

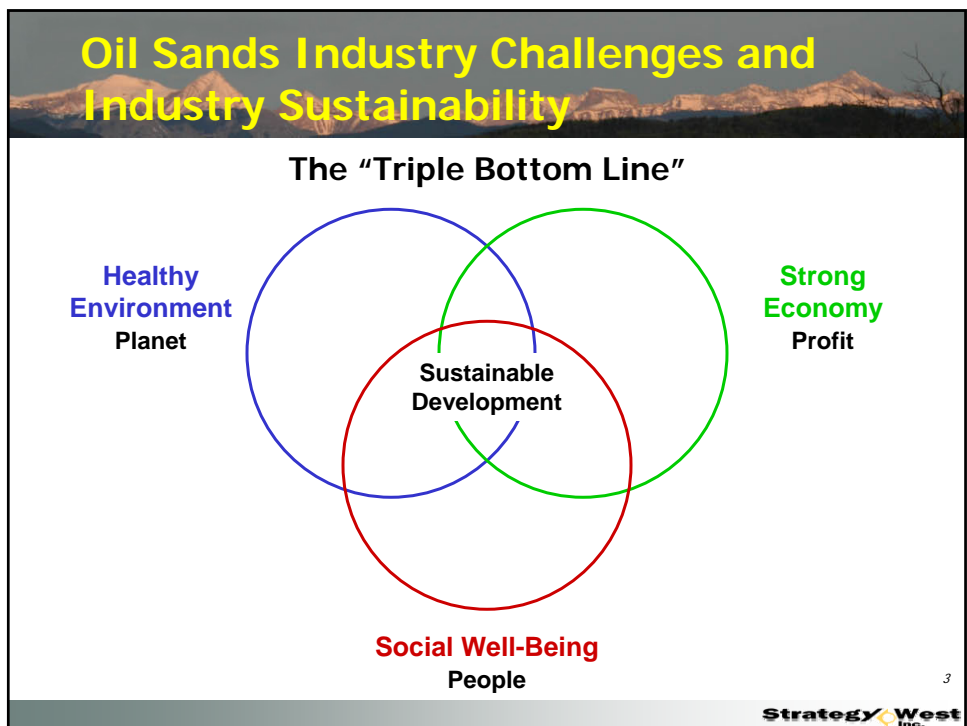


Presentation Outline

- Industry Challenges
 - Overview
 - Project Costs and Economics
 - Energy and Hydrogen Supply Options
- Oil Sands Production Outlook
 - Unadjusted Case
 - Adjusted Case
- Conclusions

2

Strategy West Inc.



- ## Oil Sands Industry Environmental Challenges
- Air Emissions
 - Greenhouse Gases
 - Criteria Air Contaminants (SO_x, NO_x, PM, VOCs, CO, NH₃)
 - Water Use
 - Consumption
 - Recycle
 - Liquid Waste Disposal
 - Solid Waste Disposal
 - Tailings
 - Other Solid Wastes
 - Reclamation and Abandonment
 - Cumulative Effects
- 4
- Strategy West Inc.**

Oil Sands Industry Societal Challenges

- Public Services
 - Health
 - Education
 - Other
- Public Infrastructure
 - Road
 - Water & Sewer
 - Rail
 - Other
- Regulatory Agencies
 - Staffing & Expertise
 - Workload
 - Funding
- Pace of Development
- First Nations
- Project Legacies

5

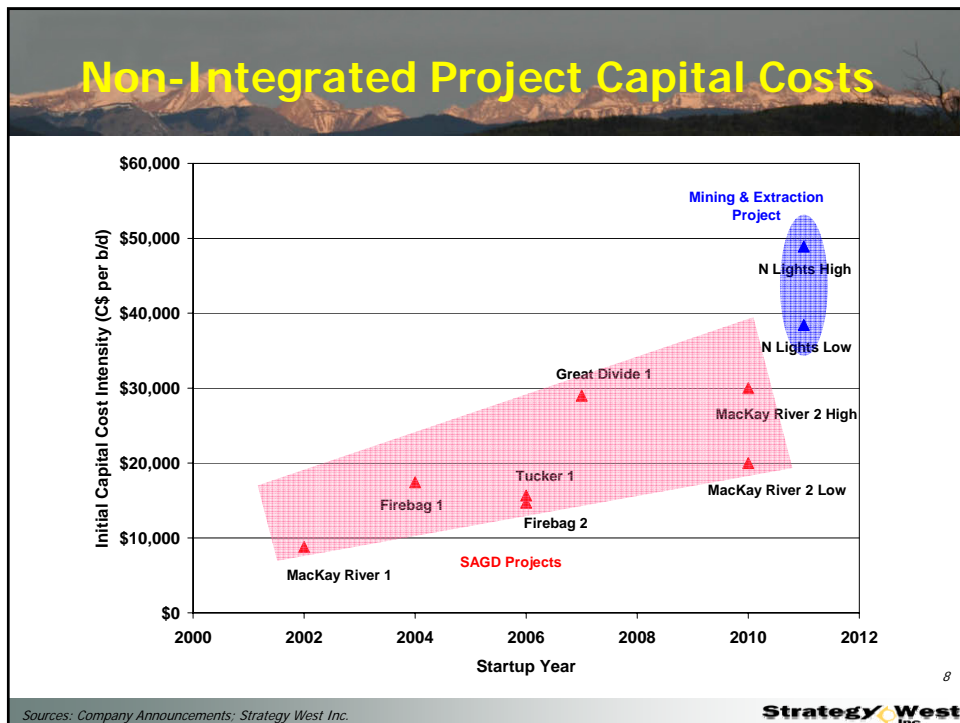
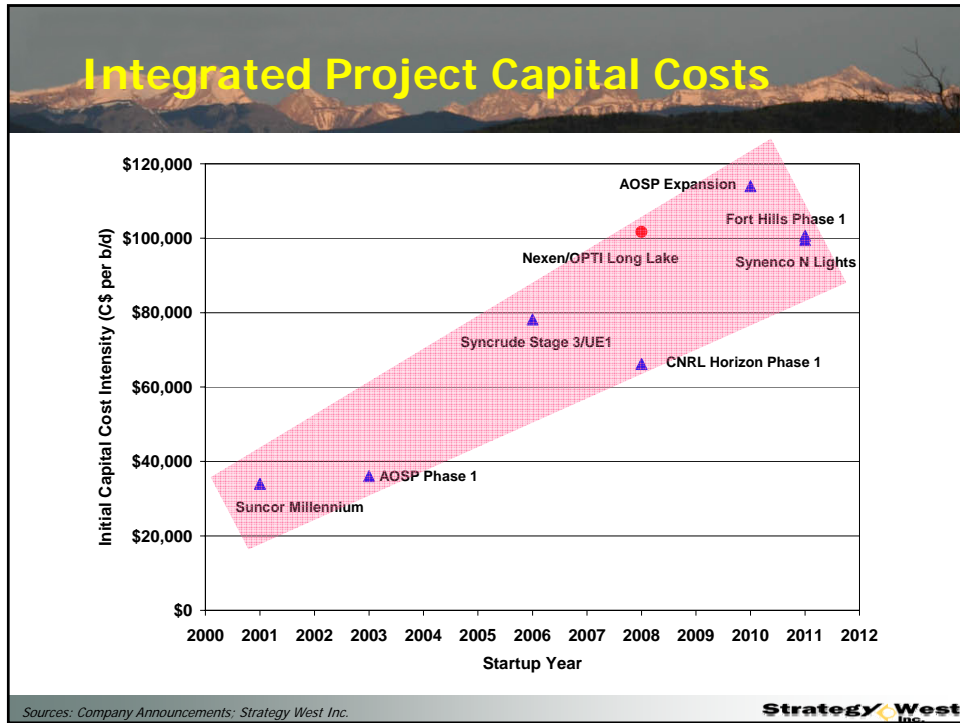
Strategy West Inc.

Oil Sands Industry Economic Challenges

- Capital Costs
 - Labour Availability and Productivity
 - Services and Materials
 - Project Execution
- Operating Costs
 - Purchased External Energy
 - Non-Energy Operating Costs
- Energy and Hydrogen Supply Options
- Fiscal and Regulatory Uncertainties
 - Provincial Royalties
 - Corporate Income Taxes
 - Greenhouse Gas Emissions
- Markets
 - Integration/Final Product (Bitumen, SCO, RPPs, or Petrochemicals)?
 - Market Access
- Product Prices
 - Light Sweet Crude (WTI/MSW)
 - Heavy-Light Differentials

6

Strategy West Inc.

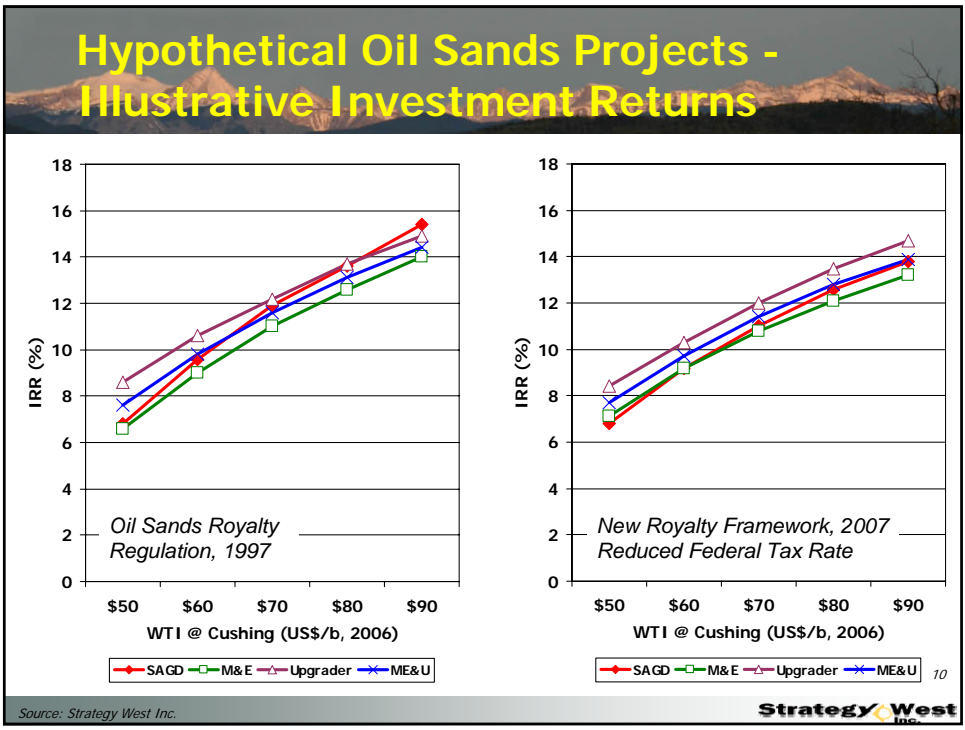


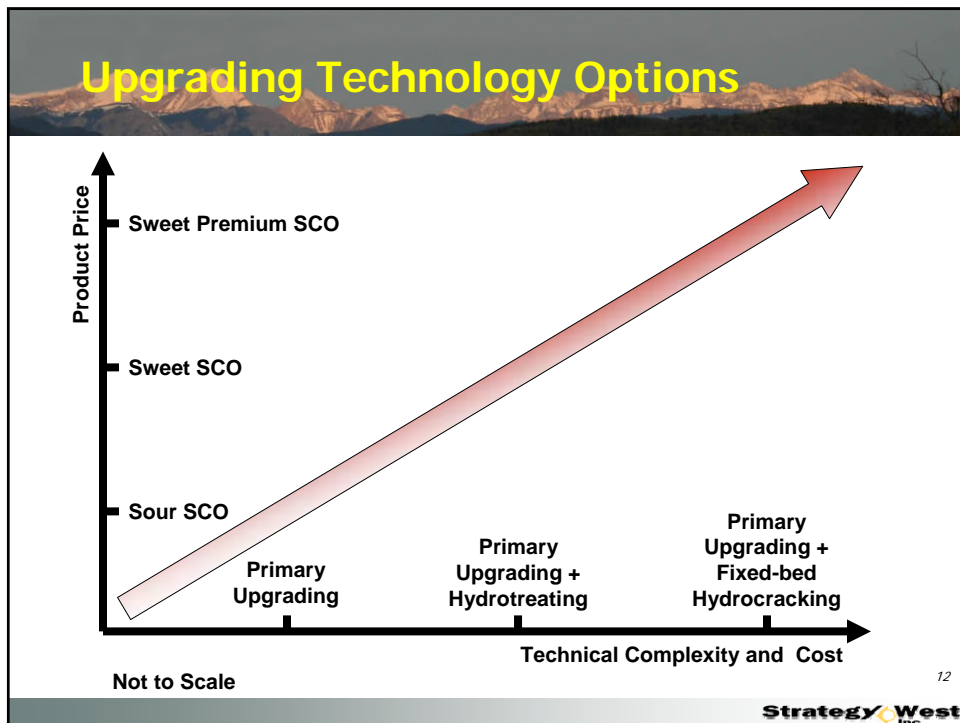
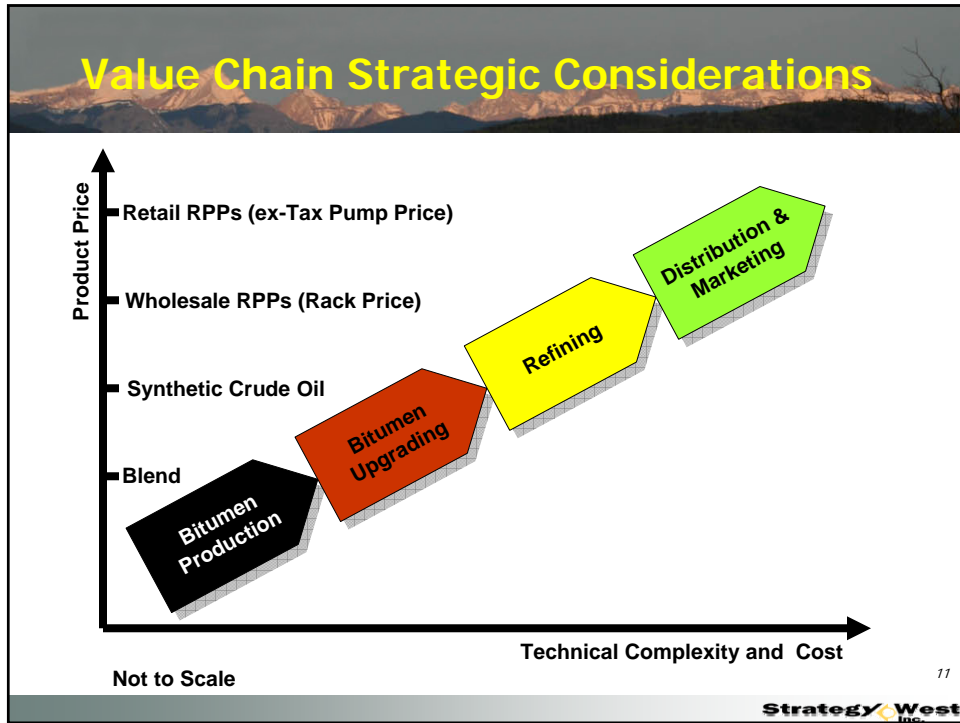
Hypothetical Oil Sands Projects – Cost Assumptions

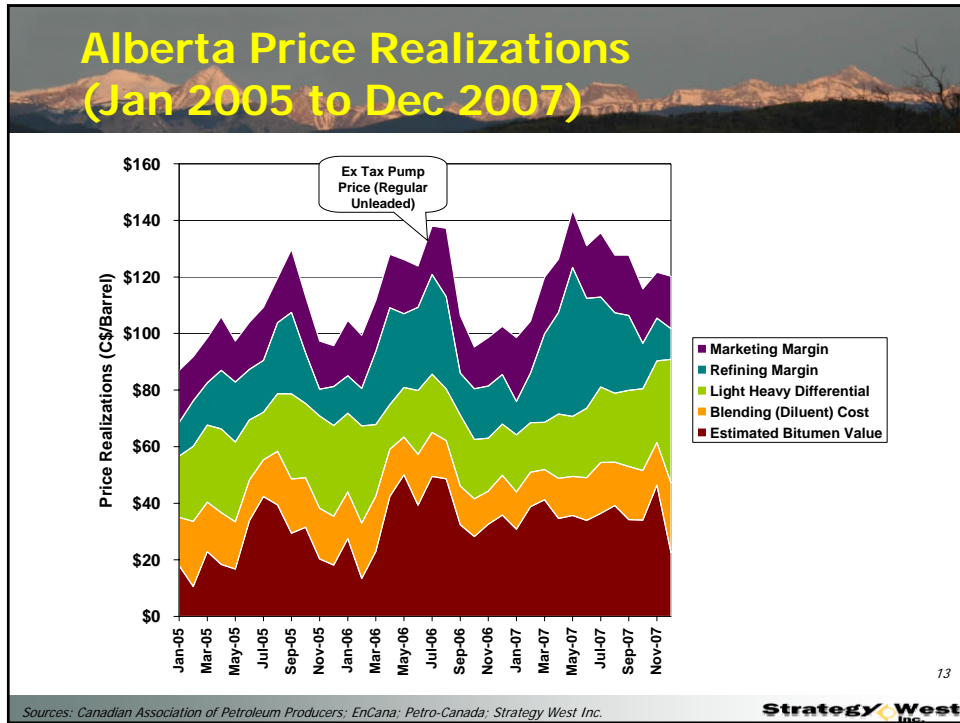
| | SAGD | Mining & Extraction | Upgrading (Coker) |
|---------------------------------------|--------------------|---------------------|---------------------|
| Product | Dilbit | Dilbit | Synthetic Crude Oil |
| Initial CAPEX (Real 2007 C\$ per b/d) | \$30,000 (Bitumen) | \$40,000 (Bitumen) | \$50,000 (SCO) |
| Non-energy OPEX (Real 2007 C\$/b) | \$7.00 | \$9.00 | \$7.00 |
| Purchased Natural Gas (GJ/b) | 1.20 | 0.30 | 0.50 |
| SCO Yield | - | - | 85% |
| GHG Emission Penalty (\$/t) | - | - | - |

9

Source: Strategy West Inc. Strategy West Inc.







Average Alberta Price Realizations (Jan 2005 to Dec 2007)

| | Average Price (C\$/b) | Average Price Relative to MSW (C\$/b) |
|---|-----------------------|---------------------------------------|
| Estimated Bitumen Value | \$31.34 | 43% |
| Dilbit @ Hardisty | \$47.58 | 66% |
| MSW @ Edmonton | \$72.10 | 100% |
| Rack Price (Regular Unleaded @ Edmonton) | \$94.31 | 131% |
| Ex-tax Pump Price (Regular Unleaded @ Edmonton) | \$112.83 | 157% |

14

Sources: Canadian Association of Petroleum Producers; EnCana; Petro-Canada; Strategy West Inc. Strategy West Inc.

Current Sources of Thermal Energy, Hydrogen and Electricity

Thermal Energy

- Purchased natural gas
- Produced gases (in situ projects)
- Process gases (upgraders)
- Liquid hydrocarbon fuels
- Crude bitumen
- Coke and other bitumen residues (upgraders)


Hydrogen

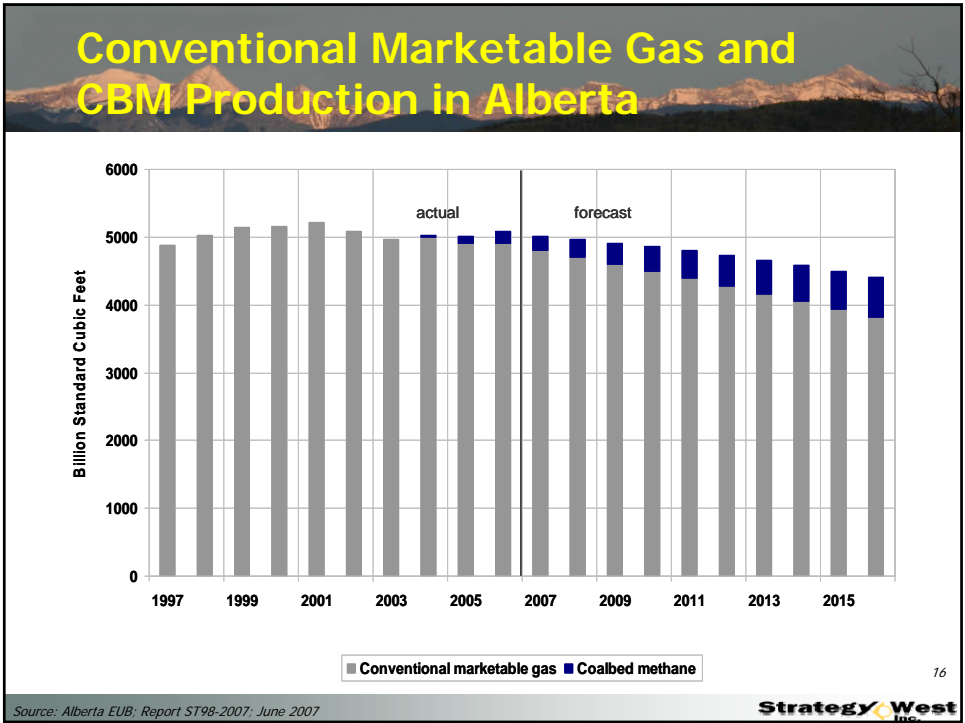
- Steam Methane Reforming (natural gas)

Electricity

- On-site generation
- Purchased electricity

15





Industry Options to Reduce Purchased Gas Requirements

- Conservation/Energy Efficiency Improvements
- New Bitumen Recovery Technologies
 - In Situ
 - Mining and Extraction
- Alternative Sources of Thermal Energy, Electricity and Hydrogen
 - Gasification of Bitumen Residues
 - Combustion of Bitumen/Bitumen Residues
 - Nuclear

17

Strategy West Inc.

Oil Sands Gasification Projects

| Project | Gasification Status |
|--------------------------------------|------------------------|
| OPTI/Nexen Long Lake Phases 1-4 | Construction (Phase 1) |
| North West Upgrading Phases 1-3 | Approved |
| Northern Lights Phases 1 & 2 | Application |
| Shell Scotford Upgrader 2 Phases 1-4 | Application |
| Suncor Voyageur Phase 2 | Being Evaluated |
| Fort Hills Sturgeon Phases 2 & 3 | Being Evaluated |
| CNRL Horizon Phases 4 & 5 | Being Evaluated |
| CNRL Primrose Phases 1 & 2 | Being Evaluated |
| NAOSC Upgrader Phase 2 | Being Evaluated |

18

Source: Project Applications and Company Announcements

Strategy West Inc.

Combustion of Bitumen/ Bitumen Residues

- **Coke Burning**
 - Suncor power plant
 - Syncrude Fluid Cokers
- **Multiphase Superfine Atomized Residue (MSAR)**
- **Asphaltenes**
 - Mining project cogeneration facilities
- **Issues**
 - SO₂ and particulate emissions require flue-gas scrubbing
 - CO₂ emissions exceed those from combustion of natural gas
- **Opportunities**
 - O₂ firing
 - CO₂ capture

19

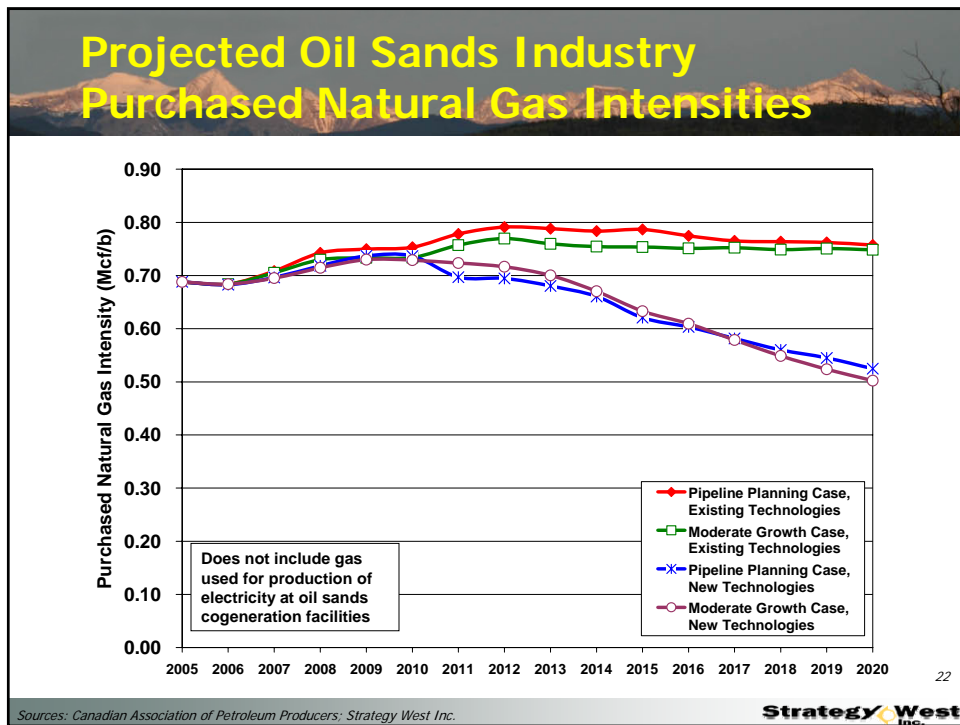
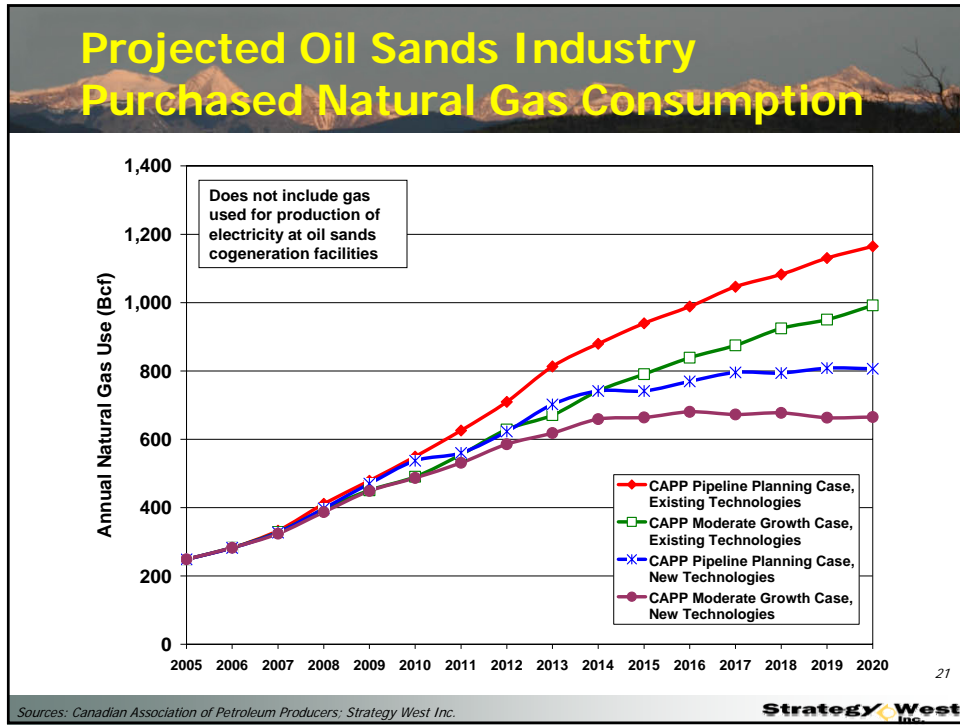
Strategy West
Inc.

The Nuclear Option

- **Potential Benefits**
 - Reduced Greenhouse Gas Emissions
 - Competitive Thermal Energy and Electricity Cost
 - Long-Term Price Stability
- **Issues**
 - **Public Concerns**
 - Safety
 - Terrorist threats
 - Nuclear waste disposal
 - **Capital Cost**
 - **Reactor Size/Technology**
 - **Reliability/Refurbishment**
 - **Timing**
 - Alberta nuclear by 2017?
 - All technologies must be certified by the CNSC

20

Strategy West
Inc.

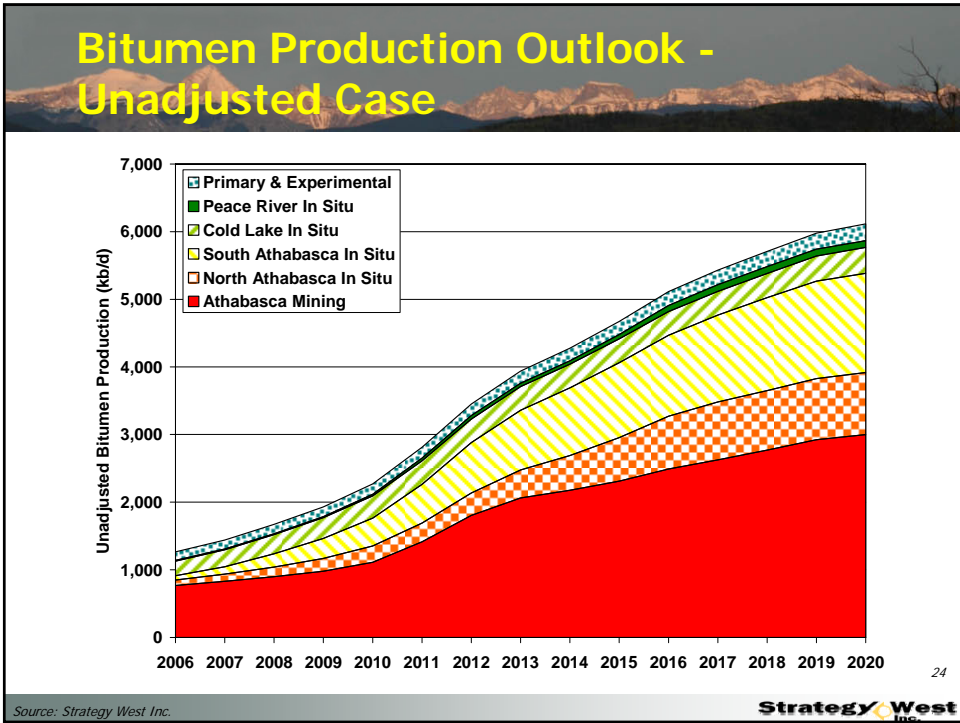


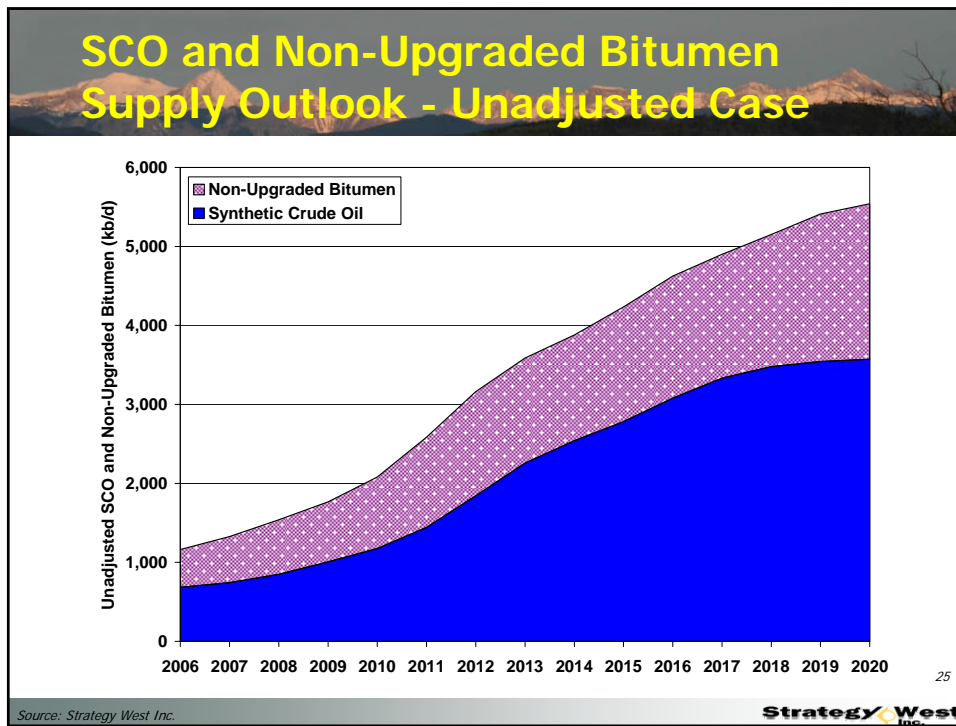
Oil Sands Industry Outlooks

- Comprehensive Project Database
 - Used to develop aggregated industry outlooks
- Unadjusted Outlook
 - Assumes all existing and proposed projects are developed and meet their announced startup dates
- Adjusted Outlook
 - Project-by-project timing adjustments
 - Project-by-project probability assessment

23

Strategy West Inc.



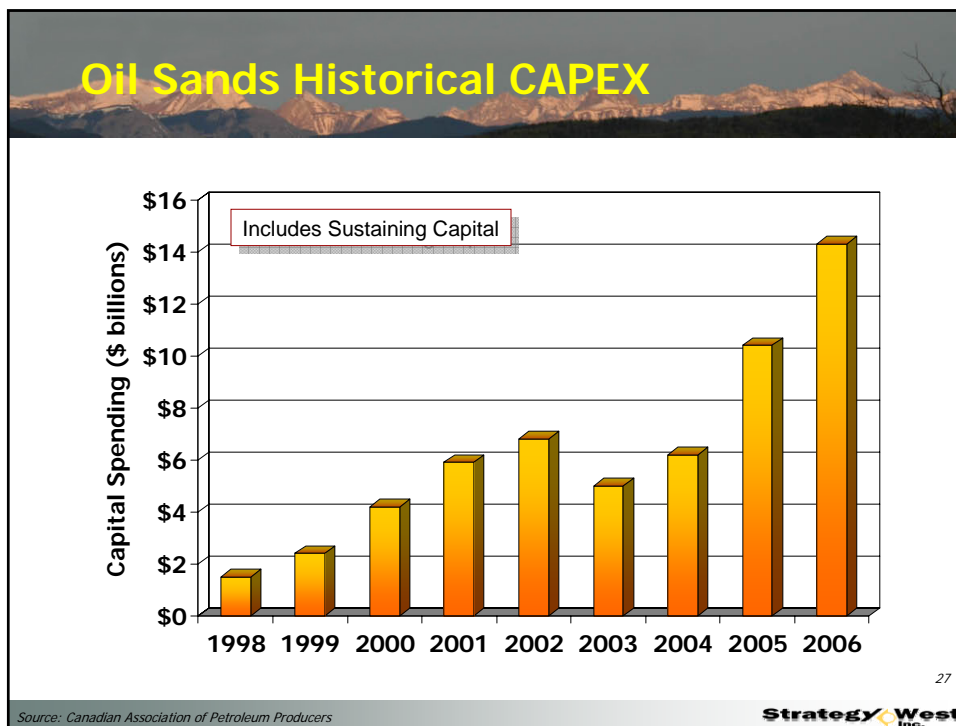


CAPEX – Unadjusted Case

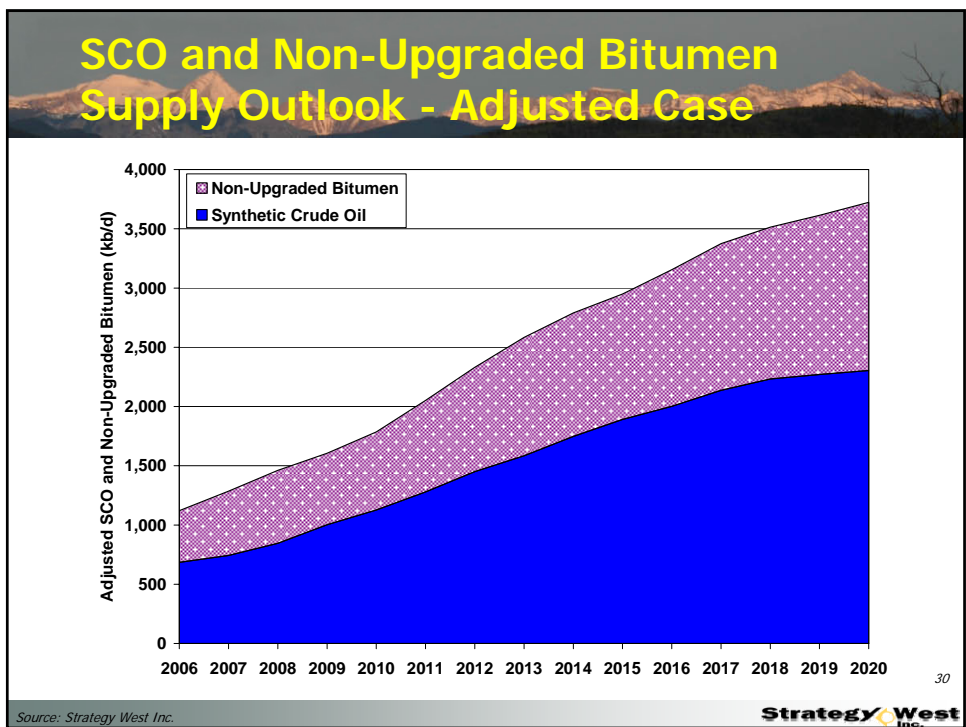
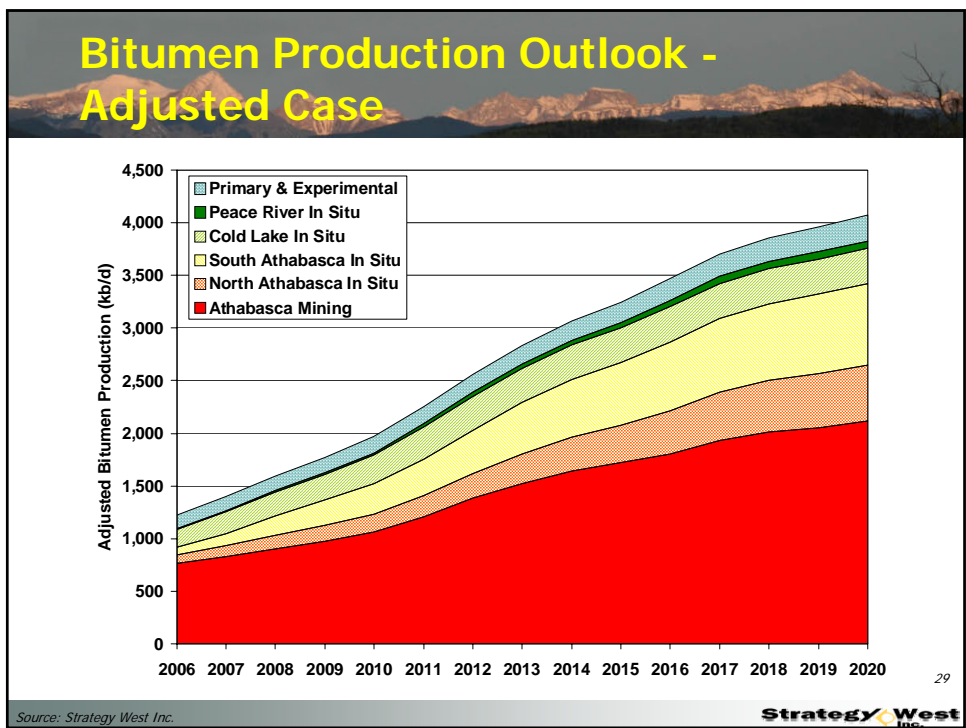
| | Production Increase 2008-2020 (million b/d) | Initial CAPEX (2007 C\$ per b/d) | Average Annual Initial CAPEX 2008-2020 (2007 C\$ billions) |
|------------------------|---|----------------------------------|--|
| Mining & Extraction | 2.2 | \$40,000 (Bitumen) | \$6.7 |
| In Situ | 2.5 | \$10,000-\$35,000 (Bitumen) | \$5.7 |
| Incremental Production | 4.7 | | \$12.4 |
| Upgrading | 2.8 | \$50,000 (SCO) | \$10.9 |
| Total CAPEX | | | \$23.3 |

Note: does not include sustaining capital

Source: Strategy West Inc. 26



- ### Adjusted Industry Outlook - Project-by-Project Assessment
- | | |
|--|--|
| <ul style="list-style-type: none"> ■ Project Timing <ul style="list-style-type: none"> • Lease evaluation • Disclosure • Application preparation and EIA • Application review and approval • Detailed engineering • Internal approval • Construction • Phasing | <ul style="list-style-type: none"> ■ Project Probabilities <ul style="list-style-type: none"> • Project status • Owners <ul style="list-style-type: none"> ■ Operating experience ■ Financial capacity ■ Technical capability ■ Other factors • Technology • Existing operations • Integration • Timing |
|--|--|
- 28
- Source: Strategy West Inc.
- Strategy West Inc.**



CAPEX – Adjusted Case

| | Production Increase 2008-2020 (million b/d) | Initial CAPEX (2007 C\$ per b/d) | Average Annual Initial CAPEX 2008-2020 (2007 C\$ billions) |
|------------------------|---|----------------------------------|--|
| Mining & Extraction | 1.3 | \$40,000 (Bitumen) | \$4.0 |
| In Situ | 1.4 | \$10,000-\$35,000 (Bitumen) | \$3.1 |
| Incremental Production | 2.7 | | \$7.1 |
| Upgrading | 1.6 | \$50,000 (SCO) | \$6.0 |
| Total CAPEX | | | \$13.1 |

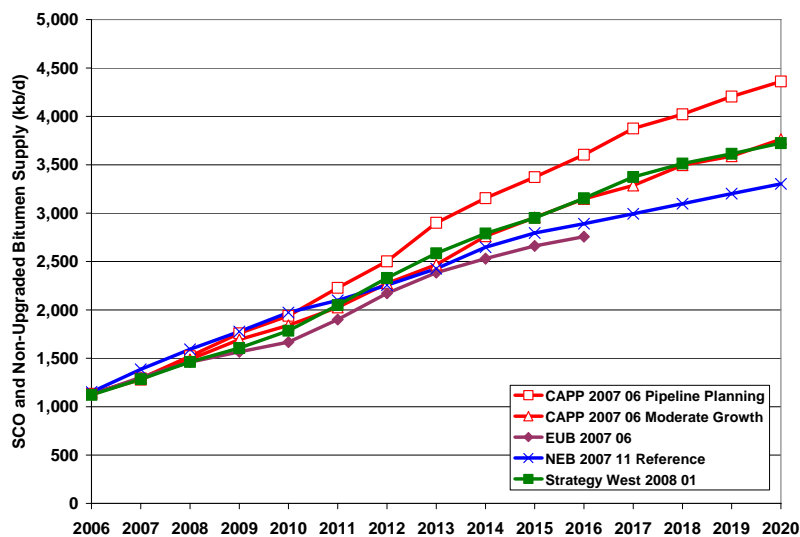
Note: does not include sustaining capital

31

Source: Strategy West Inc.

Strategy West Inc.

Comparative Industry Outlooks



32

Sources: Canadian Association of Petroleum Producers; Energy and Utilities Board; National Energy Board; Strategy West Inc.

Strategy West Inc.

Conclusions

- Oil sands projects are experiencing cost pressures but provide economically attractive investment opportunities at oil prices of US\$60-70/b (WTI @ Cushing, OK).
- The oil sands industry is aggressively taking action to reduce its consumption of purchased natural gas.
- The many challenges facing the industry will cause some project delays and cancellations.
- These challenges are being addressed and the industry will continue to grow.

33

Strategy West
Inc.

Thank You

Questions?

Please visit
www.strategywest.com for oil
sands project lists and other
detailed oil sands industry
information

34

Strategy West
Inc.