The U.S. – Global Picture
For Oil and Natural Gas

GEOL 4233
January, 2008
The Global Outlook
(Oil)
Average Oklahoma Crude Price
(Not Inflation Adjusted)

Data From Oklahoma Corporation Commission
Major* Sources of U. S. Crude Oil Imports
(2005 E.I.A. Estimate)


<table>
<thead>
<tr>
<th>Country</th>
<th>MBOPD/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>1500</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1250</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1000</td>
</tr>
<tr>
<td>Iraq</td>
<td>750</td>
</tr>
<tr>
<td>Canada</td>
<td>2250</td>
</tr>
<tr>
<td>Mexico</td>
<td>2000</td>
</tr>
<tr>
<td>Angola</td>
<td>500</td>
</tr>
<tr>
<td>Ecuador</td>
<td>250</td>
</tr>
</tbody>
</table>

* > 250 MBOPD
A Silver Lining ?
The ‘Developing’ World
Oil Consumption Trends

Global Total: 1997 - 73,293, 2005 - 84,028 (+14.6%)

Data from E.I.A.
Oil Source For Top Consuming Nations
(2005-2006 Data From E.I.A.)

[Bar chart showing oil consumption for top consuming nations with import and domestic production data for the U.S., China, Japan, Russia, Germany, and India.]
Map of world regions showing OPEC member states.
Major* Crude Oil Producers
2006 Estimated Average (Oil & Gas Journal) - NGL Excluded

- Russia
- Saudi Arabia
- U.S.
- Iran
- China
- Mexico
- U.A.E.
- Venezuela
- Canada
- Kuwait
- Norway
- Nigeria

* - > 2,000 MBPD
World Oil Reserves
1-1-2005 Data from E.I.A.

Nations with > 10 BBO Reserves

- Saudi Arabia
- Canada
- Iran
- Iraq
- Kuwait
- U.A.E.
- Venezuela
- Russia
- Libya
- Nigeria
- U.S.
- China
- Mexico
- Algeria
- Brazil
Proved World Oil Reserves
(Data From E.I.A.)

In BBO / Total = 1277 BBO
Estimate for Jan. 1, 2005
Oil Reserves Percentage Less Production Percentage
By World Region
(1-1-2005 Reserves vs. 2003 Production)

Percent

Data from E.I.A.
‘Peak Oil’
Depletion is Universal
Oklahoma Cumulative Oil* Production vs Field Size
From International Oil Scouts Association

(> 2000 Fields)

2.4 BBO

12.1 BBO

(163 Fields)

* - Including Condensate through 1/2000
World oil production through 2000 (heavy dots) showing projected production through 2050 (dashed lines) for two possible ultimate recoveries. From Deffeyes (2001).
The Global Outlook
(Natural Gas)
Average Oklahoma Wellhead Natural Gas Price

Not Inflation Adjusted

From O. C. C.
Oklahoma Gas Price Undervaluation Relative To Oil
(6 MCF / Barrel)

Data From O. C. C.
Oklahoma Natural Gas Production
(From IHS Energy - Gas Wells Only)
U.S. Natural Gas Production - Imports

(Data From E.I.A.)

MBO EPD

Imports
Production

U.S. Natural Gas Imports

Year
1985-2004

BCF
0-4,500

As LNG
Via Pipeline

Data from E.I.A.
Major Natural Gas Consuming Nations
(> 2 TCF)

Data From E.I.A.

2003 Worldwide Total = 95.5 TCF
Major* Gas Producing Countries
(2004 Data from E.I.A.)
Global Consumption: 98.62 TCF

* - > 2.5 TCF
Proved World Natural Gas Reserves
(Data from Oil and Gas Journal)

- E. Europe + FSU: 32%
- W. Europe: 3%
- Cent -S. America: 4%
- N. America: 4%
- Africa: 8%
- Asia-Oceania: 6%
- Mid-East: 43%

Total = 6040 TCF
Estimate for Jan. 1, 2005
Gas Reserves Percentage Less Production Percentage
By World Region
(1-1-2005 Reserves - 2003 Production)

Data From E.I.A.
The Energy Future
U.S. Energy Consumption
(Data From E.I.A.)

Year

Renewable
Nuclear
Fossil Fuels
Into the Future
Fossil-Fuels

• Coal

• Oil
  • Tar Sands
  • Oil Shales
  • Enhanced Recovery

• Natural Gas
  • Gas Shales
  • Tight Gas (Sandstones)
  • CBM (Coalbed Methane)
  • LNG (Liquefied Natural Gas)
  • GTL (Gas To Liquids)
  • Hydrates

• Technology
  • Horizontal / Deep Water Drilling
  • Improved Seismic Imaging
  • Enhanced Recovery Techniques
Non-Fossil Fuels

• Wood, Etc
• Nuclear
• Hydroelectricity
• Biofuels
• Solar
• Wind
• Future Technologies
Conclusions

• Oil
  • Global Supply and Demand
  • Political Volatility and Price Implications
  • Economic Implications

• Natural Gas
  • Primary Oil Substitute
  • LNG Infrastructure
  • Long-Term Prices

• Be Careful What You Wish For……………….
Acknowledgements

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Oil and Gas Journal