Energy in 2014 –
After a calm comes the storm

Spencer Dale, group chief economist
3 key forces shaping 2014

- US shale revolution
Largest oil producers

Mb/d

- US
- Saudi Arabia
- Russia

US energy output as a share of consumption
3 key forces shaping 2014

- US shale revolution
- Rebalancing of Chinese economy
Chinese GDP and energy-intensive sectors

Annual change, %

- **GDP**: 10-year average 8%, 2014 8%
- **Steel**: 10-year average 12%, 2014 0%
- **Iron**: 10-year average 20%, 2014 4%
- **Cement**: 10-year average 16%, 2014 0%

Source: includes data from China National Bureau of Statistics.
Energy intensity in China

Change in energy intensity in China

Annual change, %

Primary energy intensity

Toe per thousand $2010 GDP

Source: includes data from Oxford Economics.

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3 key forces shaping 2014

- US shale revolution
- Rebalancing of Chinese economy
- Continued focus on climate and environmental issues
Key features of 2014
Growth in energy consumption

Annual change, %

-2% 0% 2% 4% 6%

Growth in energy consumption

Annual change, %

-4% -2% 0% 2% 4% 6%


Source: includes data from Oxford Economics.
Fuel mix

Shares of global primary energy

- Oil
- Coal
- Gas
- Hydro
- Nuclear
- Renewables

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Change in net energy balance

Cumulative change from 2004, % of consumption

Note: energy balance is defined as energy production minus energy consumption.
Oil and Refining
Oil market in 2014

Consumption

Annual change, Mb/d

Non-OECD
OECD

Production

Non-OPEC
OPEC

Note: consumption and production totals include biofuels.
Oil inventories and price

OECD commercial inventories

Oil inventories and price

OECD commercial inventories

<table>
<thead>
<tr>
<th>Year</th>
<th>Mbbls</th>
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<tbody>
<tr>
<td>Jan-14</td>
<td>2550</td>
</tr>
<tr>
<td>Aug-14</td>
<td>2700</td>
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<td>Mar-15</td>
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Dated Brent

<table>
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<th>Month</th>
<th>$/bbl</th>
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<td>Feb-11</td>
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<td>Mar-12</td>
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<td>Jun-15</td>
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Refinery runs and spare capacity

Crude run growth

Annual change, Mb/d

Spare capacity growth

Mb/d, cumulative since 2005

Source: includes data from ICIS and Energy Security Analysis, Inc.
Crude oil differentials

Source: includes data from Platts.

Brent - WTI

WTI - WCS

$/bbl

Jan-13 Aug-13 Mar-14 Oct-14 May-15

Annual average

$/bbl

Jan-13 Aug-13 Mar-14 Oct-14 May-15

Annual average

Source: includes data from Platts.

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Natural Gas
Global natural gas markets

Consumption growth in 2014

<table>
<thead>
<tr>
<th>Annual change, %</th>
<th>-12%</th>
<th>-8%</th>
<th>-4%</th>
<th>0%</th>
<th>4%</th>
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Source: includes data from Platts.

Natural gas spot prices

$/mmBtu

- Asia
- UK
- US

January 2014 to May 2015

10 year average

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EU gas demand and impact of weather

Annual change, %

Source: includes data from Eurostat and IHS.

Note: heating degree days is an indicator of the impact of temperature on space heating demand.
Natural gas trade flows

EU gas supply

Annual change, Bcm

10 year average 2013 2014

Production Russia Other

Global trade

Annual change, Bcm

2004 2009 2014

Other pipeline Russian pipeline LNG
Global gas production and the role of the US

Annual change, %

Source: includes data from US Energy Information Administration
Coal
Global coal growth

Annual change, %

China, Rest of world, World


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Factors driving slower growth of China’s coal demand

- Slower energy growth
- Loss of market share

Annual change, %

- 2013
  - Slower energy growth
- 2014
  - Loss of market share
Non-Fossil Fuels
Carbon Emissions
Factors driving slower growth of carbon emissions

Annual change, %

- GDP: 2%
- Energy intensity
- Fuel mix

10 year average 2014
Factors driving slower growth of carbon emissions

Annual change, %

- OECD: 2%
- China: 1%
- Rest of world: 0%

10 year average 2014
Conclusions

2014: a watershed?

- US shale revolution changing global energy supplies
- Chinese rebalancing changing global energy demand
- Twin challenges of sustainability and accessibility