

Global Vision for Gas

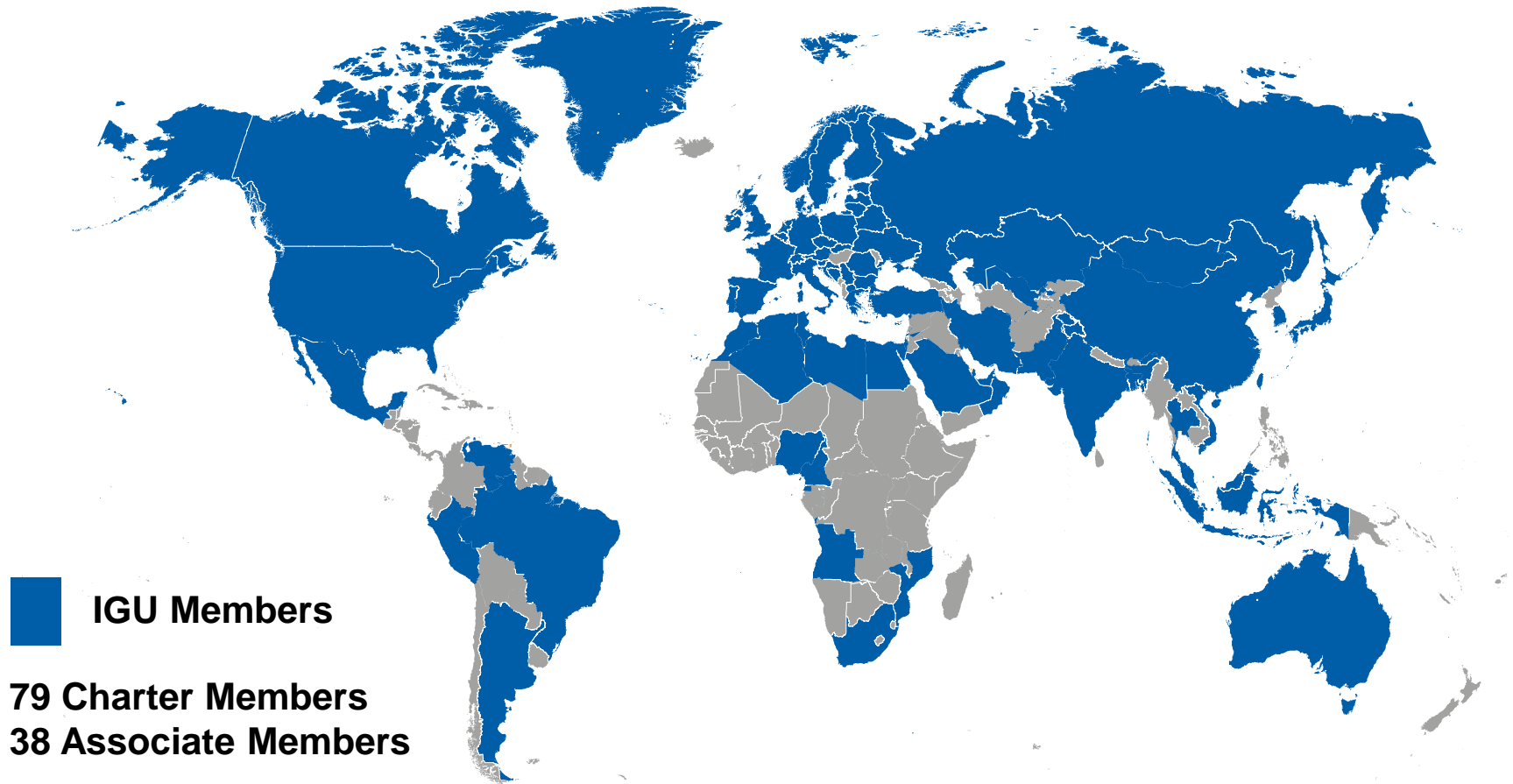
The Pathway to a Sustainable Energy Future



Carolin Oebel
Advisor to the Secretary General

London, 27 June 2012

IGU represents more than 95 % of the global gas market



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

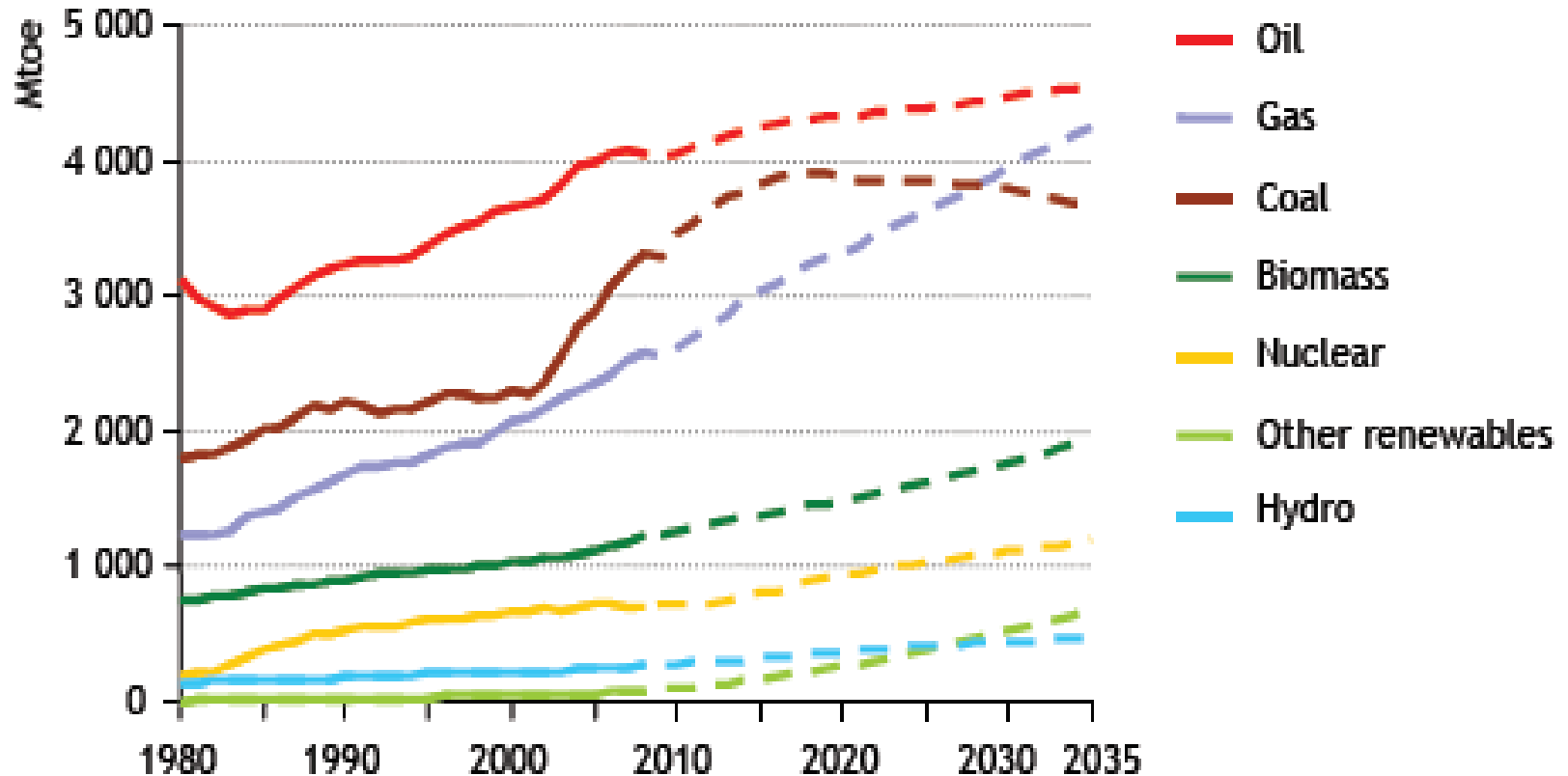


The world needs:

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



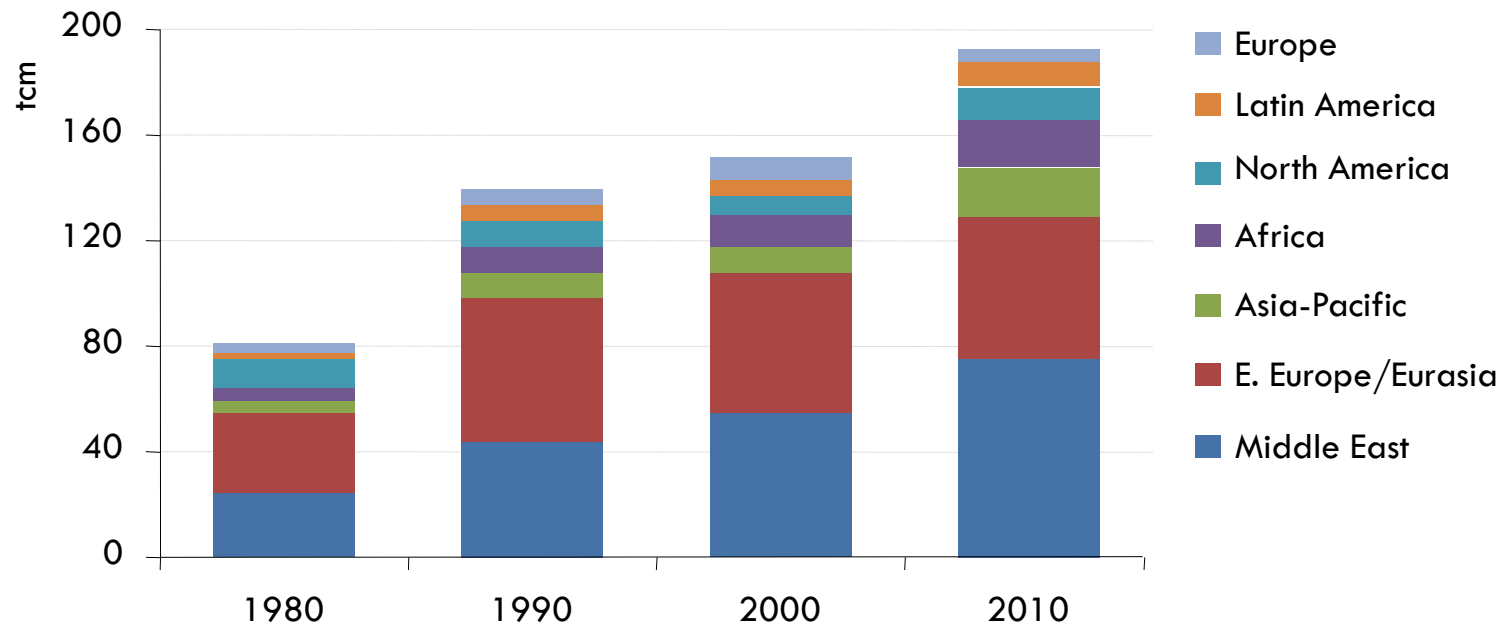
Growing energy demand – need for all energy sources available



Source: IEA, The Golden Age of Gas, 2011 (the GAS scenario)

Conventional reserves: plenty and more to come

Growing proven reserves



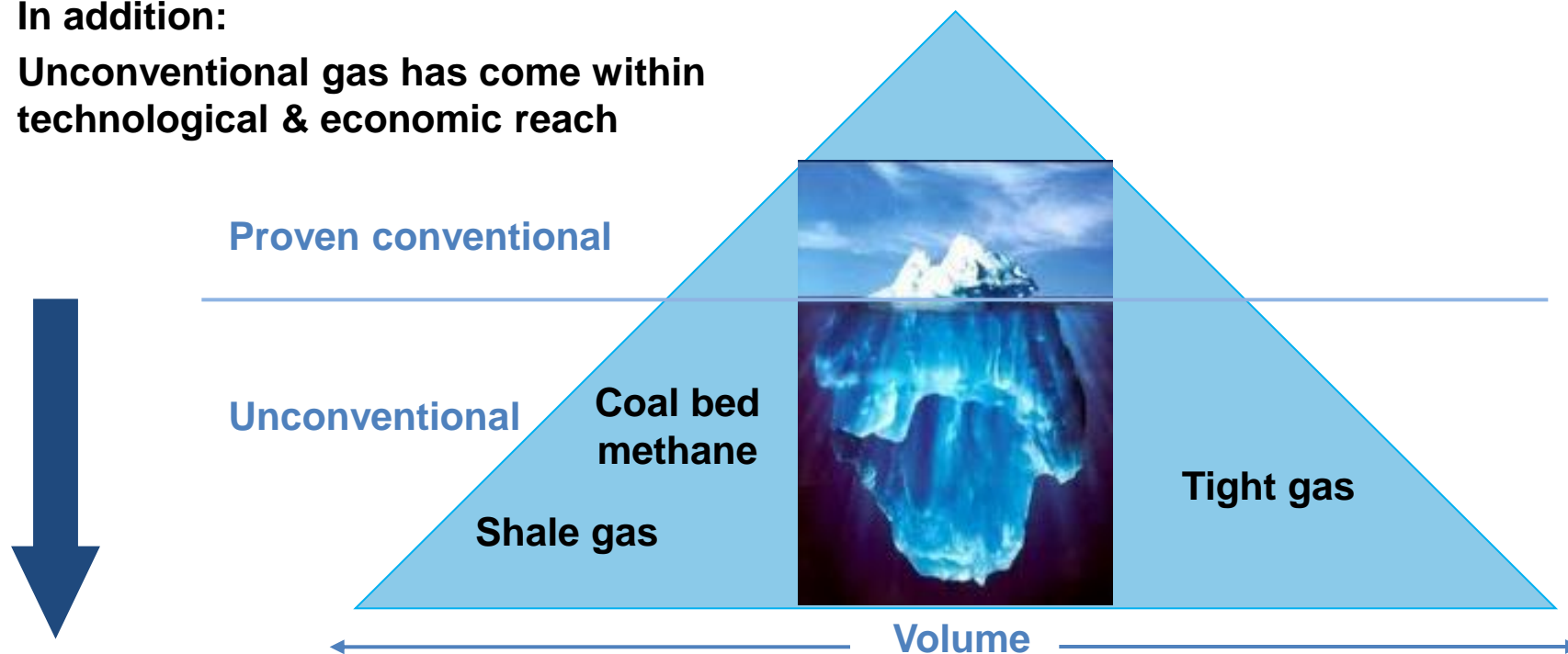
Global proven gas reserves have more than doubled since 1980, reaching 190 trillion cubic metres at the beginning of 2010

Natural gas resources are abundant

Proven conventional reserves* are growing

In addition:

Unconventional gas has come within technological & economic reach



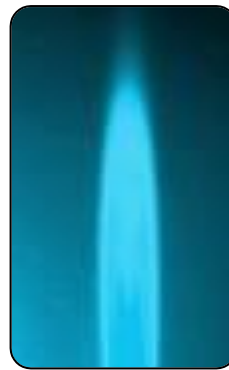
The total long-term recoverable conventional gas resource base is more than 400 tcm, another 400 tcm is estimated for unconventionals: only 66 tcm has already been produced.
- IEA-Golden Age of Gas 2011-

* 190 tcm in 2010

Natural gas can enable renewable energy

Natural Gas - Wind - Solar

Natural gas can produce clean base load support for variable renewables



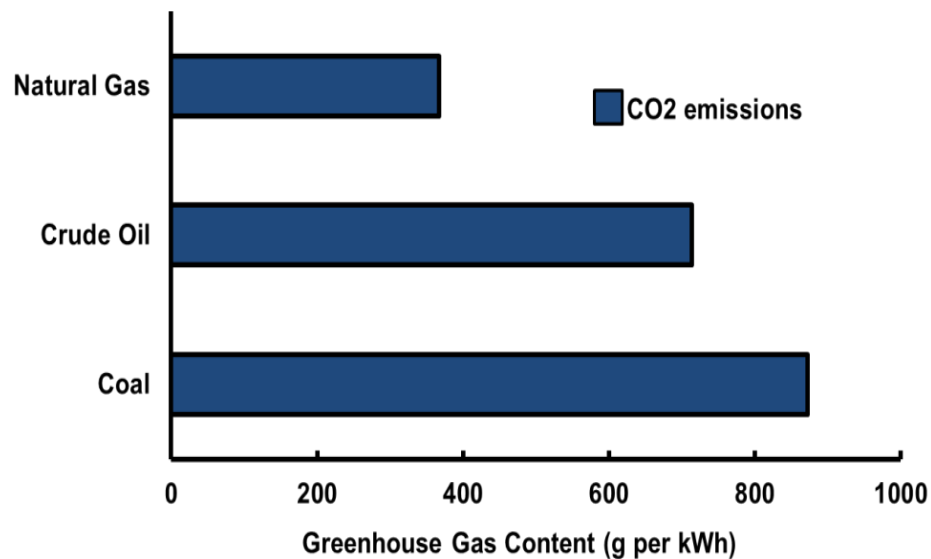
An ideal combination



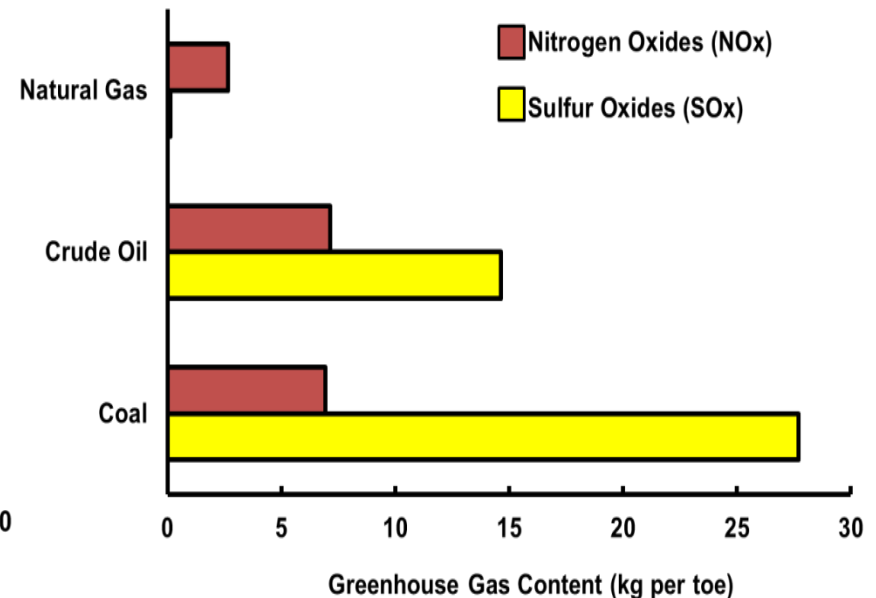
Natural gas can contribute to better air quality and to mitigating climate change

Natural gas is a clean-burning and low carbon fuel

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%

Natural gas for transportation



Natural gas is applicable for most kinds of transportation

Investment in natural gas infrastructure does not predetermine future energy landscape

Adaptability of natural gas is key advantage:

- **Gas-fired generation can evolve in a variety of directions:**
 - Capture carbon through retrofit technology
 - Partnership with variable sources of renewable power generation
 - Greater inclusion of carbon-neutral biogas
- **Gas pipeline and storage system provides further future options for:**
 - CO₂
 - Biogas
 - Hydrogen



Natural gas: Addressing the key global challenges

Key global challenges:

Population Growth & Resource Availability

Economic Development & Employment

Energy Poverty & Public Health

Air Quality & Climate Change

Mobility

Affordability

Role of natural gas:

Abundant resources

Industrial feedstock & employment creation

Reduce urban smog & indoor pollution

Low emissions

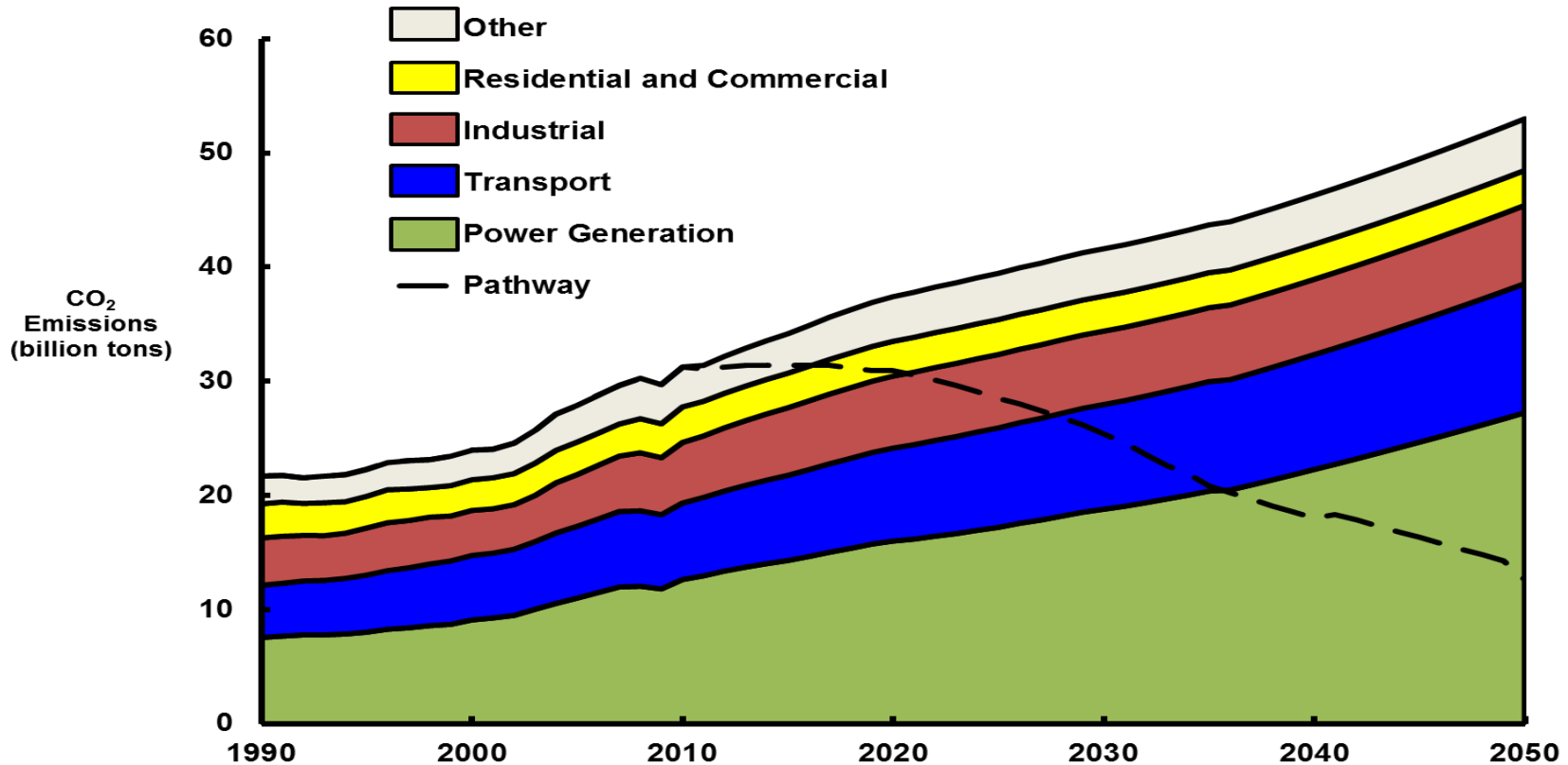
LNG, CNG & electricity for transportation

CCGT as lowest cost low-carbon technology

The Pathway towards a sustainable future

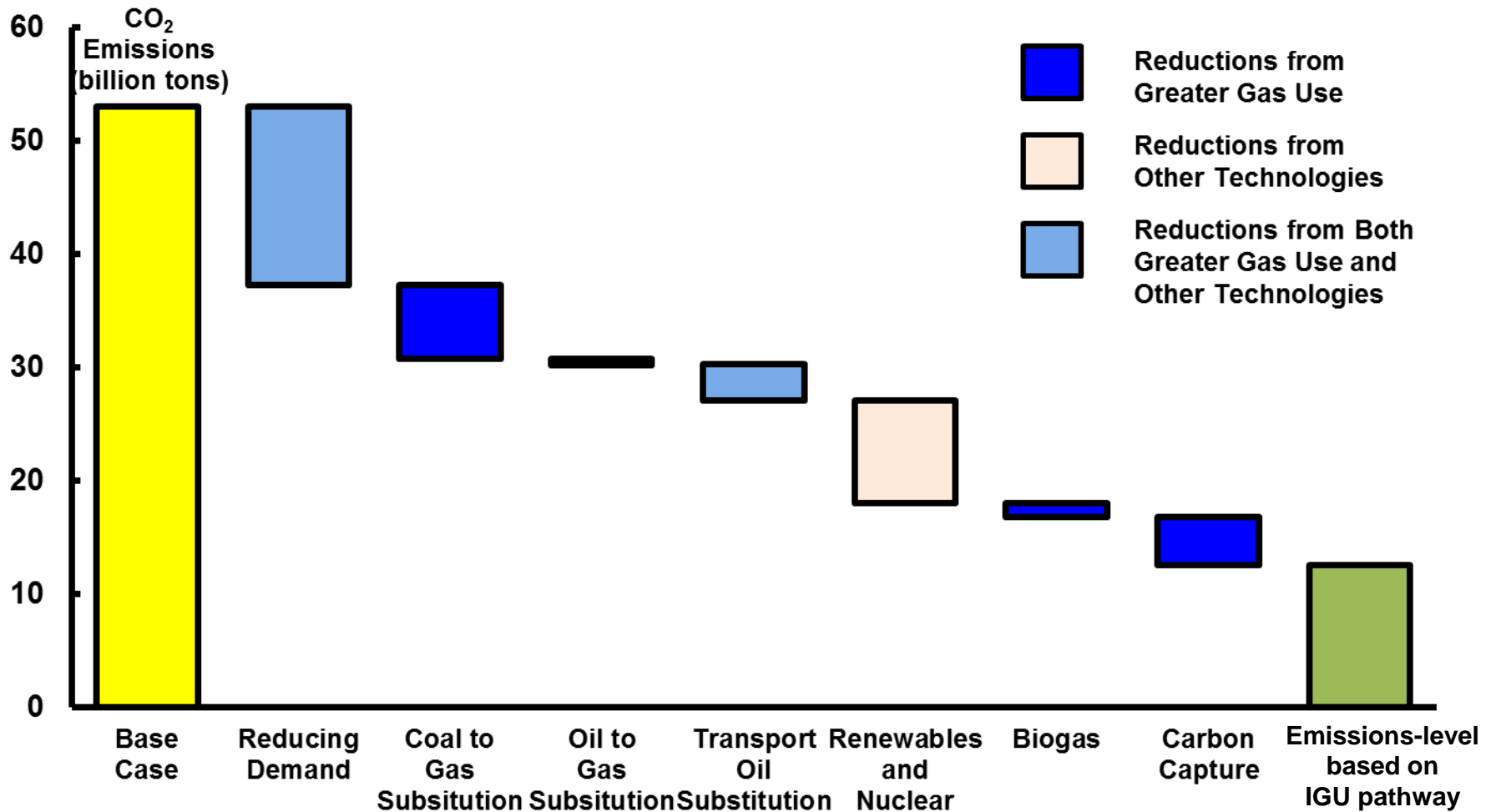
Meeting future global energy needs – whilst addressing air quality and climate change concerns

Global Emissions Trajectory Base Case



Vision Pathway highlights various CO₂ abatement options and technology choices

Calculation for 2050



Policy will be particularly important in the areas where the greatest reductions in emissions are projected

- Demand reduction and energy efficiency
- Coal to gas substitution
- Carbon capture & storage



Requirements to realise the potential of gas for the future

Politics

- Ensure a stable policy and regulatory framework
- Support low-carbon energy & act quickly

Industry

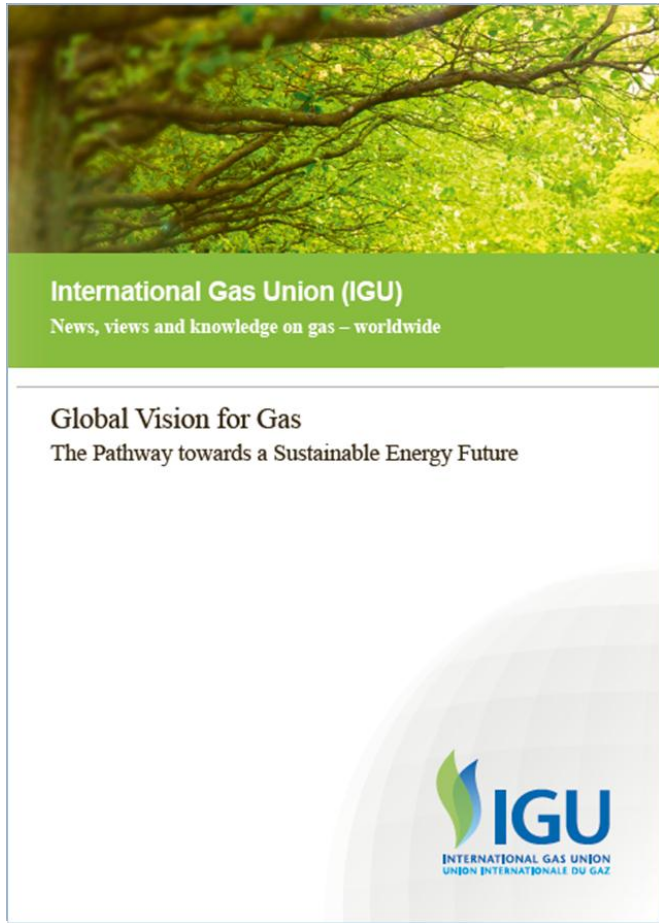
- Continuously improve technology and productivity
- Establish trust with all stakeholders

All

- Realise the synergies of integrated energy concepts
- Increase energy efficiency
- Reduce demand

Everyone needs to recognise the critical role that natural gas has to play alongside other low carbon options, and facilitate the appropriate policy enablers as benefits each region based on its particular circumstances.

Global Vision for Gas: The Pathway towards a Sustainable Energy Future



Download from:

<http://www.igu.org>

Thank you



For your attention

Carolyn Oebel
Advisor to the Secretary General

London, 27 June 2012