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Eastern Mediterranean Energy Geopolitics Revisited: Green Economy Instead of Conflict

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ABSTRACT

Dramatic technological advances in renewable sources of energy and environmental concerns have set in motion a global energy transformation that is expected to have profound geopolitical consequences. For example, the Eastern Mediterranean has been recently affected very hard by the fallouts of the ongoing climate crisis. While frictions among the countries of Eastern Mediterranean about maritime zones and continental shelf delimitation related to sovereign claims and to some degree with ambitions of finding oil and gas have abounded in recent years, the impact of a climate crisis on the same countries has been in recent years extreme. The Mediterranean's more than half-a-billion inhabitants seem to face highly interconnected climate risks. Reasons for concern include sea-level rise-related risks, land and marine biodiversity losses, risks related to drought, wildfire, alterations of water cycle, endangered food production, health risks in both urban and rural settlements from heat and altered disease vectors. Historically, all these have led to mass migration to the cities, crossing borders to other countries, civil wars, ethnic conflicts and tensions. Against this background, energy transition and fight against common existential threats such as climate change or climate crisis are emerging as more daunting challenges as geopolitical competition to secure control of fossil fuels or to assert sovereign claims in the Mediterranean Sea.

Introduction

In recent years, a new geopolitical school of thought has come into emergence, which has taken a critical stance to the traditional geopolitical hermeneutic tools. According to this new approach, geopolitics, geoeconomics, regional, and national politics need to be underpinned by an understanding of the fundamental ecological independencies that rule the earth's systems. These dependencies are vital to understanding today's natural disruptions and the critical importance of ecological integrity for global security. This is not just a matter of carbon dioxide emissions but also of environmental stewardship to protect and sustain human activity. According to the same approach, the health of the Earth's larger ecosystem depends on the health of local ecosystems. The macro level communicates with the micro, and vice versa. These assumptions are corroborated by international organizations dealing with the global climate change which have irrefutably

documented that the use of fossil fuels is the principal cause of greenhouse gases driving up the temperature of the planet. Climate change, they warn, will create severe flooding and droughts which will devastate many countries' food production, lead to the spread of various illnesses, and cause hundreds of thousands of deaths per year, particularly for those living in the developing world.¹

The proponents of the environmental approach focus on the ecosystem rather than the state's security or economic growth. They believe that the extent of the destruction that humanity has done to nature has led to the entry of a new geological age, the anthropocene. According to this view, what needs to be done is to exit carbon-intensive sectors gradually and accelerate the transition to a green economic order. By doing so, conflicts over the ownership of fossil resources would become more and more unnecessary, and energy security could be achieved. They also argue that mankind is facing "an environmental crisis unprecedented in human history and the largest mass extinction since the time of the dinosaurs is impending, as carbon dioxide levels reach levels not seen in three million years". They also insert that the biggest, if not the only, cause of environmental degradation is the global dependence on fossil fuels (oil, natural gas and coal).²

Scientists advocating for the renewables argue that the urgency of climate change means that low-carbon transitions are needed in large socio-technical systems such as energy and transportation. Polluting fossil fuel-based systems are no longer environmentally or socially desirable. On the contrary, low-carbon transitions that shift one socio-technical system to another are urgently required. From the same perspective, the transition from the hydrocarbon energy dependency to the renewables will mostly benefit the poor countries, whereas the transition from fossil fuels to a less polluting and more environmentally friendly energy system coincides with greater energy security.³

Sceptics retort that some renewable energy sources (i.e., bioenergy in its various forms)⁴ are as unevenly distributed in geographical terms as hydrocarbons are, and hence they might entail international trade and energy dependencies between "haves" and "haves-nots". Moreover, the entanglement between renewables and rare earth elements (lithium, graphite, cobalt, gallium et al.) generate a new pattern of energy dependencies.⁵ Although the production of the renewables is decentralized, some of the minerals and metals renewable energy technologies require could also contribute to conflict. Clean energy minerals and metals, similar to fossil fuels, are concentrated in certain geographic areas, and may be subject to similar contests over their control especially in states with weak institutions and rule of law or because of weaponization of minerals essential to these technologies in trade disputes.⁶

Apart from that, renewable energy is still very expensive and very difficult to be stored. In emerging economies, in particular, electricity systems need substantial numbers of conventional power plants to ensure security of supply. Experts estimate that even with the use of new technologies like battery storage and demand response, it would be difficult or unaffordable to fulfil all electricity needs with a power system that relies only on renewables.⁷

The geopolitics of renewable energy have received relatively little attention so far, especially when considering the far-reaching consequences of a global shift to renewable energy. The fact that the geopolitics of renewable energy differs considerably from that of

oil and gas has rendered it difficult to apply familiar frameworks and concepts of classical geopolitics on the changing global energy landscape. Most of the academic and policy work on renewable energy to date has focused on how to achieve the transition to a low carbon future, not on the impacts of a successful or failed transition on global politics. Yet, energy transition has the potential to lead to the emergence of new players in the international system, maybe causing greater multipolarity, as the players will be most probably more decentralized compared to those players in the old system driven by fossil fuels. Countries with reserves of important industrial minerals might become more powerful; parts of the world with major mineral reserves, such as the Arctic and the South China Sea, will rise in strategic importance; countries that control technologies and know-how on minerals and technologies for renewable energy will also acquire a strategic advance in the upcoming energy system.⁸

The article discusses these contradictory developments in the light of revived interest in hydrocarbons caused by the high energy prices and the threatening disruption in energy supply caused by the Russian-Ukrainian war with a particular focus in Eastern Mediterranean. The paper is outlined as follows: The first section provides a conceptual framework to examine the transformation the global energy system has been going through. The second section focuses on the energy rivalries and the recent manifestations of climate change in the Eastern Mediterranean. In the third section, the study comes up with a new concept of eco-socialist co-existence in the region that goes beyond the issues of energy security, security considerations and legal aspects related to the explorations of hydrocarbons the growing academic literature on East Med energy geopolitics has been so far evolving around.

The uncompleted transformation of the global energy system

The growth of renewables has been meteoric in the last decade and has outpaced in many cases this of hydrocarbons, although the latter remains the basic source of energy all over the world. The main renewable energy sources are bioenergy, geothermal, hydropower, ocean, solar and wind. Among these, solar energy and wind power are undergoing very rapid growth, while the others are growing at a more moderate tempo. Solar and wind are called variable renewable energy sources because their capacity to generate power varies with the weather and the time of day.⁹

When the International Energy Agency, known for its support of fossil fuel companies, published the 2021 report with the title “Net Zero by 2050 A Roadmap for the Global Energy Sector”¹⁰ various experts labelled it as “a knife in the heart of the fossil fuel industry”.¹¹ The agency called for an end to oil and natural gas exploration activities as well as coal extraction and extended investments in clean energy to compensate the necessary radical transition of increasing electricity generation from wind and solar more than eight times by 2050: . . . *At a global level, renewable energy technologies are the key to reducing emissions from electricity supply. Hydropower has been a leading low-emission source for many decades, but it is mainly the expansion of wind and solar that triples renewables generation by 2030 and increases it more than eightfold by 2050 in the NZE. The share of renewables in total electricity generation globally increases from 29% in 2020 to over 60% in 2030 and to nearly 90% in 2050. To achieve this, annual capacity additions of wind and solar between 2020 and 2050 are five-times higher than the average over the*

last three years. Dispatchable renewables are critical to maintain electricity security, together with other low-carbon generation, energy storage and robust electricity networks ...¹²

The recent climate crisis and increasing environmental concerns seem to have driven these energy-ecological considerations as well as the desire for a greener economy, renewable energy and less dependence on fossil sources. Notably, environmental organizations and environmental activism constitute meanwhile an influential actor in state energy policy, especially when it comes to the materialization of new projects, nuclear plants or the construction of oil and gas pipelines.¹³ Even in the United States, where the “shale revolution” is still unfolding, because of which US liquefied natural gas exports have skyrocketed in recent years, there is a strong tendency in favour of renewable energy and energy savings against non-renewable sources.¹⁴ Especially the ‘shale revolution’, the combination of hydraulic fracturing and horizontal drilling that enabled the United States to significantly increase its production of oil and natural gas from tight oil formations, has been castigated by environmental groups.

The United Nations’ intergovernmental panel on climate change¹⁵ has also warned that the usage of fossil resources has brought humanity under existential risk and triggered a climate crisis, thereby factually depicting the term climate change as outdated. According to its report *Climate Change 2021, The Physical Science Basis Summary for Policymakers*, climate change is already affecting every inhabited region across the globe with human influence contributing to many observed changes in weather and climate extremes

The collapse in the price of renewable energy and advanced technologies in this sector have the potential to facilitate the disengagement from the current fossil fuel-centred system. Costs of solar and wind power have dropped dramatically, helping renewable energy make significant inroads into the global energy mix. The price of wind and solar electricity fell by up to 90% in the last decade. Most importantly, solar and wind electricity prices are at levels below that of fossil fuel-based electricity in 80% of the world and continue to fall. In 2019, three-quarters of new investment in electricity went into renewables, the utilization rates of coal generators fell to 53%, while fossil fuel demand for electricity fell by 1%. Sales of alternative fuel vehicles, while still small as a percentage of total vehicle sales, have climbed sharply, especially in China.¹⁶ Simultaneously, investment in renewable energy gained momentum around the world and in some cases overtook fossil energy investments.¹⁷

This trend, however, was partially reversed in 2021 and 2022 due to the chaotic supply chains that led to a surge of nearly 30% in prices for wind and solar power in major global markets. Contract prices for renewables jumped 28.5% in North America and 27.5% in Europe. Economic, logistical and labour market disruptions during the coronavirus pandemic worsened after the Russian invasion of Ukraine, reversing a decade of cost declines for the renewable energy sector.¹⁸

The energy crisis is not only threatening the cost of materials needed in the energy renewables sector but also the European Union (EU) declared environmental goals. Notably, and besides the EU’s strict CO₂ directives, in the framework of the *European Energy Security Strategy*, the *Energy Union* and the *Fourth Energy Package Scheme*, known as *Clean Energy for all Europeans Package* in 2014–2016, the EU has adopted a clear pro-renewables course. These initiatives paved the way for the 2019 declared and

very ambitious goal of creating a climate-neutral continent by 2050. The so-called Green Deal¹⁹ covers many different sectors, including construction, biodiversity, energy, transport, and food, redesigned the concept of energy security, whereas it requires industry and member-states to unconditionally support this policy.²⁰

Though the concept of energy security, formulated in the previous energy policy schemes focusing on supply (this notion applies mainly to imports of hydrocarbons), remains, these policies earmark an overt ‘clean energy’ priority area. EU Member States were required to submit their own energy and climate plans in line with the new three-pronged strategy: 1) smart-sector integration including a ‘renovation wave’ initiative for the building sector, 2) increased offshore wind production, and 3) a clean and circular economy.²¹

In April 2021, EU policy-makers struck a compromise on the European Climate Law. The new law practically institutionalized the goal of achieving climate neutrality by 2050. It enshrined in law the new climate target for 2030 for the EU as a whole (net 55% reduction from 1990 levels), set a new target for 2040 and established a *European Scientific Advisory Board on Climate Change* as an independent expert body to help inform, observe policy-making and assess on five-year basis the collective progress, i.e., EU’s and national states’ consistency with the climate neutrality goal.²² In the next months, various EU bodies reaffirmed these ambitious green objectives as well as the climate spending targets pursued through the EU’s Multiannual Financial Framework, its external policy instruments, and the NextGenerationEU framework.²³

However, the new concept did not revise the European Commission’s 2016 announced ‘Clean Energy for All Europeans’ strategy, in which natural gas is considered to be a bridge fuel that can aid in the transition to renewable energy. As it is literally mentioned in the official texts and to the dismay of many environmental organizations, *gas plants can be easily fired up and down unlike other types of plants, and gas emits 50% less carbon dioxide than coal when burnt.*²⁴

EU’s persistent focus on the supply of commodities such as natural gas—a commodity the many proponents of renewals strictly reject²⁵—is understandable. After a temporary sharp decrease in the consumption of natural gas in 2020 due to the economic decline, caused by the corona pandemic, the natural gas share in the EU’s energy consumption continued to grow in 2021 as the EU implements its carbon-neutral energy policy and Germany, before the war in Ukraine broke out, was set to shut down its last nuclear power plants by the end of 2022. The increased consumption, combined with the decrease in the EU’s gas production, was expected to further increase the EU’s gas import dependence, if the Russian-Ukrainian war had not broken out. In the face of Russia’s weaponization of energy, the EU undertook serious efforts to reduce demand of gas and decided a voluntary joint purchasing of gas, except for binding demand aggregation for a volume equivalent to 15% of storage filling needs, according to national needs, and the speeding up of negotiations with other suppliers.²⁶ In 2020, over 85% of gas consumed in the EU was imported from outside the Union. The share of natural gas has increased particularly rapidly in Greece, Portugal and Spain.²⁷

For several years, it was generally believed that, since natural gas has the lowest carbon dioxide emissions among fossil fuels, the ‘obvious’ way to reduce carbon emissions was to switch from other fossil fuels to natural gas. In particular, in the power generation sector, switching from coal to gas was seen, with some justification, to yield significant CO₂

savings. In the framework of the goal of achieving carbon-neutrality by 2050, however, continuing to burn significant quantities of fossil-derived natural gas appears not to be sustainable.²⁸ Up to now, hydrogen has mostly been obtained from natural gas and only very little hydrogen has been produced with renewable energies. Therefore, the conventional hydrogen causes CO₂ emissions as well.

In various reports published in recent years, it is foreseen that up until 2030 demand for natural gas will remain stable or decrease slightly and therefore switching to natural gas-fired power plants can be a short and medium-term option for countries going through a coal phase-out to maintain some flexibility in the power sector. However, as the EU moves towards its 2050 targets, a mix of low- and zero-carbon gaseous fuels, such as biogas, biomethane, (blue and green) hydrogen and synthetic methane, are expected to replace natural gas.²⁹

The eventful winter 2021–2022 turned a considerable part of this policy upside down. The energy price crisis has dealt a serious blow to the efforts of promoting the transition to the green economy, as the price hikes affected both states' budgets and the most vulnerable citizens. It seems that the industrialized countries are technologically still not in a position to free themselves from their addiction to fossil fuels. Unilateral dependence on Russian gas has exacerbated this. As it is widely known, Europe is paying two to three times more for gas than Asian nations.

The planet has faced volatile energy markets and supply squeezes for decades. What's different now is firstly that the richest economies are also undergoing one of the most ambitious overhauls of their power systems since the dawn of the electric age. The transition to cleaner energy has been thought to make those systems more resilient. However, in the realm of this fundamental change, the world's energy system has become strikingly more fragile and easier to shock. The next several decades could see even more periods of energy-driven inflation, fuel shortages and lost economic growth as electricity supplies are vulnerable to shocks and there is no easy way to storage energy from renewable sources. Apart from it, power consumption is projected to increase in the long-term 60% by 2050, as the world phases out fossil fuels and switches to cars, stoves and heating systems that run on electricity. Continued economic and population growth will also drive consumption higher, as it will the increasing digitalization of production and services.³⁰

Oil demand over the next 10 years will diminish but not disappear and natural gas demand will continue to increase robustly. The world's transportation systems and national economies depend overwhelmingly on supplies of oil. Therefore, hydrocarbons will be still important in the global energy mix. Given, however, that fossil fuels are the source of nearly three-quarters of greenhouse gas emissions, a growing number of industrialized economies have taken steps to shift away from the use of fossil fuels and to increase the share of renewable sources (biofuels, geothermal, hydropower,³¹ solar and wind power) in their energy mixes and this is expected to make many countries energy self-sufficient in the long run.³²

In the long term, gas, like oil, will increasingly struggle to compete with solar, wind, and battery storage technologies, which are continuing to fall in cost and appear attractive because they provide greater employment, reduced import dependence, and lower foreign exchange costs than imported gas.³³ Before this happens, the transition to a carbon-neutral economy will be hitting especially hard the most vulnerable segments of

society. Carbon efficiency would require old, inefficient equipment to be discarded and additional investment to be made so that Gross Domestic Product becomes less carbon-intensive. The poor and the suburban middle class spend more of their income on energy than the rich and the urban professionals do, and often lack the means to buy a new, efficient heating system or to insulate their house. And, because working-class jobs tend to be more carbon-intensive, factory workers and truck drivers will be hurt more than designers and bankers.³⁴

The reverberations of the Russian-Ukrainian war, however, refocused the discourse to the importance of the diversification of the energy sources for the European states and to the urgency of finding alternatives to Russian gas. Europe's energy dependency on Russia marked the comeback of the traditional energy geopolitics at the expenses of the recent green approach. Some observers and politicians hastened to blame the EU Green Deal as a failed strategy and a serious liability. Moscow also participated in the propaganda war blaming the Europeans that they have made themselves dependent on Russian supplies by "investing tremendous amounts in renewable" while at the same time "putting an almost complete moratorium on local fossil fuel development. Under the enormous economic pressure of the high energy prices on households and state budgets, only a few dared to state the systemic failure caused by continued global reliance on fossil fuels and suggest instead the transition to clean energy as a new global security paradigm."³⁵

Against this background, in February 2022, the European Commission, after months of debate and political lobbying, decided, amid strenuous opposition among the member states, to consolidate the inclusion of the controversial sources of nuclear energy and natural gas in its sustainable finance taxonomy.³⁶ In record time, the EU decided to increase its supply of hydrocarbons by resorting to the environmentally harmful (due to the fracking extraction method) US liquefied natural gas.³⁷ As the US president Joe Biden and the President of the EU Commission Ursula von der Leyen agreed in March 2022, the USA would supply 15 bcm to the EU in 2022 and at least, 50 bcm LNG until 2030.³⁸

Thus, despite the REPowerEU plan³⁹ that aims at ending the EU's dependence on Russian fossil fuels cost European taxpayers nearly €100 billion per year, and tackling simultaneously the climate crisis, the EU energy autarky seems to remain a fallacious objective, as the Russian dominance of the European oil and gas market is being replaced by the US dominance. What Washington had not accomplished with its year-long opposition to various Russia-led energy projects like the Nord Stream II pipeline, has attained within a few months after the Russian invasion to Ukraine. And yet, the USA might be declaratory a reliable, traditional ally of the EU and a partner of the transatlantic alliance sharing similar values. However, the US engagement with other authoritarian regimes in Venezuela and the Middle East with a view of securing access to their energy resources and offsetting the loss of the Russian energy supply, undermined Biden Administration's democracy agenda and moral superiority.

The Eastern Mediterranean ahead of new geo-economic and geopolitical challenges

Notably, in recent years, Eastern Mediterranean has been subject to geopolitical conflicts triggered by energy security concerns or other security aspirations promoted through

energy claims. Encouraged by the discovery of offshore hydrocarbons in the Eastern Mediterranean around a decade ago, many of the region's governments have proposed ambitious projects that would transport the natural gas to Europe via undersea pipelines. The prospect of discovering new energy reserves pushed neighbouring countries to define their Economic Exclusive Zones (EEZs), Cyprus with Egypt and Israel, Greece with Egypt and Italy, Turkey with Libya et al. The region's states have indeed declared their EEZs, granted licences for natural gas exploration and drilling and signed highly lucrative hydrocarbon agreements. Their declared maritime zones, however, overlap, creating a complex mosaic complicating the development of the reserves. The delimitation of maritime zones is an extremely difficult and contentious political issue, because it addresses sovereign rights and economic interests. At the same time frequent maritime safety broadcasts refer to endless military exercises and competing and disputing energy explorations activities by the various regional players. Egypt, Israel and Lebanon, Turkey, Greece and Cyprus are on edge over hydrocarbon reserves. Turkey, on the one hand, has been pursuing its interests in a rather assertive and intrusive manner by following a gunboat diplomacy. Cyprus, on the other hand, reached out to the neighbouring states Egypt and Israel in order to achieve a collective development of the gas reserves and enhance security of its own. Moreover, since 2014, two axes of cooperation have been formed, Greece-Cyprus-Egypt and Greece-Cyprus-Israel, convening regularly trilateral summits and signing agreements.⁴⁰

Consequently, it was not only economic opportunities that emerged out of the discoveries but also new security challenges, as each littoral state has sought to use its natural gas potential as a tool of political leverage against its neighbours. Greece-Cyprus, Egypt and Israel have used energy cooperation to foster their defence collaboration. With US stewardship that saw cooperation in the energy sector as a vehicle for strengthening ties between its allies, in January 2019 the governments of Egypt, Cyprus, Greece, Israel, Italy, Jordan, and the Palestinian Authority established the Eastern Mediterranean Gas Forum, a multinational body tasked with developing a regional gas market and mechanism for resource development.⁴¹ Therefore, the resources discovered offshore Egypt, Israel and Cyprus have gained significance not only because of their assumed size but rather because they are closely linked to certain geopolitical expediencies and aspirations.⁴²

As opposed to this alliances, Turkey has engaged in geopolitical competition with the European Union members Greece and Republic of Cyprus and in a gunboat diplomacy, in accordance with the *Blue Homeland doctrine*, by continuing to send exploratory and drilling vessels into disputed or other countries' territorial waters.⁴³ Although Turkey's aggressive behaviour in the Eastern Mediterranean has little to do with energy resources and more with its geostrategic aspirations to cut off the Greek mainland from the Eastern Aegean Sea, energy is still a variable in the overall geopolitical equation. Unsurprisingly, the region became a case study for these international relations approaches that over-emphasize issues of geopolitical concern in energy relations with a distinct focus on the security of energy supply.

In late 2019, Turkey signed an agreement with Libya's Government of National Accord on maritime boundaries, which was responded by Greece with two agreements on delimitation of maritime zones with Italy and Egypt in 2020.⁴⁴ Ankara felt provoked by the rivalling agreements and sent research ships, escorted by military ships, to

disputed areas in the Aegean for explorations, thereby questioning Greece's sovereignty in the region. Athens responded by mobilizing its naval force. The two countries were locked for several months in a stiff standoff the region had witnessed in 20 years. Since a possible confrontation could destabilize NATO's south-east flank for good, the latest cycle of escalation that risked spiralling into a multinational conflict, caused great uncertainty within the North Atlantic alliance. Following up on the 2019 agreement with Libya's Tripoli government (Libya's eastern-based parliament opposed the deal), in October 2022 Ankara signed a preliminary deal on energy exploration in the exclusive economic zone agreed by the two parts in 2019 but rejected by all other regional actors as well as the EU and the USA. Turkey has been a significant supporter of the Tripoli-based Government of National Unity under Abdulhamid al-Dbeibah, whose legitimacy is rejected by the Libyan parliament (an ally of Egypt). According to the parliament, Greece and Egypt the memorandum of understanding was illegal because it was signed by a government that had no mandate.⁴⁵ Should Turkey launch operations in the area demarcated by the 2019 memorandum, new tension should not be ruled out.

However, while frictions among the countries of the region about maritime zones and continental shelf claims abounded in recent years nearly provoking large-scale conflicts, the impact of the climate crisis on the same countries has been extreme, especially in 2021, when Greece and Turkey battled record-breaking blazes. The Mediterranean's more than half-a-billion inhabitants seem to face highly interconnected climate risks. The Mediterranean basin is perceived to be particularly vulnerable to the interconnected challenges stemming from climate change and environmental degradation. Reasons for concern include sea-level rise-related risks, land and marine biodiversity losses, risks related to drought, wildfire, alterations of water cycle, endangered food production, health risks in both urban and rural settlements from heat and altered disease vectors. Temperatures are going up 20% faster than the global average and this is already having real and serious consequences across the basin with sea level rises expected to exceed 1 m by 2100, impacting one-third of the population in the region.⁴⁶

The region is already experiencing dramatic changes and hardships, partly attributable to climate change. The lack of resources caused by droughts leads to mass migration to the cities, civil wars, crossing borders to other countries, ethnic conflicts and tensions. Even before the Arab Spring turbulences, long droughts contributed to significant population displacements and growing political discontent. For example, although the causes of the Syria Civil War are similar with those of other Middle East countries shaken by political uprisings in the last decade, the chain of events that led to the outbreak of civil war can be traced to the 5 years of drought from 2006 to 2011, which started a wave of migration to the cities provoking tensions there.⁴⁷

The UN Intergovernmental Panel on Climate Change has labelled the region as a 'climate change hotspot' expecting the warming across the Mediterranean to be about 20% higher than global averages in the decades to come, as the region is hit with devastating heatwaves, which in turn trigger water shortages, loss of biodiversity and risks to food production. According to the report, an increase of 10–20 days per year of maximum daily temperature exceeding 35°C, a typical, critical threshold for crop productivity and analogous increase in agricultural, ecological and hydrological droughts is expected, by the mid-century, in the Mediterranean areas. Moreover, streamflow

droughts and fire weather conditions are projected to become more severe and persistent in the region.⁴⁸

Mediterranean's summer climate is known to be affected by the South Asian summer monsoon through the monsoon—desert teleconnection. In future, rainfall is expected to increase not only over South Asian area but also over the East Asian summer monsoon and equatorial Atlantic regions and also affect the Mediterranean climate in the future. The atmospheric circulation changes in the Mediterranean in the future could impact on the marine system as well.⁴⁹ Other challenges the Eastern Mediterranean will be facing are: High energy needs, with peaks during summer months; Water shortages, mostly dealt with by the desalination process and reuse of sewage water; Forest fires during warm summers, air quality and extreme precipitation events. All these are expected to hit the most vulnerable groups, i.e., the poor, the elderly, those working outside or with pre-existing conditions, and immigrants.⁵⁰

All this considered, one should feel justified to wonder why are the countries of the region involved in a geopolitical competition⁵¹ to secure control of fossil fuels or to extend their Exclusive Economic Zones at the expenses of their neighbours instead of prioritizing the fight against the common existential threat?

An eco-socialist perspective for the Eastern Mediterranean

In recent years, a new geopolitical school of thought has come into emergence, which has taken a critical stance to the traditional geopolitical hermeneutic tools. According to this new approach, geopolitics, geoeconomics, regional, and national politics need to be underpinned by an understanding of the fundamental ecological independencies that rule the earth's systems. These dependencies are vital to understanding today's natural disruptions and the critical importance of ecological integrity for global security. This is not just a matter of carbon dioxide emissions but also of environmental stewardship to protect and sustain human activity. According to the same approach, the health of the Earth's larger ecosystem depends on the health of local ecosystems. The macro level communicates with the micro, and vice versa. These assumptions are corroborated by international organizations dealing with the global climate change which have irrefutably documented that the use of fossil fuels is the principal cause of greenhouse gases driving up the temperature of the planet. Climate change, they warn, will create severe flooding and droughts which will devastate many countries' food production, lead to the spread of various illnesses, and cause hundreds of thousands of deaths per year, particularly for those living in the developing world.⁵²

The proponents of the environmental approach focus on the ecosystem rather than the state's security or economic growth. They believe that the extent of the destruction that humanity has done to nature has led to the entry of a new geological age, the anthropocene. According to this view, what needs to be done is to exit carbon-intensive sectors gradually and accelerate the transition to a green economic order.

In his socialist-oriented critique of the current energy system, Peter Newell argues that the necessary transition from a high-carbon fossil fuel-intensive system to a low- and ideally zero-carbon one requires the assembling of forces in its support and the disassembling of “incumbent power organized around the fossil fuel complex”, i.e., the global capitalist elites. The latter, according to Newell, who has adopted on this old dependence

theory argument of core and periphery 'ensure that politics and policy reinforce a market liberal approach to transitions within the global capitalist system. Against this background, climate change amplifies a series of tensions and contradictions that inhere in the project of industrialism and in the existing patterns of exploitation. Within this system, people displaced by environmental disasters or environmental stress may be depicted as threats to the security of the state rather than as those in need of being secured. Newell asserts that the energy transition is intertwined with shift towards political decentralization, attempts at re-commoning resources, and repurposing the economy around goals of well-being and prosperity, rather than narrower ideas of growth. Such shifts may imply a new social contract between states and citizens around energy, a shared responsibility for provision and distribution, or a dislocation of relations of dependence on particular infrastructures and allocations of subsidies, in ways which key actors, including the state, can be expected to fiercely contest.⁵³

Certainly, there are no easy answers to this question. Green economy instead of exploitation of hydrocarbons appears to be possible solution to the ongoing climate crisis that unfolded in full display in summer 2021 in countries like Turkey, Greece et al. However, unless this new economic paradigm is carefully designed in a way that makes it appealing to the broadest part of the society, the transition is doomed to fail. Apart from history- and security-related animosities and hostilities, the Mediterranean region is not a homogeneous region in economic terms but consists of countries with very different levels of economic and social development. Some of them are highly industrialized with high energy intensity, some have service-driven economies with low energy intensity and others have been grappling with poverty, unemployment, poor infrastructure and a lack of access to basic services, like reliable energy supply. Due to these divergences, the task of conceiving a common energy and climate approach, even if all of the other political and security antagonism are put aside, is cumbersome.

However, climate change is a particularly pressing threat for the Mediterranean and is shared by all states of this region, irrespective of their present socio-economic or political standing.⁵⁴ As it has been correctly argued, decision-makers of the involved states are not aware of the fact that the main security threat for the common fate of the people living in the region is sustainability and do not act to address the 'survival dilemma' for the well-being of the whole region. For this, it is required that decision-makers move beyond narrow security perspectives and immediately work on joint, renewable energy projects for the construction of a sustainable East Mediterranean region.⁵⁵

The Eastern Mediterranean countries are pretty far behind in terms of realizing their capacity for renewable energy development despite its high potential in solar and wind energy supply despite some recent initiatives towards creating an energy mix based on low carbon technologies. In recent years, both the EU and various governments initiated ambitious energy programmes aimed at differentiating their energy mix.

In February 2021, the European Commission announced the *New Agenda for the Mediterranean*, which is supposed to guide the EU's policy towards the region and the multi-annual programming under the EU's new *Neighbourhood, Development and International Cooperation Instrument* at the regional and bilateral levels. The new agenda encourages member states and southern neighbourhood partners to join forces in fighting climate change and speeding up the twin green and digital transition. Among other policy areas, it focuses on the green transition, climate resilience, energy, and

environment with a view of taking advantage of the potential of a low-carbon future, protect the region's natural resources and generate green growth. The new agenda, as it is the case with the European Green Deal as well, also promised to spur investment and public-private partnerships to promote socio-economic sustainability in Europe's southern neighbourhood.⁵⁶

Israel is the country that has so far made the biggest progress in the development of its natural endowment both for domestic consumption and for export to other countries (Jordan, Egypt). Concurrently, from 2018 onwards Israel began shifting its interest to the renewables instead of oil and gas that had dominated in the public discourse the years before. Gas power stations that were in the pipeline were put on hold and coal units, which provide for one-third of the coal production capacity in Israel, is scheduled to be closed in the next years.⁵⁷ Israel also was the first country in the region to halt gas exploration licences to focus on developing renewables, green electricity, on energy efficiency and on renewable energies in December 2021. The new course faced heavy reactions. Among others, the Association of Oil and Gas Exploration Industries in Israel criticized the government's approach that abandoned Israel's dream of being a force in the energy world.⁵⁸ However, the Russia-Ukraine war rekindled the debate about this course, precipitating a new 180-degree turn in the country's energy attitudes with renewables going back in favour of more robust, if less politically correct, sources.⁵⁹

In this respect, in June 2022 Israel and Egypt signed an agreement with the European Commission to boost gas exports to Europe, as the bloc seeks to wean itself off Russian gas. Moreover, in October 2022, Lebanon and Israel concluded a historic agreement formally ending a dispute between the two countries over their maritime borders. The deal that has been brokered for many years by the United Nations and then by the United States, is the first agreement between the two countries since the August 2006 war. The agreement provides for the exploration of offshore gas reserves believed to lie along the countries' respective shorelines.⁶⁰

Following up on the agreement, in October 2022, Israel granted Energy company permission to start production at the offshore Karish gas field.⁶¹ The development of the Karish field, about 80 km west of the Israeli city of Haifa, had raised tensions between the two countries drawing threats of war from the Iran-backed Hezbollah movement.

Turkey has also not tapped its potential on renewable, clean energy. The country is not compelled to comply with EU rules about gradual decarbonization, however, is more in need to differentiate its energy mix than other EU countries. Geography has endowed Turkey with great strategic importance emanating from its location at the crossroads between Europe, Asia and the Arab world and at both sides of the Bosphorus straits. And yet, geography has been less generous in the allocation of natural resources.

The Turkish 'National Energy Strategy' report for the period 2015-2019, though it mentions the need to mitigate its dependence on petroleum and natural gas it stresses the need for Turkey to be more pro-active if it wishes to establish itself as a regional energy hub. Moreover, the Energy Strategy advises Turkey to practice effective energy diplomacy especially with its neighbours possessing rich natural gas and petroleum reserves, and quickly initiates and completes the planned pipeline projects.⁶²

The country is heavily reliant on imports, especially oil and gas (93% and 99%, respectively), driven by economic and population growth in the last decade and despite

serious efforts to diversify its energy mix towards renewables with renewable electricity generation tripling in the same period. To address this problem and to enhance its energy security, Turkey has oriented itself towards the controversial nuclear energy commissioning its first nuclear power facility in 2023 and domestic exploration and production of fossil fuels. In May 2013, the government passed a new law (the Turkish Petroleum Law) aimed at creating a more attractive upstream fiscal regime for domestic oil and gas production and tapping its domestic potential of shale gas, gas hydrates and coal bed methane. Concurrently, it granted to the Turkish Petroleum Corporation numerous exploration and production licences to facilitate its offshore investment campaign along with increased operations onshore, including shale oil and gas. Turkish Petroleum Corporation's biggest success so far has been the discovery of the giant Sakarya field in the Black Sea. The field is planned to commence production in 2023, giving Turkey bargaining power in the renewal of its natural gas import contracts.⁶³

Nevertheless, as it has been already mentioned, Turkey has always been seeking its long-planned aspiration to become a regional natural gas hub, connecting big consumer markets in Europe to supplier regions surrounding Turkey, including the Middle East, the Caspian Region and Central Asia.⁶⁴ To that aim, the Turkish state has carried out with zeal explorations for gas both in the Eastern Mediterranean and in the Black Sea. In August 2020, the Turkish President Recep Tayyip Erdogan announced Turkey's biggest gas discovery ever. Initial findings show that the estimated reserve capacity is 320 billion cubic metres (bcm) of gas. The offshore reserve is located 175 km offshore Ereğli in the Black Sea.⁶⁵

Cyprus has also stepped up gas production in its Economic Exclusive Zone and is hoping to begin exporting its natural gas from the Aphrodite gas field by 2026.⁶⁶ However, it should be noted that although it is a sovereign right of the Republic of Cyprus to develop its energy resources, this is and always will be perceived by Turkey, regardless of which state elites will govern Turkey and 'Turkish Republic of Northern Cyprus' in the coming years, as a national cause under the logic of sovereign state security and create tensions in the region.⁶⁷

In the wake of the devastating economic crisis that inflicted Greece from 2010 onwards, the possibility of discovery of oil and gas has unleashed an unprecedented hydrocarbon frenzy within the Greek society, featuring future oil and gas revenues as the spearhead of the long-desired economic recovery. Indeed, many experienced energy experts have argued that drilling for oil and natural gas reserves in Greece may not only increase the country's revenues, create new job opportunities and technological innovations but also end its dependence on oil and gas imports, on which it spends billions of euros each year (Mezartasoglou, Stambolis, Perellis, Koutroumbousis 2020: 9–10).

Against this background and given that the investment needed to bring the deposits into production is huge, the Greek government granted licences for exploration and exploitation of hydrocarbons to Greek and foreign companies (French, American, Spanish) in various continental and maritime parts of its territory. During the period 2014–2019 Parliament ratified 11 lease agreements for concession of exploration and operation rights. According to the official announcements, the concessions in the northern Ionian Sea and mainland Western Greece were expected to yield crude oil deposits, with natural gas appearing further south, as indicated by the results of drilling in the past decades.

In December 2019, the Greek government announced a very ambitious National Plan for Energy and Climate in order to abide by the European Green Deal and the ambitious EU-energy transition goals for total decarbonization by 2050, indicating at the same time that it is not interested in going ahead with the development of hydrocarbons resources. Exploration activities in the unexplored reserves south of Crete and in the Ionian Sea, were mostly suspended. The 2021–2022 energy crisis, however, revived interest in hydrocarbons. In April 2022, the Greek government made an U-turn in its hitherto energy policy and announced its intention to accelerate efforts to explore and exploit potential oil and gas reserves, as it seeks to form a key part of a Europe-wide effort to reduce dependence on Russian natural gas and oil.⁶⁸

The research is set to focus on six on- and offshore areas in Western Greece and west of Crete in the southern Aegean Greece aims to conclude a first round of all seismic research by March 2023. In the Ionian Sea and Kyparissiakos Gulf blocked, the licences have been granted to Energean and Hellenic Petroleum companies. The most promising blocks south of the coast of Crete, awarded to a consortium made up of Total, ExxonMobil and HELPE. The foreign companies Total and ExxonMobil, however, remained indifferent to the calls of the Greek government. Total already announced its decision to withdraw from two hydrocarbon exploration blocks near Crete—the block of Western Crete and that of Southwest Crete—after the completion of surveys in those areas. The company remains committed to developing renewable energy sources in Greece and will continue its activity in the country via its local subsidiary Total Energies Marketing Hellas.⁶⁹ Some months ago, Total, ExxonMobil and HELPE had already announced their decision not to proceed in conducting seismic surveys, as provided for in the concession contract that is going to expire in 2022.⁷⁰

Moreover, in early April 2022, Greece decided to push back phase-out of lignite plants to reduce dependence on Russian natural gas by boosting coal mining by 50% and extending the operation of all its coal-fired power plants to 2028, instead of closing them down by 2023 as previously planned.⁷¹

Many energy experts have argued that the Eastern Mediterranean region subsumes into the category of regions in which the transition process to the green economy and climate cooperation is linked to the natural gas as transitional fuel in the objective to attain long-term decarbonization energy and climate goals. Since the East Med countries lack significant nuclear capacity, are heavily reliant on gas consumption and have significant quantities of natural gas (though some of them are still assumed), gas should remain an important energy source to back up intermittent renewables and replace more polluting oil and coal in the medium term.⁷²

According to this argument, reduction in carbon dependency is strongly associated with the controlled conservation of traditional energy sources due to their high energy efficiency compared to the alternatives. For example, concerning Greece, it has been argued that as the use of natural gas will be increasing while at the same time lignite is being withdrawn, the discovery of gas fields becomes imperative. For this reason, Greece should, within the next few years, make every effort to produce natural gas from its own reserves, so that it can gradually cover most, or even all, of its consumption (5–8 BCM/year).⁷³

Some other experts have raised the importance of East Med natural gas in order to produce blue hydrogen for export or domestic use underscoring two advantages of the region as a potential producer of blue hydrogen. First, since much of the regional gas

resources are based in large fields, unit costs of production would be relatively low by global standards. Secondly, the depleted sandstone reservoirs in Egypt's Nile Delta are potentially suitable for CO₂ sequestration and could facilitate the carbon capture and storage solutions needed to decarbonize hydrogen produced from gas.⁷⁴

However, environmental organizations heavily disagree with these perceptions. They argue that the environmental impact of hydrocarbon exploitation can be severe, especially in the case of a major spill incident,⁷⁵ and hence the planned extraction of hydrocarbon deposits poses a dramatic risk of irreversible ecological and socio-economic disaster both within the marine regions and productive land zones where the exploration is proposed. The exploitation of these reserves is, in line with this argument of particular concern, given the large depth associated with the offshore fields as well as the seismic activity in the area, resulting in a logistically and technically challenging operation.⁷⁶

Meanwhile, the geo-economic conditions in the Eastern Mediterranean have fundamentally changed. The US State Department decided to withdraw its diplomatic support to the East Med project for reasons associated with environmental protection/energy transition/turn to renewables, lack of economic and commercial viability as well as tensions in the region created by the project.⁷⁷

Though the US withdrawal from the East Med Pipeline may raise the suspicion that is associated with US strategy to increase LNG transfers to Europe from the USA in a bid to establish some kind of hegemony on Europe in the field of energy security,⁷⁸ there are other reasons for that. As we have shown elsewhere,⁷⁹ the 10bn m³/yr pipeline, 1,300 km of the total 1,900 km of which would be offshore, making it among the longest undersea gas links in the world, has been so far for economic and technical reasons more of a pipedream than a realistic pipeline project. The construction of the EastMed pipeline was designated by the European Commission as a Project of Common Interest. It was a booster but not the main reasons for the Greece, Cyprus, Israel alliance and the East Mediterranean Gas Forum platform with the participation of many Mediterranean countries, which further spearheaded regional dialogue. However, the real prospects for the pipeline have always been uncertain. The East Med pipeline was considered as a very expensive export option, as its construction would necessitate a very high selling price of \$8 per a British Thermal Unit. The need for several compression stations significantly raised construction costs, and it was estimated that it would take at least 10 years to recover the cost of the pipeline. Furthermore, Israel and Cyprus would need to sign purchase contracts with each buying company in Europe, a complex and difficult process. The engineering technology required for such a pipeline would be tested first in real-life conditions, whereas the seismic and volcanic activity in Greek waters presents major construction and transportation risks, as its undersea route reaches a depth of 3.3 km between Cyprus and Greece and any damage to the pipeline would be very difficult to repair. In economic terms, it is doubtful that the respective gas deliveries would be competitive with existing supplies from other countries and especially various LNG producers around the world, given that they come from offshore fields that regularly produce more expensive gas than onshore fields.

Against this background and under the pressure of the rising energy prices, it appears, according to some news reports, that some regional stakeholders like Turkey are trying to revive the old project of the construction of subsea pipeline connecting Israel to Turkey for the delivery of gas from Israel's Leviathan field to the Turkish coast. From there via an

onshore pipeline join, the East Med gas can feed into the TANAP-TAP pipeline (Trans-Anatolia Natural Gas Pipeline—Trans Adriatic Pipeline) with which Azerbaijani gas is transported through Greece and Albania to Italy. Although according to the international law, this pipeline can cross other countries' economic exclusive zone, such as Cyprus, as long as it does not cause environmental problems, from a political point of view it would be impossible for the Cyprus government to consent to this plan under the current political circumstances. The idea that this could function as a catalysator in the Cyprus problem give some incentives to Turkey and Cyprus to settle the Cyprus problem, is rather chimera than a realistic option.

However, the cancellation of the East Med pipeline and the difficulties in the export of gas could be an opportunity for the Eastern Mediterranean countries to reframe the dialogue around energy and climate change in the region and to talk more about climate change and shift attention rather to electricity interconnections,⁸⁰ which are easier to build than gas pipelines and much more compatible with new technologies: offshore wind, hydrogen, carbon capture and storage, sustainable mobility, smart cities, and many others. In this undertaking, Greece should seek cooperation with Turkey as well, because Turkey will be hit by the climate change exact as the other Mediterranean countries and probably even more due to the inadequate infrastructure in large parts of its territory. Above all, it requires joint actions to stave off the repercussions of the crisis: wildfires, overfloods, disastrous windstorms will test infrastructure and civil protection capacity with unprecedented intensity.

Conclusion

Due to the ongoing climate change, renewables have moved to the centre of the global energy landscape. Technological advances and falling costs have made renewables grow faster than any other energy source, while cleaner sources of electricity are gradually replacing fossil fuels. Hydrocarbons, especially oil, will be emerging as unprofitable, although the meltdown of the price of oil and gas will take some time. Apart from the potential economic costs due to the prolonged use of hydrocarbons, the environmental impact of their consumption and production is more severe and one of the main causes of environmental degradation, climate change and global warming.

Especially the whole Mediterranean region is very vulnerable to the repercussions of the ongoing climate change. International organizations and climate experts label Mediterranean as a climate change 'hotspot', i.e., as a region that is expected to experience wide-ranging and long-lasting environmental reverberations. Temperatures are going up 20% faster than the global average and this is already having real and serious consequences. Reasons for concern include sea-level rise-related risks, land and marine biodiversity losses, risks related to drought, wildfire, alterations of water cycle, endangered food production, health risks in both urban and rural settlements from heat and altered disease vectors.

Due to the 2021–2022 energy crisis and the Russian-Ukrainian war, some Eastern Mediterranean countries appear ready to neglect efforts towards a more environment-friendly energy mix and to engage to exploration and production of new hydrocarbons as vehicle to enhance energy security and autarky. In our opinion, this is the wrong result to infer from the recent energy crisis. The war has proved once again how vulnerable the

current hydrocarbons-based energy system is and how imperative is to replace hydrocarbons with alternative energy sources. The hyperinflation caused by the war should supercharge international efforts to help both emerging and developed economies come off hydrocarbons and make a fast and fair transition to net zero not to boost production of existing or assumed resources. In addition to cutting the dependence on Russia, the Eastern Mediterranean countries should reduce the overall role that natural gas plays in their energy mix by replacing it with locally sourced renewable energy.

On the other hand, many experts have argued that the Eastern Mediterranean region is in desperate need of natural gas, because it is a relatively cleaner-burning fossil fuel and can act as a transitional source of energy until renewables such as solar and wind come online on a mass scale. Nevertheless, since a multitude of signs indicates that the climate change is already in the region and its impact is expected to be devastating in the years to come, there is not time for this strategy. The countries of the region should design as soon as possible to a joint Disaster Risk Reduction Strategy considering climate change as an internal ingredient of the national strategic threat and readiness for extreme events; climate-adapted planning; higher ecosystem sustainability; better meteorological forecasting; social resilience; usage of electric vehicles; and usage of renewable energy sources. The effort to protect national security by resorting to geopolitical competition and trying to increase the power of the states at the expenses of the others, affects any opportunities for cooperation and creates uncertainty and instability in the wider region, whereas all of them are being threatened by the same enemy, the climate crisis. Against this background, the model of Green Economy does not seem to be a choice anymore but a matter of survival.

Notes

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