

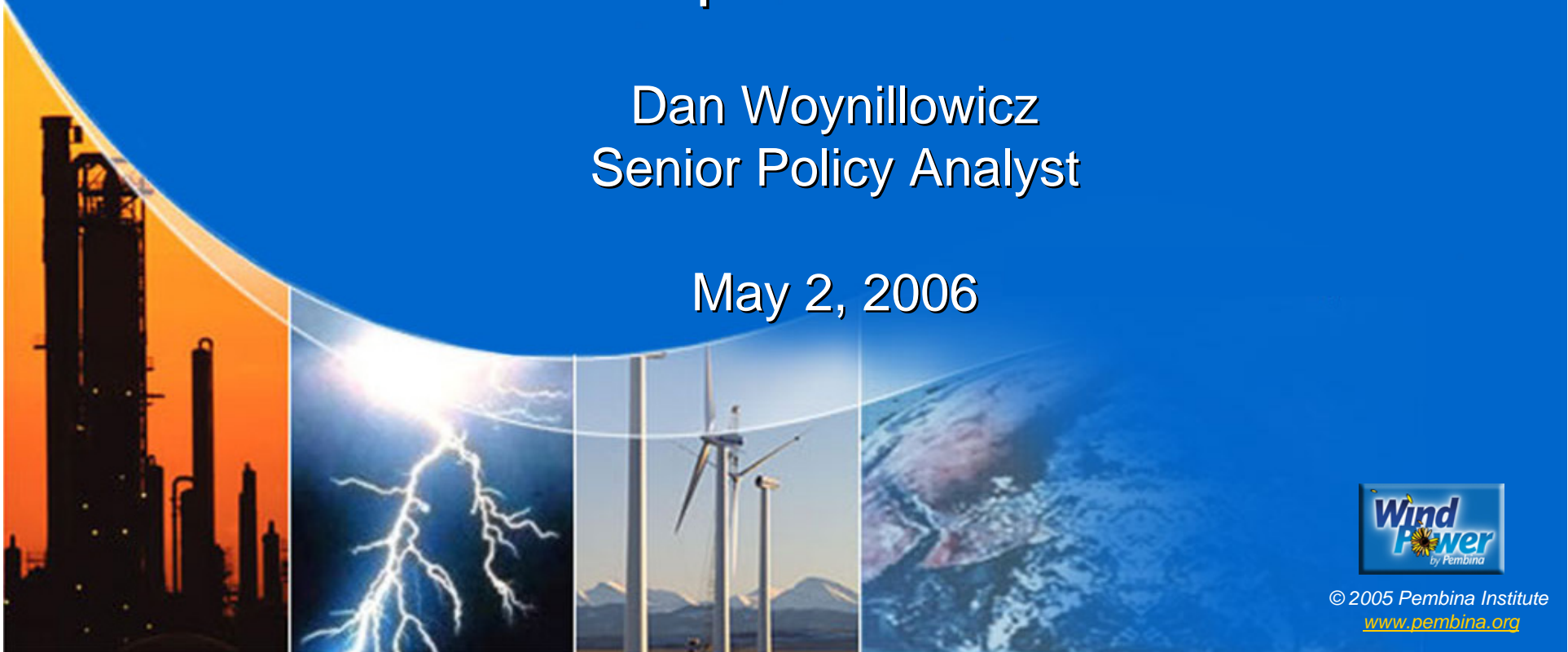


Oil Sands & Canada's Energy Future

Environmental Implications & Impediments

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The Pembina Institute

“To advance sustainable energy through research, education, consulting and advocacy.”

- Founded 1985
- Focus on energy and environment issues & environmental economics
 - policy research and analysis
 - public interest advocacy and action
 - corporate environmental analysis and consulting
 - public / school education



Oil Sands Experience

- Since early 1990s
 - Project interventions & bilateral negotiations
 - Multistakeholder processes – environmental management & monitoring
 - Advocacy – *Oil Sands Fever*
 - Media outreach
- Our focus on oil sands:
 - “How?” – minimize environmental impacts
 - “Why?” – maximize public benefit, leverage wealth for transition to sustainable energy

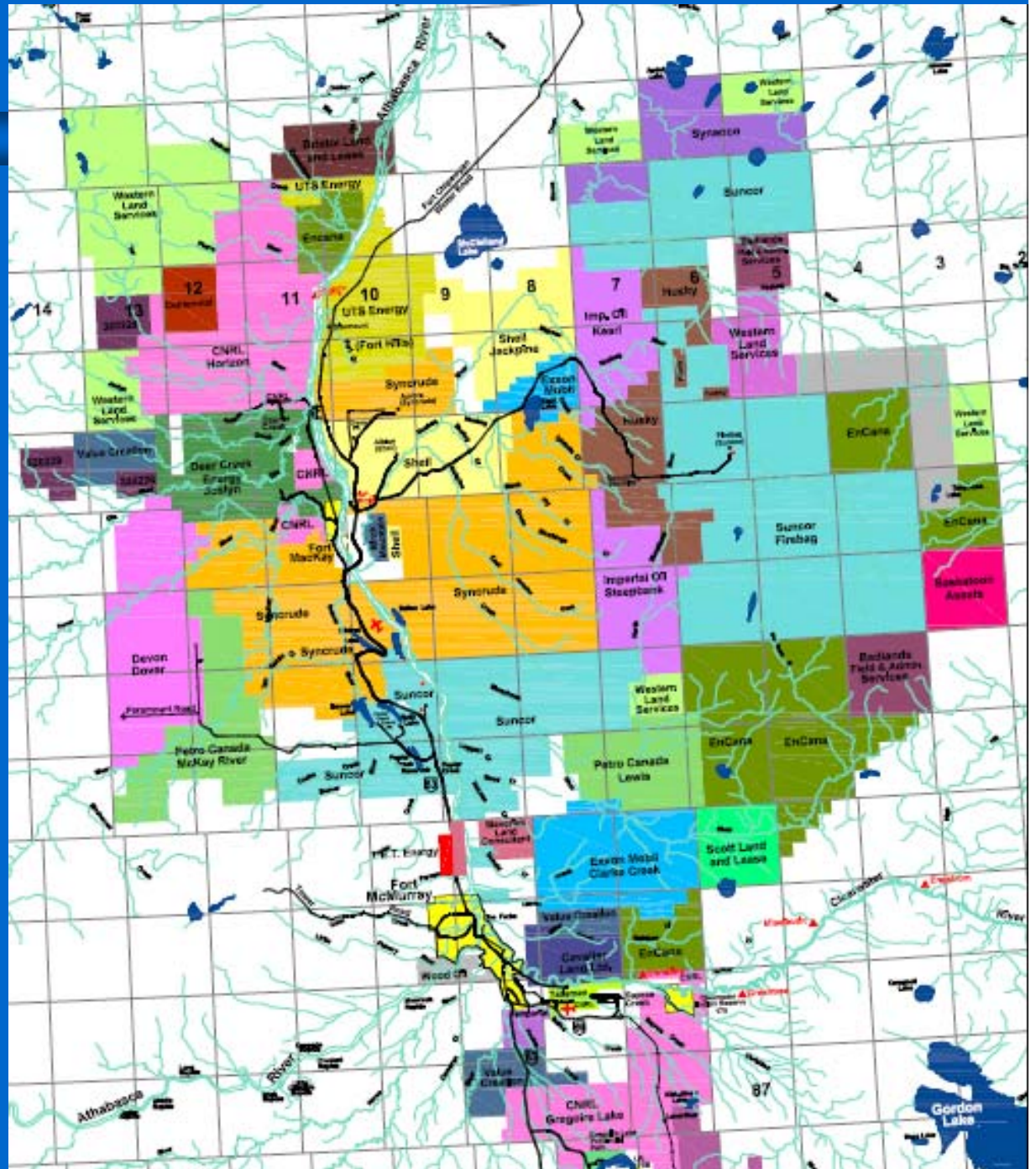
Future scenarios

- Low price case (maybe \$35 WTI and \$5 HH)
 - A world with abundant energy supply and rapid economic growth
 - Environmental stewardship will have the most impact in this scenario
- Mid case (maybe \$50 WTI and \$7 HH)
 - A long-term business-as-usual case
 - Global energy demand remains strong, moderate technical advancement, government letting the markets operate themselves etc.
- High price case (maybe \$75 WTI and \$15 HH)
 - Escalating geopolitical instability and low economic growth
 - Potential for trade-offs between security of supply vs. environmental impact

Projected Oil Sands ‘Rush’

- 2020: 1 million bpd (NOSTF, 1995)
 - Exceeded in 2004 – 15 years ahead
- But what about future projections?
 - 2015: 2.7 million bpd (CAPP)
 - 2030: 5 million bpd (ACR)
- Potential impediments
 - Social
 - Quality of life, public opposition
 - Economic
 - Labour, materials, public opposition
 - Environmental
 - GHG emissions, environmental thresholds, public opposition

- Increasing pace & size of land sales – a “looking glass” into the future
- Land sales: 234,000 ha in 2000, 355,000 ha in 2005



Lease Map North of Fort McMurray
November 2004
Source: RIWG

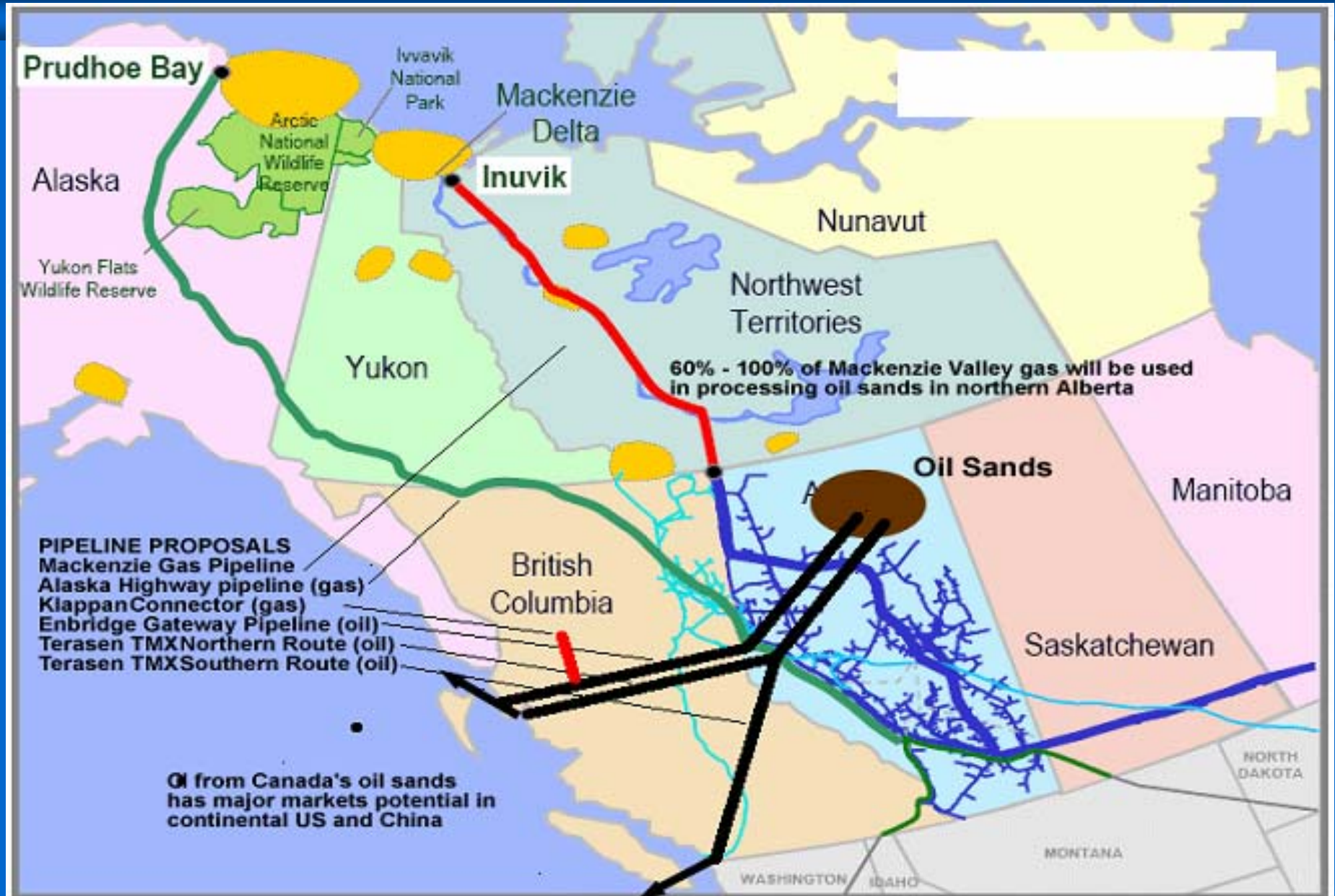
Albertan's Expectations

An emerging disconnect?

- 2004 *It's Your Future* survey:
 - Environment ranked 3rd
- 2005 government poll:
 - 82% - protecting the environment should be a higher priority
 - 38% “approval rating” of government’s job on the environment

What does this mean for oil sands development?

Oil Sands & the "Big Picture"



Oil Sands in the Spotlight

‘Canada’s Sustainability Performance Indicator’

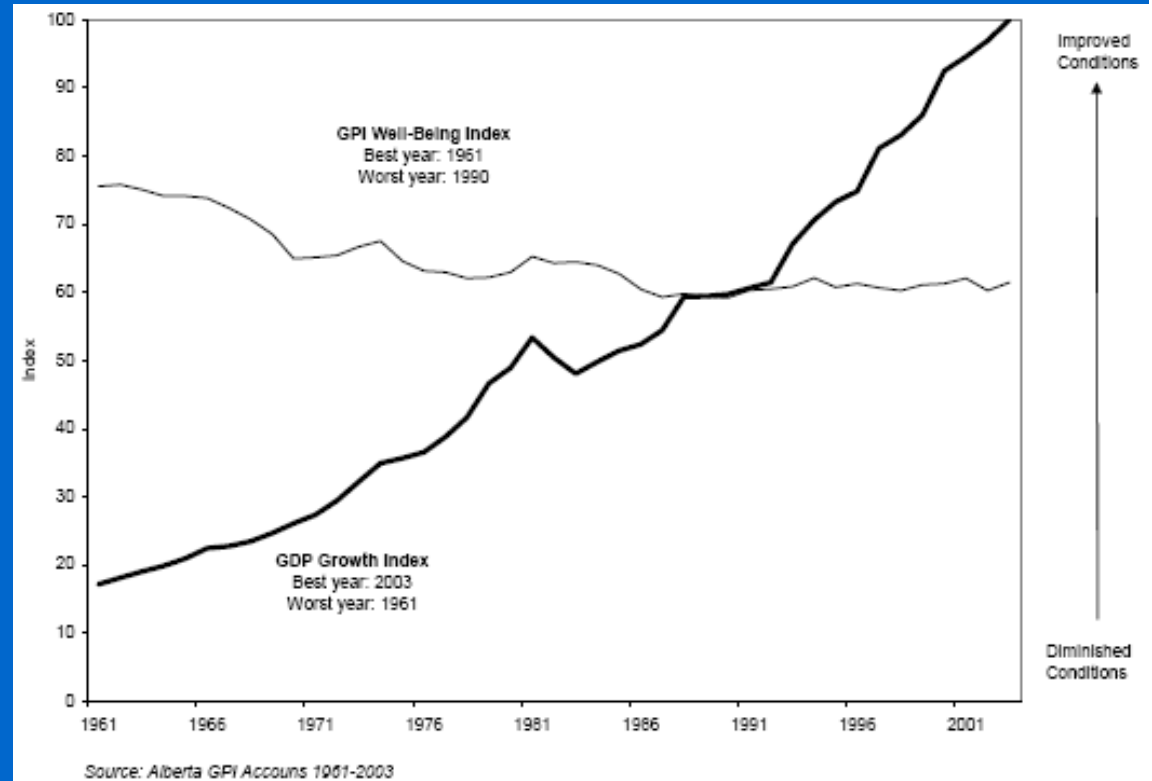
- Canada’s performance as a global citizen will be evaluated based upon the management of oil sands development
 - Managing the climate change & environmental implications
 - Advancing social well-being – Aboriginals, Albertans, Canadians
 - Leveraging economic benefit towards a sustainable economy

Social Conditions

- Challenges in the Regional Municipality of Wood Buffalo
 - Lagging physical & social infrastructure
 - Lack of housing = “fly in” workforce
 - Increasing crime, drug & alcohol abuse
 - Municipal Resource Review Committee being reactivated
- Attracting & retaining trade and professional labour
 - Impacting government & industry

The 'Genuine Progress Indicator'

- Framework for measuring societal well-being – beyond GDP
- 51 social, environmental & economic indicators
- Recent trend in Alberta – declining well-being



Economic Factors

- Potential shortages of labour, materials – or significantly higher capex/opex
- Fuel costs - if NG remains fuel of choice
- Is Alberta's royalty regime appropriate?
 - Increasing calls for transparent, public review
- Favourable federal tax breaks
 - Accelerated Capital Cost Allowance (ACCA)
- Is the current fiscal regime still appropriate?
- Is our economy overheating?

Environmental Limits

- Growing public awareness & concern
 - Pace of development not being managed
- Increasing ENGO attention
 - ENGO Declaration on Oil Sands
 - Canada as “Tar Nation”
 - Linkages to MGP & pipelines to West Coast
- Aboriginal perspective
 - Some questioning pace
 - Multistakeholder process frustration



Addressing the C-Question

- Fuel switching likely in all scenarios
 - Nuclear unlikely
 - Gasification – but with CCS?
- Industry needs certainty
 - Long-term targets
 - Regulated, real & equitable GHG reductions
 - Domestic emission trading regime
- Seeking voluntary commitment: carbon-neutral oil sands by 2020
 - Preliminary analysis: \$1-3/barrel; 60-75% reduction “gate to gate” remainder through offsets

What does this all mean?

- There will be winners & losers
 - Not all planned projects will proceed
- Increased opposition to BAU
 - ENGOs
 - Aboriginals
 - Public – Albertans & Canadians
- To address issues will result in *either or both* of:
 - Higher capex/opex
 - Slower pace of development
- Impossible to predict the future – all is contingent on context

Scenarios - all

- Pembina Institute recommendations:
 - Ensure responsible use and a transition to sustainable energy
 - National Energy Framework
 - Protect the climate
 - C-neutral by 2020
 - Protect the regional environment
 - Thresholds & management
 - Protected areas
 - Establish an equitable fiscal regime
 - Maximize long-term benefit



Scenario Implications - Low

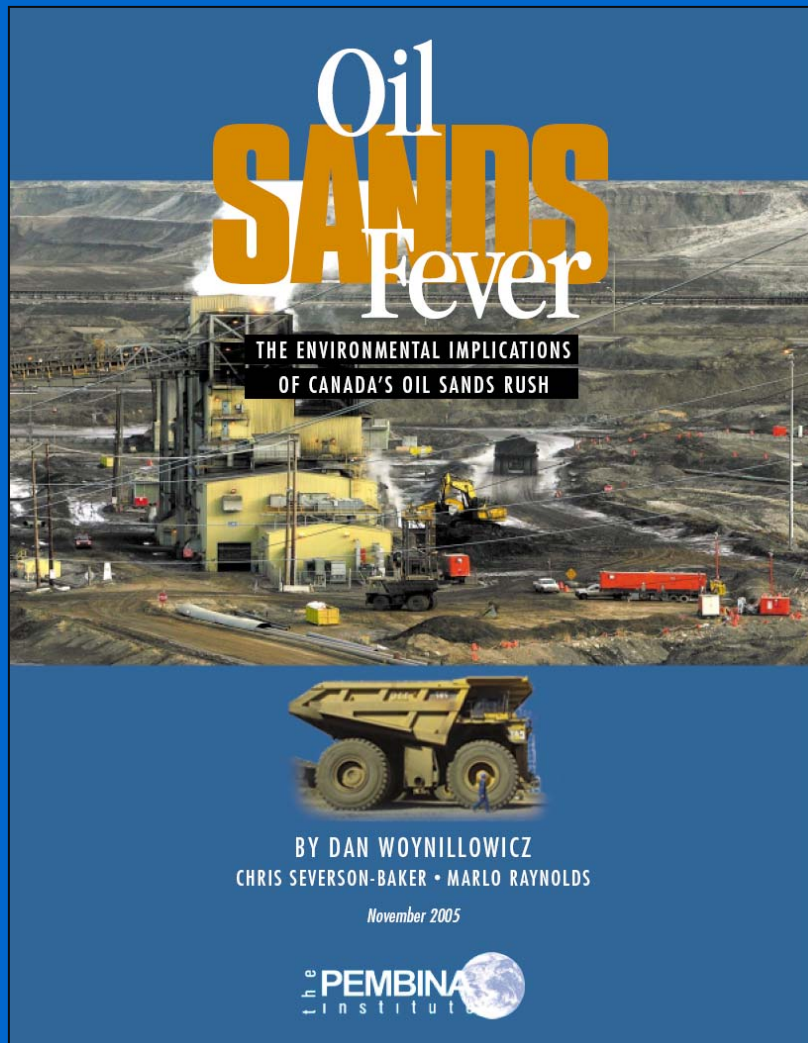
- Low price case (maybe \$35 WTI and \$5 HH)
 - A world with abundant energy supply and rapid economic growth.
 - Environmental stewardship will have the most impact in this scenario – *really?*
- Could lead to:
 - Relaxed environmental restrictions to spur development
 - Continued favourable fiscal regime
 - Little incentive for innovation & improved environmental performance

Scenario Implications - Mid

- Mid case (maybe \$50 WTI and \$7 HH)
 - A long-term business-as-usual case
 - Global energy demand remains strong, moderate technical advancement, government letting the markets operate themselves etc.
- Could lead to:
 - High public expectations - industry has “ability to pay”
 - Unless BAU shifts – increased public opposition to pace of development

Scenario Implications - High

- High price case (maybe \$75 WTI and \$15 HH)
 - Escalating geopolitical instability and low economic growth
 - Trade-offs between security of supply vs. environmental impact?
- Could lead to:
 - Trade-offs? – depends on political leadership
 - High public expectations – industry has “ability to pay”
 - Opportunity for innovation – stepwise improvements to produce more with smaller eco-footprint



- For copies of our reports, including *Oil Sands Fever: The Environmental Implications of Canada's Oil Sands Rush*, visit our website:

www.oilsandswatch.org

