"Turkish E&P Sector and Natural Gas Market in Light of Global Energy Trends"

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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, Turkish Petroleum Law…)

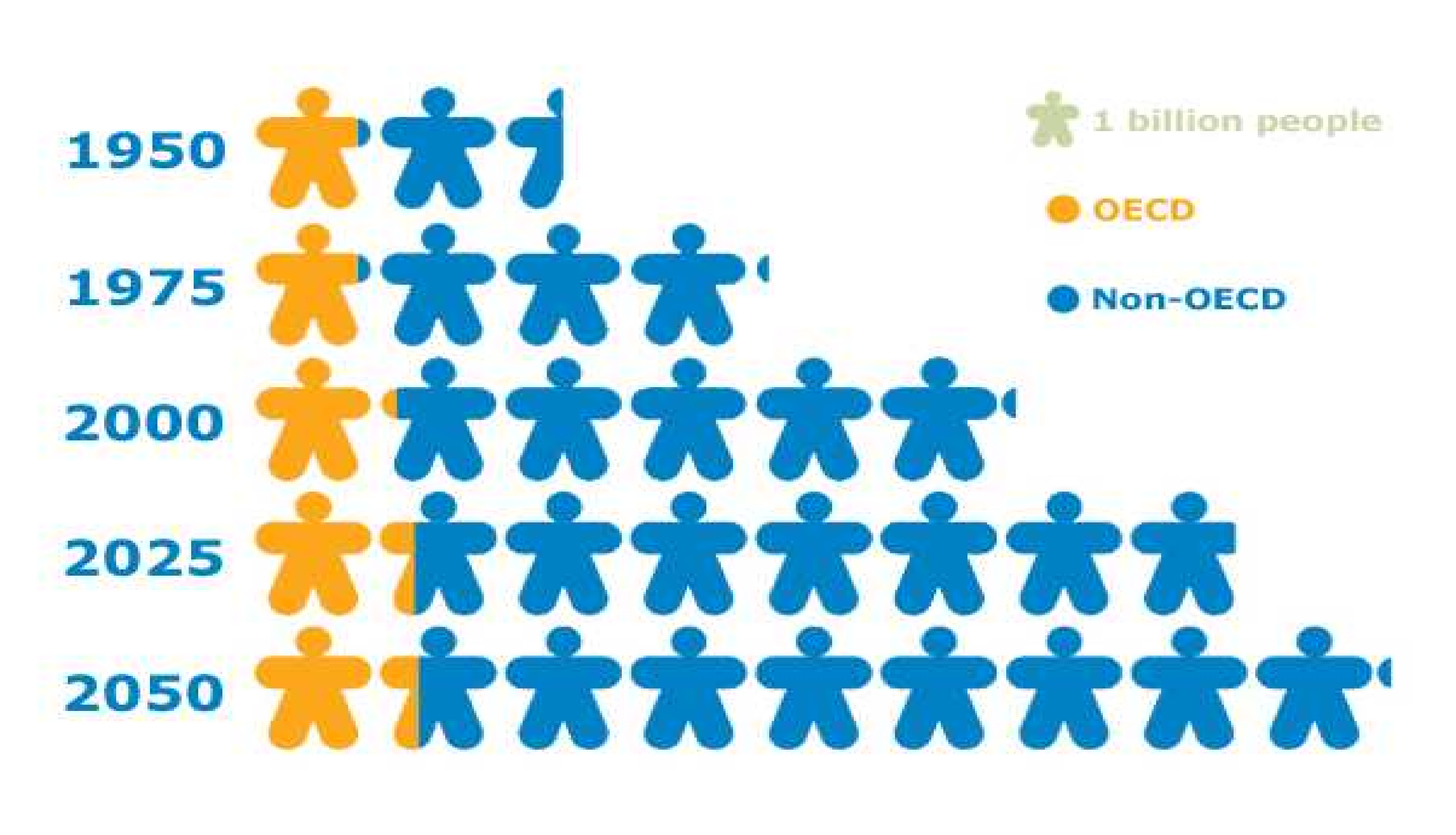
Member companies mainly have activities in 2 sectors:

- Exploration & Production
- Natural Gas Market

PETFORM Member
42 Energy Companies

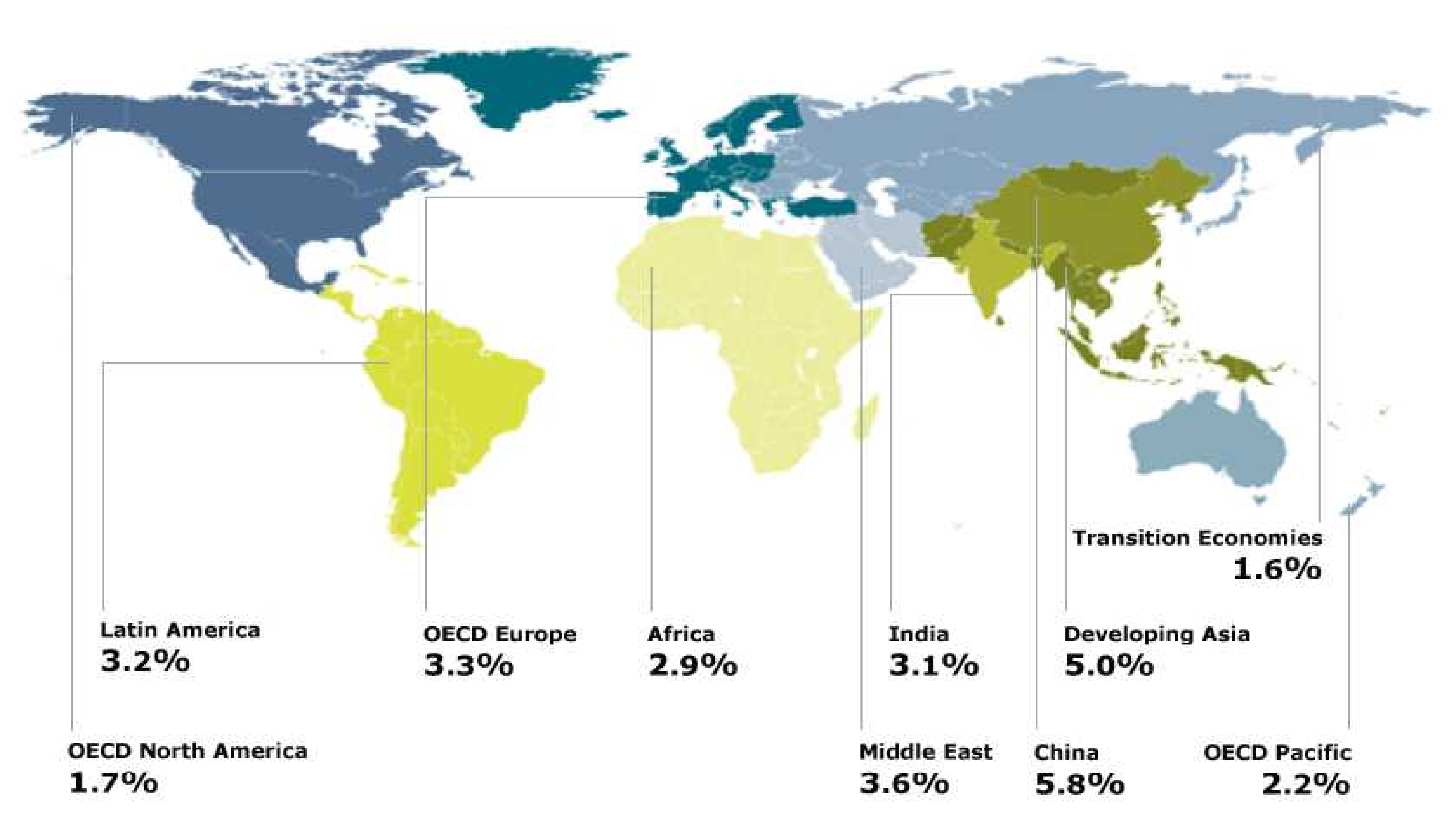
- AKENERJİ
- AKSA
- ALADDIN MIDDLE EAST
- ATTİLA DOĞAN İNŞAAT
- AVRASYA GAZ
- AYGAZ DOĞAL GAZ
- BM İNŞAAT
- BOSPHORUSGAZ
- BP
- ÇALIK ENERJİ
- DOĞAL ENERJİ
- EDISON
- EGE GAZ
- ENEL
- ENERCO ENERJİ
- ENERJİSA
- ENI
- E.ON RUHRGAS
- EWE ENERJİ
- GENEL ENERJİ
- GÜNEY YILDIZI PETROL
- IBS RESEARCH
- NATURGAZ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

World Population Growth (1950 – 2050)



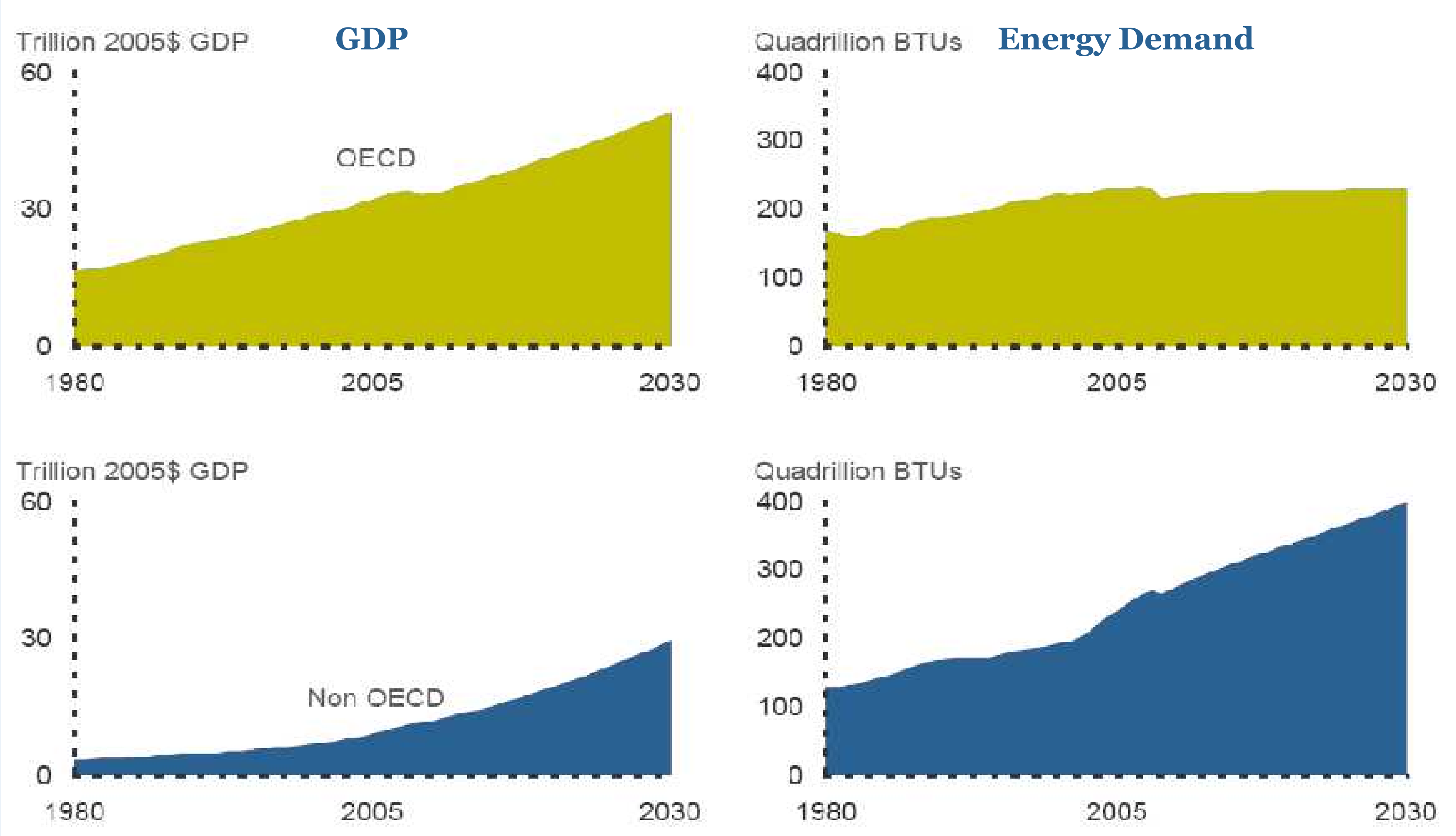
Source: Shell

World GDP Growth (2005 – 2050)



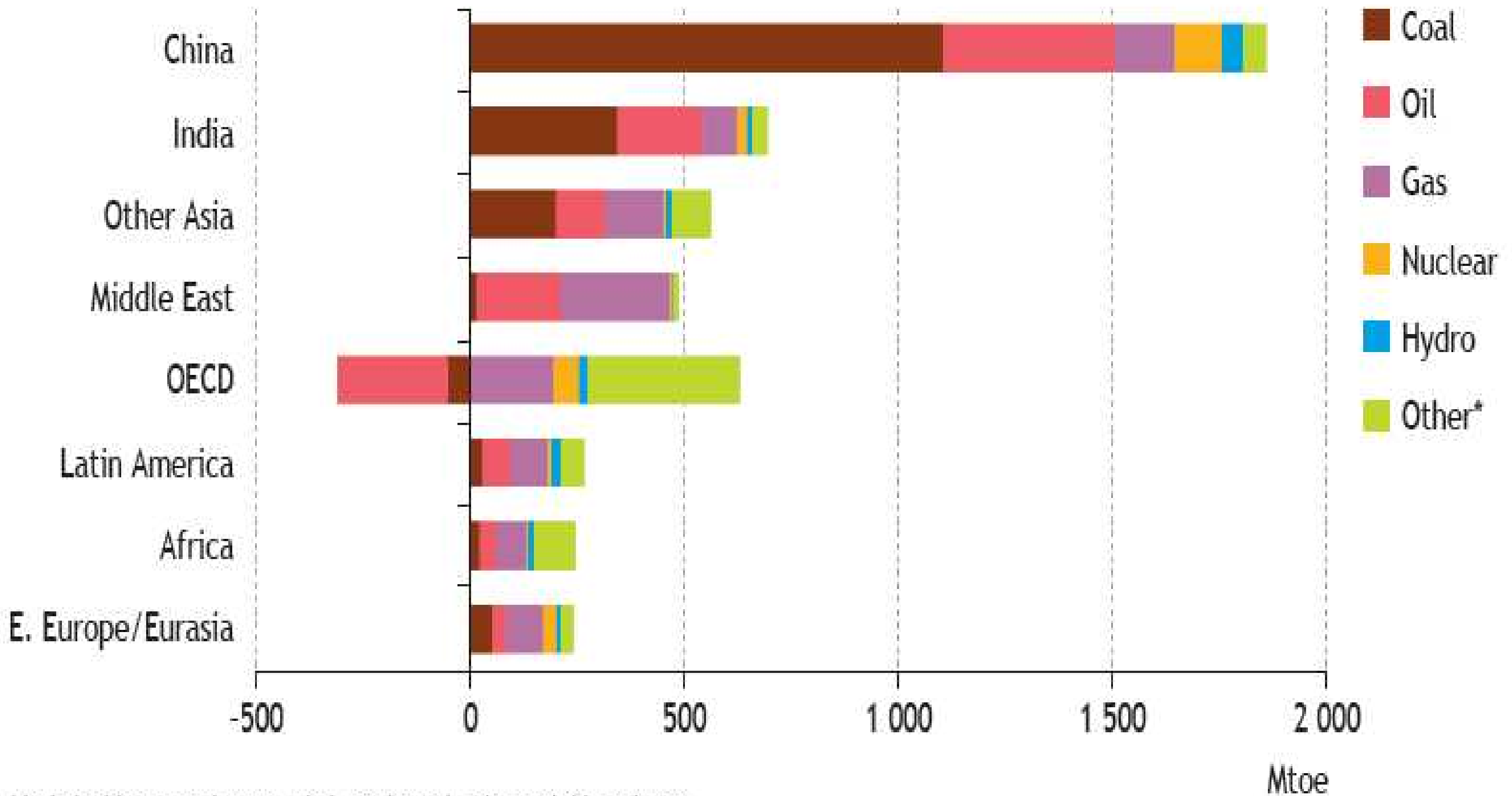
Source: IEA

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



Source: ExxonMobil

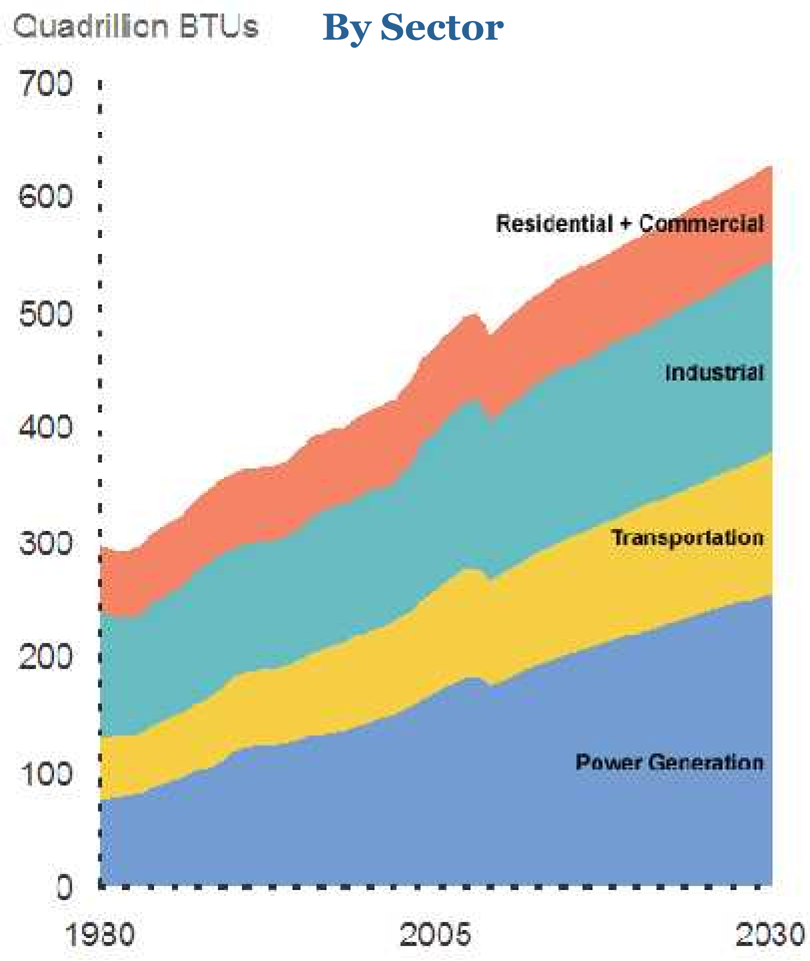
World Primary Energy Demand (2007 – 2030)

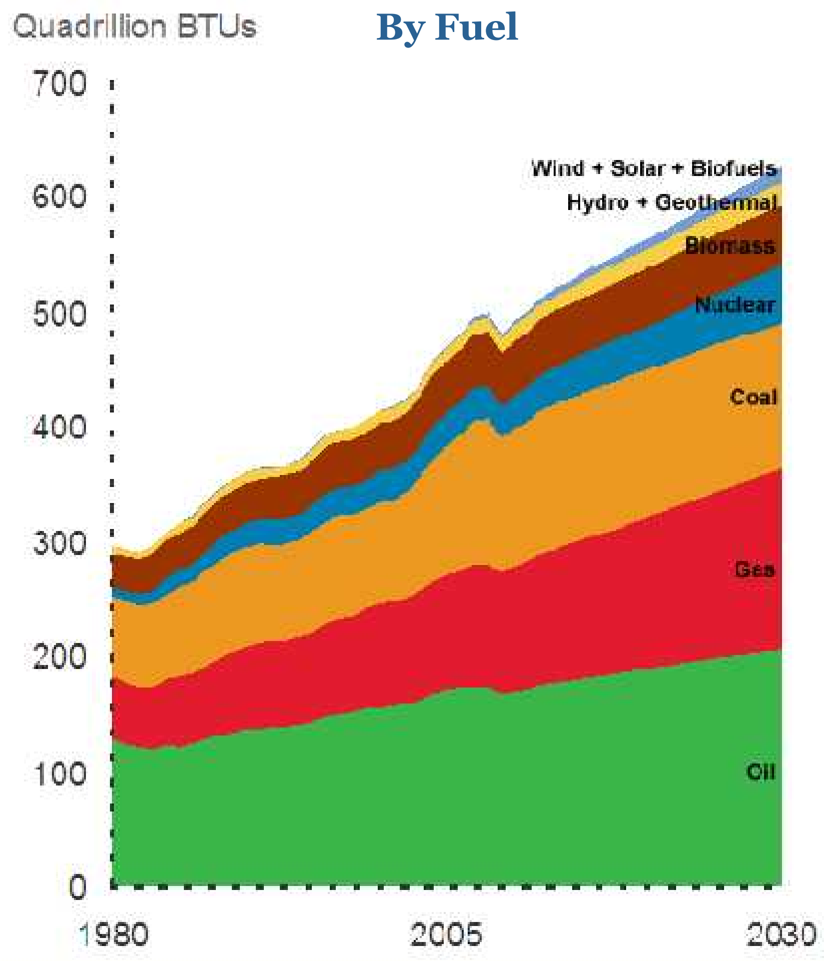


* Includes biomass and waste, wind, geothermal, solar, and tide and wave.

Source: IEA

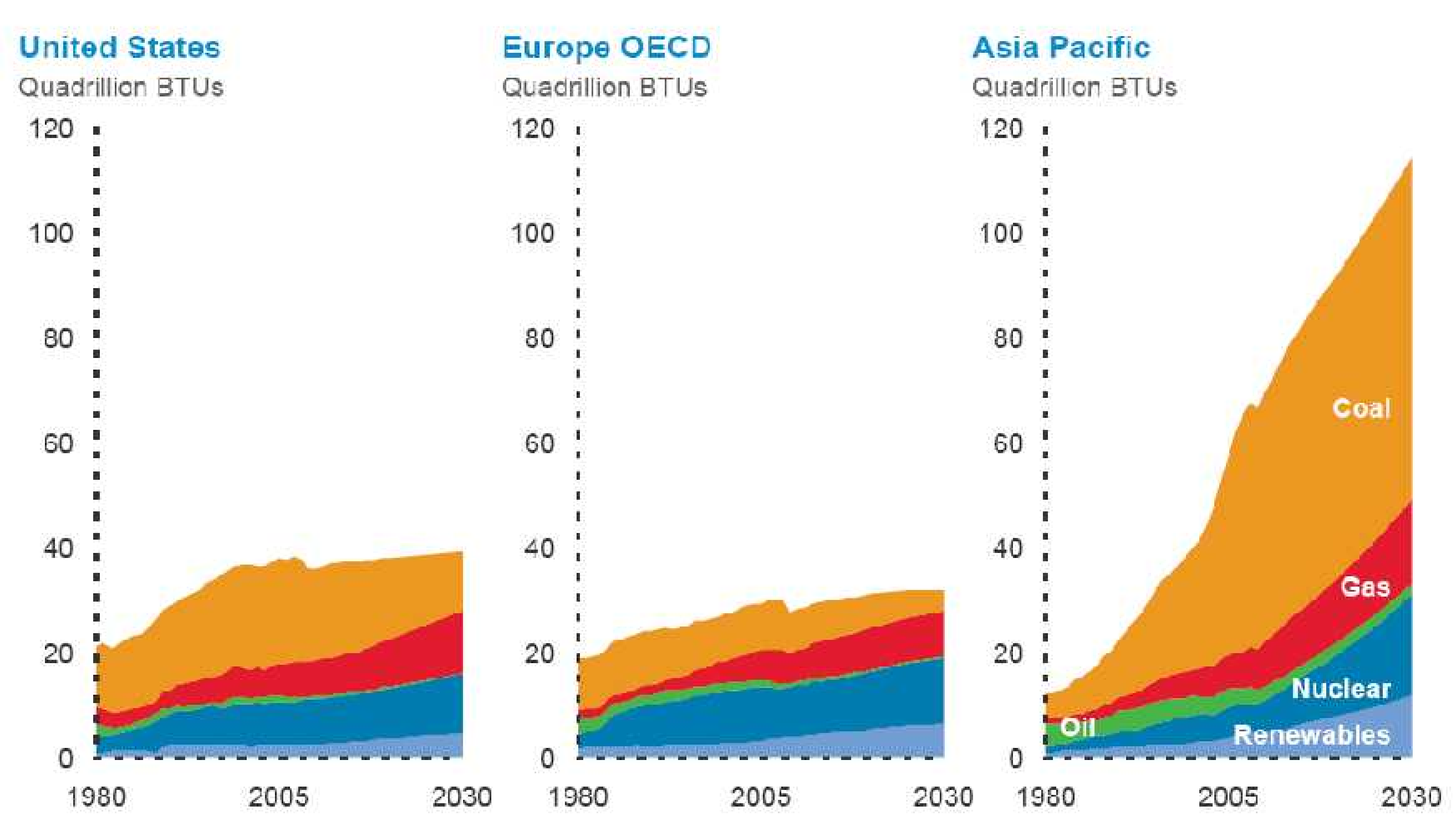
Energy Demand By Sector & By Fuel (1980 – 2005 – 2030)





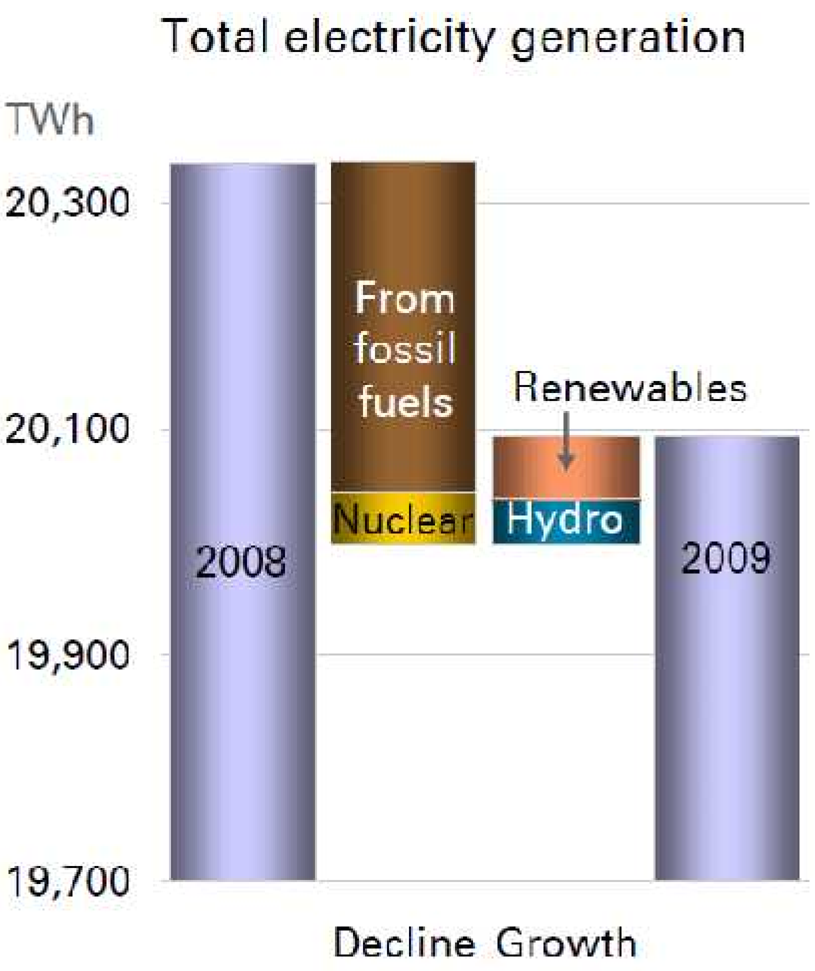
Source: ExxonMobil

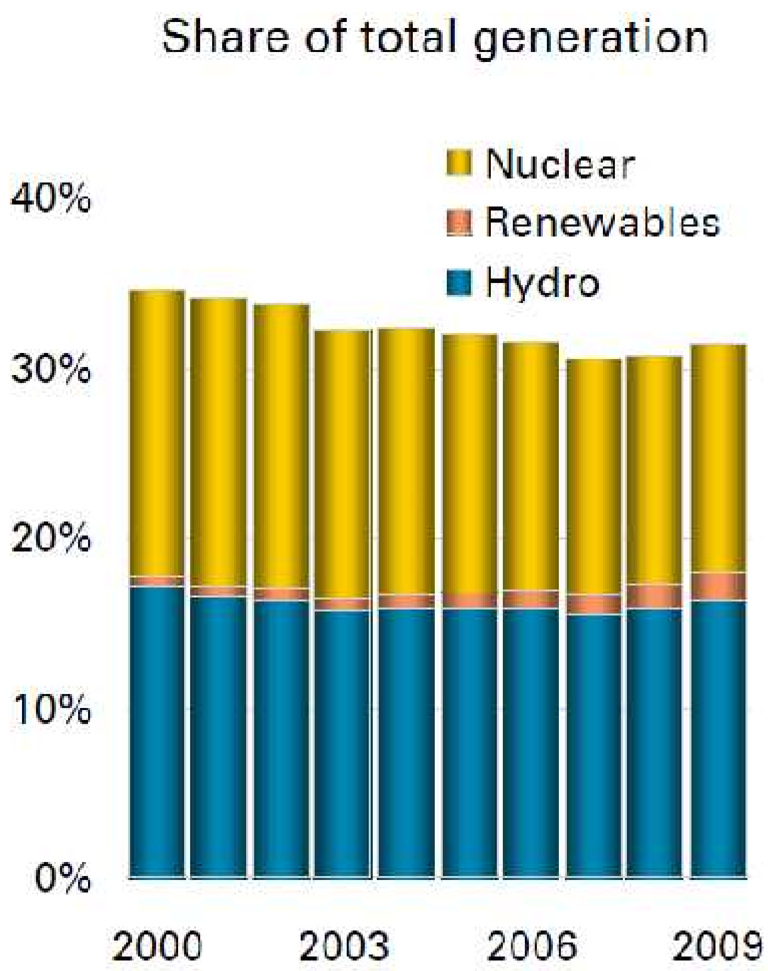
Power Generation Fuel Demand (1980 – 2005 - 2030)



Source: ExxonMobil

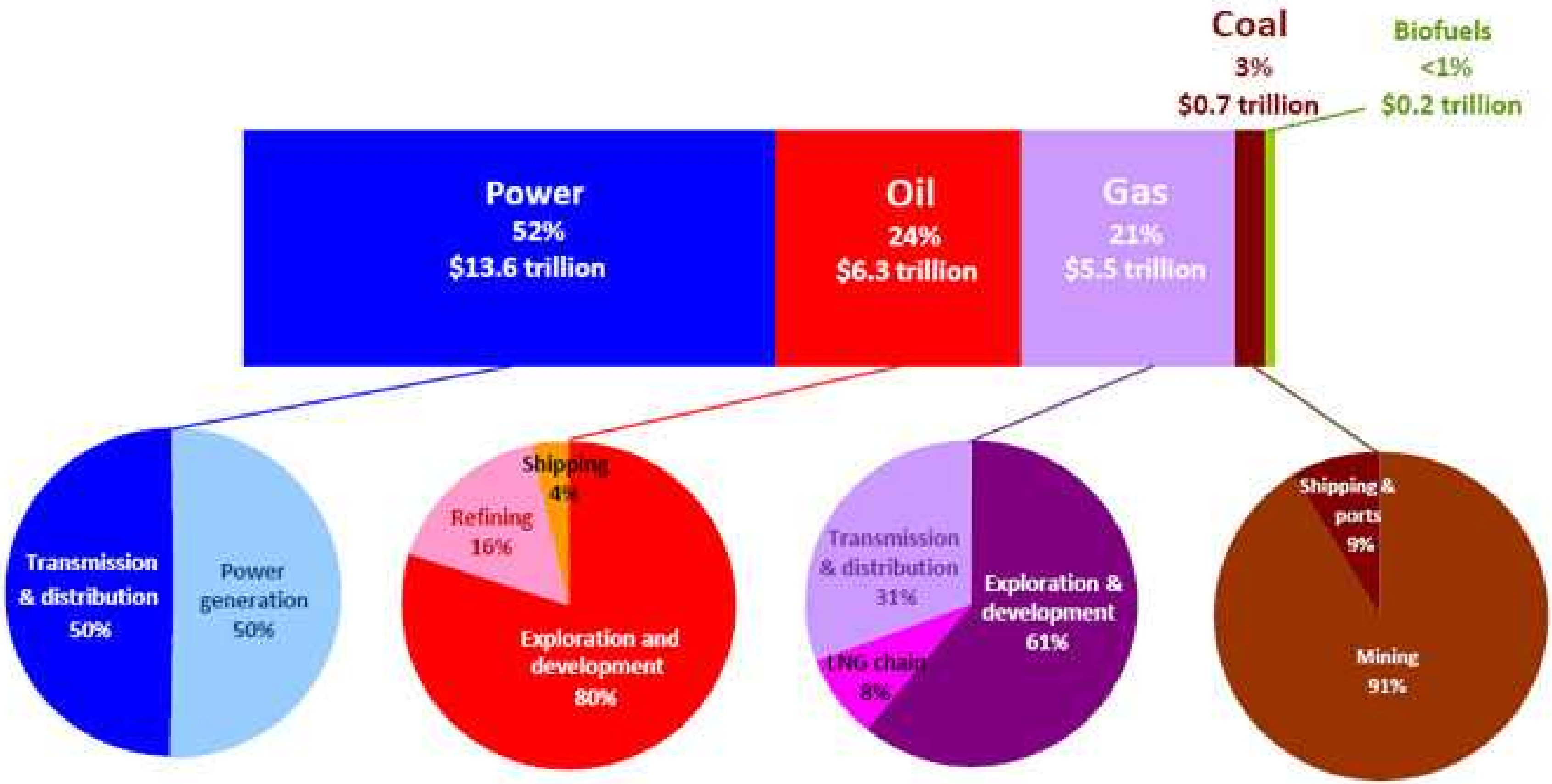
Share of Non-Fossil Fuels in Power Generation





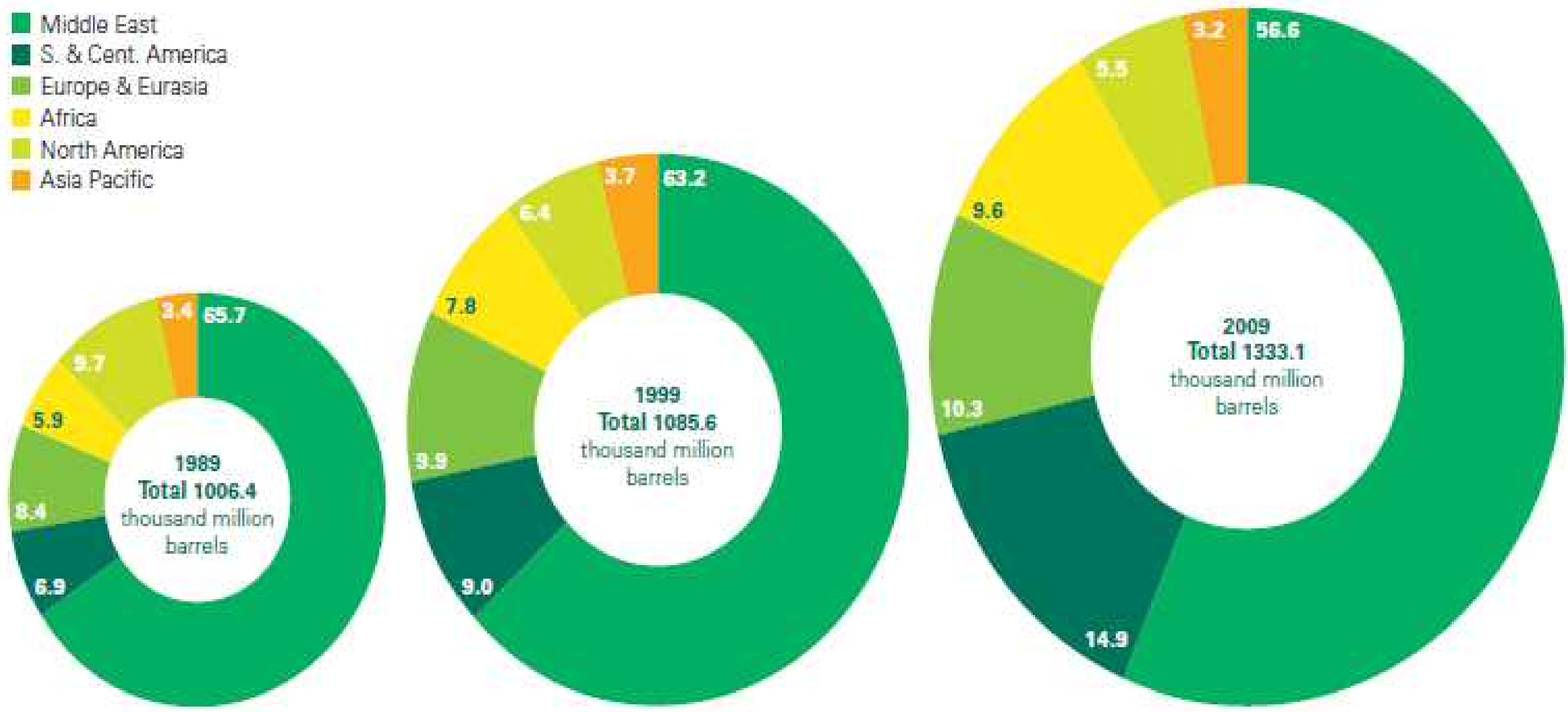
Source: BP

Primary Energy Investment Requirement (2007 – 2030)



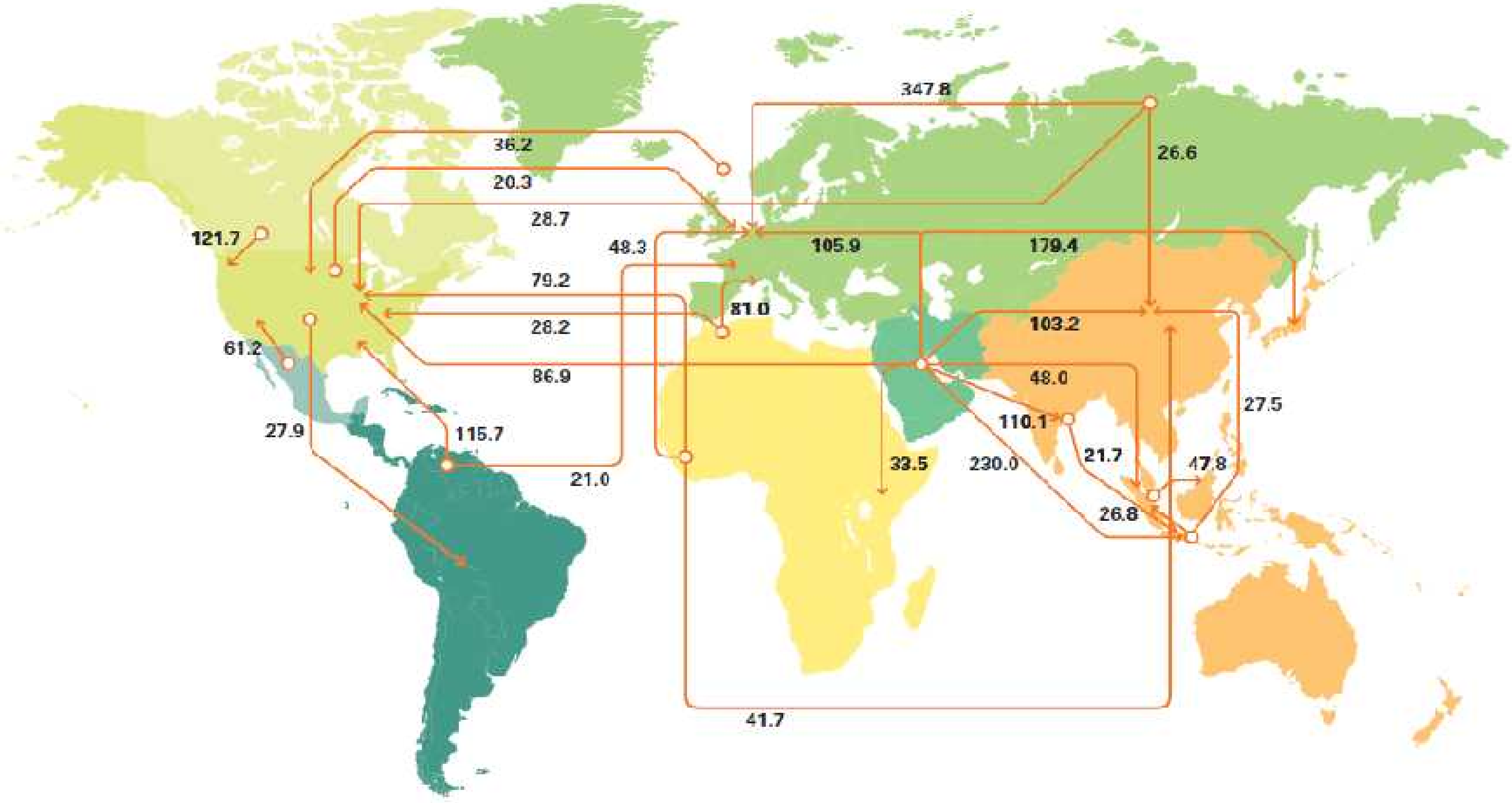
Source: IEA

Distribution of World Oil Reserves (1989 – 2009)



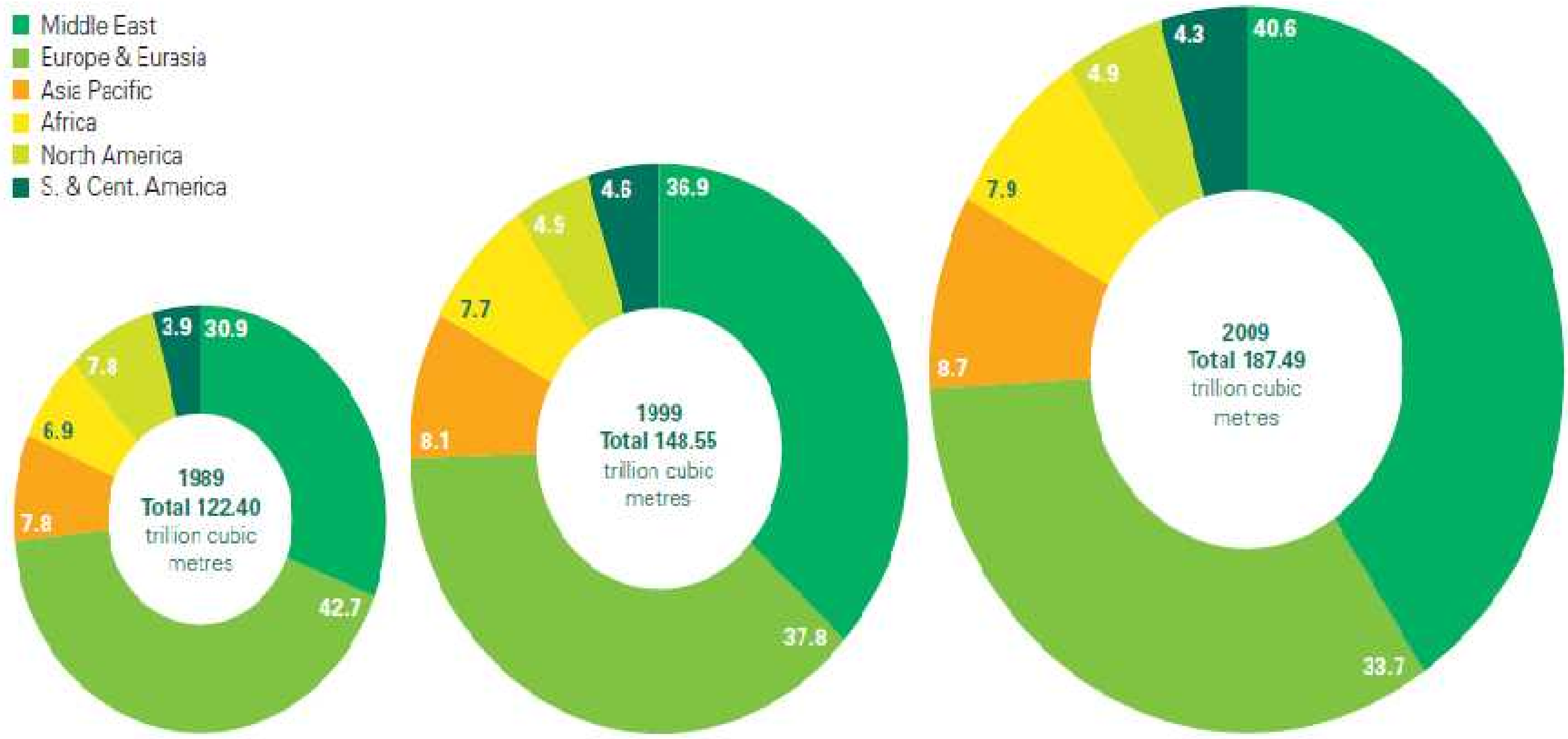
Source: BP

Global Oil Trade Routes



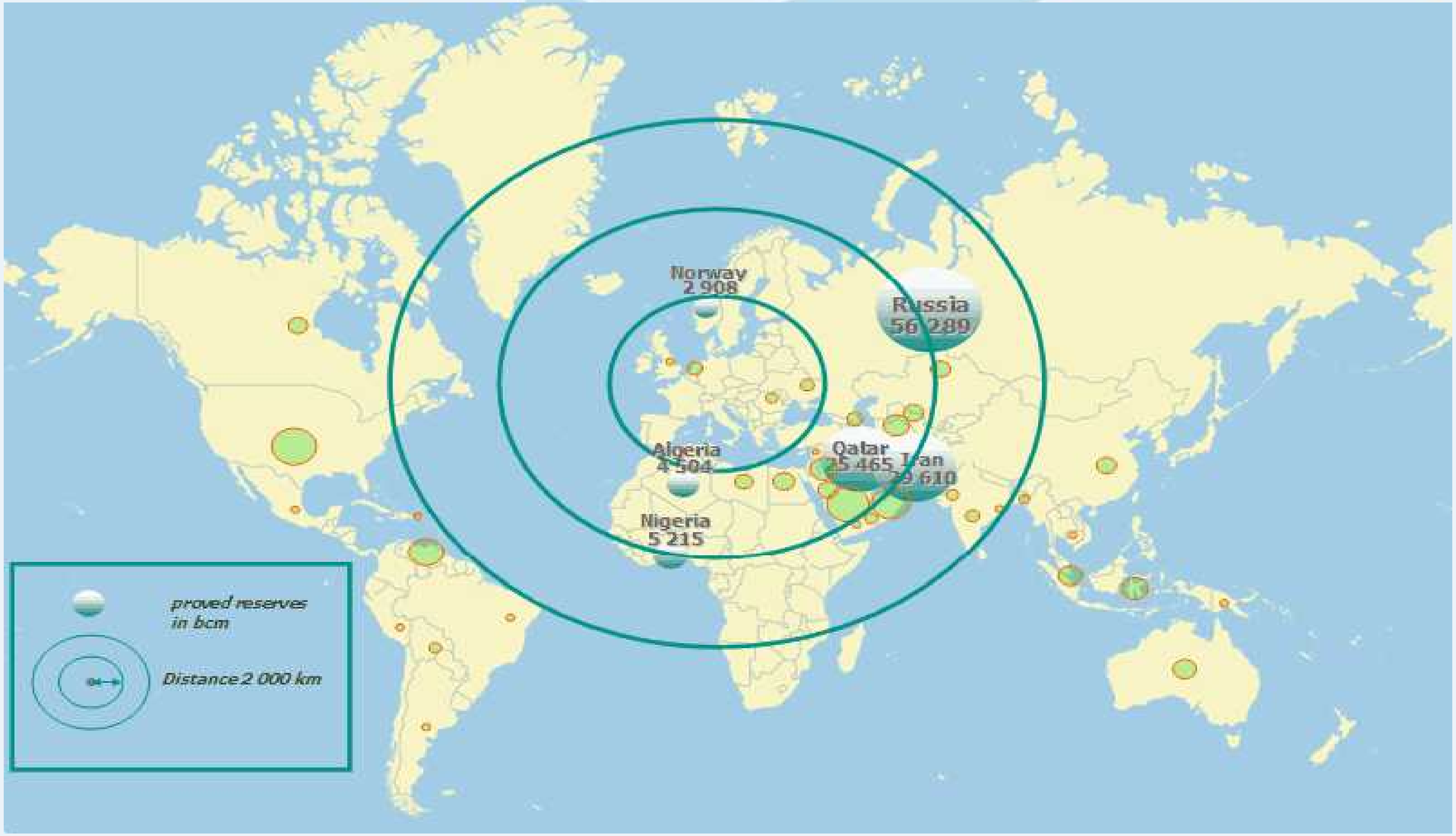
Source: BP

Distribution of World Gas Reserves (1989 – 2009)



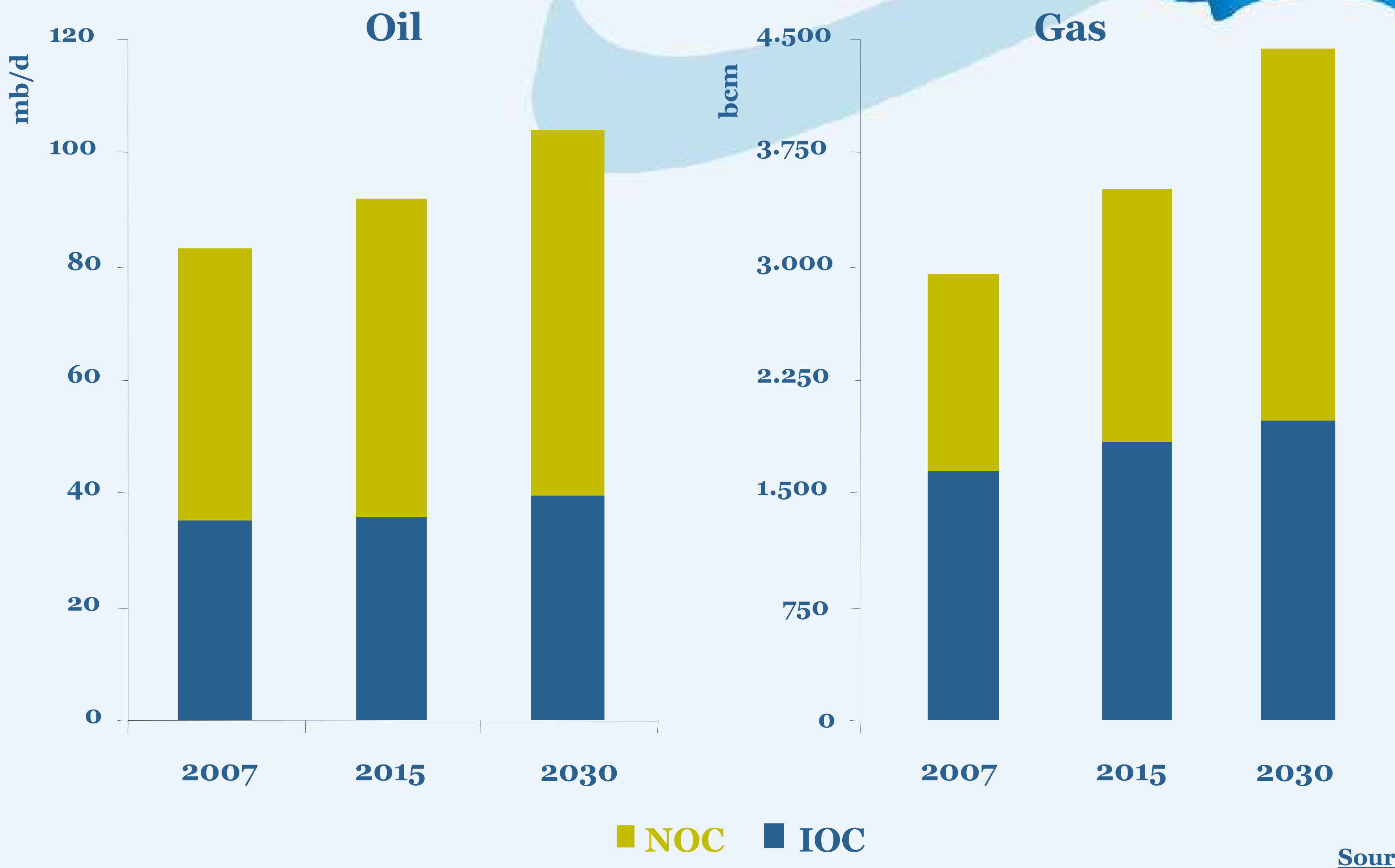
Source: BP

Distribution of World Gas Reserves



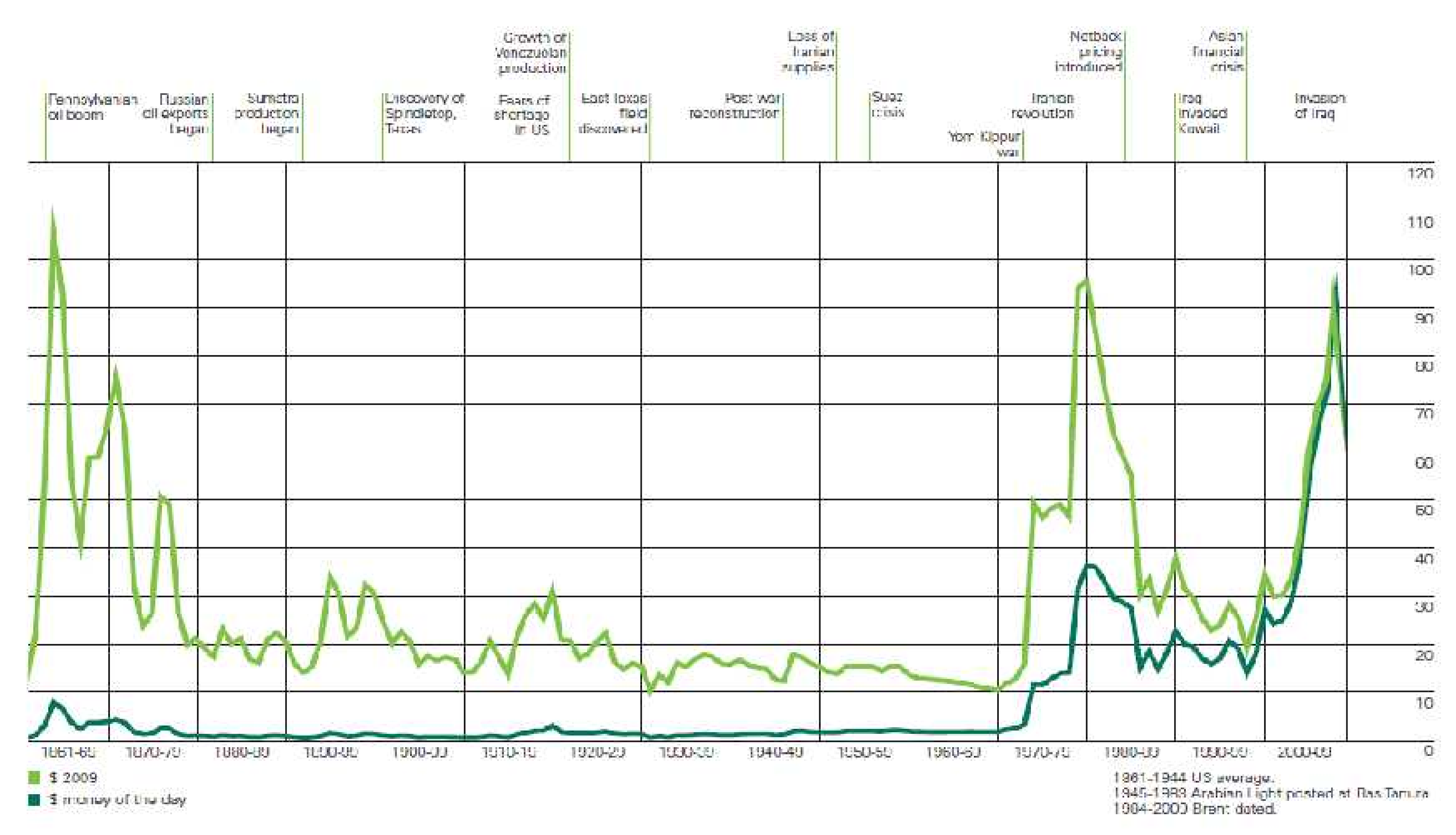
Source: GDF SUEZ

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



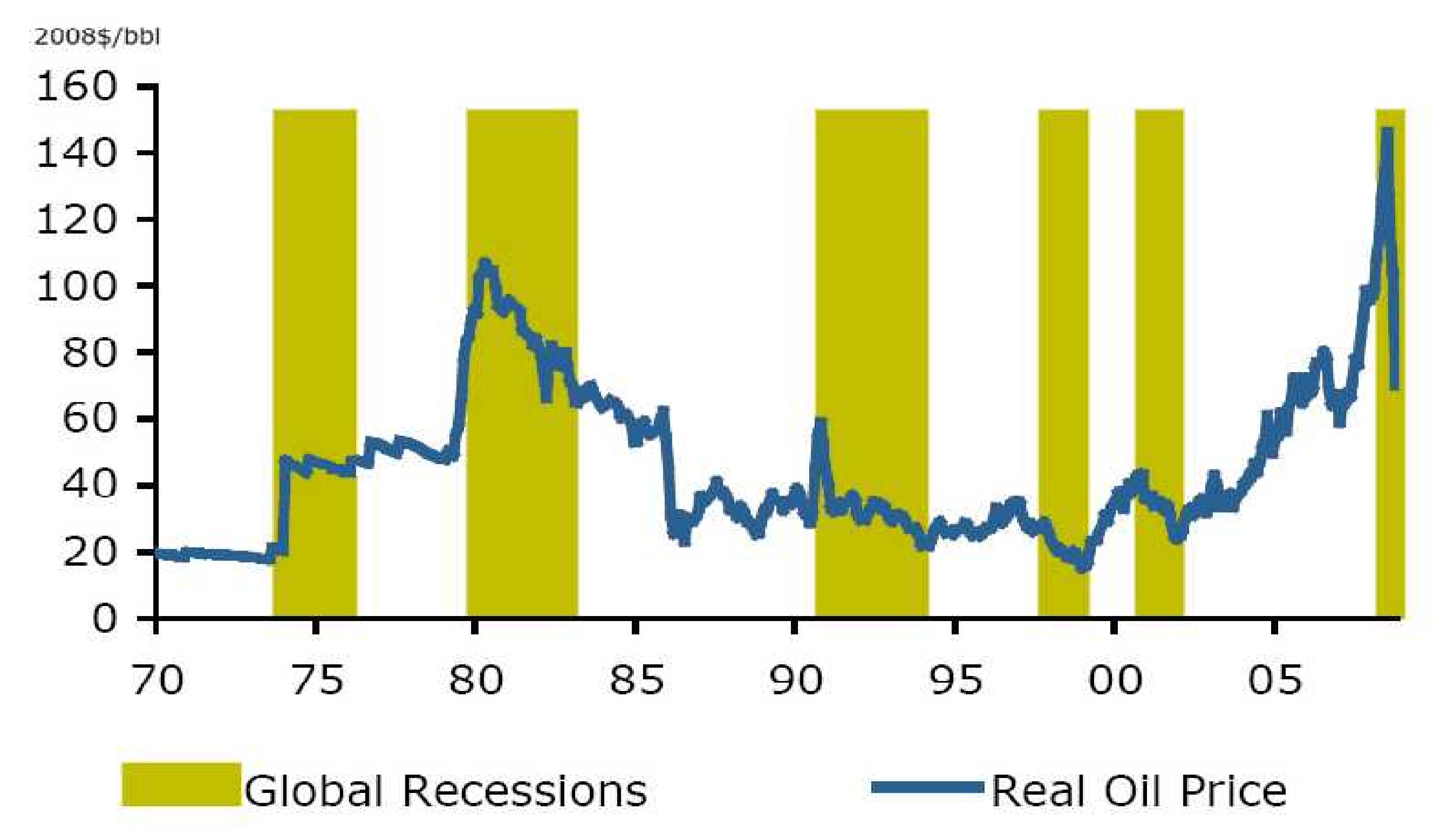
Source: IEA

Crude Oil Prices (1861 – 2009)



Source: BP

Oil Prices & Global Recessions



Source: CIBC

Energy Demand (Turkey) –
Local Production Balance (1990–2008)

	1990	1995	2000	2005	2008
Demand (million toe)	52.9	80.5	91.3	0.8	106.2
Production (million toe)	25.6	26.7	26.1	24.5	29.1
Import (million toe)	30.9	39.7	56.3	73.4	85.5
Export (million toe)	2.1	1.9	1.5	5.1	7.1
Bunker Fuel (million toe)	0.3	0.4	0.4	0.6	0.7
Net Import (million toe)	28.4	37.3	54.2	67.6	77.4
Coverage of Local Production to Total Consumption (%)	48.1	42.0	33.1	26.9	27.2

Source: MENR

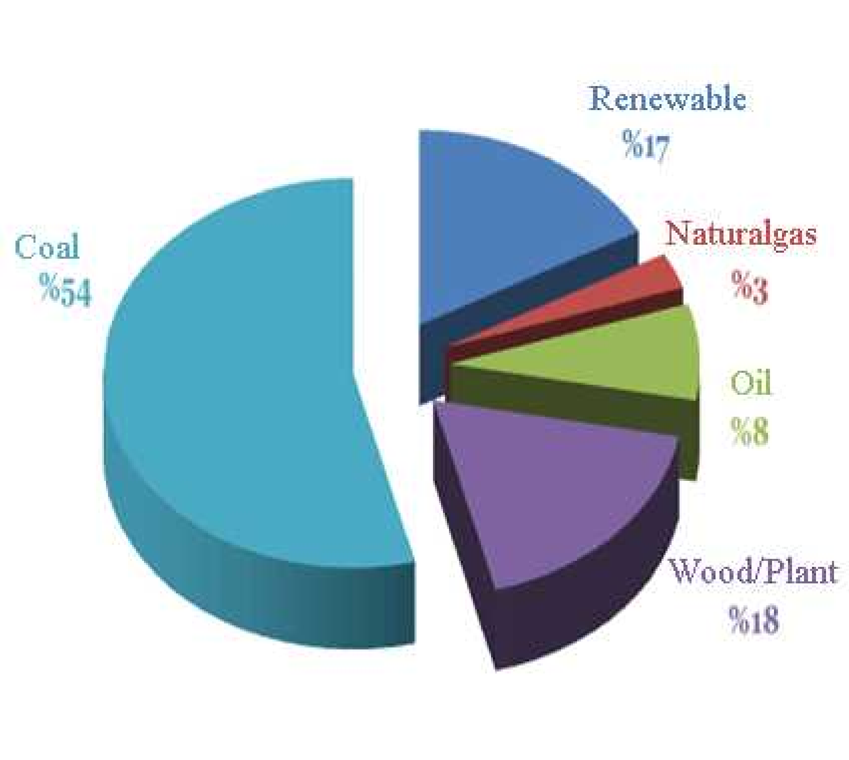
Primary Energy Production – Consumption Balance (2007)

Resources	Coal	Wood & Plant	Oil	Natural Gas	Renewables	Total
Primary Energy Production (million toe)	14.7	4.9	2.2	0.8	4.5	27.4
Share in Primary Energy Production (%)	53.9	18.2	8.2	3.0	16.7	100.0
Primary Energy Consumption (million toe)	30.9	4.9	33.3	33.9	4.5	107.6
Share in Primary Energy Consumption (%)	28.7	4.6	30.9	31.5	4.3	100.0
Coverage of Production to Consumption (%)	47.9	100.0	6.7	2.4	100.0	25.5

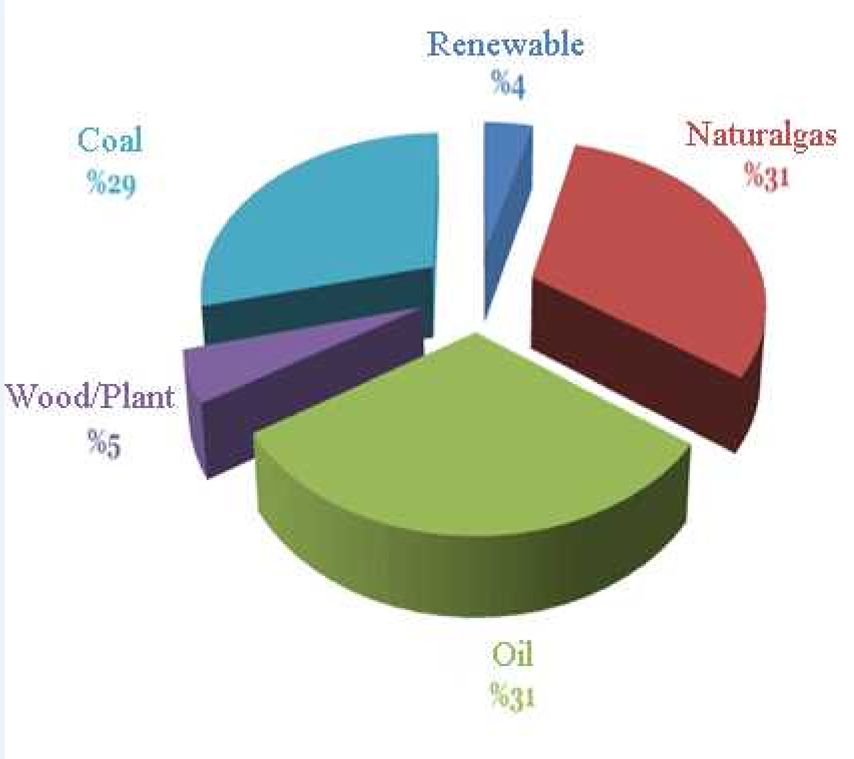
Source: MENR

Primary Energy Production – Consumption Balance (2007)

Distribution of Production
(27.4 million toe)



Distribution of Consumption
(107.6 million toe)



Share of Imported Energy Resources: 75%

Source: MENR

Gas Production in Turkey

- First Gas Discovery : Kırklareli (1970)
- Recoverable Reserves : 17.4 bcm
- Cumulative Production : 11.3 bcm
- Remaining Recoverable Res.: 6.1 bcm
- Annual Production : 0.7 bcm
- Annual Consumption : 35.7 bcm
- Production / Consumption : 2%
- Distribution of Production : 43% Private Sector
  38% Private + TPAO Partnerships
  19% TPAO

Source: GDPA (2009)

Oil Production in Turkey

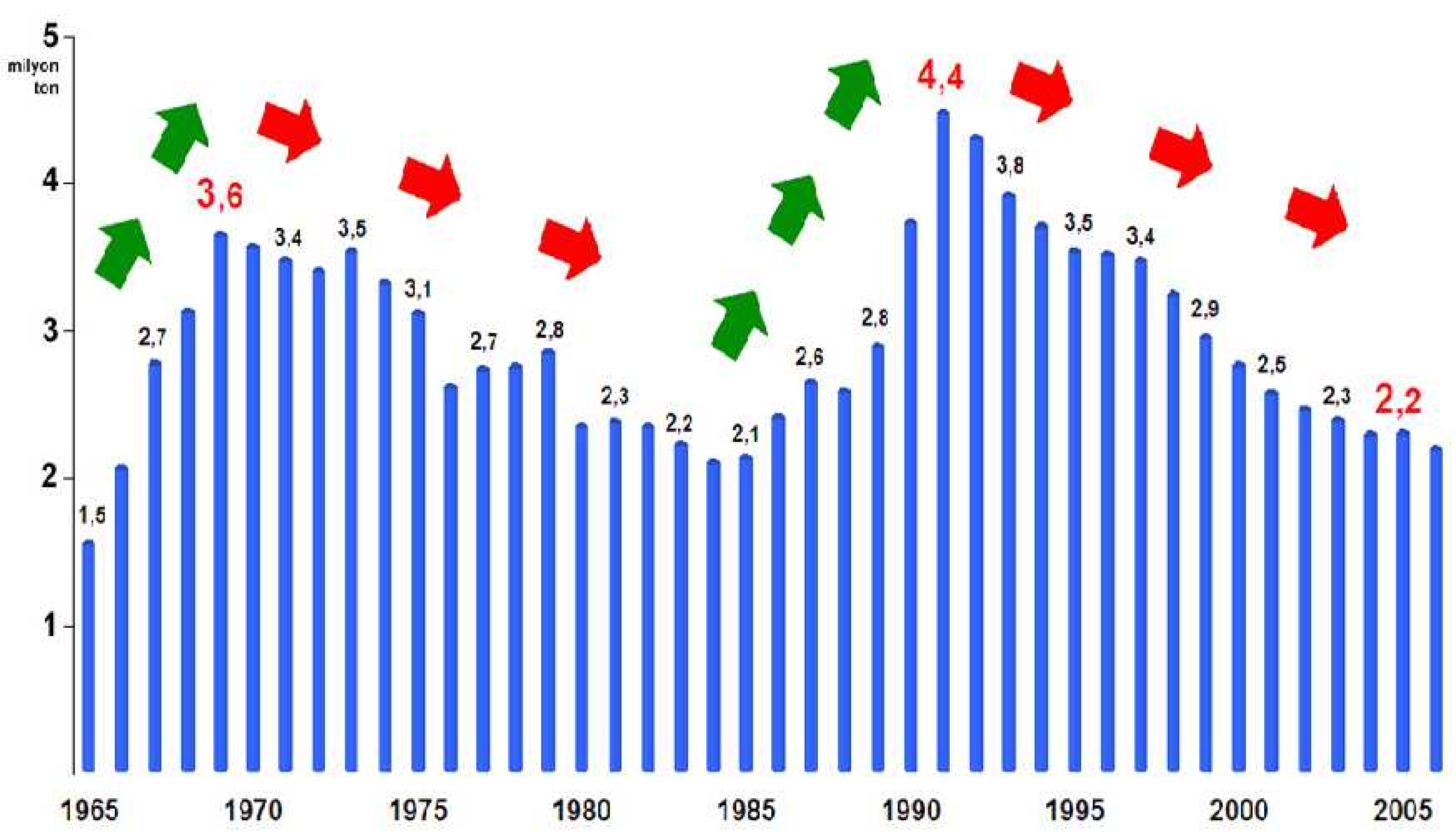
- First Oil Drilling : İskenderun (1890)
- Recoverable Reserves : 172.5 million tonnes
- Cumulative Production : 133.1 million tonnes
- Remaining Recoverable Res. : 39.4 million tonnes
- Annual Production : 2.4 million tonnes
- Annual Consumption : 32.3 million tonnes
- Production / Consumpiton : %7.4
- Wells Drilled (1934 – 2009) : 3,727 *(average per year: 50)*
- Distribution of Production : 69% TPAO
  18% Private Companies
  13% Private + TPAO Partnership

Source: GDPA (2009)

Petroleum Law No. 6326 (1954)

- Separation of the public company *(TPAO)* and the decision-making mechanism *(GDPA)*
- Equal approach to TPAO and local/foreign private companies
- Fixed Royalty rate *(12.5%)*
- Drilling obligations envisaged by the Law
- Based on ‘Tax & Royalty’ model

Oil Production Trend



Reasons for Decrease in Exploration Investments

1. Legal Issues

Due to the ambiguities in the provisions of the Petroleum Law numbered 6326, some time in the past 56 years the Law has interpreted against the private sector and implementation of legal provisions were stopped by administrative decisions.

Reasons for Decrease in Exploration Investments

2. Openning of New Oil Fields to Investments Around the World

After the collapse of the Eastern Bloc, in the major E&P companies directed their investments to new oil fields in the Central Asia and Caspian Region.

Reasons for Decrease in Exploration Investments

3. Delay in the New Legislation

The new Petroleum Law numbered 5574 is waiting on the Parliament's agenda since January 2007. This legal uncertainty affects Turkey's competitiveness in upstream sector in a negative way.

Results of Decrease in Exploration Investments

- Total number of wells drilled in the whole history of Turkey is equal to the number of wells drilled in Texas only in one year.

- Exploration activities have only been conducted in 20% of potential onshore and only 1% of potential offshore areas.

- Our import dependency is reached to 93% for oil and 98% for natural gas.

- Only 1$ rise in oil prices per barrel causes rise of 400 million dollars in foreign trade deficit.

- The bill of import of petroleum products has exceeded 80 billion dollars in last 5 years.

Turkish Petroleum Law No. 5574

- **2000** : Start-up of the draft text in the General Directorate of Petroleum Affairs (GDPA)
- **Nov 2005** : Finalization in the TGNA Energy Commission
- **Jan 2007** : Ratification in the TGNA General Assembly
- **Feb 2007** : Sending back four articles of the Law to the Parliament by 10th President
- **2007 – 2010** : The Law is still waiting on the Parliament's agenda.

PETFORM's Suggestions

1. Adaptation of a 'state policy' encouraging E&P activities and creation of know-how and capital accumulation

2. Formation of a 'Petroleum Law Working Group' chaired by the Ministry of Energy and coordinated by the GDPA, revision of the law in order to solve structural problems of the sector and enactment in the Parliament

3. Prevention of 'closure' of all licences through drilling obligations based on abstract criteria, creation a new business model encouraging companies to compete with each other through 'Business and Investment Programmes'

4. Strengthening the structure of the GDPA administratively and financially for a more efficient management and supervision mechanism sector need

PETFORM's Suggestions

5. Utilization of drilling equipments imported in accordance with the Law also in geothermal drilling activities

6. Transfer of GDPA archives, currently located in TPAO due to various problems, to new modern and digital-based facilities

7. 'Tax Holiday' until the refund of the investment

8. Implementation of regional incentives in order to encouraging E&P activities

9. Maintain of the 'Tax & Royalty' model

10. Termination of the implementation of the 'Fund No.20' as well as import/export and VAT/SCTs exemptions

Development of Turkish Natural Gas Market

PETFORM 10. Yıl

- USSR – Turkey Contract (18.09.1984)
- Contract № 1 → 14.02.1986 (6 bcm)
- Contract № 2 → 10.12.1996 (Turusgaz)
- Russia - Turkey (29.08.1997 & 15.12.1997 – Blue Stream)
- Contract № 3 → February 1998
- LNG Supply from Algeria (1998)
- Natural Gas Market Law (03.03.2001)
- Gas Supply from Iran (2002)
- Blue Stream Project (December 2002)

1987 | 1998 | 2003 | 2005 | 2009

Preparation Process | Market Development Based on Russian Gas | Increase in Gas Supply Sources | First Steps in Liberalization Process | Market Development in Liberalization Process

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

Gas Supply Sources

Distribution of Gas Imports by Source Countries (2008 – 2009)

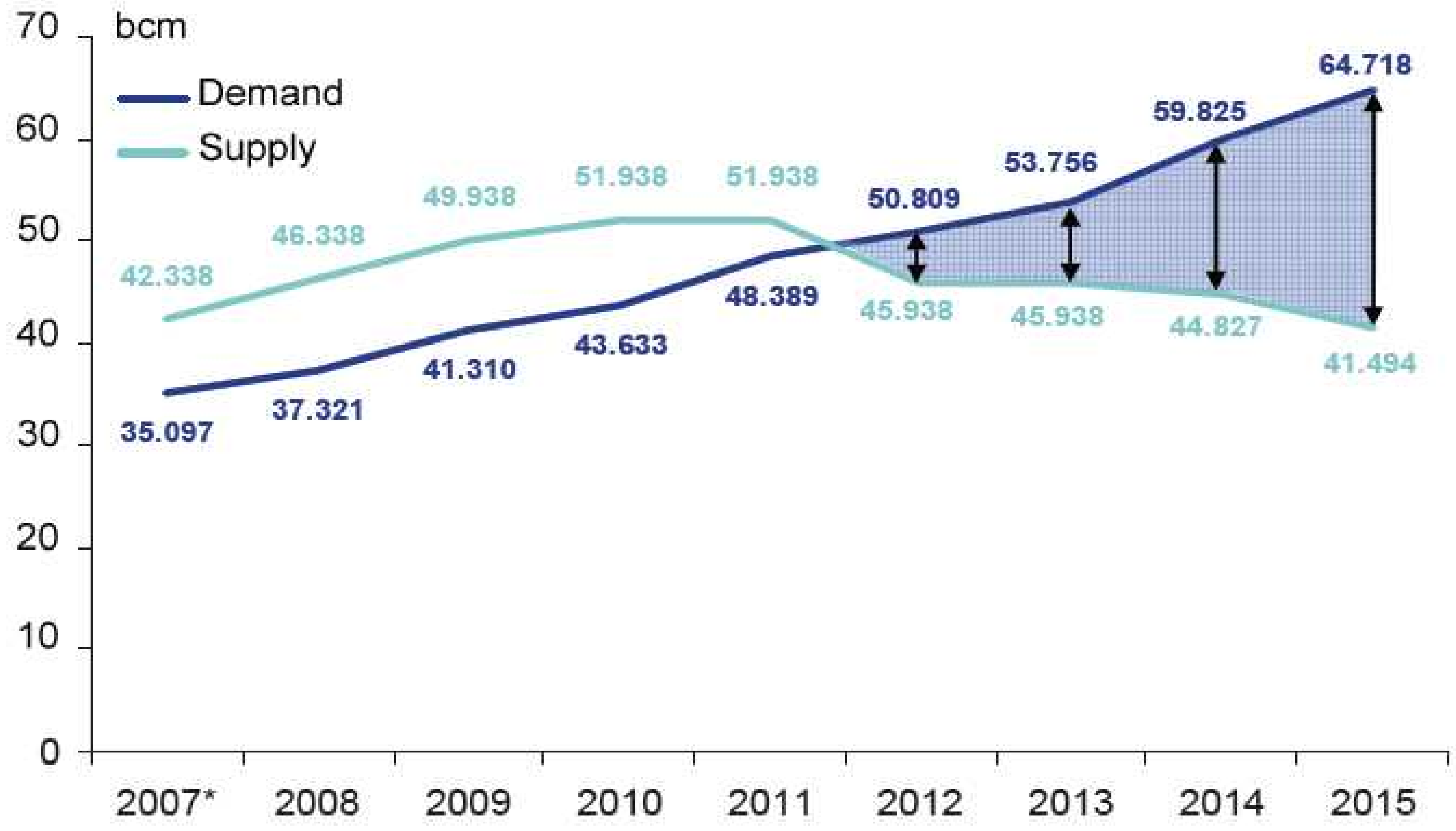
	2008		2009
Russia	23,159 (60,5%)	→	19,894 (55,6%)
Iran	4,113 (10,7%)	→	5,253 (14,8%)
Azerbaijan	4,580 (12,0%)	→	4,960 (13,8%)
Others	6,465 (16,8%)	→	5,648 (15,8%)
	38,317 bcm	→	35,755 bcm

(- 6,7 %)

Distribution of Gas Imports by Companies (2008 – 2009)

	2008		2009
BOTAS	38,120 (%99,5)	→	33,068 (%92,5)
Private Co's	0,197 (%0,5)	→	2,687 (%7,5)
	38,317	→	35,755

Gas Supply – Demand Balance (2007 – 2015)



Source: Deloitte

Natural Gas Market Law
Main Purpose

To form a <u>liberal, transparent and competitive market</u> in order to provide quality, sustainable and cost competitive gas for the consumers

Natural Gas Market Law Methodology

1. Reducing the market share of BOTAS to 20% by 2009 through a gas release programme and doing no new gas purchase agreements except LNG imports

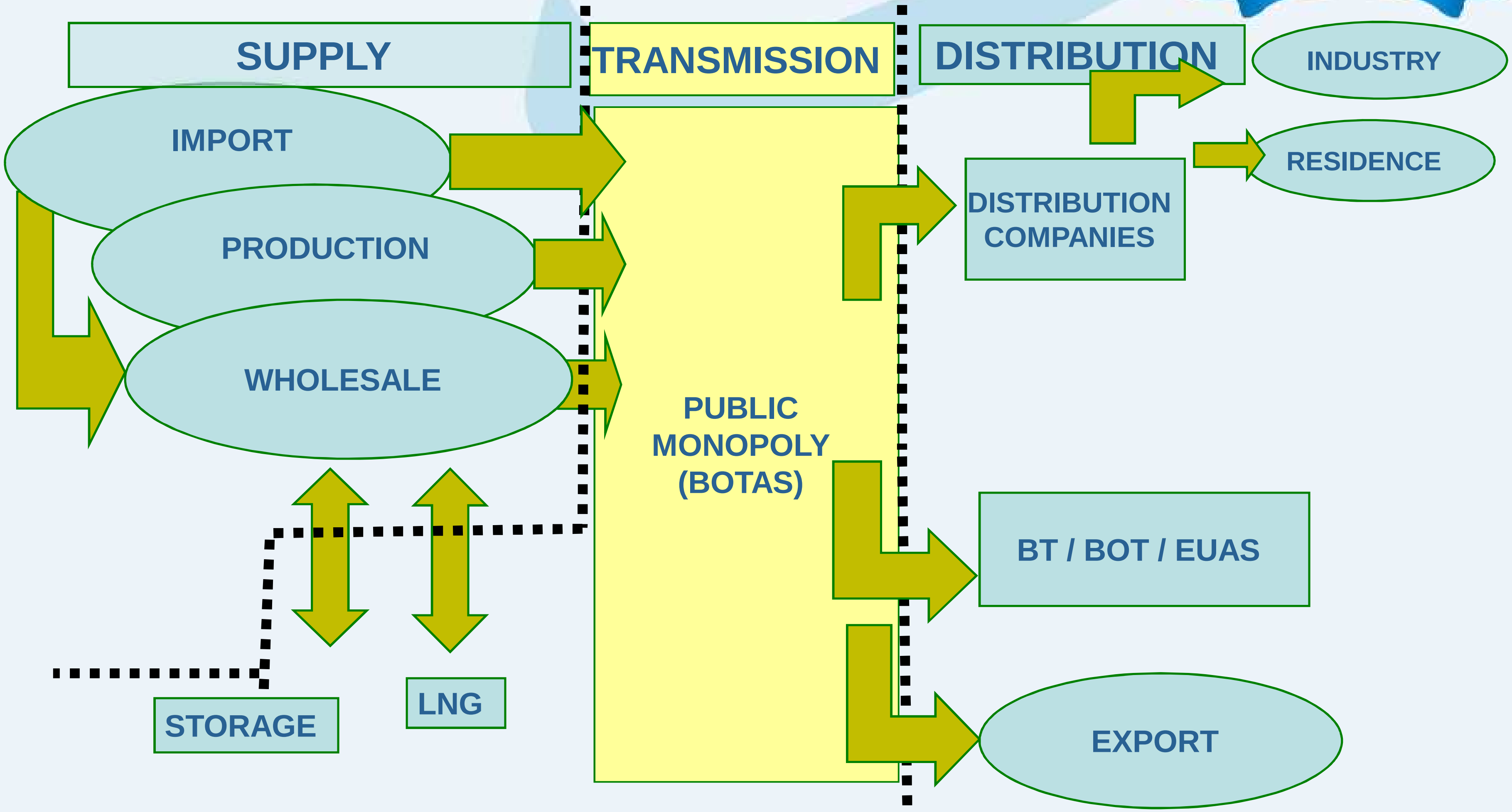
2. Volumes released by BOTAS at each calendar year may not be less than 10% of total gas volume undertaken to be purchased on the effective date of the law

3. Limitation of each supplier not to exceed 20% market share

4. Legal unbundling of BOTAS into different legal entities in order to do transmission, storage and trading activities through various entities

5. Local distribution should be done by private companies winning tenders held by EMRA

Natural Gas Market Law
Market Structure



Natural Gas Market Law Realization

1. First Contract Release Tender was held in 2005 by BOTAS and four private companies has started their operations by 2009. This first attempt has been privatized only 10% of the market.

2. Targets envisaged by the law about local distribution have been reached and 60 distribution areas have been privatized.

3. Spot LNG imports started.

4. Wholesale companies, although remained limited amount, have begun operations.

1st Contract Release Programme

	Amount (bcm)	Starting Date of Importation
Shell Enerji	0.25	Dec 2007
BosphorusGaz	0.75	Jan 2009
Enerco Enerji	2.50	Apr 2009
Avrasya Gaz	0.50	Apr 2009
	--	
	4.00 bcm	*(10 % of the market)*

Natural Gas Market Law Yet to be Realized

1. The market share of BOTAS still remains around 90% in spite of 20% envisaged by the law.

2. BOTAS did not continue to the contract release tenders in spite of the law.

3. An efficient wholesale segment and a balance between private sector and public sector could not be established since BOTAS did not make contract releases as indicated in the law.

4. As of 2010, BOTAS has still not legally unbundled to Transmission, Storage and Trading entities in accordance with the Law.

PETFORM's Suggestions

1. Increasing the import share of private sector through Contract and/or Volume Release and by removing restrictions in gas import for the private sector

2. Completing legal unbundling of BOTAS as per the Natural Gas Market Law

3. Implementing the Cost-Based Pricing Mechanism for BOTAS until BOTAS' share is reduced to a level enabling gas to gas competition

THANK YOU…