

## ACCELERATING THE ENERGY TRANSITION IN THE MEDITERRANEAN REGION: An Egyptian Perspective

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As home to an increasing population of over 500 million inhabitants, the Mediterranean region<sup>2</sup> is nowadays facing significant energy challenges while seeking to accelerate energy transition to deal with the climate change crisis<sup>3</sup>. Driven by economic development, demographic growth, and rapid urbanization, primary energy demand in the region is expected to rise substantially over the next 25 years. Meeting this increased energy demand as well as the climate change challenge through decarbonization – both lying at the basis of the Sustainable Development Goal 7 “ensure access to affordable, reliable, sustainable and modern energy for all”- requires a high level of multilateral responses and collective actions. Reinforced cooperation in the energy and climate action fields is needed and represents an opportunity for both shores of the Mediterranean to achieve the ultimate goal of fostering integration and social and economic development in the region.

Blessed with **great renewable energy potential**, particularly owing to high levels of solar irradiation and wind throughout the region, the Mediterranean region displays unique opportunities for the energy transition, which is (slowly) gaining momentum despite mixed results and speeds. The penetration of renewable energy is still limited compared to its potential and the region requires substantial investments and a forward-looking vision to undergo a stronger – yet gradual and orderly – energy transition. In addition, the region also holds a strategic position near main energy markets and is in itself a large market. Even if these conditions per se would not allow Mediterranean

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<sup>2</sup> A common definition of the region includes 25 countries belonging to the EU, the Balkans, North Africa and the Middle East, covering an area of 9 million km<sup>2</sup> and a population of around 540 million in 2017. See: Observatoire Méditerranéen de l'Energie (OME), 2018. Mediterranean Energy Perspectives 2018, Paris.

<sup>3</sup> Reaching carbon neutrality in the Mediterranean region requires a deep transformation of the energy sector, which is by far the largest source of GHG emissions. The energy industry is responsible for 74 percent of total GHG emissions in the Mediterranean region. Within this sector, energy production, transport and distribution account for 36 percent of emissions, followed by transportation (29 percent), manufacturing/construction and energy use in buildings (13 percent each) with fugitive emissions accounting for the remaining share.

countries to become self-sufficient through renewable energy sources (RES), they certainly provide unique prospects to promote greater RES penetration and electricity interchange, which would lead to greater decarbonisation of the region. This is a promising prospect, especially for EU member states, which have politically committed to achieving climate neutrality by 2050.

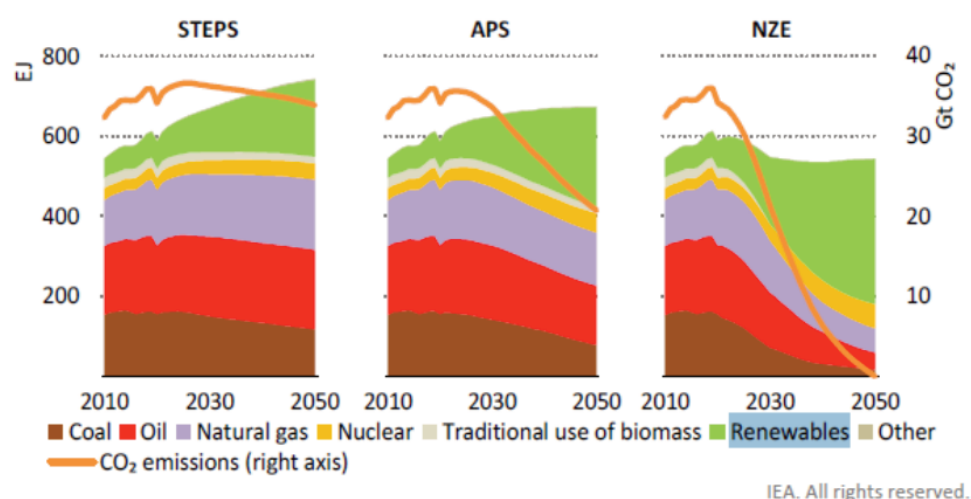
Furthermore, **the Ukrainian crisis**, which started on February 24, 2022, is likely to be an incentive for accelerating the energy transition in the Mediterranean region. Although the effects of this crisis on the energy landscape in the Mediterranean region cannot be captured entirely at the time of writing these lines, the uncertainty around the intensity and duration of the crisis leaves doubts over the longer-term dependence on fossil fuels, the potential rise in investment spending on renewable energy projects and its consequences for the prospects of the energy transition. In the short term, where policies explicitly mandate renewable energy projects, power generation from fossil fuels might likely look less attractive, especially in the most fossil fuel importing countries in the Mediterranean region. For these countries, in general, the Ukrainian crisis exposed the fact that fossil fuel markets are volatile and vulnerable to shocks; therefore, investing in low-carbon projects, especially in renewables, is likely to seem more attractive.

In addition, the Conference of the Parties to the UN Framework Convention on Climate Change (COP26), which was held in Glasgow, Scotland, in November 2021, revealed the determination of many advanced industrial countries, led by the United States, under the administration of President Joe Biden and the European Union, to accelerate the pace of global action to reduce carbon emissions through the energy transition. It was also clear that most of international financial institutions, sovereign funds, and international banks become more reluctant to finance oil and natural gas projects in the future, in light of their increasing commitment to financing projects aimed at achieving “carbon neutrality”.

### **Transformation of the global energy sector**

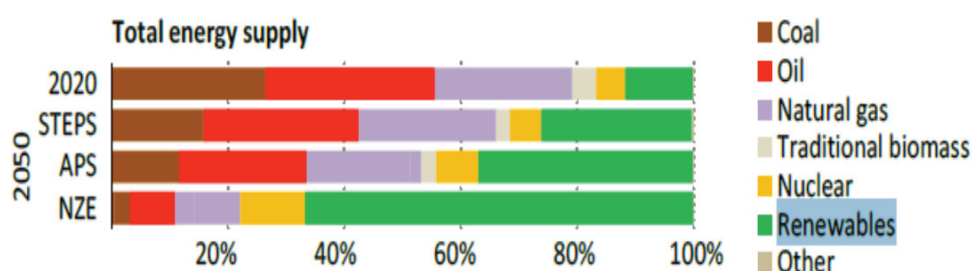
Another important factor that will likely accelerate the energy transition in the Mediterranean region in the near future is the gradual and profound transformation of the global energy sector towards clean energy. This is attested by most future energy scenarios. In its forecasts for 2021, for example, the International Energy Agency (IEA) claims that the strong growth of renewable energy sources (RES) will continue over the next decade, noting that the proportion of contributions from RES will rise from about 28 percent of the global total electricity generation in 2020 to about 88 percent in 2050, according to the “net zero emissions by 2050” scenario. This will be mainly made possible through an increased reliance on solar photovoltaic and wind energy sources, as shown at figures 1 and 2.

**Figure 1:** Total primary energy supply by fuel and scenario  
(STEPS) Stated Policies Scenario - (APS) Announced Pledges Scenario - (NZE) Net Zero Emissions  
by 2050 Scenario



Source: IEA (2021). World Energy Outlook 2021. International Energy Agency. Available at: <https://iea.blob.core.windows.net/assets/888004cf-1a38-4716-9e0c-3b0e3fdbf609/WorldEnergyOutlook2021.pdf> (accessed on November 24, 2021).

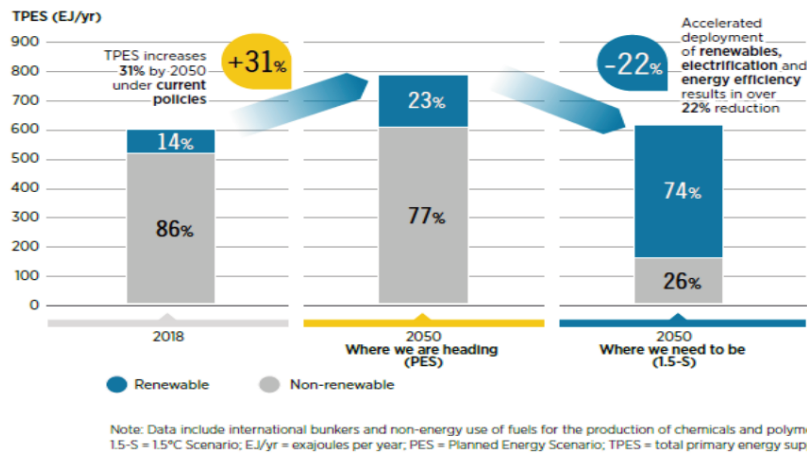
**Figure 2:** Energy supply and demand by fuel and sector, 2020 and 2050



Source: IEA (2021). World Energy Outlook 2021. International Energy Agency. P. 185. Available at: <https://iea.blob.core.windows.net/assets/888004cf-1a38-4716-9e0c-3b0e3fdbf609/WorldEnergyOutlook2021.pdf> (accessed on June 26, 2022).

Moreover, the International Renewable Energy Agency (IRENA) has estimated that the share of renewable energy in the global total primary energy supply will grow from 14 percent in 2018 to 74 percent in 2050. It has also noted that by the middle of this century, electricity generated from renewable energy sources will rise to more than 50 percent of total final energy consumption as a result of the increased reliance on them in the field of transport by electric vehicles in 2050, as shown at figure 3.

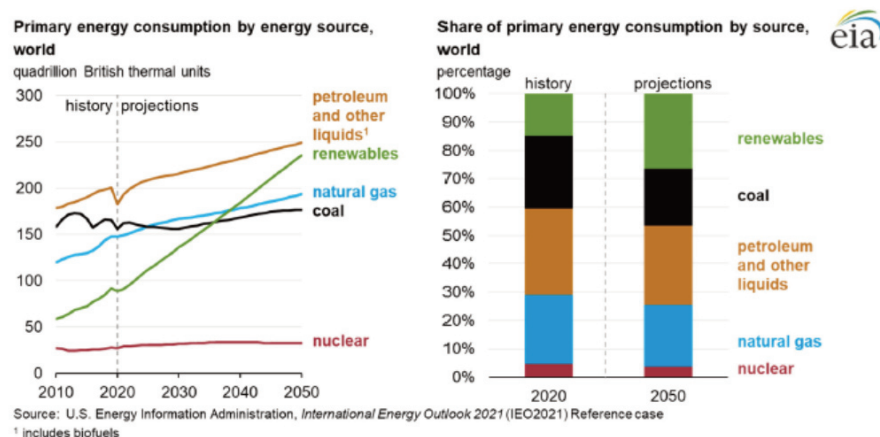
**Figure 3:** Share of renewable and non-renewable energy in total primary energy supply in 2018 and 2050, in the currently planned and 1.5°C scenario



Source: IRENA (2021). World Energy Transitions Outlook: 1.5°C Pathway. Available at: [file:///C:/Users/lap%20store/Downloads/IRENA\\_World\\_Energy\\_Transitions\\_Outlook\\_2021%20\(1\).pdf](file:///C:/Users/lap%20store/Downloads/IRENA_World_Energy_Transitions_Outlook_2021%20(1).pdf) (accessed on June 26, 2022).

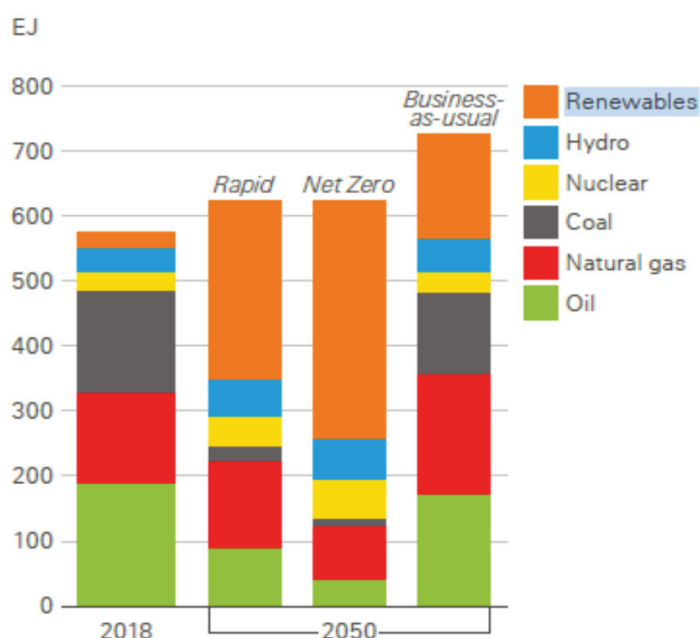
Even in the most conservative estimates of the spread of renewables, such as those from the US Energy Information Administration or those from BP in 2021, renewables will be the fastest growing energy sources in the world over the next 30 years, fueled by a significant increase in wind and solar projects. In this context, the reliance on renewable energy sources will double between 2020 and 2050, with the consumption of renewable energy almost equal to the consumption of fossil fuels by 2050, as shown in figures 4, 5, and 6.

**Figure 4:** Primary energy consumption by type of energy and the percentage of primary energy consumption by type



Source: EIA (2021). International Energy Outlook 2021 Narrative. U.S. Energy Information Administration. Available at: [https://www.eia.gov/outlooks/ieo/pdf/IEO2021\\_Narrative.pdf](https://www.eia.gov/outlooks/ieo/pdf/IEO2021_Narrative.pdf) (accessed on June 26, 2022).

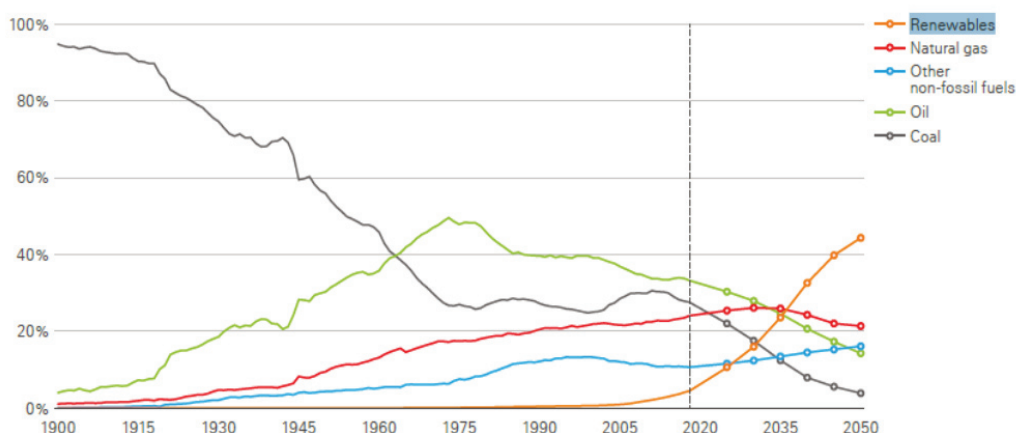
**Figure 5:** Primary energy consumption by source in 2018 and 2050, under the three scenarios (Rapid - Net Zero - Business as usual)



Source: BP (2021). Energy Outlook: 2020 edition. p.14. Available at: <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2020.pdf> (accessed on June 26, 2022).

**Figure 6:** The decline in the share of fossil fuels in primary energy in the rapid scenario

Shares of primary energy in *Rapid*



Source: BP (2021). Energy Outlook: 2020 edition. p.17. Available at: <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2020.pdf> (accessed on June 26, 2022).

In light of these scenarios regarding the future of the energy transition in the world, the Mediterranean region must take the best way forward in the process of global energy transformation. However, this task will likely not be easy due to many challenges.

### Challenges of the energy transition in the Mediterranean

One important challenge facing energy transition in the Mediterranean region is **the lack of common understanding** among its countries about the necessity of this transition to achieve both energy security and climate sustainability at the same time. Some in the Southern and Eastern shores of the Mediterranean are talking about **"climate justice"**, which is based upon the responsibility of the advanced and industrialized countries to finance the huge investments required to accelerate energy transition projects in the region. According to them, these countries bear an **"historical responsibility"** for climate change. In this context, it has been highlighted that the advanced countries have failed to deliver the \$100 billion they committed under the Paris agreement to assist the developing countries, which should not be burdened by the huge investments needed to make the energy transition possible. On the other hand, some people are also warning about **"green colonialism"**. According to them, developed countries are working to keep the countries of the South poor by stopping them from producing their own fossil fuels, such as oil, natural gas, and coal in the name of climate concerns. This would deprive some countries in the Mediterranean, especially those which are rich in oil and gas such as Libya and Algeria, from their wealth, and consequently increase the poverty rates and human insecurity.

In addition to the lack of common understanding among and between the Mediterranean countries, a number of regulatory barriers, insufficient and unstable political backing, and difficult or expensive access to capital are all responsible for the unsatisfactory energy transition penetration in the Mediterranean region so far, especially in the southern shore. There is particular evidence pointing out to fossil fuel subsidies being a big impediment to energy transition (to wind and solar energy in particular) achieving relative cost advantage. Insufficient physical integration is an additional obstacle to electrification and renewable energy projects. Between-shores electricity trade has not thrived (except between Morocco and Spain), although a number of projects are now underway, including a submarine cable between Egypt, Cyprus, Greece, and Europe, the so-called **EuroAfrica Interconnector**.

### What should we do to accelerate energy transition in the Mediterranean?

The starting point is to reach a consensus among the Mediterranean countries and people that we need a radical shift to decarbonize the energy system in the Mediterranean region allowing to meet the Paris Agreement's targets. In this regard, we should think about the energy transition from a **"family" perspective** not from the "neighborhood" perspective. Based on the "family" perspective, we should reach a **"Charter for Energy transition in the Mediterranean Region"**. This charter would show the

way and responsibilities of the different stakeholders to achieve the energy transition. It would also give a clear vision and implementation tools to guarantee the energy transition in the region. The main objective of this charter would be to enable the Mediterranean countries to work more closely together in the take-up and promotion of energy transition. In so doing, the countries can more easily achieve both individual and collective renewable energy and energy efficiency targets. The charter would also facilitate a more cost-effective roll-out of energy transition across the Mediterranean particularly in areas that have greater access to natural resources or are better suited for it in terms of geography.

Then, governments of the region should encourage companies and individuals to cut their greenhouse gas emissions via **economic incentives** such as a tax on carbon emissions or a subsidy on solar panels. The key is not to limit choices but to encourage people to take a decision that goes in the sense of the energy transition, something they are currently mostly indifferent about. Nudges only work when people assume that by choosing one thing over the other, they have nothing to lose – by definition, if people believe a choice represents a loss, they will reject it.

At the regional level, there is a priority at the policy and regulatory framework level. The Mediterranean region has a strong cultural identity but does not have any legal status. Most Mediterranean countries on the northern shore are EU Members States, whereas others participate in the neighborhood policy but have less stringent policy commitments and different priorities. The **Union for the Mediterranean** (UfM) provides a platform for knowledge sharing and dissemination of best practices, by bringing together the representatives of 42 countries of the Euro-Mediterranean area, and a wide range of stakeholders. Its establishment has represented a clear step forward in the Euro-Mediterranean partnership, but a further step is still missing if we want the EU and its “family” members in the Mediterranean region to become carbon neutral economies by mid-century<sup>4</sup>. For example, it would be useful if the UfM could establish a forum that incentivizes technical, academic, private sector, and civil society actors to collaborate on climate change/renewables research and innovation. This new forum should also combine the US, China, and regional funding institution.

### **Egypt's role in accelerating energy transition in the Mediterranean**

Egypt remains a key player in plans to promote a Mediterranean energy transition due to both its renewable energy high potential and its natural gas capabilities. As part of the Mediterranean and having longstanding relationships with many countries on the southern and northern shores, Egypt is well

<sup>4</sup> An increasing number of actors are working to promote a wider integration of the Mediterranean to boost sustainability, including energy transition. An important input comes from regional intergovernmental organizations (i.e., Union for the Mediterranean), specific platforms (i.e., Regional Electricity Markets) and associations (i.e., Mediterranean Energy Regulators; Observatoire Méditerranéen de l'Energie; the Mediterranean Transmission System Operators; Renewable Energy Solutions for Mediterranean – RES4Med, part of RES4Africa). Private players also provide an essential input, although investments in RES are currently considered insufficient, with the risk of forgoing evident environmental benefits and industrial opportunities.

placed to promote the energy transition in the Mediterranean region, especially with the fact that the Egyptian government has a commitment to maintaining a high level of ambition for its energy and climate policies as was reflected in its strategic target of becoming **an energy regional hub**.

After achieving self-sufficiency in natural gas in 2018, Egypt has planned to use its position on Europe's doorstep to become a major supplier of liquefied natural gas (LNG) to the continent, which is transitioning away from other fossil fuels. This is based on Egypt's huge gas discoveries and production, which is expected to rise to 7.5 million tonnes by the end of the 2021/2022 fiscal year. Egypt has also made a series of oil and gas discoveries in recent years, most notably the giant Zohr gas field off the Mediterranean. The gas field, which holds an estimated reservoir of 30 trillion cubic feet of gas, has drawn the interest of investors in the country's energy sector. Egypt also has the infrastructure for transporting and handling natural gas with a network of 7,000km of pipelines, a distribution network of 31,000km, and 29 gas-treatment plants as well as two LNG facilities – Idku and Damietta plants. At the same time, Egypt has previously reached trade agreements with Israel and Cyprus to import gas from these two countries, process it in the Egyptian liquefaction plants in Idku and Damietta, and then re-export it to European markets. According to data from the Ministry of Petroleum and Mineral Resources, Idku and Damietta plants have annual production capacities of 7.2 million and 4.8 million tonnes, respectively. On 15 June 2022, Egypt, the EU, and Israel signed in Cairo a framework agreement to export natural gas from Israel via Egypt to Europe.

Egypt also has an advantaged standpoint to lead international climate action in the upcoming years as in November 2022 it will host the Conference of the Parties to the UN Framework Convention on Climate Change (COP27) which is critical for defining the global response to the many challenges created by climate change.

In the recent past, Egypt has actively supported a number of projects related to the energy transition in the Mediterranean region, notably within the East Mediterranean Gas Forum (EMGF), the project of electricity interconnector with Greece, Cyprus and Europe (EuroAfrica), and recently green hydrogen highway projects from Middle East to Europe.

To conclude, implementing energy transition policies that simultaneously meet the goals of security, affordability and sustainability can be considered one of the most daunting challenges facing governments of the Mediterranean region in the 21st century, especially given the urgent need to step up action to counter the threat of climate change.