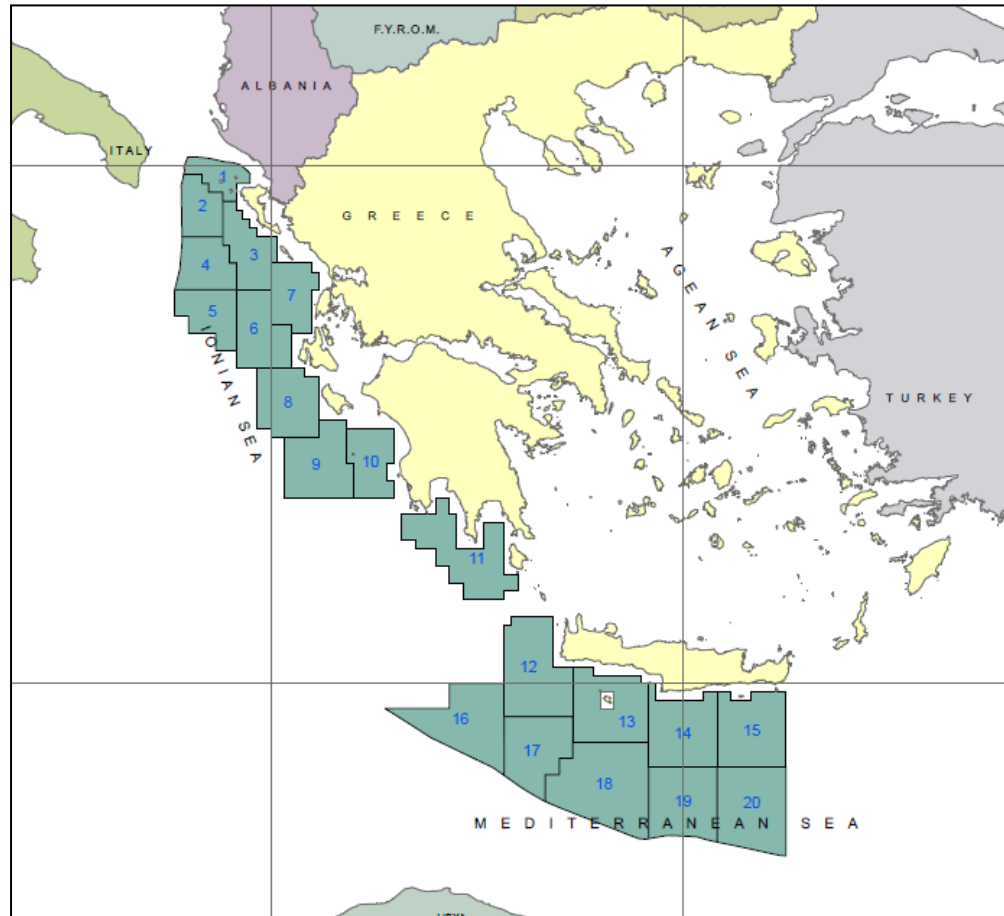


# **OIL EXPLORATION IN GREECE**

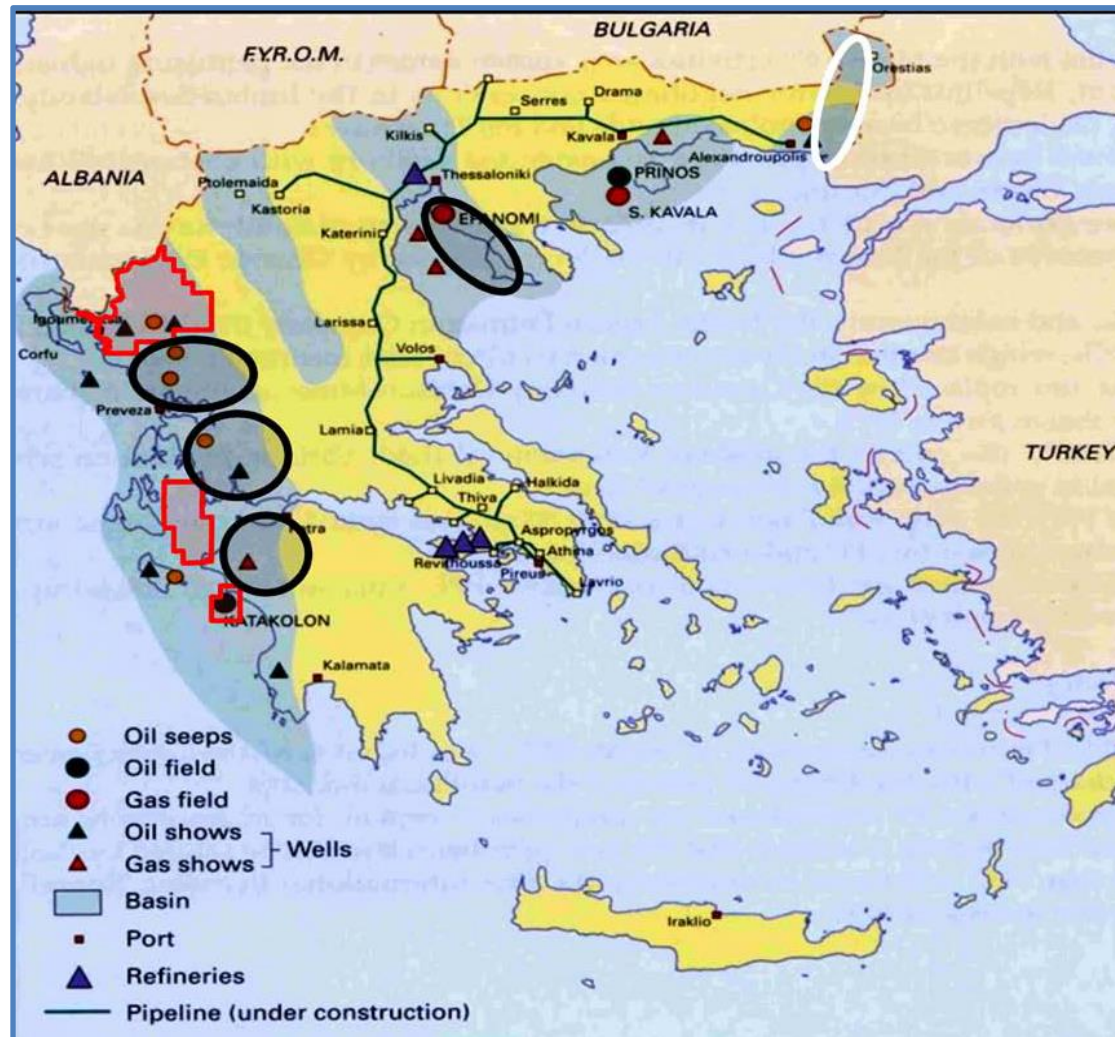
**AN UPDATE**

**S. TRAVLOS - SEPTEMBER 2014**

# LONG HISTORY POOR RESULTS IMPROVING ENVIRONMENT

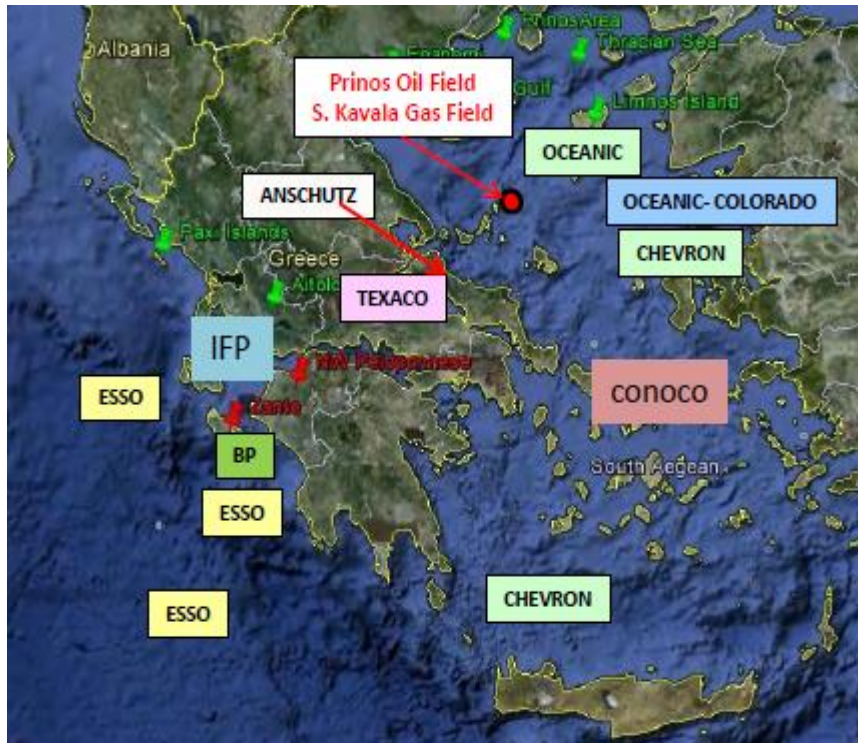


# CONSIDERABLE INTEREST IN ENERGY SECTORS AND INFRASTRUCTURE



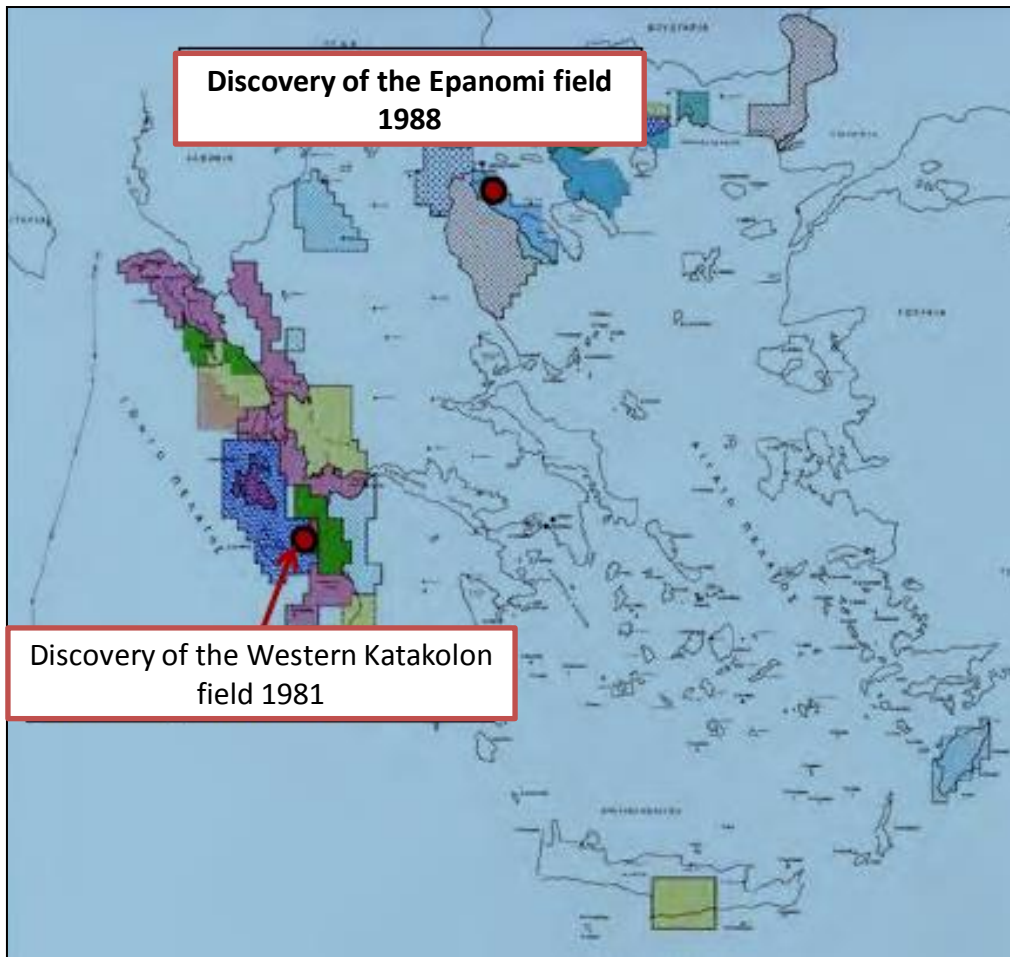
# **HISTORICAL BACKGROUND OF OIL & GAS IN GREECE**

# EXPLORATION ACTIVITIES 1960 -74



Major oil companies involved in the earlier stages of exploration.

## EXPLORATION ACTIVITIES 1975-1994



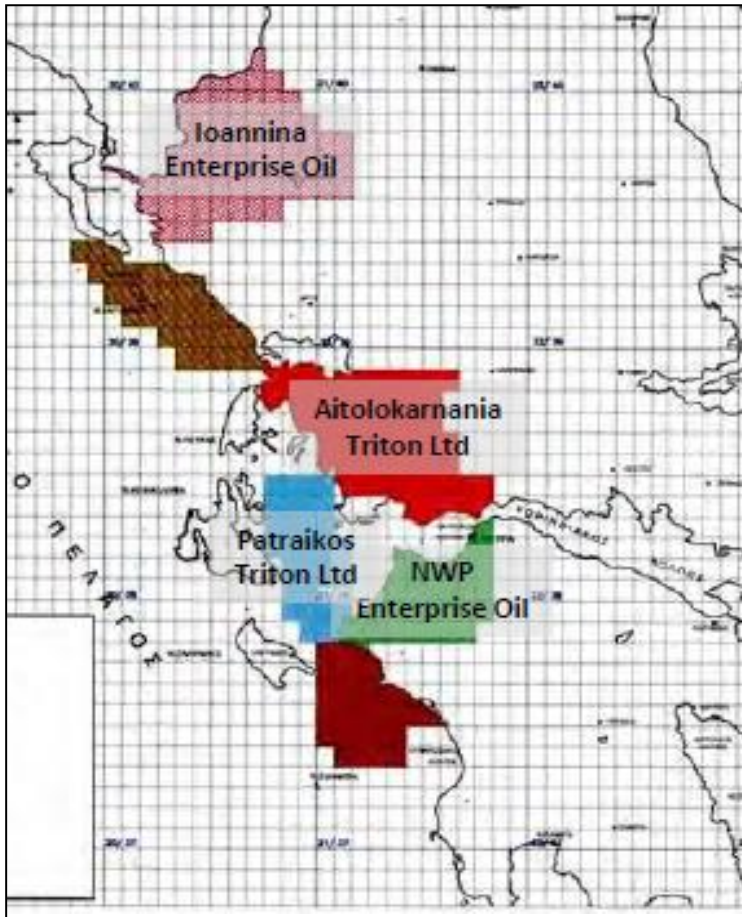
Concessions in 24 areas for exploration.

Execution of 54000km of 2D and 100km<sup>2</sup> 3D seismic recording.

Execution of 74 exploration drillings.



# EXPLORATION ACTIVITIES 1996-2002



Tender for concession for 6 areas in 1996.

4 areas are conceded:

NW Peloponisos and Ioannina to Enterprise Oil.

Aitolokarnania and patraikos gulf to Triton Ltd.

Total invested about 85 million euro.

6 arid drillings executed but without major indications for either oil or gas.

Fall in oil prices leads to the abandonment of exploration in 2002.

# THE PAST IS OFFERING LITTLE ASSISTANCE FOR THE FUTURE

- Prominent oil companies took part in earlier rounds of exploration.
- But according to experts: “The majority of oil drilling (> 80%) made in Greece, were placed outside target zones or were shallow or have been technical failures.”
- The current round of seismic research is the most comprehensive and reliable exercise.

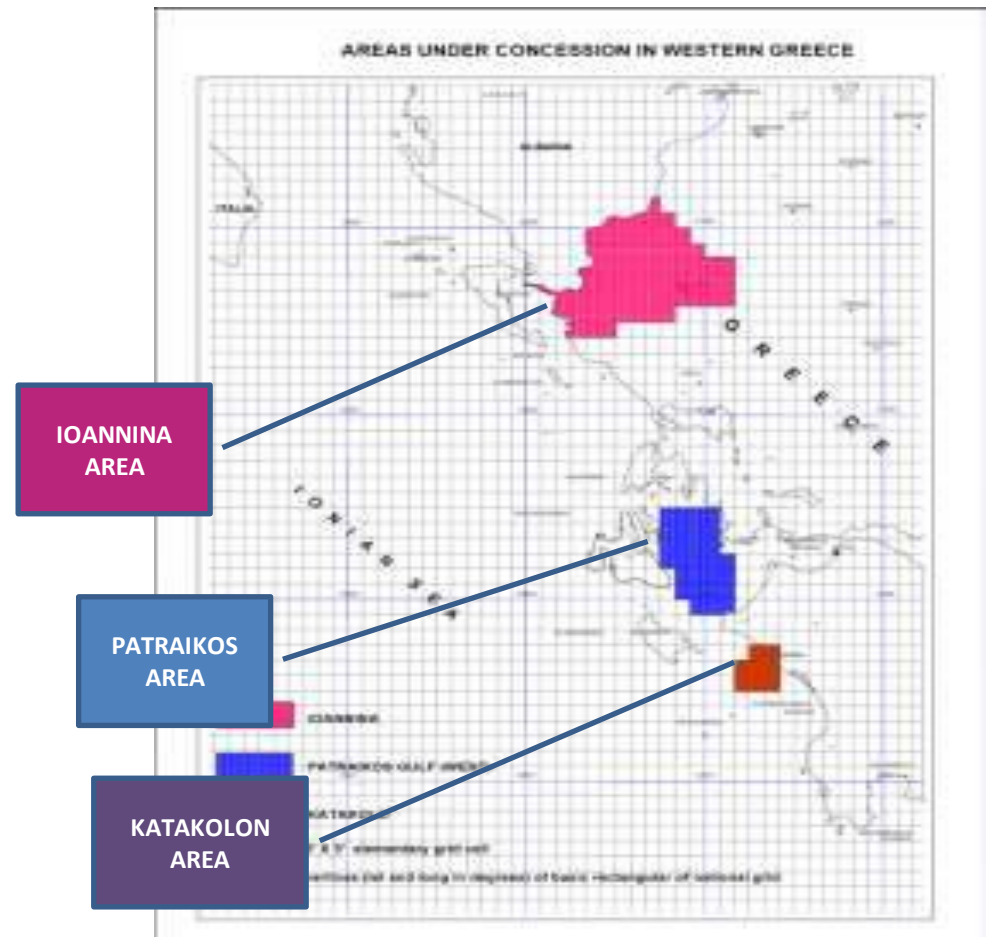


# THE FIRST ROUND OF CONCESSIONS 2011-2014

- The first tender was published in **January 2011** .
- On 1<sup>st</sup> of **July 2012** the participating companies in the tender have submitted their bids and it took 12 long months to complete the evaluation and selection of contractors groups.
- In early **July 2013** the selection decision was announced and the consortium consisting of Energean Oil - Petra Petroleum and Schlumberger have been pre-selected for the Ioannina region, the consortium EL.PE. - Edison (Italy) - Petroceltic for the Patras Gulf while Katakolon through the process of compulsory marriage has been jointly assigned to the consortium Energean Oil - Trajan Oil and Grekoil.
- In **May 2014** the contracts were signed.
- In **September 2014** the contracts were ratified by Parliament with the support of the coalition parties and independents. All opposition parties abstained or voted against the ratification on grounds of level of royalties or the environment.
- In total from start to finish the time required for closure to occur was three and half years.

# THE OPEN DOOR PROCESS TESTED FOR THE FIRST TIME

- The first three concessions are located in Western Greece.
- The OPEN DOOR process was tested for the first time.
- Satisfactory participation of investors has been recorded.



# MAIN PROVISIONS OF THE CONTRACTS

- According to the current legal framework (Law. 2289/95 on hydrocarbon exploration and exploitation & n. 4001/2011) the government revenue from hydrocarbons derived from:
  - Taxation, 20% (normal) + 5 % (regional tax) = 25%
  - Royalties, depending on the level of production, geographical, geological and other features of the area and income and expenses factor (R-Factor).
- During the exploration stage, the minimum binding investment agreed in the contracts is around 78.5 million euros, but it is estimated that the transaction will be more than double.

## **Minimum guaranteed investment for exploration**

30.9 million euro in the Ioannina area, 15,6 million euro in the Katakolon area, 32 million euro in the Patraikon area.

# **THE NEW ROUND OF CONCESSIONS 2014 -2015**

## **THE PROCESS HAS STARTED BUT THE TIMETABLE IS UNLIKELY TO BE KEPT**

- The starting date of the Licensing Round is the date of publication of the Notice of the Call for Tenders in the Official Journal of the European Union.
- Application Deadline 6 months after the publication.
- Offers Evaluation 3 months.
- Lease Agreement execution 3 months after evaluation completion.

# MAIN REQUIREMENTS FOR PARTICIPATION

- Before the submission of an Application for a Block, the following requirements should be fulfilled:
  - The Applicant should pay the Application Fee of EUR 2,000;
  - Purchase a minimum amount of 1500 line-km of the PGS MC2D-GRE2012 seismic data including all PGS MC2D-GRE2012 seismic data within the Block(s) applied for.
  - Purchase the 2D Interpretation Report of 2014 “New Exploration opportunities – Offshore Western Greece and South Crete” for EUR 50,000.
  - The Selected Applicant shall have the right to reimburse payments under b) and c) above, through the Royalty calculation mechanism.
  - The money paid for a), b) and c) will not be reimbursed under any other circumstances.
- Each Exploration Phase must include an agreed contractual Euro commitment (bank guarantee), corresponding to the estimation of the work programme. This amount will be used as financial guarantee in the event part or the entire minimum exploration work programme is not fulfilled.

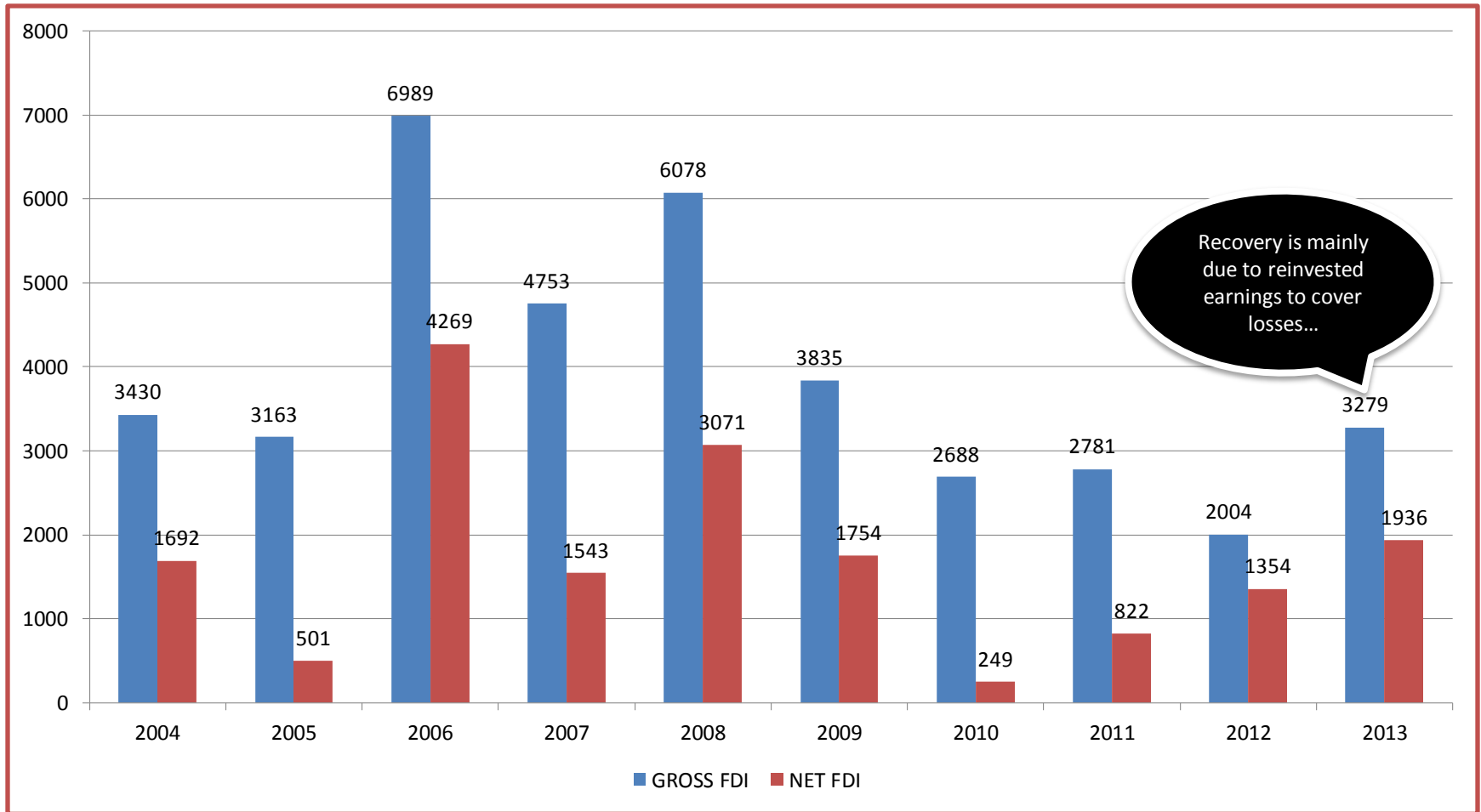
# THE EVALUATION PROCESS WILL BE LENGTHY WITH UNCERTAINTIES

- The Evaluation Committee will assign scores and decide on the ranking according to the published evaluation mark scheme.
- Applicants will be invited by the Evaluation Committee to negotiate competitively for the acreage offered. Negotiations will be conducted on the basis of the biddable items. More than one Applicant may be invited to negotiate for a particular Block.
- After the conclusion of negotiations, the Evaluation Committee shall submit in writing to the Minister for approval the ranking list followed by a proposal to the Minister to nominate the Selected Applicant for each Block.
- The Minister shall have complete discretion as to whether or not to award a Lease Agreement to an Applicant, and may take into account the recommendations of the Evaluation Committee to whatever extent the Minister deems fit, or take into account any other factors, or impose other conditions or requirements deemed desirable by the Ministry.



# **MIXED RESULTS IN ATTRACTING CAPITAL INVESTMENTS**

# FDI IN GREECE IS GRADUALLY RECOVERING

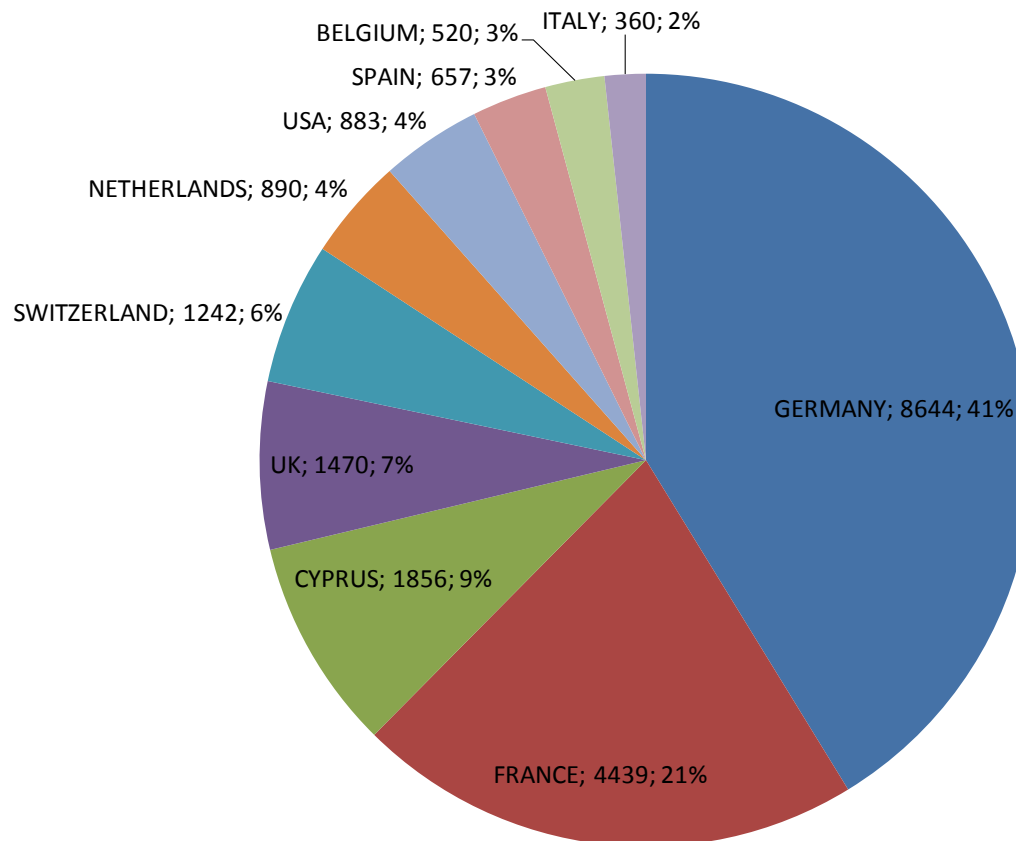


SOURCE: BANK OF GREECE 2014

Published also in <http://www.investingreece.gov.gr/default.asp?id=21>

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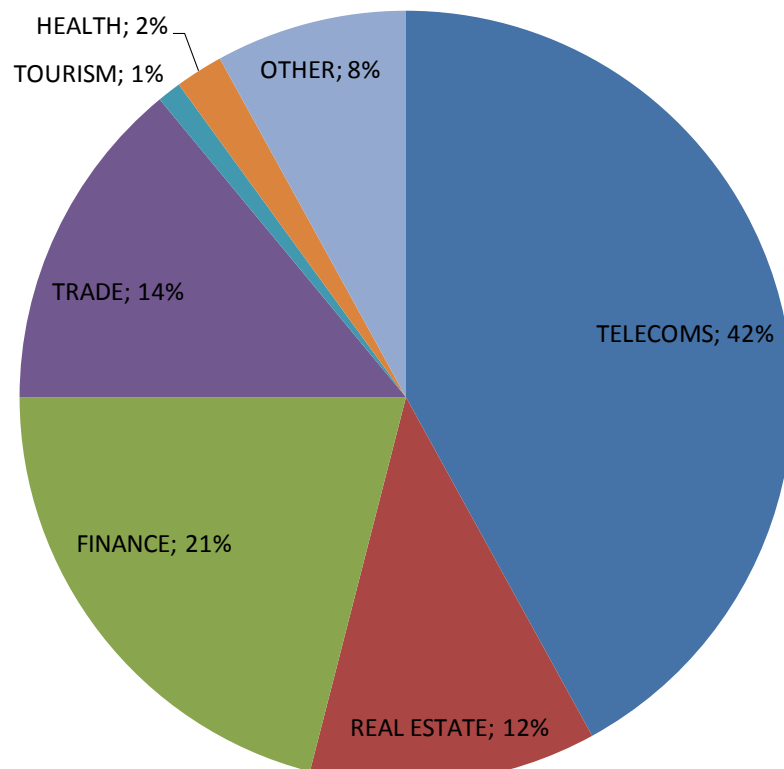
# FDI 2008-13 DOMINATED BY GERMANY AND FRANCE



SOURCE: BANK OF GREECE 2014

Published also in <http://www.investingreece.gov.gr/default.asp?pid=21>

# TELECOMS AND FINANCE DOMINATE FDI FLOWS 2008-13



Recapitalizing  
banks before  
disinvesting  
accounts for a  
large part of FDI...

SOURCE: BANK OF GREECE 2014

Published also in <http://www.investingreece.gov.gr/default.asp?pid=21>

# FDI ENVIRONMENT IS IMPROVING BUT KEY CONCERNS PERSIST

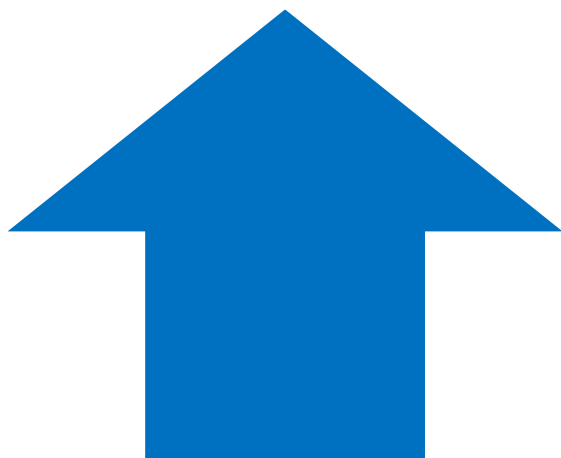
## ON THE POSITIVE SIDE

- Improved legislation and major reforms have created a more attractive investment environment.
- Doing Business in Greece Index markedly improved over the last 3 years.
- WEU Competitiveness Index also improving.

## ON THE NEGATIVE SIDE

- Political Risk remains relatively high as the opposition party retains an anti-privatization and anti-concession rhetoric.
- Greenfield Investments are facing major difficulties due to environmental concerns and an activist State Council.
- The State Council and the Audit Court have lately ruled against major privatization related investments for procedural or constitutional reasons.

# INVESTORS ARE PREPARED TO TAKE CONSIDERABLE RISKS

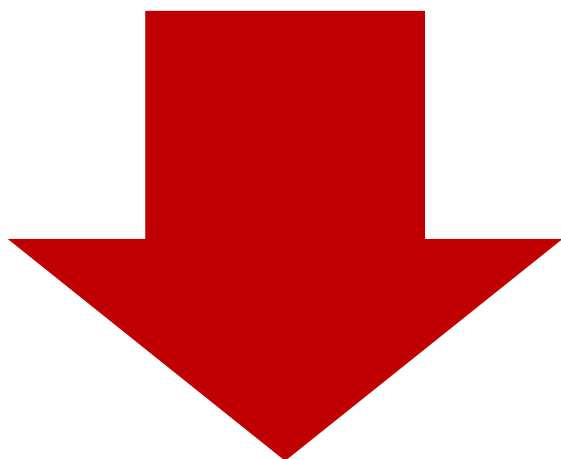


Some very prominent FDI successes include:

The COSCO investment in Pireas port.

The sale of a controlling stake in the lottery operator OPAP.

The participation of well known funds in a capital increase in EUROBANK earlier in 2014.



But difficulties persist:

The continuing difficulties with Gold mining in Northern Greece.

The State's Council ruling on water privatization.

The Auditors Court decision to halt the Hellinikon real estate development for procedural reasons.

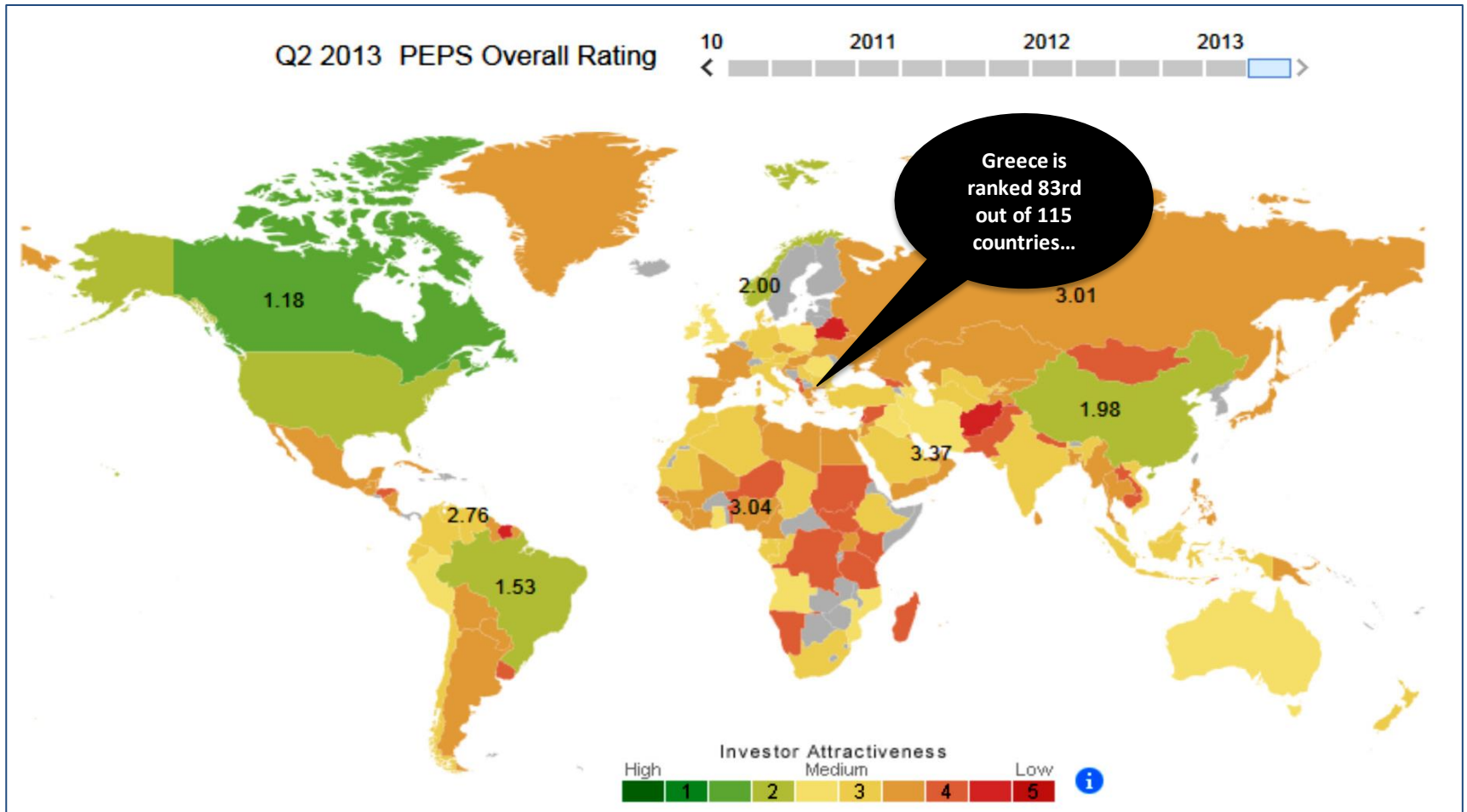
# POLITICS CONTINUE TO PLAY A MAJOR ROLE IN INVESTMENT DECISIONS

Statement (10/09/2014) by the pro SYRIZA Leader of the Region of Ionian Islands on the ratification of concessions by Parliament:

- “The party has in the past through the regional council stated and stressed the need to overthrow the current government policy that defends *private capital and foreign interests* ostentatiously ignoring the local communities and the decisions of the regional councils. The Region of Ionian Islands asks you to immediately stop the sale procedures of submarine processes and subsoil wealth in a fast track manner, which will bring incalculable impact on our seas and will affect the uniqueness of our islands and irreversibly affect tourism. We also ask you to provide specific answers to questions posed by the Ionian society for the protection of people's interests and the environment... *The prospect for us and our children would be catastrophic!*”



# LOW OVERALL RANKING ACCORDING TO PEPS

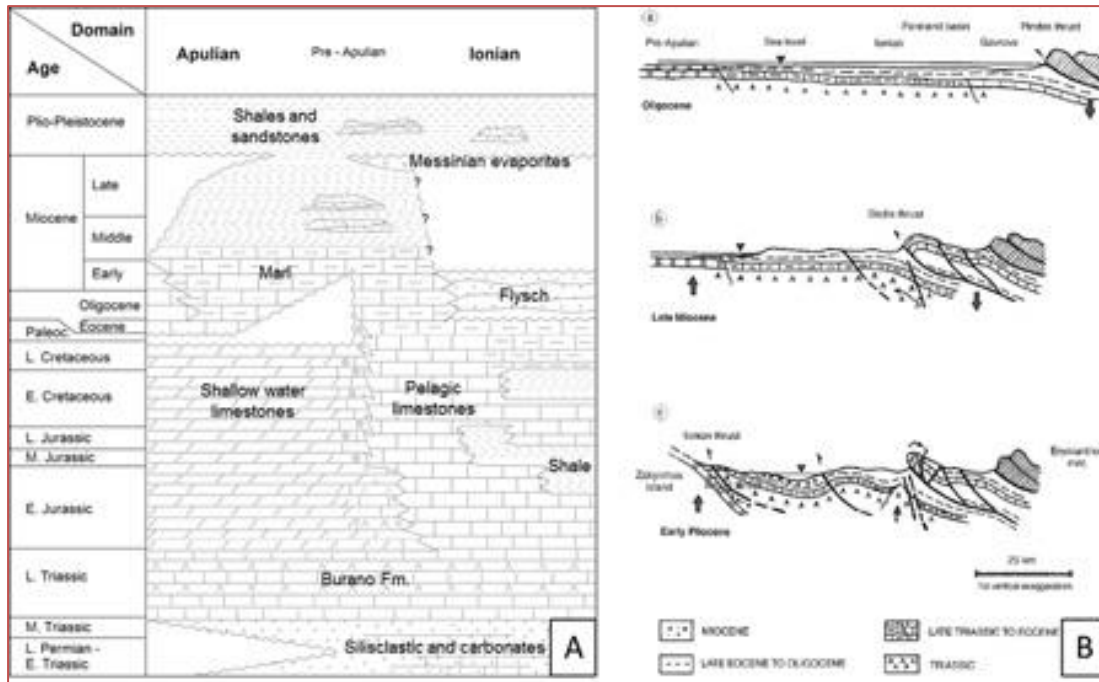


# **VIEW OF THE GEOLOGY IN GREECE**

# NORTH IONIAN SEA

- The offshore region of western Greece is on the western rim of the Hellenides, a west/southwest moving fold-and-thrust belt developed since the Late Cretaceous as a result of convergence and collision between the Eurasian and African plates.
- It is the south extension of the platform of Adriatic up to the great rift yards NW of Cephalonia.
- In the Italian Adriatic platform productive deposits have already been discovered. On the Italian side, several discoveries (e.g. Falco, Giove, and Rovesti) have been made on the eastern slope of the Apulian platform and on the platform itself. This trend is understood to extend into the North Ionian region.

# THE APULIAN PLATFORM



Schematic overview of the stratigraphy on the Apulian platform and in the Ionian and Paxi zones (modified from Argnani, 2013). Illustrated right is the west/southwest prograding fold and thrust belt from Oligocene to Pliocene.

# RESULTS OF LATEST RESEARCH IN NORTH IONIAN

- “One aim when acquiring the new dataset was to image deeper targets than previously possible, such as the Permian-Triassic shelf clastics, remnants of the African plate. This succeeded, showing a prominent deeper black reflector (peak – decrease in AI) marking the base of the carbonate succession and onset of what is inferred to be the older clastic sequence.
- Moving off the platform eastwards, further into the Paxi zone and then into the Ionian zone, the structures related to the prograding Hellenides fold-and-thrust belt become more prominent. Results show a clearly imaged fault-related anticline located along the same northwest/southeast trend as Paxos Island, where along its northeastern edge, several related thrusts and synclines are shown. Improving the imaging of the anticlines facilitates the interpretation and identification of potential sub-thrust targets. These have proven to be an important trap type in Albanian fields”.

**Mari Schjeldsøe Berg, Jörn Fürstenau, Petroleum Geo-Services and Spyridon Bellas**  
*YPEKA (2014) “Exploring Greece with a new subsurface perspective”.*

# CENTRAL IONIAN SEA

- The Ionian zone in Greece – a geotectonic zone related to the Hellenides – extends northwards into Albania, which contains the largest onshore oilfield in Europe, the Patos-Marinza field.
- The already discovered deposit in West Katakolon confirms the existence of an active petroleum system.
- The stratigraphy of the external Hellenides is dominated by Late Permian shelf clastics, Triassic evaporites and dolomites, and Early Mesozoic shallow-water carbonates. As the rifting of the southern Tethys margin continued, the Ionian zone was dominated by deepwater carbonates and inter-fingering shale layers, whereas the shallow-water carbonates continued to dominate the Apulian platform.

# RESULTS OF LATEST RESEARCH IN CENTRAL IONIAN

- “The Triassic evaporites are mobilized and flow along the major thrust and faults associated with the progradation of the fold-and-thrust belt. Shallow salt structures often associated with back-thrusts are created as a result. Located eastwards, the Ionian zone was affected at an earlier stage than the Apulian platform, by the Hellenides thrusting. The Ionian zone was part of the Pindos Foreland, where the clastic input from the prograding thrust front in the east led to a cessation in the carbonate production. This Oligocene flysch is seen to be, locally, both conformable with and onlapping the Eocene and older carbonates. The onset of movement of the Triassic salt along the thrust faults affected this flysch, creating upturned layers and possible traps adjacent to the thrusts”.

**Mari Schjeldsøe Berg, Jörn Fürstenau, *Petroleum Geo-Services* and Spyridon Bellas YPEKA (2014) “Exploring Greece with a new subsurface perspective”.**



## REGION WEST AND SOUTH OF CRETE

- The southern Ionian region covers the fore-arc region of Crete, with a geological setting differing from the Northern and Central Ionian regions.
- The area is largely influenced by overall subduction of the African plate, with several strike slip faults creating pull-apart basins and push-up structures.
- This area remains largely unexplored with few geological data available due to the water depths.

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