# Canadian Decarbonization Pathways

## Economic and emission opportunities and outcomes

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# Taking Stock of Canada's Decarbonization Aspirations

With the 21st Conference of the Parties behind us,

- Pan-Canadian working groups and subsequent negotiations.
- Paris ratification and federal carbon price floor.

1. What policy may deliver on the way to achieving Canada's NDC?
2. Importance of global carbon bridges with allowance linking
3. What about deep decarbonization aligned with this 1.5dC science target?

Use an integrated CGE model, GEEM to forecast long-term impacts to 2030.
Supplement with technology rich CIMS model

## Stocktaking: Canada's GHG Aspirations post-Paris

Two economic and technology models forecast GHGs to 2030 under alternative oil price scenarios and then add:

1. **Current and developing policies** implemented bracketing Paris.
2. **Federal carbon price backstop,** imposing a national price that fills subnational policy holes while fixing expectations for greater ambition to 2022.

Canada's NDC.

**30% below 2005 GHGs in 2030**.

# Current and Developing GHG Policies

**Provinces**

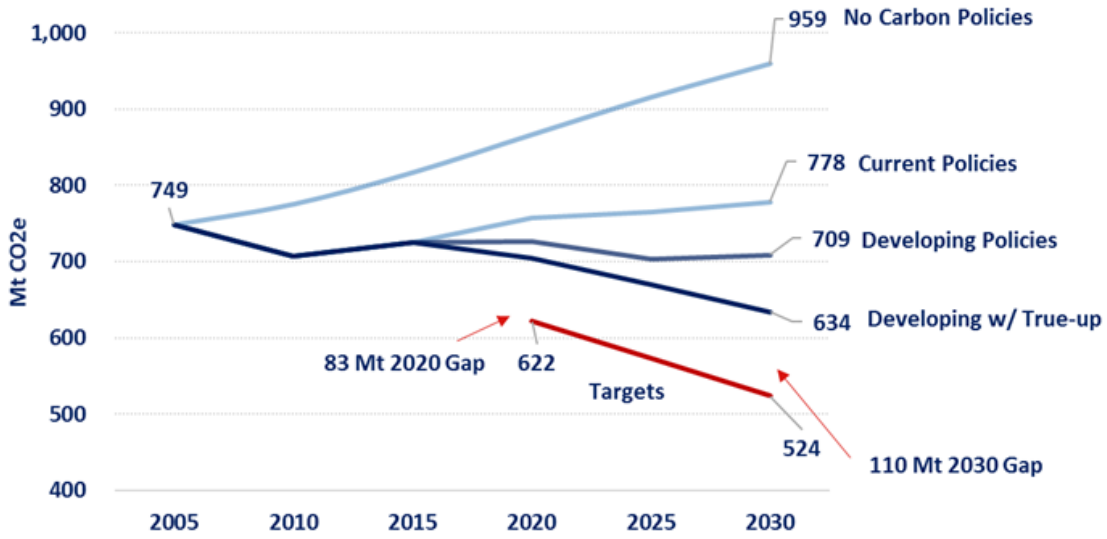
- BC Ctax, LCFS
- AB SGER > Climate Leadership Plan
  - $30 Ctax/OBA; Methane, Oil sands 100 Mt cap
- SK Boundary Dam CCS, SK 50% renewable power standard
- ON coal ELEC ban, WCI
- QC WCI
- NS RPS
- Waste regs in provinces
- **Federal** coal generation regs and café vehicle standards
- AB. Federal methane regulations for oil and gas

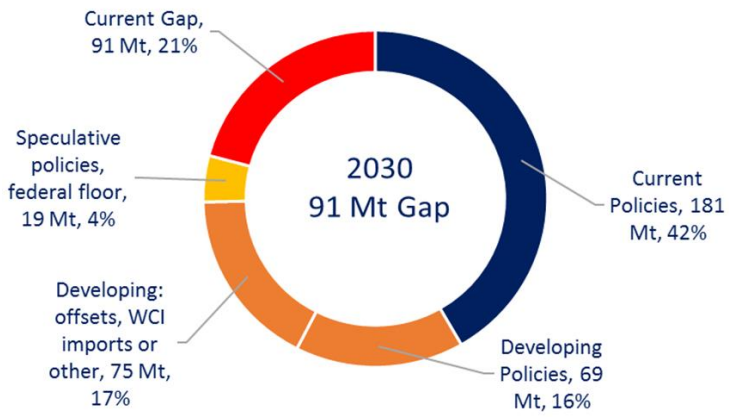
(follows US, AB)

**QC and ON True-Up**:

22 to 25 Mt in 2020

73 Mt in 2030



# New Federal Carbon Price Floor

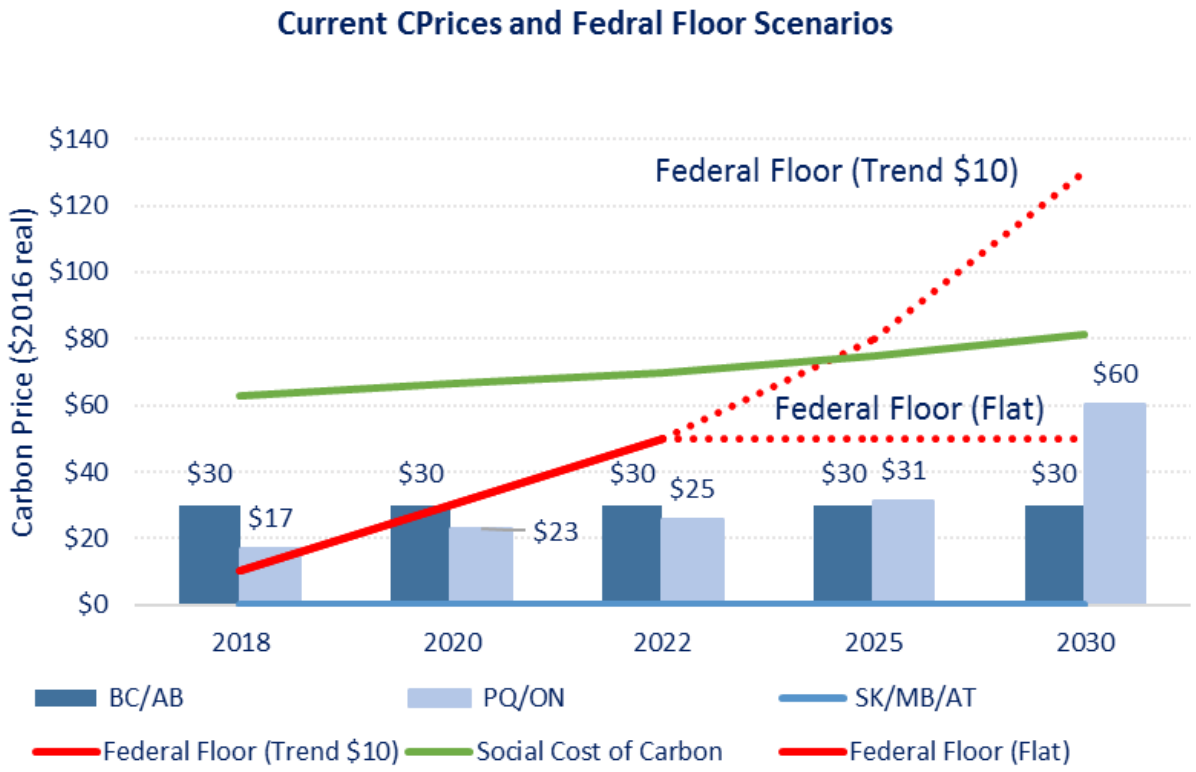
**Carbon tax adder** applied in 2018 to 2022 starting at $10, rising by **$10 to $50 in 2022**.

The federal backstop only **binds when exceeding provincial carbon price**.

- AB and BC, 2021
- SK, MB and AT, 2018.
- PQ and ON exempt given caps aligned to 2030 federal NDC.
  - **ITMOs implicitly recognized** as NDC compliant

All revenue returned "untied" to provinces proportionally.

  - Fully revenue neutral from federal perspective.



# GHGs Impacts

Current and developing GHG policy is significantly driving down GHGs.

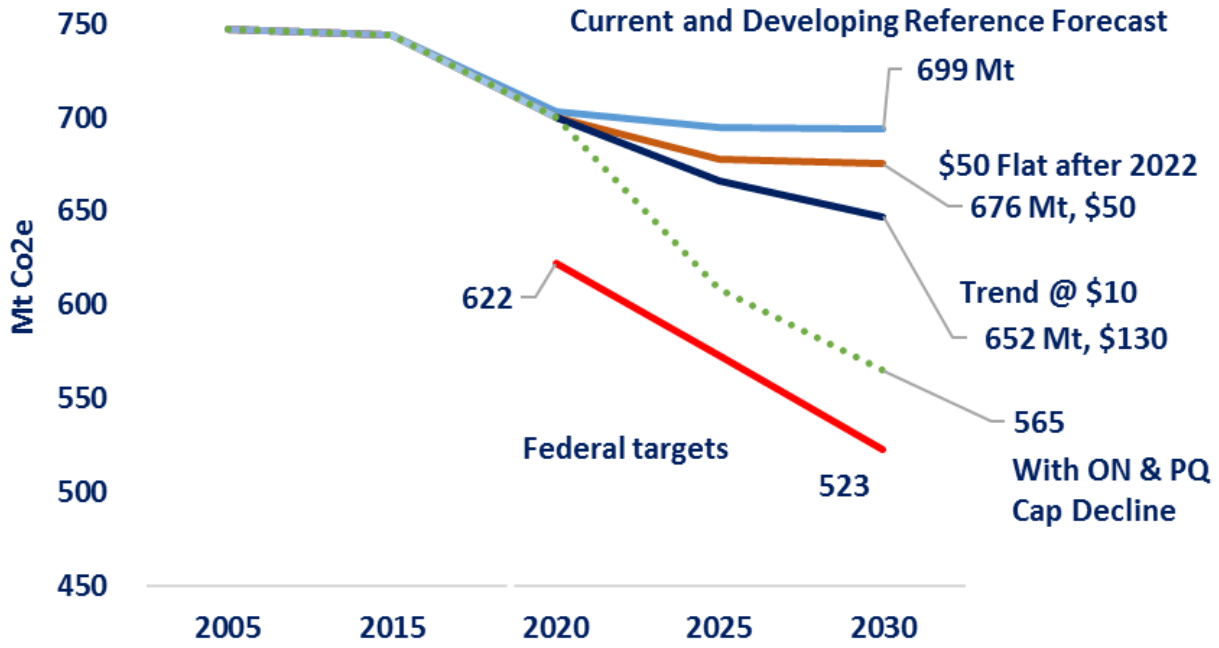
- The dotted line is ON and QC to true-up to 2030 targets
  - Domestic offsets, WCI allowance imports and/or complementary regulations.

**New Federal backstop**

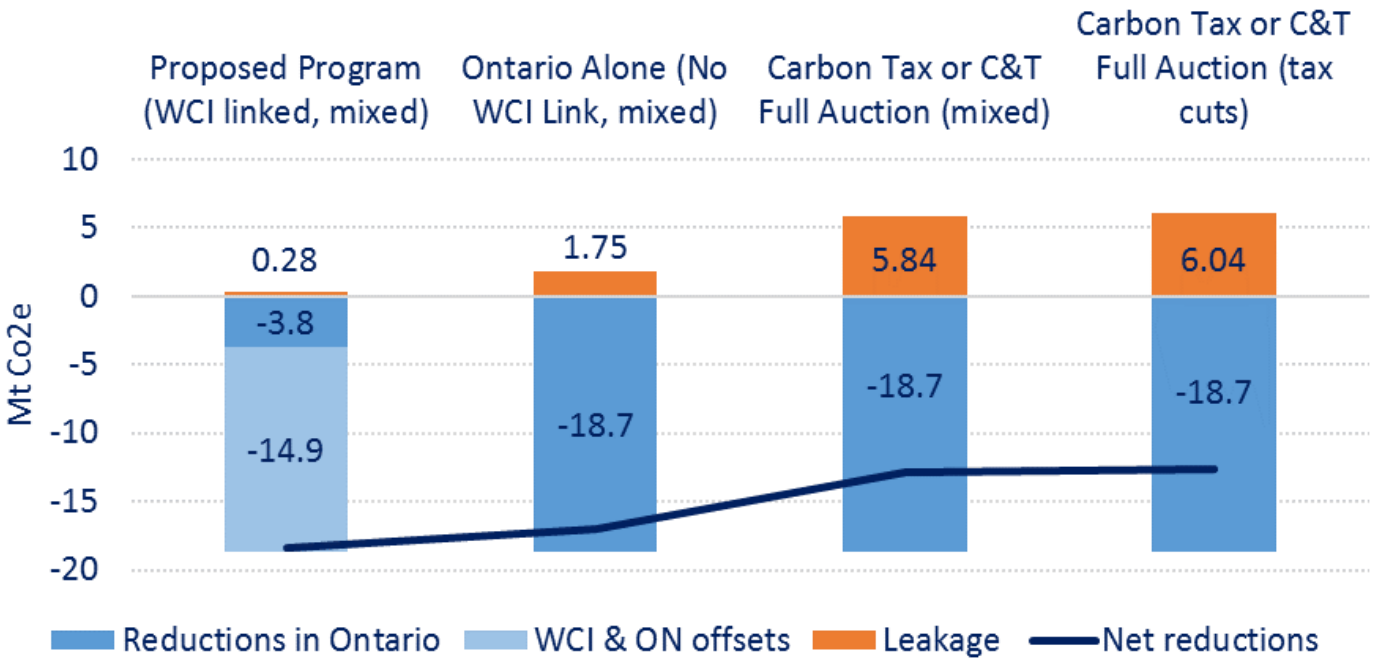
- Flat @$50 delivers ~18 Mt more in 2030
- Trend @$10 delivers ~47 Mt in 2030

With a forward looking carbon price schedule now making clear future carbon exposure,

- Expect future innovation to far outpace the rates we have assumed.
- Solar and electric vehicles innovated significantly in a period of global economic slowdown
  - Weak and fragmented carbon policy signals.



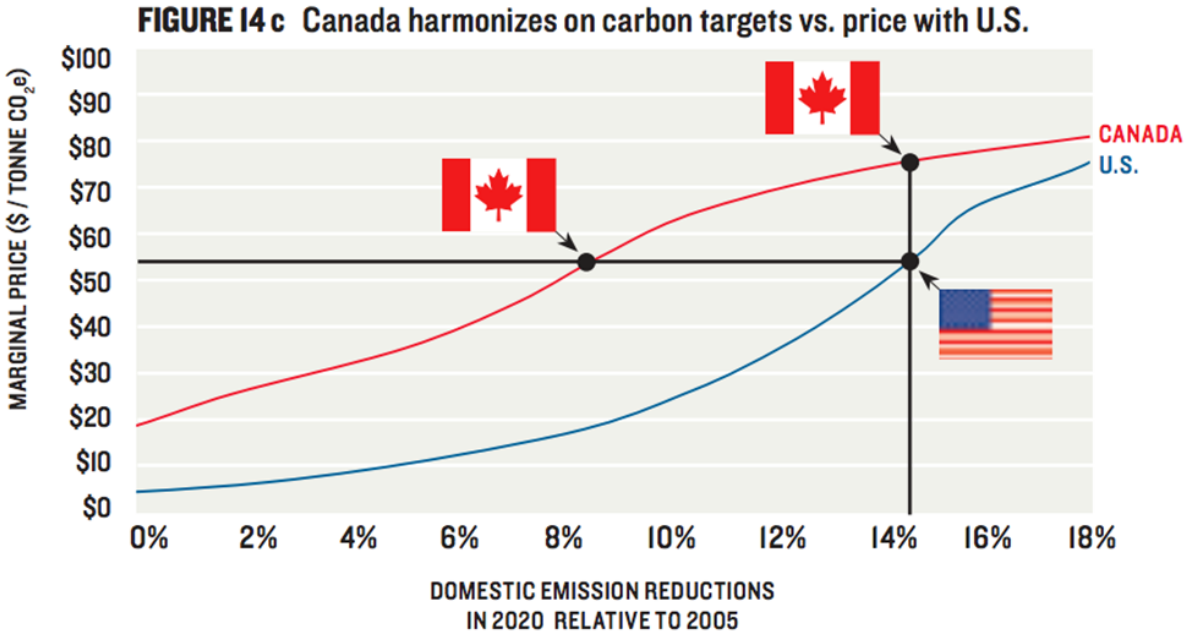
# Global Carbon Bridges: Importance of Linking Ontario and the WCI




Regulatory analysis for Ontario's cap and trade

- High cross-border trade in allowance given domestic abatement costs vs WCI prices.
- Linked vs autarky carbon prices
  - $20 vs $160.
- Free allocations mute cost impact significantly.
- Proceeds recycling matters less.

# Global Carbon Bridges: Importance of Linking Relative Canada US Carbon Costs

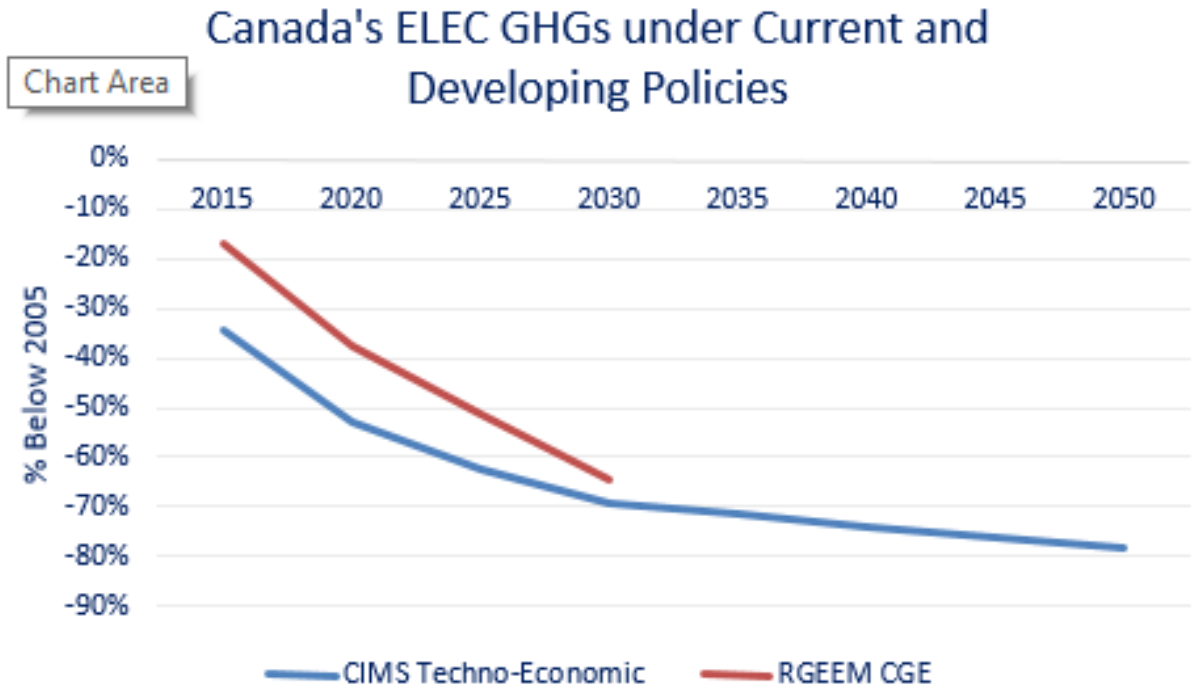


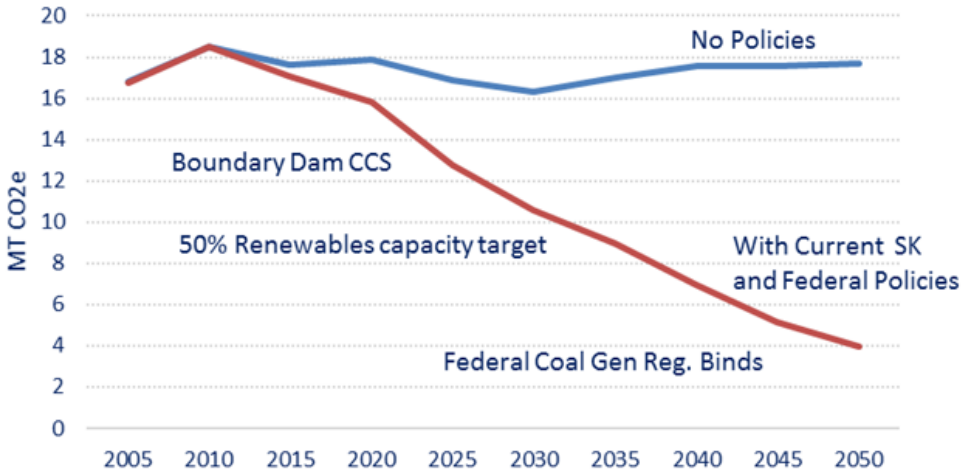

CANUSA CGE modelling on leading, lagging and harmonizing

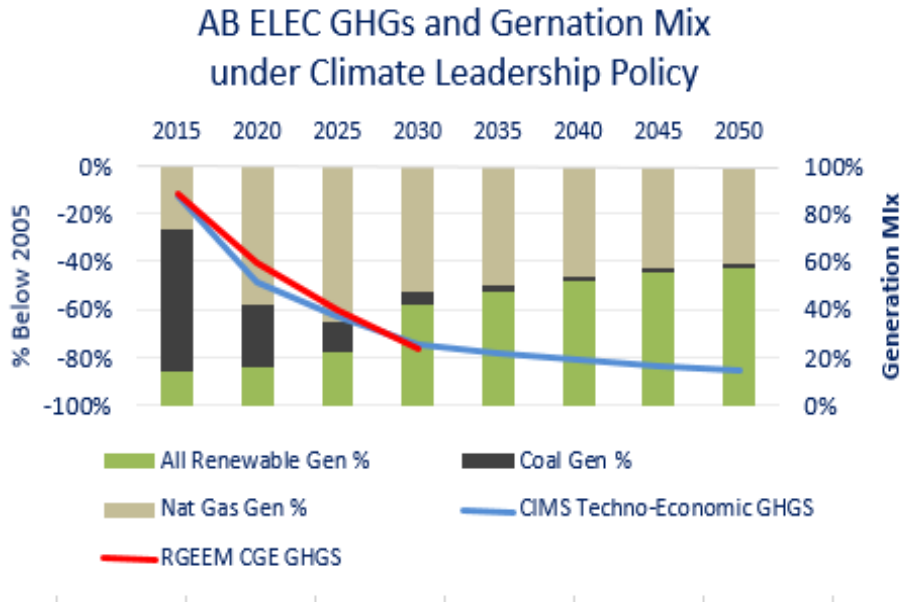
- Break with tradition and don't harmonize NDC on quantity targets
  - Misaligned abatement costs
- Oil and gas in CDN vs coal ELEC in US
- Resilient policy learning: Canada and net importer from US with linked markets.

# Deep Decarbonization
# Electricity on 1.5dC Pathway of -80% from today?

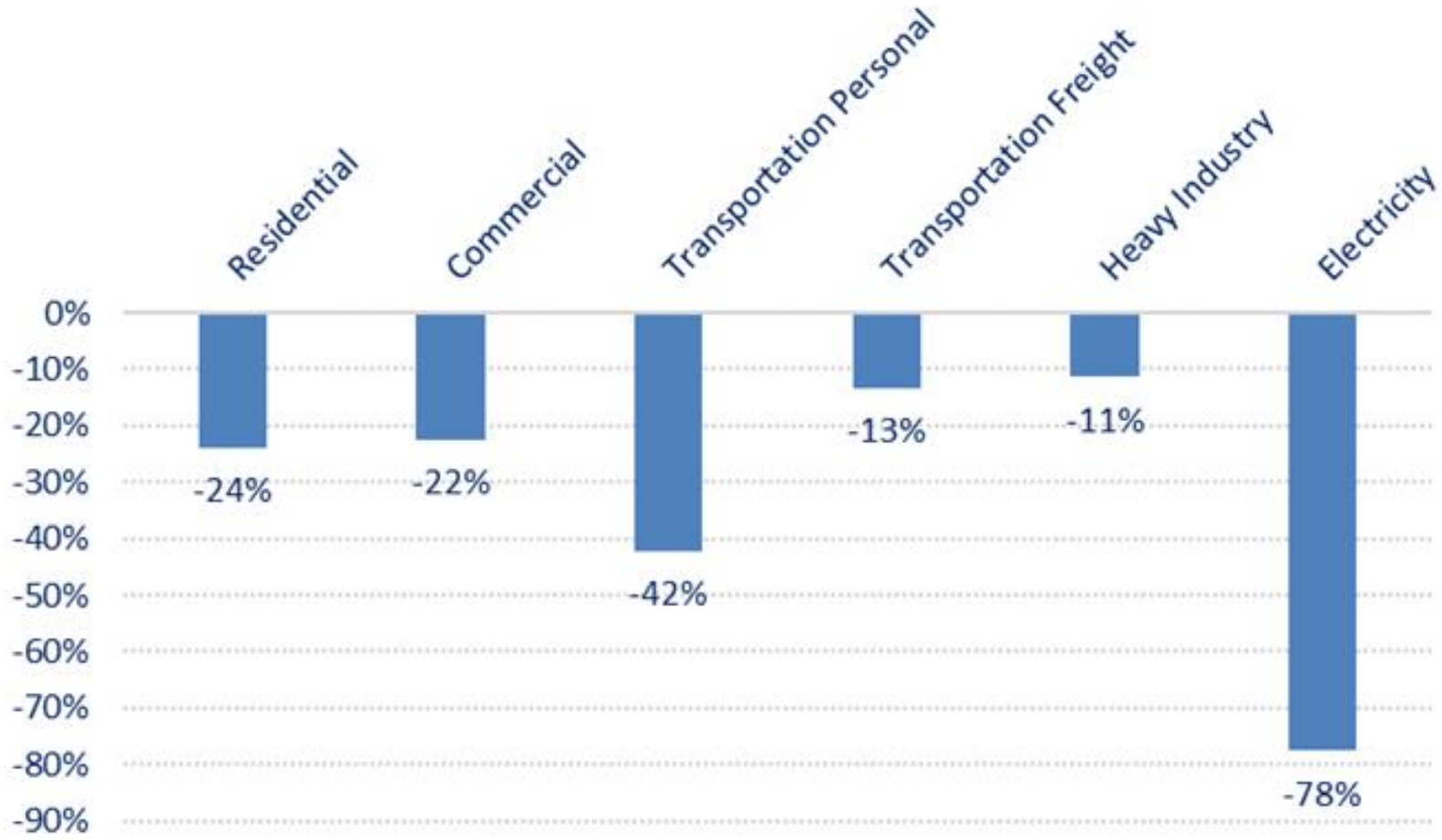
Governments are making promises backed by policy, and not just announcing deep decarbonization targets with no action.



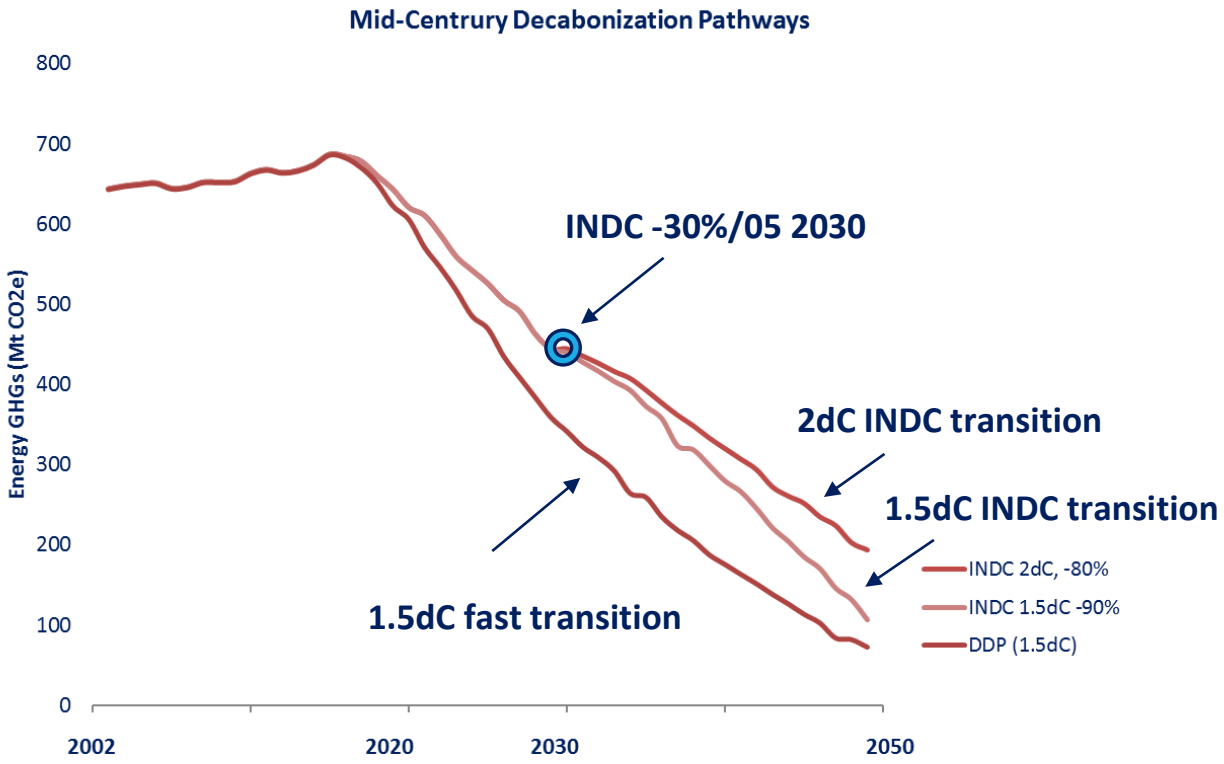



# Deep Decarbonization
# Change in GHGS from Today to 2050 with Current Policies



# Canada's NDC and Deep Decarbonization




## NDC somewhat aligned to deep decarbonization

- NDC is at the lower bound for 1.5dC.

## Expediency matters

- **Delay?** Reductions get progressively harder.
- R&D and innovation critical to stop carbon prices rising exponentially.
  - Innovation especially in heavy industry and liquid fuels critical.

## Major omissions

- Land use opportunities and net negative GHG technologies.

# Managing Carbon Exposure is the New Normal in Canada

**Policy delivering significant GHG reductions now.**

- Current GHG policy insufficient to close 2030 decarbonization gap, misaligned with 1.5dC.

The **federal carbon tax backstop** fills provincial policy holes, increases ambition better aligned with NDC

- Efficient **GHG policy dial** scalable to future decarbonization aspirations.
- **Less Room to deliver GHGs given** diverse, overlapping and often strong provincial GHG policies
  - Minimizes risk of unwinding current provincial effort.
  - 18 to 47 Mt of new GHG reductions in 2030
- **Small GDP impacts**; GDP in 2030 is 1.37 times larger from today with or without the backstop.
- **Untied revenue** to provinces could be $7.4 billion by 2022.

**More policy dials needed** for NDC and decarbonization beyond.

- **Tradeable performance regulations**, domestic reductions from **uncovered GHGs** (land use) and **trading inside and outside** Canada.
- The **federal backstop** will send **long-term innovation signals**.
- **More innovation** needed, **liquid fuels & heavy industry**.