

Global energy crisis - opportunities for East Med and Cyprus gas

All Things Energy Forum

2 June, 2022

Dr Charles Ellinas – Senior Fellow Atlantic Council - CEO eCNHC

Introduction

- Russia's invasion of Ukraine has radically and permanently upended the global energy sector
- A bipolar world is emerging with the US and the EU on one side and China and Russia on the other, with the rest of the world in between. This also applies to energy
- The EU's goal is to get rid of Russian gas - now at 40% - by two-thirds by the end of 2022 and completely by 2027
- This re-opens gas export opportunities from the East Med that previously were considered to be commercially challenging
- But is this realistic? What are the opportunities and limitations? That's what I will talk about today

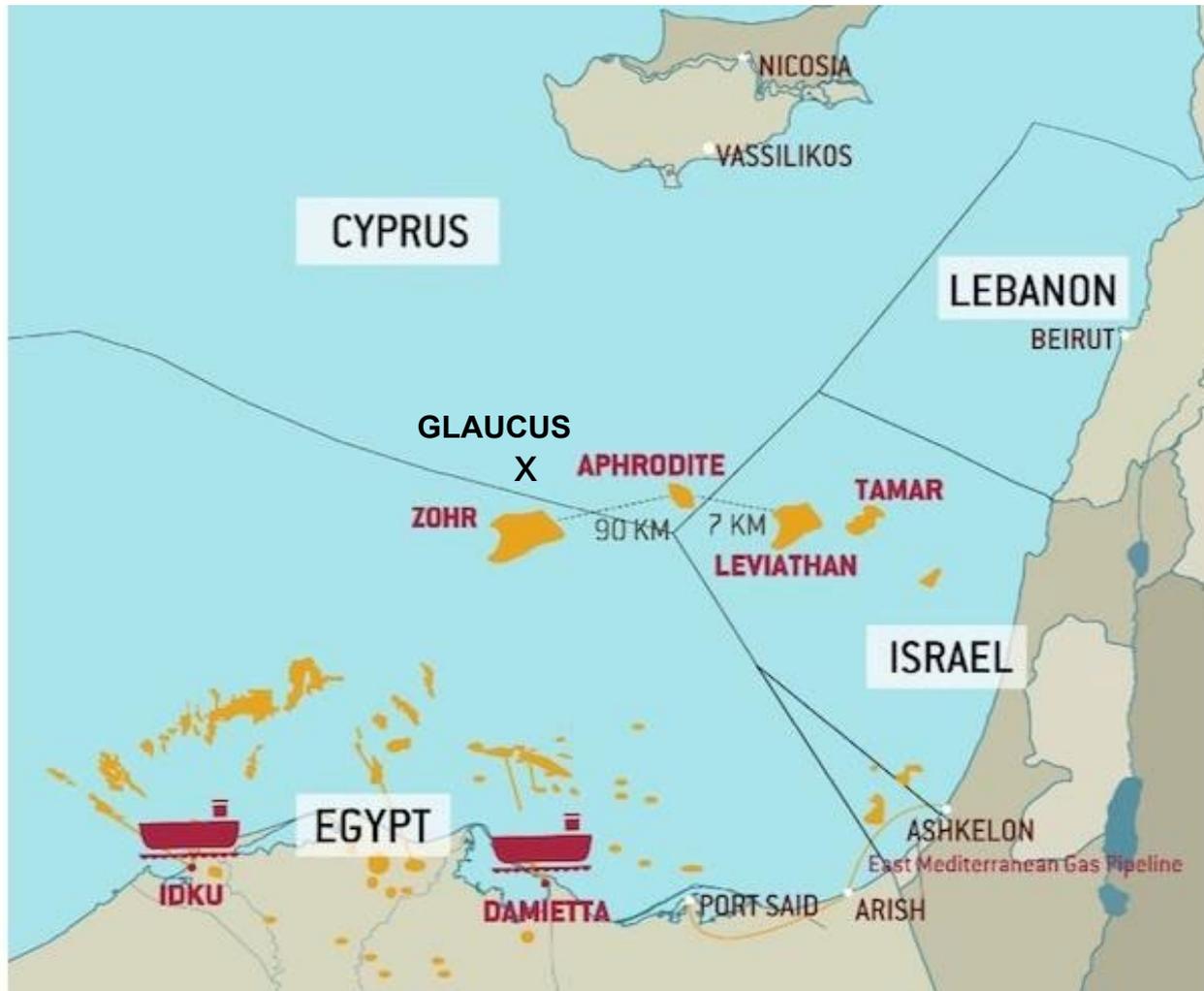
Europe's new plans

- Europe's new plans, announced on 18 May, revolve around its new REPower Strategy, driven by energy security considerations
- The ultimate aim of these proposals is to end dependence on Russian energy and to accelerate EU's transition away from fossil fuels to green energy
- The key to reducing Europe's dependence on fossil-fuels is electrification, renewable power and improving energy efficiency. This includes cutting overall natural gas consumption by 30% by 2030, on the way to elimination of fossil-fuels by 2050
- Whether these proposals are achievable within this timeframe is questionable – but for now that's what Europe is aiming for
- Kadri Simson, the European Energy Commissioner, has admitted that the result is that energy prices will stay high until 2025
- It is within this environment that East Med countries are trying to define a future role for their energy resources

East Med gas export potential

- The fastest way to increase East Med gas exports to Europe is by utilising Egypt's existing liquefaction plans to the full
- Other options examined in the past but considered challenging include the EastMed gas pipeline and a pipeline through Turkey to Europe
- In Israel Chevron is also considering the option of developing a second phase of Leviathan using FLNG
- Export of LNG from Egypt is immediate as the liquefaction facilities exist
- All the other options are greenfield and would require over 5 years to be constructed and become operational
- As a result, they cannot contribute to Europe's immediate needs, ie to become independent of Russian gas by 2027, or longer-term goal to reduce natural gas dependence, starting this decade

East Med major gas fields / LNG plants



Leviathan gas-field

- The Leviathan gas-field was discovered in 2010. It has about 625 bcm recoverable resources. The operator is Chevron
- Phase 1A development came on stream on 31 December 2019 with an annual production capacity of 12 bcm
- This can potentially be increased to 21 bcm/yr through Phase 1B under consideration
- With potentially more to come through an FLNG facility
- Apart from supplying gas to Israel, Leviathan also exports gas to Egypt and Jordan
- In addition, deliveries of about 1.7million m³/d of Leviathan gas to Egypt through the 'Arab Gas Pipeline' may be diverted to Lebanon through Syria

Cyprus gas export potential

- Aphrodite gas-field was discovered in 2011, with about 116bcm proven reserves, operated by Chevron
- The appraisal drilling of the Glaucus gas-field in block 10 has just been completed by ExxonMobil. It was discovered in 2019, with reserves estimated to be between 140-227bcm. Unconfirmed reports put this at the lower end of the range. ExxonMobil is also conducting surveys in block 5
- Another gas-field, Calypso, was discovered by Eni in 2018 in block 6. But its size is shrouded in mystery. Eni has just started drilling in the same block at a target named Cronos 1.
- On and off Cyprus has been discussing export of Aphrodite gas to Egypt through an undersea gas pipeline. But this never progressed beyond intergovernmental agreements, even though in May NewMed Energy said that the consortium agreed to drill another appraisal/production well, but without indicating a timetable.

Chevron choices

- Chevron as the operator of both the Leviathan gas-field in Israel and Aphrodite in Cyprus has choices about how to respond to the developing situation
- Understandably, Chevron appears to be giving priority to maximizing gas exports from Leviathan to Egypt, given that the required production infrastructure is in place. This only needs additional production well drilling and expanding export pipeline capacity, requiring low investments running into millions of dollars and can be done relatively fast – with high return potential
- There is no production or export infrastructure at Aphrodite. Developing this would require substantial investments running into billions of dollars and would take 4-5 years
- Investors may also see development of Aphrodite to be subject to geopolitical risk due to the unresolved Cyprus problem. It also requires a unitization agreement with Israel – still unresolved

Wildcat drilling at a low

- There is potential for more gas discoveries, but troubling for the region's future gas developments is that wildcat drilling has slowed-down markedly over the last few years
- Majors appear to be shunning wildcat exploration, favouring searches for near-field reserves that can be more easily tied-in to existing facilities
- This leads to faster returns at lower costs
- The result is that no new major discoveries have been made since 2019
- If this continues, prospects for new major discoveries offshore Cyprus, Israel and Lebanon would remain low
- Europe's acceleration of energy transition and intention to reduce gas utilization in future increases challenges

Egypt LNG exports to Europe -1

- Egypt exports LNG from its two liquefaction plants: Idku with 10bcm capacity and Damietta with about 7bcm
- Egypt exported 2bcm to Europe in 2021 and expects this to more than double it in 2022
- Lack of new sizeable gas finds since Zohr in 2015 and production declines are threatening Egypt's gas output & exports
- This is where Israel comes in – with gas exports to counteract Egypt's production declines
- Israel currently exports 5bcm/yr to Egypt through the EMG pipeline. This can be increased to 7bcm/yr
- A new deal was signed in February to export another 2.5-3bcm/yr to Egypt through Jordan, with a plan to increase this to 4bcm/yr
- These deals would enable Israel to export as much as 10bcm/yr to Egypt, allowing it to increase its LNG exports to Europe starting now

Egypt LNG exports to Europe -2

- But with more gas in the region, Egypt could export even more
- There is sufficient unutilised natural gas in the East Med, using existing gas reserves in Israel and Cyprus, to increase LNG production by another 10-15 bcm/yr by adding new liquefaction trains to Idku and Damietta. As most of the required infrastructure already exists, doing this will be cost-efficient and could be done within three years.
- Most of this can be exported to Europe for as long as needed and then to Asia, where, according to Shell, demand for new LNG will increase substantially in the period to 2040
- As a result of its existing plants, Egypt is not only able to respond to Europe's needs immediately, but also has potential to supply competitive LNG to Asia as well. This fits well with Egypt's aspiration to become the gas-hub of the East Med

A proposal to export East Med LNG to Europe

- Energean is proposing to build a pipeline from its gas-fields in Israel to Cyprus for liquefaction using a floating FLNG at Vasilikos and export to Europe
- It has all the ingredients required to make it a bankable project: access to natural gas, access to liquefaction facilities and an off-taker to market and trade the LNG
- The Hilli Episeyo FLNG, owned by Golar LNG, is currently on contract offshore Cameroon and will be available in 2026. Its full liquefaction capacity is 3,3bcm/yr
- Vitol, the world's largest independent oil, gas, energy and commodities trader, has expressed interest to be the off-taker of the LNG, with likely exports initially to Europe
- Energean has already discovered 8bcm gas at its Athena well. It plans more drilling this year at the Olympus area, with good prospects to discover another 50bcm. Should this prove successful, the company will make formal proposals to Cyprus

Possible routes of East Med export gas pipelines



East Med gas pipeline -1

- Resurrecting the EastMed gas pipeline is still driven mainly by politics, often without considering carefully the message from Europe:
- EU's goal is to find alternative sources of gas to reduce dependence on Russian gas by two-thirds this year and cease imports by 2027. The EU is also accelerating transition to RES and hydrogen, aiming to reduce gas use by 30% by 2030 and to zero by 2050. Thus, EU's goals for fossil fuel needs are short-term
- There is also resistance from the European Commission and activists that investing in new fossil fuel projects will lock them in long-term, delaying transition to clean energy
- Whether Europe's goal succeeds or not is questionable. What matters though is that this is Europe's message. This is what it is aiming for now

East Med gas pipeline -2

- But it is a confusing message. Investors in long-term projects need clarity and clear policies. Uncertainty about the longer-term future of gas in Europe discourages long-term investment
- Who will invest billions of dollars in long-term projects, such as the EastMed, or a pipeline through Turkey, just to secure five years of exports?
- Such investments require the EU to confirm that use of gas in Europe has a future beyond 2040 - something it does not, at present, appear to be prepared to do
- Without an EU change of policy on use of gas long-term, export of East Med gas to Europe by pipeline remains challenging

Prospects of hydrogen exports

- Egypt is putting together a low-carbon hydrogen strategy with the help of EBRD. This includes investing in existing and potential hydrogen production
- EBRD will also conduct a regulatory analysis and assess changes needed to support the development of hydrogen supply chains in Egypt
- The Egyptian Government is expected to announce a \$40bn hydrogen strategy this year, to include a production capacity of 1,400MW by 2030
- Egypt has at least five known active green hydrogen projects under development
- Egypt considers this to be an opportunity to become a leader in the region for the production, use and export of hydrogen
- The EU and Egypt had meetings in April to reinforce cooperation on LNG and green hydrogen supplies to Europe
- With Eni and SNAM taking the lead, Italy is well placed to act as a hydrogen-bridge between Middle East/East Med countries and Europe

Concluding remarks

- The fastest and most effective way for East Med to respond to Europe's call for new gas resources to support its drive to become independent of Russian gas by 2027 is by maximising LNG exports from Egypt's liquefaction plants
- These can also be expanded by the addition of new liquefaction trains – increasing export capacity by 10-15bcm/yr utilising existing gas reserves in Israel and Cyprus
- Without an EU change of policy on use of gas long-term, export of East Med gas to Europe by pipeline remains challenging
- With the EU accelerating transition to green energy and hydrogen, the future of energy in the East Med lies in a new strategy based on a rapid growth of RES, combined with energy storage, electricity interconnectors and use of natural gas regionally, in support of RES during transition