Energy Dialogue: Russia-European Union. Gas Aspect

*Natural Gas: Powering the Low-Carbon Economy*

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The global energy future

Impacting the global framework:
- Rising population – from 6 to 9 billion in 2050
- Human strive for a better life
- Technological progress
- Climate change concerns

The world needs:
- More energy
- Cleaner energy
- Affordable energy
- Safe energy
Growth in all fields, but fossil fuels will dominate

Source: IEA WEO 2010

World energy demand expands by 45% between now and 2030 – an average rate of increase of 1.6% per year – with coal accounting for more than a third of the overall rise
Technological progress

- Unconventional gas
  - Shale gas, tight gas and coal bed methane

- LNG Developments
  - Large scale plants, ships, terminals

Impact on availability, affordability and supply security
Natural Gas reserves: plenty & more to come

Recoverable gas resources are growing

Unconventional gas has come within technological & economic reach

Conventional

Unconventional

Recoverable gas resources for 250 years

- IEA-WEO2009 -
Role of gas in mitigation of climate change

- **Power production - CHP**
  - Lower GHG emissions, particles, soot

- **Transportation sector**
  - Air quality, lower GHG emissions

- **Enabler for biogas, wind, solar**
Cost of reducing CO2 emissions

€ per tonne of CO2 by 2030

- Building gas-fired power stations instead of coal-fired: 0.5
- Building nuclear plant: 10.5
- Building wind farm: 22.4
- Building coal-fired plant that captures CO2 emissions: 37.5

Source: McKinsey
Gas for Transportation

Natural gas is applicable for most kinds of transportation
Natural Gas enables renewable energy

Natural Gas - Wind - Solar

Natural gas can facilitate production of intermittent renewables

An ideal combination
Energy Infrastructure

- Energy systems – 40-50 years lifetime
- Societies invested huge amounts in infrastructure
- Capital intensive
- Important to build on existing infrastructure

Costly to make wrong policies
Public and policy perceptions

Clean Energy
- Solar
- Wind
- Nuclear
- Natural Gas

Fossil Fuels
- Oil
- Coal

Source: IHS CERA/IGU
Natural Gas CARES for the world

C - Clean
A - Affordable
R - Reliable
E - Efficient
S - Secure

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A climate-friendly energy policy for Europe

- Enhance energy efficiency and savings
- Increase the use of gas in power generation
- Phase in renewable energy
- Develop Carbon Capture and Storage technology

Pick the "low-hanging fruits" first!