

# Preparing for the peak: Energy security and Atlantic Canada

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# Energy security

*Government actions or policies to ensure that a community has access to reliable and affordable sources of energy*

# Why is energy security an issue?

- Uneven distribution of energy resources
- Increasing world demand for energy
- Rising production costs
- Geopolitics

# Energy insecurity

- Reliable to unreliable:
  - Secure to insecure
  - Uninterruptible to interruptible
- Affordable to unaffordable

# Energy security and Canada

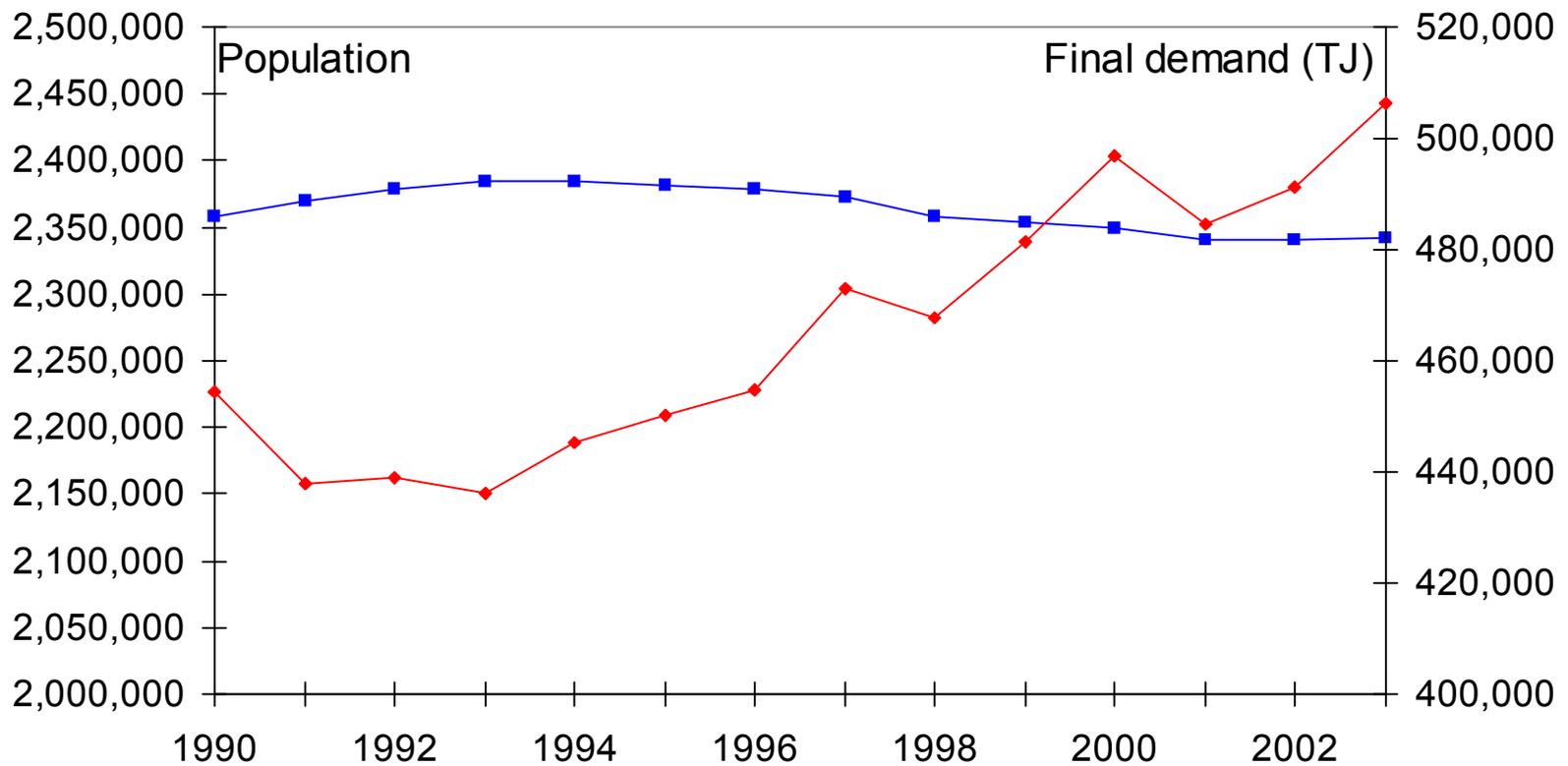
- Canada – an energy “superpower”
- A net energy exporter
- Blessed with:
  - Oil
  - Natural gas
  - Coal
  - Hydroelectricity
  - Uranium
- *Canada is not “energy homogenous”*

# Atlantic Canada



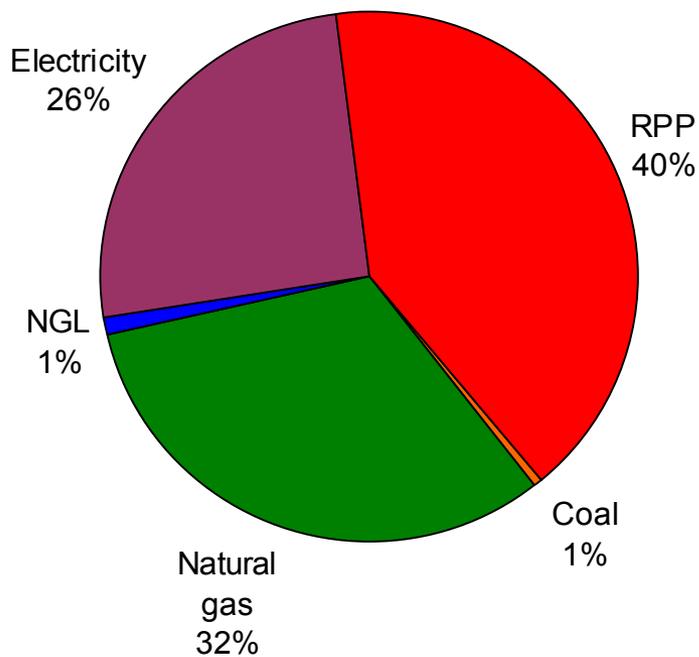
- Older housing stock
- Declining population
- Sizable rural population
- Loss of traditional industries

# Population and final energy demand

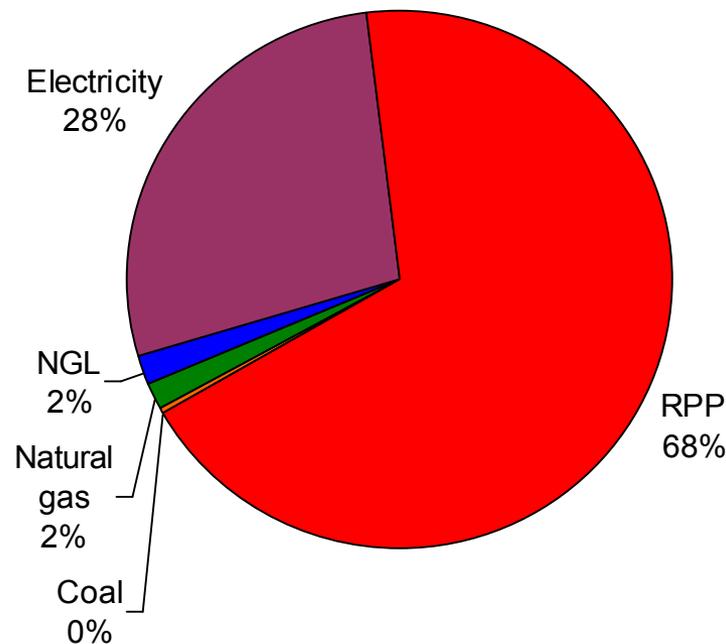


# Energy final demand

## Canada

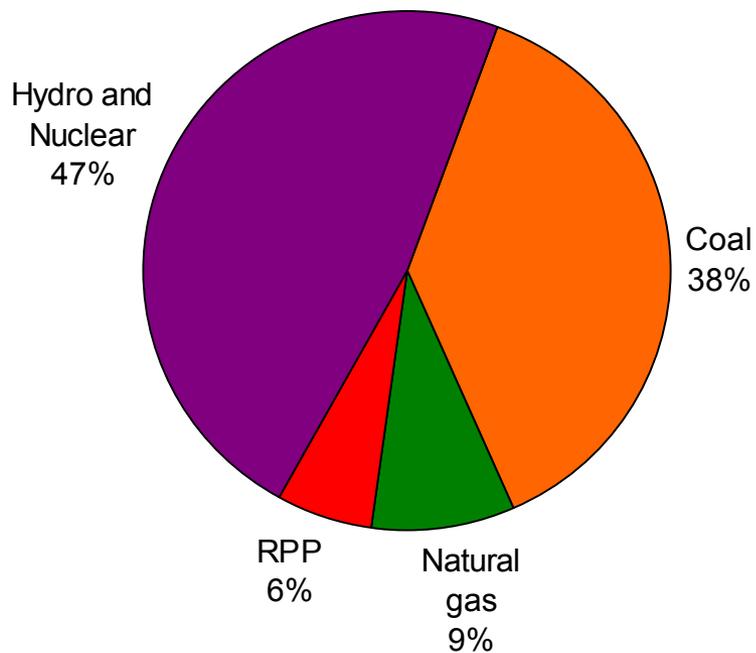


## Atlantic Canada

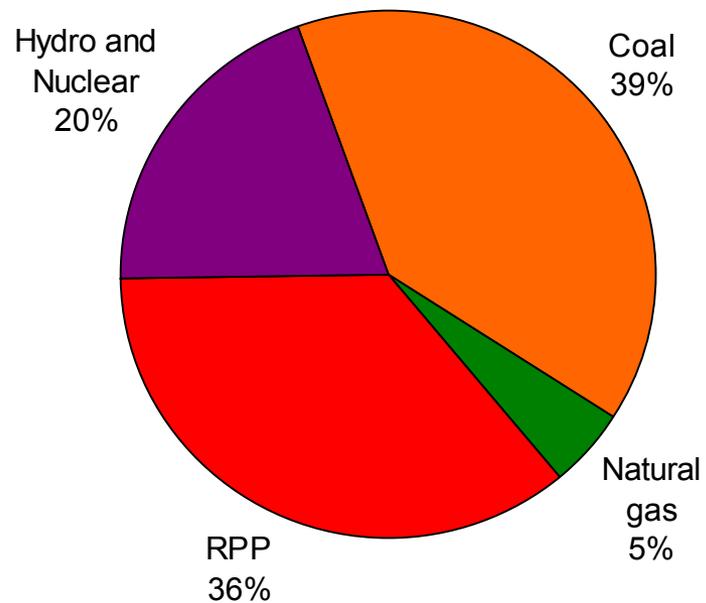


# Electricity

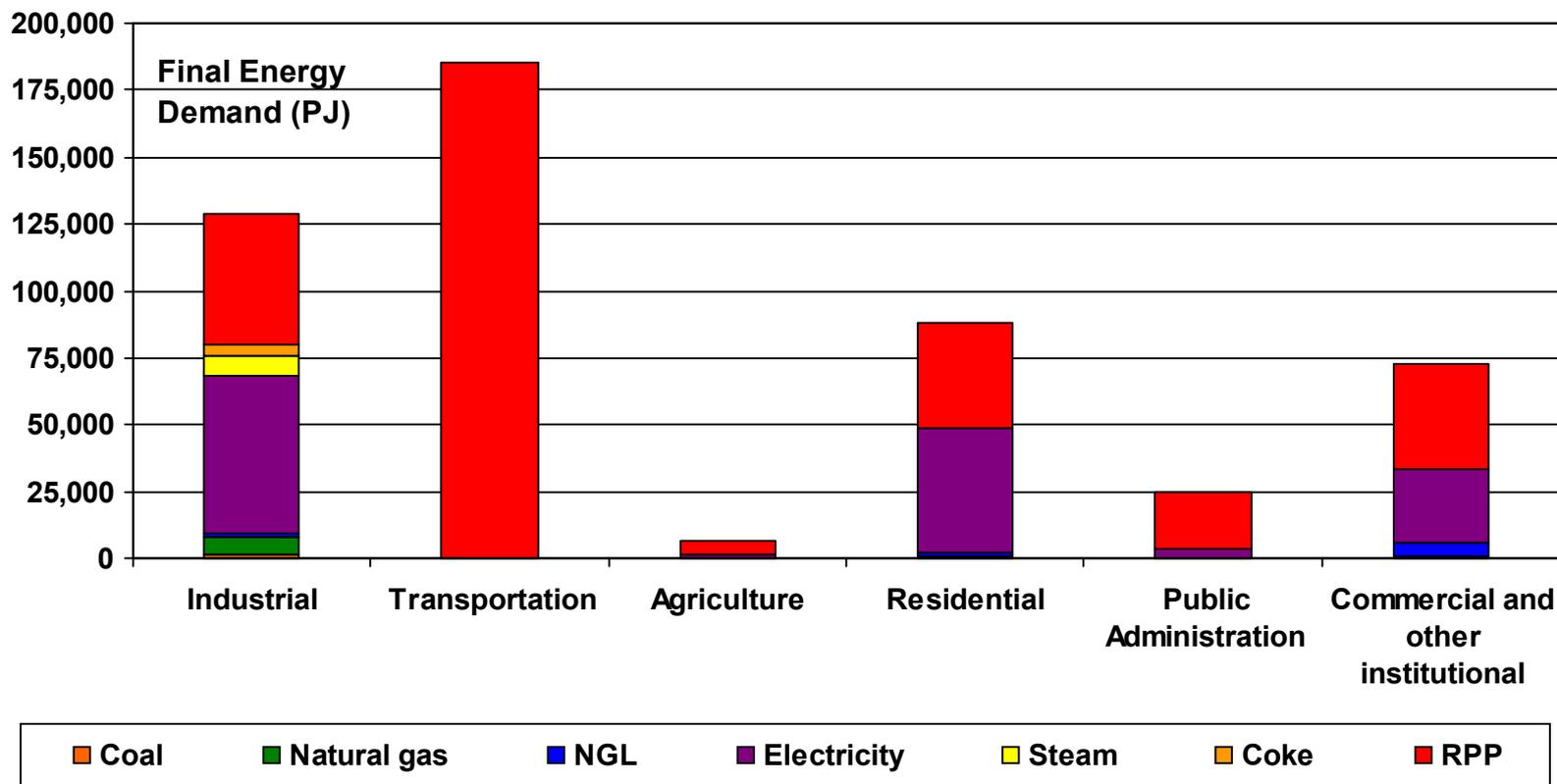
## Canada



## Atlantic Canada

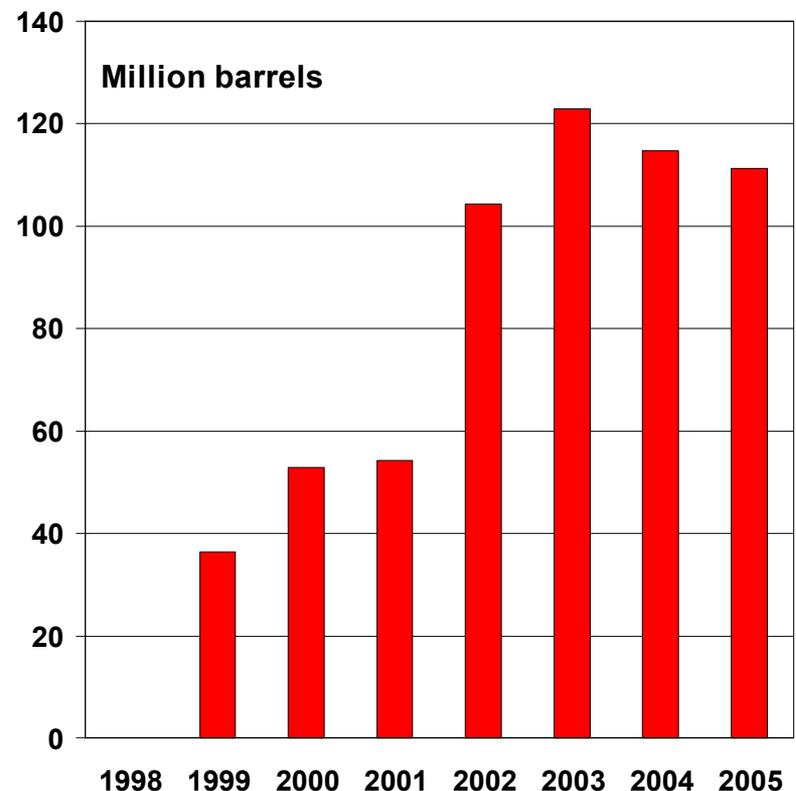


# Final demand by sector



# Newfoundland and Labrador

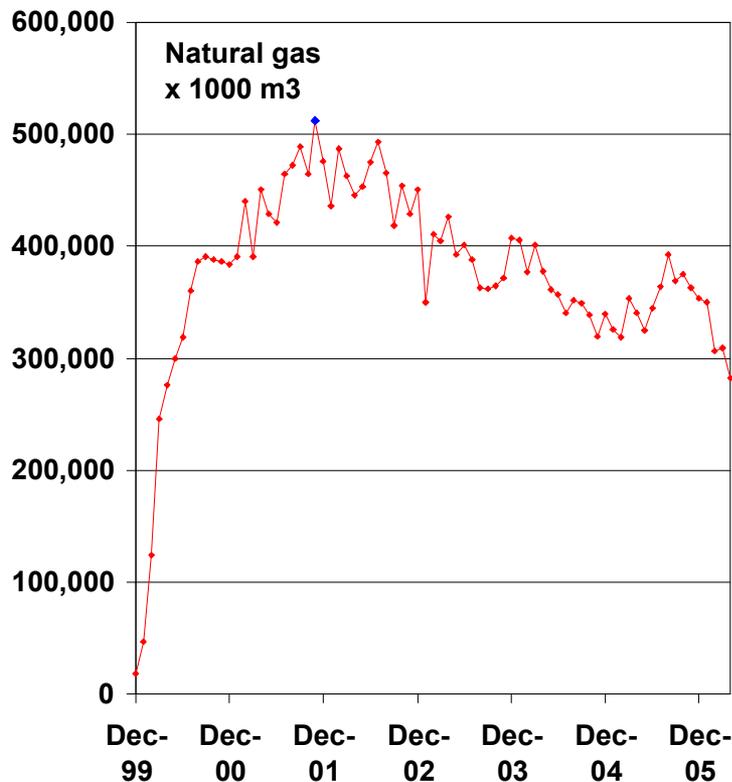
- Offshore oil:
  - Hibernia, Terra Nova, and White Rose
  - >85% exported
  - Hebron?
- Hydroelectric:
  - Churchill Falls 5,400 MW
  - Gull Island 2,800 MW



# New Brunswick

- Limited coal reserves
- Electricity:
  - Oil and coal
  - Hydroelectric
  - Nuclear (600 MW Candu)

# Nova Scotia



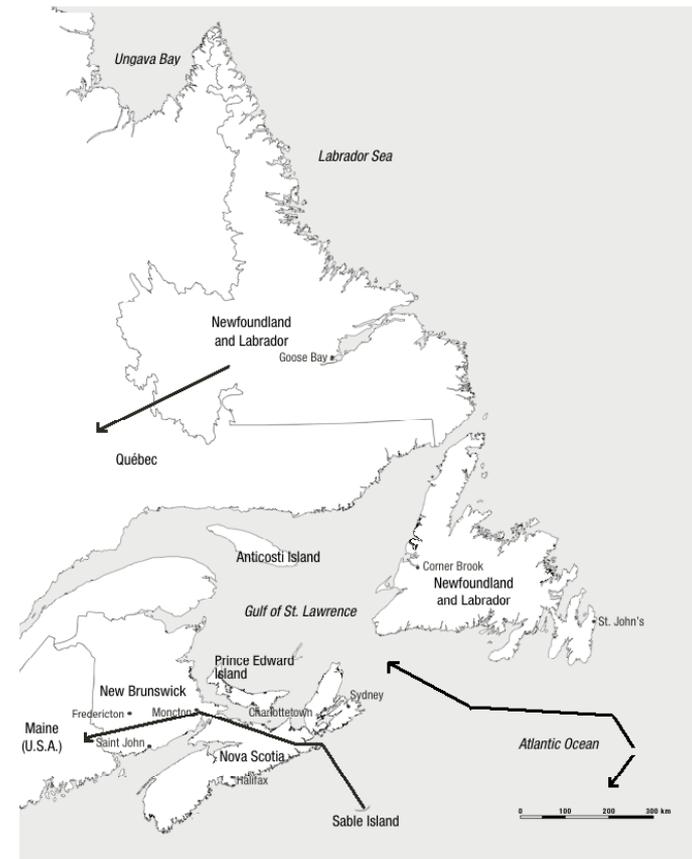
- Offshore natural gas:
  - Sable (Exxon-Mobil)
  - No exploration
  - >90% exported
- Some coal
- Government and Nova Scotia Power:
  - Yes: FERC 888/889
  - Slow: RPS
  - Slower: Tidal power

# Prince Edward Island

- Energy imports:
  - All refined petroleum products
  - Most electricity from NB
- Push for wind energy (electricity):
  - 2010 – 20 percent
  - 2015 – 100 percent

# Energy colony?

- Energy corridors:
  - Churchill Falls to Quebec
  - Sable to New England
  - Hibernia to Quebec and US
- Western Canada energy:
  - Oil to Ontario
  - Natural gas to Quebec



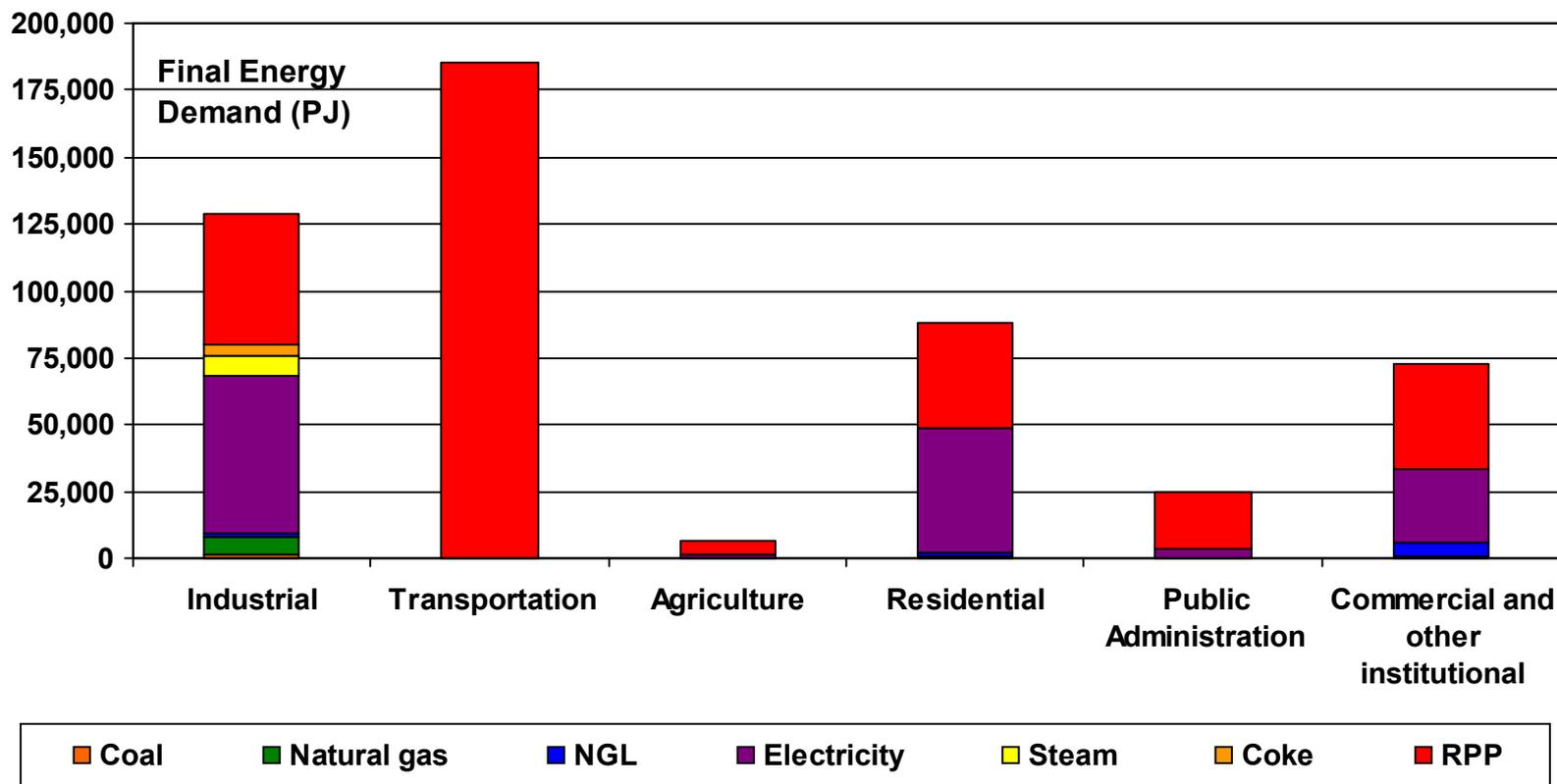
# Where does the energy come from?

- Oil:
  - North Sea
  - Venezuela
- Natural gas:
  - LNG – Russia, Trinidad and Tobago, others?
- Coal:
  - Venezuela
  - United States
  - Columbia

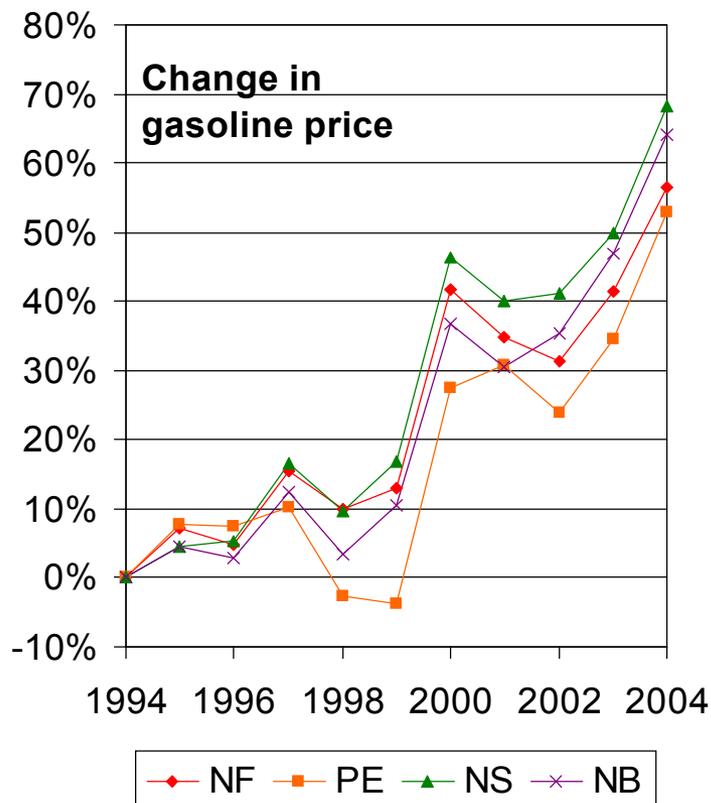
# Energy policies

- Heating fuel:
  - Low Income Fuel Assistance (NL, NS)
  - Removal of provincial sales tax (NB)
- Fuel price regulation:
  - Gasoline (NB, NL, PE)
  - Home heating fuel (PE)
- Energy efficiency programs:
  - Were coupled with federal EnerGuide program
  - Targeted provincial programs

# Preparing for the peak

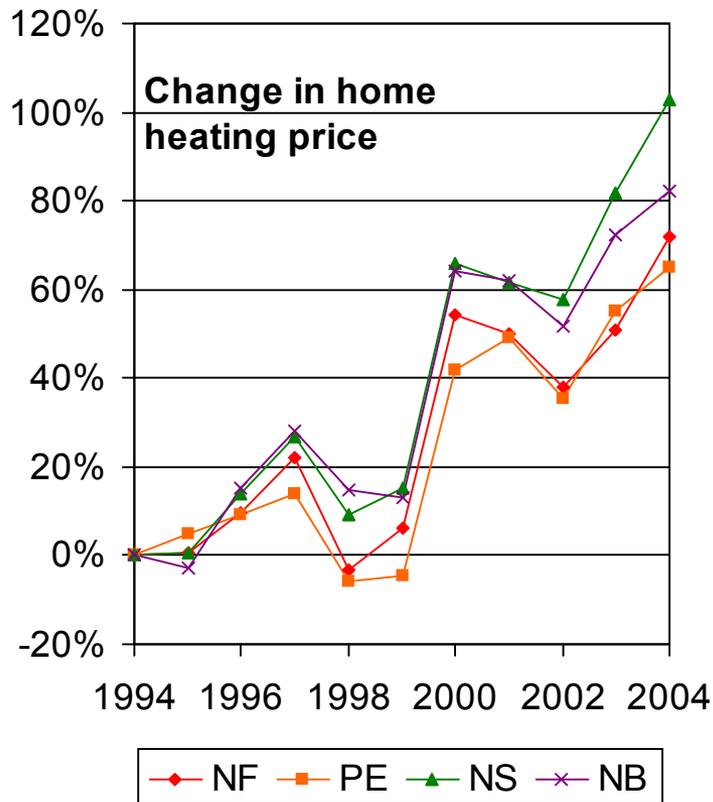


# Demand reduction: Transportation



- Put alternatives in place:
  - Regional bus and rail routes
  - Restore regional rail
- Compact urban form

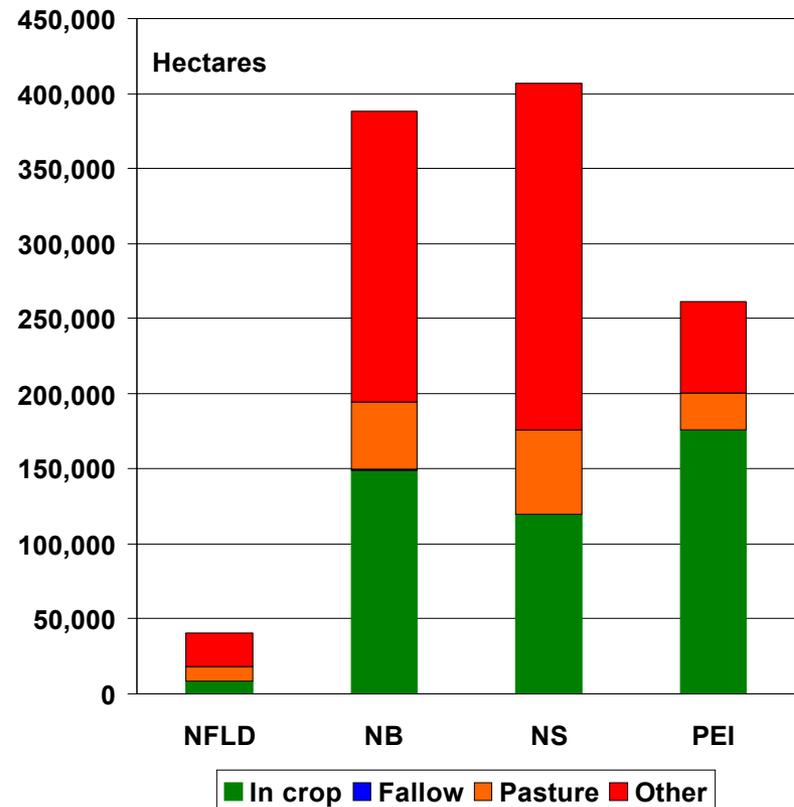
# Demand reduction: space heating



- Short term:
  - Assist low income households
  - Run home energy upgrade programs
- Long term:
  - Change building codes to maximize solar energy
  - Install district heating

# Fuel substitution

- Agriculture:
  - Dedicated crops
  - Stover
- Forestry:
  - Plantations
  - Wood waste
- Coal-to-liquid fuels
- “Oil” shale in NB



# What can be done?

|                   | Now   | 10 years from now  | 20 years from now   |
|-------------------|---|--|---|
| Transport         | <ul style="list-style-type: none"><li>• Urban form bylaws</li><li>• Limited bus/rail</li></ul>          | <ul style="list-style-type: none"><li>• Bus network</li></ul>  | <ul style="list-style-type: none"><li>• Rail restoration</li></ul>                    |
| Space heating     | <ul style="list-style-type: none"><li>• LIFA</li><li>• Solar bylaws</li><li>• Energy upgrades</li></ul> |  | <ul style="list-style-type: none"><li>• District heating</li></ul>                    |
| Fuel substitution |   | <ul style="list-style-type: none"><li>• Energy crops</li></ul> | <ul style="list-style-type: none"><li>• Coal-to-liquids</li><li>• Oil shale</li></ul> |

# Atlantic Canada...

- relies on foreign energy sources,
- is not ready for energy price rises,
- is not ready for energy shortages,
- has no short term energy policies,
- has no long term energy policies,
- is energy *insecure* and is not prepared for the peak.