



National Energy  
Board

Office national  
de l'énergie

# Canada's Energy Future 2018

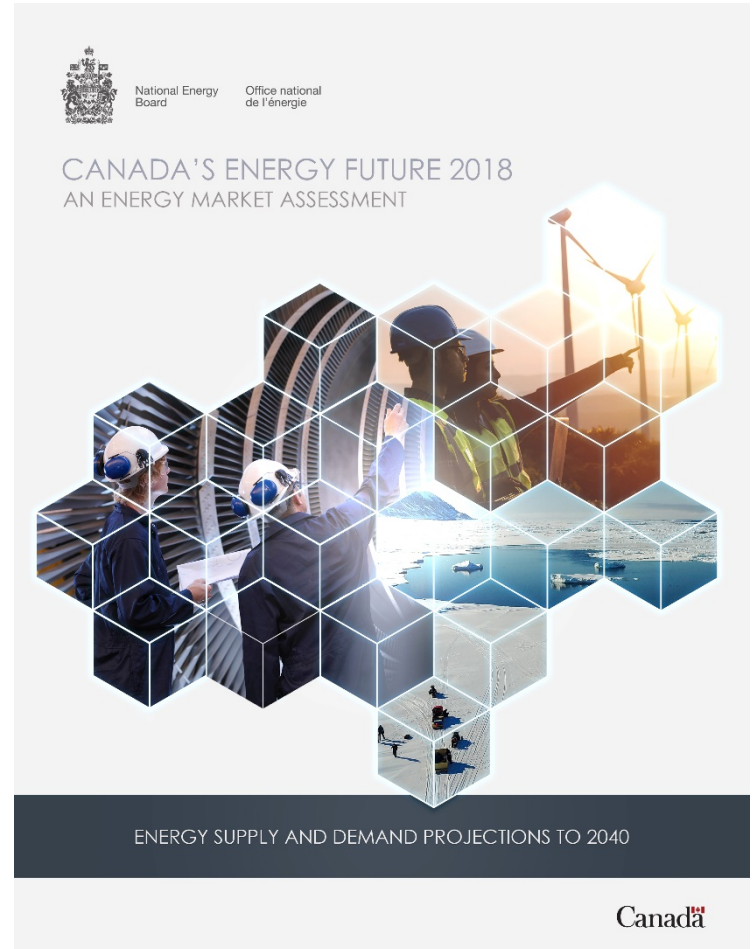
## Energy Supply and Demand Projections to 2040



Canada

# Canada's Energy Future

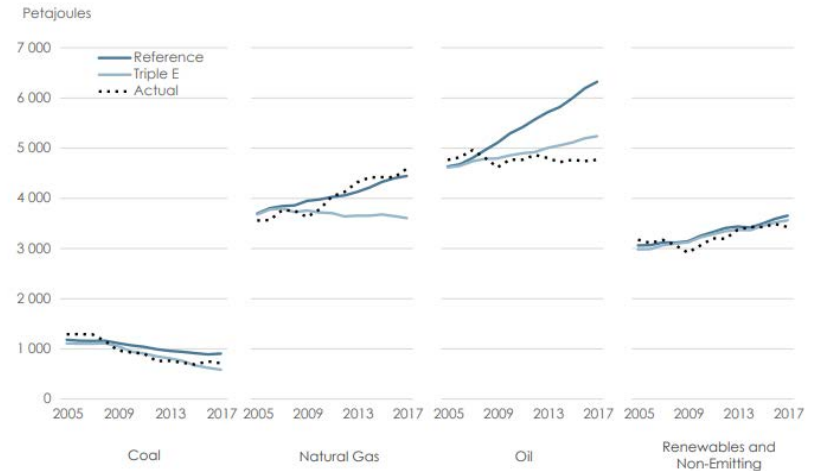
- National Energy Board has produced outlooks for over 50 year s
- EF2018 projections of energy supply and demand to 2040
- Extensive data tables and *Explore Canada's Energy Future* interactive data visualizations
- Contains four projections:
  - Baseline **Reference Case** assumes current policies, moderate technology improvement, consensus economic growth/energy prices
  - **High Price** and **Low Price** cases
  - **Technology Case** with stronger climate policy action (in line with IEA Sustainable Development Scenario) and low carbon technology adoption across the globe



# Reference vs. Technology Case

- Motivations for the Technology Case:
  - Evolving policy, domestic and globally
  - Shifting technology
- Over the last decade, energy use has trended closer to the low carbon “Triple E” case vs. business as usual Reference Case

Comparison of projections vs actuals, EF2007 scenarios



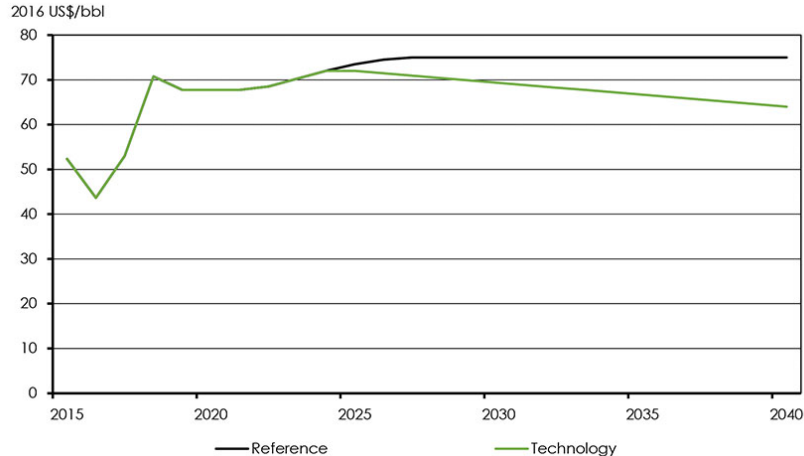
Source: NEB, *Canada's Energy Transition*

# EF 2018

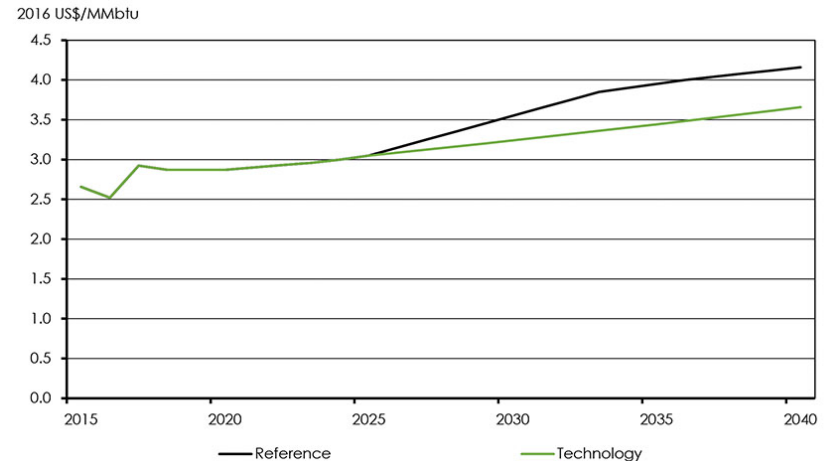
## Scenario Descriptions and Key Assumptions

# Global context for crude oil and natural gas prices: Demand grows slower in Technology Case as the world uses less fossil fuels, which leads to lower benchmark prices for crude oil and natural gas.

Global Crude Oil Price, Reference vs Technology

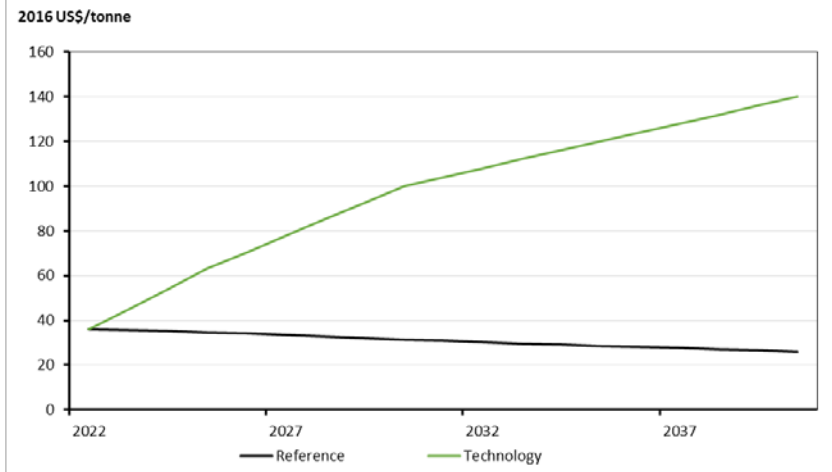


North American Natural Gas Price, Reference vs Technology

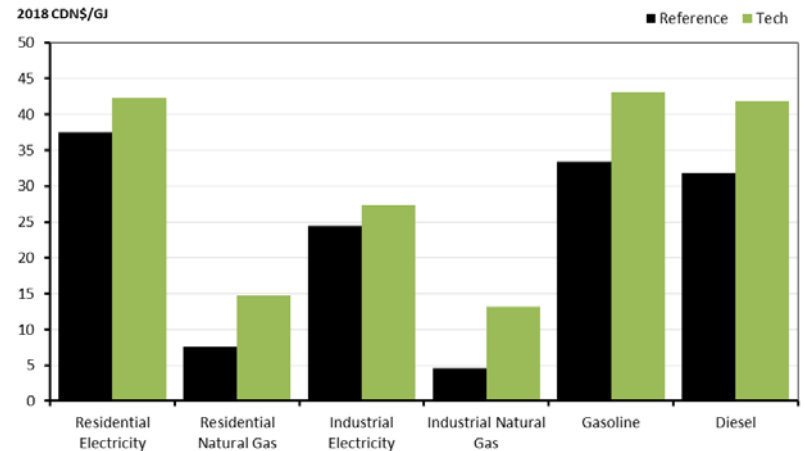


Reference Case assumes current policies only – so carbon price flat post 2022. Technology Case assumes long-term global action. Benchmark price and carbon price trends impact end-use prices.

Carbon Price, Reference vs Technology (IEA SDS)

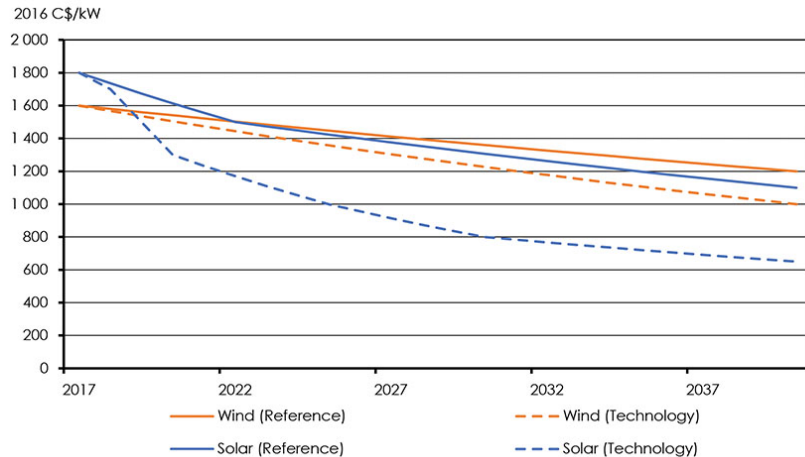


Select End-Use Prices – Alberta Example, Reference vs Technology

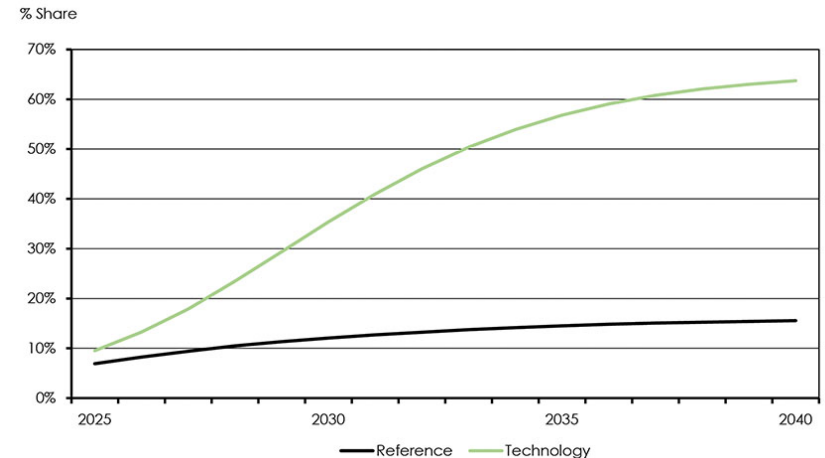


# Solar and wind costs fall, and electric vehicles gain market share in both cases, but magnitude differs.

## Solar and Wind Capital Costs

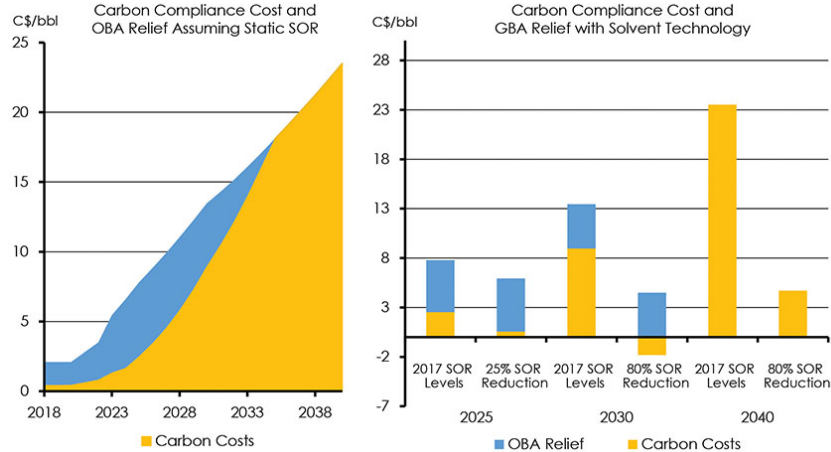


## Share of EVs in new passenger vehicle sales

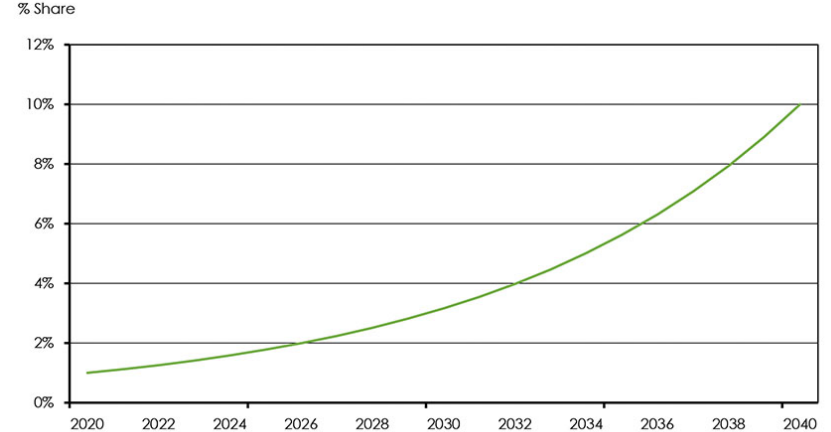


# Energy efficiency improves across the economy, and renewable fuel blending increases for liquids and gases.

## Oil sands in situ carbon costs



## Share of renewable natural gas in gas stream



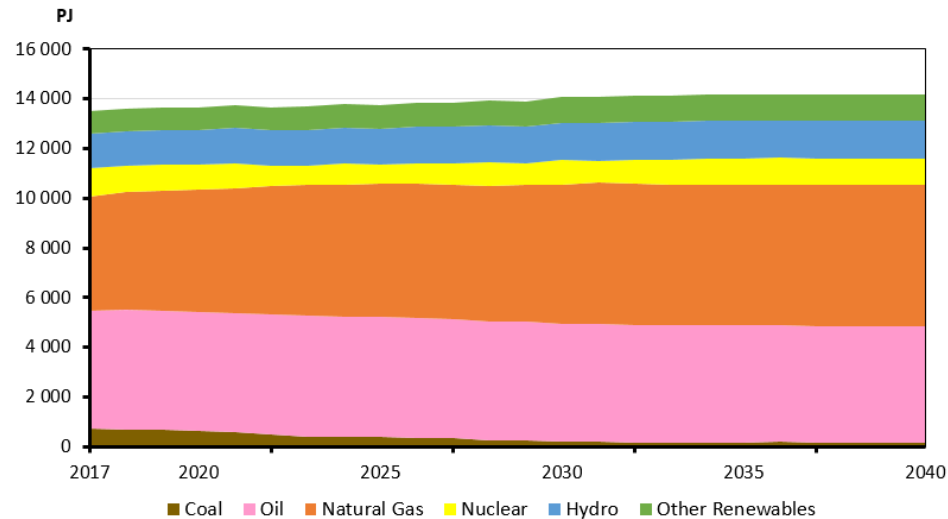


# EF 2018

## Key Findings

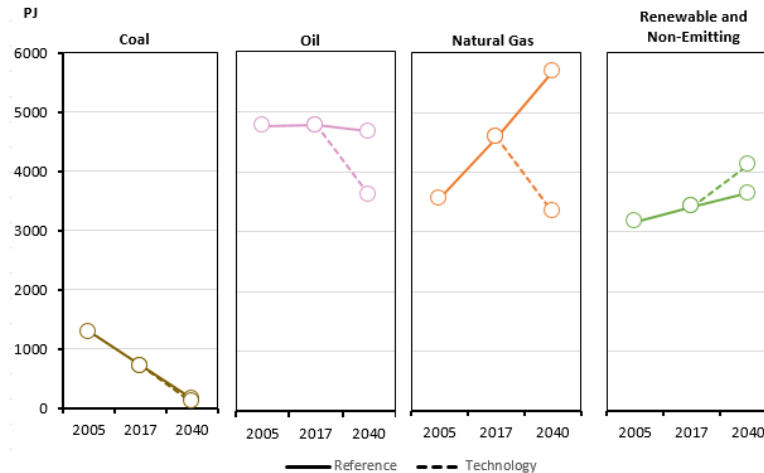
# Key Finding 1: Canada's energy demand growth is slowing, while sources to meet these demands are becoming less carbon intensive.

Total Canadian Energy Use by Fuel Type, 2017 to 2040, Reference Case



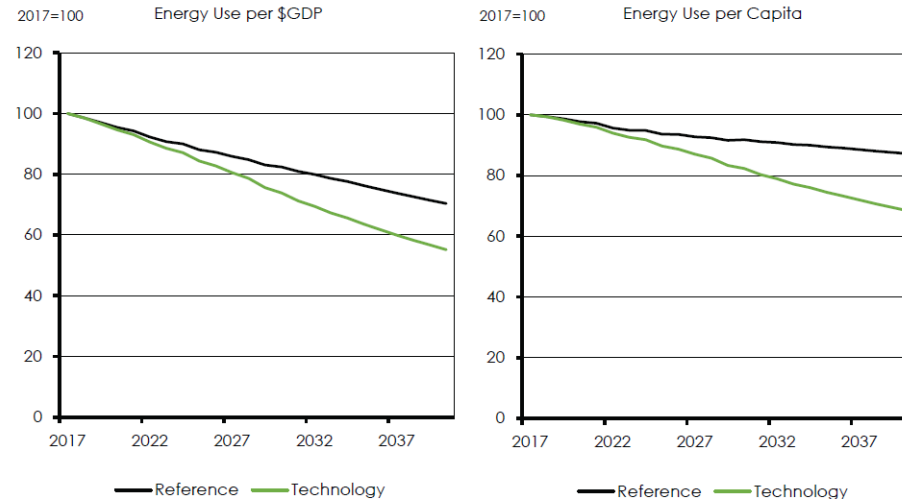
Key Finding 2: In a scenario with greater adoption of new energy technologies, Canadians use over 15% less total energy and 30% less fossil fuels by 2040.

Canadian Total Energy Demand by Fuel Type, Reference and Technology Cases



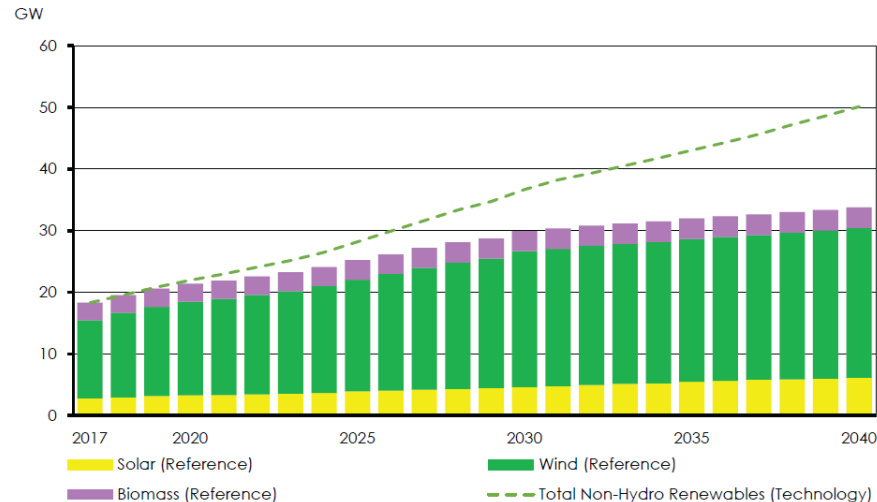
# Key Finding 3: Energy use and economic growth continue to decouple.

## Energy Intensity Trends, Reference and Technology Cases, % of 2017 Level



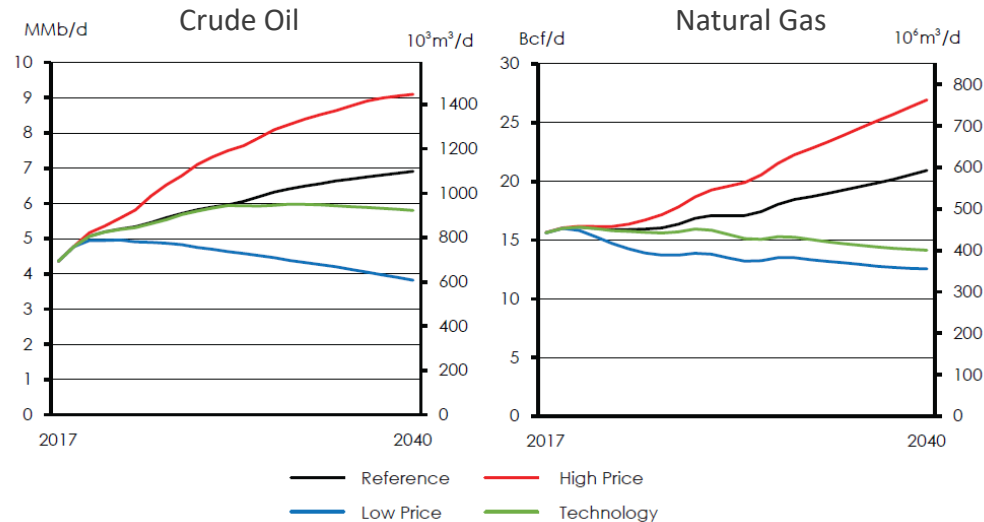
# Key Finding 4: Canada's energy mix continues to diversify, and its already low-emitting electricity mix adds more renewables.

Energy Intensity Trends, Reference and Technology Cases, % of 2017 Level



# Key Finding 5: Canadian oil and natural gas production increases in the Reference Case. Price and technology trends will be key factors influencing Canadian production in the future.

Crude Oil and Natural Gas Production by Case, 2017-2040



# Conclusions

- Reference and Technology Case show very different energy pathways for Canada
- At the same time, they reflect the same fundamental trends:
  - Energy mix diversifies
  - Energy efficiency improves
  - Large potential for energy production

National Energy  
Board



Office national  
de l'énergie

[www.neb-one.gc.ca](http://www.neb-one.gc.ca)

1-800-899-1265

@NEBCanada

@ONE\_NEBCanada