Canada’s progress to its NDC: A policy package scalable to deep decarbonization

Dave Sawyer, EnviroEconomics.org | dave@enviroeconomics.ca
Canada's 2050 2dC Budget

Decarbonization pathway to achieve global per capita GHGs of 1.7 by 2050 across all countries

- 2012 tonnes per capita
  - Saskatchewan 69
  - Alberta 65
  - Canada 20
  - Ontario 12
  - Quebec 10
  - DDPP 1.7 in 2050

2050 forecast
- Oil price evolves to $80 barrel
- GHGs stabilize at 736 Mt
- Per Capita GHGs 15 tonnes

- Canada's 2dC budget 75 Mt
- GHGs -88% below 2050
- Per Capita GHGs 1.7 tonnes
Decarbonization Drivers | Resilient Canadian Decarbonization Pathways

Forecast energy GHGs 666 Mt

Resilient:
- Portfolio of technologies, market share winners unclear

Unclear:
- Consensus that decarbonization is more challenging
Autonomous GHG Policy: Provinces and Federal Government

Provinces

- BC Ctax, LCFS
- AB SGER > Climate Leadership Plan
  - $30 Ctax/OBA; Methane, Oil sands 100 Mt cap
- SK CCUS, SK 50% renewable power
- ON coal ELEC ban, Western Climate Initiative
- QC Western Climate Initiative with California, EV
- NS renewable electricity policy
- Methane from waste regs in all provinces
- Federal coal generation regs and café vehicle standards
**DDP Warning**

Harry Potter scenarios at work:

Wave magic wand and chant “expecto decarbonis” and then “expecto depoliticás”

- **1.5dC fast transition**
- **1.5dC NDC transition**
- **2dC NDC transition**

**Federal price delivers 38 Mt by 2030**

- No ON C&T, Gap up 23 Mt
- 170 Gap current policy
- 152 Gap w/ federal floor
- 152 Gap w/ ON/QC
- 83 Mt w/ ON/QC
- 40 Mt w/ PCF
- With PCF Gap 29 Mt
### GHG Decline Rates for Decarbonization

<table>
<thead>
<tr>
<th></th>
<th>Annual GHG Decline Rate (5-years)</th>
<th>2030 GHGs Mt</th>
<th>2030 NDC Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016/20</td>
<td>2021/25</td>
<td>2026/30</td>
</tr>
<tr>
<td>Current policy</td>
<td>-2.19%</td>
<td>-1.46%</td>
<td>-0.87%</td>
</tr>
<tr>
<td>NDC compliant</td>
<td>-1.20%</td>
<td>-2.26%</td>
<td>-3.53%</td>
</tr>
<tr>
<td>IPCC SR 15 (380 Mt)</td>
<td>-2.48%</td>
<td>-4.36%</td>
<td>-5.27%</td>
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</table>

### Scale-up Current Policy to NDC (no ITMOs)

- **Western Climate Initiative with California**

### AAGR %

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<tr>
<th></th>
<th>2018-22</th>
<th>2022-30</th>
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<tbody>
<tr>
<td>GHGs</td>
<td>-2.1%</td>
<td>-3.0%</td>
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<tr>
<td>CPrice</td>
<td>47%</td>
<td>20%</td>
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</tbody>
</table>
Industry Carbon Pricing Opportunities, Alberta Electricity

Modelled GHGs

Historical GHG Intensity Electricity

Monthly Emissions Intensity of Power Generation

Source: AESO data accessed via NRGStream. Calculations and graph by Andrew Leach.
Carbon Taxes and Politicians Avoiding Taxes with Bad Policy

Average Abatement Cost [$2018/(CO2-eq)]

<table>
<thead>
<tr>
<th>Made-in-Ontario Plan</th>
<th>Federal Approach</th>
<th>Carbon Price alone</th>
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<tbody>
<tr>
<td>2022, 5.4 Mt</td>
<td>$62</td>
<td>$40</td>
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<tr>
<td>2030, 18 Mt</td>
<td>$69</td>
<td>$45</td>
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Made-in-Ontario Plan
Efficient policy

Average Abatement Cost [$2018/(CO2-eq)]

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<th>Mt CO2-eq Reduced</th>
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<tbody>
<tr>
<td>0</td>
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<tr>
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<tr>
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<tr>
<td>48</td>
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</tbody>
</table>
Competitiveness and the United States

Figure 5: Canadian Emissions Reductions With and Without U.S. Policy Harmonization

- **Emissions reductions from lost competitiveness / leakage**
- **Actual emissions reductions**

GHG Reductions in 2032 (Mt CO₂e)

- **Canada Acts Alone**
- **Canada and U.S. Act in Concert**
A pan-Canadian Policy Package Scalable to Increased Climate Ambition

• **Efficient and broad-based carbon pricing** our national baseline.
  • Like a fee and dividend with equal shares to households.
  • Performance Standard with carbon price for large EITE emitters in all jurisdictions.
• Governments can **tighten existing performance-based regulations**.
• Somewhat durable, focused on **competitiveness (OBPS) and fairness (carbon rebates)**.

Decarbonization costs rise fast even with efficient policy.

• The **federal carbon price increases efficiency**, 
  • Need to better align carbon cost with pan-Canadian trading for large emitters.
• **A need for global tradeable units to backstop ambition**, keep costs down

Continued focus on aligning costs and **cohesive climate governance**.

• Implement, take stock, repeat