

# Carbon Dioxide (CO<sub>2</sub>) Capture and Storage Regulatory Issues

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# Outline

- CO2 capture and storage in Canada
- Canadian Developments – Storage Protocols
- Why are protocols necessary?
- Risk Management Issues
- Next steps
- Conclusions



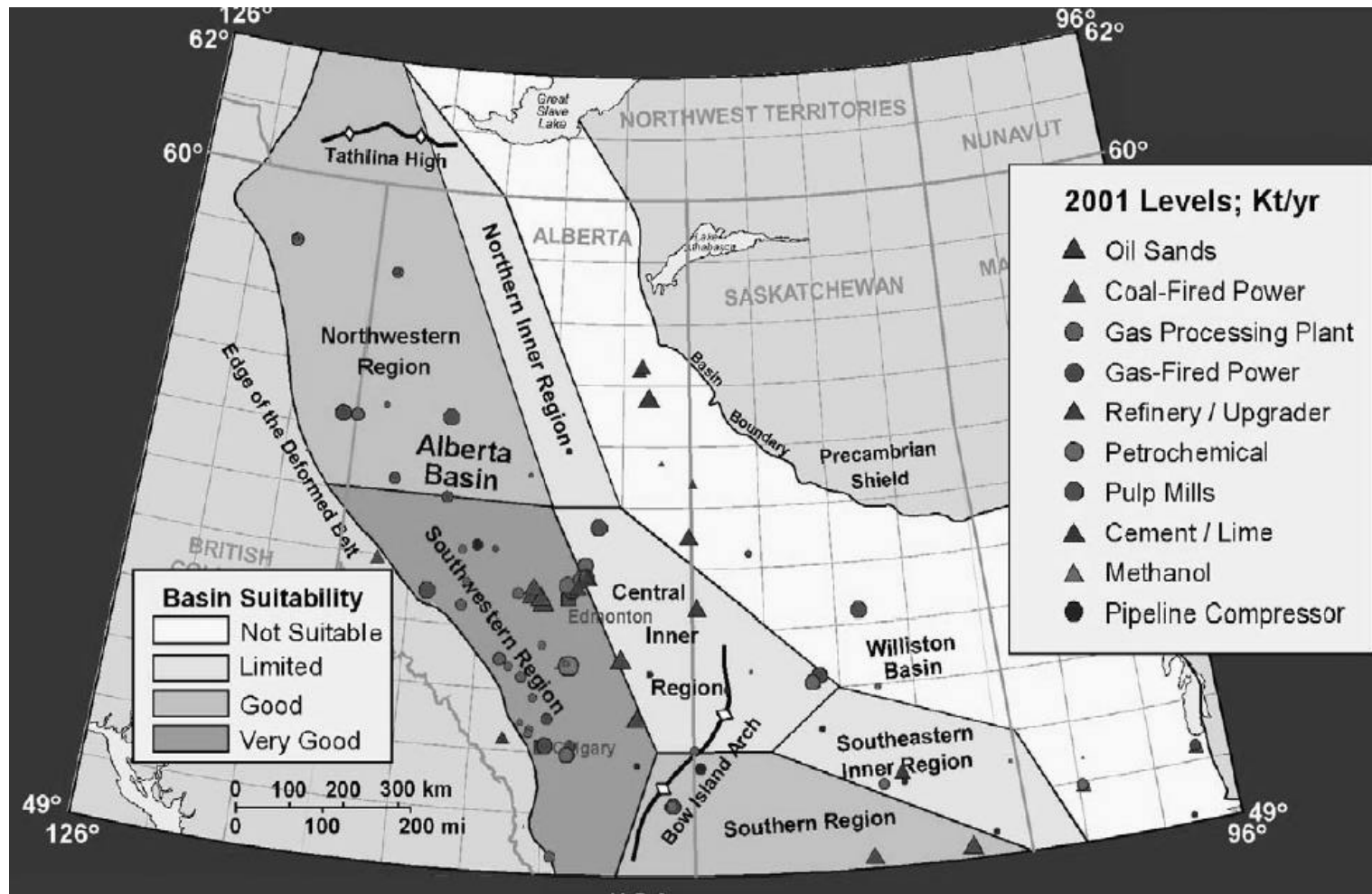
# CO<sub>2</sub> Capture and Storage in Canada

- Canada is demonstrating leadership on the technical aspects of CO<sub>2</sub> storage in geological media
- CO<sub>2</sub> capture and storage is being initiated
  - EOR (Weyburn, Joffre), acid gas re-injection, and ECBM R&D
- Industry and the public require information
- Government leadership role in policy and regulatory development



# CO<sub>2</sub> Capture and Storage in Canada

Location of CO<sub>2</sub> Emissions from Major Point Sources vs. Regional Basin Suitability for CO<sub>2</sub> Geological Storage



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(after Bachu, 2002)

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# CO<sub>2</sub> Capture and Storage in Canada

- Federal and Provincial government roles
- Acid gas re-injection analogue – under provincial regulatory regime



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# Canadian Developments: Storage Protocols

- The development of guidelines to address safety & environmental issues associated with long-term storage of CO<sub>2</sub> in geologic media
  - includes concerns regarding integrity of groundwater supplies, induced seismicity, leakage as well as monitoring & verification requirements



# Why are protocols necessary?

- Risk management
- Minimize environmental impacts
- Public health and safety
- Eliminate or reduce regulatory risk
- Equitable competition
- Accurate accounting



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# Issues for consideration

- Risks
- Leakage
- Fate
- Monitoring
- Time scale
- Geological diversity
- Transparency and continuity



# Risk example

- Two types of geological risk
- Local
  - Surface release (suffocation, vegetation)
  - CO<sub>2</sub> in subsurface (potable water, mobilization)
  - Quantity (heaving, seismicity, displacement)
- Global
  - CO<sub>2</sub> back into atmosphere



# Progress and Next Steps

- Environment Canada Commissioned Report Report “Developing Recommendations for the Management of Geologic Storage of CO<sub>2</sub> in Canada” provides insights on the development of protocols.
- Second study, in support of first, will assess the statutory, regulatory and monitoring requirements for CO<sub>2</sub> storage and management on the basis of current and emerging science and technologies for long term CO<sub>2</sub> Storage and in anticipation of a developing regulatory and statutory framework.
- Goal: To establish a 'menu' of monitoring opportunities for the regulatory sector allowing better site specific techniques to be used. (should be completed by Jan/04)
- Stakeholder Engagement work is on-going



# Conclusions

- In Canada CO<sub>2</sub> capture and storage regulation is continuing to evolve with developments in the market
- The federal and provincial governments will each have distinct roles
- Canada views the development of storage protocols as important and has taken steps to advance protocol development.

