



Harm**o**nization and Net**w**orking for contaminant assessment in the Ionian and Adriatic Seas

“Hydrocarbons Exploitation in Greece” (Exploration and Production)



Stakeholders Workshop, Split, 7th February, 2019

A. Beginning of the 20th century to early 60s

- Hydrocarbon exploration in Greece dates back to the beginning of the 20th century (**1903**). However, some evidence exists on earlier efforts in the early second half of the 19th century (**1860**).
- The first wells were drilled by companies like: ***London Oil Development, HELLIS, PAN-ISRAEL, DEILMAN-ILIO*** in the areas of Keri (Zante), NW Peloponnese and Evros in NE Greece.
- Exploration efforts were **discontinuous** up to the early 60s, and mainly focused on **on-shore areas**, characterized by surface oil shows, especially in Western Greece.

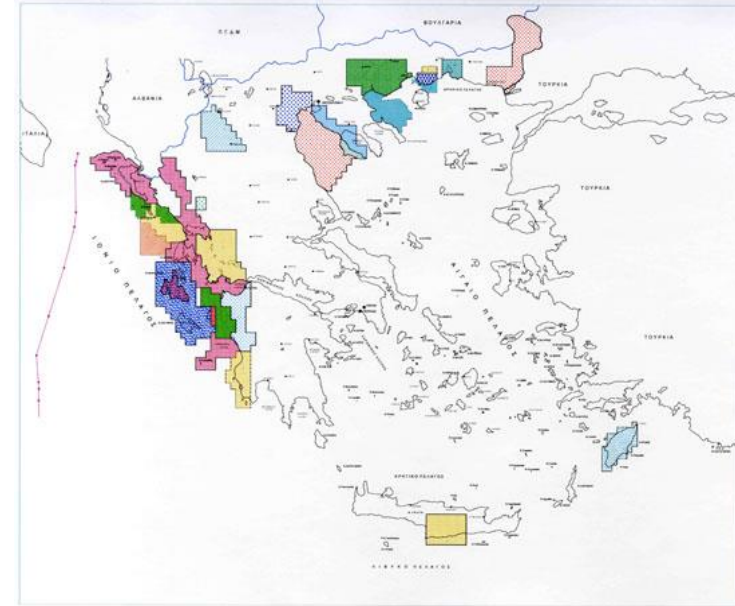
B. Early 60s to mid 70s

- In the early 60s , a systematic exploration effort started by the former **Ministry of Industry**, in close collaboration with the Institute of Geology and Mineral Exploration (IGME) and in close consultancy with the Institute Francais du Petrol (IFP).
- Extensive geological research was carried out, especially in continental Greece, and **17 shallow depth wells** were drilled.
- At the same time, concessions were granted to major companies, such as:

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- **BP** (Aitolokarnania area),
 - **ESSO** (NW Peloponnese, Zante and Paxi islands),
 - **HUNT** (Thessaloniki),
 - **TEXACO** (Thermaikos gulf),
 - **CHEVRON** (Limnos island),
 - **ANSCHUTZ** (Thessaloniki-Epanomi) and
 - **OCEANIC-COLORADO** (Thracian sea),
- which drilled, in total, more than **40 wells**, both on and off-shore.



- **Most of these wells** penetrated geological targets that gave, in some cases, encouraging hydrocarbon indications and, at the same time, **contributed significantly to the improvement of the geological background** and the continuously evolving interest concerning the hydrocarbon potential of the country.
- The final result of the exploration that took place during that time was the discovery of the **first exploitable hydrocarbon reserves** in the off-shore area of **Thasos island** (**Prinos oil-field and South Kavala gas-field**) by **OCEANIC (1971-1974)**.

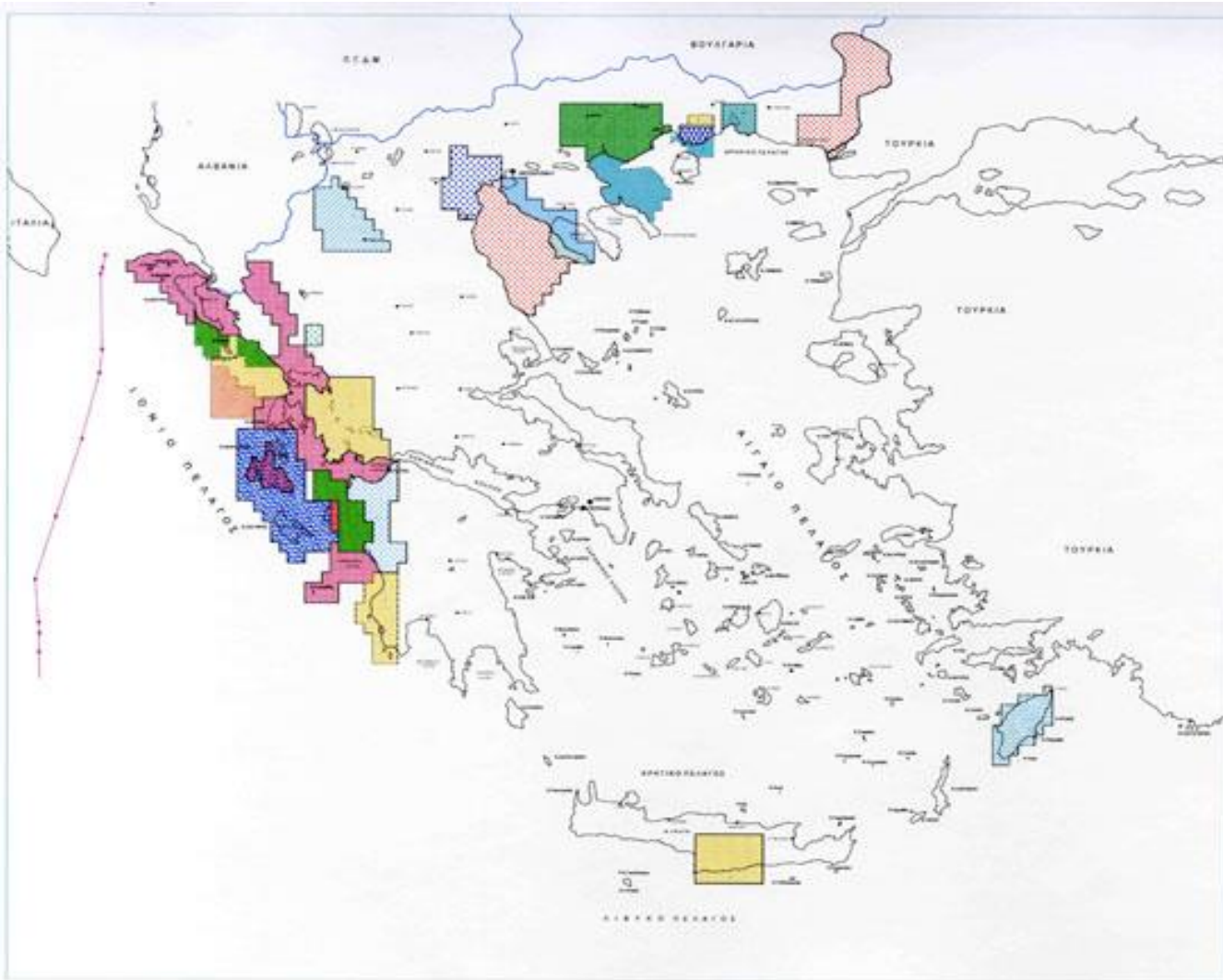
C. Mid 70s to mid 90s

- On the basis of the above achieved results, the establishment of the first public body oriented to hydrocarbon prospecting, exploration/exploitation was decided in **1975**, leading to foundation of the **Public Petroleum Corporation (DEP)**.
- Next year (**1976**) the Greek parliament approved the first law governing hydrocarbon exploration (**L. 468/76**).
- During this period, **exploration** was carried out by **DEP** until 1995 when a new law came into effect ([L. 2289/95](#)).
- In **1985** the **Public Petroleum Corporation-Exploration and Exploitation of Hydrocarbons (DEP-EKY)**, subsidiary company to DEP, was founded.

The Greek government granted to the aforementioned two companies [24 on-shore and off-shore areas for hydrocarbon prospecting, exploration and production](#).

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24 on-shore and off-shore areas for hydrocarbon prospecting, exploration and production granted in DEP-EKY in 1985.

On these areas a total of 73.000 Km of 2D and 2,500 km² of 3D seismic survey lines were carried out and on the basis of seismic surveys' interpretation 73 exploration wells were drilled.

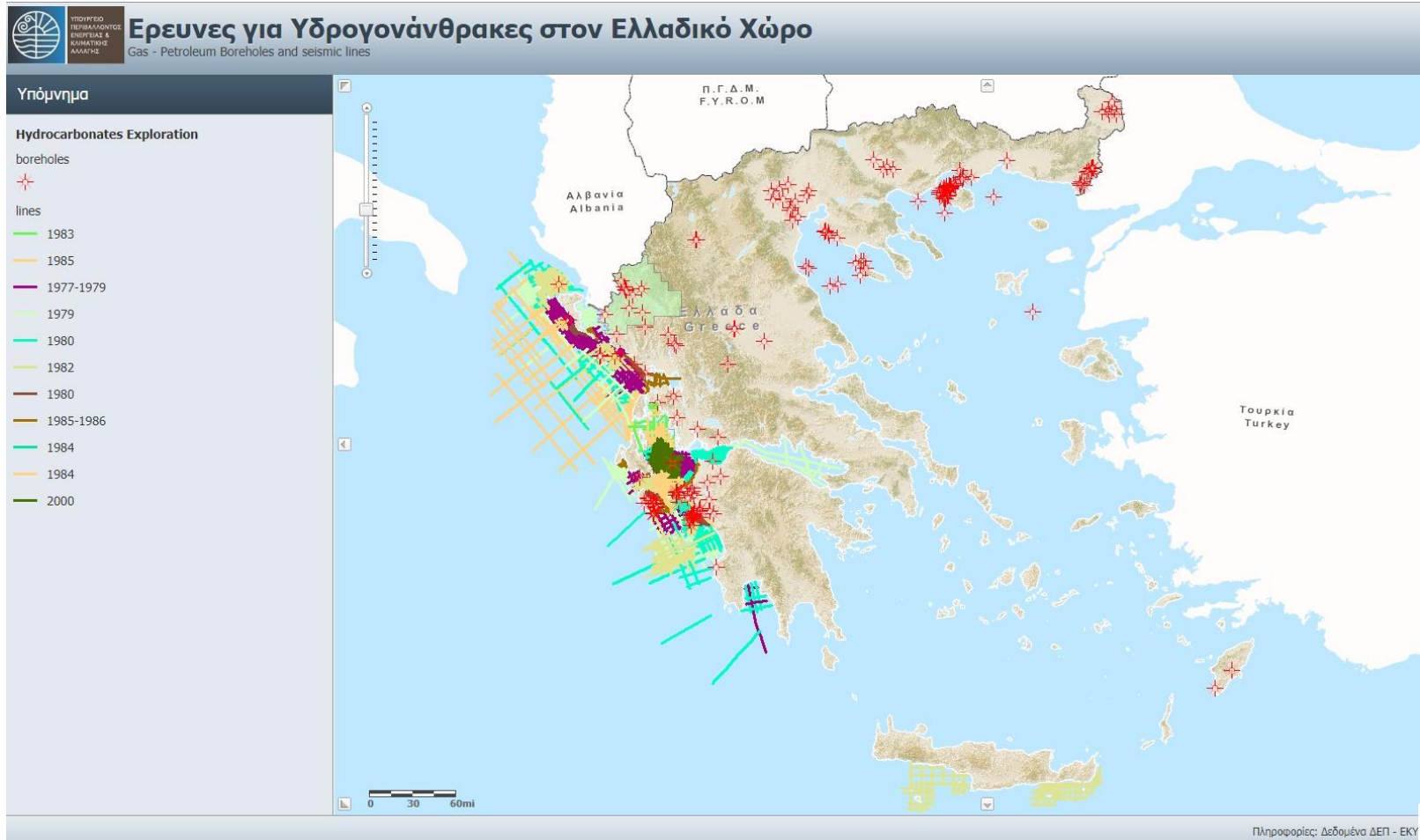
(Exploration and Production)

Ministry Of Environment and Energy

<http://www.ypeka.gr>

Map of seismic line data

<http://www.latomet.gr/HyrdoCApp/index.html>

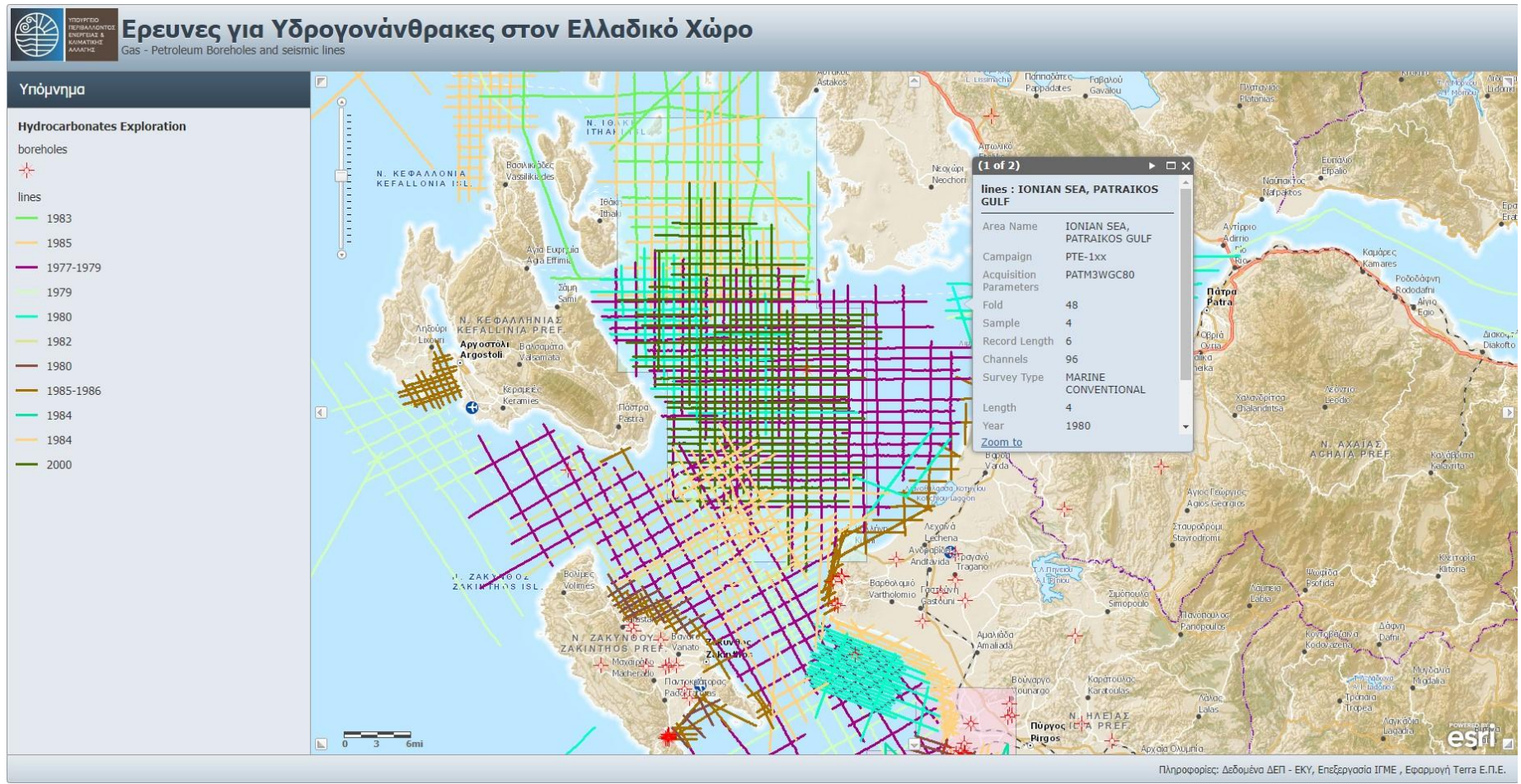


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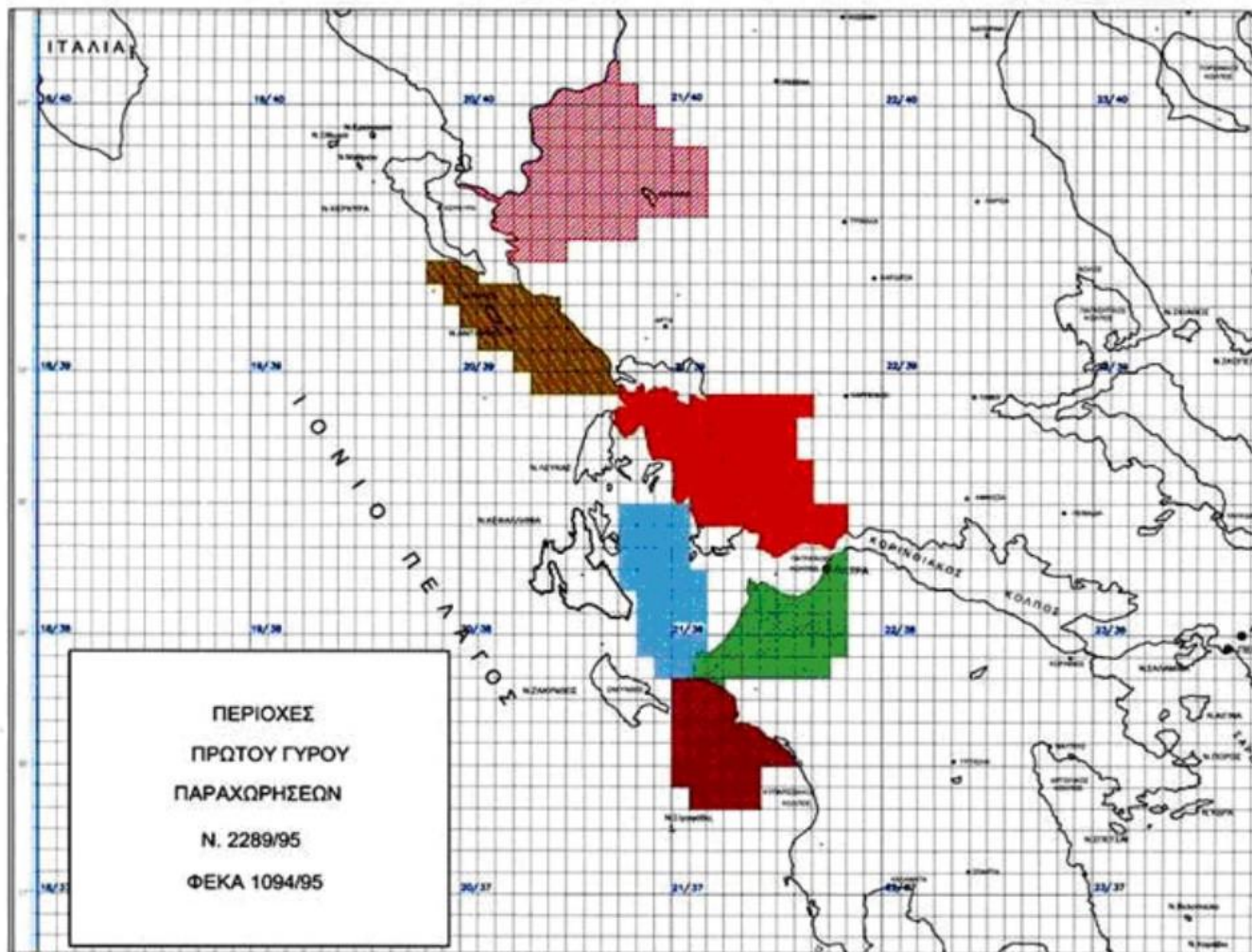
(Prospecting-Exploration Exploitation)

- The main outcome of the above exploration activity (**Mid 70s to mid 90s**) was the **discovery of oil** in the **off-shore Katakolo** area in **NW Peloponnese**, gas in Epanomi, an area adjacent to Thessaloniki in Northern Greece, and, in some instances, biogenic gas accumulations.
- During this period, **an in-depth knowledge** of the potential petroleum systems in the Hellenic region was acquired – i.e.:
 - ✓ structural/stratigraphic traps,
 - ✓ reservoir rocks,
 - ✓ cap rocks,
 - ✓ source rocks,

THUS a large amount of data and information were accumulated and helped the hydrocarbon exploration in the following years.

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D. Mid 90s to early 00s

- In 1995, the [law 2289/95](#), which adopted EC [Directive 94/22/EC](#), comes into effect.
- It reforms the provisions related to the exploration permits' regimes.
- In 1996 the [1st International Licensing Round](#), was performed, involving 6 concession areas.

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- As a result of the above international tender, 4 licensees were finally granted:
 - ✓ NW Peloponnese and Ioannina to **Enterprise Oil**
 - ✓ Aitolokarnania and off-shore Western Patraikos Gulf to **Triton Ltd.**
- The total amount of **investment in seismic surveys** and drilling reached up to **85 M€**.
- The **surveys failed** to deliver results and **well drilling did not reach the depth provided** by the original agreements.
- *Two important targets were not investigated:*
 - ❖ In *Ioannina* deep drilling was abandoned due to serious technical problems and
 - ❖ in *Western Patraikos Gulf* the planned drilling program was not executed because of the acquisition of **Triton Ltd** by **Amerada Hess**.

Finally the companies withdrew in 2000-2001.

E. Early 2000s today

- After 2001, exploration activity almost ceases.
- In 2007, an amendment added in law **3587/2007** (article 20). The State **recalled all concession areas** formerly granted to DEP/DEP EKY (except **Prinos area**, where Hellenic Petroleum SA participates in).
- The former legal procedure of granting exploration/exploitation rights (L. 2289/95), was reformed by the Greek Parliament and a new [law 4001/2011](#), with an attractive investment environment is established.
- Also with this Law the **Hellenic Hydrocarbons Management Company S.A. (HHMC)** is **established**. This company undertook the responsibility to organize and execute all the relevant exploration and/or production tenders, evaluate the offers, select the winners, prepare the relevant contract agreements and constantly supervise their appropriate execution. <https://www.greekhydrocarbons.gr/>. Hellenic State is the sole stakeholder (100%).

The Legal framework today

According to the **Law 2289/1995, in conjunction with the new Law 4001/2011** the rights for prospecting, exploration and exploitation of hydrocarbons are granted on behalf of the Greek State, according to the following 3 procedures (Article 156, paragraph 17 L 4001/2011):

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- a) Either after **an invitation to tender, for the areas that are approved by the Minister of Environment and Energy**, published in the Government Gazette and sent for publication in the Official Journal of the European Union (90 days procedure).
- b) Or **after submission of application by an interested party for an area which is not included in the invitation to tender according to case a**. The H.H.R.M. SA, if the application is accepted, **issues invitation to tender**, approved by the Minister of Environment and Energy, published in the Government Gazette and sent for publication in the Official Journal of the European Union. The deadline for the submission of offers by other interested parties is at least ninety (90) days from the day of the last publication.
- c) Or **after an open invitation (open door) for expression of interest, when the area for which the concession is requested is available on a permanent basis** or has been the subject of a previous procedure which has not resulted in the conclusion of a lease agreement or a production sharing agreement or has been abandoned by contractor, in the case that he has withdrawn from the agreement or has terminated it.

Today:

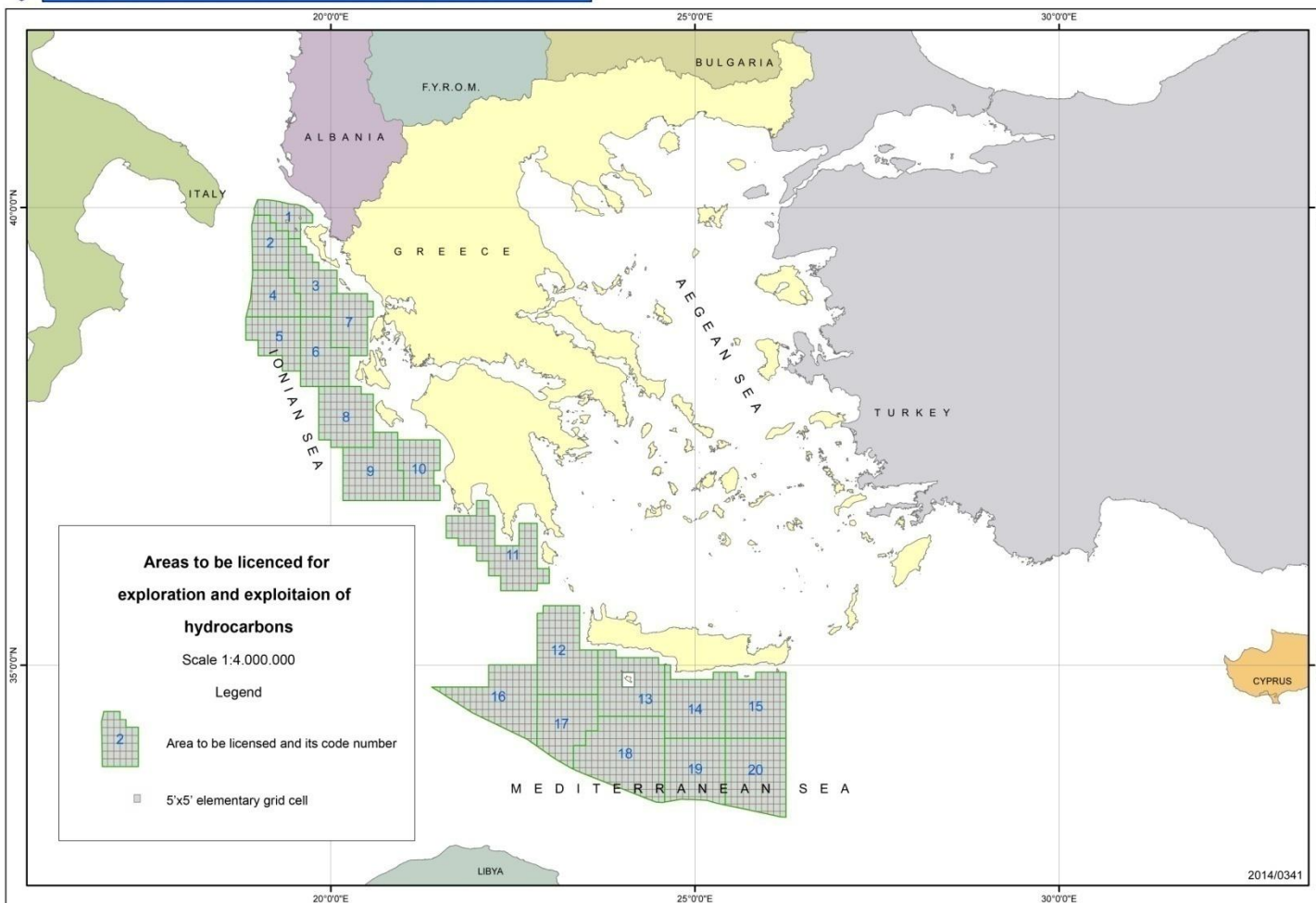
The interest is focused on case (c), since the country disposes a considerable number of areas that meet the above criteria and is believed that **the adoption of this procedure will accelerate the processes** and boost the exploration activities.

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Further after:

- The Ministry of Environment and Energy proceeded to an International Public Invitation for the Participation in non-exclusive seismic survey in offshore Western and Southern Greece.
- At the same time, State announced the intention of granting rights of exploration & exploitation in three areas (**Patraikos Gulf, Ioannina and Western Katakolo**) following the procedure of open invitation (“open door”) as described in [law 4001/2011](#).

THIS CHART HAS BEEN DESIGNED BY THE HELLENIC NAVY HYDROGRAPHIC SERVICE



Following this latest legal framework, the State proceeded on the 2nd International Licensing Round and on August 2014 released a **Call for Tenders for the exploration and exploitation of hydrocarbons in Offshore Greece.**

As a result:

Exploration

Onshore	Acreage (sq.km)	Licensees
Aitoloakarnania Block	4,360.3	REPSOL: 60% (operator under approval process) ENERGEAN OIL&GAS: 40%
Ioannina Lease	4,187	REPSOL: 60% (operator) ENERGEAN OIL&GAS: 40%
Arta-Preveza Block	4,762.9	HELLENIC PETROLEUM: 100%
NW Peloponnese	3,778.3	HELLENIC PETROLEUM: 100%

Data from Hellenic Hydrocarbon Resources Management (HHRM)

<https://www.greekhydrocarbons.gr/index.html>

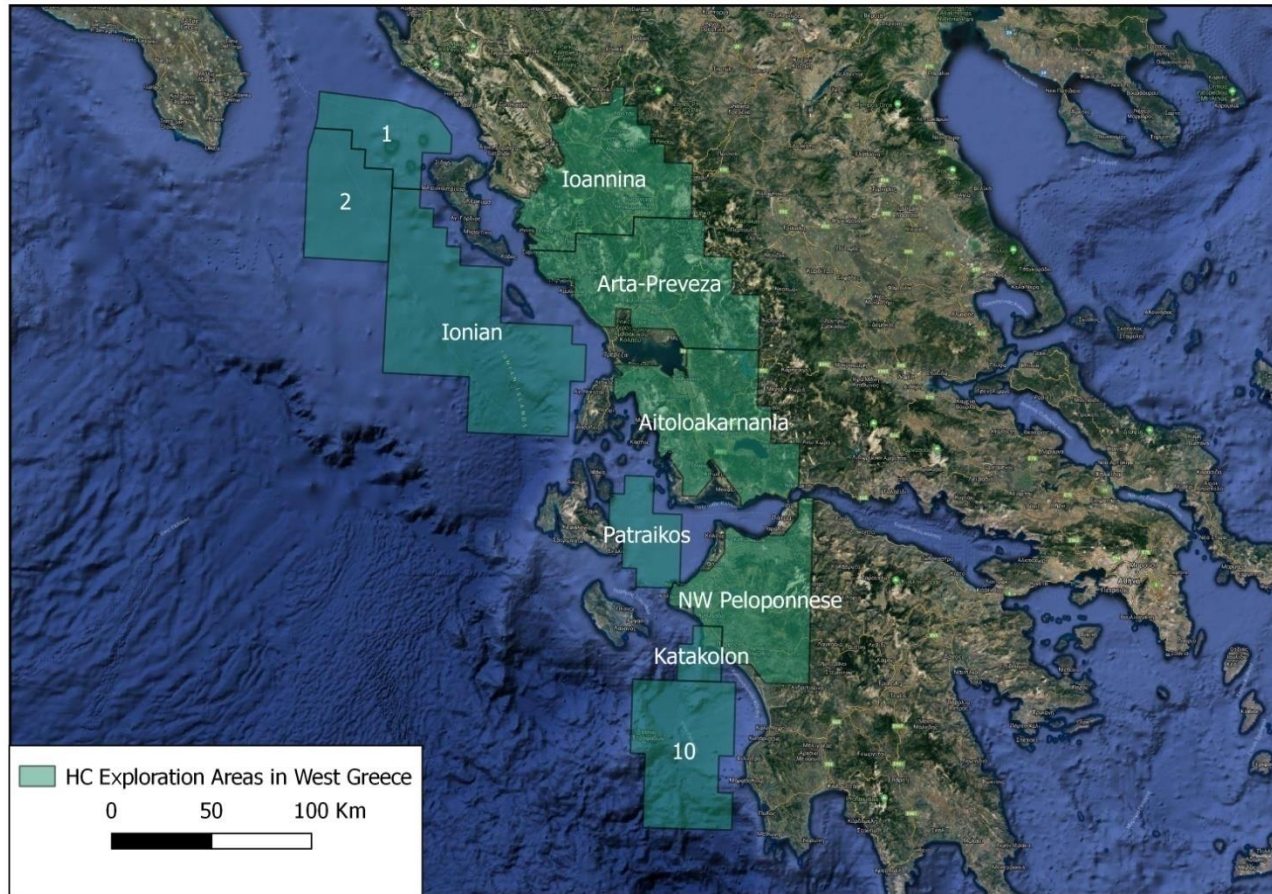
Exploration

Offshore	Acreage (sq.km)	Licensees
Katakolon Lease	545	ENERGEAN OIL&GAS: 100%
Patraikos Gulf (west) block	1,892	HELLENIC PETROLEUM: 50% (operator) EDISON: 50%
Sea of Thrace Concession	1,600	CALFRAC WELL SERVICES 75% (operator) HELLENIC PETROLEUM 25%"
West of Crete Block	20,058.4	TOTAL 40% (operator), EXXON MOBIL 40%, HEL.PE. 20 %
Southwest of Crete Block	19,868.37	TOTAL 40% (operator), EXXON MOBIL 40%, HEL.PE. 20 %
Block 1	1,801.7	HELLENIC PETROLEUM (preferred bidder)
Block 2 (west Corfu island)	2,422.1	TOTAL: 50% (operator) EDISON: 25% HELLENIC PETROLEUM: 25%
Block 10 (Kyparissiakos golf)	3,420.6	HELLENIC PETROLEUM (100%)
Ionian Block	6,671.13	REPSOL 50% operator, HEL.PE. 50%

Data from HRMM <https://www.greekhydrocarbons.gr/index.html>

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Exploration Blocks



UP TODAY PROGRESS

- Strategic Environmental Impact Assessments (SEIA) have been approved for all Blocks

Patraikos Gulf (west) block [HELLENIC PETROLEUM: 50% operator, EDISON: 50%]:

- ✓ The stage of 3D seismic surveys (1600 Sq.Km) with zero environmental footprint (phase 1) has been completed and the location of a well has been selected.
- ✓ Phase 2 has begun and will be completed by April 2020 (currently EIAs together with geohazard assessment are carried out).
- ✓ The third phase is estimated to finish on April of 2022 with the establishment of at least one well.
- ✓ The Estimated deposit capacity is of 100 million barrels.

Katakolo [ENERGEAN OIL & GAS 100%]:

- ✓ The exploitation phase is about to begin
- ✓ Production is estimated to start in 2020 with the construction of a land-based exploitation platform and underwater extraction.
- ✓ The estimated deposit capacity is of 10-12 million barrels.

UP TODAY PROGRESS

NW Peloponnese [HELPE 100%],

Arta-Preveza [HELPE 100%],

Aitoloakarnania [REPSOL: 60% operator, ENERGEAN OIL&GAS: 40%] :

- ✓ Contracts have been signed to conduct seismic surveys and have been ratified with the relevant laws:
L. 4524/2018 for Aitoloakarnania, L. 4526/2018 for Arta-Preveza L. 4527/2018 for NW Peloponnese,
- ✓ In **Arta Preveza** and **NW Peloponnese** phase 1 has started (that includes geological studies, recording – processing and interpretation of geophysical records and also EIAs studies).
- ✓ In **Aitoloakarnania** a Lease agreement has been signed and ratified by the Greek Parliament.

UP TODAY PROGRESS

Block no 2 “west Corfu” [TOTAL: 50% operator, EDISON: 25%, HELLENIC PETROLEUM 25%]

Block Ionio [EPSOL 50% operator, HELPE 50%]

Kyparissiakos Gulf «Block 10» of the Ionian Sea [HELPE 100%]

Southwest of Crete Block and West of Crete Block [TOTAL 40% operator, EXXON MOBIL 40%, HELPE 20%]

- ✓ Lease agreements have been signed and are expected to be ratified by the Greek Parliament.

As a conclusion :

- ☐ Law 4001/2011 has simplified the procedures concerning licensing of areas for exploration and production of Hydrocarbons.
That is verified also by the fact that big oil companies are today in Greece and invest in Hydrocarbons exploration/exploitation.
- ☐ All political parties are in favor of hydrocarbons exploitation.
- ☐ The **Public Petroleum Corporation (DEP)** and the succession company **HELPE S.A.** have a zero environmental footprint in the last 40 years.
- ☐ The environmental legislation in Greece is rigorous and all contractors involved in exploration and exploitation follow it strictly and also follow guidelines of **treaties** like **OSPAR** (Treaty for the Protection of the Northeast Atlantic Marine Environment), **The Barcelona Convention** (Convention for the Protection of the Mediterranean against Pollution), **International Convention MARPOL 73/78** (on the Prevention of Pollution from Ships).

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Thank you for your attention

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