

U of A – Houston Presentation

Water Use and Policy Challenges in Alberta

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Overview and Key Findings

- Compared to the rest of Canada, Alberta is a relatively dry Province.
- On a Province-wide basis, the petroleum industry uses less than 5% of Alberta's water resources.
- \$100 Billion to be invested in Oil Sands in next 10 years.
- On the Athabasca River the Oil Sands industry is largest consumer of water at about 65%.
- Although the Province regulates water use, many policies are just guidelines with little enforcement.
- Environmentalists are calling for a moratorium on incremental oil sands projects until a clear assessment of what water resources are relative to what projected consumption will be.

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Water Resources in Alberta

Alberta has about 10% percent of Canada's population, but it only endowed with about 2% of Canada's fresh water resources.

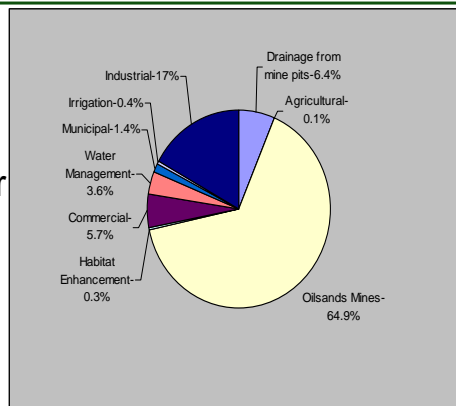
- Water Resources:
 - Surface water - stored in glaciers, lakes and man-made reservoirs and flow through the province's rivers.
 - Ground water - under the ground surface in the spaces between rocks, soils, and overburden. The storage is less than 40,000 km³



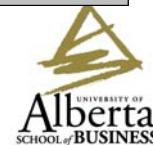
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Water Diverted from Athabasca River

- Open Pit Mining: ~3 m³ water /m³ oil
- In situ: ~7 m³ water /m³ oil
- Environmental hotspot?

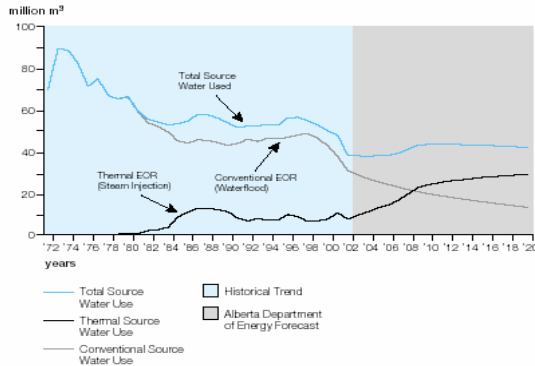


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Oil and Gas Industry

- Conventional Enhanced Oil Recovery
- Unconventional Thermal Enhanced Oil



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Provincial Regulation and Policy (1)

- The provinces have jurisdiction over matters local, private in nature-including natural resources.
- Alberta Environment regulates water use through a system of licensing and monitoring under the Water Act.

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Provincial Regulation and Policy (2)

- The Water Act:
 - traditionally “first in time, first in right”; no expiry and issued for full start up volume
 - grandfathered under new legislation
 - new licensees fixed period; temporary licenses for initial start up period

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Provincial Regulation and Policy (3)

- Water for Life (2003): Alberta’s Strategy for Sustainability:
 - goal reliable and quality water supplies for a sustainable economy
 - requirement recycle water
 - 30% improvement in water use by 2015

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Stakeholder Views (1)

- Environmentalists - given the rapid pace of oil sands development:
 - both industry and government are ignoring the potential irreversible cumulative long-term impacts (negative externalities) of depleting and/or contaminating Alberta's fresh water resources.
- Petroleum Industry - committed to the responsible use of water
 - provincial water use policy has been in place since 1931, (updated in 1999) and that petroleum operators are well regulated through a system of licensing and monitoring to ensure compliance.
- Provincial Government:
 - On a Province-wide basis, enhanced oil recovery only uses 4.6% of licensed water allocations versus 46% for agriculture.
 - total water use for the petroleum industry is declining

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Stakeholder Views (2)

(Recent Developments)

- Recent polls indicate the environment is the single most important issue for Canadians.
- Provincial government has only recently acknowledged it failed to envision the explosion in unconventional petroleum activities and their impact on the environment and public infrastructure.
- Federal Government (PMO Office) indicated the Conservatives have no interest in streamlining environmental assessments to hasten oil sands development.

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Recommendations and Conclusions

- Off-stream storage of water
- Improve the conservation of water use by improving current technologies
- Mandatory restriction on water use
- Government of Alberta must balance economic gain with environmental impacts.

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