

Energia e Geopolítica

Segurança Energética e Relações Internacionais

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IMPORTANCE OF ENERGY SECURITY

- Lower price volatility
 - Sustainability for economic growth
 - Organized transition to low carbon society

AGENDA

- **The Energy Outlook**
- **The CO2 Outlook**
- **New Role for the Atlantic Basin**

MAJOR FEATURES

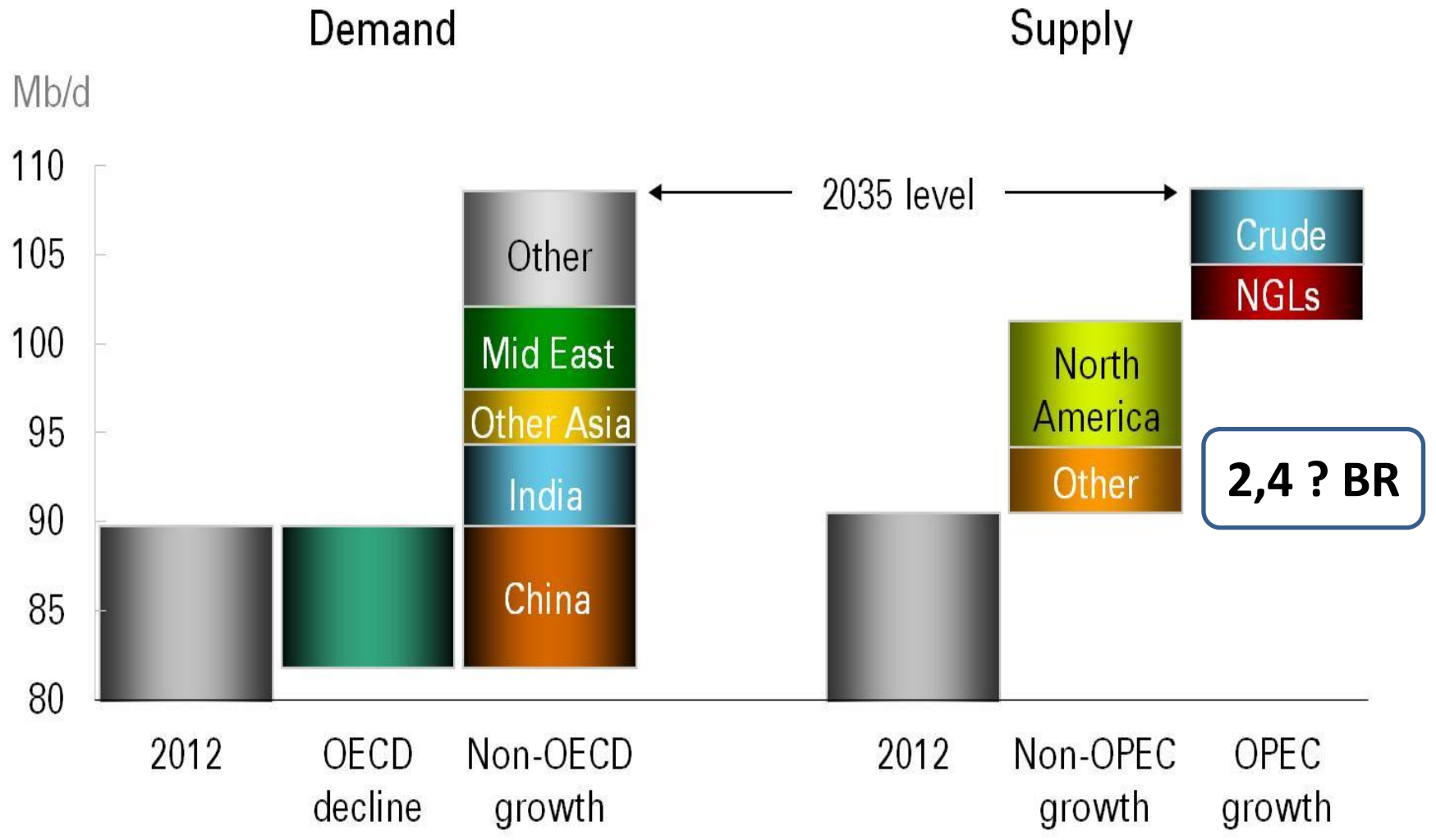
1. Energy consumption will keep increasing
 - Despite of the the decoupling between energy consumption and economic growth
2. Oil consumption should reduce in the OECD
 - but will increase in NOECD
3. Oil will remain the major source of energy supply in transportation

MAJOR FEATURES

4. Industry and electricity generation should drive the consumption of energy
5. Natural gas and renewables should increase their share in the supply of energy
6. Coal should remain the core of the energy matrix in Asia
7. US net exporter of NG



The global liquids balance



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CO2 EMISSIONS

- OECD emissions should be reduced
 - But US per capita emissions will be the double as compared to the EU
 - And US per capita emissions will be 50% higher as compared to the Chinese

ENERGY INTENSITY AND CO2 EMISSIONS

- Although the energy intensity of GDP
 - the energy intensity of NOECD will be higher than the OECD figures
- The CO2 emissions of NOECD should remain much higher than the OECD figures
- The IPCC target for the reduction of CO2 emissions will not be achieved

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ENERGY SECURITY

- 1970's scene
 - Growing oil scarcity
 - Dependence of OPEC
- Energy Strategy
 - Oil substitution (nuclear!)
 - NOPEC sources of oil (**offshore**)
- Unstable equilibrium in the oil market

ENERGY SECURITY

- 2000's scene
 - Dependence of OPEC reduced
 - Non conventional **onshore** oil and gas
 - Climate change a critical issue
(weakened by the global economic crisis)

ENERGY SECURITY

- 2000's scene
 - Oil market in disorder
 - Middle East
 - More recently former URSS
 - Nuclear a troubled option
 - Renewable: economic viable?

REGIONAL STRATEGIES

- OECD

- North America → NG + Renewable

- Europe → Renewable

- Asia → Nuclear (?) + Renewable

- China → Nuclear + Renewable

ENERGY TRADE

- Importers
 - Europe
 - Asia
- **Troubled Exporters**
 - Former URSS
 - Middle East and North Africa
- **Atlantic Basin (Secure Exporter)**
 - North Atlantic (marginal)
 - South Atlantic
 - South America (Brazil)
 - West Africa (!)

THANKS
FOR
YOUR
ATTENTION