



“Turkish Natural Gas Market in Light of Global Energy Trends”

Batu Aksoy

Board Member – PETFORM

CEO & Board Member – Turcas Petrol

22 March 2011

Mare Forum Istanbul 2011

About PETFORM



Established in 2000, PETFORM has played a crucial role in the transfer of private sector views to the public authorities regarding to Turkish energy legislation amendments (Natural Gas Market Law, Petroleum Market Law, Turkish Petroleum Law...)

Member companies mainly have activities in 2 sectors:

- **Exploration & Production Sector**
- **Natural Gas Market**

PETFORM Member 45 Energy Companies



- AKENERJİ
- AKSA DOĞALGAZ
- ALADDIN MIDDLE EAST
- ATTİLA DOĞAN İNŞAAT
- AVRASYA GAZ
- AYGAZ DOĞAL GAZ
- BM İNŞAAT
- BOSPHORUSGAZ
- BP
- ÇALIK ENERJİ
- DOĞAL ENERJİ
- EDISON
- EGE GAZ
- ENEL
- ENERCO ENERJİ
- ENERJİSA
- ENI
- E.ON RUHRGAS
- ERDGAZ
- EWE ENERJİ
- EXXONMOBİL
- GENEL ENERJİ
- GÜNEY YILDIZI PETROL
- IBS RESEARCH
- NATURGAZ
- N.V.TURKSE PERENCO
- OMV
- OPALİT
- PALMET
- PETOIL
- PETROL OFİSİ
- POZİTİF DOĞALGAZ
- SHELL ENERJİ
- SOCAR & TURCAS ENERJİ
- SOYAK ENERJİ
- STATOIL
- TEKFEN İNŞAAT
- TEMİ
- THRACE BASIN
- TIWAY TURKEY
- TOTAL
- TRANSATLANTIC TURKEY
- TURCAS
- TURUSGAZ
- ZORLU DOĞALGAZ

PETFORM Members' Value in Turkish Economy (2010)

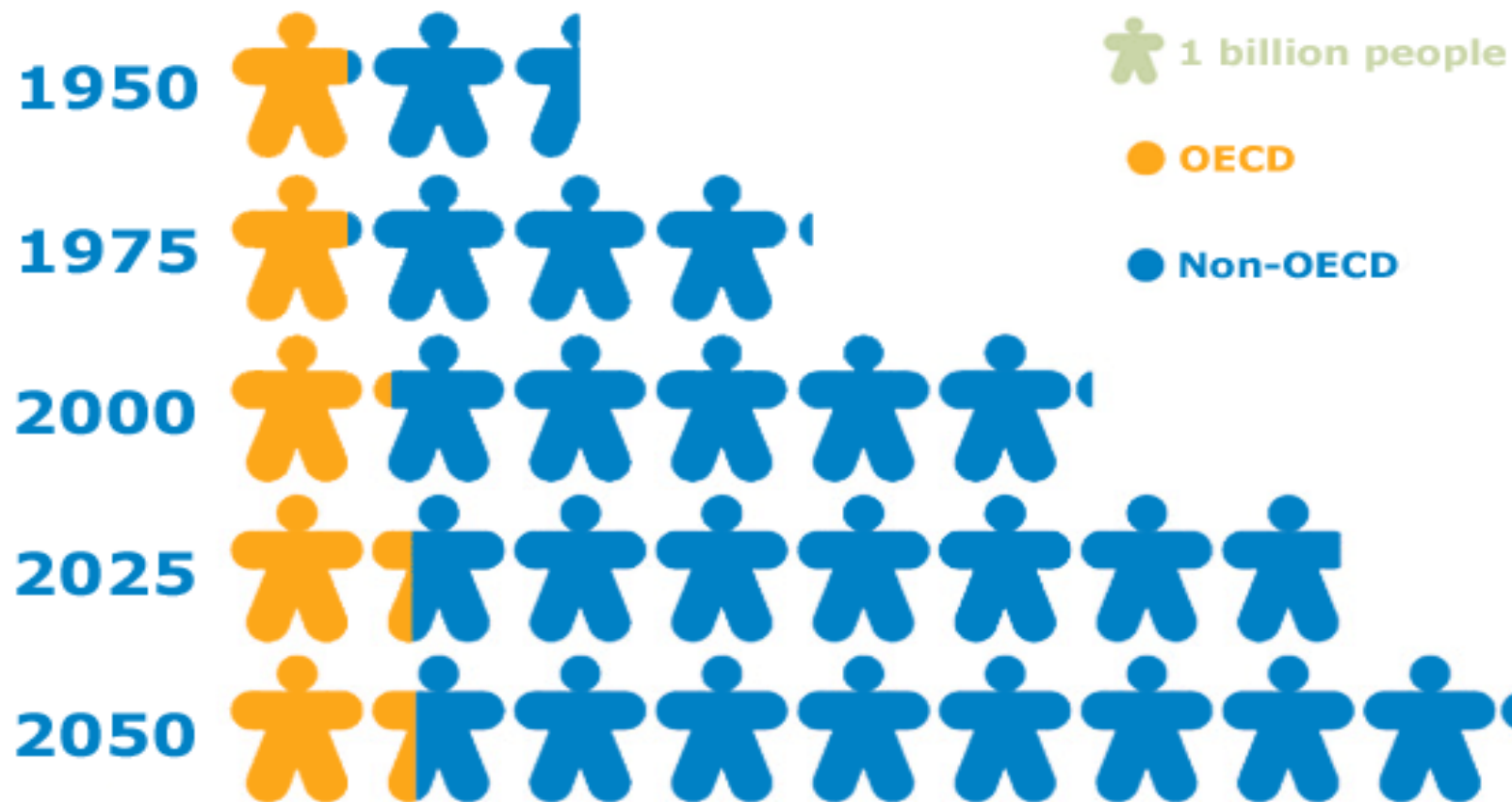


Total Turnover : 35.7 billion USD
(5% of GDP)

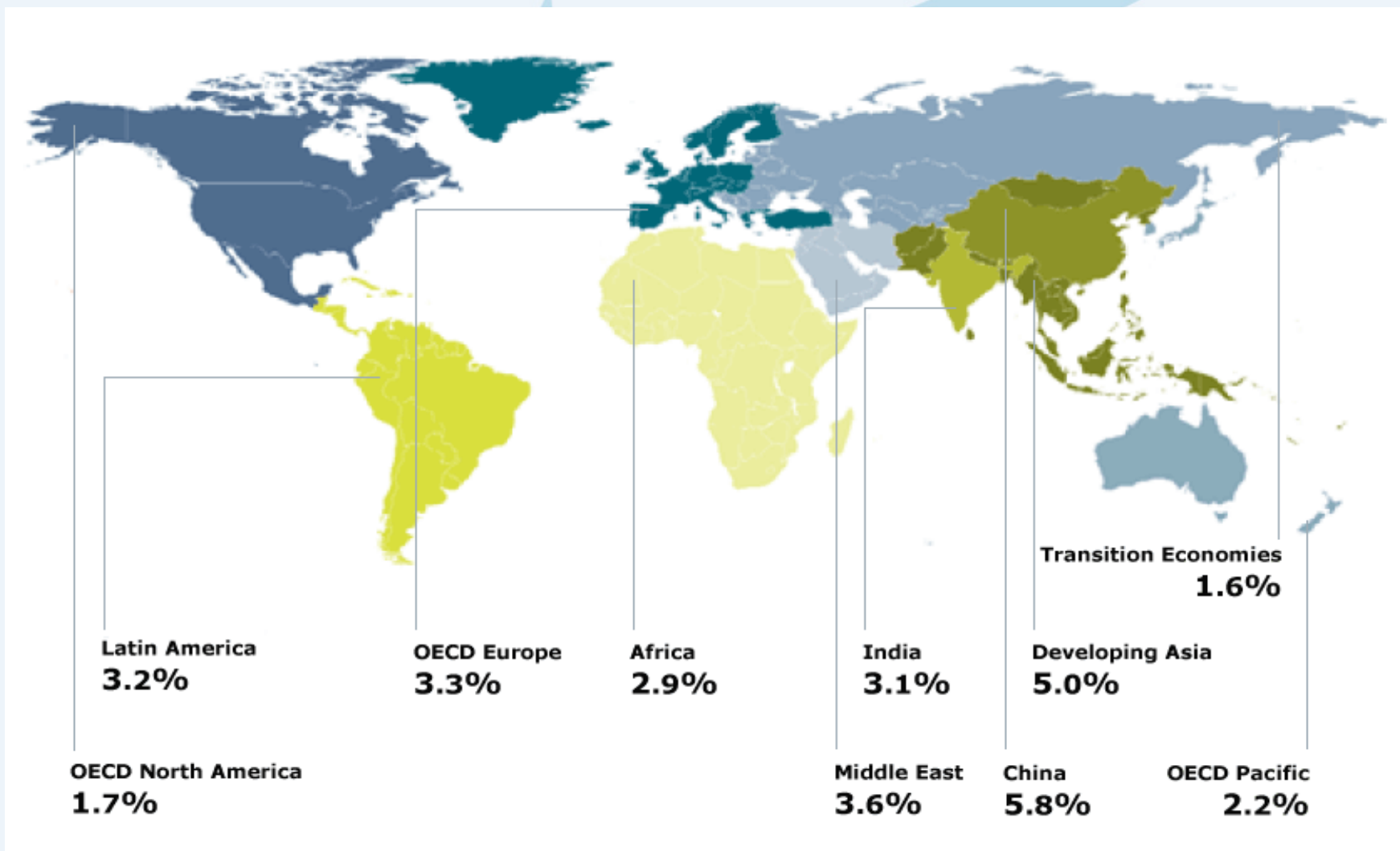
Total Tax : 2.1 billion USD

Total Employment : 31,200

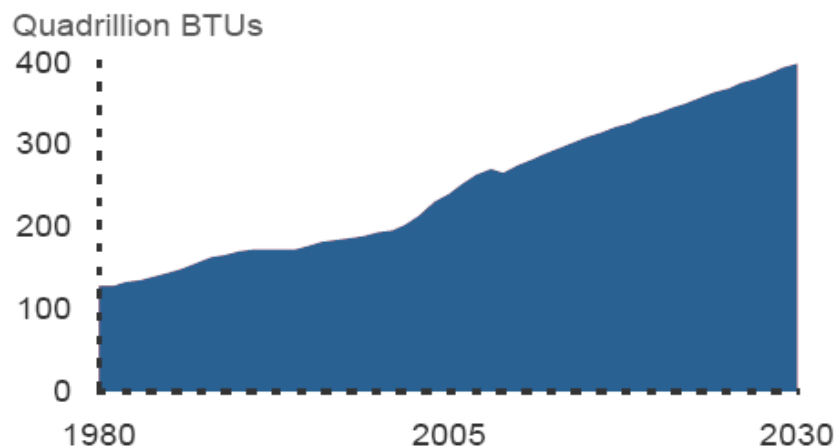
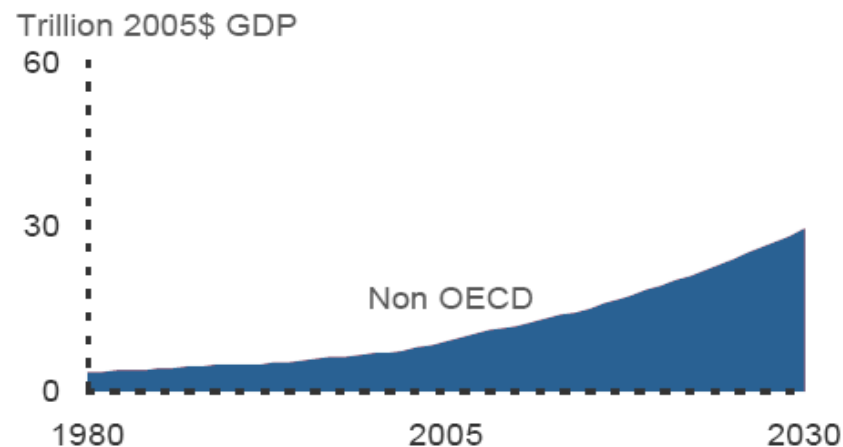
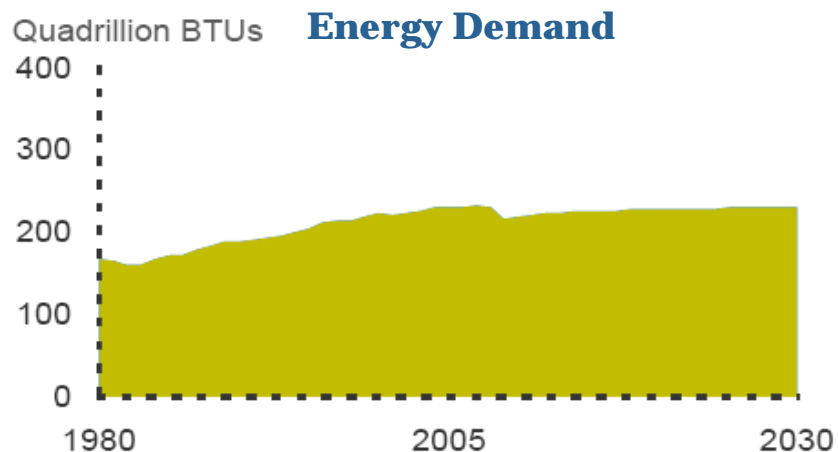
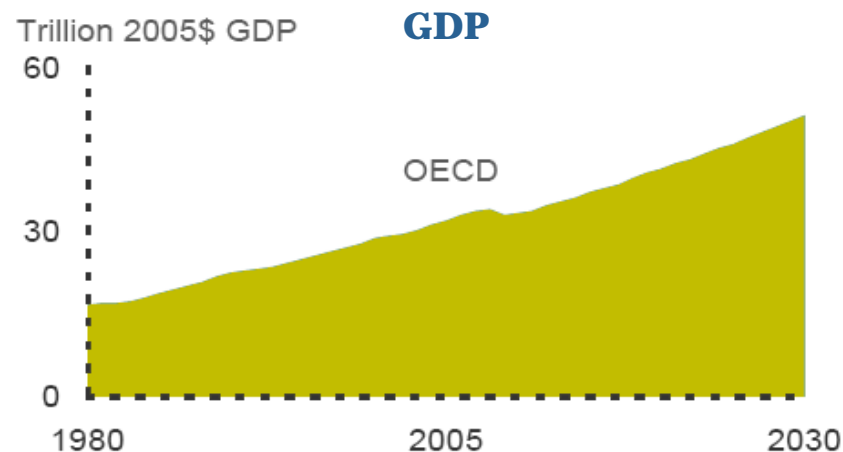
World Population Growth (1950 – 2050)



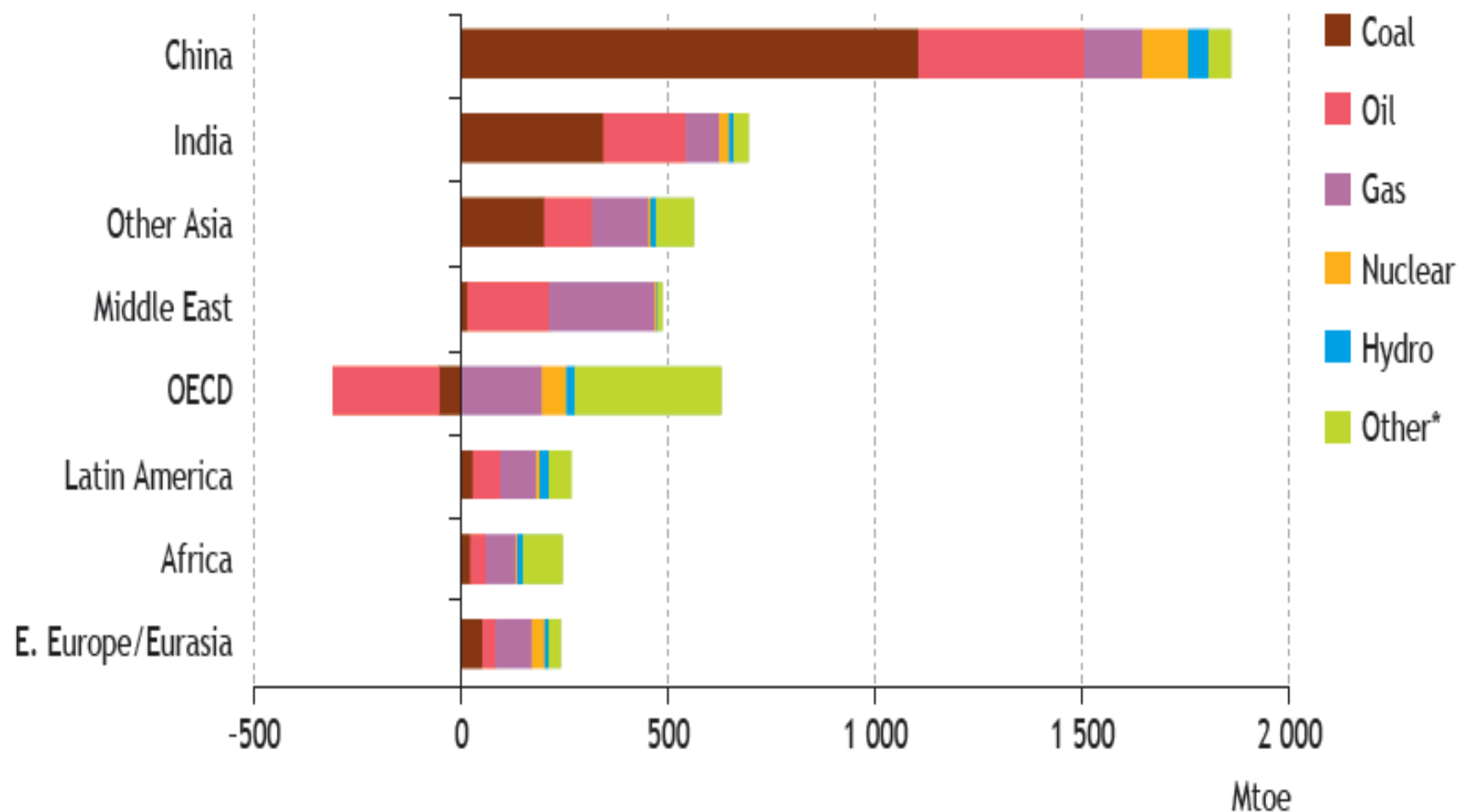
World GDP Growth (2005 – 2050)



GDP & Energy Demand Growth (1980 – 2005 – 2030)

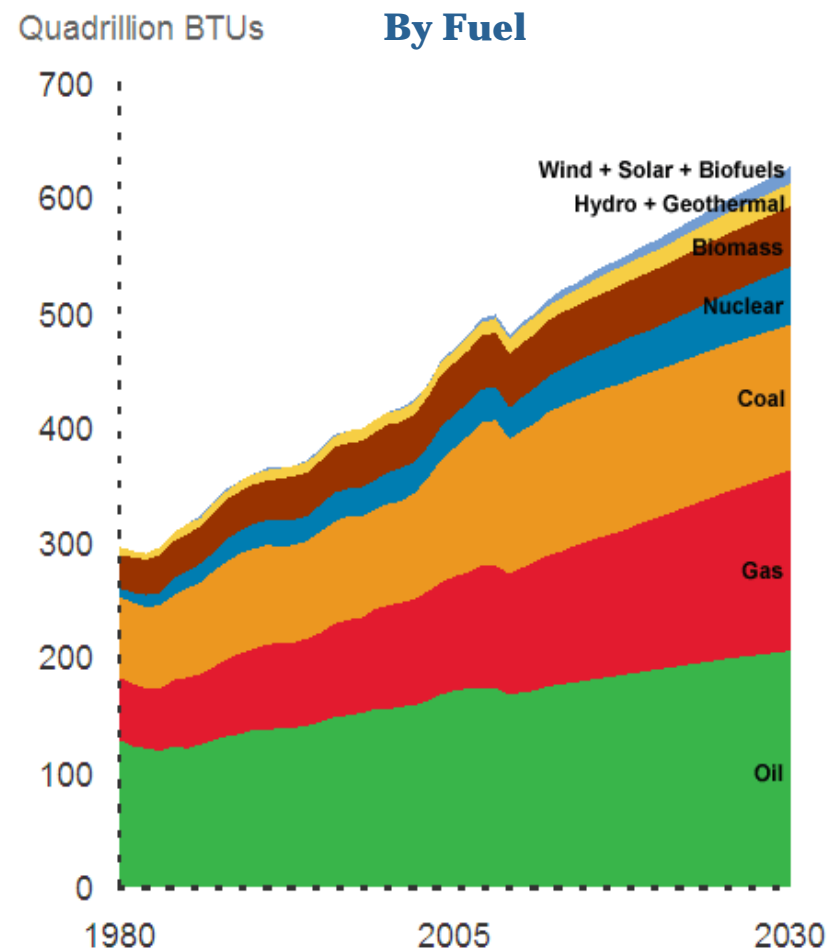
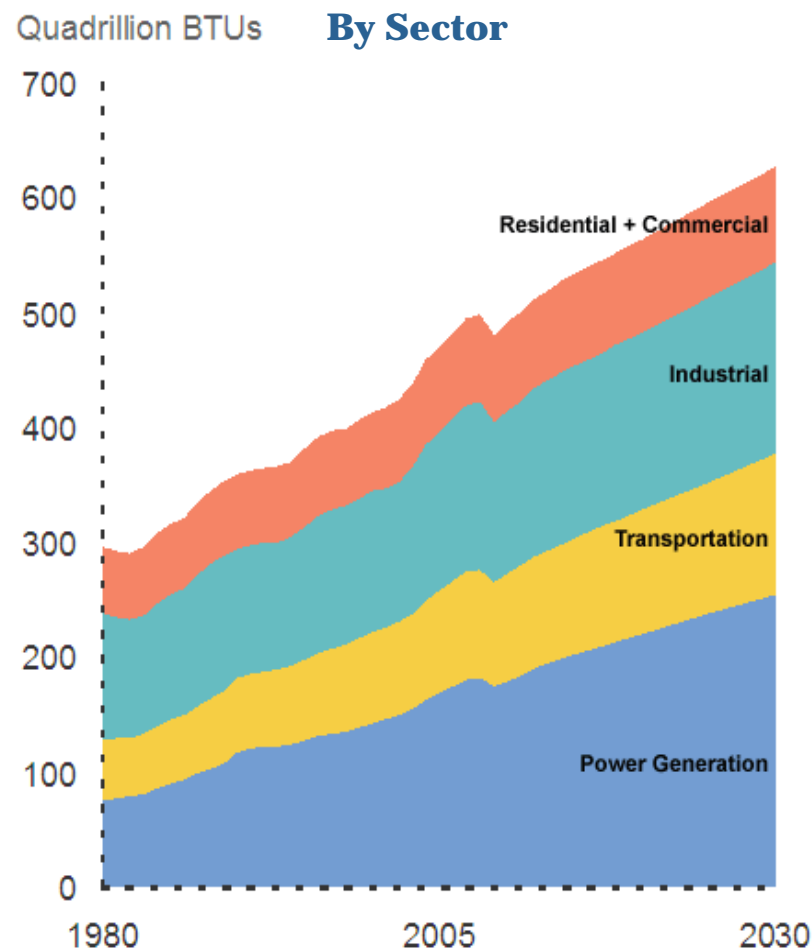


World Primary Energy Demand (2007 – 2030)



* Includes biomass and waste, wind, geothermal, solar, and tide and wave.

Energy Demand By Sector & By Fuel (1980 – 2005 – 2030)



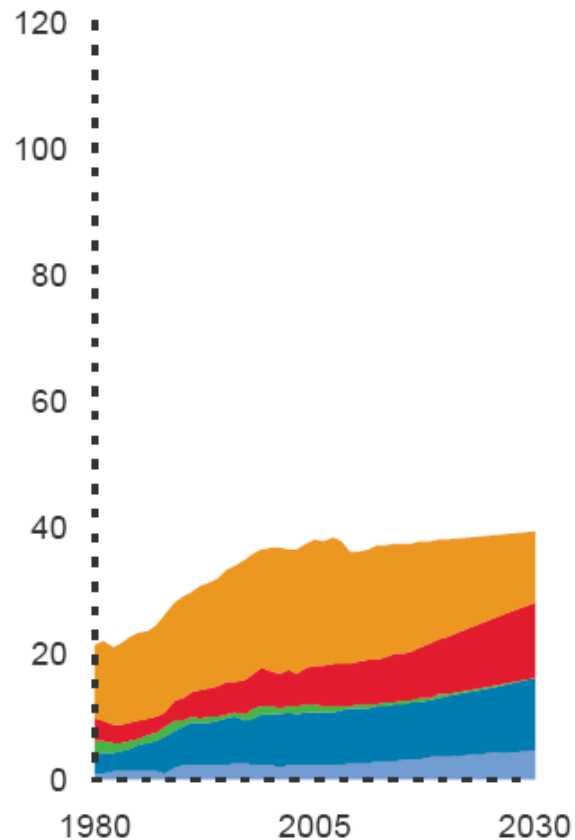
Source: ExxonMobil

Power Generation Fuel Demand (1980 – 2005 – 2030)



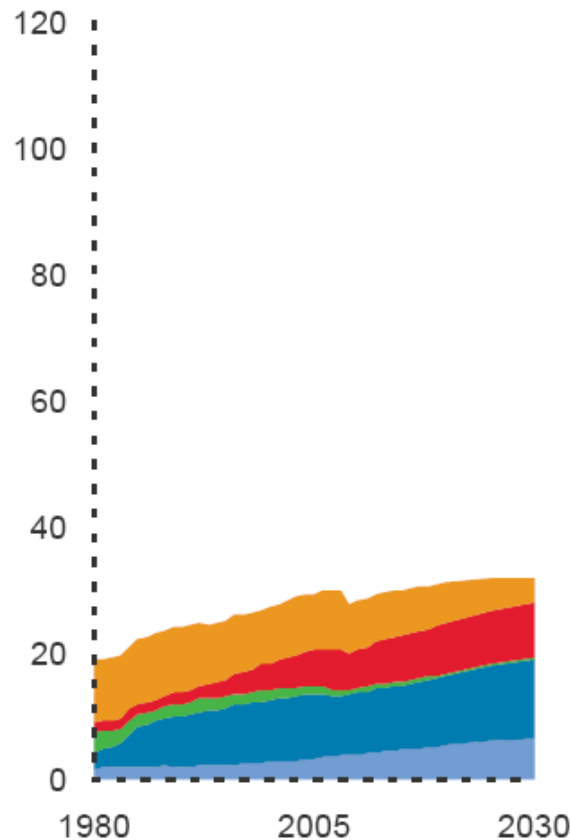
United States

Quadrillion BTUs



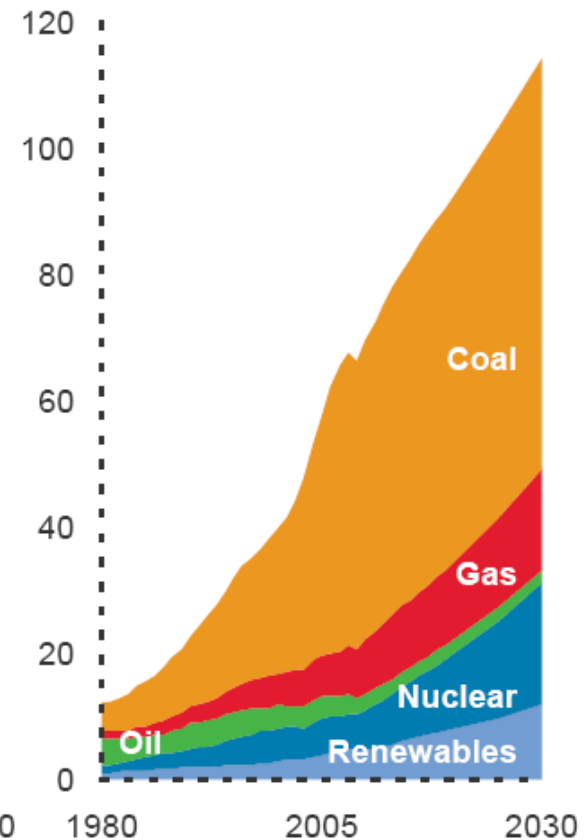
Europe OECD

Quadrillion BTUs



Asia Pacific

Quadrillion BTUs

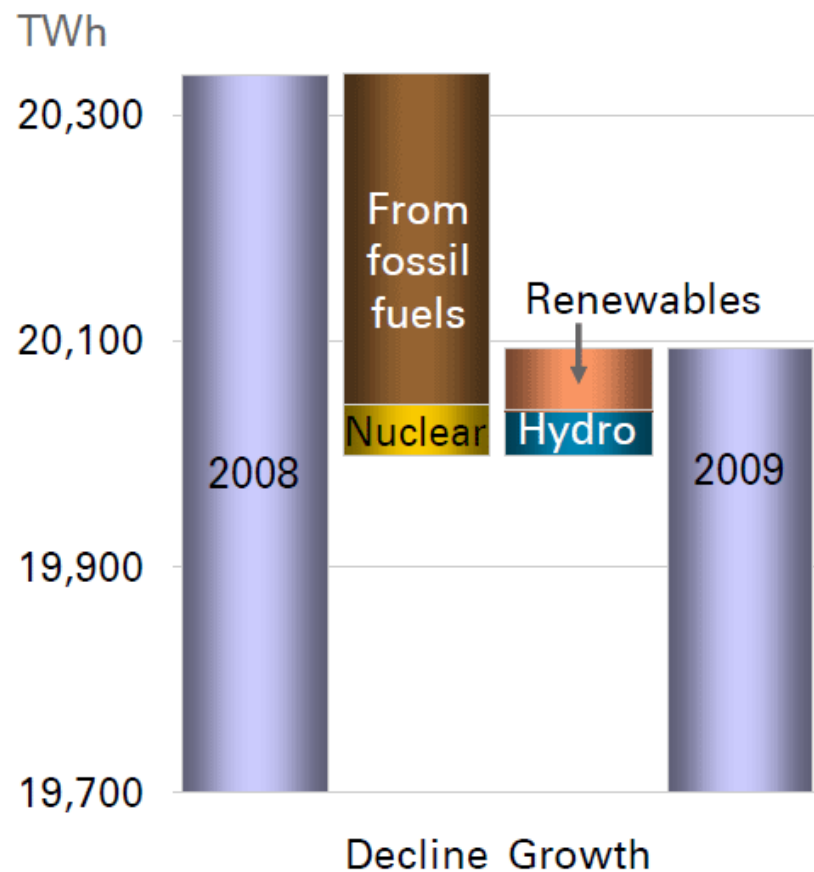


Source: ExxonMobil

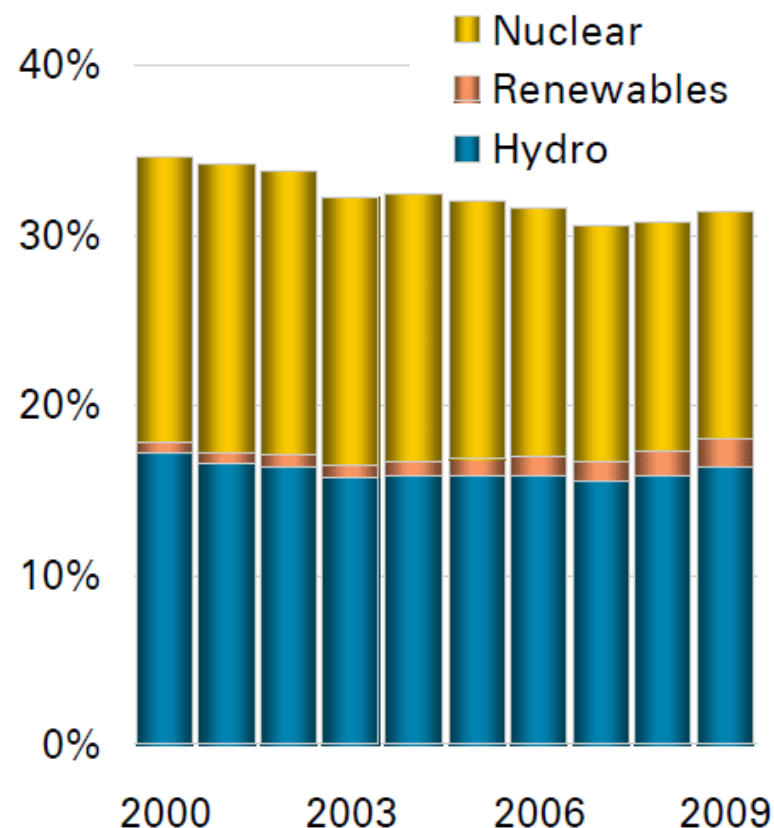
Share of Non-Fossil Fuels in Power Generation



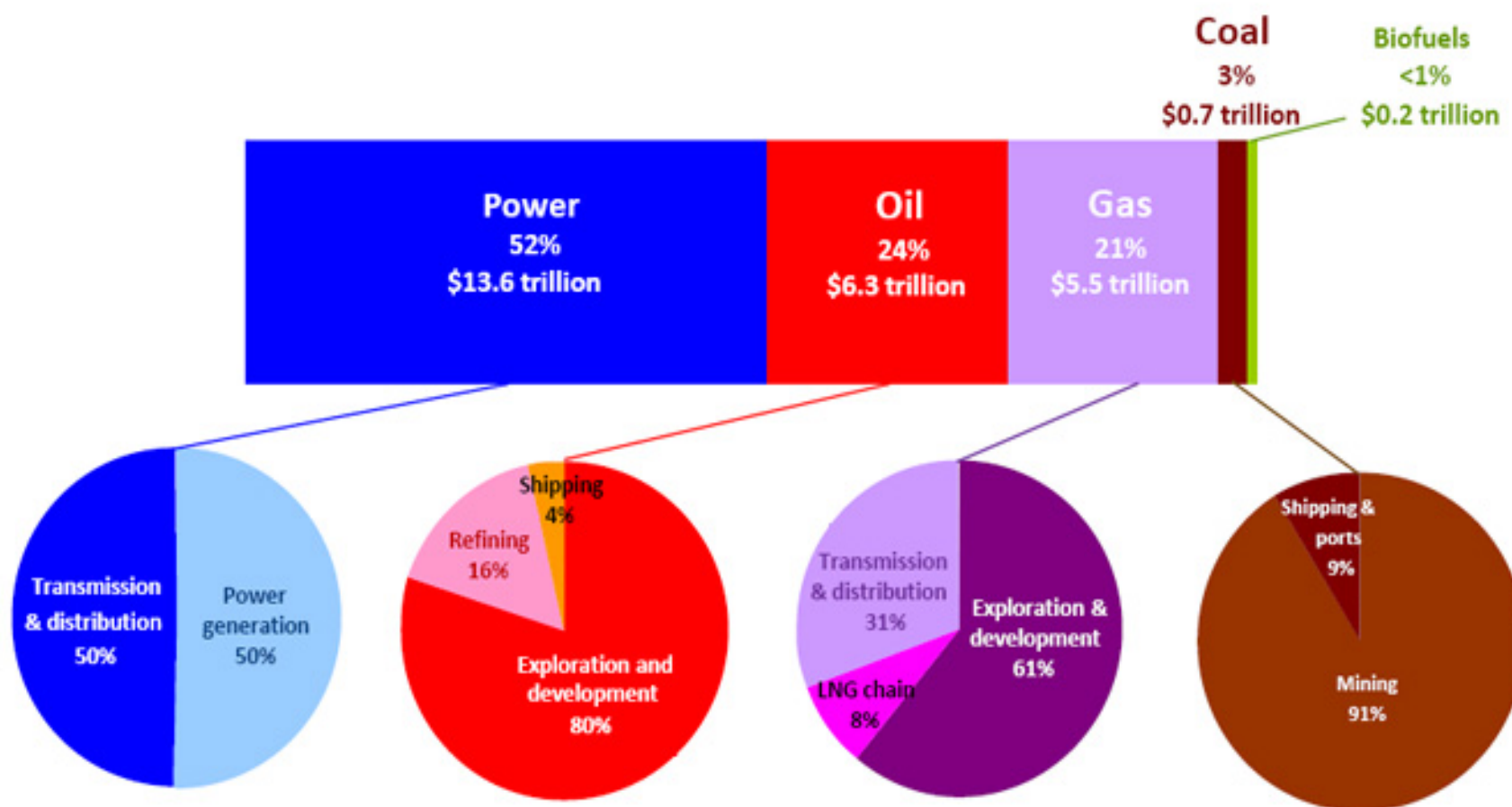
Total electricity generation



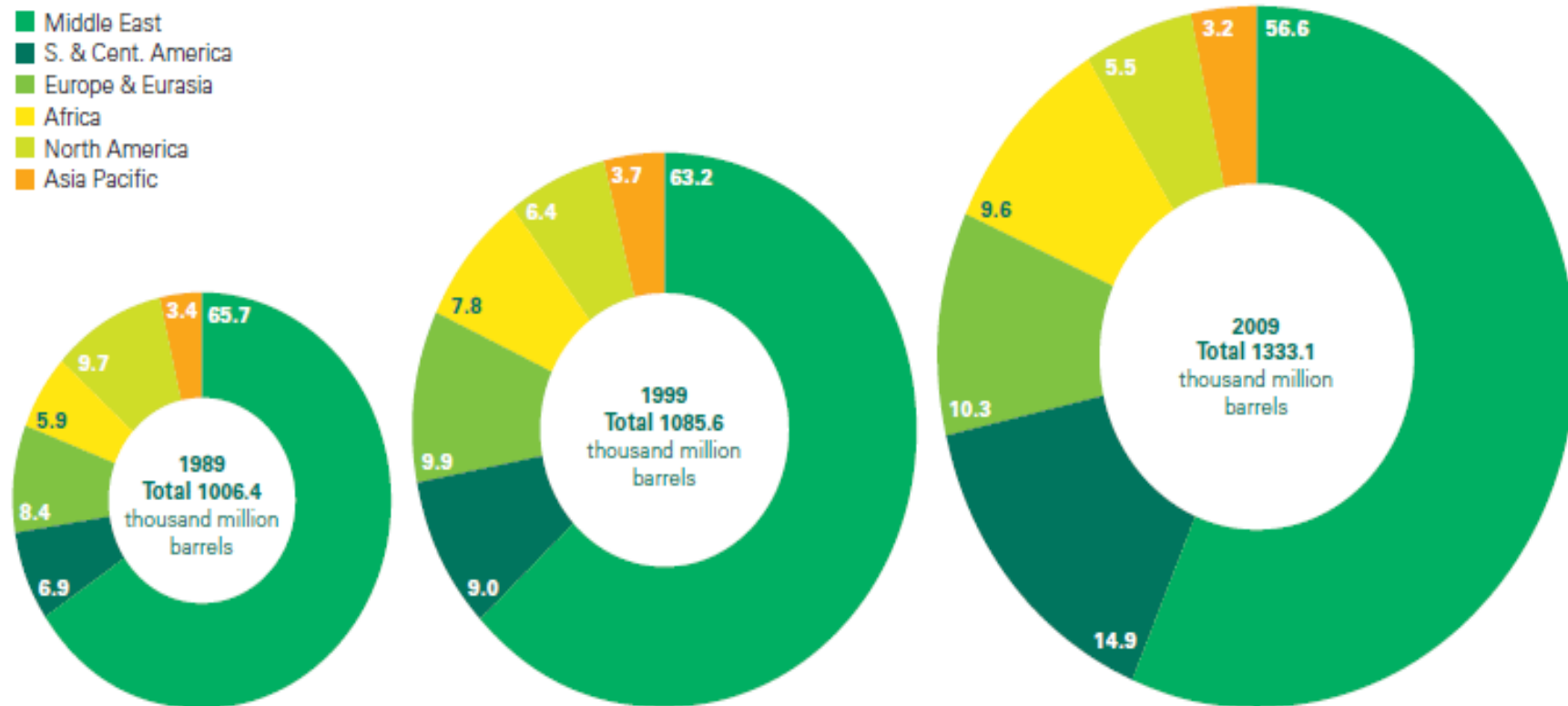
Share of total generation



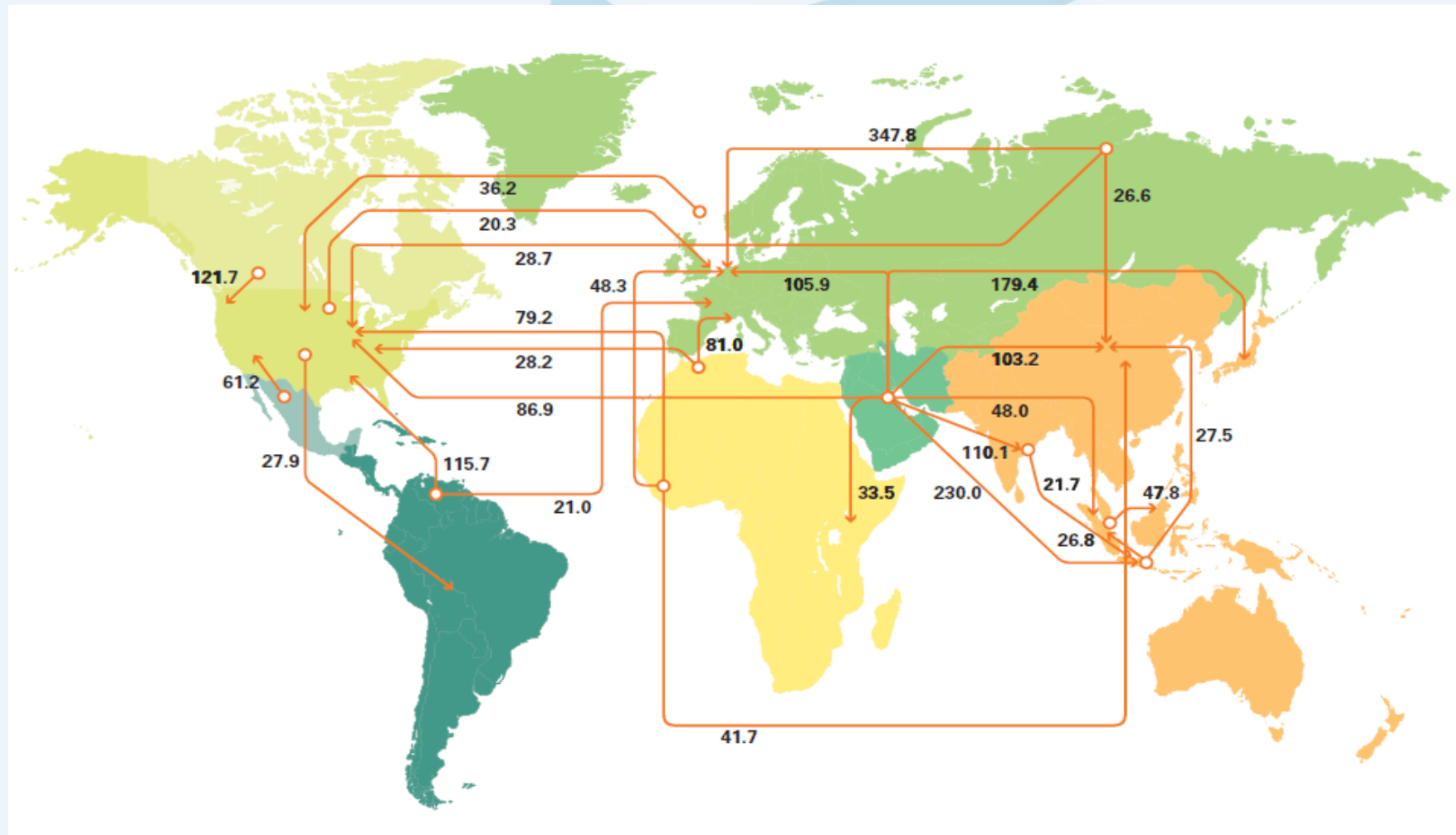
Primary Energy Investment Requirement (2007 – 2030)



Distribution of World Oil Reserves (1989 – 2009)

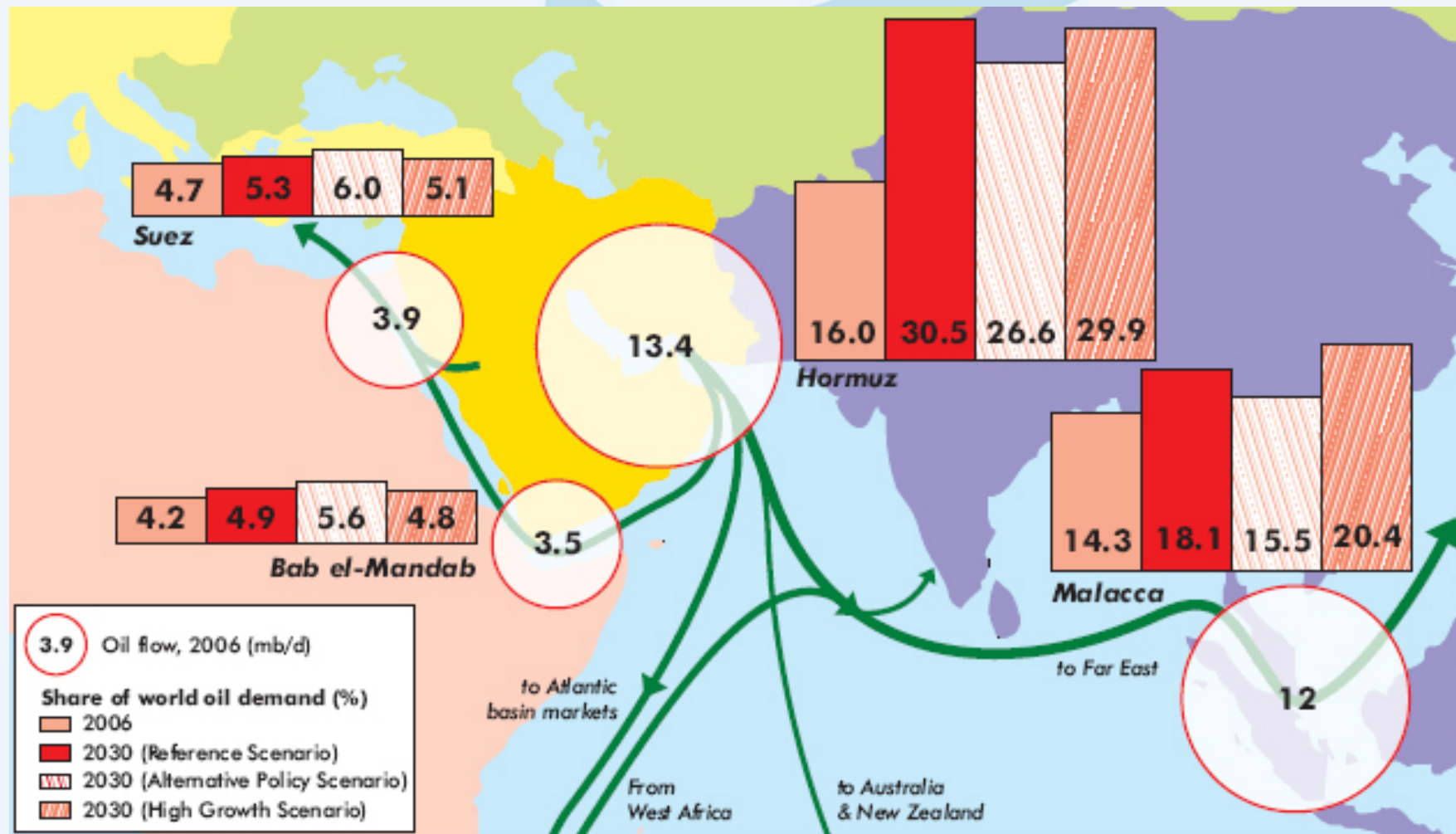


Global Oil Trade Routes



Source: BP

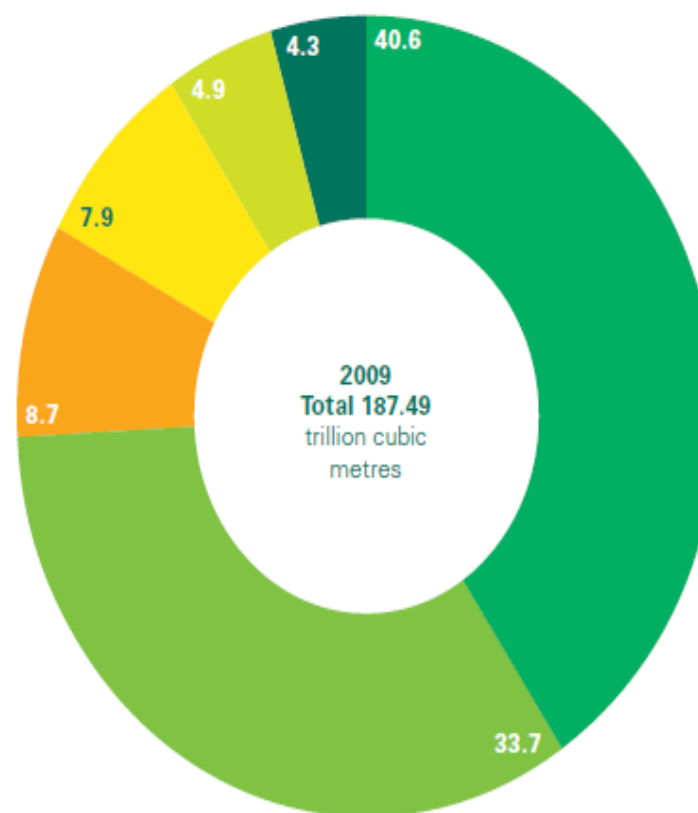
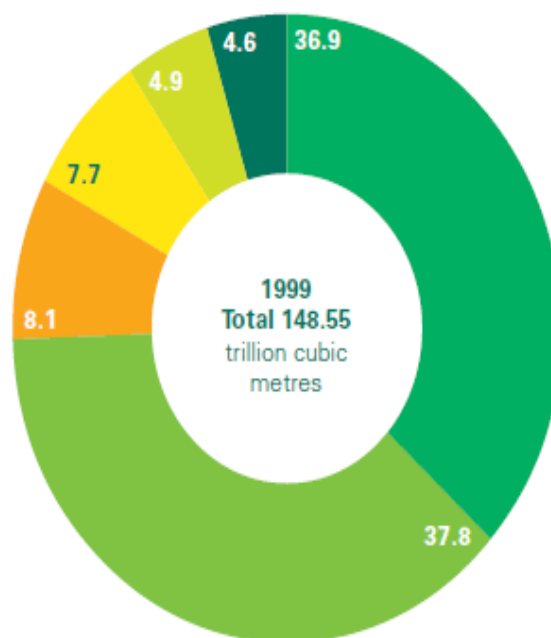
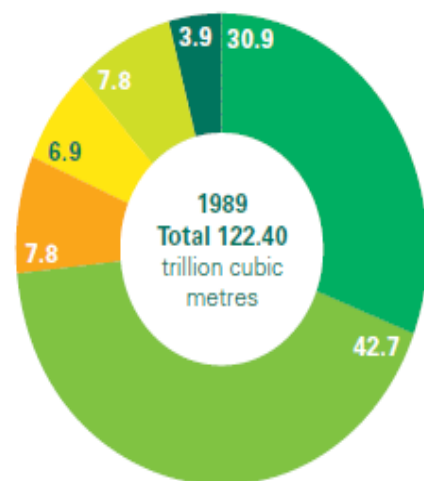
World Oil Transit Choke-points



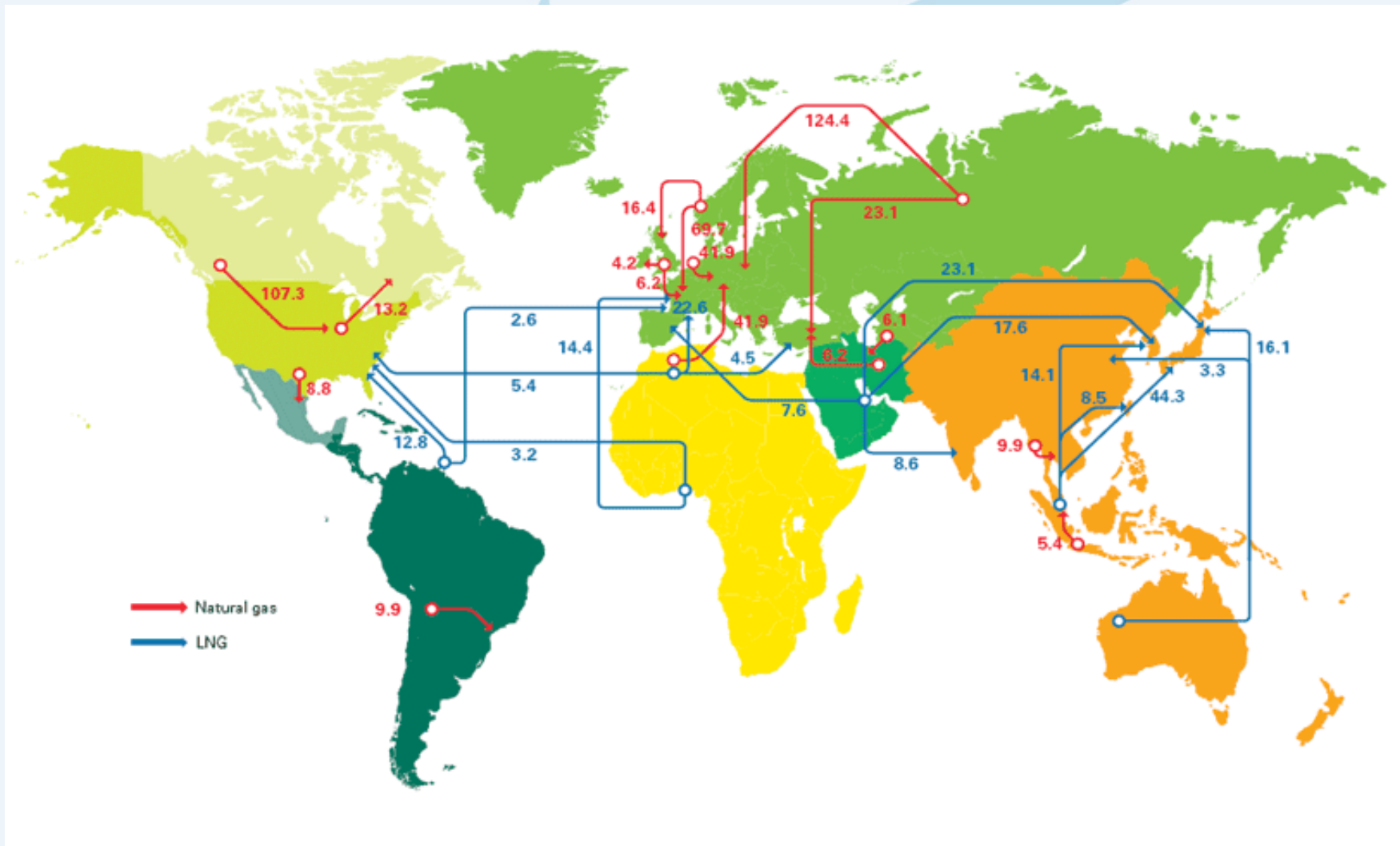
Distribution of World Gas Reserves (1989 – 2009)



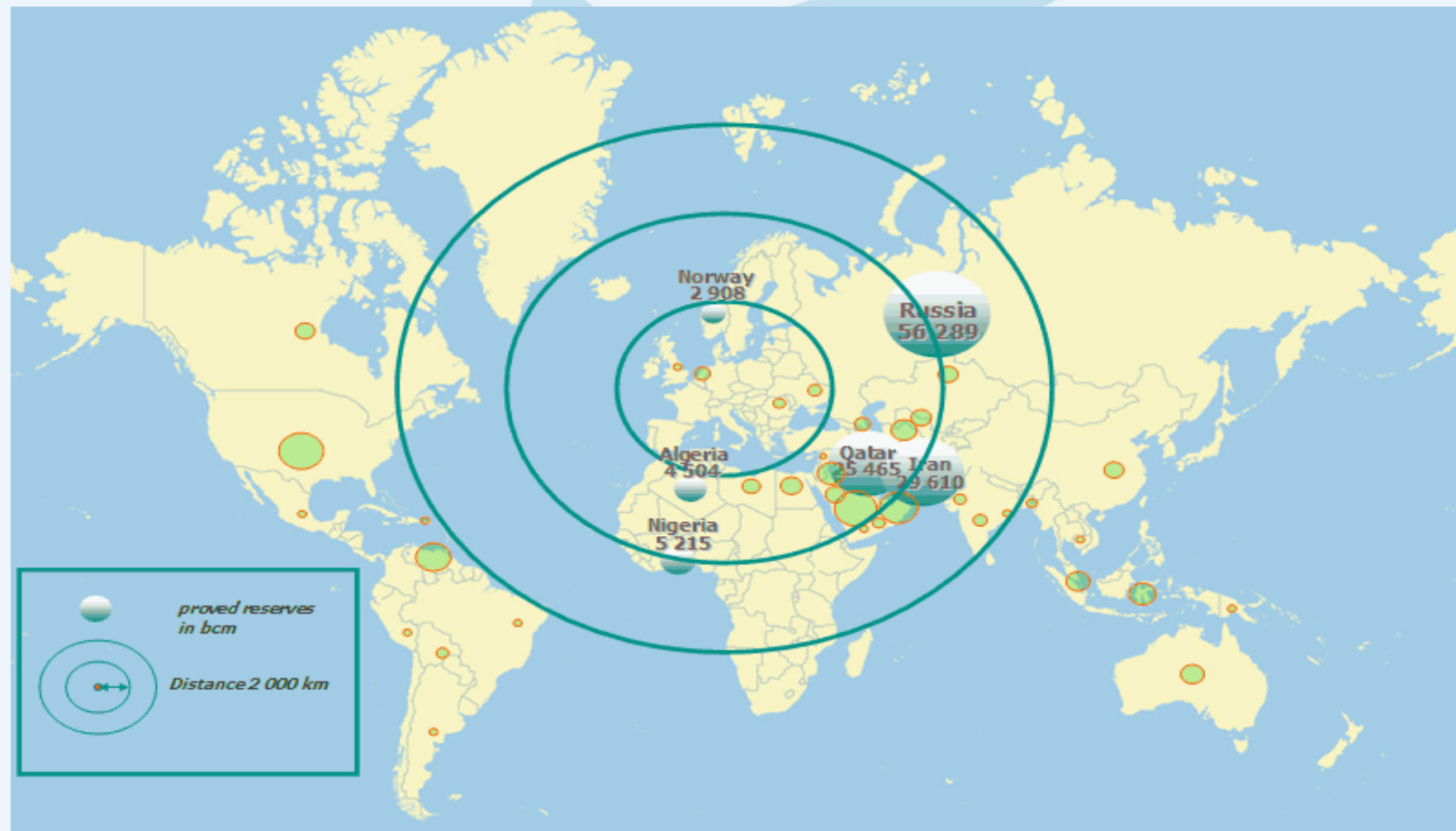
- Middle East
- Europe & Eurasia
- Asia Pacific
- Africa
- North America
- S. & Cent. America



Global Gas Trade Routes

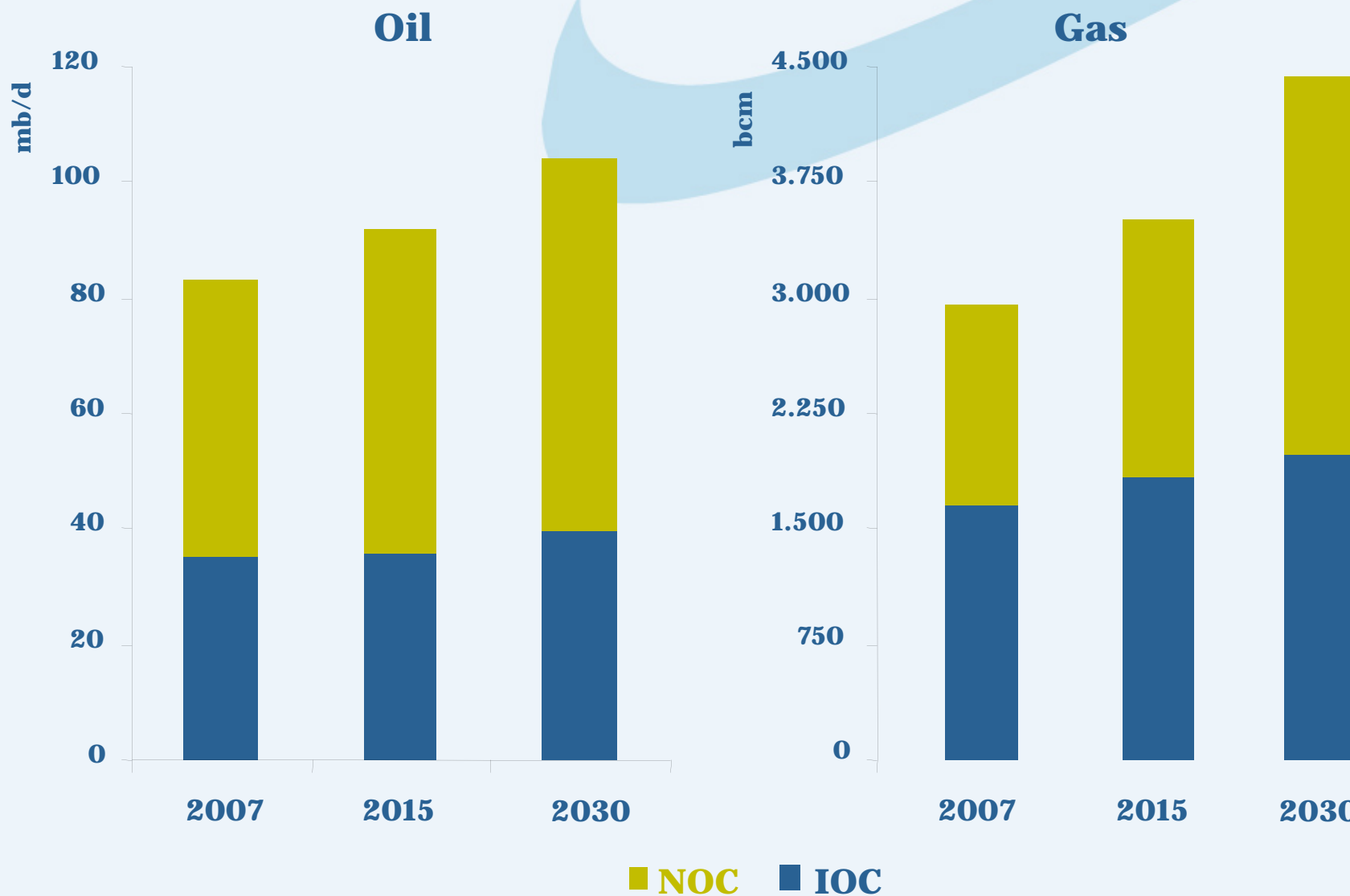


Distribution of World Gas Reserves



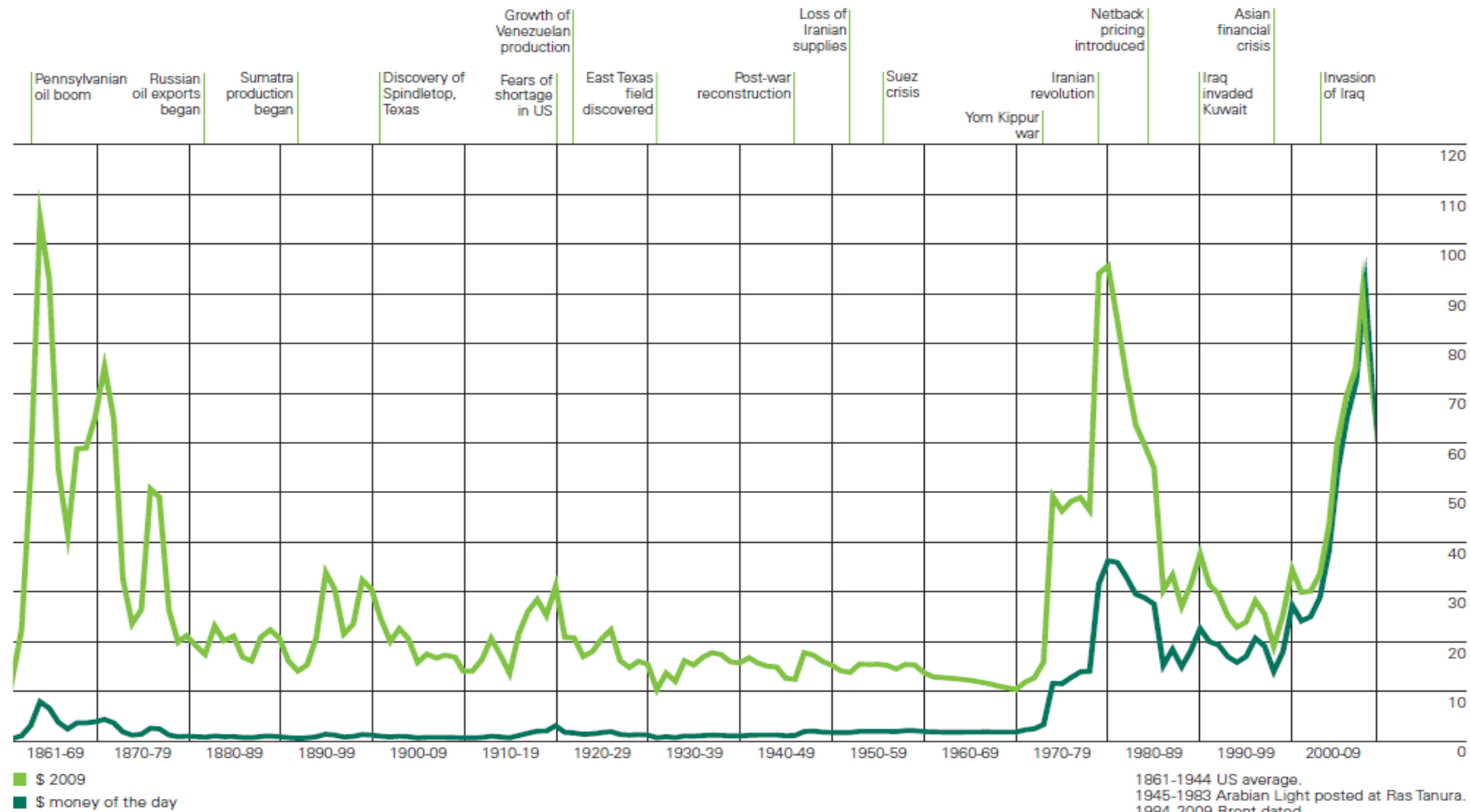
Source: GDF SUEZ

NOC & IOC Production Trends (2007 – 2015 – 2030)

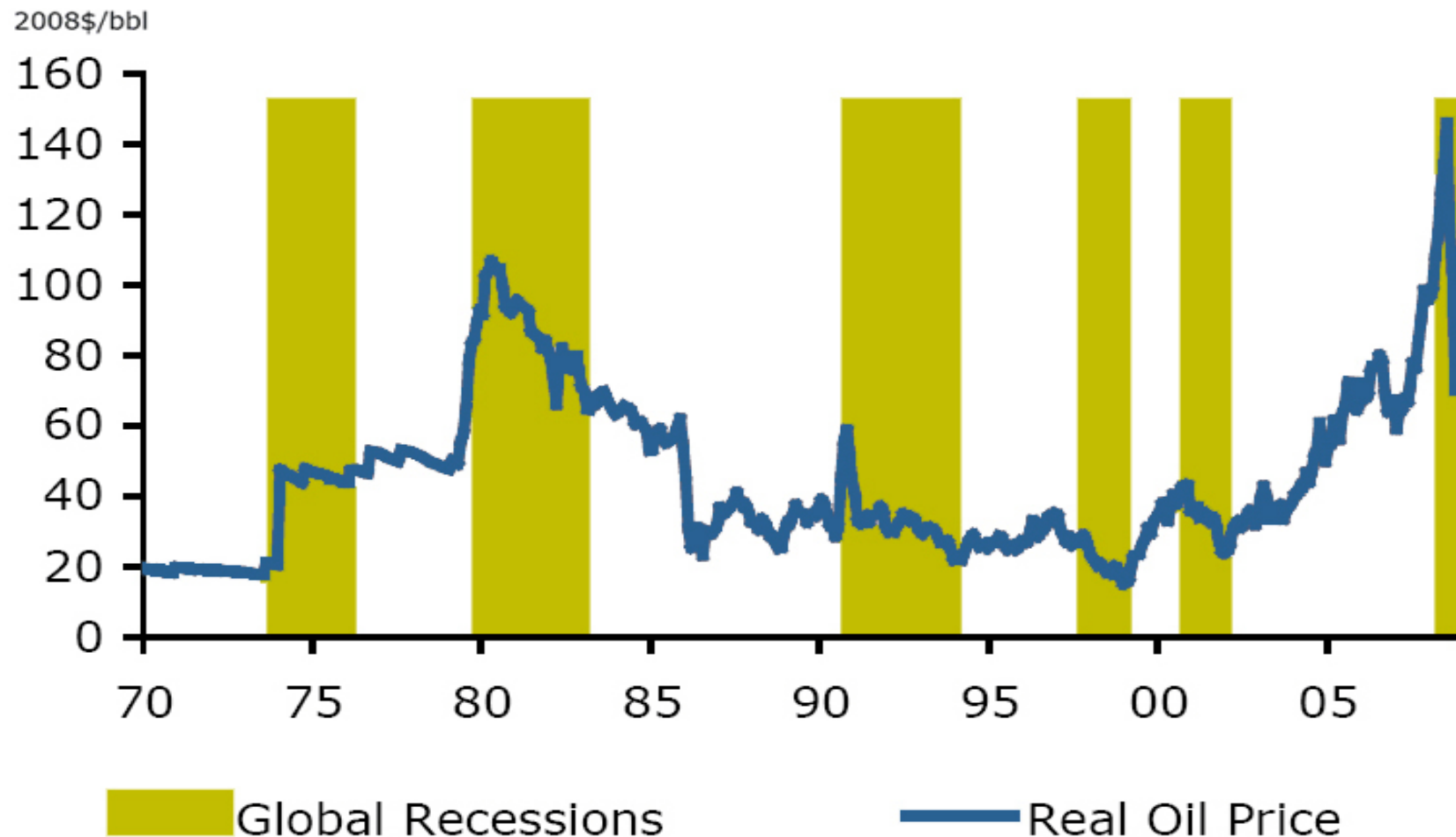


Source: IEA

Crude Oil Prices (1861 – 2009)



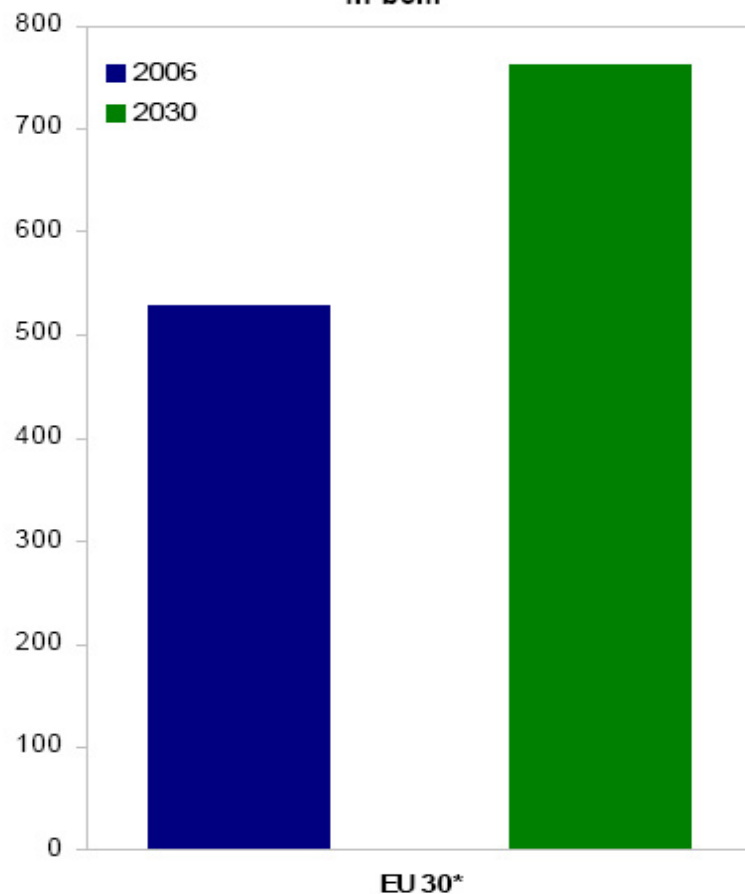
Oil Prices & Global Recessions



Gas Supply – Demand Gap in Europe (2006 – 2030)

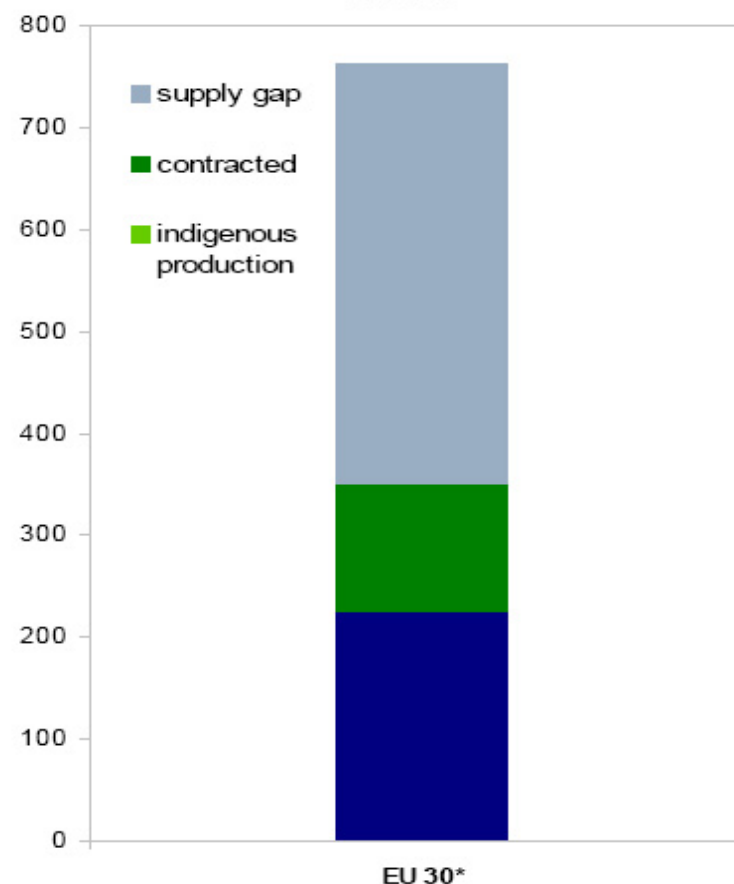


**Demand in Europe
in bcm**

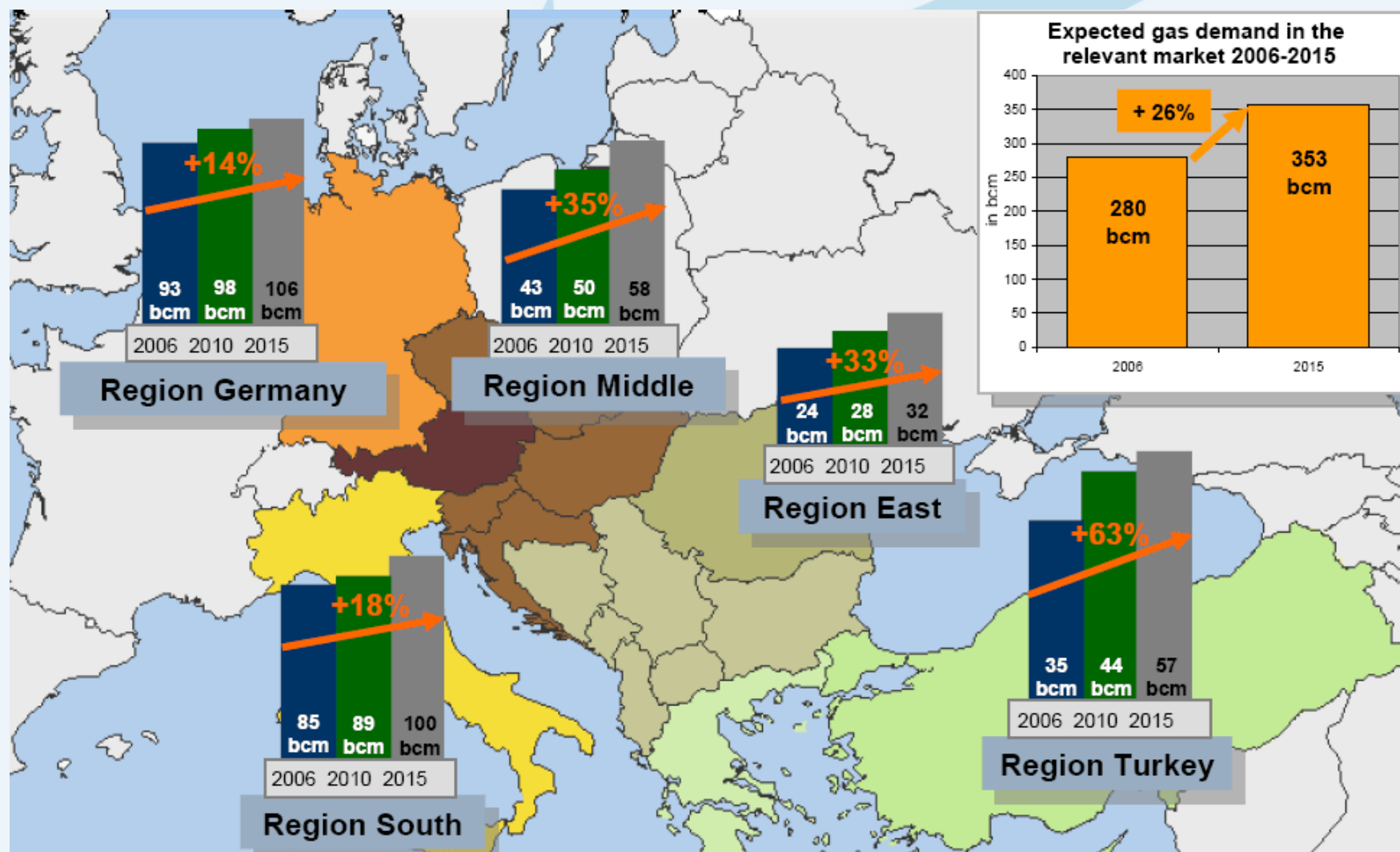


* Europe 30 (EU 25 + Rumania, Bulgaria, Croatia, Turkey, Norway)

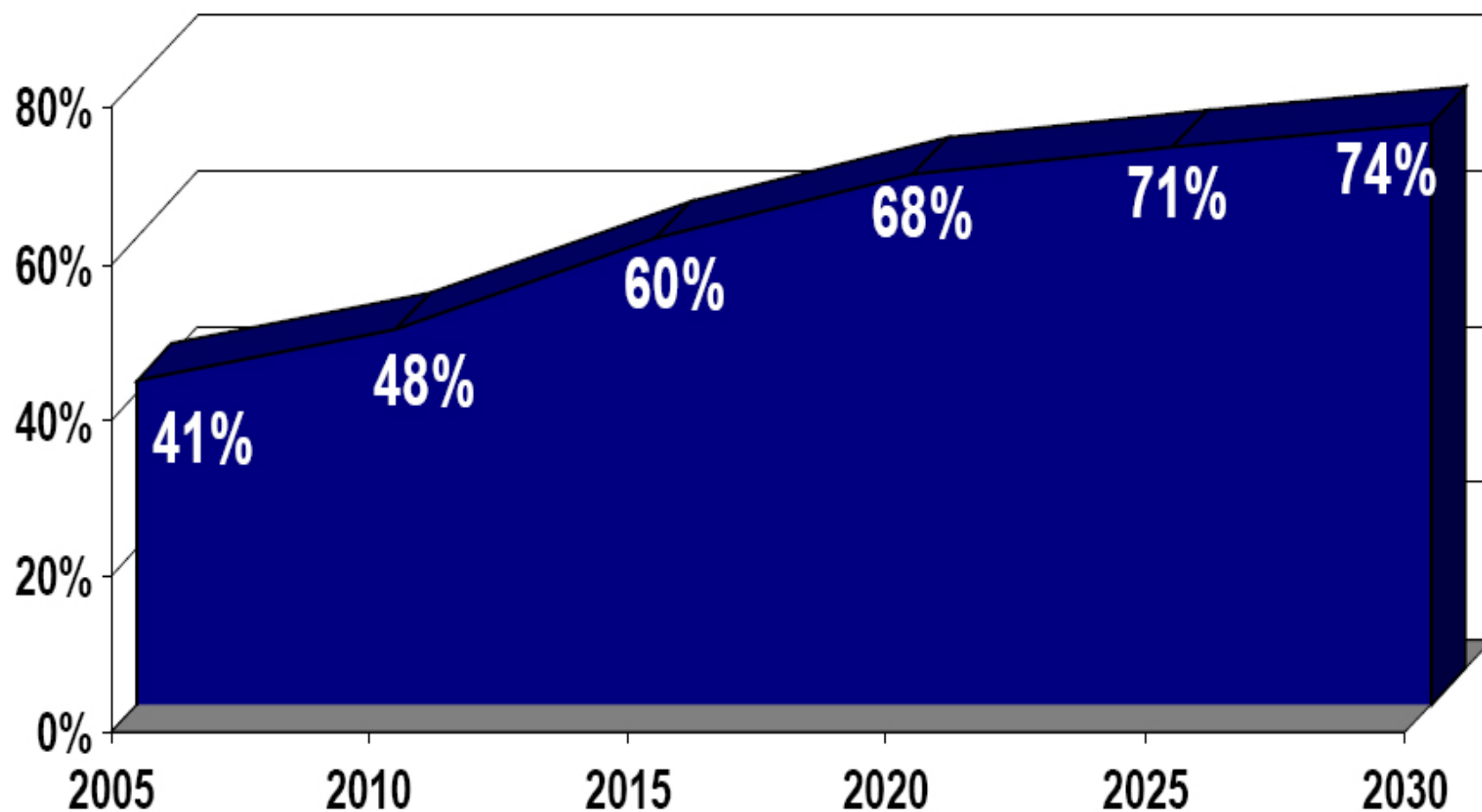
**Supply gap in Europe 2030
In bcm**



Europe's Gas Demand Forecast (2006 – 2015)



Europe's Gas Import Dependency (2005 – 2030)

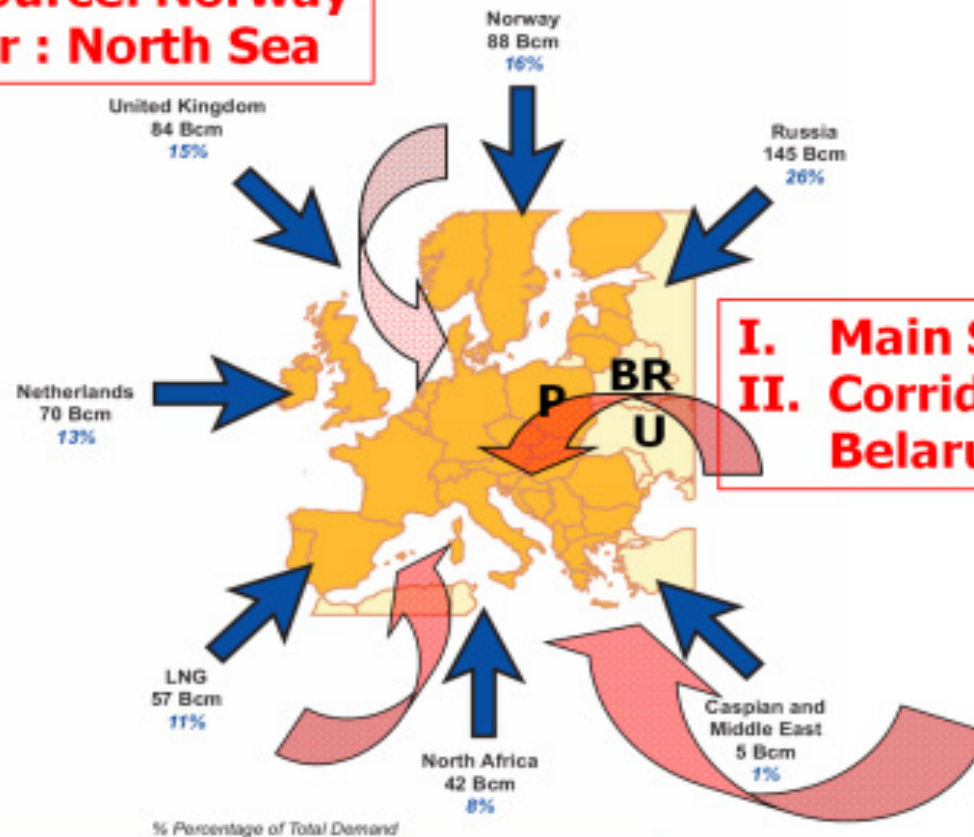


Source: OMV

Corridors to the European Gas Market



II. Main Source: Norway
II. Corridor : North Sea



I. Main Source: Russia
II. Corridor: Ukraine / Belarus + Poland

III. Main Source: Algeria
III. Main Corridor: North Africa

IV.

Gas Pipelines via Turkey



Source: BOTAS

Energy Demand – Domestic Production Balance (1990–2009)



Source: MENR

	1990	1995	2000	2005	2009
Demand (million toe)	52.9	80.5	91.3	0.8	106.1
Production (million toe)	25.6	26.7	26.1	24.5	30.3
Import (million toe)	30.9	39.7	56.3	73.4	82.1
Export (million toe)	2.1	1.9	1.5	5.1	6.8
Bunker Fuel (million toe)	0.3	0.4	0.4	0.6	0.6
Net Import (million toe)	28.4	37.3	54.2	67.6	74.7
Coverage of Domestic Production to Total Consumption (%)	48.1	42.0	33.1	26.9	28.5

Primary Energy Consumption – Production Balance (2009)



Resources	Coal + Lignite	Other Solid Fuels	Oil	Natural Gas	Renewables	Total
Primary Energy Production (million toe)	16.9	5.1	2.3	0.6	5.2	30.3
Share in Primary Energy Production (%)	55.9	17.0	7.8	2.1	17.2	100.0
Primary Energy Consumption (million toe)	30.4	7.1	30.5	32.8	5.2	106.1
Share in Primary Energy Consumption (%)	28.7	6.7	28.8	31.0	5.0	100.0
Coverage of Production to Consumption (%)	55.6	72.0	7.7	2.0	100.0	28.5

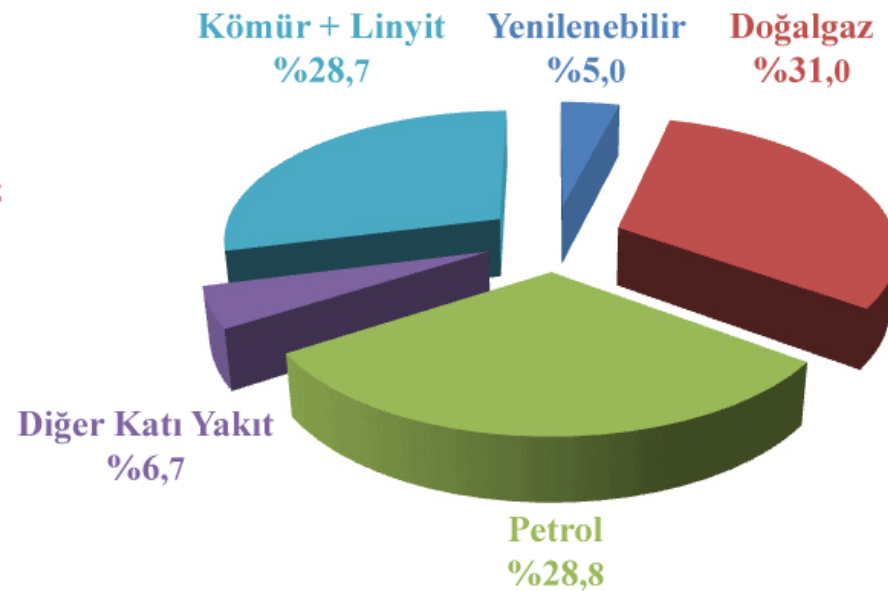
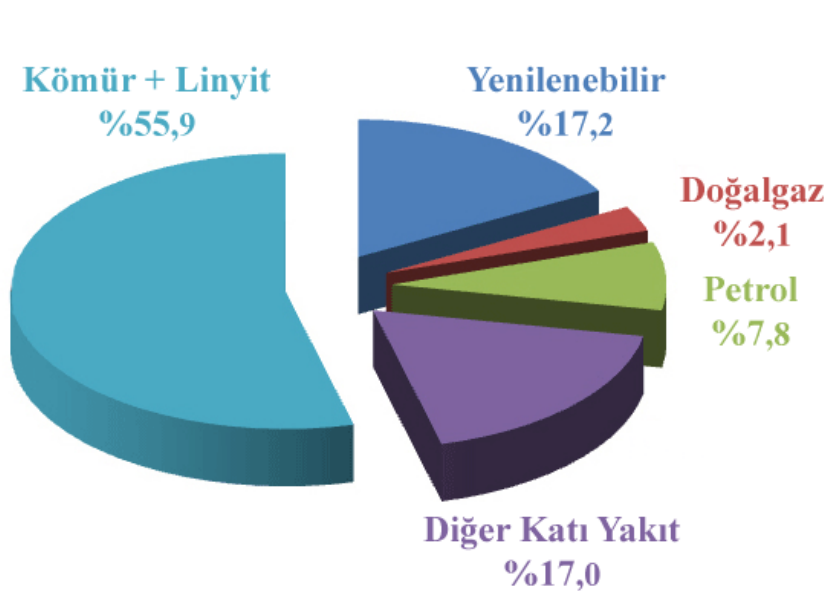
Source: MENR

Primary Energy Production – Consumption Balance (2009)



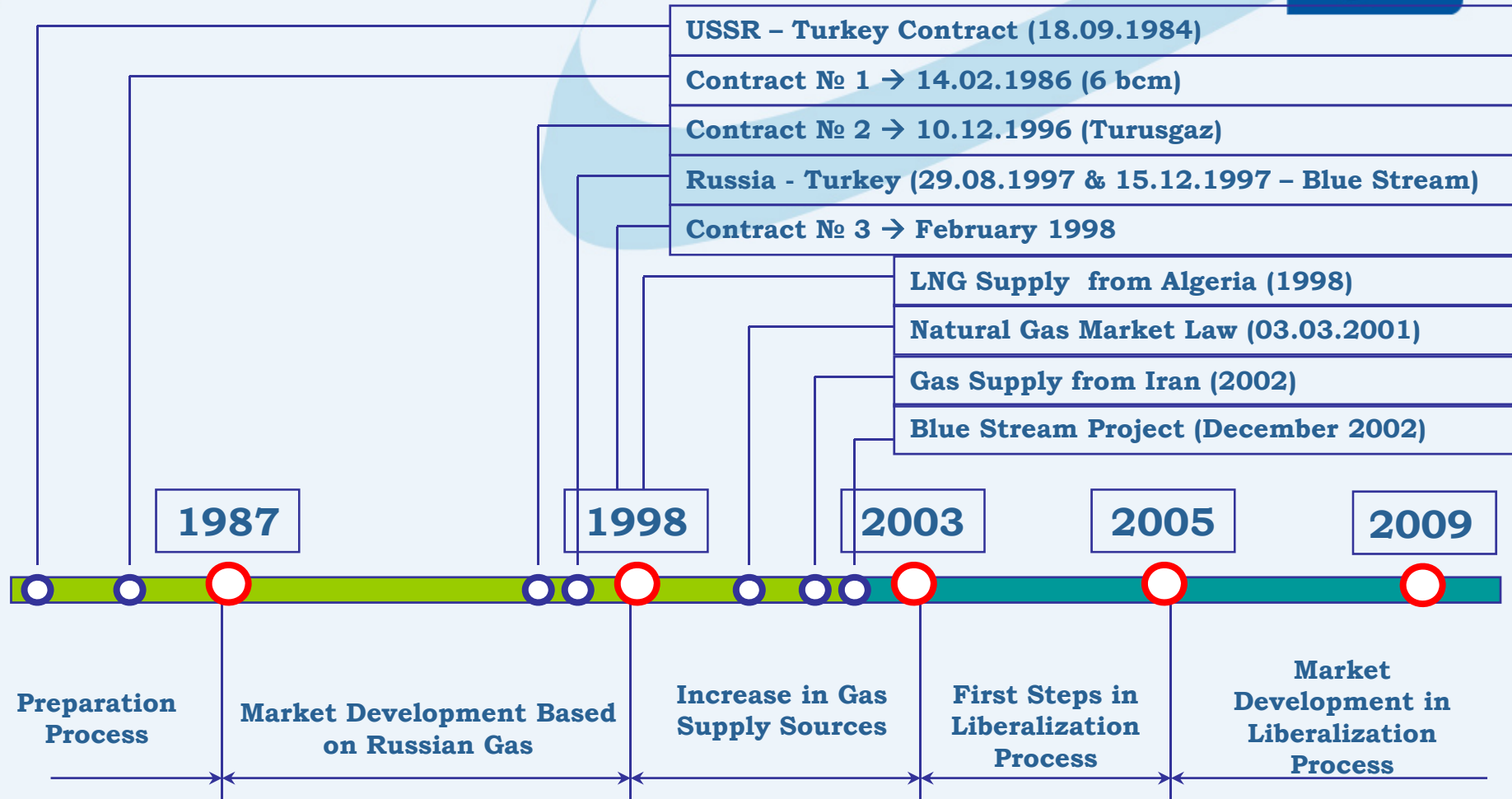
Distribution of Production
(30.3 million toe)

Distribution of Consumption
(106.1 million toe)



Share of Imported Energy Resources: 71.5%

Development of the Turkish Natural Gas Market



2005 - 2010

- 2005 Nov - Contract Release Tender to be done
- 2006 Dec - Announcement of Tender Results
- 2007 Dec - First Private Importer's Access into Market

- 2009 Jan - Second Private Importer's Access into Market
- 2009 Apr - Other Two Private Importers' Access into Market
- 2009 May - LNG Importer's Access into Market
- 2009 Jun/Jul - Wholesale Companies Access into Market
- 2010 Jan - 5 Wholesale Companies in Operation

Gas Purchase Agreements



Contract	Date of Signature	Date of Operation	Duration (Years)	Volume (Plateau bcma)	Date of Expiration
Russia (West)	Feb 1986	Jun 1987	25	6	2011
Algeria (LNG)	Apr 1988	Aug 1994	20	4	2014
Nigeria (LNG)	Nov 1995	Nov 1999	22	1.2	2021
Iran	Aug 1996	Dec 2001	25	10	2026
Russia (B.Stream)	Dec 1997	Feb 2003	25	16	2028
Russia (West)	Feb 1998	Mar 1998	23	8	2021
Azerbaijan	Mar 2001	Jul 2007	15	6.6	2022

Distribution of Gas Import Based on Source Country



	<u>2009</u>		<u>2010</u>
Russia	19.894 (55.6%)	→	17.576 (46.9%)
Iran	5.253 (14.8%)	→	7.766 (20.7%)
Azerbaijan	4.960 (13,8%)	→	4.521 (12.1%)
Others	5.648 (15.8%)	→	7.593 (20.3%)
<i>(Algeria + Nigeria + Ege Gaz)</i>			

35.755 bcm → 37.456 bcm
(↑ %4.7 ↑)

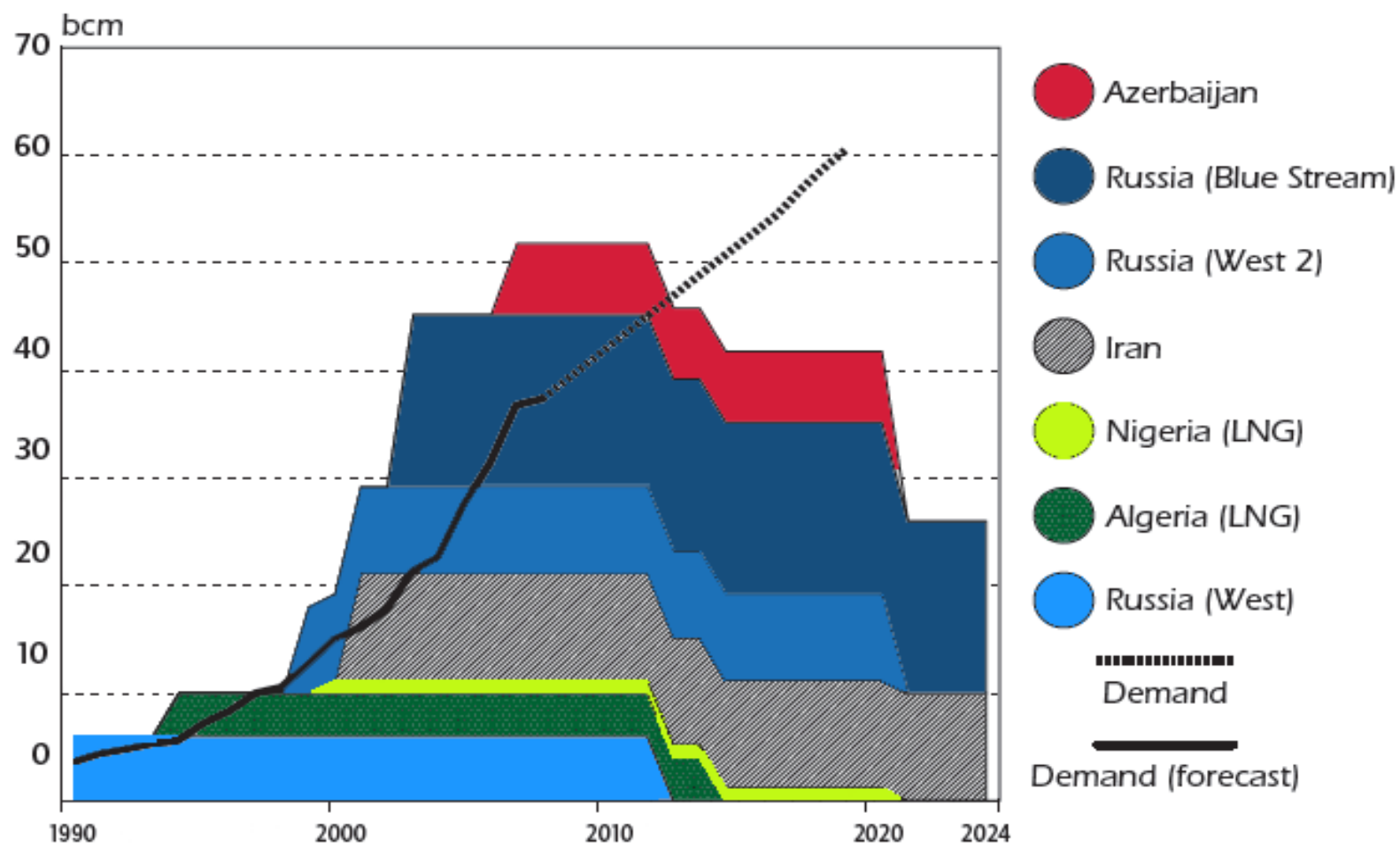
Distribution of Gas Imports Between State and Private Sector



	<u>2009</u>		<u>2010</u>
BOTAS	33.068 (92.5%)	→	31.730 (84.7%)
Private Co's	2.687 (7.5%)	→	5.726 (15.3%)

	35.755	→	37.456

Gas Supply – Demand Balance (1990 – 2024)



Source: IEA Turkey 2009 Review



THANK YOU...