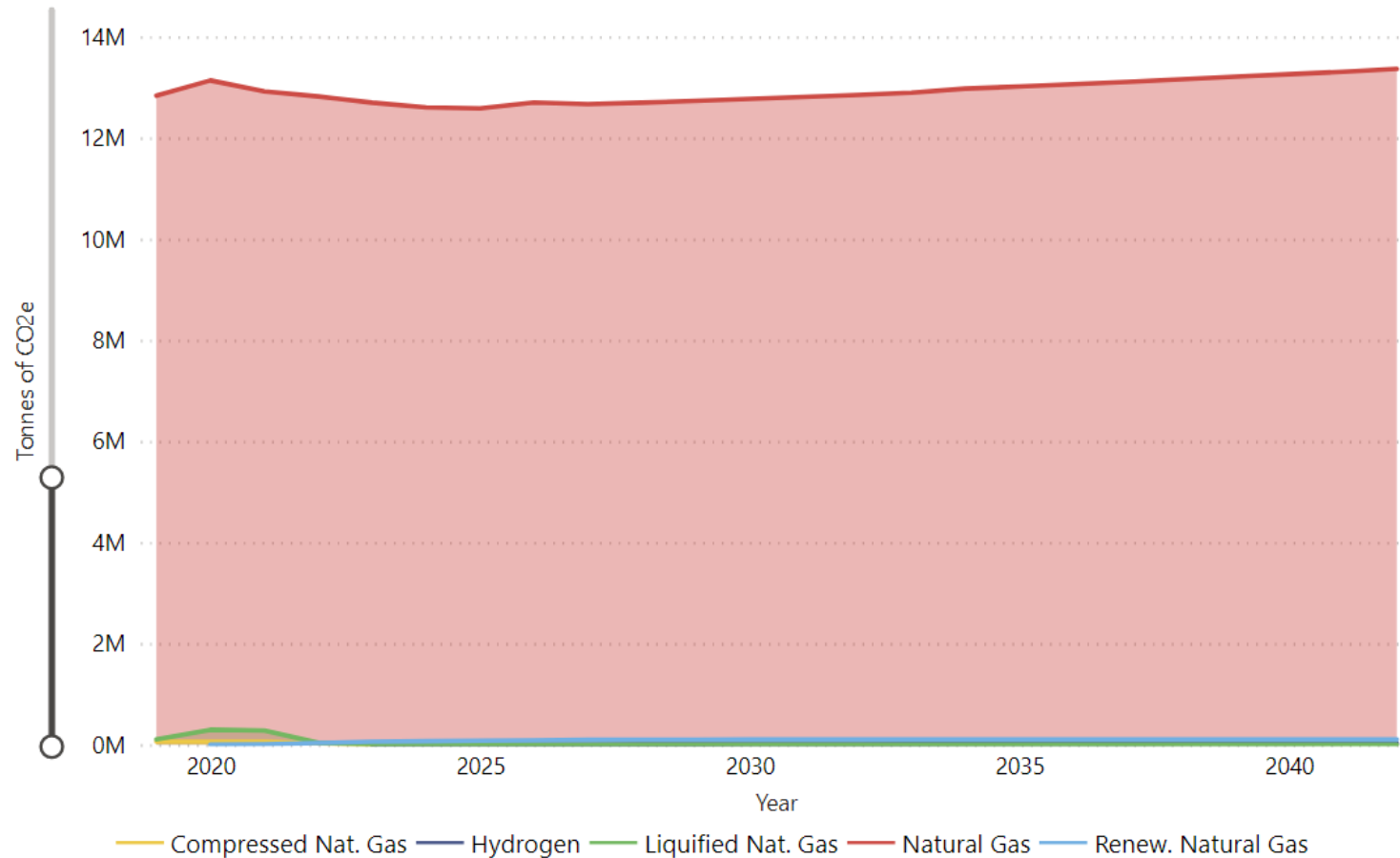
## Demand





# Reference Case Scenario: All Piped Fuels

## GHG Emissions



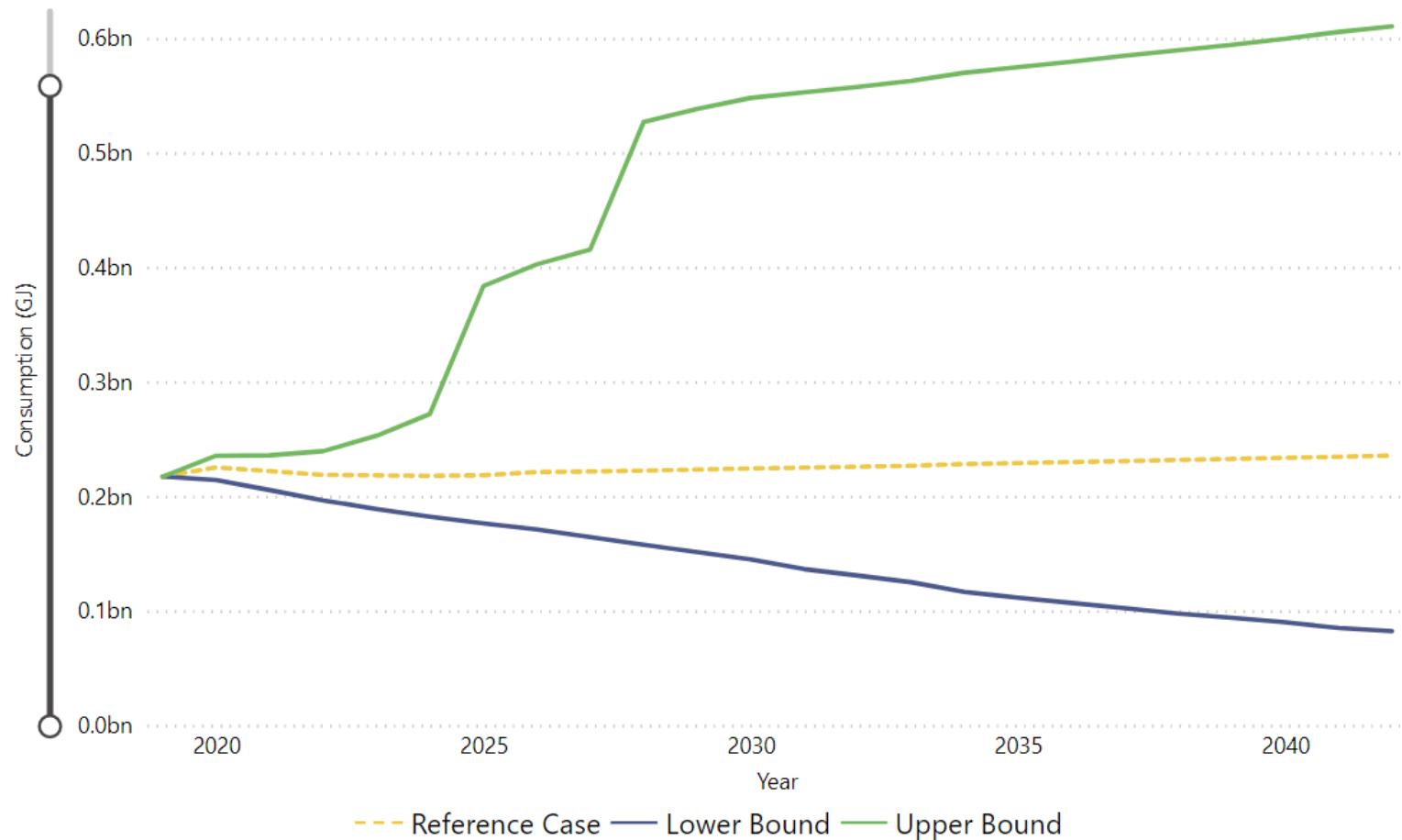
# Upper & Lower Bound Scenarios

- The Upper and Lower Bound scenarios are not designed to reflect a single coherent narrative of a future possible world, but rather to understand the notional upper and lower bound for total volume.
- These scenarios provide the “jaws” under which the other scenarios fall.

| Critical Uncertainty   | Lower Bound Setting | Upper Bound Setting |
|------------------------|---------------------|---------------------|
| Appliance Standards    | Accelerated         | Reference           |
| CCS                    | Reference           | High                |
| Carbon Price           | High                | Low                 |
| Customer Growth        | Low                 | High                |
| Fuel Switching         | Extensive           | Reference           |
| Hydrogen Supply        | Low                 | High                |
| LNG Export Demand      | Reference           | High                |
| NGT Demand             | Low                 | High                |
| Natural Gas Price      | High                | Low                 |
| New Construction Code  | Accelerated         | Delayed             |
| Retrofit Code          | Accelerated         | Reference           |
| RNG Supply             | Low                 | High                |
| Syngas & Lignin Supply | Reference           | High                |

# Upper and Lower Bounds: All Piped Fuels

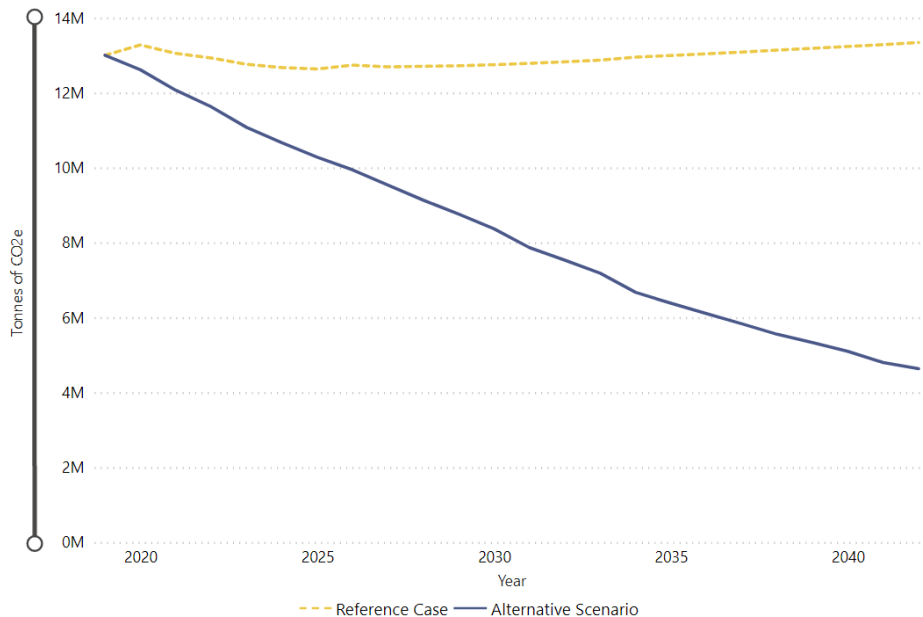
## Demand



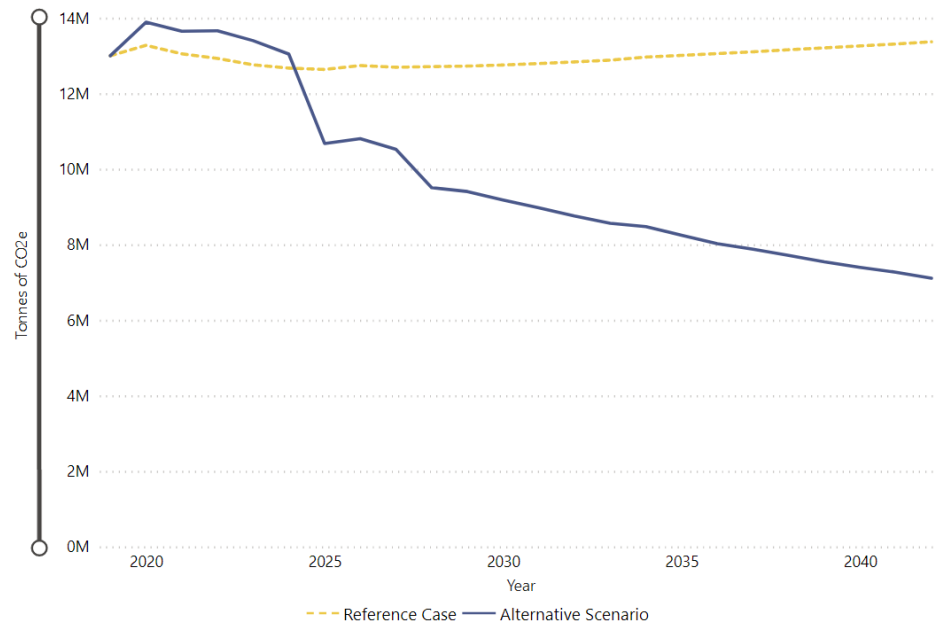
# Upper and Lower Bounds: All Piped Fuels

## GHG Emissions

Lower Bound vs. Reference Case



Upper Bound vs. Reference Case



# Diversified Energy Planning Scenario

- Incorporates expanding electricity use while maintaining the use of the gas distribution system. Emissions reductions are characterized more by de-carbonizing the gas distribution system rather than electrification.
- The scenario includes expansion of natural gas for transportation while increasingly relying on renewable gas supply.
- This is the scenario FEI will plan to and incorporates the 30BY30 targets.

| Critical Uncertainty     | Setting   |
|--------------------------|-----------|
| Appliance Standards      | Reference |
| CCS                      | Planning  |
| Carbon Price             | Planning  |
| Customer Growth          | Reference |
| Fuel Switching           | Moderate  |
| Hydrogen Supply          | Planning  |
| LNG Export Demand        | Planning  |
| NGT Demand               | Planning  |
| Natural Gas Price        | Reference |
| New Construction Code    | Reference |
| Retrofit Code            | Reference |
| RNG Supply               | Planning  |
| Syngas and Lignin Supply | Planning  |

# Deep Electrification Scenario

- The BC government does not increase carbon taxes to avoid electoral backlash but uses all other policy levers to electrify the economy in order to achieve domestic carbon abatement.
- Government also promotes CCS for non-electrified sectors. Such policies create constraints for the BC economy and reduce the uptake of NGT solutions and renewable gases.
- To support economic growth, the BC government supports LNG exports to other jurisdictions. Despite these exports, the domestic shift towards electricity causes a regional natural gas supply glut, leading to low regional gas prices.

| Critical Uncertainty     | Setting     |
|--------------------------|-------------|
| Appliance Standards      | Accelerated |
| CCS                      | High        |
| Carbon Price             | Planning    |
| Customer Growth          | Low         |
| Fuel Switching           | Accelerated |
| Hydrogen Supply          | Low         |
| LNG Export Demand        | Planning    |
| NGT Demand               | Low         |
| Natural Gas Price        | Low         |
| New Construction Code    | Accelerated |
| Retrofit Code            | Accelerated |
| RNG Supply               | Low         |
| Syngas and Lignin Supply | Reference   |



# Economic Stagnation Scenario

- The BC economy experiences lower-than average growth as part of a global economic downturn which reduces excess regional demand for natural gas and keeps BC's gas supply abundant.
- Global economic performance reinforces trends towards the right of the political spectrum and causes governments to focus on areas other than climate policy.
- The economic environment has some negative impact on LNG exports and significant negative impact on NGT.

| Critical Uncertainty     | Setting   |
|--------------------------|-----------|
| Appliance Standards      | Reference |
| CCS                      | Reference |
| Carbon Price             | Low       |
| Customer Growth          | Low       |
| Fuel Switching           | Reference |
| Hydrogen Supply          | Reference |
| LNG Export Demand        | Reference |
| NGT Demand               | Low       |
| Natural Gas Price        | Low       |
| New Construction Code    | Delayed   |
| Retrofit Code            | Reference |
| RNG Supply               | Reference |
| Syngas and Lignin Supply | Reference |

# Priced-based Regulation Scenario

- The BC government concludes that price signals and more ambitious upstream emissions reductions provide the best solution for carbon abatement and refrains from other forms of regulation.
- The price signals boost development of renewable gases, CCS, and NGT. Upstream methane emissions regulations increase regional gas commodity costs.
- The policy environment has limited impacts on economic growth and LNG Exports.

| Critical Uncertainty     | Setting   |
|--------------------------|-----------|
| Appliance Standards      | Reference |
| CCS                      | High      |
| Carbon Price             | High      |
| Customer Growth          | Reference |
| Fuel Switching           | Reference |
| Hydrogen Supply          | High      |
| LNG Export Demand        | Reference |
| NGT Demand               | High      |
| Natural Gas Price        | High      |
| New Construction Code    | Reference |
| Retrofit Code            | Reference |
| RNG Supply               | High      |
| Syngas and Lignin Supply | High      |

# Questions for clarification



Discussion: How does what we've discussed today influence your thinking on energy needs and priorities?

Is there anything else you'd like us to consider as we finalize the demand scenarios and plan for meeting future energy needs?

**Cost**

**Economic  
Growth**

**Energy  
Efficiency**

**Environment**

**Reliability**

**Accessibility  
& Safety**

# Agenda for the session

1. Welcome, introductions and session overview **(10 min.)**
2. FortisBC's initiatives in the North Interior **(15 min)**
3. Brief overview of the resource planning process **(10 min)**
4. Energy planning landscape in BC **(45 min)**
  - **Discussion: How does the energy landscape in BC impact you?**
5. Break **(10 min)**
6. Demand forecasting methodology and critical uncertainties **(45 min)**
  - **Discussion: Which critical uncertainties are of most interest to you and why?**
7. Exploring future demand scenarios **(35 min)**
  - **Discussion: How does what we've discussed today influence your thinking on energy needs and priorities?**
8. Ongoing resource planning work **(5 min)**
9. Wrap-up and next steps **(5 min)**

# Ongoing resource planning work





# Ongoing resource planning work

- Demand-side management
- Supply considerations
- System considerations and infrastructure projects
- Rate implications and ongoing analysis of alternative energy futures
- Addressing transformative change
- Action plan



# Questions for clarification



# Agenda for the session

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9. Wrap-up and next steps **(5 min)**

# Wrap-up and next steps



# Wrap-up and next steps

- Thank you for your input and feedback today, we appreciate it
- We will be sharing the meeting notes with you shortly
- Additional engagement session will take place throughout the year
- Feedback for the resource plans can be addressed to [irp@fortisbc.com](mailto:irp@fortisbc.com)
- Any questions or concerns can be addressed to [getinvolved@fortisbc.com](mailto:getinvolved@fortisbc.com)

**Filing Date: FortisBC Long Term Gas Resource Plan (March 31, 2022)**

# Thank you



For further information, please contact:

**Resource Planning Questions & Feedback**

**[irp@fortisbc.com](mailto:irp@fortisbc.com)**

**General Questions & Feedback**

**[getinvolved@fortisbc.com](mailto:getinvolved@fortisbc.com)**

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