



*Association of Mediterranean Regulators for Electricity and Natural Gas*

# **Ad hoc Group on GAS**

## **Benchmarking Assessment**

**Final Version**  
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### **1 EXECUTIVE SUMMARY**

The permanent Mediterranean Working Group on Electricity and Natural Gas Regulation (MEDREG) was established in 2006, with the general objective *“to institutionalise cooperation between the regulatory bodies of the Mediterranean region in order to achieve a consistent harmonized and investment-friendly regulatory framework aiming at providing the maximum benefits to the energy consumers of the Mediterranean region”*.

The current paper, regarding to the gas sector, is one of the first steps in the pointed out direction. Through the cooperation of the MEDREG Members, the Ad Hoc Group on Gas has produced this study providing the assessment of the status of gas markets and sector regulation in the MEDREG countries so far and its expected evolution.

The information used to draft this report has been extracted from data provided by Regulators (Authorities, Ministries, and Agencies) of the countries participating in this initiative, particularly from a questionnaire specifically designed by the GAS AG for this purpose. Also some complementary information has been obtained from public international statistics.

16 (out of 24 MEDREG members) answers to the referred questionnaire have been received, two of them pointing that there is no gas market in the country and, in consequence, there is no possibility to provide a detailed answer.

The core of the report is made up of three sections. The first section deals with the different situations in MEDREG countries related to the natural gas market and existing infrastructures. The second part focuses the analysis on the diverse legal and regulatory frameworks and the third section addresses the new gas investment needs and processes.

The twenty-four countries included in the region show very different structures of their gas markets, from those not having natural gas consumption at all (and not foreseen in the next future) to those relying significantly in this source as one of the main primary energy supplies of the country. There is also a variety of situations related to the availability of gas reserves within region, being some of countries net exporters of gas and others 100% dependent on external supplies, or related to the gas market organization and access regimes, being some of them fully liberalized markets while other are not open to competition.

These different features are derived from causes of diverse nature, being them geological, weather, social, historical or political reasons. They have been exposed in detail along this study and could be summarized as follow:

#### **Market and infrastructure related conclusions**

- The MEDREG region accounts for 5% of natural gas reserves in the world, which are mainly located in the North African countries, it is responsible for slightly more than 5% of the gas production and a share of 9% of the world consumption of this resource. In contrast with the location of the reserves, the consumption is mainly concentrated in the North basin of the Mediterranean Sea.

- The consumption of natural gas of the countries within the MEDREG region varies enormously, and goes from 85 bcm that the Italian market consumed in 2007, to non consumption at all, that is the case of several countries. The average consumption during that year raised to 15,3 bcm.
- The average percentage of this source in the primary energy consumed in the region is 22%. By sector, the average natural gas consumed by power plants in MEDREG area is 50%, 26% in the industrial sector and 21% by commercial and residential sectors.
- The first supplier of the region is one of MEDREG countries, Algeria, with nearly 1/3 of the gas supplied, while the second and third suppliers are The Russian Federation, with 24% of the supplies, and Norway, with 9% of them (figure 5). As a region, MEDREG supplies are relatively diversified, but this is not the case when speaking in terms of individual countries. LNG represented 20% of the gas supplies in 2007. Concerning the degree of dependence from other origins of gas, there is a potential complementarity among countries, as some of them are totally or almost totally dependent on imports, while there are others that are not only self-sufficient but also net exporters of natural gas (both LNG and natural gas).
- Concerning the supply activity, some of the countries are supplied by a unique agent, which generally is the state owned company, while others count on a diversified number of suppliers importing gas to the country. This could be derived from the different circumstances in each market. Some countries have chosen to integrate the supply together with the production activity in the same agent, whereas others, with scarce gas resources, have completely liberalized this activity with the aim to promote competition among agents.
- The transmission networks (high pressure) totalize more than 110.000 km of pipelines, while the distribution systems have a total length of more than five times that value. There are many transit lines and important links between countries, some of them crossing the Mediterranean Sea, directly linking the producers with the consuming countries and there are also many new interconnection projects. The region accounts for a significant LNG market, with 13 LNG regasification plants and 5 LNG liquefaction plants.

### **Legal and regulatory framework related conclusions**

- It is a general practice of the MEDREG countries to make the legislation available for all the interested parties on the ministries and / or regulators web pages, although only part of them have an English version of the documents apart from the national language.
- In general, all the countries have an independent Regulatory Agency, as well as the corresponding Ministry of Energy, Industry, Economy (or others dealing with energy issues) with some exceptions. These regulatory agencies are in general young, as they have been created during the last decade. Powers and functions differ very much among regulators, although the most extended powers are those related to act as an arbitral or solving disputes body, monitoring responsibilities of the agents participating in the market or to advise the Governments or other relevant public bodies on energy issues.

- There is a majority of countries in the region where the infrastructures belong to State owned companies. Licenses are normally required to build and exert regulated activities (i.e. transmission, distribution, LNG and storage) and also to act as a shipper or trading company. These are very frequently granted by the governments. And concerning the unbundling of activities, although there are some countries where there is not an explicit requirement to this matter, the majority of them have enforced at least an accounting unbundling. Several countries go beyond, typically the European countries, and have put in place at least a legal unbundling requirement, according to the Directive 2003/55/EC in force.
- There is a vast majority of countries where the TPA regime to the gas infrastructures is regulated. Even if the regulated TPA regime is much extended in the region, the capacity allocation mechanisms and congestion management procedures are not very developed and, in many of the cases, they are in drafting process now. In consequence, the r-TPA has not still translated to a significant competition level in their natural gas markets.
- The regulated TPA regimes, sometimes, are complemented by anti-hoarding mechanisms, being the most commonly applied both, long and short term use it or lose it. The most common TPA tariffs methodologies applied are postage stamp and entry exit tariffs. Concerning the transparency degree, there are no many requirements defined yet in the majority of the countries.
- Although there is a great number of countries that show their intention and willingness to open the gas market to competition (retail and/or wholesale activities), the majority of them still have not a real competition in place.
- In the majority of the countries, the main body responsible for disputes settlement is the regulator, although in some cases it is the Government (through any Ministry) who has this role.
- Concerning the quality of supply, there are some countries where the quality specifications are very developed, using very complete indicators like the time of supply interruptions, quality of natural gas, number of repairs, end consumers complaints or others. Even, in case of non compliance with the standards set, fines to operators and reimbursement to consumers can be imposed. Nevertheless, there are other countries where this issue is not or partially covered.
- In some of the countries the grid code has not been defined yet or is in drafting process. This is normally the case for these countries where there is in place a dominant player in the gas market, typically the vertically integrated incumbent. Nevertheless, those markets in which the competition is developed in a greater degree usually have already issued a grid code that in some cases is regularly updated, taking into account the opinion of all the participating agents with the aim to adapt it to the changing circumstances in the gas market.

### **New investment needs and processes related conclusions**

- The assessment of new investment needs is carried out by different means. Among the ways used for this purpose, they are the definition of central but participative planning processes for some countries, it is directly assessed by the main national TSO, normally owned by the State or by the corresponding Government Agency/Ministry, or it is asked to the market players through the conduction of open seasons.

- The development of new infrastructures are incentivized through appropriated TPA tariff levels for the infrastructures to be promoted, through the direct participation of the Government in building the new assets, having, in some cases, the capacity to enforce the TSOs to construct them, by guaranteeing the promoters with a pre-fixed rate of return in a determined depreciation period, or through granting access exemptions in some particular cases and with specific conditions.
- With some exceptions, in general the main functions related to the authorization, licensing or approving new investments are directly linked with the national governments.
- There are some experiences of bilateral cooperation between MEDREG countries. They could serve as examples of possible ways to obtain significant benefits of the mutual support within the region, in terms of increase of the security of supply, diversification of sources (from both points of view, from a country consumer perspective and from a producer country viewpoint), financial and technical support, risks reduction, etc. There are multiple potential ways to cooperate between MEDREG countries, which have to be explored in the near future.

For the sake of transparency, the answers provided by all the countries are annexed at the end of this study.

## 2 INTRODUCTION

The permanent Mediterranean Working Group on Electricity and Natural Gas Regulation (MEDREG) was established in 2006, with the general objective *“to institutionalise cooperation between the regulatory bodies of the Mediterranean region in order to achieve a consistent harmonized and investment-friendly regulatory framework aiming at providing the maximum benefits to the energy consumers of the Mediterranean region”*.

In order to reach this goal, four Ad hoc Groups were established: Institutional issues, Electricity, Gas and Environment Renewable energy sources and energy efficiency, which will focus on specific-sectorial issues.

In the case of the **Ad hoc Group on Gas (GAS AG)**, starting from the assessment of the current status of natural gas and LNG markets and sector regulation in the MEDREG countries and its expected evolution, it will highlight the basic requirements of harmonization and improvement of regulation that are needed to develop an integrated, competitive and functioning gas market in the region. To this aim, the GAS AG will propose and discuss common positions on the following specific issues:

- Gas market structure;
- transparency of market information and services;
- unbundling of supply, transmission, storage and distribution;
- non discriminatory TPA to gas infrastructures (including definition of gas transport/transit services, rules for reservation and allocation of capacities of transmission, storage and LNG infrastructures, rules for the trade of capacities, rules for balancing of the gas system, congestion management, UIOLI provisions, operational issues, roles, responsibilities and rights of shippers and system operators);
- present and future infrastructure needs from the technical, economic and financial perspectives, to reach the final goal of the establishment of a regional integrated gas market;
- tariff methodologies;
- security of supply and consumers protection in a liberalized context.

According to the previous list, the GAS AG will particularly explore the development of new gas infrastructures, which includes new gas pipelines, LNG terminals and new storage capacity, while defining common regulatory provisions that may be needed for their construction and management. In that respect, it will start from existing developments and studies, explore difficulties encountered by operators and outline common steps including guidelines for regulation aimed at facilitating the development of new facilities.

The final expected output of this group is to make some recommendations on the improvement and harmonization of the regulation of the sector that are required for the development of an integrated, functioning and competitive market in the region. These recommendations should possibly lead to a proposal concerning common rules/guidelines to be implemented in the MEDREG countries.

Nevertheless, a previous phase should be undertaken, which is a study providing the assessment of the current status of gas markets, of sector regulation in the MEDREG countries and its expected evolution. The present paper is intended to be the report answering to this expected output.

## 2.1 Purpose of the paper

According to the MEDREG Action Plan 2009-2011<sup>1</sup>, in particular, with the expected output of the Ad Hoc Group on Gas, the purpose of this paper is to make a study providing **the assessment of the current status of gas markets, of sector regulation in the MEDREG countries and its expected evolution.**

This paper, as a first step of the MEDREG GAS AG, will place the Group in a good position to carry out, in a second phase, the study of possible recommendations on the improvement and harmonization of the regulation of the sector that are required for the development of an integrated, functioning and competitive market in the region.

## 2.2 Consultation process

The information used to draft this report has been extracted from data provided by Regulators (Authorities, Ministries, and Agencies) of the countries participating in this initiative, particularly from a questionnaire specifically designed for this purpose. Also some complementary information has been obtained from public international statistics, i.e. Eurogas annual report, International Energy Agency data or BP Statistical review.

The questionnaire previously referred, has been drafted by the GAS AG, taking into account the comments made by the members, and then circulated among them during the first semester of 2008. The next figure summarizes the main milestones related with the purpose of this document:

<i>Date</i>	<i>Event</i>	<i>Description</i>
18 <sup>th</sup> Apr 2007	1 <sup>st</sup> GAS AG meeting in Tunisia.	The situation of the gas market and of its regulation in members countries were discussed in general terms and the main differences among countries were highlighted. It was discussed the future work of the group. It was agreed to prepare a questionnaire addressed to the member countries concerning the present and expected situation of the gas market and of its regulation
7 <sup>th</sup> Apr 2008	2 <sup>nd</sup> GAS AG meeting in Nicosia.	A general update-information of MEDREG project was made. Training needs were discussed among the members, agreeing to define final requirements before the end of the month. The draft of benchmarking questionnaire was discussed.
22 <sup>nd</sup> May 2008	Sending of the Questionnaire	To be completed by the 30 <sup>th</sup> of June 2008. Later, the answer period was extended until 15 <sup>th</sup> of July 2008.
19 <sup>th</sup> Oct 2008	3 <sup>rd</sup> GAS AG meeting in Nicosia.	The first draft of the benchmarking assessment is discussed among the assistants. Next steps are agreed.
11 <sup>th</sup> Nov 2008	6 <sup>th</sup> MEDREG GA	Presentation of the benchmarking preliminary report to the General

<sup>1</sup> Ref.: Med08-06GA-10

<i>Date</i>	<i>Event</i>	<i>Description</i>
		Assembly.
8 <sup>th</sup> Jan 2009	Sending of the Draft Benchmarking for comments	Circulation of the Benchmarking first version to the GAS AG members for comments
30 <sup>th</sup> Jan 2009	Submission of comments to the Benchmarking report.	Final date for the submission of comments to the benchmarking report.
Mid February	Final version of the Benchmarking assessment	After taking the comments received into account and getting the GAS AG approval, the document will be submitted to the GA.

## 2.3 Questionnaire structure and contain

The questionnaire is made up of three sections:

- Part 1. Natural gas market and infrastructure
- Part 2. Natural gas legal and regulatory framework
- Part 3. Gas investment needs and processes

The first section contains questions addressed to obtain a general overview of the gas market in each country. These are related to the past evolution and current situation of that market, to the transmission, distribution, LNG and storage existing infrastructures, and to the agents participating in the market, suppliers, transmission and distribution companies.

The second section deals with the legislation, the regulatory framework in place in each country and, actually, with the organization of the gas market. The questions are addressed in order to get information on issues such as the powers of the gas market regulator, the unbundling of activities, the Third Party Access Model (if any), the tariffs, security of supply issues, etc. A complete list of is included below.

And the third part of the questionnaire includes questions aiming to get information about investments in new infrastructures, the projects foreseen for the coming years and the decision process to determine the need for new investments.

The concrete issues covered by each section of the questionnaire are:

### Part 1. Market and infrastructure

- Overview of the gas market
- Structure of supply
- Gas demand
- Transmission, distribution, LNG and storage infrastructures
- Import and export capacity of the transmission system
- Transmission, distribution, LNG and storage companies
- Gas strategic plan
- Other issues raised by the respondents

### Part 2. Legal and regulatory framework

- Establishment and powers of the gas market regulator
- Gas sector legislation
- Ownership of facilities

- Unbundling requirements
- Access to natural gas facilities
- Promotion of competition in the gas sector
- Licences
- TPA Tariffs
- Capacity allocation mechanisms and congestion management procedures
- Quality of service standards and gas grid code
- Security of supply
- Dispute settlement system
- Public service obligations
- Transparency requirements
- Other issues raised by the respondents

### Part 3. Investment needs and processes

- Assessment of investment needs and incentives
- Powers of the regulator
- Experiences of regional and bilateral cooperation among regulators on investment issues
- Major infrastructure projects
- Other issues raised by the respondents

## 2.4 Responses received

The countries that have sent an answer to the questionnaire so far (December – 2008) are the following:

<i>MEMBERS</i>		<i>Answers</i>		
		<i>Answer received</i>	<i>No gas market</i>	<i>No answer</i>
1.	Albania (1)		<input checked="" type="checkbox"/>	
2.	Algeria	<input checked="" type="checkbox"/>		
3.	Bosnia-Herzegovina	<input checked="" type="checkbox"/>		
4.	Croatia	<input checked="" type="checkbox"/>		
5.	Cyprus	<input checked="" type="checkbox"/>		
6.	Egypt (2)			<input checked="" type="checkbox"/>
7.	France	<input checked="" type="checkbox"/>		
8.	Fyrom			<input checked="" type="checkbox"/>
9.	Greece	<input checked="" type="checkbox"/>		
10.	Israel	<input checked="" type="checkbox"/>		
11.	Italy	<input checked="" type="checkbox"/>		
12.	Jordan	<input checked="" type="checkbox"/>		
13.	Lebanon			<input checked="" type="checkbox"/>
14.	Libya			<input checked="" type="checkbox"/>
15.	Malta	<input checked="" type="checkbox"/>		
16.	Montenegro (3)		<input checked="" type="checkbox"/>	
17.	Morocco	<input checked="" type="checkbox"/>		

MEMBERS		Answers		
		Answer received	No gas market	No answer
18.	Palestinian Territory			<input checked="" type="checkbox"/>
19.	Portugal	<input checked="" type="checkbox"/>		
20.	Slovenia			<input checked="" type="checkbox"/>
21.	Spain	<input checked="" type="checkbox"/>		
22.	Syria			<input checked="" type="checkbox"/>
23.	Tunisia	<input checked="" type="checkbox"/>		
24.	Turkey	<input checked="" type="checkbox"/>		

Notes:

- (1) Albania has been a natural gas producer in the past but the current level of production is insignificant and there is no natural gas market in the country. However Albania intends to establish such market and has recently passed a new natural gas law in the parliament to attract investments as well as other actions.
- (2) Egypt has announced its intention to proceed to answer the questionnaire but the GAS AG hasn't still received it.
- (3) Montenegro has neither sent an answer to the questionnaire arguing that: *"There is no natural gas in the country, neither domestic, nor imported. Consequently, there is no transmission or distribution network. Only small amounts of LPG are sold in bottles for household use and delivered directly to the car tanks as a fuel (cheaper substitute for gasoline). Energy Regulatory Agency of Montenegro issues the licenses for petrol and petroleum-based products including LPG, but that is just in order to protect the basic customer rights. This is the reason why there is nothing to be filled in the questionnaire. As some international plans for pipeline development cover Montenegro, Ministry for Economy Development is preparing new Gas Law."* Montenegro announces that when the new Law is issued, he will inform the Group.

### 3 ANALISYS OF RESPONSES

The twenty-four countries included in the region show very different structures of their gas sectors, from those not having natural gas consumption at all (and not foreseen in the next future) to those relying significantly in this source as one of the main primary energy supplies of the country. There is also a variety of situations related to the availability of gas reserves within region, being some of countries net exporters of gas and others 100% dependent on external supplies, or related to the gas market organization and access regimes, being some of them fully liberalized markets while other aren't open to competition. These different features, which will be shown along this study, are derived from causes of diverse nature, being them geological, climatological, social, historical or political reasons.

All the data analysed in this section refer to 2007.

### 3.1 Market and infrastructure

Before entering into the analysis of the particular features of the gas sector in the different MEDREG countries, let see what represents this region in a world context. As it is shown in the figure 1, the MEDREG region accounts for 5% of natural gas reserves in the world, which are mainly located in the North African countries, i.e. Algeria, Egypt and Libya. These three countries hold more than 95% of the reserves in the MEDREG region

The MEDREG region is responsible for slightly more than 5% of the gas production and the not inconsiderable share of 9% of the world consumption of this resource. In contrast with the location of the reserves, the consumption is mainly concentrated in the North basin of the Mediterranean Sea, i.e. Italy, France, Spain and Turkey. These four countries concentrate around  $\frac{3}{4}$  of the consumption in the region, although the North-African countries with natural gas reserves have also a significant level of consumption.

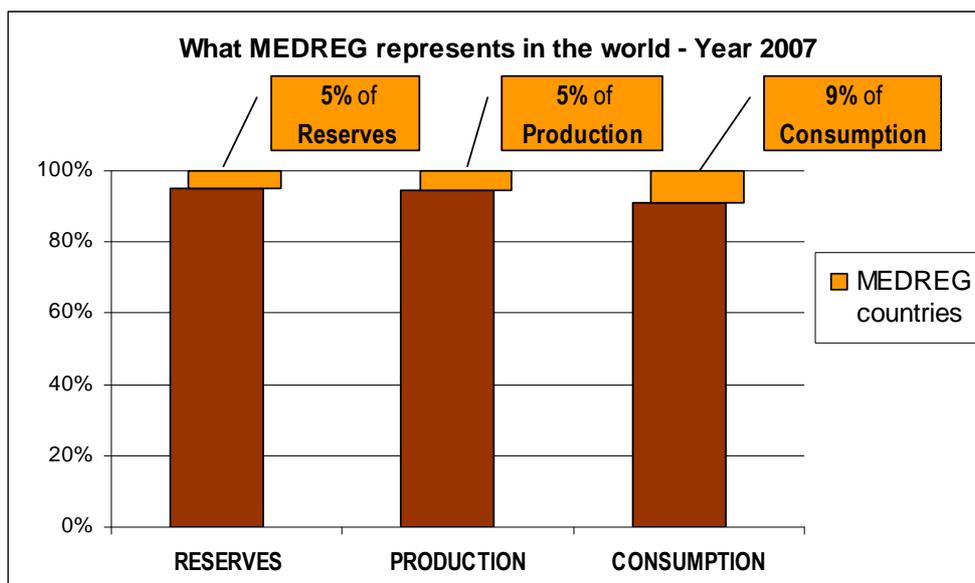


Figure 1. Natural Gas production, consumption and reserves of MEDREG countries in a world context.  
 Source: BP Statistical Review – 2008 Report.

### 3.1.1 Overview of the gas market, Structure of supply and demand

#### Natural gas consumption

The consumption of natural gas of the countries within the MEDREG region varies a lot, and goes from 85 bcm that the Italian market consumed in 2007, to non consumption at all, that is the case of several countries, like Albania, Cyprus, Malta or Montenegro<sup>2</sup>. The average consumption during that year rose to 14.4 bcm. Nevertheless, this value has to be carefully interpreted, given the different volumes, nature of the consumptions and number of potential and real customers in each country, as it will be shown along this section.

Concerning the degree of dependence from other origins of gas, there is a potential complementarity among countries, as some of them are totally or almost totally dependent on imports, while there are others that are not only self-sufficient but also net exporters of natural gas (both LNG and natural gas). In the first group we can find Greece, Portugal, Spain, France, Turkey or Jordan. None of them have a significant domestic production, below 6% in any case. And in the second group, we can find Algeria and Israel, whose consumption is supplied by domestic natural gas fields and in the case of the first one, it is net exporters. There are also intermediate positions, like Croatia that in 2007 produced 69% of its national consumption, Tunisia, whose share between domestic production and imports is very balanced, or Italy, that produces 11% of its national consumption (declining).

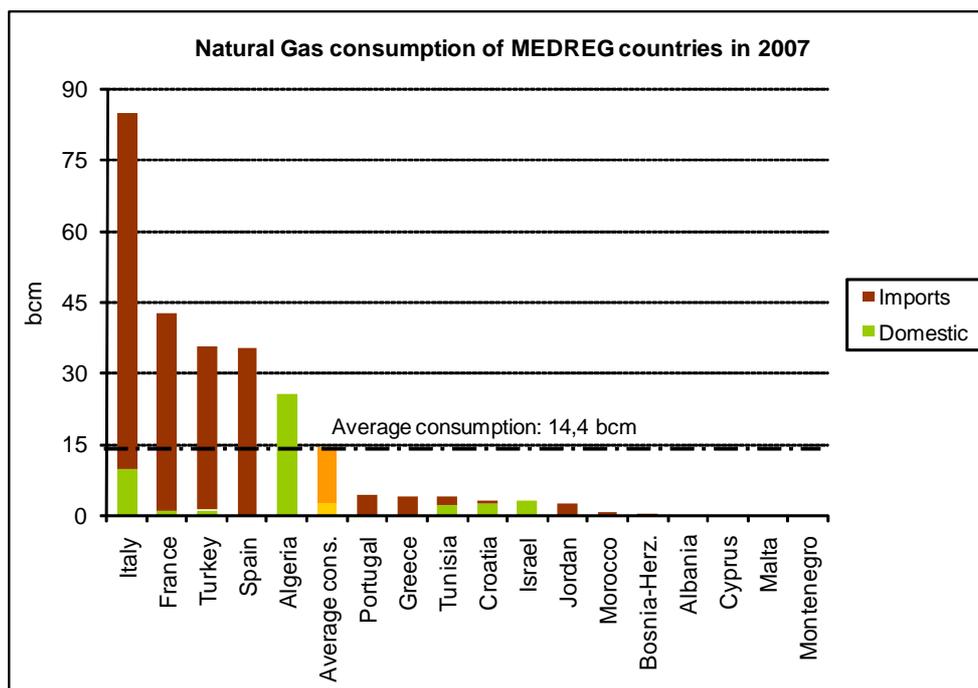


Figure 2. Natural gas consumption of MEDREG countries. Domestic production vs. imports. Source: MEDREG

<sup>2</sup> Cyprus foresees to introduce natural gas in the country by 2013, through a new LNG plant. Montenegro also foresees to introduce natural gas in the country, but it has not provided information about the expected date. Albania informs that it does not exist a natural gas market in the country and there are neither interconnections nor LNG terminals, but it intends to introduce this source of energy in the future. Malta is now considering the respective merits of CNG or LNG.

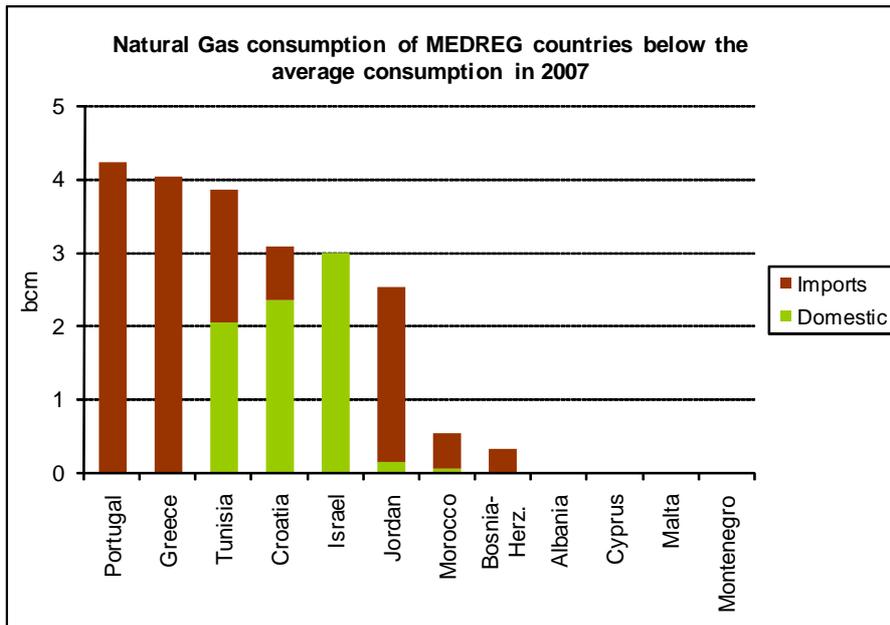


Figure 2bis. Natural gas consumption of those MEDREG countries below the average. Domestic production vs. imports. Source: MEDREG

### Natural gas share in the mix of primary energy

Natural gas has very different degrees of importance in the energy mix of each country. In Algeria this source represents up to 65% of the energy consumed in the country, while in some other countries the natural gas hasn't still been introduced. The average percentage of this source in the primary energy consumed in the region is 20% that is below the value that this source represents, for example, for the European Union (25%).

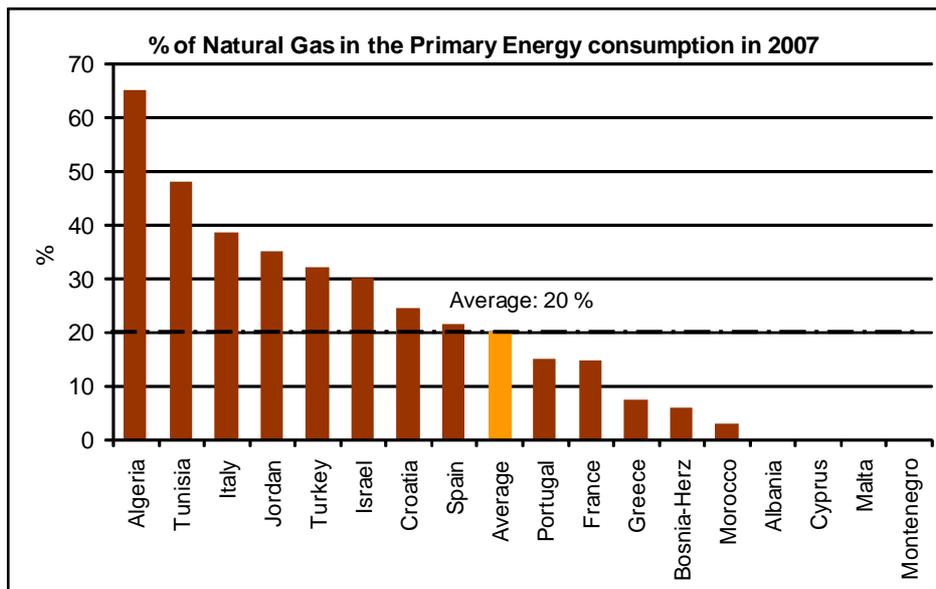


Figure 3. Natural gas share in the primary energy consumption of MEDREG countries. Source: MEDREG

### Natural gas consumption by sector

Concerning the final use of the natural gas, many of the countries in the region mainly use the gas for power generation purposes. This is particularly true in the case of Jordan, Israel or Morocco, which, at present, address all (almost all in the case of Israel and Morocco) the natural gas consumption to electricity generation, Tunisia and Greece, both of them around 74%, Turkey, 55% and Portugal, 45%. In fact, the average natural gas consumed by power plants in MEDREG area is 53%.

The second significant sector (in terms of volume of gas consumed) is the industrial sector. There are several countries where this is the predominant sector, like Spain, 50% of the supplies, or Portugal, 48%. In Algeria this sector also represents a relevant role in the domestic consumption, 38%, although below the share that the power plants consumption represents. The average share of the industrial sector in the MEDREG countries is 25%.

The commercial-residential sector appears to be a less significant sector than the previous ones in the majority of the countries, although there are exceptions. This is the case of France, where the residential consumption represents more than half of the gas consumed in that country, or Italy, 36%, where this is of the same magnitude as the power generation sector. The average participation of this sector in the countries of the MEDREG region is around 21%.

Finally, the sector others, which mainly includes the use of natural gas as raw material, for example to produce fertilizers, is clearly the less significant, except for the case of Croatia, where this sector represent 21% of the consumption of the country.

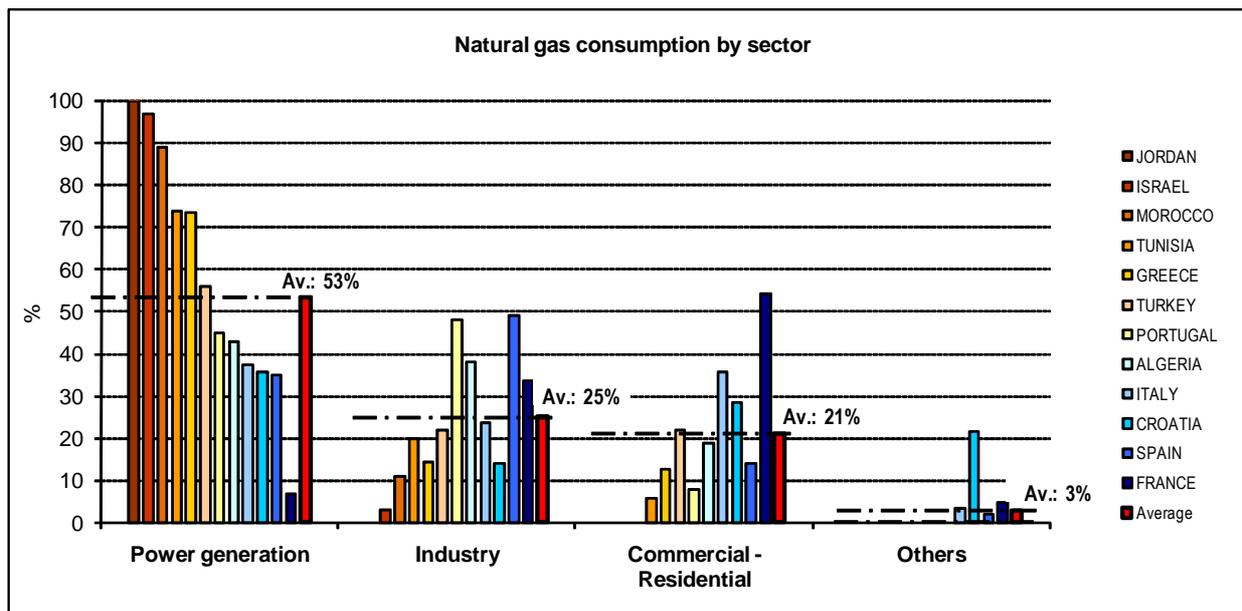


Figure 4. Natural gas consumption by sector. Source: MEDREG countries.

Taking into account the number of gas consumers, the consumption per client in each country is also very varied. In the case of Jordan, for example, the mean value is 630 Mcm per customer, which is derived from the fact that all the gas is consumed by the four power plants in the country, not having any other type of customers. The situation in Morocco is similar, with a mean consumption of 180 Mcm, due to the concentration of the consumption in only three customers: one power plant and other two industrial consumers. On the contrary, in countries like France or Italy, where the commercial - residential sector is a significant part of their national consumption, the mean value goes down to values around 4.000 cubic meters per customer and year.

### Trade movements of natural gas in MEDREG region

There are also significant trade movements among MEDREG countries, the majority of them having origin in the Southern part of the Mediterranean Basin and destination to the countries located in the Northern part. Nevertheless it represents less than half of the supplies in the region, being 54% the share of natural gas supplied from countries outside of the region.

The first supplier of the region is one of MEDREG countries, Algeria, with nearly 1/3 of the gas supplied, while the second and third suppliers are The Russian Federation, with 24% of the supplies, and Norway, with 9% of them (figure 5). As a region, MEDREG supplies are relatively diversified, but this is not the case when speaking in terms of individual countries. There are some of them fully dependent in only one origin of gas supplies, like Bosnia-Herzegovina whose 100% of gas is supplied by The Russian Federation, or Jordan, totally supplied by other MEDREG country, Egypt, while there are others that have a diversified portfolio of supplies, from inside and outside the region, like Spain, that consumes gas coming from more than seven different origins.

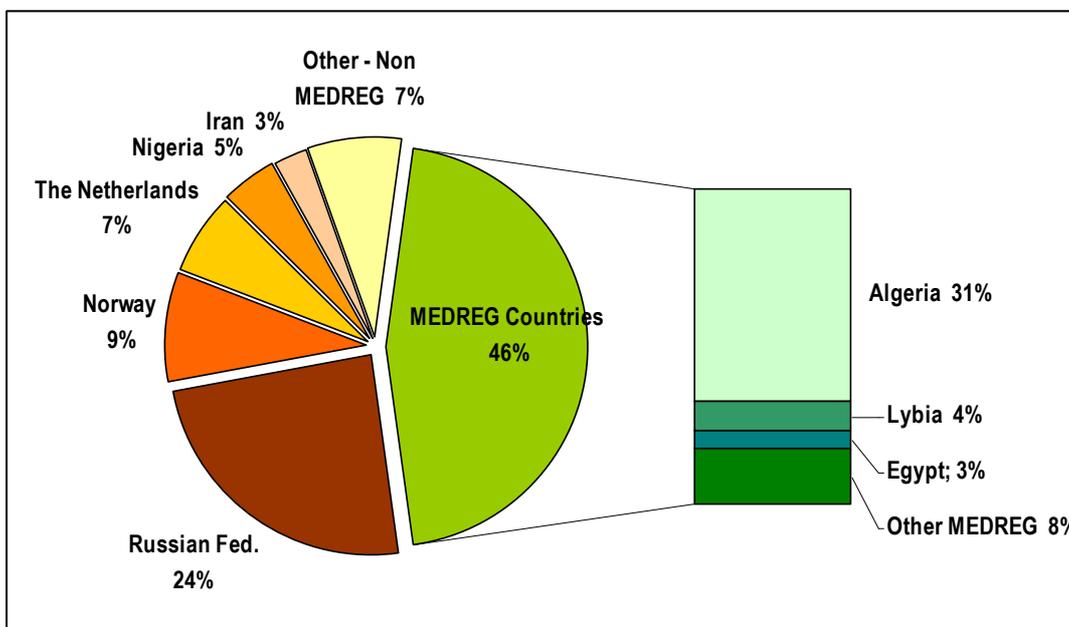


Figure 5. Supplies to MEDREG by country of origin in 2007. Source: MEDREG countries.

With regard to the type of supplies, the LNG represented around 20% of the natural gas supplied to the region (figure 6). The main origins of this gas were Algeria, Libya or Egypt, within MEDREG, and Nigeria from outside the region.

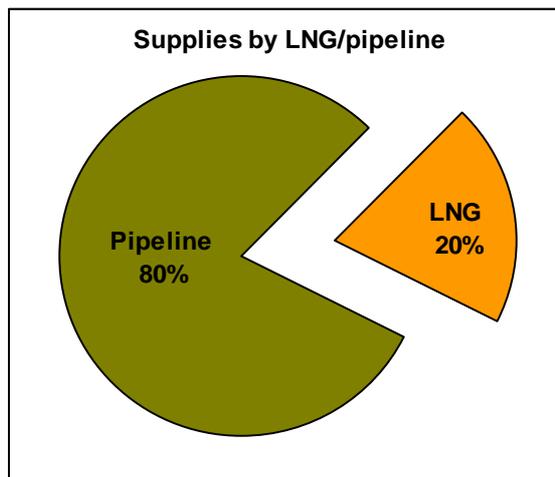


Figure 6. Supplies to MEDREG by pipeline or LNG in 2007. Source: MEDREG countries

In consequence, there is a significant level of gas trade within the region, both by pipeline and LNG, which entails that this initiative be a opportunity to identify and exploit benefits and opportunities for all the countries involved, related to the security of supply, coordination, efficiency, market developments or others.

### Natural Gas suppliers

The following figure shows the number of companies supplying natural gas in each country. As it can be observed, some of the countries are supplied by a unique supplier, which generally is the state owned company, while others count on a diversified number of suppliers importing gas to the country, which is the case of Italy, France or Spain.

This could be derived from the different circumstances in each market. Some countries have chosen to integrate the supply together with the production activity in the same agent, whereas others, with scarce gas resources, have completely liberalized this activity with the aim to promote competition among agents.

Country	N° of Suppliers	Remarks
Albania	0	Inexistence of a Natural Gas Market yet
Algeria	1	Sonatrach is the unique supplier
Bosnia-Herz.	1	100% of demand is supplied by BH-Gas Company, contracted with Gazprom
Croatia	1	100 % of supply - INA d.d.
Cyprus	0	Inexistence of a Natural Gas Market yet
Egypt		No information
France	4	Three major gas supplies
Fyrom		No information
Greece	1	The public gas corporation DEPA is the incumbent supplier of gas and holds 100% of the market.
Israel	2	Named Yam Thetis. Isramco is other (very small) supplier,
Italy	More than 20	Three of them with a significant share: they account for around 85% of total supply (import and domestic production)

Country	N° of Suppliers	Remarks
Jordan	2	Two companies, the Jordanian Egyptian Fajr company For Natural Gas Transmission And Supply (imports) and the National petroleum company
Lebanon		No information
Libya		No information
Malta	0	Inexistence of a Natural Gas Market yet
Montenegro	0	Inexistence of a Natural Gas Market yet
Morocco		No information
Palestinian Territory		No information
Portugal	1	For the time being only Galp Gas Natural imports NG into Portugal
Slovenia		No information
Spain	11	International and national private companies. At least five of them with a significant share, above 5% of gas supplied to the Spanish market.
Syria		No information
Tunisia	2	Two significant suppliers. Some small ones.
Turkey	2	BOTAŞ had the import and sale monopoly before the natural gas market liberalization in TURKEY. Accordingly Natural Gas Market Law foresees the contract release process for BOTAŞ. 4 bcm was tendered to four different companies. Two of these companies obtained import license from EMRA in July 2007. One of these companies started import in 2008

Figure 7. Suppliers of natural gas in each MEDREG country during 2007.

### 3.1.2 Infrastructures: transmission and distribution networks, storage and LNG terminals.

The figure 8 shows a map of the main natural gas infrastructures, existing and foreseen, in the MEDREG region, drawn by Gas Infrastructure Europe (GIE)<sup>3</sup> in December 2007.

<sup>3</sup> GIE is an European association representing gas transmission companies, storage system operators and LNG terminal operators in Europe



Figure 8. Natural gas infrastructures in MEDREG region. Source: Gas Infrastructure Europe – GIE ([http://www.gie.eu.com/maps\\_data](http://www.gie.eu.com/maps_data)).

The following chart summarizes the existing transmission, distribution, underground storages and LNG infrastructures in the region.

COUNTRY	TRANSMISSION (km)	DISTRIBUTION (km)	UNDERGROUND STORAGE (bcm)	LNG plants (both, liquefaction and regasification plants)
Albania	Inexistence of a Natural Gas Market yet		Depleted natural gas fields have a storage capacity of more than 2 Bcm	
Algeria	14.823	33.340	-	4 LNG liqu. plant (Arzew and Skikda) No data available on the capacities
Bosnia-Herz.	195	1.461	-	-
Croatia	2.085	17.134	1 Storage site Working volume: 0,56 bcm/y Send out cap.: 0,24 Mm <sup>3</sup> /h	-
Cyprus	Inexistence of a Natural Gas Market yet			
Egypt	No information			
France	37.700	193.178	7 Storage sites Working volume: 11,7 bcm/y (máx. average) Send out cap.: 8,3 Mm <sup>3</sup> /h	2 LNG plant (Fos Tonkin, Montoir) Capacity: 17 bcm/y Storage: 510.000 m <sup>3</sup> GNL
Fyrom	No information			
Greece	1.064	3.839	-	1 LNG plant (Revithoussa) Capacity: 1,4 bcm/y Storage: 130.000 m <sup>3</sup> GNL
Israel	200	-	-	-
Italy	32.344 (8.500 national network and the rest)	231.329 1.787 in high pressure 92.548 in medium p.	10 Storage sites Working volume: 13,4 bcm/y Send out cap.: 10,6 Mm <sup>3</sup> /h	1 LNG plant (Panigaglia) Capacity: 3,6 bcm/y (Máx. Reg. Cap. 11,4 Mm <sup>3</sup> /day)

COUNTRY	TRANSMISSION (km)	DISTRIBUTION (km)	UNDERGROUND STORAGE (bcm)	LNG plants (both, liquefaction and regasification plants)
	regional networks)	136.994 in low p.		<b>Storage:</b> 88.000 m <sup>3</sup> GNL
Jordan	423	-	-	-
Lebanon	No information			
Libya	No information			
Malta	Inexistence of a Natural Gas Market yet			
Montenegro	Inexistence of a Natural Gas Market yet			
Morocco	595 (540 transit lines and 55 transmission)	-	-	-
Palestinian Territory	No information			
Portugal	1.218	12.753	<b>1 Storage site</b> <b>Working volume:</b> 0,12 bcm/y <b>Send out cap.:</b> 0,6 Mm <sup>3</sup> /h	<b>1 LNG plant (Sines)</b> <b>Capacity:</b> 5,5 bcm/y <b>Storage:</b> 240.000 m <sup>3</sup> GNL
Slovenia	No information			
Spain	8.634 (above 16 bar)	54.457	<b>2 Storage sites</b> <b>Working volume:</b> 2,2 bcm/y <b>Send out cap.:</b> 0,52 Mm <sup>3</sup> /h	<b>6 LNG plant (Barcelona, Sagunto, Cartagena, Huelva, Mugardos and Bilbao)</b> <b>Capacity:</b> 54 bcm/y <b>Storage:</b> 2.187.000 m <sup>3</sup> GNL
Syria	No information			
Tunisia	2.550	5.998	-	-
Turkey	10.000	5.000	<b>1 Storage site</b> <b>Working volume:</b> 1,6 bcm/y <b>Send out cap.:</b> ? Mm <sup>3</sup> /h	<b>2 LNG plant (Marmara Ereglisi, Aliaga)</b> <b>Capacity:</b> 11,2 bcm/y <b>Storage:</b> 535.000 m <sup>3</sup> GNL

Figure 9. Natural gas infrastructures in each MEDREG country.

### Transmission and distribution networks

The transmission networks (high pressure) totalize more than 110.000 km of pipelines, while the distribution systems have a total length of more than five times that value. The degree of development of the transmission and distribution networks varies a lot among the countries, as it depends on very different circumstances, such as being an import or export country, the final use of the natural gas (for residential uses – disseminated network, of more concentrated for electricity generation purposes), historical or political decisions, etc.

There are many transit lines and important links between countries, some of them crossing the Mediterranean Sea, directly linking the producers with the consuming countries. This is the case of the interconnection Algeria – Morocco – Spain - Portugal, the Algeria – Tunisia – Italy interconnection or the Green Stream (Libya – Italy).

There are also many new interconnection projects, with different degree of firmness and development, increasing the links and consequently the trade among MEDREG countries, like the Medgaz (Algeria – Spain), the Galsi project (Algeria – Sardinia – continental Italy) or the Turkey-Greece-Italy interconnection, whose first part has already start to operate. The Trans Sahara Gas project, a 4400 km pipeline that will link Nigeria to Europe via Niger and Algeria, or the Trans Adriatic Pipeline, that will connect Turkey with Italy through Greece and Albania, are also examples of pipelines under study in the region.<sup>4</sup>

### **Underground storage capacity**

There are many underground storages, most of them located in the Northern countries, but not geographically equally distributed: Italy, with 10 sites and a storage volume of more than 13 bcm, and France, with 7 sites and almost 12 bcm, are the two countries with the most storage capacity in the region, totalizing 85% of it. In any case, the producing countries count on important fields of natural gas and they don't need to resort to this type of facilities for security of supply reasons.

The majority of these infrastructures are old depleted gas fields, although some of them have been built in salt caverns, (i.e. in Portugal) which normally present a reduced storage volume but a significant emission capacity.

Despite the lack of gas market, Albania has storage capacities of more than 2 bcm in depleted gas fields that can be expanded in drilled salt dome structures.

### **LNG terminals: both, regasification and liquefaction**

According to the information submitted by the members, there are 13 LNG regasification terminals in the region, all of them located in the North Mediterranean coast (importing countries), that represent an import capacity of 94 bcm/year. 2/3 of this LNG import capacity is concentrated in the Iberian Peninsula given the fact that the supplies of Spain and Portugal relay on LNG in a significant proportion.

The regasification capacity is expected to increase in the near future, as there are many projects of new terminals in several MEDREG importing countries, i.e. Albania, Croatia, Cyprus, Italy, France, Morocco and Spain. This confirms the predictions that foresee an increase of the role of LNG in the coming years.

On the other hand, in the southern coast of the Mediterranean Sea there are 5 liquefaction terminals, two of them placed in the locations of Arzew and Skikda (Algeria), another in Marsa El Brega (Libya) and the rest, Damietta and Idku, located in Egypt. Given its proximity, the destinies of the cargoes departing from these terminals are very frequently the North MEDREG countries.

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<sup>4</sup> These are only some examples of new interconnection pipelines. A more exhaustive list of new projects can be found in figure 15.

### 3.1.3 Companies: Transmission, distribution, LNG and storage.

In **Algeria**, there are two main transmission companies, Sonelgaz Gas Transmission (GRTG) and Sonatrach Transport by Pipelines (TRC), the first one supplying exclusively the domestic market, and the second one connected to production fields used for supplying the GRTG transmission system as well as for export. There are four distribution companies, regionally based. All the companies are owned by the State. The situation is very similar for **Bosnia and Herzegovina**, where BH-Gas Sarajevo and Gas Promet Pale are the two main transmission companies and the distribution is shared among four companies, all being owned by the State.

The only transmission company in **Croatia** is Plinacro d.o.o., also 100 % state owned, while the distribution is carried out by more than 30 companies, of different sizes, the majority of them being property of the municipality. **Israel** has also only one transmission state-owned company, Israel Natural Gas Lines (INGL) but, on the contrary, it hasn't any distributor, although the development of this activity is under tendering process.

In the case of **France**, there are two transmission system operators (TSOs): GRTgaz and TIGF. GRTgaz is a wholly-owned subsidiary of Gaz de France (privatized on July 17th, 2008 to complete the merger between GDF and Suez); it operates on four balancing zones (North, West, East and South); and TIGF is a wholly-owned subsidiary of Total (private company); it operates in the South-West of France. The distribution is largely dominated by GDF which holds a 96% share of the gas distributed in the country. France has two other important distributors, Gaz de Strasbourg and Gaz de Bordeaux, as well as 23 local distribution companies. Both, Montoir and Fos Tonkin LNG plants are owned by GDF, as well as the majority of the underground storages, except for the Lussagnet site, which belongs to TIGF.

There is one TSO in **Greece**, DESFA SA (owned 100% by DEPA which is a state owned company by 65%). DESFA was established in February 2007 and in essence is the part of DEPA which was responsible for the system operation (transmission system and LNG facility). DESFA is the owner and operator of the transmission system and the LNG terminal. There are 3 local distribution (and supply) companies called "EPA". Each EPA operates under an exclusive 30-year license to develop and operate the gas distribution system and supply consumers with consumption less than 10 MNm<sup>3</sup> all within its area. A 49% share and the management of each EPA are on a private investor who got the concession after tendering. The remaining 51% of the share is owned by DEPA. It holds exclusive rights of developing distribution networks in the rest of Greece, which may be granted to future EPAs.

In **Italy** the two main transmission operators are Snam Rete Gas, an Eni Group company set up in November 2000, and Società Gasdotti Italia, owned by ABN AMRO Global Infrastructure Fund, although Edison manages the network through a management contract with SGI. The segment of natural gas distribution remains quite fragmented, even if the number of companies has decreased in the last years, from 800 ten years ago, to 275 in 2007. In this year, only seven of these operators had more than 500 thousands customers. 75% of natural gas is distributed by just 32 companies. The remaining 243 companies distribute the remaining 25% of the total volume.

Jordanian Egyptian FAJR is the company for Natural Gas Transmission and Supply in **Jordan**. It implements the Arab gas pipe line (second phase) on build own operate and transfer basis (BOOT) Under The License Agreement Signed With The Government Of Jordan on 2004, FAJR purchase gas from Egypt at delivery point At Aqaba, build operates & maintain the gas transmissions System and supply gas to power stations & industrial customers. There is no distribution activity in Jordan.

The **Portuguese** REN Gasodutos, S.A. is the only private company that holds the natural gas transmission concession. Pursuant to its obligations as transmission system operator (TSO), REN Gasodutos must separate its activities from trading activities, i.e. natural gas transmission, SNGN Global Technical Management and Access to the National System of Natural Gas Transmission (RNTGN). There are 11 distribution private companies; all of them are inherently licensed as last resort suppliers.

There are many transmission companies in **Spain**, being Enagás the main TSO, as it owns 89% of the transmission system. Other transmission companies are Gas Natural (6%), Endesa (3%) and Naturgas (2%). There are also several distribution companies that can be joined within four groups: Gas Natural group, Endesa group, Naturgas group and Unión Fenosa group. Enagas is also the owner of three LNG terminals, while the shareholders of the other three plants are some of the national electricity companies (Fenosa, Endesa, or Iberdrola), international and national oil and gas companies (Sonatrach, Repsol, BP, Oman Oil) and some financial, industrial and local public institutions. Concerning underground storages, they belong to Repsol and Enagas, but both of them are operated by the latter.

In **Tunisia**, STEG is the only State owned company owner of the transmission network, while other Italian private company, TTPC (Trans Tunisian Pipeline Company) is the owner and operator of the 370 km double pipeline of transit, from Algeria to Italy. STEG is also the only distribution company in the country.

There is only one TSO in **Turkey**, namely BOTAŞ, vertically integrated until 2009. After this date, BOTAS shall be restructured into a horizontally integrated legal entity. Among the companies to be formed as a result of restructuring, the companies, other than the one involved in transmission activities, shall be privatised within two years. There are 58 distribution companies which have distribution licenses. 51 of them are new companies that obtained distribution licenses after the distribution license tenders held by EMRA. The six existing distribution operators respectively İGDAŞ; BASKENTGAZ, ESGAZ, BURSAGAZ and IZGAZ are the largest operators at the moment. ESGAZ, BURSAGAZ are privatized and the privatization tenders for BASKENTGAZ and IZGAZ have been held.

### 3.1.4 Gas strategic plan and other issues

There is a wide range of situation concerning the existence and availability of a gas strategy plan in place in MEDREG countries, summarized in the following figure. Once again, the different strategies are justified by diverse reasons, being the first one the availability or not of natural gas resources (i.e. producing countries – to develop the exporting capacity – the consuming countries – to develop the transmission and entry infrastructures or to increase the security of supply), but having also a great impact the political and market decisions to develop or not the sector.

Country	Gas strategic plan
<b>Albania</b>	The Albanian Energy Strategy foresees an important role for the natural gas in the future energy balance of the country. For this purpose; <ul style="list-style-type: none"> <li>- A new Law for Natural Gas Regulation is already in place</li> <li>- Private investments are encouraged for               <ul style="list-style-type: none"> <li>o Connecting Albania with natural gas networks (TAP, IAP, Energy Community Ring..)</li> <li>o Constructing LNG plant(s)</li> </ul> </li> </ul>
<b>Algeria</b>	Objectives of gas strategy are set in the frame of national energy policy carried out and monitored by ministry of energy: <ul style="list-style-type: none"> <li>- Medium and long term prospects of the sector foresee a re-launch of the production system, an important</li> </ul>

Country	Gas strategic plan
	<p>increase of natural gas and LNG exports as well as a re-launch of the petrochemical industry. Algeria intends to develop exports capacities to bring them to 85 bcm by 2010.</p> <ul style="list-style-type: none"> <li>- Energy policy aims at natural gas use – the most abundant and the less drawn energy – to meet national demand.</li> <li>- Medium term gas distribution program is set and financed by government. For the period 2005-2009, a target of 1.6 million domestic customers is set</li> </ul>
<b>Bosnia-Herz.</b>	Energy strategy in the Economics Institute BiH is under preparation. Energy Sector Study has been finalized and published at <a href="http://www.eihp.hr/bh-study/index.htm">http://www.eihp.hr/bh-study/index.htm</a>
<b>Croatia</b>	The Croatian Energy Strategy has been adopted in 2002. Among the other energy sources, the strategy also covers the natural gas sector. The strategy is publicly available. The update/upgrade of the Croatian Energy Strategy is in drafting phase currently
<b>Cyprus</b>	<p>In the framework of introducing Natural Gas in the energy system of Cyprus Government has decided to construct an Energy Centre at Vassilikos area for import and storage of Natural Gas in LNG form. The creation of a land based Energy Centre will be the exclusive Receiving Terminal, with Storage facilities and installations for Regasification of Liquefied Natural Gas (LNG). The Energy Centre will satisfy the present and future demand of Cyprus in Natural Gas. Natural Gas will mainly be used for electricity generation by EAC.</p> <p>Upon the introduction of Natural gas in Cyprus and for the first year the annual gas demand is estimated to be around 1bcm and for the year 2035 the demand is estimated to be triple that of the first year.</p>
<b>Egypt</b>	No information
<b>France</b>	<p>The Law of July 13th, 2005 gives the main long-term orientations of the energy policy in France</p> <ul style="list-style-type: none"> <li>- Guaranteeing security supply and aiming at national energy self-sufficiency;</li> <li>- Ensuring competitive prices of energy;</li> <li>- Preserving health and environment, in particular by fighting against greenhouse effect;</li> <li>- Guaranteeing national and territorial cohesion by ensuring everyone's access to energy.</li> </ul> <p>The ministerial order of October 27th, 2006 sets up the emergency measures to be undertaken to guarantee the gas supply in case of crisis. The main measures are :</p> <p>The actors of the gas sector have an obligation of public service related to security of supply. They have to take every necessary first measure to guarantee the continuity of supply when a crisis occurs; they are requested to inform regularly the energy ministry about the developments.</p> <p>If these measures turn out to be insufficient, the government can take additional measures. The government is allowed to requisition people, goods and services. It has also a right to control the distribution of energy resources and of raw materials. An emergency response unit is set up.</p>
<b>Fyrom</b>	No information
<b>Greece</b>	The strategy is included in the National Report on Energy Planning 2008 -2012" which was developed and completed by the Greek Ministry of Development in collaboration with the Regulatory Authority for Energy (RAE)
<b>Israel</b>	-
<b>Italy</b>	The law n. 239/04 sets, in the framework of the EU legislation, the general objectives of the national energy policy (among them: assuring security, flexibility, continuity of the supply, and fair economic condition for the final customers). The responsibility for the long term planning of the national gas system is under the responsibilities of the Ministry of industry that, up to now, has not envisaged the necessity to define a centralized plan for the planning of the system while, in the meantime, it's supporting the development of the gas projects proposed by the sector operators.
<b>Jordan</b>	Strategy Is Included In The Jordan Energy Strategy, available on the web site of the Ministry Of Energy & Mineral Resources ( <a href="http://www.memr.gov.jo">www.memr.gov.jo</a> )
<b>Lebanon</b>	No information
<b>Libya</b>	No information
<b>Malta</b>	During 2007 the Malta Resources Authority commissioned a study on possible energy interconnections. The study provides a number of alternative possibilities for the thermal power generating sector highlighting feasibilities. The study was presented to the Maltese Government however no official position has yet been taken
<b>Montenegro</b>	Inexistence of a Natural Gas Market yet
<b>Morocco</b>	There is a project to set a natural gas code, currently in process of development

Country	Gas strategic plan
Palestinian Territory	No information
Portugal	The gas strategy plan was prepared by the Government and is currently under analysis and considered opinion of the regulator. The final plan will be public available
Slovenia	No information
Spain	<p>There is a Gas System Planning procedure, responsibility of the Government, in which the Autonomous Communities, the Technical System Manager, other system agents, transmission operators, distributors and marketers, and CNE also take part. Planning is in general indicative, except for the high-pressure gas pipelines, the calculation of the total regasification of liquefaction capacity needed to supply the gas system, hydrocarbon strategic reserve storage plants, in which case it shall be on a mandatory and minimum enforceable basis for guaranteed supply of gas. The document deals, inter alia, with the following areas:</p> <ul style="list-style-type: none"> <li>- Demand forecast for natural gas over the stipulated period (ten years).</li> <li>- Development forecast of the high pressure natural gas transportation network and total liquefied natural gas regasification capacity required to supply gas to the gas system, with the aim of meeting demand with gas infrastructure optimisation criteria nation-wide.</li> <li>- Defining of priority gasification areas, network expansion and stages of execution, with the aim of assuring uniform development in the gas system nation-wide.</li> <li>- Forecasts relating to gas storage installations, and regasification plants. It assures gas system stability and regular and continuous gas supplies.</li> <li>- Environmental protection criteria are established.</li> </ul> <p>The new projects for increasing entry capacity over the next three years are specified in the Planning Document 2008-2016, available on <a href="http://www.mityc.es">www.mityc.es</a></p>
Syria	No information
Tunisia	A gas strategy plan is projected
Turkey	-

Figure 10. Natural gas strategic plan in each MEDREG country.

## 3.2 Legal and regulatory framework

### 3.2.1 Gas sector legislation

It is a general practice of the MEDREG countries to make the legislation available for all the interested parties on the ministries and / or regulators web pages, although only part of them have an English version of the documents apart from the national language.

The following figure summarizes the main legislation related to the gas sector in each country, as well as the internet site where it can be found and the languages in which it is available.

Country	Primary and Secondary legislation - Availability	Languages
Albania	<p><u>Primary Legislation</u></p> <ul style="list-style-type: none"> <li>- Law Nr 9946 dated June 30, 2008 (Natural Gas)</li> <li>- Law Nr 7746 dated 28 July 1993 (HC exploration and production as amended)</li> </ul> <p><u>Secondary Legislation</u></p> <ul style="list-style-type: none"> <li>- In process of development.</li> </ul> <p>Availability: (<a href="http://www.ere.gov.al">www.ere.gov.al</a>)</p>	Albanian English
Algeria	<ul style="list-style-type: none"> <li>- Law 02-01 of February 5th, 2002 and its implementation texts</li> <li>- Law 05-07 of April 28th, 2005 and its implementation texts</li> <li>- Amendment 06-10 of July 29th, 2006 of law 05-07</li> </ul> <p>Availability: <a href="http://www.mem-algeria.org">www.mem-algeria.org</a> and <a href="http://www.creg.gov.dz">www.creg.gov.dz</a></p>	Arabic French Not in English
Bosnia-Herz.	- Law on Gas in RS, Decree on Organization and Regulation of Gas Sector in FBiH	National lang.

Country	Primary and Secondary legislation - Availability	Languages
	<a href="http://www.reers.ba/site/actual_legislation_energy_sector/442/energy_sector.aspx">www.reers.ba/site/actual_legislation_energy_sector/442/energy_sector.aspx</a>	English
<b>Croatia</b>	Primary legislation: - The Law on Energy ("Official Gazette", No. 177/04, 76/07) - The Law on Regulation of Energy Activities ("Official Gazette", No. 177/04, 76/07) - The Law on Gas Market ("Official Gazette", No. 40/07, 152/08) Secondary legislation: - Grid Code for Access to the Transportation System ("Official Gazette", No. 126/03) - Tariff system for Natural Gas Transportation ("Official Gazette", No. 32/06, 03/07) - Tariff system for Natural Gas Distribution ("Official Gazette", No. 34/07 i 47/07) - Tariff system for Natural Gas Supply for Tariff Customers ("Official Gazette", No. 34/07 i 47/07) - The Regulation on the security of natural gas supply ("Official Gazette", No. 112/08) - Tariff system for Natural Gas Storage ("Official Gazette", No. 151/08) Availability: <a href="http://www.hera.hr">www.hera.hr</a>	National lang. English
<b>Cyprus</b>	Primary Legislation - Law Regulating the Natural Gas Market, number N.183(I)/2004 (in Greek only) Laws for the amendment of the Law regulating the Natural Gas Market of 2004, number N.103(I)/2006 and N.199(I)/2007 Secondary Legislation - Regulation of 2006 on regulating the NG market (FEES) - Regulation of 2006 on regulating the NG market (ISSUE OF LICENCES) - Regulation of 2006 on regulating the NG market (INVESTIGATION PROCEDURES) Availability: <a href="http://www.cera.org.cy">www.cera.org.cy</a>	Greek Not in English
<b>Egypt</b>	No information	
<b>France</b>	- Law 2003-8 of 3 January 2003 transposing the 1998 directive (gas) - Laws 2004-803 of 9 August 2004, 2005-781 of 13 July 2005 and 2006-1537 of 7 December 2006 transposing the 2003 directives - Regulation 1775/2005 Availability: <a href="http://www.cre.fr/en/documents/reglementation/directives_et_lois">www.cre.fr/en/documents/reglementation/directives_et_lois</a>	French Partially in English
<b>Fyrom</b>	No information	
<b>Greece</b>	Primary Legislation : - The central piece governing the gas sector is Gas Law 3428/2005 transposing Directive 2003/55/EC, while particular provisions (e.g. provisions for the eligibility of power generators) of the former gas legislation (Law 2364/1995 and Law 3175/2003) still remain into force. Secondary legislation: - (a) a Network Code regulating the operation, maintenance and expansion of the NGS as well as the provision of TPA services, (b) standard TPA contracts and (c) published regulated tariffs. - Ministerial Decision 1227/2007, which establishes the procedure for the conclusion and the contents of the standard transmission contract for the access and use of the Transmission System. Availability: <a href="http://www.rae.gr">www.rae.gr</a>	Greek English
<b>Israel</b>	- Natural Gas Industry Act (2002) and Gas Safety Act (1989 – safety issues) Availability: <a href="http://www.mni.gov.il">www.mni.gov.il</a>	
<b>Italy</b>	- Legislative decree n. 164, of 23 May 2000 (Letta Decree) and Law n. 239, of 23 August 2004 (Marzano Law) - Secondary legislation issued by the Ministry - AEEG Deliberations - Only Law n. 481 of November 14th 1995 on "Norms governing competition and the regulation of public utilities. The institution of regulatory bodies for public utilities" is available in English Availability: <a href="http://www.autorita.energia.it">www.autorita.energia.it</a>	Italian Not in English
<b>Jordan</b>	- Applicable government legislation Availability: <a href="http://www.lob.gove.jo">www.lob.gove.jo</a> and <a href="http://www.memr.gov.jo">www.memr.gov.jo</a>	Arabic Not in English
<b>Lebanon</b>	No information	

Country	Primary and Secondary legislation - Availability	Languages
Libya	No information	
Malta	<ul style="list-style-type: none"> <li>- Natural Gas (Marketing) Regulations, 2004</li> <li>- Natural Gas Supply (Safeguard of Security) Regulations, 2006</li> <li>- Petroleum for the Inland (Wholesale) Fuel Market Regulations, 2007</li> <li>- These basically transpose EU obligations and requirements.</li> </ul> Availability: <a href="http://docs.justice.gov.mt/lom/Legislation/English">http://docs.justice.gov.mt/lom/Legislation/English</a>	National lang. English
Montenegro	Inexistence of a Natural Gas Market yet	
Morocco	Natural gas code in development	
Palestinian Territory	No information	
Portugal	<ul style="list-style-type: none"> <li>- Primary legislation: Decree-Law n.º 30/2006, of 15 February; Decree-Law n.º 140/2006, of 26 July</li> <li>- Secondary legislation: Order n.º 19624-A/2006, of 25 September (approved Gas Regulation: Commercial Code; Quality Service Code; Tariff Code; Grid Access Code)</li> </ul> Availability: <a href="http://www.erse.pt">www.erse.pt</a>	Portuguese Not in English
Slovenia	No information	
Spain	<ul style="list-style-type: none"> <li>- Hydrocarbons Act (Law 34/1998), as amended by Law 12/2007 transposing Directive 2003/55/EC</li> <li>- Royal Decree 949/2001, regulating third party access to gas facilities and establishing a natural gas integrated economic system</li> <li>- Royal Decree 1434/2002 which regulates the activities of transmission, distribution and supply of natural gas</li> </ul> Availability: <a href="http://www.cne.es">www.cne.es</a> and <a href="http://www.mityc.es">www.mityc.es</a>	Spanish English
Syria	No information	
Tunisia	<ul style="list-style-type: none"> <li>- Décret – Loi n°85-9 du 14 septembre 1985, ratifié par la loi n°85-93 du 22 novembre 1985 et instituant des dispositions spéciales concernant la recherche et la production des hydrocarbures liquides et gazeux,</li> <li>- La loi n°87-9 du 6 mars 1987, modifiant la loi n°85-9 portant modification du décret –loi n°85-9 du 14 septembre 1985,</li> <li>- Loi n99-93 du 17 Août 1999, portant promulgation du code des hydrocarbures,</li> <li>- Décret n°2000-713 du 5 Août 2000 fixant la composition et le fonctionnement du comité consultatif des hydrocarbures,</li> <li>- Décret n°2000-946 du 02 mai 2000 fixant les coordonnées géographiques et les numéros des sommets des périmètres élémentaires constituant les titres des hydrocarbures,</li> <li>- Décret n°2000-1027 du 15 mai 2000, fixant le prix du gaz commercial écoulé sur le marché local par les titulaires de concessions d'exploitation d'hydrocarbures,</li> <li>- Décret n°2000-1322 du 13 juin 2000, fixant les modalités de calcul et d'application du rapport "R" relatif à la détermination des taux de redevance proportionnelle à la production des hydrocarbures et l'impôt sur les bénéfices</li> </ul>	National lang. French Not in English
Turkey	By-law on License, Tariffs, Internal Installations, Certificate, Transmission Network Operation, Distribution and Consumer Services, on Facilities and Communications and Board Decisions  Availability: <a href="http://www.epdk.org.tr">www.epdk.org.tr</a>	National lang. English

Figure 11. Natural gas legislation in each country. Availability and language of publication.

### 3.2.2 Establishment and powers of the gas market regulator

All the countries that have submitted information have an independent regulatory agency, as well as the corresponding Ministry of Energy, Industry, Economy (or others dealing with energy issues) with two exceptions: Jordan and Tunisia. These regulatory agencies are in general young, as they have been created during the last decade, with some exceptions, like Italy or Spain, whose regulatory bodies have been functioning for more than ten years.

Powers and functions differ strongly among regulators. The next figure tries to summarize their responsibilities regarding the main tasks identified (it is not an exhaustive list of them). According to it and without entering in particular cases, the most extended powers are those related to act as an arbitral or solving disputes body, monitoring responsibilities of the agents participating in the market or to advise the Governments or other relevant public bodies on energy issues.

Country	Regulator (starting date)	Issue of Licences	Setting Tariffs	Issue of 2ndary legislation	Advisory Powers	Imposition of Fines	Arbitral Solving Disputes	Approval of transport Network Code	Approval of TPA Rules
<b>Albania</b>	ERE (2008)	Inexistence of a Natural Gas Market yet. Law provides powers and competences for issuing licenses, setting tariffs. Issuing secondary legislation, imposition of fines solving disputes, guaranteeing TPA to the ERE. Regulation framework in process of preparation.							
<b>Algeria</b>	CREG + ARH (2005)	Yes	Yes	No	Yes	nc	nc	nc	Yes
<b>Bosnia-Herz.</b>	RERS (2007)	No	No	No	No	No	Yes	No	No
<b>Croatia</b>	CERA (2005)	Yes	No	Yes	Yes	No	Yes	No	Yes
<b>Cyprus</b>	CERA (2004)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Egypt</b>	No information								
<b>France</b>	CRE (2003)	No	No	No	Yes	Yes	Yes	Yes	Yes
<b>Fyrom</b>	No information								
<b>Greece</b>	RAE (1999)	No	No	No	Yes	Yes	Yes	No	No
<b>Israel</b>	No	na	na	na	na	na	na	na	na
<b>Italy</b>	AEEG (1996)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Jordan</b>	No	na	na	na	na	na	na	na	na
<b>Lebanon</b>	No information								
<b>Libya</b>	No information								
<b>Malta</b>	MRA (2000)	Yes	Yes	Yes	Yes	No	Yes	No	No
<b>Montenegro</b>	Inexistence of a Natural Gas Market yet								
<b>Morocco</b>	No	na	na	na	na	na	na	na	na
<b>Palestinian Territory</b>	No information								
<b>Portugal</b>	ERSE (1998)	No	Yes	Yes	Yes	No	Yes	Yes	Yes
<b>Slovenia</b>	No information								
<b>Spain</b>	CNE (1998)	No	No	No	Yes	No	Yes	No	No
<b>Syria</b>	No information								
<b>Tunisia</b>	No	na	na	na	na	na	na	na	na
<b>Turkey</b>	EMRA (2001)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Figure 12. Powers of the regulatory agencies.

*na: not applicable*

*nc: Not clear*

### 3.2.3 Ownership of facilities, unbundling requirements and Licences

As it can be observed in the figure below, there is a majority of countries in the region where the infrastructures belong to State owned companies.

Licenses are normally required to build and exert regulated activities (i.e. transmission, distribution, LNG and storage) but also for act as a shipper or trading company. These are very frequently granted by the governments.

Concerning the unbundling of activities, although there are some countries where there is not an explicit requirement to this matter, the majority of them have enforced at least an accounting unbundling. Nevertheless, several countries go beyond, typically the European countries, and have put in place at least a legal unbundling requirement, according to the Directive 55/2003/EC in force.

The figure below summarizes the current practices in place in each MEDREG country.

Country	Ownership of facilities	Licenses	Unbundling requirements
Albania	na	na	na
Algeria	Sonelgaz (GRTG) owns the transmission network supplying the domestic market, while the rest belongs to Sonatrach (TRC). There are 4 distribution companies, regionally based. All the companies are owned by the State	1. Transmission system management 2. Transport system concessions 3. Distribution networks concessions 4. Direct lines	Legal unbundling of activities. (Transmission network is a Monopoly Model)
Bosnia-Herz.	25 km of transmission network owned by Gaspromet, 40 km by Sarajevo gas Lukavica and 130 km owned by BH-Gas. The distribution is shared among four companies. All of them are owned by the State.	There are no licenses issued by the regulator yet. RERS is developing Procedural act for this purpose.	Accounting and functional unbundling of transmission and distribution and accounting unbundling of supply activity. Enterprises have started unbundling process in compliance with RS Law. TSO that belongs to a vertically integrated undertaking, must be independent from other activities unrelated to transport in the sense of legal status, organization and decision making.
Croatia	Transmission network is operated by Plinacro d.o.o., 100 % state owned. Underground gas storage Okoli is owned by INA d.d., vertically integrated joint stock company.	CERA is responsible for licenses issuing. Rulebook on Licenses for Performing Energy Activities is issued by the Ministry of Economy	Unbundling of accounts: All activities Ownership unbundling: Transmission Legal unbundling: gas distribution
Cyprus	na	No licences granted so far At present CERA derogates from its powers to grant, suspend and/or revoke licences.	The licence is obliged to keep separate accounts for each of his activities required to be licensed, available for inspection Where the distribution system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its legal form, organisation and decision making from other activities not relating to distribution. These rules shall not create an obligation to separate the ownership of assets of the distribution system from the

Country	Ownership of facilities	Licenses	Unbundling requirements
			vertically integrated undertaking. Some issues regarding the organisational unbundling have to be clarified in the future. As far as ownership unbundling is concerned Cyprus has already requested an exemption through the 1st reading of the Energy Package and the Energy Council of 6.6.2008.
<b>Egypt</b>	nr	nr	nr
<b>France</b>	Two TSOs: GRTgaz and TIGF. GRTgaz is a wholly-owned subsidiary of Gaz de France (privatized on July 17th, 2008 to complete the merger between GDF and Suez); and TIGF is a wholly-owned subsidiary of Total (private company). France has two other important distributors, Gaz de Strasbourg and Gaz de Bordeaux, as well as 23 local distribution companies. Both, Montoir and Fos Tonkin LNG plants are owned by GDF, as well as the majority of the underground storages, except for the Lussagnet site, to TIGF	Issued by the Ministry in charge of Industry, General Direction of Energy and Raw Materials (DGEMP)	Transmission and distribution system operators are fully legally unbundled
<b>Fyrom</b>	nr	nr	nr
<b>Greece</b>	Only one TSO, DESFA SA (owned 100% by DEPA which is a state owned company by 65%). It is the owner and operator of the transport system and the LNG terminal. There are 3 local distribution companies operating under an exclusive 30-year license, being 51% of the shares owned by DEPA. It holds exclusive rights to develop distribution networks in the rest of Greece, which may be granted to future distribution companies.	Type of licenses: 1. Gas supply licenses, for supplying gas to eligible and non-eligible customers 2. Infrastructure ownership licenses 3. Infrastructure Operation licenses 4. Gas distribution licenses	The TSO DESFA has competences regarding the operation, maintenance and expansion of the NNGS as well as the provision of TPA services under non-discriminatory terms. DESFA is legally unbundled from the incumbent DEPA S.A. and holds full ownership of the NGS assets. .
<b>Israel</b>	Transmission system – government through the state company INGL (to be privatized in the future). International interconnection and any supply facilities – private. Distribution facilities are going to be private as well.	The Ministry is responsible for issuing licenses, needs to conduct formal consultation process with the Natural Gas council.	There is full unbundling in the transmission segment (transmission activity is stand alone); in the distribution business the unbundling is legal (and full TPA), supply doesn't require licensing; all these requirements are in the primary legislation
<b>Italy</b>	Snam Rete Gas (ENI Group) is the main TSO in Italy. International interconnectors are partially controlled by the Italian incumbent ENI. GNL Italia is at present the only LNG operator. It owns and operates the terminal of Panigaglia. Is	Condition and procedures for the issuance of licences, permits and concessions are defined with decrees of the Ministry of Economic Development. Only in the case of the concessions for distribution the responsible body is the competent municipality. The concession for the distribution service is granted on the	Natural gas transport and dispatching are subject to corporate unbundling from all other gas sector activities, except for storage activities. Storage activities -subject to account and managing unbundling from transport and dispatching and to corporate unbundling from all other gas sector

Country	Ownership of facilities	Licenses	Unbundling requirements
	entirely controlled by Snam Rete Gas. Storage facilities: two storage operators are Stogit (totally owned by ENI) and Edison Stoccaggio.	basis of a tender procedure. AEEG can suggest amendments, suspensions and revocations of licenses and defines the quality standards of the distribution service.	activities. Account and functional unbundling requirements for energy companies in the gas sector
<b>Jordan</b>	Domestic gas: National Petroleum Company is the concession holder. Imported gas: Jordanian Egyptian Fajr company For Natural Gas Transmission and Supply (Fajr): implement the Arab gas pipeline, purchase gas from Egypt, build operate and maintain the gas transmissions system in Jordan and supply gas to power stations and industrial customers.	Licenses agreement between Fajr company & the government of Jordan signed on 25/1/2004	At the end of the a certain period Fajr company will unbundle its activities into two companies one for transport which own The Pipe Line & The other for selling gas to consumers. Unbundling will be in 2022
<b>Lebanon</b>	nr	nr	nr
<b>Libya</b>	nr	nr	nr
<b>Malta</b>	nr	No licenses have been issued and no requests have been made.	The Natural Gas (Marketing) Regulations authorizes the Authority to monitor the effective unbundling of accounts, to ensure there are no cross-subsidies between transmission, distribution, storage, LNG and supply activities
<b>Montenegro</b>	na	na	na
<b>Morocco</b>	The transmission network is owned by ONHYM	nr	nr
<b>Palestinian Territory</b>	nr	nr	nr
<b>Portugal</b>	The assets are owned by: Transmission: REN Gasodutos LNG terminal: REN Atlântico Storage: REN Armazenamento e Transgás (GALP group with majority of capital private) The majority of REN assets are state owned. There are 11 distribution companies, all private	Concession Contract; Public service licenses (regional and local) and private licenses. Only public service licenses and concession contracts are regulated. The rights and obligations of concession contracts and public service licenses are similar and exclusive	Transmission is legally unbundled from other activities and so are its assets. Distribution is legally unbundled both from the transmission activity. Legal unbundling from the last resort supply activity is also anticipated, but not when the number of customers supplied by distribution operators is lower than 100 thousand. Accounting Unbundling for the rest.
<b>Slovenia</b>	nr	nr	nr
<b>Spain</b>	All the assets are owned by private companies: Transmission: Enagás, Gas Natural, Naturgas, Endesa. Int. interconnectors: Enagas, Naturgas LNG: Enagás (3 term.), Reganosa, BBG, SAGGAS. Storages: Enagás and Ripsa	Ministry of Industry: a. Issues licenses for trading and supply at National level. b. Issues licenses for transmission network facilities. The CNE issues a report assessing the compliance with the requirements set in RD 1434/2002. Autonomous Communities: c. Licenses for trading and supply when it only applies inside one Autonomous Community. d. Issues licenses for distribution	Legal unbundling of activities, whereby regulated tasks such as LNG plants activities, storage, transmission and distribution should be separated from liberalized activities. Ownership unbundling for ENAGAS, the main TSO and Technical Manager of the whole system.

Country	Ownership of facilities	Licenses	Unbundling requirements
		network facilities.	
Syria	nr	nr	nr
Tunisia	STEG – State owned company.	na	production, transmission, distribution -Unbundling of accounts
Turkey	Transmission grid is state owned, Maramara	EMRA grants licenses	Legal entities engaged in wholesale of natural gas cannot involve in transmission or distribution activities within or out of the system. The vertically integrated legal entity nature of BOTAS shall continue until the year 2009

Figure 13. Ownership of facilities, licensing responsible and unbundling requirements.

na: not applicable

nr: no response

### 3.2.4 Access to natural gas facilities, TPA Tariffs, Capacity allocation and congestion management rules and Transparency

There is a vast majority of countries where the TPA regime to the gas infrastructures is regulated. Even if the regulated TPA regime is much extended in the region, the capacity allocation mechanisms (CAM) and congestion management procedures (CMP) are not very developed and, in many of the cases, they are in drafting process now. In consequence, the r-TPA hasn't still translated to a significant competition level in their natural gas markets, only in some of the cases, as it can be seen in the next section.

The regulated TPA regimes are, at times, complemented by anti-hoarding mechanisms, being the most commonly applied both, long and short term use it or lose it. The most common TPA tariffs methodologies applied are postage stamp and entry exit tariffs. Concerning the transparency degree, there are no many requirements defined yet in the majority of the countries.

Country	TPA regime	Anti-hoarding mechanisms - application	TPA Tariffs	CAM & CMP mechanisms	Transparency requirements
Albania	Law provides for regulated TPA	na	na	na	Gas Law provides articles to secure transparency for the future operations.
Algeria	Regulated TPA	no	Postage stamp tariffs	nr	Market not set yet
Bosnia-Herz.	nr	no	TPA tariffs do not exist yet. RERS is developing tariff methodology.	Clear methodology is not defined yet.	Law on Gas in RS and Decree in FBiH define transparency requirements
Croatia	Regulated TPA	na	Gas transmission: postage stamp principle.	.It will be defined in the Ordinance on natural gas market organization.	.It will be defined in the Ordinance on natural gas market organization.
Cyprus	na	na	na	na	CERA establishes requirements and asks for information to guarantee the transparency of the stakeholders.

Country	TPA regime	Anti-hoarding mechanisms - application	TPA Tariffs	CAM & CMP mechanisms	Transparency requirements
Egypt	nr	nr	nr	nr	nr
France	<p>Regulated TPA to transmission and LNG</p> <p>Negotiated TPA to storage facilities.</p>	<p>Long, short term and interruptible UIOLI procedures. A releasable capacity mechanism is also implemented. The long term UIOLI has not been applied yet.</p>	<p>TPA tariffs for transmission operators, based on the overall five balancing-zone structure and follow the Entry-Exit pricing principle on the main network.</p> <p>TPA tariffs for distribution operators, single structure with four basic pricing options.</p> <p>TPA tariffs for the use of LNG</p>	<p>CAM &amp; CMP mechanism are for the capacity to be developed (following Open Seasons) and for the Existing Capacity (following Open Subscription Periods (OSPs) through the First Come First Served (FCFS) principle).</p> <p>For annual and monthly Capacity subscription FCFS is applied and for Daily subscriptions an auction mechanism is used.</p>	<p>CRE asks the TSOs to publish, firm, marketable capacities, which are subscribed and available, daily flows for the past month for entry and exit points and for connection points between the balancing zones. Also ask to publish data regarding connection interfaces with LNG terminals, consumptions, different values forecasts, maintenance and repair works, exchanging balances and natural gas price by the balancing market on GRTgaz zones.</p>
Fyrom	nr	nr	nr	nr	nr
Greece	Regulated TPA	yes	The tariffs follow the postage stamp system.	Not specified yet. The Network Code will include all necessary congestion management and capacity allocation rules.	nr
Israel	Regulated TPA, Partial rTPA planned for LNG	no	The Transportation Tariff is two-component postage stamp tariff.	There is no congestion anticipated in the coming years; use-it-or-lose-it and first come first serve models are being discussed.	nr
Italy	<p>Regulated TPA</p> <p>3 exemption awarded up to now: 2 for new LNG terminals and 1 for the interconnect or with Greece</p>	<p>An anti-hoarding arrangement has been put in place for the LNG Terminals since 2005.</p> <p>Short term UIOLI for LNG capacity and short term interruptible UIOLI in the case of pipeline import capacity</p>	<p>Transmission: entry-exit.</p> <p>Storage tariffs equal for all the operators and an adjustment mechanism is put in place in order to compensate revenues among operators.</p>	<p>AEEG set access rules to Transmission, Storage and regasification infrastructure.</p> <p>- Transmission: intra annual, annual or multiannual allocation; priority order is followed: Storage and LNG: priority order.</p> <p>Pro rata allocation in case of congestion.</p>	<p>Operators are asked to publish on their web site all the information needed for a non discriminatory access to the system (among the other: available and allocated capacity, condition of the service, tariffs).</p>
Jordan	Local gas producers regulated market access.	n a	na	na	nr
Lebanon	nr	nr	nr	nr	nr
Libya	nr	nr	nr	nr	nr
Malta	nr	nr	nr	nr	nr
Montenegro	na	na	na	na	na
Morocco	nr	nr	nr	nr	nr

Country	TPA regime	Anti-hoarding mechanisms - application	TPA Tariffs	CAM & CMP mechanisms	Transparency requirements
<b>Palestinian Territory</b>	nr	nr	nr	nr	nr
<b>Portugal</b>	Regulated TPA	No, since the process has just begun its application phase	Based on a Entry-Exit from Entry downstream to end-users	The allocation of capacity is based on annual, monthly and weekly scheduled programs and daily nominations. It can be seen as an open subscription period, starting on annual basis, complemented with auctions in case of congestion	National legislation establish transparency obligations to all the operators in the market. The materialization of this principle can be observed in multiple issues like: general conditions of infra-structural contracts; general conditions of supply contracts, grid connections rules, etc.
<b>Slovenia</b>	nr	nr	nr	nr	nr
<b>Spain</b>	Regulated TPA to all the infrastruct.	Yes. Long term UIOLI has been already applied.	Entry exit tariffs with only one balancing zone.	The capacity allocation is based on a FCFS basis, accompanied with the provision of a bail, which is lost (the bail and the capacity – Long term UIOLI) in case of underuse of the capacity. Auctions for storage capacity OSP, OS for congested and new interconnection capacity.	Key data provided by TSOs and the different stakeholders are published as capacity availability, consumptions, exchange balances, forecasts, TPA tariffs, works and repairs timetable, system management main data review, advances in infrastructures, and other.
<b>Syria</b>	nr	nr	nr	nr	nr
<b>Tunisia</b>	na	nr	nr	nr	nr
<b>Turkey</b>	Regulated TPA	yes	Connection, Transmission and Supervision of Conveyance, Storage, Wholesale and Retail Sale Tariffs - Transmission and Supervision of Conveyance Tariffs and Retail Sale tariffs tbd. by EMRA.	Capacity allocation is made pro-rata.	Publication of legislation, network codes, Board Decisions and Electronic Bulletin Board

Figure 14. Access to natural gas facilities: TPA regime, Capacity Allocation Mechanisms (CAM) and Congestion Management Procedures (CMP), tariffs, antihoarding mechanisms applied and transparency requirements.

*na: not applicable*

*nr: no response*

### 3.2.5 Promotion of competition in the natural gas sector

Although there is a great number of countries that show their intention and willingness to open the gas market to competition (retail and/or wholesale activities), the majority of them still haven't a real competition in place.

In **Algeria**, the Legislation dealing with eligibility conditions and eligibility thresholds setting was published on October 7<sup>th</sup> 2007. This threshold is based upon customer consumption level. This is set about 14,7 Mscm and it means around 30% of the market in terms of energy. Nevertheless, the regulator says the target has not been achieved yet and there is no information about the participation in the market of other players different than the incumbent.

**Bosnia and Herzegovina** has established that all consumers except households should be eligible from January 1<sup>st</sup> 2008. All consumers should be eligible from January 1<sup>st</sup>, 2008. Although the Law defines market opening it is not the case on the ground and competition doesn't exist yet in this country. There is a similar situation in **Croatia**, where there is no wholesale or retail competition in place, but the market has been opened by passing the new Act on Gas Market in April 2007. Nevertheless, pursuant to the Act natural gas market will be opened gradually, in the way that the status of eligible customer has been granted to all non-household customers from 1<sup>st</sup> August 2007 and to all customers from 1<sup>st</sup> August 2008.

According to Government's decision to declare the **Cyprus** gas market as emergent market there will be no competition (only one importer, one supplier and one producer (regasification of LNG – Energy Center).

Pursuant to the Gas Directive and due to the ten-year derogation period granted to **Greece** in November 1996, the full opening of the market has to be realized three years at the latest after the expiry of the derogation period (i.e. November 2009), subject to the milestones set therein. In addition, existing concessions in Greece have been exempted from certain provisions of the Gas Directive, including the eligibility rights of their customers, for the whole duration of the concession (article 28.4). Since 1<sup>st</sup> July 2005, all power producers have been granted the eligibility right. Since the enactment of the Gas Law (December 2005), this right has been extended to co-generators with an annual consumption of more than 9 Mm<sup>3</sup>/year. Currently, these eligible customers represent approximately 67% of the gas demand in Greece (based on actual 2005 and forecast 2006 demand data). Nevertheless, currently there is no competition in wholesale or retail activities.

In **Israel** every consumer is eligible to choose the supplier and there is no license needed to supply natural gas. Nevertheless, there is no information available related to the companies competing in any of the activities, wholesale or trading/supply activities.

The natural gas is a new industry in **Jordan** and competition hasn't been introduced in this market yet, although it is intended to do so, after a certain period, when Fajer company unbundle its activities.

In **Malta** there is no competition and it is not foreseen to introduce it in the future scenarios analyzed. Neither is information on any competition activity in **Tunisia**.

The wholesale competition is foreseen in **Portugal** but not yet in practice. Until now there are no eligible customers in the market, although all customers with consumption higher than 1 million m<sup>3</sup> can choose a different supplier (from 1 Jan 2008). The natural gas market opening schedule is defined and foresees eligibility according to the following dates: 1<sup>st</sup> Jan 2008 – Consumers with more than 1 million m<sup>3</sup> per year, 1<sup>st</sup> Jan 2009 - Consumers with more than 10.000 m<sup>3</sup> per year and 1<sup>st</sup> Jan 2010 – All customers. The incumbent will apply gas release programs of 0,3 bcm per year from 1 July 2009 until June 2012. Additionally, the SSO realized an auction to buy the cushion gas for new underground storage.

Eligibility threshold is set by the **Turkish** regulator every year, at the moment 1 Mscm of consumption in existing distribution areas and 15 MScm in new distribution areas. Although retail competition is not being applied at the moment, there are some measures to promote competition in place, in the wholesale activity. I.e., BOTAS, the former monopolist supplier, following the promulgation of the Law, cannot execute a new natural gas purchase contract until its imports fall down to the twenty percent of the national consumption. The amounts transferred by BOTAS in

each calendar year cannot be less than ten percent of total natural gas amount which is to be purchased as guaranteed on the effectiveness date of this Law.

On the other hand, France, Italy and Spain have already introduced the competition in their markets, in line with the requirements stated in the Gas Directive 2003/55/EC.

In the case of **France**, after a gradual eligibility calendar, the market is fully opened since 1st July 2007. At present, the market share of the 3 main suppliers in terms of number of customers is 98 %. In terms of energy, 14% of the market has been supplied by offers of new suppliers, different from the incumbent. Among the measures used to reduce market dominance, CRE has set two Gas Release programs in the South of France, which have been implemented by Gaz de France and Total and proposed to alternative operators.

In the case of **Italy**, there is also a complete retail competition in place since 1<sup>st</sup> January 2003, according to the Letta Decree. This Decree introduced some measures to promote competition; in particular, the following market share limitations for gas operators: 50% of retail market (for the period 2003-2010) and 75% for inflow in the national network of natural gas imported or produced in Italy (for the period 2002-2010); this limitation is intended to decline of 2% each year, up to 61% in 2010. Furthermore, following the opening of some investigations, the Italian competition authority AGCM has introduced some gas release obligations for the Eni Group. The sum of market shares in the final market of the first three players (for number of customers) is 63.45%.

In the case of **Spain**, all the customers (including the residential sector) have been eligible since January 1st 2003. The effects of all the regulatory measures put in place, complemented with several reductions the level of TPA tariffs have lead to an impressive growth of the market share of shippers and significant discounts in the price paid for final consumers. In 2007, the consumption supplied through the liberalised market totalled 89% of the total supplies. Some of the measures that have contributed to foster this competition are the establishment of a regulated TPA regime to any infrastructure, transparent and non-discriminatory, an ownership separation for the Technical Manager of the System, a release program issued at the beginning of the liberalization process or the market share limit imposed to the incumbent. At present, there are more than 10 shippers in the gas market, being the three biggest players responsible for around 73% of the gas supplied through the liberalized market.

### 3.2.6 Security of supply and Public service obligations

Among the measures included in the **Algerian** regulation in order to improve the security of supply, it is the design of an updated ten year sliding plan, comprising: developed gas reserves, the as yet untapped gas reserves, domestic market's gas needs, gas requirements for enhanced recovery and cycling and quantities of gas available for export. There is also an obligation for transmission operators to develop their network on the basis of the mentioned 10 year gas supply program. Gas flaring is prohibited unless exceptional authorizations, after specific taxes paid by operators. As far as public service obligations are concerned, there are obligations for connection to gas network, to deliver gas at specific quality of service standards and with continuity of service, supervised by the regulator.

In **Bosnia** there are some measures to be undertaken in the event that security of supply is in danger due to disturbances on the natural gas market, such as obligations for supply and delivery to special customer categories (hospitals, kindergartens, schools etc), priorities in supply and delivery of natural gas in the event of termination of supply of natural gas and the manner of bearing detrimental consequences caused to energy entities due to measures undertaken according to the regulation.

The Regulation on the security of natural gas supply was passed by the Government of the Republic of **Croatia** in September 2008. The Regulation defines: measures for securing a reliable and efficient gas supply, criteria and methods of determining sufficient gas volumes for securing reliable supply for protected customers, a schedule for the reduction or cessation of gas supply to particular categories of customers in the case of a crisis situation, and the content of the report by a gas supplier on the security of gas supply.

There are some countries where the security of supply regulation is in drafting process at the moment when the answers to the questionnaires were submitted, i.e. **Cyprus**.

The actors of the gas sector in **France** have an obligation of public service related to security of supply. They have to take every necessary first measure to guarantee the continuity of supply when a crisis occurs; they are requested to inform regularly the Ministry of Energy about the developments. If these measures turn out to be insufficient, the government can take additional measures. An emergency response unit is set up. Furthermore, the only public service obligation mentioned in the French law is the tariff for vulnerable customers. Moreover, another obligation that can be qualified as a public service obligation is the obligation for incumbent suppliers to supply at regulated prices. All types of customers can benefit from regulated prices, except those who have chosen a market price.

According to the Law, the **Greek** regulator is responsible for monitoring security of supply and for that purpose, the authority is responsible for collecting data from market players, as well as monitoring infrastructure development, existing supply contracts etc. RAE publishes an annual report regarding security of supply, published no later than 31st of July, with comments and recommendations of the regulator regarding the issue.

In the case of **Israel**, there is no specific guidance in the legislation concerning security of supply. It is accepted that the ministry holds the public role of achieving such security, but there is no specification concerning concrete measures. The country considers it has a problem in achieving certifiable level of diversification of supply. LNG project and negotiations with remote producers are held in order to solve the problem during the next decade.

The **Italian** Ministry has defined a procedure in order to face emergency related to critical climatic condition (i.e. in the case of cold winter). Under this procedure shippers can be asked to maximize their gas input in the network and to interrupt the supply to interruptible customer. The Ministry can also ask to minimize the consumption of gas to the thermoelectric consumers, and ask to the domestic customers to reduce the hour and the degrees of heating. Security of supply problems were experienced in winters 2004/2005 and 2005/2006. In both cases a part of the strategic reserves was withdrawn, it was imposed to maximize the input of gas in the network and interruptible customers were activated. In 2005/2006 it was imposed to switch to alternative fuels for the production of electricity with some derogation to the fixed environmental limit. It was also asked to domestic consumers to reduce their consumption.

It is the Department of Energy and Mines who is responsible for the security of supply in **Morocco**.

In **Portugal**, the security of supply is guaranteed by the following measures: minimum security storage is mandatory by law; different supply sources should exist rather than a single one; long term agreements; interruptible regimes for big consumers and cooperation measures with neighbor countries. Regarding reserves, each shipper must have a minimum storage volume enough to 15 days of non stoppable supply regarding gas fired electric generation needs and 20 days for the remaining consumption needs. Those reserves can be met by storage in underground storage facilities, LNG facilities as well as the volume being transported in ships expected to arrive ion relevant time. As public service obligations the following are identified: security, continuity and quality of supply, guaranty of connection to the network, consumer's protection, in special to prices and tariffs and environment protection and energy efficiency promotion

Some of the measures in place in the **Spanish** gas market, for both long and short term security of supply, are very similar to the precedent ones, such as those related to minimum security of stocks, the establishment of interruptible customers or some long term agreements. In particular, there is an obligation to maintain during all the year minimum security stocks of 12 days the firm sales to final consumers. On October the security gas stocks must be 20 days (preparing for winter peak). The supplies used for the consumption of installations with alternative fuels, and under certain circumstances, are exempted from this requirement. There is also an obligation to diversify supplies, so that the proportion thereof deriving from the main country supplying Spain should not exceed 50%. With a view to facilitating the entry of new companies to the market and given that supplies for agents with small market shares may be an obstacle to the development of their business, application of the diversification obligation has been limited to those agents that import more than 7% of the Spanish total gas supply. For public service obligations, tariffs of last resort have been established for the most vulnerable customers.

As a complement of the Planning document already mentioned, the Spanish regulator, CNE performs a study, updated on an annual basis, analysing electrical and gas demand and the coverage thereof, in the short term, under a five-year timescale. This report, consist in a detailed analysis of foreseen demand and supply, and the adequacy of infrastructures to assure that demand will be covered over the next five years

In **Turkey** there are also storage obligations for security of supply reasons.

For the rest of countries, not mentioned above, there is no information available concerning the concrete security of supply measures implemented in their respective gas markets, if any.

### 3.2.7 Other issues raised by the respondents

Concerning the **dispute settlement system** it has to be said that in the majority of the countries, the main body responsible for it is the regulator, although in some cases it is the Government (through any Ministry) who has this role. There are different proceedings considered within this function, such as conflicts resulting from the implementation of the regulations, in particular TPA conflicts, maybe the most significant one; but also Technical management, tariff-related conflicts, arbitration between agents, contract disputes, or any other matter of dispute.

Concerning the **quality of supply**, there is a wide range of situations. There are some countries where the quality specifications are very developed, using very complete indicators as the time of supply interruptions, quality of natural gas, number of repairs, end consumers complaints or others. Even, in case of non compliance with the standards set, fines to operators and reimbursement to consumers can be imposed. Nevertheless, there are other countries where this issue is not or partially covered.

Concerning the **grid code**, in some of the countries the code has not been defined yet or is in drafting process. This is normally the case for these countries where there is in place a dominant player in the gas market, typically the vertically integrated incumbent. Nevertheless, those markets in which the competition is developed in a greater degree usually have already issued a grid code. In some cases it is regularly updated, taking into account the opinion of all the participating agents with the aim to adapt it to the changing circumstances in the gas market.

### **3.3 Investment needs and processes**

#### **3.3.1 Assessment of investment needs and incentives. Major infrastructure projects**

The assessment of new investment needs is carried out by different means. Among the ways used for this purpose, there are different approaches: one of them is the definition of central but participative planning processes for some countries, it is directly assessed by the main national TSO, normally owned by the State or by the corresponding Government Agency/Ministry; other approach it is asking to the market players through the conduction of open seasons.

The development of new infrastructures are incentivized through appropriated TPA tariff levels for the infrastructures to be promoted, through the direct participation of the Government in building the new assets, having even, in some cases, the capacity to enforce the TSOs to construct them, by guaranteeing the promoters with a pre-fixed rate of return in a determined depreciation period, or through granting access exceptions in some particular cases and with specific conditions.

Country	Assessment of Investment needs and incentives	Major infrastructure projects (See annexes for details on the projects)
<b>Albania</b>	Inexistence of a Natural Gas Market yet. However The Gas Law provides that any new infrastructure investments in the natural gas sector needs the approval of the Council of Ministers. ERE is responsible for the approval of the annual investment plans of Licensees in the gas sector after being licensed.	Potential projects expected to supply gas for the Albanian gas market: Trans Adriatic Pipeline that connects Greece – Albania and continues towards Italy, a LNG re-gasification plant or the Ionian – Adriatic Pipeline.
<b>Algeria</b>	<u>Assessment</u> of investment needs is carried out by gas transmission company with the contribution of operators. Assessment approved by CREG.  <u>Incentives</u> : Participation of Government to infrastructure investments regarding transmission, distribution and connection through national gas supply program.	To overcome the increasing national gas demand for the period 2007-2016, some necessary new infrastructure projects have been decided. Used for export and partially for national market.
<b>Bosnia-Herz.</b>	<u>Assessment</u> : Clear tools are not defined by existing legislation. According to Law in RS the right for construction therein will be obtained pursuant to Law on Concessions in RS, and will be built in accordance to rules on construction of facilities.  <u>Incentives</u> : Existing legislation in BiH provides possibility to exempt new infrastructure such as interconnecting lines, storages and other facilities for performing activities in natural gas sector or significant increase of capacity of existing facilities, upon the request by the investor and under certain conditions.	BiH has one source of supply, and limited import capacity. Small part of the country is covered by the gas network, which is built in early 1980s. Thus, it is obvious necessity to build new infrastructure in order to increase security of supply, to bring gas to consumers in areas of the country in which gas is not available today, and to increase level of competition at the market.
<b>Croatia</b>	<u>Assessment</u> : According to Act on the Gas Market system operators' duty is to elaborate a five-year system development plan, publish it and update it annually, and deliver it to the Minister for approval.  <u>Incentives</u> : Amounts of tariff items determined according to the tariff systems include allowed costs of investments. Furthermore, the Croatian Energy Regulatory Agency is responsible for providing approval for exemption for granting the concession for the distribution system construction and gas distribution and also for major new gas infrastructures, i.e. interconnectors, storage and LNG facilities.	There is a significant need for new infrastructure and the most of it is included in the Second Development and Investment Natural Gas Transport System Cycle of Croatia from 2007 to 2011. Also, there is a need for a new distribution systems, underground storage and LNG terminal.  All needed reconstruction and modernization of the existing infrastructure have been included in the Second Development and Investment Natural Gas Transport System Cycle of Croatia from 2007 to 2011 that was adopted by the Ministry at the end of 2006.
<b>Cyprus</b>	<u>Assessment</u> : There are no such identification tools in the law, however CERA is responsible to Safeguard adequacy in energy for the satisfaction of all reasonable needs and demands for gas and to secure the Continuation, Quality, Reliability and Security of Natural Gas Supply. Furthermore, CERA follows up the issues of security of supply and especially the balance of supply and demand in the market, the level of the expected future demand and the availability of Supply, as well as the level of competition in the market. In this respect measures and decisions are taken with regards to possible investments in order to achieve and secure the above parameters. On the other hand the case of Cyprus is different due to the fact that the Government will declare the market as emergent	The Government of the Republic of Cyprus is proposing an Energy Centre at Vasilikos that will include facilities for the importation, storage, pumping and vaporisation of liquefied natural gas (LNG), and the export of that natural gas to power plant users. It's really import to mention that both storage facilities and LNG terminal project are in a preliminary stage, however details are given below in order to provide some indicative information.

Country	Assessment of Investment needs and incentives	Major infrastructure projects (See annexes for details on the projects)
	<p>market</p> <p><u>Incentives:</u> According to the last amendment of the law the potential investors (DEFA and Energy Centre) are exempted from the obligation to submit an application and secure a licence. In addition such investments are exempted from the provisions of the organization of access to the system (third party access, access to storage and access to upstream pipeline networks).</p>	
Egypt	No information	
France	<p><u>Assessment:</u> In France, there is no prescribed tool in law to identify potential investments. As a general rule, main investment projects are identified through open season procedures (supervised by CRE) which dimension new gas infrastructure according to market need and allocate the corresponding capacity to operators.</p> <p>During open seasons, operators are asked to commit themselves to firmly subscribe capacities at least for a ten-year period in order to cope with the risk generated by the development of new infrastructures. A minimal percentage of subscribed capacities is also required to validate the decision of investment. The forecasted investments are included in annual and multi-year investment programs. These programs are presented by TSOs. The CRE approves annual TSOs' investment programs. Multi-year programs are given for information only</p> <p><u>Incentives:</u> TPA tariffs for transmission operators</p> <p>Current tariffs for the use of natural gas transmission networks came into force in January 2007 and are valid until December 31st, 2008. They are currently based on the overall five balancing-zone structure and follow the Entry-Exit pricing principle on the main network.</p> <p>In order to draw up its tariff proposals, CRE systematically consults market players on the main evolutions they expect. Hearings are also held with the parties contributing to CRE consultation.</p> <p>CRE has adopted a real rate of return of 7.25% (before taxes). In order to encourage operators to invest, gas transmission networks benefit from a bonus system of 125 base points increase for all the investments operated after January 1<sup>st</sup>, 2004. An additional bonus of 300 base points for a period of 5 or 10 years can be allocated by CRE to the investments which significantly contribute to the improvement of gas market operations.</p> <p>As mentioned above, with the merger of the balancing zones as from January 1<sup>st</sup>, 2009 (merger of the West, North and East zones), the tariff structure will be based on three balancing zones. CRE has proposed new tariffs in July 2008. According to the proposal, the tariff period could be extended</p>	<p>There are several projects foreseen for the coming years, the majority of them addressed to increase the interconnection capacity, as well as the LNG import capacity, through the extension of the existing terminals or building new plants. There are also some important transmission projects, addressed to decrease the number of balancing zones and the transport capacity from the South to the North.</p>

Country	Assessment of Investment needs and incentives	Major infrastructure projects (See annexes for details on the projects)
	<p>to 4 years (instead of 2 now). A more incentive-based approach could be adopted regarding the quality of service; a productivity improvement objective for the operating charges could also be introduced.</p> <p>TPA tariffs for the use of LNG terminals.</p> <p>The current tariff for the use of LNG terminals came into force on January 1st, 2006. This tariff was adopted upon a ministerial decision and will be applied until the commissioning of the Fos Cavaou terminal (currently under construction).</p> <p>The rate of return is fixed at 9.25% before taxes, for assets commissioned before December 31<sup>st</sup>, 2003 and 10.5% for the others. This tariff provides spot cargoes a discount of around 20% and comprises special clauses concerning the functioning of the terminals when several shippers are operating at the same time.</p> <p>New tariffs will be proposed in October 2008.</p>	
Fyrom	No information	
Greece	<p><u>Assessment:</u> Necessary investments are explicitly identified by the TSO, who is required to draft a 5 year Development Plan on a periodical rolling basis. Furthermore, in the framework of the default regime, independent sponsors can submit an application for an (administrative) authorization to construct a new infrastructure.</p> <p><u>Incentives:</u> Exemption from third party access for part or the total of the independent natural gas systems can be considered as an investment incentive. The relevant exemption may be requested in the case of an independent natural gas system (new infrastructure not forming a part of the National Gas System) : According to the relevant provision of the national Gas Law, a request for exemption from TPA for part or the total of the independent natural gas systems is submitted together with the application for granting a relevant license and is granted by decision of the Minister of Development, following RAE's consenting opinion for a specified time period in accordance with the procedure and the preconditions provided in the provisions of Articles 22 and 28 of Directive 2003/55/EC.</p>	<p>Planned investments for the National Gas System expected to be concluded in the next 2 years include the expansion to new cities and to power plants, the installation of compressor station at Nea Mesimvria (Thessaloniki) and the upgrade of the SCADA system</p> <p>An expansion of the National Transmission System, which will extend the existing system from Nea Mesimvria (Thessaloniki) to Stavrolimenas (West part of the country), has been planned and it will connect to the sub-sea interconnector "Poseidon". Also there are plans for a duplication of the existing pipeline between Komotini and Thessaloniki. Technical specs have not yet determined</p>
Israel	<p><u>Assessment:</u> According to government decision, expansion of the Transportation System is subject to Ministers' decision, after consultation with the NGA. However, the NGA may impose installation new gas facilities if it is proved that the incumbent ones are insufficient to supply transportation or distribution services to additional consumers. The NGA must take into account the profitability of such installation from the point of view of both the licensee and the consumer/national economy; if</p>	<p>Additional investments in the infrastructures must be matched by the expected investment in the supply segment</p>

Country	Assessment of Investment needs and incentives	Major infrastructure projects (See annexes for details on the projects)
	<p>the installations are not profitable enough, the NGA must introduce the way of collecting additional funds by the licensee, including rising national tariffs subject to the council's approval.</p> <p><u>Incentives:</u> Initial contract for 1 bcm a year is granted; Recovery of the regasification costs is granted through tariffs</p>	
Italy	<p><u>Assessment:</u> No tools are prescribed in the law. The planning for the development of the system is under the responsibility of the Ministry.</p> <p><u>Incentives:</u> For all gas infrastructures the present regulatory regime provides for partial or total exemptions from regulated TPA and, for the share of capacity concerned with TPA, incentivizing tariffs, differentiated according to the importance of the investment. AEEG has also introduced an additional remuneration for new infrastructure in particular for new Lng terminals and for new storage sites, in order to provide incentives to new investment in infrastructures.</p>	<p>The demand for natural gas in Italy in the recent years has experienced a growth mainly driven by the increase of the consumption of thermoelectric consumers. New infrastructure is so required in order to face the growth of consumption and the decline of the domestic production. It doesn't exist an official projection of the investment need.</p> <p>Some Gas Storage facilities currently under examination and investigation</p>
Jordan	<p><u>Assessment:</u> Through investment opportunities and through request of proposal.</p> <p><u>Incentives:</u> Jordan Promotion law</p>	<p>Natural gas distribution project in Amman and Zarka cities is under evaluation of the proposal ,the same also for Aqaba city</p>
Lebanon	No information	
Libya	No information	
Malta	Inexistence of a Natural Gas Market yet	
Montenegro	Inexistence of a Natural Gas Market yet	
Morocco		<p>There is a new project of LNG terminal, which will supply the future needs for gas of the country. It is also expected to increase the importing capacity through the GME.</p>
Palestinian Territory	No information	
Portugal	<p><u>Assesment:</u> According to legislation the government is responsible for drawing up a supervisory report in order to identify ant special needs regarding security of supply or special investment need. These are to be included afterwards in the planning stage.</p> <p><u>Incentives:</u> Currently there are not any kinds of specific incentives for the investment.</p> <p>However, the form of regulation of some activities, contemplates, the remuneration of the assets. In</p>	<p>The Portuguese gas system is relatively new and currently has overcapacity. However, the expected demand growth for the next 5 years, due to the construction of 4 new gas fired plants, requires new investment in entry capacity for the Portuguese market. In this context, there are three major projects foreseen until 2012: Expansion of Sines LNG terminal (increasing the send out cap. from 600.000 to 1.200.000</p>

Country	Assessment of Investment needs and incentives	Major infrastructure projects (See annexes for details on the projects)
	<p>certain activities the costs of the capital – i.e. costs resulting from the remuneration of assets considered for regulatory purposes – and the amortization of such assets are leveled for the concession period.</p>	<p>m<sup>3</sup>(n)/h; increase of the LNG storage capacity by 150.000 m<sup>3</sup>GNL.), Integration of a new compression station and new interconnection Portugal-Spain.</p> <p>In order to enhance security of supply, 6 new storage cavities are to be build in the existing storage facilities of Carriço. This investment should be concluded by 2015.</p>
Slovenia	No information	
Spain	<p><u>Assessment:</u> There is a ten years central planning, responsibility of the Government, in which the Autonomous Communities, the Technical System Manager, other system agents, transmission operators, distributors and marketers, and CNE, also take part. Planning is in general indicative, except regarding to the basic network gas pipelines, the calculation of the total regasification of liquefied natural gas, needed to supply the gas system, hydrocarbon strategic reserve storage plants, in which case it shall be on a mandatory and minimum enforceable basis for guaranteed supply of gas. The new projects for increasing entry capacity over the next three years are specified in the Planning Document 2008-2016. This report includes in its assessments the objectives identified by the European Union for the year 2020. This annual planning is revised in the overall every four years; however, a yearly Annual Program for transport system facilities will be approved.</p> <p><u>Incentives:</u> TPA tariffs are designed in order to ensure the investment made by the owners is recouped within the useful life period of the facilities, to allow a reasonable return on the capital invested and to incentivize the efficient management and enhanced productivity, which must partly to be passed to the users. Before undertaking the investment, the promoter can calculate the remuneration it will obtain, which doesn't significantly depend on the final use of the infrastructure (as a result of the planning process – this reduces the risk of the promoter and incentivize to build the infrastructures identified as necessary for the safe supply of the system)</p>	<p>In the context of the ERGEG South Gas REM, the Implementation Group has decided to increase the interconnection capacity with a view to improve competition and to increase security of supply on both the Spanish and French gas markets.</p> <p>The last Planning report provides the configuration of three main transport axes interconnected between them resulting in a network allowing feed the center of the system from any entry point. At the end of the analyzed period, regasification capacity will have increased by 71%, LNG storage capacity by 142%, 80% the kilometers of primary gas network, and by 238% the volume of operative underground storage. The overall investment needs for that period are estimated at 4.050 Million € for primary transport pipelines; 534 Million € for secondary transport pipelines; 3.421 Million € for regasification plants; 1.575 for underground storage capacity; and 642 Million € for compression stations, totaling 10.221 Million € for the gas sector</p>
Syria	No information	
Tunisia	No response	No response
Turkey	<p><u>Assessment:</u> Expressed concern by shippers, license applications of project promoters and other necessary tools.</p> <p><u>Incentives:</u> Rate of return in tariff methodologies, distribution tender process</p>	<p>Tuz Gölü (Salt Lake) Underground Storage Facility, located in Aksaray. Project of BOTAŞ. Utilization of salt domes of the Salt Lake as underground storage. Commencement of construction phase is expected very soon</p>

Figure 15. Assessment of new infrastructure needs. Incentives and major infrastructure projects.

### 3.3.2 Powers of the regulator on gas infrastructures

With some exceptions, in general the main functions related to the authorization, licensing or approving new investments are directly linked with the national governments, as it can be seen in the following figure.

Country	Which body is responsible for:			Regulator's role
	determining the need to invest	approving investment plans	authorizing investments	
<b>Albania</b>	Government: Licensees identify and develop long and short term investment plans.	Licensees yearly investment plans are approved by the regulator (ERE)	Government	ERE is responsible for reviewing and approving of investment plans for transmission and distribution network operators.
<b>Algeria</b>	TSO (GRTG) for its network development needs. TSOs for appropriate network development needs. DSOs for distribution network development	CREG for National gas transmission and distribution plans ARH for upstream gas TSO (Sonatrach TRC)	Same authorities (but Ministry of energy for distribution)	Follow up of decision's implementation as executed by operators
<b>Bosnia-Herz.</b>	Government	Government	Government	The decision is not clearly defined.
<b>Croatia</b>	The Ministry of Economy	The Ministry of Economy and the Agency	Government	According to Act on the Gas Market system operators' duty is to elaborate a 5-year system development plan, publish and annually update it, and deliver it to the Minister for approval. Also, system operator is obliged to, among the others, deliver to the Agency the report on the execution of the system development plan for each year.
<b>Cyprus</b>				With regards to security of supply and in order to secure reliability, continuation and quality of supply CERA may impose specific obligations to transmission and distribution operators. CERA can also provide consultancy services on energy issues to the Minister of Commerce, Industry and Tourism.
<b>Egypt</b>	No information			
<b>France</b>	CRE	CRE	CRE	After approving investments, the CRE provides the government with proposals on tariffs for access to infrastructures that are regulated (i.e. transmission distribution and LNG). This tariff framework is meant to foster investments for start-up of projects

Country	Which body is responsible for:			Regulator's role
	determining the need to invest	approving investment plans	authorizing investments	
				necessary to improved French gas market operation.
<b>Fyrom</b>	No information			
<b>Greece</b>				<p>The role of the NRA in identifying necessary investments may be seen as indirect, through its annual security of supply report addressed to the European Commission.</p> <p>Regulator provides its consenting opinion to the Ministry of Development for approval of the 5-year Development Plan drafted by the TSO. Regulator provides its opinion to Ministry for granting the administrative authorisation for construction of independent projects. TSO is obliged to implement the development plan and to this end the regulator monitors the implementation on a yearly basis</p> <p>Referring to the role of the regulator with respect to investment in existing or new facilities, there are particular provisions in the Gas Law: The regulator opines for both the approval of the development plan of the National Gas System and the granting of the licenses for the construction of new infrastructure from independent sponsors.</p>
<b>Israel</b>	Minister of National Infrastructures	Minister of National Infrastructures in the License amendment	NGA through tariffs decision	The regulator is responsible of tariffs amendment and supervision upon the licensee
<b>Italy</b>	No AEEG role	No AEEG role	No AEEG role	<p>Advisory role to the Ministry of Economic Development for the decision of granting exemptions from TPA to new infrastructural projects</p> <p>Setting up of rules for Open Season Procedures, once the above said exemption has been granted.</p>
<b>Jordan</b>	MEMR	MEMR	MEMR	Approval, follow up and monitoring
<b>Lebanon</b>	No information			
<b>Libya</b>	No information			
<b>Malta</b>	Inexistence of a Natural Gas Market yet			
<b>Montenegro</b>	Inexistence of a			

Country	Which body is responsible for:			Regulator's role
	determining the need to invest	approving investment plans	authorizing investments	
	Natural Gas Market yet			
Morocco				There isn't an independent regulator yet. It is envisaged in the near future
Palestinian Territory	No information			
Portugal	Government	Government	Government	Once the investment has been licensed and has become an asset for the operator, the regulator includes the related cost it has accepted into the tariff system
Slovenia	No information			
Spain	Government, with the participation of Autonomous Regions, the Technical System Manager, other agents and the CNE.	Government	Government	No executive role for the CNE. The CNE elaborates a monitoring report every 6 months on the implementation of the Annual Planning
Syria	No information			
Tunisia	No information			
Turkey		EMRA.		Monitoring.

Figure 16. Powers of the regulatory agencies concerning infrastructures.

### 3.3.3 Experiences of regional and bilateral cooperation among regulators on investment issues

There are some experiences of bilateral cooperation between MEDREG countries that are described in this section. They could serve as examples of possible ways to obtain significant benefits of the mutual support within the region, in terms of increase of the security of supply, diversification of sources (from both points of view, from a country consumer perspective and from a producer country viewpoint), financial and technical support, risks reduction, etc. This section is not an exhaustive exhibition of possible ways of cooperation but an illustrative sample of real examples of collaboration that have already taken place. There are of course, in consequence, other multiple potential ways to cooperate between MEDREG countries, which have to be explored in the near future.

The Regional Initiatives were launched by ERGEG<sup>5</sup>, with the support of the European Commission, in spring 2006. The Regional Initiatives are set up in a way which helps ensure that stakeholders are effectively engaged. They bring together regulators, the European Commission,

<sup>5</sup> The documentation and details related to this initiative can be consulted on the ERGEG webpage, through the following link: [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_INITIATIVES/GRI](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_INITIATIVES/GRI)

Member State governments, companies and other relevant parties to focus on developing and implementing solutions to improve the way in which regional energy markets develop. The South Gas REM is led by the Spanish Energy Commission (CNE) and aims to integrate **Portugal**, Southern **France** and **Spain** into one gas regional market. The South REM represents a gas consumption of 80 bcm/year, almost 17% of the EU25's gas market. The South REM contributes to both the European security of energy supply and diversification of energy sources. This region is one of the main entries for the natural gas coming from the north of Africa, and for the LNG coming from a variety of origins (87% of LNG supplied to EU25 enters by this region). Interconnection capacity, interoperability and transparency issues are the three key priorities of the South REM.

Concerning the increase of the interconnection capacity, the countries involved in this initiative have carried out a coordinated study of the current capacity and the future needs up to 2015. As a result of this study, they have concluded that while the interconnection level between Portugal and Spain was sufficient, that was not the case for the interconnection degree between France and Spain.

In consequence, it has been decided to carry out firstly, an Open Season Procedure (OSP) to allocate the existing and committed transmission capacity at the interconnection of the Spanish and French gas networks at Larrau. Given the success of this allocation process, that has largely exceeded the capacity offered, the second step will be to carry out jointly an Open Season Process that will allow to evaluate the market needs and develop the subsequent new interconnection capacity between the countries.

This will allow the Iberian Peninsula to get connected with the rest of Europe and benefit from the increase of the competition level in the gas market and it will allow France and other European countries to accede to the gas coming from the South Mediterranean MEDREG countries, such as Algeria, through the Medgaz interconnection.

In a parallel way, Portugal and Spain are closely cooperating in order to foster the Iberian Market Natural Gas (MIBGAS) and, among other priorities identified, they are now developing common licences for shippers and analysing the possibility to harmonize the TPA tariffs in both countries.

**France** is also involved in the North-West Gas Regional Initiative. The 2008-2012 road map for this region insists on the development of principles allowing the coordination of open seasons on cross-border interconnection points. For instance, Fluxys and GRTgaz launched a coordinated open season in 2007 which is unprecedented in Europe.

The last and most important AEEG (the **Italian** regulator) experience in international collaboration on gas related issues is represented by its involvement, together with RAE (the **Greek** regulatory authority), in the definition of the rules for access and operation of the Poseidon gas pipeline (interconnection Greece-Italy jointly realized by the Italian company Edison and the Greek DEPA).

There is also a fluent Governmental cooperation between Arab gas pipeline countries (**Jordan**, **Egypt**, **Syria** and **Lebanon**).

The Treaty establishing the **Energy Community**, which entered into force on July 2006, has as a general objective to create a stable regulatory and market framework in order to attract investment in networks in order to ensure stable and continuous energy supply; create an integrated energy market allowing for cross-border energy trade and integration with the EU market; enhance the security of supply; improve the environmental situation in relation with energy supply in the region and enhance competition at regional level and exploit economies of scale. The Parties to the Treaty are the European Community, on the one hand, and seven Contracting Parties, namely, Albania, Bosnia & Herzegovina, Croatia, former Yugoslav Republic of Macedonia, Montenegro, Serbia and the United Nations Interim Administration Mission in Kosovo. As of December 2007, 14 European Union Member States have the status of Participants. Georgia, Moldova, Norway, Turkey and Ukraine take part as Observers. Furthermore, international donors and market operators also contribute to the process.

## 4 CONCLUSIONS

The twenty-four countries included in the region show very different structures of their gas sectors, from those not having natural gas consumption at all (and not foreseen in the next future) to those relying significantly in this source as one of the main primary energy supplies of the country. There is also a variety of situations related to the availability of gas reserves within region, being some of countries net exporters of gas and others 100% dependent on external supplies, or related to the gas market organization and access regimes, being some of them fully liberalized markets while other are not open to competition.

These different features are derived from causes of diverse nature, being them geological, weather, social, historical or political reasons. They have been exposed in detail along this study and could be summarized as follow:

### Market and infrastructure related conclusions

- The MEDREG region accounts for 5% of natural gas reserves in the world, which are mainly located in the North African countries, it is responsible for slightly more than 5% of the gas production and a share of 9% of the world consumption of this resource. In contrast with the location of the reserves, the consumption is mainly concentrated in the North basin of the Mediterranean Sea.
- The consumption of natural gas of the countries within the MEDREG region varies enormously, and goes from 85 bcm that the Italian market consumed in 2007, to non consumption at all, that is the case of several countries. The average consumption during that year raised to 14,4 bcm.
- The average percentage of this source in the primary energy consumed in the region is 22%. By sector, the average natural gas consumed by power plants in MEDREG area is 53%, 25% in the industrial sector and 21% by commercial and residential sectors.
- The first supplier of the region is one of MEDREG countries, Algeria, with nearly 1/3 of the gas consumed, while the second and third suppliers are The Russian Federation, with 24% of the supplies, and Norway, with 9% of them (figure 5). As a region, MEDREG supplies are relatively diversified, but this is not the case when speaking in terms of individual countries. LNG represented 20% of the gas supplies in 2007. Concerning the degree of dependence from other origins of gas, there is a potential complementarity among countries, as some of them are totally or almost totally dependent on imports, while there are others that are not only self-sufficient but also net exporters of natural gas (both LNG and natural gas).
- Concerning the supply activity, some of the countries are supplied by a unique agent, which generally is the state owned company, while others count on a diversified number of suppliers importing gas to the country. This could be derived from the different circumstances in each market. Some countries have chosen to integrate the supply together with the production activity in the same agent, whereas others, with scarce gas resources, have completely liberalized this activity with the aim to promote competition among agents.

- The transmission networks (high pressure) totalize more than 110.000 km of pipelines, while the distribution systems have a total length of more than five times that value. There are many transit lines and important links between countries, some of them crossing the Mediterranean Sea, directly linking the producers with the consuming countries and there are also many new interconnection projects. The region accounts for a significant LNG market, with 13 LNG regasification plants and 5 LNG liquefaction plants.

### **Legal and regulatory framework related conclusions**

- It is a general practice of the MEDREG countries to make the legislation available for all the interested parties on the ministries and / or regulators web pages, although only part of them have an English version of the documents apart from the national language.
- In general, all the countries have an independent Regulatory Agency, as well as the corresponding Ministry of Energy, Industry, Economy (or others dealing with energy issues) with some exceptions. These regulatory agencies are in general young, as they have been created during the last decade. Powers and functions differ very much among regulators, although the most extended powers are those related to act as an arbitral or solving disputes body, monitoring responsibilities of the agents participating in the market or to advise the Governments or other relevant public bodies on energy issues.
- There is a majority of countries in the region where the infrastructures belong to State owned companies. Licenses are normally required to build and exert regulated activities (i.e. transmission, distribution, LNG and storage) and also to act as a shipper or trading company. These are very frequently granted by the governments. And concerning the unbundling of activities, although there are some countries where there is not an explicit requirement to this matter, the majority of them have enforced at least an accounting unbundling. Several countries go beyond, typically the European countries, and have put in place at least a legal unbundling requirement, according to the Directive 55/2003/EC in force.
- There is a vast majority of countries where the TPA regime to the gas infrastructures is regulated. Even if the regulated TPA regime is much extended in the region, the capacity allocation mechanisms and congestion management procedures are not very developed and, in many of the cases, they are in drafting process now. In consequence, the r-TPA has not still translated to a significant competition level in their natural gas markets.
- The regulated TPA regimes, sometimes, are complemented by anti-hoarding mechanisms, being the most commonly applied both, long and short term use it or lose it. The most common TPA tariffs methodologies applied are postage stamp and entry exit tariffs. Concerning the transparency degree, there are no many requirements defined yet in the majority of the countries.
- Although there is a great number of countries that show their intention and willingness to open the gas market to competition (retail and/or wholesale activities), the majority of them still have not a real competition in place.
- In the majority of the countries, the main body responsible for disputes settlement is the regulator, although in some cases it is the Government (through any Ministry) who has this role.

- Concerning the quality of supply, there are some countries where the quality specifications are very developed, using very complete indicators like the time of supply interruptions, quality of natural gas, number of repairs, end consumers complaints or others. Even, in case of non compliance with the standards set, fines to operators and reimbursement to consumers can be imposed. Nevertheless, there are other countries where this issue is not or partially covered.
- In some of the countries the grid code has not been defined yet or is in drafting process. This is normally the case for these countries where there is in place a dominant player in the gas market, typically the vertically integrated incumbent. Nevertheless, those markets in which the competition is developed in a greater degree usually have already issued a grid code that in some cases is regularly updated, taking into account the opinion of all the participating agents with the aim to adapt it to the changing circumstances in the gas market.

### **New investment needs and processes related conclusions**

- The assessment of new investment needs is carried out by different means. Among the ways used for this purpose, they are the definition of central but participative planning processes for some countries, it is directly assessed by the main national TSO, normally owned by the State or by the corresponding Government Agency/Ministry, or it is asked to the market players through the conduction of open seasons.
- The development of new infrastructures are incentivized through appropriated TPA tariff levels for the infrastructures to be promoted, through the direct participation of the Government in building the new assets, having, in some cases, the capacity to enforce the TSOs to construct them, by guaranteeing the promoters with a pre-fixed rate of return in a determined depreciation period, or through granting access exemptions in some particular cases and with specific conditions.
- With some exceptions, in general the main functions related to the authorization, licensing or approving new investments are directly linked with the national governments.
- There are some experiences of bilateral cooperation between MEDREG countries. They could serve as examples of possible ways to obtain significant benefits of the mutual support within the region, in terms of increase of the security of supply, diversification of sources (from both points of view, from a country consumer perspective and from a producer country viewpoint), financial and technical support, risks reduction, etc. There are multiple potential ways to cooperate between MEDREG countries, which have to be explored in the near future.

## **5 APPENDIX: QUESTIONNAIRES RECEIVED**