

# **Egypt - From LNG importer to exporter - latest developments and update on floating liquefaction & regas**

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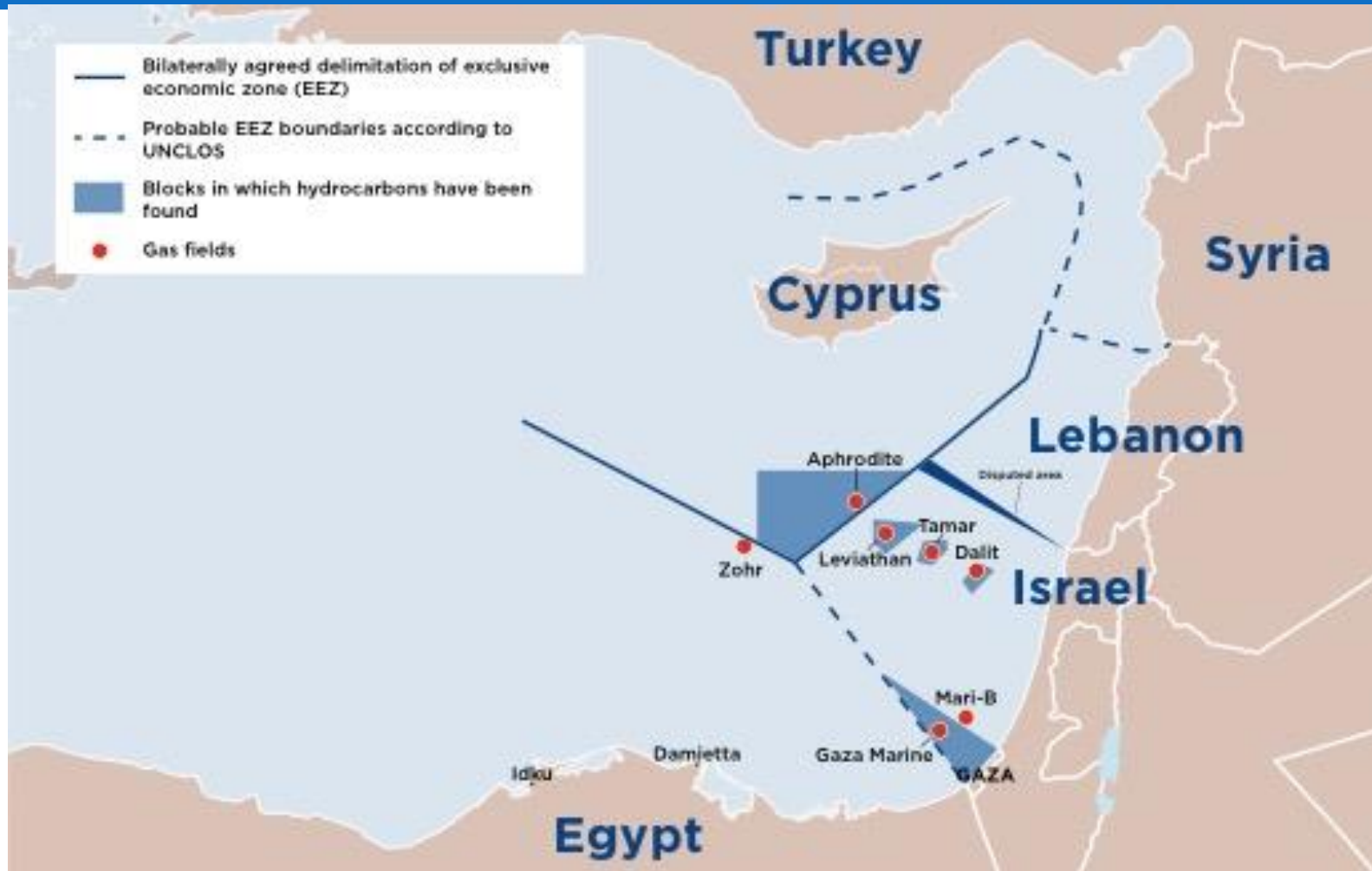
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# FLNG – Potential use in the East Med

- ❑ East Med has high gas potential
- ❑ But deep-water gas fields – expensive to develop
- ❑ Regional gas markets – finite demand
- ❑ Cyprus and Israel need to export to global markets
- ❑ European markets saturated. This leaves Asia
- ❑ Given the long term structural change we have been experiencing during the last 2-3 years in global gas markets, FLNG could be the game-changer in the development of East Med gas resources in a financially viable manner.
- ❑ But first lets look at the key components of East Med

# The East Med



# Why FLNG

- Israel and Cyprus lack export infrastructure
- They are also fast running out of export options
- That's why FLNG is coming back into the equation
- FLNG can avoid regional geo-politics
- But what are these options?
- Lets take them one by one

# East Med export options

- ❑ Exports by pipeline to Egypt for its own domestic use
- ❑ Exports by pipeline to Egypt's LNG plants for liquefaction and LNG export to Europe and Asia
- ❑ Exports by pipeline to Turkey for its own domestic use
- ❑ Exports by pipeline to Turkey and from there to Europe
- ❑ Exports by pipeline from Cyprus to Greece to Europe
- ❑ FCNG to regional markets
- ❑ Greenfield land-based LNG
- ❑ FLNG to European and global markets

# FLNG flexibility

- FLNG combines production, liquefaction and export
- No need for separate FPSO, deep-water pipeline and land-based LNG facility
- Huge local resistance to any land-based oil and gas facilities
- FLNG overcomes these problems

# Cost-effective development

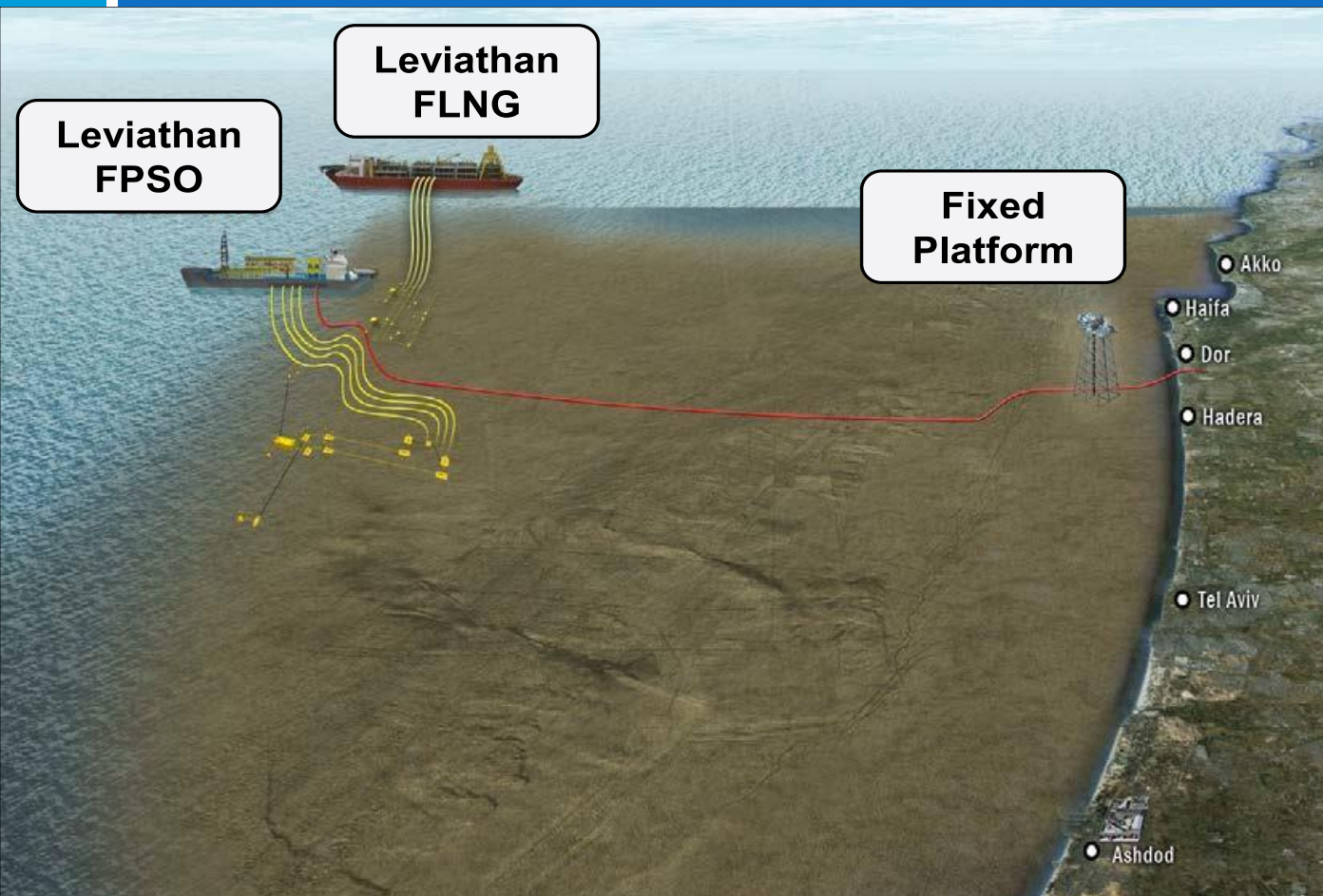
- **FLNG unlocks access to isolated gas reserves**
- **Takes the entire natural gas liquefaction and export process offshore**
- **A comparable project to Aphrodite is ENI's Coral FLNG in Mozambique**
- **A 3.4 mn mt/yr project at 1500m – 2300m water-depth**
- **ENI estimates the cost to be about \$1.3bn per mn mt LNG**
- **But capital intensive - investment up front**



# Existing East Med gas fields

- Should pipeline options not materialise, for Leviathan and possibly Aphrodite FLNG may be the last export option
- Run risk of remaining stranded
- An era of plenty energy supplies, peaking demand and Paris climate change agreement coming into effect – low prices
- Need for global exports

# Leviathan development options



**Leviathan  
development  
options**

**Presented at  
Credit Suisse  
Energy  
Options  
Feb 2014**

# Future East Med gas finds

- Increasing number of discoveries offshore Egypt
- Successful 3<sup>rd</sup> offshore licensing round in Cyprus
- Prospects look good
- Total drilling in block 11 in July
- Total quite hopeful – will consider FLNG
- The market is flooded with LNG up to 2022
- LNG will continue to be in demand after that
- Timing coincides with any potential East Med FLNG projects

# A brief update on regas

- Currently Egypt is importing about 12 bcm/yr of LNG using two FSRUs
- Given the rapid increase in new domestic gas production, Egypt's Petroleum Minister said 2018 will be the last year Egypt will need LNG imports
- Cyprus having tried on and off a number of times to import LNG, it now appears to be more serious about it – but quantities are small, about 0.7 bcm/yr
- Will incur EU emission penalties if it carries on using HFO beyond 2020. Plans may be announced this month
- After the success of its first FSRU, Turkey is planning to add at least another one, if not more

# Challenges

**Implementation of FLNG in the East Med has its challenges:**

- It is up-front capital intensive**
- Banks see it as risky - unproven technology in a new province**
- Gas prices need to rise further to make it viable**
- New major gas finds may bring back onshore LNG and would at least delay FLNG**
- It will need to find markets further afield, other than the saturated European market**

# Looking to the future

- What is clear is that the global energy and gas scene is undergoing rapid changes and future policies and development plans can become rapidly outdated unless reviewed and updated regularly.
- The good news is that drilling is re-starting in Cyprus' EEZ. Prospects look good. Israel and Lebanon launched their first licensing rounds.
- FLNG could be a game-changer in the development of East Med gas resources.
- Timing of FLNG development in East Med may be coinciding with recovery of global LNG markets.
- If East Med and Cyprus pursue the development of their natural gas resources correctly, they may still be able to benefit from their exploitation. Otherwise they run risks