

**FMW-IENE: Cyprus 7<sup>th</sup> Energy Symposium**

**Hydrocarbon Exploration,  
South East Mediterranean and Cyprus**

**Infrastructures, Markets  
&  
Geopolitical Challenges**

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**Nicosia December 5 -2019**

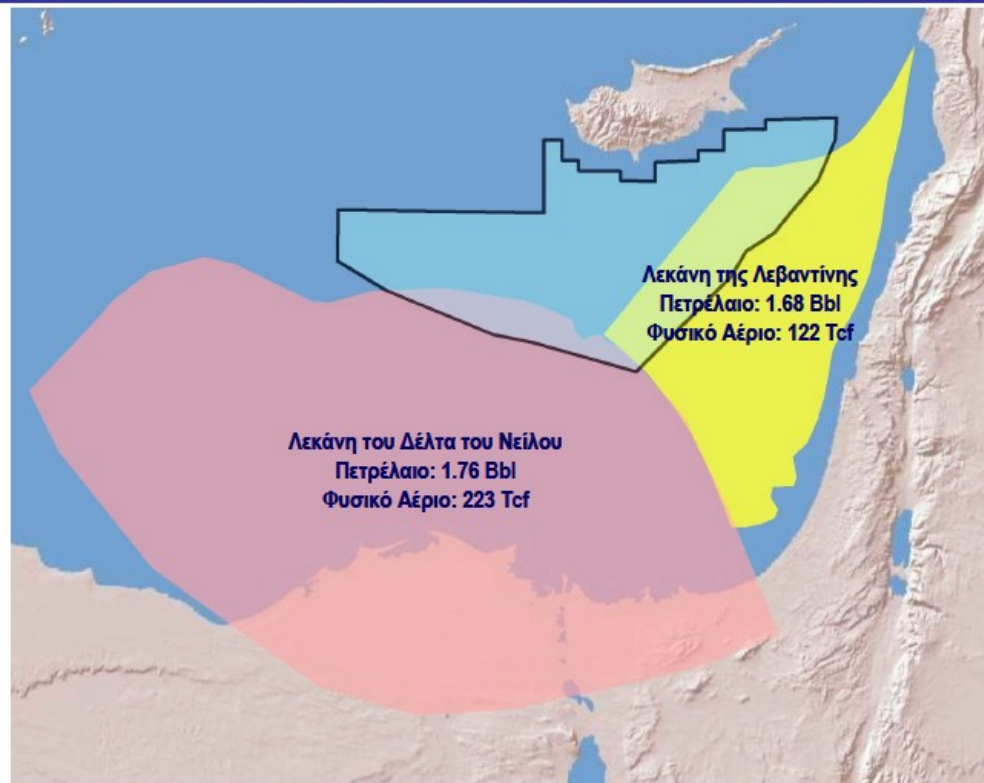
# East Mediterranean Hydrocarbon Potential

Assessment by the United States Geological Survey (USGS)

350 Tcf or 10 Tcm Gas & 2,5 Bil. bbl Oil

Mainly Biogenic Gas

## ΝΑ Μεσόγειος – Δυναμικό Υδρογονανθράκων (USGS)



# Eastern Mediterranean Hydrocarbon Potential (2018)

| Proven Reserves (2018)                       |                        |             |
|--|------------------------|-------------|
|  | Oil<br>Billion Barrels | Gas<br>Tcm  |
| Libya  | 48,4                   | 1,4         |
| Egypt  | 3,3                    | 2,1         |
| Israel and Cyprus<br>(Levant Basin)          | -                      | 1,4         |
| Adriatic-Ionian Basin                        | 0,8                    | 0,4         |
| <b>TOTAL</b>                                 | <b>52,5</b>            | <b>5,3</b>  |
|  |                        |             |
| <b>TOTAL POTENTIAL</b>                       | <b>60</b>              | <b>10</b>   |
| Percentage of Total<br>Proven World Reserves | <b>3%</b>              | <b>2,7%</b> |

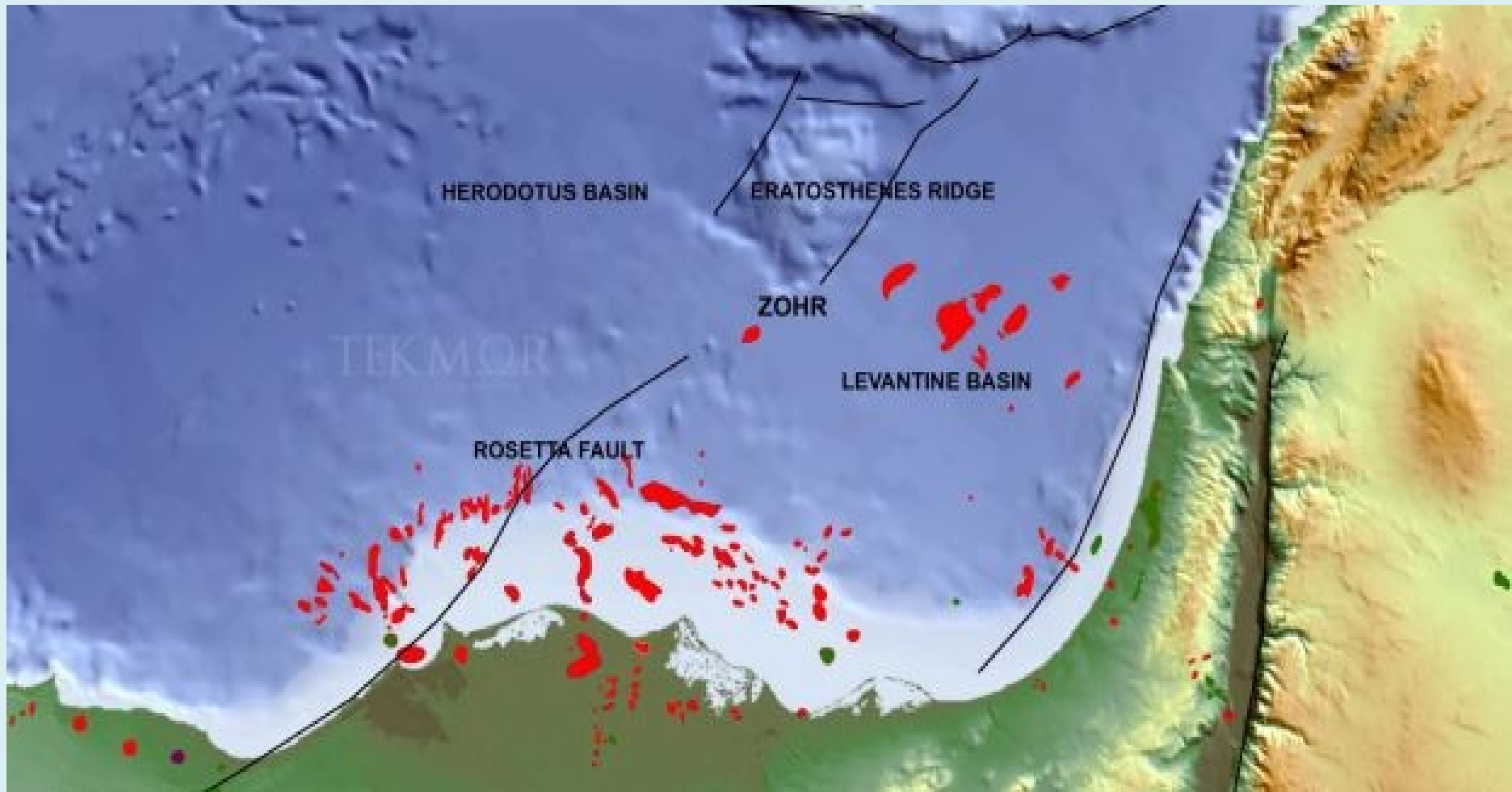
**2018 World Proven Reserves :**

**Oil: 1.730 Billion Barrels**

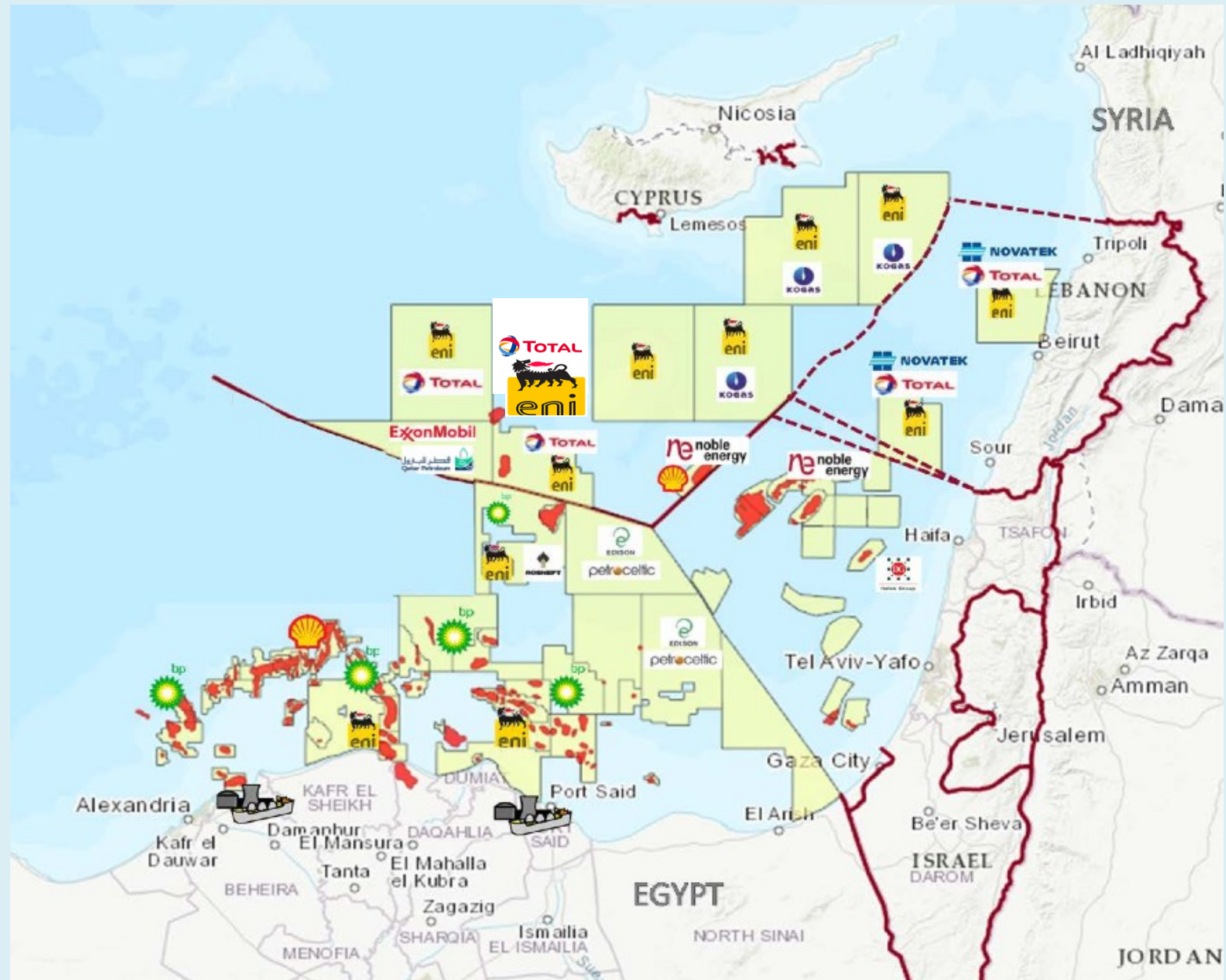
**Natural Gas: 196,9 Tcm**

**Source: BP Energy Statistics 2019**

# East Mediterranean Hydrocarbon Discoveries (Status 2019)



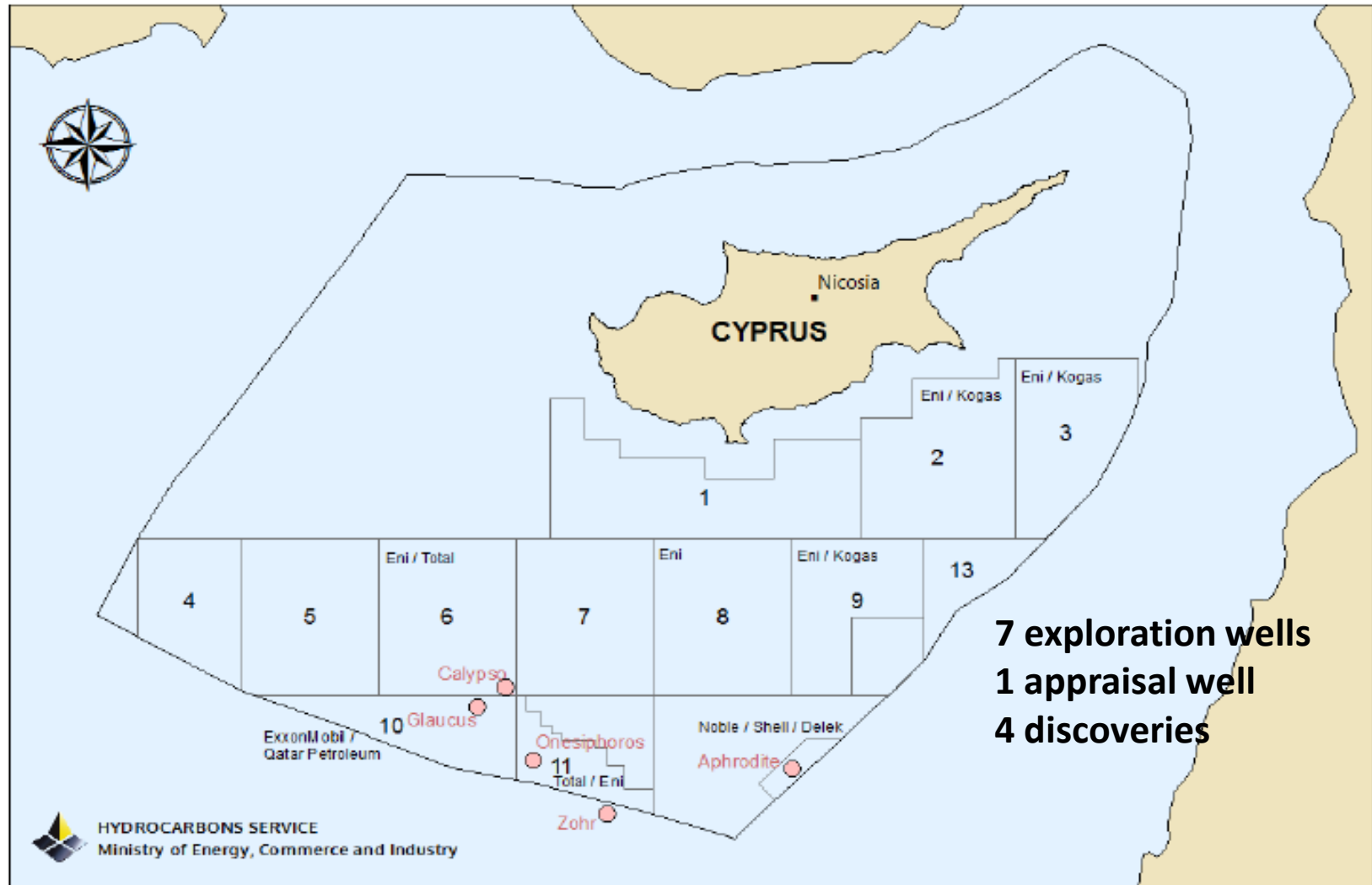
# Hydrocarbon Exploration in the Eastern Mediterranean 2018



# Discoveries in Cyprus' continental shelf/EEZ

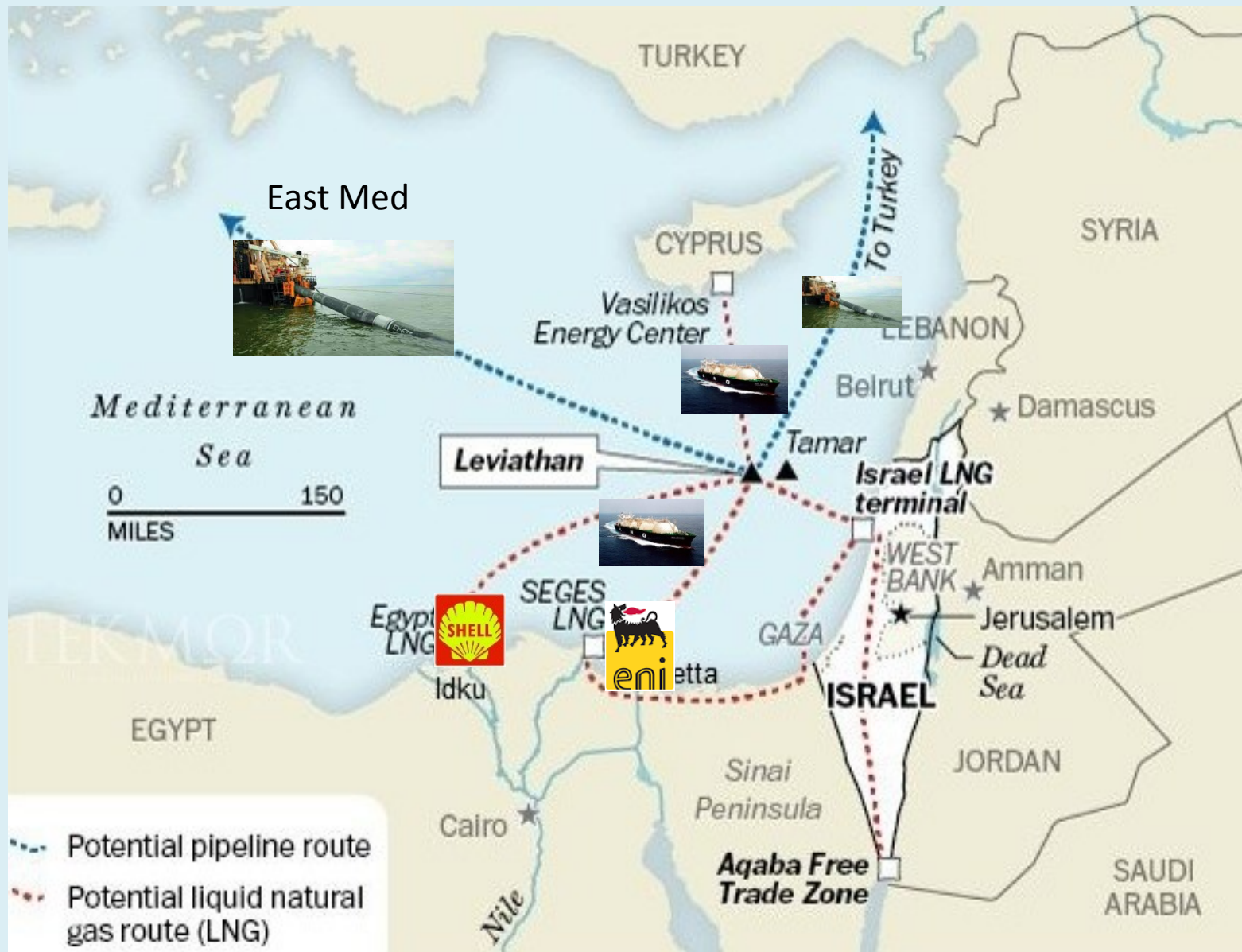
## 12-13 Tcf Gas contingent

### Offshore Cyprus Exploration Blocks



**7 exploration wells**  
**1 appraisal well**  
**4 discoveries**

# East Mediterranean Gas Fields Infrastructures and alternative routes to the Markets



# East Mediterranean Pipeline (1900 χλμ) **Plan**

## Vasilikos LNG Liquefaction **Plan**



**VASILIKOS LNG PLANT**



# Gas Discoveries in Cyprus and Israel

## and existing export Infrastructures in the East Mediterranean

### CYPRUS

"Aphrodite": 4,1 Tcf (2C)

"Calypso": 3-5 Tcf (GIIP)

"Glafkos": 5-8 Tcf (GIIP)



### ISRAEL

"Tamar": 10 Tcf (2P)

"Leviathan": 22 Tcf (2P)

"Karish-Tanin": 2,4 Tcf (2P)



**IDKU LNG:**

2 trains 7,2 mt.y

10 bcm/y

**Shell 35.5%**

Petronas: 35,5%

GdF: 5%

EGAS: 12%

EGPC: 12%

**DAMIETTA LNG**

1 train 5,5 mt.y

8 bcm/y

**ENI: 40%**

Union Fenosa: 40%

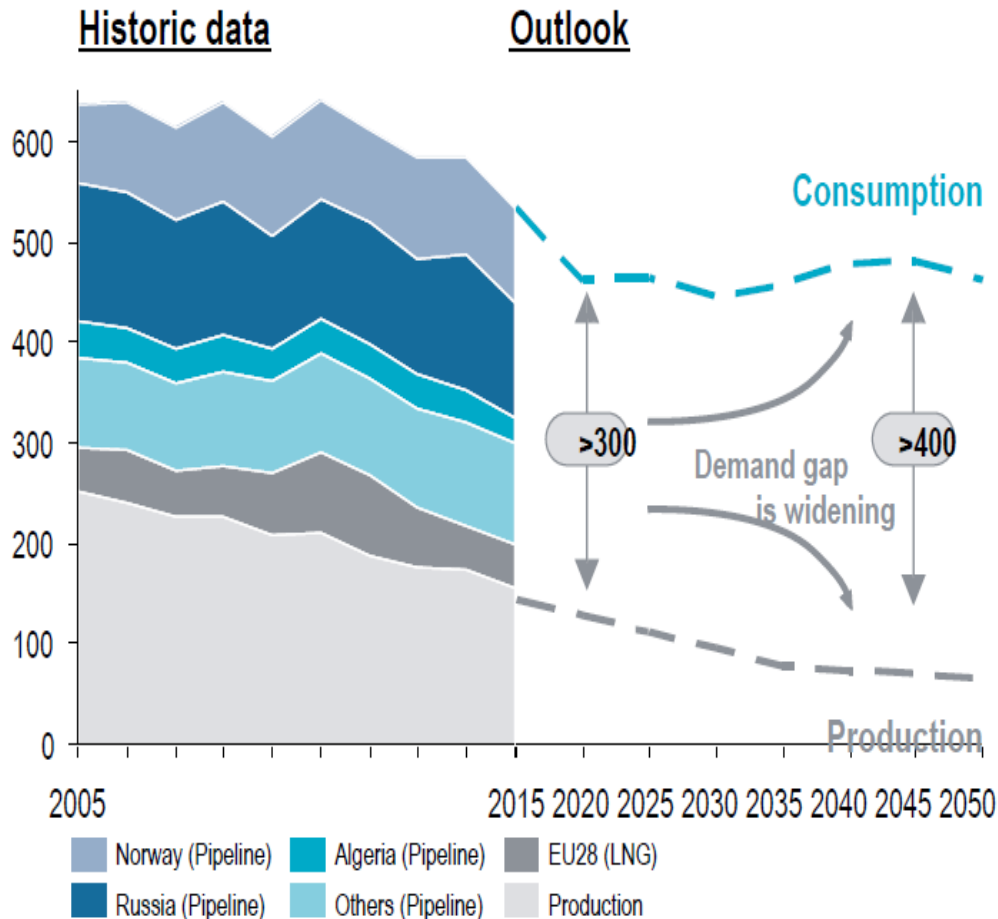
EGAS : 10%

EGPC: 10%



# EUROPE : The Great Gas Market ( > 400 BCM)

Natural gas consumption and production in Europe (in bcm/a)

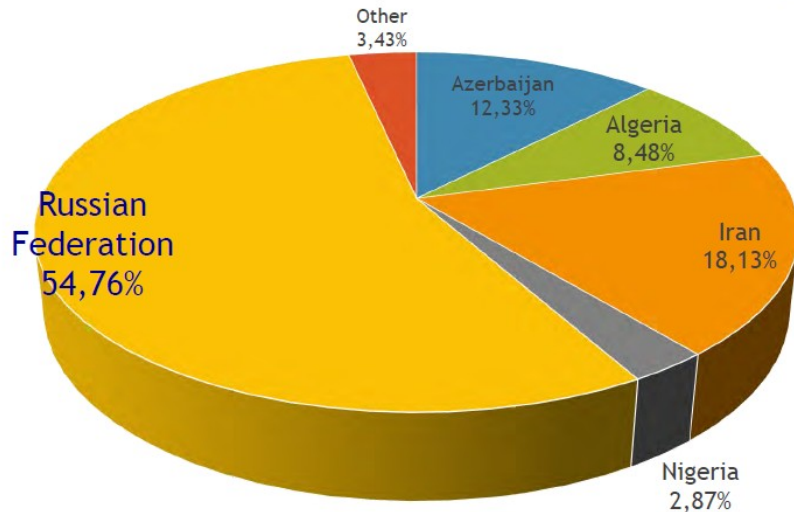


- > European natural gas **production is expected to deteriorate** faster than consumption
- > Consequently an **increase in natural gas imports** is required to fill the widening demand gap

# Turkish Gas Consumption

(48,717 bcm 2014)

## Turkish Gas Imports by Source (2014)



# Natural Gas in Turkey

**2018 Consumption  
52 Bcm**

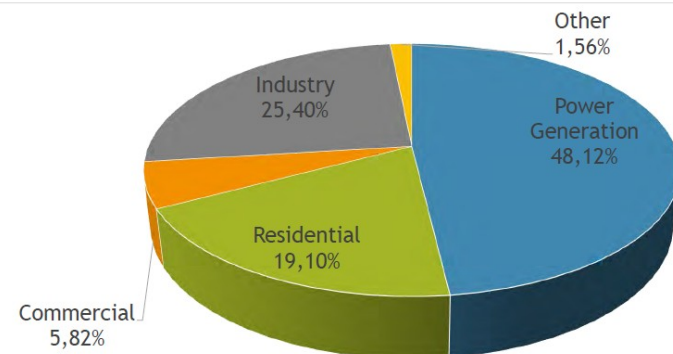
**Dependence :**

**Russia : 55%**

**Iran : 20%**

**Azerbaijan & Algeria, : 21%**

## Turkish Gas Consumption by Sectors (48,717 bcm 2014)



# ...and the Geopolitical Challenges ....





# Potential Exclusive Economic Zones (EEZ)

The Greek View :

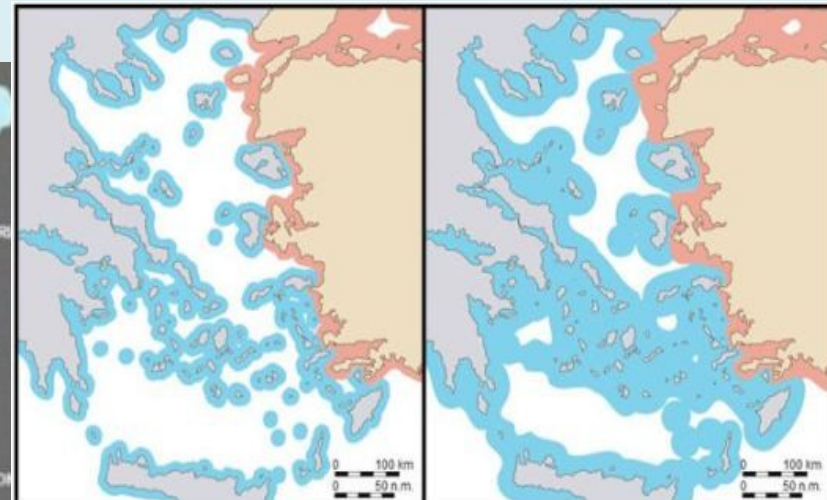
The International See Law (United Nations Convention on the Law of the Sea)

UNCLOS 1982

The Turkish View:

The "international See Law of ...Turkey (the Turkish Interpretation)

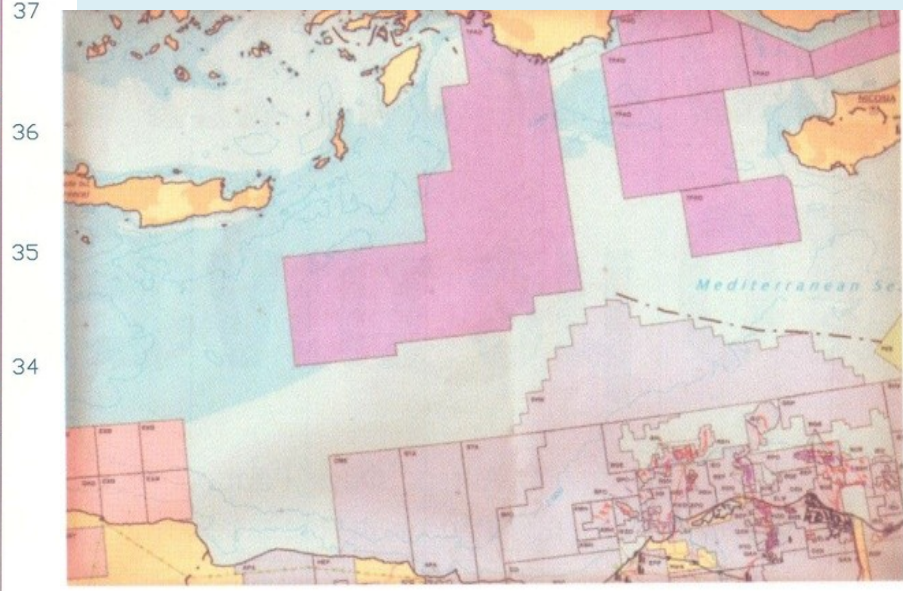
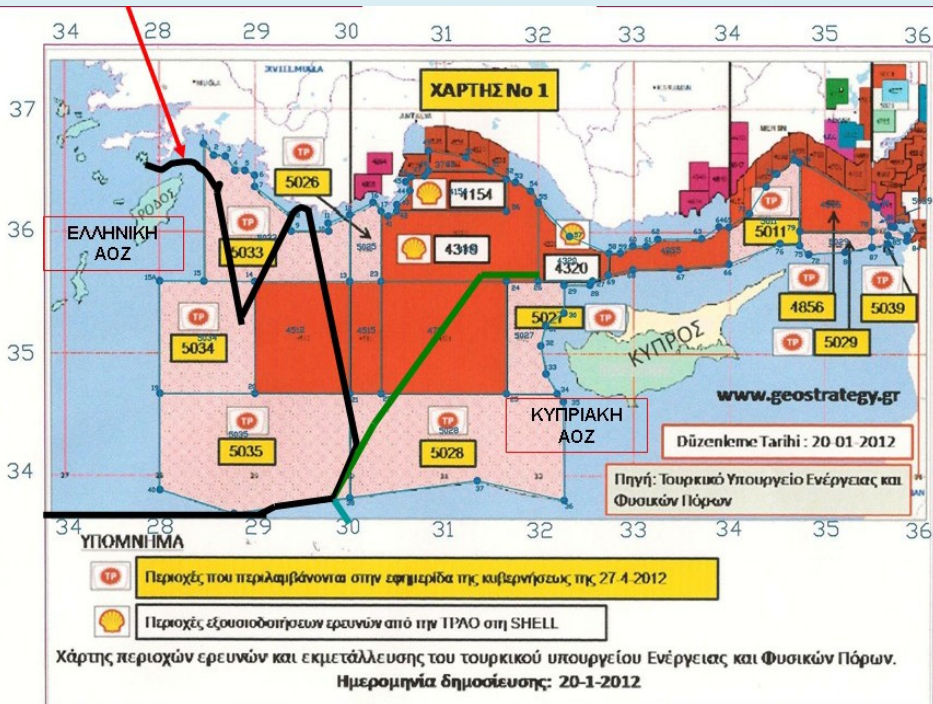
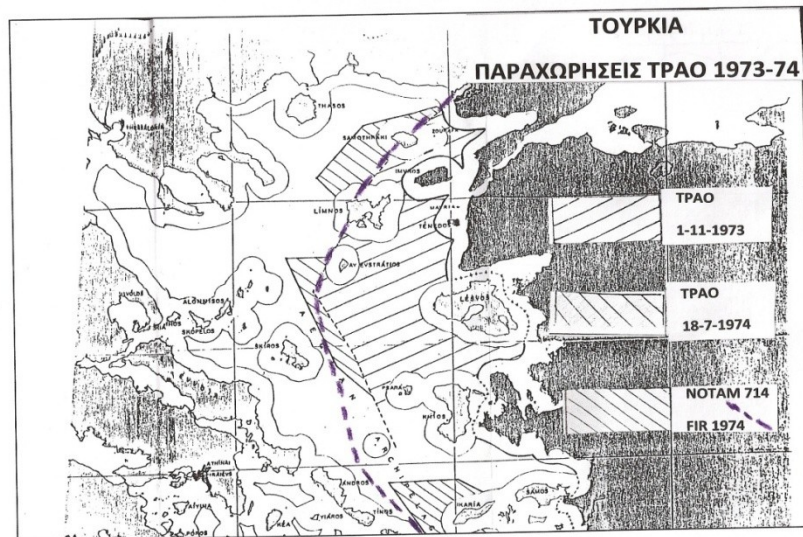
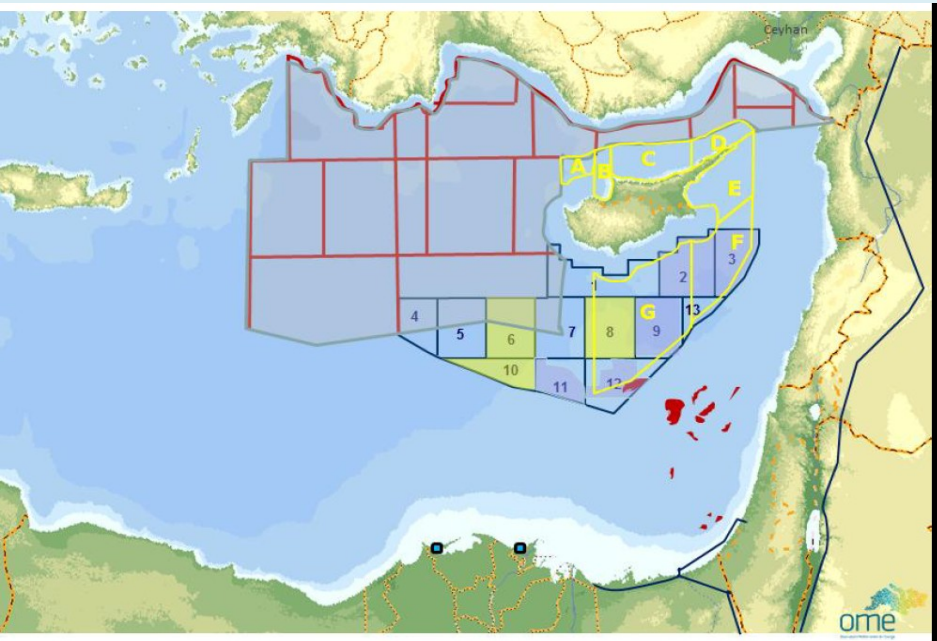
**UNCLOS = 1982 Article 121.2. The EEZ of the Islands**



Χάρτης: 6 ναυτικά μίλια - Χάρτης: 12 ναυτικά μίλια.

- ✓ Greek Maritime waters in the Aegean
- ✓ (6 and 12 miles)
- ✓ **Casus Belli for Turkey**

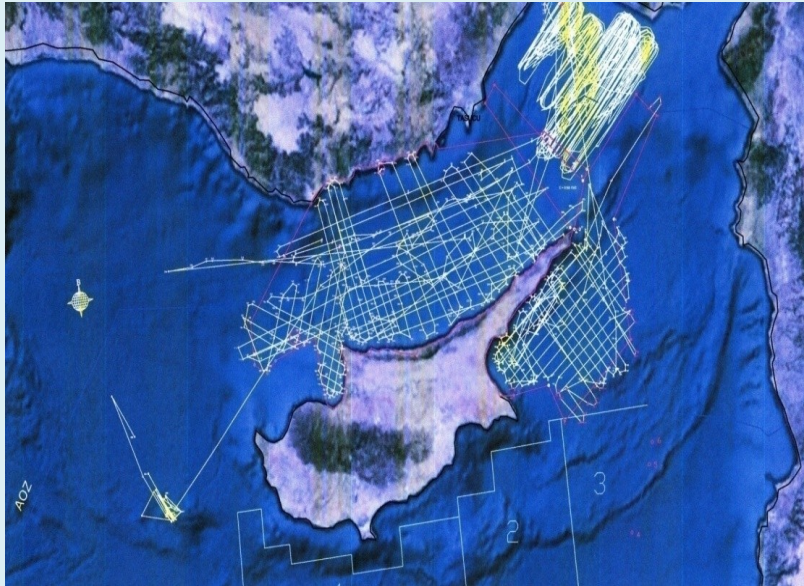
# Hydrocarbon Exploration Concession Maps of Turkey to TPAO in the Aegean and the Eastern Mediterranean



# Turkish Illegal Seismic Surveys in Cyprus EEZ in 2013 and 2015

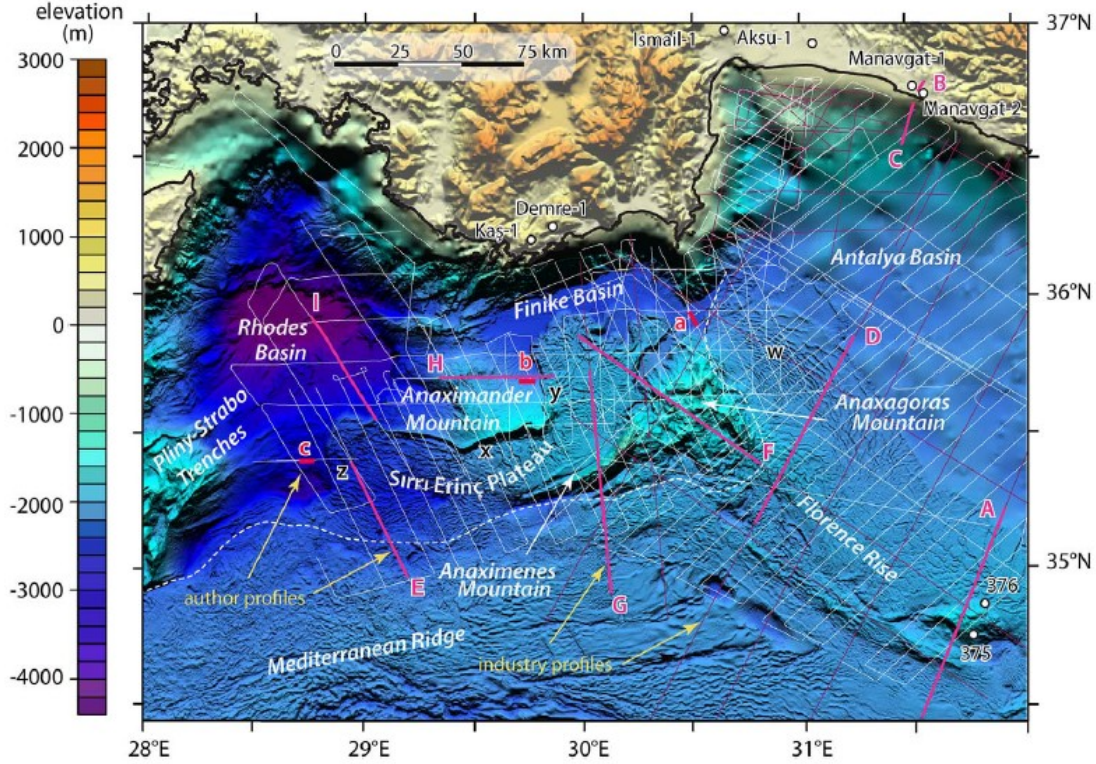
By « BARBAROS HAYREDDIN PASA »

2013-2014



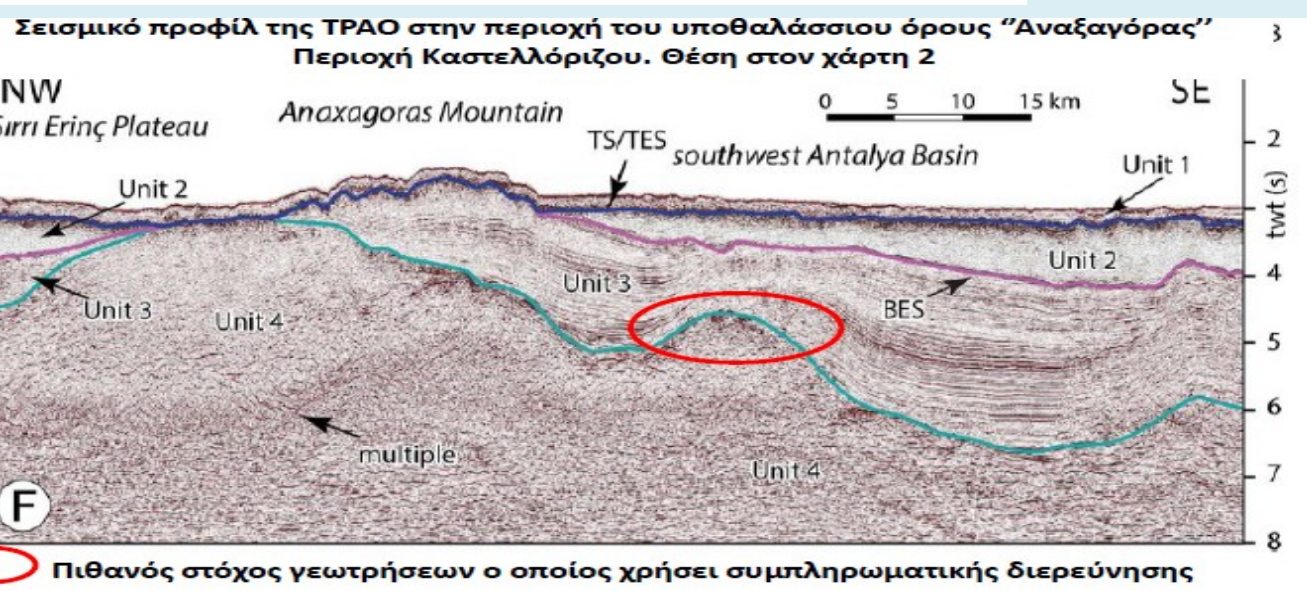
2015





# Turkish Legal and Illegal seismic Surveys (TPAO) in the continental shelf between Rodos and Kastelorizo

Seismic profile in the area south of Kastelorizo, (acquired by TPAO) (Sea Mount of Anaxagoras) (A.E.Aksu κ.α., Marine Geology 395)

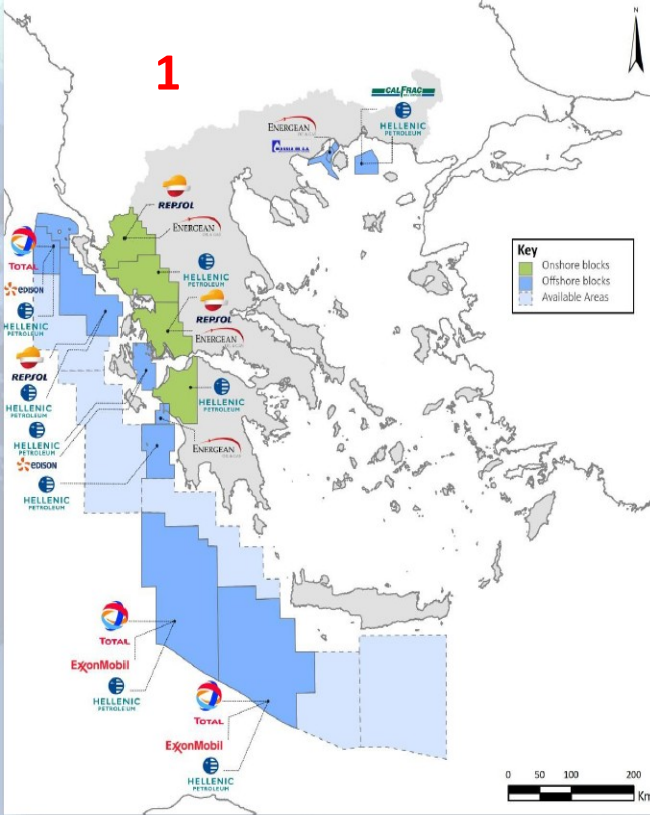


Πιθανός στόχος γεωτρήσεων ο οποίος χρήσει συμπληρωματικής διερεύνησης

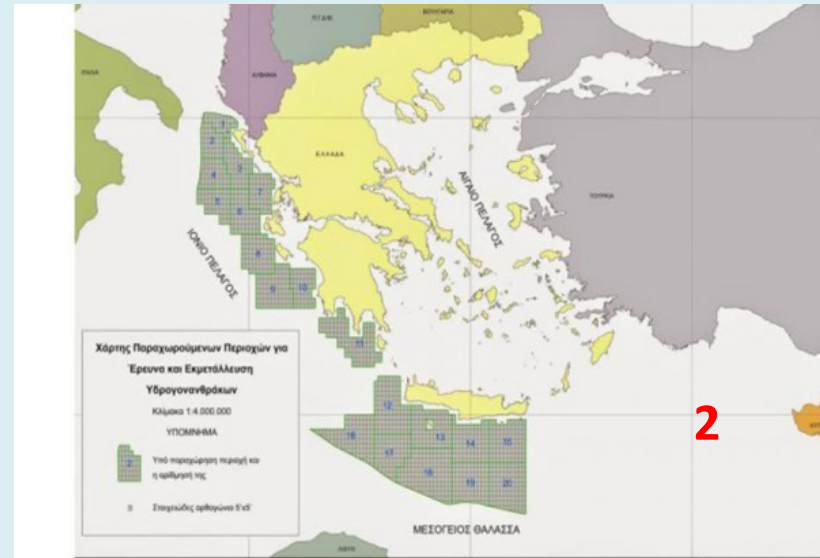




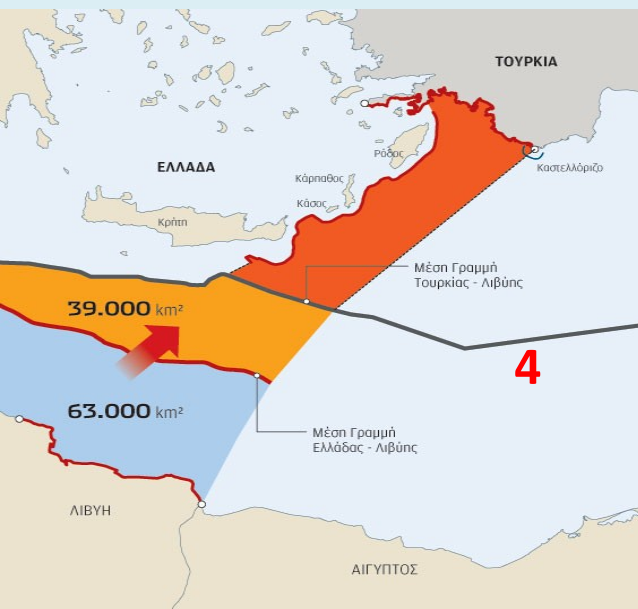
# Hellas-Libya- Turkey “Exclusive Economic Zones”- conspiracies In the Libyan Sea



1) Greece:  
Map of  
Exploration Permits  
2019



2) Greece:  
Map of  
Exploration Permits  
2014



3) Libya:  
Map of  
Exploration Permits  
2005



4) Libyan Sea  
Turkeys'-Libyans;  
Conspiracies 2019

# Turkey and the 'Blue Homeland' (Galazia Patrida) The Ultimate Challenge

