The Canada-US Energy Partnership
Trade Relationship Background

- World’s largest bilateral trade relationship - $555 billion (2011)
- $1.5 billion in goods/services cross the border daily
  * $1,050,000 a MINUTE
- US is Canada’s largest trade partner
  * 74% of exports / 50% of imports
- Canada is the US’ largest trade partner
  * 19% of exports / 14% of imports
- US exports more to Canada than the EU, China or Japan
  * Canada is top export market for 35 US states
  * 8 million US jobs depend on Canada trade (568k directly employed by Canadian businesses)
Canada: A Global Energy Superpower

- Sixth largest producer of oil (~2.8 million barrels per day); third largest oil reserves (after Saudi Arabia and Venezuela)
- Third largest natural gas producer; fourth largest exporter
- Second largest producer of hydro power
- Second largest producer of uranium
- Domestic nuclear power technology (Candu reactors)
Canada - US Energy Inter-dependence

- Oil
- Natural Gas
- Electricity
- Uranium / Nuclear
- Pipelines / Transmission
- Renewables
**Canada is the Largest Supplier of Energy to the U.S.**

<table>
<thead>
<tr>
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<th>US Imports from Canada</th>
<th>Canada Imports from US</th>
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<tbody>
<tr>
<td>Oil</td>
<td>23%</td>
<td>0%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>87%</td>
<td>25%</td>
</tr>
<tr>
<td>Uranium</td>
<td>33%</td>
<td>0%</td>
</tr>
<tr>
<td>Electricity</td>
<td>99%</td>
<td>3%</td>
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</tbody>
</table>

EIA / CAPP: 2011
ENERGY PARTNERSHIP: OIL
Global Crude Oil Reserves

Source: Oil & Gas Journal Dec. 2011
US Oil Imports 2010

Canada is the largest supplier of crude oil and petroleum products to the U.S.
Crude Oil Supply 2010

Total Canadian production 2.85 mb/d

Conventional 1.15 mb/d
Oil Sands 1.450
Offshore 0.3
Total 2.85

Western Canada production 2.55 mb/d

Offshore E. Canada production
300,000 m/d

PADD V 150,000 b/d
PADD IV 240,000 b/d
PADD II 1.250 mb/d
PADD I 200,000 b/d
PADD III 71,000 b/d

Source: First Energy 2010
ENERGY PARTNERSHIP: GAS
Canada & US Gas Imports / Exports

- Existing infrastructure serves N.A. markets.
- Changing S/D dynamics necessitate market growth:
  - N.A. (transportation, power)
  - LNG Exports (price, takeaway)
Canadian Gas Exports to the US (2010)

Major Export Points:
- A: Huntington - 23.83 million m³/d (0.84 Bcf/d)
- B: Kingsgate - 51.96 million m³/d (1.83 Bcf/d)
- C: Monddy - 52.02 million m³/d (1.84 Bcf/d)
- D: Elmira - 43.35 million m³/d (1.53 Bcf/d)
- E: Emerson - 35.06 million m³/d (1.24 Bcf/d)
- F: Niagara Falls - 6.77 million m³/d (0.24 Bcf/d)
- G: Ingersoll - 20.56 million m³/d (0.73 Bcf/d)
- H: St. Stephen - 4.09 million m³/d (0.14 Bcf/d)
- Other Export Points 15.68 million m³/d (0.55 Bcf/d)

Legend:
- Gas Producing Regions
- Major Gas Pipelines
- (a) Estimate
- Not shown: Ontario gas production of roughly 1 million m³/d (0.03 Bcf/d)

Source: NEB
ENERGY PARTNERSHIP: URANIUM (NUCLEAR POWER)
Canada/US Energy Partnership: Uranium & Nuclear Power

► Canada has the world’s second largest uranium reserves

► Canada is the world’s second largest uranium producer, Half of its production is exported to the US.

► Canada provides about a third of the uranium used in US reactors ~ fuelling six percent of US electricity generation

► Saskatchewan produces all of Canada’s’s uranium
ENERGY PARTNERSHIP: ELECTRICITY
Integrated Power Markets

- Canadian and US electricity grid are tightly integrated
- Supply all each other’s electricity imports
- Grid takes advantage of time-of-day & seasonal differences in countries’ consumption
- US generates 98% of its electricity; 2% is imported from Canada
- Canada’s hydro reserves can supply considerably more power to the US market
- Canada imports ½ as much electricity from the US as it exports
Electrical Supply and Destination (2010)
ENERGY PARTNERSHIP: PIPELINES & TRANSMISSION
Oil Pipelines + Proposals
Canada – US Liquids Pipelines
Cross-border Natural Gas Pipelines

Western Canada and the US

Primarily Offshore natural gas
Canada – US Electricity Transmission Grid
ENERGY PARTNERSHIP: RENEWABLES
Multiple Resources across the Continent
Cross-border Investment in Renewable Energy

- **Wind**: Canadian energy companies invest in US wind farms and transmission
  *TransAlta* *Alberta Gas* *Capital Power* *Enbridge*

- **Biofuels**: US biofuels companies invest in Canada (abundant woody resources, R&D and commercialization support)
  *Rentech* *Mascoma* *BioAmber*

- **Smart Grid**: Many US companies investing in Ontario to take advantage of provinces “Feed-in-Tariff” plan
  *RES America* *Lighthouse Power* *Tendril*