The New Regional Energy Equation in APEC

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## Snapshot of APEC & Its Top 3s

<table>
<thead>
<tr>
<th>Indicator</th>
<th>APEC/World (%)</th>
<th>Top 3/APEC (%)</th>
<th>List of Top 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (PPP)</td>
<td>54</td>
<td>71</td>
<td>US, China, Japan</td>
</tr>
<tr>
<td>Population</td>
<td>41</td>
<td>68</td>
<td>China, US, Indonesia</td>
</tr>
<tr>
<td>Trade</td>
<td>49</td>
<td>55</td>
<td>US, China, Japan</td>
</tr>
<tr>
<td>Energy Use</td>
<td>59</td>
<td>73</td>
<td>China, US, Russia</td>
</tr>
<tr>
<td>Power Use</td>
<td>62</td>
<td>73</td>
<td>US, China, Japan</td>
</tr>
<tr>
<td>CO₂ Emissions</td>
<td>60</td>
<td>75</td>
<td>China, Russia, US</td>
</tr>
</tbody>
</table>

Note: APEC = Member Economies of Asia-Pacific Economic Cooperation.

Source: World Development Indicators online (most recent available years).
Primary Energy Mix of APEC Top 10 in 2010

Energy Consumption: APEC Top 4 vs. Rest of World

Coal: Mostly About China

- China > half of IEA’s projected global demand growth by 2030.
- Global hard coal trade: about 30% size of Chinese domestic market.
- China became net importer since 2009, uncertainty for global trade.
Pattern of Oil Trade in 2010

Unit: MMBD.

Source: BP 2011
Gold Age of Shale Gas in APEC?

Gas Production (Trillion Cubic Feet)

### Prospects of LNG Trade in APEC

<table>
<thead>
<tr>
<th>Country</th>
<th>Gas Liquefaction Capacity (Mt)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2015-2016</td>
<td>2020+</td>
<td></td>
</tr>
<tr>
<td>Qatar</td>
<td>77</td>
<td>77</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>20</td>
<td>60 - 70</td>
<td>60 - 160</td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td>2</td>
<td>12 - 34</td>
<td>26 - 113</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>0</td>
<td>5 - 27</td>
<td>10 - 50</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>2</td>
<td>7</td>
<td>16 - 63</td>
<td></td>
</tr>
<tr>
<td>Russia (Far East)</td>
<td>10</td>
<td>10 - 15</td>
<td>10 - 25</td>
<td></td>
</tr>
</tbody>
</table>

## Energy Investment: Are They Ready?

<table>
<thead>
<tr>
<th>Company</th>
<th>Project</th>
<th>Category</th>
<th>Billion $</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNOOC (China)</td>
<td>MEG, Canada</td>
<td>Oil Sands</td>
<td>0.2</td>
<td>May-05</td>
</tr>
<tr>
<td>KNOC (S. Korea)</td>
<td>Black Gold</td>
<td>Oil Sands</td>
<td>1.7</td>
<td>Aug-06</td>
</tr>
<tr>
<td>Sinopec (China)</td>
<td>Syncrude</td>
<td>Oil Sands</td>
<td>4.6</td>
<td>Apr-10</td>
</tr>
<tr>
<td>PTT (Thailand)</td>
<td>Kai Kos Dehseh</td>
<td>Oil Sands</td>
<td>2.3</td>
<td>Nov-10</td>
</tr>
<tr>
<td>CNOOC (China)</td>
<td>Chesapeake, US</td>
<td>Shale Gas &amp; Oil</td>
<td>0.6</td>
<td>Jan-11</td>
</tr>
<tr>
<td>Sinopec (China)</td>
<td>Northern Gateway</td>
<td>Pipeline</td>
<td>2.3</td>
<td>Jan-11</td>
</tr>
<tr>
<td>PetroChina</td>
<td>Encana, Canada</td>
<td>Shale Gas</td>
<td>6.9</td>
<td>Feb-11</td>
</tr>
<tr>
<td>Reliance (India)</td>
<td>Atlas, Chevron, US</td>
<td>Shale Gas</td>
<td>3.2</td>
<td>Feb-11</td>
</tr>
<tr>
<td>KNOC (S. Korea)</td>
<td>Anadarko, US</td>
<td>Shale Gas &amp; Oil</td>
<td>1.6</td>
<td>Mar-11</td>
</tr>
<tr>
<td>CNOOC (China)</td>
<td>OPTI, Canada</td>
<td>Oil Sands</td>
<td>2.1</td>
<td>Jul-11</td>
</tr>
</tbody>
</table>

Nuclear: Aftermath of Fukushima Daiichi

- All major nuclear accidents occurred in APEC.
- Fukushima Daiichi has profound impacts in the years to come.

Carbon Emissions & Climate Negotiation

Fuel Combustion GHG (GtCO$_2$e)

- China - Gas
- China - Oil
- China - Coal
- Total U.S. Emissions

Year 2006

Thank You !