

Lecture 13 – Minerals and Energy

1. Framing Questions
2. Choosing Energy Sources in Canada
3. Offshore Petroleum
4. Athabasca Oil Sands
5. "Fracking"

Key Concepts

- Framing questions – aspects that determine how mineral resources should be exploited
- Trends in Energy use and consumption in Canada
- Trends in Offshore petroleum exploration and issues
- Athabasca Oil Sands: context and issues
- "Fracking": what is it, and impacts/issues

1. Framing Questions (1)

- Renewable resources:



Framing Questions (2)

- How to use the proceeds from extraction?
-



Framing Questions (3)

-



Framing Questions (4)

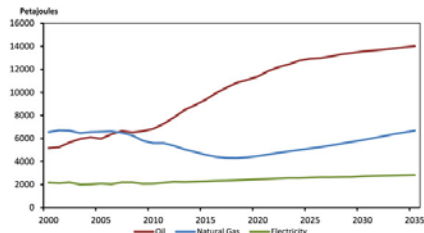
- How to create improved socio-economic relationships with stakeholders?



2. Choosing Energy Sources in Canada

- Fossil fuels meet:

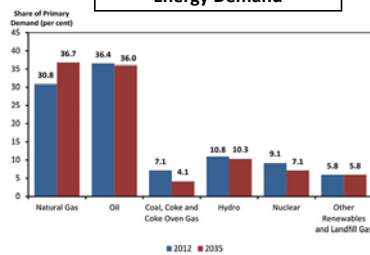
Canadian primary energy production by source, 2000-2035
Projection by the National Energy Board



Energy Use in Canada

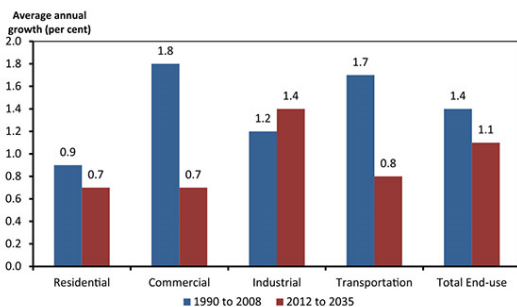
- Fossil fuels still expected to account for:

Share of Fuel in Primary Energy Demand



Energy Use in Canada (2)

- Between 1990 and 2008:



3. Offshore Petroleum

- Of current world production of petroleum:



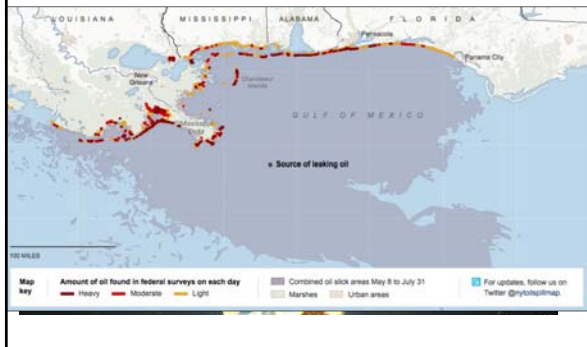
Offshore in Canada

- Start in 1992:

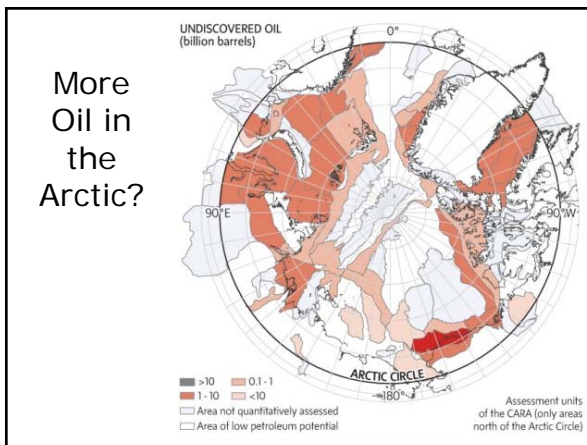




Magnitude of the DH Spill



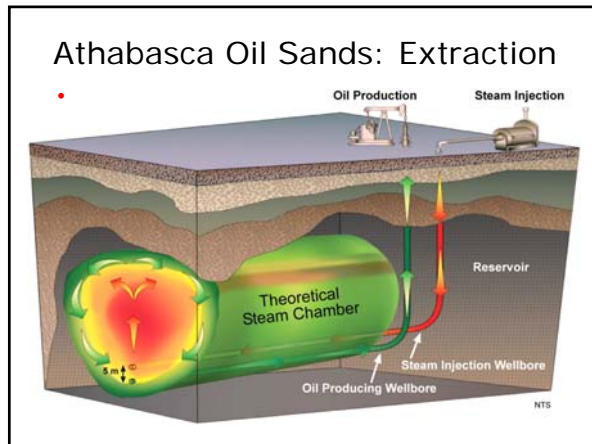
More Oil in the Arctic?



4. Athabasca Oil Sands

- 10 to 12% bitumen mixed with sand, clay, silt, and water



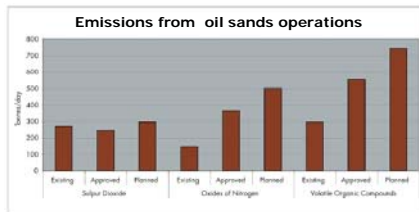






Oil Sands Impacts: Air Quality

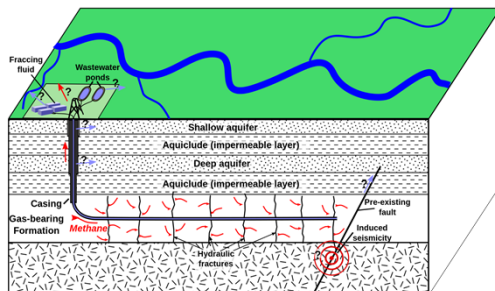
- GHG emissions will triple over the next decade:



Oil Sands Impacts: Exports



5. "Fracking"



Conclusion

- The exploitation of mineral resources should be guided by the answers to major framing questions
- Fossil fuels are the dominant source of energy used in Canada
- There are several major environmental issues with the extraction of fossil fuels, most notably tied in Canada to the Oil Sands.

TO DO!

1. Next lecture: chapter 12 in Textbook
2. Listen to Podcasts: Energy – Units 1 and 2
3. Tutorials **this week**: Debates week #1; bring the "Debate Evaluation Form"
4. Tutorials **next week**: Debates week #2; bring the "Debate Evaluation Form"
