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Eastern Mediterranean gas: the Energy Union's next frontier

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Discoveries of natural gas offshore Israel and Cyprus between 2009 and 2011 unveiled the Eastern Mediterranean[1] as a new frontier for the development of gas resources. Indeed, the US Geological Survey (USGS) released a study in 2010 suggesting that the Levant Basin contains an estimated 122 trillion cubic feet[2] of undiscovered, technically recoverable natural gas. Almost six years on, the prophesied East Med gas bonanza has yet to bear fruit. There are a myriad of reasons why, including: 1. the inability to identify a commercially viable project 2. geopolitical considerations 3. lack of vision and 4. "on the hoof" policy making - which translates into regulatory uncertainty and risky business environments for investors.

Analysts and policymakers in the region had hailed East Med discoveries as resources which could be used as tools to strengthen regional cooperation and solidarity through 'energy diplomacy' – which attempts to use economic and commercial means to interlink states. Until now, the gas resources have proven to provide more fuel for tension as opposed to cooperation. However, a surprise announcement by Italian energy giant Eni on August 30th 2015 has turned East Med plans and thinking on its head. Eni announced the discovery of the largest ever offshore natural gas field in the Mediterranean, in Egypt's territorial waters[3]. The so-called 'Zhor' discovery, confirmed by Egypt's Ministry of Petroleum, could contain up to 30 trillion cubic feet[4] with early estimates suggesting that it could supply Egypt's energy market for at least a decade.[5]

What does the Egyptian gas find mean for the region?

Combining Egypt's discoveries with those offshore Cyprus and Israel, the East Med is home to roughly 2 trillion cubic meters (tcm) – an enormous potential if compared to Europe's largest gas field, the Groningen in the Netherlands, which had 2.8 tcm when it was discovered in 1959. Zhor has renewed hope for the establishment of a vibrant gas market in the East Med – providing new alternatives to meet demand in regional energy markets as well as the European Union (EU).

For Egypt specifically, the Zhor discovery is a massive boost for the economy. Egypt currently imports about 6mpta LNG at a cost close to $20 billion. Once it comes on line, Zhor will reduce this by 60%, hence why the Egyptian government has been so eager to agree with Eni on fast tracking Zhor's development[6]. Eni intends

1 Here on after shall be referred to as 'East Med'.
2 This figure is a mean estimate.
3 The discovery is larger even than Israel's Leviathan (19tcf).
4 850 billion cubic metres.
5 Eni has also indicated that more gas lies beneath this reservoir which may extend quantities to 1.1 trillion cubic metres.
6 Dr. Charles Ellinas, Presentation: *Overview of the East Med Landscape, Cyprus & the region*, Global Oil & Gas Black Sea and Mediterranean,

Figure 1 *- Gas Fields Eastern Mediterranean Sea (source: EGAS)*

Figure 2 *- Location Zhor field*

to start appraisal drilling as early as January 2016 with first gas expected before 2020. If estimates are confirmed, then Egypt would have more natural gas than Norway. Indeed, recent developments mark a significant reversal of fortune for Egypt, which has encountered immense challenges in the post Arab Spring era. This is no accident; it is a direct outcome of an overhaul in Egypt's energy policy which set out to right the wrongs of earlier misguided policies which turned Egypt from an exporting powerhouse into an importer of LNG. Egypt has taken steps to repay the large debt it owes to IOCs[7] and is once again set to re-emerge as an important player in an increasingly fierce and competitive LNG market.

While Eni's announcement may have been cause for jubilation in Egypt, it has rattled feathers in neighbouring Cyprus and Israel whose development plans hinged on exporting their gas deposits to the prized Egyptian LNG terminals, Idku and Damietta, which still remain idle. Zhor's discovery has inevitably sent both governments back to the drawing board.

Good news and bad news for Cyprus and Israel

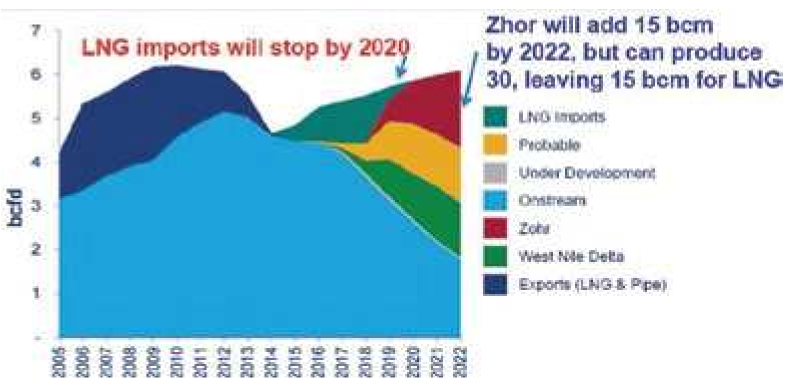
The good news for Cyprus is that Zhor could extend into Cyprus's EEZ[8]; an interesting development given Eni's commitment to recommence drilling in Cyprus in 2017 and considering the exceptional relations between the Cypriot and Egyptian governments. Zhor may have closed to door to Cyprus's plans to build a 350 kilometre (km) pipeline to Egypt, but it has opened others. Specifically, speculation regarding Zhor's extension into Cyprus's EEZ, should trigger renewed interest in the region from Total - who own the rights to Cyprus's block 11 - as well as other international players. Total,

Athens, 23-24 September 2015

7 International Oil Companies

8 Exclusive Economic Zone

Figure 3 *- Egyptian Gas Supply (source: Wood Mackenzie)*



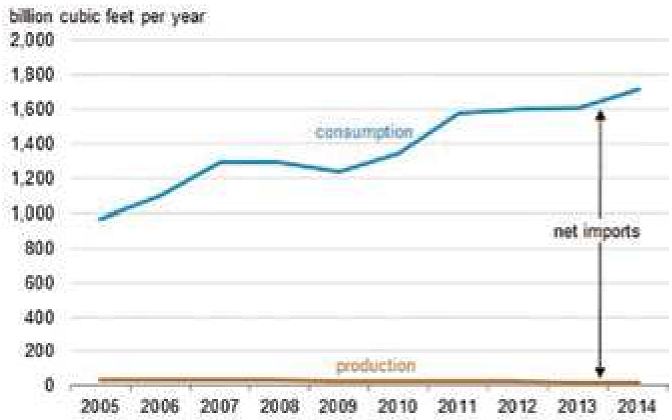


Figure 4 *- Turkey natural gas consumption and production (source: U.S. Energy Information Administration based on IEA, Monthly Gas Data Service)*

in cooperation with the other companies in the region, should reassess the seismic data they have at their disposal.

On the flipside, Zhor's discovery and Eni's deal with Egypt seem to have priced out Israeli and Cypriot gas. Eni negotiated a good gas price deal with Egypt in the range of \$3.95 - \$5.88 per mmBTU while estimates suggest that Cypriot and Israeli gas will cost between \$6-7 per mmBTU to land in Egypt. On the one hand it has been suggested that Egypt can still host gas quantities from Cyprus and Israel since energy demand in Egypt continues to increase given projected population growth and increasing demand in the transport and industrial sectors. On the other hand, however, the business and commercial case for Cypriot and Israeli gas lacks conviction. By the time liquefaction, transportation, regasification and profits are added; costs may exceed \$12 per mmBTU which cannot compete with LNG prices in Europe and Gazprom's current prices.[9] Another fact that does not bode well for Israeli and Cypriot exports is the fact that BP is also expected to bring more gas on-stream in 2017 having committed to \$12 billion to develop Egypt's North Alexandria field[10]. Therefore, while Egyptian demand has grown 7% annually for the past decade, Egypt already has a significant amount of domestic reserves coming on-stream within the next 5 years, and gas demand is expected to plateau as a result of technological advances and efficiency measures.

Cyprus and Israel would do well to consider other options, including the possibility of pooling their resources together and jointly exporting them through Cyprus's EEZ to Turkey. Turkey is growing in importance as a transit country for gas and has a voracious gas demand with very little indigenous production. This scenario would require a resolution of the Cyprus issue in order to become a reality. Another option would be to reconsider the option of CNG[11], which would aid in Cyprus's own decarbonisation efforts and would be able to supply markets in close proximity including the Greek islands and potentially other markets in South East and Central Europe.

Is East Med gas significant enough for Europe?

Within the spirit of the Energy Union, the EU continues to pursue its energy security objectives through the diversification of supply routes and sources. Each Member State should have access to three different sources of gas and should cease to be reliant on single supplier dependency. EU import dependence on gas remains at a very high level. In 2013, the EU imported more than 65% of its natural gas with the EU receiving most of its natural gas from only a few sources[12], while in 2014 it received more than 40% of its natural gas imports from Russia. Today, the European Commission foresees that annual EU gas demand

9 Dr. Charles Ellinas, Presentation: *Overview of the East Med Landscape, Cyprus & the region*, Global Oil & Gas Black Sea and Mediterranean, Athens, 23-24 September 2015, p.7

10 This discovery is likely to add another 10bcm annually to domestic supplies.

11 Compressed natural gas

12 e.g. Qatar, Norway, Algeria, and Russia

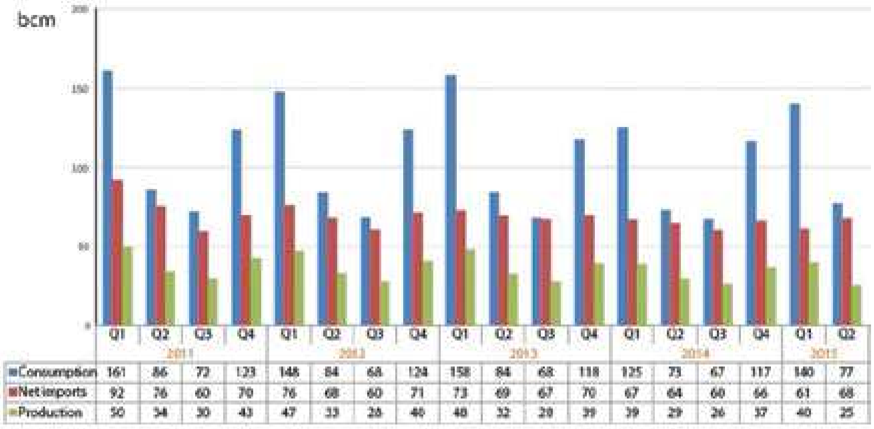


Figure 5 *- EU Gas Consumption, imports and production (source: Eurostat)*

needs amount to 380-450bcm/a.[13] With declining production of EU indigenous sources and the EU's intention to recalibrate its relations with Russia, the East Med's potential as a supply source for Europe cannot be ignored.

Developments in the East Med come at a good time both for policy makers and the industry, as the European Commission is set to present a communication on an EU LNG strategy in the first quarter of 2016. The intention of this communication is to complement the EU internal energy market strategy and reinforce the principles and values enshrined in the Third Energy Package, namely the free flow of energy.

European LNG imports are projected to grow steadily from an estimated 66 bcm in 2015 to 146 bcm in 2040, while natural gas imports by pipeline increase moderately only until 2025 and then level out (from 219 bcm in 2015 to 238 bcm in 2040). Hence, the utilization of LNG terminals, i.e. the share of existing capacity that is used, in the EU increases from 31 percent in 2015 to 48 percent in 2040, while the utilization of import gas pipelines is set to decrease from 58 percent to 49 percent.[14]

The success of an EU LNG strategy requires, as a prerequisite, the existence of a fully integrated and interconnected EU market. The LNG strategy should encourage governments and industry to complete missing interconnectors between the Member States. In essence, LNG will connect Europe to world markets and enable member states to absorb the abundant LNG quantities available.

What next? Conclusions and recommendations

In 2013, Europe was the second-largest regional destination of Egypt's LNG exports but Europe's LNG imports from Egypt decreased due to increasing competitiveness in the global LNG market as well as electricity shortages in Egypt which diverted gas quantities from Egypt's LNG facilities inland. Both BG Group at Idku and Union Fenosa and Eni[15] at Damietta have long term LNG sales contracts in place; destinations include Spain, China and other EU markets. However, the contracts are under *force majeure* as they do not have any gas to liquefy. Recent developments have prompted the re-opening of discussions between companies active in Egypt with the government.[16] EU markets such as Spain and Italy are highly desirable targets for Egyptian LNG given the size of the gas markets, but the EU will need to ensure that these markets are sufficiently interconnected to other EU countries.[17]

East Med is not a panacea for the EU, but this new story should elevate its status and make it an integral focal point of the EU's diversification

13 Based on Energy Roadmap 2050 projections and statements of Commissioner for Climate Action & Energy, Miguel Arias Cañete during Politico event: *Dash for Gas*, 16 September 2015
14 BP Energy Outlook 2035

15 Eni owns 50% of the shares in Damietta.
16 Companies active in Egypt had launched claims against the Egyptian government as a result of diverting gas from the LNG facilities to be used for domestic use.
17 A study published by Oxford Energy Institute in December 2014 underlined that gas from Spain's LNG facilities had the potential to replace a third of Russian gas supplies in Western Europe if a gas interconnector between Spain and France were to be established.

policy. Commissioner Cañete has already alluded to the creation of an 'East Med gas hub'. Ultimately, the realisation of projects will depend on project 'bankability'. The proximity of Zhor to Egypt's shore[18] coupled with the presence of existing infrastructure significantly reduces risk for international financial institutions and cost on industry. From an EU perspective, the EU should endeavour to use its energy diplomacy and good offices to foster win-win solutions in a region that is politically complex and historically prone to instability. The EU should also give teeth to initiatives such as the Union for Mediterranean Gas Platform and encourage EU Mediterranean countries to build bridges with North Africa. The concept of Euro-Mediterranean Projects of Common Interest should be explored further as it presents an opportunity for companies and governments to secure favourable conditions for projects that could contribute not only to energy security, but also to regional stability, economic growth and prosperity.

Cyprus and Israel need to rethink their strategies and consider new licensing rounds. This would require as a *sine qua non* the reunification of Cyprus. The United Nations, together with the EU ought to capitalise on the positive momentum in Cyprus[19]. Cyprus and Israel should also revisit the idea of pooling their resources with a view to building a pipeline through Cyprus' EEZ to Turkey and plan their strategy to coincide along with oil price recovery and the timeline of the Shah Deniz Consortium's phase III[20].

Moreover, the LNG revolution presents opportunities to change the way that gas is priced[21] and also lays the path for a competitive shipping ecosystem in the Mediterranean. Politicians in the East Med need to ensure that they have a shared and common vision for their region and ensure that stable and predictable investment climates are in place in order to reduce risks and CAPEX costs.

The Zhor discovery marks the dawn of a new day in the East Med and its discovery lends weight to the findings of the USGS that more significant gas quantities are available in the region and that this is only the beginning...there is more gas to come.

The opinions expressed in the article are personal and do not reflect the views of the entire forum or the company that employs the author.

Disclaimer: The article was submitted by the author in January 2016.

18 190 kilometres.

19 A referendum on Cyprus reunification could take place as early as the first quarter of 2016 ahead of Parliamentary elections in April.

20 The Trans Adriatic Pipeline (TAP) can transport an initial 10bcm/a and has the ability to increase capacity post 2020.

21 It can be priced on long term contracts and increasingly so on spot markets. See also Cheniere CEO statements regarding the creation of a global spot market for LNG: http://www.ft.com/intl/cms/s/0/70931a66-5238-11e5-8642-453585f2cfcd.html Accessed on: 04 September 2015