The global energy context today

- **Key points of orientation:**
  - Middle East share in global oil production in 2016 at highest level for 40 years
  - Transformation in gas markets deepening with a 30% rise in LNG
  - Additions of renewable capacity in the power sector higher in 2015 than coal, gas, oil and nuclear combined
  - Energy sector in the spotlight as the Paris Agreement enters into force
  - Billions remain without basic energy services

- There is no single story about the future of global energy; policies will determine where we go from here
A new ‘fuel’ in pole position

Change in total primary energy demand

Low-carbon fuels & technologies, mostly renewables, supply nearly half of the increase in energy demand to 2040
Still, a favorable outlook for gas

World natural gas demand by scenario

Global gas demand is projected to plateau from the late-2020s in the 450 Scenario
Gas thrives in the US power sector

Levelised cost of electricity generation for existing and new coal and gas plant in the United States, 2025

New CCGTs beat new coal plants on a commercial basis even in baseload generation
Coal is a tough competitor in Asia

Levelised cost of electricity generation for existing and new coal and gas plant by in Asia, 2025

In Asia, where imported gas is costly, gas plants are for mid-merit and peak load generation; the fuel’s primary growth opportunity lies in industry.
A wave of LNG spurs a second natural gas revolution

Share of LNG in global long-distance gas trade in NPS

- **2000**: 525 bcm
  - LNG: 26%
  - Pipeline: 74%
- **2014**: 685 bcm
  - LNG: 42%
  - Pipeline: 58%
- **2040**: 1,150 bcm
  - LNG: 53%
  - Pipeline: 47%

Contractual terms and pricing arrangements are all being tested as new LNG from Australia, the US & others collides into an already well-supplied market
Diversification of supply boosts gas security in Europe

Natural gas imports in the European Union by exporter and transport mode in the New Policies Scenario

EU gas imports grow and supplier diversity increases not least due to a boost in LNG trade
Still a long way from a pathway to energy sector decarbonisation

Energy-sector CO₂ emissions

- Early peak in emissions
- Net-zero by the end of the century

Current pledges fall short of limiting the temperature increase to below 2 °C; raising ambition to 1.5 °C is uncharted territory
Gas plays different roles in the transition to a 2 deg C world

**Change in gas demand in selected regions in the 450 Scenario**

*Fuel switching plays a key role in the period to 2030 but efficiency gains and power sector decarbonisation reduce gas demand growth in the long term.*
Conclusions

- Gas has an important role in decarbonizing the energy system...
- ...but faces stiff competition from renewables and coal, esp. in the power sector
- A wave of LNG is the catalyst for a second natural gas revolution, with far-reaching implications for gas pricing & contracts
- Diversification of gas supply reduces the concerns for gas security in the long-run provided industry investments occurs at the required pace
- The Paris Agreement is a framework; its impact on energy depends on how its goals are translated into real government policy actions
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