

Third Latin America and the Caribbean Gas and Electricity Congress

Santa Cruz de la Sierra, Bolivia

22-24 April 2002

Developing Natural Gas Markets: A Global Overview and the Role of Governments

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International Energy Agency



International Energy Agency

- autonomous agency linked with the OECD
- inter-governmental organisation
- created in 1974, based in Paris
- is the energy forum of 26 Member countries:
 - in the Western Hemisphere: US & Canada
 - in Europe: 20 countries, incl. Czech Rep., Hungary & Turkey
 - in Asia-Pacific: Australia, Japan, Korea, & New Zealand

IEA Member countries are committed to:

- taking joint measures to cope with oil supply disruptions, incl. keeping emergency stocks
- improving energy security by promoting alternative energy sources, and increasing the efficiency and flexibility of the energy system
- co-ordinating their energy policies and sharing energy information

They also endeavor to:

- assist in the coordination of environmental and energy policies
- promote dialogue and cooperation with non-Member countries, industry and other international organisations.

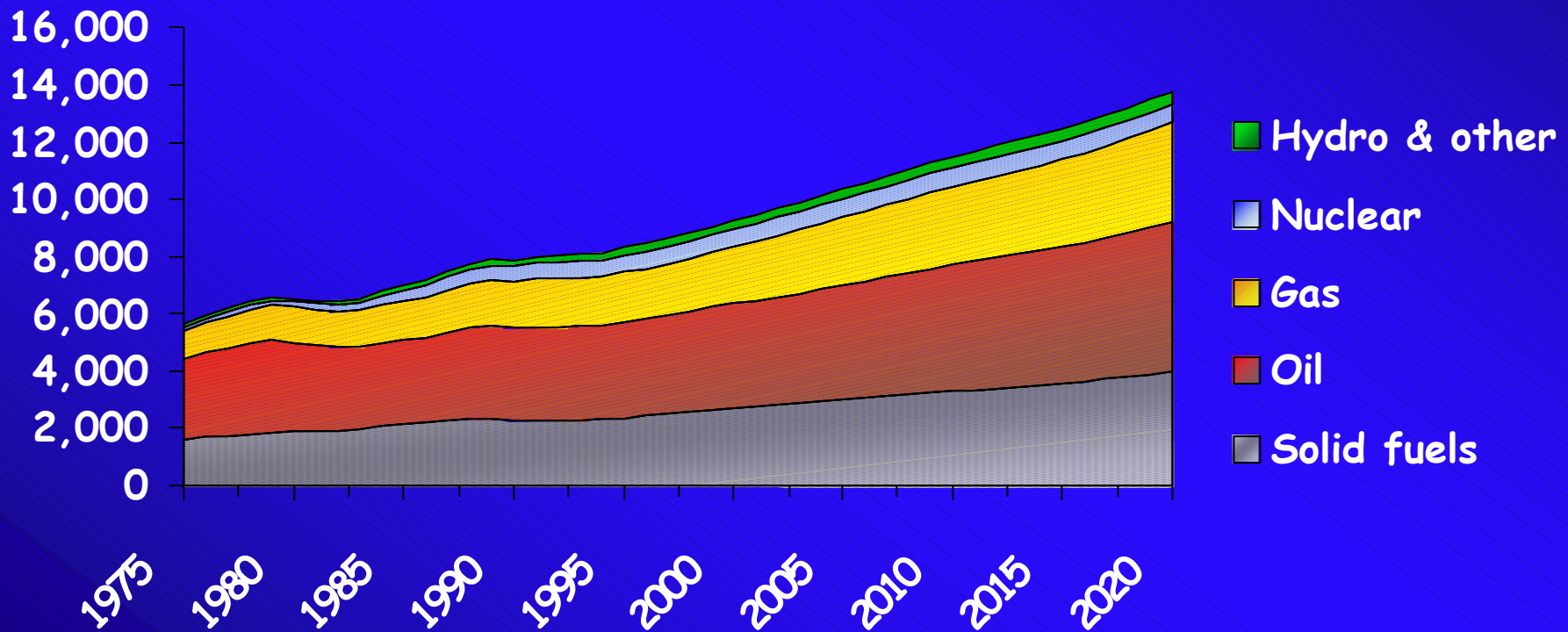
Outline

- The world energy outlook to 2020
- Natural gas supply and demand
- Key factors influencing investments in natural gas projects
- The role of governments

The world energy outlook to 2020

A fossil fuel future

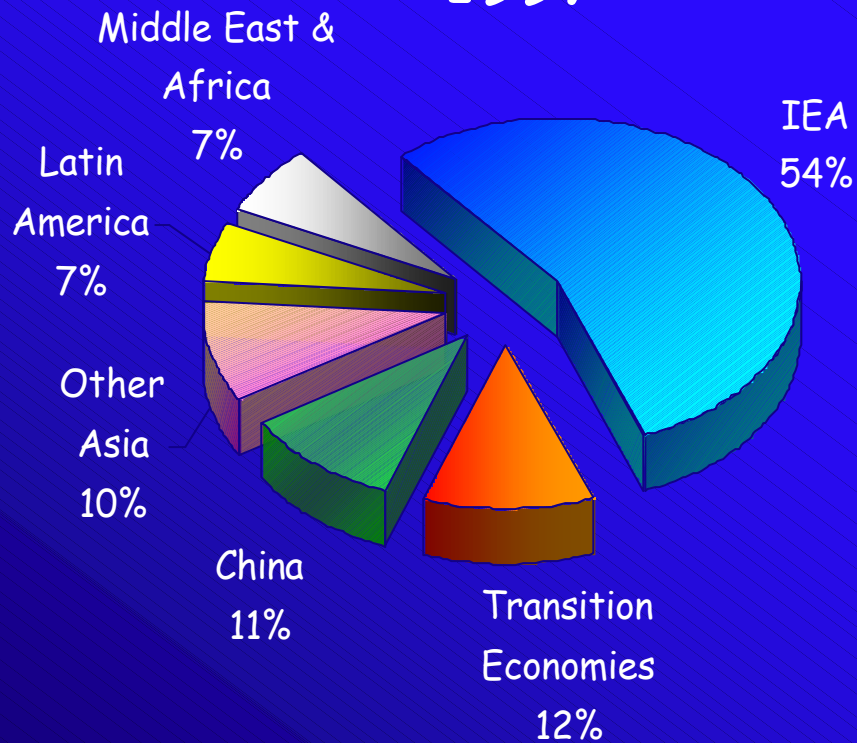
World Primary Energy Demand (Mtoe)



The world energy outlook to 2020

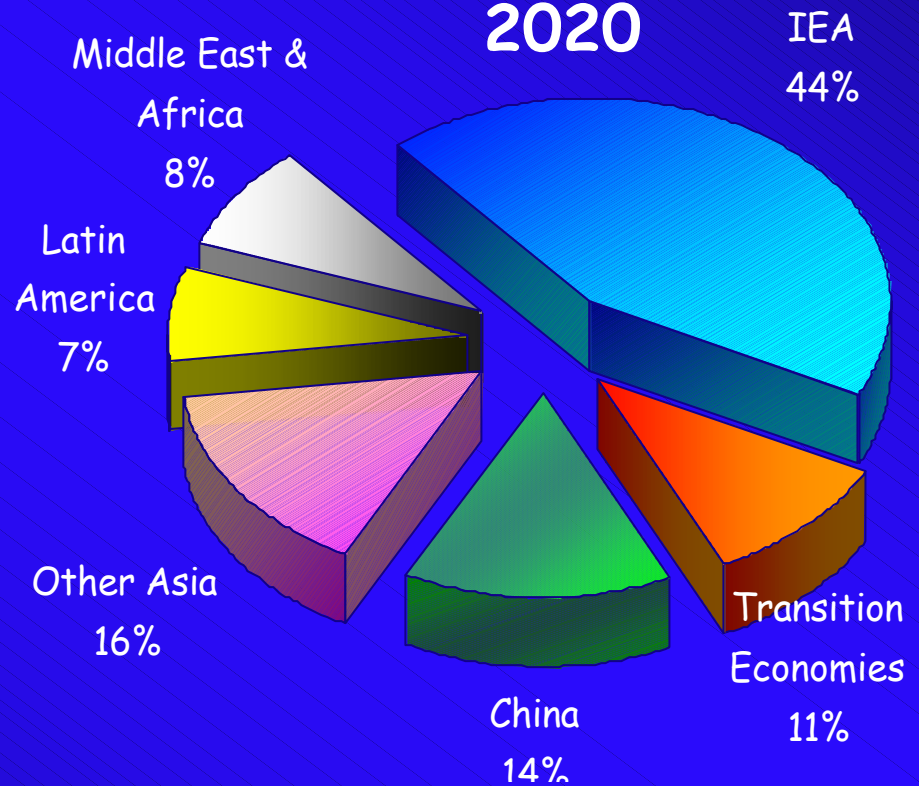
Non-IEA countries have an increasing role in demand and supply

1997



8610 Mtoe

2020

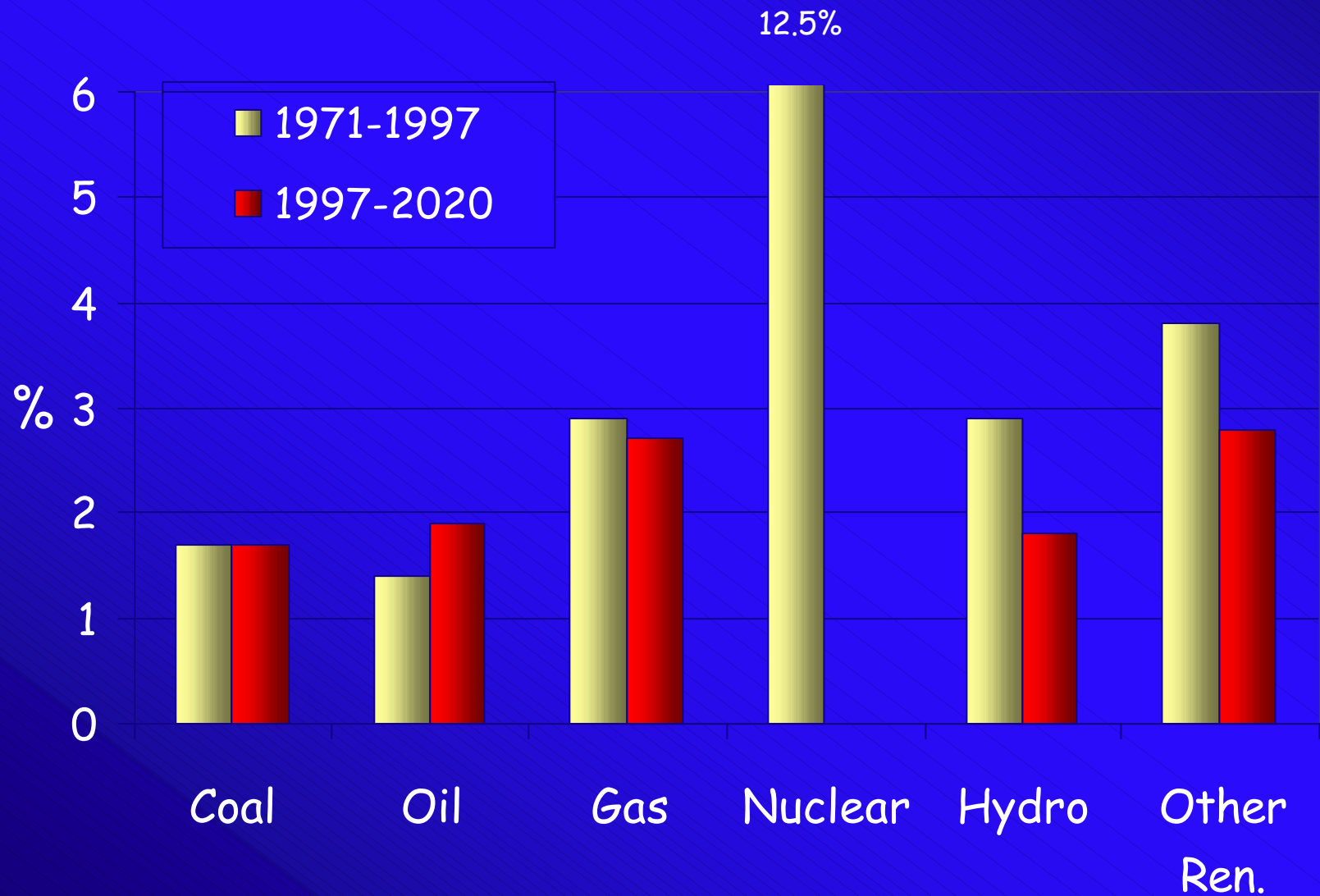


13529 Mtoe



The world energy outlook to 2020

Gas is the fastest growing fuel



The world energy outlook to 2020

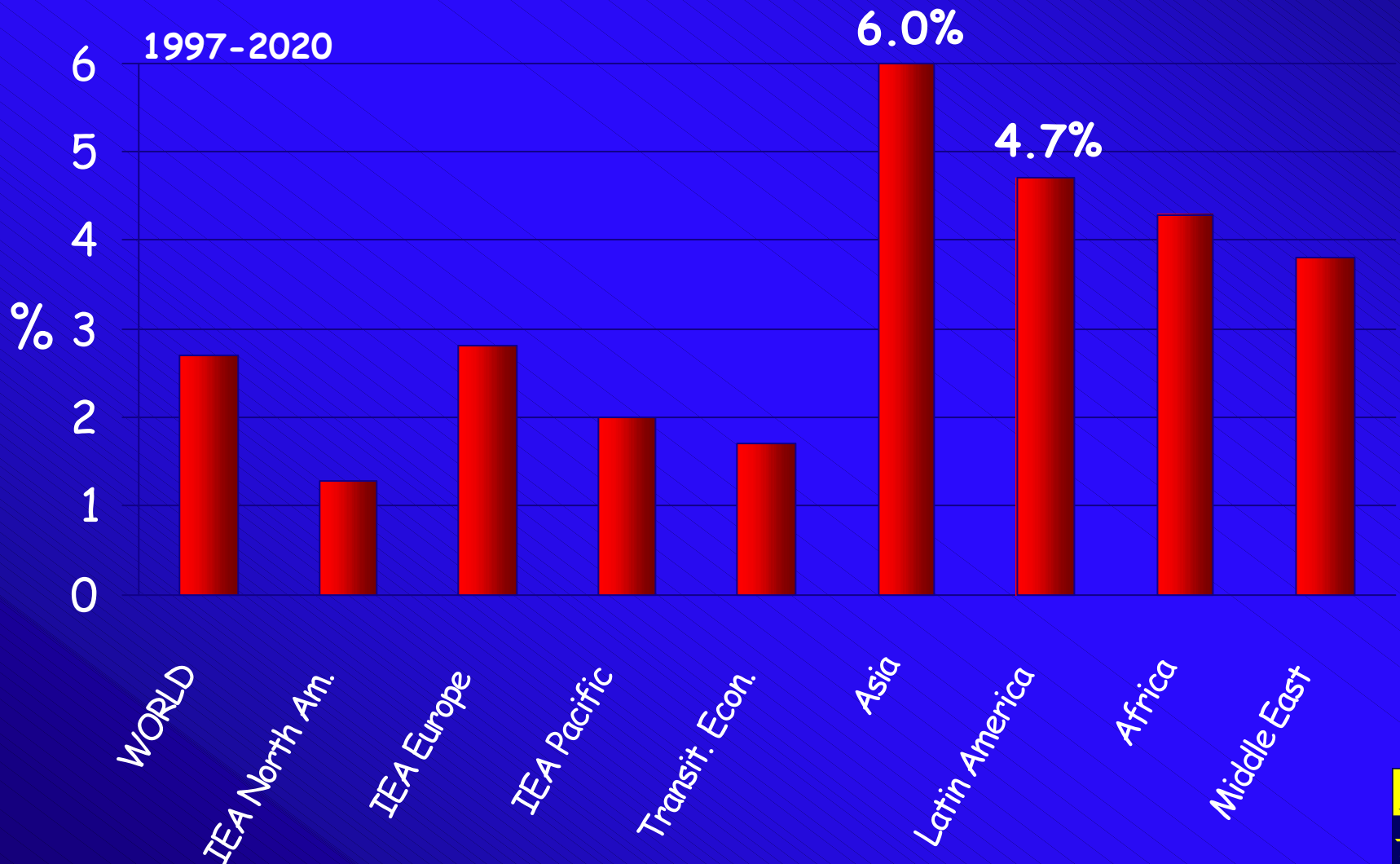
- Energy trade is growing faster than energy consumption
- Growing import dependence
 - especially Europe, Japan, but also non-IEA regions
- Oil: increasing concentration of production
 - in countries with large, low cost reserves
- Gas: lengthening of supply chains
 - as closer resources get depleted

World gas supply and demand

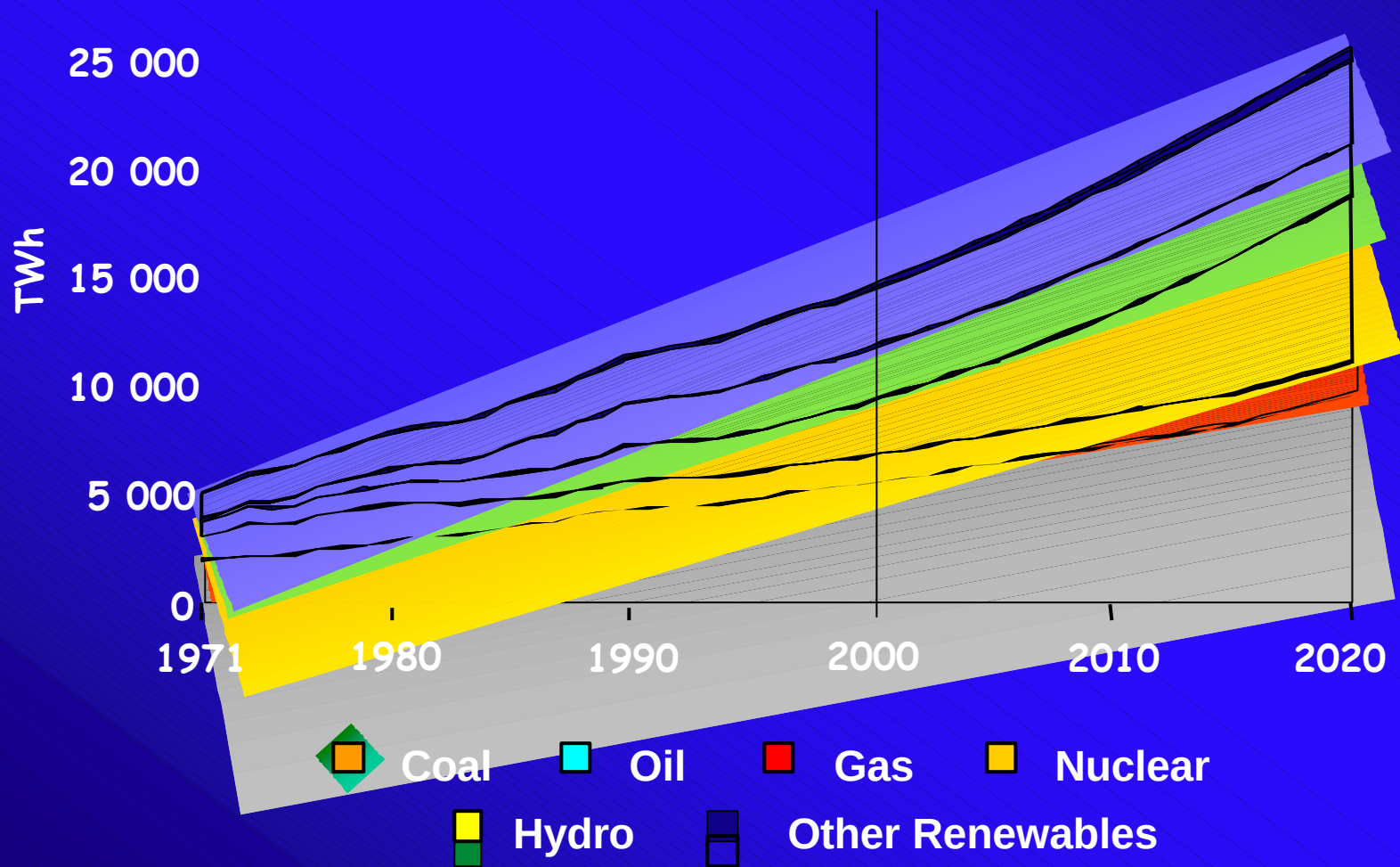
- soaring natural gas demand
- driven largely by the power sector
- abundant resources
 - though concentration is high
- increasing natural gas trade and interconnections
- longer gas chains
 - higher transportation costs
- massive investments needed

Soaring natural gas demand

Growing fastest in Asia and Latin America

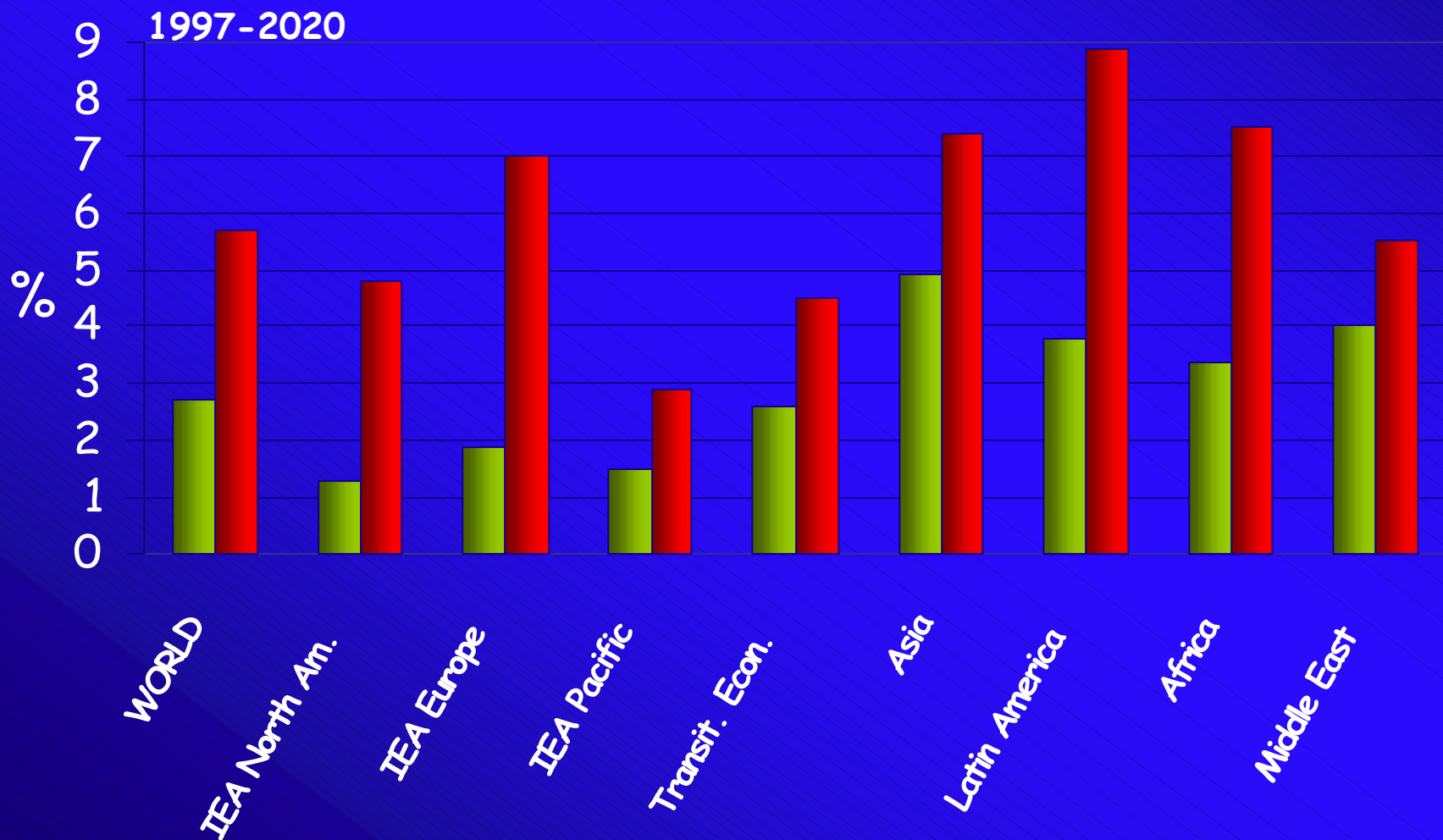


The main driver is the power generation sector

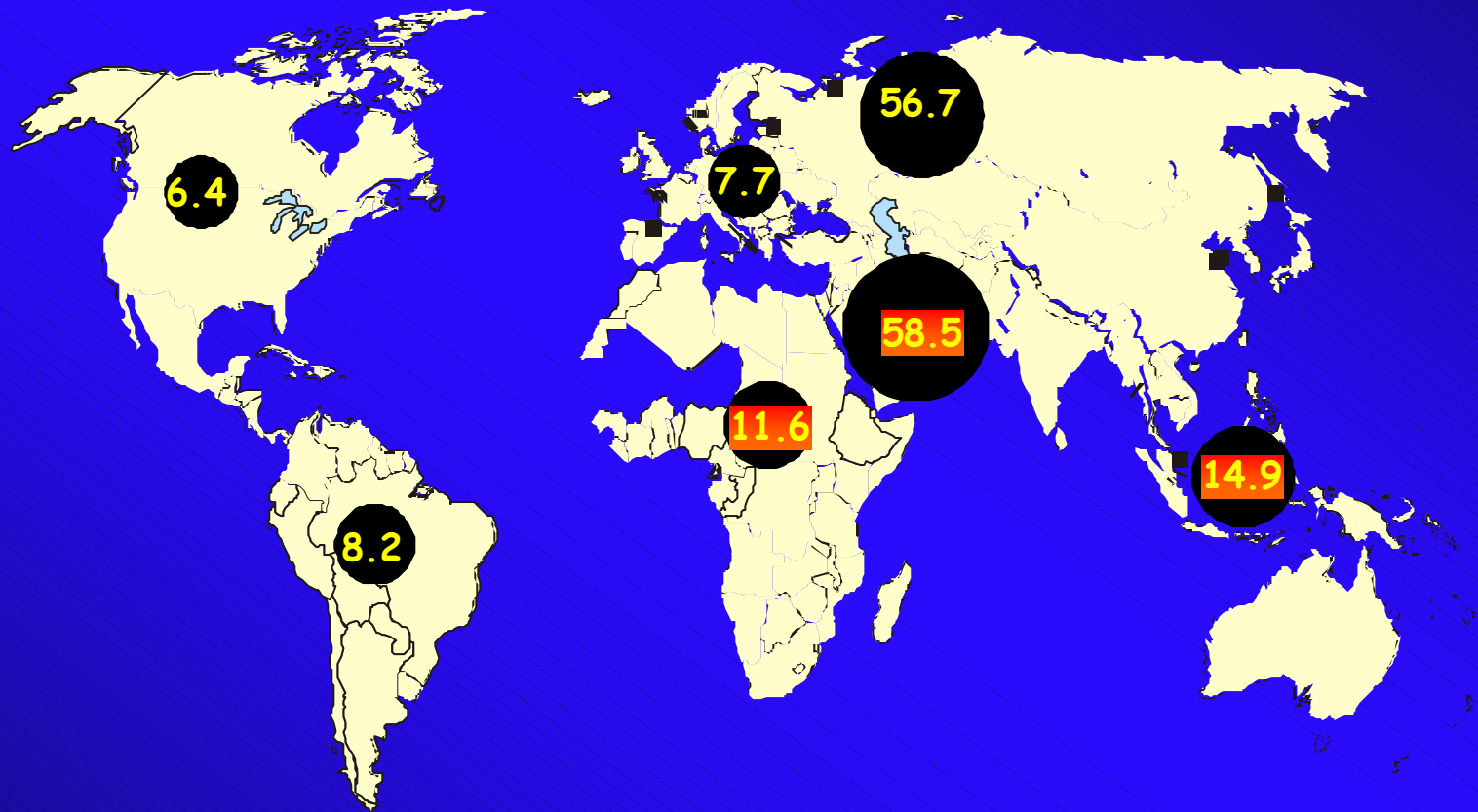


Natural gas in power generation

Rising everywhere,
but particularly in Latin America

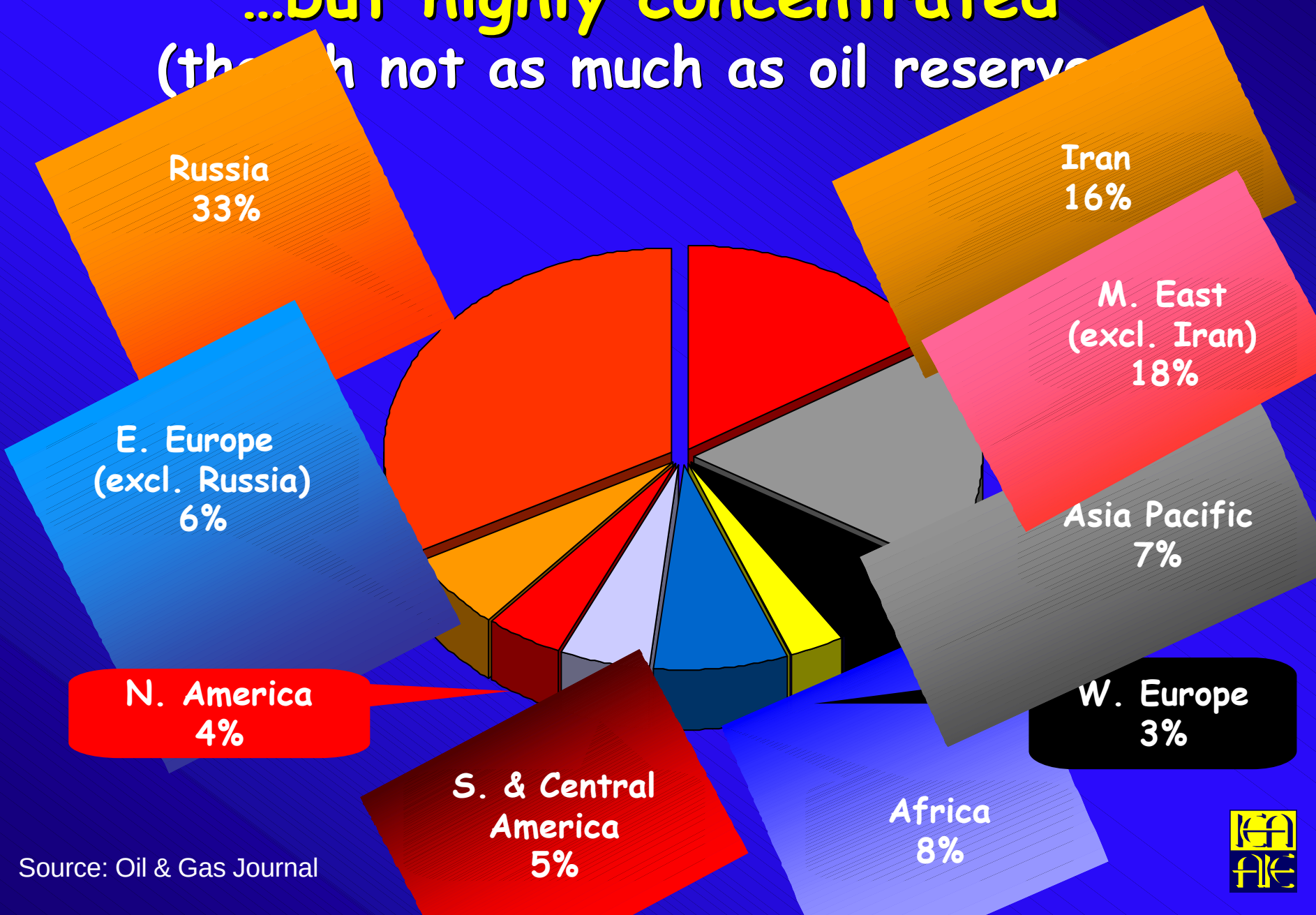


World gas reserves are abundant

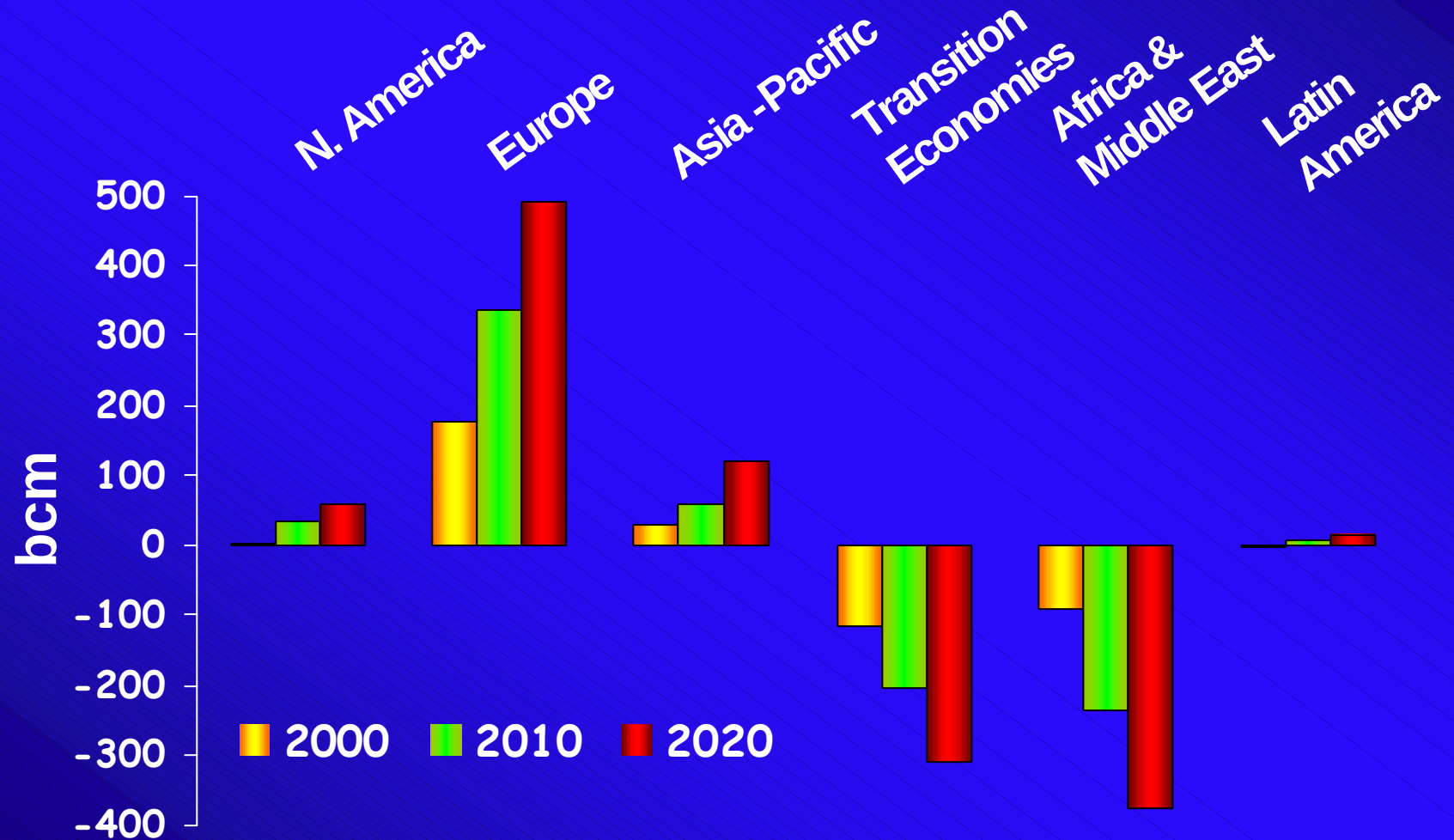


World total: 164 tcm at 1 January 2001

...but highly concentrated
(though not as much as oil reserves)



Growing gas trade and interdependence



WORLD NATURAL GAS IN 1999

BILLION STANDARD CUBIC METRES



MARKETED PRODUCTION 1999

World total 2,397 10^9 m³

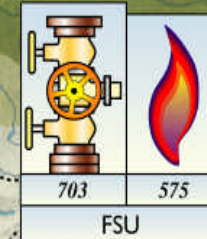


CONSUMPTION 1999

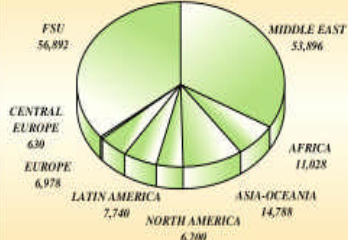
World total 2,397 10^9 m³

Trade by pipeline: 457 10^9 m³

Trade by LNG tanker: 124 10^9 m³



Proved natural gas reserves January 1, 2000



World Total 158,152 10^9 m³



Growing transport costs



Average distances between reserves and markets
Labour, rights-of-way and siting costs

Pipeline Costs

Stronger steels
HP technology
Deepwater pipe-laying

LNG Costs



Larger trains
High-efficiency turbines
de-bottlenecking

Transport costs likely to rise in many cases as
supply chains lengthen

Massive investments will be needed

- to explore and develop gas reserves
- to transport the gas to demand centres
- to develop markets
 - especially power generation,
 - but also industry
 - new residential & commercial applications
 - CNG vehicles

Factors that will affect gas investments

- **prices**

- oil prices
- competition

- **technology**

- to reduce costs, especially in transportation

- **balance of rate of return and risk**

- country risk
- regulatory risk
- market risk
- financing risk

The role of governments

- Foster economic and political stability
- Set the overall energy policy
 - favorable to gas
 - linked to electricity
 - coherent with other objectives: energy security, environment..
- Establish clear and stable investment framework with right incentives
- Create stable and transparent institutional & regulatory

The role of governments /2

- **Implementation & enforcement**
 - effective and fair implementation of regulation
 - efficient energy administration with minimum red tape
 - respect of contracts
 - fair dispute-settlement system (international arbitration)
- **Mediate and promoting mutual understanding among all stakeholders**
- **Regional cooperation**
 - essential for cross-border projects
 - to harmonise legal and fiscal requirement across borders
- **Encourage technology development and deployment**

The role of governments /3

- Finally, government may have to take part of the risks
 - especially in the initial phase of the project
 - especially if market risk is considered too high by the private sector
- Nevertheless, commercial activities should be left to the private sector as much as possible

In summary

- Gas is the fastest growing fuel in energy demand
- Resources are abundant, though not necessarily located near markets
- Cross-border gas trade is increasing
- Developing reserves and transporting them to the markets will require massive investments
- The private sector will have an increasing role
- Governments' role is to create adequate conditions for investment

A stylized world map in light blue, centered on the Atlantic Ocean, set against a dark blue background with a subtle grid pattern.

<http://www.iea.org>