OIL MARKET OUTLOOK, MAIN UNCERTAINTY FACTORS & PRICE INDICATIONS TO 2020

11. Symposium Energieinnovation

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JBC Energy GmbH
10. Februar 2010

Research – Energy Studies – Consulting – Training
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Daily Average Of Volumes Traded On ICE

Sources: ICE
Data on managed money long positions improves the naïve forecast considerably.
Estimated Oil in Floating Storage as of end-January 2010

- **EUROPE**
  - 8-12 million barrels crude
  - 50-80 million barrels of middle distillates

- **USGC**
  - 20-24 million barrels crude
  - 3.5 million barrels Gasoline

- **WAF**
  - 8-12 million barrels crude

- **Asia/Pacific**
  - 2-4 million barrels crude
  - 23-50 million barrels of middle distillates
  - 3.5 million barrels Gasoline

**Floating Storage [mbbls]**

<table>
<thead>
<tr>
<th></th>
<th>Crude</th>
<th>Gas Oil/Jet/Kero</th>
</tr>
</thead>
<tbody>
<tr>
<td>end-Mar '09</td>
<td>30-40</td>
<td>8-10</td>
</tr>
<tr>
<td>end-Apr '09</td>
<td>100-105</td>
<td>20-25</td>
</tr>
<tr>
<td>end-May '09</td>
<td>80-90</td>
<td>30-35</td>
</tr>
<tr>
<td>end-Jun '09</td>
<td>65-70</td>
<td>50-55</td>
</tr>
<tr>
<td>end-Jul '09</td>
<td>55</td>
<td>55-60</td>
</tr>
<tr>
<td>end-Aug '09</td>
<td>40-50</td>
<td>45-55</td>
</tr>
<tr>
<td>end-Sep '09</td>
<td>34-46</td>
<td>60-70</td>
</tr>
<tr>
<td>end-Oct '09</td>
<td>40-45</td>
<td>85-95</td>
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<td>end-Nov '09</td>
<td>34-40</td>
<td>90-95</td>
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<tr>
<td>end-Dec '09</td>
<td>40-45</td>
<td>95-100</td>
</tr>
<tr>
<td>end-Jan '10</td>
<td>30-38</td>
<td>75-85</td>
</tr>
</tbody>
</table>

Source: JBC Energy estimate based on info from SSY, Platts, Charles R. Weber, Argus, WSJ, Gibson, Thomson Reuters
Preise - Gas

European Price Comparison [$ per MMBtu]

- NWE Gas Oil 0.1% FOB
- NWE 1% FOB
- JBC View 0.1% Gas Oil
- JBC View LSFO
- JBC View German Border Price
- German Border Nat Gas Price

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Angebot – Gas Reserven

Proved Natural Gas Reserves 2008 [trillion cubic metres]

Source: Oil & Gas Journal
OPEC holds 70% of world reserves but produces ‘only’ 40% of global oil production at the moment!!

Non-OPEC Oil Reserves:
~ 407 billion barrels as of January 2009

OPEC Oil Reserves:
~ 935 billion barrels as of January 2009

World Proven Oil & Gas Reserves by Type of Company [%]

- Private companies = 28%
- NOCs = 72%

The proportion would be more in favour of NOCs if only oil was accounted for!
Oil Supply Growth of Selected Non-OPEC Countries ['000 b/d]

- Brazil
- Kazakhstan
- Azerbaijan
- Canada
- Colombia
- Congo
- Indonesia
- China
- Vietnam
- N. Zealand
- Russia
- Australia
- Sudan
- Oman
- Malaysia
- Yemen
- Syria
- US
- UK
- Mexico
- Norway

2010 - 2015
Angebot – Nicht-OPEC-Staaten

Non-OPEC Supply Growth by Source [mbpd]

- Processing Gains
- Other Liquids
- NGLs
- Crude
- Total Supply Growth

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OPEC Crude Output (Historic Members) and OPEC Share in World Crude Supply [mbpd;%]

- New High (absolute) in 2008: 32 mbpd
- High (absolute) in 1977: 31.6 mbpd
- OPEC cuts and Indonesia leaving the organisation result in lower output in 2009
Angebot – Szenarien

Iraqui Crude Production Capacity - Various Scenarios [mbpd]

Source: JBC Energy, Iraqi Oil Ministry
Production levels would be close to lows during the early 1980s and close to current crude intake into refineries.
Change in OPEC Oil Output by Historic Member Countries (Basis 1979) ['000 b/d]

Source: OPEC, BP, JBC Energy
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OPEC Available Spare Capacity [mbpd]

- Spare Capacity - 2009 Base Case
- Optimistic Scenario - Iraq
- Best Case Scenario - Iraq
- Worst Case Scenario - Iran

Avg. spare capacity 1960-2007

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OPEC Available Spare Capacity [mbpd]

- Additional Global Demand Increase
- Additional Non-OPEC Supply Decline
- New Spare Capacity - Optimistic Scenario Iraq


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Passenger Car Ownership and per Capita GDP 1994-2008

- China
- India
- United States
- Germany
- Japan
- South Korea

Source: UN, IMF

0 5 10 15 20 25 30 35 40 45

0 100 200 300 400 500 600 700 800 900

Passenger cars per 1000 people

per capita GDP (based on purchasing power parity, '000 USD)
China & India Demand Scenarios Based On Per Capita Consumption [mbpd]

<table>
<thead>
<tr>
<th>Per Capita Oil Demand [bbl/year/capita]</th>
<th>2010</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>China D/C</td>
<td>2.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Average growth in Chinese D/C</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td>China D/C double growth speed</td>
<td>2.5</td>
<td>8.2</td>
</tr>
<tr>
<td>India D/C</td>
<td>1.0</td>
<td>1.4</td>
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<tr>
<td>Average growth in Indian D/C</td>
<td>1.7%</td>
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<tr>
<td>India D/C double growth speed</td>
<td>1.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Japanese D/C</td>
<td>11.8</td>
<td>8.9</td>
</tr>
<tr>
<td>US D/C</td>
<td>21.8</td>
<td>15.1</td>
</tr>
</tbody>
</table>

China: +15 mbpd
India: +2.6 mbpd
Oil Price Forecast [$/bbl]