World Energy Outlook 2013

London, 12 November
The world energy scene today

- Some long-held tenets of the energy sector are being rewritten
  - Countries are switching roles: importers are becoming exporters...
  - ... and exporters are among the major sources of growing demand
  - New supply options reshape ideas about distribution of resources

- But long-term solutions to global challenges remain scarce
  - Renewed focus on energy efficiency, but CO₂ emissions continue to rise
  - Fossil-fuel subsidies increased to $544 billion in 2012
  - 1.3 billion people lack electricity, 2.6 billion lack clean cooking facilities

- Energy prices add to the pressure on policymakers
  - Sustained period of high oil prices without parallel in market history
  - Large, persistent regional price differences for gas & electricity
The engine of energy demand growth moves to South Asia

**Primary energy demand, 2035 (Mtoe)**

- **China**: 4,060
- **United States**: 2,240
- **Brazil**: 480
- **Europe**: 1,710
- **Middle East**: 1,050
- **Africa**: 1,030
- **India**: 1,540
- **Southeast Asia**: 1,000
- **Japan**: 440
- **Eurasia**: 1,370

**Share of global growth 2012-2035**

- **Non-OECD Asia**: 65%
- **OECD**: 4%
- **Latin America**: 8%
- **Africa**: 8%
- **Middle East**: 10%

*China is the main driver of increasing energy demand in the current decade, but India takes over in the 2020s as the principal source of growth*
A mix that is slow to change

Today's share of fossil fuels in the global mix, at 82%, is the same as it was 25 years ago; the strong rise of renewables only reduces this to around 75% in 2035.
Non-OECD countries account for a rising share of emissions, although 2035 per capita levels are only half of OECD; the 2 °C ‘carbon budget’ is being spent much too quickly.
Oil use grows, but in a narrowing set of markets

China becomes the largest consumer of oil by 2030, as OECD oil use drops; demand is concentrated in transport, where diesel use surges by 5.5 mb/d, & petrochemicals
More oil bypassing the refining system and new capacity in growing non-OECD markets piles pressure on existing refiners, especially in Europe.
Two chapters to the oil production story

Contributions to global oil production growth

Conventional:
- Middle East
- Brazil
- Rest of the world

Unconventional:
- Light tight oil
- Oil sands, extra-heavy oil, coal/gas-to-liquids, & other

The United States (light tight oil) & Brazil (deepwater) step up until the mid-2020s, but the Middle East is critical to the longer-term oil outlook
Brazil cuts a distinctive profile

Complex deepwater projects see Brazil joining the top ranks of global oil producers, while the domestic power mix remains one of the least carbon-intensive in the world.
China & India together build almost 40% of the world’s new capacity; 60% of capacity additions in the OECD replace retired plants.
Renewables power up around the world

Growth in electricity generation from renewable sources, 2011-2035

The expansion of non-hydro renewables depends on subsidies that more than double to 2035; additions of wind & solar have implications for power market design & costs
Regional differences in natural gas prices narrow from today’s very high levels but remain large through to 2035; electricity price differentials also persist.
An energy boost to the economy?

Share of global export market for energy-intensive goods

The US, together with key emerging economies, increases its export market share for energy-intensive goods, while the EU and Japan see a sharp decline.
LNG from the United States can shake up gas markets

Indicative economics of LNG export from the US Gulf Coast (at current prices)

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<th>$/MBtu</th>
<th>To Asia</th>
<th>To Europe</th>
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<tbody>
<tr>
<td>3</td>
<td>United States price</td>
<td>Average import price</td>
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<tr>
<td>9</td>
<td>Liquefaction, shipping &amp; regasification</td>
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New LNG supplies accelerate movement towards a more interconnected global market, but high costs of transport between regions mean no single global gas price
Orientation for a fast-changing energy world

- China, then India, drive the growing dominance of Asia in global energy demand & trade

- Technology is opening up new oil resources, but the Middle East remains central to the longer-term outlook

- Regional price gaps & concerns over competitiveness are here to stay, but there are ways to react – with efficiency first in line

- The transition to a more efficient, low-carbon energy sector is more difficult in tough economic times, but no less urgent