



Trends and Perspectives of the Global Gas Industry

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Secretary General of IGU**

**China International Pipeline Exhibition & Conference 2013
Langfang, China, Sept 12-14, 2013**

The IGU flagship events

- **World Gas Conference**
 - Paris 2015
- **IGU Research Conference**
 - Denmark 2014
- **LNG Conferences**
 - LNG 18 Australia in 2016
 - LNG 19 China in 2019
- **World Shale conference with CWC**
 - Houston 2013



For the gas industry by the gas industry

The global energy future

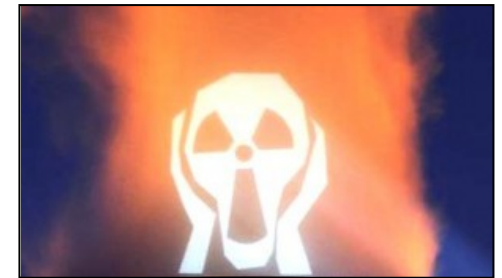
Drivers:

- Rising population & middle class
- Economic development and job creation
- Public health: urban air quality
- Climate change



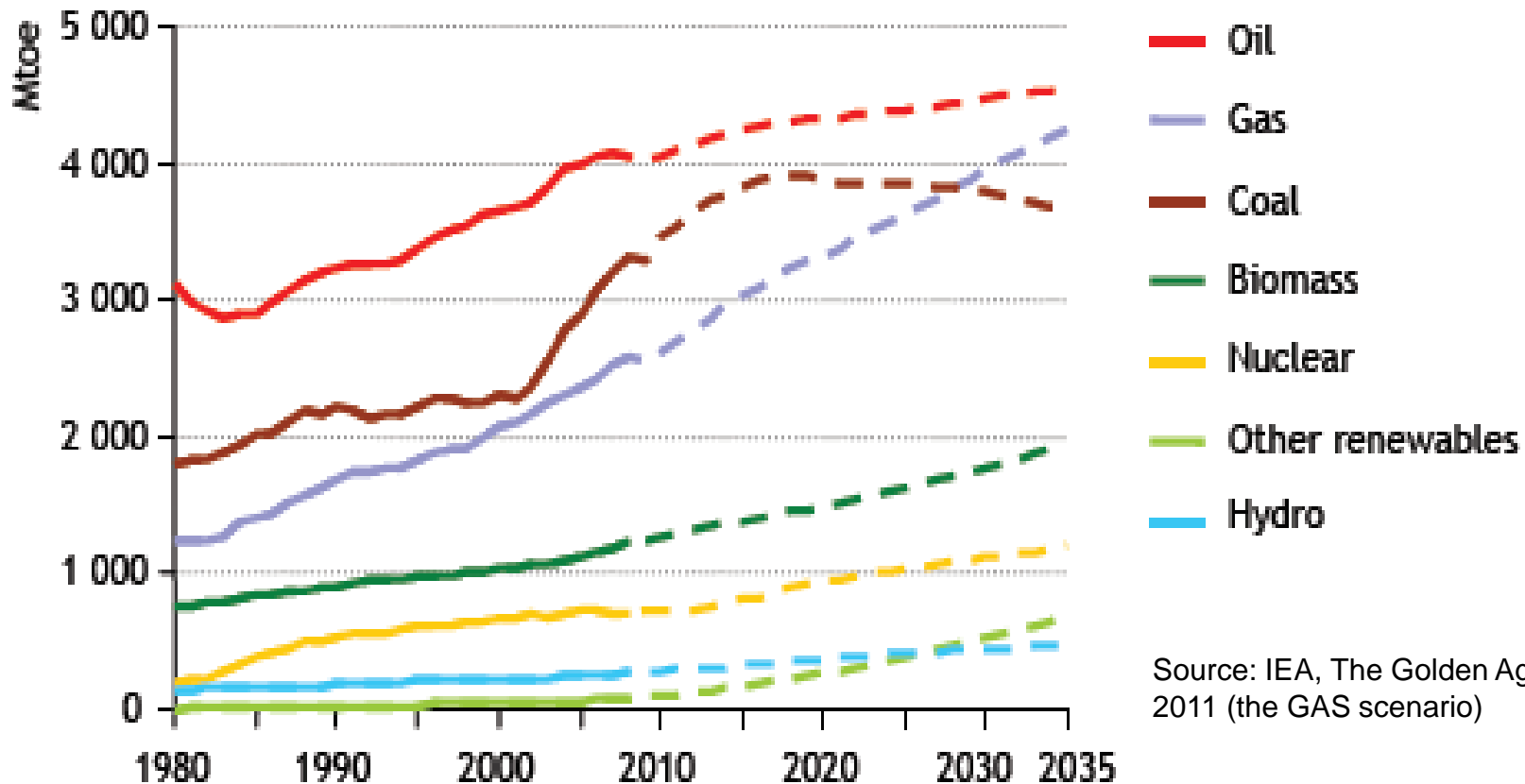
The world needs:

- Secure, clean and competitive energy
- Safe energy



 ***Balanced and robust solutions required***

Growing energy demand – need for all energy sources available

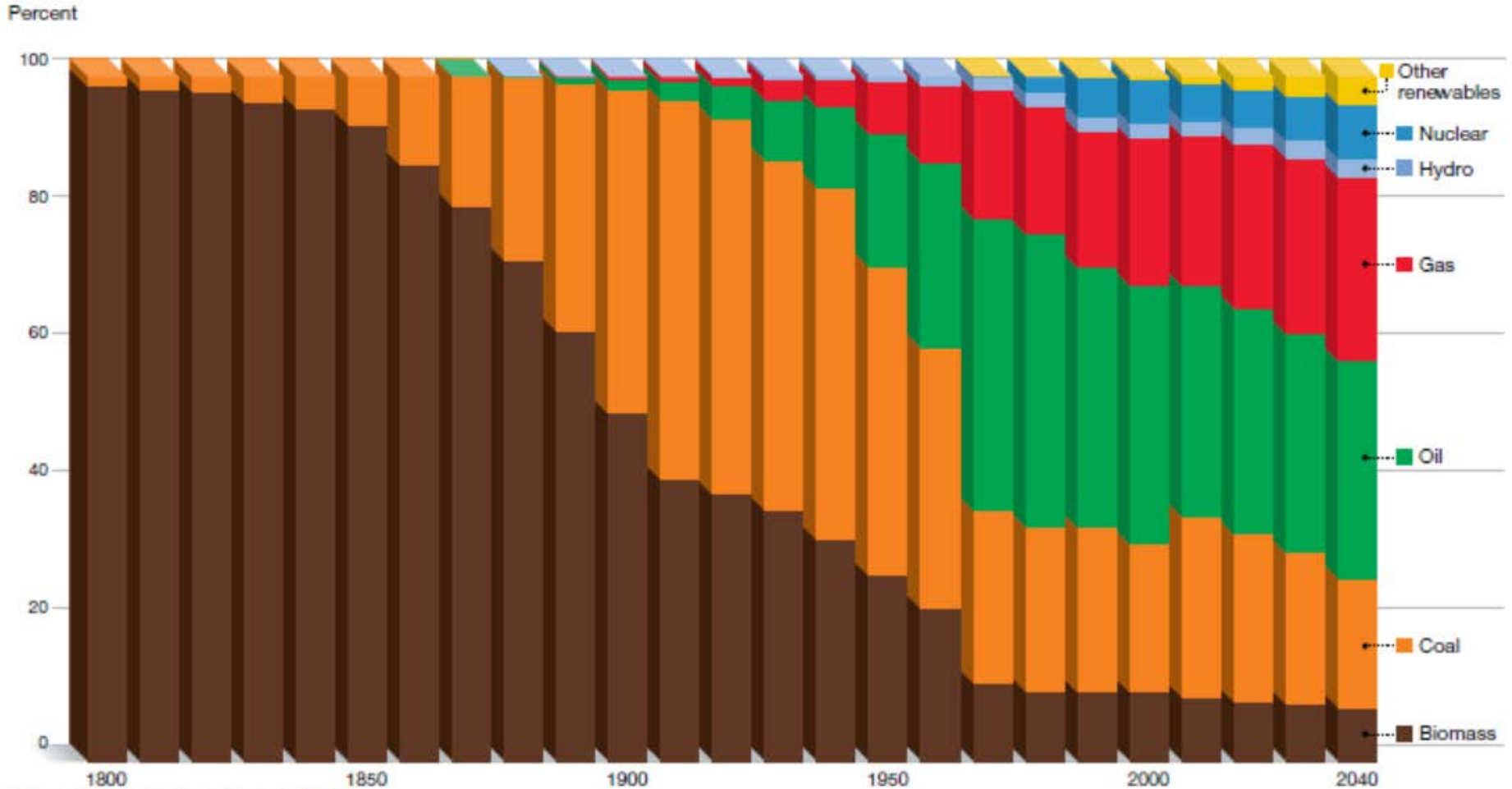


Source: IEA, The Golden Age of Gas, 2011 (the GAS scenario)

- Oil and coal declining in the long run whereas gas and renewables are increasing

Global energy mix development (ExxonMobil)

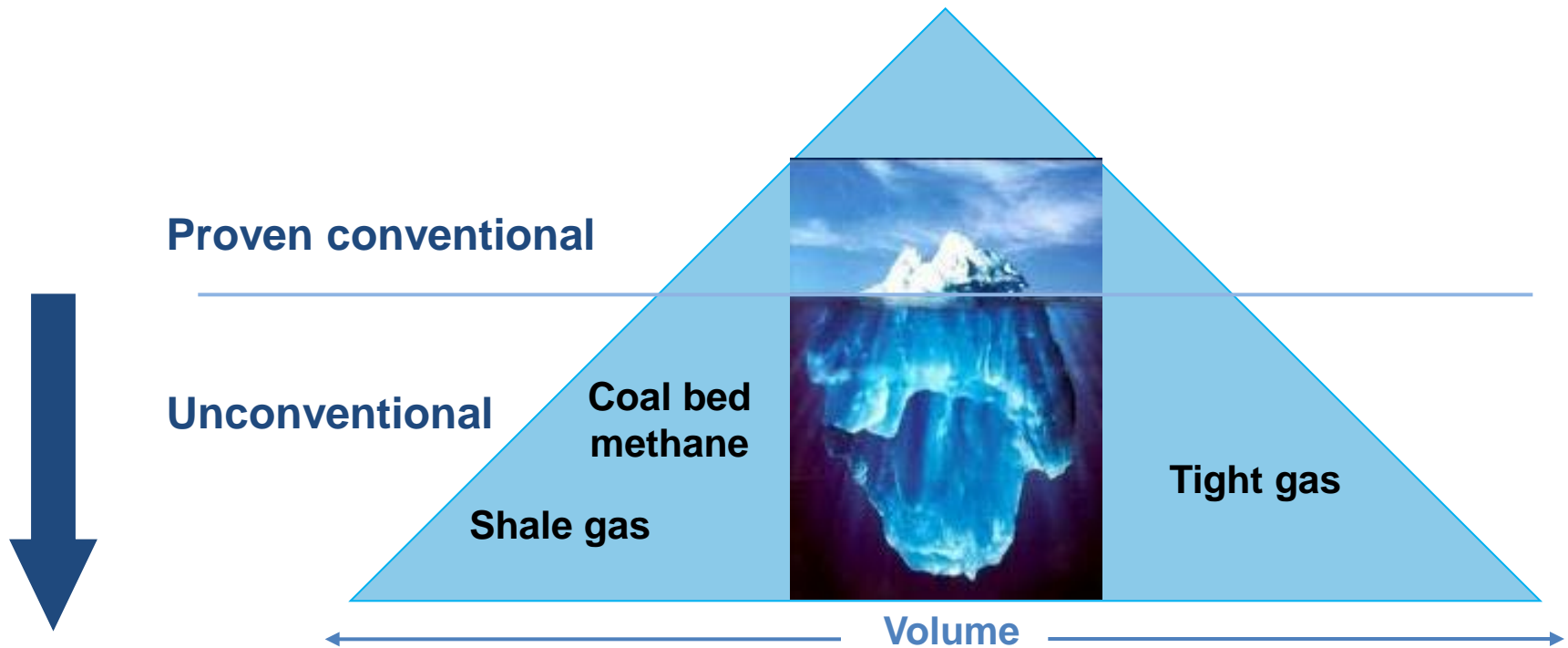
Global fuel mix by decade



Source: Smil, Energy Transitions (1800-1960)

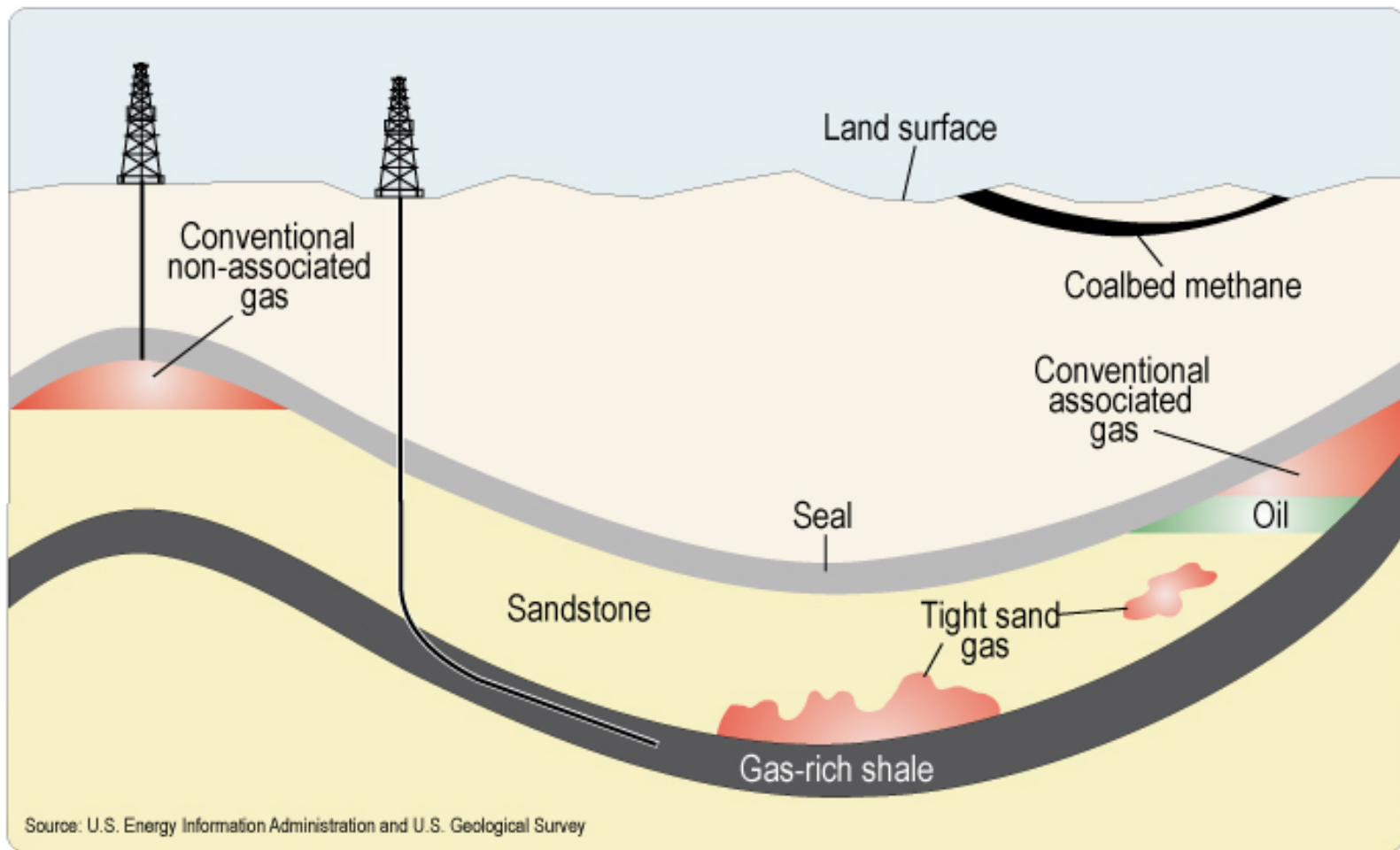
Unconventional gas – abundant resources

Technology – driving supplies

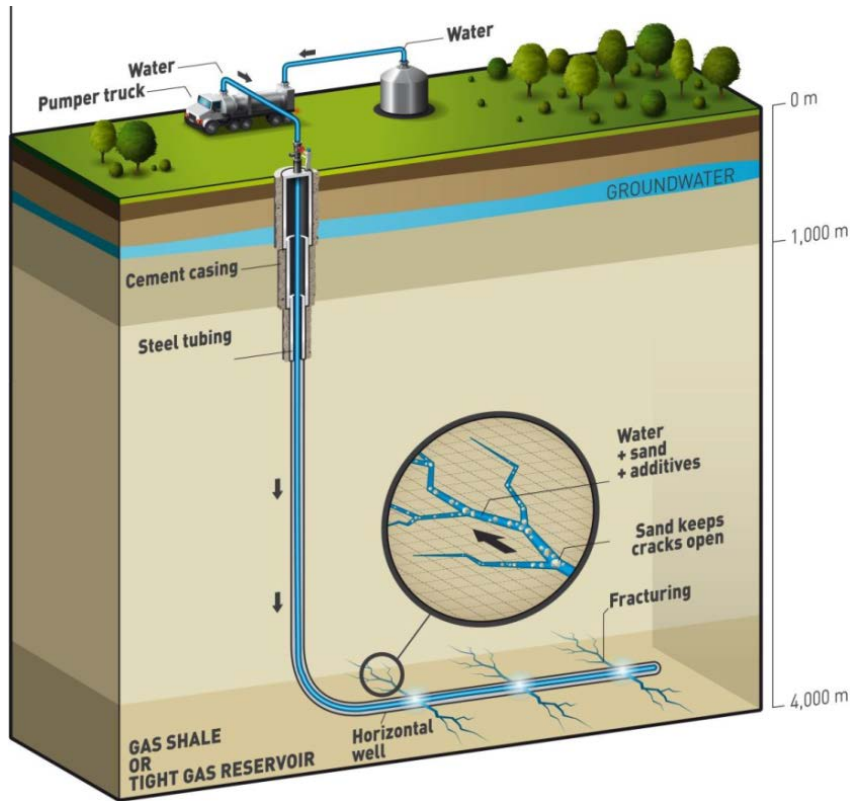


Gas resources for more than 250 years (IEA)

Unconventional Gas - overview



The production process



- Site development and preparation
- Vertical drilling
- Horizontally drilling
- Hydraulic fracturing
- Recycling of wastewater
- Well completion and operation

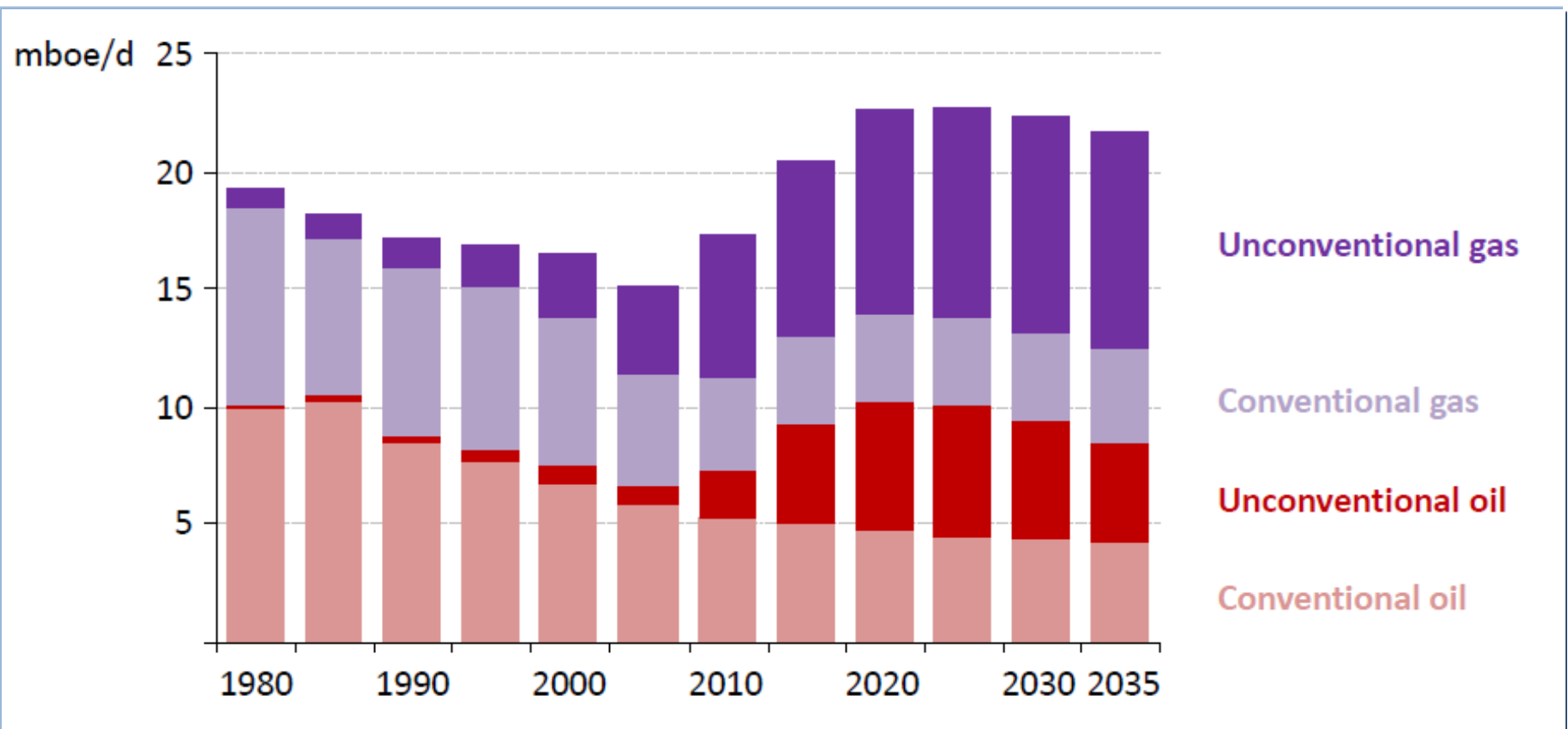
Source: Total



Do Not Drink
His Water

US Oil and Gas Production (IEA)

- need for new infrastructure



Gas is available - and widely distributed

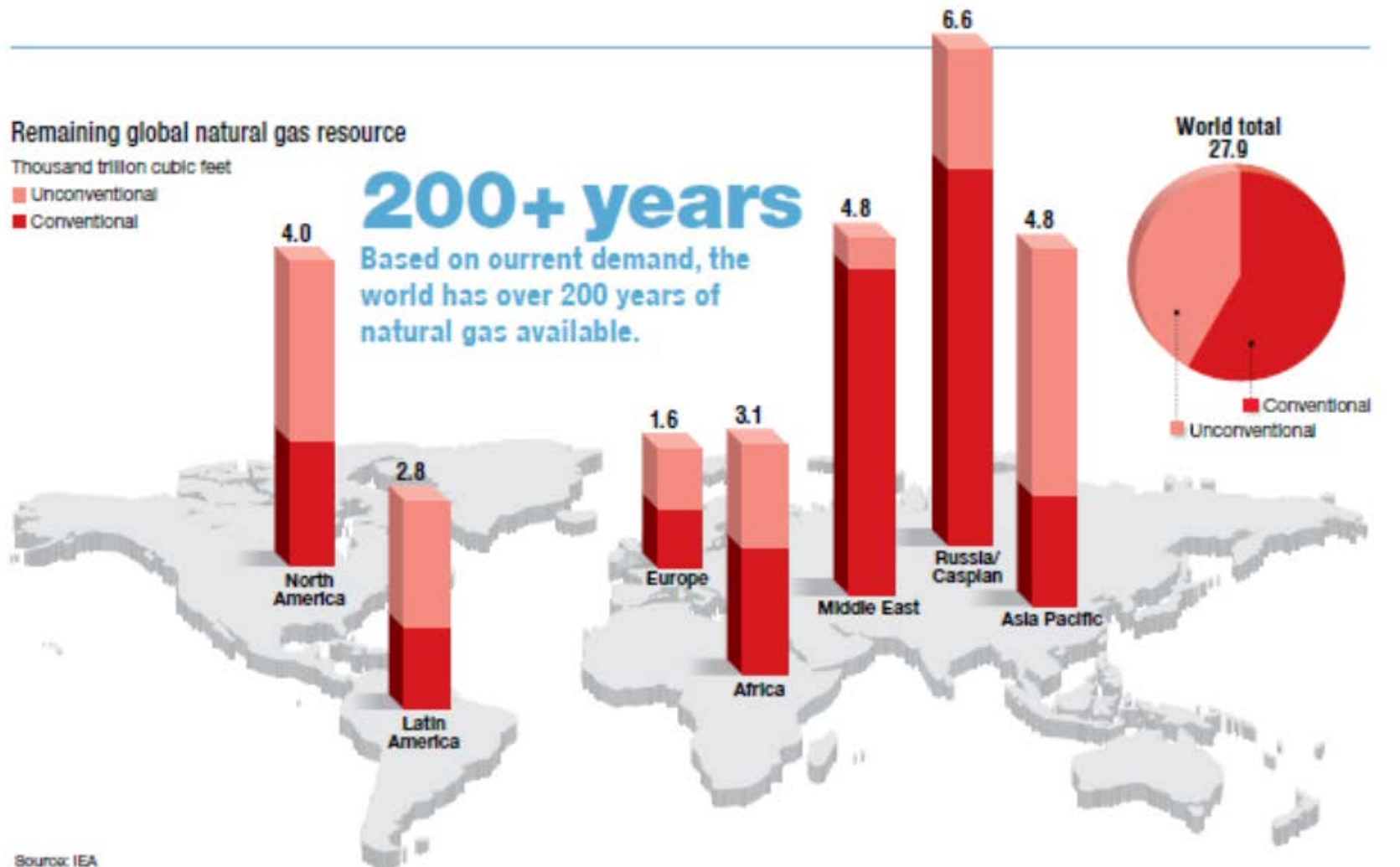
Remaining global natural gas resource

Thousand trillion cubic feet

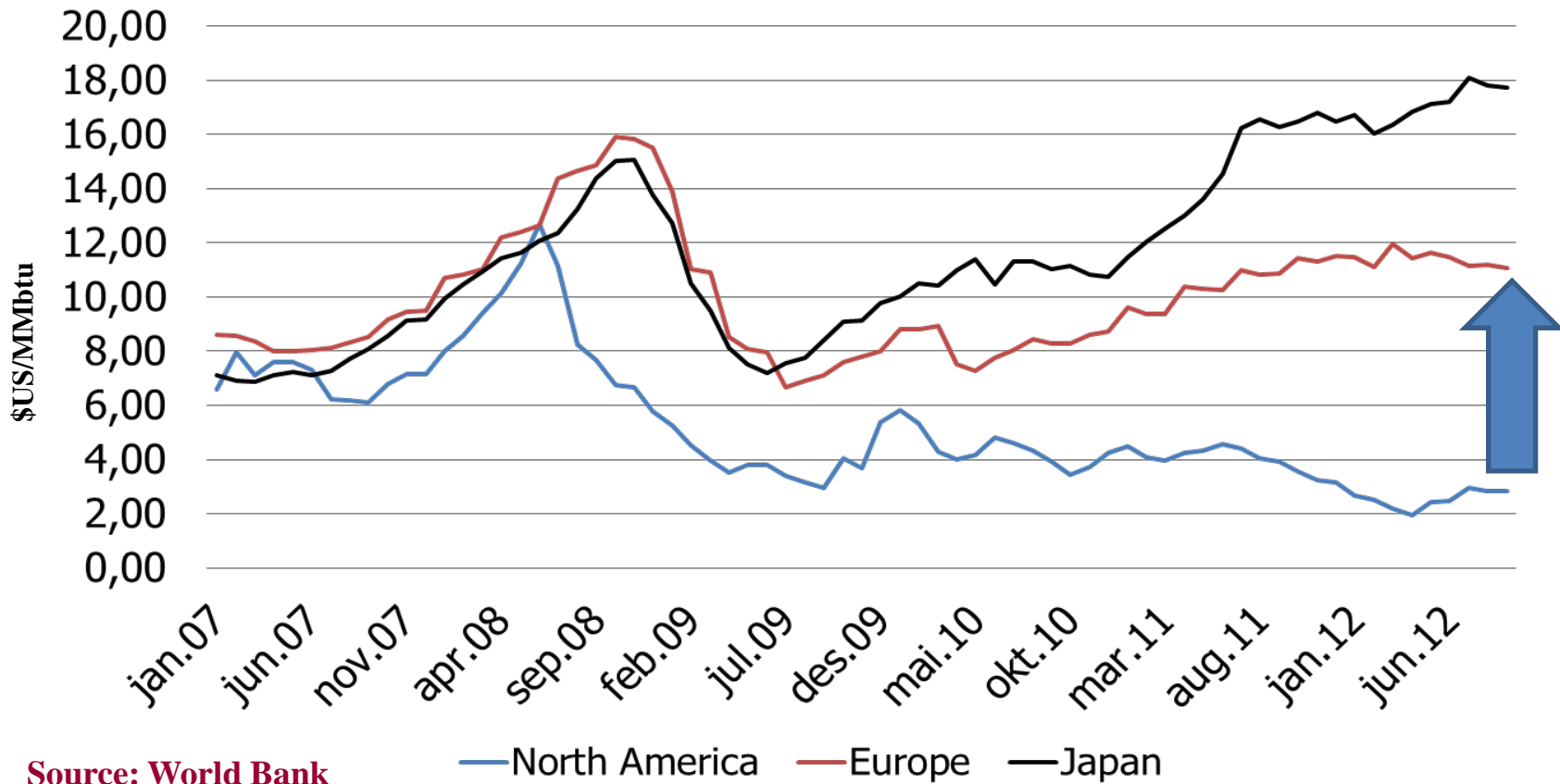
Unconventional
Conventional

200+ years

Based on current demand, the world has over 200 years of natural gas available.



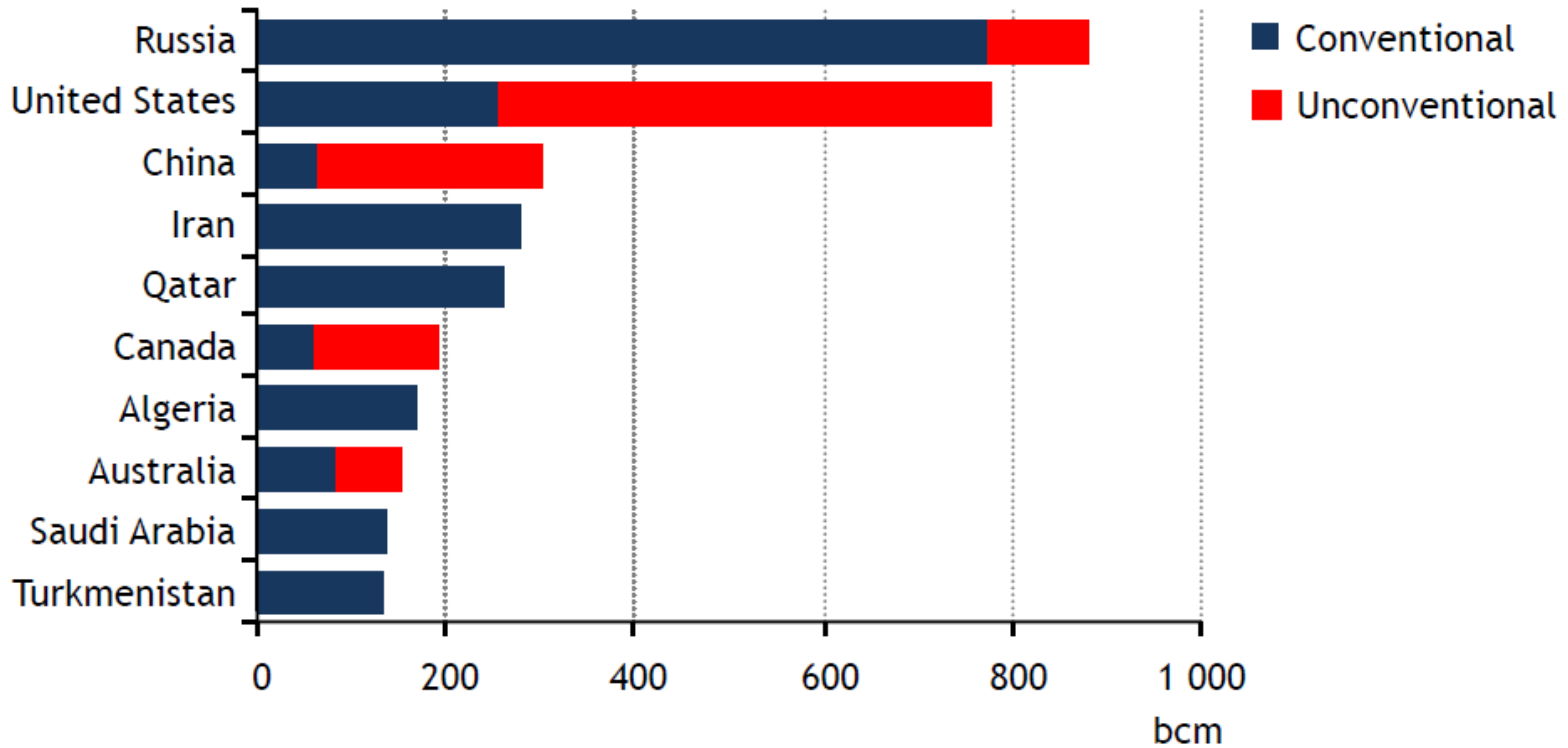
World Natural Gas Prices



**Cost of export from US to Asia/Europe:
Henry hub plus 6 USD/mmbtu**

Natural Gas Production: China to be 3rd largest producer in 2035

Largest gas producers in the GAS Scenario, 2035



Source: IEA WEO 2011

World loves electricity!



Source: ExxonMobil

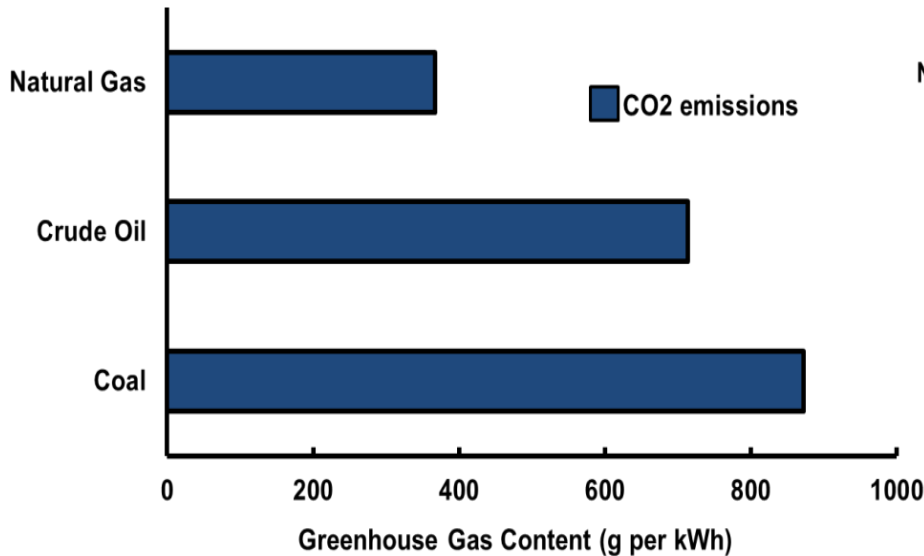
Global increase by 2035 more than 50%

Natural gas in the power sector

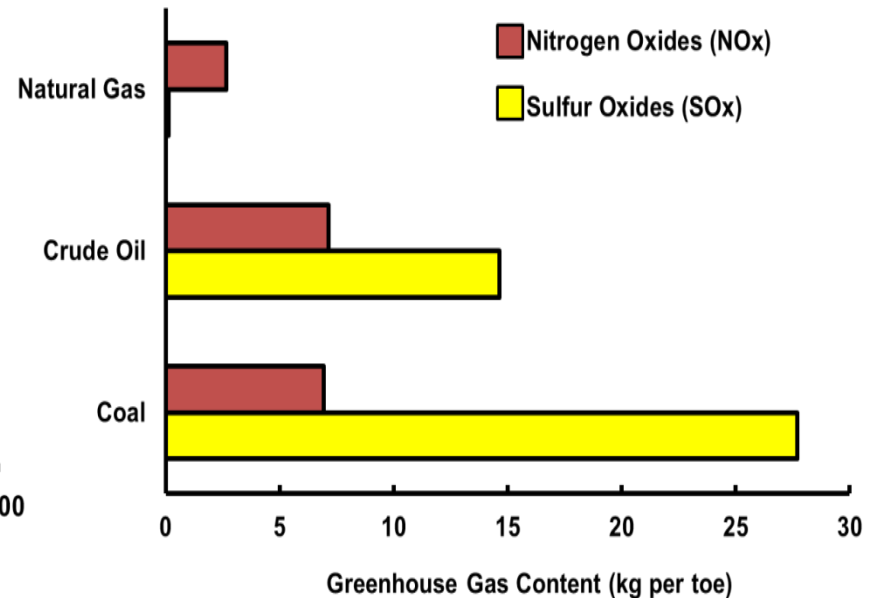
...clean-burning and affordable



Carbon dioxide emitted during electricity generation by fuel



NOx and SOx content by fuel



Natural gas enables renewable energy

Society needs energy 24 hours / 7days

Gas



Wind



Solar



Hydro



Production capacity

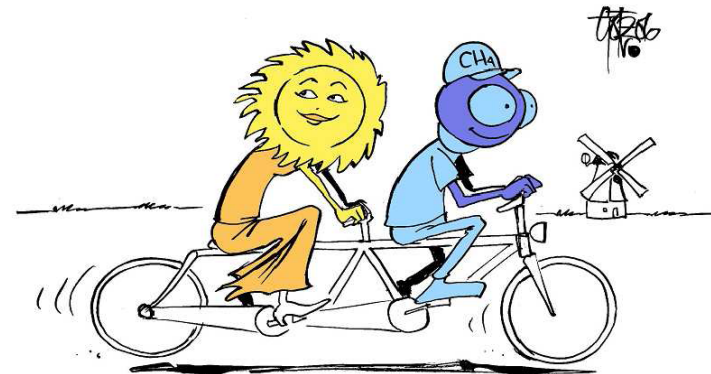
90-100%

30%

10-15%

Drought

Natural gas easy to turn on and off



Natural gas for transportation



Less

- **Particles/soot**
- **Noise**
- **CO₂**
- **NO_x - smog**



Fleets



Maritime

Gas price lower than oil price

Natural gas provides sustainable growth

- **Economic development and job creation**
- **Build on existing energy infrastructure**
- **Gas industry contributes to public finances**



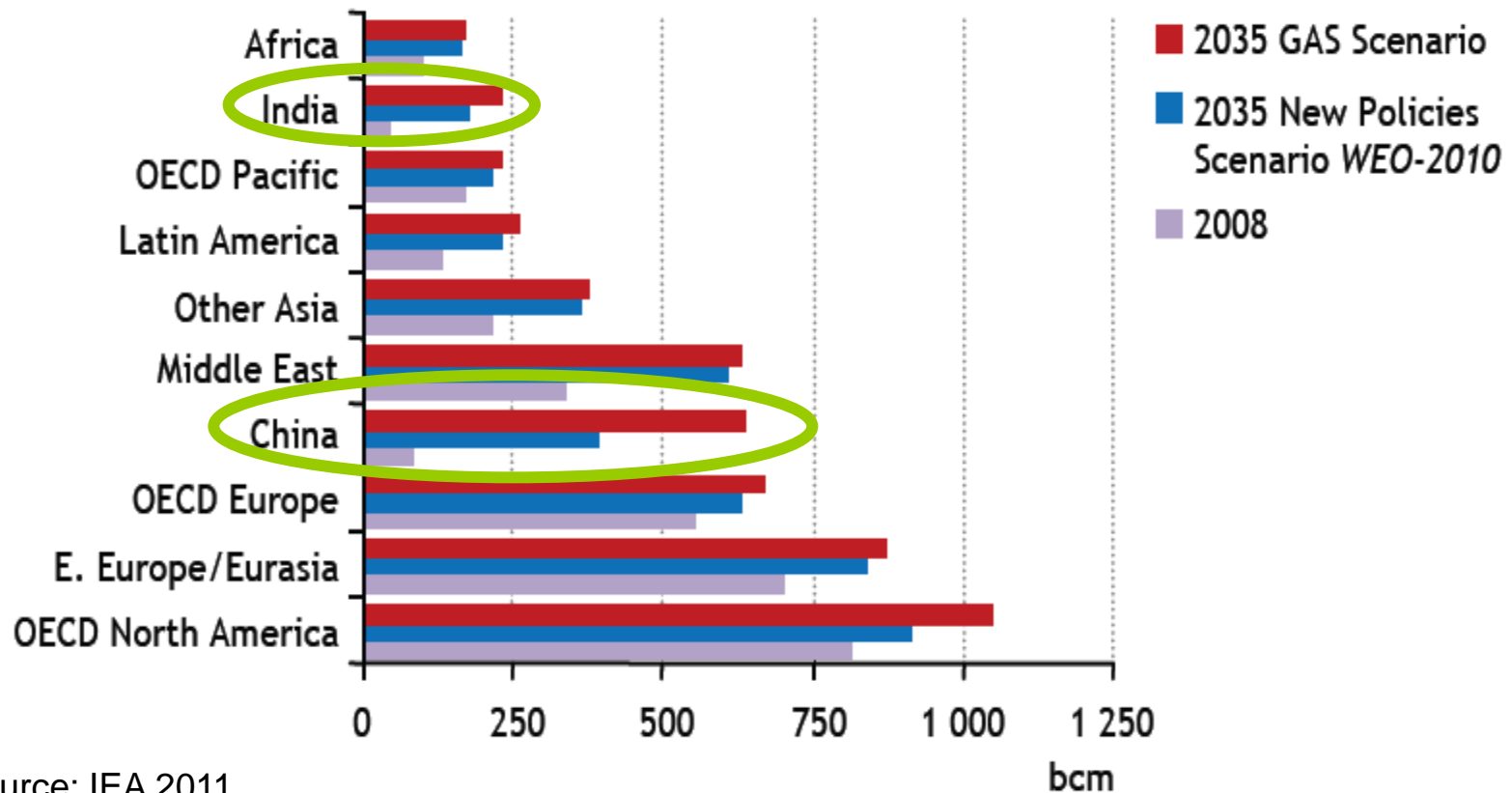
Adaptability of natural gas

- **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



Gas demand by region

Primary natural gas demand by region and scenario



Source: IEA 2011

China's diversified gas supply sources



China 2012:
Production 107 bcm
Consumption 144 bcm

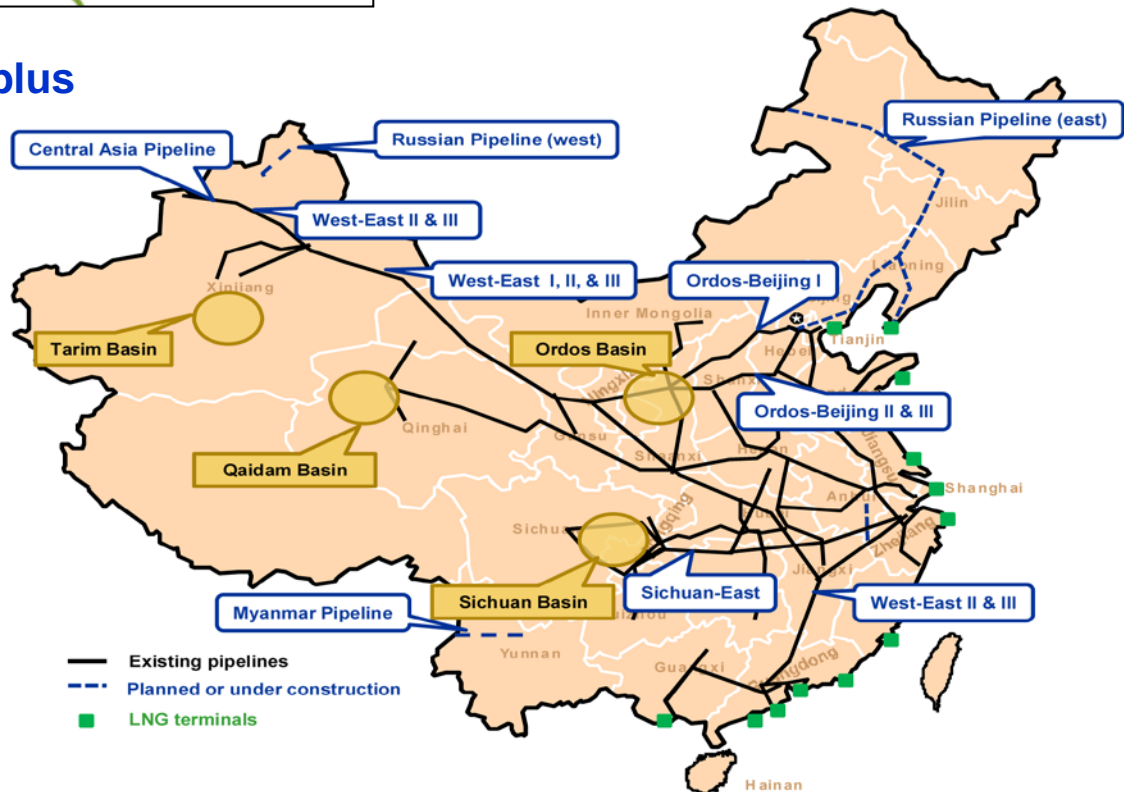
Source: BP Statistics 2013

Turkmenistan supplies 30 bcm/yr plus



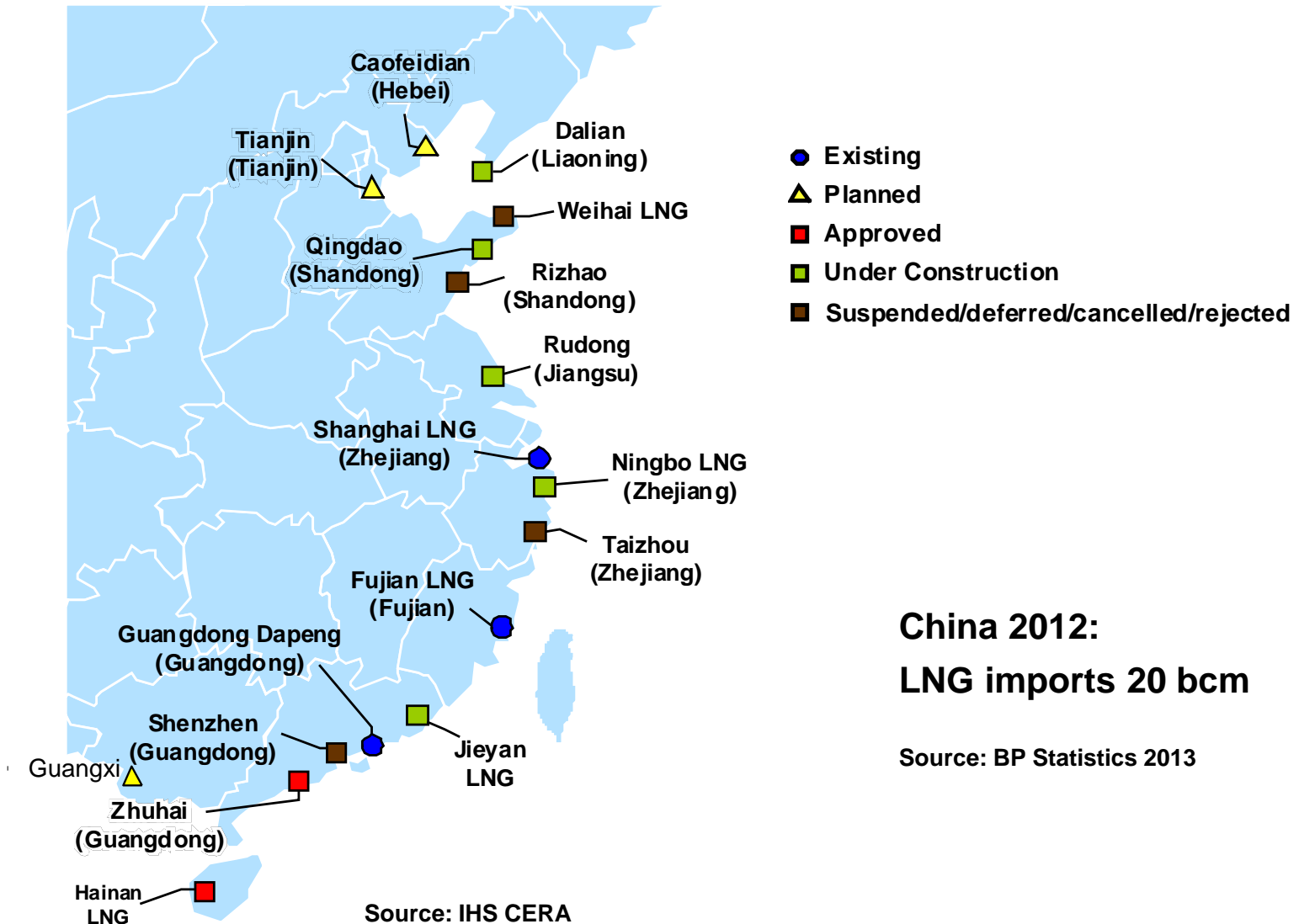
Myanmar supplies 10 bcm/yr plus

Source: SHWE Gas Movement



Source: IHS CERA, various sources.

Imports via LNG Regasification Terminals



**China 2012:
LNG imports 20 bcm**

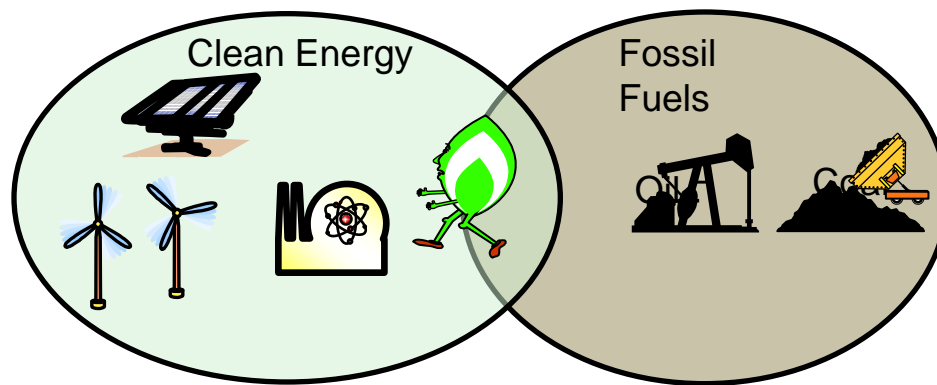
Source: BP Statistics 2013

Creating Trust for Gas

- **Recognition by policymakers**
 - National, EU, G20, UN
- **Dialogue with climate NGOs**
- **Licence to operate**



Image of Gas



GHG Emissions Spectrum



Policy to foster investments in gas pipelines

- Long term perspective – 20-50 years lifetime
- Pipelines need long term supplies and demand
 - Supply security and demand security
- Regulated tariffs must encourage investments
- Risk management: technical, market and political



Financing normally based on long term contracts

The benefits of natural gas are many

- **Affordable and competitive**
- **Available via pipe and LNG**
- **Acceptable environmentally**
- **Adaptable to future technology**



Gas: The fuel of today and tomorrow!

www.IGU.org

Thank you for your attention!

