

Lebanon's First Offshore Licensing Round 2017



APPEX – London

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Wissam Chbat – LPA Chairman

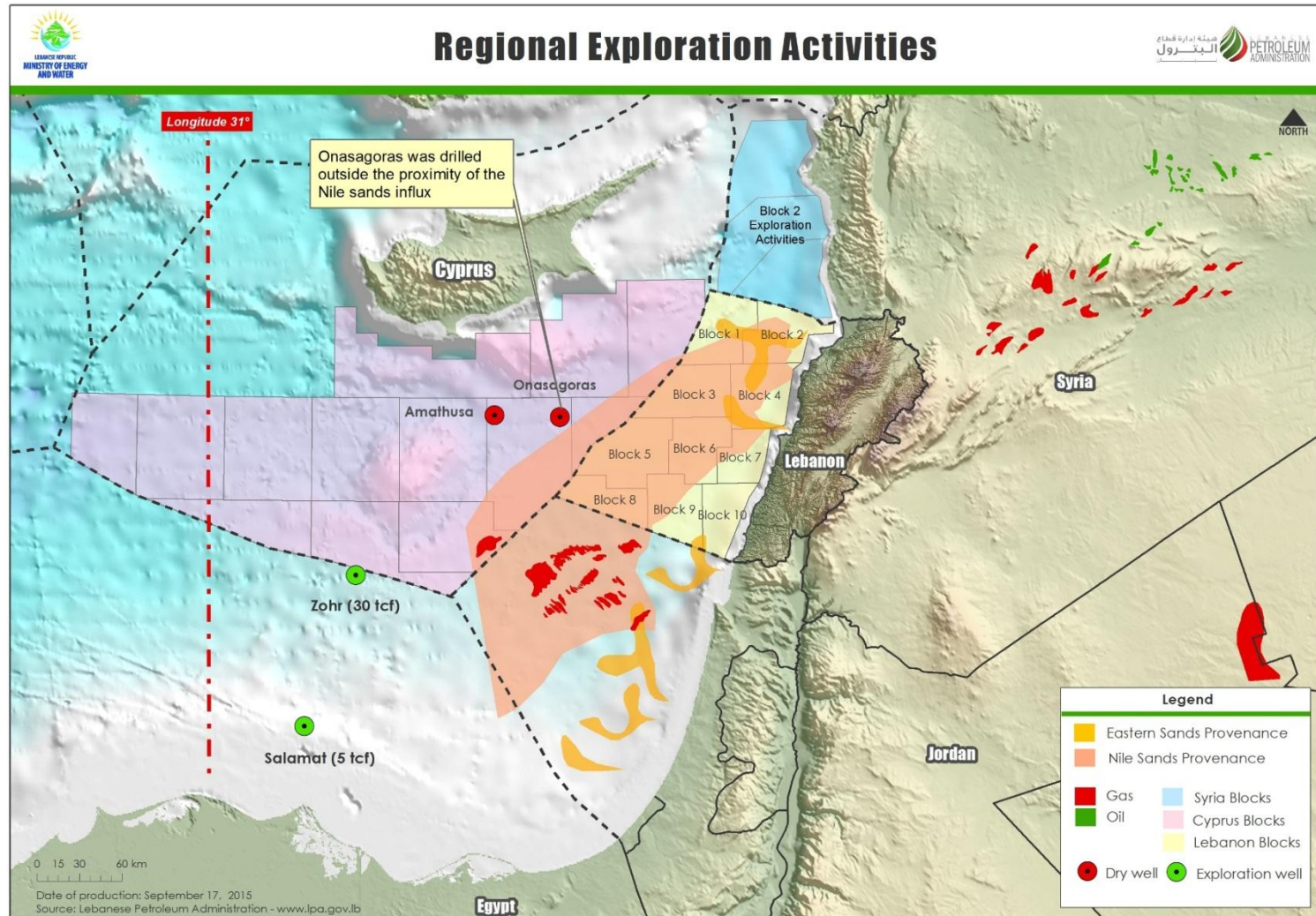
Head of Geology and Geophysics

Content



- The Eastern Mediterranean
- Where does Lebanon stand ?
- First Lebanon offshore licensing round roadmap
- Pre-qualification process
- Potential gas markets

The Eastern Mediterranean ...

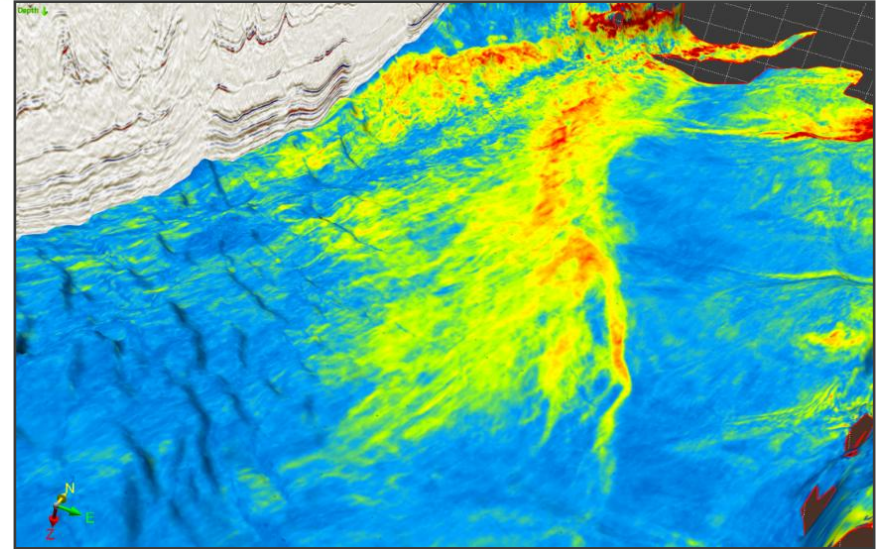
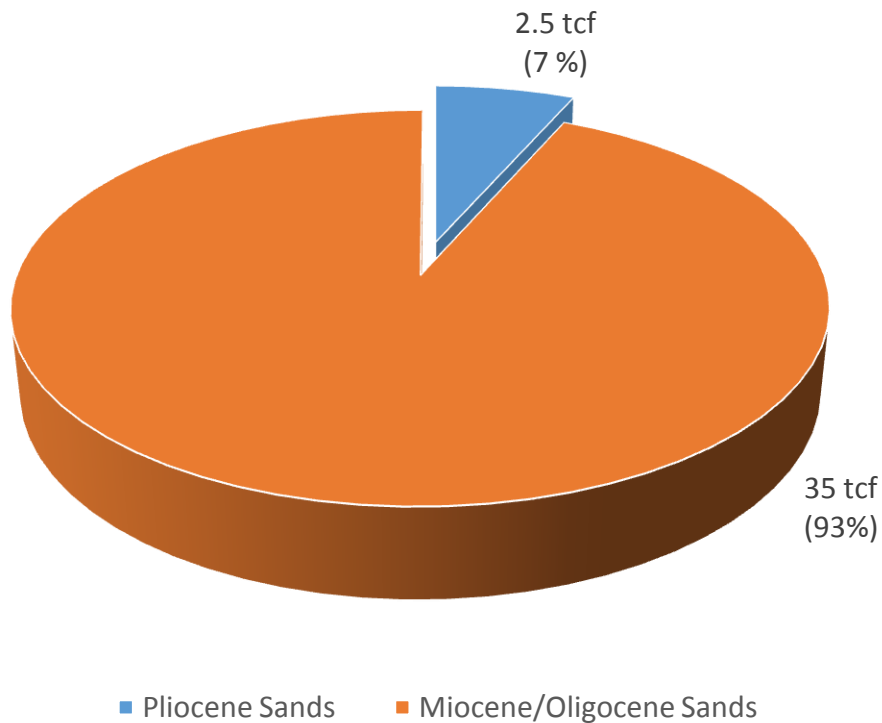


Exploration History East to 31 Longitude (East MED)

Country	Year	Name	Depth	Estimated Reserves	Production Start	Trap Type	Sedimentological Target
Occ. Palestine	1999	Noa	1880	0.04	2012	Stratigraphic	Pliocene Submarine Channel Filled Sands
Occ. Palestine	2000	Mari-B	2082	1.5	2004	Structural/ stratigraphic	Pliocene Submarine Channel Filled Sands
Palestine	2000	Gaza Marine	610	1	N/A	Stratigraphic	Pliocene Turbidite sandstone
Occ. Palestine	2009	Dalit	3685	0.5	2013	Structural	Miocene Turbidite Sandstone
Occ. Palestine	2009	Tamar	4900	10	2013	Structural	Miocene/Oligocene sub-salt slope and fan sandstones
Occ. Palestine	2010	Leviathan	5170	18	2016	Structural	Miocene/Oligocene sub-salt slope and fan sandstones
Occ. Palestine	2011	Dolphin	4400	0.08	N/A	Structural	Miocene Turbidite Sandstone
Cyprus	2011	Aphrodite	5860	7 --> 5 --> 4.1	2017	Structural	Miocene/Oligocene sub-salt slope and fan sandstones
Occ. Palestine	2012	Myra	4659	Failed	-	-	-
Occ. Palestine	2012	Sara	3946	Failed	-	-	-
Occ. Palestine	2012	Shimshon	4403	0.3	N/A	Structural	Miocene sub salt channel fill sands
Occ. Palestine	2012	Tanin	5500	1.2	N/A	Structural	Miocene Turbidite Sandstone
Occ. Palestine	2013	Karish	4790	1.8	N/A	Structural	Miocene Turbidite Sandstone
Cyprus	2014	Onasagoras	5800	Dry	-	Structural	Miocene Turbidite Sandstone
Cyprus	2015	Amathusa	5485	Dry	-	Structural	Miocene Turbidite Sandstone
Egypt	2015	Zohr	4131	30	 Q4 2017	Structural	Lower Middle Miocene/Cretaceous Carbonate Reservoir

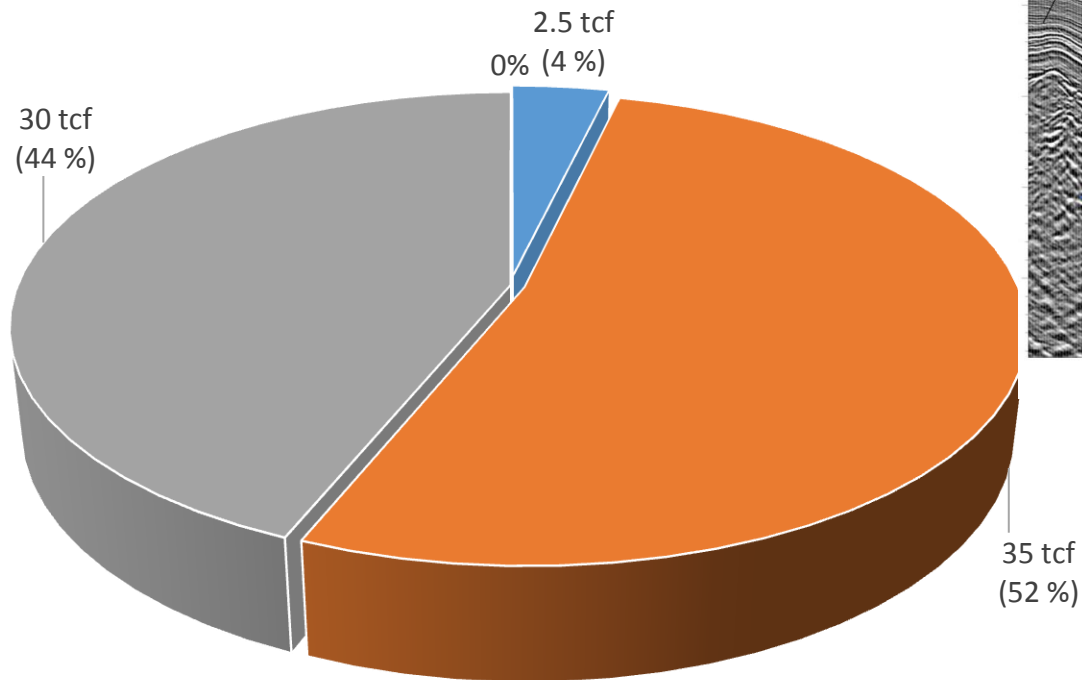
Sedimentological Target and Estimated Reserves (Pre-Zohr Discovery)

Estimated Reserves for Sandy Targets

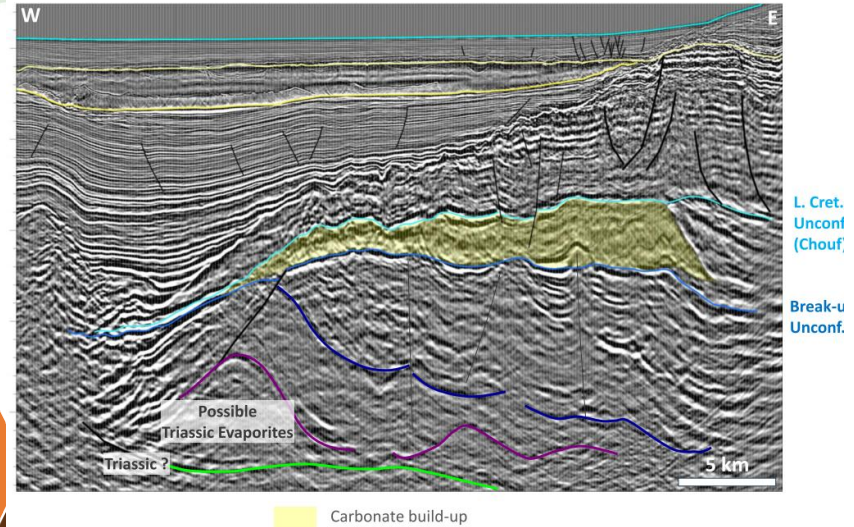


Sedimentological Target and Estimated Reserves (Post-Zohr Discovery)

Estimated Reserves

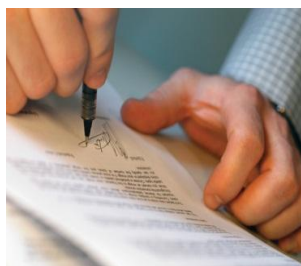


■ Pliocene Sands ■ Miocene/Oligocene Sands ■ Carbonate



Where does Lebanon stand?

Clear Policies



Exploration
and
Production
Policy

Enabling Laws



- Offshore Petroleum Resources Law (OPRL)
- Draft Petroleum Taxation Law

Enacting Regulations



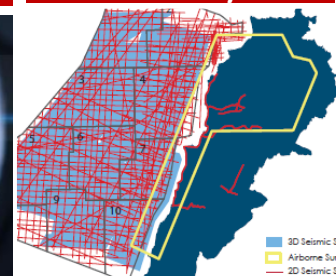
Petroleum
Activities
Regulations
(PAR)

Licensing Process



- Licensing Strategy
- Tender Protocol (TP)
- Exploration and Production Agreement (EPA)

Multiclient library



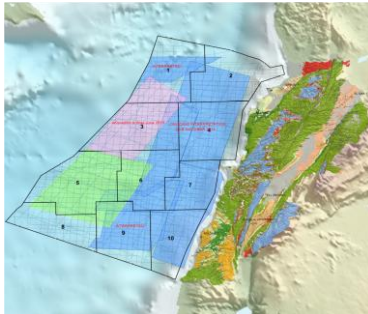
- 80% 3D seismic coverage
- 2x2 Km 2D seismic grid
- Airborne survey (5 sensors)

Regulatory Agency

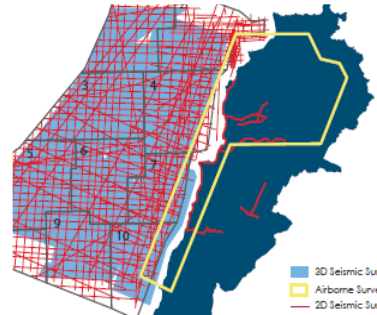


Lebanese
Petroleum
Administration
(LPA)

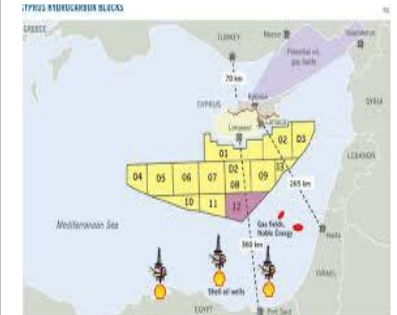
Lebanon Advantages in Attracting E&P Investment



Attractive Blocks Offshore Lebanon are available for licensing



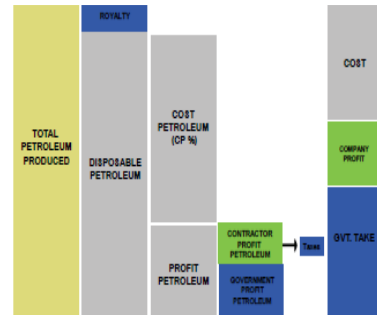
Advanced data available to possible investors (2D, 3D)



Oil and gas discoveries in neighbouring and similar basins



Modern Legal and Contractual framework

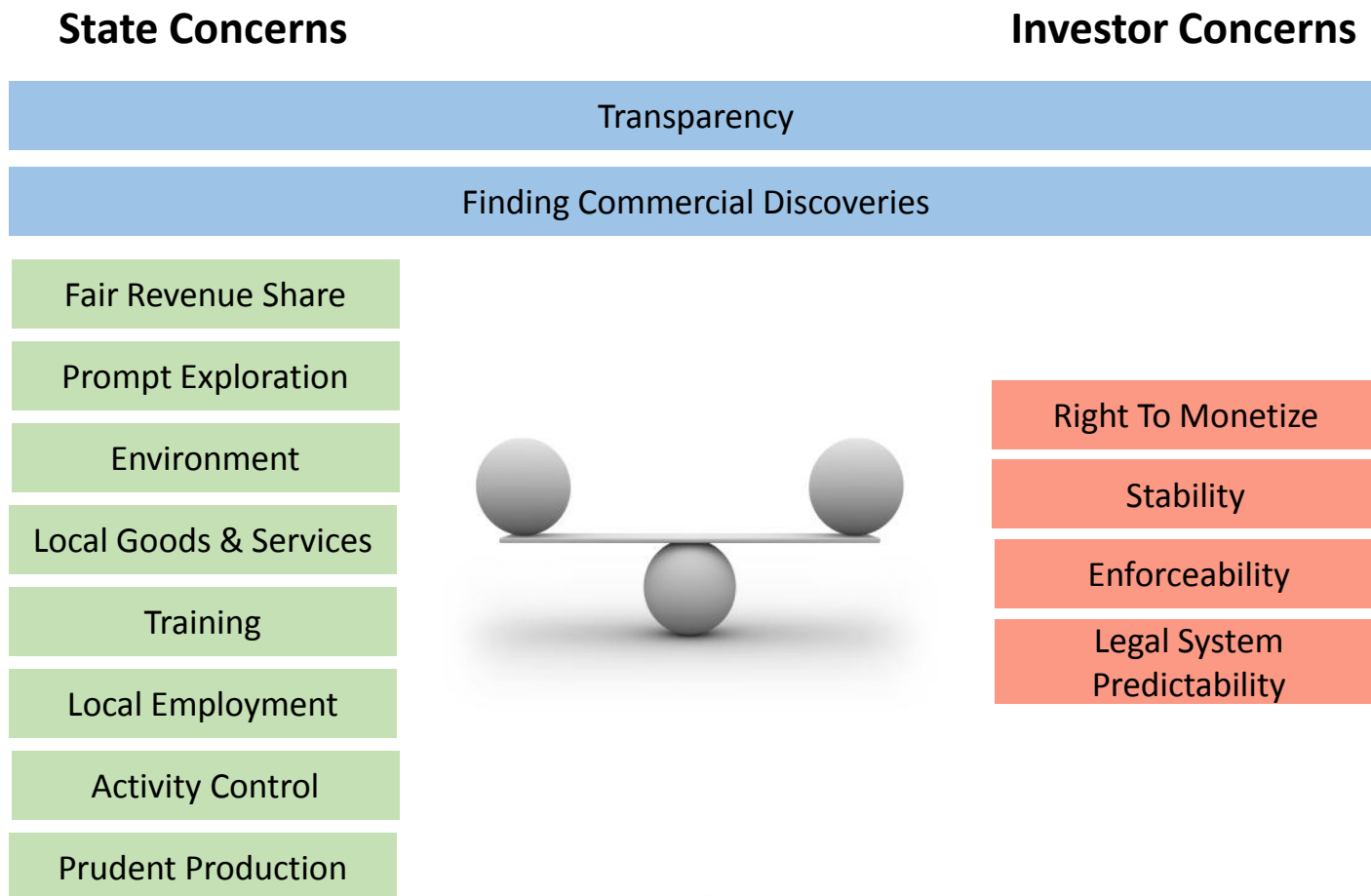


**Progressive Fiscal system/
Transparent bidding**

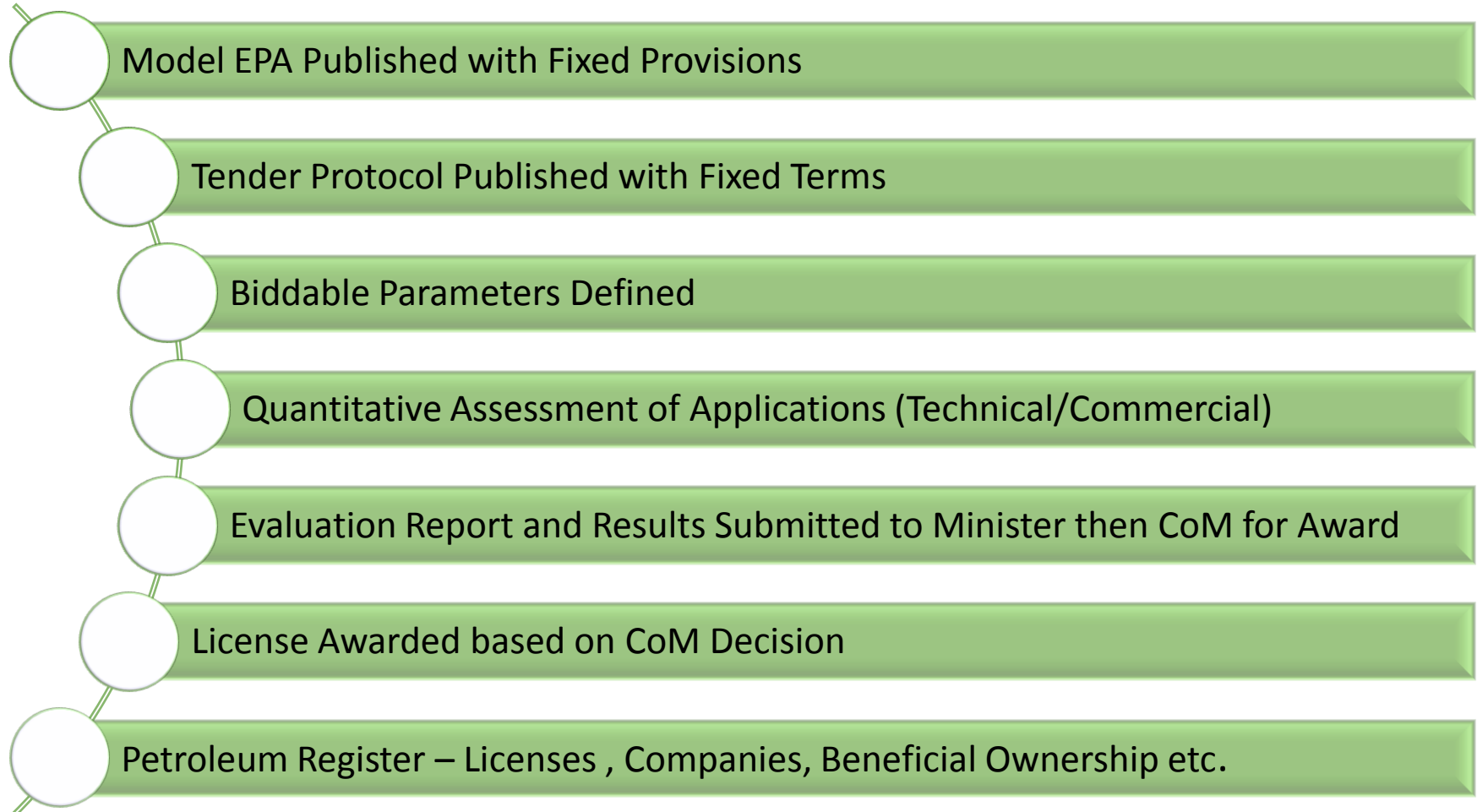


Proximity & accessibility to Large Markets

Establishing State and Investor balance



Competitive Bidding Process



Bidding Parameters

Bid

Commercial Proposal

- Cost Petroleum recovery ceiling
- Profit Petroleum sharing

Technical Proposal

Proposed activities per exploration period:

- Proposed 3D seismic survey
- Proposed other geological and geophysical activities
- Exploration wells (number, depths)

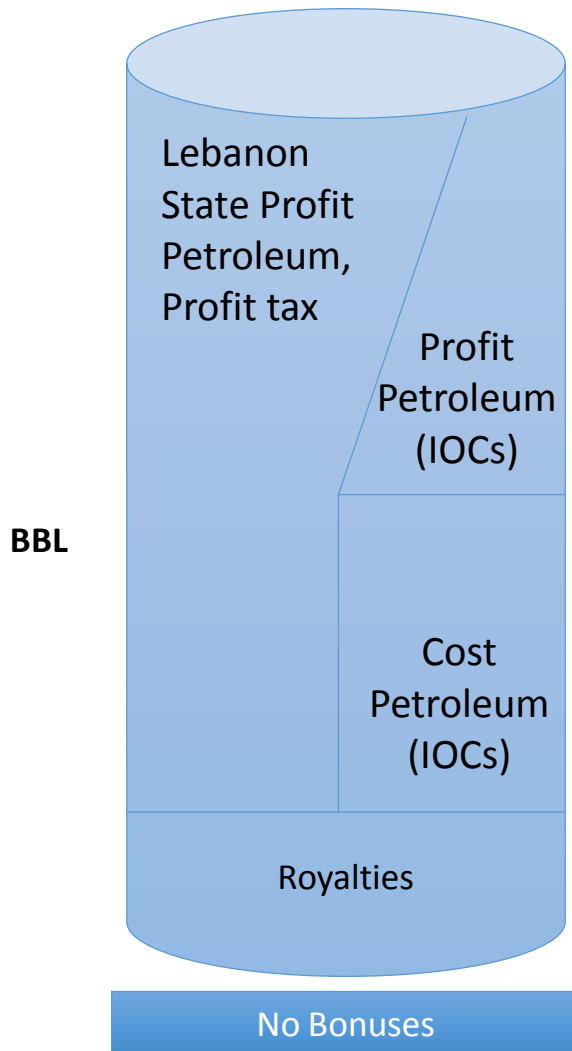
Grading System

Tender protocol specifies weighting for the items described above

Each of the items shall be evaluated independently, with the highest mark for each item attributed to the best proposal by a consortium for such item

Overall weight split: 70% for the Commercial Proposal and 30% for the Technical Proposal

Overview of Key Economic Terms



- **Royalties**

- Crude Oil: Sliding Scale ranging from 5% to 12% based on monthly average daily production rate
- Natural Gas: 4% flat royalty

- **Cost Petroleum**

- Costs fully recoverable up to fixed percentage of petroleum produced, determined through bidding
- Maximum bid percentage: 65%

- **Profit Petroleum:**

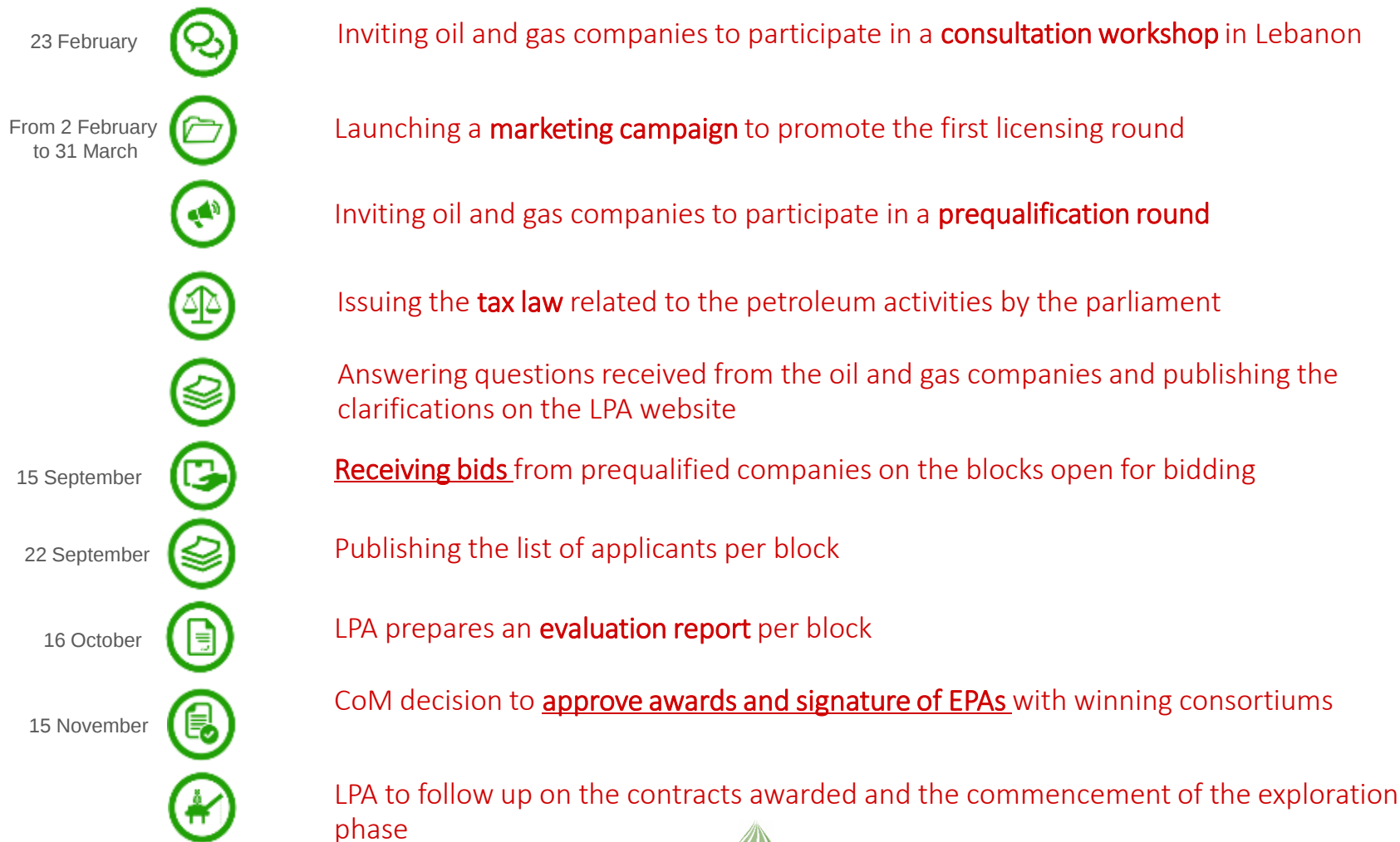
- Profit petroleum split based on bidding (minimum and maximum State profit petroleum share)
- After costs recovered, split adjusted based on R-Factor

- **Profit tax:**

- The OPR Law requires companies to pay all Lebanese taxes
- Stabilization clause in EPA: Excess corporate income tax is cost recoverable (deduction if tax rate reduced)



First Licensing Round – Roadmap





Pre-qualification

Pre-qualification Rounds

- New pre-qualification round
 - Closing Date: **31 March 2017**
 - Announcement of results: **13 April 2017**
- April 2013 pre-qualification round:
 - 12 companies prequalified as Right Holders – *Operators*
 - 34 companies prequalified as Right Holders – *Non-Operators*

RIGHT HOLDER - OPERATOR



Legal

- Joint stock company whose object allows the conduct of Petroleum Activities

Financial

- Total assets of USD 10 billion

Technical

- Operatorship of at least 1 petroleum development in water depths in excess of 500m

QHSE

- QHSE policy statement(s)
- Established & implemented QHSEMS

RIGHT HOLDER – NON-OPERATOR

Legal

- Joint stock company whose object allows the conduct of Petroleum Activities

Financial

- Total assets of USD 500 Million

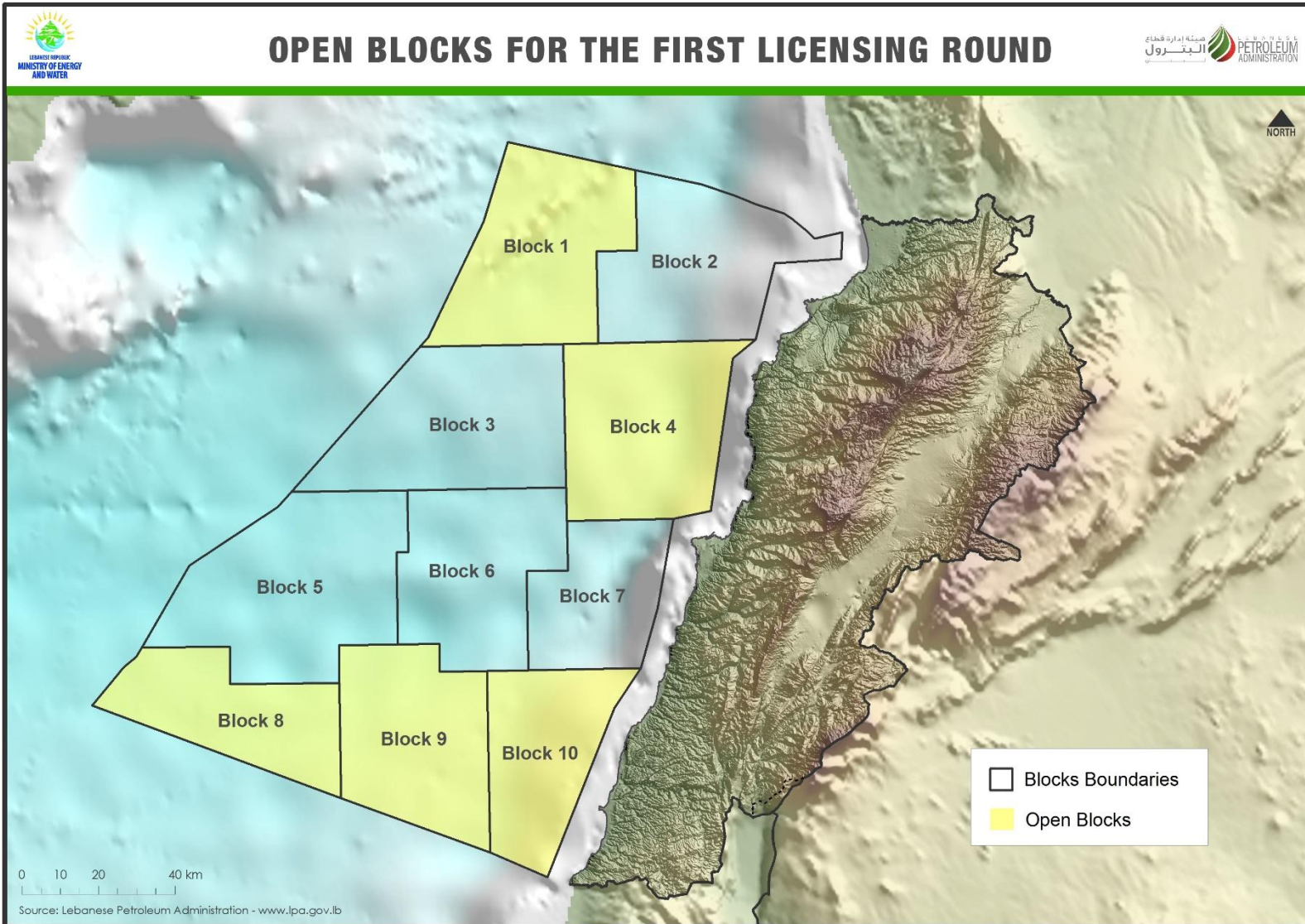
Technical

- Having an established petroleum production

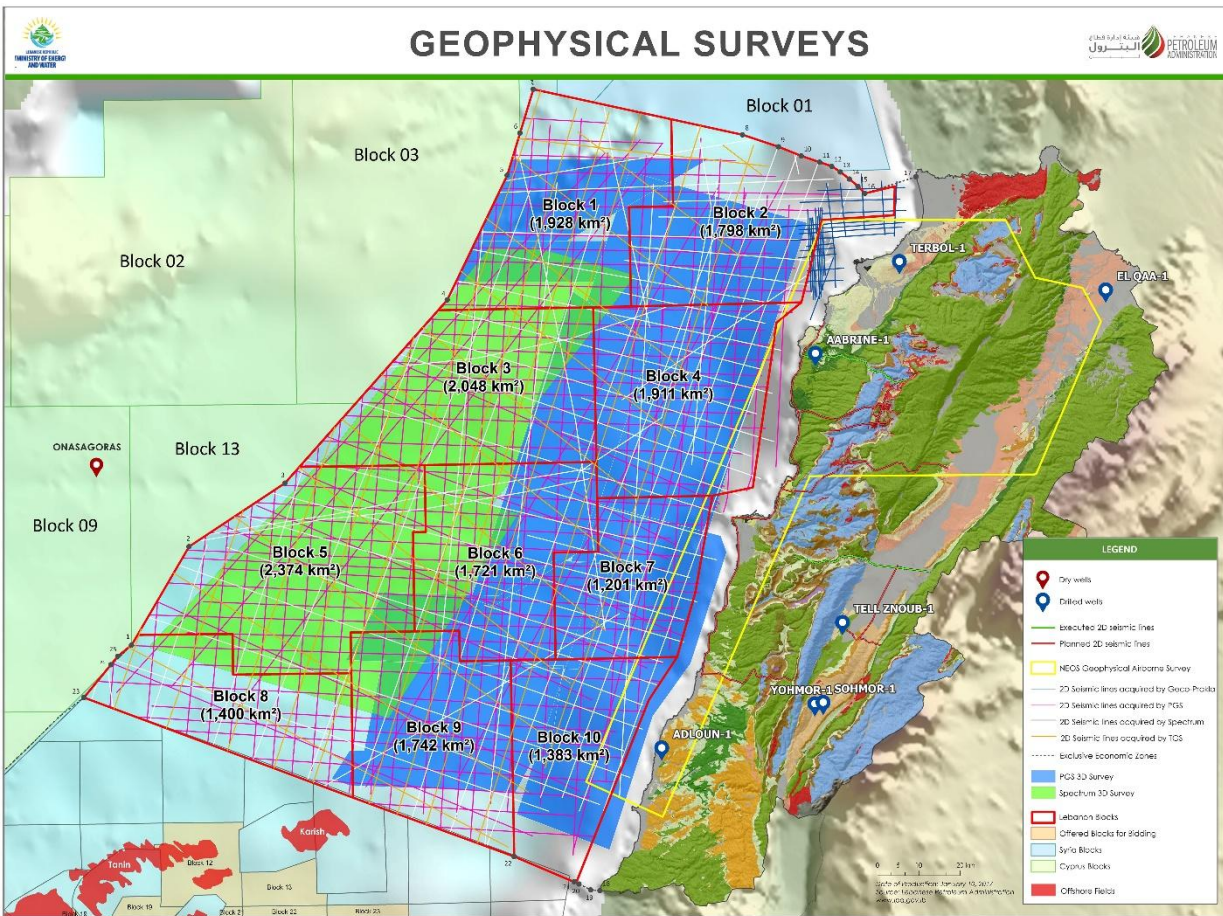
QHSE

- QHSE policy statement(s)
- Established & implemented QHSEMS

Blocks Open



Seismic Database



- 8,036 Km 2D (2006-2011)
- 9,576 Km² 3D (2006-2013)



- 5,087 Km 2D (2000-2002)
- 5385 Km² 3D (2012/13)

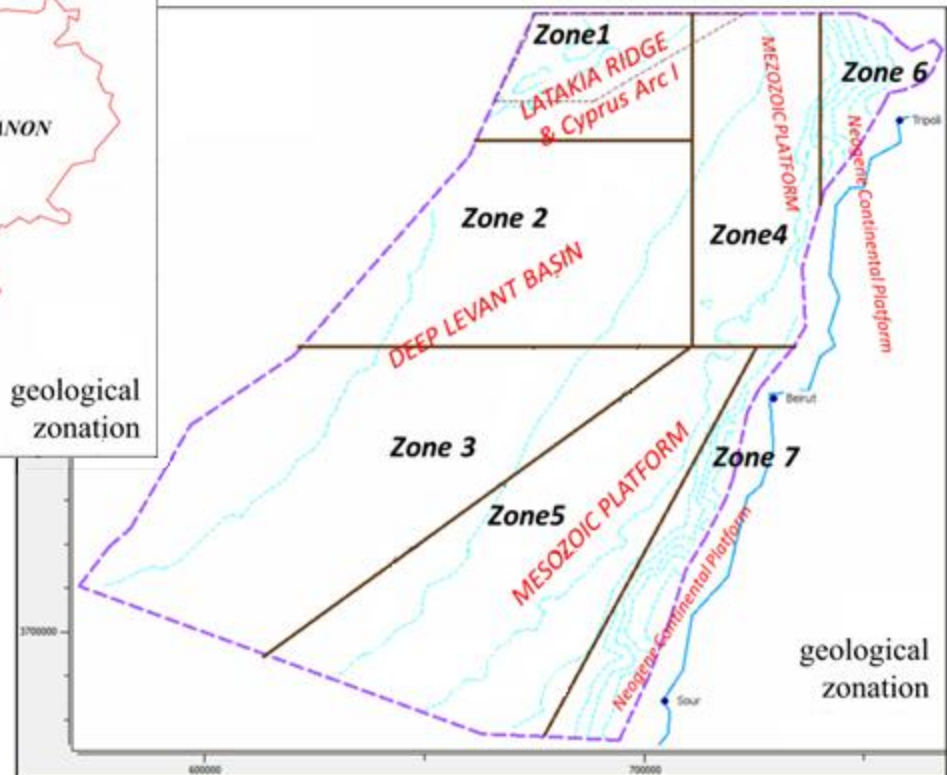
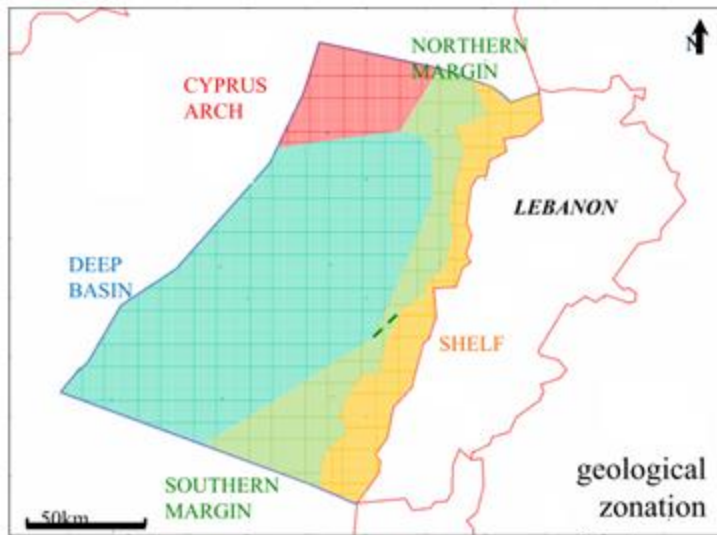


- 6000 km² MERG & Hyperspectral

Other:

- 508 km 2D Offshore Tripoli (1993)
- 2,236 km 2D Levant (TGS)

Geologic Domains and Zoning

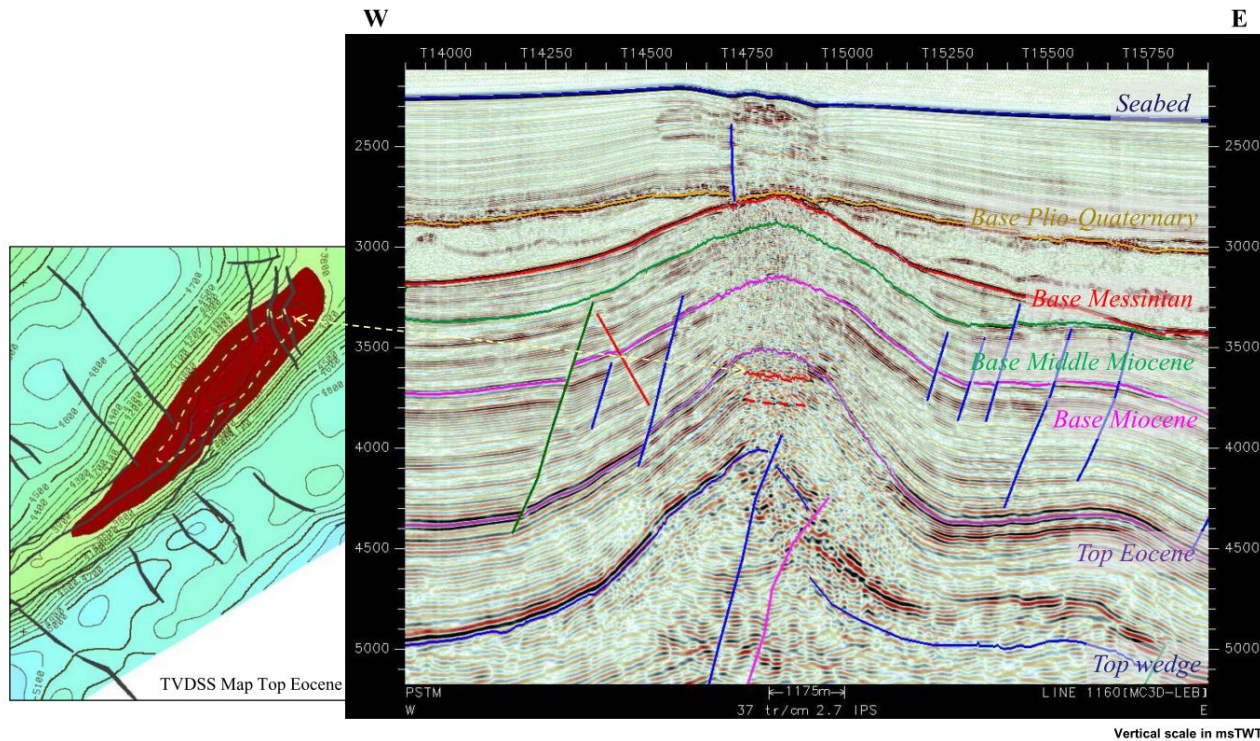


■ The main geological domains defined offshore Lebanon:

- ✓ The Cyprus Arc Domain (Zone 1)
- ✓ Very Deep Levant Basin (Zone 2 & 3)
- ✓ The Continental Margin or Mesozoic Platform (Zone 4 & 5)
- ✓ The Neogene Continental Platform (Zone 6 & 7)

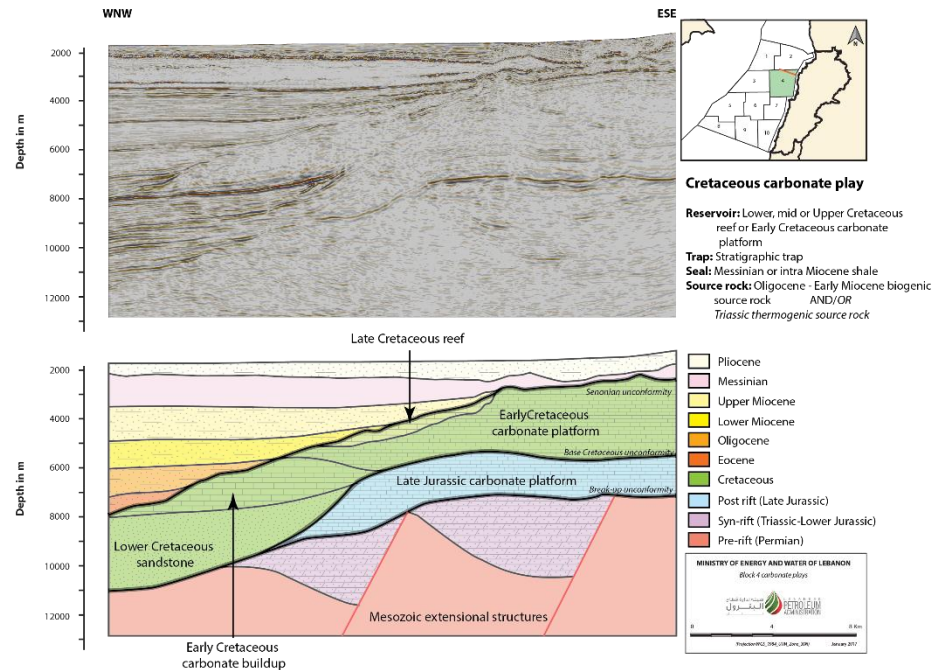
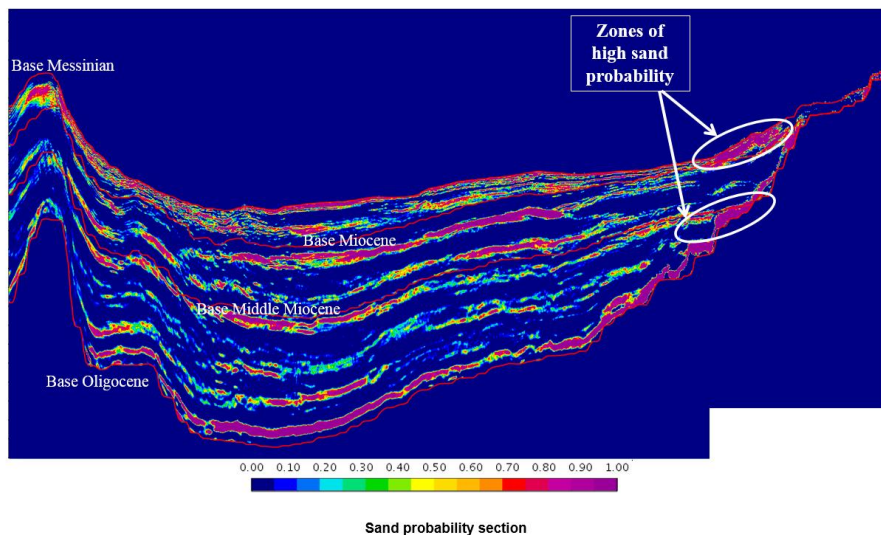
Block 1

Block	Sedimentological Target	Trap Type	Geologic Zones	Hydrocarbon Potential
1	1) Plio-Quaternary Sands 2) Miocene/Oligocene Sands	Structural	Zone 1: Latakia Ridge	High/Moderate: Gas, possible condensate and oil



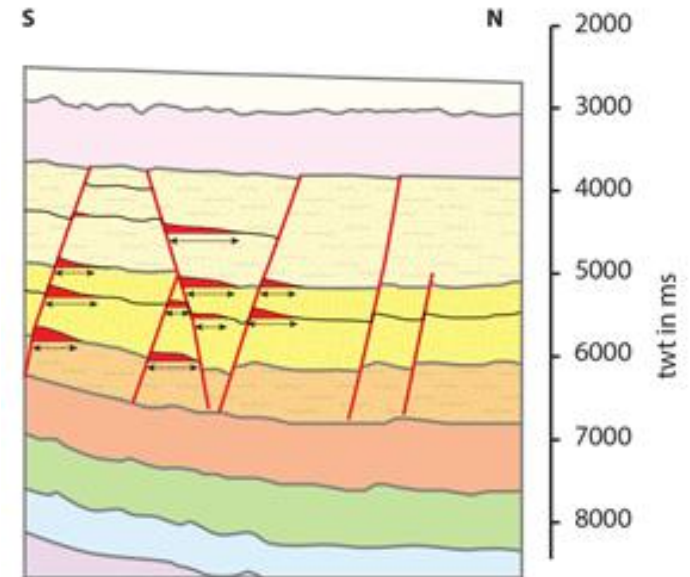
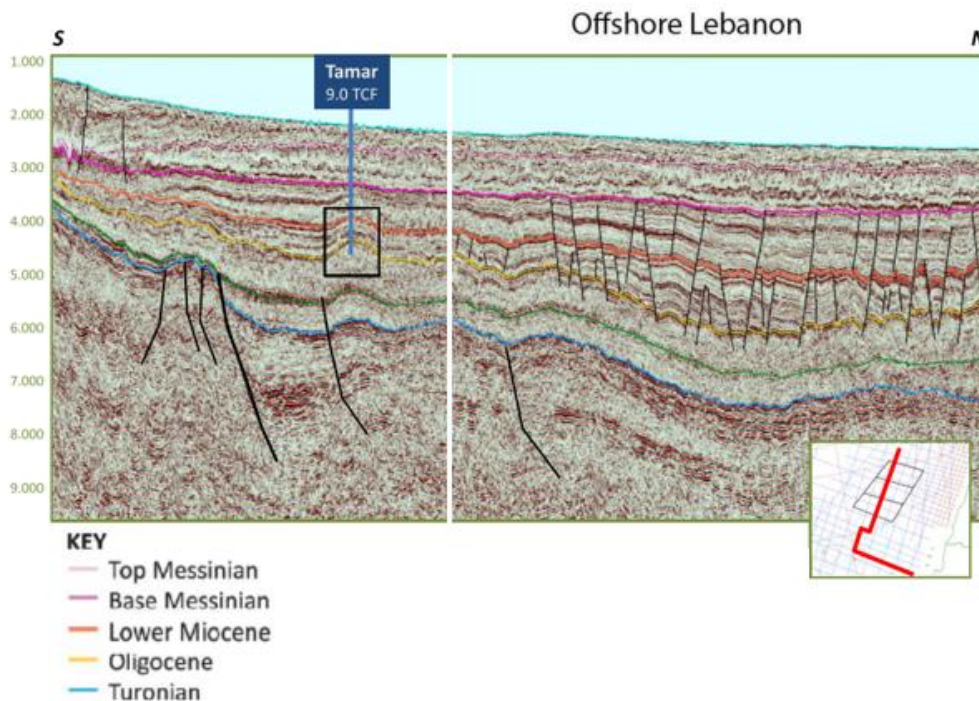
Block 4

Block	Sedimentological Target	Trap Type	Geologic Zones	Hydrocarbon Potential
4	1) Plio-Quaternary Sands 2) Miocene/Oligocene Sands 3) Carbonate build-up	1) Structural 2) Stratigraphic	Zone 2: Deep Basin Zone 4: Mesozoic Platform North	Moderate: Gas, possible condensate and oil



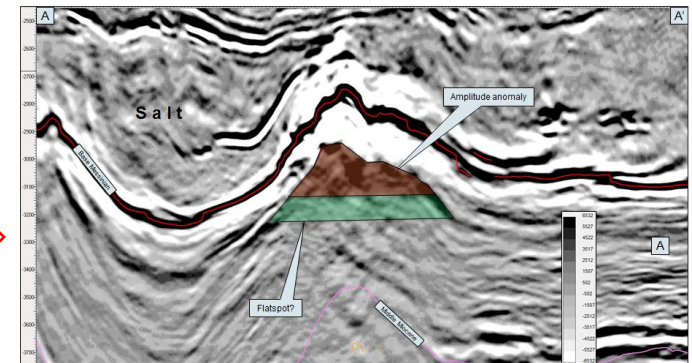
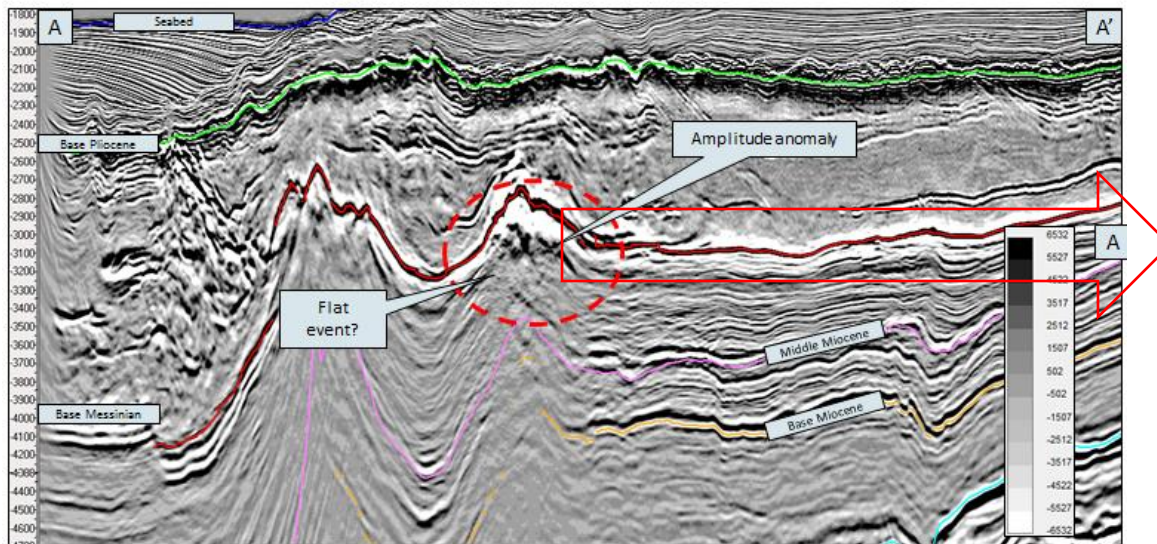
Block 8

Block	Sedimentological Target	Trap Type	Geologic Zones	Hydrocarbon Potential
8	1) Plio-Quaternary Sands 2) Miocene/Oligocene Sands	Structural	Zone 3: Deep Levant Basin (Closer to existing discovery than previous blocks)	High: Gas, some condensate



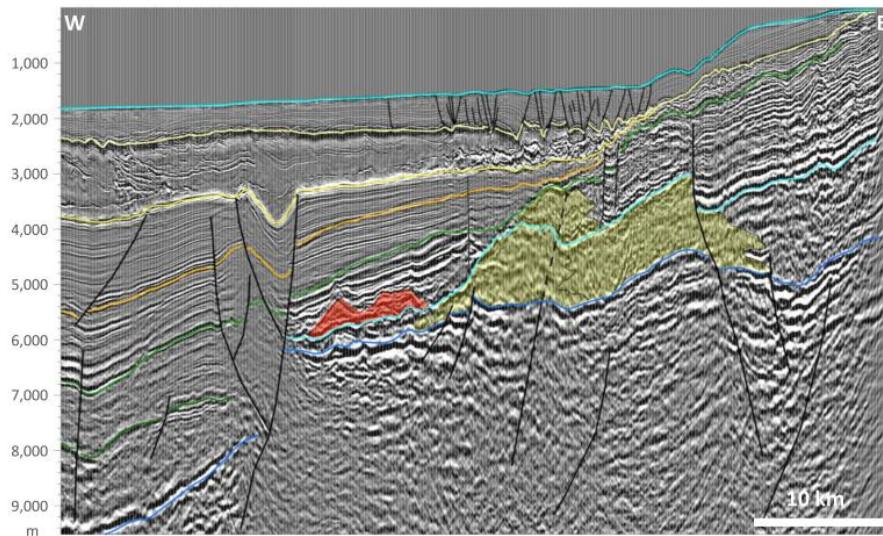
Block 9

Block	Sedimentological Target	Trap Type	Geologic Zones	Hydrocarbon Potential
9	1) Plio-Quaternary Sands 2) Miocene/Oligocene Sands 3) Carbonates	Structural & stratigraphic	Zone 5: Southern Mesozoic Platform	Very High: Gas, condensate and oil

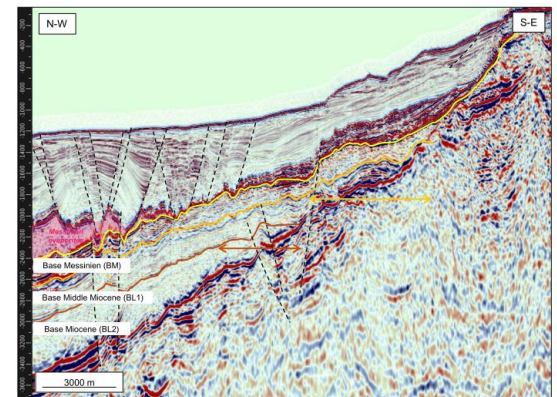
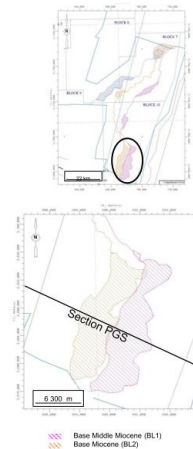


Block 10

Block	Sedimentological Target	Trap Type	Geologic Zones	Hydrocarbon Potential
10	1) Plio-Quaternary Sands 2) Miocene/Oligocene Sands 3) Carbonate Build up	1) Stratigraphic 2) Structural	Zone 5: Mesozoic Platform Zone 7: Neogene Continental Platform	Gas, possible condensate & oil



■ Lower Cretaceous mounds
 ■ Carbonate build-up



Pinch-out 101

BLOCK10-PO101	Potential Depth Closure	Surface at the closure
	m bsl	sq km
Mid Miocene	1800	76.0
Lower Miocene	2500	72.0

Summary of proposed blocks (2017)

Blocks	1	4	8	9	10
Hydrocarbon Potential	High/Moderate	Moderate	High	Very High	Very High
Sand Targets	Pre-Zohr	Pre-Zohr	Pre-Zohr	Pre-Zohr	Pre-Zohr
Carbonate Targets	Absent	Post-Zohr	Absent	Post-Zohr	Post-Zohr
Gas	Biogenic & Thermogenic	Biogenic & Thermogenic	Biogenic & Thermogenic	Biogenic & Thermogenic	Biogenic & Thermogenic
Condensate & Oil	Possible condensate & oil	Possible condensate & oil	some condensate	Possible condensate & oil	Possible condensate & oil
Traps	Structural	Structural & Stratigraphic	Structural	Structural & Stratigraphic	Structural & Stratigraphic

Total in Open Blocks:

- 10 Leads
- 64 Prospects: Structural & Stratigraphic Traps



Potential Gas Market

The Power Generation is the first potential local market for Natural Gas.

Short Term

Medium Term

Long Term

Electricity
Sector

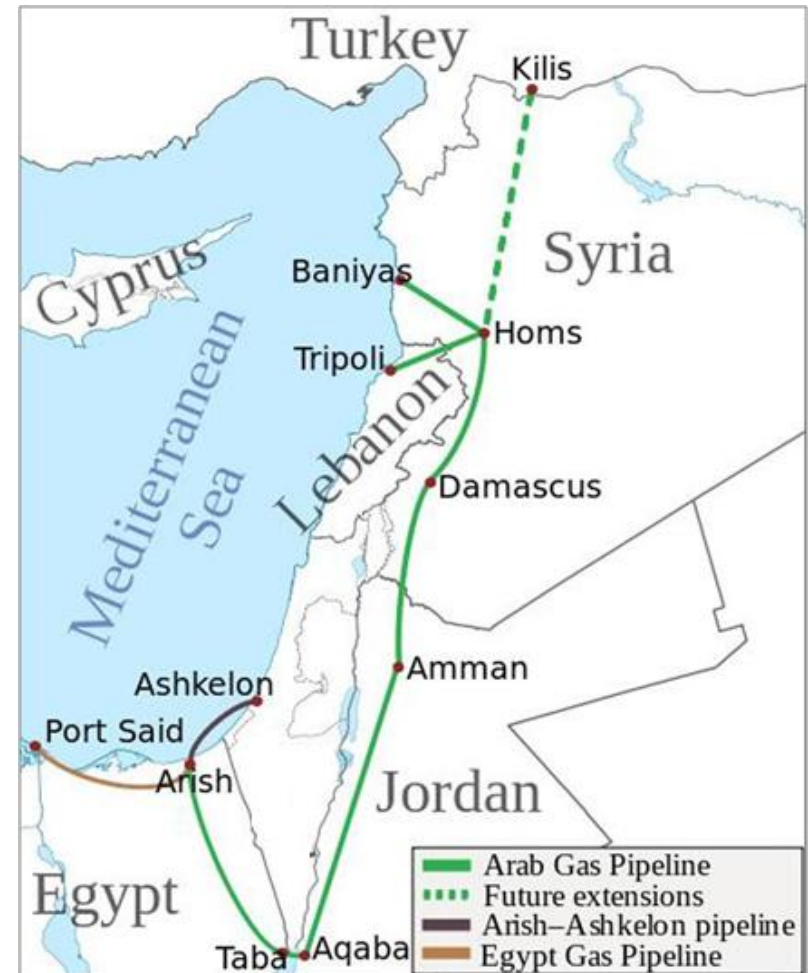
Industrial
hubs

Commercial
and large
institutions,
cities,
transport
sector

By 2030, the Natural Gas volume needed to fire the electricity sector would account for ~0.26 TCF per year.

Lebanon holds friendly relationships with potential markets and is well connected in the region.

- Lebanon holds friendly relations with Syria, Turkey, Cyprus, Egypt, Jordan and the EU.
- Lebanese Natural Gas can easily reach Syria, Jordan and Egypt through the Arab Gas Pipeline.
- Turkey can be reached by an extension of the Arab Gas Pipeline or through a short offshore shallow water pipeline.
- The EU markets can be reached through Turkey.
- Lebanon can tie-in to any regional collaboration passing through Cyprus.





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Thank you

