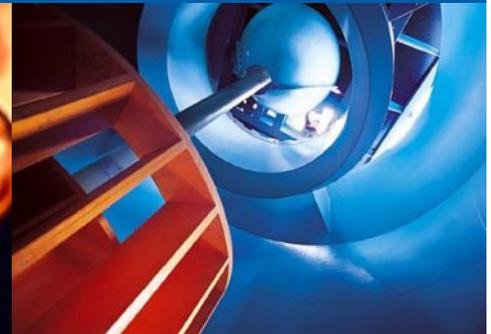


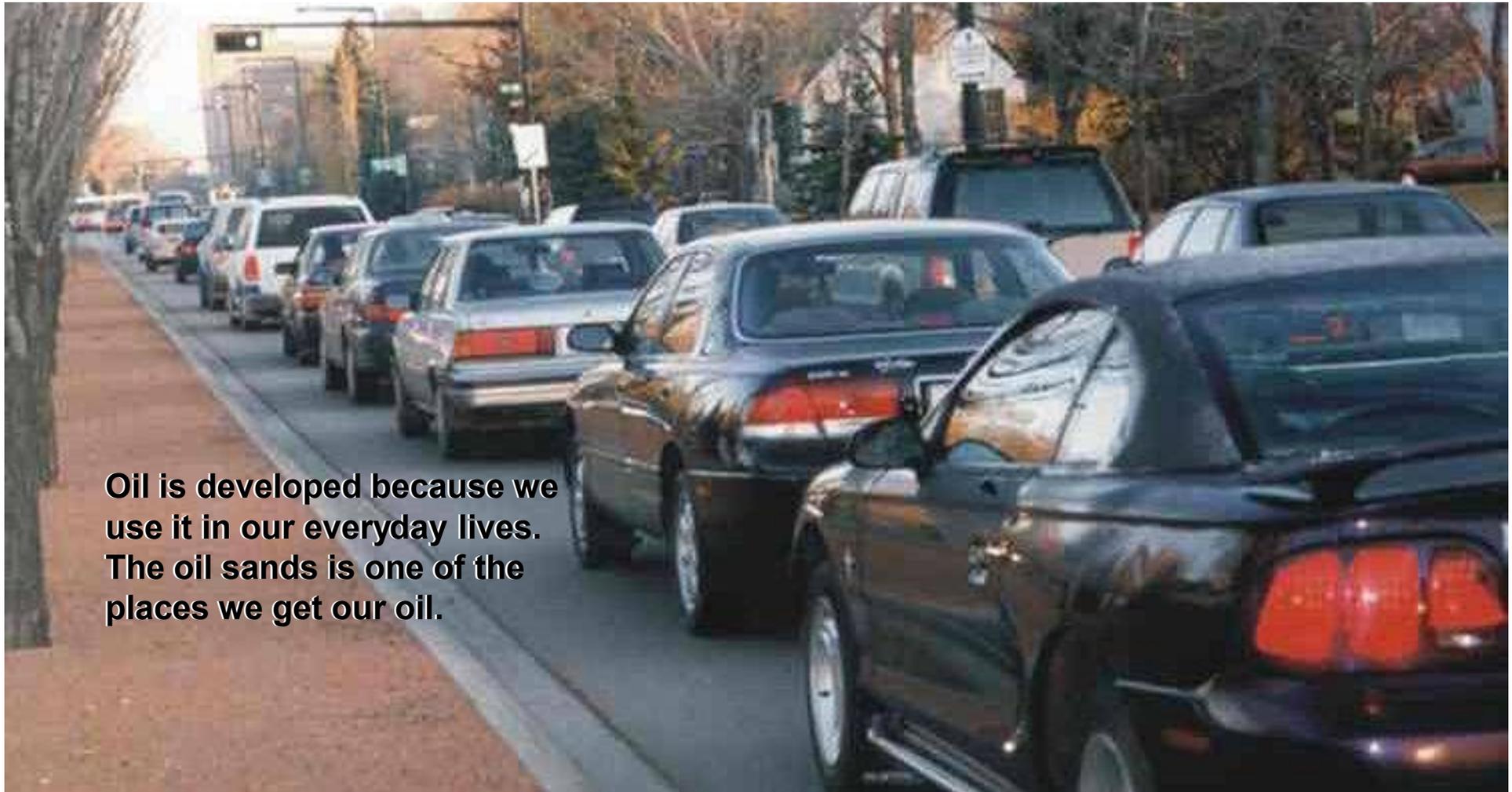


# Alberta's Oil Sands Resourceful. Responsible.

**Peter Watson**  
Deputy Minister, Alberta Energy



# Consumer energy choices



**Oil is developed because we use it in our everyday lives. The oil sands is one of the places we get our oil.**



*Alberta*

# Alternative and conventional energy required

- Shifting to other sources of energy is vital, but we will still need oil and gas.
- In their 2009 Energy Outlook, the International Energy Agency forecast that world oil demand will continue to increase by 1% per year to 2030.



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# Impacts must be reduced

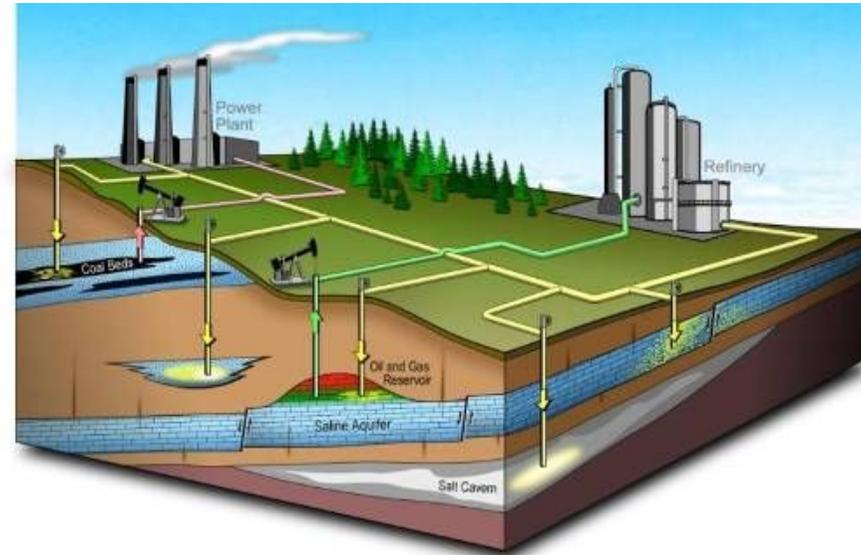
- During the transition to alternative low-carbon energy sources, the environmental impact of our fossil energy production and consumption must be reduced.
- Technology is key to reducing those impacts.
- Oil producing jurisdictions have a responsibility to invest in and develop the technology.



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# Carbon Capture and Storage (CCS)

- Key element of Alberta's Climate Change Strategy.
- \$2 billion for large-scale CCS projects—among the largest single capitalized funding investments by any jurisdiction in the world.
- Public funding will accelerate the development of projects and encourage investment from industry to make large-scale CCS projects viable.





“President Obama and this Administration are strongly committed to the development of carbon capture and storage technology as a key part of the clean energy economy.”

- U.S. Energy Secretary Steven Chu

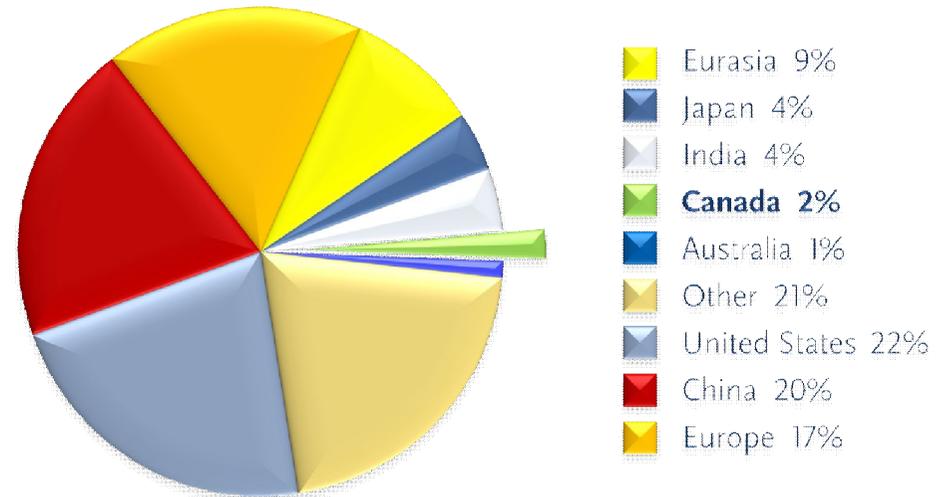


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# Oil sands and GHGs

- The oil sands in a carbon constrained world...

- Oil sands = 5% of Canada's emissions
- Canada = 2% of global emissions
- Oil sands = 0.1% of global emissions
- Oil sands carbon intensity is decreasing, while the carbon intensity of 'conventional' sources is going up.
- Oil sands producers have reduced average per barrel GHG emissions by 39% between 1990 and 2008.



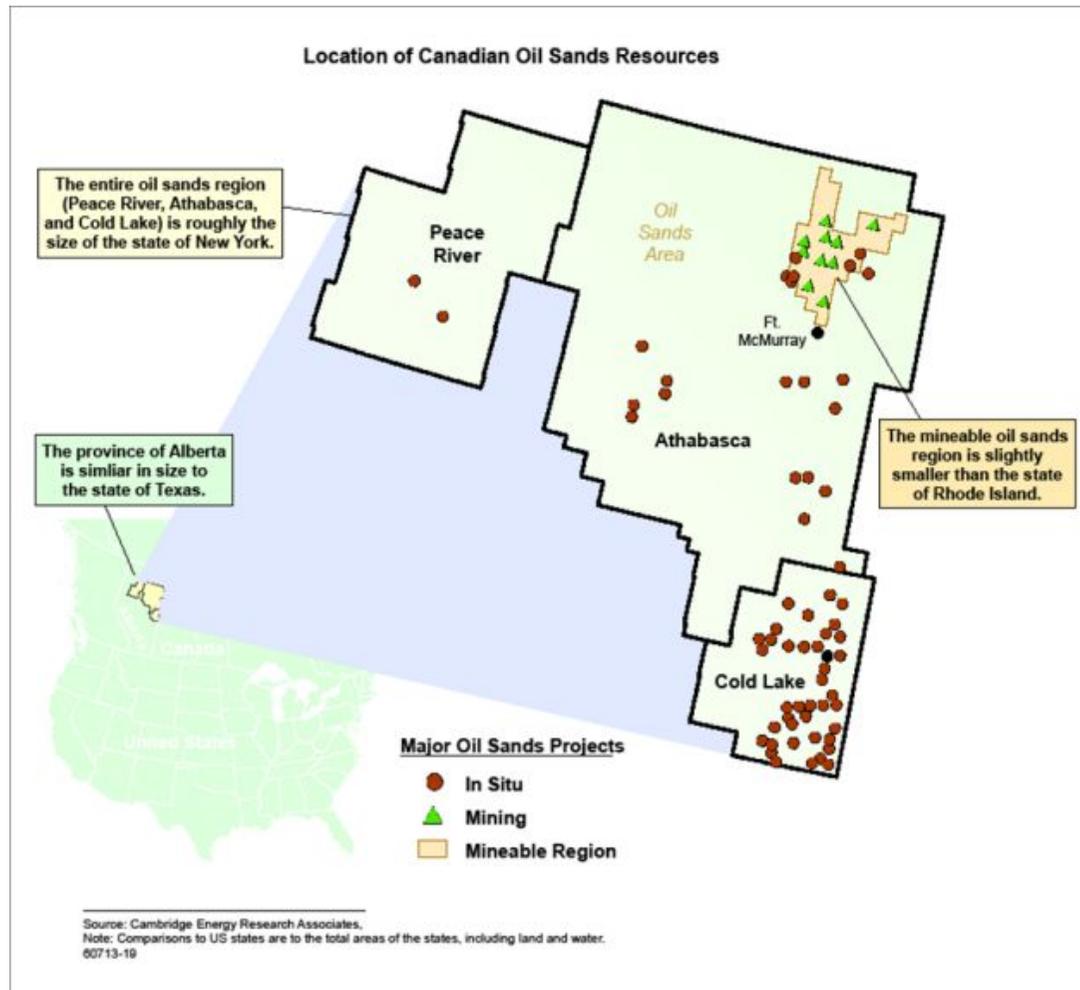
**Alberta's oil sands account for less than 1/10 of 1% of GHG emissions**

**The challenge is as production increases, so do total emissions.**



*Alberta*

# Where are the oil sands?



- Oil sands deposits:
  - 54,903 miles<sup>2</sup>  
(142,200 km<sup>2</sup>)
- Surface mineable deposit:
  - 1,853 miles<sup>2</sup>  
(4,800 km<sup>2</sup>)
  - about 1.25% of Alberta's Boreal forest area
- Less than 30% of mineable area has been approved for mining
- Land disturbed to date:
  - 232 miles<sup>2</sup>  
(602 km<sup>2</sup>)

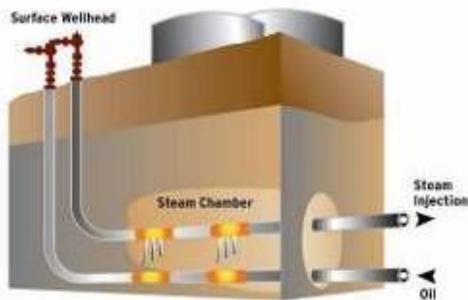


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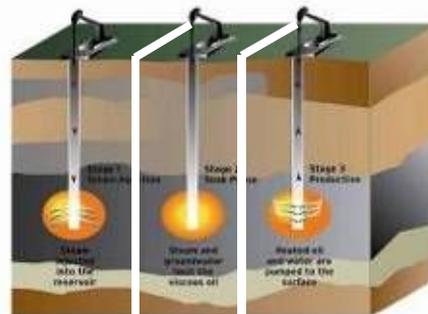
# Oil sands: in situ and mining

## In situ

### Steam Assisted Gravity Drainage



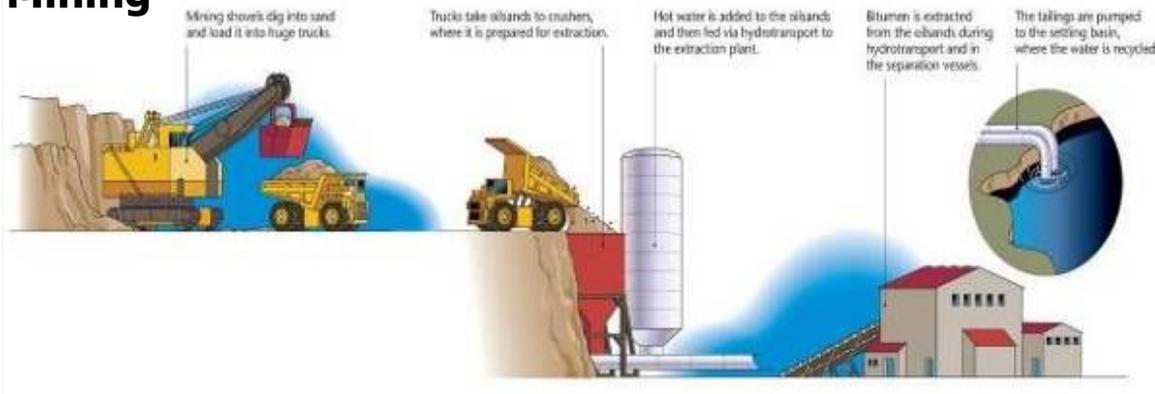
### Cyclic Steam Process



## In Situ:

- 80% of resource
- 45% of production

## Mining



## Mining:

- 20% of resource
- 55% of production



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# Land reclamation potential

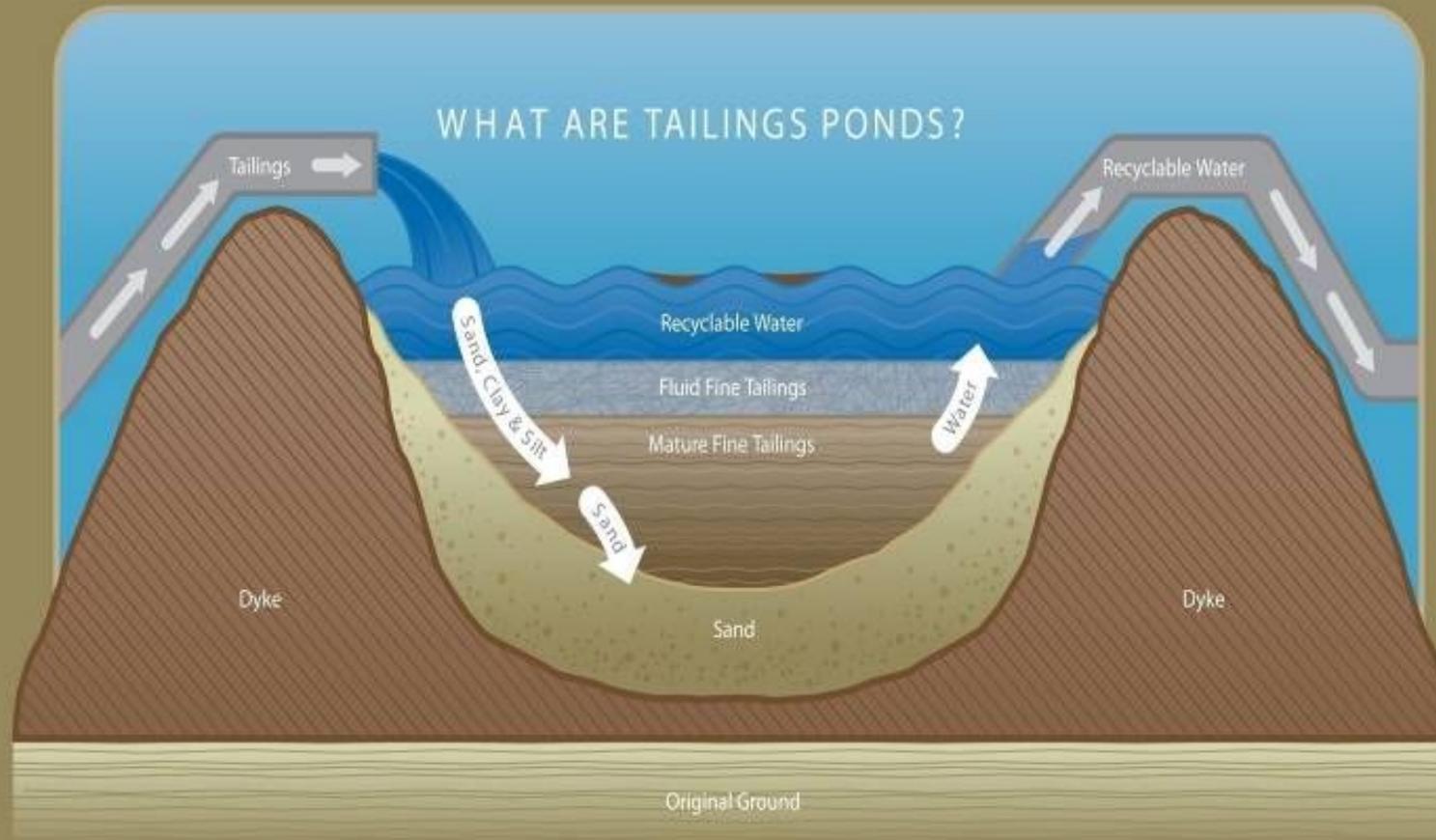


Research demonstrates the reclamation potential of wetlands.



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# Management of tailings ponds



**Ponds have extensive groundwater monitoring and seepage capture systems**



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# Management of tailings ponds

- Returning to a sustainable landscape can take decades to 150 years.
- Alberta has more than 170 km<sup>2</sup> of tailings ponds.
- New tailings management technologies and policies will shorten lifespan to **10 years or less**.
- ERCB Directive – faster reclamation; less fluid tailings.
- Industry has committed more than \$1.5 billion in upgrades to comply with the directive.



Ponds contain water, residual bitumen and some sand



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Freedom To Create. Spirit To Achieve.

# Energizing Investment

A Framework to Improve  
Alberta's Natural Gas and  
Conventional Oil Competitiveness



# Energizing Investment - Fiscal

- New fiscal framework will harness new technologies to tap unconventional gas resources and tight oil reserves and extend the life of existing conventional resources.
- Technology is key to reducing those impacts.
- Oil producers and producing jurisdictions have a responsibility to invest in and develop the technology.



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# Energizing Investment - Regulatory

- Layers of regulations, complexity are a deterrent to new investment, and a barrier to delivering social, economical and environmental outcomes.
- Broad regulatory review will ensure system is modern, efficient, performance-based and competitive.
- Changes will reduce delay and costs and encourage innovation.



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# Land-use Framework

- Oil sands development and environmental management go hand in hand.
- Alberta is developing plans for seven regions that consider social, environmental and industrial activities within each region.
- Framework provides clear direction, and addresses cumulative effects of development on Alberta's water, land and air.



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# Lower Athabasca Regional Plan

- Home to our oil sands—our first priority!
- Four themes:
  - Economic growth
  - Land conservation
  - Air and water thresholds
  - Human development

Consultation with Albertans will help us draft a regional plan.



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# Thank you



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