



Circe first stakeholder meeting
Paris, 18-19 October 2007

***ENERGY IN THE MEDITERRANEAN REGION:
Situation and prospects***

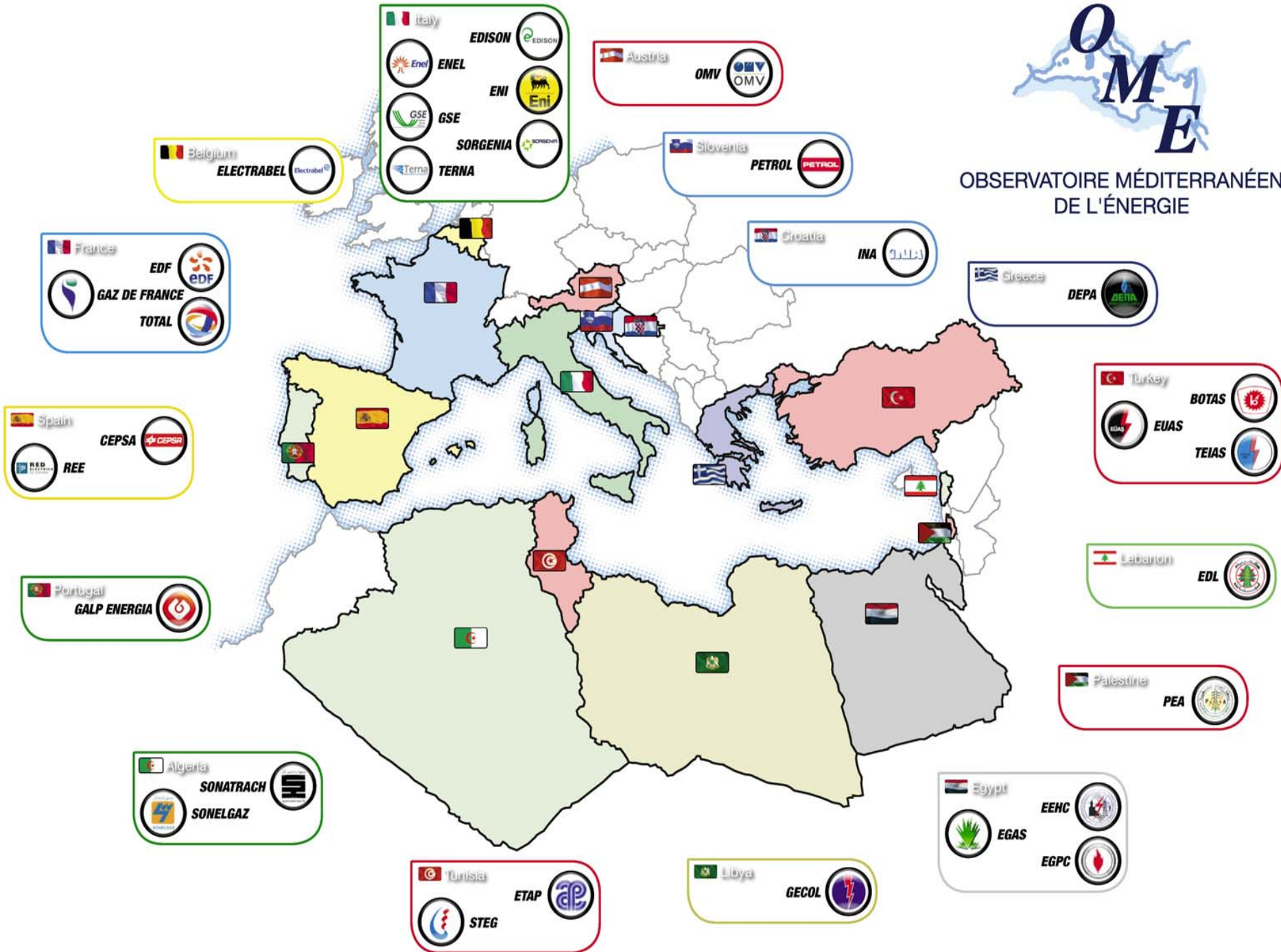
***Dr Houda BEN JANNET ALLAL, RE&SD OME
Dr Roberto VIGOTTI, Chairman RESDC OME / REWP IEA***



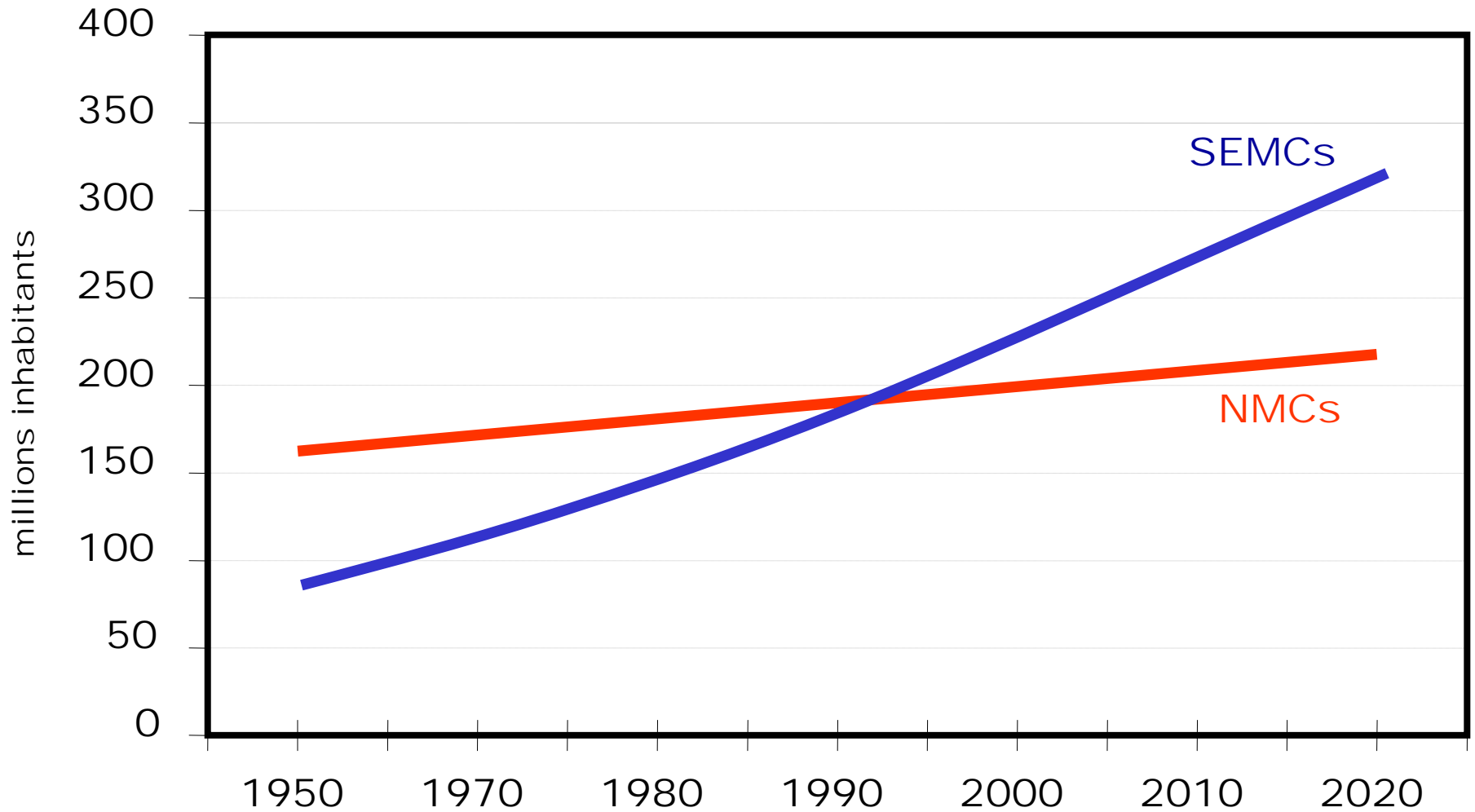
- OME
- Context
- Present situation and prospects
- Recommendations



OBSERVATOIRE MÉDITERRANÉEN DE L'ÉNERGIE

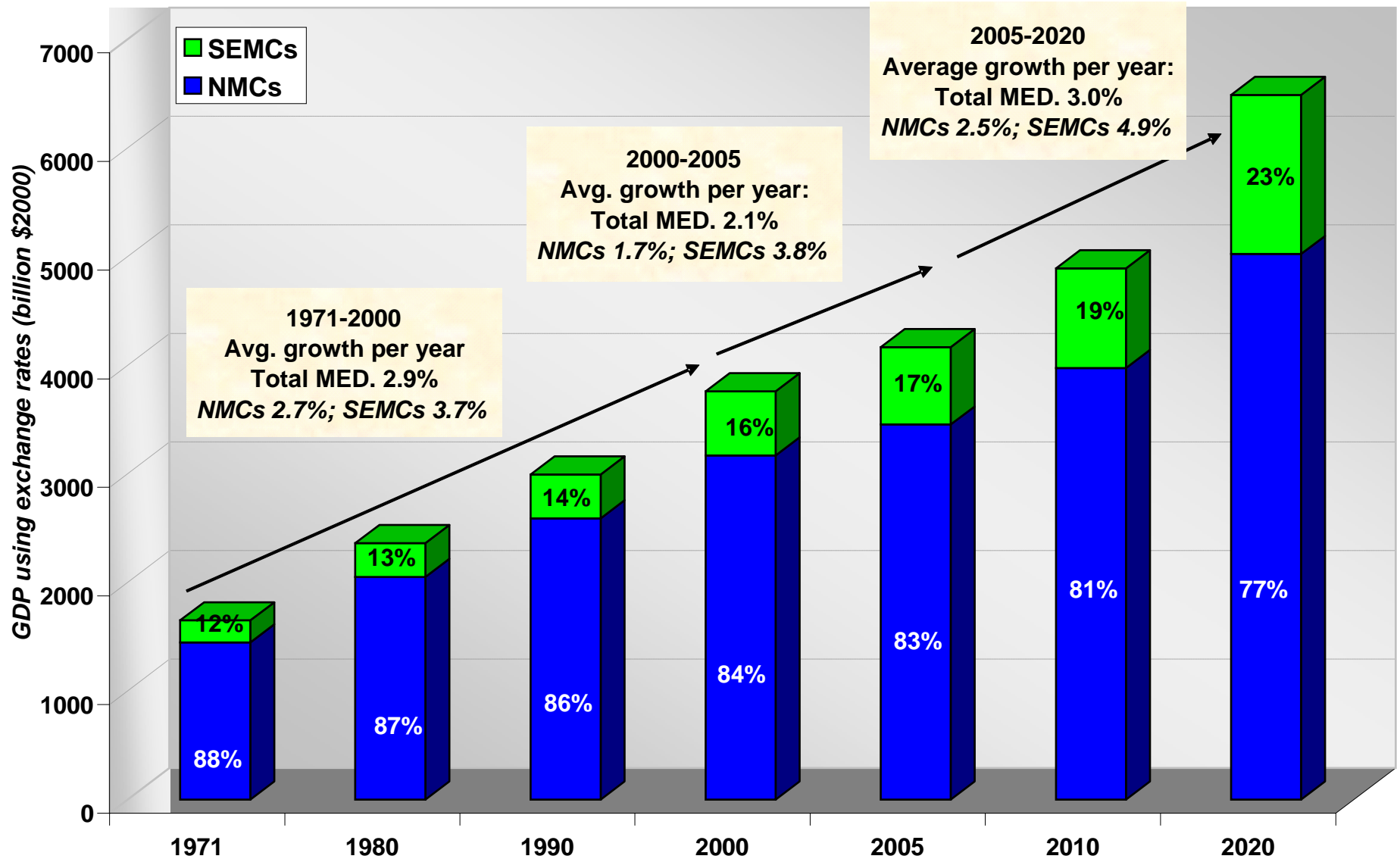


Demography in the Mediterranean Basin

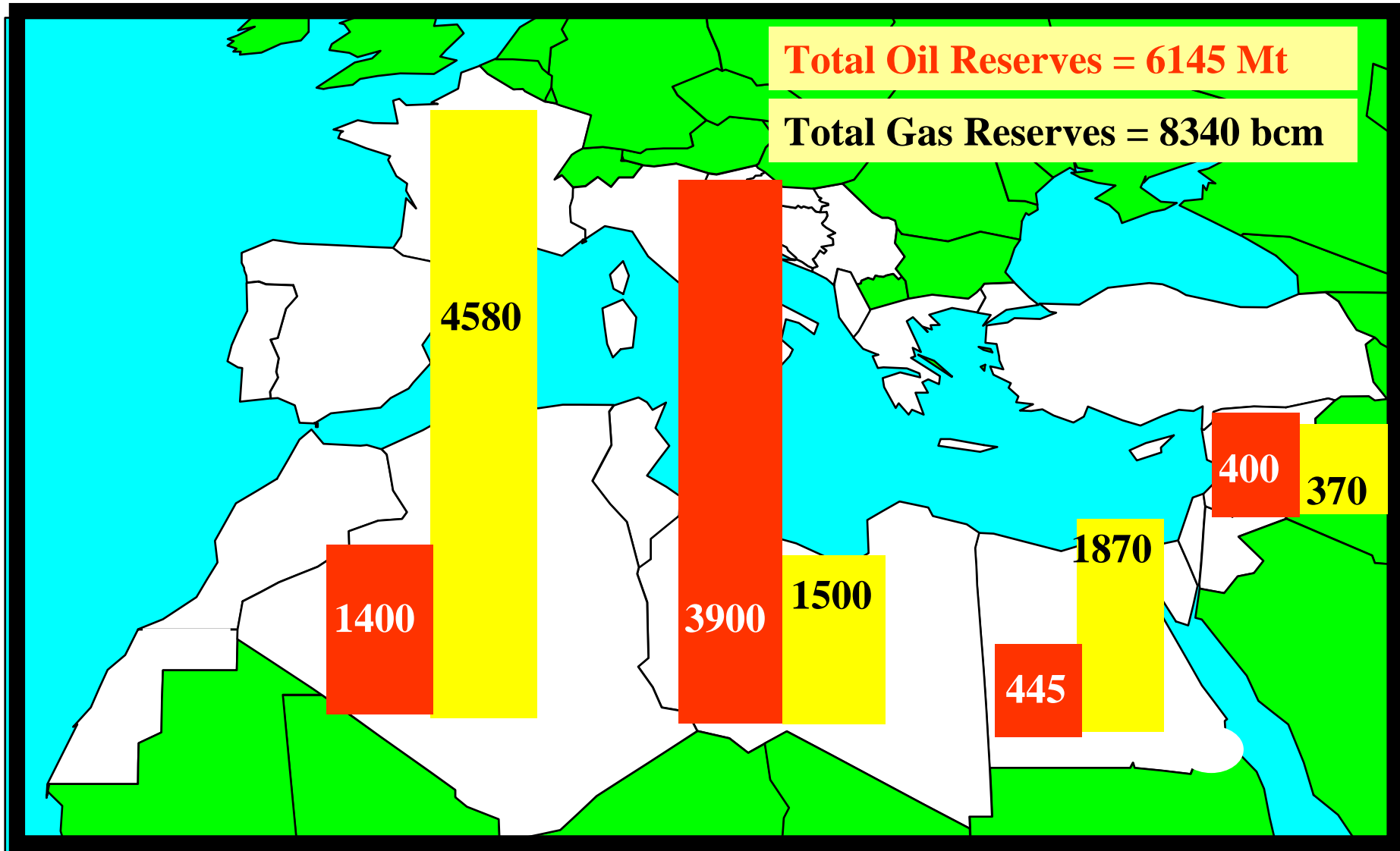


Source: Plan Bleu, OME



Economic Development in the Mediterranean



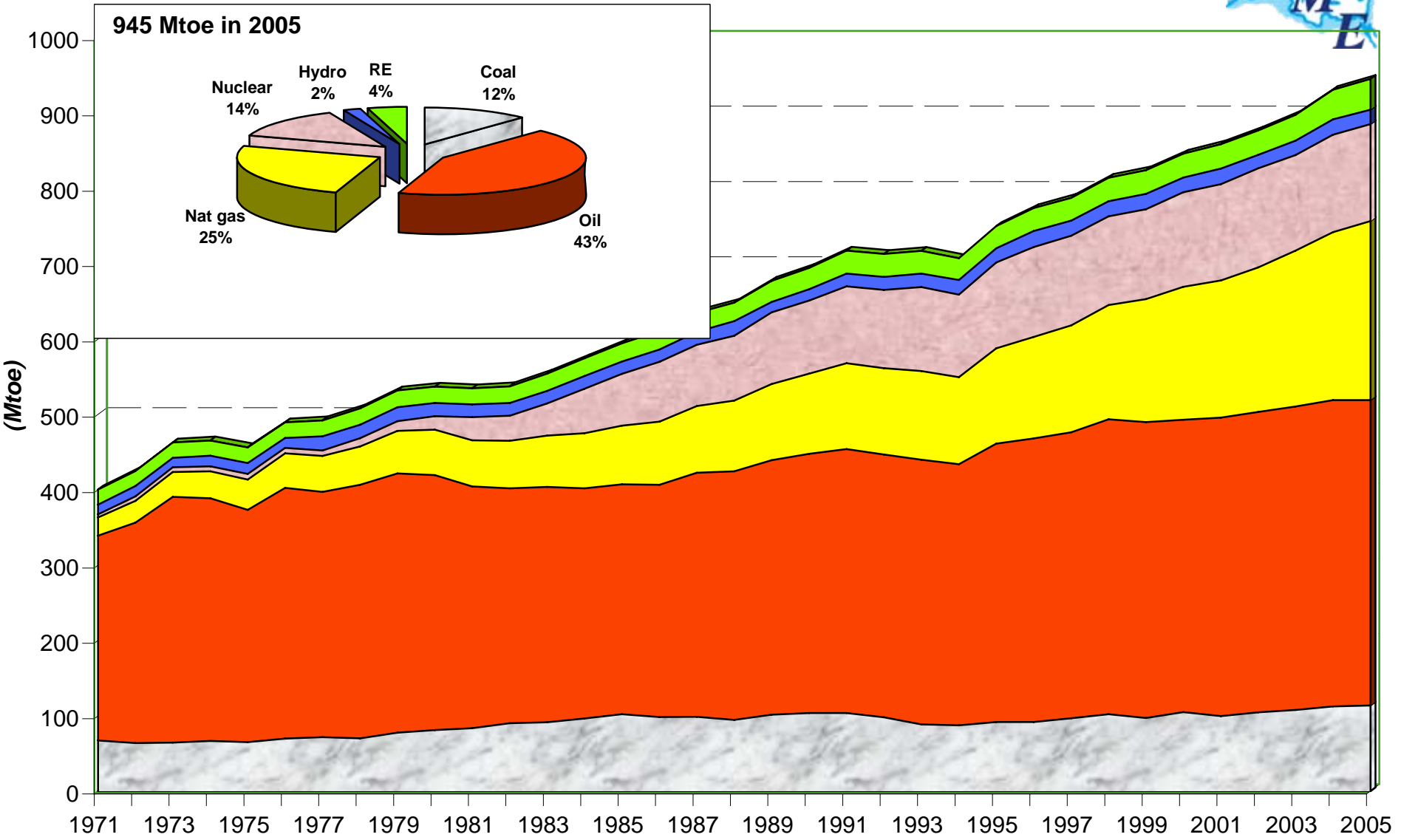
Oil (Mt) & Gas (bcm) Reserves



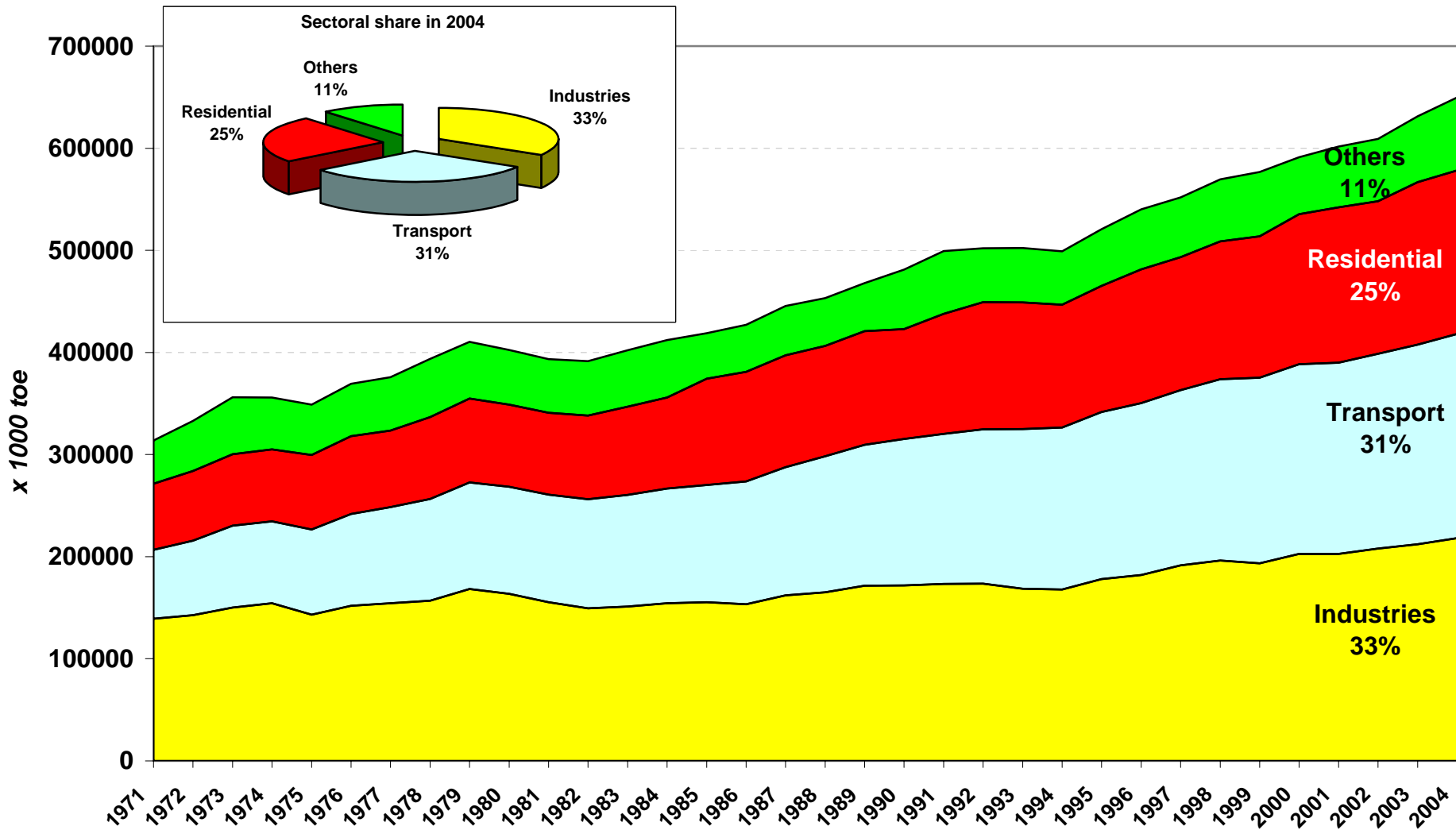
Source: Reserves from BP & CEDIGAZ

 Oil Reserves  Gas Reserves

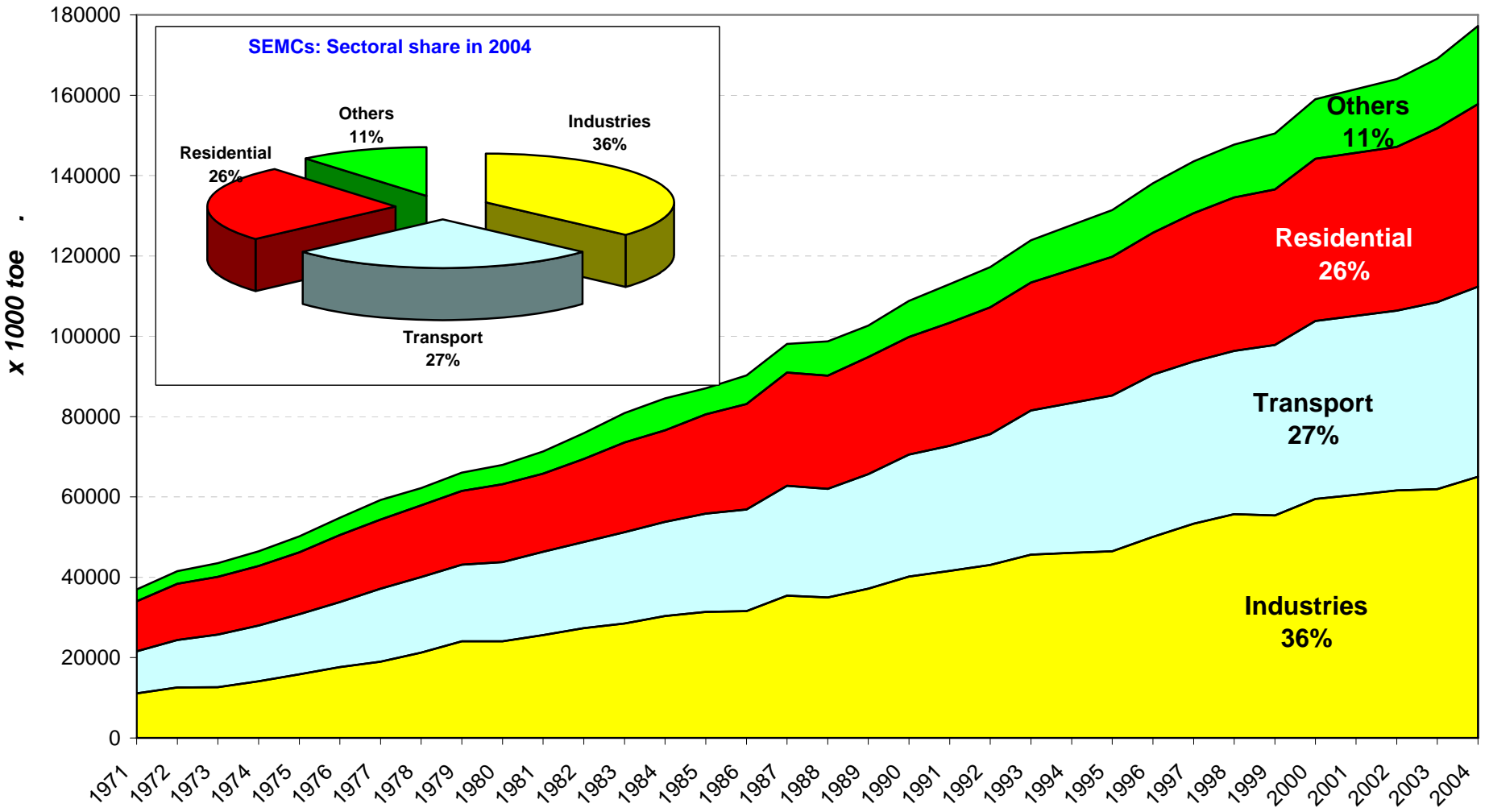
Mediterranean: Energy Demand by Primary Source (1970 to 2005)



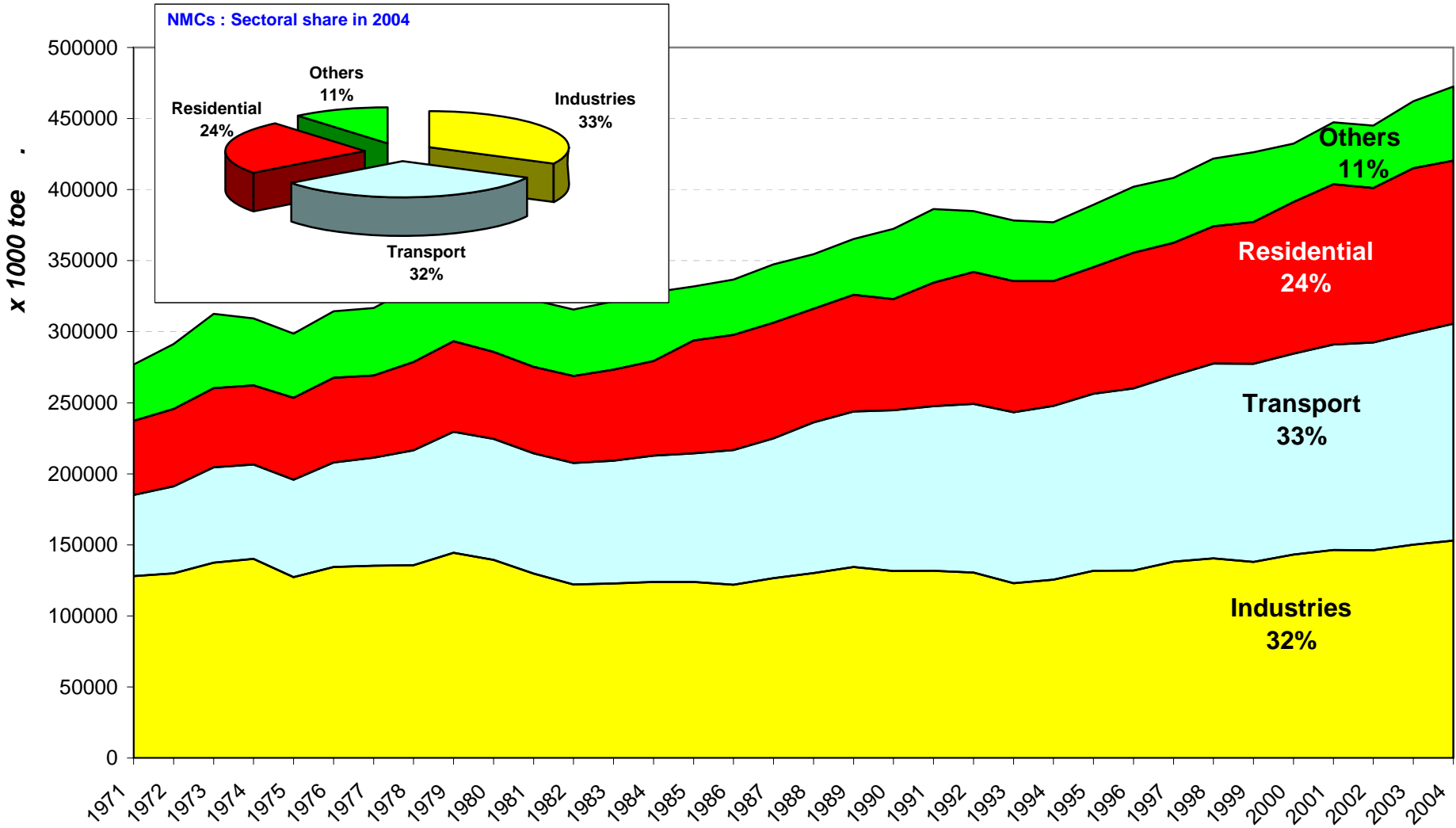
Mediterranean: Energy Consumption by Sector



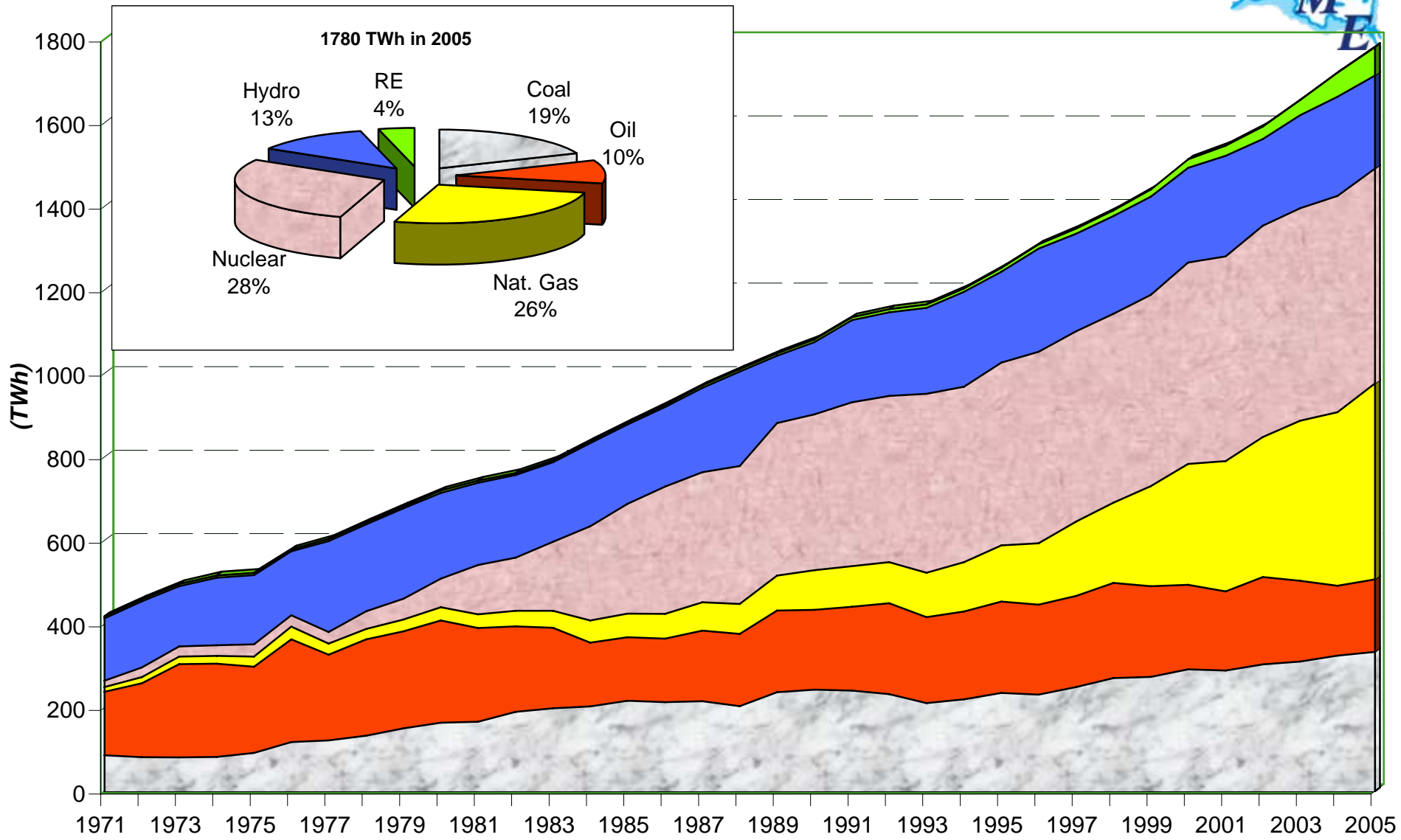
SEMCs: Energy Consumption by Sector



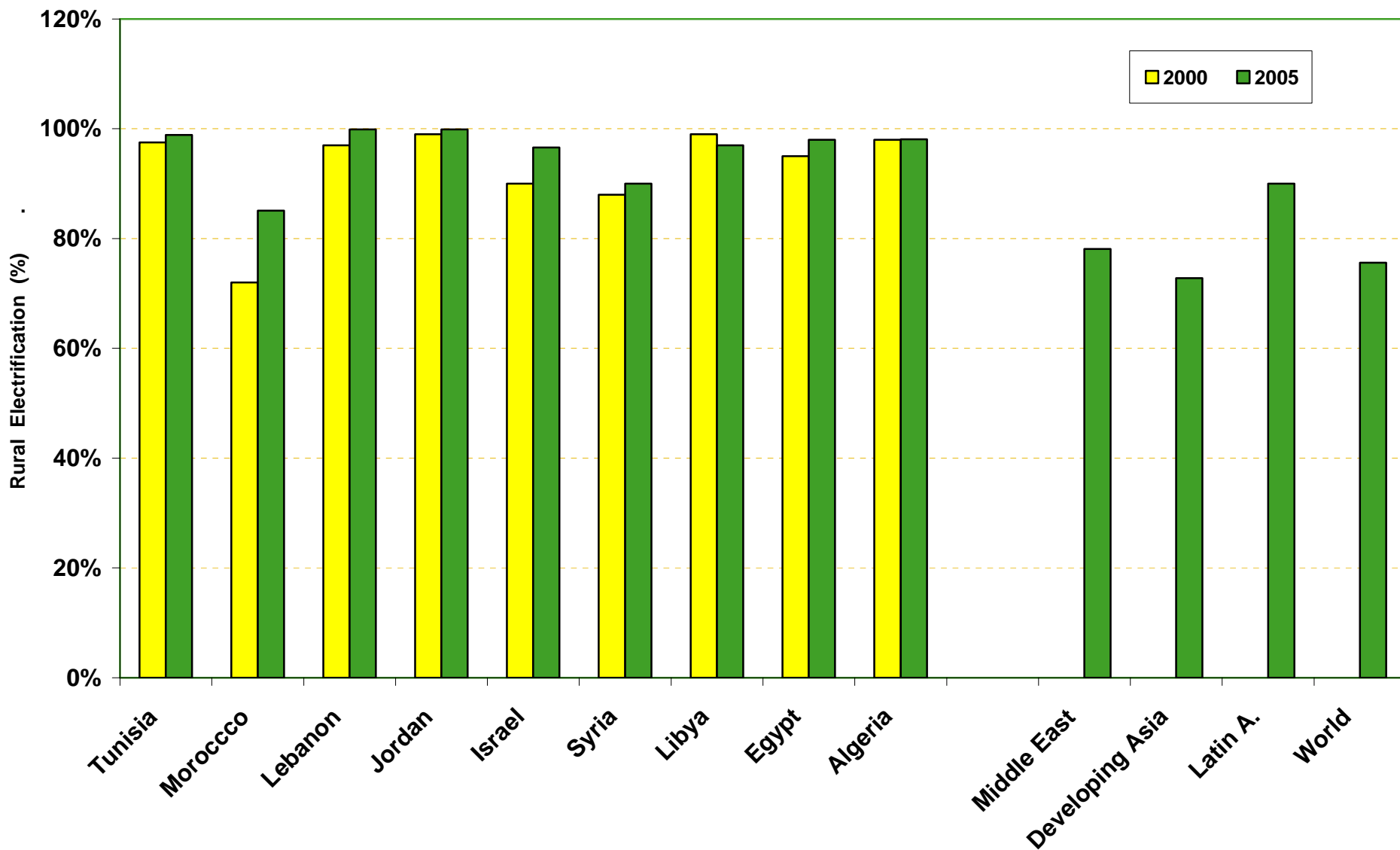
NMCs : Energy Consumption by Sector



Mediterranean: Electricity Demand (1970 to 2005)



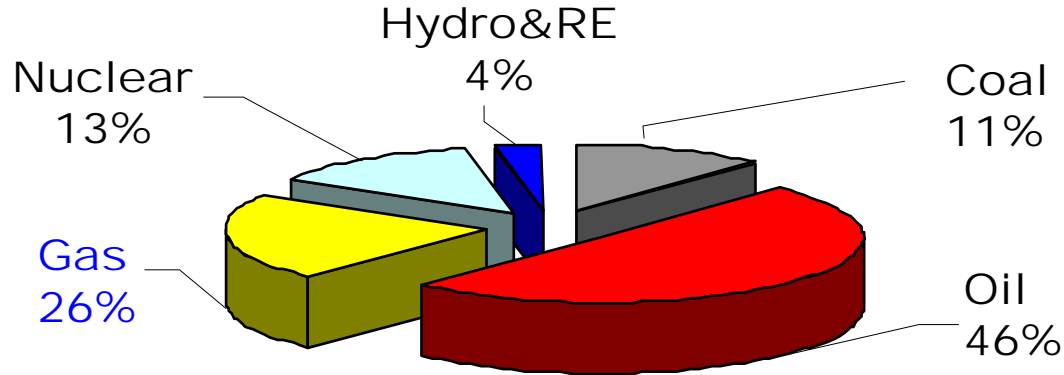
Access to Energy: important efforts for Rural Electrification in the SEMCs



Mediterranean: Primary Energy Demand

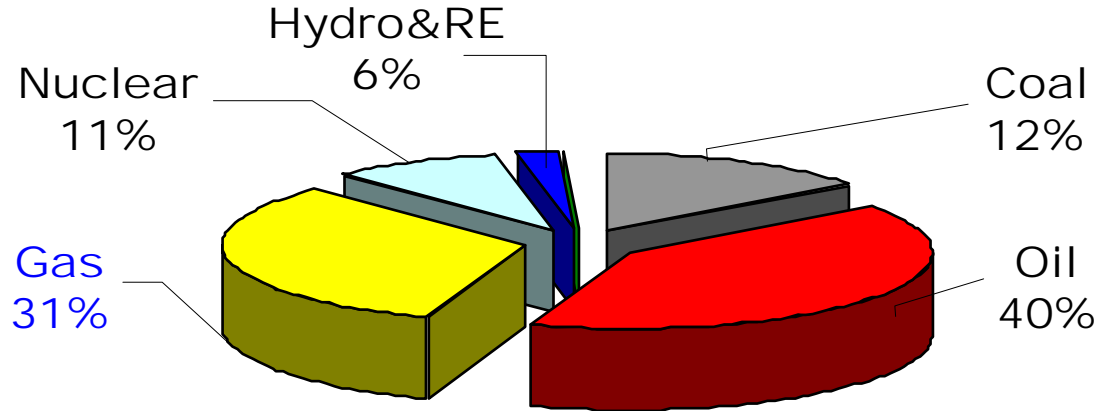


2005 (953 Mtoe)



Electricity Production
2005 (1780 TWh)
28% gas
& 16% RE

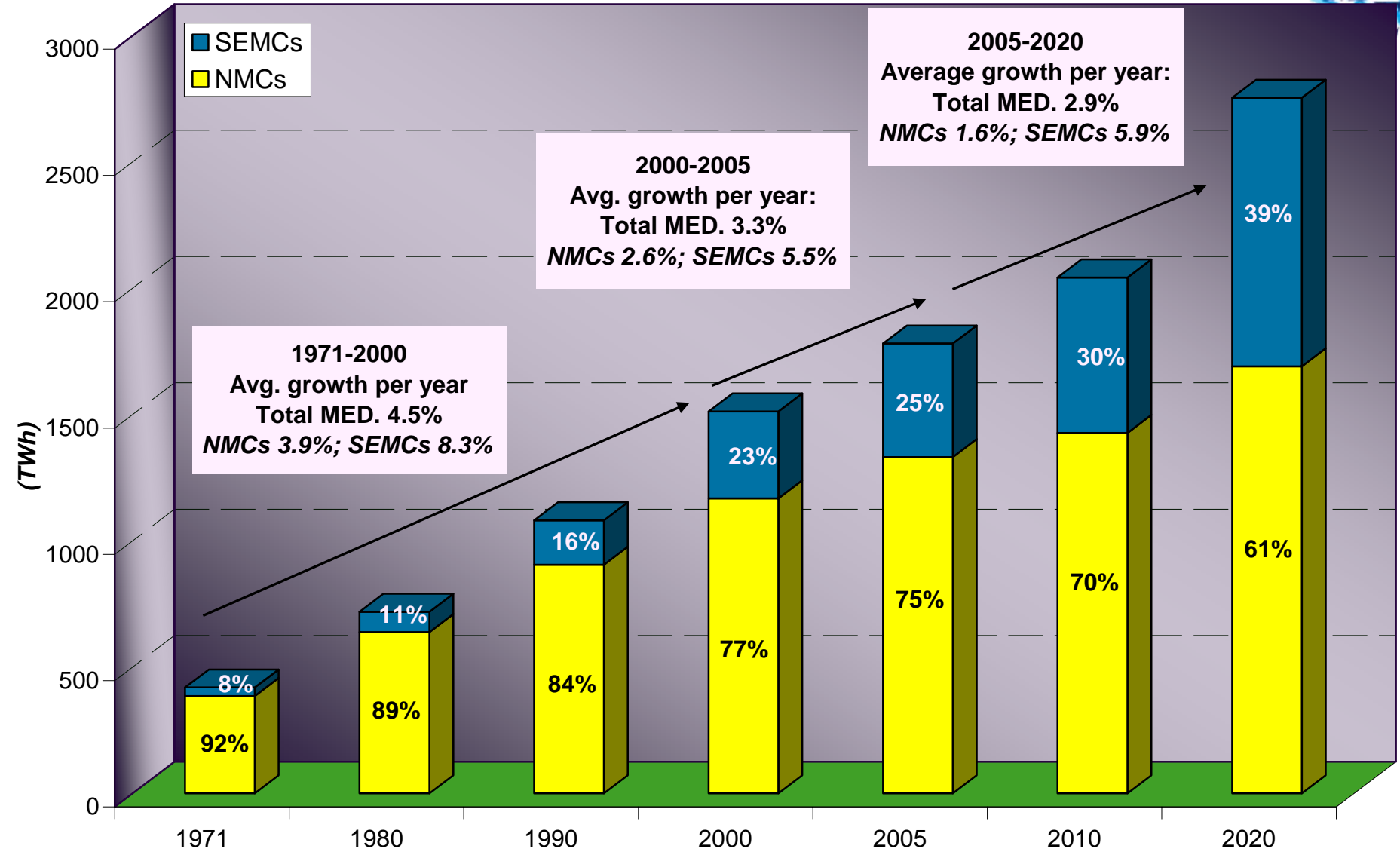
2020 (1360 Mtoe)



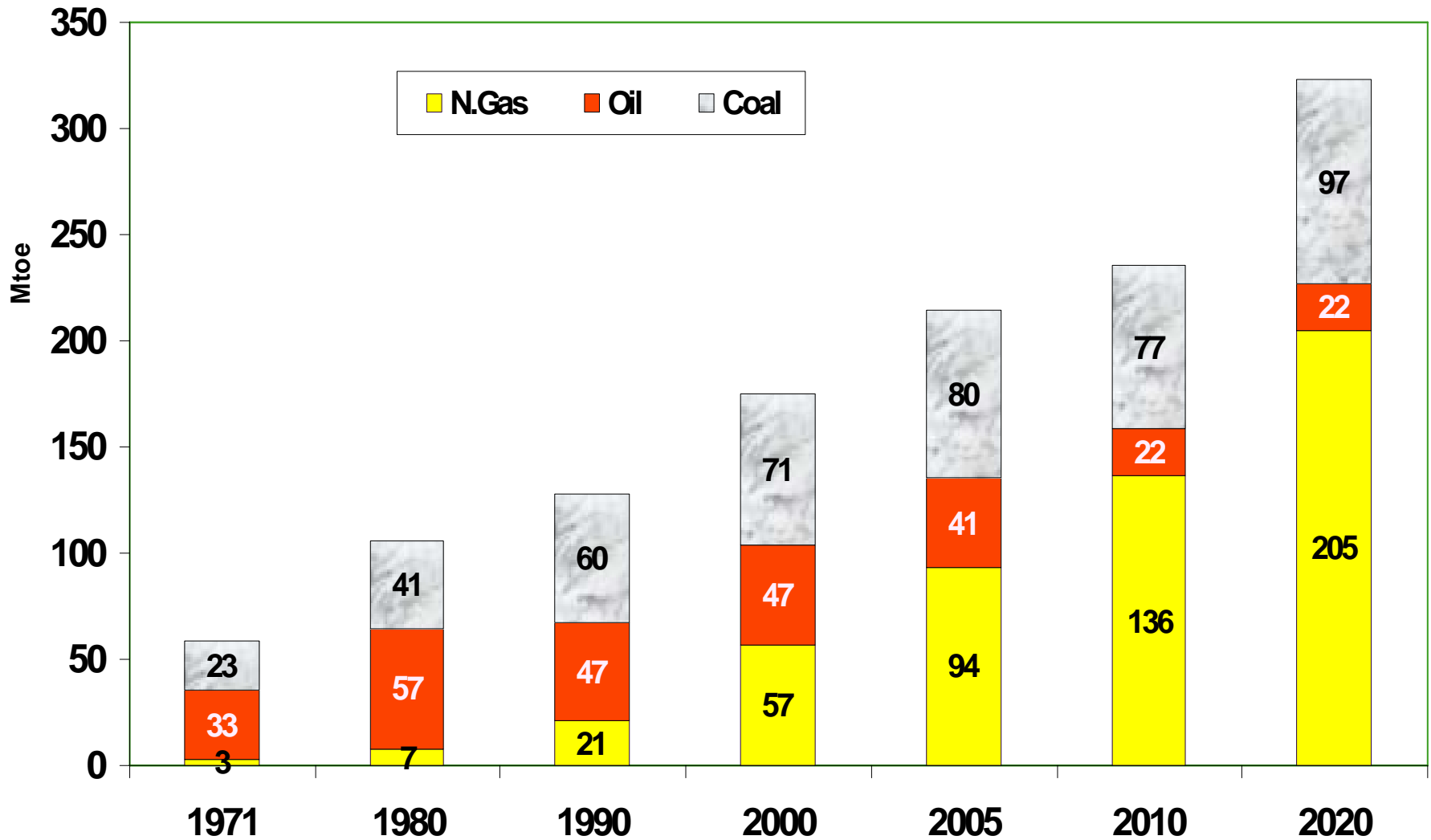
Electricity Production
2020 (2750 TWh)
41% gas
& 19% RE

Source: OME, 2007

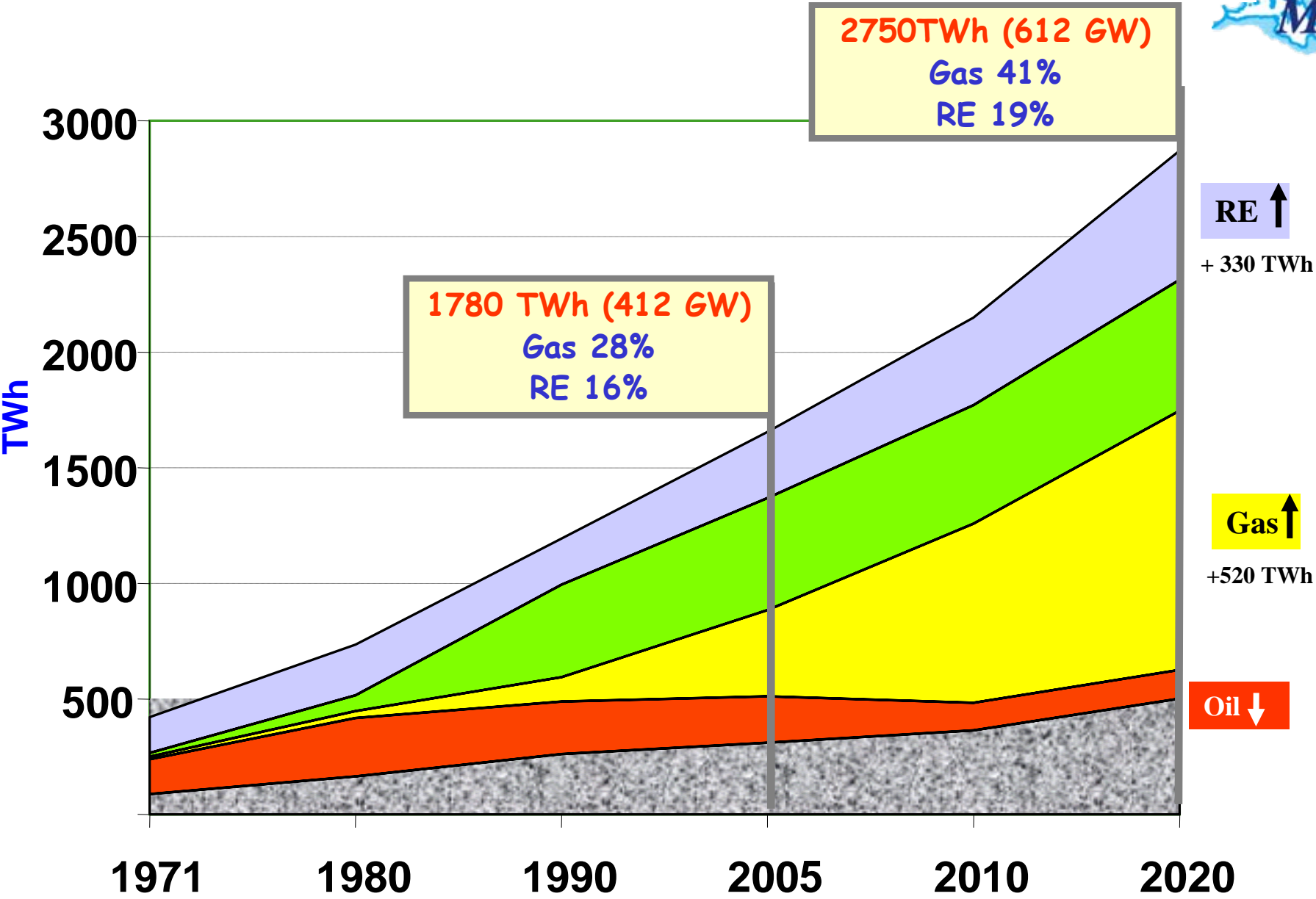
Mediterranean: Electricity Demand



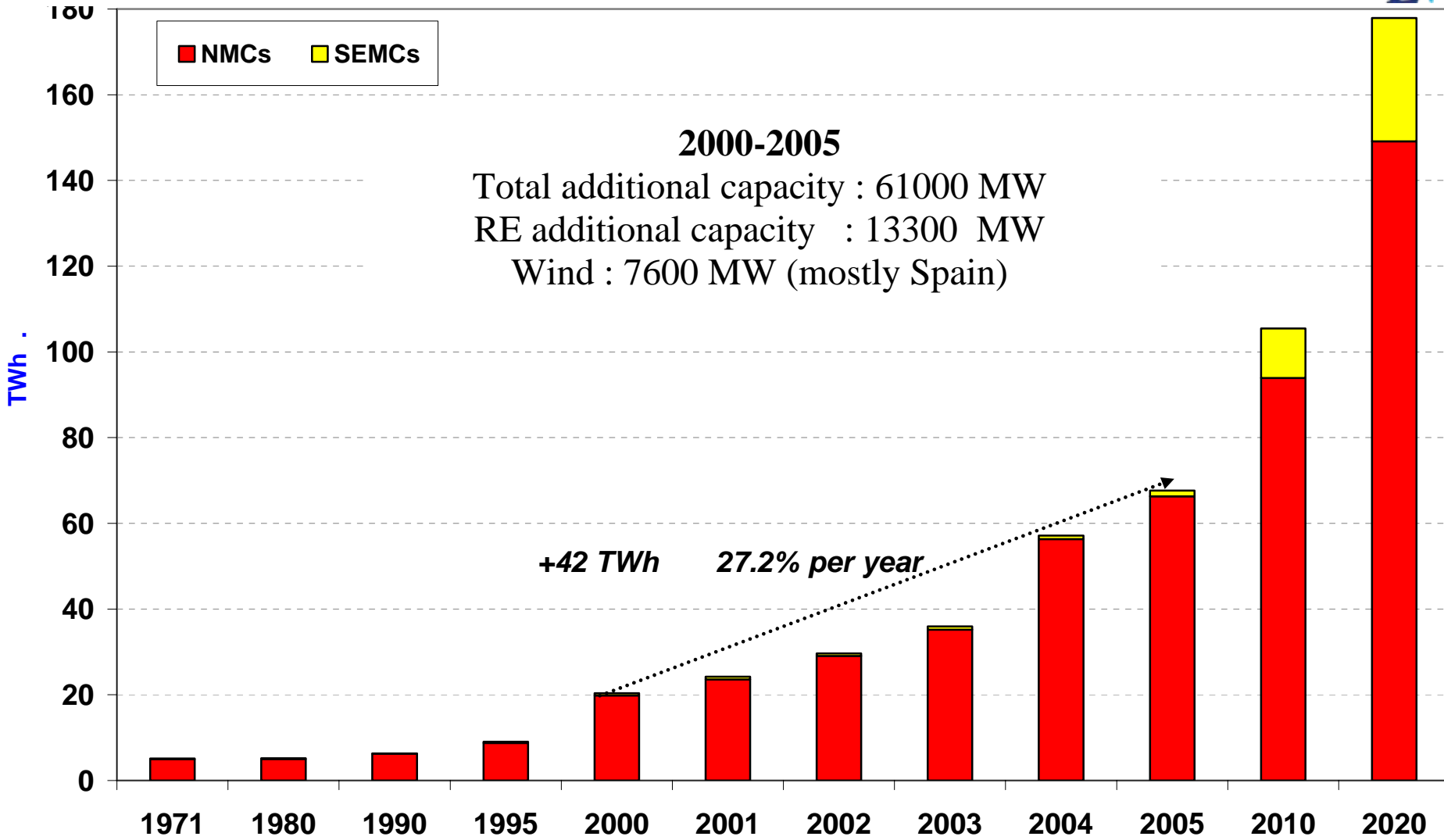
Electricity accounts for 40% of additional TPES



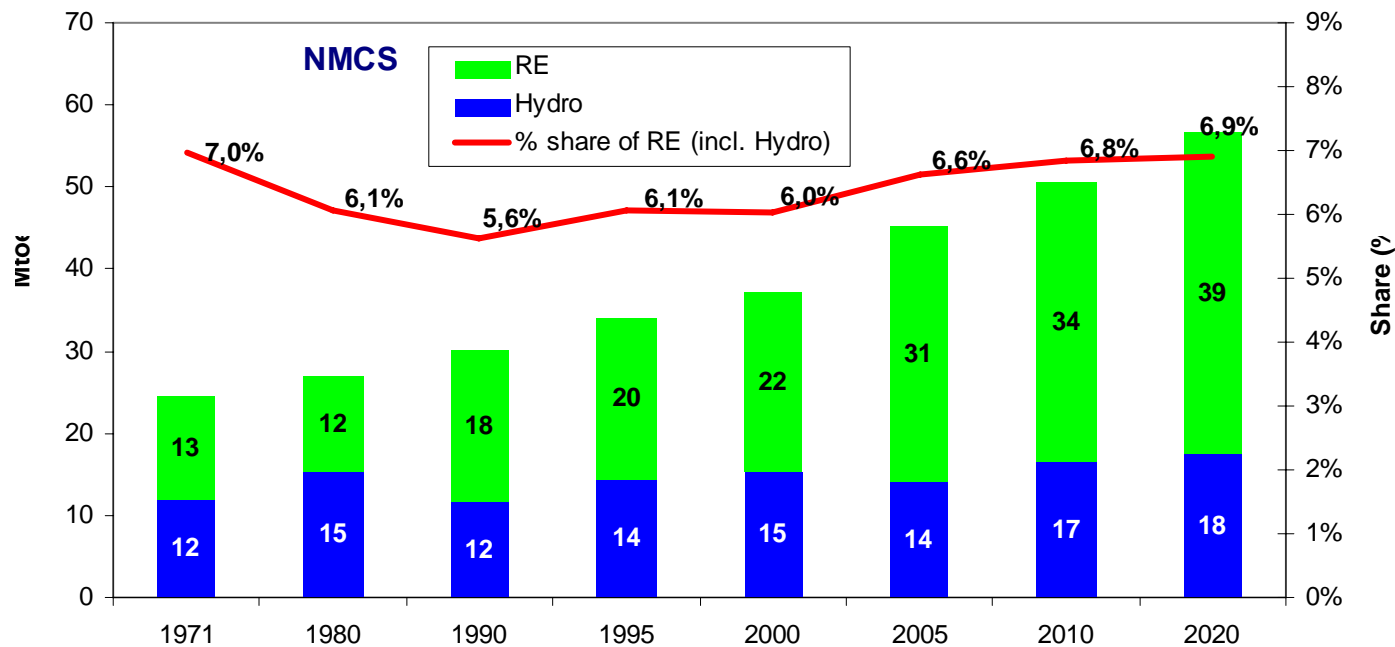
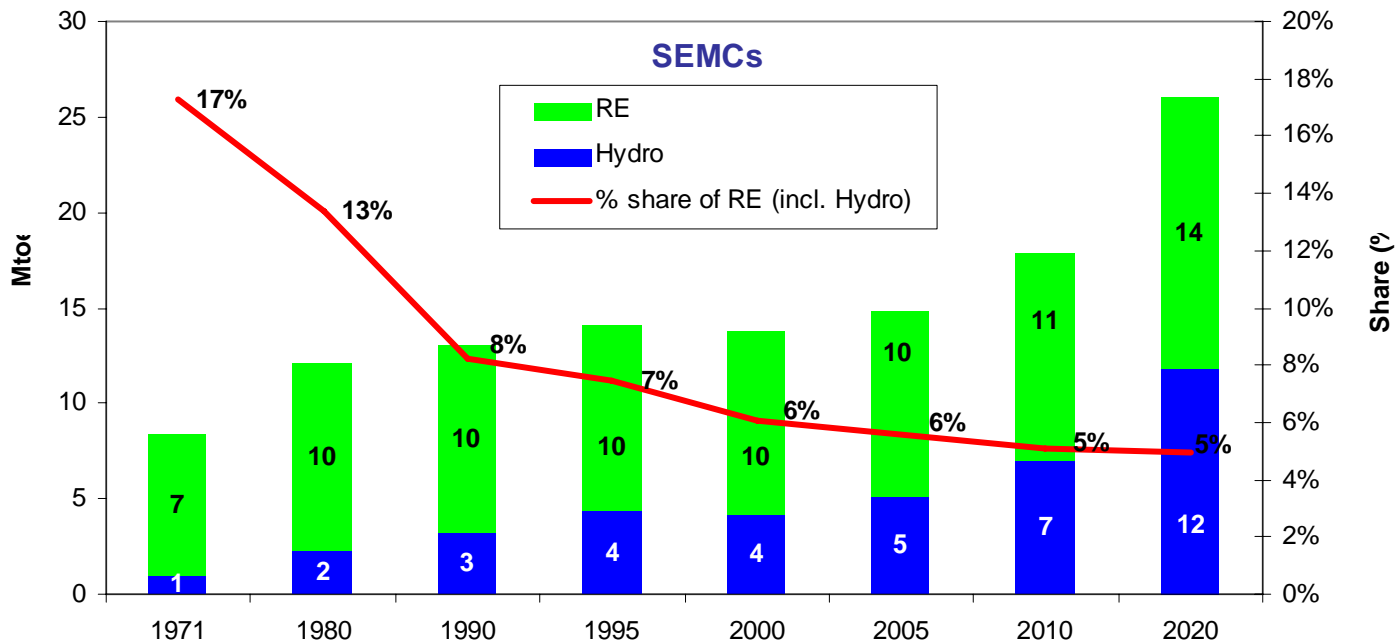
Mediterranean : Power Production (by source)



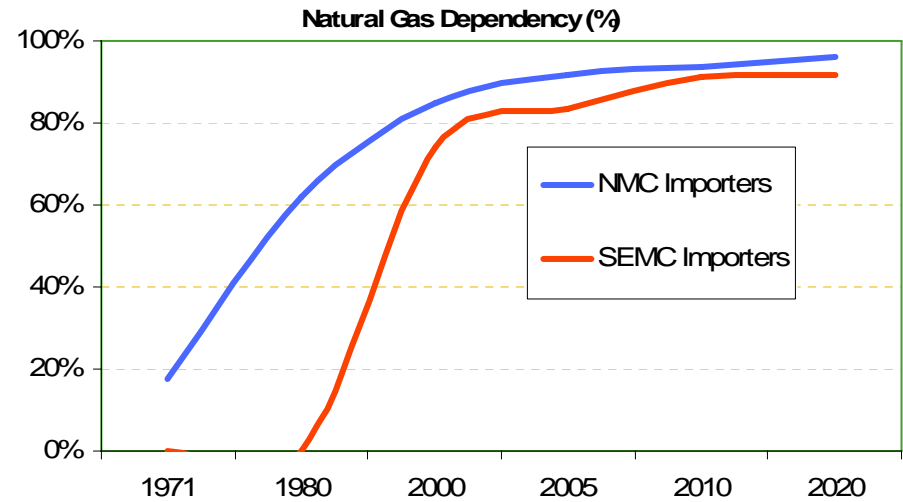
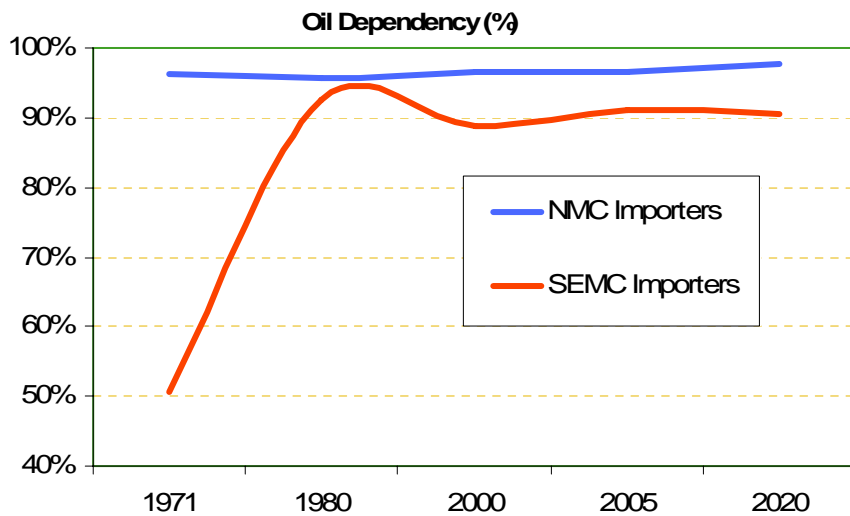
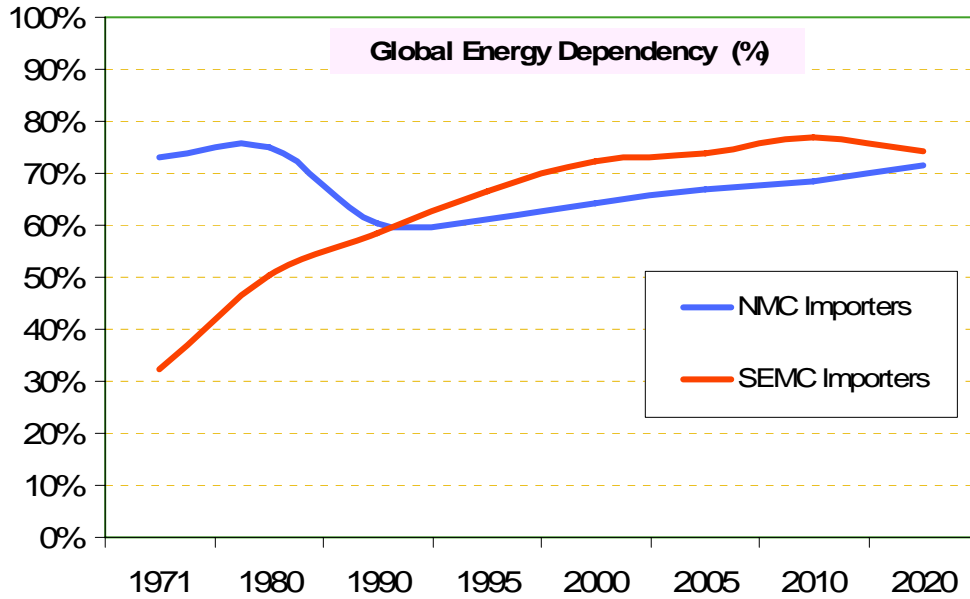
RE Electricity Production



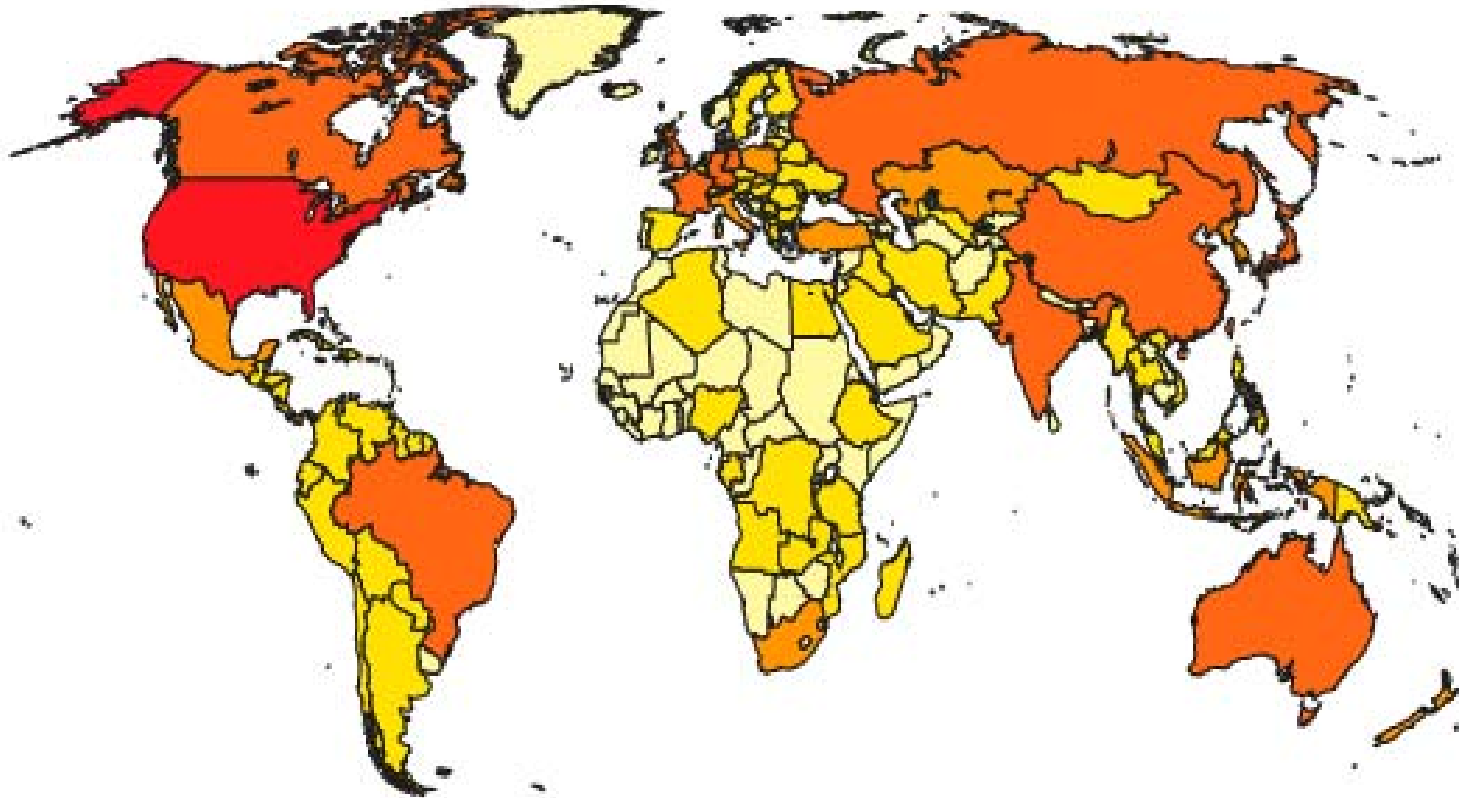
SEMCs & NMCs : RE share in the Energy Balance



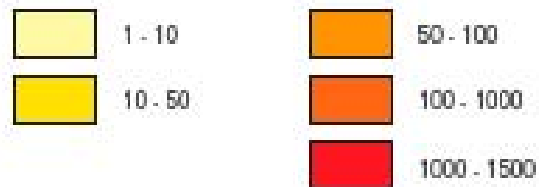
Energy dependency is increasing ...



The region is also facing climate change problems ...



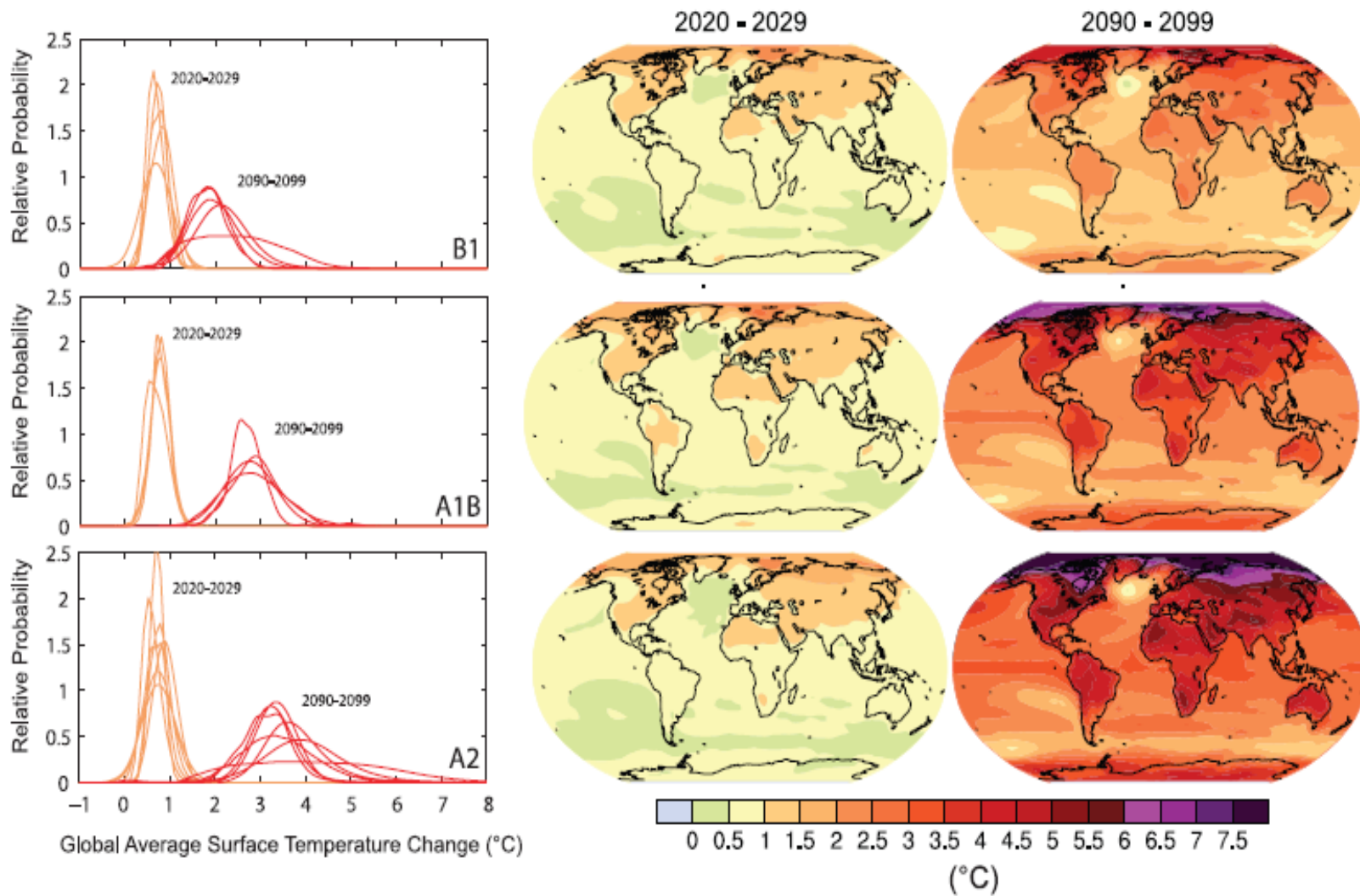
* CO₂ emissions from fossil fuel combustion and cement production, including land use change (Mt C per year from 1950 - 2003)



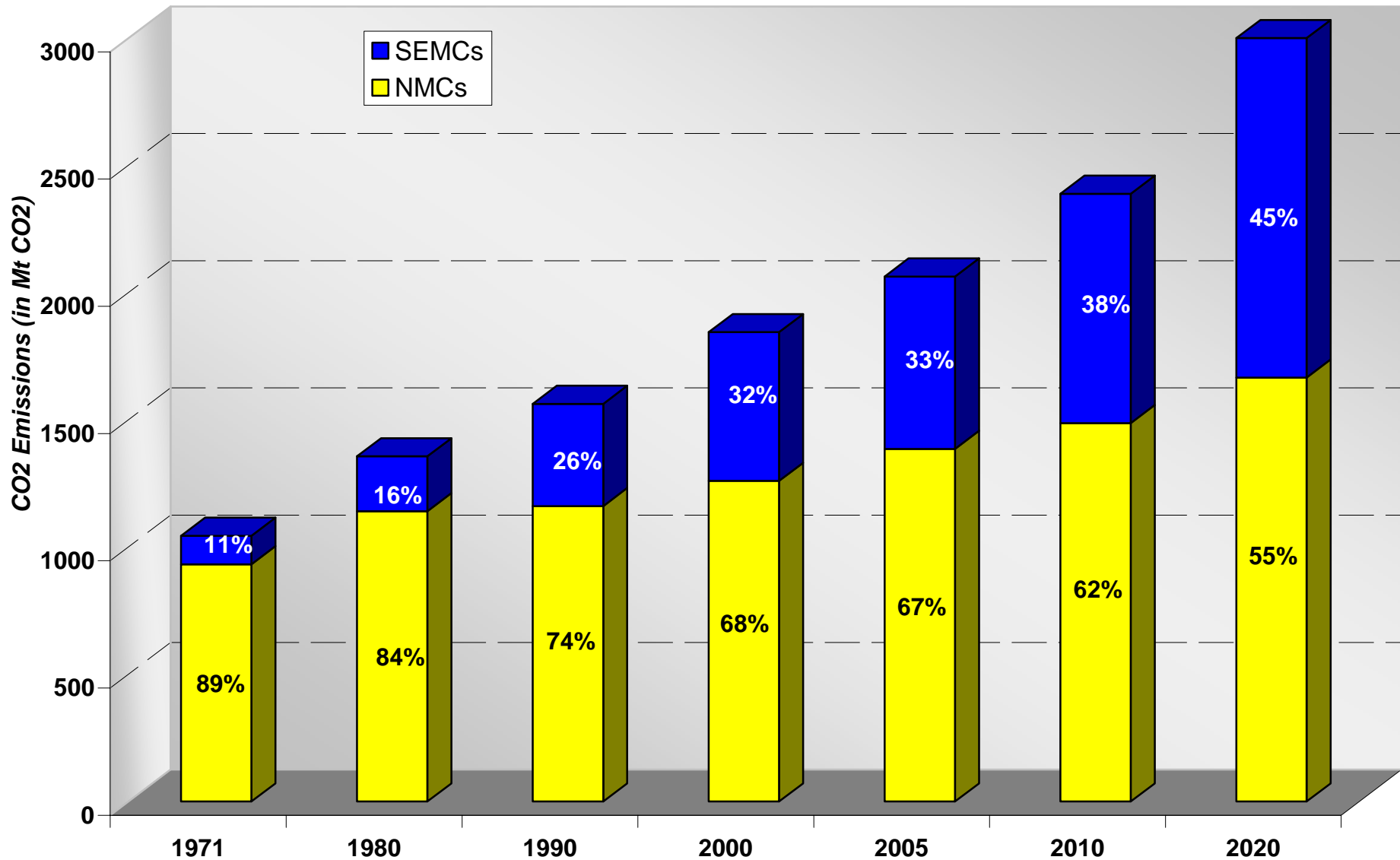
...which are expected to be more challenging in the future

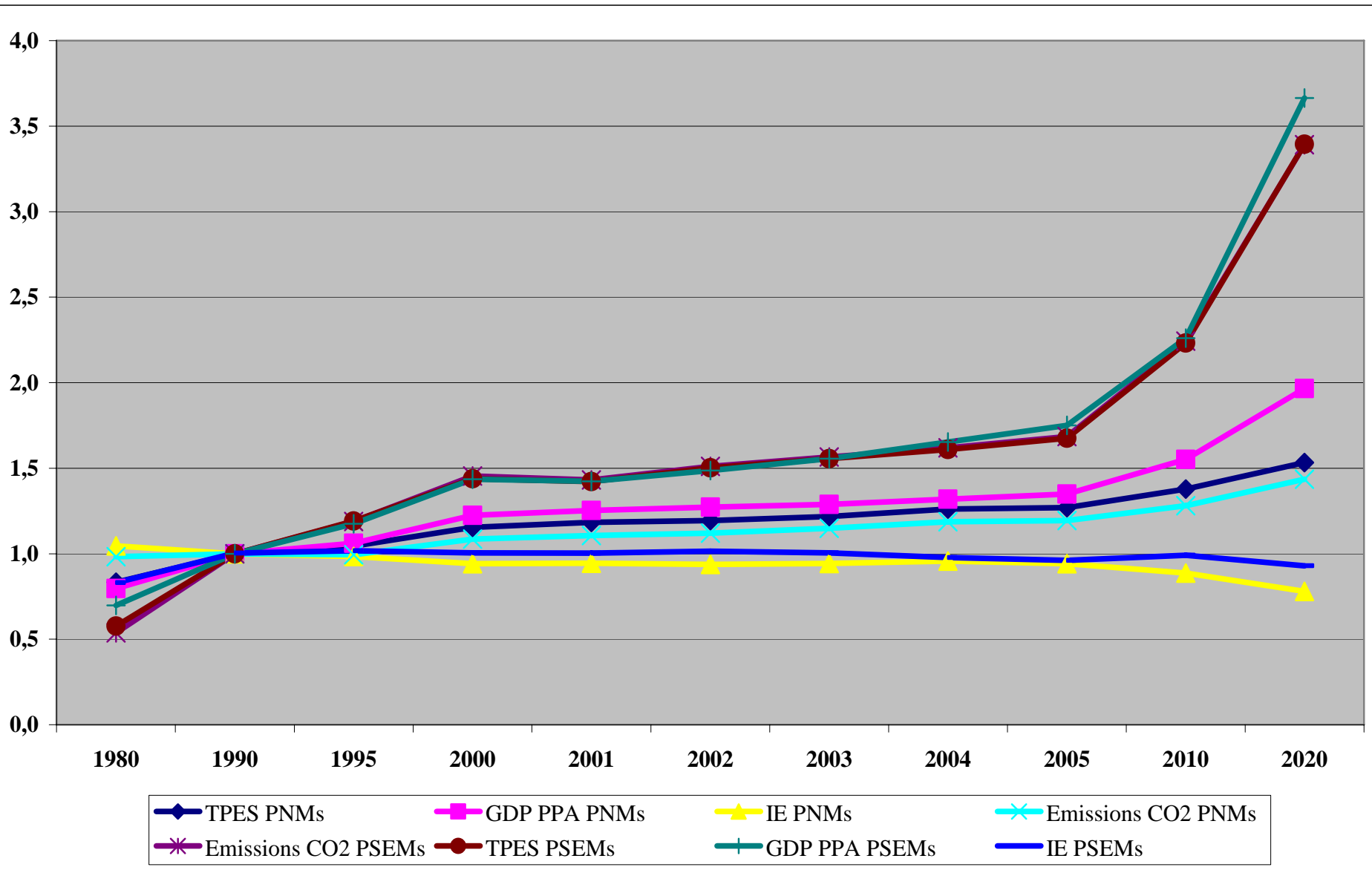


PROJECTIONS OF SURFACE TEMPERATURES



CO₂ Emissions from Energy Consumption in the Mediterranean







“On current trends, we are on course for an unstable, dirty & expensive energy future” **quote from IEA Executive Director**



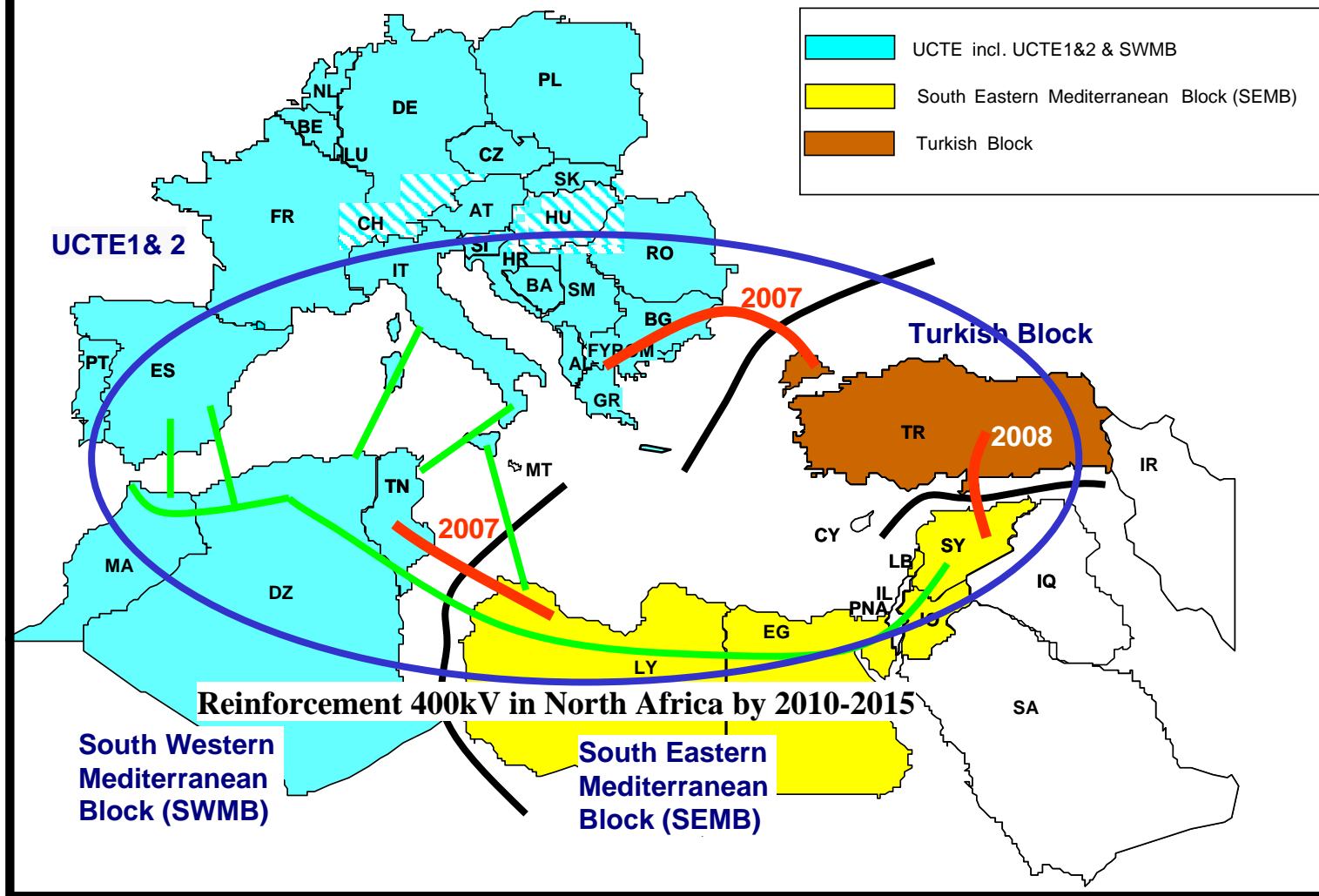
- **A more sustainable future is needed**
- **A more sustainable future is possible**
- **High potential for energy efficiency**
- **The electricity interconnection may help**
- **Renewable energy have also an important role to play**
- **OME is working on these issues through its RESDC**



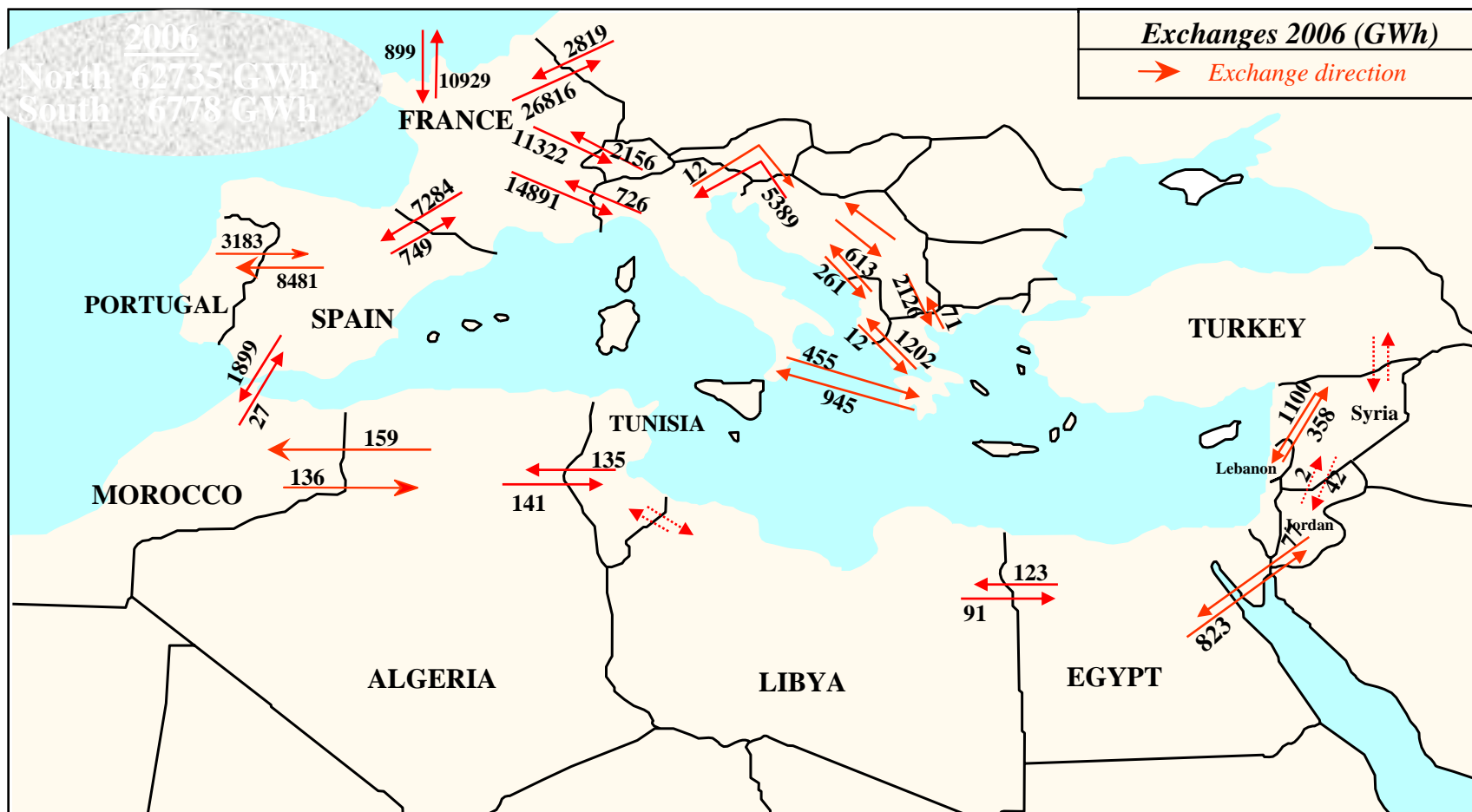
No single solution... a portfolio of technologies is required



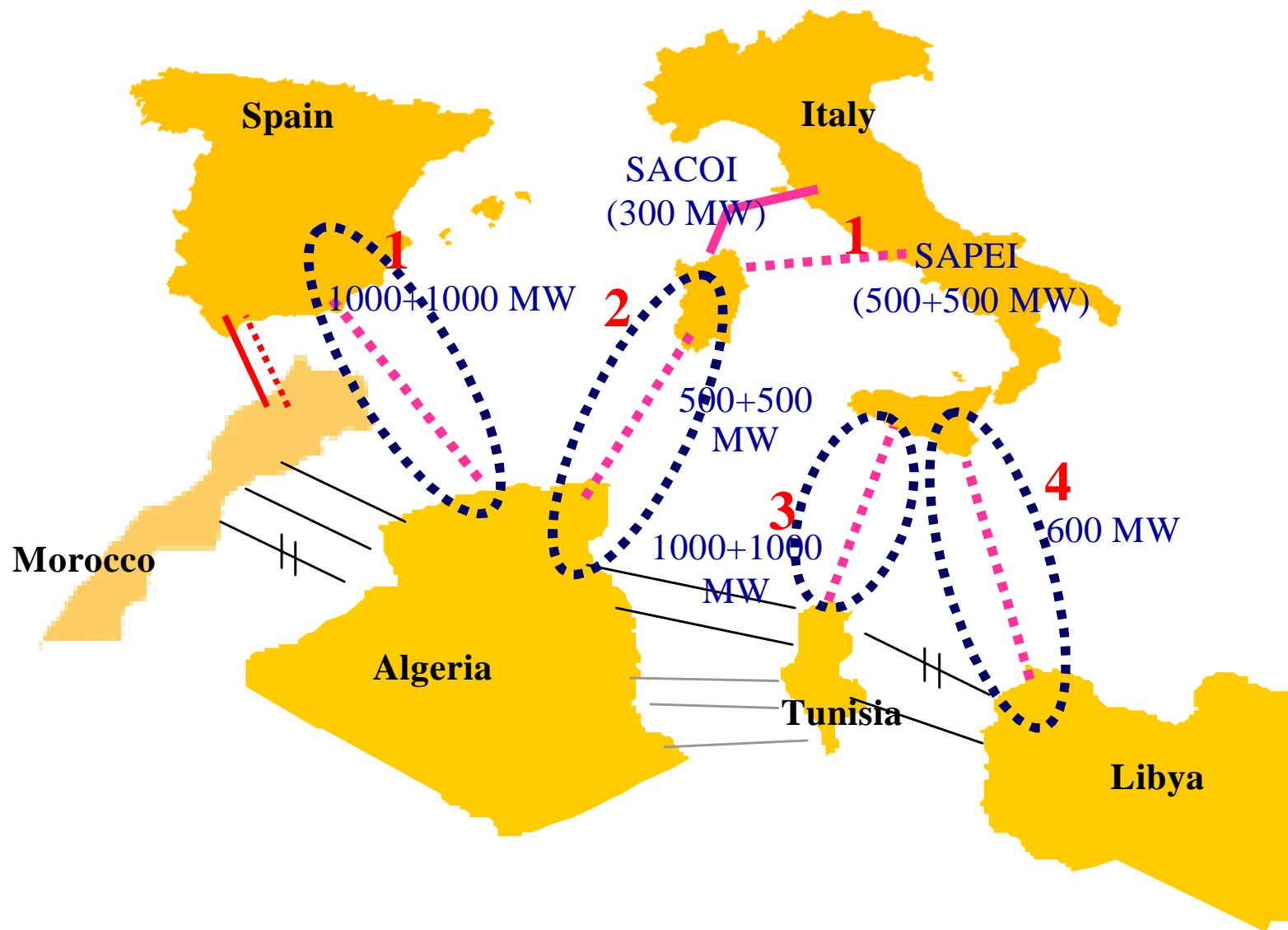
Electrical interconnections : UCTE Network & Mediterranean Ring



Intra-Mediterranean Physical Electricity Exchanges 2006



Source: OME, October 2007



RE in SEMCs: high potential but relatively modest present situation



Characteristics of wind resources in the Southern and Eastern Mediterranean countries

	Algeria	Egypt	Libya	Morocco	Tunisia	Turkey
Wind speed (m/s)	2 - 6	6 - 11	5 – 10.5	8 - 11	7 - 10	5-11
Wind potential (MW)	Na	20 000	Na	6000	2000	88000 (technical) and 10000 to 12000 economic

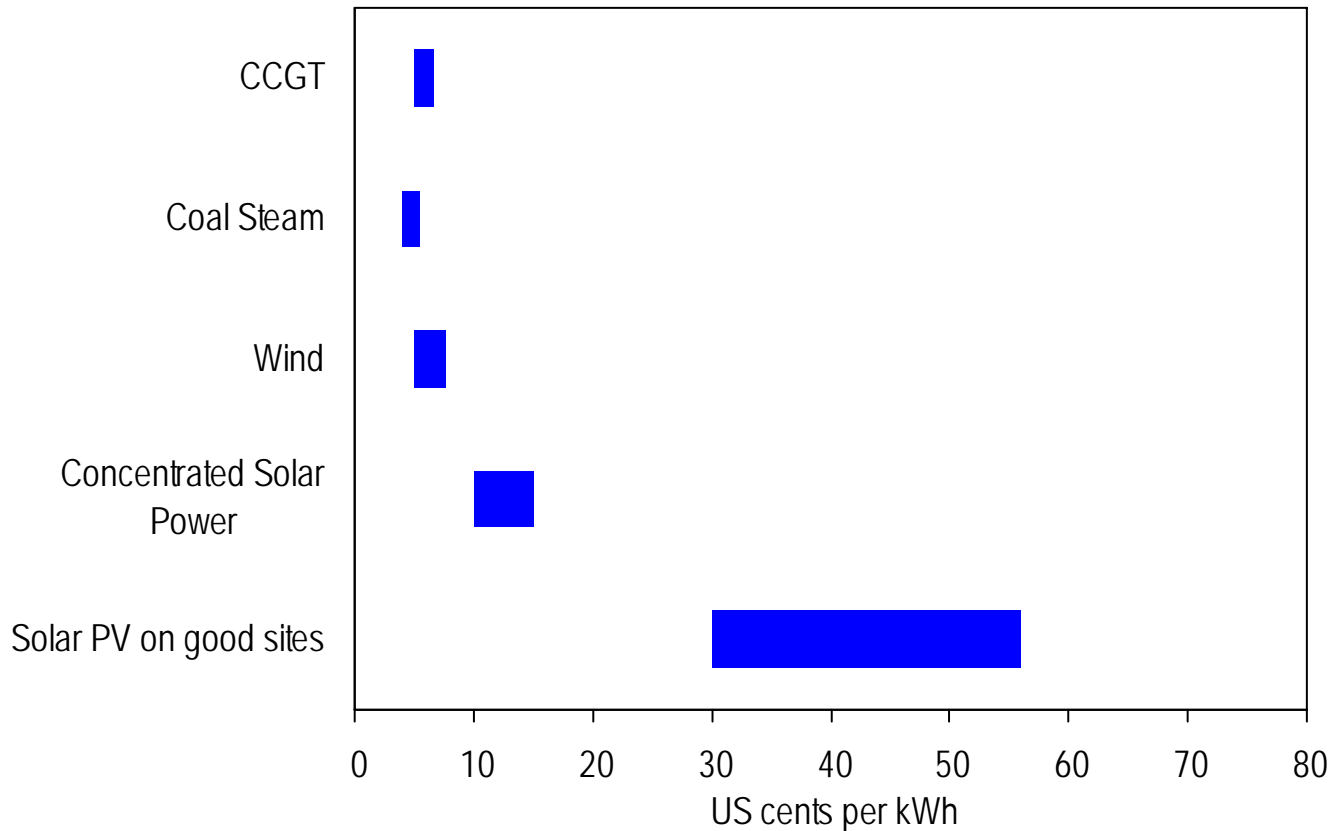
RE installed capacity 2006 in the SEMCs (excluding large hydro) MW

	Algeria	Egypt	Libye	Morocco	Tunisia	Turkey
Small hydro (321 MW)	85	-		30	30	176
Wind (410 MW)	0.5	225		114*	20	50
PV systems (13.3 MW)	1	3	1	6	2	0.3
Geothermal						20.4
Biomass		36			0.1	

Source: OME

* 2007 data (60 MW have been inaugurated on April 2007)

Relative Cost of Electricity Generation from Wind and Solar



Wind power generation can already compete in certain locations,

Concentrated solar power is not far away in the sunbelt.

Solar photovoltaics has costs decreasing by up to 18% with every doubling of cumulative production, but as yet remains economic only in remote locations.

RE added value to the energy mix



- **enhancing security of supply** - both for **geopolitical-** concentrated in few countries - and **infrastructure-** power plants, pipeline, sea straits...
- allowing energy sources **diversification & reducing imports** for consumers/ **deferring production** for exporters
- **mitigating risks in current energy portfolio** and trends, due to **volatility and instability** of fossil prices;
- **creating** framework for investment, **enhancing industrial** competitiveness – **and opportunities** for export, **creating new jobs, favouring economic development**
- **advancing** environmental targets;
- **providing** unique access to energy **services;**

- **Barriers need to be removed, particularly**
 - **Institutional and legal barriers:** in most of the countries, there is no institutional and regulatory framework specific to RE
 - **Competing resources:** RE are competing with conventional energies relatively abundant, widely deployed and subsidised in several countries of the region. But, RE are most often already competitive in isolated rural areas



- **Regional and international context is favourable**
 - **Regional:** EC, EIB, MEDREP, MEDENER, MEDITEP, OME
 - **Kyoto Protocol:** the Clean Development Mechanism, an opportunity not yet fully exploited
 - **The Mediterranean Strategy for Sustainable Development:** a framework in favour to RE and EE
 - **RE perspectives are encouraging**

RE perspectives are encouraging in the SEMCs



Orientations for RE in the SEMCs

	Algeria	Egypt	Libya	Morocco	Tunisia	Turkey
RE specific law	Yes	Ongoing	No	Ongoing	Yes	Yes
Targets (not mandatory)	5% of power generation based on solar energy by 2010	20% RE share in electricity demand by 2020	6% of RE share in electricity demand by 2020	RE: 10% share in TPES and 20% in electricity generation by 2012	Yes, by technology (wind, SWH, ...)	2006-2012: + 926 MW RE 2010-2015: + 625 MW
Feed in tariffs	Yes	Yes	No	No	No	Yes
RE funds		Yes		Foreseen		
RE subsidies					Yes (SWH)	
R&D law	Yes	Yes		Yes	Yes	Yes
Public awareness programmes				Yes	Yes (strong)	

Conclusions



- A sustainable energy future is possible with a portfolio of **clean and efficient technologies, RE definitely among them.**
- **The task** will take substantial time **and it will require significant investments costs. But Business As Usual would cost more!!**
- **The task** is urgent: *it must be carried out before a new generation of inefficient and high-carbon energy infrastructure is locked into place. Delaying action by 10 years would reduce the impact on emissions in 2030 by three-quarters*
- **Implementing sustainable scenarios will require a transformation in:**
 - *the way power is generated,*
 - *the way homes, offices and factories are built and use energy,*
 - *the technologies used for transport.*
- **It will also require a strong co-operation between the North and the South countries to achieve the results implied**



Recommendations -1-

- **Realistic regional targets for EE, RE and access to electricity**
- **Adapted institutional and legislative frameworks involving all stakeholders**
- **Regional programme of implementation and measures strengthening in the fields of CC, RE and EE**
- **Techno-economic studies for integrated euro-mediterranean projects for solar and wind development in the SEMCS**



Recommendations -2-

- **Strengthened regional cooperation**
- **Regional carbon fund**
- **Regional programme for awareness and dissemination of information**
 - *Supervisory Board*
- **The OME RESDC is working in this direction by initiating regional projects on several issues related to RE development in the region in cooperation with euro-mediterranean partners and with support of the EC**

THE POLITICIANS
NEED TO DO
SOMETHING
ABOUT THIS GAS
SITUATION.

EXACTLY...

NOW COME TAKE A
DRIVE WITH ME TO
PICK UP SOME
GROCERIES.

GROCERIES

OPEN

MINE SMITH

USA TODAY ZOO KING FEATURES SYNDICATE



Thank you

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