Importance of JODI Oil in Energy Market

Presented by:

Dr. Hossein Hassani

Statistical Systems Coordinator

Data services Department, OPEC
Disclaimer

This Report is intended solely for the use of OPEC Member Country officials and may be legally privileged and/or confidential. Any unauthorized use, disclosure or copying of this Report or any parts of it or its attachment(s) by any unintended recipient is strictly prohibited. If you have received this Report in error, please immediately return or destroy it. The OPEC Secretariat does not warrant or assume any liability or responsibility for the accuracy, completeness, or usefulness of any information contained in this Report. Nothing in this Report shall be construed as interpreting or modifying any legal obligations under any agreement, treaty, law or other texts; or expressing any legal opinions or having probative legal value in any proceedings.
• Introduction
• Advantages of JODI Oil data
• The use of JODI Oil data in research and energy market
• Conclusion
Introduction

• The 21st Century has witnessed an explosion of energy-related data.
• The consolidation of this data is often lacking.
• Full integration of timely fundamental data is critical to
  – understanding market movements
  – developing accurate short- and long-term forecasts
  – better understanding issues related to oil industry.
• Numerous oil-related data need to be brought into the picture
• The oil industry is fast becoming data-intensive and data driven.
1. **Volume**
2. **Velocity**
3. **Variety**
4. **Veracity**
5. **Value**
Recent developments in oil, gas and energy markets have placed energy on the top of the international political agenda.

Countries are reassessing their energy policies (investment in upstream, downstream) and new energy measures are being discussed (alternative fuels, taxes, subsidies...).

More reliable and timely data on main petroleum flows would be needed.

Energy markets/studies require more detailed energy data.
Advantages of JODI data

- Provide timely and reliable data on major oil and gas flows, which are relevant to the market
  - Production
  - Consumption
  - Trade
  - Storage
  - Refinery
- For more than 100 countries and with strong overall coverage
- JODI data – official and direct information with comprehensive metadata country notes
- Monthly data with just 2 months time lag.
- Freely accessible
- JODI contains unique information that cannot be accessed elsewhere
Advantages of JODI oil data

- **Crude oil production**: Large coverage, about 92% of total crude oil production is covered in JODI database.
- **Demand**: Around 83% of total demand is covered in JODI database, including some of the new consuming countries.
- **Inventories**: In addition to the OECD, a few non-OECD countries are also covered.
- **Refinery**: Around 86% of total refinery intake and output are covered in JODI database.
- **Trade**: Large coverage, about 88% of total oil exports and imports are covered in JODI database.
An example of granular oil data: OPEC Member Countries oil flows
Advantages of JODI gas data

- JODI-Gas offers global coverage of gas production, imports, exports, stocks and demand on a monthly basis, covering around 80 countries representing nearly 90% of global gas markets.

- There are industry reference data sources including BP statistics, Cedigaz, IEA statistics and EIA statistics, however, none of these natural gas data sources cover monthly data with such extensive geographical coverage as the JODI-Gas World Database.
Natural gas trade movements in Europe
The role of other commodities in the overall energy mix

Total world primary energy consumption by main commodity in 2015

- Oil: 33%
- Natural gas: 29%
- Coal: 24%
- Nuclear energy: 10%
- Renewables: 4%

OECD

- Oil: 37%
- Natural gas: 27%
- Coal: 18%
- Nuclear energy: 8%
- Renewables: 10%

Non-OECD

- Oil: 30%
- Natural gas: 22%
- Coal: 37%
- Nuclear energy: 9%
- Renewables: 2%
JODI data in OPEC energy database and research

Examples in OPEC energy database
• Supply
• Demand
• Stock

Examples in research and analysis
• Oil and gas demand
• Refinery
• Trade
JODI data in OPEC’s oil demand database

Data for main petroleum categories in JODI essential in understanding oil market; e.g. Thailand
JODI data in OPEC’s oil stocks database

- Availability of key Non-OECD data in JODI directly relevant to oil market developments

Bar chart:
- 1Q08: OECD 4222, Non-OECD 1453
- 3Q16: OECD 4649, Non-OECD 2244

Pie chart:
- 3Q16:
  - Non-OECD Europe: 727 mb
  - Non-OECD Asia: 318 mb
  - Latin America: 237 mb
  - China: 462 mb
  - FSU: 308 mb
  - Africa: 152 mb
  - Middle East: 40 mb

© 2017 Organization of the Petroleum Exporting Countries
JODI data in OPEC research: Emergence of Non-OECD countries

Non-OECD oil demand surpassed OECD oil demand

Non-OECD gas demand surpassed OECD gas demand

% shift in oil demand

1970 2015

76% 50%

24% 50%

% shift in gas demand

1970 2015

75% 46%

25% 54%
Increase in Non-OECD refinery capacity

World refinery capacity

mb/cd

OECD
Non-OECD

37%
63%

55%
45%

© 2017 Organization of the Petroleum Exporting Countries
Global oil trade

**OPEC’s importance meeting global oil demand, 1980-2015**

\[ y = 4.07x - 0.04 \]

**OPEC’s importance meeting global gas demand, 1990-2015**

\[ y = 3.20x - 0.001 \]
### Multiple regression

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 127</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>113998816</td>
<td>3</td>
<td>37996605.2</td>
<td>F( 3, 123) = 154.33</td>
</tr>
<tr>
<td>Residual</td>
<td>30282771.8</td>
<td>123</td>
<td>246201.396</td>
<td>Prob &gt; F = 0.0000</td>
</tr>
<tr>
<td>Total</td>
<td>144272587</td>
<td>126</td>
<td>1145020.53</td>
<td>R-squared = 0.7901</td>
</tr>
</tbody>
</table>

| Source          | Coef. | Std. Err. | t    | P>|t| | [95% Conf. Interval] |
|-----------------|-------|-----------|------|------|----------------------|
| USImports       |       |           |      |      |                      |
| CanadaExports   | -1.949506 | .199812 | -9.76 | 0.000 | -2.345022 to -1.553991 |
| MexicoExports   | 1.414089  | .2372712 | 5.96  | 0.000 | 0.9444253 to 1.883753 |
| SaudiArabiaExports | -.0041264 | .0812134 | -0.05 | 0.960 | -.1648834 to .1566305 |
| _cons           | 10179.09 | 588.4237 | 17.30 | 0.000 | 9014.338 to 11343.84 |

Crude oil trade according to JODI

![Graph showing crude oil trade](image)

© 2017 Organization of the Petroleum Exporting Countries
Conclusion

- JODI Oil & gas databases contain official country data and valuable information, which cannot be found easily elsewhere

- Extensive usage of JODI oil data in OPEC Secretariat’s research
  - Update of databases
  - As input for studies

- Granularity of data can always be improved
  - Existing databases (time lag, coverage, reliability,…)
  - Coverage of other energy commodities a necessity as result of increasing interaction
Thank You.