

# Integrated Resource Plan Workshop

April 2022



# Land acknowledgment

Manitoba Hydro has a presence across this province on Treaty 1, Treaty 2, Treaty 3, Treaty 4 and Treaty 5 lands and the original territories of the Anishinabe, Cree, Oji-Cree, Dakota, Dene peoples and homeland of the Métis nation.

We acknowledge these lands and pay our respects to the ancestors of these territories.

# Welcome!

- Introductions
- Today's agenda
- Housekeeping

# Today's objectives

- Confirm understandings
- Discuss your perspectives
- Discuss future engagement

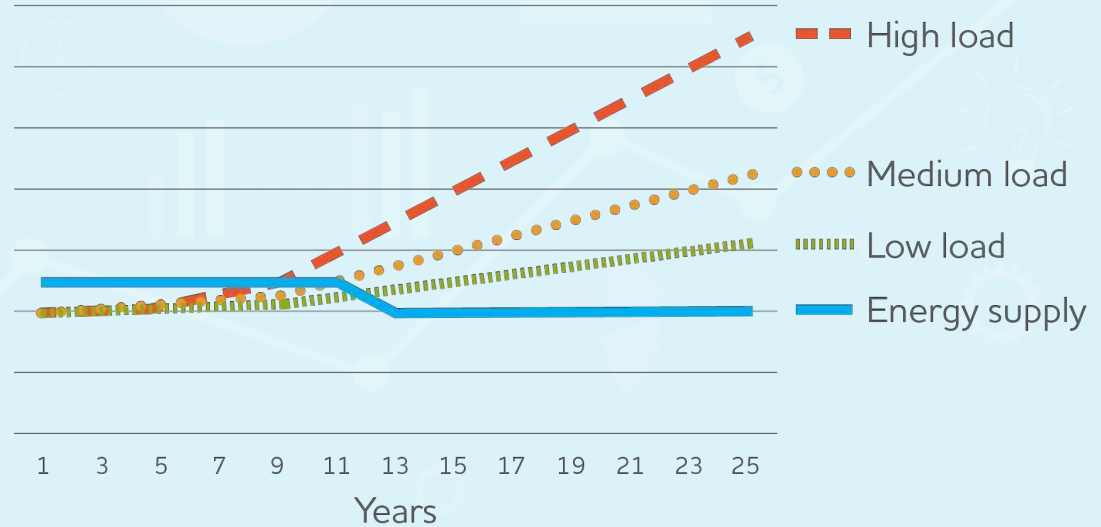


# THE INTEGRATED RESOURCE PLAN PROCESS

# Why we do energy planning?

## Manitoba Hydro must:

- Ensure a sufficient supply of safe, reliable energy that responsibly meets the evolving energy needs of Manitobans



Example supply/demand comparison

# Our energy planning is evolving

## The energy landscape is changing



Decarbonization



Decentralization



Digitalization

# Planning in a changing energy landscape

## Uncertainty within energy planning time horizon

- 20 years into the future

## Strategy 2040

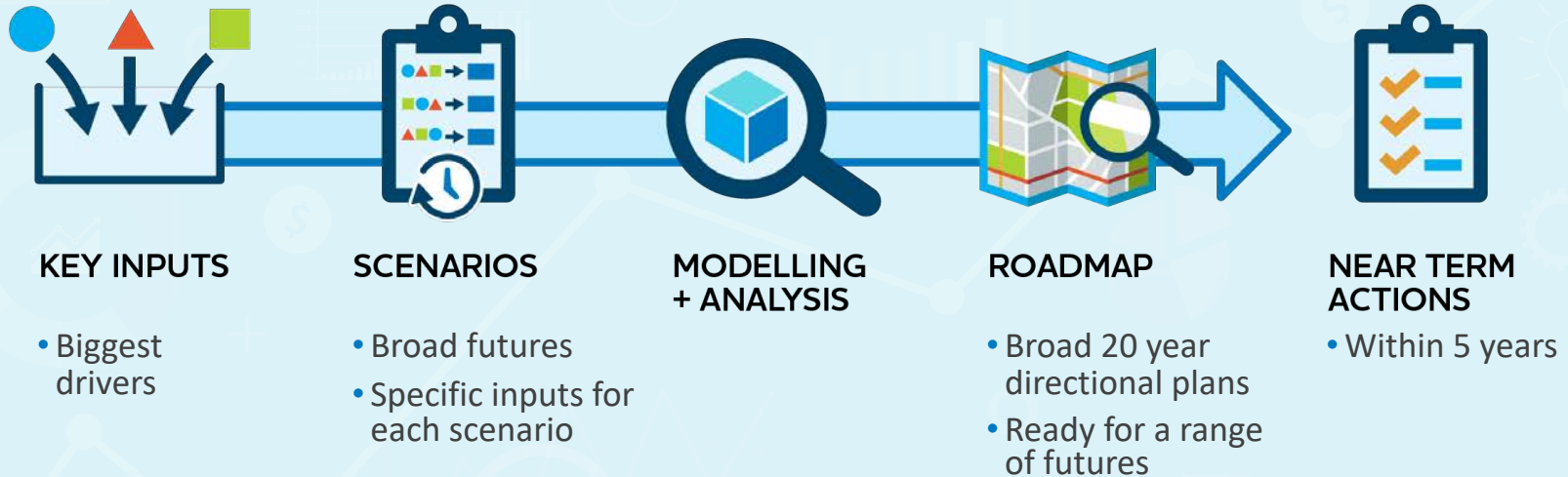
- Includes Integrated Resource Planning



# What is Integrated Resource Planning?

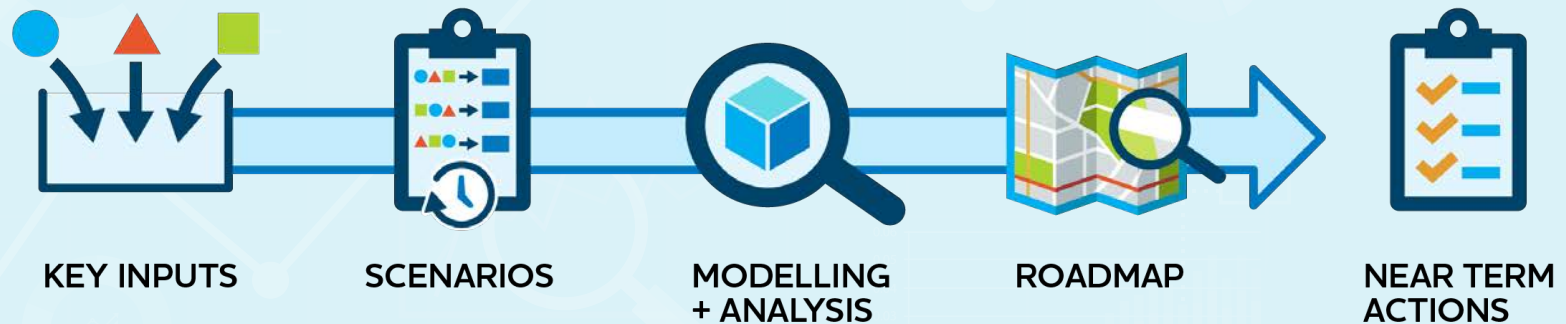
- Creates pathways for meeting customer needs
- Considers all energy infrastructure and other factors
- Identifies potential scenarios
- Informed by engagement
- Repeatable process

# Steps in the Integrated Resource Plan (IRP) process

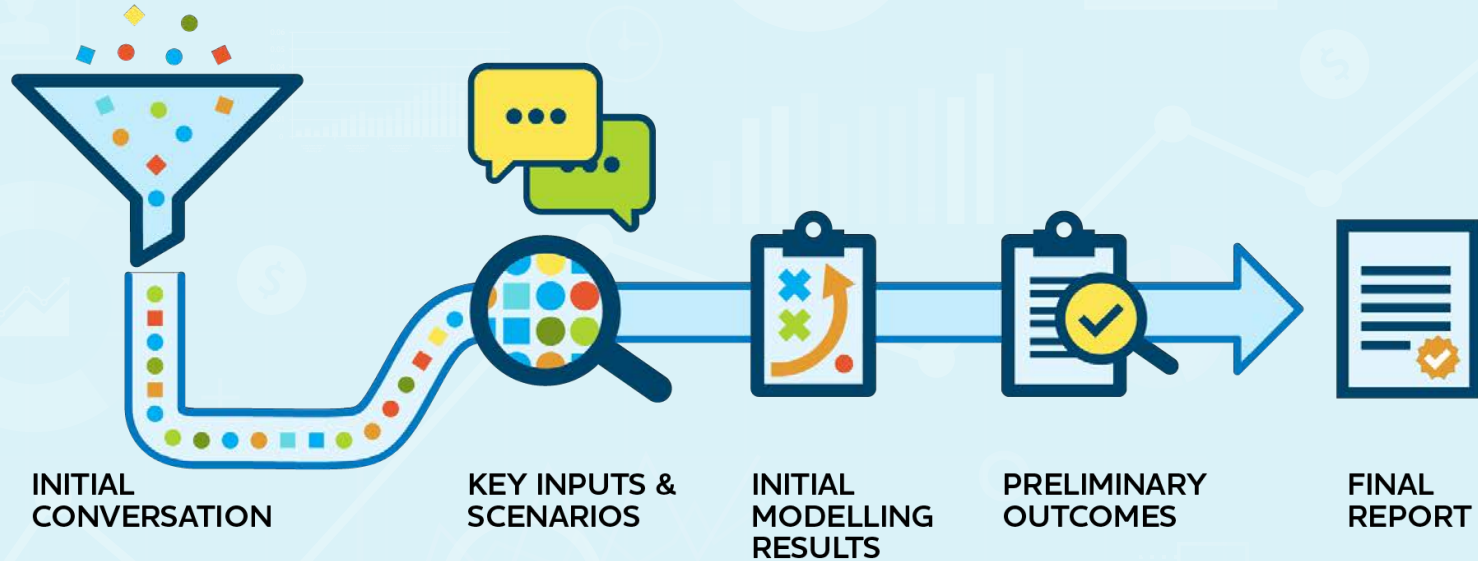


# Definitions

- **KEY INPUT** – an input with potential to significantly impact future energy needs
- **SCENARIO** – combination of inputs resulting in specific energy future
- **ROADMAP** – long-term strategies to prepare for one or more energy futures
- **NEAR TERM ACTIONS** – steps needed in 5-year horizon to increase readiness



# Conversations in the IRP Process



# An IRP in Summary

## An IRP results in:

- A description of potential scenarios
- Pathways for those scenarios
- A long-term roadmap for meeting our customers' energy needs
- Near term actions



# PHASE 1 ENGAGEMENT

## WHAT WE HEARD FROM THE CUSTOMER SURVEY

# Phase 1 engagement

## Customer survey



### Objectives of Phase 1 engagement: Initial conversation

- Start a conversation
- Understand values
- Understand future energy decisions

# Phase 1 engagement

## Customer survey



### Survey review

- Nearly 15,000 responses
- Good geographical representation
- Strong response rate from residential customers

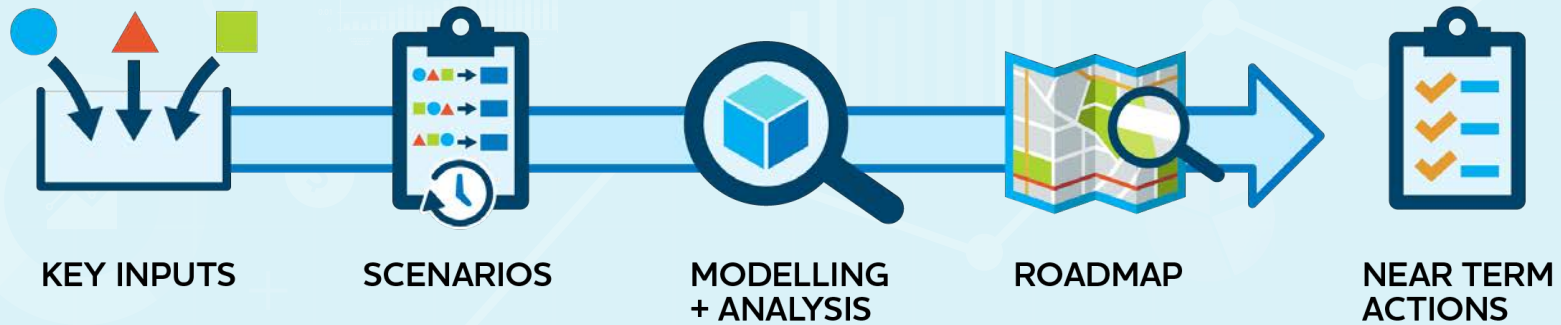


# Phase 1 engagement

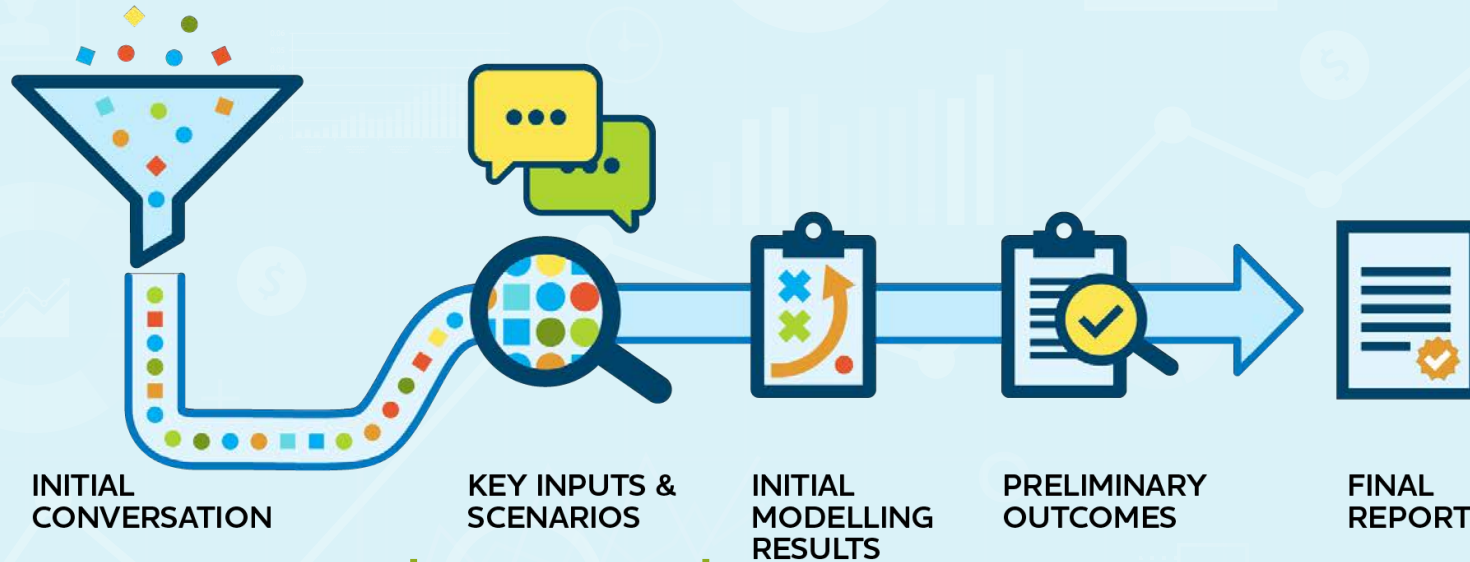
## What we heard

What we heard	How it will be used in the Integrated Resource Plan
Strongly motivated by cost and affordability	Favour options that minimize cost for customers
Reliability and environmental concerns important	Address in metrics used to compare options
Engaged and interested in how rates are structured	Rates important factors in comparison of options
Electric vehicles increasingly in near-term plans	Adoption a key input in scenarios; more research
Not looking to electrify their natural gas uses	Evolving roles are key inputs; more research and engagement
Quick adoption of self-generation not expected	

# Where we are in the Integrated Resource Plan development process



# Where we are in the Integrated Resource Plan conversation





# KEY INPUTS



# Key inputs

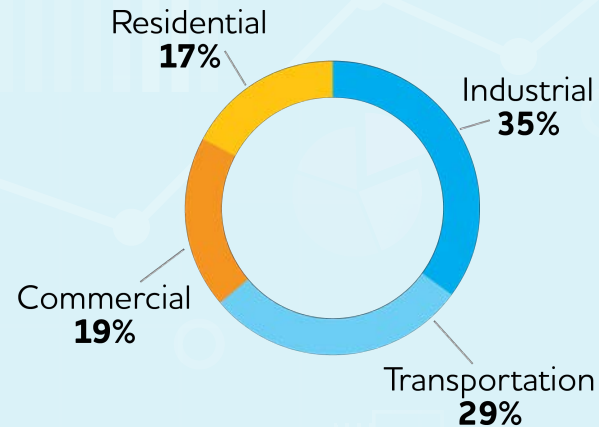
-  Economic growth
-  Decarbonization policy
-  Electric vehicles
-  Natural gas changes
-  Customer self-generation  
(ex. non-utility solar or wind)



# Economic growth

## Factors creating uncertainty in pace of change:

- Global economic environment
- Commodity prices
- Population growth/immigration
- Business development



Manitoba energy use by sector (2017)

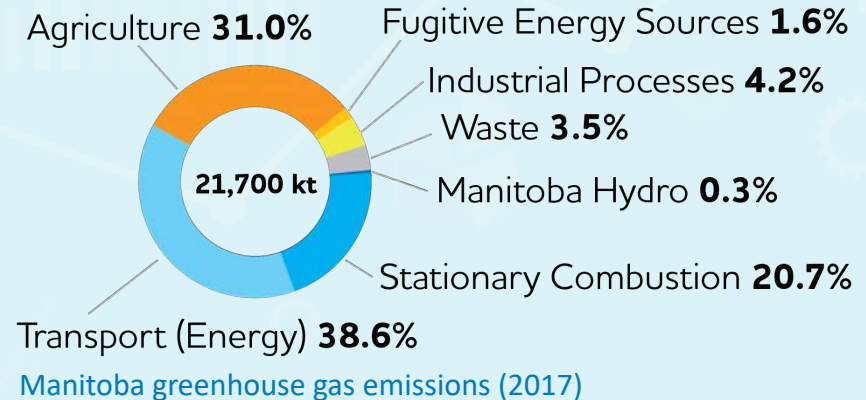
Source: Canada Energy Regulator. <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-manitoba.html>



# Decarbonization policy

## Factors creating uncertainty in pace of change:

- International climate change commitments
- Government policy
- Viability of new technologies
- Available incentives



Source: ECCC (2019b). 2019 National Inventory Report 1990-2017: Greenhouse Gas Sources and Sinks in Canada - Part 3. Government of Canada, Ottawa, ON, Canada. Retrieved from <https://unfccc.int/documents/194925>

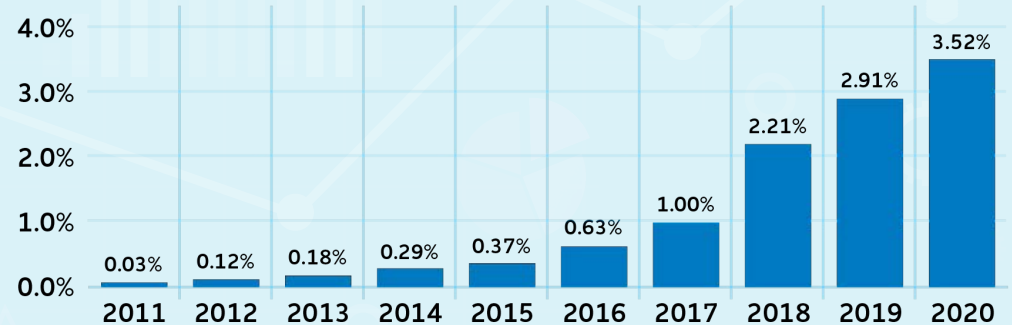




# Electric Vehicles (EVs)

## Factors creating uncertainty in pace of change:

- Cost of new EVs
- Available incentives
- Availability of charging infrastructure
- Perceived EV adequacy
- Policy/mandates/standards



Proportion of zero-emission vehicles (ZEV) registrations in Canada

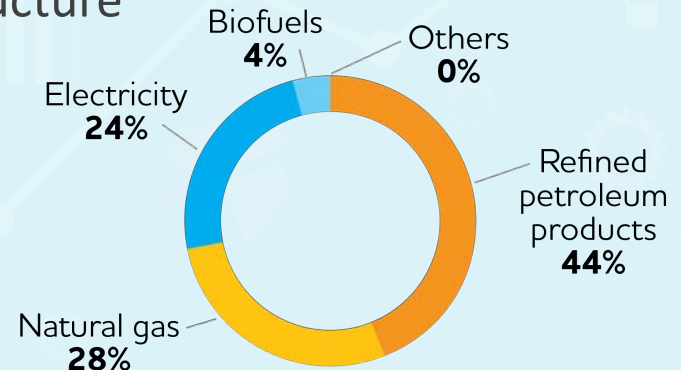
Source: Statistics Canada, New Motor Vehicle Registration Survey, 2020.  
<https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2021033-eng.htm>



# Natural gas changes

## Factors creating uncertainty in pace of change:

- Cost of natural gas alternative infrastructure
- Cost of natural gas vs. electricity
- Availability & cost of alternative fuels
- Dual fuel programs
- Available incentives
- Viability of industrial process energy alternatives
- Policy/mandates/standards



Manitoba end-use energy by fuel (2017)

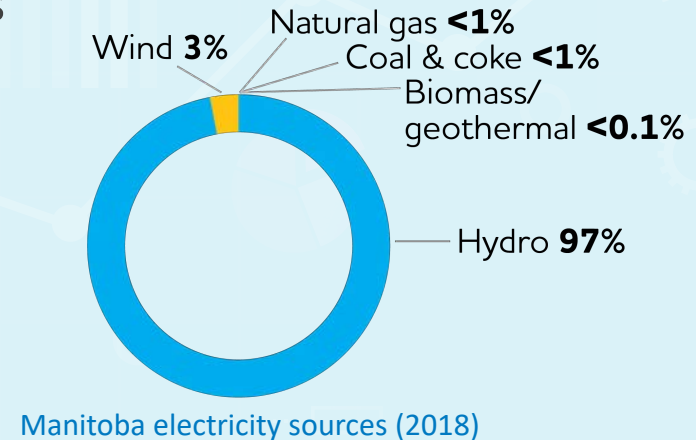
Source: Canada Energy Regulator. <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-manitoba.html>



# Customer self-generation

## Factors creating uncertainty in pace of change:






- Cost of behind the meter resources
- Cost of electricity
- Electric rate structure
- Available incentives
- Policy/mandates/standards



Source: Canada Energy Regulator. <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-manitoba.html>

# Summary

## Key inputs and factors creating uncertainty in pace of change

 <b>Economic growth</b>	 <b>Decarbonization policy</b>	 <b>Electric vehicles (EVs)</b>	 <b>Natural gas changes</b>	 <b>Customer self-generation</b>
<ul style="list-style-type: none"><li>• Global economic environment</li><li>• Commodity prices</li><li>• Population growth/immigration</li><li>• Business development</li></ul>	<ul style="list-style-type: none"><li>• International climate change commitments</li><li>• Government policy</li><li>• Viability of new technologies</li><li>• Available incentives</li></ul>	<ul style="list-style-type: none"><li>• Cost of new EVs</li><li>• Available incentives</li><li>• Availability of charging infrastructure</li><li>• Perceived EV adequacy</li><li>• Policy/mandates/standards</li></ul>	<ul style="list-style-type: none"><li>• Cost of natural gas alternative infrastructure</li><li>• Cost of natural gas vs. electricity</li><li>• Availability &amp; cost of alternative fuels</li><li>• Dual fuel programs</li><li>• Available incentives</li><li>• Viability of industrial process energy alternatives</li></ul>	<ul style="list-style-type: none"><li>• Cost of behind the meter resources</li><li>• Cost of electricity</li><li>• Purchase price of excess electricity</li><li>• Electric rate structure</li><li>• Available incentives</li><li>• Policy/mandates/standards</li></ul>

# Why we need discussion on key inputs

- To inform research, data and forecasts
- To include perspectives and opinions

# Discussion

Have we captured the most relevant key inputs that will significantly impact energy needs in the next 20 years?



**BREAK**



# SCENARIOS



# Why are we looking at scenarios?

## Energy landscape is changing

- Uncertainty about policies

## Need to prepare for the future

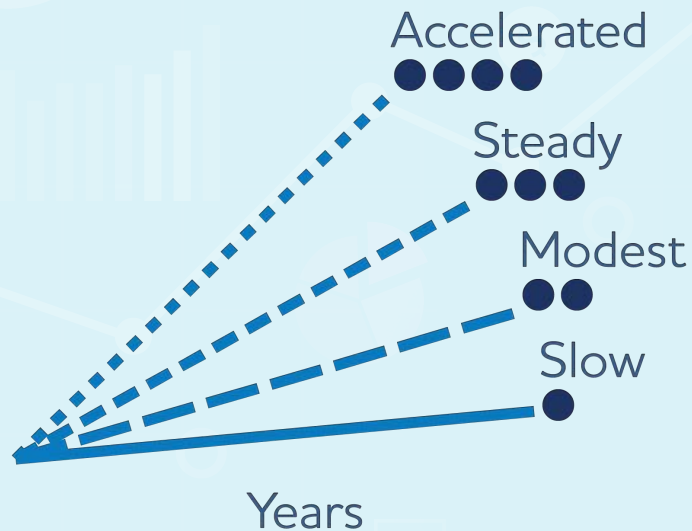
- Uncertainty about the future

## Need to prepare for a range of potential scenarios

- We are not predicting a likely future
- Considering different scenarios






# Scenarios

- Reasonably representative
- Pace of change varies by scenario
- Key inputs are grouped and specified



# Scenarios






## Input comparisons

	<b>Scenario 1:</b> Slow decarbonization & slow decentralization	<b>Scenario 2:</b> Modest decarbonization & modest decentralization	<b>Scenario 3:</b> Steady decarbonization & modest decentralization	<b>Scenario 4:</b> Accelerated decarbonization & steady decentralization
 <b>Economic growth</b>	●	●●	●●	●●●
 <b>Decarbonization policy</b>	●	●●	●●●	●●●●
 <b>Electric vehicles</b>	●	●●	●●●	●●●●
 <b>Natural gas changes</b>	●	●●	●●●	●●●●
 <b>Customer self-generation</b>	●	●●	●●	●●●

● represents amount of change






# Scenario 1

## Slow decarbonization & slow decentralization

Key input	Amount of change	Scenario 1
 Economic growth	●	Lower economic growth.
 Decarbonization policy	●	Reduced ambition to address climate change.
 Electric vehicles	●	Delays or reductions in funding, policies and new vehicles.
 Natural gas changes	●	Continued natural gas usage with limited fuel switching from natural gas.
 Customer self-generation	●	Limited uptake of behind the meter generation and/or storage.






# Scenario 2

## Modest decarbonization & modest decentralization

Key input	Amount of change	Scenario 2
 Economic growth	●●	Economic growth continues.
 Decarbonization policy	●●	Addressing climate change is one of several priorities for governments.
 Electric vehicles	●●	Many customers switch to drive zero-emission light-duty vehicles.
 Natural gas changes	●●	Rate of growth in natural gas usage decreases and lower carbon natural gas introduced.
 Customer self-generation	●●	Economics for behind the meter generation and/or storage are not favourable.






# Scenario 3

## Steady decarbonization & modest decentralization

Key input	Amount of change	Scenario 3
 Economic growth	●●	Economic growth continues.
 Decarbonization policy	●●●	Addressing climate change is a priority for governments.
 Electric vehicles	●●●	New light and medium-duty zero-emission vehicles are readily available to meet customers' needs.
 Natural gas changes	●●●	Reduced natural gas use. Renewable natural gas and hydrogen play a role.
 Customer self-generation	●●	Economics for behind the meter generation and/or storage are not favourable.

# Scenario 4

## Accelerated decarbonization & steady decentralization

Key input	Amount of change	Scenario 4
 <b>Economic growth</b>	● ● ●	Manitoba Hydro's low-emitting electricity helps to attract new commercial load.
 <b>Decarbonization policy</b>	● ● ● ●	Addressing climate change is an urgent and key focus for governments.
 <b>Electric vehicles</b>	● ● ● ●	The highest number of customers switch to drive zero-emission vehicles.
 <b>Natural gas changes</b>	● ● ● ●	Natural gas usage significantly limited. Renewable natural gas and hydrogen help decarbonize hard-to-abate sectors.
 <b>Customer self-generation</b>	● ● ●	Economics for behind the meter generation like solar improve.

# Summary

## Scenarios representing a range of potential energy futures

<b>Scenario 1:</b> Slow decarbonization & slow decentralization	<b>Scenario 2:</b> Modest decarbonization & modest decentralization	<b>Scenario 3:</b> Steady decarbonization & modest decentralization	<b>Scenario 4:</b> Accelerated decarbonization & steady decentralization
<b>Economy</b> – lower growth <b>Decarbonization policy</b> – reduced ambition <b>Electric vehicles</b> – delays or reductions <b>Natural gas changes</b> – limited <b>Customer self-generation</b> – limited uptake	<b>Economy</b> – growth continues <b>Decarbonization policy</b> – one of the priorities <b>Electric vehicles</b> – many light-duty <b>Natural gas changes</b> – growth decreases <b>Customer self-generation</b> – economics not favourable	<b>Economy</b> – growth continues <b>Decarbonization policy</b> – a priority <b>Electric vehicles</b> – light and medium-duty <b>Natural gas changes</b> – reduced use; some RNG <b>Customer self-generation</b> – economics not favourable.	<b>Economy</b> – new load attracted <b>Decarbonization policy</b> – key focus <b>Electric vehicles</b> – highest switching <b>Natural gas changes</b> – limited use; more RNG <b>Customer self-generation</b> – economics improve



# Discussion

Are the proposed scenarios reflective of the likely potential energy futures in Manitoba based on your understanding of your sector?

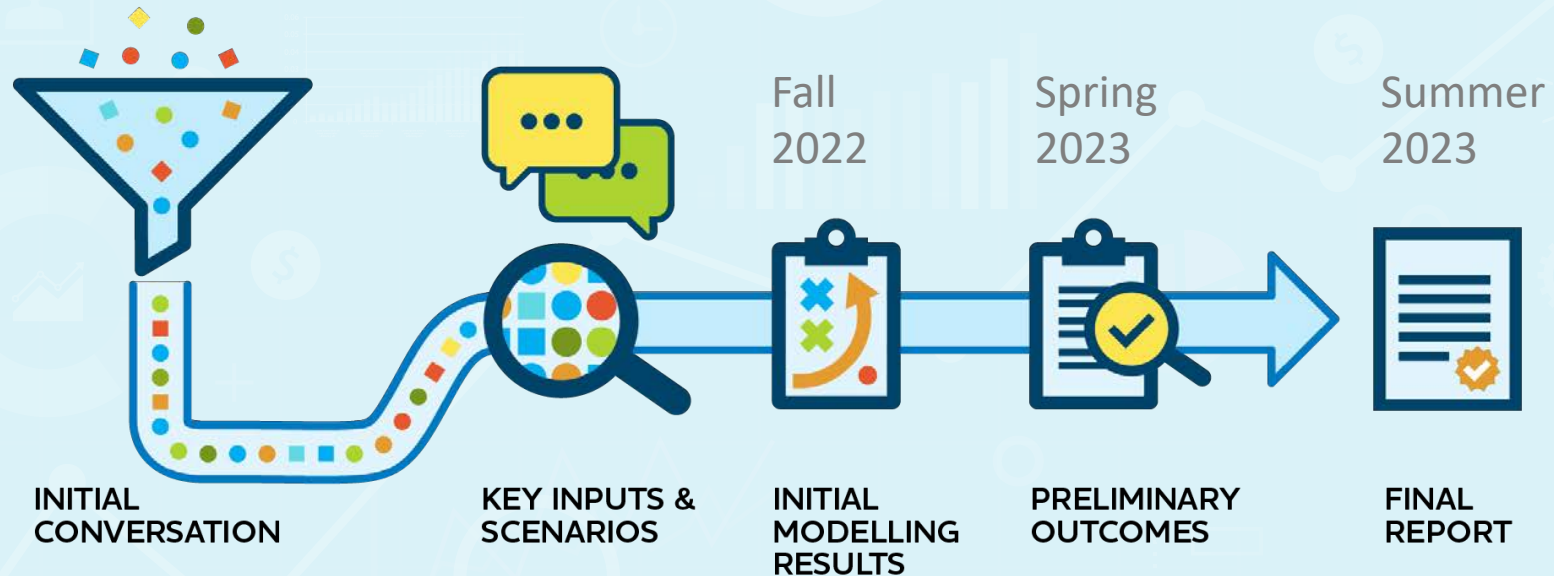


WHAT'S NEXT

# Next steps in the Integrated Resource Plan development process



# Next steps in the Integrated Resource Plan conversation





# Questions

Email us at [irp@hydro.mb.ca](mailto:irp@hydro.mb.ca)

Available in accessible formats upon request