

BALTIC SEA FORUM

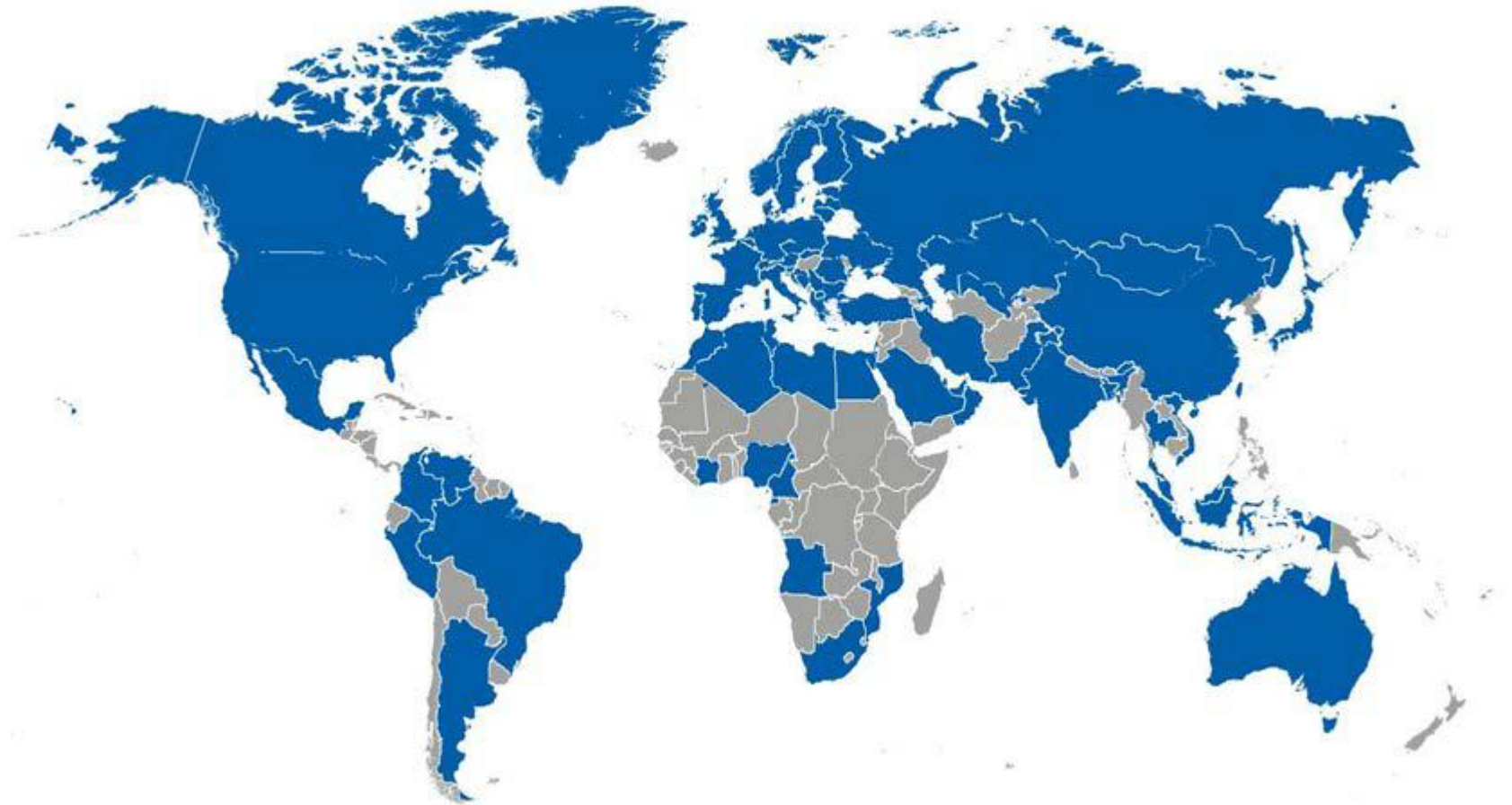
Russia and new Challenges in the
Baltic Sea Region

Natural Gas, LNG and the Baltic Sea

Carolin Oebel
Director

Turku, Finland, 24 May 2013

IGU represents more than 95 % of the global gas market



Founded in 1931
www.igu.org

 **IGU members**

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:

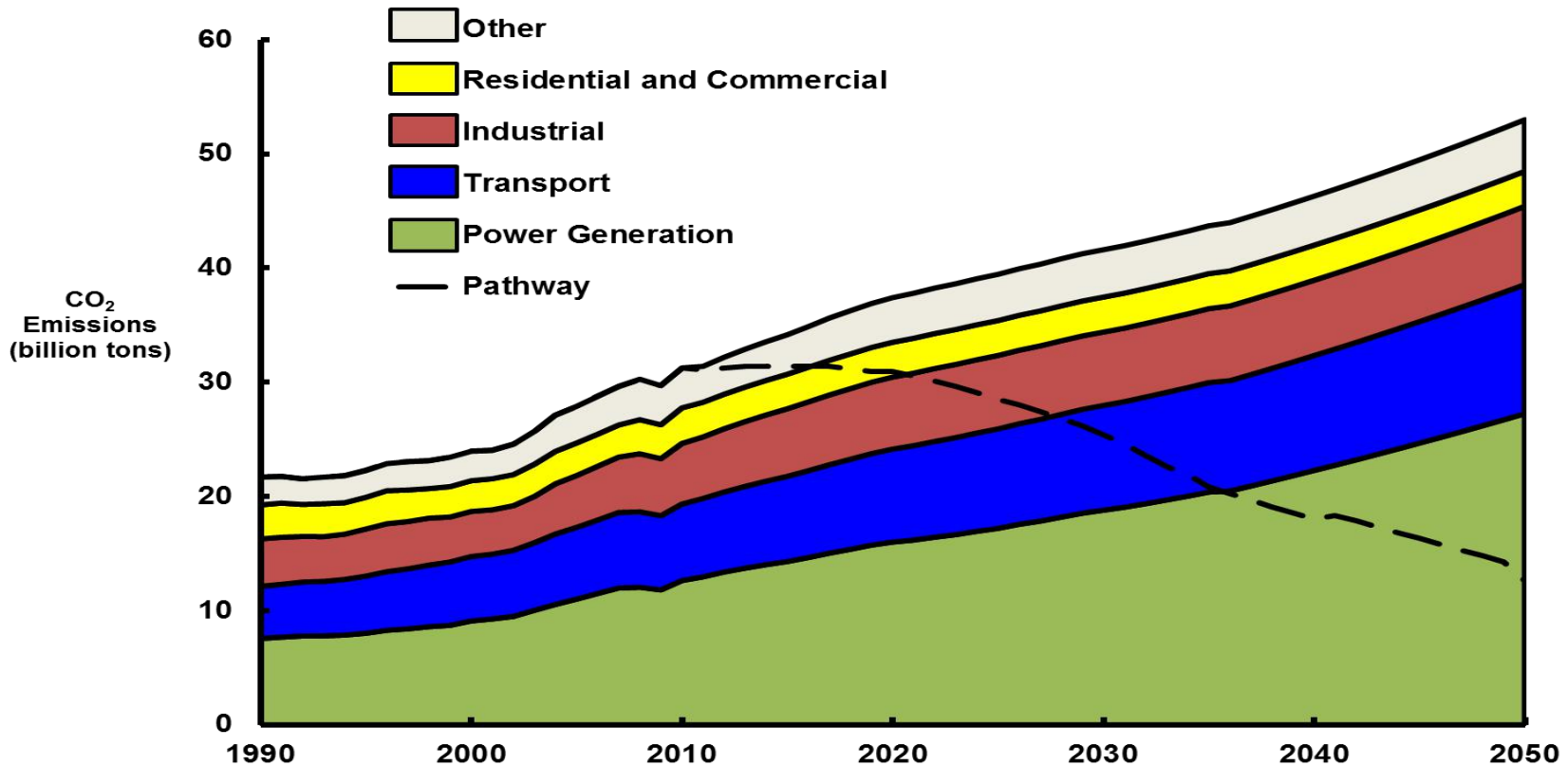
- More energy
- Cleaner energy
- Safe energy
- Affordable energy



The Pathway towards a sustainable future

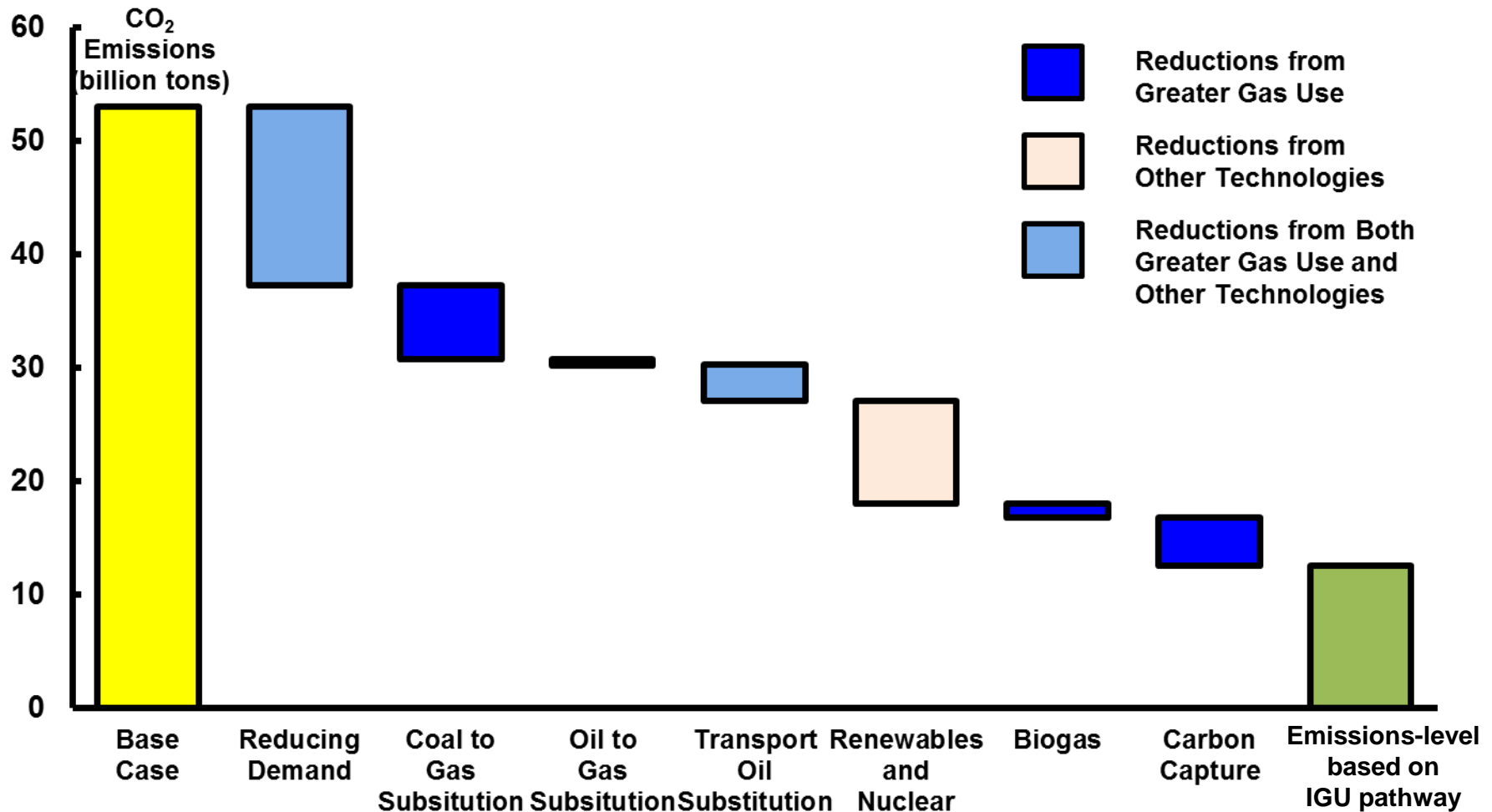
Meeting future global energy needs – whilst addressing air quality and climate change concerns

Global Emissions Trajectory Base Case



Vision Pathway highlights various CO2 abatement options and technology choices

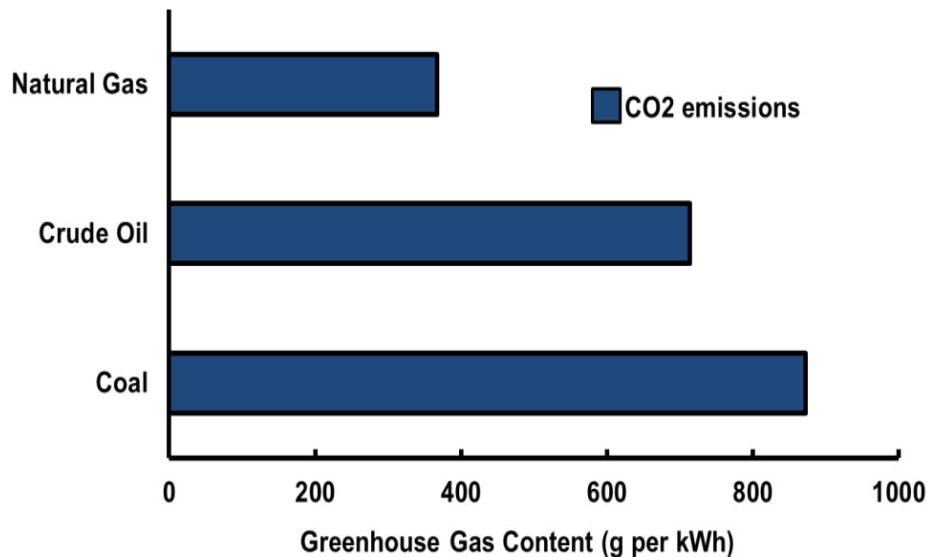
Calculation for 2050



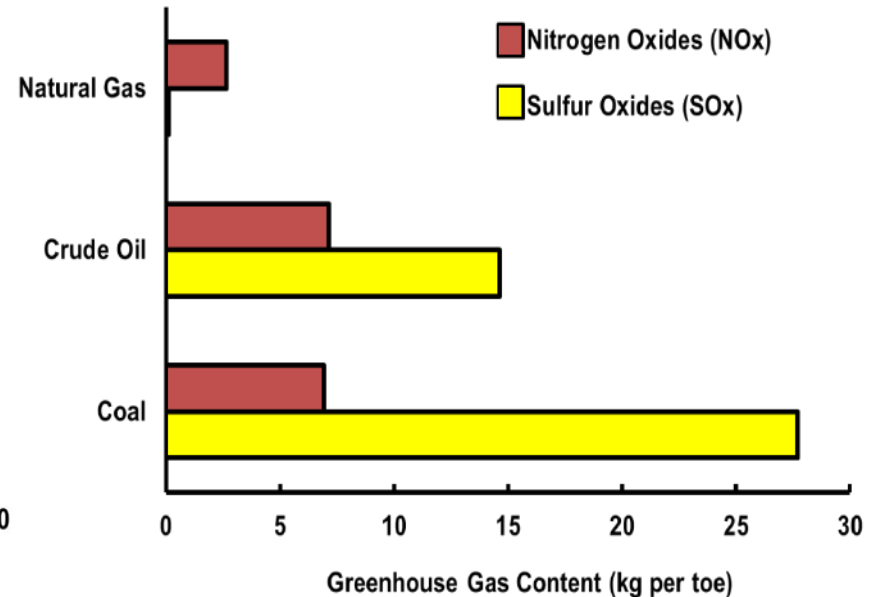
Natural gas is a low carbon and clean-burning fuel

Natural gas in the power sector

Carbon dioxide emitted during electricity generation by fuel*



NOx and SOx content by fuel



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

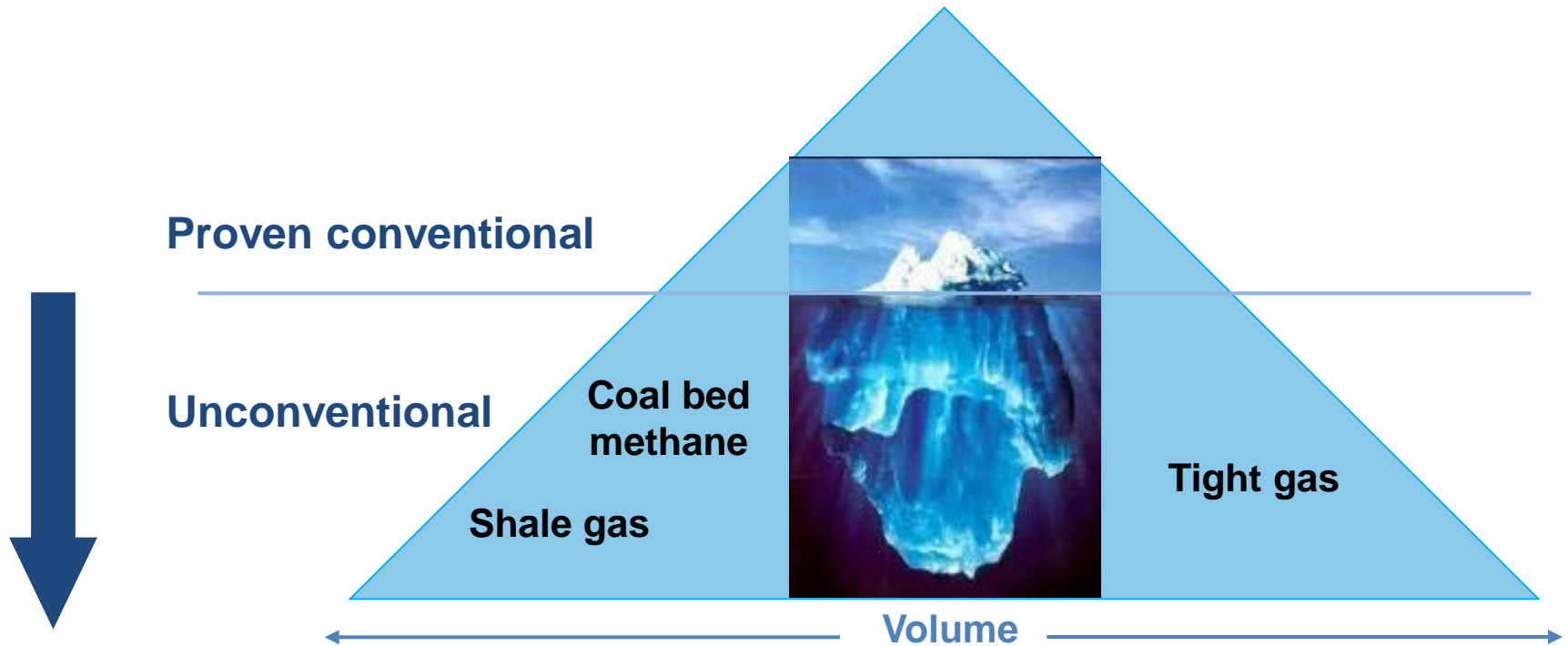
- **Gas-fired generation technology directions:**
 - Capture carbon through retrofit technology
 - Partnership with renewables
 - Greater inclusion of carbon-neutral biogas
- **Gas pipeline and storage systems provide future options for:**
 - CO₂
 - Biogas
 - Hydrogen



Investment in gas infrastructure does not predetermine future energy landscape

Natural gas resources are abundant

Technology – driving supplies

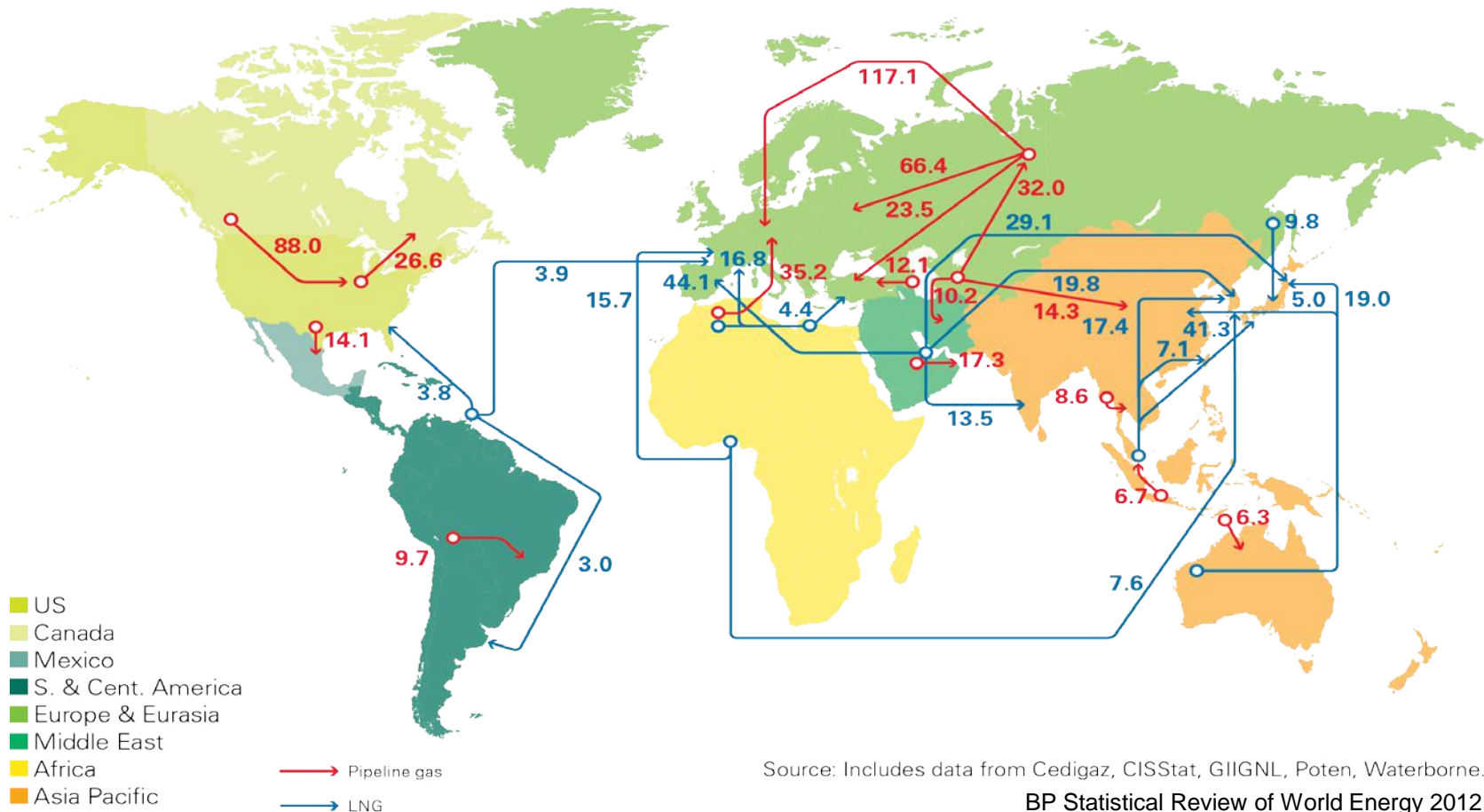


Gas resources for more than 250 years (IEA)

Major gas trade movements- Pipeline & LNG

Major trade movements 2011

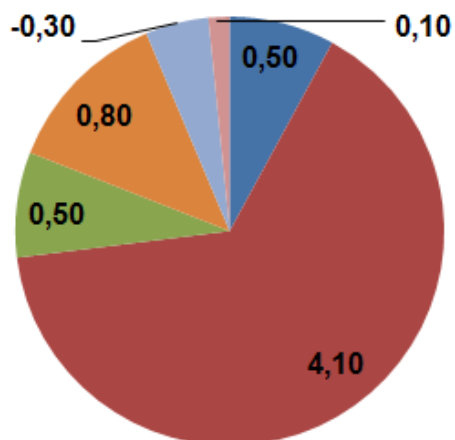
Trade flows worldwide (billion cubic metres)



Source: Includes data from Cedigaz, CISStat, GIIGNL, Poten, Waterborne.
BP Statistical Review of World Energy 2012

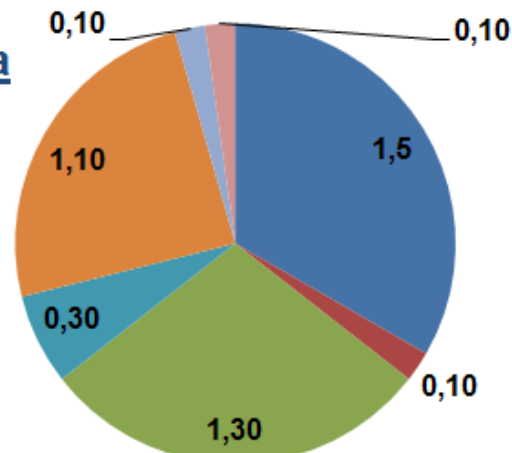
Baltic Sea region: Primary Energy Consumption Mix 2011 (MTOE)

Estonia



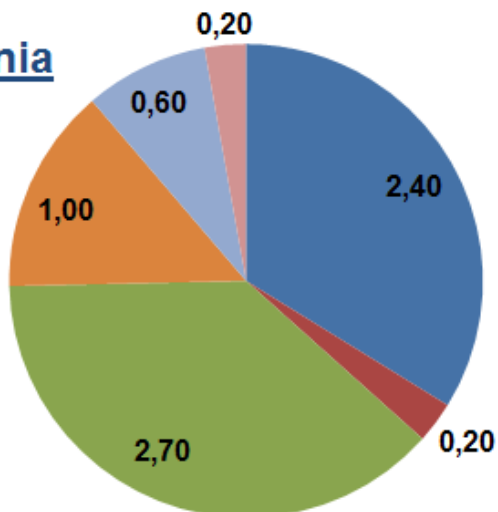
Total: 5,6

Latvia



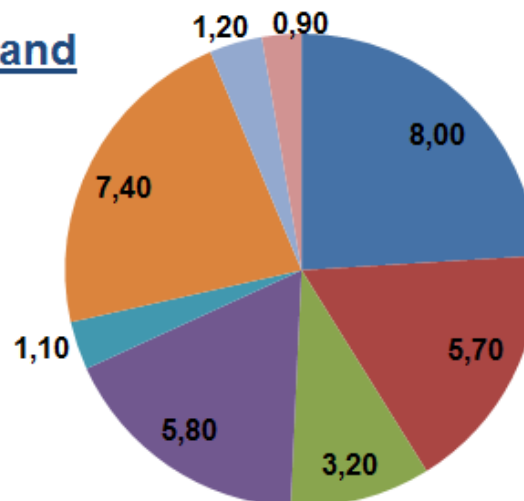
Total: 4,5

Lithuania



Total: 7,3

Finland



Total: 33,2

- Oil
- Solid Fossil Fuels
- Natural Gas
- Nuclear Electricity
- Hydro
- Other Renewables
- Electricity net imports
- Others

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

