Natural Gas, LNG and the Baltic Sea
IGU represents more than 95% of the global gas market.

Founded in 1931
www.igu.org

81 Charter members
40 Associate members

Status as per March 2013
The global energy future

Impacting the global framework:
- Rising population – from ca. 7 to 9 billion in 2050
- Human strive for a better life
- Technological progress
- Air quality & climate change concerns

The world needs:
- More energy
- Cleaner energy
- Safe energy
- Affordable energy
The Pathway towards a sustainable future

Meeting future global energy needs – whilst addressing air quality and climate change concerns

Global Emissions Trajectory Base Case

- Other
- Residential and Commercial
- Industrial
- Transport
- Power Generation
- Pathway

Vision Pathway highlights various CO2 abatement options and technology choices

Calculation for 2050

CO₂ Emissions (billion tons)

- Base Case
- Reducing Demand
- Coal to Gas Substitution
- Oil to Gas Substitution
- Transport Oil Substitution
- Renewables and Nuclear
- Biogas
- Carbon Capture
- Emissions-level based on IGU pathway

Reductions from Greater Gas Use
Reductions from Other Technologies
Reductions from Both Greater Gas Use and Other Technologies

Natural gas is a low carbon and clean-burning fuel

Natural gas in the power sector

Carbon dioxide emitted during electricity generation by fuel*

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Greenhouse Gas Content (g per kWh)</th>
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</thead>
<tbody>
<tr>
<td>Natural Gas</td>
<td>![Graph showing CO2 emissions for Natural Gas, Crude Oil, and Coal]</td>
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NOx and SOx content by fuel

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Ad *: Power generation efficiencies assumed: Natural gas 55%, crude oil 37%, coal 39%

Wide range of usage options of natural gas

- Electricity generation
- Residential & commercial
- Industrial
- Transportation
- Ideal partner for variable renewables
Natural gas can form the link in a sustainable future energy system

- Gas-fired generation technology directions:
  - Capture carbon through retrofit technology
  - Partnership with renewables
  - Greater inclusion of carbon-neutral biogas

- Gas pipeline and storage systems provide future options for:
  - CO₂
  - Biogas
  - Hydrogen

Investment in gas infrastructure does not predetermine future energy landscape
Natural gas resources are abundant

Technology – driving supplies

Gas resources for more than 250 years (IEA)
Major gas trade movements - Pipeline & LNG

Major trade movements 2011
Trade flows worldwide (billion cubic metres)

Source: Includes data from Cedigaz, CISSstat, GIIGNL, Poten, Waterborne.
BP Statistical Review of World Energy 2012
Baltic Sea region: Primary Energy Consumption Mix 2011 (MTOE)

**Estonia**
- Total: 5.6

**Latvia**
- Total: 4.5

**Lithuania**
- Total: 7.3

**Finland**
- Total: 33.2

Source: Eurogas statistical Report 2012, in million tons of oil equivalent (mtoe)
Gas for a sustainable energy future

Requirements

• Energy efficiency & savings
• Use more gas in power generation and transportation
• Renewable energy and gas as partners
• Develop Carbon Capture and Storage & utilisation technology
• Support innovation – without predetermining future technologies
• Realise synergies of integrated energy concepts