The future of the U.S. Oil Supply Security Strategy

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US imports have increased two and a half times over the last 15 years.
Four blocs: US, WH, PG, RoW

US Crude Oil Balance (mbd)

- US Consumption
- Rest of the World
- Persian Gulf
- WH

US Crude Oil Balance for years 1985 to 2003, with US Consumption and Rest of the World categories dominating the graph.
WH net exports into US have increased two fold since 1985

WH Crude Oil Balance (mbd)

- Production LAC + Canada
- Net WH Exports into US
- Consumption LAC + Canada

USAEE Washington DC July 2004
LAC exports amount 80% of WH exports into US
Net WH imports amount 40% total US imports and WH supplies amount 65% US Consumption
RoW imports 15.5 Mbd more than threefold what it exports into the US (4.7 Mbd)
PG exports 15.5 Mbd to RoW, and 2.5 Mbd to the US
US dependence on PG supplies is much larger than what appears at first sight
US imports could increase by 2/3 to 2020 from 12 Mbd up to 20 Mbd.
From the US perspective looking into the future there are two sources of supply: LAC and PG.

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>Canada</th>
<th>LAC</th>
<th>PG</th>
<th>RoW</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves mMbd</td>
<td>30</td>
<td>7</td>
<td>293</td>
<td>686</td>
<td>205</td>
<td>1221</td>
</tr>
<tr>
<td>Production mMby</td>
<td>2.8</td>
<td>1.0</td>
<td>3.9</td>
<td>8.1</td>
<td>11.4</td>
<td>27.2</td>
</tr>
<tr>
<td>P/R</td>
<td>9.3%</td>
<td>15.3%</td>
<td>1.3%</td>
<td>1.2%</td>
<td>5.6%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>
WH Growth:
Production between 19 Mbd

WH Crude Oil Balance (mbd)

Production LAC + Canada

WH X US

Consumption LAC + Canada

USAEE Washington DC July 2004
WH Growth:
Production between 19 Mbd and 23 Mbd

WH Crude Oil Balance (mbd)

- Production LAC + Canada
- WH X US
- Consumption LAC + Canada

USAEE Washington DC July 2004
LAC Growth:
Production between 15 Mbd

LAC Crude Oil Balance (mbd)

- LAC Production
- LAC Exports
- LAC Consumption
LAC Growth:
Production between 15 Mbd and 17 Mbd

LAC Crude Oil Balance (mbd)
WH Growth:
Exports between 1.2 Mbd

Net WH Exports into US (mbd)

Net WH Exports into US

1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019

USAEE Washington DC July 2004
WH Growth:
Exports between 1.2 Mbd and 5 Mbd

Net WH Exports into US (mbd)
WH / US Imports between 33% and 50% at present 40%
WH Supplies between 45% and 60% at present 65%
RoW increases net imports by 8 Mbd (the same as the US)
PG: World supplier of last resort
Production between 34 Mbd
PG: World supplier of last resort
Production between 34 Mbd and 40 Mbd

PG Crude Oil Balance (mbd)
### Investment LAC (mM$)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Production 2020</th>
<th>Base 10 Mbd</th>
<th>5 Mbd</th>
<th>2 Mbd</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear (245 mbd/y)</td>
<td>15 Mbd</td>
<td>130</td>
<td>40</td>
<td>-</td>
<td>170</td>
</tr>
<tr>
<td>Exponential (2.5%)</td>
<td>17 Mbd</td>
<td>130</td>
<td>40</td>
<td>20</td>
<td>190</td>
</tr>
</tbody>
</table>
## Investment PG (mM$)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Production 2020</th>
<th>Base 22 Mbd</th>
<th>4 Mbd</th>
<th>8 Mbd</th>
<th>6 Mbd</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear (670 mbd/y)</td>
<td>34 Mbd</td>
<td>96</td>
<td>16</td>
<td>56</td>
<td>-</td>
<td>168</td>
</tr>
<tr>
<td>Exponential (3.4%)</td>
<td>40 Mbd</td>
<td>96</td>
<td>16</td>
<td>56</td>
<td>44</td>
<td>212</td>
</tr>
</tbody>
</table>
Political Economy Issues

• Together with the PG LAC is the world region with the largest oil growth potential
• Because of geographical proximity and political ties development of LAC oil reserves should be a priority for the US
• Neither the national states nor the LAC economies produce the savings to finance oil investment
• It is possible to put forward a win-win strategy
• History of mutual distrust between Companies and Governments
• Understand the need for each other
• Role of national states and MLOs: increase mutual trust and reduce risk
US Crude Oil first purchase price ($/b)
LAC Crude Oil Balance (mbd)

- Production LAC
- LAC Exports in to the US
- Consumption LAC
Canada Crude Oil Balance (mbd)

Production Canada

Consumption Canada

USAEE Washington DC July 2004
Four blocs: US, WH, PG, RoW

USCrude Oil Balance (mbd)

US Consumption

Rest of the World

Persian Gulf

Canada

LAC

US Production