

## V<sup>th</sup> INTERNATIONAL CONFERENCE <<ENERGY DIALOGUE: RUSSIA – EUROPEAN UNION. GAS ASPECTS>>

# “World Energy Security and Safety: Challenges and Opportunities”

By:

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- 1. Introduction – Brief on IGU**
- 2. Global Natural Gas & LNG Industry**
- 3. World Energy Security & Safety**
- 4. Key Challenges & Opportunities**
- 5. Closing Remarks**

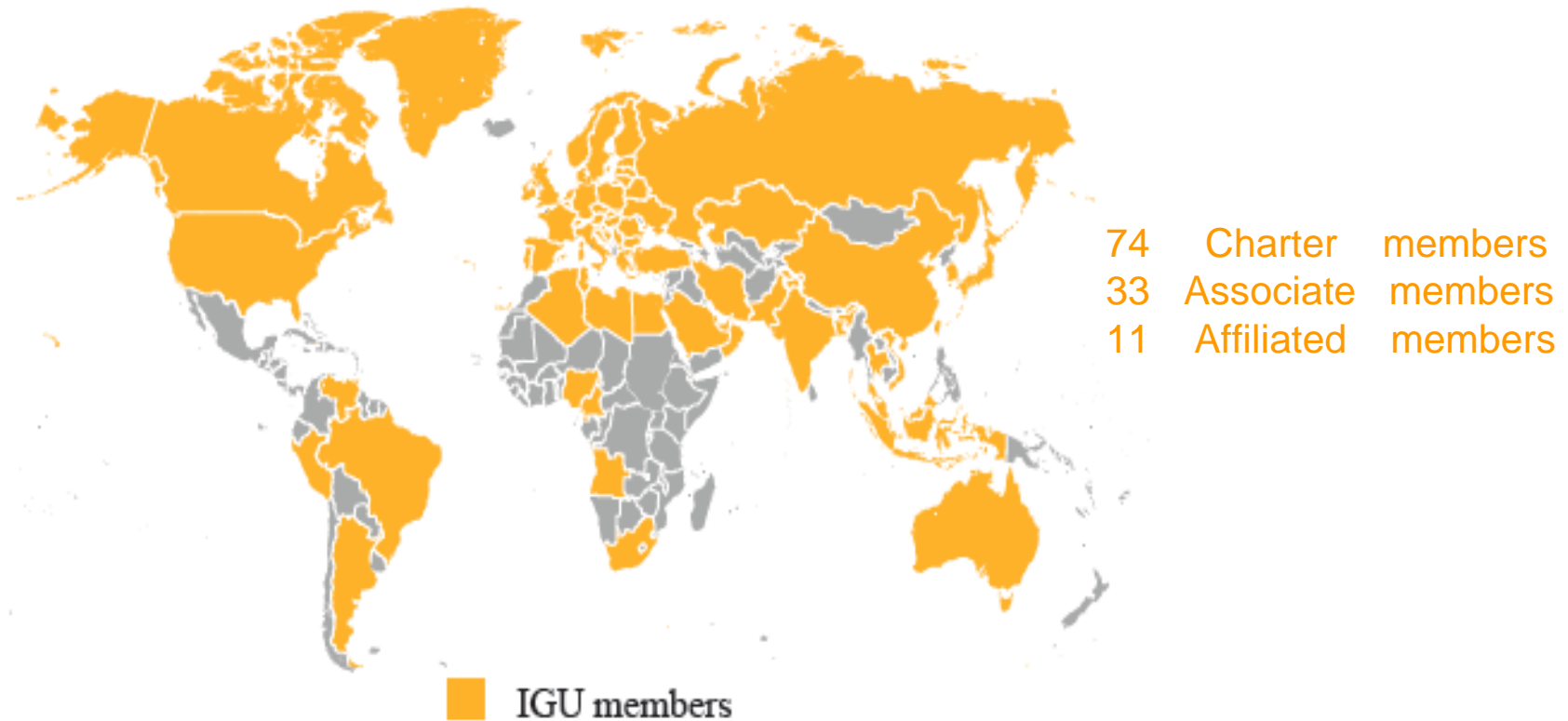


# IGU as **THE** spokesman for the gas industry

- ◉ Worldwide and non-profit organisation established in 1931
- ◉ Promotes technical and economic progress of the gas industry
- ◉ Emphasising sound environmental performance
- ◉ Increased focus on strategic and policy issues
- ◉ Cooperation with IEA, United Nations, World Bank, IEF and others



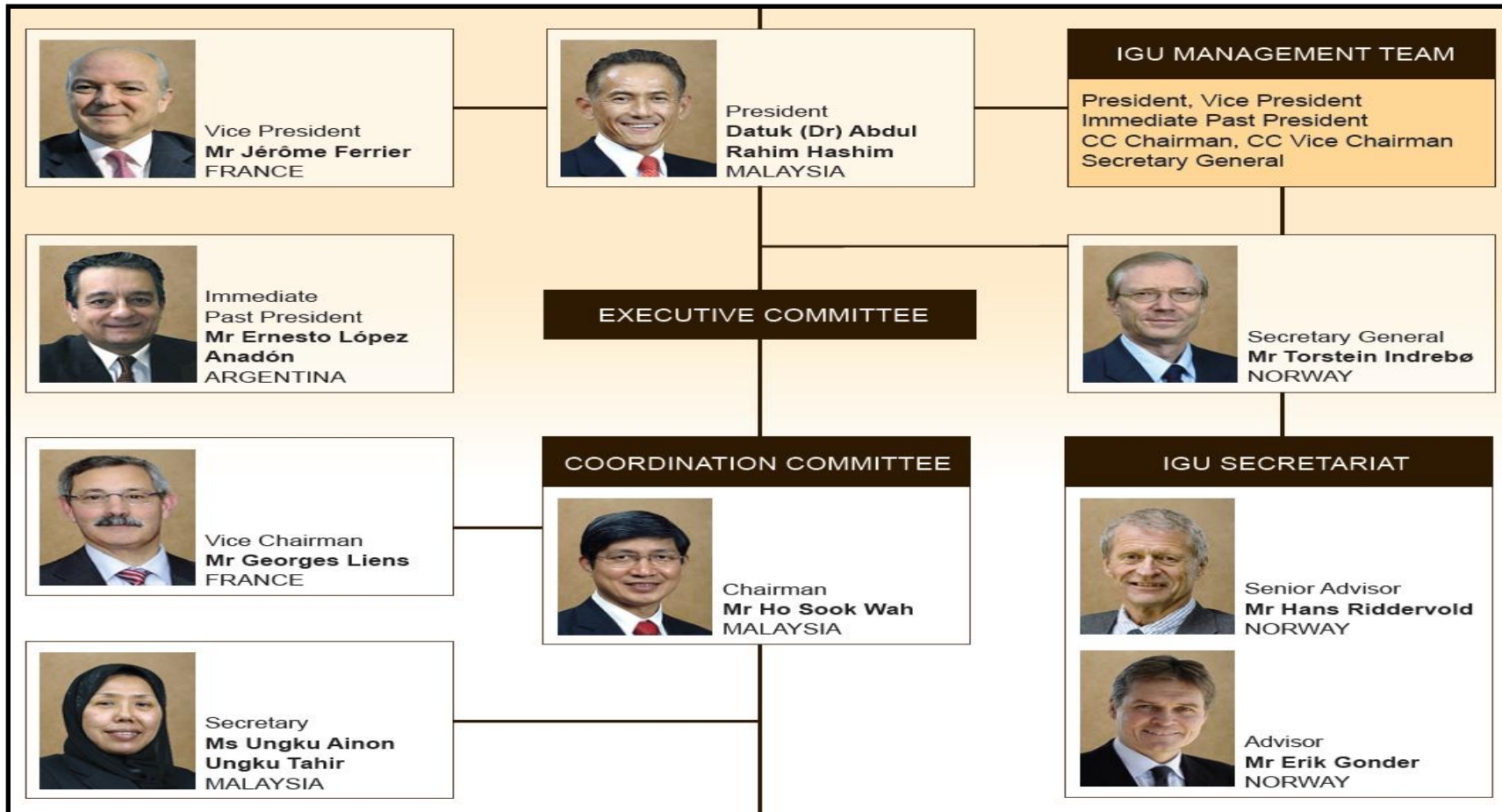
## IGU Members responsible for 95% of Global Gas Sales



\*N.B.: As of April 2010



# IGU Organisation Chart for Malaysian 2009 – 2012 Triennium



## IGU is creating arenas for Networking - Knowledge - Dialogue

### ● IGU World Gas Conferences (WGCs)

- 24<sup>th</sup> WGC - Buenos Aires, Argentina, 5-9 Oct. 2009
- 25<sup>th</sup> WGC - Kuala Lumpur, Malaysia, 4-8 June, 2012
- 26<sup>th</sup> WGC - Paris, France, 2015



### ● Co-sponsor of LNG Conferences LNG 16 in Oran, Algeria, April 2010



### ● Ministerial Gas Forums

- 1st IEF – IGU Ministerial Gas Forum 2008, Vienna
- 2nd IEF – IGU Ministerial Gas Forum, Doha, November 2010

### ● The IGU Research Conference

IGRC 2011 in Seoul, Korea, October 2011



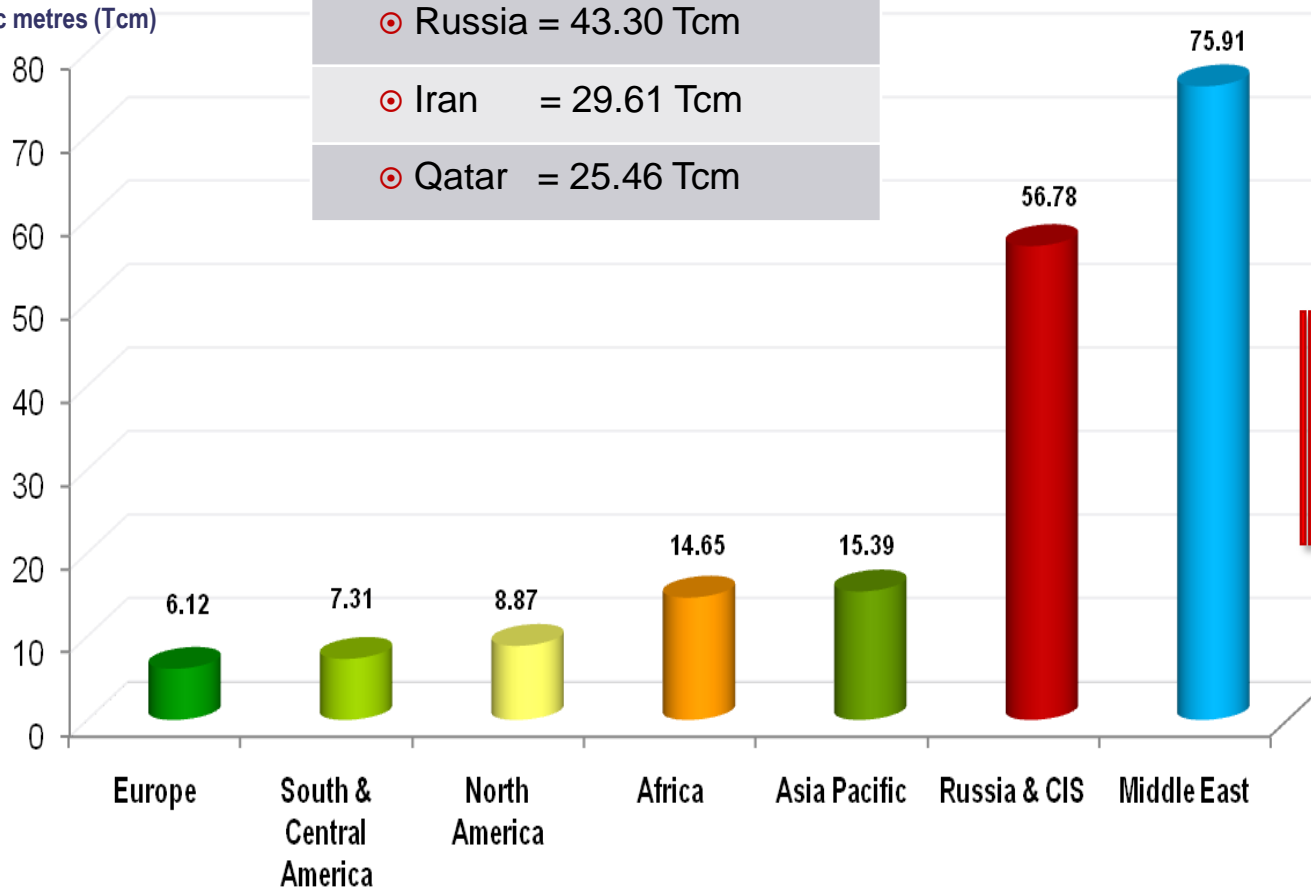
# The world's proven gas reserves amounted to 185 Tcm

## Top 3 gas reserves holders:

- Russia = 43.30 Tcm
- Iran = 29.61 Tcm
- Qatar = 25.46 Tcm

Proven gas reserves at end 2008

Trillion cubic metres (Tcm)



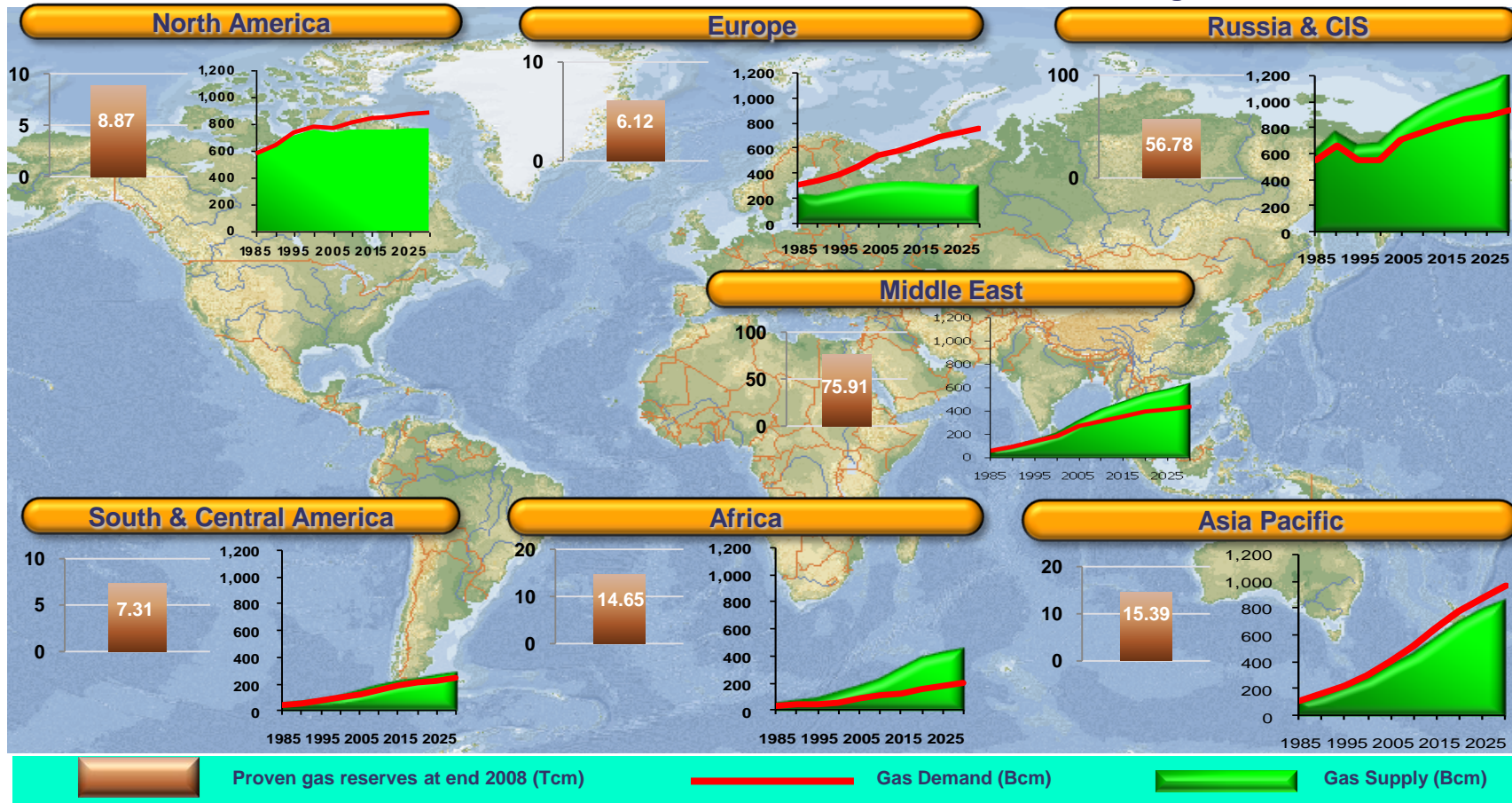
**Total volume represents more than 60 years of consumption at today's rate**





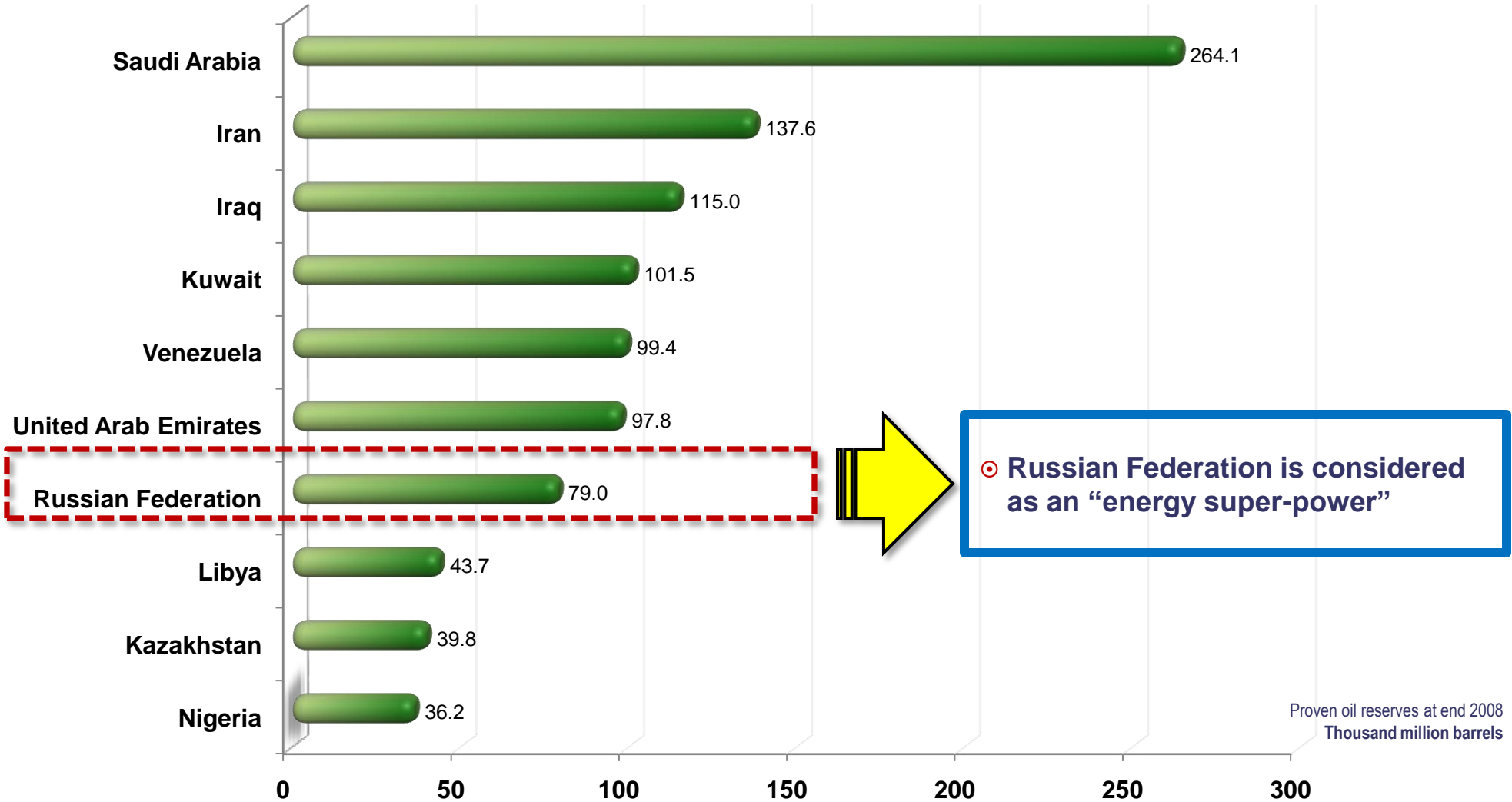
# World's supply vs. demand in the short & long term outlook

- Middle East, Russia & CIS and Africa emerge as key gas exporters
- Europe remains the largest net gas importer
- Asia – Pacific and Latin America are net gas importers
- North America has transformed itself to become a self-sufficient gas market



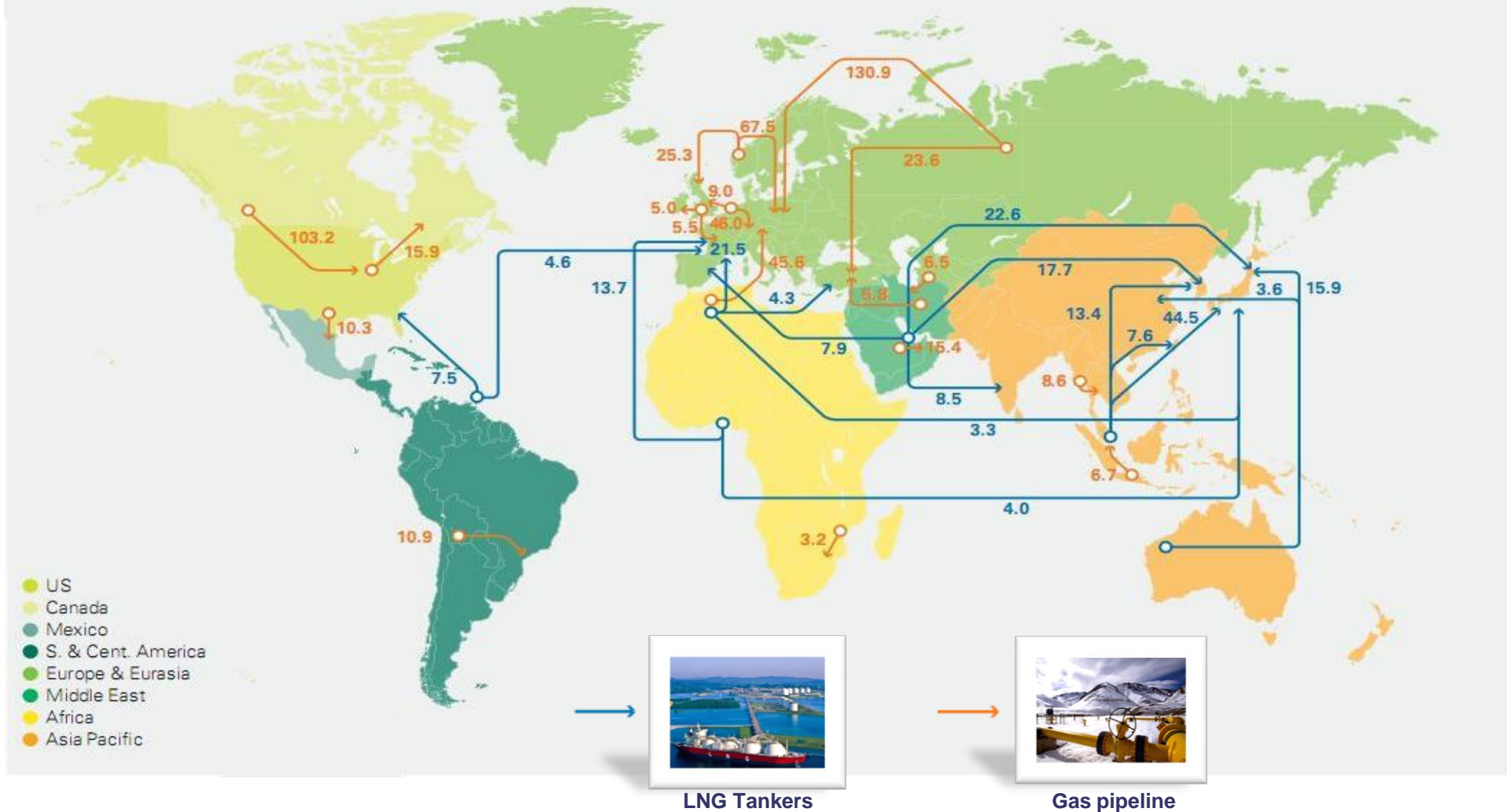


# Russia Federation is at the 7<sup>th</sup> rank in term of world's proven oil reserves



# Natural gas modes of transportation in connecting the supply to demand centres

Major gas trade movements worldwide (billion cubic metres)

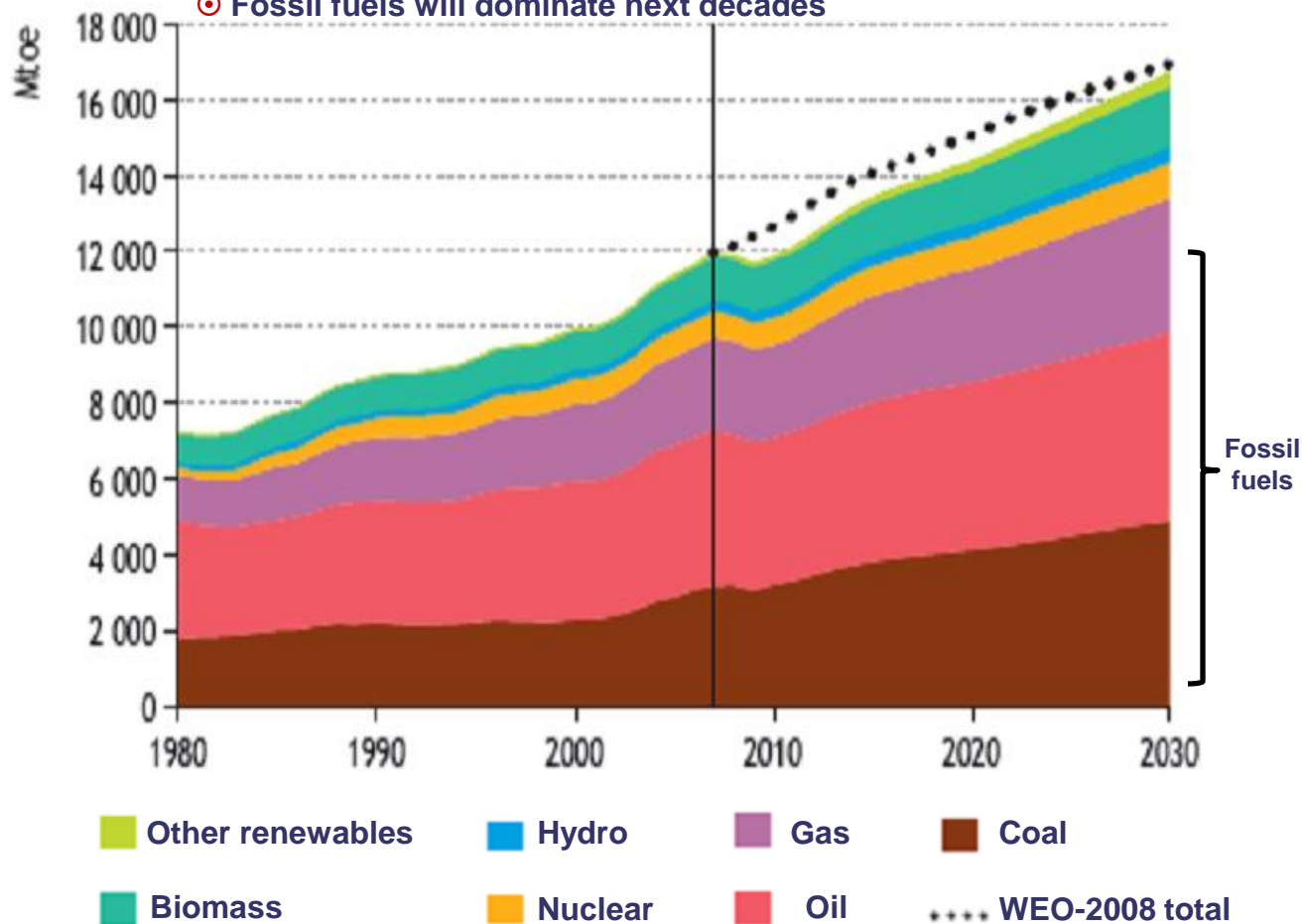


# IEA forecasts continuing dependence on fossil fuels in the future



- ⊙ Fossil fuels, i.e. oil, gas and coal, will continue to dominate the global energy mix during next few decades.
- ⊙ Penetration of renewable energy into the global energy market has thus far been relatively small and gradual.
- ⊙ Increasing competition for energy security particularly to secure the long-term supply of oil and natural gas.

- ⊙ Population growth from 6.7 billion in 2010 to about 9 billion by 2050
- ⊙ Urbanisation continues
- ⊙ Increased level of global prosperity
- ⊙ Fossil fuels will dominate next decades





## Security of oil supply and safety aspect

- ⊙ Offshore rig/platform accident e.g. in the Gulf of Mexico
- ⊙ One of the worst offshore crude oil spill in the United States history



### Tragic news

- ⊙ Transocean's Deepwater Horizon drilling rig explosion on April 20, 2010
- ⊙ The sinking of the Deepwater Horizon rig to about 5,000 feet below the ocean's surface on April 22, 2010
- ⊙ The situation created serious implications:-
  - 1) the loss of 11 crew members
  - 2) extensive damage to:-
    - environment;
    - nearby wildlife;
    - marine life; and
    - well-being of the nearby local population that dependent on local marine related industry



## Security of coal supply and safety aspect

### Even worst, numerous records of accidents from the explosion of coal mines:-

#### 1. Russia's largest Raspadskaya coal mine exploded on 8 May 2010

- ⊙ Death of 60 coal workers
- ⊙ 30 being trapped and missing (13 May 2010)



© RIA Novosti. Ilya Pitalev

#### 2. A total of 198 death from other coal mines accidents in the United States from 1970 to 2010 includes:-

- Upper Big Branch Mine, located in West Virginia exploded in April 2010
  - ⊙ 29 coal miners were reported dead

#### 3. China registered with the highest death records:-

- ⊙ March 2010 : 153 miners were trapped in the northern province of Shanxi
- ⊙ Nov 2009 : 104 miners were killed from the explosion in northeastern province of Heilongjiang
- ⊙ Sept 2008 : series of coal mines accidents that killed 254 miners in northern China
- ⊙ Sept 2007 : series of coal mines accidents that killed 181 miners in the eastern province of Shandong





## Security of gas supply and safety aspect

- ① The enhancements of world energy security and safety being shifted to promoting continued growth of the global gas industry due to:-
  - a) Awareness on mitigating climate change
  - b) The penetration of new gas markets via LNG business

Gas production



Gas Plants



Transportation



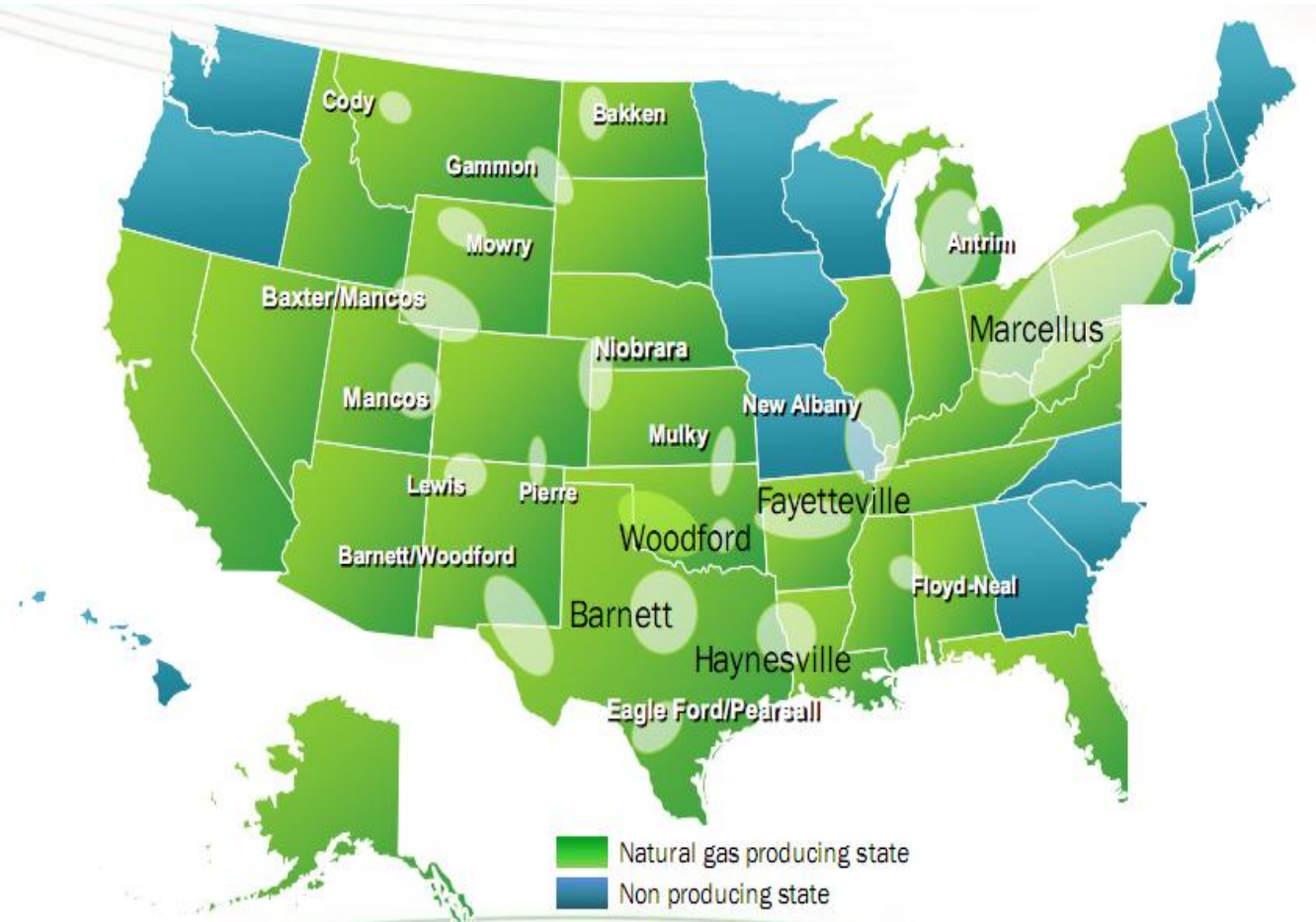
● No record of environmental damage relating to natural gas industry



# The commercialisation of unconventional gas in the United States gas market



**Discoveries are widespread across the U.S.  
- 32 of 50 States produce Natural Gas**



- Emphasis on commercially develop unconventional gas e.g. shale gas, coal-bed methane & tight gas.
- This leads to the creation of new dynamics in the global gas and LNG landscape
- LNG imports are reduced from Middle East, Africa and Russia. LNG movements redirected into Europe and Asia.
- It is believed could in the future contribute to the global natural gas balance

Source: EIA 2009



# The United States gas market's revolution gave impetus to other countries to monetise unconventional gas

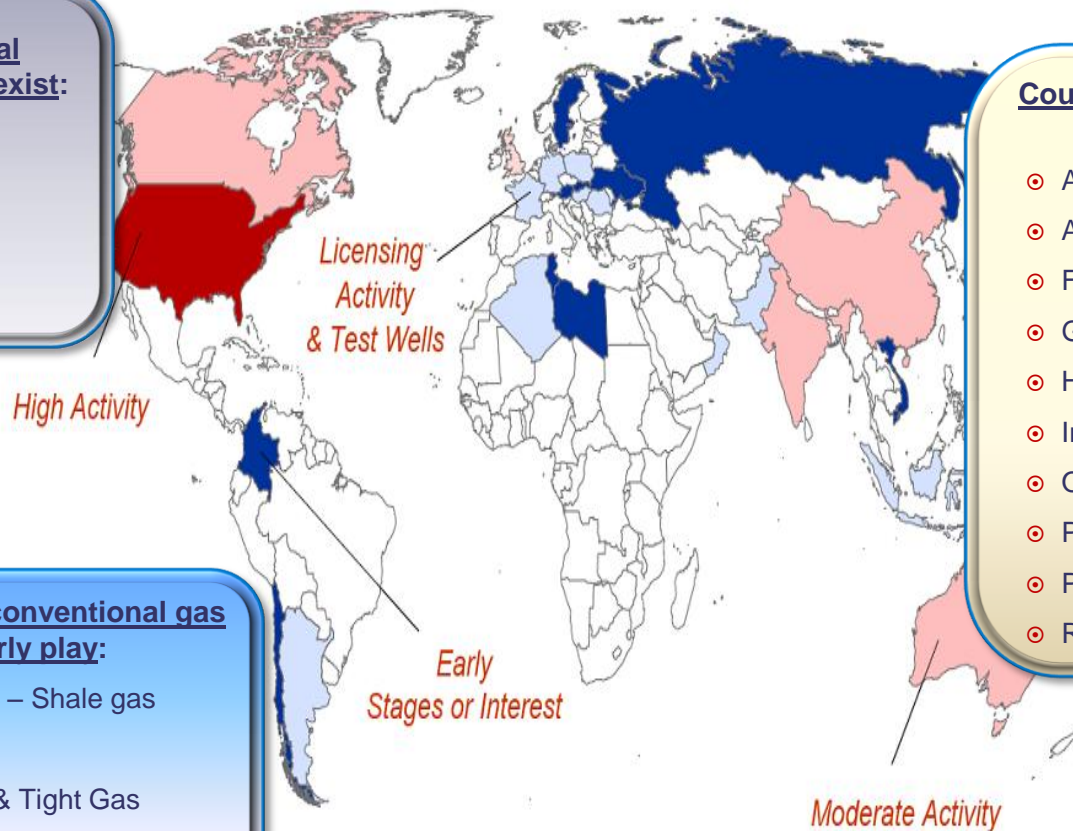


## Global Unconventional Gas Activity



### Countries where commercial production exists or will soon exist:

- ⊙ Australia - CBM
- ⊙ China – CBM, Tight Gas
- ⊙ India – CBM
- ⊙ United Kingdom - CBM



### Countries with acreage allocation and test-well activity:

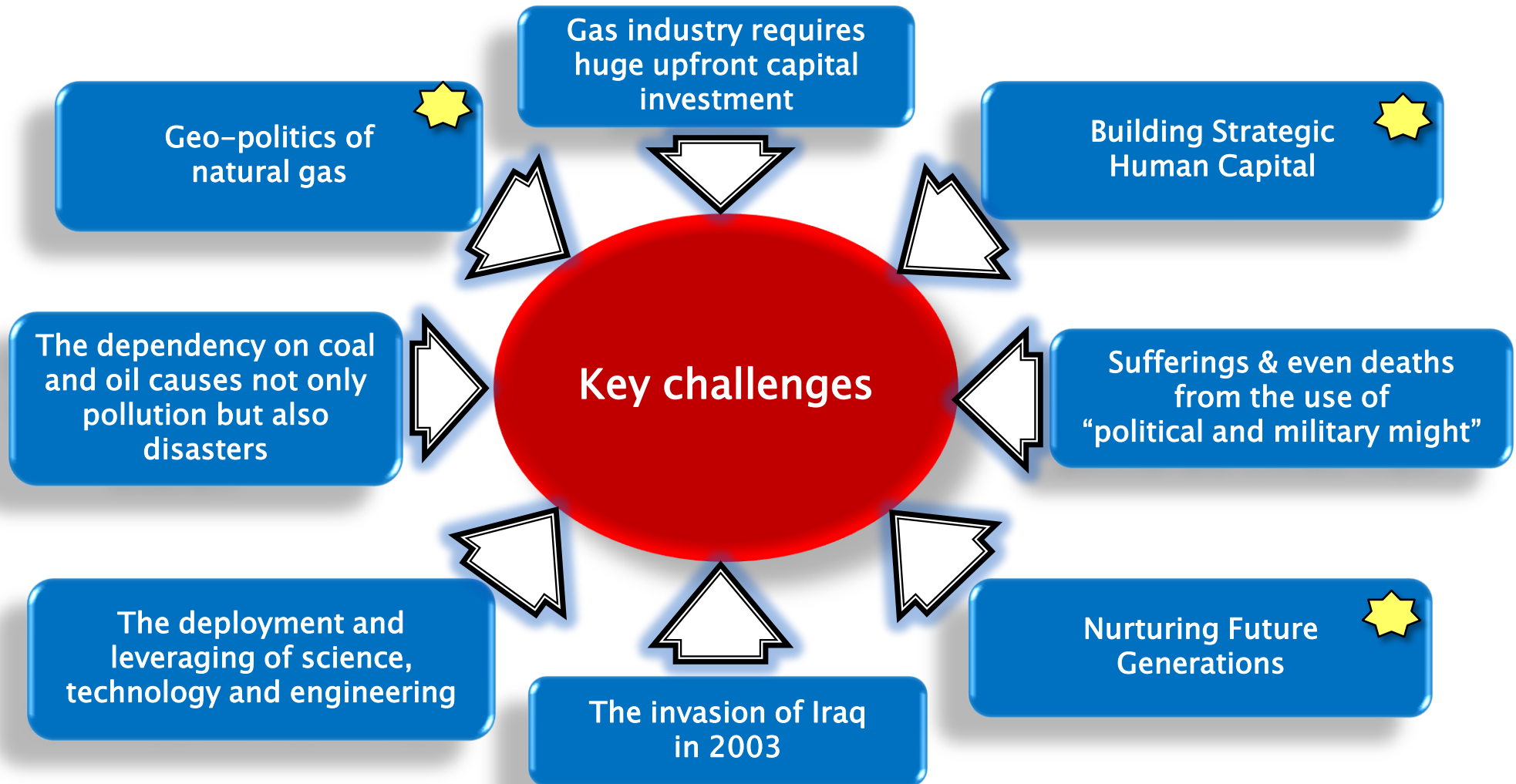
- ⊙ Algeria – Tight Gas
- ⊙ Argentina – Tight & Shale Gas
- ⊙ France – CBM, Tight & Shale gas
- ⊙ Germany – Tight Gas
- ⊙ Hungary – Tight Gas
- ⊙ Indonesia – CBM
- ⊙ Oman – Tight Gas
- ⊙ Pakistan – Tight Gas
- ⊙ Poland – CBM, Shale & Tight gas
- ⊙ Romania – Tight gas & CBM

### Countries where unconventional gas is still an early play:

- ⊙ Austria & Slovakia – Shale gas
- ⊙ Chile – CBM
- ⊙ Columbia – CBM & Tight Gas
- ⊙ Libya – Tight gas



# Issues relating to world energy security and safety

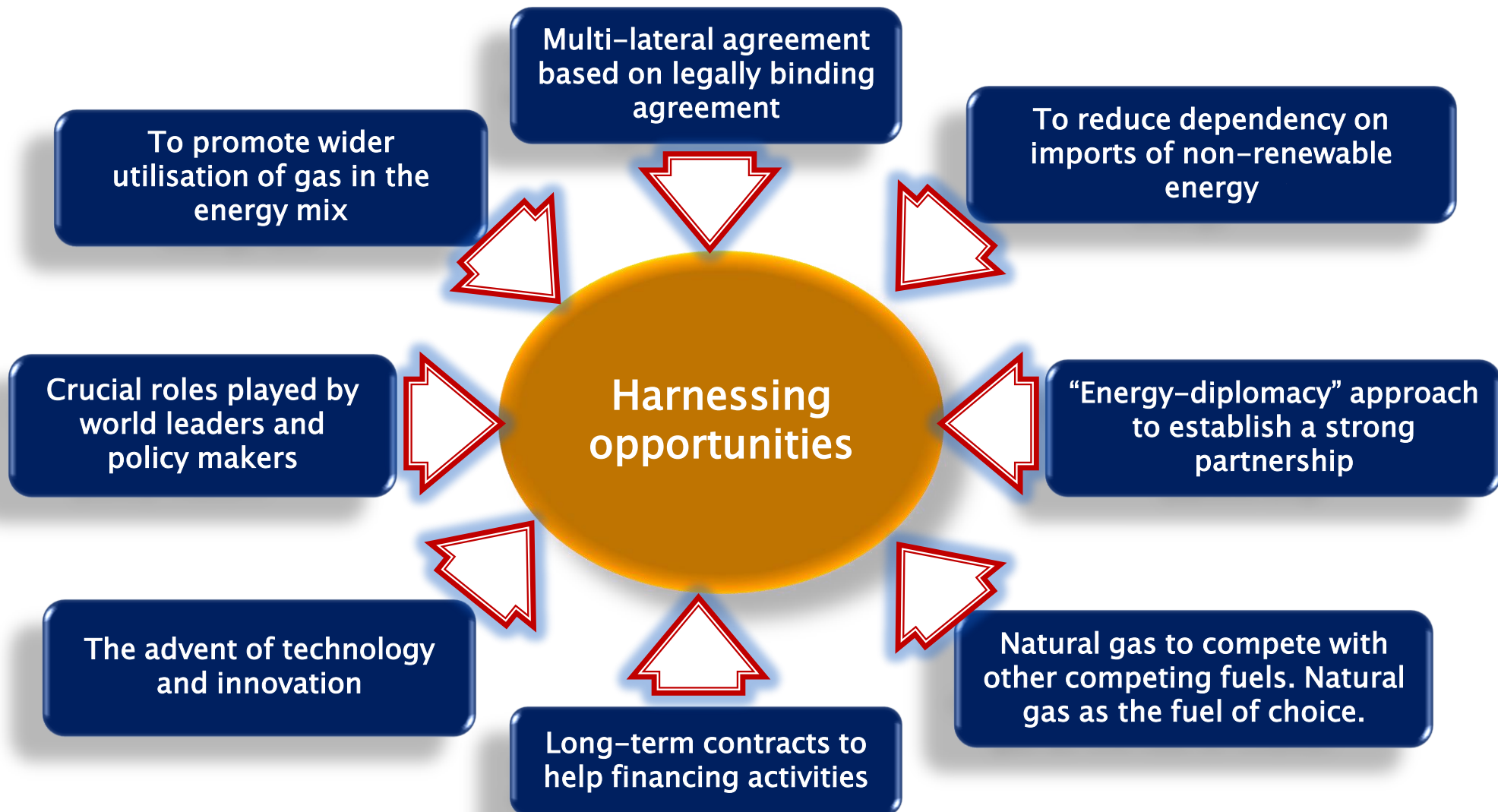


 Key deliverables at the 25<sup>th</sup> World Gas Conference (WGC), Kuala Lumpur in 2012





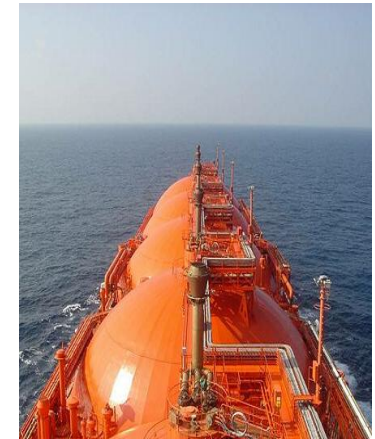
## Issues relating to world energy security and safety





## IGU Messages on Natural Gas

- ◉ Clean, efficient, versatile and environmental friendly
- ◉ Available and abundant
- ◉ Continue to play a substantial role in global energy demand
- ◉ Basis for sustainable economic growth



***Natural gas  
– major part of the long term energy solution***



# 25<sup>th</sup> World Gas Conference



KUALA LUMPUR  
2012  
WORLD GAS CONFERENCE



**“GAS : SUSTAINING FUTURE  
GLOBAL GROWTH”**

**Kuala Lumpur Convention Centre  
4 to 8 June, 2012**



**CHARMING COUNTRY, COLOURFUL CITY**



**THANK YOU FOR KIND ATTENTION**



**Welcome to**

**25<sup>th</sup> World Gas Conference  
and Exhibition**

**4-8 June 2012**  
**Kuala Lumpur, Malaysia**

**<http://wgc2012.com>**

