

## INTRODUCTION

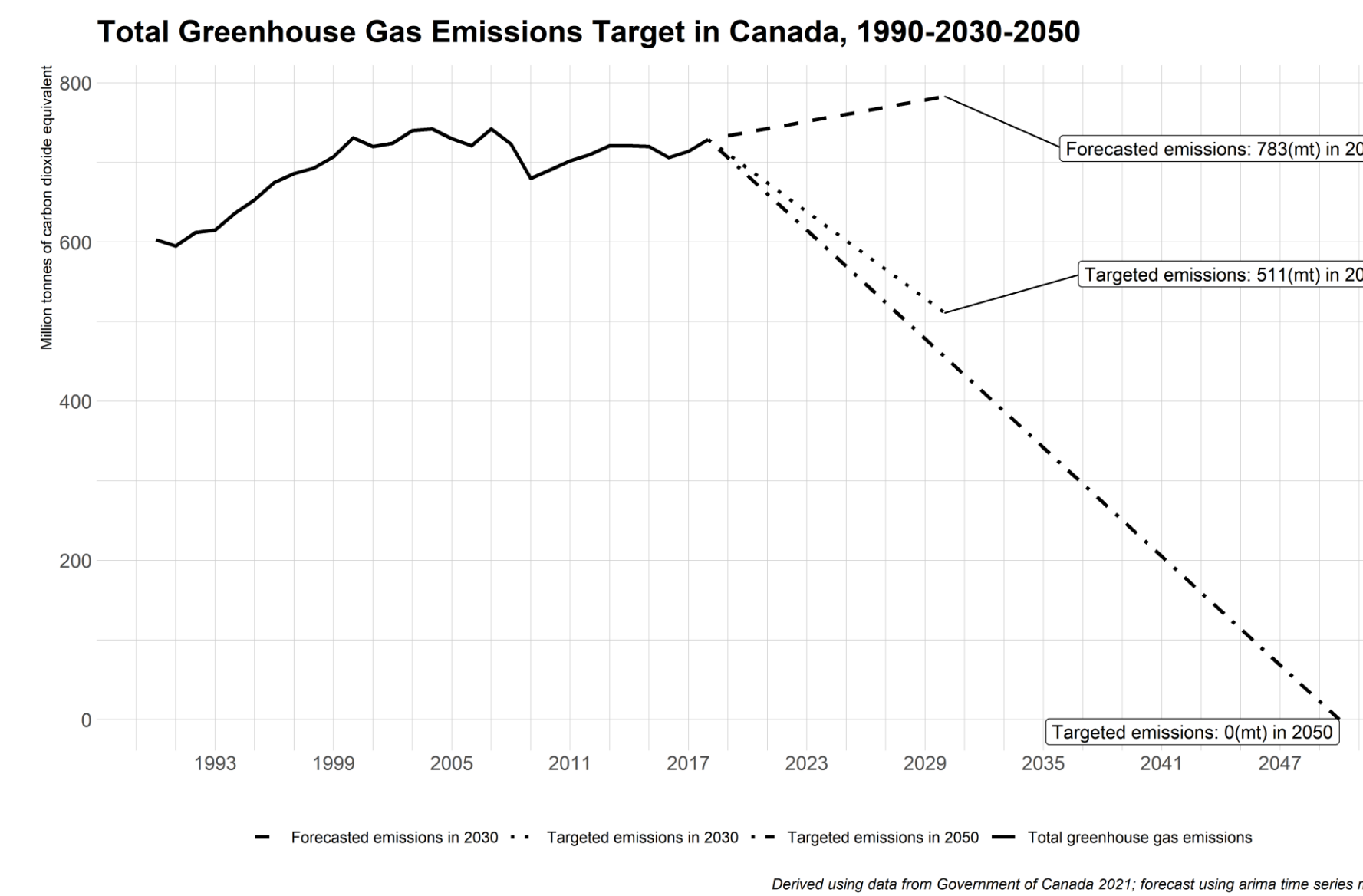
- To achieve 'net zero' carbon emissions by 2050, Canada needs consistent energy and environment policies that dramatically decrease consumption of fossil fuels, phase out coal plants, increase reliance on renewable energy, improve energy efficiency, and promote electric vehicles.
- Since 82% of Canada's GHG emissions are from fossil fuels, environmental policies need to focus primarily on energy.
- Challenges of transitioning to "NetZero" are enormous, but provide opportunities to create new technologies, industries, and employment.

## OBJECTIVES

Our study examines policy options, economic solutions, and short-term goals that Canada might implement to achieve its 2050 target. Although we focus primarily on national environmental and energy policies and their potential impacts, we also examine their impact on agriculture.

## CHALLENGE

## IMPACT OF CLIMATE PLAN ON CANADIAN ECONOMY



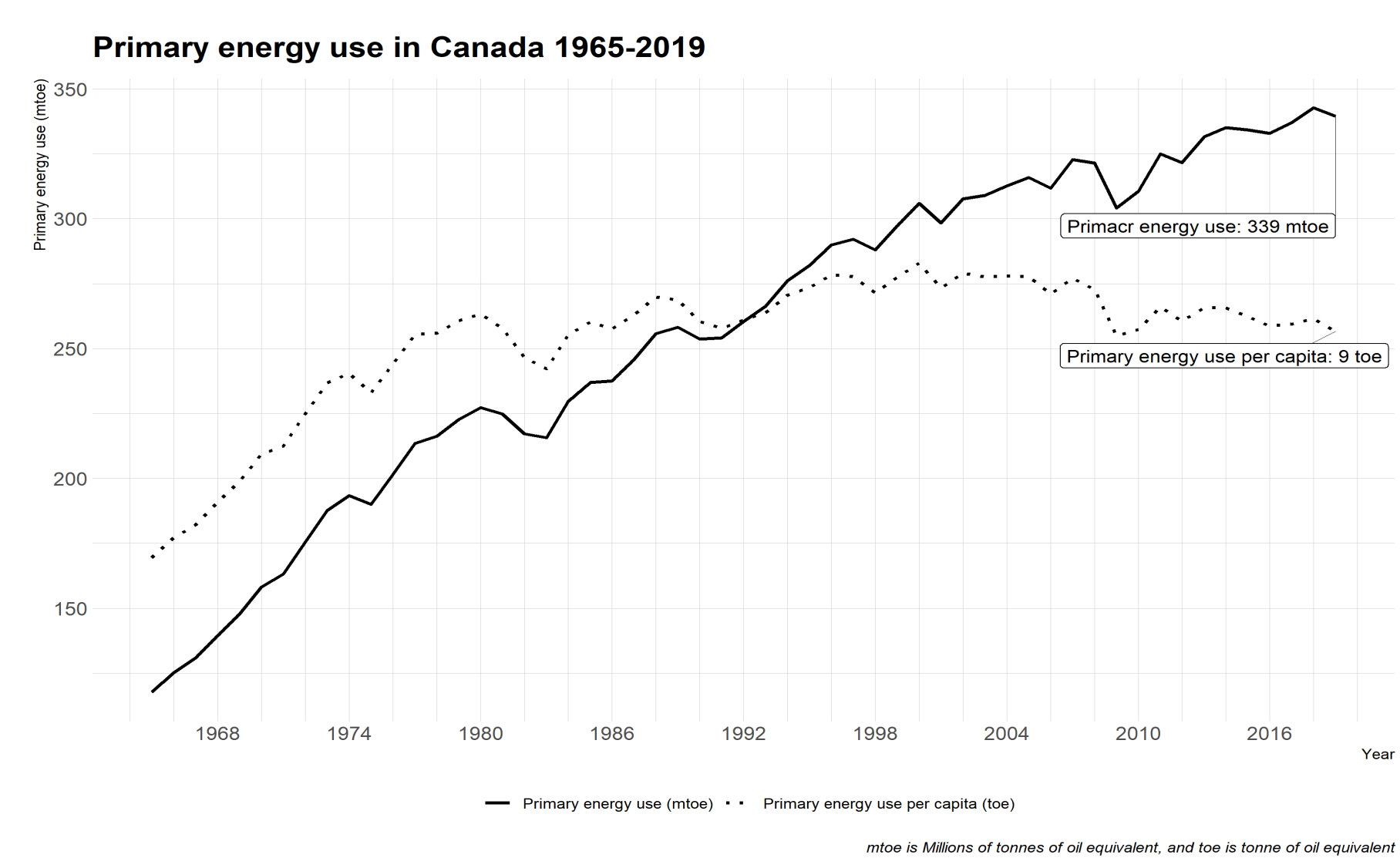
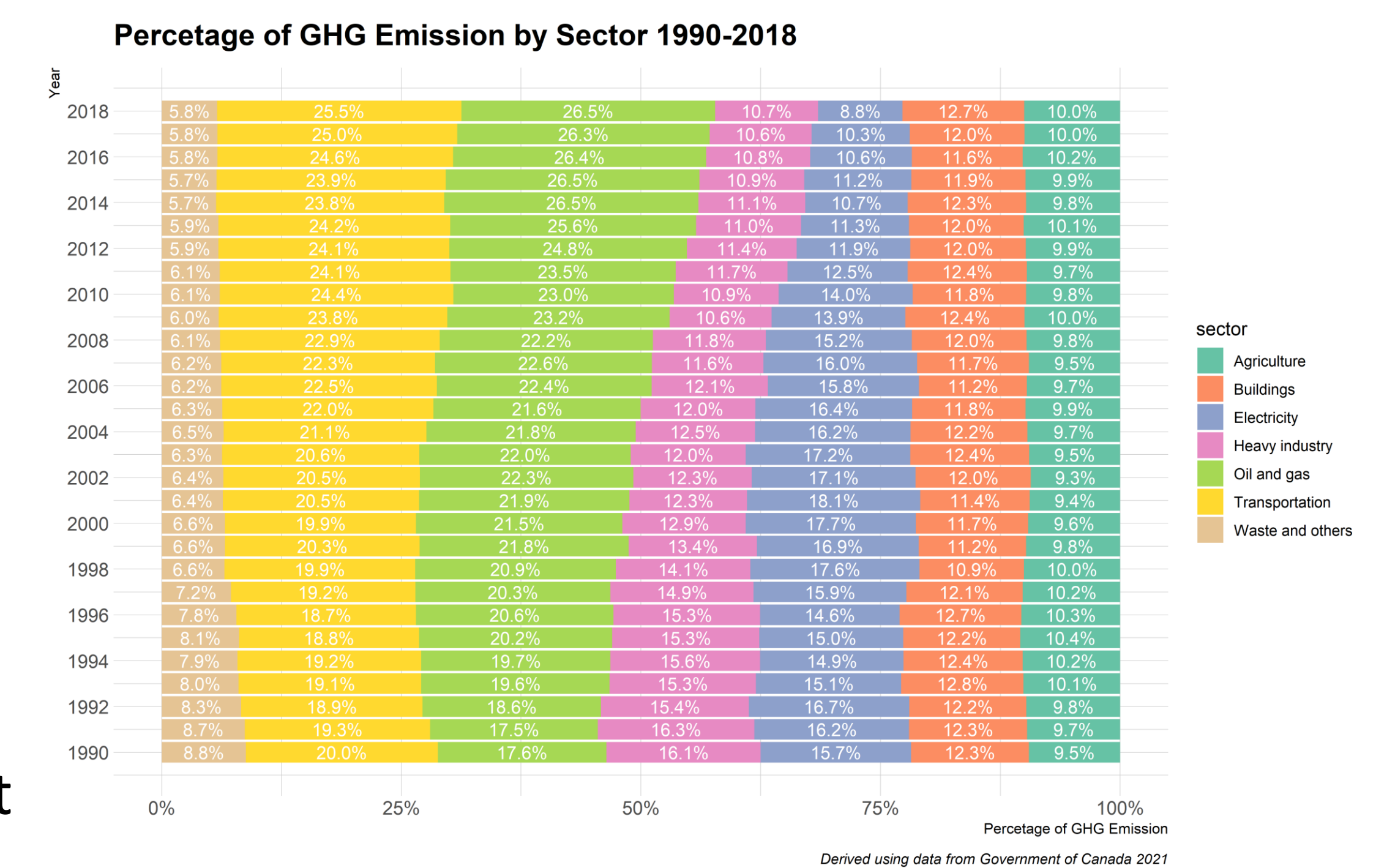
- Canadian energy policy has been characterized by decentralization, making Canada one of the few OECD countries without a national energy policy. In a decentralized economy such as Canada's, provincial autonomy in energy policy might be inefficient because every party tends to "free ride", and exhaust the resources without "internalizing the social cost" (Ricci 2007).
- To address inefficiency, the federal and provincial governments reached an agreement in 2015 aimed at improving national cooperation on building a green economy.

### EMISSION TRENDS

- Total GHG emissions in Canada was 729 million ton of CO<sub>2e</sub> (MtCO<sub>2</sub>) in 2018
- CO<sub>2</sub> emissions keep increasing and, based on current trends, will increase by 4.5 MtCO<sub>2</sub> annually, reaching 783 MtCO<sub>2</sub> by 2030. To achieve the 2030 target of 511 MtCO<sub>2</sub>, emissions must be reduced by 18 MtCO<sub>2</sub> annually, but to achieve "NetZero" by 2050, emissions must be reduced by 23 MtCO<sub>2</sub> annually.
- Government of Canada committed to: encourage low-carbon transportation; subsidize households; support clean technologies; invest in renewable energy; and increase the carbon price by \$15 per year starting from 2023 to \$170 per tonne in 2030 (Government of Canada, 2020. *A Healthy Environment and a Healthy Economy*).
- Government's climate plan provides a road map for Canada to reach "NetZero" target in 2050, and provides opportunities for firms, farmers, and other communities to thrive in a lower-carbon economy.
- Benefits of a carbon tax
  - It fits the decentralized system in Canada by equalizing the carbon price facing all provinces.
  - It can be made revenue-neutral if all proceeds are returned to taxpayers via a reduction of inefficient taxes
  - It is cost effective: a price signal on emission gives consumers incentives to adjust behaviour at lowest cost.
  - It incentivizes firms to invest on clean technologies
  - It improves productivity by inducing firms and households to invest in non-physical capital and technologies, and education (Ricci 2007).

## OPPORTUNITIES FOR CANADIAN AGRICULTURE

- Proportion of GHG emissions from agriculture remained stable at ~10% for the past 30 years.
- New climate plan provides support for agriculture to reduce emissions. E.G., federal plans to invest \$165.7 million over seven years to support the agriculture sector in developing clean technologies.
- Agriculture faces new challenges:
- New plan sets a national emission reduction target for fertilizer of 30% below 2020 levels.
- Rapidly increasing carbon tax could make agriculture products less competitive. Solution: "border carbon adjustment"—applies tariffs on imports from countries that do not price carbon. Border carbon adjustment is a response to "carbon leakage" whereby production shift to jurisdictions without carbon prices.



- Primary energy use in Canada has increased steadily over past 50 years. Primary energy use per capita began to decline over the last thirty years. Oil still constitutes the main energy source in Canada—107 million ton of oil equivalent (mtoe) in 2019.
- Consumption of natural gas rose over the last forty years—103 mtoe in 2019—2<sup>nd</sup> to the oil. Hydro energy consumption has remained stable over the last 40 years—81 mtoe in 2019, recently surpassed by NG.
- Reducing fossil fuel use will be challenging if emission targets are to be reached.

