

# Alberta's Oil Sands: Turning The Unconventional Into The Conventional



**NEW YORK ENERGY FORUM**  
**1221 AVENUE OF THE AMERICAS**  
**MAY 1, 2007**

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# Alberta as a Resource Owner

## ALBERTA PRODUCES:

- Alberta produces 67% Canadian crude oil production
- 1.7 million b/d of crude oil
- 13.7 bcf/d of natural gas
- Drills: 21,599 wells in 2005

## CANADA PRODUCES:\*

- Canada #1 supplier of crude oil to US
- 2.5 million b/d of crude oil
- 17.1 bcf/d of natural gas
- Drills: 26,951 wells in 2005

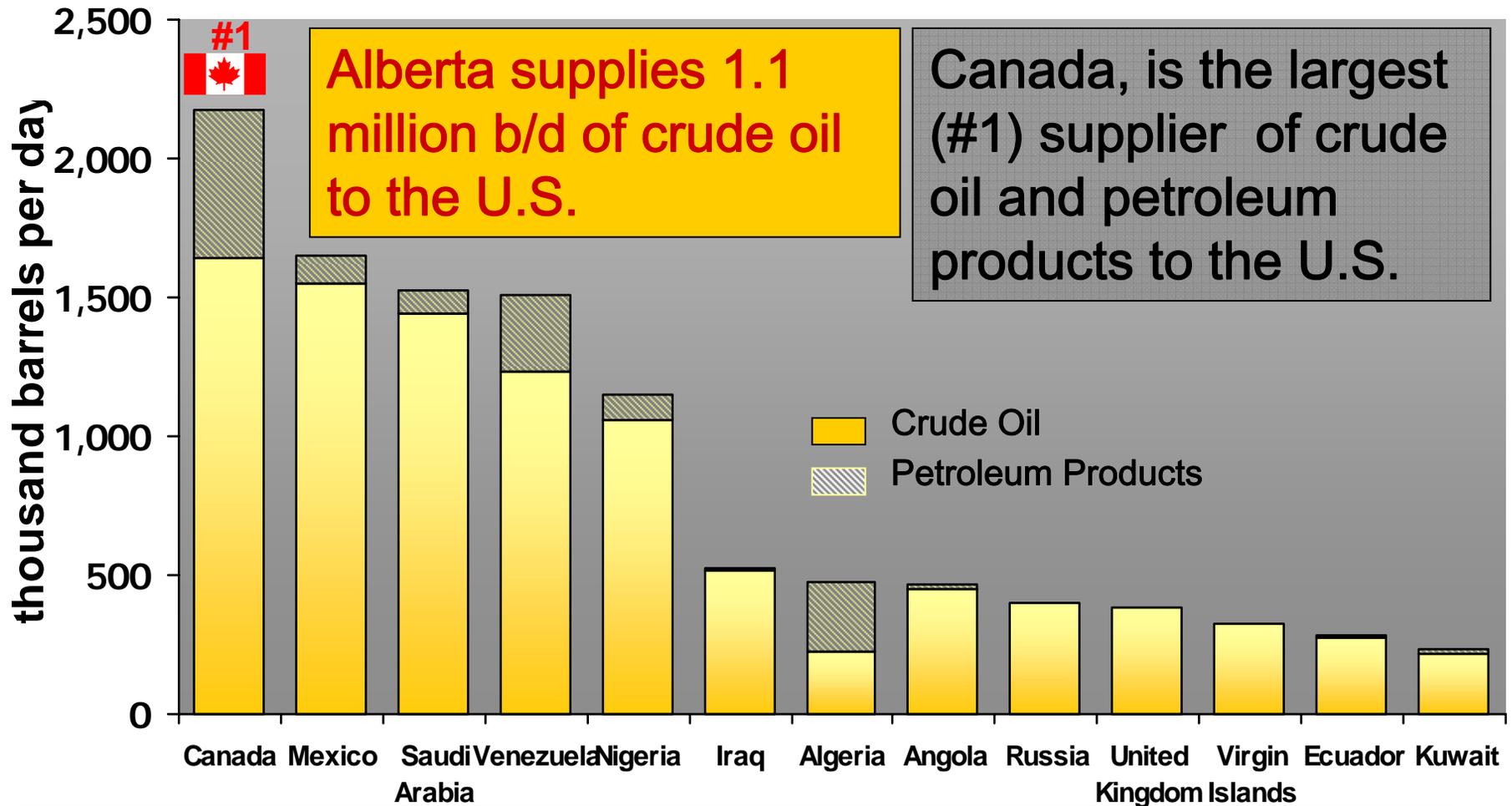
## ALBERTA EXPORTS TO US:

- 1.1 million b/d of crude oil
- 6.9 bcf/d of natural gas
- Alberta accounts for 60% of U.S. natural gas imports

## CANADA EXPORTS TO US:

- 1.63 million b/d
- 10.2 bcf/d of natural gas or
- Canada 16% of all natural gas consumption in USA

# U.S. Imports of Crude Oil and Petroleum Products by Country (2005)



Source: CAPP, EIA, 2005

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# Alberta Regulatory Model

**Government sets  
policy**

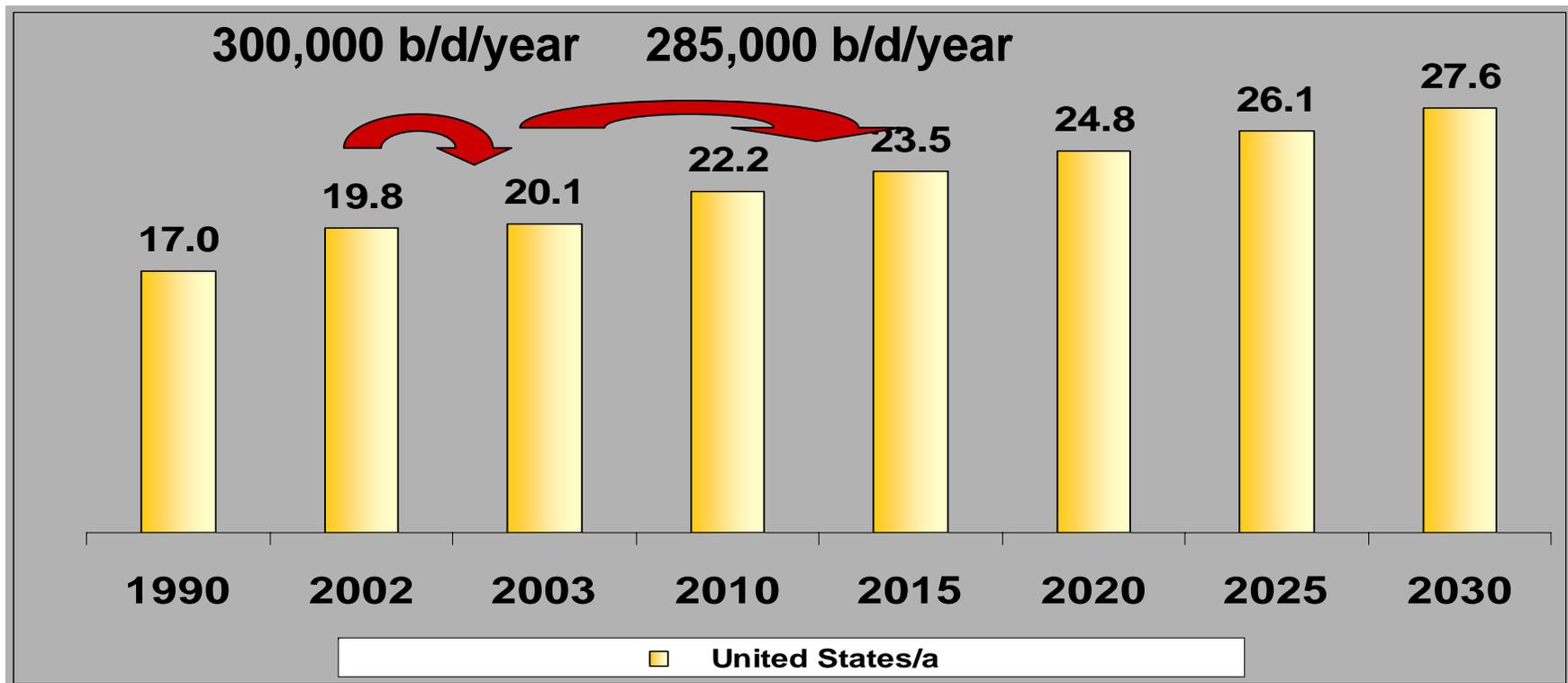
**Regulators administer policy,  
develop regulations for  
industry**

**Industry develops projects,  
consults landowners,  
applies to EUB**



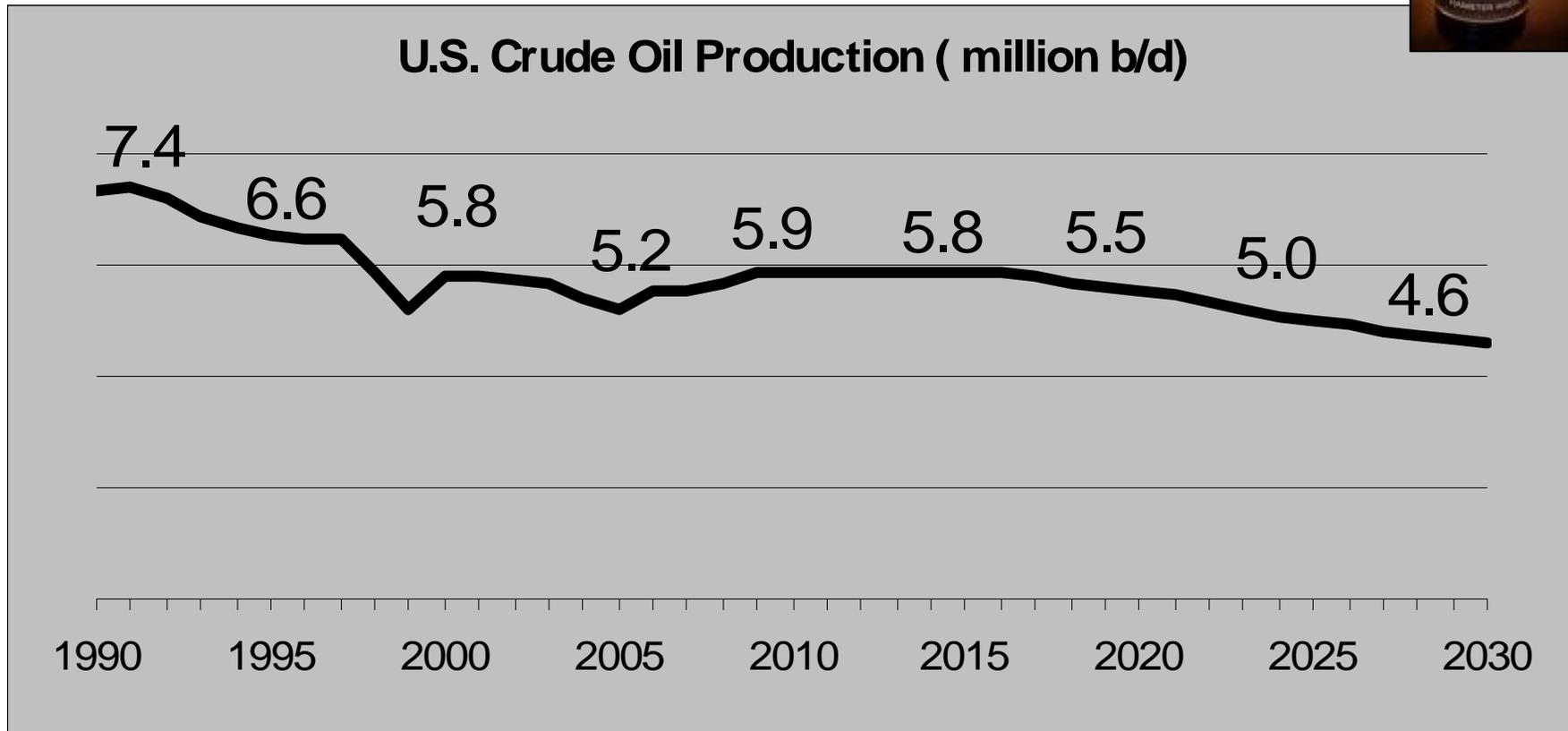
# U.S. Crude Oil Consumption 1990-2030 (million b/d)

- U.S. consumption increases at 1.2% on average per year
- That is an increase of ~ 300,000 each year



# U.S. Domestic Production of Crude Oil 1990-2030 million b/d

- Average annual decline in U.S. crude oil production is 1.11%
- Between 2005 and 2030 that's an average loss of ~ 30,000 b/d/year ( depending on access to federal lands)



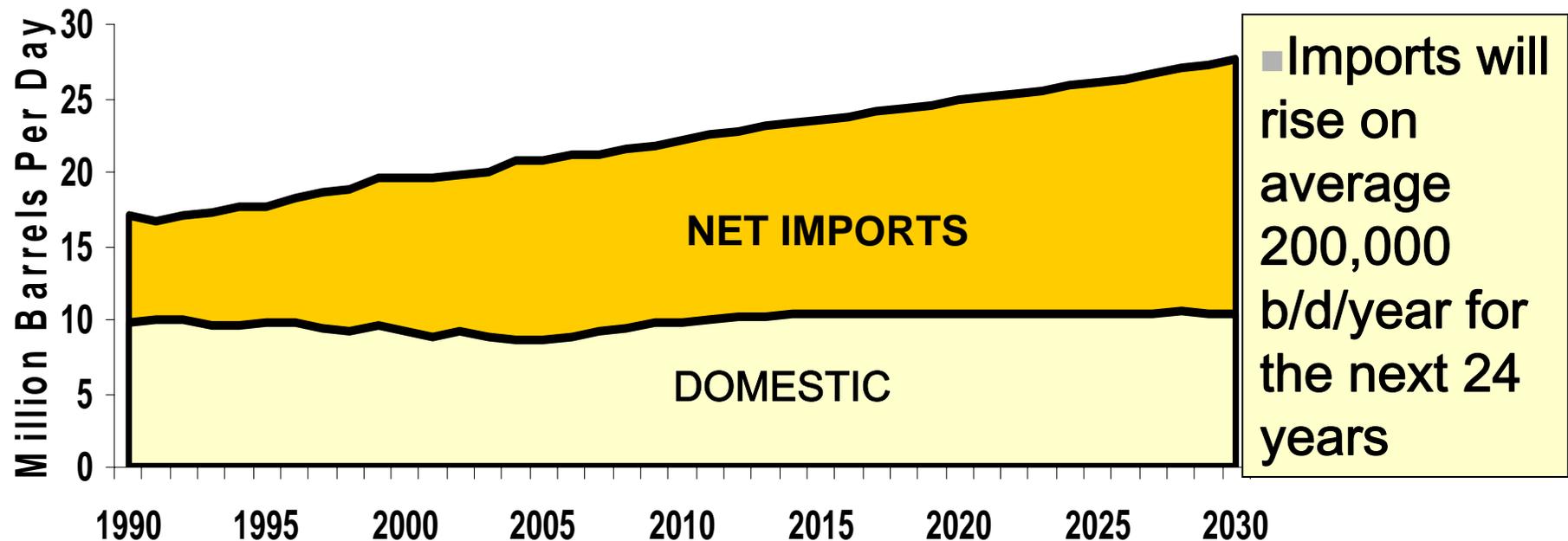
Source: U.S. Energy Information Agency actual figures 1990 -2005, International Energy Outlook forecast 2006-2030

\* Does not include other refined petroleum products or natural gas

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# U.S. Production and Consumption of Refined Petroleum Products

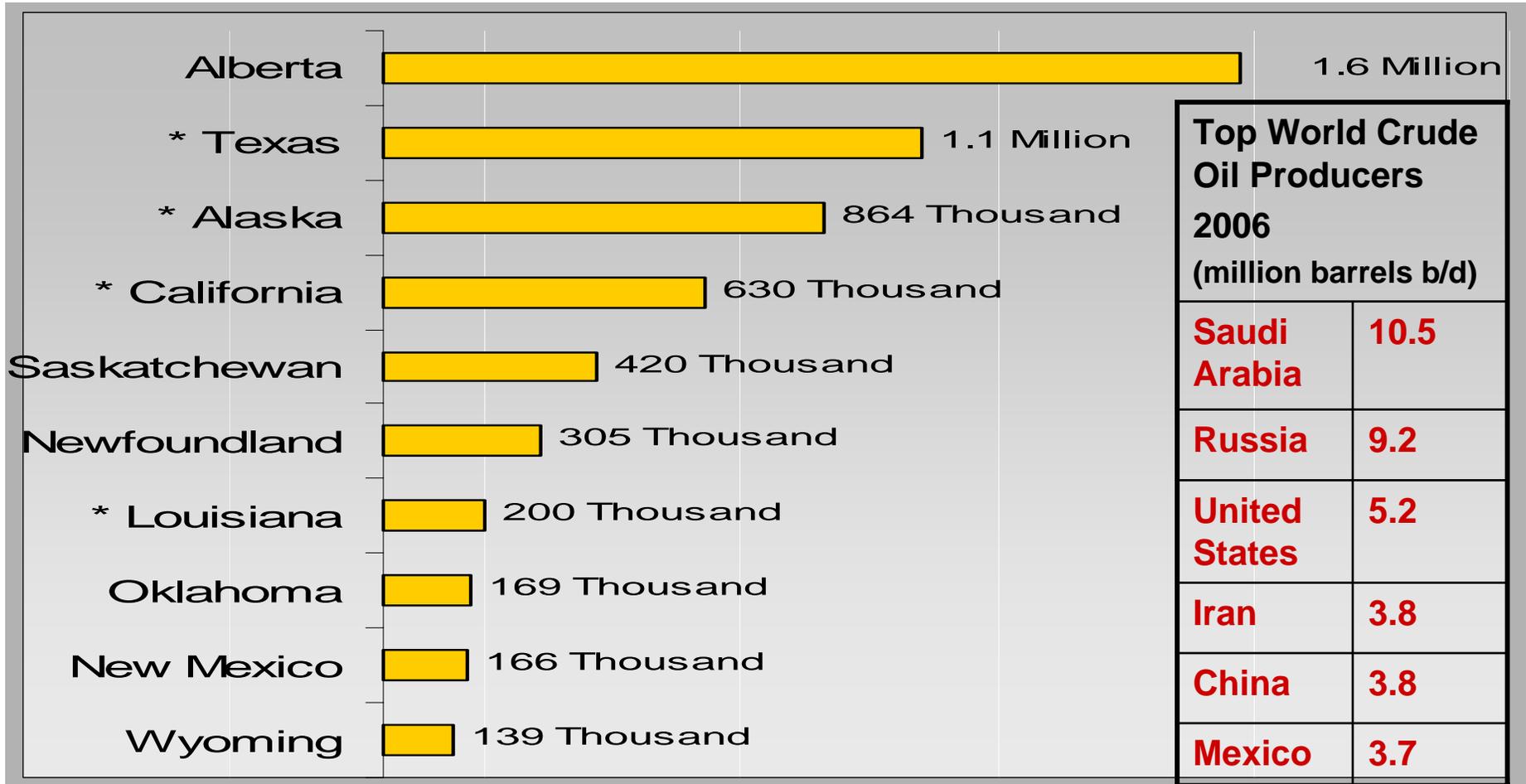
■ Between 2006- 2030 net imports of refined petroleum products will rise from 12 million b/d to over 17 million b/d



DOE, International Energy Outlook 2006

Refined petroleum products: Refined petroleum products include but are not limited to gasolines, kerosene, distillates (including No. 2 fuel oil), liquefied petroleum gas, asphalt, lubricating oils, diesel fuels, and residual fuels.

# North American Crude Oil Production by Region (2005)



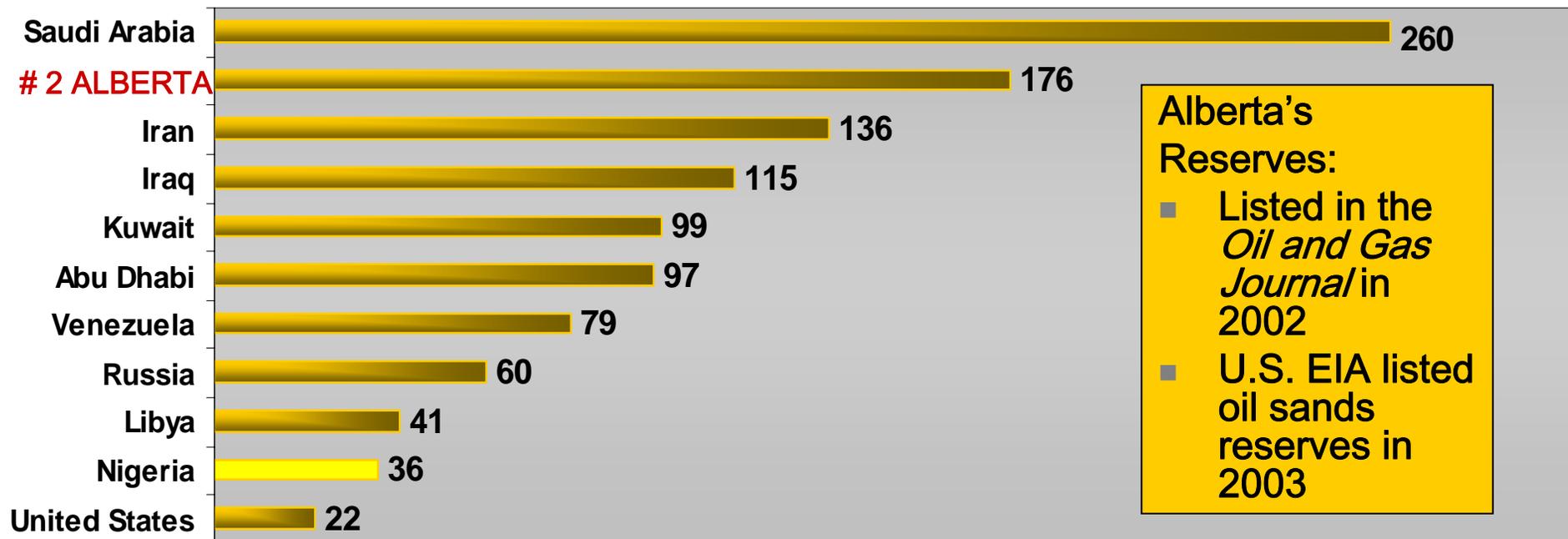
Source: Alberta Department of Energy

<http://www.eia.doe.gov/emeu/cabs/index.html>

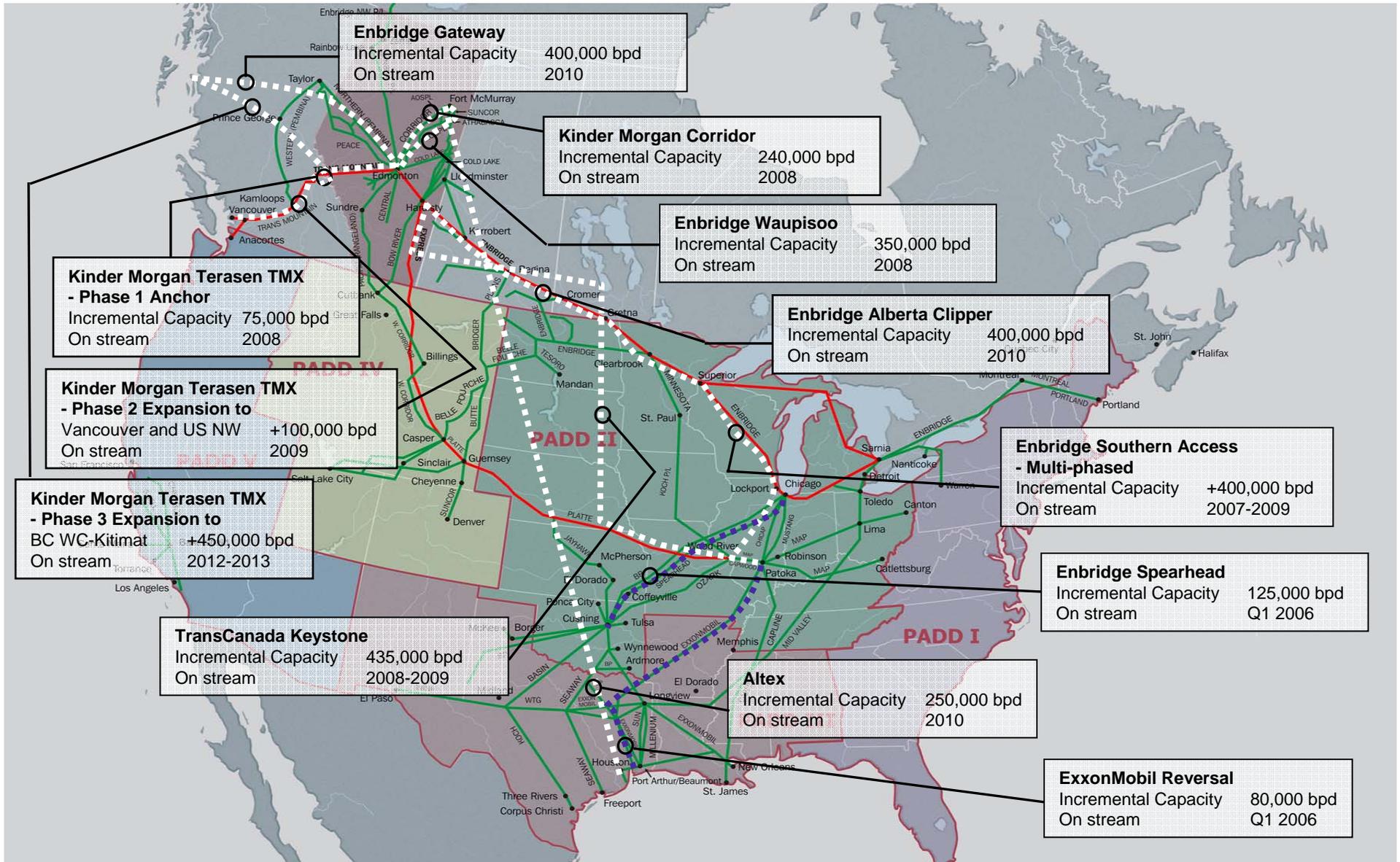
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# Alberta's Oil Sands: Reserve Estimates (billion barrels)

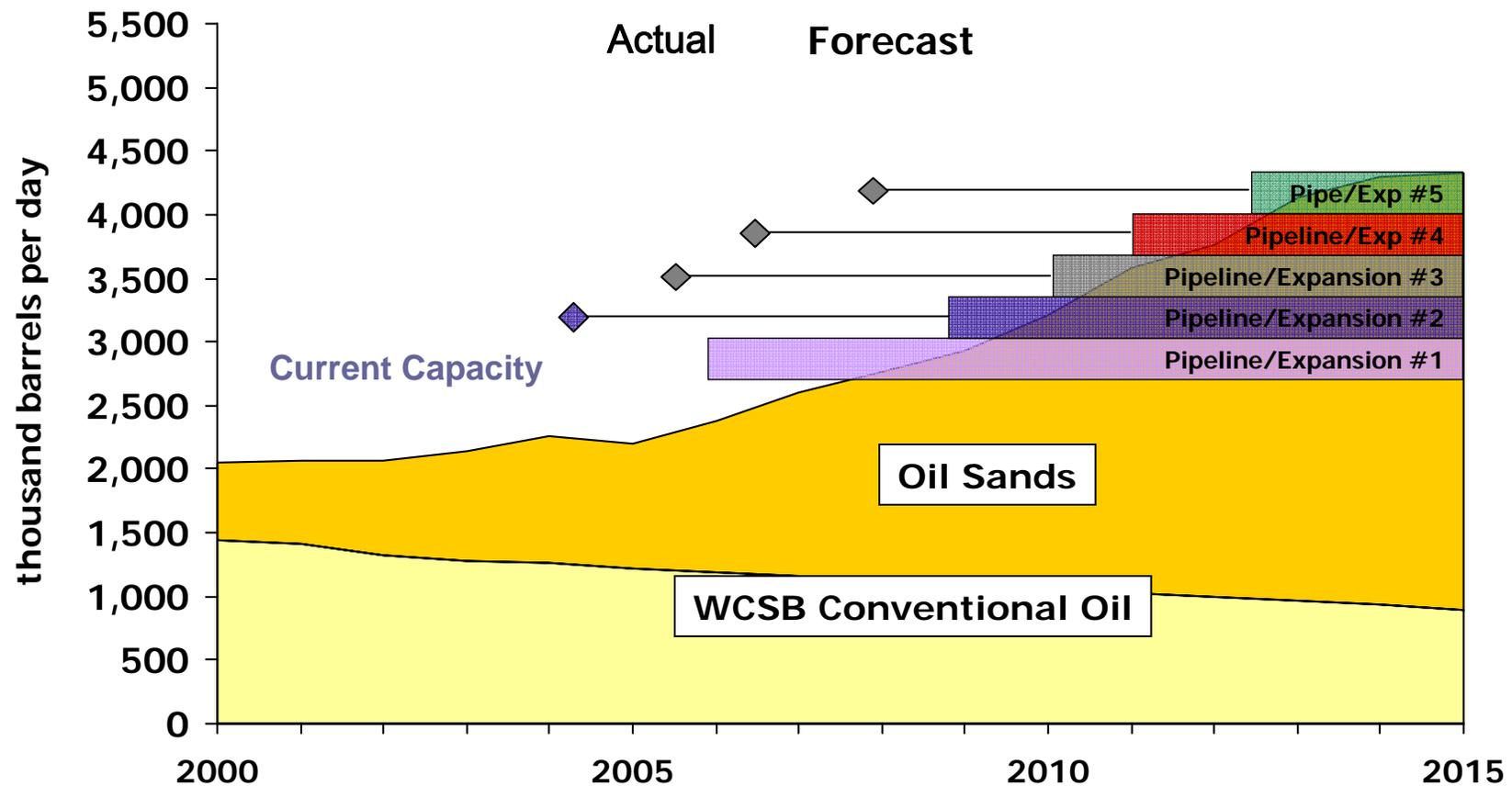
- Alberta's proven reserves are 176 billion barrels, 174 billion are oil sands reserves.
- 20% recoverable by mining, 80% by SAGD



# Pipeline Distribution



# Oil Sands Production/Pipeline Expansion To Meet Forecast



Source: CAPP

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# Key Challenges

*With a global resource comes global challenges ...*

- Pipelines
- Refineries
- Labour Needs
- Environment
- Rising Costs
- Social Infrastructure



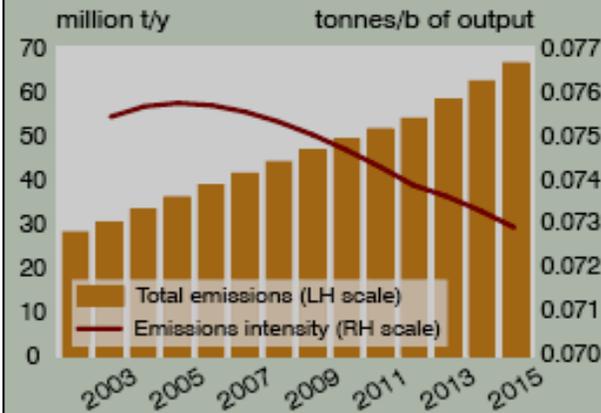
# Finding Solutions Today...

- Alberta has 10% of Canada's workforce and 20% of the apprentices.
- Temporary foreign workers programs are allowing skilled labourers to enter Canada on a project by project basis.
- There are 8,000 foreign workers in the oil sands today.
- Alberta is expanding the Alberta Provincial Nominee Program, which expedites permanent residency for skilled immigrants filling jobs in need.
- Private sector is using innovative solutions to attract and retain a skilled labour pool.

# Environment

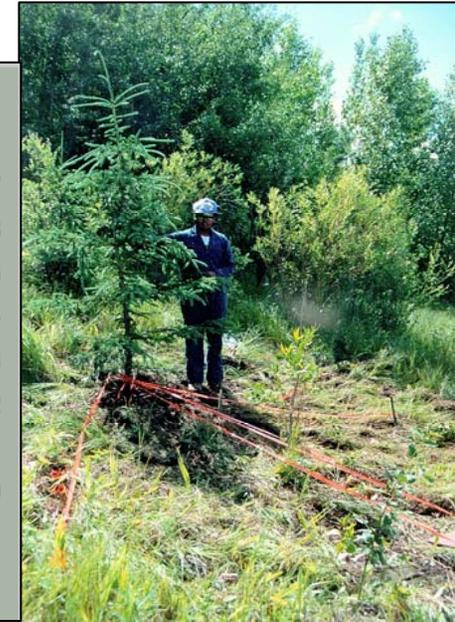
- Key Challenges:
- Co2 Emissions
- Water Usage
- Reducing Natural Gas Intensity
- Land Reclamation

Figure 3: Oil-sands emissions



Source: National Energy Board

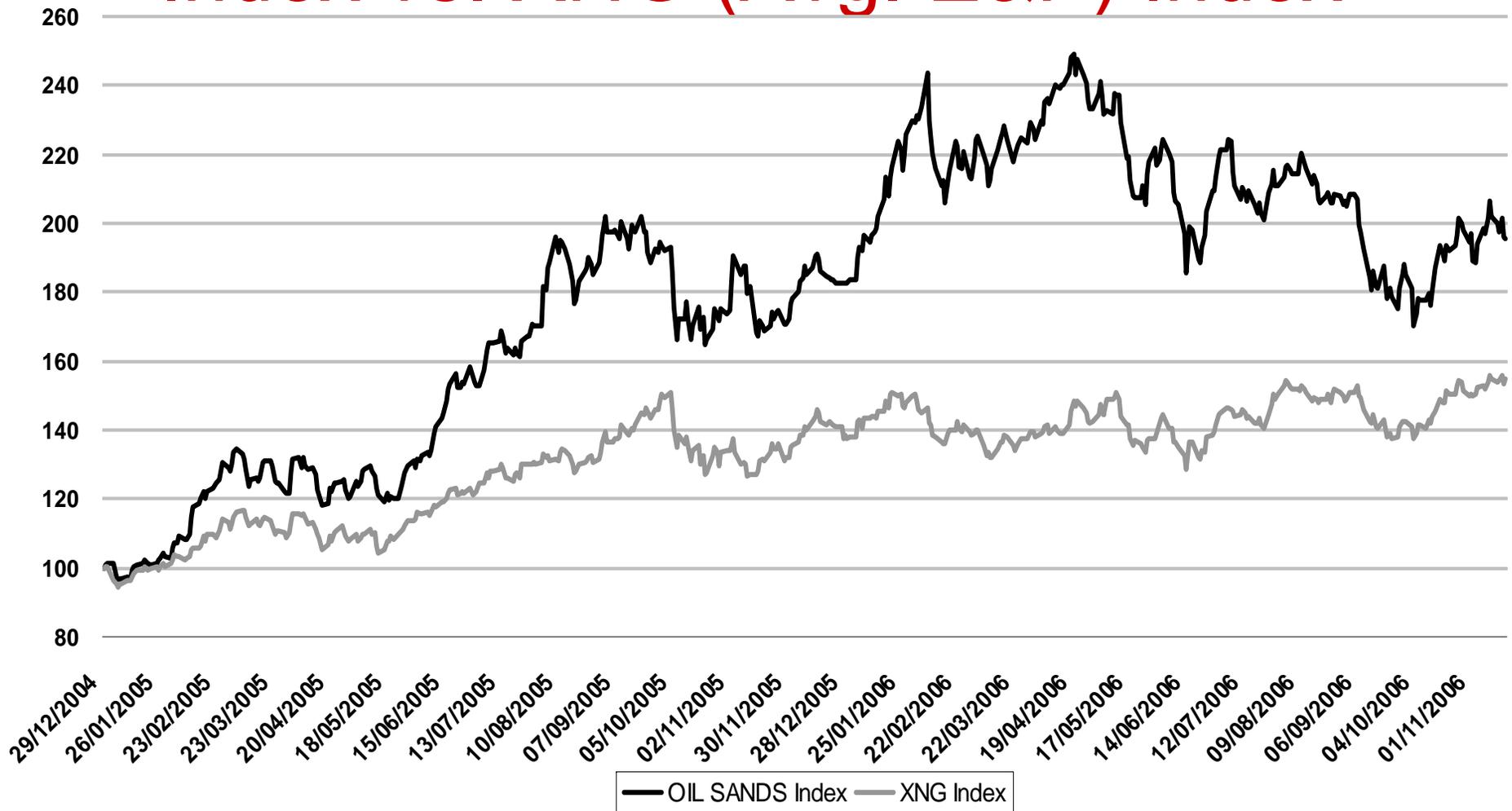
***Today emissions intensity in the oil sands is dramatically lower***



# Finding Solutions Today...

- CO2 pilot programs to capture and store emissions, leading to enhanced conventional recovery.
- Regulation requiring a comprehensive land reclamation strategy prior to project approval.
- A Water for Life Strategy protecting Alberta's rivers.
- \$250 Million worth of funding over 5 years
- The only province with a greenhouse gas emissions strategy.
- Industry reducing the intensity of natural gas, by 20%-30% in the last 10 years.

# Relative Price Change of Oil Sands Index vs. XNG (Avg. E&P) Index



Note: Oil Sands Index components - Suncor, Canadian Natural Resources, Canadian Oil Sands Trust, OPTI Canada, Synenco, UTS Energy and Western Oil Sands

XNG Index components - Anadarko, Apache, Devon, El Paso, EOG, Kinder Morgan, NFG, Nicor, NiSource, Noble, Pogo Producing, Questar, Southwestern, Williams, and XTO Energy