



# **GAS MARKETS IN THE MEDITERRANEAN LEAFLET**



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MEDREG  
is the Association of  
Mediterranean Energy Regulators,  
created in 2007.

It gathers 25 energy regulators from 21 countries,  
spanning the European Union (EU), the Balkans  
and North Africa.

We aim at setting the conditions for the establishment of a future Mediterranean  
Energy Community and we promote a transparent, stable and compatible regulatory  
framework in the Mediterranean Region.

MEDREG's mission is to provide a level playing field for all Mediterranean energy actors.  
For this purpose, we foster market integration and infrastructure investments, as well as  
consumer protection and enhanced energy cooperation.

Based on a bottom-up approach, MEDREG acts as a platform allowing  
Mediterranean regulators to cooperate and exchange know-how,  
data and expertise, making use of comprehensive studies,  
recommendations, reports and specialised training  
sessions.

The organisation is co-funded  
by the European Union.

## **GAS MARKETS IN THE MEDITERRANEAN**

BETTER UNDERSTANDING  
OF THE CURRENT SITUATION TO FOSTER  
AN INVESTMENT-FRIENDLY REGULATORY  
FRAMEWORK FOR THE CONSUMERS' BENEFIT

1. **INTRODUCTION**
2. **MAPPING THE CURRENT AND PLANNED  
GAS INFRASTRUCTURE**
3. **ASSESSING THE COMPETITION  
IN THE MEDITERRANEAN GAS MARKETS**

# 1. INTRODUCTION

## A changing environment for the natural gas market

The natural gas sector in the Mediterranean region has been fundamentally transformed by some **offshore field discovery such as Zohr in Egypt, Leviathan and Tamar in Israel, and Aphrodite in Cyprus. Technological development** in the drilling process have enabled the economic extraction of natural gas from shale formations.

The availability of abundant, low-cost natural gas has increased demand for this energy source from multiple end-use sectors, the **electric power sector** being currently the **largest consumer of natural gas in the Mediterranean southern shore.**

This **increased use of natural gas presents some potential challenges** given the fact that unlike other fossil fuels, natural gas can only be stored in specific geological formations in gaseous form.

## The integration of gas markets in the Mediterranean region: A priority for MEDREG

As a general objective, MEDREG aims to promote the establishment of a consistent, compatible and investment-friendly regulatory framework, for the benefits of energy consumers of the Mediterranean region.

For this purpose, MEDREG seeks to identify requirements and define recommendations that could lead to the development of an integrated, competitive, secure and functioning gas market in the Mediterranean region.

In order to develop this work, MEDREG has developed a set of indicators to help **understand the current situation** in its member countries, in terms of **existing natural gas infrastructure and gas market competition.**

This research has been translated into two studies, published in 2018, whose main findings are summarised in this leaflet:

- 1 A Gas Infrastructure Map of the Mediterranean Region.
- 2 An Assessment of Natural Gas Competition and Market Prices pertaining to the MEDREG Members.

The contents and information provided in the reports and this leaflet are based on collected data covering the years 2015-2016. More up-to-date information about the actual status of the investments can be acquired from the relevant regulators.

# 2. MAPPING THE CURRENT AND PLANNED GAS INFRASTRUCTURE

In many regions, adequate natural gas infrastructure is a key component of electric system reliability, in terms of generation diversification. It is, therefore, **important to understand the implications of greater natural gas demand for the infrastructure required** to deliver natural gas to the end users, including electric generators. MEDREG **sheds some light on the actual infrastructure present in the Mediterranean region and on the potential infrastructure developments** in the natural gas transmission systems under several future natural gas demand scenarios.

Our **Gas Infrastructure Map**, whose main highlights are summarised in this leaflet, provides a **clear picture of the gas infrastructure** including **interconnection points, transmission pipelines crossing the country, transmission and storage capacities, usage of capacities and future investment plans** for the MEDREG members.

## About the map

Our Gas Infrastructure Map is based on a questionnaire that was answered in **2016** by **14 MEDREG members** that have a gas regulatory authority in place. The list of the members is as follows:



Our study provides data and information concerning the following:

- the physical characteristics of these infrastructures, such as capacities, pipeline lengths, directions of flow and connected points
- the third party access (TPA) regimes of these facilities
- the growing trend of Liquefied Natural Gas (LNG) and Floating Storage Regasification Units (FSRUs)
- the benefits and impacts of the investments
- implementation barriers
- key performance indicators
- infrastructure investments and natural gas demand
- LNG and storage capacities versus the demand

## Facts and figures about the gas infrastructure in the Mediterranean

There are **differences** among the MEDREG members **concerning the gas infrastructure**:

- The **transmission pipelines of some countries are overloaded** and require a compressor station upgrade or construction of a new pipeline
- Others MEDREG countries don't use the **pipeline capacity to its full extent**

### > Third party access (TPA) regimes

- **Most countries** regulate third party access to LNG terminals and storage facilities as well as the entry and the exit points, except *Egypt, Jordan* and *Italy*. While Egypt and Jordan prefer to not regulate the access to any of these facilities, Italy grants a partial exemption by TPA regime for an LNG terminal.

### > A growing trend: LNG terminals and Floating Storage Regasification Units (FSRUs)

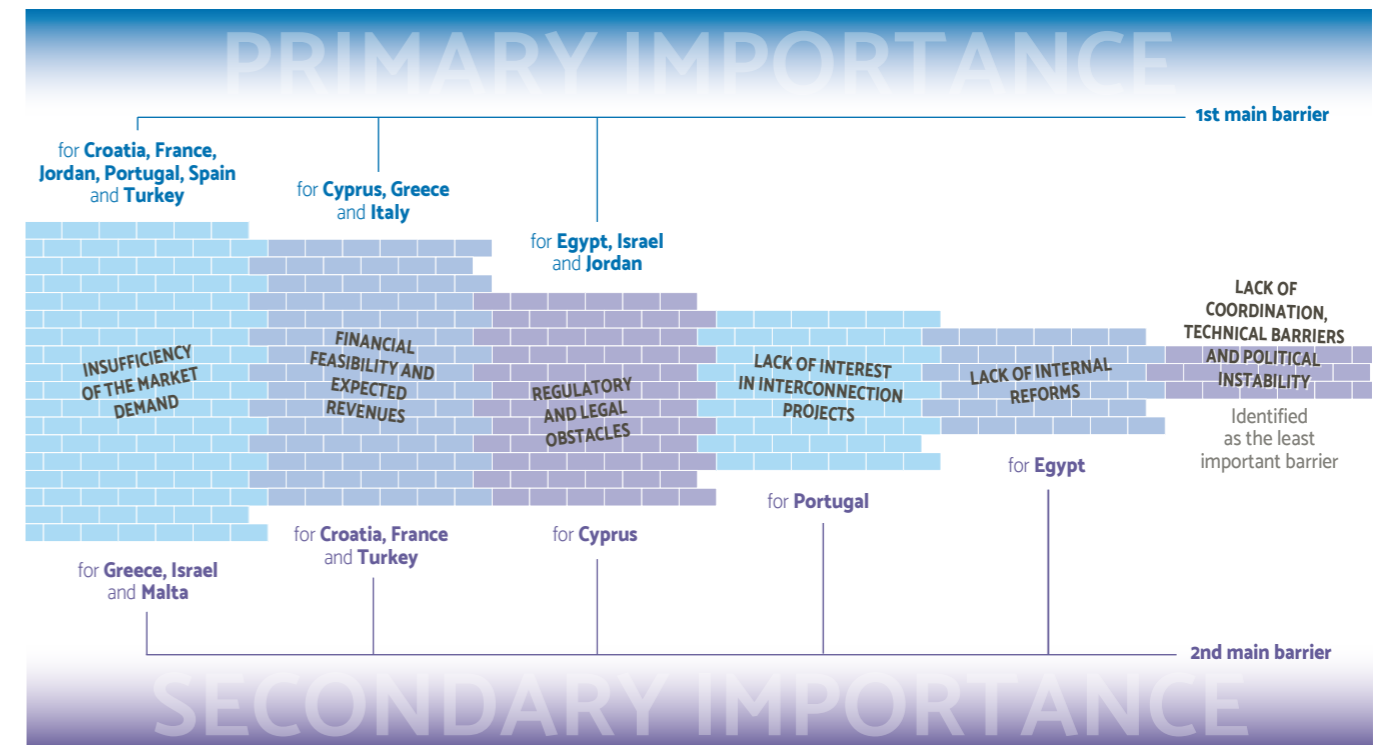
- Besides the **Floating Storage Regasification Units (FSRUs)** that are recently facilitated in *Egypt, Jordan* and *Malta*, the projected investments in *Egypt, Greece, Malta* and *Turkey* indicate the growing interest in this relatively new technology that presents advantages over traditional LNG facilities. The fact that FSRUs terminals need shorter time to start operation and less start-up cost than the traditional LNG terminals, make the investments in these facilities more attractive. Additionally, they can be relocated according to the demand and have a minor environmental impact.
- Meanwhile, the **interest in traditional LNG terminals** is not fading. While some countries, such as *Greece*, prefer to upgrade the existing LNG terminals for increasing the entry capacity, others like *Italy* and *Spain* have several projects for the new LNG infrastructure.

### > Driving forces behind infrastructure investments

- 1 Security of supply
- 2 Market development
- 3 Regional market integration

These indicators give a clue concerning the why, how, where and when a new interconnection and LNG facility investment might be made.

### > Barriers affecting investment



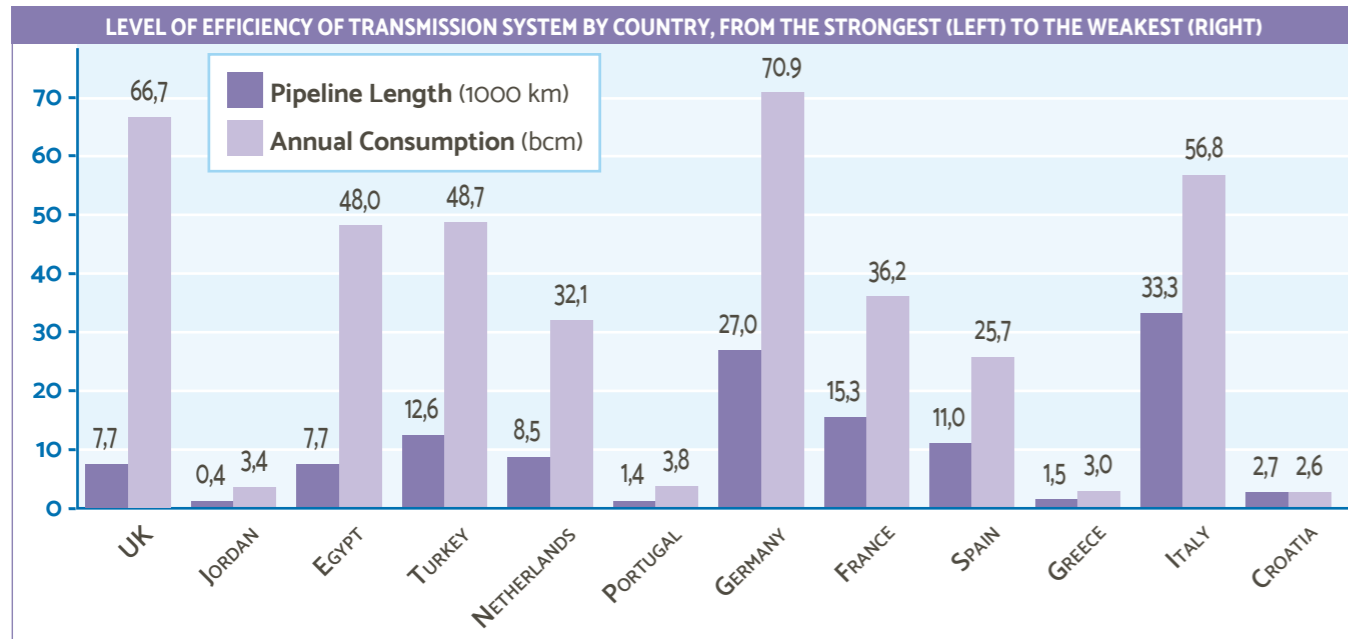
### > How efficient is the natural gas infrastructure in the Mediterranean?

The efficiency of a natural gas infrastructure can be measured by the ratio of gas consumption to the length of the transmission system.

When comparing the pipeline lengths of the MEDREG members with that of the benchmarked EU countries, the **annual consumptions per length of transmission pipeline differ greatly**.

## 1. Annual consumption versus pipelines' length

While a high ratio might be the sign of an efficient transmission system, a lower ratio might mean that the transmission system is widely spread in the country and/or the natural gas penetration in households is lower. Smaller countries with higher population densities, like the Netherlands, tend to have higher ratios in contrast to the countries that are wider in axis, such as Italy and Turkey.

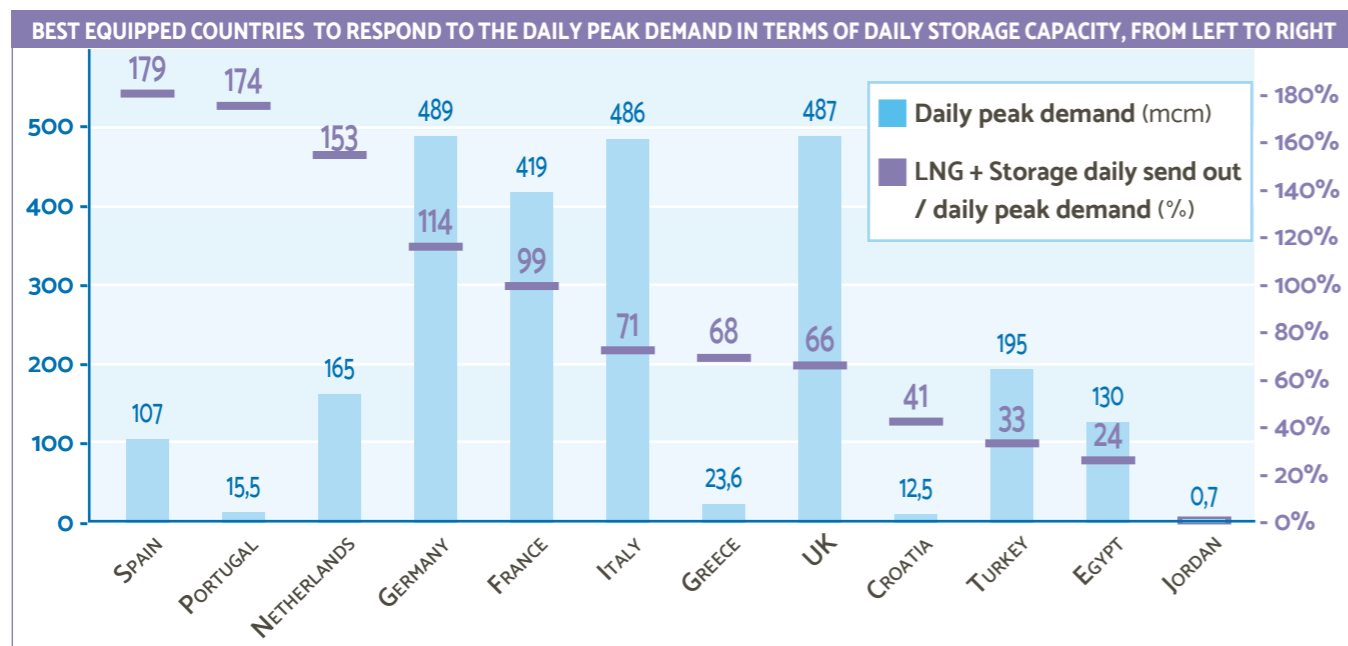


## 2. LNG and storage capacities versus the demand

Another way of determining the sufficiency of a country's infrastructure with regard to the security of supply is by **comparing its means of storing natural gas with the demand in the country**.

Storage and LNG facilities, both being effective instruments for dealing with seasonal demand swings, supply disruptions and peak demand, can be evaluated particularly in two ways: by comparing the daily send-out capacities with the daily peak demand and by comparing the annual capacities with annual consumption.

### ► Daily demand versus daily storage and send-out capacities

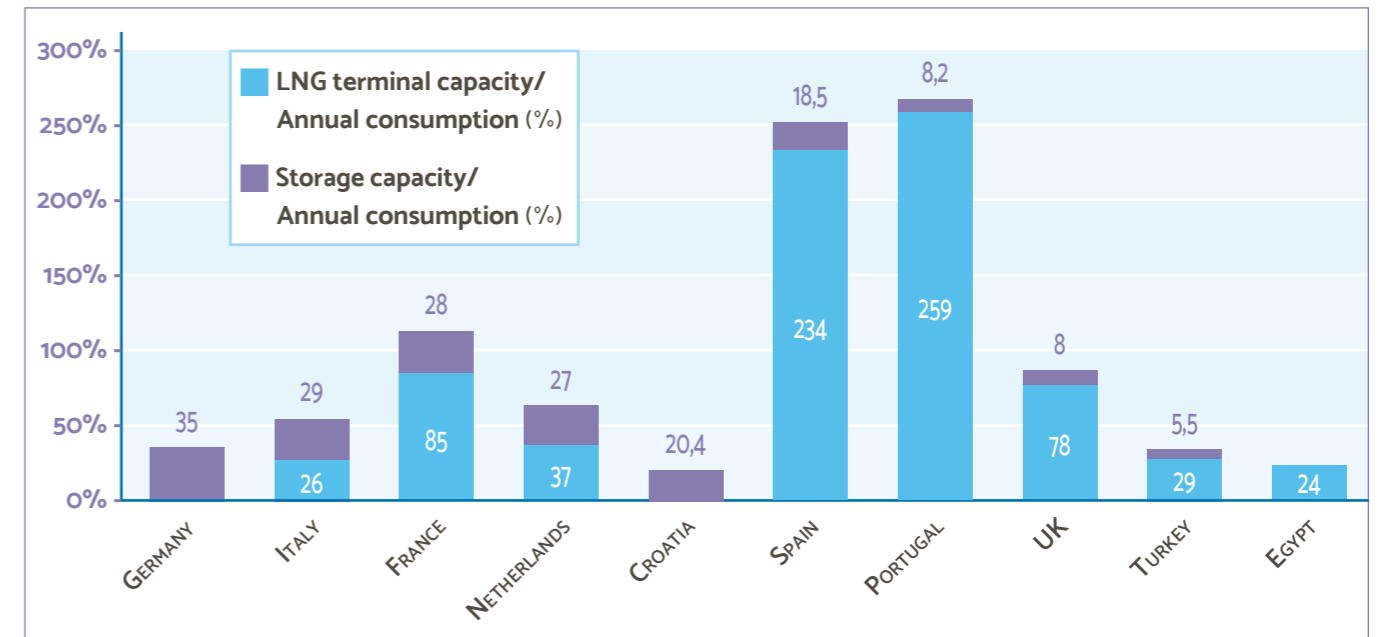


The **countries** that are the **best equipped to respond to the daily peak demand** in terms of daily storage capacity are *Spain, Portugal, France* and *Italy*. The most vulnerable ones are Turkey and Egypt.

### ► Annual consumption versus annual storage and send-outs capacities

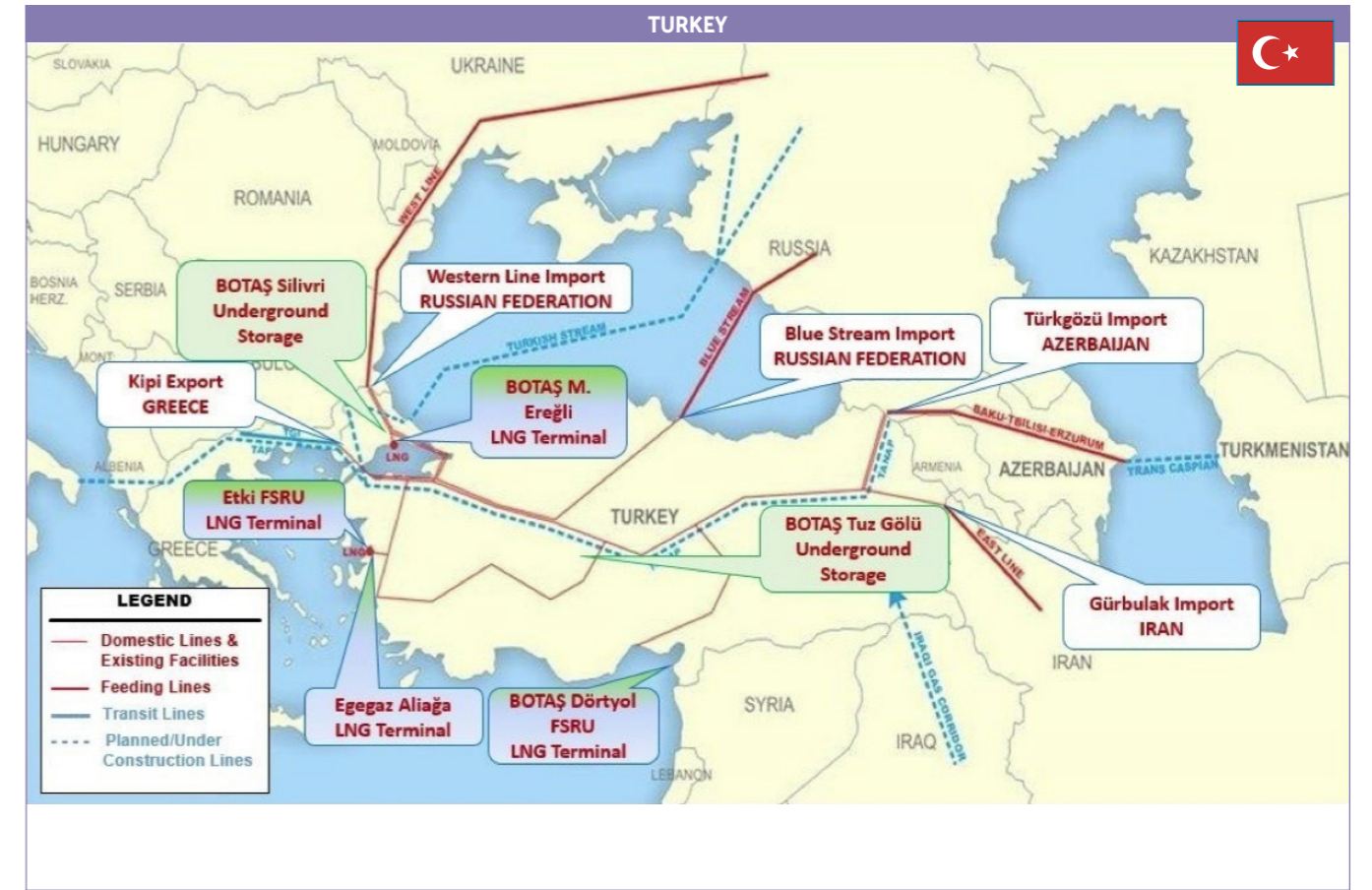
Another way to look at storage capacity is by **comparing the annual send-outs with the annual consumptions** of the countries.

- Assuming that the **underground storage facilities** are filled up to their maximum capacities before the winter season, *Italy* has the largest storage capacity (with a ratio of 29% storage/annual demand) followed by *France* (28%), *Croatia* (20%), *Spain* (18%) and *Portugal* (8%), out of the Mediterranean countries.
- Meanwhile *Turkey*, which is carrying out projects that will increase its storage and LNG capacities considerably in the upcoming years, has less than 10% storage/consumption ratios.
- When comparing the **annual send-out of LNG facilities** and the withdrawal capacities of the countries with annual demands, it is assumed that the maximum capacities are used throughout the year. Among the countries with LNG infrastructure, *Portugal* and *Spain* can meet more than twice their annual demands, followed by *France, Turkey, Italy* and *Egypt*.



# Infrastructure maps of the contributing countries





### 3. ASSESSING THE COMPETITION IN THE MEDITERRANEAN GAS MARKETS

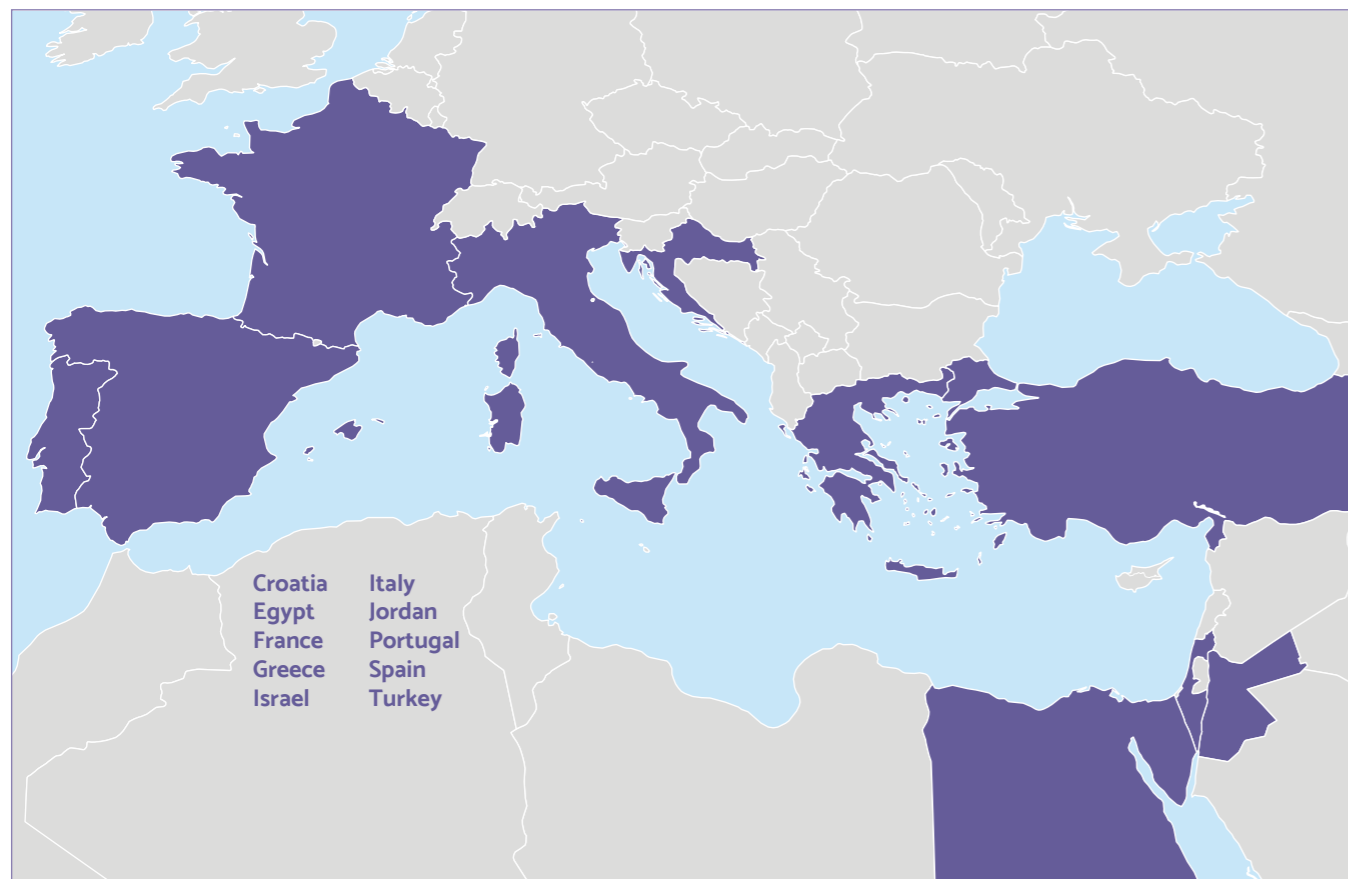
In a different report published in 2018, MEDREG assesses the competition in the gas market among the MEDREG members and analyses gas retail prices in each country. We compare the evolution of gas markets in the Mediterranean region.

The report also provides a review of the competition level in the retail gas markets for household and non-household consumers, for the MEDREG members.

Although this study encountered several limitations, which prevented the results from being more detailed or complete, due to the non-availability of information for all the countries, it provides valuable information to the regulators enabling them to better define the areas in need of additional regulatory action.

#### About the assessment

The report's analysis focuses on the situation in 10 countries – Croatia, Egypt, France, Greece, Israel, Italy, Jordan, Portugal, Spain and Turkey – in 2014.

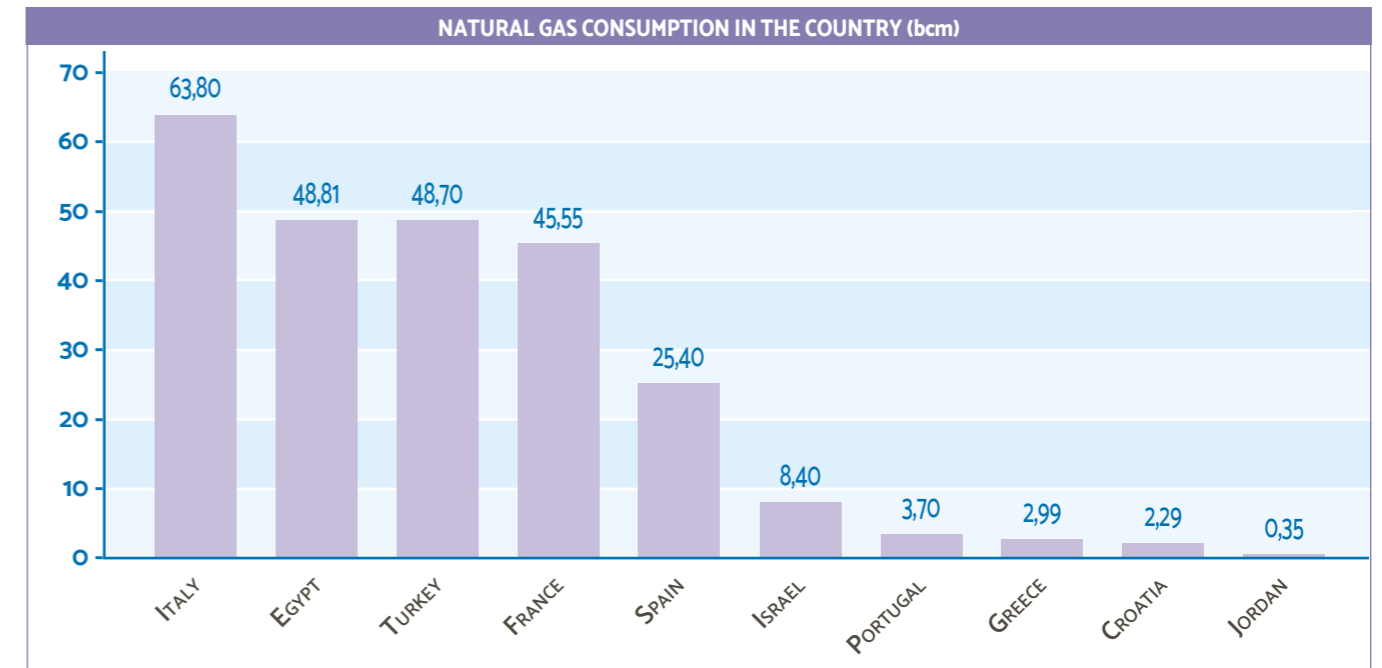


### Facts and Figures about Gas Competition and Market Prices in the Mediterranean

There are major differences between the different gas markets in the MEDREG countries.

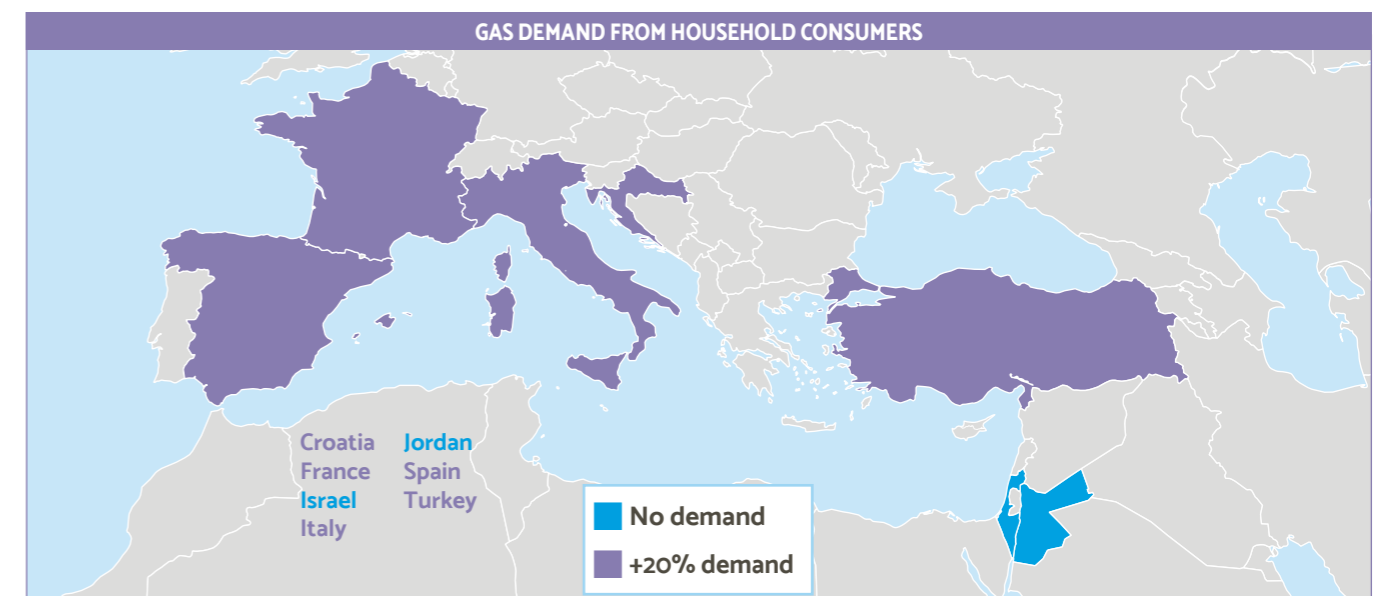
#### Energy demand and consumption differ among the MEDREG countries

Gas markets among the MEDREG members are quite diverse in terms of the total energy demand and the total number of customers. Large markets like Italy, France, Turkey, Spain and Egypt coexist with the small ones like Jordan, Israel, Greece, Croatia and Portugal.



#### Gas demand from household and non-household consumers widely differs between the MEDREG countries

The distribution of gas demand between the household and non-household consumers is quite varied. Some countries have no demand in the household segment, like Israel and Jordan. On the other hand, in countries like Croatia, France, Italy, Spain and Turkey household demand accounts for more than 20% of the total national gas demand.



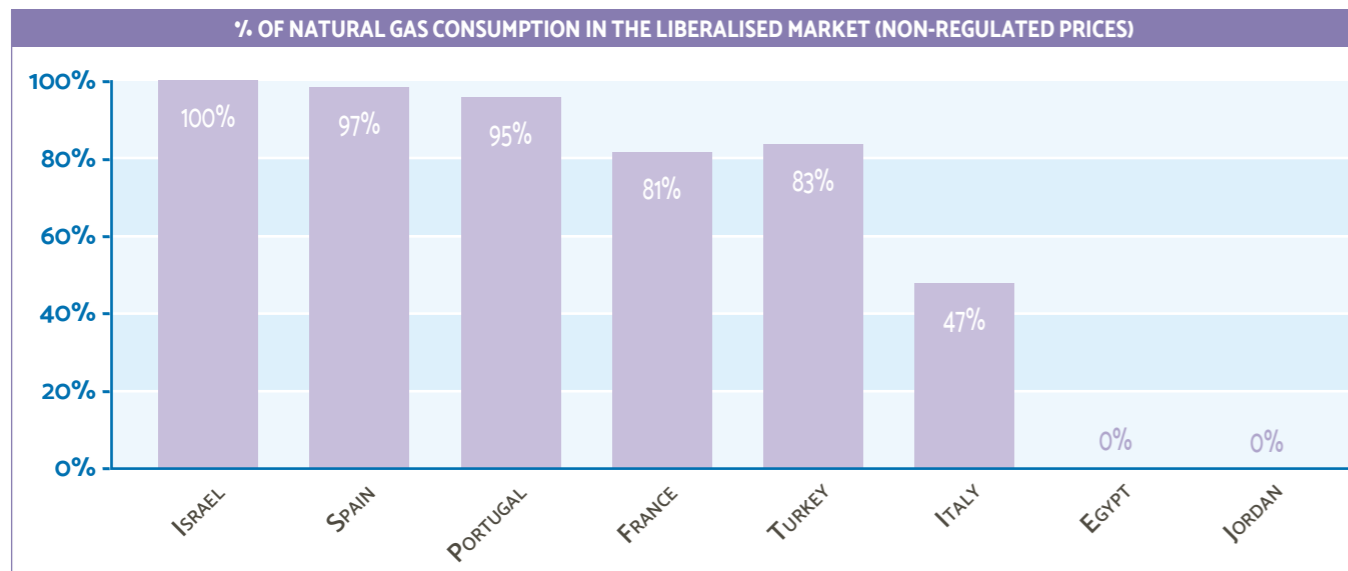


### Contrasting levels of liberalisation of the gas retail market

Full liberalisation, also known as full retail competition or full deregulation, characterises situations where both the household and non-household customers are eligible to choose their gas supplier and purchase their energy at the market-based prices.

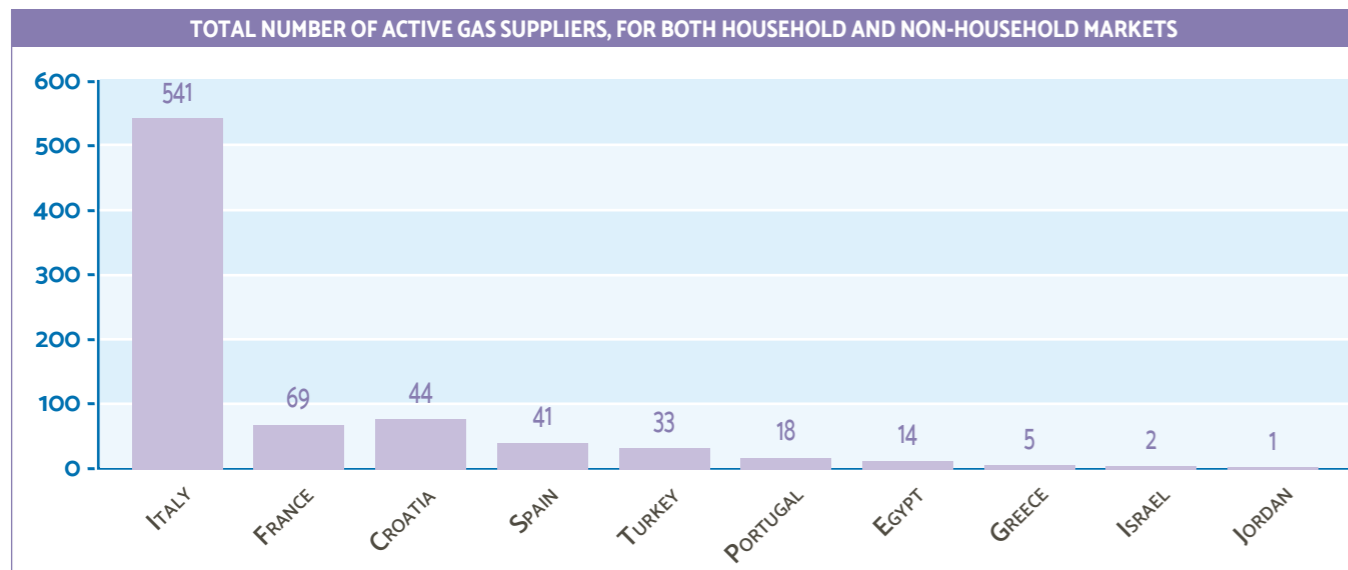
There are also significant differences between countries in terms of the **level of liberalisation of the gas retail market**.

- In countries such as *Egypt* and *Jordan* all the consumers are in the **regulated market**, with the application of regulated and administrative gas prices.
- However, countries such as *France*, *Portugal*, *Spain* and *Turkey* show a **clear degree of liberalisation**. More than **80% of the gas consumed** in these countries is being **supplied under a liberalised market** environment. This means that customers can choose their gas supplier and purchase their energy at competitive prices.



### Active suppliers vary from 541 in Italy to 1 in Jordan

The number of active suppliers in the market is another useful indicator to analyse the status of market competition. *Italy* is the **country with the highest number of gas suppliers**, with **541 players** by the end of 2014. In contrast, *Jordan* has **only one gas supplier**. Israel and Jordan do not have household customers.



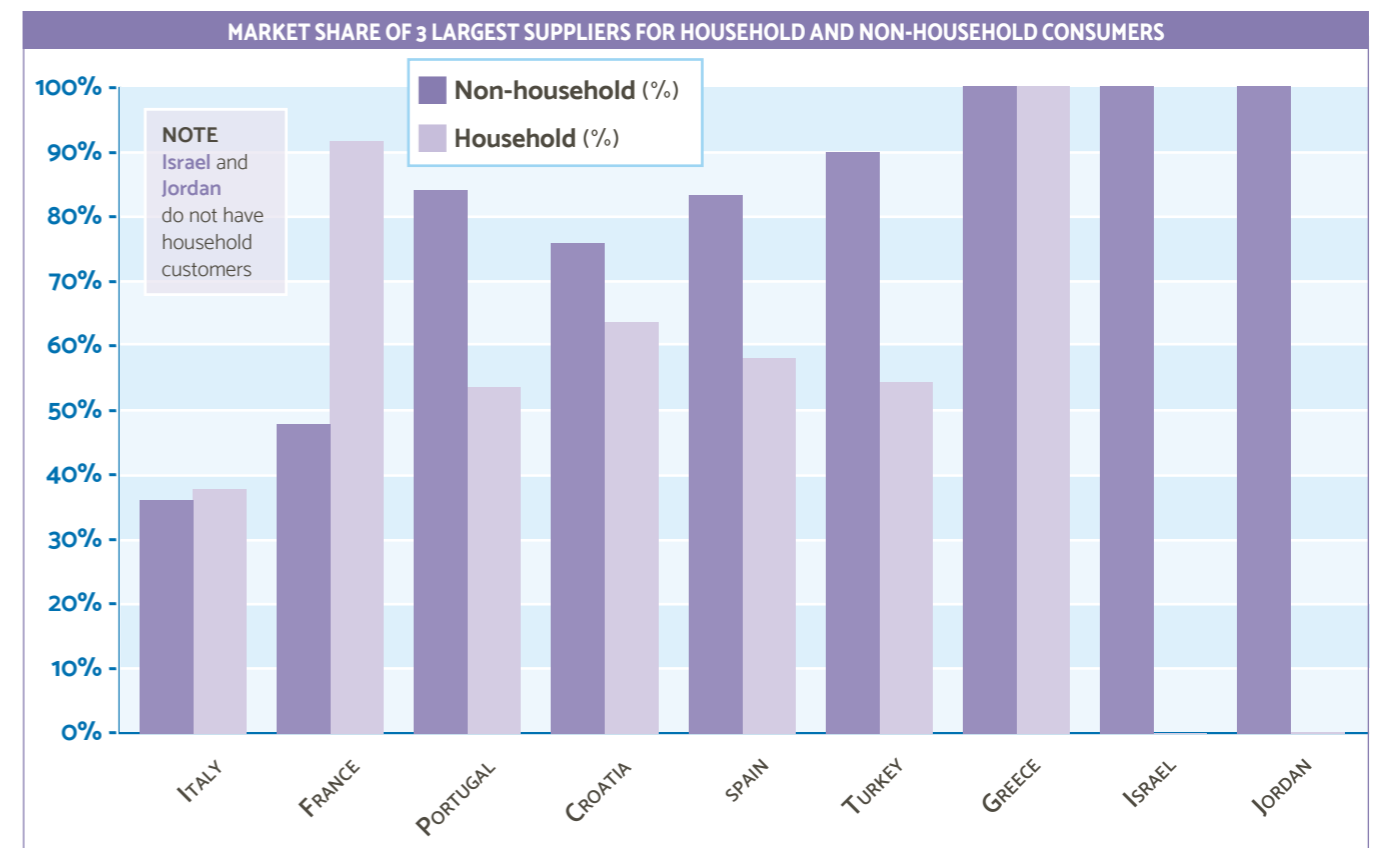
### Market share and concentration

At the national level, **gas markets are effectively competitive when the three largest suppliers have a smaller market share** and when several main suppliers operate in the market.

In *Croatia*, *France*, *Italy* and *Spain*, the market share of the **largest gas supplier is below 50%**. For the other MEDREG members, this share is above 50%, with 100% in *Jordan*, where there is only one market supplier. *Greece* and *Israel* also have very **high values**, with 95% and 98.5%, respectively.

Concerning the **market share of the three largest gas suppliers**, **only Italy has a market value below 50%**, given the high number of suppliers active in the market. All the other MEDREG members have higher values of market concentration. *Israel* and *Jordan* have a value of 100%, but both the countries **have less than 3 gas suppliers**. *Greece* also has a value of 100%, with a total of **5 gas suppliers**.

In all the countries, except Italy and France, the market share of the three largest gas suppliers is higher in the non-household segment than in the household segment. *Italy* is the country with the **highest number of commercial offers** in the gas market, with **339 offers** by the end of 2014. The number of commercial offers is also very high in *Spain* with **100 offers** by the end of 2014.

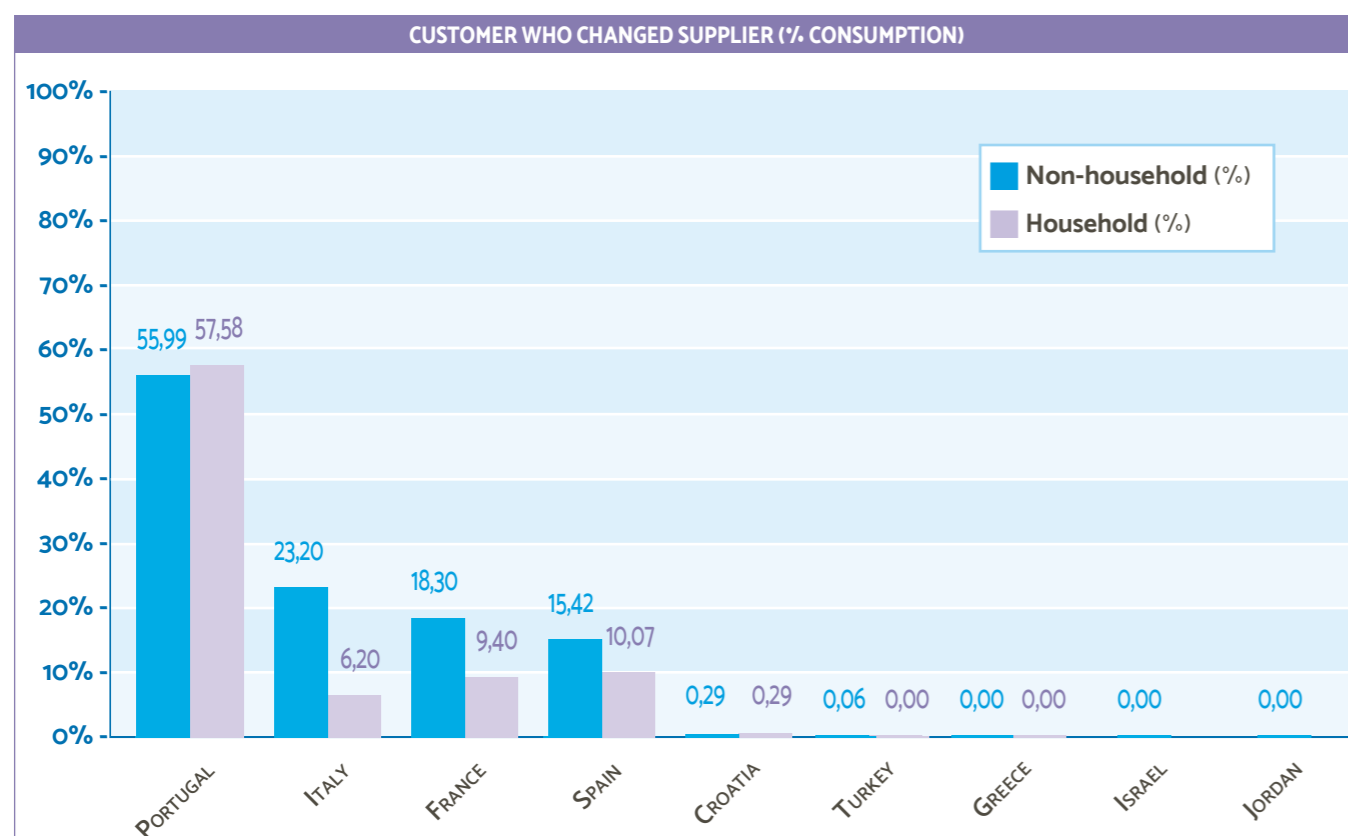


### Portugal ranks at the top of the consumer switching activity

Another important indicator of market functioning relates to the degree of consumer activity in the market, which is measured by the amount of supplier switching. Consumer switching rates is an important dimension of energy market competitiveness.

*Portugal* is the country with the **highest switching rate** in both household and non-household markets, with values above **50%**. This situation can be explained by the initial stages of the liberalisation process in this country.

Countries such as *France, Italy* and *Spain* have switching rates between **15% and 23%** in the non-household market and between 6% and 10% for the household consumers. These three markets began the liberalisation process earlier and, to a certain extent, are more mature markets.



➤ **Only one country does not have dispute settlement mechanisms for the consumers**

Out of the 11 countries surveyed, **10 have dispute settlement services available for their consumers**, namely Croatia, Cyprus, France, Greece, Israel, Italy, Jordan, Portugal, Spain and Turkey.

In Egypt, the introduction of such services is under evaluation and preparation. Alternative dispute settlements can be assured by independent bodies, such as an energy ombudsman and energy authorities, governmental bodies or local non-governmental bodies.

## LOOKING FORWARD

This valuable research informs MEDREG's support to the national regulatory reform initiatives and guide regulators in identifying the areas that would benefit from the additional regulatory action, taking into account the experience and situation of the neighbouring countries.

In light of those findings, MEDREG will prioritise the countries that were found to be less equipped to respond to the gas demand and showed the lowest level of competition in their gas markets and prices.

In the future, these two studies will be repeated with more accurate and up-to-date data, which will take into account the recent developments in infrastructure investments and the fluctuations in the demand structures. The next editions will also seek the participation of more countries to obtain a more complete picture of the gas markets in the Mediterranean region.

See the full reports on MEDREG's website at: [www.medreg-regulators.org/Publications/Gas](http://www.medreg-regulators.org/Publications/Gas)

### CREDIT

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