



The Canadian Oil Sands Opportunities and Challenges

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Canadian Association of Petroleum Producers

CAPP

- 150 producer member companies
- Explore for, develop and produce natural gas, natural gas liquids, crude oil, synthetic crude oil, bitumen and elemental sulphur throughout Canada
- Members produce more than 98 per cent of Canada's natural gas and crude oil
- 125 associate members provide a wide range of services that support the upstream crude oil and natural gas industry

Industry Capital Spending Cdn \$billions



The oil & gas industry will invest over \$40 billion in capital in Canada in 2006

Northern Canada

'03	'04	'05E	'06F
\$0.3	\$0.3	\$0.5	\$0.5

International

'03	'04	'05E	'06F
\$5.5	\$10.4	\$5.0	\$6.8

Oil Sands

'03	'04	'05E	'06F
\$5.0	\$6.2	\$8.5	\$8.8

WCSB

'03	'04	'05E	'06F
\$21.4	\$24.5	\$27.0	\$29.0

East Coast Offshore

'03	'04	'05E	'06F
\$2.2	\$1.9	\$1.0	\$1.7

Note:
Spending in Canada excludes spending associated
with mergers & acquisitions
International are acquisitions net of divestures.

Canadian Oil Sands History



- 1875 Canada Geological Survey registers oil sands
- 1915 shipments to Edmonton for paving
- 1938 Abasand commercial production - 2,500 barrels destroyed by fire in 1941 - not rebuilt
- 1950's separation technology centrifugal force
 - Strong interest results in dozens of exploration leases sold by the government
- 1964 Esso starts Cold Lake; GCOS construction
- 1967 first GCOS (Suncor) production - 32,000 b/d
- 1978 first Syncrude production - 109,000 b/d
- 1993 truck and shovel technology adopted
 - key to revitalizing the development outlook
- 2004 oil sands production reaches 1 million barrels per day

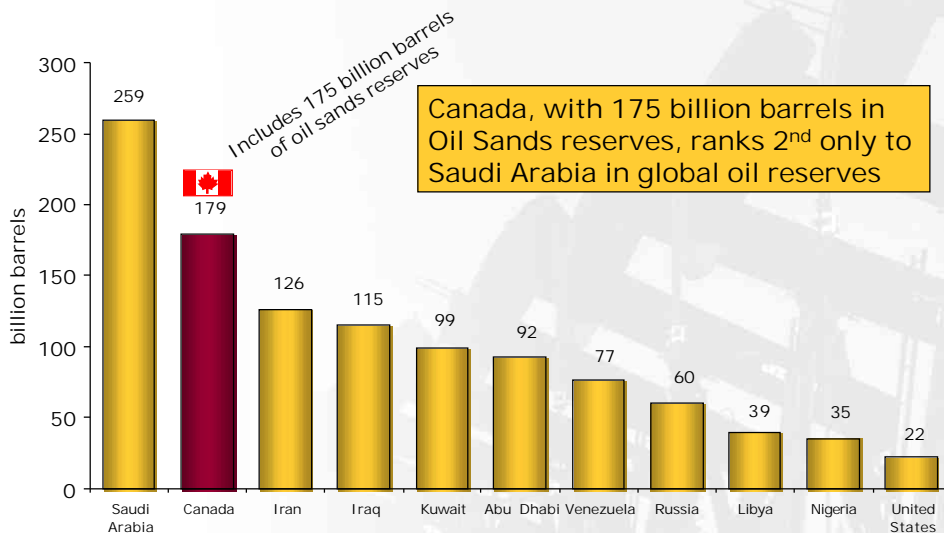


Canada's Oil Sands Opportunities



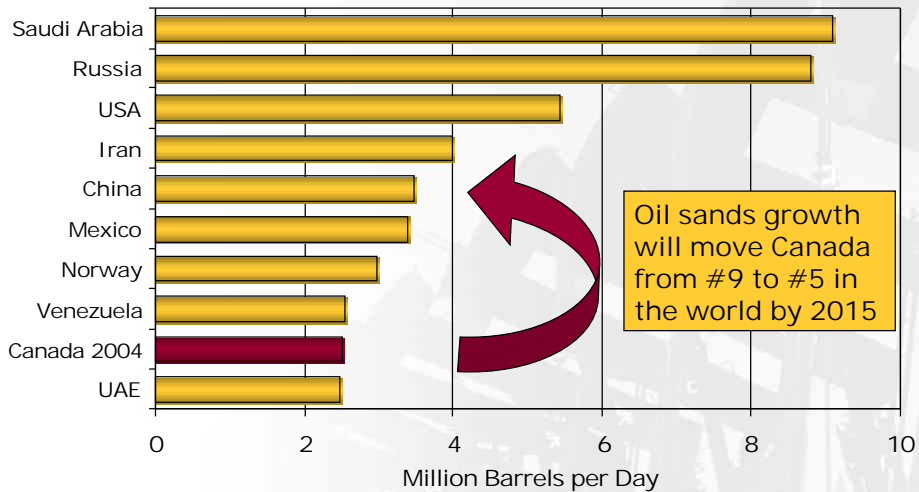
- **Huge Reserves/Resources**
 - § Garnering wide international attention
- **Technology**
 - § Understood but continuing to improve
- **Economics**
 - § Projects have large up front capital, big risk and long lives
 - § Continue to focus on cost reductions
- **Environmental Stewardship**
 - § Strong standards in place
 - § Continually seeking efficiencies and improvements

Global Crude Oil Reserves by Country



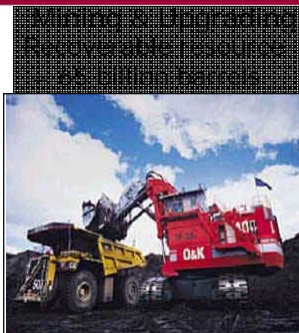
Source: Oil & Gas Journal Dec. 2004

Top 10 World Crude Oil Producers in 2004



Source: EIA & CAPP

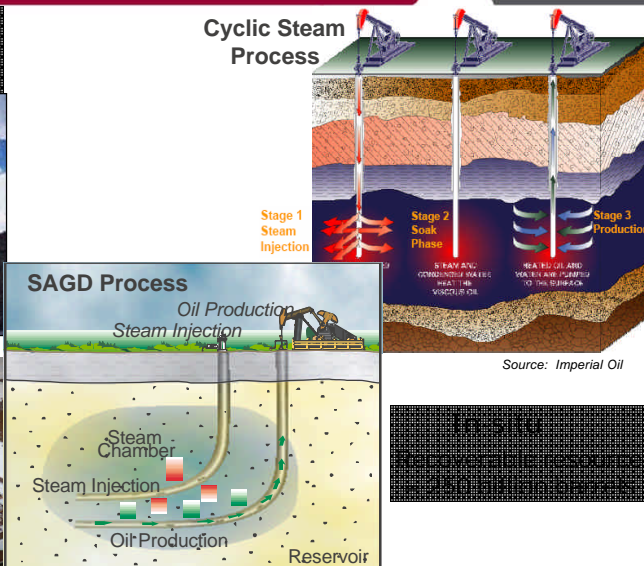
Oil Sands Production Technologies



Source: Syncrude



Source: Shell Canada



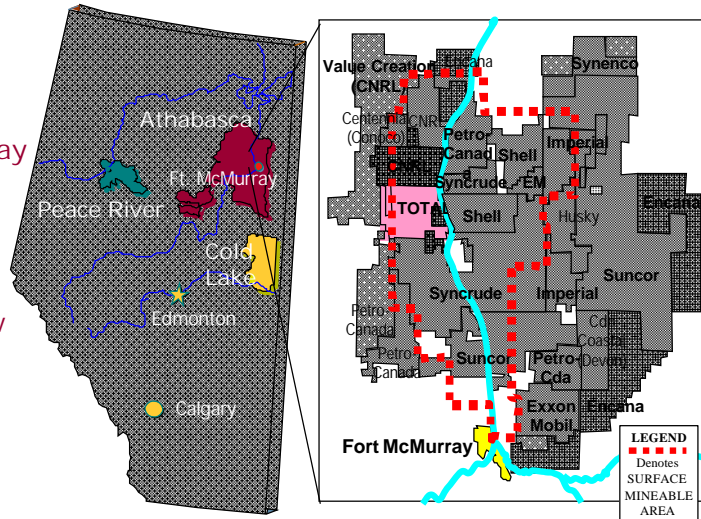
Source: Imperial Oil

Source: Petro-Canada

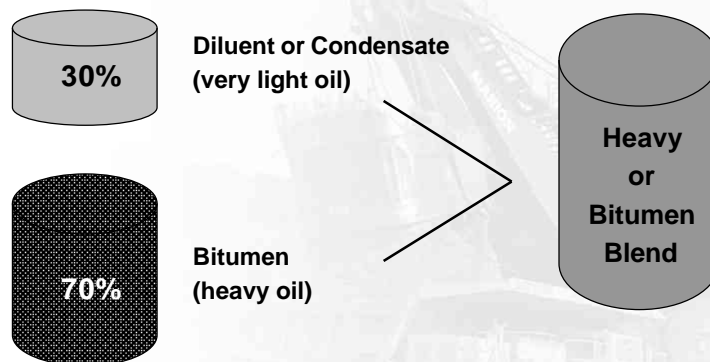
Oil Sands Projects in Three Deposits



- Oil sands production now exceeds one million barrels per day
- \$35 billion built from 1996 - 2004
- Close to \$45 billion in new oil sands projects expected in 2005-2010

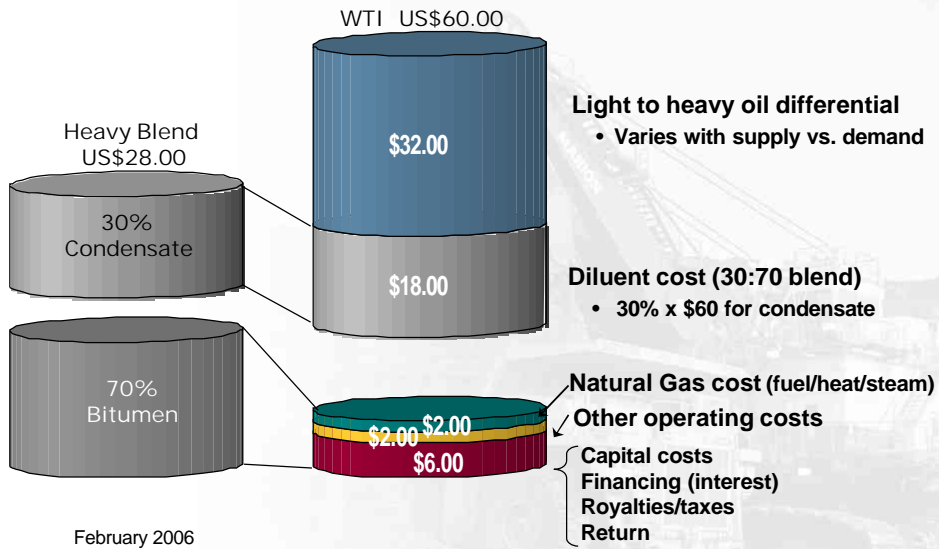


Heavy Oil/Bitumen Blending

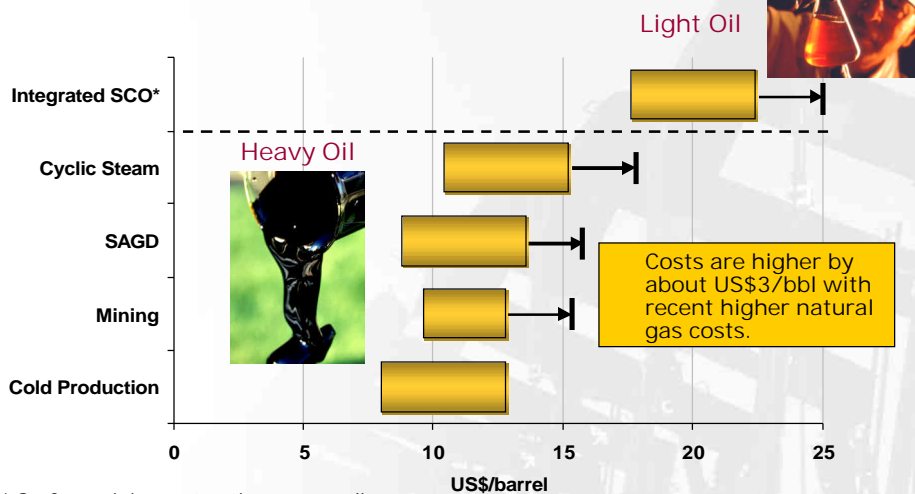


In 2005, 52% of Western Canada's crude oil production was heavy oil or bitumen

Heavy Oil Economics - (US\$/bbl) Diluent-Bitumen Blend



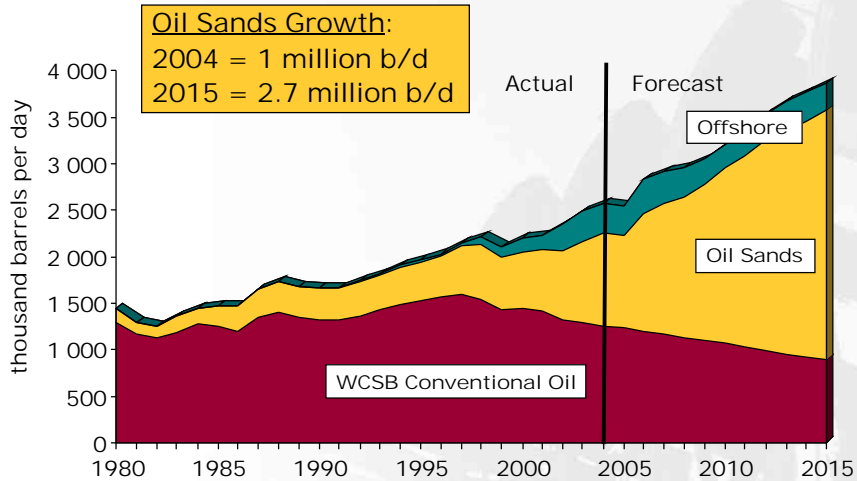
Oil Sands Supply Costs by Recovery Type includes capital, operating, royalty, taxes and return



* Surface mining, extraction & upgrading

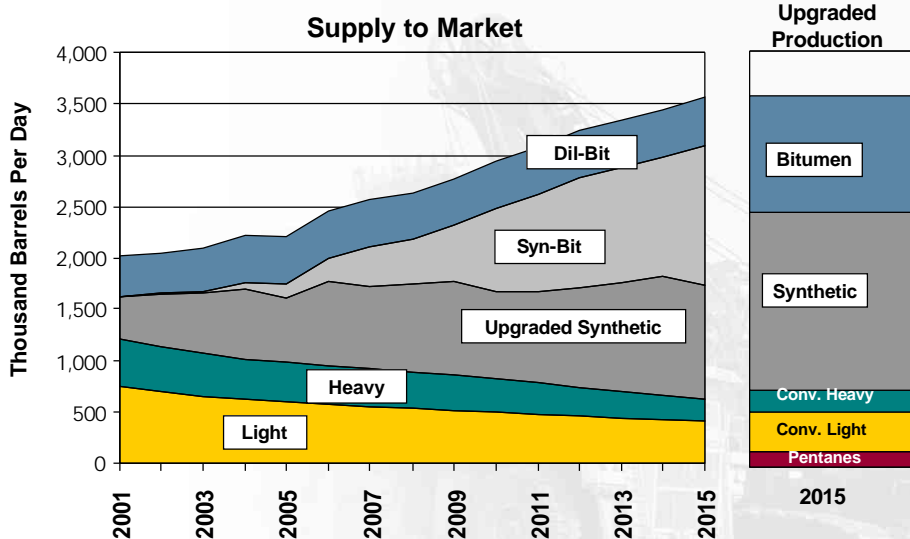
Source: National Energy Board - based on C\$2003 converted @ US\$0.80/C\$

Canadian Oil Production Conventional, Oil Sands and Offshore



Source: CAPP

Western Canadian Crude Oil Supply



Bitumen Upgraders in Alberta



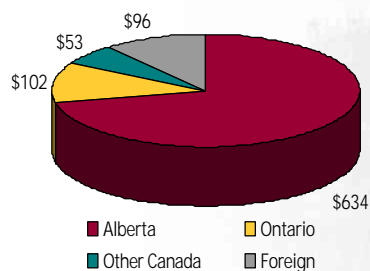
Existing:	Volume (bpd)	Comment
Suncor	277,000	
Syncrude	301,000	
Husky-Lloydminster	77,000	
Albian-Scotford	155,000	
Expansions:		
Suncor	235,000	Firebag and Steepbank
Syncrude	300,000	Phased expansion bitumen (2012-2015)
Husky-Lloydminster	5,000	Expansion
Albian-Scotford	150,000	Expansion w/plans for a total of 500,000 bpd
New projects:		
Nexen/Opti-Long Lake	70,000	On-stream late 2007
BA Energy-Heartland	250,000	Phase 1 - 75,500 bpd (late 2007). 3-phased expansion to 250,000 bpd
Petro-Canada	135,000	Refinery conversion to upgrader/refinery in late 2008
CNRL-Horizon	232,000	Phase 1-3 (2012). Phase 1 in 2008 - 110,000 bpd.
Petro-Canada/UTS-Fort Hills	55,000	Ultimate capacity - 190,000 bpd by 2010
SynEnCo-Northern Lights	100,000	Phase 1 - 50,000 bpd in 2010, phase 2 - 50,000 bpd in 2012
Northwest Upgrading	150,000	3 phased expansion. On stream in 2010, phase 2 - 2012-2014
Total SA	200,000	On-stream in 2015
TOTAL	2,692,000	



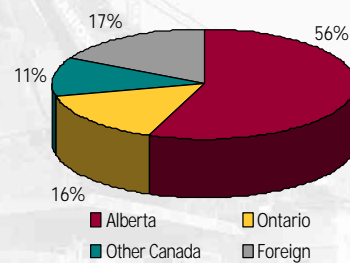
Economic Benefits from Oil Sands



**GDP Activity Distribution
(\$ Billions)**



**Employment Impact
Distribution**

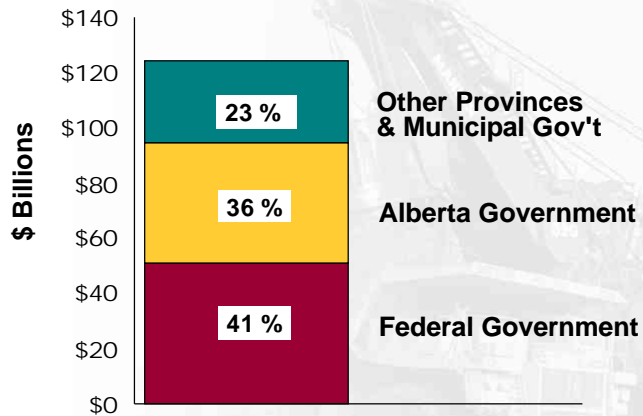


Source: CERl – Economic Impacts of Alberta's Oil Sands

Governments' Revenues from Oil Sands



Government Revenue Distribution

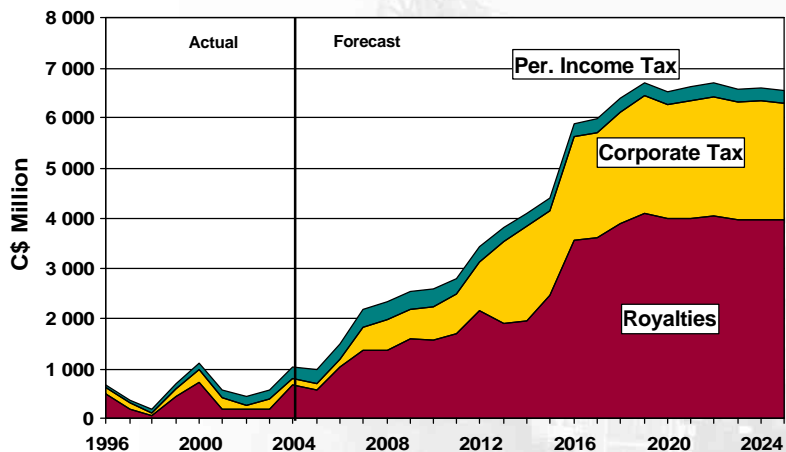


Source: CERI – Economic Impacts of Alberta's Oil Sands

Government of Alberta Oil Sands Revenue Forecast – WTI US\$40 Case



Total Revenue over 2005-25 equals \$95 billion



Source: Regional Issues Working Group, Nichols Applied Management

- **Air**
 - Monitoring programs
 - Reducing emission intensity
- **Water**
 - Reduce, recycle and reuse
 - More efficient, 90+% recycle
- **Land**
 - Reclamation and remediation
 - Directional drilling from single site to reduce impact

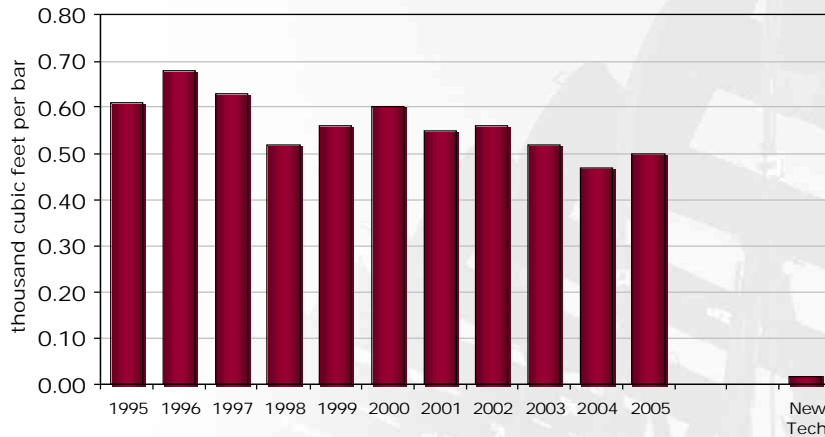


Canada's Oil Sands Challenges to achieve this potential

- **Continuing to Lower Costs**
 - § Alternatives to natural gas for fuel – free it up for other markets
- **Workforce**
 - § Ensuring adequate workforces – trades, technical, professional
- **Public Infrastructure**
 - § Roads, Housing and Municipal services
- **Access to Markets – Pipelines/Refineries**
 - § Need new pipelines
 - Decisions needed now for pipelines in 4-5 years
 - § Need new refineries, expansions and modifications
 - For many conventional refineries, oil sands is either heavier (bitumen blend) or lighter (upgraded crude) than their current feedstock

Natural Gas Use in Oil Sands Declining

Natural Gas Consumed per Barrel of Oil Sands Production

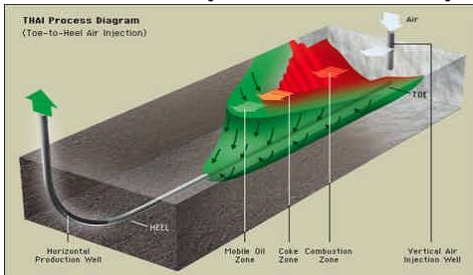


Source: Historical data from EUB

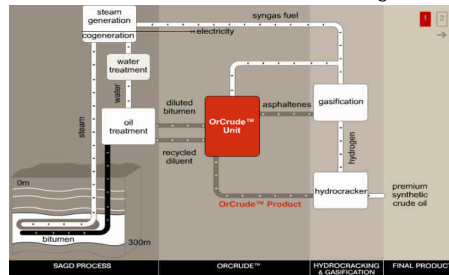
Oil Sands Production Technologies Alternatives to Natural Gas



Toe-to-Heel Air Injection – Whitesands Project



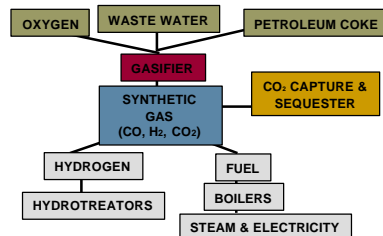
OrCrude Process - Nexen/OPTI Longlake



Multiphase Superfine Atomized Residue - DeerCreek



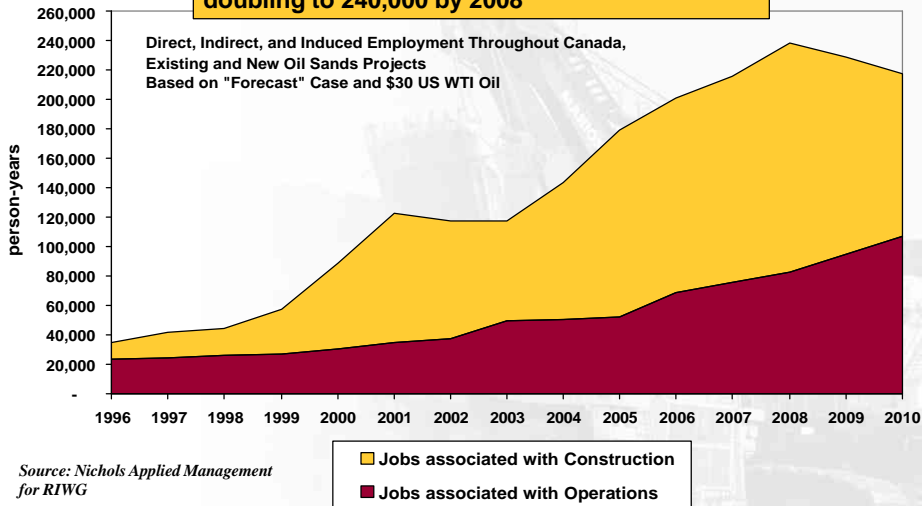
Suncor 3rd Upgrader - Coke Gasification



The Oil Sands are creating jobs across Canada



**120,000 jobs created across Canada by 2003.....
doubling to 240,000 by 2008**



A Very Slow Crawl



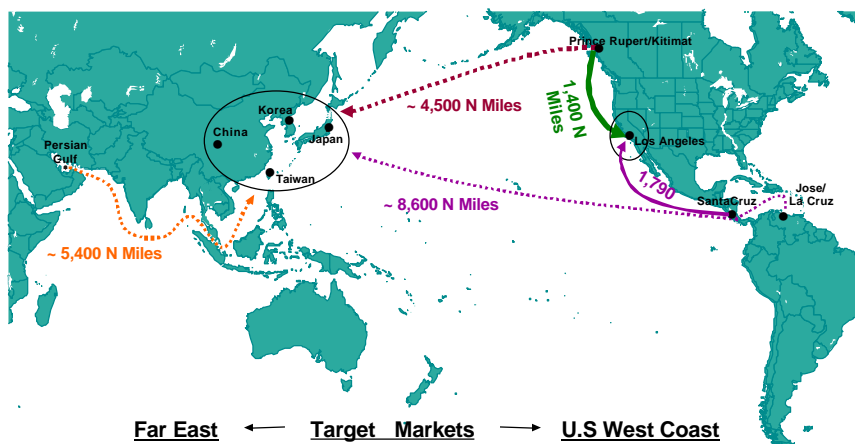
**Moving a Suncor Coker at 10-15 km
per hour all the way from Edmonton**



Canadian and U.S. Crude Oil Pipeline Alternatives



Potential Tanker Markets for Canadian Oil Sands Production



Competitive travel distances for Canadian supply to both markets

Source: Enbridge Pipelines

- Technological – Research and Innovation
- Engineering Design
- Project Management and Planning
- Environmental, Health & Safety (Stewardship)
- Stakeholder Consultation
- Regulatory
- Government, Community and Media Relations
- Investor Relations
- Financial Management
- Reliable and Cost Efficient Operations
- Marketing and Transportation
- Accounting and Legal Services
- Deep Pockets and Patient Investors