Outline

- Global Gas Situation
- Global Gas Trade
- Emergence of Atlantic Basin
- Asia’s Existing & Emerging Gas Markets
- Challenges Ahead
Global Gas Situation
Global Gas Reserves Endowment
Source: Cedigaz

Total World Proven Gas Reserves January 2006
180.5 trillion cubic meters

- **Middle East**: 41%
- **FSU**: 32%
- **Africa**: 8%
- **Asia-Oceania**: 8%
- **Europe**: 8%
- **North America**: 4%
Global Gas Consumption
Source: Cedigaz

Total World Gas Consumption 2005
2.8 trillion cubic meters

- North America: 27%
- Europe: 20%
- Asia-Oceania: 14%
- FSU: 23%
- Latin America: 9%
- Middle East: 4%
- Africa: 3%

Source: Cedigaz
Global Gas Trade
Gas trade continues to account for less than a third of total gas consumed in world (15% in 1990 and 25% in 2005)

Gas exports by cross-border pipelines continue to dominate international gas trade (76% in 1990 and 74% in 2005) (*)

LNG trade as a proportion of global gas consumption doubled between 1990 and 2004 (~3.5% in 1990 to ~7% in 2005)

An almost three-fold increase in total volume of LNG traded b/w 1990 and 2005

(*): Excludes intra-FSU trade
Global LNG Trade
Sources: BP, Nexant

- Substantial expansion of global LNG trade since the mid 1990s (average annual growth of 7.5%)
- Over the next 10 years, LNG trade planned to grow at annual average rate of ~ 10%
- Major gas markets with declining indigenous resources, such as the UK and the US, are expected to become large LNG importers
- Emergence of new Asian gas markets (China & India) → new LNG importers with potential for rapid growth

LNG imports & potential LNG demand

- Japan
- S. Korea
- Taiwan
- China
- India
- Other As. Pac.
- Europe
- USA

million tons per annum (MTPA)
Emergence of Atlantic Basin
Atlantic Basin’s key Target Markets

- Significant LNG capacity expansions in Middle East and Africa will come on stream beginning of next decade
- Main targets for exports: Atlantic basin markets in North America and Europe
- Qatar expected to account for largest share of planned exports to US, Spain, UK
- Africa’s gas exporters expected to play an increasingly important role in supplies to the Atlantic basin markets
- Large increase of LNG exports from Middle East & Africa targeting US market
2006 US EIA LNG import forecast for 2010 is over three times actual level of LNG imports in 2005

Projected increases in LNG imports starting in 2010 are below total planned LNG exports to the US from Middle East, Africa, Norway and possibly Russia

LNG import forecasts over last three years show downward adjustments of US market expectations

How much “high price” LNG could be absorbed without causing demand destruction and triggering other alternatives
**UK Gas Import Capacity**

**Gas pipeline import capacity** (~75 bcm)
- Expanded UK-Belgium (gas pipeline) Interconnector
- Vesterled pipeline from Norway to UK (existing)
- Balgzand (BBL) pipeline from the Netherlands (December 2006)
- Langeled pipeline from Norway (September 2006)

**LNG import capacity** (~ 40 bcm)
- Isle of Grain LNG (BP/Sonatrach) / initial supplies from Algeria (July 2005) + Expansion
- South Hook LNG (Wales) (QP/ExxonMobil) / supplies from Qatar (2007) + Expansion
- Dragon LNG (Wales) / developed by BG, Petronas and Petroplus (2007)

*Projected UK gas demand by 2010 is ~ 110/115 bcm - gas imports estimated at ~ 50 bcm*
Southern Europe Gas Import Infrastructure

Cross-border pipelines from North Africa
- Algeria (2 pipelines in operation ~ 40 bcm pa + planned expansions)
- Libya (1 pipeline 8 to 11 bcm pa)
- Algeria (1 new pipeline under construction and another one planned)

LNG Terminals
- New LNG terminals and terminal expansions in Southern France, Spain, Italy & Greece
- Other new terminals or capacity expansions planned

Well developed gas import infrastructure (Pipeline & LNG) and proximity to large sources of supply in North and West Africa
Asia’s Existing & Emerging Gas Markets
Asia Pacific Markets

- Japan – World’s largest LNG market
- Uncertainty about role of nuclear power in Japan
- Restructuring of utility industry in Japan, S Korea and eventually Taiwan
  - Move from traditional Asia-Pacific model of large integrated gas and power monopolies to an increasing number of gas buyers (market fragmentation)
  - But security of supply issues may delay transition
- Concerns about Indonesian gas supplies and supplies in general / Competing with Atlantic Basin markets for incremental LNG supplies & to replace declining supplies
- Competing for supplies with new emerging markets and in future West Coast / N America
- Emergence of Australia as a key LNG player in the region
- Importers (Japan) seeking increasing equity participation in liquefaction capacity
- New flexible contractual arrangements, incl. swap arrangements, for buyers & sellers
Emergence of high-growth energy consuming countries: China & India
- Main drivers: power & fertilizers
- Low/subsidized fuel & feedstock prices
- Financial constraint & affordability issues
- Impact of new indigenous gas supplies in some regions
- Coal’s dominant position
- Gas infrastructure development
- Government policy & energy sector restructuring

China’s & India’s energy markets distinctly different from Japan & S Korea’s markets. But very large markets with potential rapid gas demand growth
Challenges Ahead
Challenges Ahead

- Significant LNG capacity expansion targeting Atlantic basin markets
- How much Atlantic basin, especially the US, can absorb under current conditions?
- Apart from Qatar’s capacity expansion, which is well underway, other project expansions and new projects may face challenges to meet their planned schedules
- Impact of seriously constrained EPC contractor availability & high input factor prices
- Impact of structural changes in crude oil price movements and gas price volatility
- Availability of “competitively” priced supplies & role of nuclear power and coal
- Adapting to changes in contractual arrangements and challenges of project funding
- Striking the adequate balance in gas trading b/w “LT” contracts and spot/short term transactions (arbitrage opportunities / meeting seasonality needs)
- Difficult transition period, but expected easing of supply (infrastructure) constraints at the beginning of next decade and an adjustment of gas demand expectations
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