

Canada's Oil Sands

Addressing Concerns & Debunking Myths

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- **150 producer member companies who produce more than 95 per cent of Canada's natural gas and crude oil**
 - Explore for, develop and produce natural gas, natural gas liquids, crude oil, synthetic crude oil, bitumen and sulphur throughout Canada
- **130 associate members provide a wide range of services that support the upstream crude oil and natural gas industry**

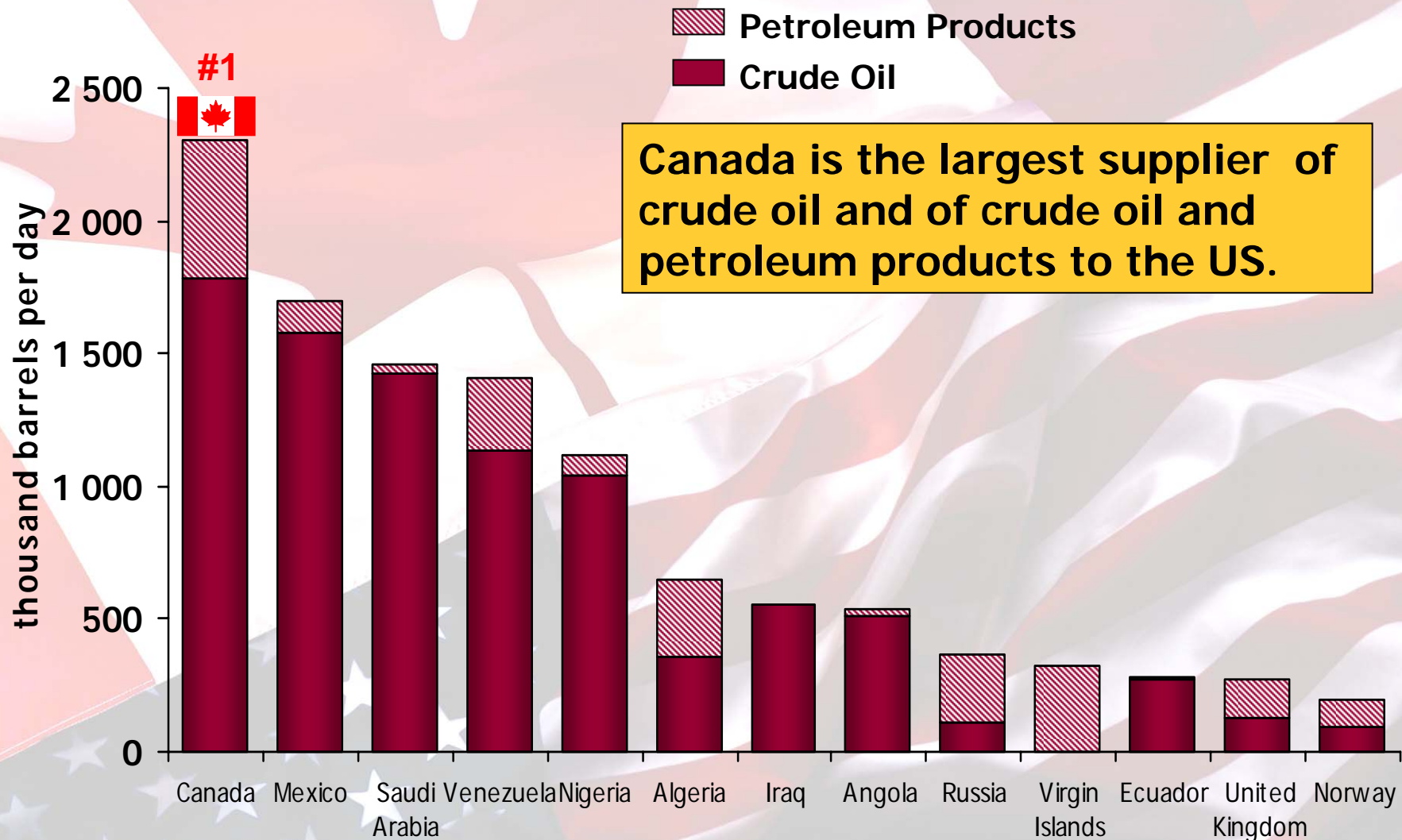
Canada's Oil and Gas Industry in the North American Energy Economy



- **Canada is the world's 3rd largest natural gas producer**
- **Canada is the world's 7th largest crude oil producer**
 - and moving up the list quickly with oil sands production increasing
- **Canada is the largest supplier of energy to the United States**
- **Canada is the fifth largest energy producer in the world**
- **Canadian energy production has increased by over 80% since 1980**

| 2006 | Canadian Natural Gas | Canadian Petroleum |
|------------------------------|----------------------|--------------------|
| Ranking of importers to U.S. | #1 | #1 |
| Share of U.S. consumption | 16% | 11% |
| Share of U.S. imports | 86% | 16% |

U.S. Imports of Crude Oil and Petroleum Products by Country of Origin

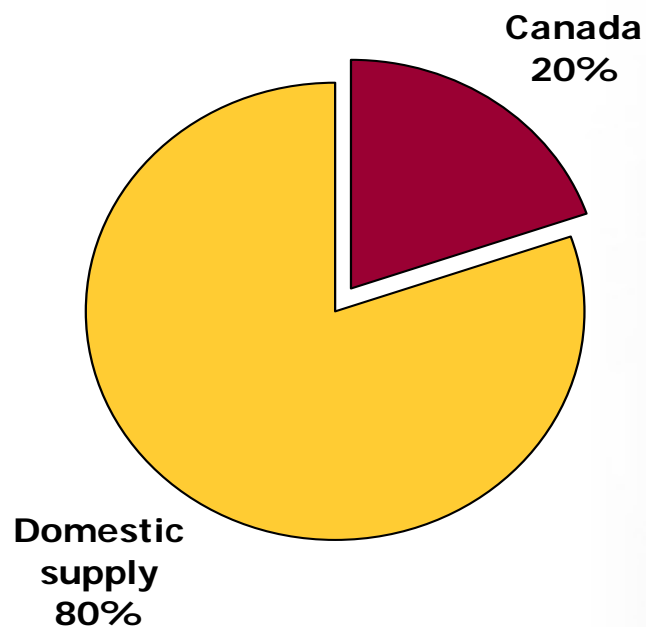


Canadian Oil & Gas in California

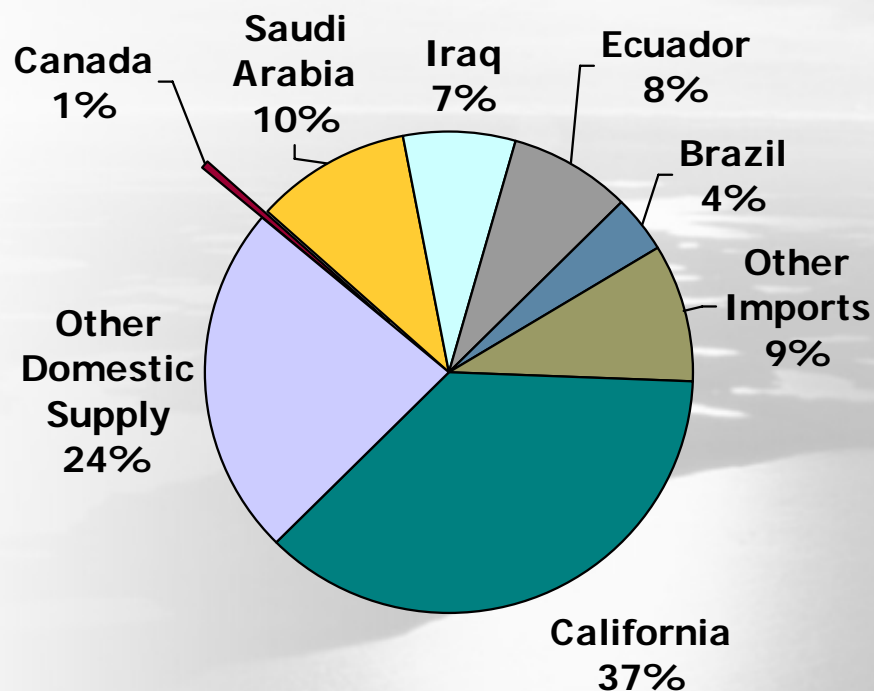
Source of California Supply



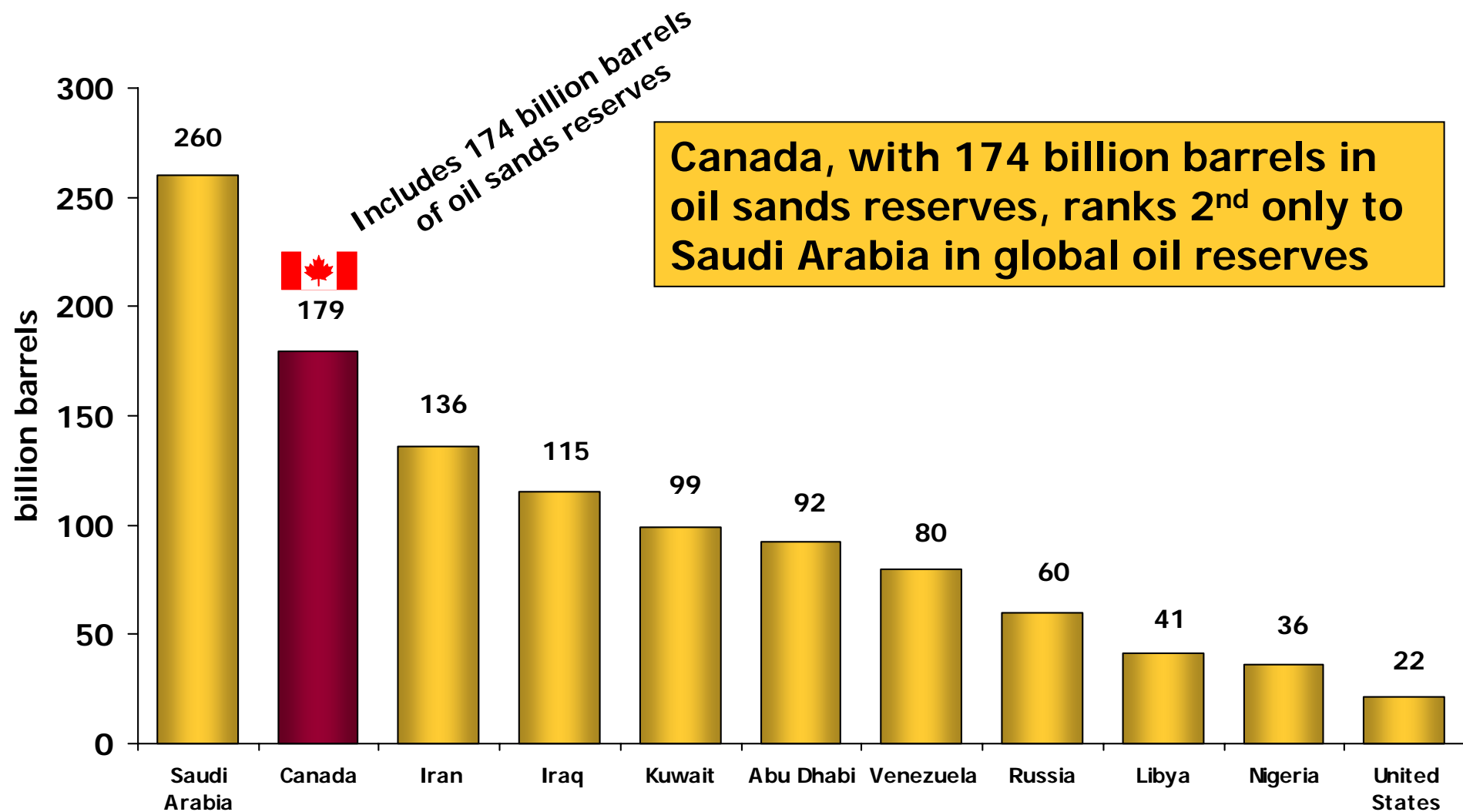
Natural Gas



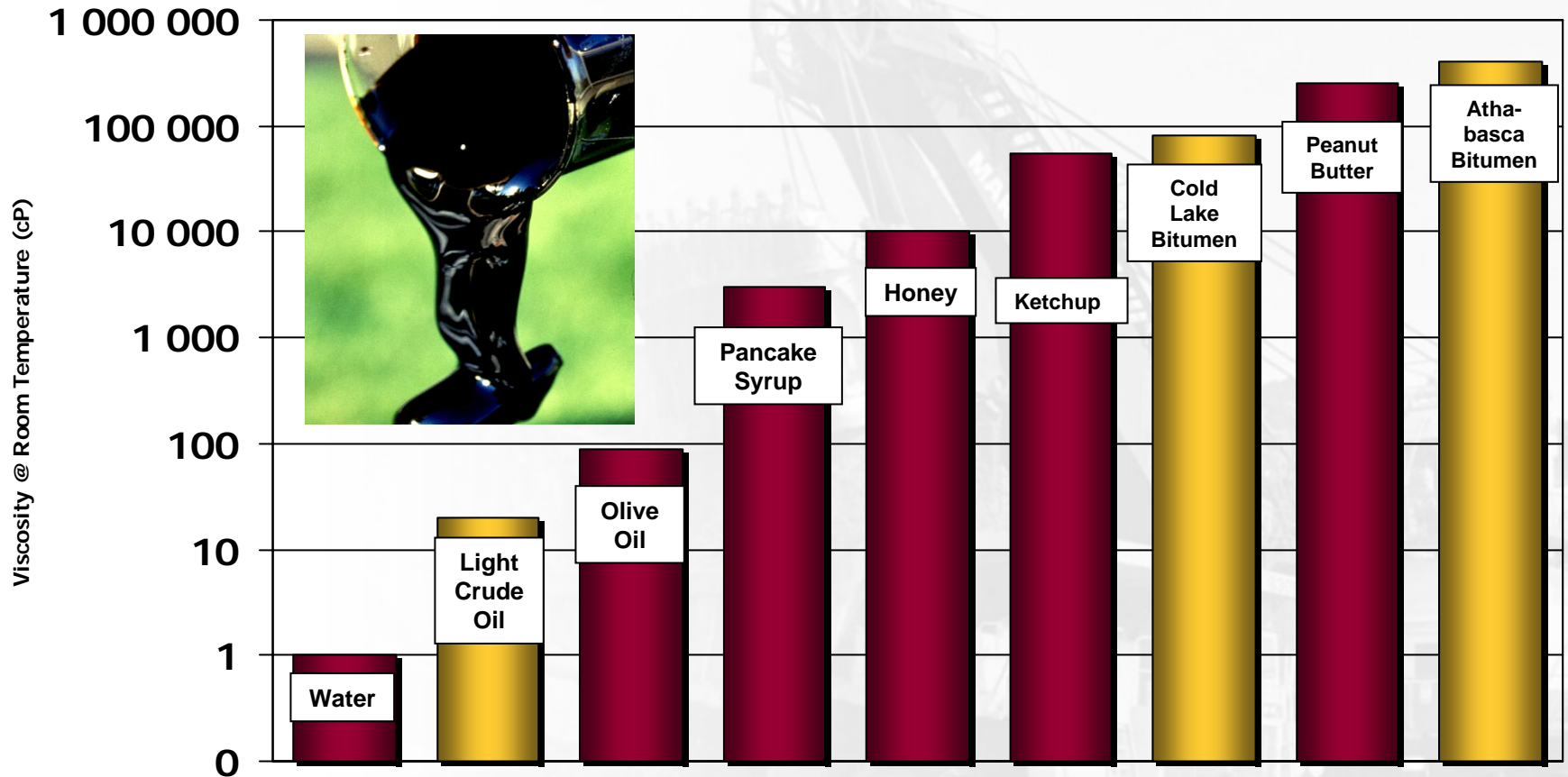
Crude Oil



Global Crude Oil Reserves by Country



Oil Sands – Resistance to flow



Source: Imperial Oil

Top Ten Myths about the Oil Sands



1. The oil sands are easy to produce and massively profitable
2. The oil sands are subsidised
3. Oil sands use dated & dirty technology
4. Oil sands will consume all of North America's natural gas
5. Environmental guidelines for the oil sands are non-existent
6. Oil sands cause the majority of Canada's air pollution
7. Oil sands will use all of Canada's water
8. Oil sands mines can never be reclaimed
9. Oil sands can meet the future supply of US demand
10. Oil sands is already a major oil supplier to California

Myth #1

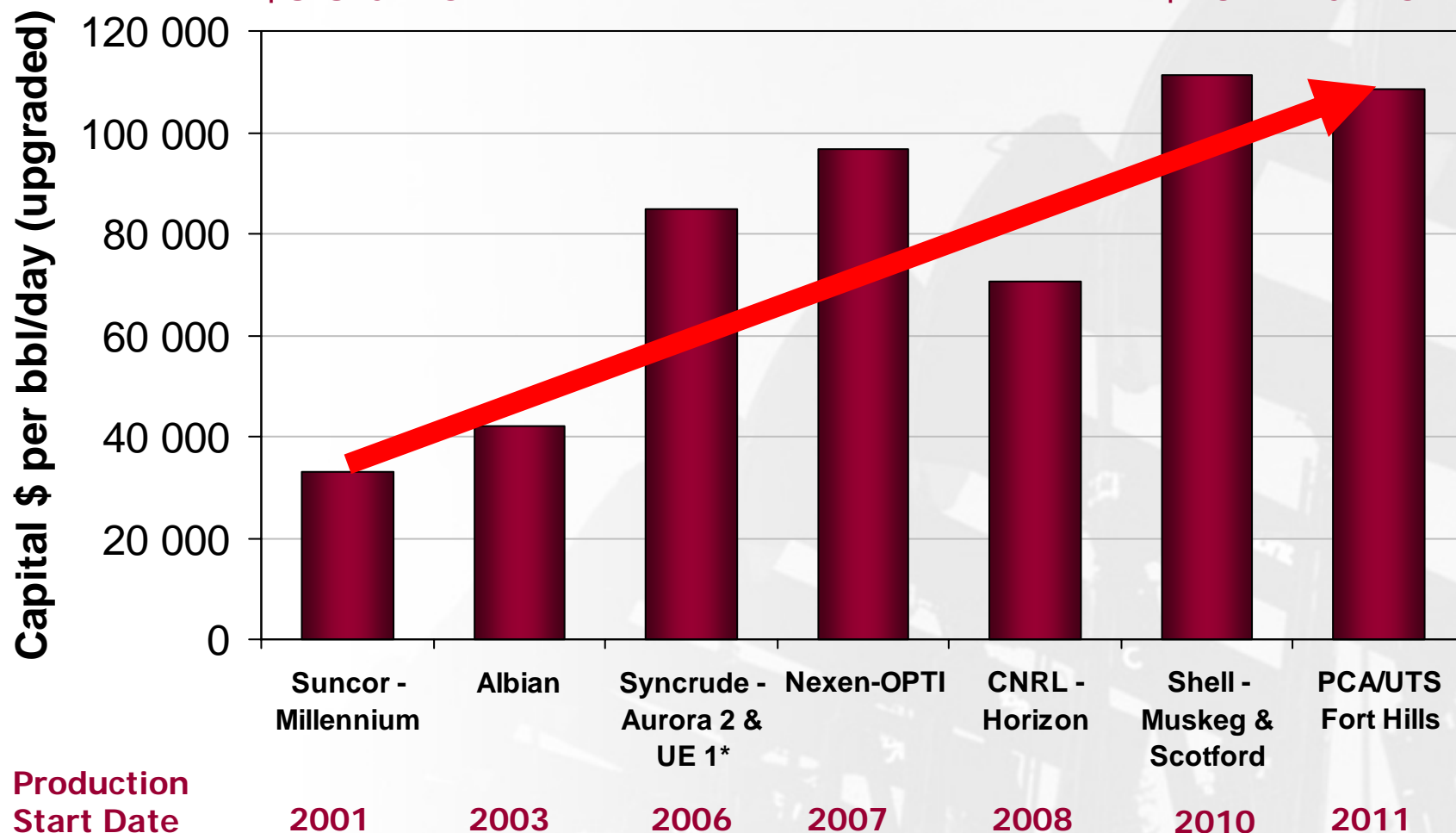
The oil sands are easy to produce and massively profitable



Capital Cost of 100,000 bbl/day project

\$3.3 billion

\$10-11 billion



*Syncrude includes base plant quality improvements and power

Myth #2

The oil sands are subsidised



Oil sand projects operate in an open market on the same basis as all other industries

- Government ownership in 1970's has been sold
- Capital cost tax deferral program has been discontinued
- Same tax treatment as all corporations
 - 21% Federal + 10% Provincial
- Recent royalty review has proposed even higher oil sands royalty rates
 - Up to 40% royalty (in addition to tax)
- Effective July 1st 2007 oilsands production pays large final emitter levy

Myth #3

Oil Sands use dated & dirty technology



20% less than 50 m deep

Mining & Upgrading
Recoverable reserves
= 35 billion barrels



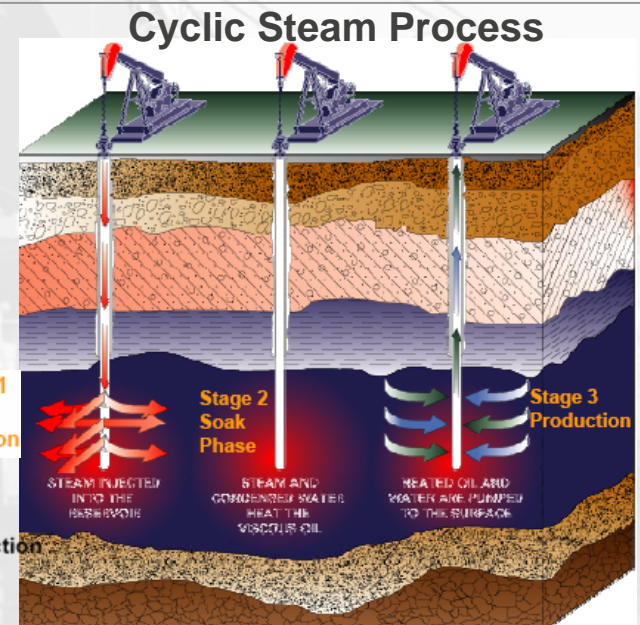
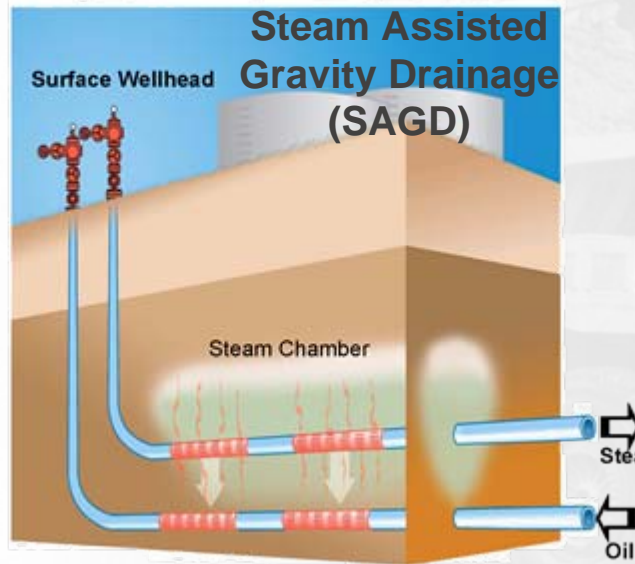
Source: Syncrude



Source: Shell Canada

80% more than 50 m deep

In-situ
Recoverable reserves
= 140 billion barrels



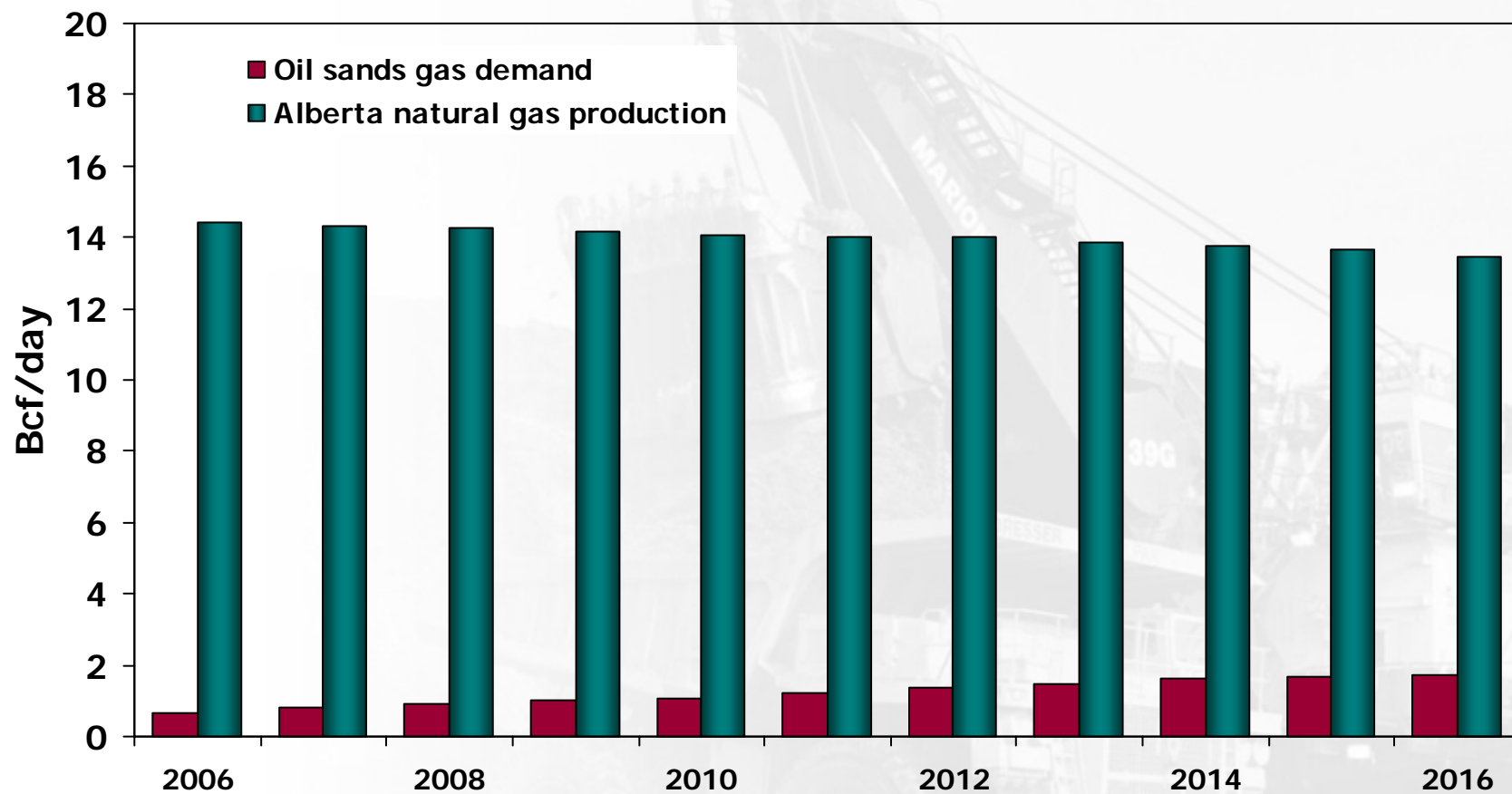
Source: Imperial Oil

Myth #4

Oil sands will consume all of North America's natural gas



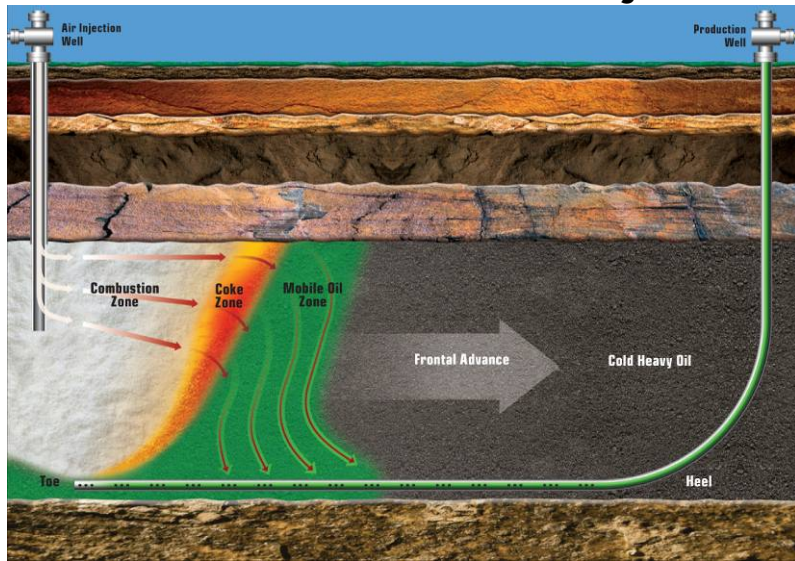
Purchased Natural Gas Consumed in the oil sands



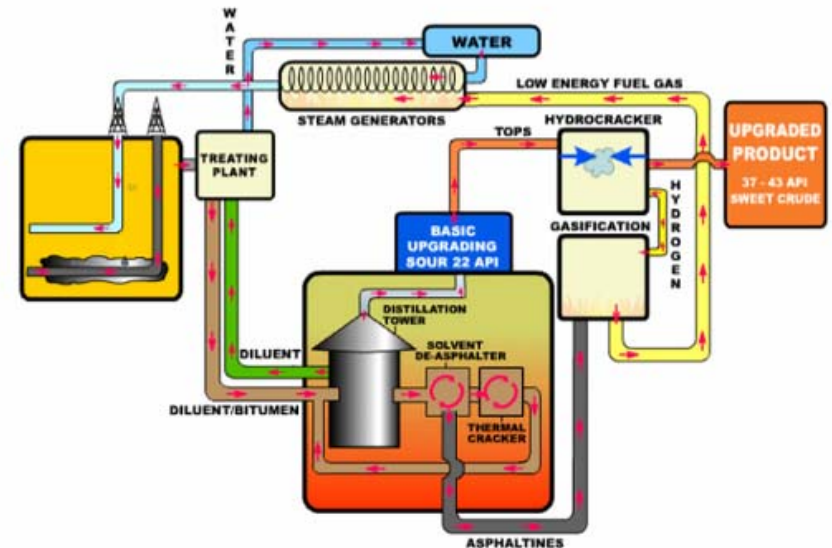
Source: Alberta Energy & Utilities Board
Reserves & Supply/Demand Outlook 2007

Oil Sands Production Technologies Alternatives to Natural Gas

THAI™ (Toe-to-Heel Air Injection) Petrobank Whitesands Project



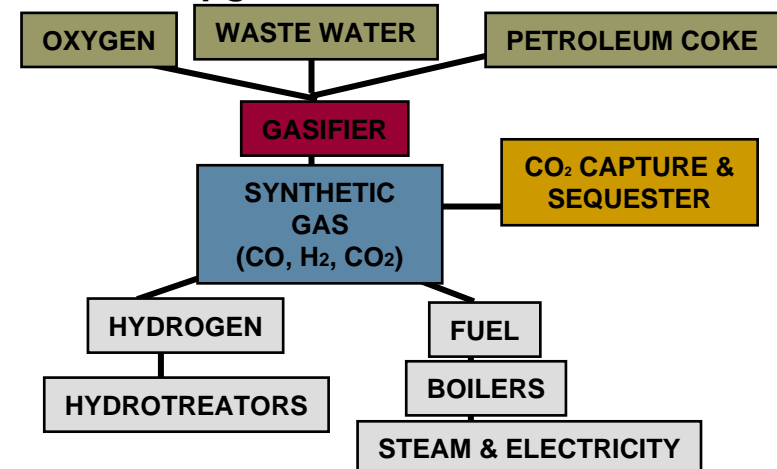
OrCrude Process - Nexen/OPTI Longlake



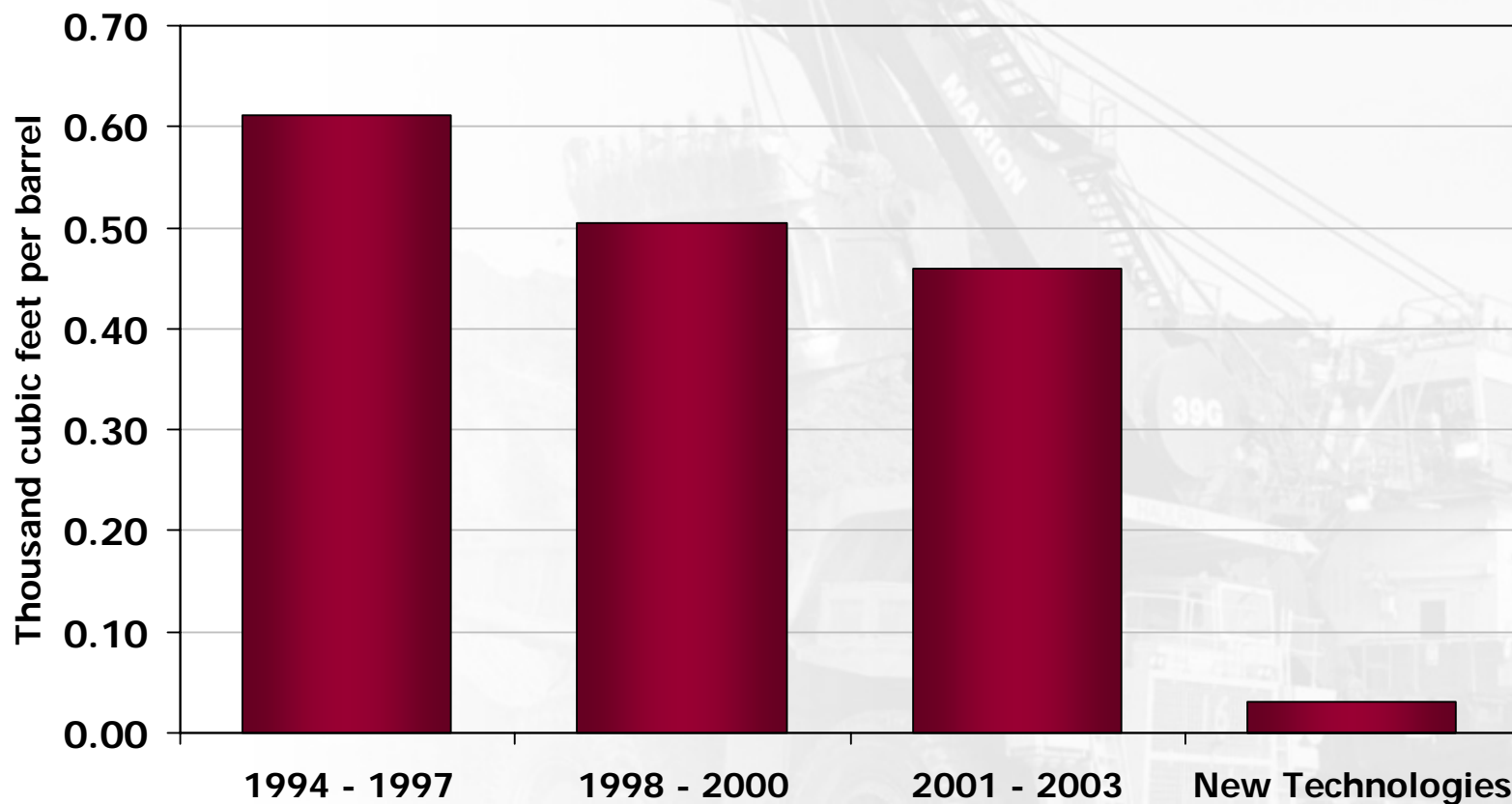
Multiphase Superfine Atomized Residue - DeerCreek



Suncor 3rd Upgrader - Coke Gasification



Natural Gas use in Oil Sands



Myth #5

Environmental guidelines for the oil sands
are non existent



- Most stringent environmental protection laws in the world are in place
- Must complete pre-development EIA
- Must file and update and fund reclamation
- Must continually monitor and report
- Must reduce GHG emissions intensity
- Limits on water use – 80-90% recycle rates

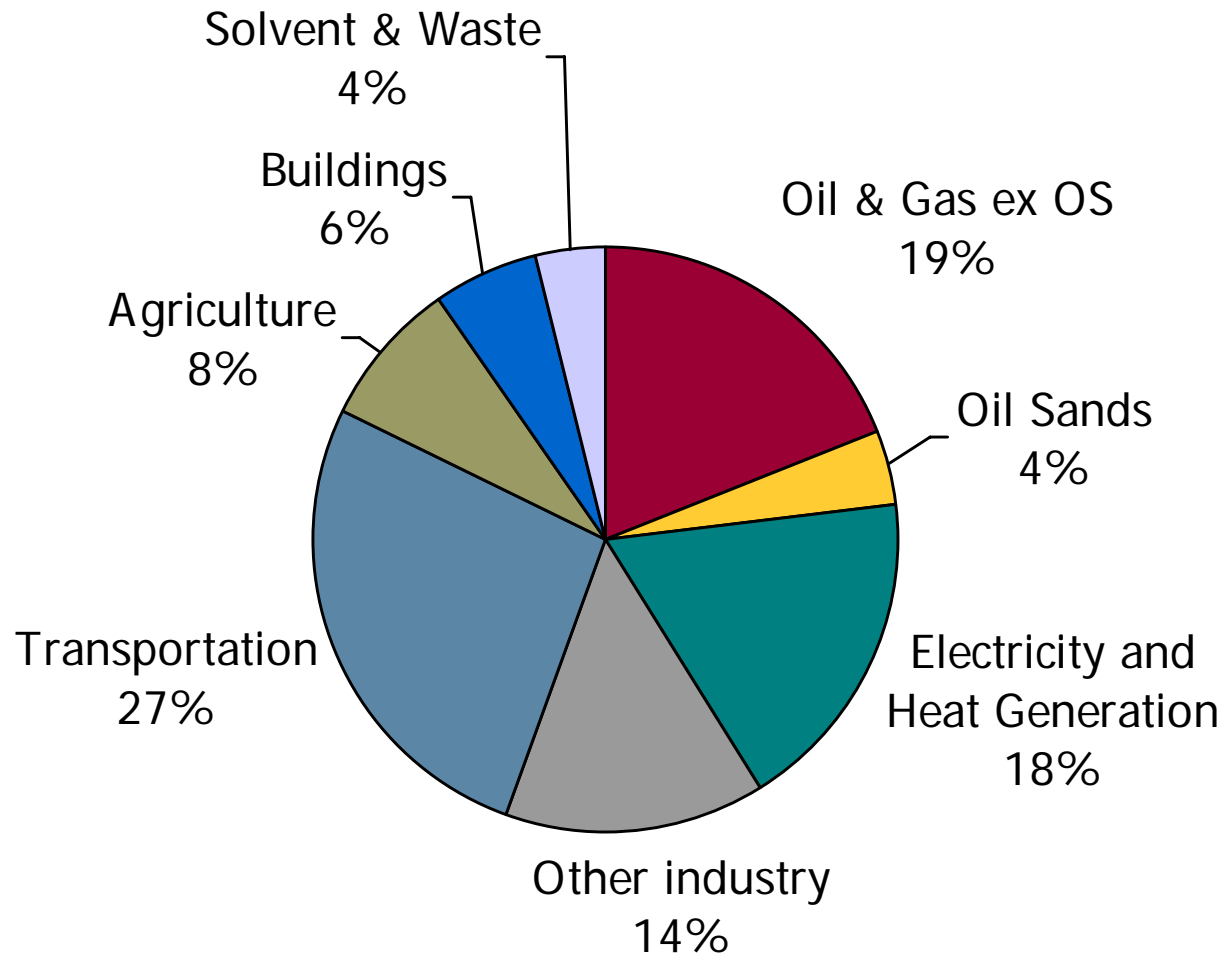


Myth #6

Oil sands cause the majority of Canada's air pollution



Oil sands only account for 4% of GHG emissions



Myth #7

Oil sands will use all of Canada's water



– Total Oil & Gas industry

- Accounts for 7.2% of water allocated in Alberta
- Actual use by industry is only 1/3 of allocated amount

– Oil Sands water use

- Allocated 1% of Athabasca River flow
- Actual use is much lower
- 80-90% water recycle
- In situ shifting to use of saline water

– Emerging technologies are reduce industry's water consumption per-barrel

Myth #8

Oil Sands land can never be reclaimed

- **Oil Sands Land Use**
- **Reclamation and remediation mandated**
 - Plans filed prior to development
 - Funding of liability required
- **In situ development**
 - 80% of the resource
 - Directional drilling from single site to reduce impact
 - Use of saline water

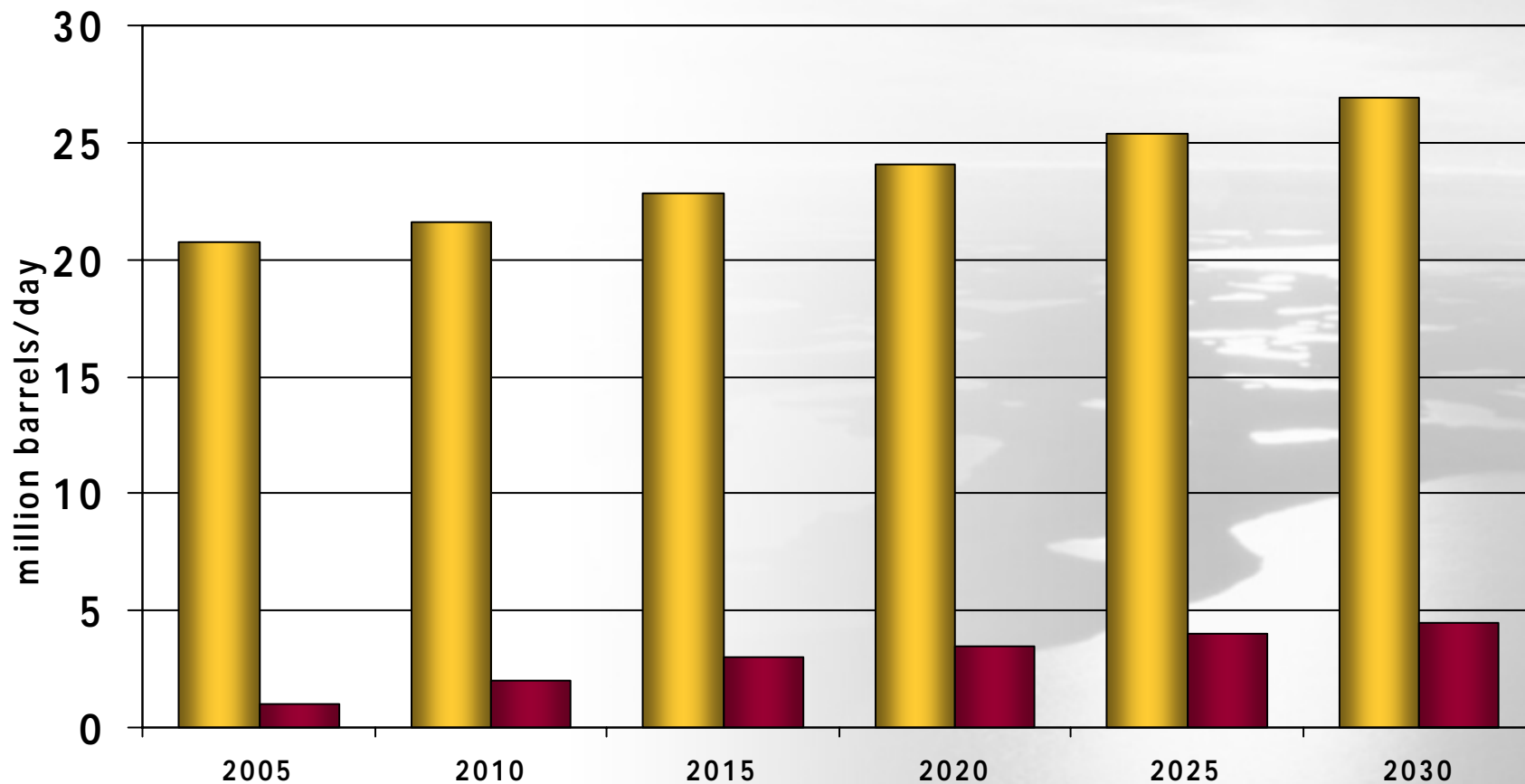


Myth #9

Oil sands can meet the future supply of US demand

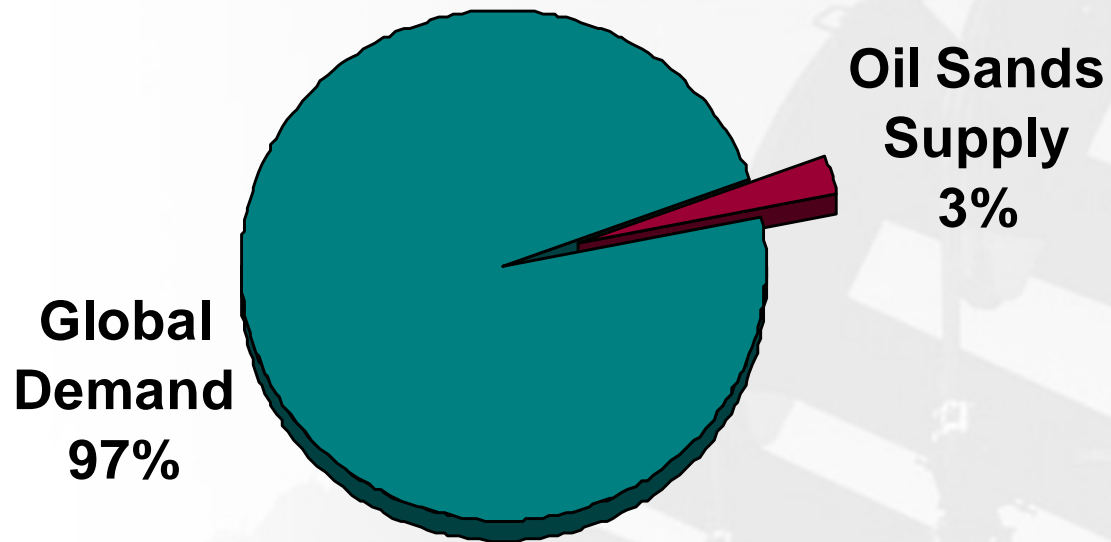


U.S. Crude Oil & Refined Product Consumption



U.S. DOE/EIA Annual Energy Outlook
February 2007 & CAPP

IEA estimates of Global Demand and Oil Sands Supply in 2030



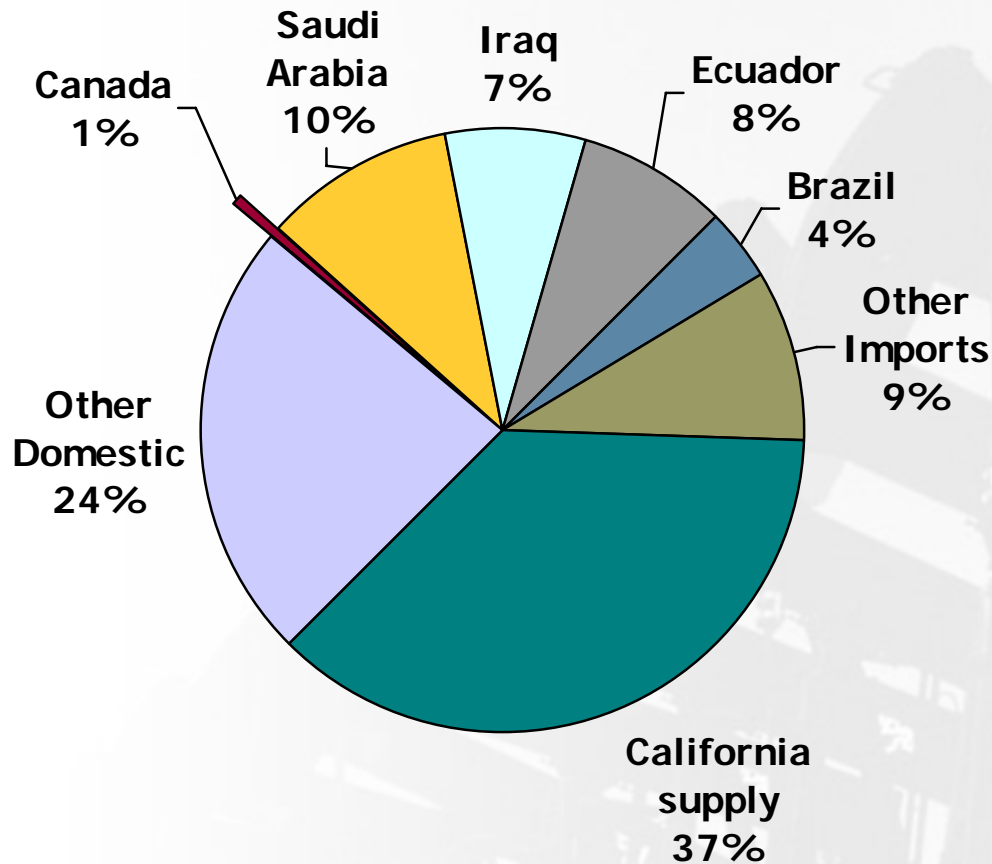
Global Demand in 2030: 116 million barrels/day

Oil Sands production: 3-4 million barrels/day

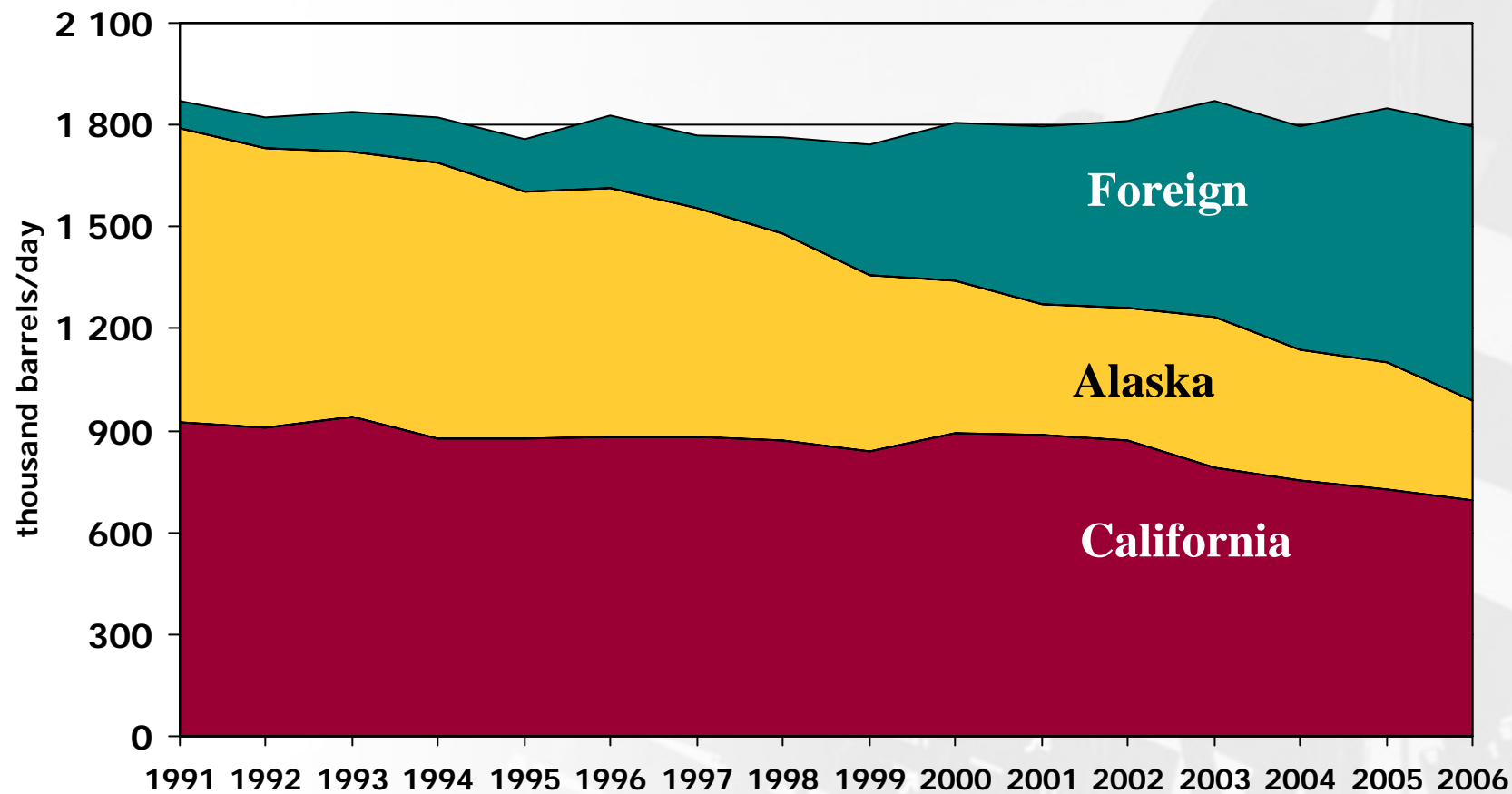
Myth #10

The Oil sands is already a major oil supplier to California

Sources of California crude oil

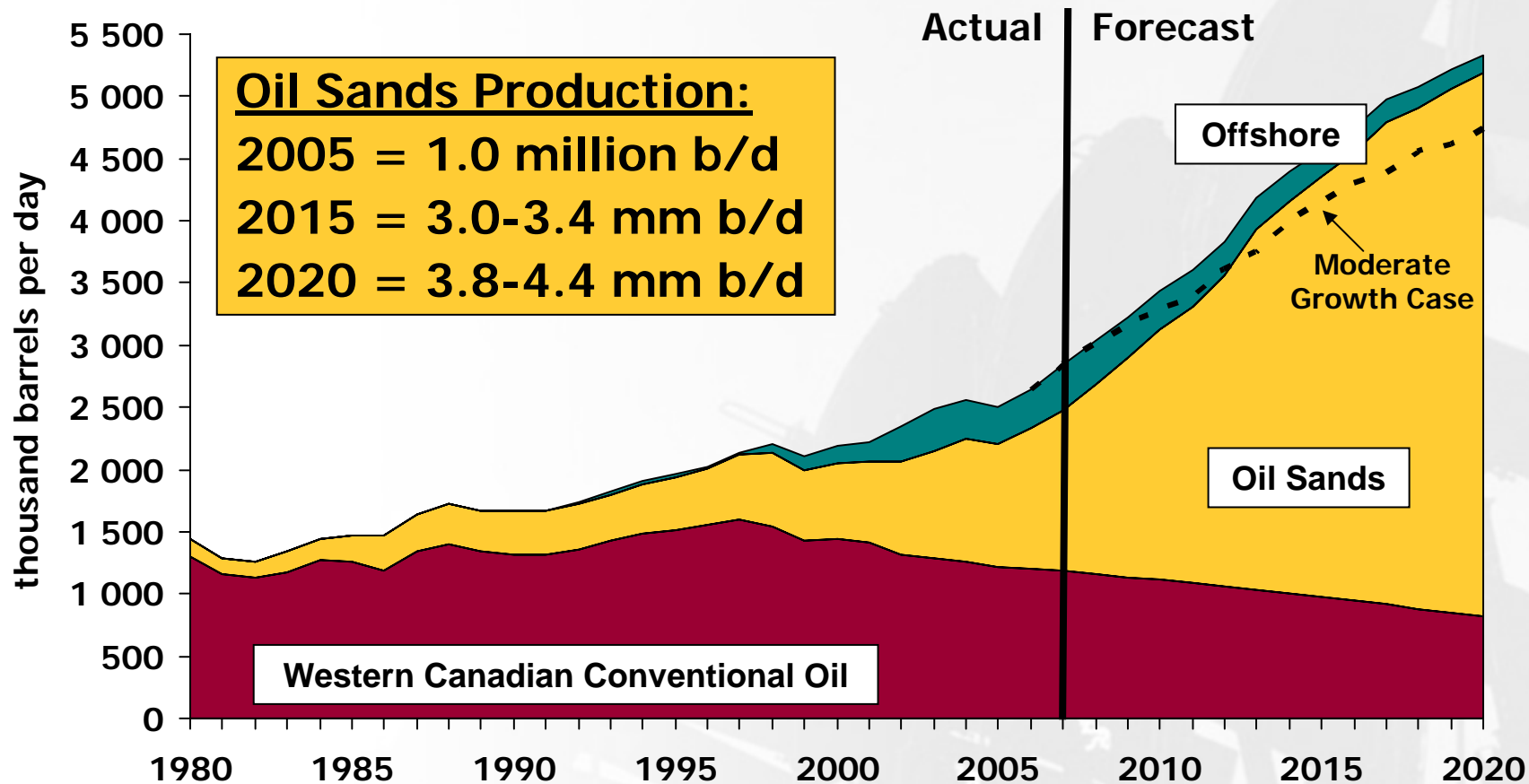


Crude Oil Supply Sources to California Refineries

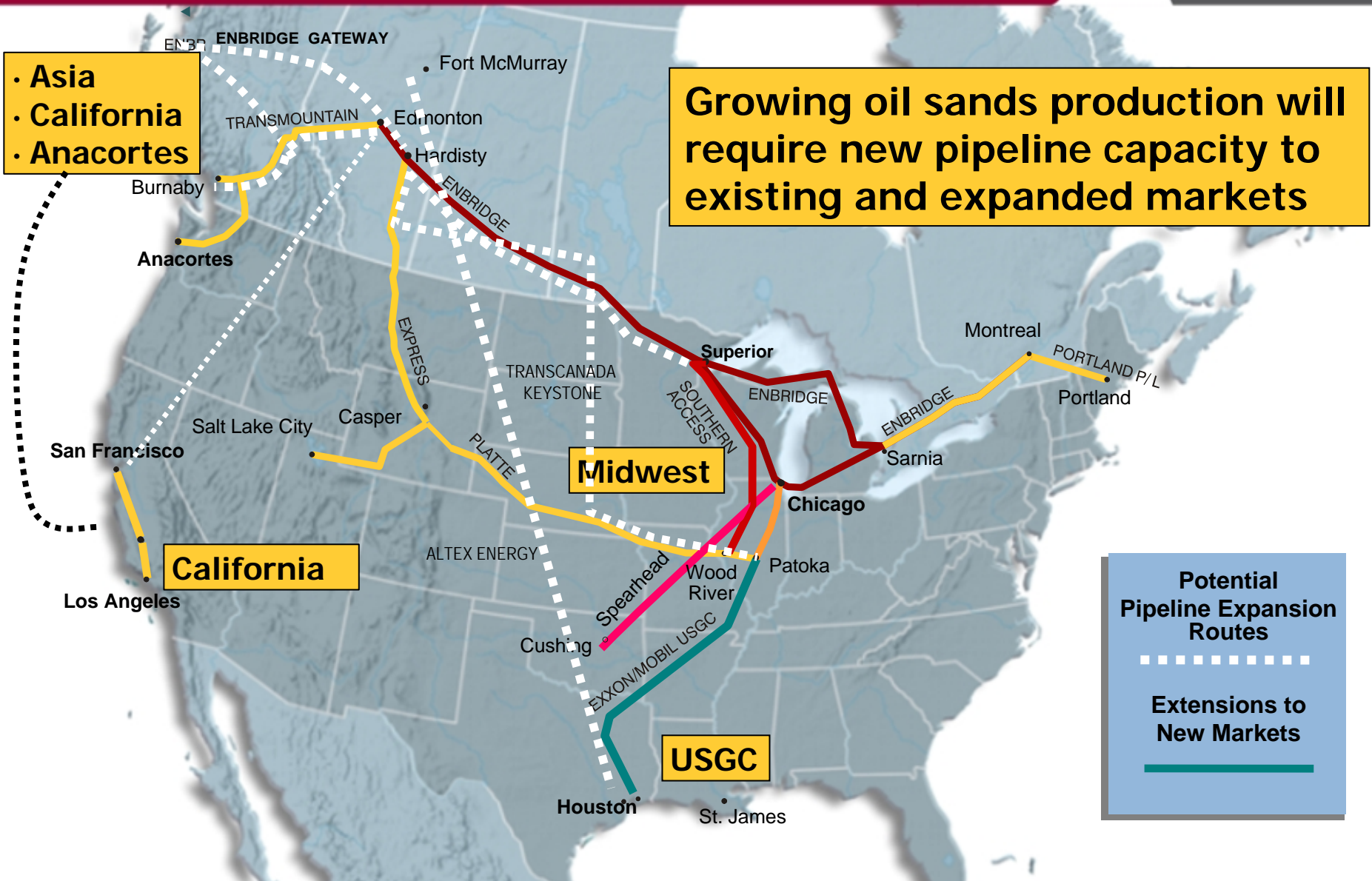


Source: California Energy Commission

Canadian Oil Production Conventional, Oil Sands and Offshore



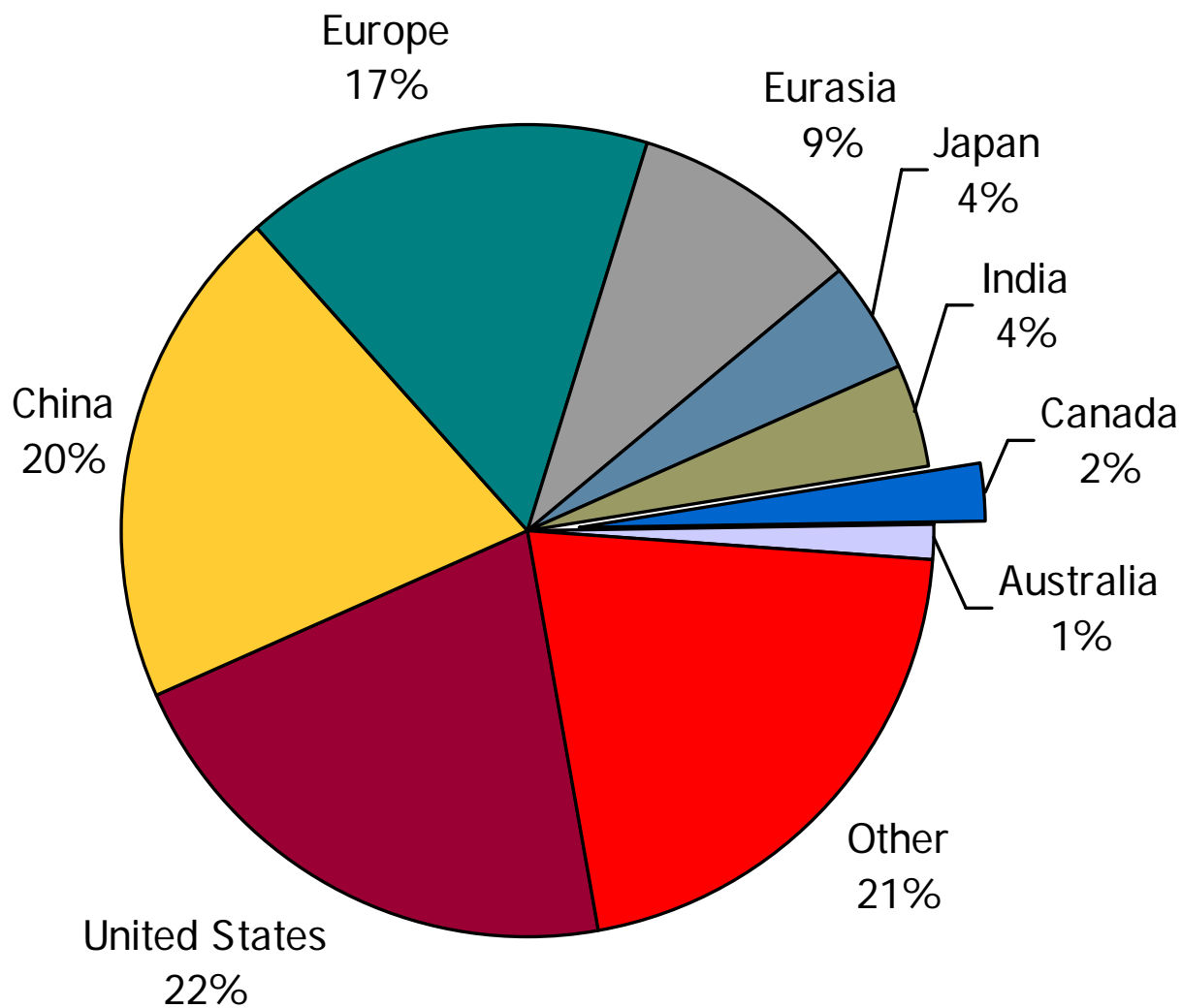
Canadian and U.S. Crude Oil Pipeline Alternatives



- **Additional information**



Global Energy-Related Emissions 2005



Global Coal + Oil Sands CO₂ Emissions 2005

Total 11,387 m tonnes CO₂

