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# Changing Concept of Energy Security

How IOCs contribute to alleviating energy supply/demand security concerns?

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Ankara, 23 March 2007

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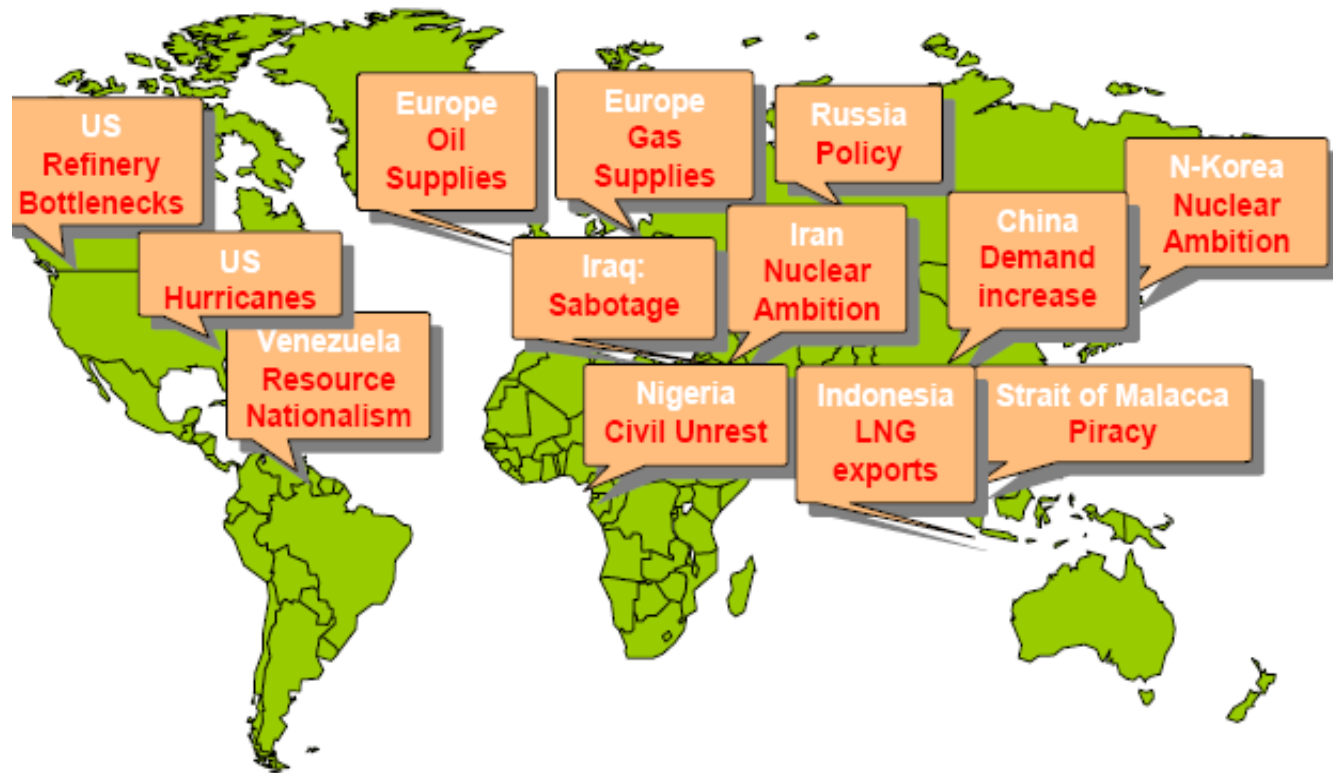
# Outline

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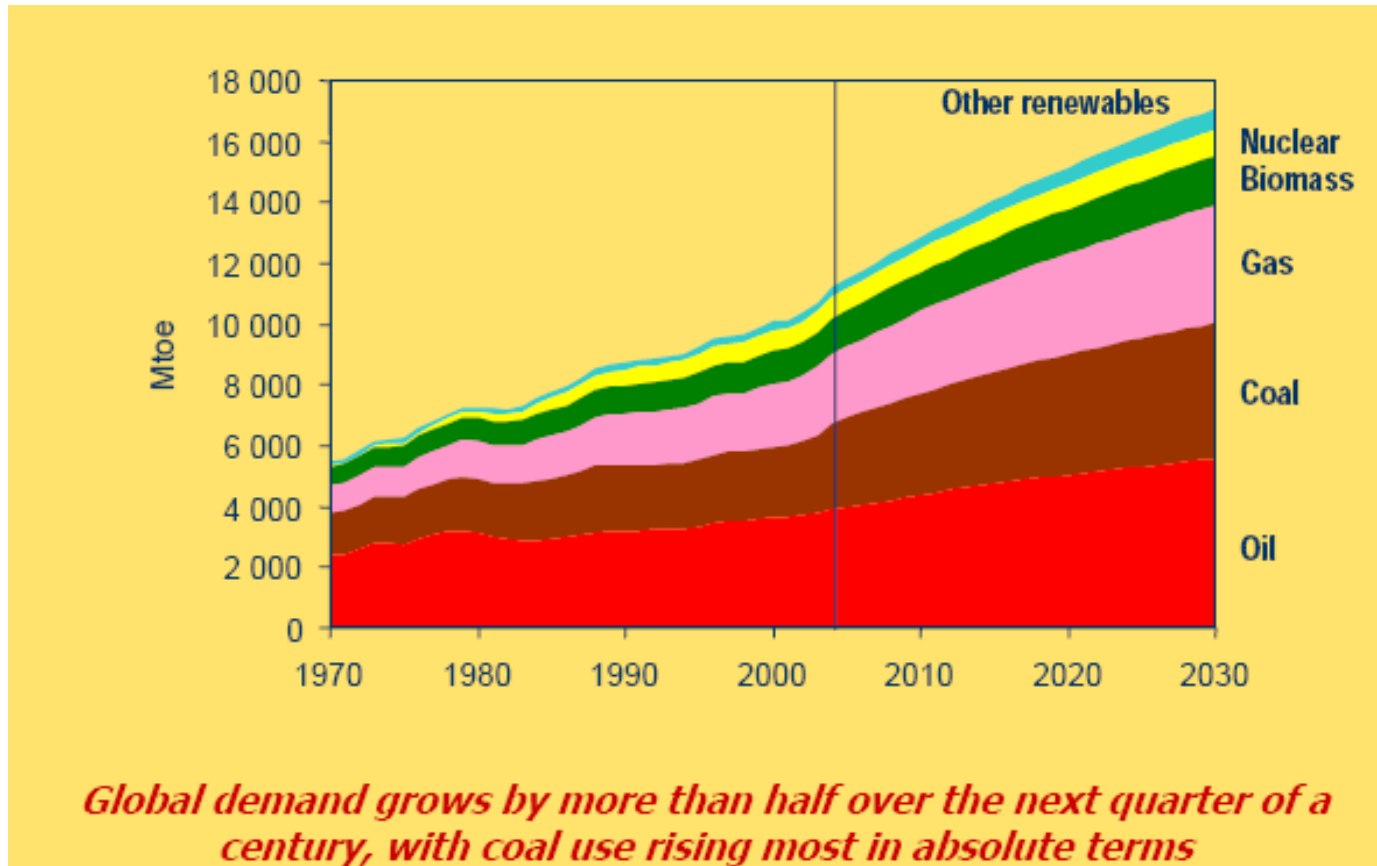
- **Global energy outlook**
- **Resource nationalism**
- **IOCs versus NOCs - a new game?**
- **Redefining energy security**
- **How IOCs could better contribute to energy supply/demand security?**
- **The energy future absent new policies**
- **Key messages for Turkey**

# A rocky time for energy markets

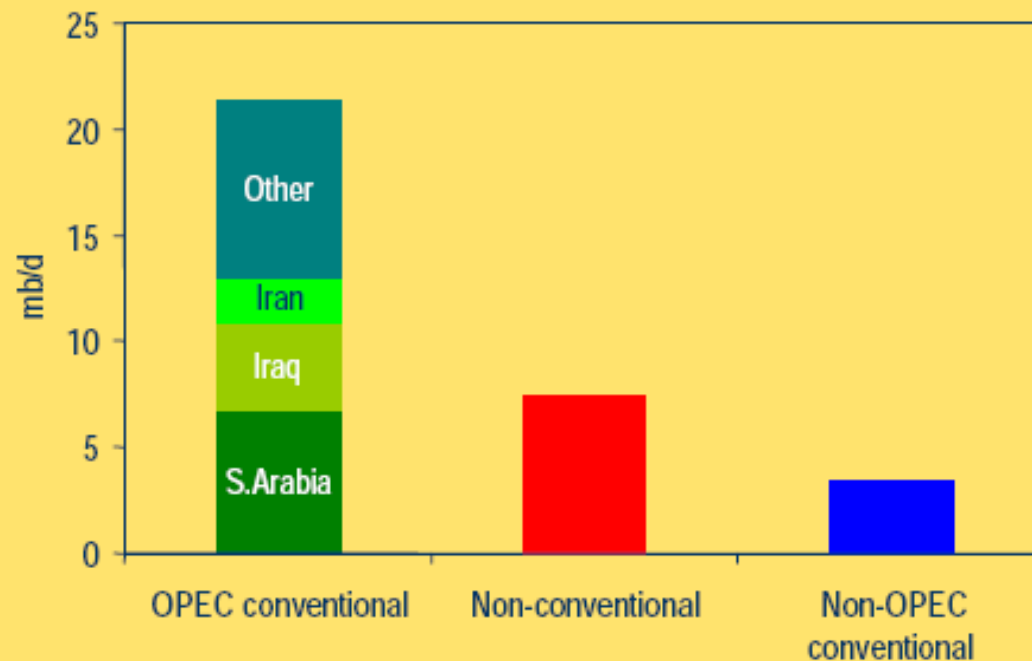
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# Global energy demand outlook to 2030

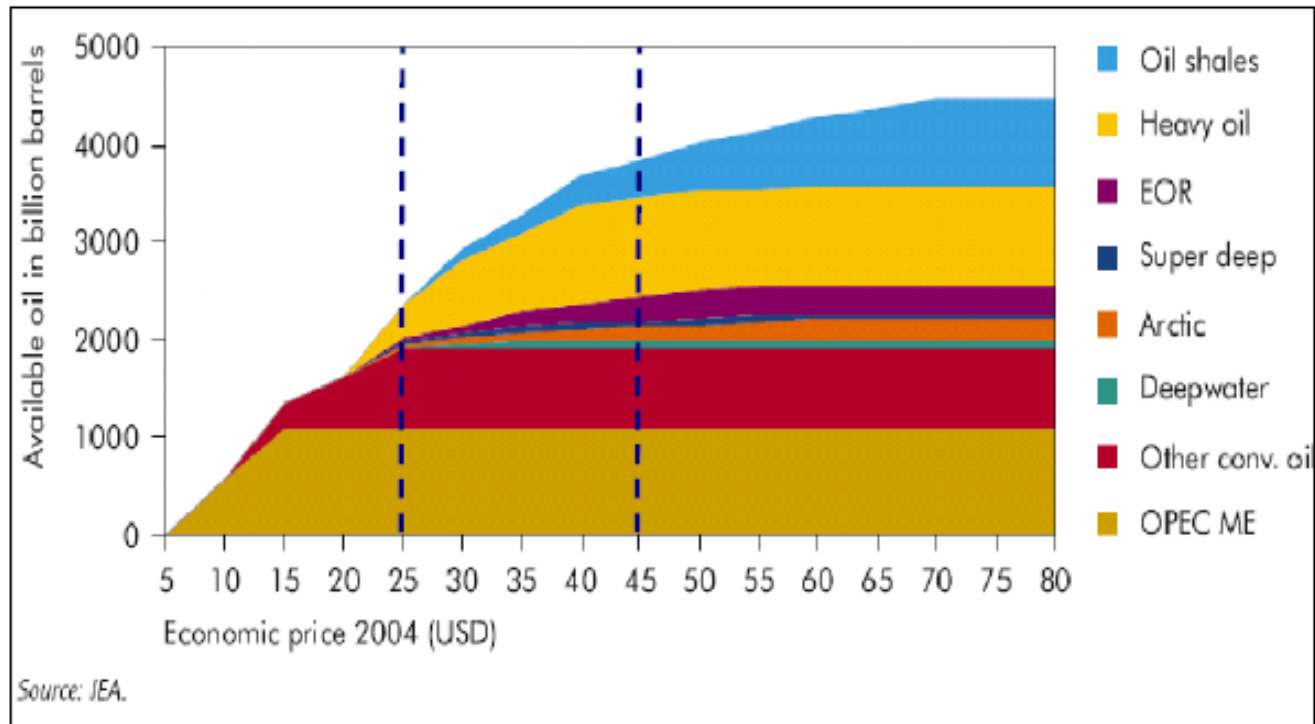


# Increase in World Oil Supply (2004-2030)



*The share of OPEC in world oil supply increases sharply as conventional non-OPEC production peaks towards the middle of next decade*

# Resources to reserves to production



*Whilst oil resources are of course finite, we are far from exhausting them – But the “easiest oil” is becomingly increasingly concentrated in MENA*

# Estimated NOC's and IOC's production and reserves

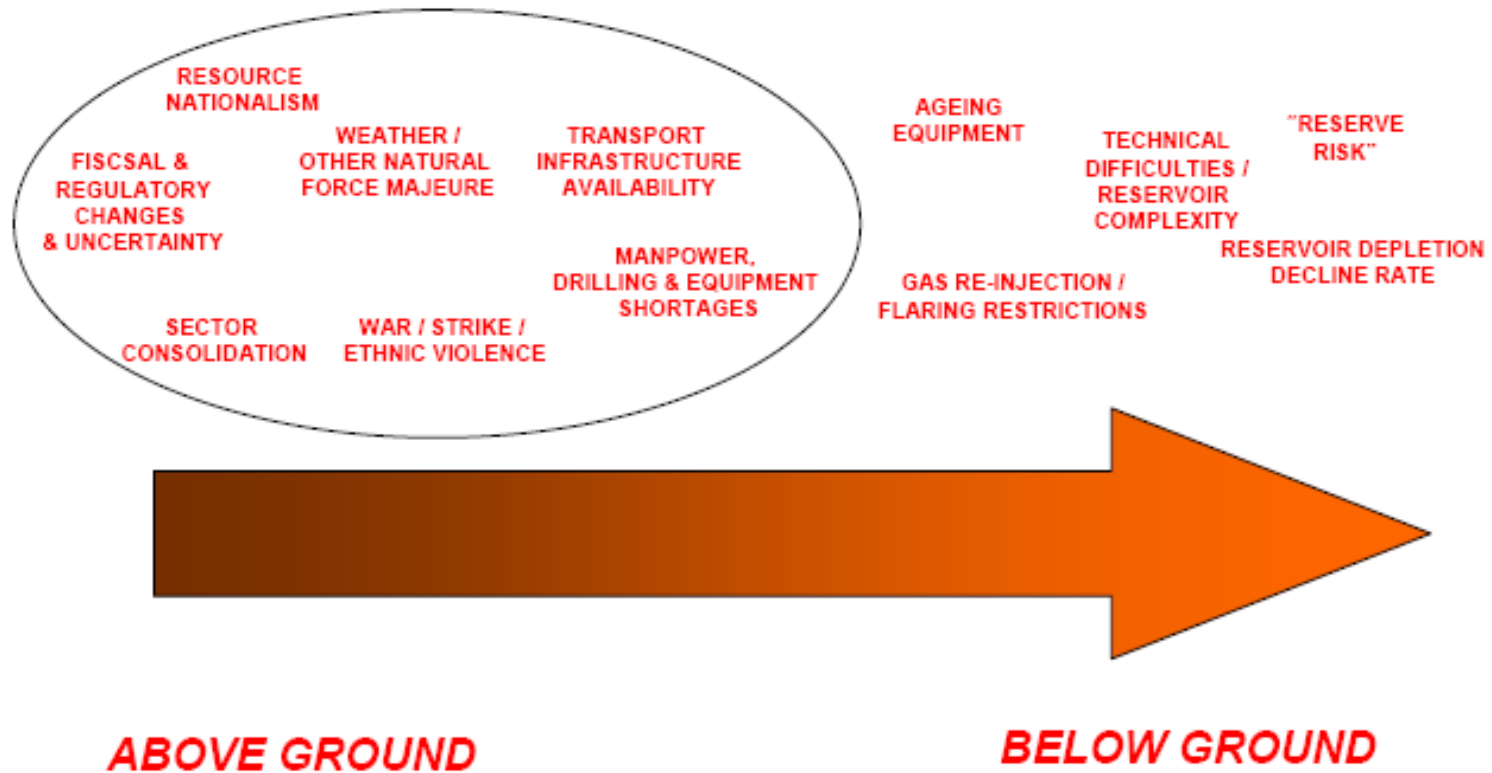
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- NOCs hold reserves equivalent to more than 10 times those of IOCs whereas production from NOCs represent only 2.3 times the output from IOCs

# Upstream supply risks persist

*above ground risks exceeding below ground risks*

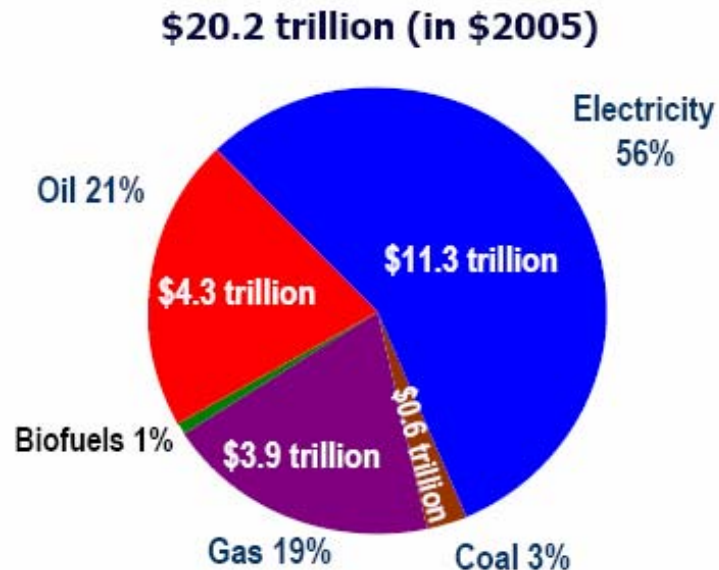
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# Cumulative Investment, 2005-2030

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*Investment needs exceed \$20 trillion – \$3 trillion more than previously projected, mainly because of higher unit costs*