Recession and Recovery

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Outline

• Introduction
• Recession and Recovery
• Fuel by Fuel
• Conclusions
Recession and Recovery

GDP

q-o-q (ann.) growth

World trade - exports

y-o-y growth

Source: includes data from IMF and BP estimates.
GDP and Energy Consumption Growth

Source: includes data from Oxford Economics.
Primary Energy Consumption

Growth 2009, Mtoe

-300 -200 -100 0 100 200 300

World OECD China & India Other non-OECD

Oil Gas Coal Nuclear Hydro

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US Energy Consumption

Energy consumption

![Graph showing energy consumption with y-o-y growth from Jan-08 to Dec-09 for Industry, Other, and Industrial Production.]

Industrial energy demand

![Graph showing industrial energy demand with y-o-y growth for Oil, Gas, Coal, and Electricity in 2008 and 2009.]

Source: includes data from the EIA and US Federal Reserve.

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Non-Fossil Fuels and Power Generation

Total electricity generation

TWh

20,300
20,100
20,000
19,900
19,700

2008
2009

Decline
Growth

From fossil fuels
Renewables
Nuclear
Hydro

Share of total generation


Nuclear
Renewables
Hydro

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Renewable Energy

Wind capacity

- US
- Spain
- Germany
- China
- RoW

Ethanol production

- RoW
- US
- Brazil

Source: includes data from BTM Consult, EIA and F.O. Lichts.
OPEC Supply Management

Source: includes data from the IEA.

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Non-OPEC Production

2009 vs 2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Change in MB/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>-0.4</td>
</tr>
<tr>
<td>China</td>
<td>-0.2</td>
</tr>
<tr>
<td>Norway</td>
<td>0.0</td>
</tr>
<tr>
<td>UK</td>
<td>0.2</td>
</tr>
<tr>
<td>Canada</td>
<td>0.4</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>0.6</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>0.0</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.0</td>
</tr>
<tr>
<td>Russia</td>
<td>0.0</td>
</tr>
<tr>
<td>US</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Increase/Decrease

Index: Jan 2008 = 100

- Brent price
- Rig count excl. N. America
- US rig count

Source: includes data from Baker Hughes and Platts.

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Oil Inventories

OECD commercial oil stocks

Mbbls

- 04-08 Range
- 2009
- 2010

Jan Mar May Jul Sep Nov

Oil in floating storage

Mbbls

- Crude
- Distillate

Jan-09 May-09 Sep-09 Jan-10

Source: includes data from IEA.
Refining Margins and Spare Capacity

Refining margins

$\$/bbl

BP GIM

10-yr. Av.


ytd

Spare capacity growth

y-o-y, Mb/d

From new facilities

From lower crude runs

Source: includes data from Parpinelli Technon and ESAI.

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Crude Runs and Refinery Utilisation

Source: includes data from Parpinelli-Technon and ESAI.

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Natural Gas Market

Gas prices

$/Mmbtu

AGIP

Henry Hub

0 2 4 6 8 10 12
0 10 20 30 40


Bcm

2009 vs 2008

Consumption

Production

Other

OECD

FSU

Source: includes data from Platts and BMWi.

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US Natural Gas Production

Production growth vs. rig count

Total gas production

Source: includes data from the EIA and Baker Hughes.

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US Power Sector Fuel Switching

Cost in power generation*

$/MWh

Jan-08 Jan-09 Jan-10

Central Appalachian coal
Henry Hub

Gas share of generation from gas/coal

1Q 2Q 3Q 4Q

2008 2009

Source: includes data from the EIA and Platts. * Accounting for thermal efficiencies and transport cost of coal.

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Liquefied Natural Gas

LNG exports by basin

- Middle East
- Pacific Basin
- Atlantic Basin

LNG import growth by region

- Europe
- Other
- Asia

Source: includes data from Cedigaz.

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Gas-On-Gas Competition

Europe - 2009 vs 2008

FSU - 2009 vs 2008

Source: includes data from Cedigaz.

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Oil and Natural Gas Proved Reserves

Note: Canadian Oil Sands are 'remaining established reserves', less reserves 'under active development' (from 1999 only).
Coal Consumption and Production

Consumption growth

2009 production changes ex-China

Mtoe

China
India
Indonesia
Australia
Vietnam
Poland
Kazakhstan
Russia
US

2003-07 2008 2009

-200 -100 0 100 200

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Coal Prices and Indian Ocean Exports

Coal prices

$/tonne

Jan-07 Oct-07 Jul-08 Apr-09 Jan-10

Japan Steam coal
Qinhuangdao Spot
Newcastle, Australia

Export shares

Source: includes data from McCloskey, Platts and FACTS.

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Chinese Coal Consumption

Chinese GDP, coal and electricity y-o-y growth
- 2009 coal consumption by use y-o-y growth

Source: includes coal use estimates based on data from the National Bureau of Statistics.
Conclusion

• It’s the Economy
• Maintaining growth has been energy intensive
• Long term trends in major fuel markets accelerated during recession and recovery
• So did the global re-allocation of energy resources, supporting growth in the developing world