

Eastern Mediterranean Natural Gas Developments – the Challenges Ahead

Presented by Dr. Amit Mor

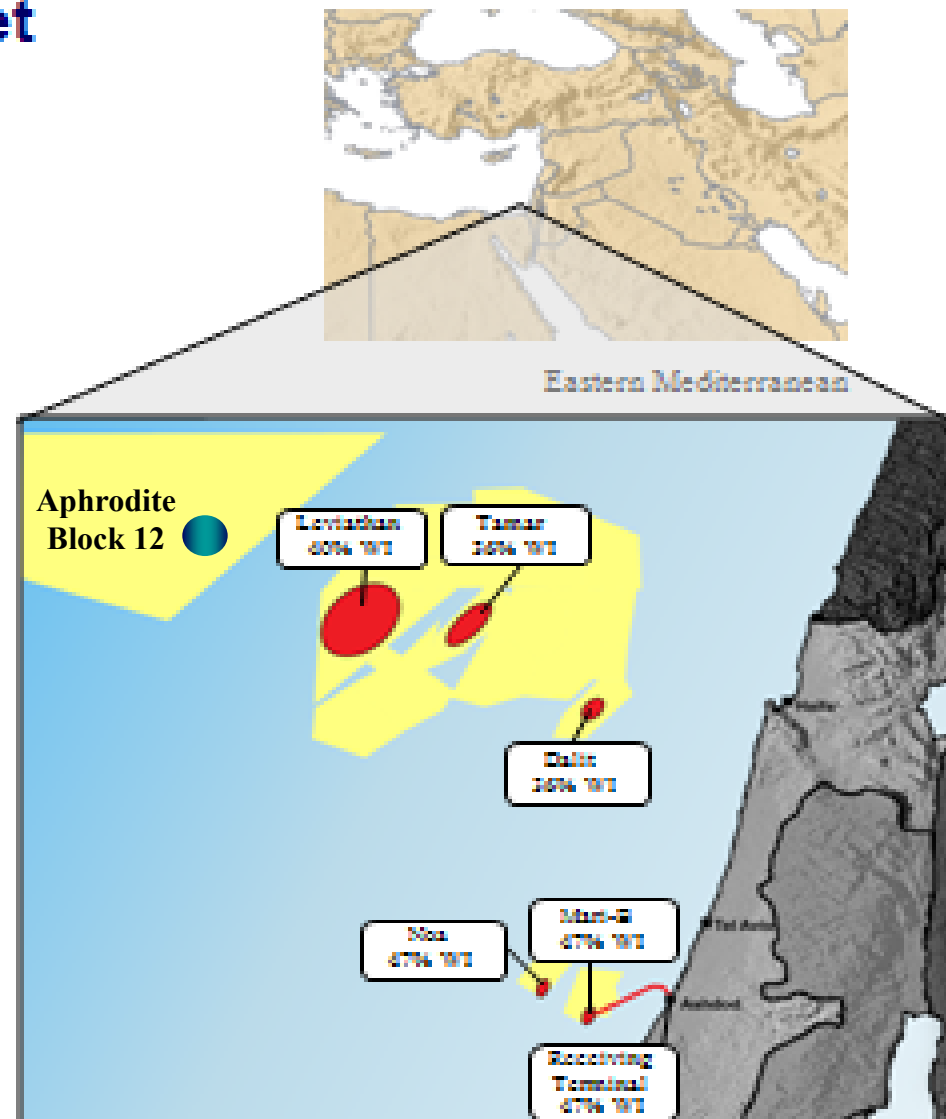
**IENE 2nd Cyprus Energy Symposium
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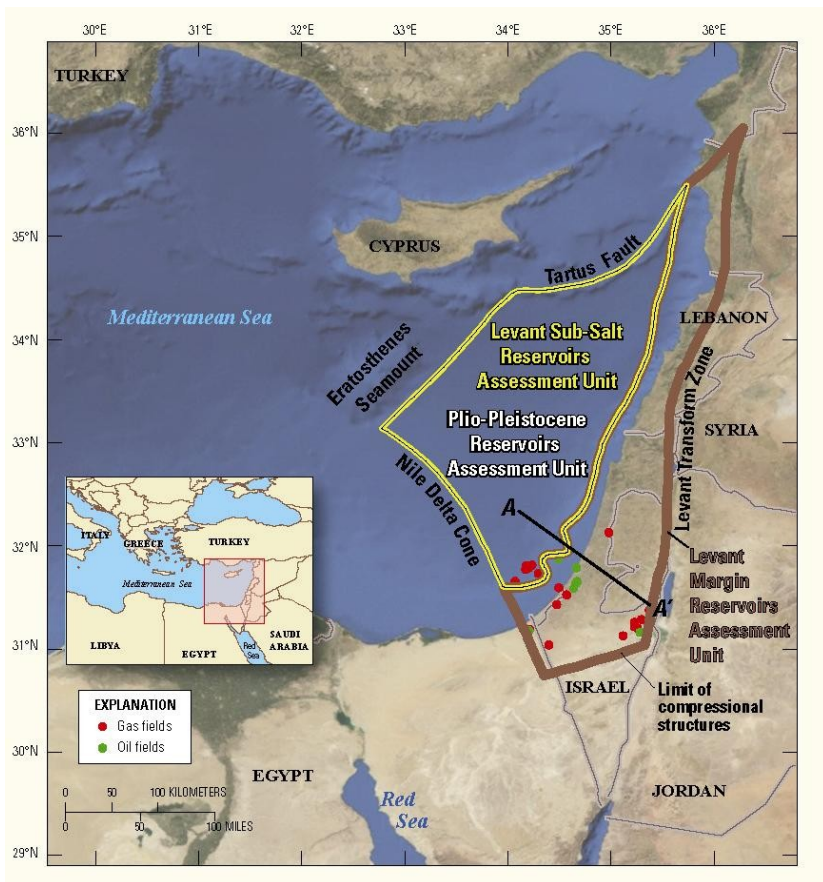
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Significant recent natural gas discoveries offshore Israel by Noble Energy and its Israeli partners totaling 27 trillion cubic feet

- ▶ Noble Energy came to Israel in the late '90s
- ▶ Noa discovered in 1999, Mari-B in 2000
- ▶ Andromeda drilled in 2001, Hanna in 2003, each dry holes
- ▶ Acquired more permits and licenses in 2006-2008, conducted additional seismic surveys
- ▶ Tamar and Dalit discovered in 2009
- ▶ Leviathan discovered in 2010
- ▶ Leviathan appraisal, Tamar development drilling, continued exploration in 2011





Royalties: 12.5 %
State Take: - 0%

USGS REPORT 2010 LEVANT BASIN UNDISCOVERED RESERVES

122 Tcf Natural Gas
+ 1.7 Billion barrels Oil
= 716 Billion \$

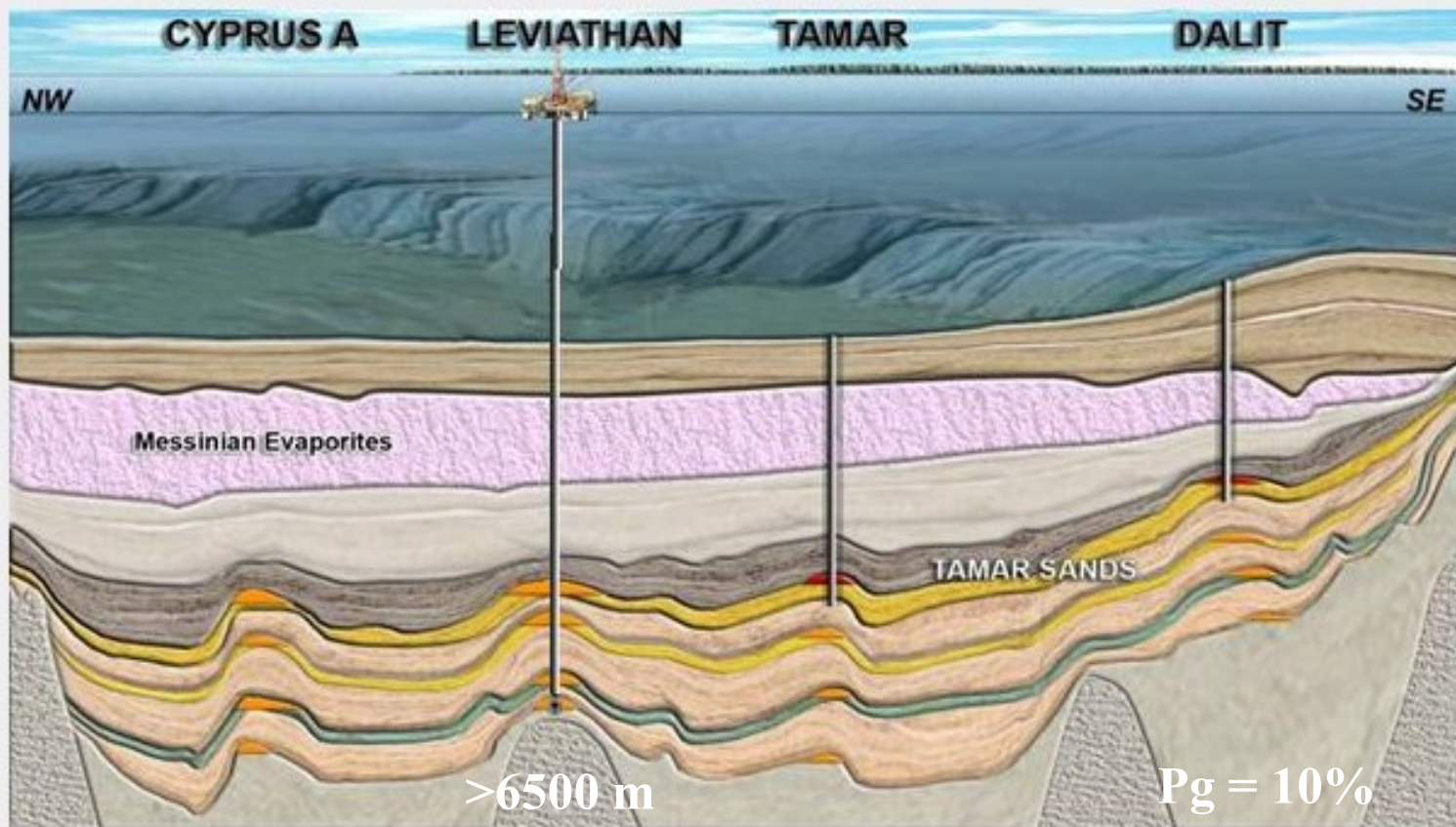
Levant Basin Dollar Values

122 Trillion Cubic Feet Natural Gas	122,000,000,000,000
Price per 1000 Cubic Feet (6/22)	\$4.79
Convert Trillion Cubic Ft	122,000,000,000
Total \$ Value - Natural Gas	\$584,380,000,000.00
1.7 Billion Barrels of Oil	1,700,000,000
Price per Barrel Oil (6/22)	\$77.87
Total \$ Value - Oil	\$132,379,000,000.00
TOTAL VALUE - LEVANT BASIN	\$716,759,000,000.00

Likelihood for oil discoveries?

Multiple Opportunities in Levantine Basin

High-risk deeper potential

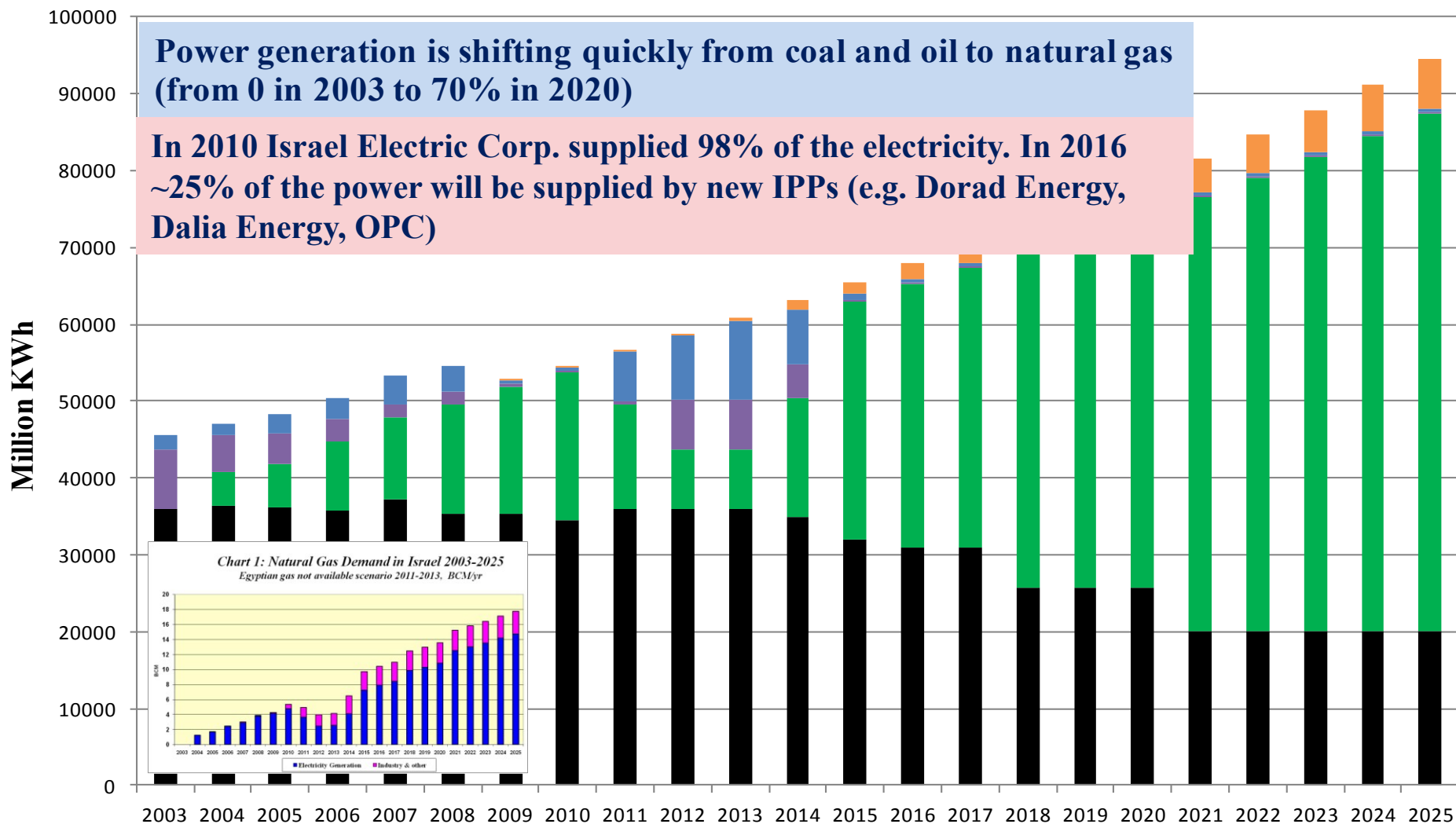


Electricity demand forecast by type of fuel 2003-2025

No Egyptian gas scenario 2011-2013, Million Kwh

Power generation is shifting quickly from coal and oil to natural gas (from 0 in 2003 to 70% in 2020)

In 2010 Israel Electric Corp. supplied 98% of the electricity. In 2016 ~25% of the power will be supplied by new IPPs (e.g. Dorad Energy, Dalia Energy, OPC)



Source: Eco Energy Ltd.
March 2010

The Tamar Project

- Drill 5 wells to ~ 5000 m
- Install subsea development @ 1700 m
- Install 150 km of dual 16" pipelines
- Build and transport Tamar platform
- Install Tamar platform near Mari-B

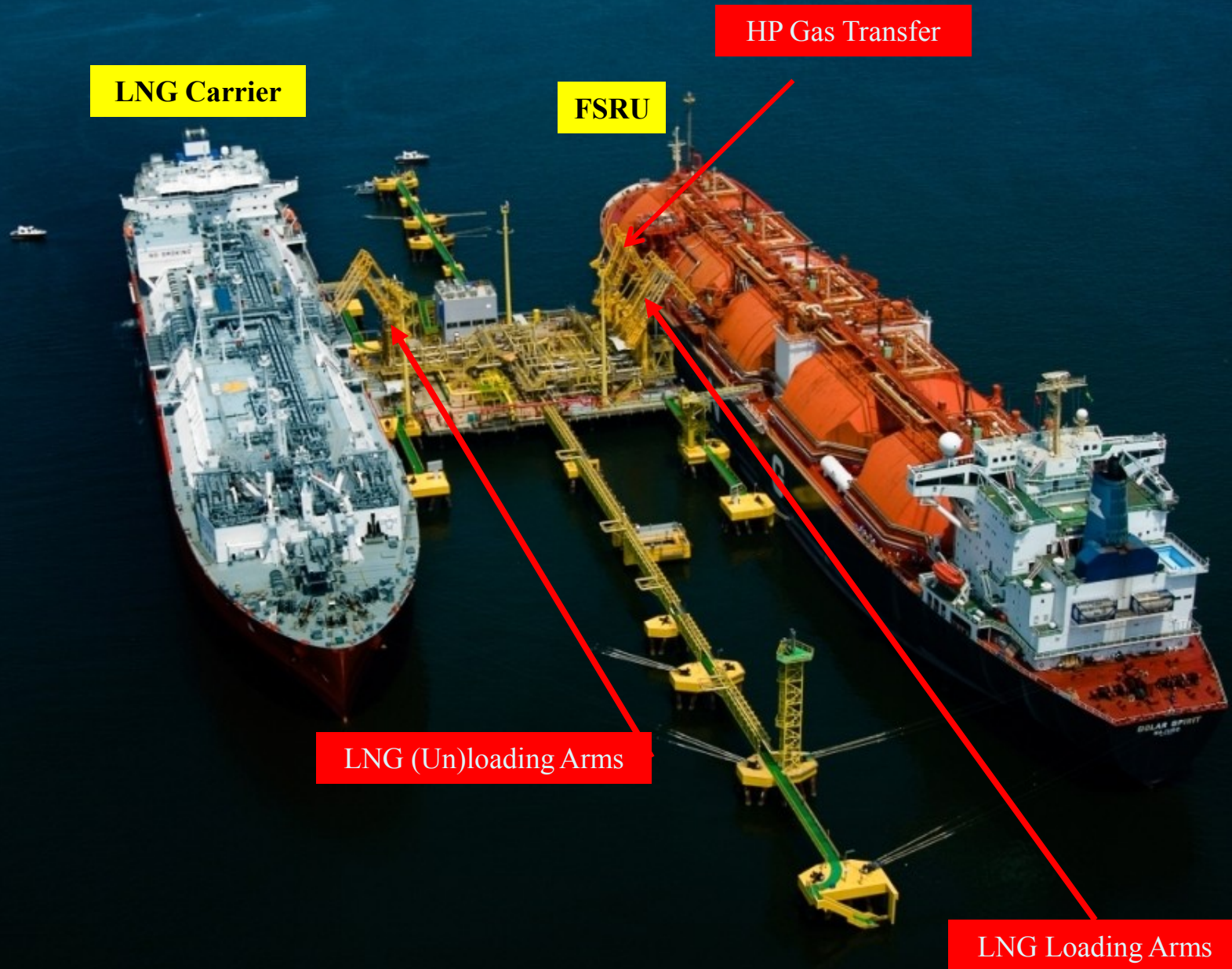
The Tamar deposit of ~9 TCF could supply Israel gas requirements for more than 20 years.

Further exploration will take place by Noble Energy and other companies.



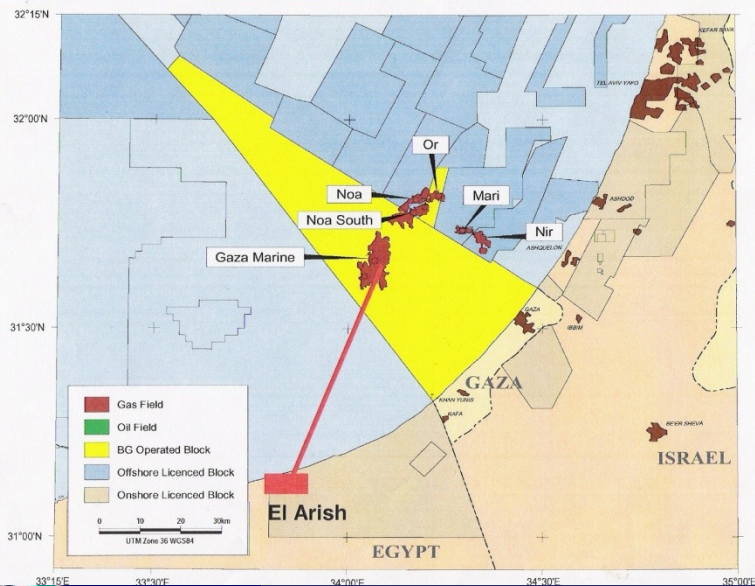
1st Conversion – Golar Spirit (Brazil) – 2 MTA

Golar LNG Energy



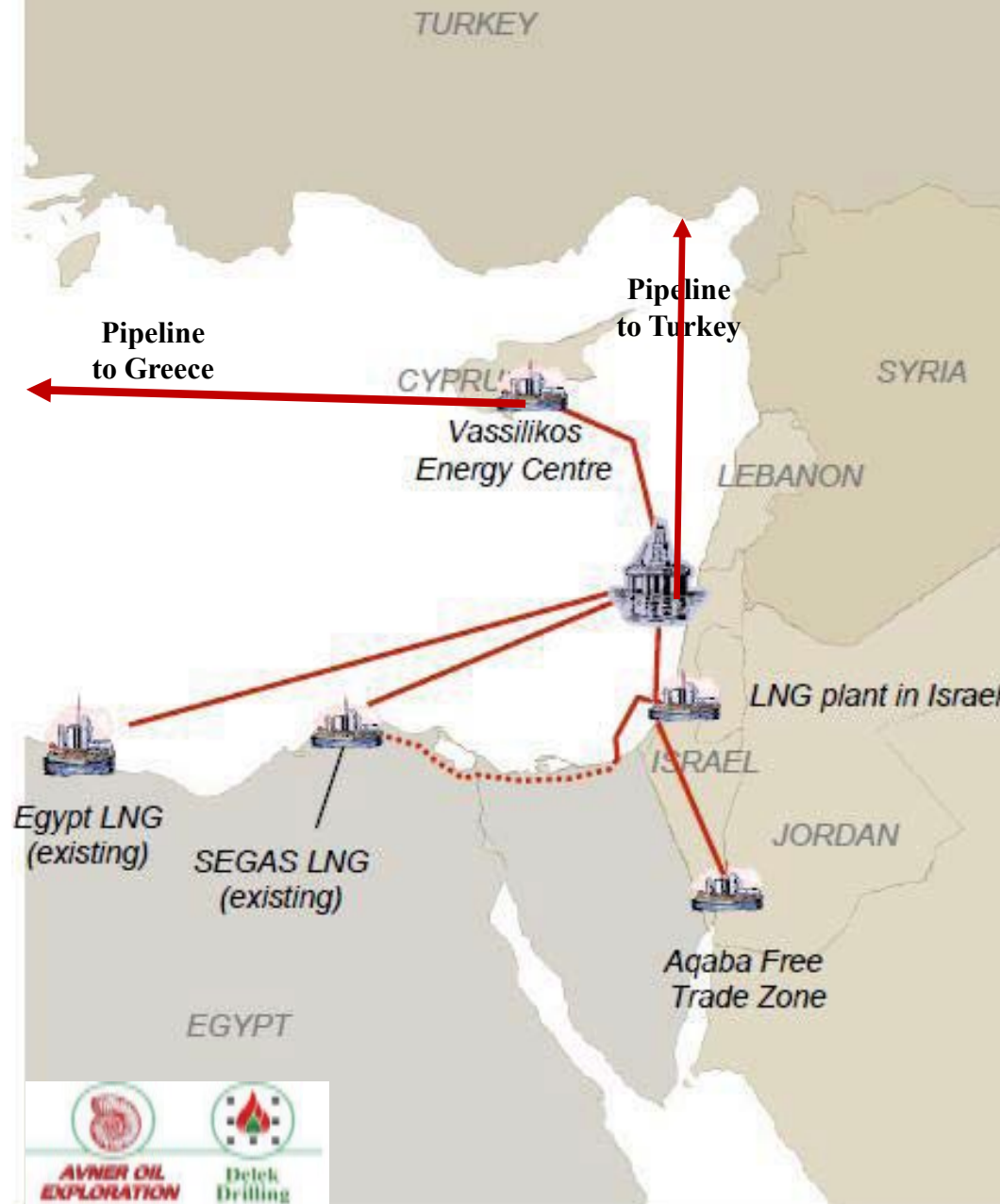


Gaza Marine - LNG



BG/Palestinian Natural Gas Export Options

Israel Gas Export Options

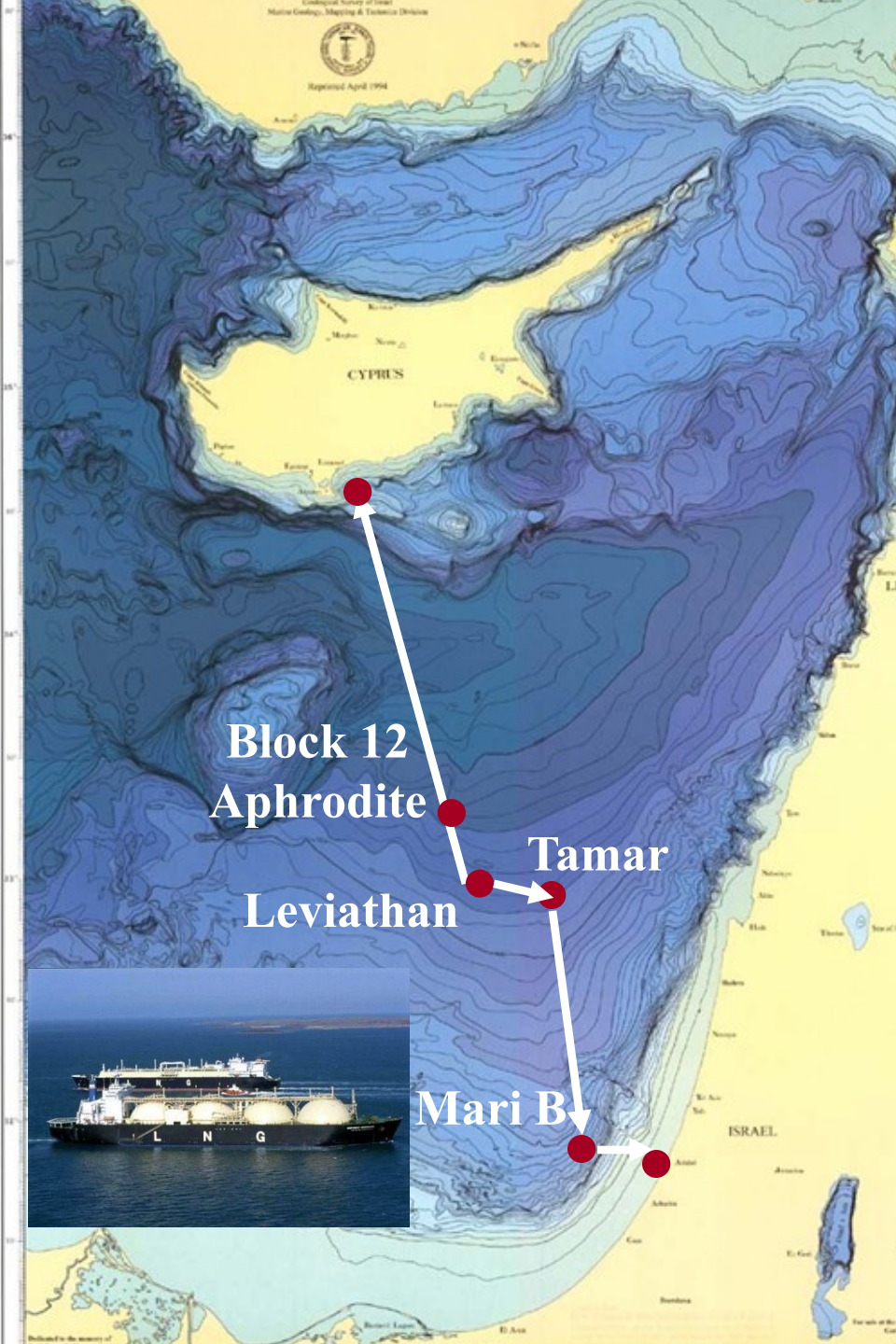


Natural Gas export options

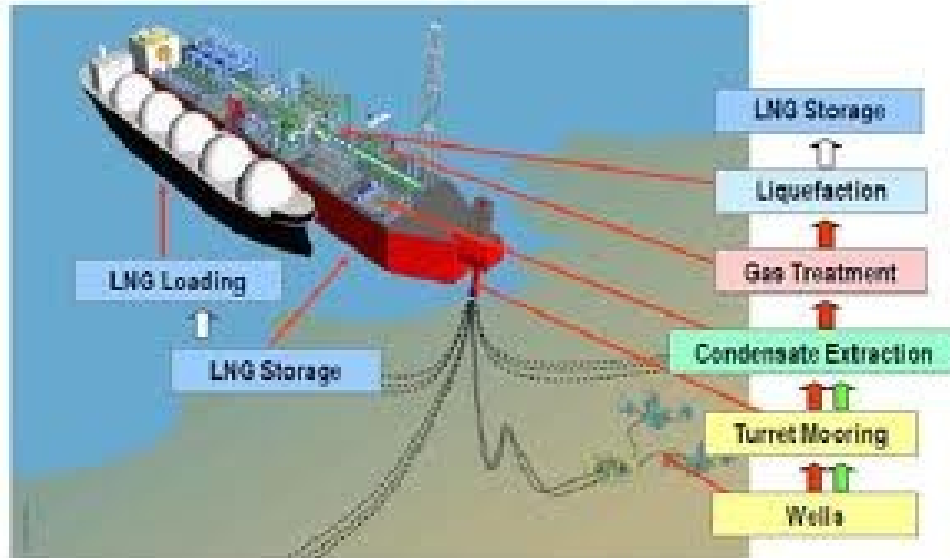
- LNG plant in Eilat or Ashkelon
- FLNG
- Pipelines to Turkey, Cyprus, Greece, Egypt, Jordan
- Production of GTL, methanol, fertilizers & petrochemicals

Leviathan-Vassilikos (Cyprus) Pipeline (initial estimates)

- ✓ Leviathan is located ~200 km from Vasilikos
- ✓ Pipeline crosses water depth of more than 2 km
- ✓ Pipeline & Development cost – \$4 billion
- ✓ LNG plant cost \$5-12 billion



Floating LNG



CONCLUSIONS

Southeastern Europe is a key market for the new sources of gas in the Eastern Mediterranean because of:

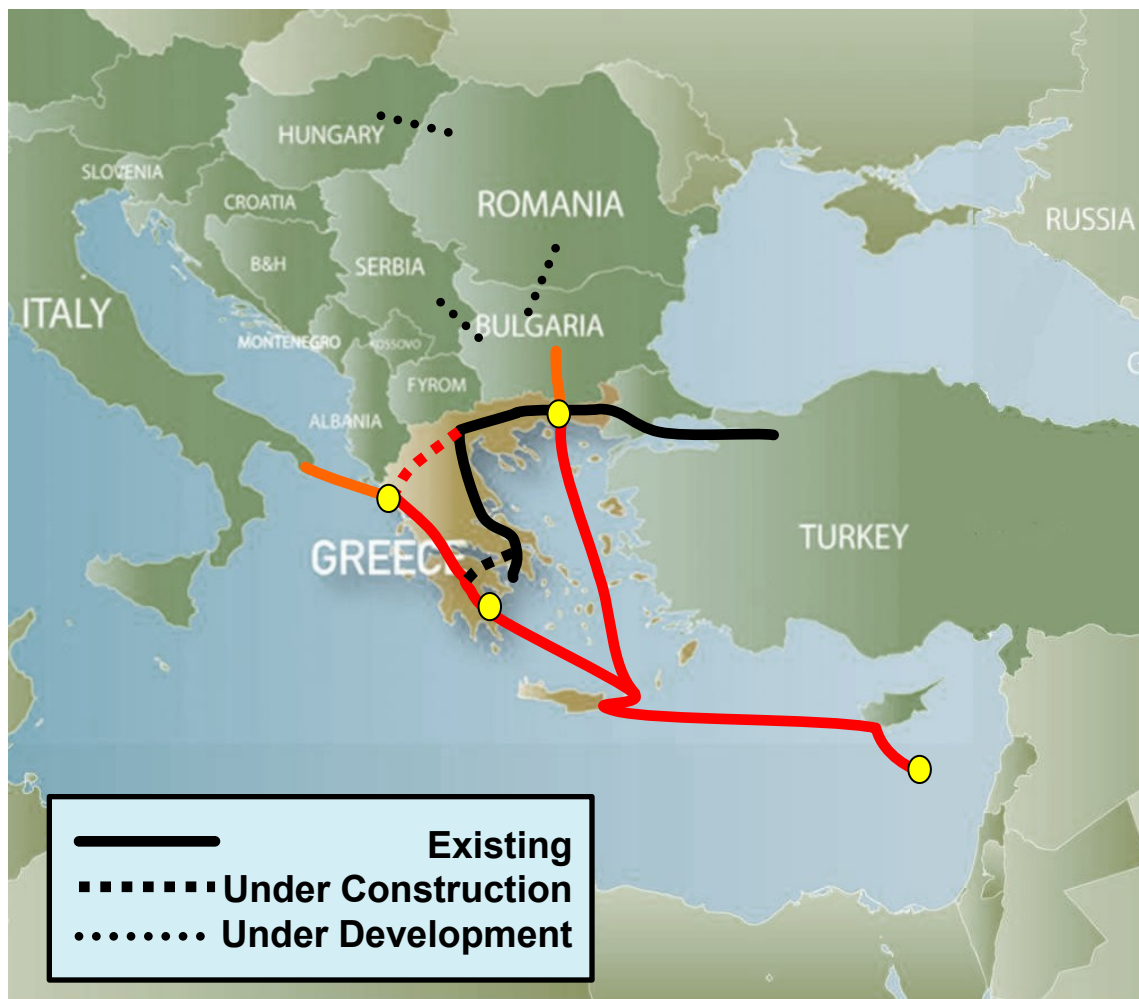
- its proximity to the source and
- its potential for growth.

The Pipeline Options:

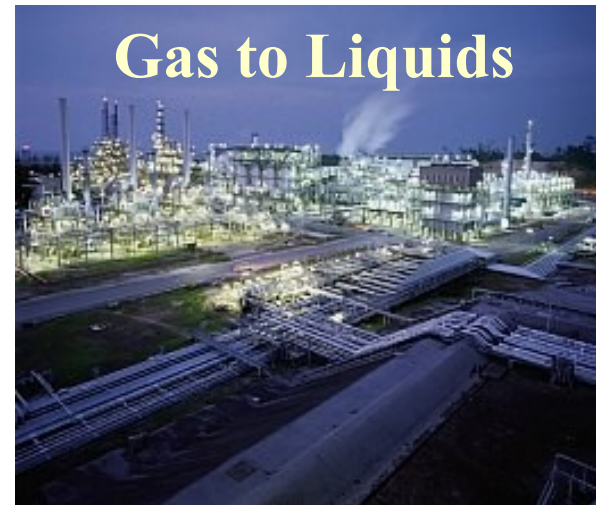
- Is the most Politically and Commercially attractive solution;
- Works complementary with the LNG option, allowing for a win-win scenario;
- Is the option that may be operational before 2020 and enabling the Mediterranean gas to reach first an attractive developing market.


Next Steps:

- A decision by the producers regarding the quantity of natural gas to be diverted to the European Markets;
- Political decision by the EU to enable the establishment of this new energy corridor to Europe;
- In depth feasibility study to reinforce the technical and commercial viability of the project.



Other Natural gas export options



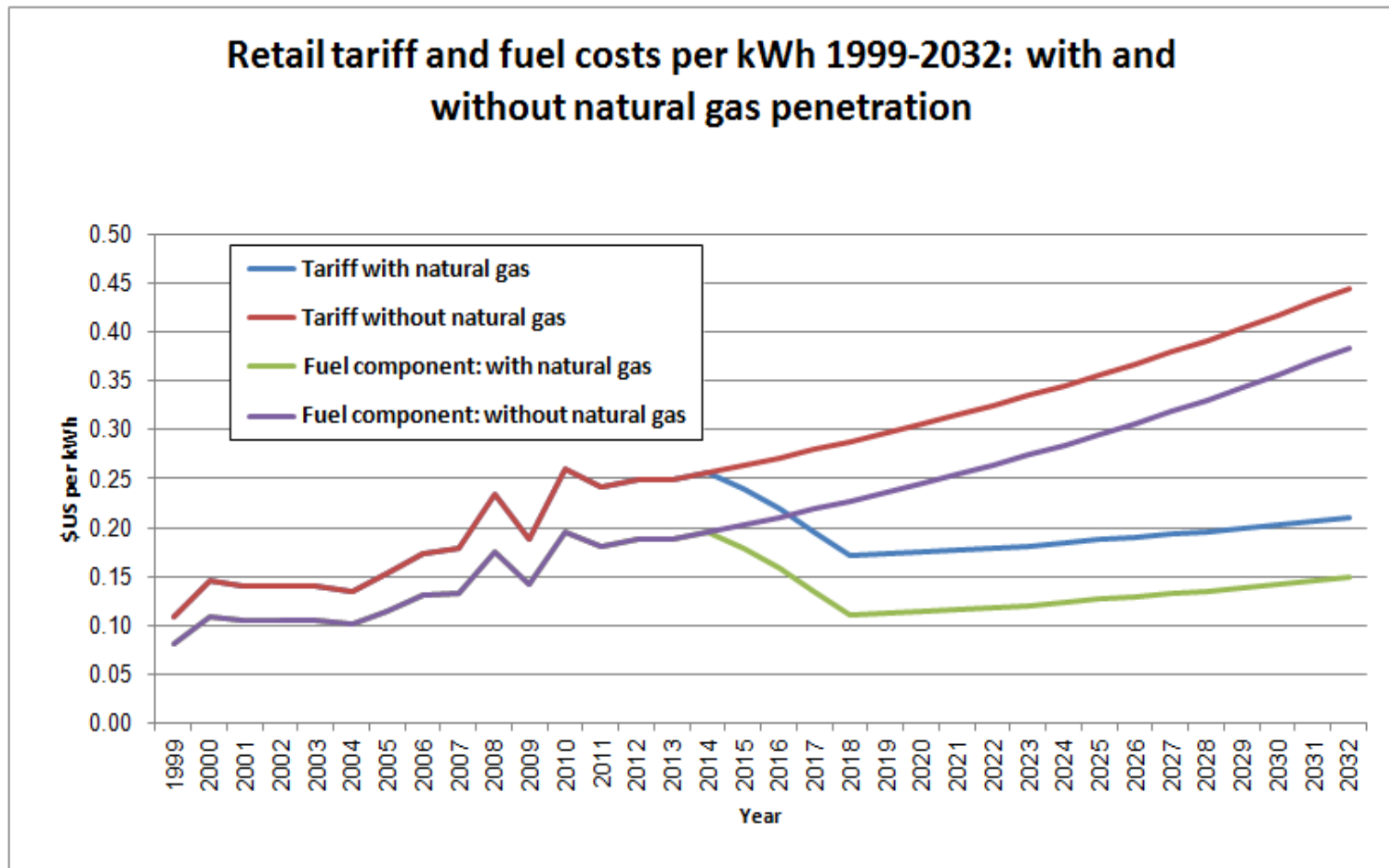


Our long term vision is natural gas, renewable and nuclear energy for power generation to fuel the world's Auto fleet — run on gas, charge batteries and produce hydrogen for transportation

The Clean Transportation Vision



Figure 5: Historical and forecasted electricity prices in Cyprus



Source: Forecast - Eco Energy (natural gas); Energy Information Administration (oil)

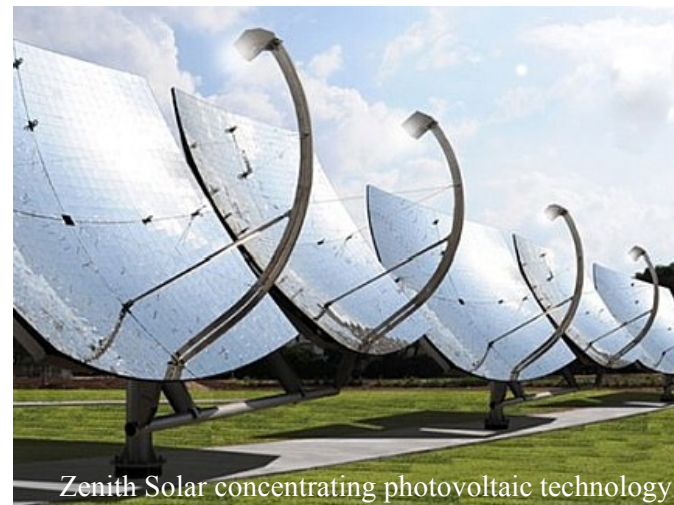


Issues for consideration:

- **Latest Developments**
- **Transparent exploration licensing**
- **Reserves for domestic consumption / export policy**
- **Gas infrastructure and security of supply**
- **Taxation Policy**
- **Sovereign national fund / Dutch disease**



Natural gas & renewable energy to enhance energy and environmental security



Thank You

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