TransCanada Keystone XL Pipeline Project
Energy Bar Association,
International Energy Law Committee

June 22, 2011
Project Status

- Keystone Phase 1 began operations in June 2010
- Keystone Phase 2 start up Q1 2011
- Keystone Phases 3 & 4 (Keystone XL) pending Presidential Permit

Keys Facts:

- 4,000-mile system
- $13 billion (U.S.) investment
- 1.1 MMb/d capacity
- 83% committed for an average term of 18 years
- As much as 25% capacity will be crude oil from U.S.
KXL Permitting

Federal:
- Presidential Permit – US Department of State
- BLM – Grant of ROW/Temporary Use Permit
- USACE – CWA Section 404 Nationwide Permit
- USFWS – Endangered Species Act Consultation/MBTA Compliance
- ACHP – NHPA Section 106 Consultation

States
- South Dakota – SD PUC Permit
- Montana – MT DEQ MFSA Certificate
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Framework of Presidential Permit Process

Executive Order 13337
- Presidential delegation to Sec. of State
- Authority to receive permit applications
- Construction, connection, operation, maintenance
- Facilities at the border of the United States
- Export or import
- Petroleum, petroleum products, coal, other fuels.
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Upon receipt of an application, DOS refers application and requests views of:

- DOD
- DOE
- DOI
- Justice
- Commerce
- DHS
- DOT
- EPA
- Others, as appropriate
Agencies must provide their views within 90 days of DOS referral, except . . .

An agency may request more information before providing views

If so, the 90-day period is tolled

DOS requested agency views on June 16, 2010

EPA/DOE requested more information

DOS announced 90-day window will start with FEIS
• After considering views of agencies and public, DOS determines whether Permit would “serve the national interest.”
• If so, DOS prepares Permit and notifies agencies of proposed determination to issue a Permit
• “National Interest Determination” (“NID”)
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- DOS issues (or denies) the Permit, unless within 15 days of the NID . . .
- An agency official notifies DOS that it disagrees with issuance of Permit and requests referral to President
- If so, DOS consults with agency
- If necessary, DOS refers the application and views of the involved officials to the President for final decision
KXL Permitting

National Environmental Policy Act

- Normally, permitting a major infrastructure project constitutes a major federal action requiring an EIS
- DOS conducts NEPA reviews for cross-border crude oil pipeline permit applications
- Uses FERC-style third-party EIS preparer
- Legal challenges to DOS NEPA process for Keystone I were dismissed on grounds that DOS Presidential Permit was not “agency action” but rather delegated Presidential decision-making
### KXL Permitting

<table>
<thead>
<tr>
<th></th>
<th><strong>Keystone</strong></th>
<th><strong>Alberta Clipper</strong></th>
<th><strong>KXL</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application</strong></td>
<td>4/16/06</td>
<td>5/15/07</td>
<td>9/19/08</td>
</tr>
<tr>
<td><strong>NOI</strong></td>
<td>5.5 months</td>
<td>2.5 months</td>
<td>4.5 months</td>
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<tr>
<td><strong>DEIS</strong></td>
<td>16 months</td>
<td>19 months</td>
<td>19 months</td>
</tr>
<tr>
<td><strong>FEIS</strong></td>
<td>21 months</td>
<td>23 months</td>
<td>33 months and counting</td>
</tr>
<tr>
<td><strong>ROD/NID</strong></td>
<td>22 months</td>
<td>26 months</td>
<td></td>
</tr>
<tr>
<td><strong>Pres. Permit</strong></td>
<td>3/11/08</td>
<td>8/20/09</td>
<td></td>
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(23 months) (27 months)
Current Status of Presidential Permit/NEPA Process

- Presidential Permit
  - Application made case for National Interest finding
    - Energy Security
    - Economic Benefits
    - TransCanada competence
    - Environmentally acceptable
  - Agency input requested by DOS – June 2010
  - 90-day agency input window tolled until FEIS
  - DOS to hold public meetings post-FEIS on National Interest
• NEPA Steps for KXL to date:
  - Environmental Report - November 2008
  - Notice of Intent - December 2008
  - Scoping - Spring 2009
  - Draft EIS - April 2010
  - Conclusion – *The Project would result in limited adverse environmental impacts during both construction and operation*
KXL Permitting

Following DEIS (April 2010)

• Typically expect FEIS ~ 5-6 months

• Numerous factors intervened:
  ▪ Organized E-NGO intervention – targeting oil sands
  ▪ Deepwater Horizon
  ▪ Letter from 50 Congressmen
  ▪ Letters from Rep. Waxman
  ▪ Sen. Johanns - Ogallala Aquifer
  ▪ Kalamazoo spill
  ▪ San Bruno explosion

• Process politicized
EPA Letter:
- Clean Air Act Section 309 authority to evaluate agency NEPA documents
- Found DOS Draft EIS “inadequate”
- Does not adequately address potentially significant environmental issues
- Failure to address EPA deficiencies creates referral and litigation risk for DOS/Applicant
KXL Permitting

Key Deficiencies Cited:

- Purpose and Need unduly narrow – consider national energy and climate policy
- Need to consider extraction-related GHG emissions; causal relationship to KXL
- Alternative Routes – Ogallala Aquifer
- Air Quality Impacts – refinery emissions
- Migratory bird impacts at oil sands
- Pipeline safety-Spill response
- Environmental Justice
- Others
DOS Response: Additional year of study.

- Commissioned third-party reports on
  - **Purpose and need** – Project serves market opportunity to deliver heavy crude to Gulf Coast refineries to fill a gap caused by declining supplies from Mexico and Venezuela
  - **GHG Emissions** – WCSB crudes somewhat more GHG-intensive than crudes they would displace, from a global perspective Project is not likely to result in incremental GHG emissions.
  - Engaged PHMSA to develop 57 Special Conditions over and above 49 CFR requirements.
Supplemental Draft EIS published April 2011

- **Supplemental DEIS not legally required; furthers purposes of NEPA**
- **Degree of safety over any other typically constructed domestic oil pipeline system under current code (With PHMSA conditions)**
- **Extensive review of potential releases and environmental consequences**
- **Assessment (with PHMSA) of emergency response capability – consistent with accepted industry practice.**
SDEIS, continued

- Crudes transported by KXL are comparable to existing heavy crudes refined in Gulf Coast refineries
- Extensive alternative route assessment; alternative routes screened out as not environmentally or technically preferable
- Review of construction plans in Nebraska Sand Hills region – additional BMPs
- Expanded groundwater impact assessment
- Reference to EnSys and ICF reports
- Description of Marketlink projects as connected actions
SDEIS Conclusion:

- The information provided in the SDEIS does not alter the conclusions reached in the DEIS regarding the need for the project and the potential impacts of the project.

- 45-day comment period conducted on SDEIS (closed June 6).

- At close of comment period, DOS restated its expectation that it will reach a decision on Permit before end of year.
EPA Rated SDEIS – Insufficient Information

- Pipeline safety issues
- Oil spill impacts/Environmental Justice
- Emergency response
- Refinery emissions
- Life-cycle GHG emissions (high end understated)
- Wetlands impacts – recommend individual 404 permit
- Migratory bird impacts of oil sands extraction impacts.
KXL Permitting

- DOS currently reviewing comments on SDEIS
- Data Requests to address certain EPA issues
- Final EIS expected summer 2011
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Post FEIS:

- Additional Public comment period on FEIS (30 days)
- Public meeting on National Interest in DC Q-3 2011
- Public meetings on NID in the states Q-3 2011
- Agency 90-day comment on National Interest
- ROD/NID – at least 90 days post-FEIS
- 15 day period for agency objections to Permit issuance
- Presidential Permit issues – late Q4 2011
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State Siting Processes:

- South Dakota – Siting Act
  - Application – full gamut of issues
  - Public input meetings
  - Formal evidentiary hearing
  - Permit granted Q1 2010/Amended Q2 2010

- Montana – Major Facilities Siting Act
  - Comprehensive Application
  - DEQ participates in DOS NEPA review
  - Develops route variations
  - Pending Certificate decision post-FEIS
Thank you
Canada’s Energy:
Ensuring the Energy, Environmental, & Economic needs of North America

“How we produce and use energy is fundamental to our economic recovery, but also our security and our planet.”
President Barack Obama,
February 19, 2009

“We are a stable, reliable producer in a volatile, unpredictable world.”
Prime Minister Stephen Harper,
July 14, 2006
Canada’s GHG Policies

We are committed to advancing global action.

• Canada has formally associated with the Copenhagen Accord
  • Submitted an economy-wide emissions reduction target for 2020 of 17% below 2005 levels
  • Aligns with target and base year of the United States
  • Committed to providing a fair share of quick-start funding for developing countries

• Canada also support the G8 partners’ goal of reducing global emissions by at least 50% by 2050; and developed countries reducing GHG emissions by 80% or more by 2050
Canada’s GHG Policies

We are taking aggressive action to achieve our objectives.

• Energy Efficiency
  • Residential houses, buildings, transportation, integrated communities
  • Vehicle tailpipe CO₂ emissions regulations

• Fuel Diversity
  • Support for Next Generation Biofuels
  • Increased use of natural gas in transportation
  • Renewable fuels standards

• Greener energy system:
  • New coal standards
  • CCS demonstration projects in electricity and other sectors
Canada’s GHG Policies

We are working with the U.S. to address these issues

• Canada and the US will have to be leaders in clean energy to meet our GHG emissions objectives
  • Clean Energy Dialogue established in 2009:
    • Carbon Capture and Storage – cleaning fossil fuels
    • Electricity Sector – smart grid technologies
    • Research and Development – for next generation technologies
• Building on vehicles, we’re working with the U.S. on compatible GHG regulatory regimes
Canada’s energy endowment

CRUDE OIL
NATURAL GAS
OIL SANDS
CRUDE OIL PIPELINE
NATURAL GAS PIPELINE
NUCLEAR

URANIUM MINE
TIDAL
REFINERY
HYDRO ELECTRIC PLANT
COAL MINE
WIND FARM
THERMAL ELECTRIC FACILITY
Energy - important to Canada’s economic prosperity

• Energy means more to Canada than any other industrialized country
  • Only OECD country with growing oil production
  • Stable and secure energy supplier
  • Major consumer
• $137 billion in exports (2008), primarily oil and gas – down to $93 billion in 2009:
  • 28.3% of total exports (2008)
  • 23.4% of total exports (2009)
• In 2009, energy represented 6.8% of GDP, with direct employment of over 260,000 people
The Integrated North American Transmission Grid

Map copyright CEA. Lines shown are 345kV and above. There are numerous interconnections between Canada and the U.S. under 345kV that do not appear on this map.
Canada US Energy Trade (2009)

Canada's energy exports to the US = $93 billion
Canadian exports satisfied 9% of total US demand
Cross-border direct investment in energy – $90 billion

Electricity
1% $2.4 Billion

Crude Oil/Products
13% $55 Billion

Natural Gas
14% $16 Billion

% of US Consumption
Canada – Your Largest & Most Secure Energy Supplier

U.S. Imports of crude oil & petroleum products

- Canada
- Saudi Arabia*
- Venezuela*
- Nigeria*
- Iraq*
- Algeria*
- Angola*
- Russia

* OPEC Member  Source: EIA, 2008 data

thousand barrels per day
Oil Reserves by Country

These Fourteen Countries Represent 91% of the Planet’s Oil Reserves

<table>
<thead>
<tr>
<th>Country</th>
<th>Oil Reserves (billion barrels)</th>
</tr>
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<tbody>
<tr>
<td>Saudi Arabia*</td>
<td>263</td>
</tr>
<tr>
<td>Venezuela*</td>
<td>211</td>
</tr>
<tr>
<td>Canada</td>
<td>174</td>
</tr>
<tr>
<td>Iran*</td>
<td>138</td>
</tr>
<tr>
<td>Iraq*</td>
<td>115</td>
</tr>
<tr>
<td>Kuwait*</td>
<td>104</td>
</tr>
<tr>
<td>U.A.E.*</td>
<td>98</td>
</tr>
<tr>
<td>Russia</td>
<td>60</td>
</tr>
<tr>
<td>Libya*</td>
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<tr>
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<tr>
<td>Kazakhstan</td>
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<tr>
<td>Qatar*</td>
<td>25</td>
</tr>
<tr>
<td>China</td>
<td>20</td>
</tr>
<tr>
<td>United States</td>
<td>19</td>
</tr>
</tbody>
</table>

* OPEC Member

Source: Oil and Gas Journal, 2009
Oil Sands are Essential as we Transition to a Lower Carbon Economy

- Canada is investing in renewable and cleaner fossil fuels, and committed to energy efficiency
- Canada’s oil sands are part of a global shift to heavier crudes
- The transition to a lower carbon economy will take time - oil will be a dominant fuel for decades
- This transition will involve reducing emissions from oil, as well as adopting new energy sources

**World Energy Outlook**

*Primary Energy Demand 2007*

- Coal: 19%
- Oil: 27%
- Gas: 33%
- Non-Emitting: 21%

**Primary Energy Demand 2030***

- Coal: 32%
- Oil: 18%
- Gas: 30%

* This scenario assumes atmospheric CO₂ stabilization at 450 ppm

* This scenario assumes atmospheric CO₂ stabilization at 450 ppm
Global Crude Supply

- ~80% of the world’s known oil reserves are state controlled or managed by national oil companies
- ~20% is openly accessible to market based development
- Canada’s oil sands represent ~60% of the world’s accessible oil

Source: Reserves by country data from the Energy information Administration, 2009
What are the Oil Sands?

A mixture of sand, clay, water and a heavy oil called bitumen

The third largest proven concentration of oil in the world

170 billion barrels of proven recoverable reserves

Early stages of development – 7 billion barrels recovered to date
Economic Benefits

Oil Sands Heavy Hauler Trucks

- The 200th Caterpillar 797 hauler delivered April 2009

Oil Pipeline Construction

- Billions of dollars of pipelines being built
- Using steel and creating jobs
- Major regional economic stimulus

Refinery expansions underway

- Several expansions and modifications are underway
- Providing significant jobs and local benefits
new energy economy

and who's the new energy economy

You'll never guess who's standing between

Canada's Tar Sands: the dirtiest oil on earth

Oil is the global economy.

America's dependence on oil is the world's problem.

A new energy economy is the world's solution.

Canada's Tar Sands: dangerous, dirty, and funded by the World Bank.

Stop the Tar Sands. Fight for a clean energy economy.
TransCanada’s Keystone XL

1,980-mile, 36-in. crude oil pipeline beginning at Hardisty, Alberta to Nederland, Texas to serve the Port Arthur, Texas marketplace.

When complete, pipeline capacity to increase from 590,000 b/d to approximately 1.1 mb/d.

Capital investment of approx. $13 billion

Permit process underway with decision expected before end 2011
Proposed New Transmission Line between Québec and New Hampshire

Construction of a 1,200-MW, 300-kV direct-current (DC) transmission line from the Des Cantons substation in Québec to Franklin, NH

- 140 miles in the U.S.
- 40 miles in Quebec

Construction of a converter terminal in Franklin, NH

Upgrade of the existing Des Cantons station in Québec

Construction of a 345-kV alternating current (AC) line from the proposed Franklin converter terminal to the existing Deerfield Substation in Deerfield, NH

- 40 miles

Anticipated in-service date 2015
Approvals and Next Steps

Project requires significant federal and state permits, including:

- Federal Energy Regulatory Commission (FERC)
  - approved the structure of the transaction in May 2009
  - approved the Transmission Service Agreement in February 2011

- U.S. Department of Energy Presidential Permit
  - Application submitted in October 2010

- Secretary of the U.S. Department of Agriculture (required to cross the White Mountain National Forest)

- NH Site Evaluation Committee “Certificate of Site and Facility”

It will take about two years for regulatory review and public evaluation of the project, followed by a three-year construction schedule.

Public Service of New Hampshire and HRE are currently negotiating a long-term power purchase agreement for a portion of the energy to be sold on the line.
Summary:

Providing Energy Security
- Safe, secure and reliable energy
- Large energy resource potential

Ensuring Environmental Stewardship
- Strict regulations
- Technology advances

Generating Economic Benefits
- Jobs and revenues across North America
- American investment flows back to the U.S.
Questions?
Canada’s oil sands are subject to a strict regulatory regime

The Provinces have primary jurisdiction over the development of their resources:

- Mines and Minerals Act
- Oil Sands Tenure Regulations
- Oil Sands Conservation Act

The Government of Canada has important levers:

- Canadian Environmental Assessment Act
- Fisheries Act
- Canadian Environmental Protection Act
- Migratory Birds Convention Act
- Species at Risk Act
The Facts – Land Use

- Most future development will be drilled rather than mined.
- After over 40 years of development, the total area disturbed by mining is 232 mi$^2$ – about the size of Chicago.
- The mineable area (1,900 mi$^2$) represents one-tenth of 1% of Canada’s 1.2 million mi$^2$ of boreal forest.
- Companies are financially obligated to restore land to productive status – 12% has already being reclaimed.
- Alberta holds $820 million in reclamation security bonds from industry.
Well-to-wheel GHG Emissions by Crude Type

The Facts – Fresh Water

**Drilled Oil Sands** (in situ)
- 90% of the water is recycled
- New projects are increasingly using non potable water
- 1 barrel of water per barrel of oil sands crude

**Mined Oil Sands**
- 75% of the water is recycled
- Amounts to less than 1% of average flow of Athabasca River
- Governments have set withdrawals limits from the river
- 3-4 barrels of water per barrel of oil sands crude

**Tailings Ponds**
- Producers not permitted to return wastewater to river
- Regulations in place to reduce the amount of tailings
- No evidence has been found that groundwater contamination from the tailings ponds is leaching into the river
The Facts – Greenhouse Gas Emissions

GHG Emissions by Country

- United States: 22%
- United States: 22%
- Canada: 2%
- Other: 21%
- Australia: 1%
- Japan: 4%
- India: 4%
- Eurasia: 9%
- Europe: 17%
- China: 20%
- Other: 21%

Canada’s GHG Emissions by Sector

- Transportation: 25%
- Oil & Gas: 17%
- Electricity Generation: 17%
- Industrial: 14%
- Agriculture: 8%
- Buildings: 11%
- Oil Sands: 6.5%
- Other: 3%

Ensuring Environmental Stewardship

Ensuring Environmental Stewardship
GHG Emissions in Perspective

Ensuring Environmental Stewardship

Legend
- US coal-fired power plant emissions, by state, 2007
- Canadian coal-fired power plants emissions, by province, 2007
- Canadian oil sands and upgrader emissions, by province, 2007

Note: The area of each circle is proportional to each jurisdiction's greenhouse gas emissions.
Economic Benefits

Fort McMurray, Alberta

Joliet, Illinois

Decatur, Illinois

Lafayette, Indiana

Amite, Louisiana

Lexington, South Carolina

The 200th Caterpillar 797 hauler delivered April 2009