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Energy and Geopolitics in the Eastern Mediterranean

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I. INTRODUCTION

The Global Energy Center promotes energy security by working alongside government, industry, civil society, and public stakeholders to devise pragmatic solutions to the geopolitical, sustainability, and economic challenges of the changing global energy landscape.

Although natural gas reserves were first found in the Eastern Mediterranean (East Med) in the 1970s, international interest in exploiting this resource has waxed and waned along with regional political difficulties.¹ With major discoveries in the last decade or so and development of major natural gas fields, the Eastern Mediterranean holds the potential to become an important area for hydrocarbon exports.

Interest in the Eastern Mediterranean's gas potential revived in 2015, following the discovery and successful development of Egypt's Zohr gas field, along with Israel's Leviathan field, which was discovered in 2010 and began producing gas at the end of 2019. However, finding hydrocarbons appears easier than exporting them, even without regional geopolitical challenges. Though today's high gas prices favor suppliers, Eastern Mediterranean gas projects—whose long development timelines make long-term trends a crucial consideration—may continue to face shrinking export prospects, as potential markets, especially those in Europe, increasingly shift resources to renewables. But Eastern Mediterranean gas might still have a lucrative role to play as Asian countries switch off coal, Europe looks to decrease dependence on Russian gas, and the world assesses the importance of gas in a low-carbon energy mix.

However, the Eastern Mediterranean's geopolitical conflicts have jeopardized the full realization of its potential to develop and export natural gas. Additionally, the momentous shocks that the oil and gas industry experienced toward the end of 2019 and in 2020—combined with the devastating impact of the COVID-19 pandemic on the global economy and energy supply and demand—have upended the future of gas exploitation in the East Med.

The East Mediterranean Gas Forum (EMGF) was established in early 2019 and, although it is one of the more promising developments in recent years, it has structural problems, such as Turkey's lack of involvement. Success in

¹ Daniel Markind, "Will Natural Gas Isolate Turkey and Integrate Israel in the Eastern Mediterranean?" *Forbes*, October 22, 2020, <https://www.forbes.com/sites/danielmarkind/2020/10/22/will-natural-gas-isolate-turkey-and-integrate-israel-in-the-eastern-mediterranean/?sh=5afld24c7209>.

the ongoing Cyprus settlement negotiation—the island is currently divided with the north administered by the Turkish Cypriot community and the Republic of Cyprus (RoC) in the south—could contribute massively to regional gas development, but after the 2017 breakdown of Cyprus reunification talks at Crans-Montana, chances of progress appear remote. While it is clear that the market will drive the development of these resources, domestic and regional politics will also influence how East Med gas resources are developed.²

This report provides an overview of changes that have shaped Eastern Mediterranean natural gas progress since 2017 (see Appendix for a timeline of developments), and it maps the region's potential by providing updates on key issues outlined in the 2016 Atlantic Council report *Hydrocarbon Developments in the Eastern Mediterranean*.³ This paper focuses on the key East Med countries that have a stake in natural gas development: the RoC, Egypt, Israel, the Palestinian Authority, Jordan, and Lebanon. Greece and Turkey are also considered in this paper as key players in regional natural gas resources.

II. FACTORS AFFECTING EASTERN MEDITERRANEAN HYDROCARBON DEVELOPMENT

The Eastern Mediterranean is a significant gas region in the making, with major gas fields Tamar, Leviathan, Aphrodite, Zohr, Calypso, and Glauco. The Eastern Mediterranean has been a key area of interest for gas development and holds the potential to deliver new supply to Europe. However, the region must overcome complex geopolitical problems that have frustrated gas development, while navigating an increasingly competitive global energy market.

Table 1. Major Gas Discoveries in the Eastern Mediterranean^a

Gas Field	Probable Reserves (billion cubic meters)	Discovery Date	Status
Tamar, Israel	280	2009	Producing
West Nile Delta, Egypt ^b	142	2010	Producing
Leviathan, Israel	622	2010	Producing
Aphrodite, the RoC	127	2011	Pursuing gas sales
Tanin, Israel ^c	37	2011	Producing
Karish, Israel ^c	28-42	2013	Producing
Zohr, Egypt	845	2015	Producing
Calypso 1, the RoC ^d	170-227 ^e	2018	Discovered in January 2018
Glauco-1, the RoC ^e	142-227 ^f	2019	Discovered in February 2019

^a These figures are an update to the 2016 Atlantic Council report *Hydrocarbon Developments in the Eastern Mediterranean: The Case for Pragmatism* by Charles Ellinas, John Roberts, and Harry Tzimitras. Available at <https://www.atlanticcouncil.org/in-depth-research-reports/report/hydrocarbon-developments-in-the-eastern-mediterranean/>.

^b "BP Makes a Significant Deep Gas Discovery in Egypt's West Nile Delta," BP, November 23, 2010, <https://www.bp.com/en/global/corporate/news-and-insights/press-releases/bp-makes-a-significant-deep-gas-discovery-in-egypts-west-nile-delta.html>.

^c John V. Bowlus, "Eastern Mediterranean Gas: Testing the Field," European Council on Foreign Relations, May 2020, https://www.ecfr.eu/special/eastern_med/gas_fields.

^d "Calypso Holds 6 to 8 Tcf, ENI Says," *Cyprus Mail Online*, February 13, 2018, <http://cyprus-mail.com/2018/02/13/calypso-holds-6-8-tcf-eni-says/>.

^e Gas quantities are still to be confirmed, and could be as low as 85 billion cubic meters. See Gregoris Savva, "ExxonMobil Announces a Discovery of 5 to 8 Trillion Cubic Feet in Cyprus' EEZ," *Greek News Online*, February 28, 2019, <https://www.greeknewsonline.com/exxonmobil-announces-a-discovery-of-5-to-8-trillion-cubic-feet-in-cyprus-eez/>.

^f Gas quantities still to be confirmed; appraisal drilling of Glauco was started in December 2021 and is expected to be completed by the end of February 2022.

2 Charles Ellinas, John Roberts, and Harry Tzimitras, *Hydrocarbon Developments in the Eastern Mediterranean: The Case for Pragmatism*, Atlantic Council, August 1, 2016, <https://www.atlanticcouncil.org/in-depth-research-reports/report/hydrocarbon-developments-in-the-eastern-mediterranean/>.

3 Ellinas, Roberts, and Tzimitras, *Hydrocarbon Developments in the Eastern Mediterranean*.

4 Guido Steinberg and Isabelle Werenfels, "Regional Trends after the Dissolution of 'Old Orders' in the Middle East and North Africa" in *The Political and Economic Challenges of Energy in the Middle East and North Africa*, ed. David Ramin Jalivand and Kirsten Westphal (London: Routledge, 2017), 17–20.

Political Challenges and East Mediterranean Gas Forum Efforts

Political risks—especially regional conflicts and disputes over water and drilling rights—have become increasingly relevant to the future of natural gas development in the East Med as more gas discoveries have been made. More so than posing problems for gas exploration, regional conflict can introduce even greater challenges for industry efforts to establish export routes to reach international markets.

To promote natural gas development in the Eastern Mediterranean while addressing geopolitical challenges, government officials from Egypt, the RoC, Greece, Israel, Italy, Jordan, and the Palestinian Authority established EMGF in January 2019. The Cairo-based forum aims to support members' efforts to maximize the benefits of their natural resources and regional energy infrastructure through cooperation.⁵ It also aims to pave the way “for fruitful cooperation in technical and economic fields, with

a view to efficient realization of the gas potential in the region.”⁶ Representatives from the European Commission, the United States, France, and the World Bank attended the January 2019 meeting as observers (France later joined the EMGF in March 2021).⁷ Notably absent were Turkey, Syria, and Lebanon. However, absent countries that are aligned with the goals of the forum may have the option to join.⁸ Additionally, EMGF has acknowledged the importance of including the private sector.⁹ In September 2020, the six EMGF states signed a charter to cement the group as an intergovernmental organization dedicated to optimizing natural gas exports from the East Med.¹⁰ This formalized platform could help ensure a conducive regulatory environment, realize necessary intergovernmental arrangements, and remove political risk. However, it will likely take time before EMGF progresses from being primarily a discussion-based forum to having the political and economic influence it seeks.¹¹



From left to right: then-RoC Energy Minister Yiorgos Lakkotrypis, RoC President Nicos Anastasiades, Greek Prime Minister Kyriakos Mitsotakis, then-Israeli Prime Minister Benjamin Netanyahu, then-Greek Energy Minister Kostis Hatzidakis, and then-Israeli Minister of Energy and Water Yuval Steinitz pose for a picture following the signing of a deal to build the EastMed pipeline to carry natural gas from the eastern Mediterranean to Europe, at the Zappeion Hall in Athens, Greece, on January 2, 2020. REUTERS/Alkis Konstantinidis

5 “Cairo Declaration Establishes Eastern Mediterranean Gas Forum with Seven Countries,” *Ahram Online*, January 14, 2019, <http://english.ahram.org.eg/News/321727.aspx>.

6 “Political Cooperation Will Enhance East Med Gas Prospects,” *Hellenic Shipping News Worldwide*, January 29, 2019, <https://www.hellenicshippingnews.com/political-cooperation-will-enhance-east-med-gas-prospects/>; Nael M. Shama, “Gas and Conflict in the Eastern Mediterranean,” *Atlantic Council*, February 19, 2019, <https://www.atlanticcouncil.org/blogs/energysource/gas-and-conflict-in-the-eastern-mediterranean>.

7 “Political Cooperation Will Enhance East Med Gas Prospects,” *Hellenic Shipping News Worldwide*.

8 “Energy: Oil & Gas,” *Cyprus Profile*.

9 “Energy: Oil & Gas,” *Cyprus Profile*.

10 “East Mediterranean States Formally Establish Egypt-Based Gas Forum,” Reuters.

11 Charles Ellinas, “High Ideals but Lacking in Practicalities,” *Cyprus Main Online*, August 4, 2019, <https://cyprus-mail.com/2019/08/04/high-ideals-but-lacking-in-practicalities/>.

One of the areas of focus for the EMGF is the United Nations Convention on the Law of the Sea (UNCLOS), which is crucial to peaceful hydrocarbon development in the Eastern Mediterranean. UNCLOS is accepted internationally, and it could form the basis for resolving regional exclusive economic zone (EEZ) disputes. However, although many East Med countries have declared their EEZs through bilateral agreements or national declarations—both approaches are in compliance with UNCLOS—Israel, Syria, and Turkey have each declined to ratify UNCLOS. East Med countries have a plethora of EEZ agreements among themselves, but with varying degrees of success. The RoC and Lebanon concluded an EEZ boundary agreement in January 2007, but it has not yet been ratified by Lebanon's parliament as of early 2022, even though the RoC and Lebanon signed a memorandum of understanding in July 2021 that detailed energy sector cooperation.¹² Lebanon and Syria are also experiencing EEZ boundary disputes. Nevertheless, the first round of talks between Israel and Lebanon, which took place in October 2020, could be a path to an agreement over the countries' maritime border.¹³ US mediation continued in 2021, pushing the two sides to make compromises and setting March 2022 as the deadline to reach agreement.

The RoC and Israel signed an EEZ boundary agreement in December 2010 without contention, but the unitization agreement between the two countries is still being negotiated. In March 2021, Israel and the RoC agreed to give companies a deadline to resolve their differences on the Aphrodite-Yishai dispute before turning the resolution efforts back to the two respective governments; however, there is still no agreement as of early 2022.¹⁴ The agreement on the EEZ boundary between the RoC and Syria has not yet been signed. Israel and Egypt have also not formally entered into EEZ agreements, but there does not appear to be a dispute between the two on delineation. On the other hand, Egypt and Greece signed an EEZ agreement in August 2020, which will allow the countries to develop the resources in the EEZ.¹⁵

In addition to major ongoing disputes between Greece and Turkey—which have also affected the delineation of the EEZ between Greece and the RoC—the dispute between Turkey and the RoC is one of the biggest issues affecting

Eastern Mediterranean natural resource development, as Turkey maintains that the RoC does not have rights to an EEZ or its offshore hydrocarbon deposits. The central question is whether the EEZs of the RoC and Greece share a common boundary. Turkey's recent agreement with Libya, which contests the EEZ rights of Greek islands and the RoC, has further complicated issues.¹⁶ Turkey is determined to proceed with plans to drill to the south of Crete, even over European Union (EU) objections.¹⁷

The RoC's gas development is confronted with an increasing number of issues, as Turkish intervention has raised the stakes and risks in the region and is dampening prospects for further exploration and development in the RoC's EEZ.¹⁸ Resolution of these issues requires overall settlement of the dispute between Greek and Turkish Cypriots. The United States and EU continue to support the RoC as it endeavors to develop its offshore resources and assert its rights to its EEZ, voicing this through supportive statements and unchanged policy that supports reaching an overall settlement.¹⁹

However, Turkey is going ahead with plans to develop its claims in the region, challenging the RoC's EEZ. Turkey's recent claims of a 320 billion cubic meters (bcm) Black Sea gas discovery at the Tuna-1 well have been revised to hold 405 bcm in estimated natural gas field reserves, and a new claim at the Amasra-1 well of 105 bcm was recently announced.²⁰ If commercially attainable, these finds will reduce Turkey's reliance on natural gas imports and could alleviate some of the pressure of developing in the Eastern Mediterranean. On the other hand, it could embolden Turkey to double down on its aggressive strategy in the region.

Cyprus Reunification Talks

There was hope that 2018 elections, in both the Turkish Cypriot community in the north and in the RoC, might further the reunification process, but this has not materialized. Reunification in the medium term may be possible, although the foundations of political support for a comprehensive settlement in both communities, as well as in Turkey, continue to appear weak. Turkish Cypriots, with the support

12 Cyprus, Lebanon sign MoU on oil, gas cooperation," XinhuaNet, July 24, 2021, http://www.xinhuanet.com/english/2021-07/24/c_1310081445.htm.

13 Joshua Mitnick, "How a Maritime Deal with Israel Could Ease Lebanon's Woes," *Foreign Policy*, October 13, 2020, <https://foreignpolicy.com/2020/10/13/lebanon-israel-natural-gas-talks-maritime-deal/>; "Lebanon Demands Israel Halt Gas Search after Expanding Claims in Disputed Area," *Times of Israel*, April 15, 2021, <https://www.timesofisrael.com/lebanon-demands-israel-halt-gas-search-after-expanding-claims-in-disputed-area/>.

14 "Minister Steinitz and His Cypriot Counterpart Reach Agreement on the Aphrodite-Yishai's Dispute," Israel Ministry of Energy, March 10, 2021, https://www.gov.il/en/departments/news/press_090321.

15 "Egypt and Greece Sign Agreement on Exclusive Economic Zone," Reuters, August 6, 2020, <https://www.reuters.com/article/us-egypt-greece/egypt-and-greece-sign-agreement-on-exclusive-economic-zone-idUSKCN252216>.

16 Ariel Cohen, "Turkey-Libya Maritime Deal Upsets Mediterranean Energy Plan," *Forbes*, January 8, 2020, <https://www.forbes.com/sites/arielcohen/2020/01/08/turkey-libya-maritime-deal-upsets-mediterranean-energy-plan/#5c4ffd5e6bee>.

17 Cohen, "Turkey-Libya Maritime Deal."

18 Zia Weise, "Med Natural Gas Find Brings Conflict Dividend," *Politico*, March 6, 2018, <https://www.politico.eu/article/natural-gas-mediterranean-cyprus-turkey-more-gas-more-problems/>; "EEZ: Cyprus Has the Right, Turkey Has the Might," *Cyprus Mail Online*, October 6, 2019, <https://cyprus-mail.com/2019/10/06/eez-cyprus-has-the-right-turkey-has-the-might/>.

19 Elias Hazou, "Increased US Naval Presence in Med Linked to ExxonMobil Gas Moves," *Cyprus Mail Online*, March 6, 2018, <http://cyprus-mail.com/2018/03/06/increased-us-naval-presence-med-linked-exxonmobil-gas-moves/>; "US State Department Stresses Cyprus's Right to Develop Resources in EEZ," *Ekathimerini*, July 12, 2018, <http://www.ekathimerini.com/226528/article/ekathimerini/news/us-state-department-stresses-cyprus-right-to-develop-resources-in-eez>.

20 "Turkey Raises Black Sea Gas Field Estimate after New Discovery," *Al Jazeera*, October 17, 2020, <https://www.aljazeera.com/news/2020/10/17/turkey-raises-black-sea-gas-field-estimate-after-new-discovery>.

of Turkey, argue that nothing should be done to develop the RoC's hydrocarbons without their consent. However, Greek Cypriots reject joint management of hydrocarbon development, arguing that all resources in the RoC's EEZ belong to both communities and should be shared equitably. Ersin Tatar—who had been prime minister since 2019—won the Turkish Cypriot community presidential election runoff with almost 52 percent of the vote, deepening the divide between the RoC while strengthening ties with Turkey.²¹ In April 2021, the United Nations held a series of informal reunification talks between Greek- and Turkish-Cypriot politicians along with officials from Turkey, Greece, and the United Kingdom in Geneva.²² After three days of negotiations, the two sides were unable to find enough common ground to resume formal talks on a settlement.



The Saar-6 corvette, a warship dubbed “Shield,” cruises near the production platform of the Leviathan natural gas field after a welcoming ceremony by the Israeli navy to mark the arrival of the warship, in the Mediterranean Sea off the coast of Haifa, on December 1, 2020. REUTERS/Ilan Rosenberg

2021 Israeli-Palestinian Conflict

The last year has seen major flare-ups in the Israeli-Palestinian conflict, along with some signs of moderate progress toward regional stability. Clashes between Israeli police and Palestinians at the end of Ramadan in April 2021 and tensions around the likely eviction of Palestinians living in the East Jerusalem neighborhood of Sheikh Jarrah turned into full-scale fighting, with Hamas firing rockets into Israel and the Israel Defense Forces responding with airstrikes on the Gaza Strip. The death toll in the latest round of fighting between Israel and Palestine was the highest since the Gaza War in July and August of 2014. However, the fragile cease-fire that began in late May 2021 has held.²³

While the violence of the spring of 2021 did not bring reassurances to the international community of leaders and potential investors in Eastern Mediterranean gas exploration, Israel's summer political turmoil may ultimately shift the country back toward international cooperation. Although Naftali Bennett—who became prime minister of Israel in June 2021, following Benjamin Netanyahu's premiership of twelve years—might be even more of a hardliner than his predecessor, the slim coalition that he assembled (and a power-sharing agreement, whereby Israel's new foreign minister and leader of centrist party, Yesh Atid, will serve as prime minister in two years, completing the second

half of a four-year term) to form a government has meant that he will need to seek opportunities for compromise.²⁴ Bennett has already sought to repair fractures in the relationship between the United States and Israel, making clear that he intends to work closely with the Joe Biden administration, whereas Netanyahu had made no secret of his preference for former US President Donald Trump and other Republicans over Democratic politicians.

Israel's former Minister of Energy Yuval Steinitz was a key participant in the EMGF. With a new coalition government that represents nearly the entire Israeli political spectrum, it seems likely that Israel will continue its participation in the forum. However, Environmental Protection Minister Tamar Zandberg has cautioned against a potential agreement to bring Gulf oil through the Eilat-Ashkelon pipeline, and there are indications that Zandberg and Israel's new minister of energy will seek a greener future with more renewable energy sources.²⁵ However, the geopolitical significance of the EMGF—which brings closer ties to other countries in the region, especially Egypt—and its economic implications for Israel (in December 2020, Israel began pumping gas from the Leviathan and Tamar fields in a deal worth \$19.5 billion) indicate that Israel will most likely continue to seek opportunities for cooperation on natural gas exploration.²⁶

21 Ali Kucukgocmen “PM Tatar Wins North Cyprus Presidential Vote, Says People Want Own State,” Reuters, October 18, 2020, <https://www.reuters.com/article/us-cyprus-north-election-result/pm-tatar-wins-north-cyprus-presidential-vote-says-people-want-own-state-idUSKBN2730PP>.

22 Paul Tugwell, Selcan Hacaoglu, and Georgios Georgiou, “Cyprus Rivals to Talk Reunification as Tensions Pull Them Apart,” Bloomberg, April 26, 2021, <https://www.bloomberg.com/news/articles/2021-04-27/cyprus-rivals-to-talk-reunification-as-tensions-pull-them-apart?sref=a9fBmPFG>.

23 “Israel and Hamas Begin Cease-Fire in Gaza Conflict,” *New York Times*, updated May 25, 2021, <https://www.nytimes.com/live/2021/05/20/world/israel-palestine-gaza>.

24 “Netanyahu Is Out: Naftali Bennett Sworn in as Israel's New Prime Minister,” NPR, June 13, 2021, <https://www.npr.org/2021/06/13/1005724415/netanyahu-is-out-naftali-bennett-will-be-installed-as-israels-new-prime-minister>.

25 Amy Spiro, “‘Now or Never’: New Environment, Energy Ministers Vow to Act on Climate Crisis,” *Times of Israel*, June 15, 2021, <https://www.timesofisrael.com/now-or-never-new-environment-energy-ministers-vow-to-act-on-climate-crisis/>.

26 Sheldon Kirshner, “Israel's Ties with Egypt Are on the Upswing,” *Times of Israel*, September 14, 2021, <https://blogs.timesofisrael.com/israels-ties-with-egypt-are-on-the-upswing/>.

III. EASTERN MEDITERRANEAN REGULATORY REFORMS AND EXPORT POTENTIAL

Identifying natural gas fields in the Eastern Mediterranean has proven easier than selling it outside the region due to prices that were low until just recently and the difficulties that East Med countries face as they try to compete in the global natural gas market. Since lower gas prices are expected to return and persist in the longer term, Eastern Mediterranean countries with natural gas resources may wish to prioritize selling locally and regionally.²⁷ At the same time, demand for natural gas may continue to grow in Asia as countries switch away from coal.²⁸ However, each country in the Eastern Mediterranean with access to natural gas resources has varying levels of potential to export those resources regionally and beyond.

Eastern Mediterranean gas producers will have to compete with other liquefied natural gas (LNG) and piped exporters to Europe on carbon reduction, while maintaining low prices. This could incentivize developers early on to implement innovative ways to reduce greenhouse gas emissions. At the same time, if these emission reductions cannot be achieved at a low cost, developers could be further driven to sell locally and regionally. Each Eastern Mediterranean country that aims to export its natural gas resources to Europe will respond differently to the carbon border adjustment mechanism, based on its technical abilities and natural gas development costs.

Egypt

With International Monetary Fund (IMF) economic support and the approval of the new gas law, Egypt is successfully developing its hydrocarbons sector, and is largely unaffected by the geopolitical problems that impact the rest of the region. Egypt's substantial internal market and the high prices it pays to international oil companies (IOCs) have encouraged rapid development of newly discovered gas fields.²⁹ As new gas fields beyond Zohr—including the West Nile Delta, Atoll, and Nooros—have started operations, domestic natural gas

demand has been satisfied and there is also a surplus, raising the possibility of exports.

Egypt's liquefaction terminals at Idku and Damietta make exports more likely.³⁰ BP's project at the West Nile Delta is expected to add an estimated 40 million cubic meters per day (mcm/d) when all three phases of the project are online, giving Egypt's gas production a significant boost. Production from the second phase started in February 2019, while the third phase, which includes the Raven Field, started producing in April 2021.³¹ Combined with Zohr reaching a plateau, Egypt's production hit record levels in fiscal year 2019-2020 to over 200 mcm/d.³² With this, Egypt expects to have about 41 mcm/d surplus gas production for export. The liquefaction plant at Idku and the Damietta plant have a combined nameplate capacity of 48 mcm/d.

However, the restarting of Damietta had long been dogged by a continuing arbitration dispute.³³ Parties associated with the Damietta plant signed an agreement in February 2020 but it fell through in April 2020 after certain terms of the agreement were not met.³⁴ However, in February 2021, gas liquefaction resumed at Damietta for the first time since 2012.³⁵ Egypt halted LNG exports from the Idku liquefaction plant in April 2020 due to COVID-19 and a surplus in natural gas.³⁶ In August 2020, the liquefaction plant at Idku completed its first cargo export since March, shipping LNG from Idku to Taiwan.³⁷ Shell is planning to exit its 36.8 percent stake in the LNG liquefaction plant at Idku, which signals the company's fading interest in the East Med region.³⁸

In August 2017, the Egyptian government passed a law to allow private investment in its natural gas sector. The law also established a regulatory body to "supervise the liberalization of the Egyptian natural gas sector, responsible for granting required investment licenses" and required to prevent monopolies.³⁹ The law is in line with Egypt's efforts to cooperate on economic reform with the IMF, and it is also part of an effort to make Egypt's natural gas sector more efficient and competitive.⁴⁰ In addition to the liberalization

27 Kelly Anne Smith, "Gas Prices Expected to Drop Under \$3 in 2022," *Forbes*, December 9, 2021, <https://www.forbes.com/advisor/personal-finance/gas-prices-to-go-down-in-2022/>.

28 Charles Ellinas, "Rapid Developments in East Med Gas," *Turkish Policy Quarterly* (Summer 2016).

29 Charles Ellinas, "Egypt Preparing for a Gas-Rich Future," *Cyprus Mail Online*, April 29, 2018, <http://cyprus-mail.com/2018/04/29/egypt-preparing-gas-rich-future/>.

30 "Price, Not Politics, Stymies East Med Gas," *Lebanon Gas News*, January 29, 2018, <http://lebanongasnews.com/wp/price-not-politics-stymies-east-med-gas/>.

31 "BP Attributes Egypt's Raven Delays to Corrosion Issues," *Petroleum Africa*, February 5, 2020, <https://www.petroleumafrika.com/bp-attributes-egypts-raven-delays-to-corrosion-issues/>; "BP Kicks Off Gas Production from \$9bn Egypt Project," *Trade Arabia*, April 27, 2021, http://www.tradearabia.com/news/OGN_381733.html.

32 Dania Saadi, "Egypt Boosts Gas Output by 12.4% to Record Level in Fiscal 2019-20: EGAS CEO," S&P Global, September 21, 2020, <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/092120-egypt-boosts-gas-output-by-124-to-record-level-in-fiscal-2019-20-egas-ceo>.

33 "UFG Denies Agreement on Damietta LNG Plant Restart," *Offshore Energy Today*, February 19, 2019, <https://www.offshore-energy.biz/ufg-denies-agreement-on-damietta-lng-plant-restart/>.

34 Stuart Elliott, "Talks Resume on Restarting Egypt's Idled Damietta LNG Facility: Eni," S&P Global, October 9, 2020, <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/100920-talks-resume-on-restarting-egypts-idled-damietta-lng-facility-eni>.

35 "The Damietta LNG Plant Restarts Production in Egypt," Enerdata.

36 "Egypt Halts LNG Exports as Eni & Shell Bear the Brunt of Gas Surplus," *MEES*, April 10, 2020, <https://www.mees.com/2020/4/10/oil-gas/egypt-halts-lng-exports-as-eni-shell-bear-the-brunt-of-gas-surplus/f1f6f100-7b33-11ea-98a1-d7a0ef9df7e1>.

37 Elliott, "Talks Resume."

38 "Egypt Halts LNG Exports as Eni & Shell Bear the Brunt of Gas Surplus," *MEES*.

39 "Egypt Opens Up Its Oil & Gas Sector to New Investors," *Lebanon Gas News*, August 31, 2017, <https://lebanongasnews.com/wp/egypt-opens-up-its-oil-gas-sector-to-new-investors/>.

40 "Egypt Opens Up Its Oil & Gas Sector to New Investors," *Lebanon Gas News*; Bessma Momani, *Egypt's IMF Program: Assessing the Political Economy Challenges*, Brookings Institute, January 30, 2018, <https://www.brookings.edu/research/egypts-imf-program-assessing-the-political-economy-challenges/>.

of the gas sector, the reform program included the adoption of a flexible foreign currency exchange rate, cuts to fuel subsidies, and the privatization of the public sector. Most of these reforms have either been implemented or are in process.

A hub in Egypt may be the best option. Through its recently enacted gas law, the country took a giant step toward becoming the Eastern Mediterranean's energy hub and is putting together the necessary conditions to support this aspiration. Egyptian Minister of Petroleum Tareq El Molla emphasized "Egypt's ideal location, with the Suez Canal connecting Asia and East Africa to Europe, facilitating the transportation of oil, products, and LNG. In addition, Egypt is Africa's biggest energy market, with extensive energy infrastructure and downstream industry."⁴¹ Through these, Egypt has a real potential to become the region's energy hub.

Since the start of Tareq El Molla's tenure in this position, which began shortly after the discovery of the Zohr gas field in September 2015, prospects for Egypt's natural gas have improved dramatically.⁴² Gas from Zohr was first produced in December 2017, only slightly more than two years after it had been discovered, with production ramping up to 57 mcm/d (two billion cubic feet per day) in October 2018. Production capacity is scheduled to reach 90 mcm/d.⁴³ Egypt achieved self-sufficiency by the end of 2018, and began to export again in late 2018.⁴⁴ Egypt's gas production performance has been remarkable. Since reaching very low levels during financial year 2015/2016, due to past misguided policies, it achieved 190 mcm/d by mid-2019, with an average growth of 20 percent per year. The Ministry of Petroleum is targeting gas production of over 227 mcm/d by the end of fiscal year 2020/2021, thus maintaining gas surplus for export, and assuming full use of Idku and Damietta. The International Energy Agency estimates that the COVID-19 crisis will result in a 75 bcm loss of annual global gas demand by 2025.

In addition, development of many other smaller gas fields has helped Egypt achieve surplus production that has fed LNG exports. Actual LNG exports averaged more than 13 mcm/d in 2019. For a country that was importing LNG due to gas shortages until October 2018, this is a remarkable turnaround.

With IMF help, Egypt has also introduced demand management measures, including phasing out electricity subsidies, to ease pressure on the consumption of natural gas for power generation. This has been quite effective, bringing the rampant growth in electricity, gas, and fuel demand under control, freeing up greater quantities of gas for export.

Egypt's capacity to achieve full LNG exports has been confirmed by the Paris-based Observatoire Méditerranéen de l'Energie (OME), which has detailed knowledge of the Egyptian energy market.⁴⁵ OME forecasts that gas surplus and exports could reach between 20 and 35 bcm/year by 2035, and possibly more. Buoyed by these successes, Egypt conducted two new exploration rounds in 2018, in the Red and Mediterranean Seas.⁴⁶ Among the winners announced at EGYPS (Egypt Petroleum Show) 2019 were Shell, Eni, BP, Total, Petronas, and new entrant ExxonMobil.⁴⁷ New discoveries boosted Egypt's hopes to both maintain LNG exports in the longer term and turn the country into the gas hub of the region.

However, IOC executives participating at EGYPS 2019 warned that the development and export of Eastern Mediterranean gas would require resolutions of challenges, which included geopolitical issues and "the need to further develop infrastructure, and competition from other suppliers, including Russia and the United States."⁴⁸ Nevertheless, despite inherent difficulties, Egypt has achieved its main target of meeting the needs of its domestic gas market in a balanced manner.⁴⁹

To support new projects, Egypt is adding new infrastructure, such as Eni's onshore gas treatment plants,⁵⁰ gas pipelines, a 2.5 kilometer (km) wharf in the Gulf of Suez, petroleum storage tanks, and loading and offloading facilities. Fueling depots for ships along the Suez Canal are also being built and Egypt's refining and petrochemicals capacity has been expanding. Egypt's government "remains optimistic about energy stability, not only catching up with gas production for its own needs but also maintaining gas exports."⁵¹

Egypt's association with Italy—which has a well-established gas trading hub at its virtual trading point, PSV—through Eni's strong interests in both countries could increase the likelihood of Egypt becoming a regional gas hub. Such a

41 Charles Ellinas, "How to Make Egypt an Energy Hub: Minister," *Natural Gas World*, February 23, 2018, <https://www.naturalgasworld.com/premium-how-to-make-egypt-an-energy-hub-minister-59136>.

42 Charles Ellinas, "The Bright Future of Egypt's Gas Sector—a Success Story," *Cyprus Mail Online*, August 18, 2019, <https://cyprus-mail.com/2019/08/18/the-bright-future-of-egypts-gas-sector-a-success-story/>.

43 "Egypt: Eni Finishes Gas Production Test of Zohr Field's Last Well," *Hellenic Shipping News Worldwide*, December 23, 2019, <https://www.hellenicshippingnews.com/egypt-eni-finishes-gas-production-test-of-zohr-fields-last-well/>.

44 "Ministry: Egypt Achieves Self-Sufficiency in Natural Gas Production," *Egypt Today*, December 25, 2018, <https://www.egypttoday.com/Article/3/62547/Ministry-Egypt-achieves-self-sufficiency-in-natural-gas-production>; Tim Daiss, "LNG Is Finally Taking Off in Egypt," *Oil Price*, March 27, 2019, <https://oilprice.com/Energy/Natural-Gas/LNG-Is-Finally-Taking-Off-In-Egypt.html>.

45 Ellinas, "Egypt's Natural Gas Soars."

46 "Petroleum Min. Announces Launch of 2 New Exploration Bids," *Egyptian Gazette*, May 21, 2018, <http://www.egyptiangazette.net.eg/egypt-news/3894-petroleum-min-announces-launch-of-2-exploration-bids.html>.

47 "EGAS, EGPC 2018 Bid Rounds Results Announced with 12 Blocks Awarded," *Energy Egypt*, February 13, 2019, <https://energyegypt.net/egas-egpc-2018-bid-rounds-results-announced-with-12-blocks-awarded/>.

48 "EGAS, EGPC 2018 Bid Rounds Results Announced with 12 Blocks Awarded," *Energy Egypt*.

49 Mostefa Ouki, *Egypt - a Return to a Balanced Gas Market?*, Oxford Institute for Energy Studies, June 2018, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2018/06/Egypt-a-return-to-a-balanced-gas-market-NG-131.pdf>.

50 "Nooros: Onshore/Offshore Gas Production in Egypt," Eni, accessed December 6, 2021, <https://www.eni.com/en-IT/operations/egypt-nooros.html>.

51 Ellinas, Roberts, and Tzimtra, *Hydrocarbon Developments in the Eastern Mediterranean*.



The Mediterranean Sea, viewed from Egypt. Unsplash/Ahmed Gamal

hub would encourage closer economic cooperation among Eastern Mediterranean countries. Tentative steps taken by Israel, the RoC, and Egypt in discussing the possibility of gas deals may be the beginning of such closer cooperation and—possibly—greater regional stability.⁵²

The RoC

While development of the RoC's gas is a somewhat separate issue from its ongoing geopolitical troubles, the latest developments—including Turkey's direct intervention in drilling in the RoC's EEZ—mix politics with natural gas exploration. If natural gas development is to proceed, it must be "sufficiently pragmatic and flexible" to be able to continue, even if no peace settlement is reached.⁵³ Despite three successful licensing rounds and three major natural gas discoveries, development of the RoC EEZ is suffering delays, both in gas field development and further exploration. Meanwhile, for the RoC to benefit from the potential of its hydrocarbons sector, it must find markets in

which it can quickly and profitably sell its gas, a task that remains a challenge.

Given that the domestic market in the RoC is small and regional markets cannot absorb such gas, it will need to be sold to global markets. However, pipelines to Europe are not viable because they are too expensive and at the limit of technical capability, although proponents of the EastMed gas pipeline insist that a 10 bcm/year line to Italy would make commercial sense. Turkey and Turkish Cypriots have focused on pipelines going through the RoC to Turkey, and from there to Europe.

In 2019, the RoC signed an agreement with Egypt to build a pipeline to Egypt's LNG plants.⁵⁴ This agreement facilitates the construction of the pipeline, should it be needed to support gas sale agreements. While necessary, such an agreement is not sufficient to ensure actual construction, which requires firm sales and purchase contracts for gas that would use the line; for example, a deal to sell Aphrodite

⁵² Charles Ellinas, "Egypt Aspires to Become East Med Energy Hub," *Cyprus Mail Online*, March 11, 2018, <https://cyprus-mail.com/2018/03/11/egypt-aspires-become-east-med-energy-hub/>.

⁵³ Ellinas, Roberts, and Tzimitra, *Hydrocarbon Developments in the Eastern Mediterranean*.

⁵⁴ Charles Ellinas, "International Hydrocarbons Interest in Cyprus Confirmed," *Cyprus Mail Online*, February 24, 2019, <https://cyprus-mail.com/2019/02/24/international-hydrocarbons-interest-in-cyprus-confirmed/>.

gas to Egypt to liquefy and export it from there is necessary to justify pipeline construction.

In June 2019, the government of the RoC, along with Noble Energy (prior to its October 2020 acquisition by Chevron) and its partners, reached agreement over production sharing for the Aphrodite gas field, followed in November with approval of the field's development plan.⁵⁵ This enabled negotiations for the sale of Aphrodite gas to Shell's Idu LNG plant to progress.

However, even though discussions between the Aphrodite consortium and Idu have been ongoing, as of early 2022 these have not yet been concluded. Meanwhile, the RoC has continued a project to import LNG, perhaps realizing that development of Aphrodite will take time.⁵⁶

ExxonMobil is postponing its plans to drill one more exploratory well and an appraisal well at Glaucus in Block 10.⁵⁷ Eni and Total are also delaying drilling six more wells in their licensed blocks.⁵⁸ Chevron (formerly Noble) is still interested in drilling an appraisal well in the Aphrodite gas field in Block 12.⁵⁹

Israel

Israel's domestic natural gas market is liberalized. The Israeli government set up the Adiri Committee to examine Israel's regulatory structure for natural gas and to recommend policies to enable the development of the natural gas market.⁶⁰ The committee published its findings in December 2018, recommending no changes to existing regulations but also that the government ensure 500 bcm of gas supply for the domestic market until 2042, out of about 1,000 bcm discovered to date.⁶¹ Although the matter seems closed for now, a future Israeli government might be more inclined to keep gas for the domestic market, especially if export possibilities continue to look remote. With gas exports to global markets—other than to Jordan

and Egypt—looking increasingly challenging, the Israeli government's decision to phase out coal by 2025 should help increase gas consumption.⁶²

Discovered in 2010, the Leviathan natural gas field is estimated to hold 622 bcm of recoverable gross natural gas resources, and in 2013 was 39.66 percent owned by Noble Energy (now Chevron), 22.67 percent owned by Delek Drilling, 22.67 percent owned by Avner Oil (a Delek Group subsidiary), and 15 percent owned by Ratio.⁶³ In early 2017, Noble Energy, Delek Group, and their partners reached a decision to “fund the development of Phase 1A, estimated at \$3.75 billion,” which involves the production of about 33 mcm/d starting at the end of 2019.⁶⁴ Construction was completed as planned and Leviathan began operations in December 2019.⁶⁵

Energean holds the exploration rights for the Tanin and Karish natural gas fields.⁶⁶ In April 2019, Energean announced a new gas discovery, of 28 to 42 bcm, at Karish North.⁶⁷ With its floating production, storage, and offloading project progressing well, this discovery could be commercialized quite quickly. Energean and Morgan Stanley, along with other banks, signed an agreement for \$1.27 billion to finance natural gas exploration at Karish and Tanin.⁶⁸ In September 2021, Energean awarded a contract to US firm Halliburton to drill at least five wells in waters offshore Israel.⁶⁹

Should Israel succeed in starting a natural gas export program, it will probably be able to export gas via a pipeline to Turkey and from there to Europe, as well as export gas to other Middle Eastern countries, like Egypt and Saudi Arabia. However, the combination of limited and challenging export options for any resources discovered, the complexities of Israel's gas regulatory framework, escalating regional geopolitical tension, and difficult global gas markets have deterred potential investors. That is why Israel's two licensing rounds have not attracted any majors,

55 “Cyprus OKs Aphrodite Development Plan. Grants Exploitation License,” *Offshore Energy Today*, November 7, 2019, <https://www.offshore-energy.biz/cyprus-oks-aphrodite-development-plan-grants-exploitation-license/>.

56 “Cyprus Signs Landmark Deal to Build €290 Mln LNG Terminal,” *Financial Mirror*, December 13, 2019, <https://www.financialmirror.com/2019/12/13/cyprus-signs-landmark-deal-to-build-e290-mln-lng-terminal/>.

57 “ExxonMobil Puts Cyprus Drilling Plans on Hold,” *Ekathimerini*, April 13, 2020, <https://www.ekathimerini.com/251647/article/ekathimerini/news/exxonmobil-puts-cyprus-drilling-plans-on-hold>.

58 “Eni-Total Postpone Cyprus Drilling,” *MEES*.

59 “Chevron and Noble Energy Reconfirm Their Interest in East Med, Cyprus Energy Minister Says,” O&G Links, July 25, 2020, <https://oglinks.news/chevron/news/noble-energy-reconfirm-interest-east-med-cyprus-energy-minister>.

60 “Conclusions of the Professional Team for the Periodic Examination of the Recommendations of the Committee on Examining the Government's Policy in the Natural Gas Market Adopted in Government Decision 442 Dated June 23 2013,” Israel Ministry of Energy, December 2018, <https://www.energy-sea.gov.il/English-Site/Pages/Regulation/Adiri%20Committee%20Final%20Recommendations%2018.12.2018%20Executive%20Summary%20-%20Translation.pdf>.

61 “Conclusions of the Professional Team,” Israel Ministry of Energy.

62 “Cyprus Signs Landmark Deal to Build €290 Mln LNG Terminal,” *Financial Mirror*.

63 “Israel Authorities Give the Green Light for the Development of Leviathan Natural Gas Field,” *EnergyMarketPrice*, March 6, 2016, <https://www.energymarketprice.com/energy-news/israel-authorities-give-the-green-light-for-the-development-of-leviathan-natural-gas-field>; Cohen, “UPDATE 1-Israel's Delek Examines \$3.6 Bln Energy Spinoff.”

64 “Leviathan Gas Field FID Taken (Israel),” *Offshore Energy Today*, February 23, 2017, <https://www.offshoreenergytoday.com/breaking-leviathan-fid-taken/>.

65 “Noble Energy Provides Update on Successful Leviathan Startup,” *Business Wire*, January 15, 2020, <https://www.businesswire.com/news/home/20200115005799/en/Noble-Energy-Update-Successful-Leviathan-Startup>.

66 “Energean Oil & Gas,” Energean, January 2019, <https://www.energean.com/media/2968/january-2019.pdf>.

67 David Sheppard, “Energean Shares Jump 10% on Israel Gas Discovery,” *Financial Times*, April 15, 2019, <https://www.ft.com/content/daa3b926-5f75-11e9-a27a-fdd51850994c>.

68 Stuart Elliott, “First Gas from Energean's Israeli Fields Could Slip into H2 2021,” S&P Global, June 8, 2020, <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/060820-first-gas-from-energeans-israeli-fields-could-slip-into-h2-2021>.

69 Pat Davis Szymczak, “Halliburton Wins Energean Drilling Services Contract for Offshore Israel,” *Journal of Petroleum Technology*, September 17, 2021, <https://jpt.spe.org/halliburton-wins-energean-drilling-services-contract-for-offshore-israel>.

with bids from only two groups: a consortium of United Kingdom-listed Capricorn Energy (formerly Cairn Energy) and Pharos Energy (formerly SOCO International), together with Israel's Ratio Oil Exploration; and a consortium of United Kingdom-listed Energean (formerly Energean Oil & Gas) and Israel Opportunity.⁷⁰ Undaunted, Israel held the third licensing round in September 2020, but successful bids have not been announced to date.⁷¹ Without having awarded a license in the third round, Israel in April 2021 announced plans to hold a fourth offshore bidding round.⁷²

Lebanon

The development of Lebanon's offshore resources is impacted by its political relationships with neighboring countries. Blocks 1 and 2 are on the disputed border between Lebanon and Syria. There is also an unresolved maritime border dispute between Lebanon and Israel regarding an area of about 860 square kilometers that runs alongside the disputed EEZ border and includes parts of Blocks 8, 9, and 10.⁷³ These unresolved disputes could complicate future exploration and development.

In September 2017, the Lebanese parliament approved legislation to facilitate completion of the first offshore licensing round. At the end of 2017, Lebanon awarded licenses for exploration and production in Blocks 4 and 9 to a consortium of Total (40 percent), Eni (40 percent), and Novatek (20 percent).⁷⁴ Exploration began in May 2018. The consortium did not find sufficient commercially viable resources in Block 4 during its initial drilling in early 2020.⁷⁵

However, Lebanon's energy sector has been in a shambles since the COVID-19 pandemic began, and Block 9 drilling has been delayed and is further complicated by the maritime border disputes with Israel.⁷⁶ Past US attempts to mediate have not succeeded, and it remains to be seen if this will change once drilling starts. Further attempts at mediation could help achieve a lasting settlement of this dispute, but successful planned exploration might drive both countries to escalate their claims. Internal political instability may also threaten the future of this process.

Gaza Strip

There are gas reserves off the coast of the Gaza Strip, which (along with the West Bank) constitutes the Palestinian Territories.⁷⁷ Unlike the West Bank, which is still under Israeli occupation and nominally run by the Palestinian Authority (PA), Israel withdrew its military forces and settlements from the Gaza Strip in 2005. A Palestinian election in 2006 brought Hamas to political power in Gaza, but Israel instituted a blockade in 2007 to control the coast of the Gaza Strip while strictly limiting entrance and egress points on land.

Although it seems that natural gas resources could be an answer to Gaza's economic woes, the West Bank-based Palestinian Authority has nominal authority over exploiting these reserves, while Israel will likely have the final say. Since the discovery of the Gaza Marine oil field in 2000, Israel and the PA have argued over which one should have the right to develop the field.⁷⁸ While the broader conflict with Israel remains in the backdrop, the presence of natural gas has also added to tensions between Hamas in Gaza and the PA in the West Bank. While the PA has seen the natural gas in the Gaza Marine field as an opportunity to strengthen its economic ties in the region—especially with Egypt—Hamas has criticized the PA for signing away resources unilaterally and without ensuring that Gaza will benefit economically (and raising the specter of Gaza needing to import natural gas from Israel, even as a natural gas reserve sits off its own shores).⁷⁹

EastMed Gas Pipeline

The EastMed pipeline is considered a strategic project for exporting Eastern Mediterranean gas directly to Europe.⁸⁰ However, even though the concept of an Eastern Mediterranean gas pipeline has political support in Israel, the RoC, Greece, and Italy, and has attracted funding for engineering studies from the European Commission, that funding is still only a fraction—well below 1 percent—of the cost of building the pipeline. The pipeline is unlikely to be built without substantial subsidies. Eastern Mediterranean

70 Stuart Elliott, "Israel Sees Just Two Groups Bid in Delayed Gas Licensing Round," S&P Global, July 16, 2019, <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/071619-israel-sees-just-two-groups-bid-in-delayed-gas-licensing-round>.

71 "3rd Bid Round," Israel Ministry of Energy, accessed December 6, 2021, http://www.energy-sea.gov.il/English-Site/Pages/Offshore%20Bid%20Rounds/3rd_Bid_Round.aspx.

72 "Israel Begins Prep Work for Fourth Offshore Round," *Journal of Petroleum Technology*, April 1, 2021, <https://jpt.spe.org/israel-begins-prep-work-for-fourth-offshore-round>.

73 Ali Ahmad and Félicité Barrier, *The Geopolitics of Oil and Gas Development in Lebanon*, American University of Beirut Policy Institute, January 2018, https://website.aub.edu.lb/ifi/publications/Documents/policy_memos/2017-2018/20180121_geopolitics_oil_and_gas_lebanon.pdf.

74 Lisa Barrington, "Lebanon to Begin Offshore Energy Search in Block Disputed by Israel," Reuters, February 9, 2018, <https://www.reuters.com/article/us-lebanon-israel-natgas/lebanon-to-begin-offshore-energy-search-in-block-disputed-by-israel-idUSKBN1FT218>.

75 "Lebanon's First Ever Well Comes Up Dry," *Argus Media*.

76 "Total to Set Block 9 Drill Site by Mid-July," Lebanese Oil & Gas Initiative, June 26, 2020, <https://logi-lebanon.org/KeyIssue/Total-to-set-Block-9-drill-site-by-mid-July>; "Lebanon's First Ever Well Comes Up Dry," *Argus Media*.

77 Mahmoud Elkhafif, "Palestine's Forgotten Oil and Gas Resources," *Al Jazeera*, June 21, 2021, <https://www.aljazeera.com/opinions/2021/6/21/palestines-forgotten-oil-and-gas-resources>.

78 "Gaza Marine Gas Field," *Offshore Technology*, accessed December 6, 2021, <https://www.offshore-technology.com/projects/gaza-marine-gas-field/>.

79 Sanaa Alswerky, "PA-Egypt Accord on Developing Gaza Gas Field Adds to Hamas-Fatah Tensions," The Media Line, February 24, 2021, <https://themedialine.org/top-stories/pa-egypt-accord-on-developing-gaza-gas-field-adds-to-hamas-fatah-tensions/>.

80 "Mediterranean Gas Pipeline Could Be Built by 2025," *Cyprus Profile*, April 3, 2017, <http://www.cyprusprofile.com/en/articles/view/mediterranean-gas-pipeline-could-be-built-by-2025>; John Psaropoulos, "Greece, Israel, Cyprus, Move to Build East Med Gas Pipeline," *Al Jazeera*, January 2, 2020, <https://www.aljazeera.com/news/2020/01/greece-israel-cyprus-move-build-east-med-gas-pipeline-200102181235607.html>.

producers could potentially gain entry to the Turkish market, but that would require laying a pipeline in the RoC, or at least in RoC-controlled waters. While restoration of relations between Turkey and Israel would increase the likelihood of such a project, the odds that it will materialize remain slim.

The commerciality of the EastMed pipeline project largely depends on two main factors: the cost of the line itself and the price of gas in the markets it seeks to serve. A feasibility study estimated that it would cost around \$5.4 billion for the pipeline to reach Greece, and another \$6.4 billion to reach Italy.⁸¹ The project attracted €34.5 million in EU funding to support front end engineering design studies and the associated detailed marine survey.⁸² Israel, the RoC, and Greece are strongly promoting it, but there are some doubts about support from Italy. The RoC, Greece, and Israel signed an intergovernmental agreement on January 2, 2020, to set out a regulatory and fiscal framework for the project's development. Italian representatives did not participate in the signing ceremony; Italy's foreign minister expressed concerns regarding the feasibility of the pipeline.⁸³

Despite strong political support, though, the EastMed gas pipeline can only go ahead when European buyers are found. Furthermore, given the cost of gas at the start point of the pipeline in Israel and the cost of the pipeline itself, gas arriving in Europe is likely to be expensive, even relative to current benchmarks. However, the potential for the EastMed pipeline to decrease European reliance on Russian natural gas alongside the Trans Adriatic Pipeline and global LNG imports could ensure some level of ready-made demand. There is a delicate balance between cost, geopolitics, and environmental considerations. Moreover, the Biden Administration has recently abandoned support for the EastMed gas pipeline, most likely to align its views on EastMed with its overall shift towards clean energy.

Israel-to-Turkey Gas Pipeline

In addition to an EastMed pipeline, the notion of an Israel-to-Turkey gas pipeline has also been raised. However, Israel and Turkey have had strained relations over the last several years, even following the resumption of diplomatic relations between the two countries in 2016.⁸⁴ While this is not likely to be the only factor hampering the development of an Israel-to-Turkey pipeline, this infrastructure project cannot proceed until the geopolitical situation has improved at least somewhat.

Complicating the desire to build an Israel-to-Turkey pipeline is the late 2019 completion of the Trans-Anatolian Natural Gas Pipeline (TANAP), and the early 2020 completion of TurkStream.⁸⁵ Since 2018, Azerbaijan has pumped almost 7 bcm/year of gas to Turkey via the existing TANAP, a part of the 3,500 km Southern Gas Corridor.⁸⁶ Both of these new pipelines have helped establish Turkey as a regional gas hub, and they are likely to lessen Turkey's motivation to become entangled in a diplomatically challenging project with uncertain economic benefits.

More recently, prompted by signs of a thaw in the Israel-Turkey relationship, there has been talk of resurrecting the idea of the gas pipeline between the two countries. However, Israel may be reluctant, and the future of European demand for natural gas remains uncertain.

Floating LNG: A Possible Option for the RoC and Israel

Based on their discovered gas resources, Israel and the RoC have the ability to produce and export as much as 25 bcm a year for twenty years, which—for the sake of comparison—constitutes about one-eighth of current Russian supplies to Europe.⁸⁷ However, a shift to green energy in Europe makes this a challenge.

The RoC and Israel hope to export their gas through Egypt's liquefaction plants, but both face obstacles from low global gas prices and various commercial challenges. One answer for Israel and the RoC to consider are floating LNG (FLNG) terminals. As of late 2019, the Delek Group and Noble Energy noted that an FLNG project was "under consideration" as a way of exporting gas from the Leviathan natural gas field.⁸⁸ FLNG may hold promise for the Aphrodite and Calypso fields, as well as other regional gas fields.⁸⁹

81 Charles Ellinas, "Gas Pipelines: Politics and Reality," *News in Cyprus*, April 9, 2017, <https://cyprus-mail.com/2018/12/02/eastmed-gas>.

82 Amiram Barkat and Sonia Gorodeisky, "EU to Fund Planning of Pipeline from Leviathan to Europe," *Globes*, January 28, 2018, <http://www.globes.co.il/en/article-eu-to-fund-planning-of-pipeline-from-leviathan-to-europe-1001221467>.

83 "Italy's Foreign Minister Expresses Doubts over Feasibility of EastMed Pipeline," *Times of Israel*, January 18, 2020, <https://www.timesofisrael.com/italys-foreign-minister-expresses-doubts-over-feasibility-of-eastmed-pipeline/>.

84 Yaacov Benmeleah and David Wainer, "Fraying Israel-Turkey Ties Threaten Planned Natural Gas Venture," *Bloomberg*, February 5, 2018, <https://www.bloomberg.com/news/articles/2018-02-05/fraying-israel-turkey-ties-threaten-planned-natural-gas-venture>.

85 "Turkey and Azerbaijan Mark Completion of TANAP Pipeline to Take Gas to Europe," *Reuters*, November 30, 2019, <https://www.reuters.com/article/us-turkey-energy-tanap/turkey-and-azerbaijan-mark-completion-of-tanap-pipeline-to-take-gas-to-europe-idUSKBN1Y40CP>; Olesya Astakhova and Can Sezer, "Turkey, Russia Launch TurkStream Pipeline Carrying Gas to Europe," *Reuters*, January 8, 2020, <https://www.reuters.com/article/us-turkey-russia-pipeline/turkey-russia-launch-turkstream-pipeline-carrying-gas-to-europe-idUSKBN1Z71WP>.

86 Astakhova and Sezer, "Turkey, Russia Launch TurkStream Pipeline Carrying Gas to Europe."

87 Ellinas, Roberts, and Tzimitras, *Hydrocarbon Developments in the Eastern Mediterranean*.

88 "Israeli East Med Leviathan Gas Field Comes On Stream to Supply Egypt and with FLNG Option," *LNG Journal*, December 31, 2019, <https://lngjournal.com/index.php/latest-news-mainmenu-47/item/99037-israeli-east-med-leviathan-gas-field-comes-on-stream-to-supply-egypt-and-with-flng-option>.

89 "EMGC '18: FLNG to the Rescue for Eastern Med Gas?" *Gas Processing & LNG*, accessed December 6, 2021, <http://gasprocessingnews.com/news/emgc-18-flng-to-the-rescue-for-eastern-med-gas.aspx>.

IV. OPPORTUNITIES AND POLICY RECOMMENDATIONS

The Eastern Mediterranean gas basin has come a long way since its first major discoveries in 2009. Gas resources have already significantly impacted the region from a political and economic perspective. Israel has become a major producer and has started exporting; Egypt has become a gas exporter again; and recent finds off of the RoC's shores have revived the island's aspirations to tap into gas riches.

The gas discoveries can also encourage conflict resolution and address the souring of multiple bilateral relationships in the region. To support these efforts, the United States and the EU should play more proactive roles in defusing rising tensions in the region through key channels of diplomacy.

Since gas can act as a bridge fuel to renewables during the energy transition, the region should also promote the wider adoption of renewables, which can—in addition to their contribution to air quality, health, and clean energy—lessen dependence on fossil fuels and imports, and limit foreign currency exposure and dependence on others. Countries in the region should be encouraged and supported in their efforts to increase the use of renewables.

The current energy landscape and future projections in the region offer plenty of opportunities for greater regional cooperation on energy issues. There is a need for inclusive regional dialogue and exploiting the potential contribution of Eastern Mediterranean gas to EU energy security. The formation of the EMGF is a positive initial step. However, the challenges of a competitive market and uncertain EU gas demand remain.

This report recommends the following steps to ensure continued regional cooperation:

- The EU should consider appointing a special envoy for Eastern Mediterranean energy affairs to help formulate clearer policies—and solve problems through negotiation—that can help develop political stability in the Eastern Mediterranean.
- All possible gas export options from the region should be examined and those that are commercially viable and politically feasible should be identified and promoted.
- The energy future of Eastern Mediterranean countries should rest on maximizing the development of renewables while exploiting gas resources regionally, alongside the resolution of regional problems.

- The United States and EU, together with the UN, should continue to work toward resolving disputed EEZs in the region. Avoiding a hot maritime incident is of paramount importance, and the EU, United States, and UN should work together to dissuade belligerent actions and create platforms conducive to solving problems through negotiation.
- Following the failure of the July 2017 Crans-Montana talks, the Turkish and Greek Cypriots are finding it difficult to resume reunification negotiations; UN chief António Guterres organized informal trilateral talks with RoC President Nicos Anastasiades and Turkish Cypriot leader Mustafa Akıncı in Berlin on November 25, 2019.⁹⁰ Left to their own devices, they may find it difficult to continue the discussion. International interest, assistance, and pressure—particularly by the UN—are necessary to get settlement negotiations back on track. Anastasiades said in September 2020 that the RoC is committed to reunification talks “...but not at gunpoint.”⁹¹
- Promotion of regional prospects—along with energy integration among countries in the Eastern Mediterranean—should be prioritized. However, with projected demand for natural gas in Asia and the potential for East Med gas to play a role as Europe seeks greater energy independence from Russia, East Med gas exporters would do well to look beyond their region.

Developing energy resources requires careful long-term planning. While commercial considerations tend to drive development, geopolitics—especially regulatory and political frameworks—plays a critical role in determining whether a region is stable enough to support the identification, development, and use of natural gas. This also means addressing energy subsidies, which are a drain on economies in the region and make energy significantly cheaper, thereby encouraging inefficient energy use.

Energy security helps with cooperation when the political foundation, or space for cooperation, is already in place. Established geopolitical frameworks make energy cooperation possible, rather than the other way around. The EU and the United States should dedicate themselves to a more concerted approach, combining energy and political diplomacy.

90 Georgi Gotev, “Berlin Hosts ‘Different’ Cyprus Reunification Talks,” Euractiv, November 26, 2019, <https://www.euractiv.com/section/global-europe/news/berlin-hosts-different-cyprus-reunification-talks/>.

91 “Cyprus Says Committed to Peace Talks, but Not at Gunpoint,” Reuters, September 24, 2020, <https://www.reuters.com/article/us-cyprus-turkey-un/cyprus-says-committed-to-peace-talks-but-not-at-gunpoint-idUSKCN26F3DK>.

APPENDIX: EASTERN MEDITERRANEAN DEVELOPMENTS

Through recent major natural gas discoveries, the Eastern Mediterranean undoubtedly has the potential to satisfy regional gas needs and to become an important exporting region. Key developments from 2017 to 2021, summarized below, exemplify this potential, but also demonstrate associated challenges:

2017

- January 2017: ExxonMobil Corporation and state-owned Qatar Petroleum sign an exploration and production (E&P) sharing contract with the RoC for offshore Block 10.
- February 2017: Noble Energy, Inc., sanctions the first phase of the Leviathan natural gas project offshore Israel, which contains 22 trillion cubic feet (tcf) of gross recoverable natural gas resources.⁹²
- March 2017: Eni S.p.A. acquires a 50 percent participating interest in Block 11 offshore of the RoC from Total SE, the operator of the block.⁹³
- April 2017: the RoC grants exploration licenses for offshore blocks, including Block 6 (Eni S.p.A., 50 percent interest, and Total SE, 50 percent interest); Block 8 (Eni S.p.A., 60 percent interest, and Total SE, 40 percent interest); and Block 10 (ExxonMobil Corporation, 60 percent interest, and Qatar Petroleum, 40 percent interest).
- July 2017: Reunification talks backed by the United Nations (UN) between Greek- and Turkish-Cypriot communities collapse without a deal, which was derailed, for the most part, by disagreements over thirty-five thousand Turkish troops in the Turkish-Cypriot community.⁹⁴
- September 2017: Eni S.p.A. and Total SE's gas exploration project in Block 11 offshore of the RoC proves to be not viable for commercial development.⁹⁵
- November 2017: RoC President Nicos Anastasiades announces Eni S.p.A. and Total SE's intent to start drilling in Block 6 offshore of the RoC by the end of 2017 or early 2018.⁹⁶

- December 2017: Italy, Greece, the RoC, and Israel sign a memorandum of understanding to back the construction of the Eastern Mediterranean (East Med) pipeline project to Europe.⁹⁷
- December 2017: Eni S.p.A. announces the first production of gas from the Zohr field offshore Egypt in the Shorouk Block. Eni S.p.A. is the co-operator of the project (with a 60 percent interest) with PJSC Rosneft (30 percent interest) and BP plc (10 percent interest) also partnering in the block.⁹⁸

2018

- January 2018: Calypso 1 gas field is discovered by Eni in the RoC's Block 6. The consortium of Total, Eni, and Novatek is formally awarded Blocks 4 and 9 in Lebanon.
- February 2018: Turkish warships intervene to prevent Eni's drilling rig from reaching its target in the RoC's Block 3 in an effort to enforce Turkish maritime claims. Israel and Egypt agree to export 64 billion cubic meters (bcm) of gas to Egypt over ten years. Total, Eni, and Novatek and the Lebanese government sign exploration and production agreements for Blocks 4 and 9 in Lebanon's exclusive economic zone (EEZ).⁹⁹
- March 2018: Energean declares a final investment decision for the development of its Tanin and Karish gas fields in Israel; Eni achieves record production, close to 12 bcm per year, from its Nooros gas field offshore Egypt.
- April 2018: The European Union (EU) and Egypt enter into a memorandum of understanding to promote energy cooperation. Egypt slashes energy subsidies.
- May 2018: Total, Eni, and Novatek start offshore exploration in Lebanon. Israel and the RoC discuss referring their Aphrodite gas unitization dispute to international arbitration.
- June 2018: Egypt achieves a balanced domestic gas market, meeting its gas needs.
- July 2018: Energean offers to take gas to the RoC by subsea pipeline from Karish. Egypt opens three new gas-fired power plants and a new wind farm. SDX Energy makes a gas discovery at Egypt's South Disouq.

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- September 2018: Zohr gas production reaches two billion cubic feet per day. The RoC and Egypt sign intergovernmental agreement for subsea gas pipeline from the Aphrodite gas field to Egypt;¹⁰⁰ Nobel and Delek buy control of EMG gas pipeline for export of Israeli gas to Egypt.
- October 2018: Egypt achieves natural gas self-sufficiency and suspends import of liquefied natural gas (LNG); Shell starts gas production from West Delta Deep Marine Phase 9B offshore gas field in Egypt.
- November 2018: Israel launches second offshore licensing round.
- December 2018: Egypt resumes LNG exports from Idku LNG plant.

2019

- January 2019: In Israel, the Adiri Committee recommends that the government ensure 500 bcm of gas supply for the domestic market until 2042 out of about 1,000 bcm discovered to date. Egypt resumes natural gas exports to Jordan. Egypt, the RoC, Greece, Israel, Italy, Jordan, and the Palestinian Authority establish the East Mediterranean Gas Forum (EMGF);¹⁰¹ Leviathan fixed steel jacket arrives in Israel; the first solar plant funded by the European Bank for Reconstruction and Development starts operating at Egypt's Benban solar park.
- February 2019: BP begins to produce gas from Egypt's offshore West Nile Delta development.¹⁰² Glaucus-1 gas field is discovered by ExxonMobil in the RoC's Block 10. Egypt awards twelve new exploration licenses to boost oil and gas production; ExxonMobil enters Egypt's offshore exploration for the first time.
- March 2019: the RoC's parliament approves a national investment fund to handle any future proceeds for the benefit of all Cypriot people. Nour gas field is discovered by Eni in Egypt's Nour North Sinai Concession. Egypt launches a new licensing round in the Red Sea. US Secretary of State Mike Pompeo participates in trilateral meetings among Israel, Greece, and the RoC in Jerusalem.
- April 2019: BP starts gas production at Egypt's offshore Atoll gas field. Lebanon Council of Ministers approves launch of second offshore licensing round. Energean makes a gas discovery in Israel's Karish north gas field.
- May 2019: Turkey sends drilling rig Fatih to drill in the RoC's EEZ 60 kilometers (km) west of Paphos, in line with Turkish claims to an independent EEZ. RoC energy minister

announces the RoC's intent to drill in its EEZ over the next two years.¹⁰³

- June 2019: The joint venture among Noble Energy, Delek, and Shell reaches agreement with the government of the RoC on a revised production sharing contract for the development of the Aphrodite gas field.
- July 2019: France, the United States, and the EU, as well as the World Bank, attend the second meeting of EMGF in Cairo. The EU expresses grave concern at Turkey's continued drilling in the RoC's EEZ and draws measures against Turkey; Egypt and Israel reach settlement in their arbitration dispute opening up Israeli gas exports to Egypt.
- August 2019: Zohr gas production reaches 77 million cubic meters per day.
- September 2019: Total joins Eni in RoC Blocks 2, 3, 8, and 9 where Eni is already a licensee. BP announces first gas from Egypt's Baltim Southwest field.
- October 2019: Turkish drilling rig Yavuz starts drilling in Block 7 of the RoC's EEZ. Egypt reduces natural gas production due to lower domestic and international demand. Noble, Delek, and Dolphinus Holdings agree a new gas deal, increasing gas exports to Egypt. Egypt completes massive 1.8 gigawatt solar power plant at Benban.
- November 2019: The government of the RoC approves Aphrodite's development plan.
- December 2019: the RoC, Greece, and Israel agree to sign an agreement on January 2 to build the EastMed natural gas pipeline. Turkey signs maritime agreement with Libya.



The Mediterranean Sea, seen from Turkey, in August 2019. Unsplash/Dylan Alcock

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2020

- January 2020: Turkish troops move into Libya to support the UN-backed Government of National Accord in Tripoli. In response, Israel, Greece, and the RoC issue a joint statement calling Turkey's intervention a threat to regional stability.¹⁰⁴
- April 2020: A venture among Eni S.p.A, Total SE, and Novatek finds no commercially adequate oil and gas resources at the Byblos-1 well, Lebanon's first well, in offshore Block 4. Additionally, ExxonMobil Corporation postpones two wells until 2021 to evaluate its Glaucus discovery in the RoC's offshore Block 10.¹⁰⁵
- May 2020: A consortium of Eni S.p.A. and Total SE announces it will cease drilling offshore of the RoC this year. Eni S.p.A. and Total SE are partnered in seven of eight active offshore blocks.¹⁰⁶
- May 2020: the RoC government approves the January 2020 agreement to build the East Med pipeline project.¹⁰⁷
- June 2020: Israel approves decision to resume searching/drilling next to Block 9.¹⁰⁸
- July 2020: Israel's cabinet approves the proposed East Med pipeline project.¹⁰⁹
- July 2020: Chevron Corporation announces its acquisition of Noble Energy, Inc., a US-based E&P company, for a total enterprise value, including debt, of \$13 billion. Noble Energy, Inc.'s Eastern Mediterranean portfolio includes interests in the Aphrodite, Leviathan, Tamar SW, and Tamar fields with 35 tcf in discovered gross recoverable resources as of 2018. Chevron completed the deal on October 5, 2020.¹¹⁰
- July 2020: Eni S.p.A. announces it, along with partners Total SE and BP plc, has discovered a gas and condensate discovery at the Bashrush prospect, about 11 km offshore Egypt in the North El Hammad concession.
- August 2020: Egypt and Greece agree to a maritime deal to outline the sea boundary between the two countries and demarcate an exclusive economic zone for oil and gas drilling rights. The maritime deal is in response to a November 2019 maritime agreement between Turkey and Libya's Tripoli-based government.¹¹¹
- August 2020: The Oruc Reis, a Turkish research vessel, begins conducting seismic research to locate energy resources in contested areas of the Eastern Mediterranean. A Greek warship collides with a Turkish warship that was escorting that Oruc Reis.¹¹²
- August 2020: France joins Italy, Greece, and the RoC with military exercises in the Eastern Mediterranean, sending three Rafale fighter jets and a warship.¹¹³ German Foreign Minister Heiko Maas calls for an end to the military drills to defuse tensions.¹¹⁴
- September 2020: Eni S.p.A. makes a gas discovery in Egypt's Nile Delta through the Nidoko NW-1 exploratory well. The assessments suggest the Great Nooros area, where the field is located, is now estimated to hold reserves in excess of 113 bcm. With the update, the combined reserves from the recently found fields are at least 28 bcm.¹¹⁵
- September 2020: Egypt, Israel, Greece, the RoC, Italy, and Jordan sign a charter to formalize the status of the EMGF, which was established in 2019.¹¹⁶
- September 2020: Through diplomatic intervention by international allies, specifically Germany, the Oruc Reis returns to port from contested waters. Greece and Turkey agree to restart talks for the first time since 2016, the sixty-first round of exploratory talks.¹¹⁷
- October 2020: The EU threatens to impose sanctions on Turkey over its continued gas exploration in the Eastern Mediterranean.

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117 Nektaria Stamouli, "Greece, Turkey Agree to Resume Talks after Four-Year Hiatus," *Politico*, September 22, 2020, <https://www.politico.eu/article/greece-turkey-resume-talks-four-year-hiatus/>.

- October 2020: The Turkish navy announces the Oruc Reis will return to disputed waters in the East Mediterranean, spending ten days conducting seismic research.¹¹⁸
- October 2020: NATO Secretary-General Jens Stoltenberg announces that Greece and Turkey have agreed to cancel war games scheduled on each country's national holidays on October 28 (Greece's Ochi Day) and October 29 (Turkey's Republic Day).
- February 2021: Noble Energy, a pioneer in the exploration of hydrocarbons in Israel's Tamar and Leviathan fields and Crypus's Aphrodite field, is acquired by Chevron.¹²²
- March 2021: Greek-Italian joint venture IGI Poseidon signs an agreement with the Israel Natural Gas Lines Company to build facilities for the East Med pipeline.¹²³
- April 2021: Delek Drilling signs a memorandum of understanding with the United Arab Emirates' Mubadala Petroleum to sell its 22 percent share of the offshore Tamar gas field by the end of the year.¹²⁴
- April 2021: UN-led Cyprus reunification talks in Geneva halt.¹²⁵
- July 2021: Turkish state energy company TPAO applies for a license to explore oil and gas off the coast of Silifke in Mersin Province.¹²⁶
- July 2021: Egyptian President Abdel Fattah al-Sisi inaugurates a large naval base 135 km from the border with Libya.¹²⁷

2021

- February 2021: Qatar pledges \$60 million to build new natural gas pipeline from Israel to the Gaza Strip.¹¹⁹
- February 2021: Israel and Egypt agree to build a pipeline connecting the Leviathan natural gas field to Idku and Damietta plants.¹²⁰
- February 2021: Gas liquefaction resumes at Damietta, for the first time since 2012.¹²¹

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