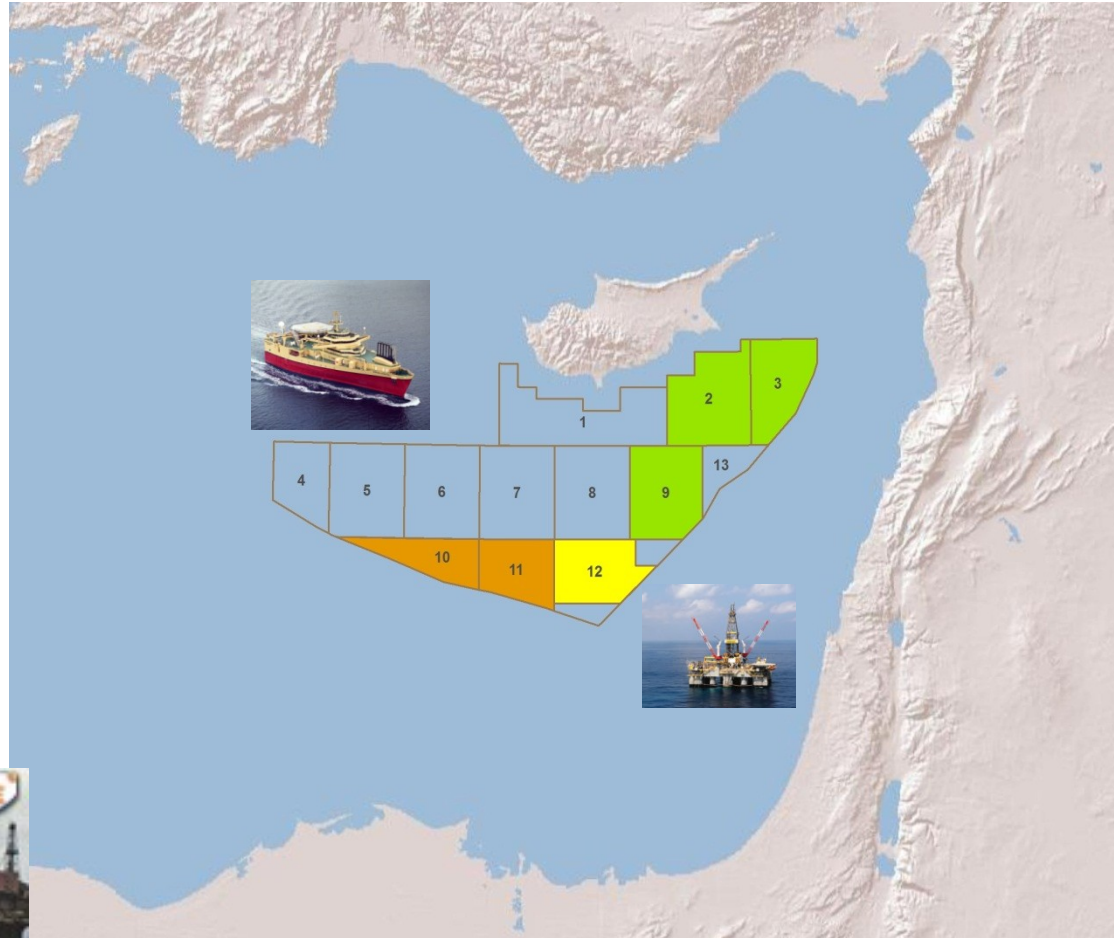


HYDROCARBONS IN CYPRUS: THE PAST, THE PRESENT AND THE FUTURE



Solon Kassinis
Managing Director



ΙΝΣΤΙΤΟΥΤΟ ΕΝΕΡΓΕΙΑΣ
ΝΟΤΙΟΑΝΑΤΟΛΙΚΗΣ ΕΥΡΩΠΗΣ



KASSINIS
INTERNATIONAL CONSULTING

FEW WORDS ABOUT THE SPEAKER...

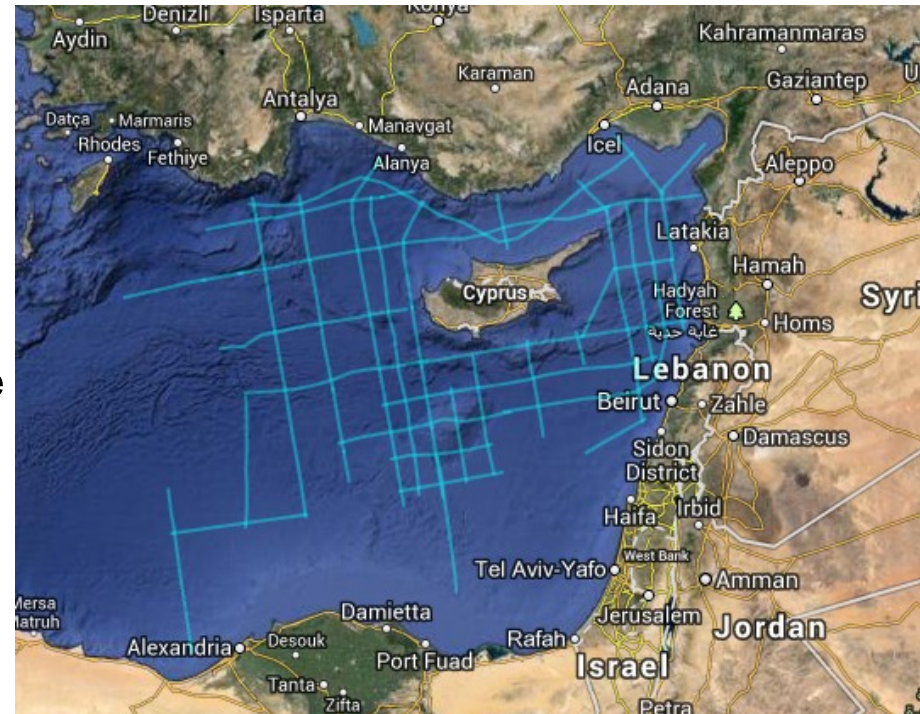
- Studied Chemical Engineering. – Holds BSc in Business Studies and Diploma in Marketing
- Worked for a short period of time for SASOL, on the coal to oil process conversion
- Joined the Geological Survey Department and involved for three years in the field of research and utilization of bentonites and other non-metal minerals
- Served the Public Sector of the Republic of Cyprus from various positions in the Ministry of Commerce, Industry & Tourism
 - 2004 - February 2013: Director of the Energy Service
 - 2005 – 2013: President of the Cyprus Institute of Energy & President of the Special Fund for RES and Energy Saving
- Closely associated with the oil and gas industry for more than 35 years
- Through his positions in the Ministry he was dealing with the development of the hydrocarbon exploration activities offshore Cyprus:
 - Chief negotiator with the oil companies during the 1st Licensing Hydrocarbon Round
 - Member of the negotiating team during the 2nd Licensing Hydrocarbon Round
 - Crucial contribution in the negotiations process pertaining to the delimitation agreements of the Exclusive Economic Zone of the Republic of Cyprus with the neighboring countries
- From March 1, 2013 to September 30, 2013, Executive Vice President of the Cypriot National Hydrocarbons Company
- Keynote speaker in plethora of international oil & gas conferences
- President of the 'SOLON KASSINIS ENERGY TRAINING SCHOOL & RESEARCH CENTRE'

FEW PHOTOS ABOUT THE SPEAKER...



FIRST EFFORTS...WITH NO SUCCESS

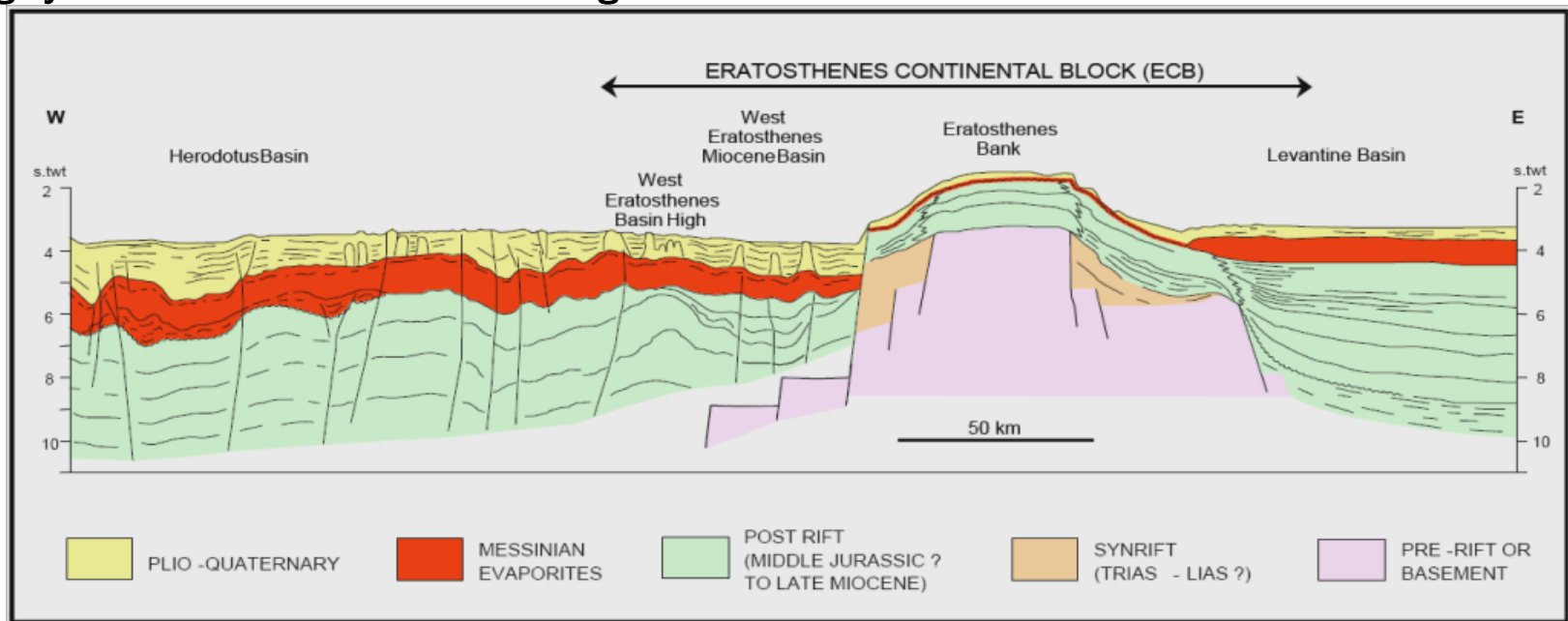
- 1938 -1949: The Petroleum Development (Cyprus) Ltd (subsidiary of the Iraq Petroleum Company) carried out geophysical surveys at Akrotiri, Cavo Greco, Agios Theodoros Larnaca, Agios Thomas Limassol and Agia Marina Nicosia, with no success
- 1949-1955: Exploration Well at Moni Limassol by Prospectors Ltd (1,799 m total depth)
- 1957: Exploration Well at Tseri by Prospectors Ltd (1,250 m total depth)
- 1957: The Forest Oil Company performed onshore & offshore geological and geophysical surveys
- 1969: Exploration Well by Forest Oil Company at Archaggelos Nicosia (2,583 m total depth)
- 1970: Exploration Well by Forest Oil Company at Lefkoniko (3,295 m total depth)
- 1975: Acquisition of 8,000 km 2D offshore seismic data by Sefel Geophysical Ltd (in collaboration with Delta Exploration Inc.) in the Eastern Mediterranean
- 1985-1987: Studies by the Soviet Academy of Sciences (in collaboration with the Geological Survey Department) on the seabed bathymetry, stratigraphy, lithology, sediments etc.



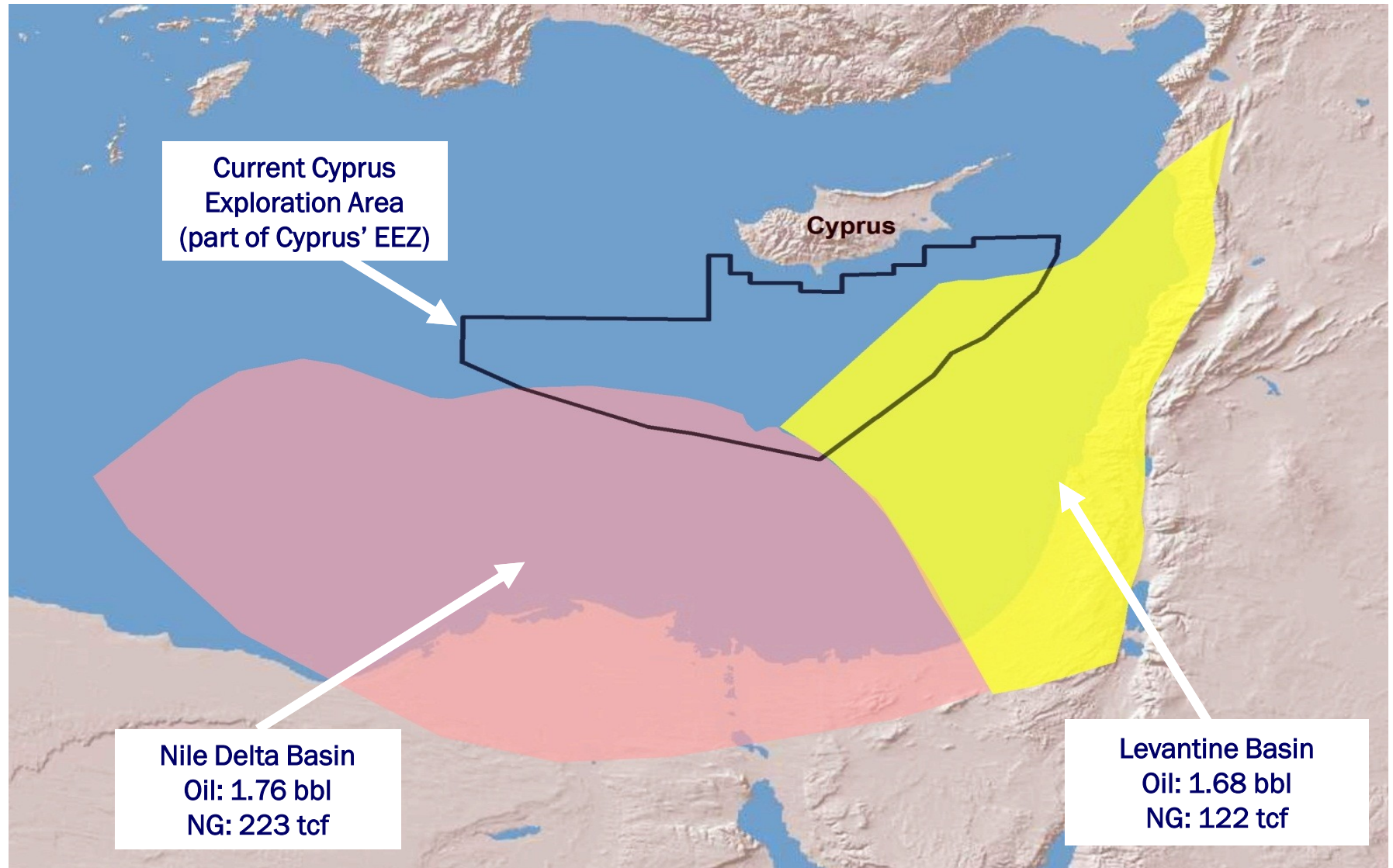
BUT THE INDICATIONS LOOK POSITIVE...

OFFSHORE CYPRUS:

- A promising regional geological setting
- A great number and variety of “play concepts” for exploration associated to the different tectonic and stratigraphic domains
- An efficient regional seal: Messinian Evaporites Very thick sedimentary basins (12-15 km)
- Multiple possible clastics and carbonate reservoirs
- Big hydrocarbon discoveries in the region



HYDROCARBON POTENTIAL – USGS ESTIMATES



EXPLORATION ACTIVITIES: MARITIME BOUNDARIES

MARITIME BOUNDARIES

▪Arab Republic of Egypt

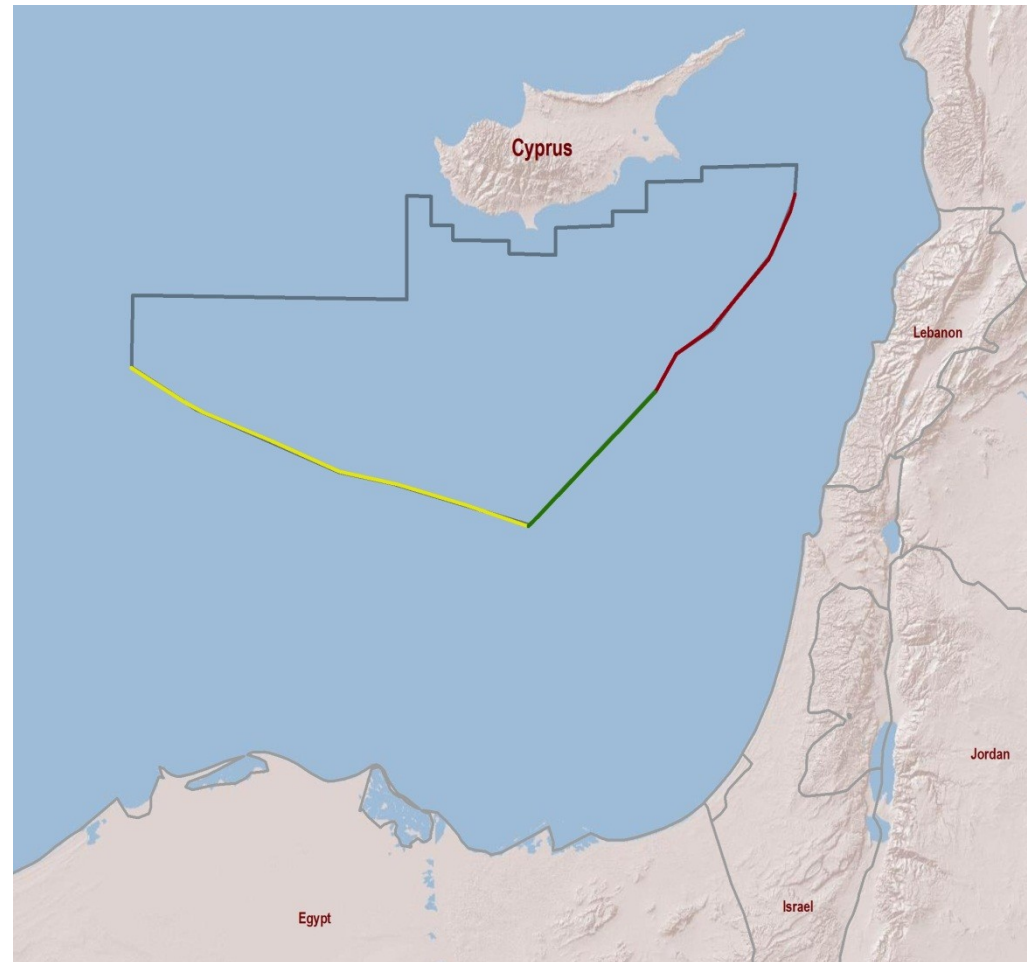
- Delimitation of the EEZ – 2003 (ratified)
- Framework Agreement concerning the development of cross-median line hydrocarbon resources – 2006

▪Republic of Lebanon

- Delimitation of the EEZ – 2007 (ratification is pending)

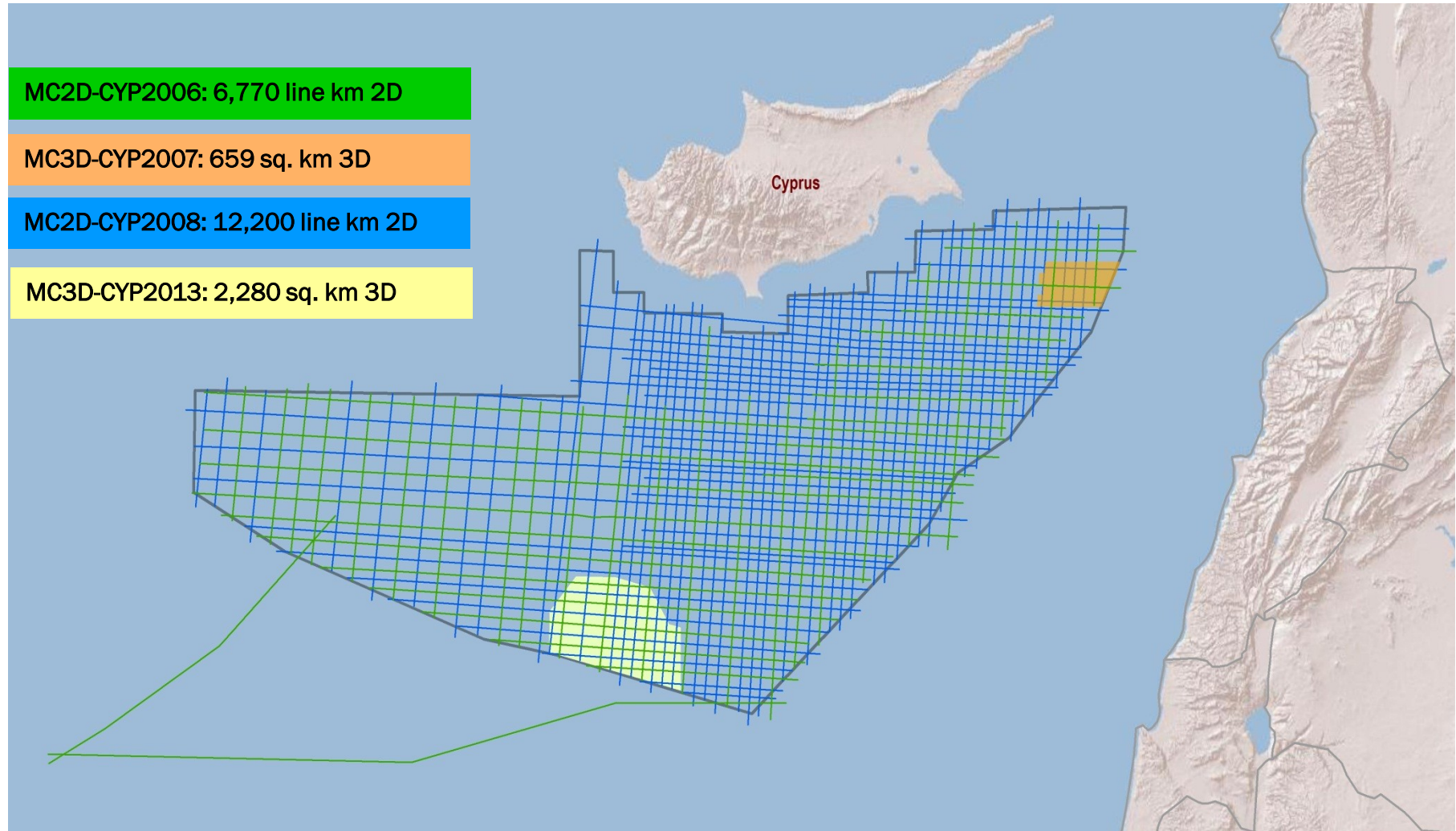
▪State of Israel

- Delimitation of the EEZ – 2010 (ratified)
- Framework Agreement concerning the development of cross-median line hydrocarbon resources – (negotiations are underway)



EXPLORATION ACTIVITIES: SEISMIC SURVEYS

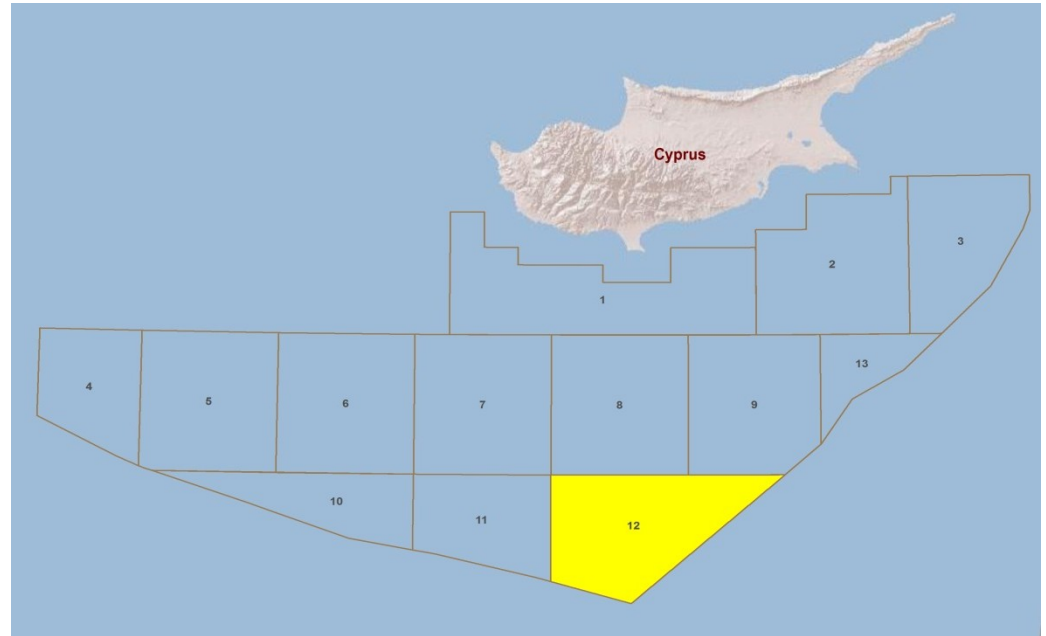
MULTICLIENT SEISMIC SURVEYS



EXPLORATION ACTIVITIES: 1st LICENCING ROUND

1ST LICENSING ROUND

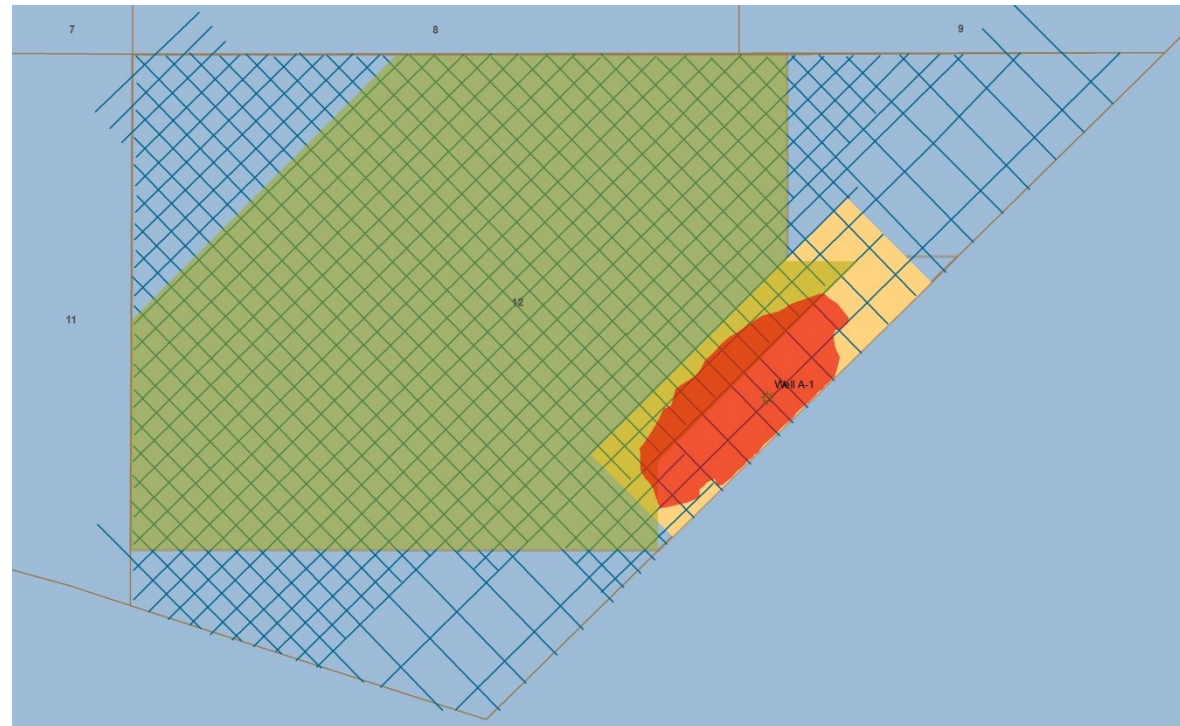
- Feb. – Aug. 2007
- 11 Blocks were offered
- 3 Applications were submitted
- 24 Oct. 2008: An Exploration Hydrocarbon License was awarded to Noble Energy International for Block 12



EXPLORATION ACTIVITIES: BLOCK 12

BLOCK 12

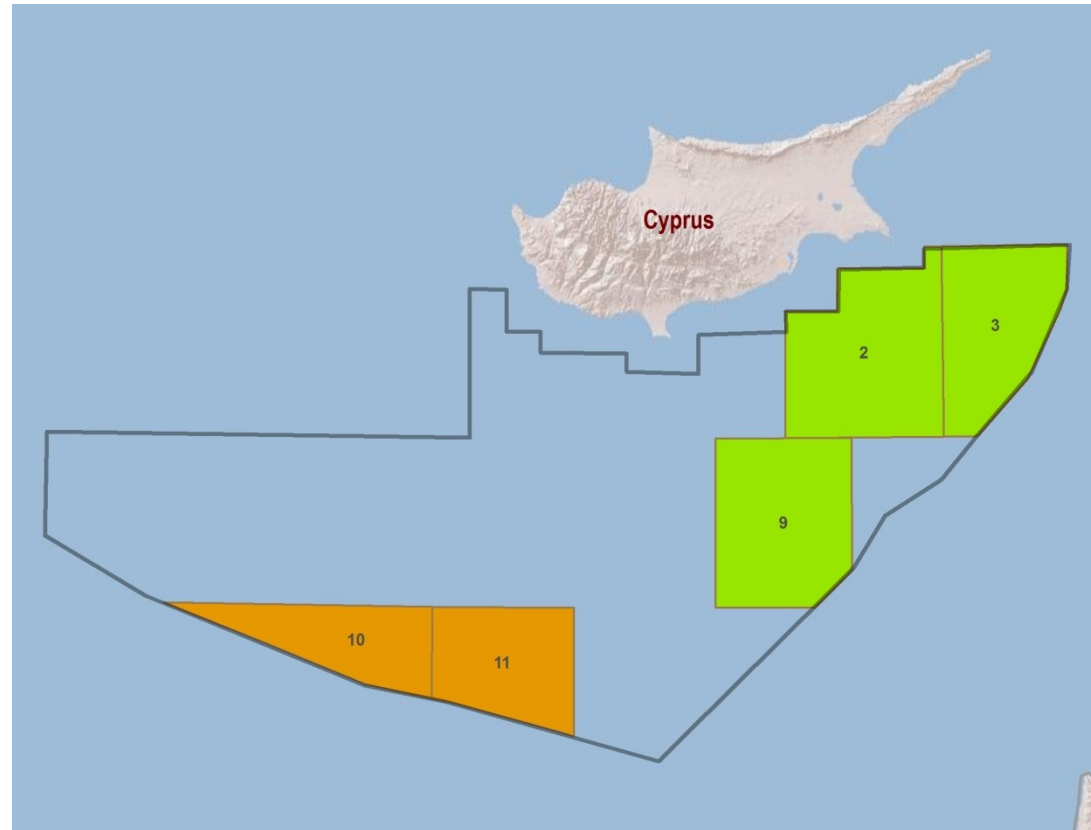
- Oct. 2008: Award of Exploration License & PSC
- Sept. 2009: 3D Seismic Survey (469 sq. km)
- Jun. 2011: 2D Seismic Survey (4,000 km)
- Sept. 2011: First Exploration Well Spud (5,860 total depth)
- Oct. 2011: First Renewal of the Exploration License – 25% of the area was relinquished
- Jan. 2012: Announcement of NG discovery – avg. 7tcf
- Feb. 2013: Farm-in of Delek Group by 30%
- Jun. 2013: 3D Seismic Survey (2,800 sq. km)



EXPLORATION ACTIVITIES: 2nd LICENSING ROUND

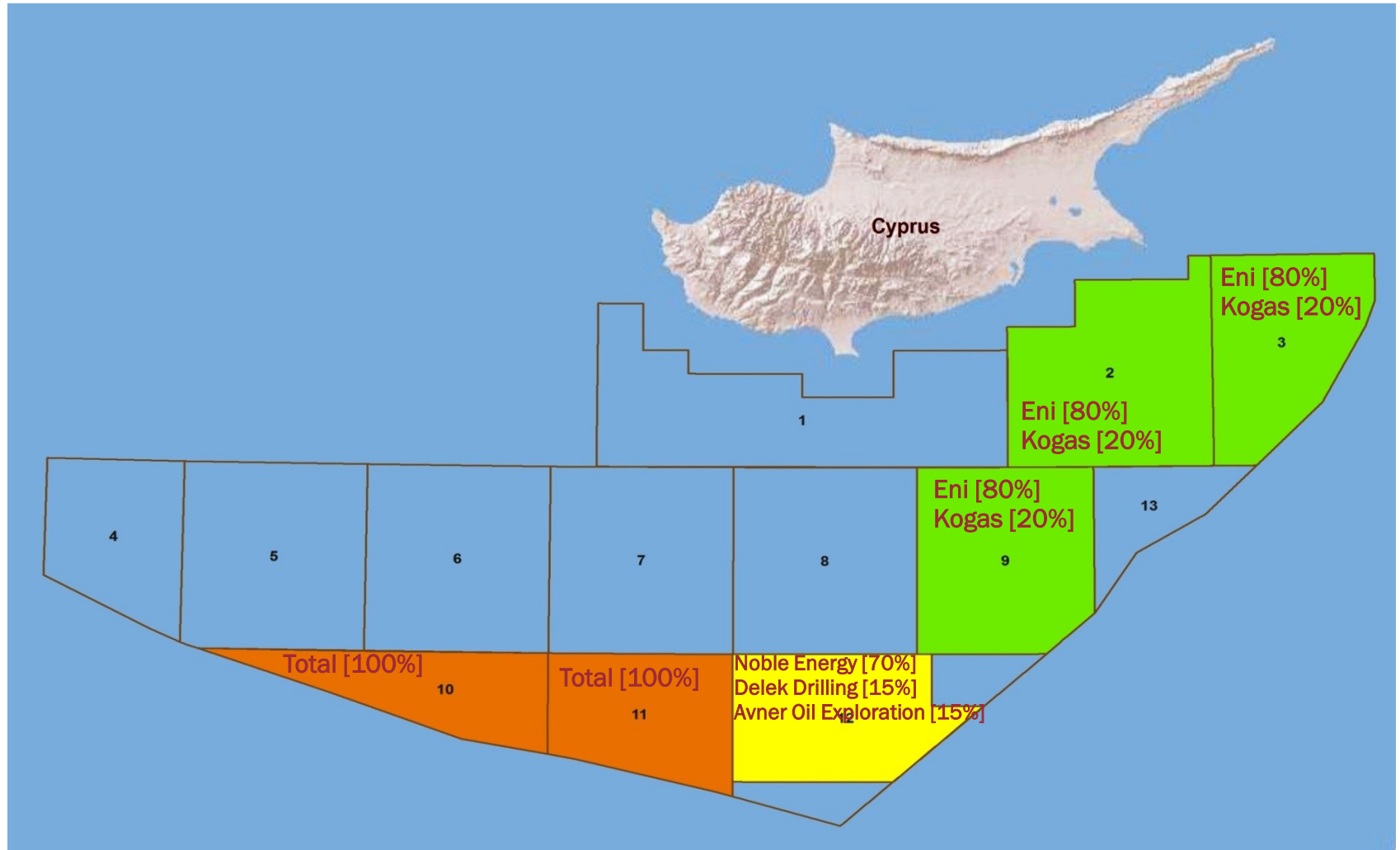
2ND LICENSING ROUND

- Feb. – May 2012
- 12 Blocks were offered
- 33 Applications were submitted
- 15 Applicants
(Companies/Consortia)
- 24 Jan. 2013: Three Exploration Hydrocarbon Licenses were awarded to Eni/Kogas for Blocks 2, 3 & 9
- 06 Feb. 2013: Two Exploration Hydrocarbon Licenses were awarded to Total for Blocks 10 & 11



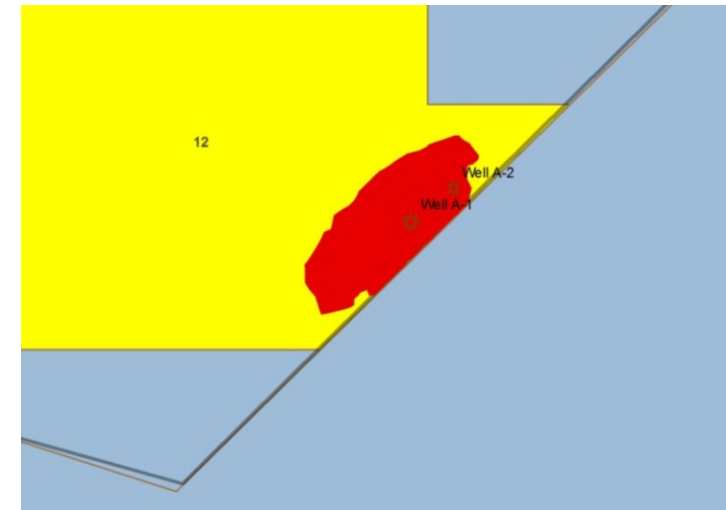
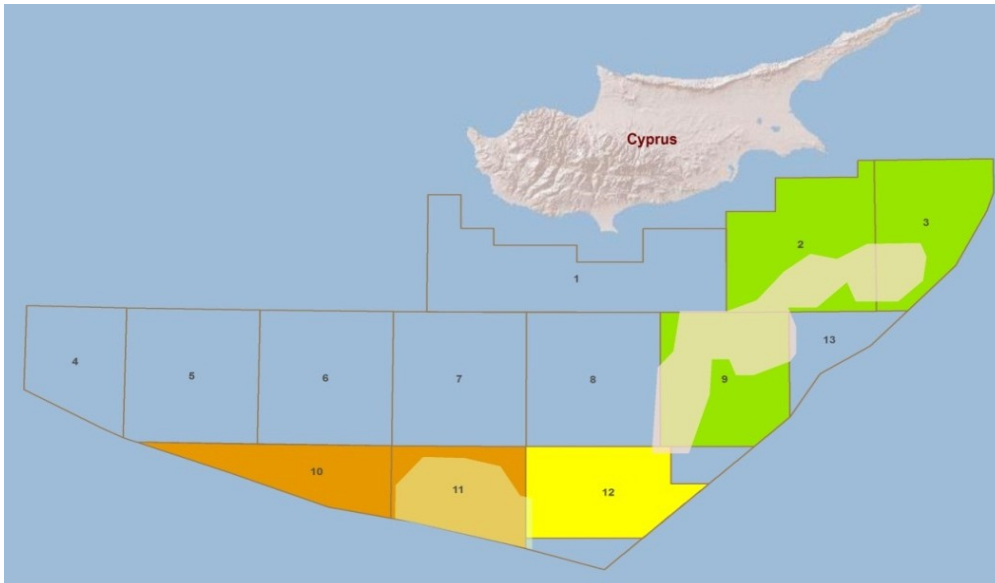
EXPLORATION ACTIVITIES: LICENSES

HYDROCARBON EXPLORATION LICENSES

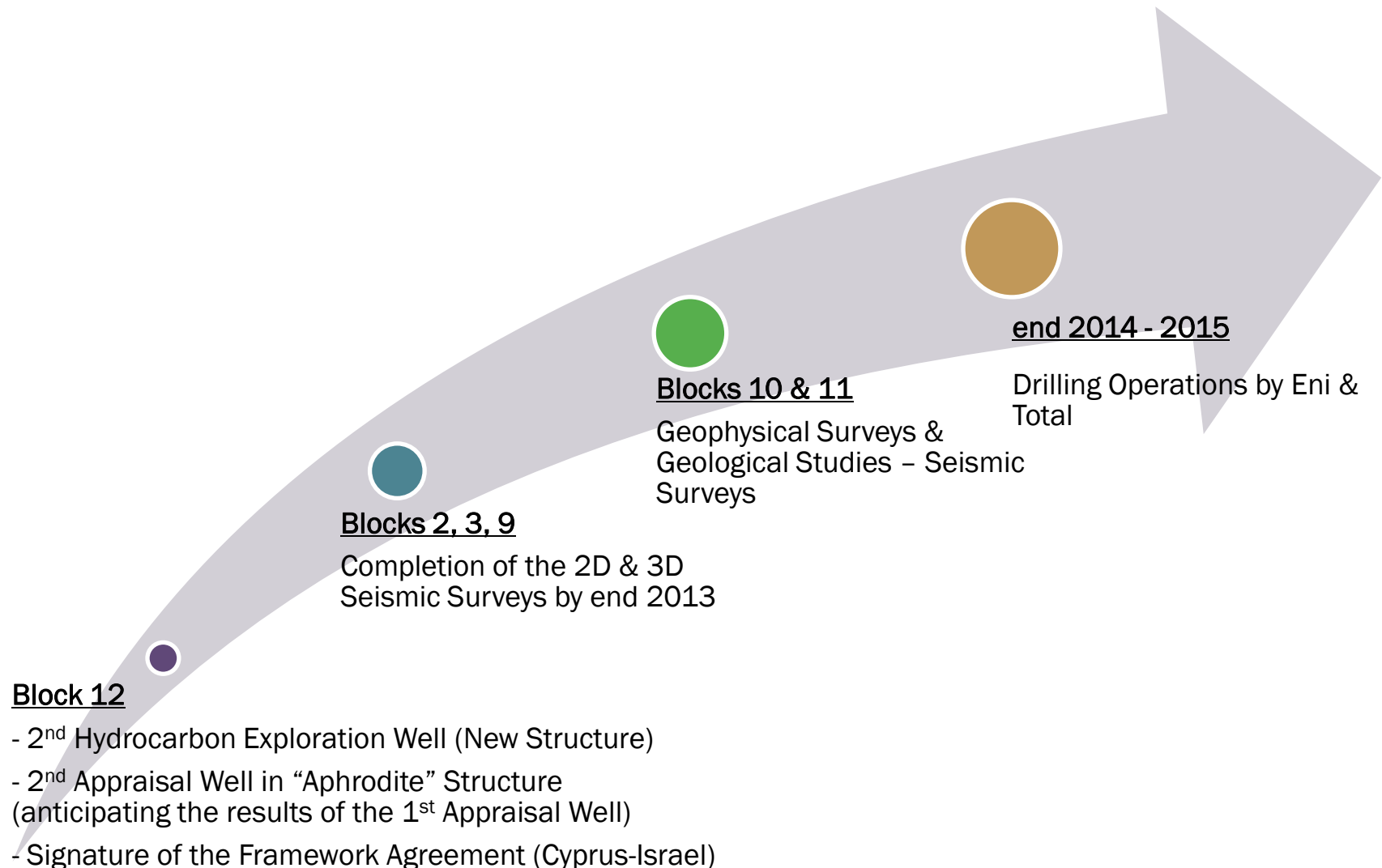


EXPLORATION ACTIVITIES: DEVELOPMENTS TO DATE

- June 2013: Appraisal Well Spud (5,751 total depth, drilled by 'ENSCO 5006' platform) in Block 12
- Sept. 2013: Drill Stem Test in Block 12 ("Aphrodite" Structure)
- 13 October 2013: Noble Energy announced the preliminary results from the Block 12 appraisal well
 - 3.6tcf – 6tcf NG (based on the 75th and 25th percentiles)
 - avg. 5tcf Natural Gas
 - 250 million cubic feet per day production capacity
- 3D Seismic Surveys in Blocks 2, 3 & 9: 4,700 sq. km

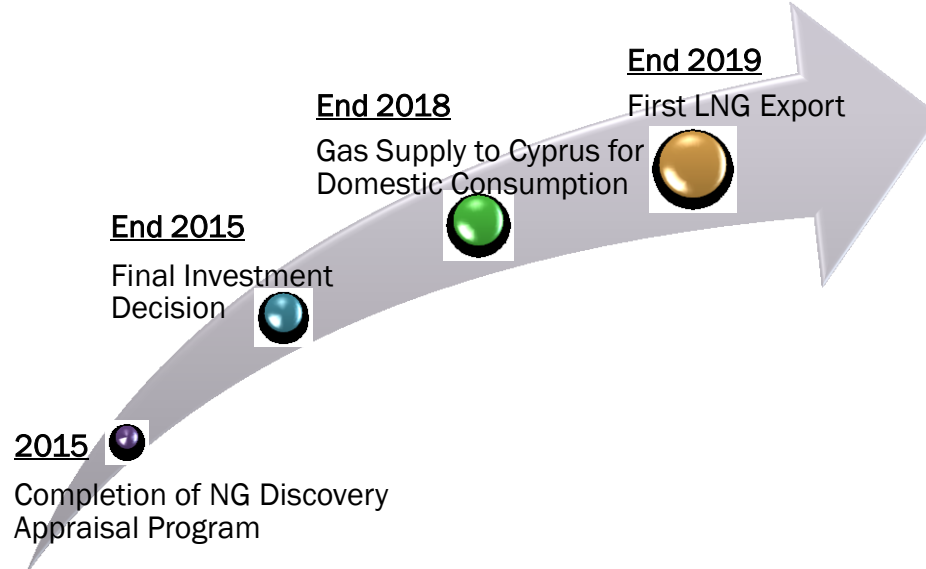


EXPLORATION ACTIVITIES: NEXT STEPS

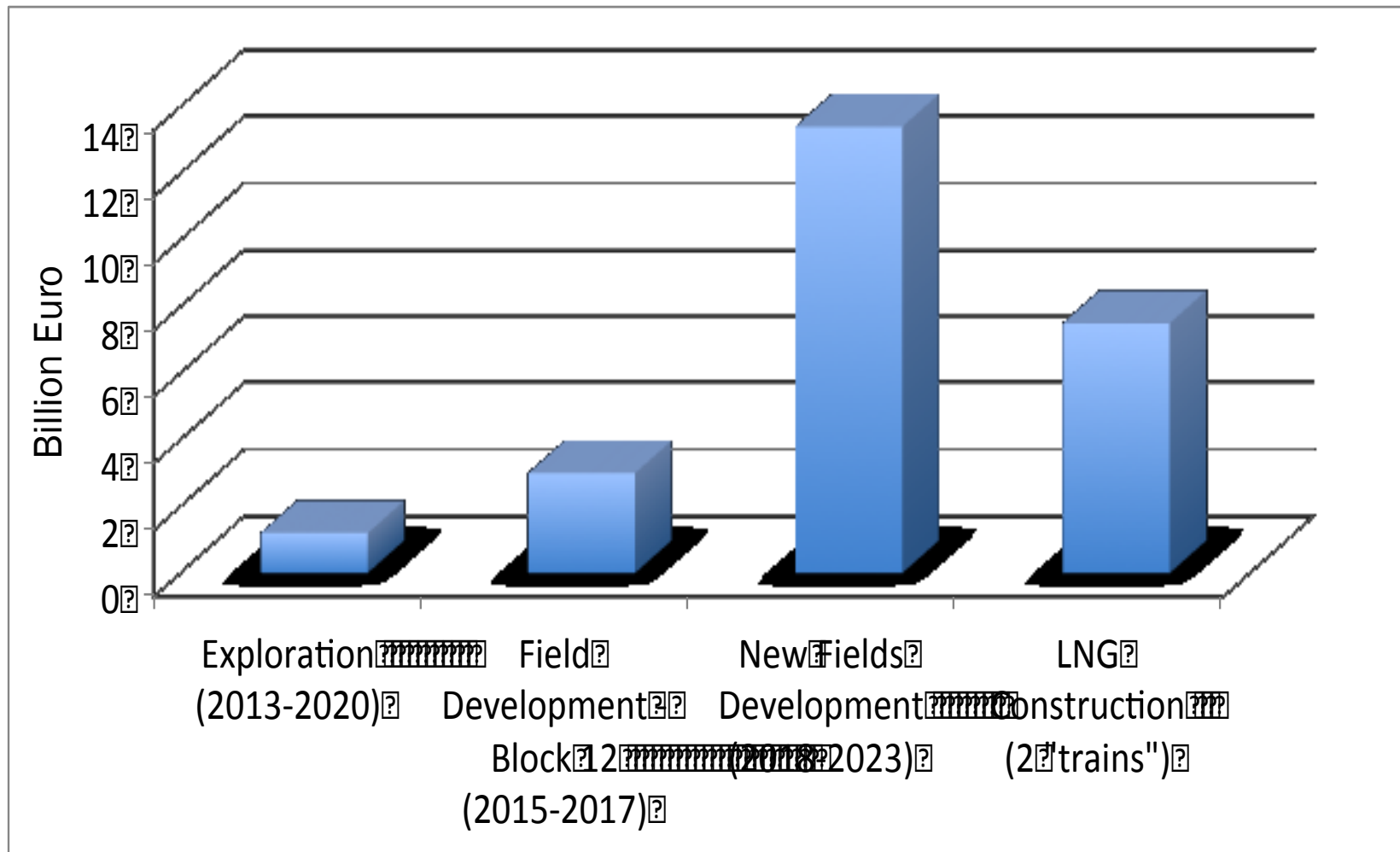


NG EXPLOITATION: LNG PLANT

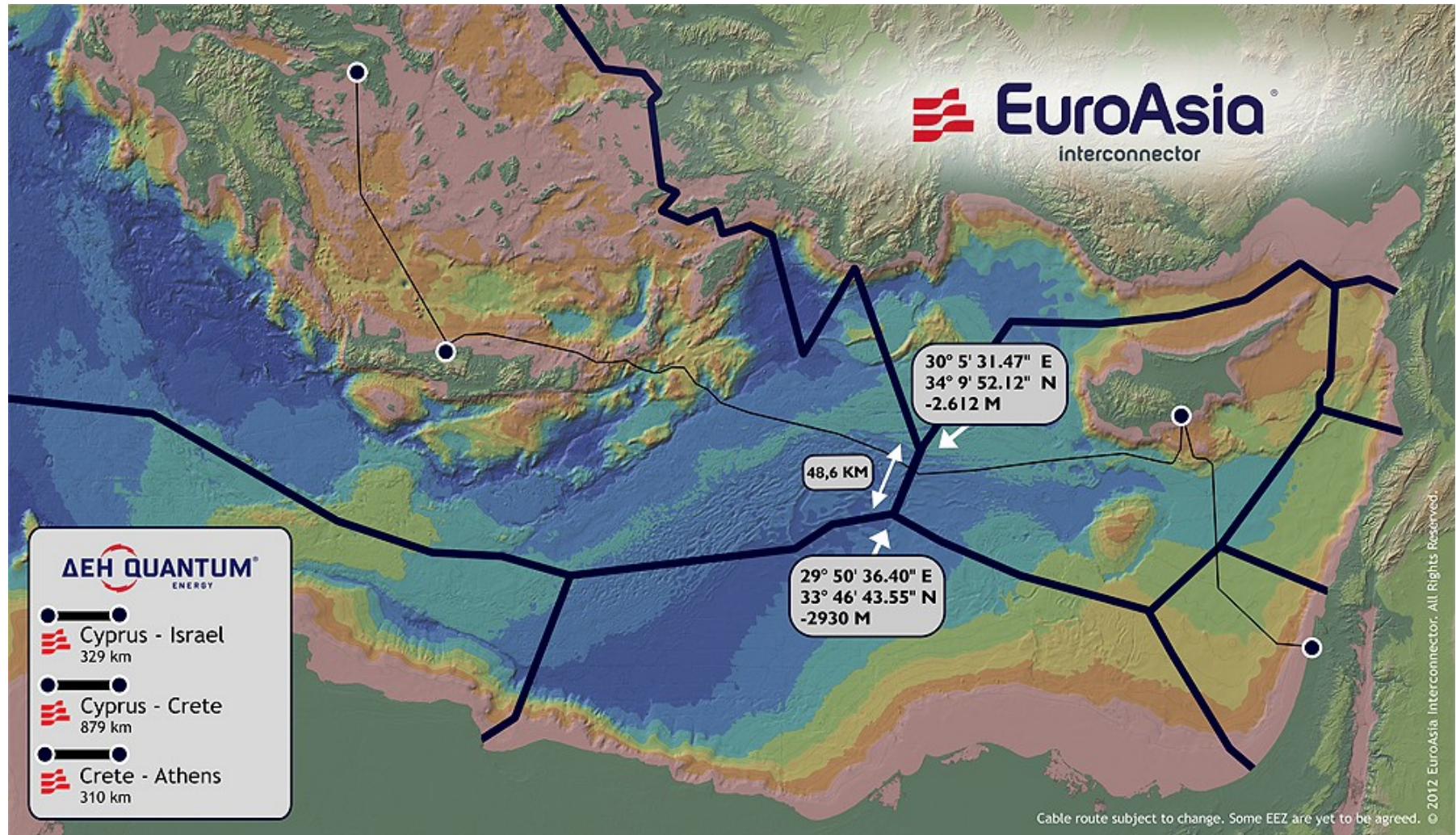
- The political decision for the establishment of an onshore LNG plant has been taken
- It will be the largest investment in the island's history
- Project Partners: State / Upstream Producers / LNG Off-takers / Creditors
- It will have the capacity to handle additional gas volumes from neighboring countries (ref. Israel's decision to allow export of 40% of its NG resources)
- Initial Phase: 5 MT/year (1 train) LNG export



FUTURE INVESTMENTS



NG EXPLOITATION – UNDERSEA ELECTRIC POWER LINE



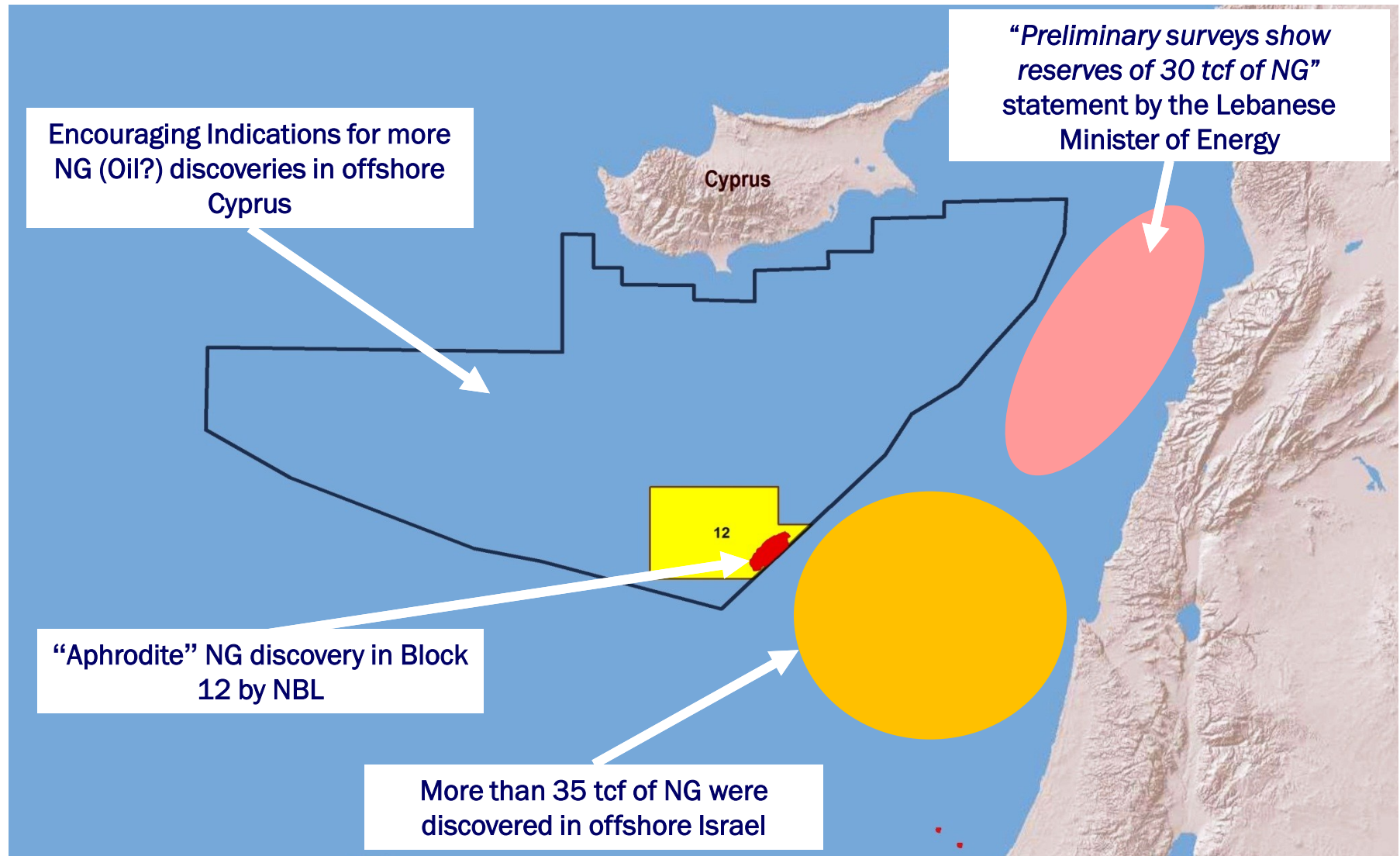
NG EXPLOITATION – PETROCHEMICALS PRODUCTION

- Petrochemicals Production Unit (methanol etc.)
- Lower capital investment as compared to the LNG Plant
- Can provide diversification in natural gas exports (Cyprus will not be dependent only on LNG exports)
- Strong interest (mainly from Israeli companies) for establishing such units in Cyprus



"Atlas" Methanol Production Unit (Trinidad Tobago)

OIL & GAS POTENTIAL– SOUTH EAST MEDITERRANEAN



OIL & GAS POTENTIAL– SOUTH EAST MEDITERRANEAN

ISRAEL

■Tamar Gas Field:

- Discovered in 2009
- Onstream in Apr. 2013
- Covers the Israel domestic demand for 2-3 decades

■Leviathan:

- Anticipated to be onstream in 2016

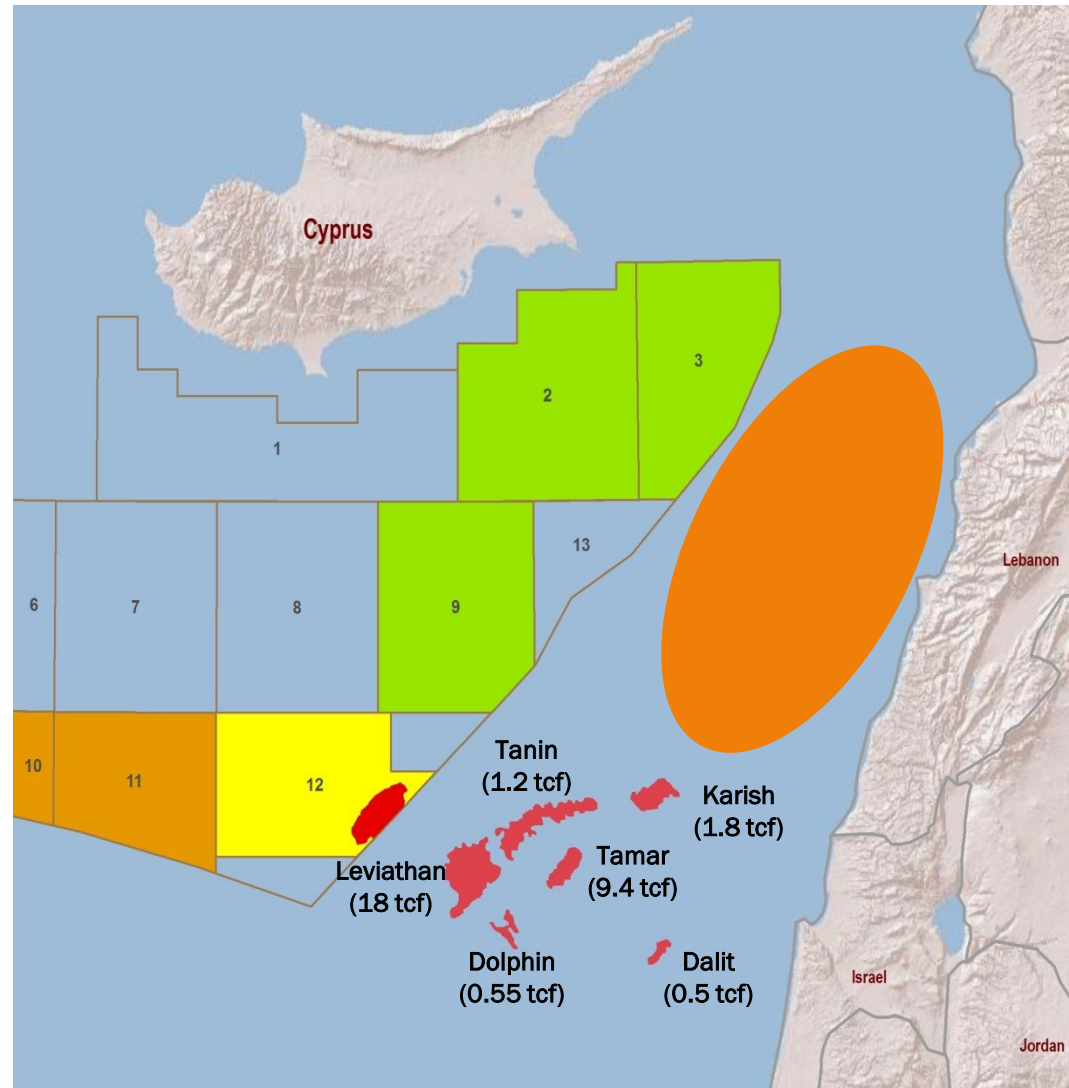
■NG Export:

- 21.10.2013 – Israel Supreme Court rejected a petition to halt Israel's natural gas exports
- Petition sought to overturn the cabinet's decision to allow export of 40% of the NG resources

LEBANON

■1st Licensing Round

- Deadline for the submission of the applications is 10 December 2013



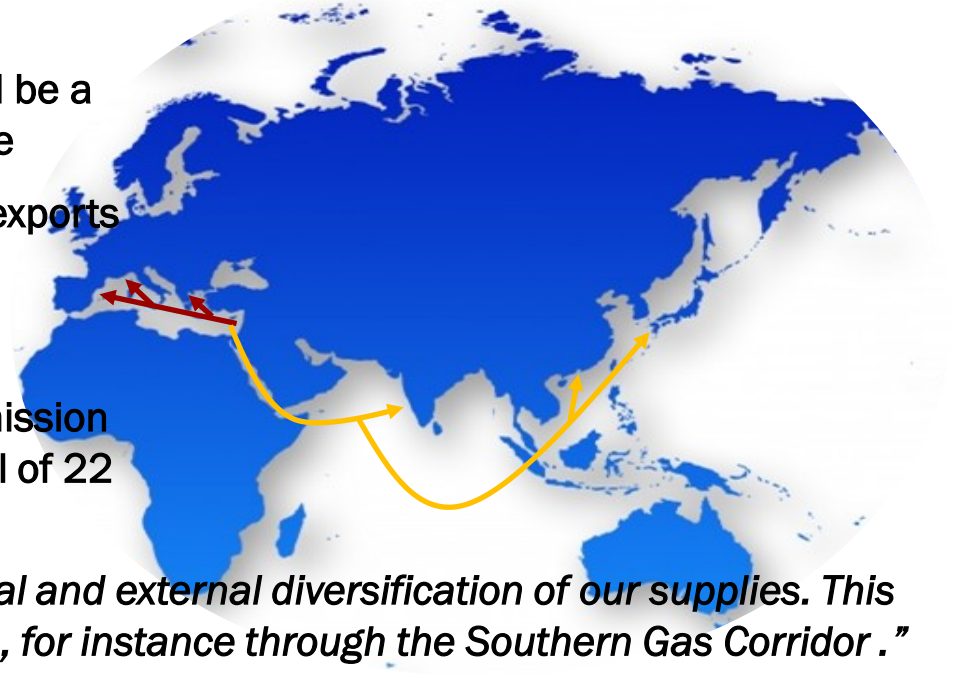
LNG SUPPLY TO THE MARKETS

- The South East Mediterranean Region could be a new source for Natural Gas Supply to Europe
- The Asian Market is also an option for LNG exports

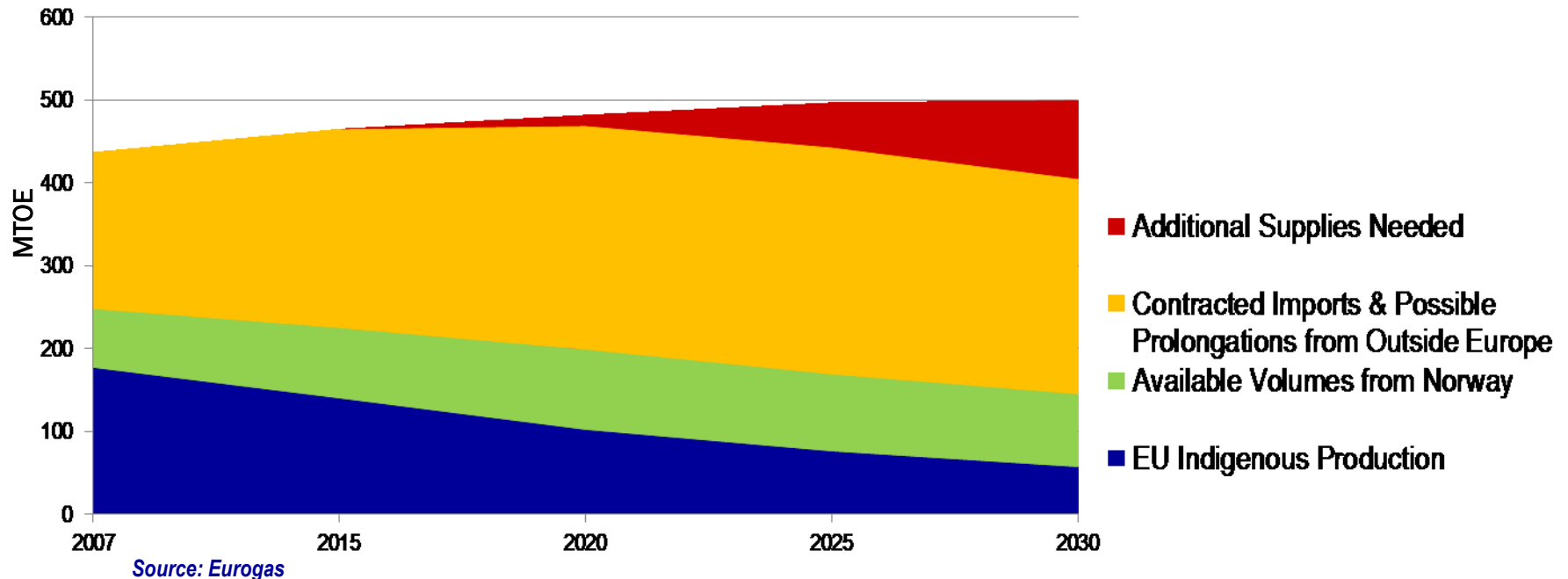
SOUTHERN GAS CORRIDOR

- Speech by President of the European Commission on the preparations of the European Council of 22 May 2013:

“We must continue to strengthen the internal and external diversification of our supplies. This includes tapping new international sources, for instance through the Southern Gas Corridor .”



CONSUMPTION OF NATURAL GAS IN EU – PROJECTION



- Gas production in the EU is declining
- The share of natural gas in EU's primary energy consumption will remain high i.e. mainly for power generation purposes
- The exploitation of shale gas within the EU raises a number of concerns as regards possible environmental impacts and is considered very long-term

IMPACTS OF THE NG DISCOVERIES TO CYPRUS AND THE EAST MED REGION

- The significant current and future gas discoveries in the Eastern Mediterranean will enhance the security of energy supply in the region
- Encourage neighboring countries to work together in order to form conditions of prosperity, peace and progress to the benefit of their people
- Reinforce the strategic role and geopolitical position of Cyprus
- Facilitate the creation and development of a national gas market
- Direct fiscal benefits, through natural gas exports
- Indirect effects to the economy, through growth and increase of competitiveness
- Harvesting indigenous gas fields will boost the local industry, limit the cost of energy and drive the manufacturing sector to a much higher technological level

THANK YOU FOR THE ATTENTION