Keystone XL Pipeline & the North American Petroleum Renaissance

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The Route
North American Production Potential

Note: The oil supply bars for 2035 represent the range of potential supply from each of the individual supply sources and types considered in this study. The specific factors that may constrain or enable development and production can be different for each supply type, but include such factors as whether access is enabled, infrastructure is developed, appropriate technology research and development is sustained, an appropriate regulatory framework is in place, and environmental performance is maintained.

Source: Historical data from Energy Information Administration and National Energy Board of Canada.
Total Canadian Oil Production (NEB Reference Case)

## Cost of Oil Sands Production

### Estimated Initial Capital Expenditure (CAPEX) and Threshold\(^{(a)}\) Prices for New Oil Sands Projects

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Mining, Extraction and Upgrading</td>
<td>$85,000-$105,000</td>
<td>$85-$95</td>
</tr>
<tr>
<td>Mining and Extraction Only (No upgrading)</td>
<td>$60,000-$75,000</td>
<td>$65-$75</td>
</tr>
<tr>
<td>Steam-assisted Gravity Drainage (SAGD)/Cyclic Steam Stimulation (CSS)</td>
<td>$25,000-$40,000</td>
<td>$50-$60</td>
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</table>

\(^{(a)}\) Includes a realistic after-tax rate of return, commonly in the order of 10 to 15%.

Canadian Imports

Source: EIA
US Shale Oil Plays

Source: EPRINC Additions
Unconventional Liquids  2011 to 2017

Source:  EPRINC research on “Building Blocks of North American Petroleum .”
PADD Districts and Refinery Locations

Source: NPRA
Canadian Imports and Potential Markets

Source: EPRINC rendition from Enbridge. Enbridge used EIA and NEB Data and Enbridge Estimates (with some averages)

Crude Disposition by Region 2010 (MB/D)
Various Crude and NG Prices

Source: EIA data, Flint Hills data, EPRINC Calculations
Projected Imports of LNG vs. Actual
(or why forecasters should be humble)

Source: EIA data and forecasts
Low Cost NG Lowers Production Costs

U.S. Refiners' Effective Cost of Production

Effective Production Cost takes into account a refinery’s ability to use heavy crude feedstocks (complexity), product slate (yields) and operating costs (OPEX).

Source: OGG Data for 2009, EPRINC Calculations
Refining Labor Income and Value Added by PADD (2009)

Source: PwC Economic Impact & Employment Report 2011; Wood Mackenzie analysis
Take Aways

Canadian Oil Sands Can Lower Long Run Price of Oil (e..g., $20/bbl = $1 Trillion in PV Savings to U.S. Economy


Supports Sustainable Economic Growth – High Value Added Enterprise.

Reliance on Alternative Fuels/Renewables as Substitute is a false choice – U.S. Will Remain Large Crude Importer

Essential to send message to buyers, sellers, OPEC that U.S./Canada Energy Trade will be Sustainable and Long-term