MEDITERRANEAN ENERGY PERSPECTIVES

2008

EXECUTIVE SUMMARY

Observatoire Méditerranéen de l'Energie

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THE MEDITERRANEAN ENERGY PERSPECTIVES 2008

Released on 25 November 2008

Mediterranean Energy Perspectives 2008 (*MEP 2008*) assesses the energy outlook for Mediterranean energy markets through 2030. This publication was prepared by the Observatoire Méditerranéan de l'Energie (OME).

The OME is a unique association of 35 leading energy companies that operate in the Mediterranean Basin. It represents a gathering of energy operators from both the North and the South, from both producing and consuming countries and from both emerging and industrialized countries who are seeking to:

- Promote dialogue among the players on the Mediterranean energy scene;
- Promote regional cooperation in the field of energy, based on concrete projects;
- Study and analyze jointly all issues related to long-term energy supply and demand, infrastructure needs, investment financing, institutional and regulatory frameworks, renewable energy and sustainable development, economic development, and environmental protection.

MEP 2008 provides an in-depth analysis of and projections for 24 Mediterranean countries and aggregates. It contains:

- A description of the place of the Mediterranean countries in the global context,
- Energy demand scenarios up to 2030,
- Production profiles and prospects for oil and gas to 2030,
- Perspectives on CO_2 emissions and sustainable development,
- A wide range of energy indicators,
- In-depth country profiles of Algeria and Turkey,
- A comprehensive energy supply and demand model for Turkey,
- Systematic and comparable country tables presenting energy demand to 2030.

MEP 2008 is the first annual issue of a regular publication whose aim is to compile and present the extensive work of the OME. This edition of *MEP* is based on an exclusive in-house model that brings to light an alternative, nongovernmental view of how energy demand might evolve in the Mediterranean countries. Because its forecasts can be easily compared with those available elsewhere, *MEP* will be an indispensable source for policymakers, researchers, and members of the business community.

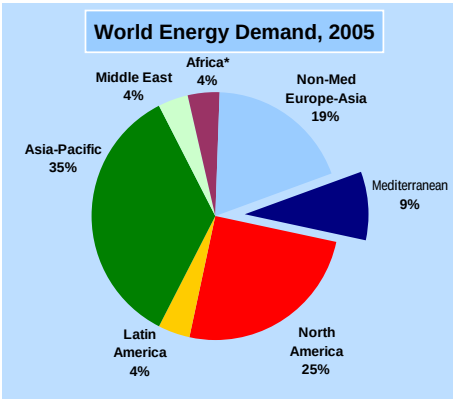
Executive Summary

***Mediterranean Energy Perspectives 2008* (*MEP 2008*),** prepared by the Observatoire Méditerranéen de l'Energie (OME), assesses the energy outlook for Mediterranean energy markets through 2030. Its in-depth analysis of and projections for 24 Mediterranean countries and aggregates, as well as its detailed profiles of Algeria and Turkey, bring to light an alternative nongovernmental view of how energy demand might evolve in the Mediterranean countries.

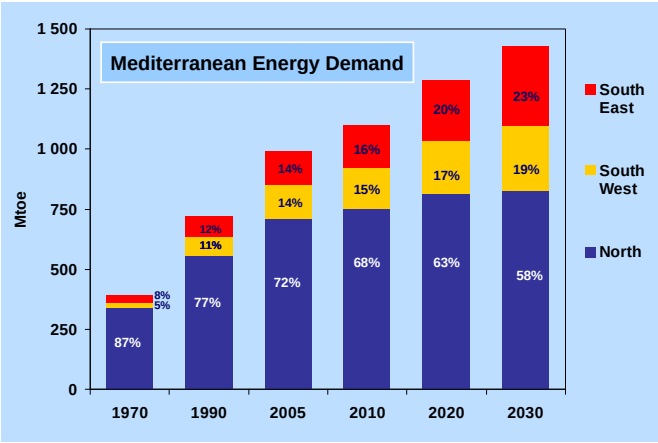
This first edition of *MEP* presents the results of a reference scenario that is based on past energy trends. The main assumptions of the scenario are related to benchmark population, economic growth, and international fossil fuel prices. The scenario also assumes no major deviations from the energy policies and measures already in place or that were in the process of being implemented by the end of 2007.

MEDITERRANEAN ENERGY TRENDS

THE MEDITERRANEAN ACCOUNTS FOR 9% OF THE WORLD'S ENERGY DEMAND. The almost half a billion people, who live in the Mediterranean Basin, have an average annual income of US$13 000 per capita and currently consume 990 Mtoe of energy. As a result, the Mediterranean accounts for about 9% of the world's energy demand. Over the projection period, 2005–2030, this share should remain rather stable.



MOST OF THE INCREASE IN ENERGY DEMAND IS EXPECTED TO TAKE PLACE IN THE SOUTH MEDITERRANEAN COUNTRIES. The overall energy demand of the Mediterranean countries is expected to grow by 1.5% per year on average, reaching 1426 Mtoe in 2030. Through 2030, the North is expected to lose some of its share to the South, whose share will account for over 42% of energy demand compared with its current 28%.

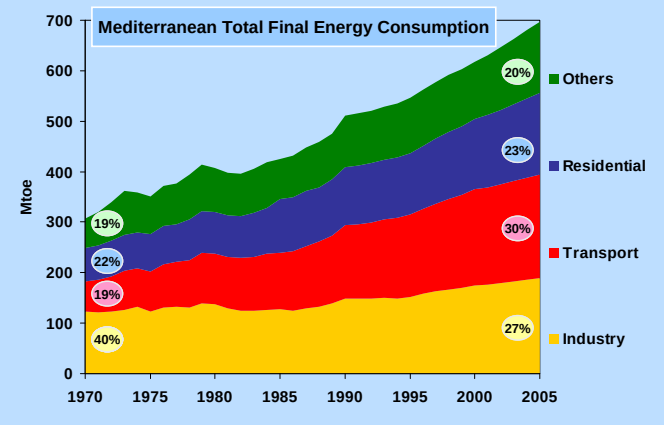


THE MEDITERRANEAN ENERGY FUTURE WILL REMAIN FOSSIL FUEL–BASED. As is the case today, fossil fuels will account for about 80% of total Mediterranean energy demand by 2030. Oil will remain the dominant fuel in the Mediterranean energy mix. Despite oil's loss of share to gas in power generation, the demand for oil will continue to increase, along with that for transport fuels, especially diesel and gasoline. The demand for gas in the Mediterranean region is expected to rise from 244 Mtoe in 2005 to 432 Mtoe in 2030, which will account for 30% of the total Mediterranean energy

demand. The demand for coal will continue to grow strongly, at 1.7% per year on average, still accounting for 12% of the total energy mix in 2030.

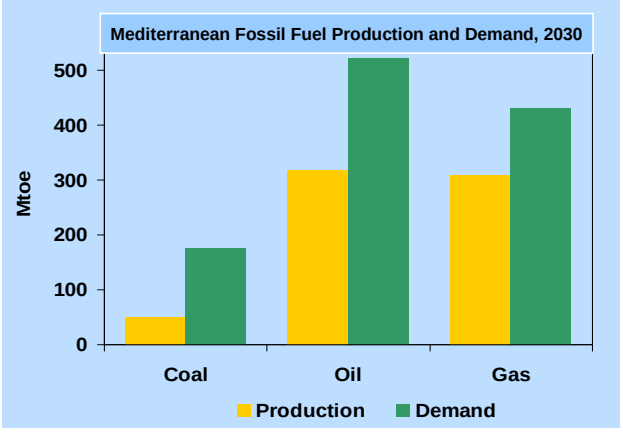
RENEWABLE ENERGY SOURCES WILL BE THE FASTEST-GROWING FUEL THROUGH THE PROJECTION PERIOD. Spurred by incentives, policies, and technological advances, renewables are expected to continue their outstanding growth to 2030, with more than a 3.5% per year average increase over the projection period. In 2030 they will represent about 11% of energy demand.

TRANSPORT WILL CONTINUE TO BE THE MAIN CONSUMING SECTOR IN THE REGION IN 2030. Industry will account for the biggest increase in total final consumption, mostly because of the increase in the South. The structure of energy demand has changed drastically over the last three decades. From an industry-based energy mix, the Mediterranean now offers more evenly balanced consumption, with the transport and residential sectors increasing their shares. Over the coming decades, the residential sector will increase its share to reach one-quarter of total final consumption.



THE MEDITERRANEAN REGION HOLDS 4.6% OF THE WORLD'S PROVEN OIL AND GAS RESERVES. Although most of the countries in the Mediterranean region have been thoroughly explored for hydrocarbons, those in the South West Mediterranean are still underexplored. Oil production in the Mediterranean region is expected to increase only 20% by 2030, whereas gas production will double.

OVER TWO-THIRDS OF THE NEW POWER GENERATION CAPACITY WILL HAVE TO BE ADDED IN THE SOUTH MEDITERRANEAN. Total electricity generation is estimated to approach 3 289 TWh by 2030, which will require adding 372 GW of new generating capacity in the Mediterranean. In 2030 total electricity generation in the Mediterranean will likely be based on thermal generation, with gas accounting for the largest part (33%) of the power generation mix. Despite a significant increase, nonhydro renewables are expected to account for just 7%.

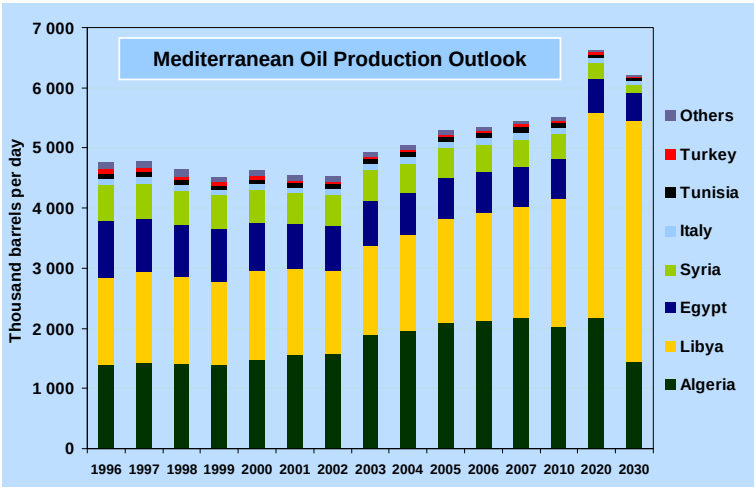


IN 2030 THE MEDITERRANEAN REGION IS EXPECTED TO BE IMPORTING OVER 39% OF ITS OIL NEEDS AND 28% OF ITS GAS NEEDS. Fossil fuel dependence in the Mediterranean will remain at 40%. By contrast, total energy dependence is expected to remain at about 32% over the next two and half decades.

CONTINUING BUSINESS-AS-USUAL POLICIES WILL NOT RESULT IN A DESIRABLE ENERGY FUTURE for the Mediterranean region unless tremendous efforts are devoted to improving energy efficiency and diversifying the energy supply mix, including the large deployment of renewables. Such a strategy will also help mitigate the effects of climate change in the region.

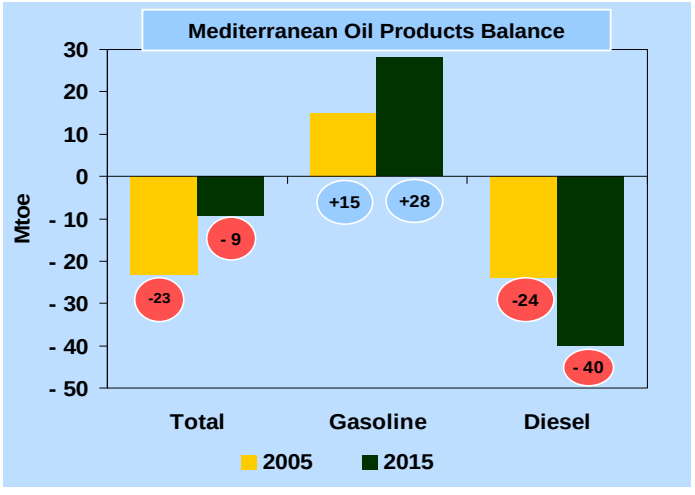
OIL

THE MEDITERRANEAN REGION HOLDS 4.6% OF THE WORLD'S PROVEN OIL RESERVES (61.5 billion barrels). Almost all (94%) are located in three countries: Libya, Algeria and Egypt. Libya alone holds over two-thirds.



EIGHTY PERCENT OF THE INCREASE IN THE DEMAND FOR OIL WILL COME FROM THE SOUTH MEDITERRANEAN, especially the South East. As a result, by 2030 the North will account for only 60% of total Mediterranean demand as opposed to about 70% currently. Oil demand in the Mediterranean is expected to increase from 432 Mtoe in 2005, reaching 522 Mtoe in 2030.

ABOUT 40 MTOE OF REFINING CAPACITY IS EXPECTED TO BE ADDED IN THE MEDITERRANEAN REGION BY 2015. ANOTHER 60 MTOE WILL HAVE TO BE ADDED BY 2030 in order to make up for the growing demand for oil products in the region, particularly for middle distillates.



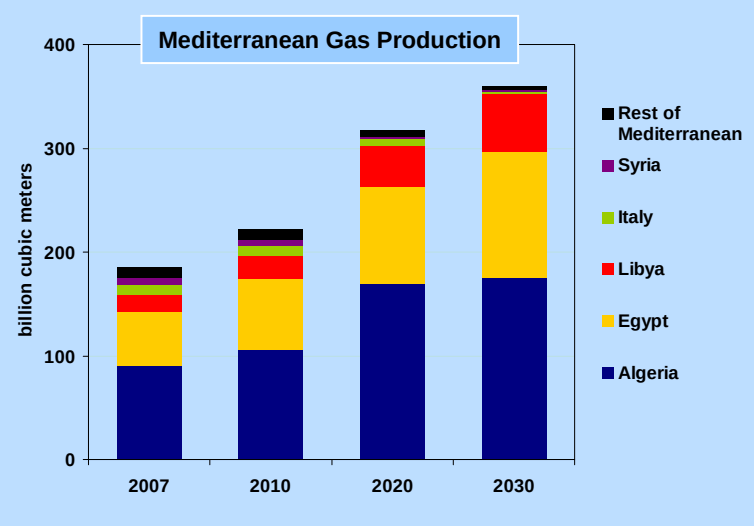
MEDITERRANEAN GASOLINE SURPLUSES ARE EXPECTED TO EXCEED 30 MTOE IN THE NEXT DECADE, but import destinations, especially the United States, may not be able to absorb that surplus.

THE SUSTAINED DEMAND FOR MIDDLE DISTILLATES IS EXPECTED TO INCREASE THE IMPORT DEPENDENCE OF THE MEDITERRANEAN. Those countries supplying the Mediterranean with diesel, specifically Russia, may not be able to provide the region's needs by 2015. EU policies, such as the 20/20/20 targets, including the biofuel targets, may further exacerbate the diesel crunch and add to the gasoline surplus.

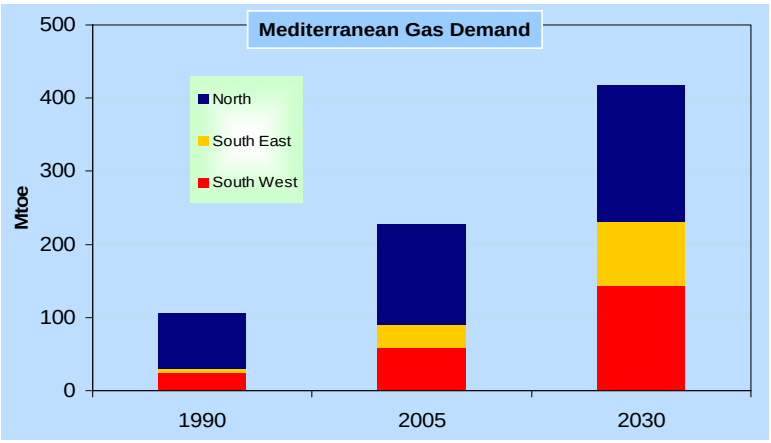
NATURAL GAS

THE PROVEN NATURAL GAS RESERVES OF THE MEDITERRANEAN REGION (8 TCM) CORRESPOND TO 4.6% OF THE WORLD'S GAS RESERVES. Although exploration of the North Mediterranean has been relatively thorough, most areas in the South, especially offshore, are either unexplored or underexplored. Algeria, Libya, and Egypt hold almost 95% of the total gas reserves in the Mediterranean region.

MARKETED NATURAL GAS PRODUCTION IN THE MEDITERRANEAN REGION WILL CONTINUE INCREASING TOWARD 2030, FROM 185 BCM IN 2007 TO 360 BCM BY 2030. Virtually all of the production increase will come from Algeria, Egypt, and Libya. Algeria will remain the largest producer, followed by Egypt and Libya. Currently, those three countries account for 87% of total gas production in the Mediterranean region. Over the last few decades, marketed natural gas production in the Mediterranean region increased tremendously, rising from 76 bcm in 1987 to 185 bcm in 2007. Over the same period, the region's share of the world's gas production increased from 4% to 6%.



TOTAL GAS DEMAND IN THE MEDITERRANEAN COUNTRIES IS EXPECTED TO EXCEED 500 BCM BY 2030. Gas demand in the region more than doubled over the last 15 years, reaching 300 bcm in 2007, which represents 10% of the world's gas demand. Currently, the North Mediterranean countries account for 60% of total Mediterranean gas demand, but by 2030 their share will be about 45%.

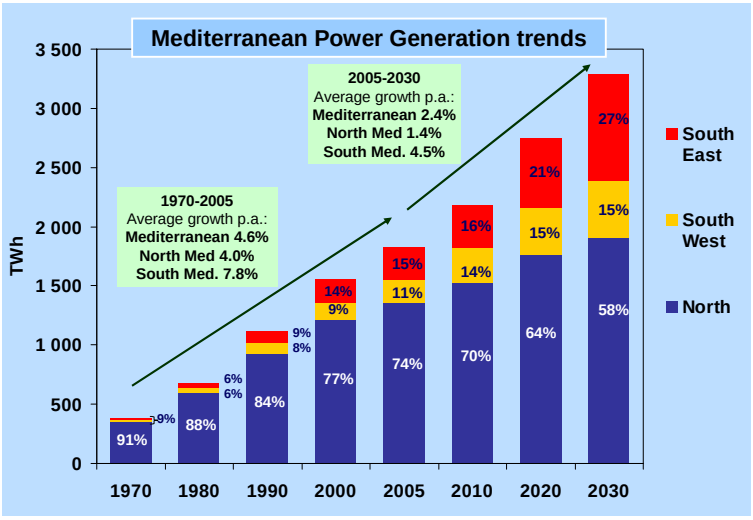


POWER GENERATION IS AND WILL CONTINUE TO BE THE LARGEST GAS-CONSUMING SECTOR IN THE MEDITERRANEAN REGION. Its share in total Mediterranean gas demand has doubled since 1990, mainly because of the switch to gas-fired power plants, and is about 40% today. Although the share of the power generation sector will increase slightly between 2005 and 2030 in the Mediterranean as a whole, each region will present a different picture. The share of power generation will increase in the South West, decrease slightly in the South East, and remain flat in the North.

ALGERIA, EGYPT, AND LIBYA ARE AND WILL REMAIN THE NET GAS EXPORTERS IN THE MEDITERRANEAN REGION. Their total gas exports will increase from over 85 bcm in 2007 to 210 bcm by 2030. Algeria will continue to account for most of the exports. The other countries in the region will rely more on gas imports. The export and import infrastructure, from pipelines to LNG plants and terminals, is expanding tremendously in the region.

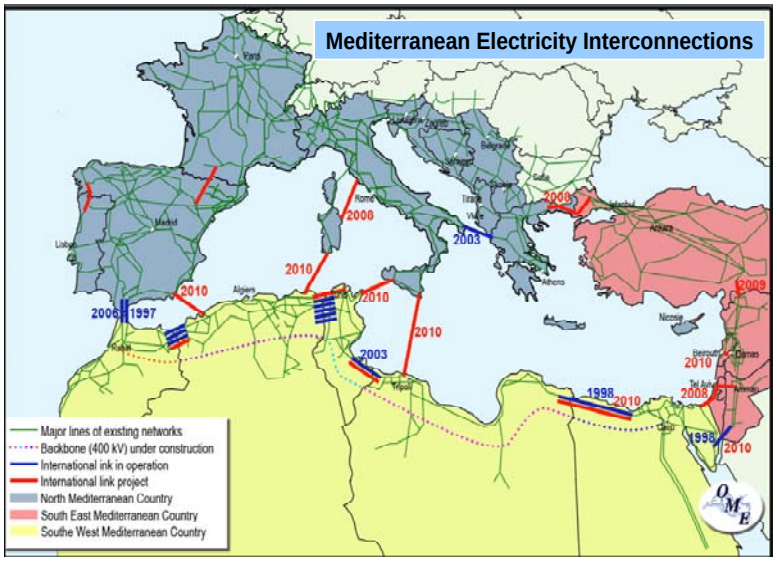
ELECTRICITY

THE MEDITERRANEAN'S ELECTRICITY DEMAND IS EXPECTED TO INCREASE BY 80% BY 2030. The South, which will experience even more robust growth than the North, will especially require more output. The economic and social progress in the South will stimulate electricity consumption in that region: from 1 862 kWh per capita per year in 2005 to 3 900 kWh in 2030. To satisfy the demand in 2030, countries will have to install new capacity and renew the old plants.



BY 2030 ELECTRICITY GENERATION WILL CENTER ON NATURAL GAS (50%) IN THE SOUTH, AND NUCLEAR (28%) IN THE NORTH. This will require adding 254 GW in the South and 118 GW in the North.

TOTAL RELATED INVESTMENT IN THE SOUTH WILL AMOUNT TO APPROXIMATELY US$450 BILLION, of which 60% would be directed toward generation plants and the remainder toward transmission and distribution networks.



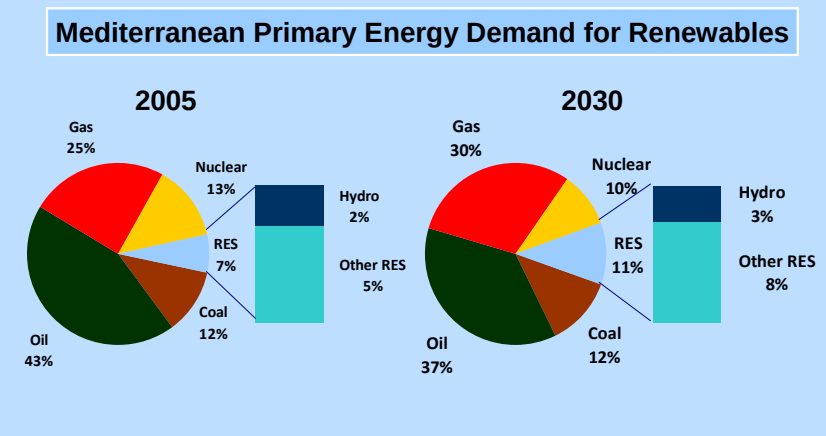
ALL THE SOUTHERN STAKEHOLDERS (MAINLY GOVERNMENT BODIES AND PUBLIC UTILITIES) HAVE BEGUN TO PREPARE THE POWER SECTOR STRUCTURE for coping with the need to finance investments, ensure the safe and reliable technical operation of the electrical system, and deliver electricity to end users on a sound, economical basis. Some countries in the South Mediterranean have established new electricity laws to

attract investors and to implement the liberalization of their markets (bringing private partners into distribution), or they have adapted their legislation to authorize independent power producers.

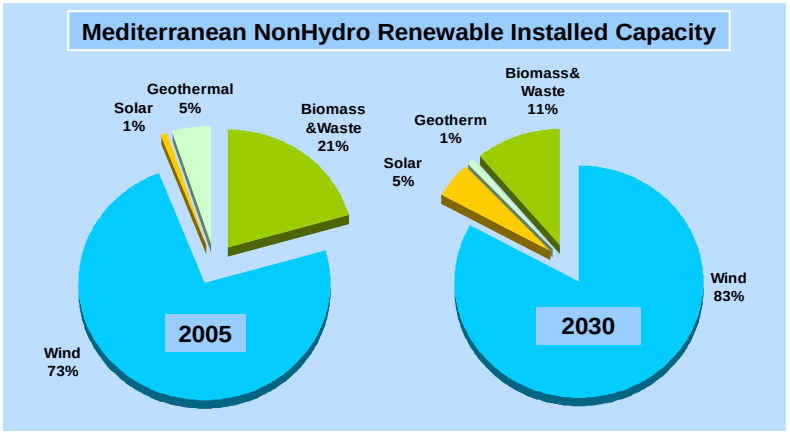
ALL COUNTRIES BELIEVE THAT DEVELOPING CROSS-BORDER INTERCONNECTIONS IS A POSITIVE WAY TO REINFORCE SYSTEM RELIABILITY and to optimize installed capacity by trading energy with win-win contracts. There are some caveats, however. The real electricity price has a strong impact on demand. Huge projected investments would probably lead to higher electricity prices, which could influence demand and probably the subsidies, if any, given to low-income customers. Stakeholders should consider investing in demand-side management programs, an economical option that would alleviate the financial burden and, as a beneficial side effect, reduce CO_2 emissions.

RENEWABLE ENERGY SOURCES

RENEWABLES' SHARE IN THE PRIMARY ENERGY SUPPLY IN THE MEDITERRANEAN REGION MORE THAN DOUBLED OVER THE LAST THREE DECADES. In 2005 it amounted to 68 Mtoe, representing 7% of the total primary energy supply. That share is expected to increase to 11% by 2030, for a total of 159 Mtoe, which is rather weak when compared with the huge renewable energy potential available in the region.



As for the renewable energy capacity installed, NONHYDRO RENEWABLES HAVE SHOWN IMPRESSIVE PROGRESS OVER THE LAST 30 YEARS, GROWING AT AN AVERAGE ANNUAL RATE OF 26%, TO REACH 19 GW IN 2005. Behind this trend is the spectacular increase in wind power capacity, which reached 14 GW in 2005 from only 3 GW in 2000.



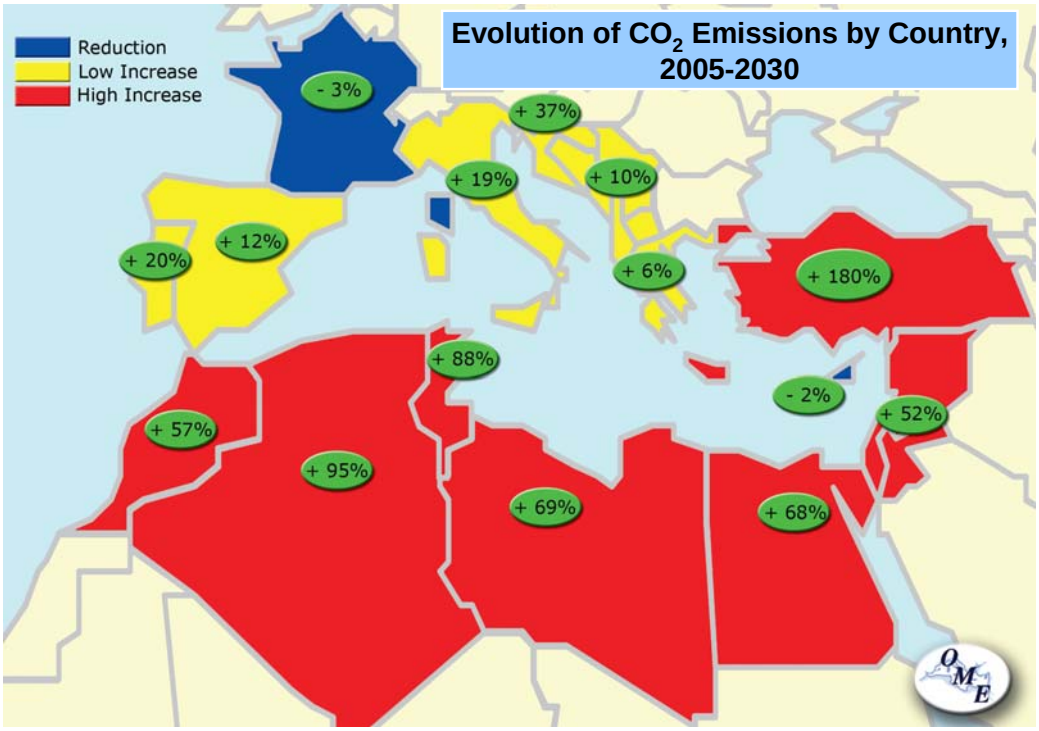
Renewables contributed to some 17% of the total electricity produced in the Mediterranean in 2005 (310 TWh), and they are projected to account for 26% (865 TWh) by 2030. HYDROPOWER CURRENTLY IS THE MOST WIDELY EXPLOITED SOURCE IN THE MEDITERRANEAN, ACCOUNTING FOR OVER 80% OF RENEWABLES-BASED ELECTRICITY GENERATION IN 2005. However, nonhydro renewables are expected to experience the most sustained growth between 2005 and 2030.

THE NORTH MEDITERRANEAN COUNTRIES ARE THE LARGEST RENEWABLE ENERGY PRODUCERS IN THE REGION, ACCOUNTING FOR OVER 70% OF RENEWABLES-BASED ELECTRICITY GENERATION IN 2005. However, their relative contribution is expected to decrease to about 60% by 2030 because of the sustained deployment of renewables in the South Mediterranean countries, especially Turkey and Egypt. More sustained growth of renewables can be expected in the North Mediterranean countries if they comply with the new targets contained in the EU's proposed climate and energy package currently under discussion. More sustained growth of renewables can also be expected in the South Mediterranean countries, provided that adapted policies are put in place.

Strengthened regional cooperation can significantly help untap the potential of renewables in the Mediterranean countries. To this end, THE RECENT LAUNCH OF THE UNION FOR THE MEDITERRANEAN WITH ITS MEDITERRANEAN SOLAR PLAN REPRESENTS A KEY STEP TOWARD GREATER COOPERATION IN THE RENEWABLE ENERGY FIELD BETWEEN BOTH SHORES OF THE MEDITERRANEAN. OME IS ACTIVELY INVOLVED IN THE MEDITERRANEAN SOLAR PLAN.

CO_2 EMISSIONS AND ENERGY INDICATORS

ALTHOUGH THE MEDITERRANEAN REGION IS NOT ONE OF THE LEADING CO_2 EMITTERS, IT IS PARTICULARLY VULNERABLE TO CLIMATE CHANGE and is likely to be exposed more and more to extreme events. Thus huge mitigation efforts are needed in the region. The Kyoto Protocol provides a framework for enhanced cooperation in climate change policy. However, at present it is an underexploited opportunity in the Mediterranean region. So far, only 24 Clean Development Mechanism (CDM) projects are registered out of more than a thousand in the world. A regional climate change strategy would help identify cost-effective mitigation opportunities and better exploit synergies between both shores of the Mediterranean.



CURRENTLY, THE NORTH MEDITERRANEAN COUNTRIES ARE RESPONSIBLE FOR TWO-THIRDS OF CO_2 EMISSIONS IN THE MEDITERRANEAN REGION. The main emitting countries are Italy, France, and Spain. With current trends, only France and Cyprus are expected to achieve CO_2 emission reductions in 2030 when compared with levels in 2005.

OVER TIME, HOWEVER, THIS SITUATION IS EXPECTED TO CHANGE, WITH THE NORTH AND THE SOUTH PRODUCING EQUAL SHARES OF CO_2 EMISSIONS. This change will stem from the combined effects of climate change legislation in the North Mediterranean countries and economic development in the South Mediterranean countries coupled with significant fossil fuel exploitation. Within the South Mediterranean countries, Turkey is by far the largest contributor to CO_2 emissions. Under our reference scenario, its emissions are expected to triple by 2030, so that it accounts for 43% of all South Mediterranean emissions.

CARBON INTENSITY IS EXPECTED TO FALL BY ONE-QUARTER IN THE MEDITERRANEAN as a whole between 1990 and 2030. It will record a 36% decrease in the North Mediterranean countries. In 2030 carbon intensity in the South East Mediterranean countries will be almost twice that in the North Mediterranean countries, and in the South West Mediterranean countries it will be three times higher.

INSTITUTIONAL FRAMEWORK AND REGIONAL COOPERATION

THE EU PROVIDES A COMMON REGULATORY FRAMEWORK. The issuance of EU directives 96/92/EC and 98/30/EC was the starting point for the creation of a common energy market in the EU. These directives introduced a totally new institutional framework, quite unlike the one under which the historically monopolistic, integrated public utilities used to operate. However, the EU Member States must continue to take significant steps toward achieving complete harmonization.

THE SOUTH MEDITERRANEAN COUNTRIES HAVE A MORE COMPLEX AND DIVERSIFIED INSTITUTIONAL AND REGULATORY FRAMEWORK. There, the energy market liberalization process is evolving along different paths based on each country's vision and priorities on energy matters.

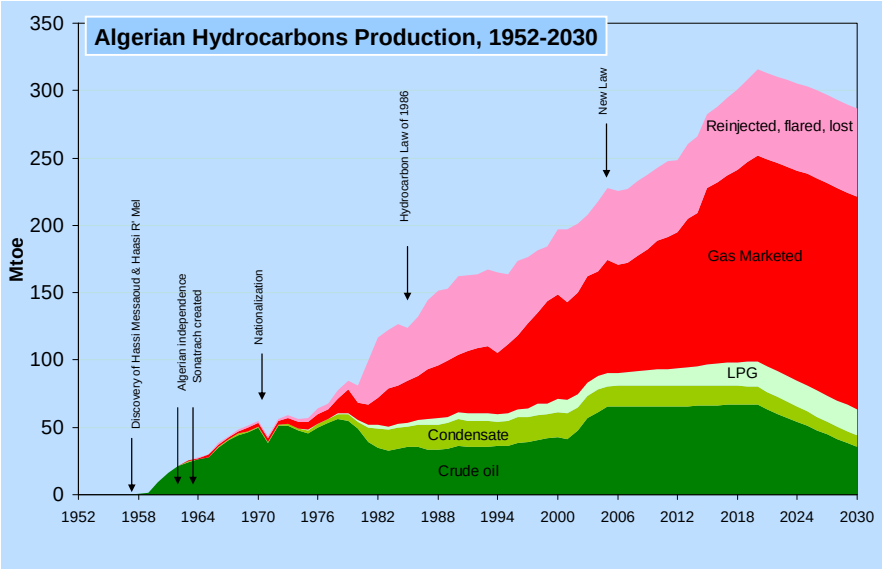
The European experience reveals that establishing an institutional framework suitable for both national and regional regulation is a long, ongoing process that very often advances by consensus. Therefore, although South Mediterranean regulators are mainly concerned about opening a national energy market, any government and industry actors in the South Mediterranean countries already thinking about the future convergence of institutional frameworks are taking the right step toward creation of a truly regional energy market.

THE BARCELONA PROCESS HAS LAID THE GROUNDWORK FOR GREATER DIALOGUE AND COOPERATION AMONG THE MEDITERRANEAN COUNTRIES on a series of important issues. However, this framework must evolve further to achieve full regional integration, particularly in the energy sector.

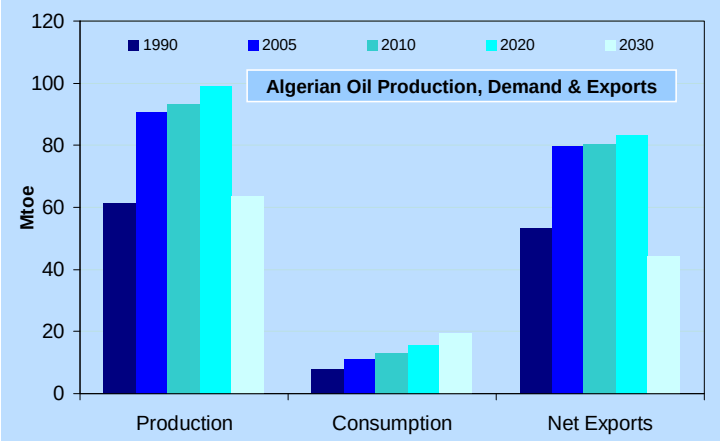
THE UNION FOR THE MEDITERRANEAN INITIATIVE IS SEEKING TO PROVIDE NEW IMPETUS TO REGIONAL COOPERATION by laying out a set of priority development projects, including energy, that will create "de facto solidarity" among the participating nations.

ALGERIA: A PROFILE

Algeria, a member of the Organization of the Petroleum Exporting Countries since 1969, is one of the world's top five largest suppliers of natural gas, LNG, NGL and LPG. The value of hydrocarbons exports has nearly tripled since 2000, reaching a new record of almost US$60 billion in 2007.



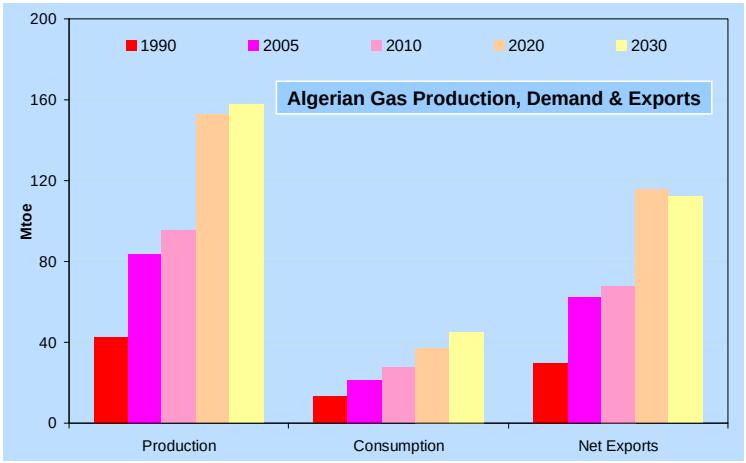
ALGERIA HOLDS 1% OF THE WORLD'S OIL AND 2.5% OF THE WORLD'S GAS RESERVES. And yet the country is still underexplored. Most of the oil and gas fields discovered so far are located in the central and eastern part of the Saharan platform. Offshore Algeria is probably one of the few remaining deepwater exploration frontiers in Africa.



TOTAL HYDROCARBON PRODUCTION IS EXPECTED TO CONTINUE INCREASING RAPIDLY UNTIL 2020, and remain more or less on a 300 Mtoe plateau level to 2030 compared with 225 Mtoe in 2007. Over the last 50 years, hydrocarbon production in Algeria has registered unprecedented growth. The hydrocarbons sector is increasingly becoming a major part of Algeria's economy. The country is an important producer and exporter of hydrocarbons on a world scale, and is an attractive place for foreign companies.

BY 2030 TOTAL OIL PRODUCTION IS EXPECTED TO BE LOWER THAN TODAY, BUT GAS PRODUCTION IS EXPECTED TO DOUBLE. In 2007 Algeria's oil production averaged 2 mbd, and gas production was some 90 bcm, representing over 2% of the global oil production and some 3% of global natural gas production. Crude oil production is estimated to be already on a plateau level, and condensate production will continue its gradual decline, whereas LPG production will offset those declines until around 2020.

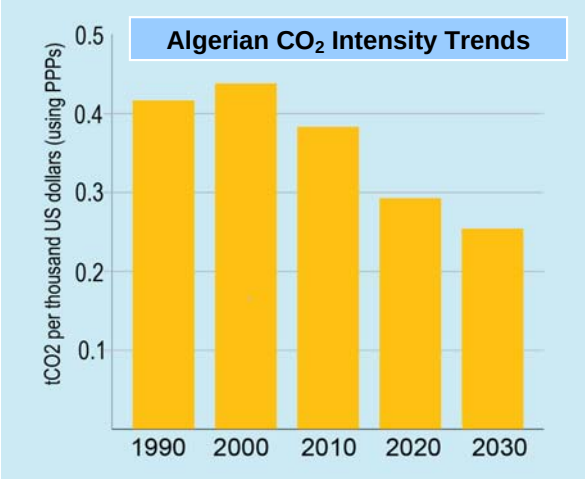
ALGERIA WILL CONTINUE TO RELY ON GAS FOR MEETING ITS DOMESTIC ENERGY DEMAND, especially in the electricity generation and residential sectors. Natural gas is expected to continue to account for two-thirds of total energy demand in Algeria by 2030. Oil accounts only one-third of total energy requirements. it is used mainly for transportation and as LPG in the residential sector. The demand for oil and gas is expected to almost double over the next two and half decades.



THE EVOLUTION IN ELECTRICITY CONSUMPTION WILL LEAD TO CONSIDERABLE INVESTMENTS. Electricity consumption in Algeria rose from about 1 TWh in 1962 to almost 37 TWh in 2007. According to Sonelgaz, the prospects for economic growth will induce relatively substantial growth in electricity consumption, increasing to between 60 and 80 TWh in 2017, which is in line with the OME estimates. The total national electricity generating capacity in Algeria is expected to reach 16 500 MW by 2017.

THE EXPORT OF HYDROCARBONS WILL CONTINUE INCREASING UNTIL 2020, and then start declining slowly. Natural gas exports are expected to continue to grow in the future in parallel with the construction of new pipelines to Europe and new LNG plants. The country will remain one of the top gas exporters in the world and one of the few main gas suppliers to Europe over the next decades.

ALGERIA HAS HUGE SOLAR POTENTIAL. In Algeria, traditionally the contribution of renewable resources to the total primary energy supply has been limited largely because of the vast gas resources available in the country. A detailed regulatory framework has been set up in Algeria to promote renewable energies, especially solar energy. In this regulatory framework, the Executive Decree on the Costs of Diversification of 2004 sets specific purchase tariffs for electricity from renewable resources. Meanwhile, the hydro potential is quite limited. Currently, a precise wind resource assessment map is not available for Algeria, nonetheless studies are helping to identify suitable locations for the construction of wind farms.

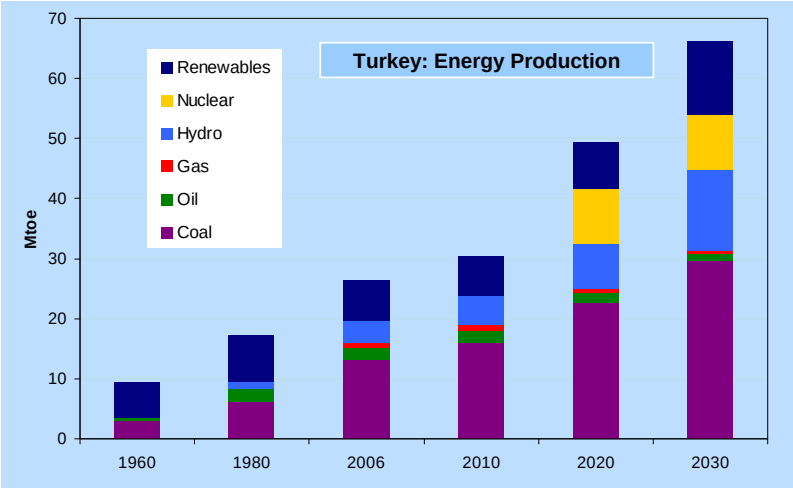


ALGERIA'S CARBON INTENSITY IS EXPECTED TO DECREASE SIGNIFICANTLY BY 2030, reaching 0.25 tCO_2 per thousand U.S. dollars of GDP, because of more efficient production practices, the decreasing growth rates of oil and gas use, and the efficient use of energy.

TURKEY: A PROFILE

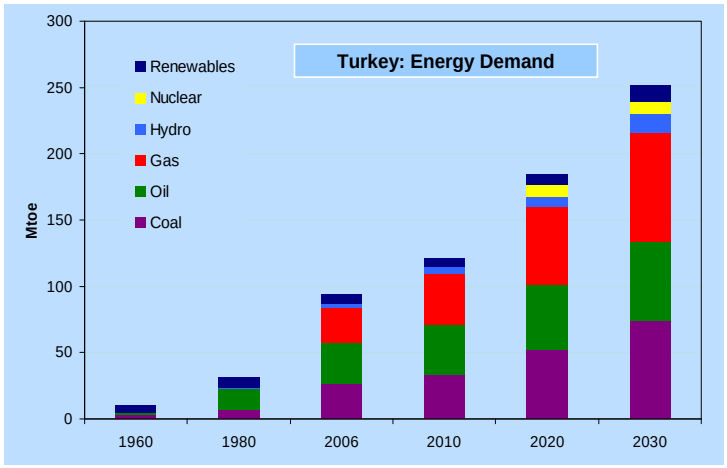
With its young population, dynamic private sector, and pivotal geographic location, Turkey is simultaneously an energy consumer, energy hub and corridor, and energy investor in the pan-European energy landscape. These characteristics make Turkey an emerging regional and global energy player.

TURKEY'S ENERGY FUTURE WILL REMAIN FOSSIL-BASED. Except for coal, Turkey is rather poor in fossil fuel resources. Primary energy production more than doubled in Turkey over the last four and half decades, reaching 26 Mtoe in 2006. We expect it to increase to 66 Mtoe by 2030. Nuclear and hydro will play a major role in this increase. Coal will account for nearly half of total primary energy production in Turkey by 2030. At that time, the country's total oil and gas production will be nearly half of today's level.



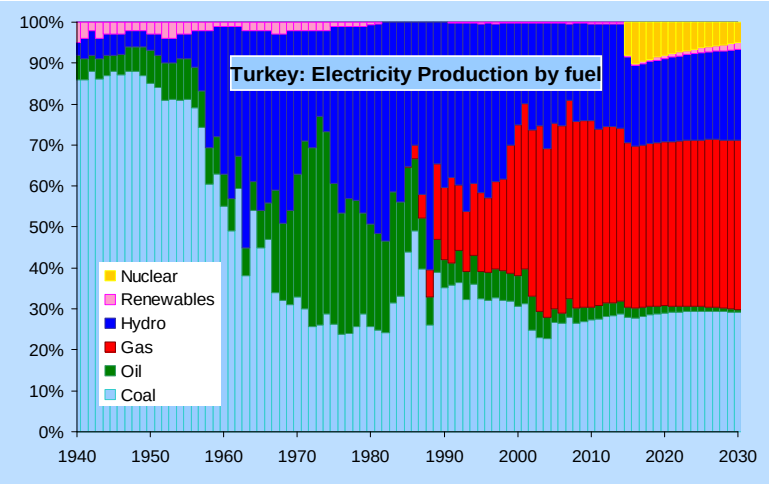
OVERALL ENERGY IMPORT DEPENDENCY WILL REACH 74% BY 2030, IN LINE WITH TODAY'S LEVELS, despite nuclear energy development and the impressive growth in renewables such as geothermal, solar, and wind. Moreover, despite the increasing utilization of domestic lignite reserves, Turkey's fossil fuel import dependency will remain over 82% toward 2030.

PRIMARY ENERGY DEMAND PER CAPITA IS EXPECTED TO DOUBLE IN TURKEY, to 2.7 toe per capita by 2030 compared with its level in 2006. The growth rate of primary energy demand in Turkey is expected to remain over 4% per year toward 2030.



NATURAL GAS WILL LIKELY BE THE MOST IMPORTANT FUEL IN THE TURKISH ENERGY SYSTEM. The demand for natural gas is expected to grow about 5% per year through 2030 and to exceed 90 bcm, driven by the growing need in the power generation sector. By 2030 natural gas will account for one-third of the total primary energy demand in Turkey.

THE DEMAND FOR ELECTRICITY IS EXPECTED TO REGISTER TREMENDOUS GROWTH in Turkey, albeit at a slower pace than today. Per capita electricity consumption is expected to triple to about 7650 kWh per capita by 2030, which is equivalent to the current per capita electricity consumption level of France.

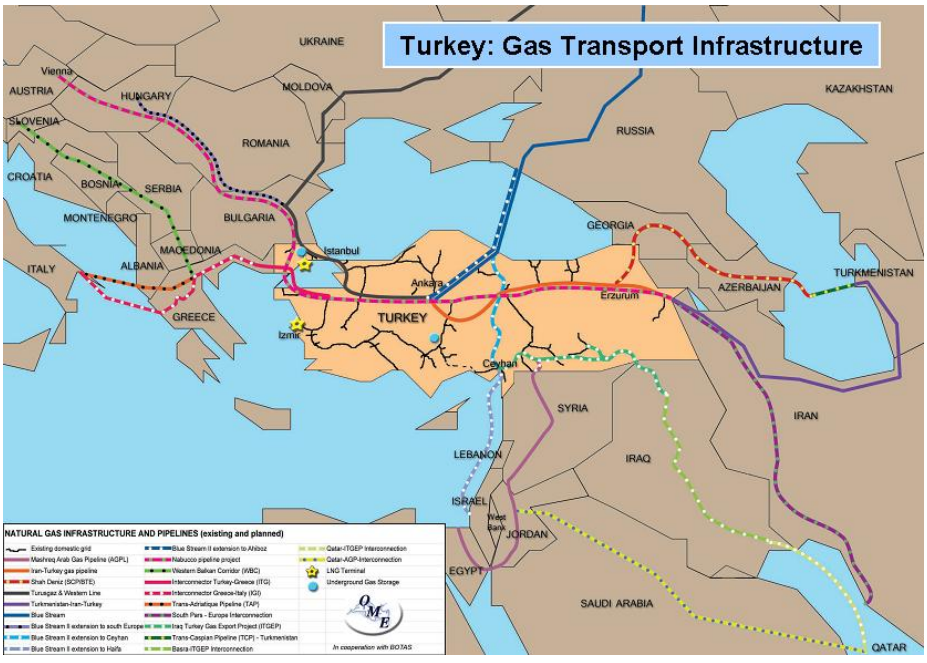


TURKEY WILL HAVE TO TRIPLE ITS CURRENT INSTALLED ELECTRICITY-GENERATING CAPACITY in order to meet the demand by 2030. Power generation will remain the largest energy-consuming sector — most of it coal and natural gas. Improvements in the efficiency of power generation as well as sharp reductions in losses will help to ease the burden on gross electricity generation.

TOTAL FINAL ENERGY CONSUMPTION WILL GROW AT THE SAME RATE AS IN THE PAST, 4% per year on average. No radical change in the composition of final energy use among end use sectors is expected. Although renewables will register the highest annual growth rate through 2030, their share of the total final consumption (TFC) will be not more than 5%. With over one-third share of the TFC, oil will remain the largest consumed energy type by 2030 thanks to the transport sector. Oil will be followed by electricity.

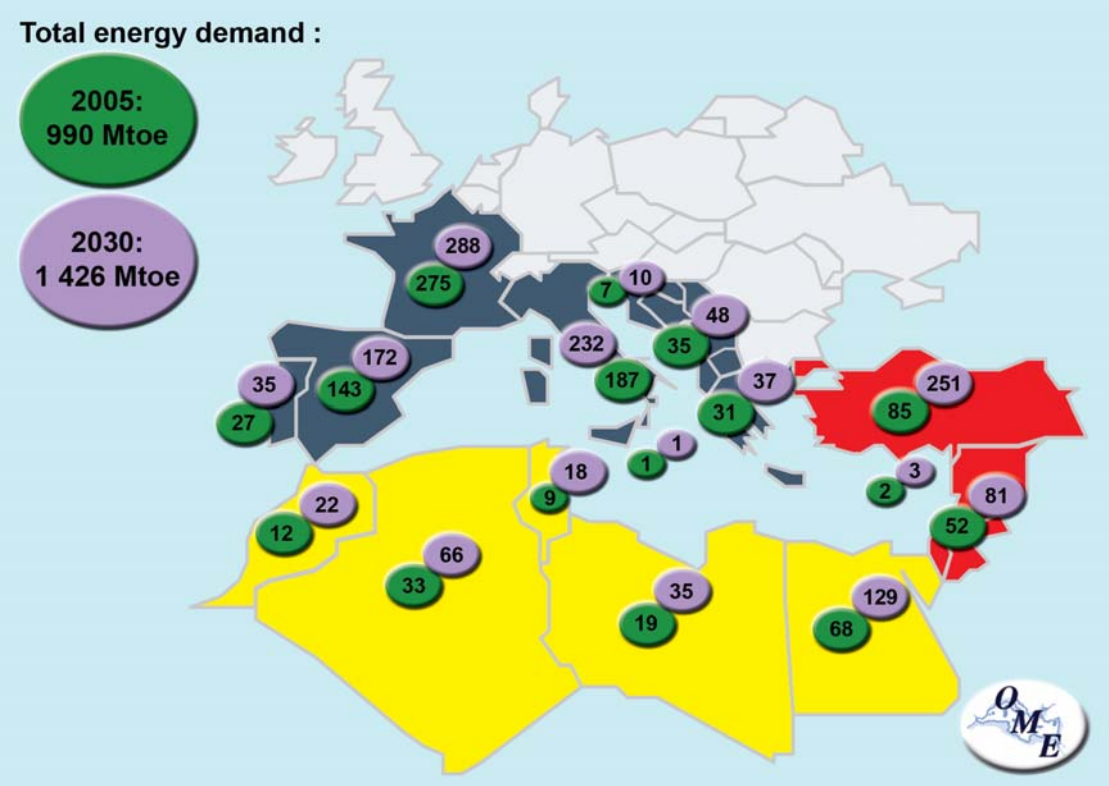
TURKEY HAS ENORMOUS RENEWABLE ENERGY POTENTIAL, which has not been exploited so far. The greater interest shown in recent years, however, has led to a massive focus on renewables.

TURKEY'S ENERGY-RELATED CO_2 EMISSIONS ARE EXPECTED TO MORE THAN DOUBLE BY 2030. At that time, Turkey's CO_2 intensity will likely be less than today, but per capita CO_2 emissions will double.



SUMMARY OF MEP 2008 KEY STATISTICS AND FORECASTS

The energy demand of the Mediterranean currently stands at 990 Mtoe and is expected to reach 1426 Mtoe by 2030 if no major policies or technological breakthrough are implemented.



Mediterranean Key Statistics & Projections

	1970	2005	2030	average increase per year		Share of South Med. in total Med.		Share of Med. in World	
				1970-2005	2005-2030	2005	2030	2005	2030
Population *(million)*	298	471	570	1.3%	0.8%	55%	62%	7%	7%
GDP *(billion $2000 using PPPs)*	2 265	6 073	11 369	2.9%	2.5%	20%	29%	11%	10%
Production *(Mtoe)*	**253**	**660**	**973**	**2.8%**	**1.6%**	**56%**	**66%**	**5.8%**	**-**
Coal	*5*	*40*	*50*	*6.2%*	*0.9%*	*27%*	*60%*	*1.4%*	*1.0%*
Oil	*211*	*264*	*318*	*0.7%*	*0.7%*	*97%*	*99%*	*6.6%*	-
Gas	*4*	*156*	*309*	*11.2%*	*2.8%*	*92%*	*99%*	*6.6%*	-
Demand *(Mtoe)*	**395**	**990**	**1 426**	**2.7%**	**1.5%**	**28%**	**42%**	**8.7%**	**8.0%**
Fossil Fuels	*361*	*790*	*1 130*	*2.3%*	*1.4%*	*33%*	*47%*	*8.5%*	*7.8%*
Nuclear	*2*	*133*	*138*	*13.2%*	*0.1%*	*0%*	*9%*	*18%*	*19%*
Renewables (incl. Hydro)	*32*	*67*	*159*	*2.1%*	*3.5%*	*28%*	*35%*	*4.6%*	*6.8%*
***Electricity Capacity** (GW)*	***-***	***424***	***797***	***-***	***2.6%***	***24%***	***45%***	***11.2%***	***13.2%***
Electricity Generation *(TWh)*	380	1 843	3 289	4.6%	2.3%	26%	42%	10.1%	9.3%
Import Dependence (%)	39%	42%	40%	-	-	-	-	-	-
CO_2 emissions *(Mt of CO_2)*	**997**	**2 146**	**3 012**	**2.2%**	**1.4%**	**32%**	**47%**	**8.1%**	**7.2%**

Source: OME - *MEP 2008*

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