

Trends on Gas Industrial Utilization

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Date: 05-06-2012

Venue: WOC 5.1



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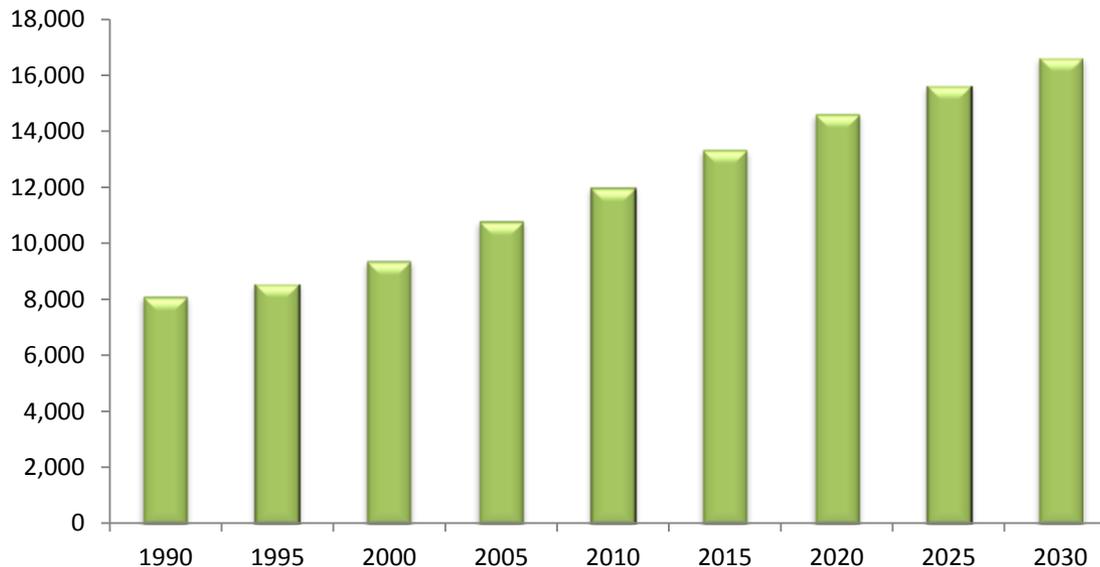


- **Background**
- Methods
- Results
- Recommendations

- **Population continues to be the main drivers of energy demand.** In the last 20 years world population increased about 1.6 billion people, yet the trend rate of growth is falling.
- Overall GDP growth tends to accelerate, driven by economies of low and medium-sized. **Energy efficiency**, as energy per unit of GDP **will continue to improve globally.**

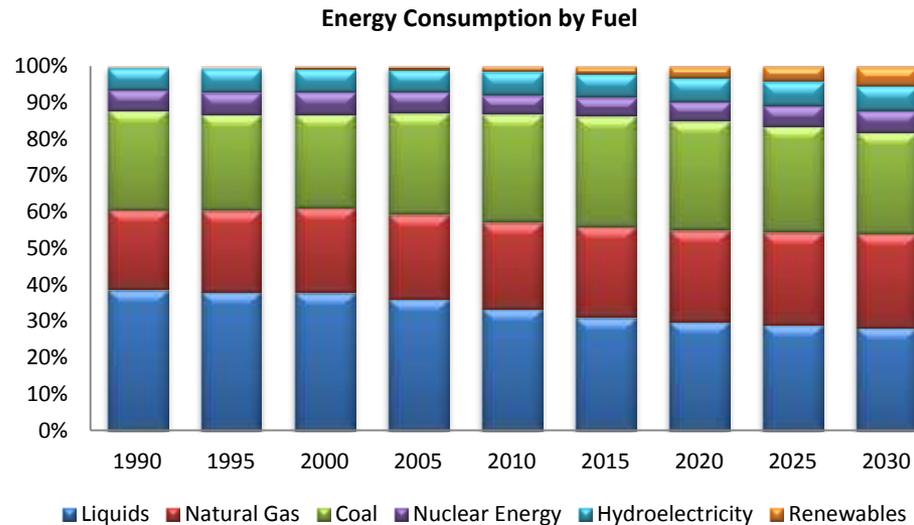
- **Global consumption of primary energy is expected to grow about 1.6% per year over the period 2010 to 2030, corresponding to 39% increase in 2030.**

Total Energy Consumption
(Million tonnes oil equivalent)

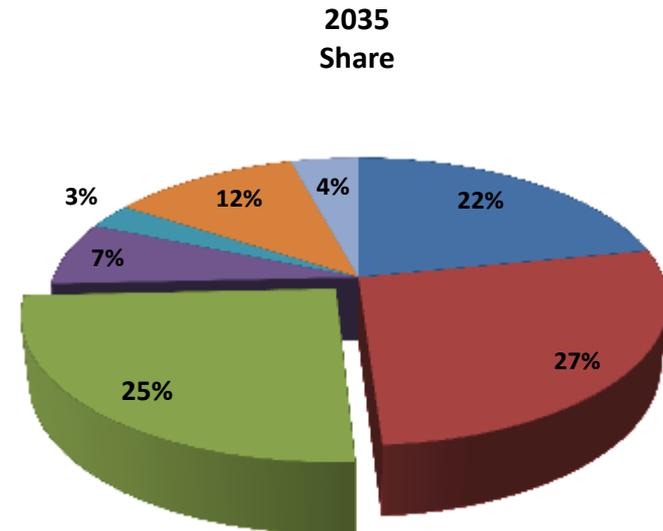
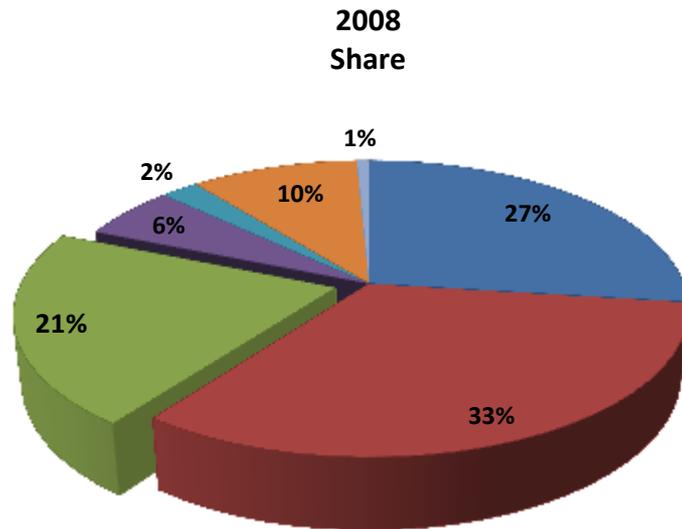


Background

- Consumption by fuel type changes slowly, **and gaseous fuels and non-fossil fuels will gain share** at the expense of coal and oil (BP).
- The fastest growth will be renewable fuels (including biofuels) being expected **a grow of about 8.2% per year between 2010-30.**
- In fossil fuels **natural gas has the greatest growth of about 2.1% per year.**



- In the report "World Energy Outlook 2011 (IEA, 2011)" forecasts of growth in consumption of natural gas are even more favorable, specifically in the "The Golden Age of Gas Scenario".



■ Coal ■ Oil ■ Gas ■ Nuclear ■ Hydro ■ Biomass ■ Other renewal

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- The relatively **recent shift towards use of natural gas for the generation of electricity** has resulted in an anomaly in this traditional cyclical behavior.
- While **requirements for natural gas heating decrease** during the summer months, **demand for space cooling increases** during this warmer season (naturalgas.org).

- There are three primary drivers that determine the demand for natural gas in the short term (naturalgas.org):
 - **Weather** - as mentioned, natural gas demand typically peaks during the coldest months and tapers off during the warmest months, with a slight increase during the summer to meet the demands of electric generators.
 - **Fuel Switching** - While most residential and commercial customers rely solely on natural gas to meet many of their energy requirements, some industrial and electric generation consumers have the capacity to switch between fuels.
 - **Economy** - The state of the economy in general can have a considerable effect on the demand for natural gas in the short term, particularly for industrial consumers, and vice versa.

- **Higher demand tends to lead to higher prices, while lower demand can lead to lower prices (Invisible Hand, Alan Smith).**
- **Factors on the demand side include** (Energy Information Administration, US):
 - Strong Economic Growth
 - Winter Weather
 - Oil Prices Can Influence Natural Gas Demand
- Because of this interrelation between fuel markets, **when oil prices fall**, the shift in demand from natural gas to oil **pulls gas prices downward**.
- **When oil prices rise** relative to natural gas prices, there may be switching from oil to natural gas, **pushing gas prices upward**.

- **The demand for natural gas is determined by a number of factors (IEA, 2011):**
 - Economic Activity
 - Competitiveness
 - Environment
 - Technology
 - Access to supply
 - Government policies

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- **There are many reasons for the long term expected increase in natural gas demand.**
- **As can be seen, demand for all types of energy, except nuclear and hydro power, is expected to increase over the next 20 years.**
- **This general upswing can be attributed to the expected general growth of the economy and population, (naturalgas.org).**
- **Power-generation and transport stand out as the sectors with the greatest impact on future demand for natural gas.**
- **Power-generation due to their tendency to use natural gas, and transport by the high market potential.**

- **Industry is leading the growth in final energy consumption**, especially in rapidly developing economies. In 2030 the sector represents 60% of the expected (Energy Outlook 2030 "BP 2012).
- **Industry gas competes with coal, petroleum products, electricity and renewable.**
- **Price is a critical factor** in the choice for a fuel in industry.
- **Other considerations are also important:**
 - safety, efficiency, resource availability, environmental issues. In general, the gas can answer all these questions, being easy to handle, efficient, low environmental impact, **bla bla bla ...**

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Recommendations

- **Gas industry should cooperate together on the technological improvement of the use of gas.**
- **Gas industry should really rely on the fact that gas is one of the client possible energy utilisation choices, working to be the most price efficient.**
- **Gas Industry should face renewables as an opportunity to the widest use of gas, and not a treat.**
- **Gas Industry should face the tendency for the electrification of energy use, and promote gas as major source for power.**

**I believe on Natural Gas,
do you?**

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