Outline

• Introduction

• 2012 in long-term context

• Fuel by fuel

• Concluding remarks
Energy in 2012

Energy and GDP

Annual change, %

- GDP
- Energy
- Intensity

10 year average

Energy growth by region

Annual change, %

- Africa
- Asia Pacific
- Middle East
- S&C America
- Europe & Eurasia
- North America

10 year average

Source: includes data from Oxford Economics

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Long-term energy trends

Primary energy demand

Energy and GDP in 2012

Annual change, %

OECD

Non-OECD

Source: includes data from Oxford Economics

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Reserves and production

Oil reserves

- Other
- North America
- FSU
- OPEC

Gas reserves

- Other
- North America
- FSU
- OPEC

Energy production growth in 2012

- Asia Pacific
- North America
- Africa
- Middle East
- Europe & Eurasia
- S&C America

*Includes biofuels

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Energy prices

Inflation adjusted prices

$2012/boe, monthly

2012 price changes

Annual change, %

Source: includes data from ICIS Heren Energy and Energy Intelligence Group, McCloskey and Platts

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The evolving fuel mix

Shares of global primary energy

2012 energy consumption changes

Annual change, Mtoe

Non-OECD

OECD

Renewables
Nuclear
Hydro
Coal
Gas
Oil

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The oil market in 2012

The price of oil

Production and consumption growth

Source: includes data from Platts
Oil production in 2012

Largest changes

-1.0  -0.5  0.0  0.5  1.0

Mb/d

<table>
<thead>
<tr>
<th>Country</th>
<th>Change</th>
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<tbody>
<tr>
<td>US</td>
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<tr>
<td>Libya</td>
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<tr>
<td>Saudi Arabia</td>
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</tr>
<tr>
<td>Kuwait</td>
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<td>Iraq</td>
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</tr>
<tr>
<td>Norway</td>
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</tr>
<tr>
<td>UK</td>
<td>1.0</td>
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<tr>
<td>Syria</td>
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<tr>
<td>Sudan</td>
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<td>Iran</td>
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Supply disruptions

Annual loss, Mb/d

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<thead>
<tr>
<th>Country</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
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<td>1.5</td>
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<tr>
<td>Syria</td>
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<td>0.5</td>
</tr>
<tr>
<td>Libya</td>
<td>1.5</td>
<td>1.0</td>
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<tr>
<td>Iran</td>
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<tr>
<td>Sudan</td>
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US oil supply: cause and effect

North Dakota production

Net US oil imports

Source: includes data from North Dakota Department of Mineral Resources and Energy Information Administration

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Emerging oil trade patterns

Net oil imports

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<th>Year</th>
<th>US</th>
<th>EU</th>
<th>China</th>
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Adjustment to 2012 disruptions

<table>
<thead>
<tr>
<th>Country</th>
<th>Change in trade, Kb/d</th>
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<tbody>
<tr>
<td>Spain</td>
<td>-200</td>
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<tr>
<td>Italy</td>
<td>100</td>
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<tr>
<td>Germany</td>
<td>150</td>
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<td>Japan</td>
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<td>India</td>
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<tr>
<td>China</td>
<td>-100</td>
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<table>
<thead>
<tr>
<th>Country</th>
<th>Iran</th>
<th>Saudi Arabia</th>
<th>Libya</th>
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<tbody>
<tr>
<td>Spain</td>
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<td>Italy</td>
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<td>Germany</td>
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<td>Japan</td>
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<tr>
<td>India</td>
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</tr>
<tr>
<td>China</td>
<td></td>
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</table>
Oil consumption in 2012

Largest changes

Kb/d

-400  -200  0  200  400  600

China  Japan  India  S. Arabia  Iran  France  UK  Spain  Italy  US

Growth by product type

Kb/d

600  400  200  0  -200  -400

Middle distillate  Gasoline

10 year average

Non-OECD  OECD

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Oil consumption and mobility

Oil consumption trends

- OECD
- Non-OECD

Vehicle sales

- New registrations (millions)

Source: includes data from R. L. Polk & Co.

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Oil inventories

OECD commercial inventories

Inventory increases in 2012

Source: Includes data from the International Energy Agency © OECD/IEA 2013

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Refining margins and capacity

Upgrading margins

Unused refining capacity

Source: Includes data from Platts

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Crude run rebalancing and product stocks

Oil consumption and crude runs

<table>
<thead>
<tr>
<th>Mb/d</th>
<th>Consumption 2005</th>
<th>Consumption 2012</th>
<th>Refinery throughput</th>
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<td>US</td>
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<td>Europe</td>
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OECD product stocks

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<th>2007-11 range</th>
<th>2012</th>
<th>2013</th>
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<td>Jan</td>
<td>1500</td>
<td>1450</td>
<td>1400</td>
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<td>Nov</td>
<td>1250</td>
<td>1200</td>
<td>1150</td>
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Source: Includes data from the International Energy Agency © OECD/IEA 2013

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Global natural gas balance

Global growth in 2012

Annual change, Bcm

International gas prices

$/mmBtu

Source: includes data from ICIS Heren Energy and Energy Intelligence Group

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US natural gas production

Production growth

Annual change, Bcm

Rig count

Count

Source: includes data from Energy Information Administration and Baker Hughes

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US coal to gas switching

Natural gas consumption growth

Power generation

Source: includes data from Energy Information Administration and Platts

Average gas price (RHS)

© BP 2013
Natural gas trade

LNG and pipeline trade

Annual change, Bcm

<table>
<thead>
<tr>
<th>Year</th>
<th>LNG</th>
<th>Pipeline</th>
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<tr>
<td>10 year average</td>
<td>2011</td>
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<td>25%</td>
<td>27%</td>
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<tr>
<td>10%</td>
<td>29%</td>
<td>31%</td>
</tr>
<tr>
<td>10%</td>
<td>31%</td>
<td>33%</td>
</tr>
<tr>
<td>10%</td>
<td>33%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Trade share of consumption (RHS)

Annual change, Bcm

LNG exports

<table>
<thead>
<tr>
<th>Country</th>
<th>10 year average</th>
<th>2012</th>
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<tbody>
<tr>
<td>Indonesia</td>
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<td>Malaysia</td>
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<td>Egypt</td>
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</tr>
<tr>
<td>Yemen</td>
<td>29%</td>
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<tr>
<td>Nigeria</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>25%</td>
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</tr>
<tr>
<td>Qatar</td>
<td>-10%</td>
<td>0%</td>
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</table>
European gas-coal competition

EU power generation cost

€/MWh

2012 changes in EU imports

Annual change, Mtoe

Source: includes data from Platts, IHS McCloskey and IntercontinentalExchange

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The coal market in 2012

Coal consumption in China

Annual change, %

- Share of world (RHS)
- Growth

Largest changes outside China in 2012

Annual change, Mtoe

- India
- EU
- Japan
- Indonesia
- Russia
- Australia
- US

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Hydro, other renewables and nuclear

Power generation

<table>
<thead>
<tr>
<th>Year</th>
<th>Nuclear</th>
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<th>Renewables</th>
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<td>2004</td>
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<td>2008</td>
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<tr>
<td>2012</td>
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Output changes in 2012

Annual change, TWh

- China: +100 TWh
- EU: +50 TWh
- US: +20 TWh
- Japan: -30 TWh
- Other: -10 TWh

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Renewables in power generation

Contributions to growth

Annual change, %

- Wind
- Solar
- Other

Renewables share of power

World
OECD
Non-OECD

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Carbon emissions

Global emissions from energy use

Largest emission changes in 2012

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Carbon emissions by fuel: US and EU

2012 change, MtCO₂

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>EU</th>
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<tbody>
<tr>
<td>Oil</td>
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<td>Gas</td>
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<td>Coal</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

**Effect of***:

- **Renewables**
- **Hydro & Nuclear**

* The net effect of changes in non-fossil fuels in power on emissions, based on 2011 shares of fossil fuels in power generation

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Conclusion

Energy in 2012

• Fundamental adjustment
  – And short-term aberrations

• Market and price driven
  – Sometimes with surprises

• Policy matters
Energy in 2012 –
Adapting to a changing world