

“Gas, an energy source for sustainability”

By:

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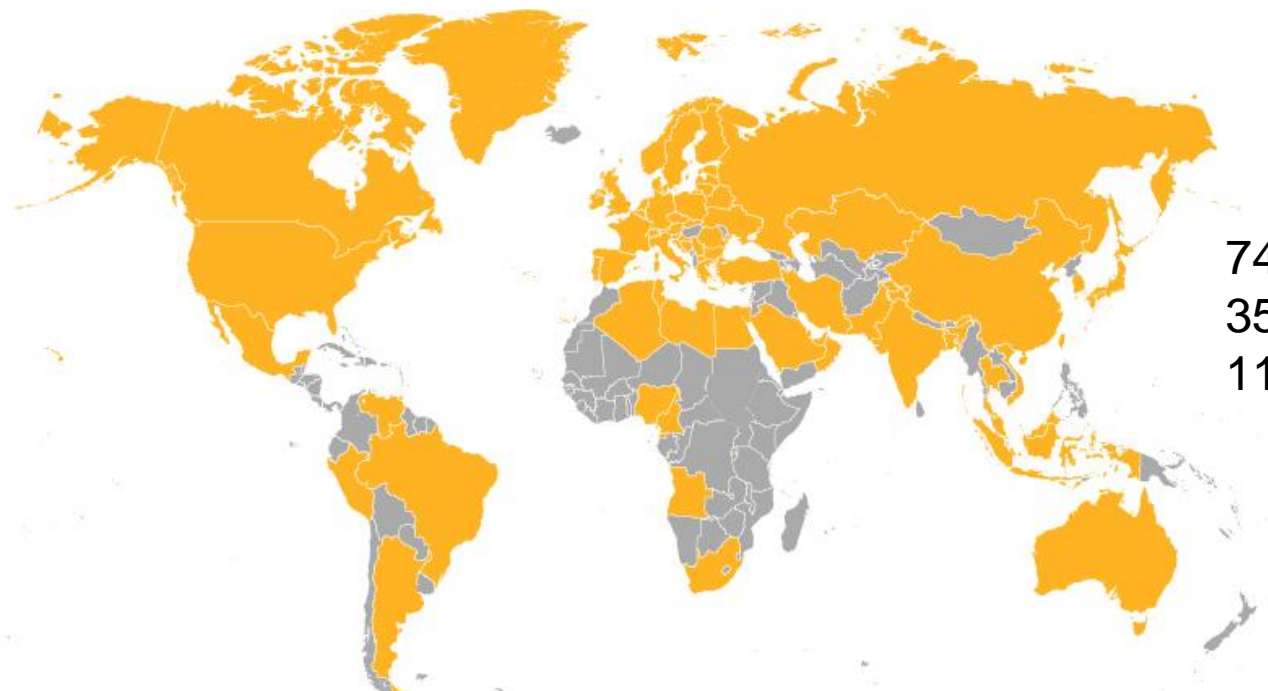
24th May 2011
Madrid, Spain



- Worldwide and non–profit organisation established in 1931
- Promotes technical and economic progress of the gas industry
- Emphasising sound environmental performance worldwide
- 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



74 Charter members
35 Associate members
11 Affiliated members

 IGU Members

As of April 2011



IGU Organisation Chart for the 2009 – 2012 Malaysian Triennium





- Increased demand for energy

versus

- need to address environmental issues & climate change

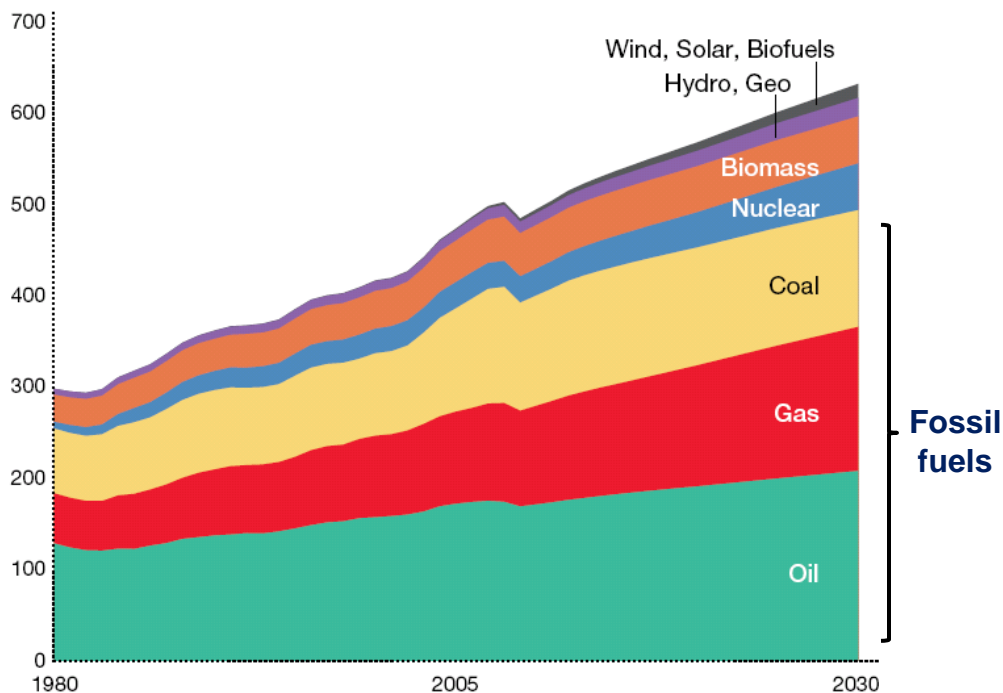


The world will still depend on fossil fuels in decades to come



by energy type

Quadrillion BTUs



CAGR of Fuel Consumption 2010-2030

Liquids	1.3%
Natural Gas	2.0%
Coal	2.1%
Nuclear	1.7%
Other	3.0%

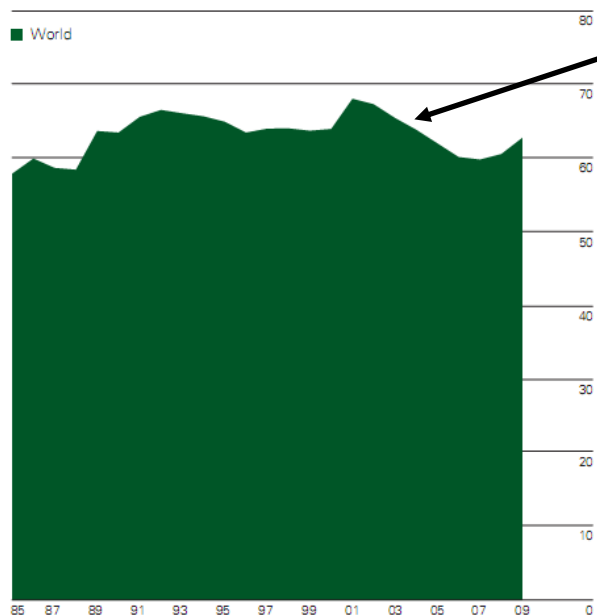
% of natural gas from total energy mix 1990-2030

1990	22%
2005	23%
2010	23%
2030	?

- Gas utilisation is about 1/4. Will it be same in the future?



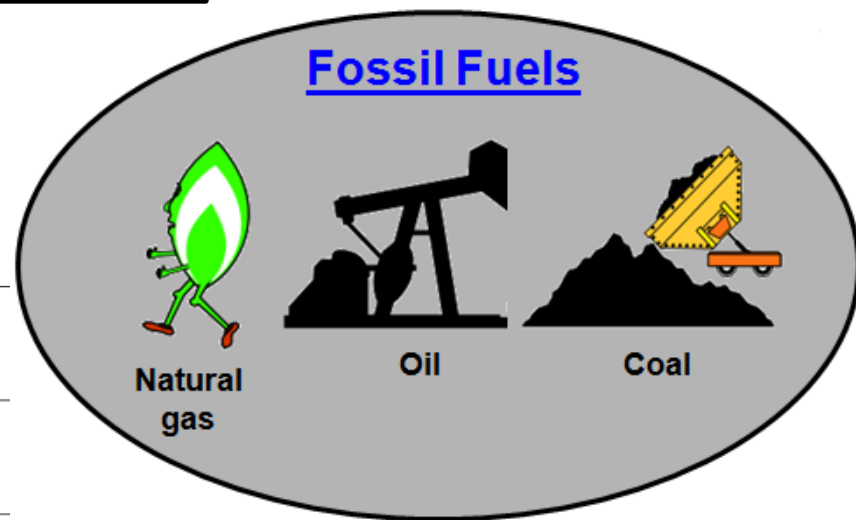
Unfavorable scenarios of gas a few years ago



R/P ratio: > 60 remaining years



3/4 of the world's proven natural gas reserves are within Middle East and Eurasia

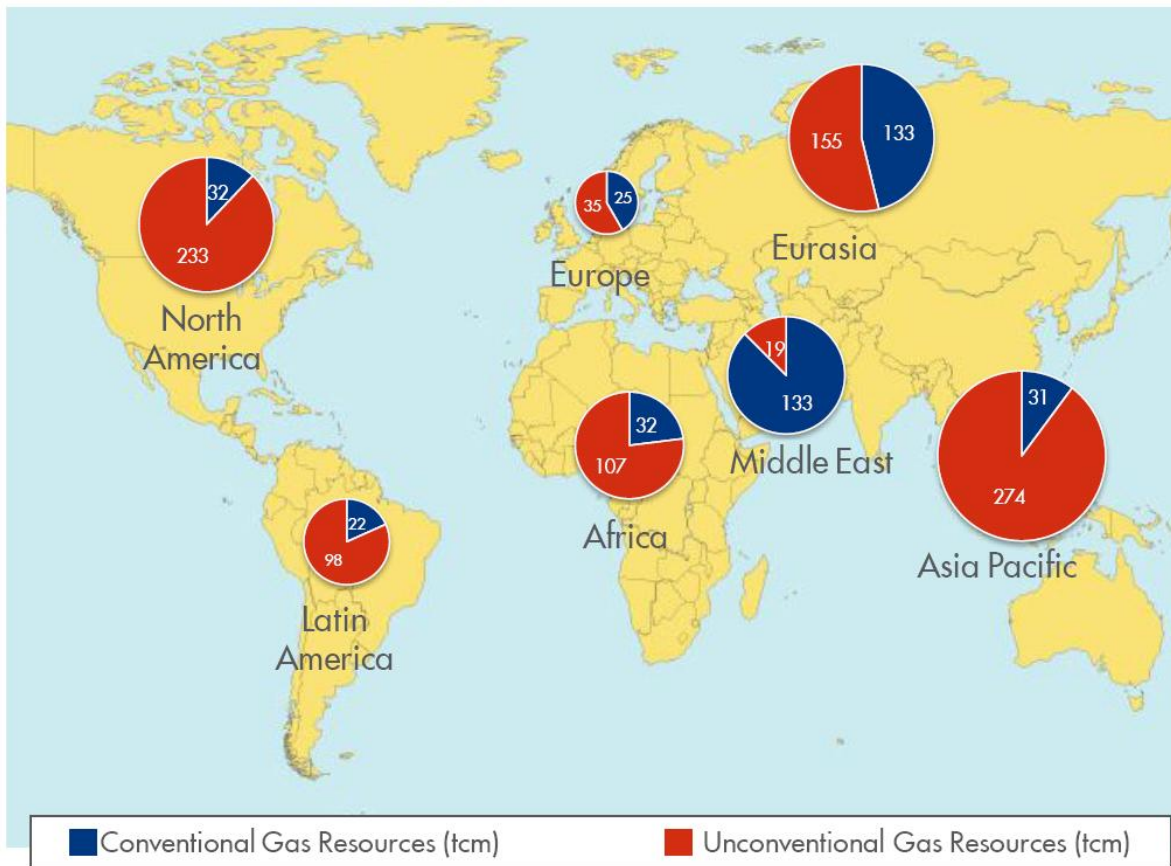


Waning image of natural gas

Reserve-to-production ratio, image



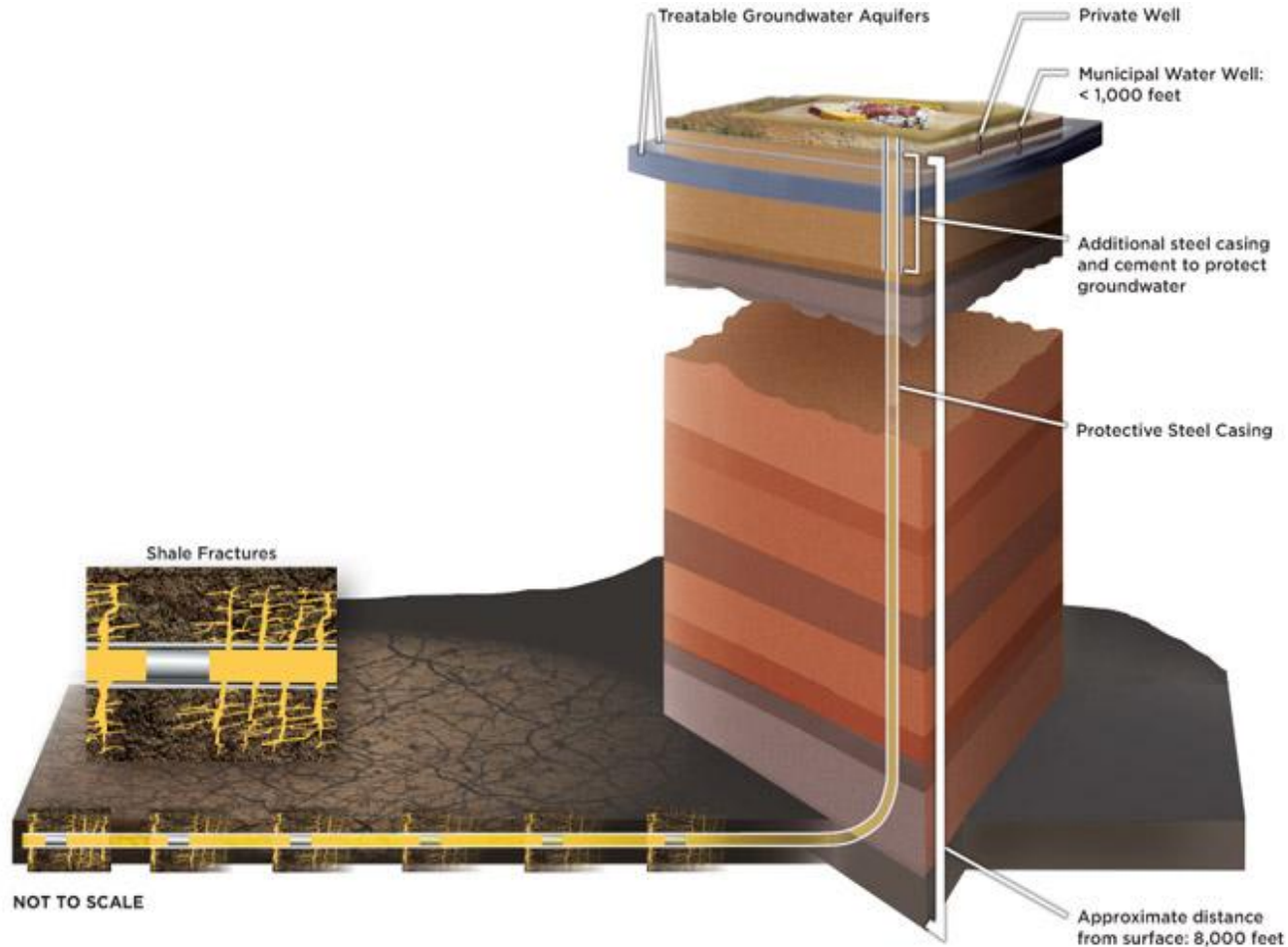
Gas resources are becoming plentiful and geographically diverse



- Availability: 60 years to 250 years
- Abundant global gas reserves



The technological breakthrough for unconventional gas



- Technology – hydraulic fracturing

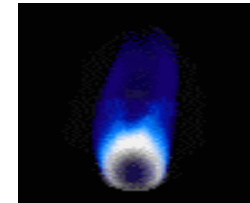


The complexity of today's global energy equation



- The increased relevance of sustainability

- It represents major and key solution to the world's economic and environmental challenges
- It is a “destination” fuel
 - Triple A product: Abundant, Affordable, Acceptable
 - Triple E product: Efficient, Economical, Environmental for power generation
 - It can be an “enabling fuel” to renewables
 - Well-accepted in terms of economics, security, environment and scale



Abundance of shale gas underscores sustainability



REGION	SHALE RESERVES
Asia Pacific	6,155 Tcf
North America	3,842 Tcf
Middle East	2,548 Tcf
South America	2,117 Tcf
Asia	627 Tcf
Europe	549 Tcf
Africa	274 Tcf
WORLDWIDE	16,112 Tcf

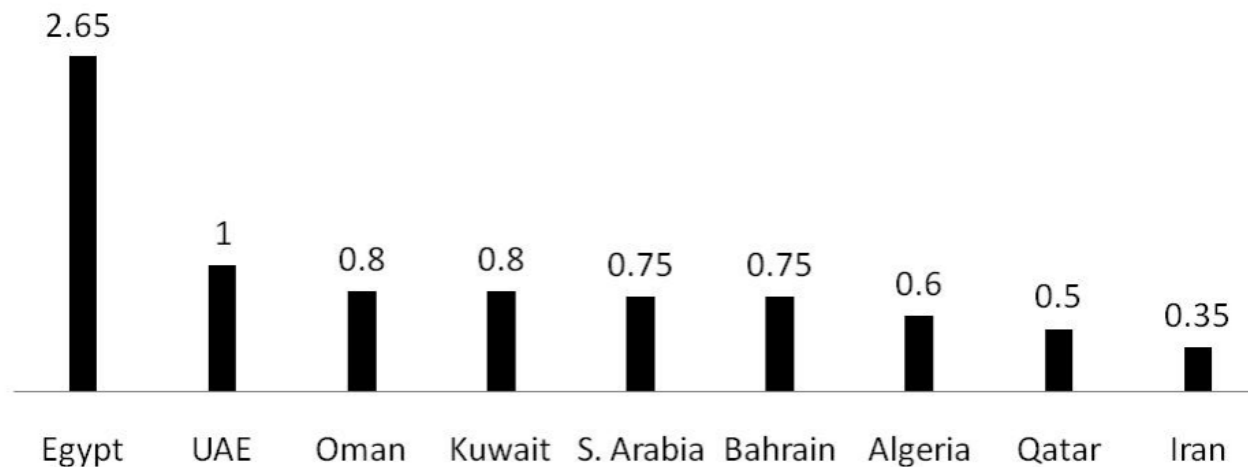
Some of conceivable impacts may include:-

- It will alter the energy mix globally
- It will increase the role of gas compared to other fuels
- It will lead to price convergence



Gas Pricing in MENA

Industry feedstock gas prices in selected MENA countries
(\$/MMBtu)



Source: IEA and national sources

- MENA gas demand is rising and gas shortages are likely



Applications of technology and innovation to drive gas for sustainability



Fuel for
Gas District Cooling



Fuel for
Residential



Fuel for
Commercial



Fuel for
Automotive



Fuel for
Industry



Fuel for
Power Generation

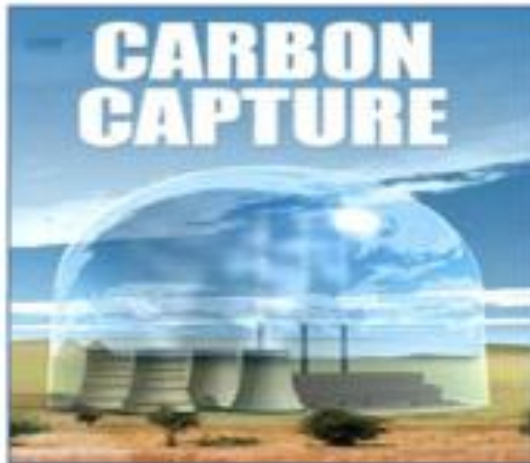


Fuel for
Petrochemical Feedstock

- Increasingly applied in energy utilisations



- Make gas green!
 - from biogas, synthetic natural gas (SNG) & landfill gas



- Carbon Capture & Storage (CCS)
- Fuel cells



Sustainability is attainable given that commitment from all



Stakeholder	Interests	Contributions
Governments	Energy security Increased supply Reduced carbon	Stable funding Sound fiscal & regulatory framework
Businesses	Make profits Business relationship Collaboration	Supply goods and services Active agent of change and progress Knowledge sharing
Buyers	Energy option Reasonable price Secured investment	Business trust Loyalty
Universities Research institutions	R&D funding Solving problems Detailed studies	New insights & ideas R&D expertise

- No single part of society can achieve sustainability by acting alone!



- To intensify advocacy for rebranding gas
- To promote gas in eradicating energy poverty



Natural gas CARES for the world

C *Clean*

A *Affordable*

R *Reliable*

E *Efficient*

S *Secure*

Natural gas is clean.

Natural gas produces less nitrogen oxide than coal, and more than 50% less CO₂. Gas produces no sulphur and no solid waste.

Natural gas is the affordable choice.

Modern gas-fired plants have a capital cost that is half that of coal, one-third the cost of nuclear and one-fifth the cost of onshore wind.

Natural gas is available now.

Gas is readily available from a variety of sources, both pipeline and LNG. The environmental benefits of gas can be realised immediately.

Natural gas is efficient.

Modern gas-fired power plants are 40% more efficient than coal plants.

Natural gas is abundant.

Global production will increase over the next 20 years, with growing supplies from conventional, unconventional, frontier and LNG resources.

Natural gas promotes sustainable transport.

Natural gas vehicles can improve air quality and energy efficiency in large cities.

Natural gas does not require subsidies.

Unlike renewable technologies which must be heavily subsidized by governments, natural gas use allows countries to affordably reduce their emissions.

Natural gas is versatile.

Gas can serve as a flexible partner in power generation for intermittent energy sources like wind and solar, facilitating the phase-in of renewables.

Natural gas saves time.

Gas-fired plants require less construction time than nuclear or coal plants.

Natural gas is safe.

The natural gas sector has the best safety record in the industry.

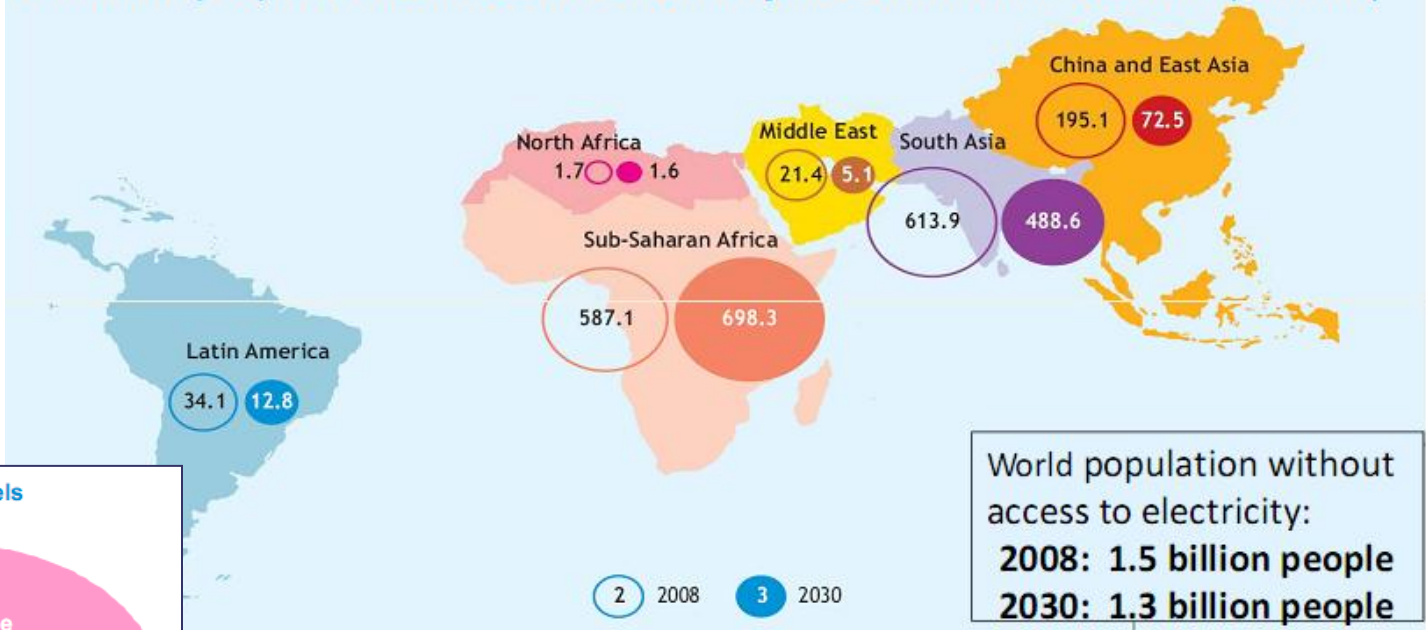
- It is a clean, affordable, reliable, efficient, and secure energy source.



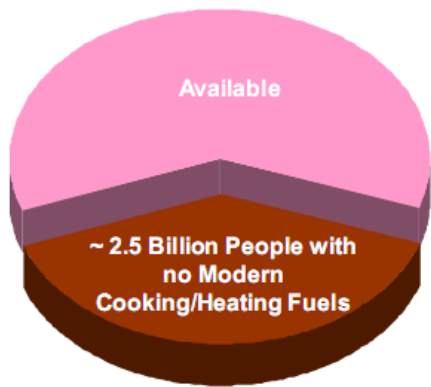
The unforgettable energy-deprived countries across the globe



Number of people without access to electricity, IAEA Reference Scenario (millions)



Modern Cooking/Heating Fuels



By 2030, about 1.3 billion people do not have access to electricity despite more widespread prosperity and more advanced technology

■ Role of gas in overcoming energy poverty



- It is abundant, affordable and acceptable
- Clean, efficient, versatile and environmental friendly fuel
- Continue to play a substantial role in global energy demand
- Basis for a sustainable economic growth



Natural gas
– major part of the long term energy solution



The 25th World Gas Conference (25th WGC)



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

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

www.wgc2012.com/, www.igu.org/



THANK YOU FOR YOUR KIND ATTENTION !



BACK-UP SLIDES



What differs gas among other fuels?



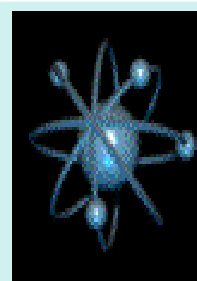
Coal



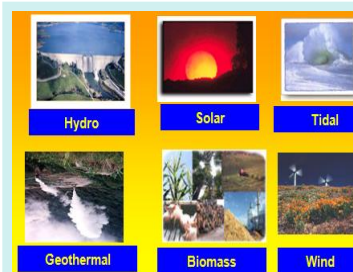
Oil



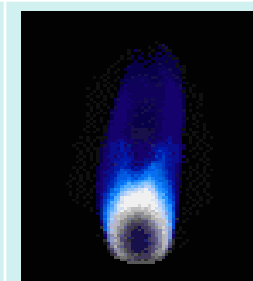
Ethanol



Nuclear



Renewables



Natural gas

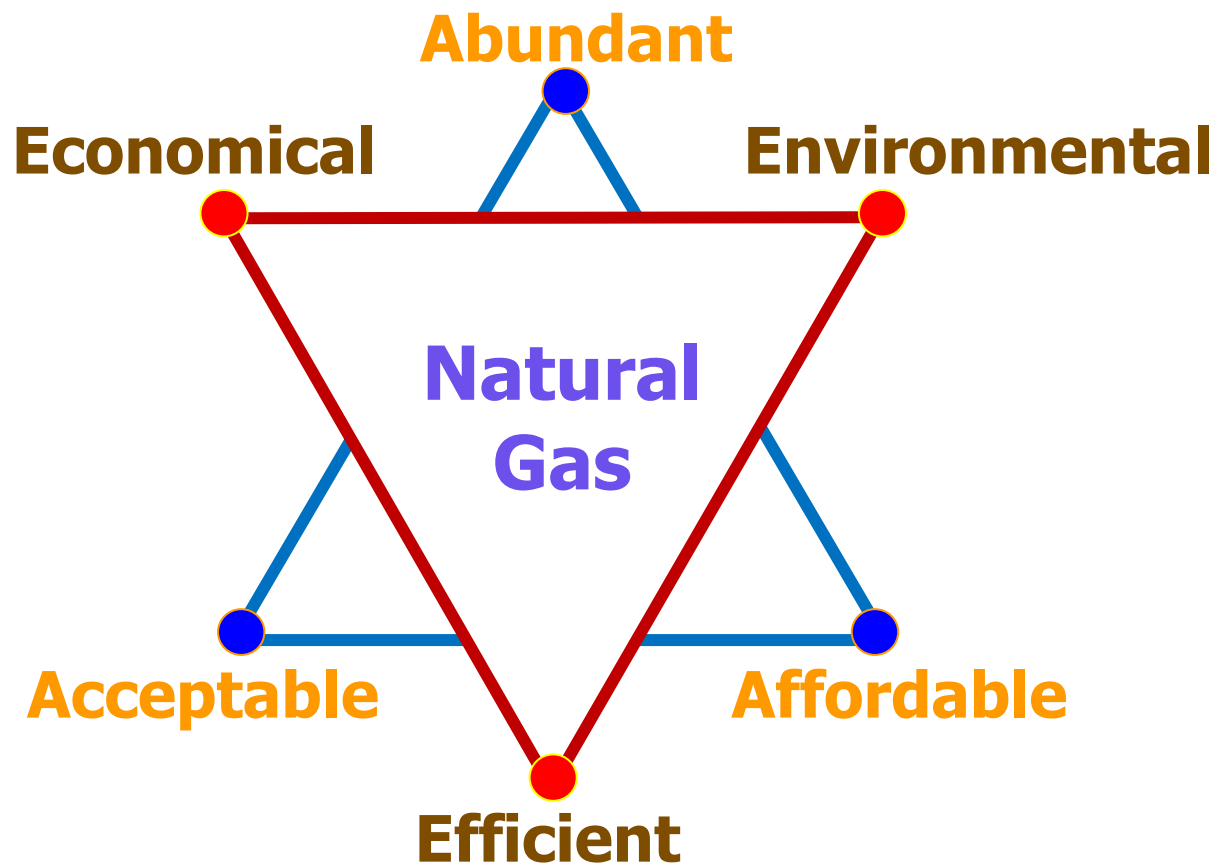
	Coal	Oil	Ethanol	Nuclear	Renewables	Natural gas
Economics	YES	YES	?	?	?	YES
Security	YES	?	YES	YES	YES	YES
Environment	?	?	?	?	YES	YES
Scale	YES	YES	YES	YES	?	YES

- Coal increases energy security but brings harmful impacts to environment
- Renewables have environmental appeal but doubtful on economics and scalability
- Ethanol poses potential threats on global food prices and a carbon footprint
- Nuclear offers greater supply security but carries serious public opposition

➤ **Gas is likely to be the “winner” fuel!**



Why gas is the fuel of choice?



- Triple A's slogan
- Triple E's slogan

