Beyond the search for hydrocarbons in Greece

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East Mediterranean: The New Natural Gas Frontier
Upstream in Greece

E&P update
October 1st 2019
Upstream in Greece

2020-2022

2020-2023

Multiclient project
Greece in the Eastern Mediterranean
The gas tiles of Eastern Mediterranean and Black Sea

Recent gas discoveries and gas production

Nile delta

Expected gas discoveries

Recent gas discoveries

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Eastern Mediterranean and Black Sea

Prospects to be explored

Fields discovered

Fields Discovered and Producing

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Convergence of five technical and economic reasons

Recent large discoveries of gas in the SE Mediterranean and Black Sea

New geological concept model added since 2015 in the Mediterranean

Progressive improvement of deep and ultra-deep drilling technologies

Increasing commercial importance of natural gas

Diversification of gas supply for the European market
Deep water, gas plays and time agenda for ultradeep waters

1 and 2, from older to more recent gas discoveries (in red). The water depths increase from region 1 to 2 and 3.
New geological concept model added since 2015
If you take out 3000 meters of water

Exploration will progressively move from north to south and from shallower less than 1,000 meters (yellow) to important water depths of more than 3,000 meters (dark blue).
Increasing production from ultra deepwater environments

![Graph showing production growth over time]

- 13 mbbl/d
- 5 mbbl/d
- 16 mbbl/d
- 30 mbbl/d

- Shelf (to 400 ft)
- Deep water (400-5000 ft)
- Ultra deepwater (5000+ ft)
Improvement of drilling technology with increasing water depth
### Challenges

- Pore pressure, fracture gradient, pressure window
- Shallow well sections
- Deep well sections
- Salt Drilling
- Tar deposits
- HPHT
- Number of casings
- Well control issues
- Rig and equipment issues
- BOP issues and limitations

### Technologies

- Enhanced topsides facilities, improved hulls, stronger moorings and risers
- Advanced subsurface tools and monitoring equipment
- Improved modelling tools for safer vessel designs from explosion hazards and violent sea events
- Development of “next generation” metocean and meteorological predictive techniques
When midstream and upstream meet

Concessions onshore and offshore Greece
New promoted acreage

The red arrows represent the gas transportation projects EastMed, TAP and the project associated with the Neptun discovery (area 2). The arrow towards Egypt to Damietta or Iddku LNG facilities.
PIPELINE versus LNG: Dilemma or complementarities

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Source: Institute of Gas Technology.
Status of gas transportation infrastructures

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Zoom on Greek acreage onshore and offshore

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