Established Gas Demand Uses

BIEE Seminar, October 10, 2013

Presented by

Gautam Mukherjee
Head of Gas, Liquids and Economic Analysis
Centrica Plc
Global macro context will drive gas consumption

Source: IMF and IEA
Global macro context will drive gas consumption

Macro context of OECD economies

- **Structural drivers**
  - GDP growth close to trend similar to recent trend levels
  - Population growth slowdown driven by ageing population
  - Emphasis on energy efficiency
  - Primary energy consumption flat

- **Implications for gas demand**
  - Gas growth at the expense of competing fuels

Macro context for Non-OECD economies

- **Structural drivers**
  - GDP growth to continue at trend levels
  - Per-Capita GDP level induced slow down in population growth
  - Energy efficiency growth at historical trend levels

- **Implication for gas demand**
  - Gas demand driven by economic growth and competition with alternative fuels
Gas demand growth out to 2030

**Regional Gas Demand Growth (mtoe)**

- N America
- Middle East
- Other OECD
- Other Non-OECD
- China

**Sector Gas Demand Growth (mtoe)**

- Power
- Buildings
- Industrial
- Other

Source: IEA
Gas demand growth out to 2030

- **Regional gas demand growth**
  - OECD
    - Historically Europe and Asia were the main drivers of gas demand growth
    - Going forward North America will be the main driver of gas demand
  - Non-OECD
    - Historically, Middle East has dominated gas demand growth
    - Going forward China and other Asia Pacific countries will drive gas demand growth while Middle East will continue to grow at historical trend levels

- **Sector Gas Demand Growth**
  - Power and industrial sector to dominate demand growth
  - Reticulation demand to grow mainly in non-OECD countries
  - High growth in transportation but from a low base
Gas demand growth in the OECD

North America Power Sector(%)

North America Final Consumption (%)

Other OECD Power Sector (%)

Source: IEA
Gas demand growth in OECD

- **North America power sector**
  - Shale gas production growth and environmental regulation to push gas demand growth at the expense of coal
  - This growth despite expectation of continued strong growth in renewables

- **North American industrial sector**
  - Industrial growth in US
  - Tar Sands production growth in Canada
  - Gas demand growth driven by industrial growth rather than displacement of alternative fuel

- **Other OECD power sector**
  - Gas demand mainly at the expense of coal driven by environmental regulations
Gas demand growth in the Non-OECD

China Primary Energy (%)

Middle East Primary Energy (%)

Other non-OECD Primary Energy (%)

Source: IEA
Gas demand growth in Non-OECD

- Gas demand growth in China
  - Substantial increase in gas share of primary energy
  - Power demand driven by policy to reduce coal mainly in the coastal provinces
  - Industrial demand driven by economic growth and displacement of coal and fuel oil
  - Reticulation demand driven by urbanization and displacement of LPG networks

- Middle East
  - Gas share of primary energy increasing more modestly
  - Growth mainly in the power sector – displacing oil

- Other non-OECD countries
  - Gas share of primary energy declines
  - Gas demand increase driven by economic growth and urbanization impacting in the industrial, reticulation and power demand
Conclusion

- **OECD**
  - Economic, demographics and emphasis on efficiency implies a flat primary energy outlook
  - Gas demand growth will therefore come at expense of competing fuels
  - Economics and policy will be key drivers
  - Power and industrial growth in North America are the key areas of gas demand growth

- **Non OECD**
  - Economic growth and urbanization will be key drivers of overall energy and gas demand growth
  - In addition environmental regulation to reduce emissions (GHG and non-GHG) will also promote gas demand
  - Key areas of growth are power and industrial sector and reticulation demand in non-OECD Asia