



27th National Energy Conference
ENERGY+DEVELOPMENT
14 -15 November 2023

Background Paper

Europe's Key Energy Issues: a SEE Perspective





BACKGROUND PAPER

Europe's Key Energy Issues: a SEE Perspective

NOVEMBER 13, 2023

Prepared by the IENE Research Team

Institute of Energy for South East Europe (IENE)

3, Alexandrou Soutsou, 106 71 Athens, Greece

tel: 0030 210 36 28 457, 3640 278 fax: 0030 210 3646 144

website: www.iene.eu, e-mail: admin@iene.gr

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Preface

In view of this year's "Energy & Development" conference, we thought prudent to prepare a general background paper for the benefit of the conference delegates, highlighting some of the key energy issues which have emerged over the last few months. Inevitably, these issues focus on Europe and the surrounding region as this is where momentous events have been taking place, such as the war in Ukraine and the latest conflict between Israel and Hamas. It goes without saying that such events are directly or indirectly impacting energy supply and transmission and as a result are helping foster a new sense of energy security. An effort has been made to account and analyse these energy issues and latest developments from a SE European perspective.

It should be noted that the present Background Paper, which has been prepared by IENE's research team, is by no means an exhaustive analysis. Such analyses are being carried out by the IENE throughout the year and are published regularly in the relevant newsletters and other publications of the Institute. The intention has been all along to provide delegates with some useful background information which can help them in their discussions during the conference.

Costis Stambolis

Chairman of IENE and founder of the "Energy & Development" annual conference

November 2023

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Introduction

Some of the tensions in energy markets receded in 2023 since the extreme volatility of the global energy crisis, mostly in 2022, but the situation remains fragile. The urgent task of transforming the energy system now takes place in a more challenging macroeconomic and geopolitical context. The frailties of the fossil fuel age are plain to see, and opportunities in the emerging clean energy economy are growing fast. However, many uncertainties remain about the resilience of energy supply chains old and new, about risks to the security and affordability of transition, and about whether the process of change will be sufficiently rapid to avoid very severe impacts from a changing climate.

As our broader region is ravaged by two parallel wars, the frozen conflict in Ukraine now in its second year following Russia's invasion in February 2022, and the latest battle zone in Gaza following Hamas's brutal attack on Israel on October 7, the energy sector is once more on the throngs of uncontrolled geopolitical moves. Although the prices of energy commodities appear, at least for the time being, unaffected, that apparent tranquility may not last if any of the above two conflicts spirals out of control. With the Middle East scene far more susceptible for such eruption, according to latest assessments.

In view of today's geopolitical instability and persisting strong global demand for oil and gas, in spite of rising input from renewables, which alas is directed almost exclusively to power generation, some governments and international organisations are finding it necessary to prioritise energy security over green transition. Ensuring ample oil and gas stocks ahead of winter, with some countries, such as Germany, even resorting to highly polluting coal, has emerged as a clear priority and earlier calls for lessening dependence on fossil fuels have been put quietly aside.

Russia's invasion of Ukraine has had profound effects on the energy sector in the European Union. Vast sums were spent on energy in 2022: the European Union paid over USD 300 billion for natural gas imports in 2022, a threefold increase compared to the average of the previous five years. This fed through to much higher end-user prices for both natural gas and electricity. Even though governments made far-reaching interventions to cushion the impacts and reduce demand, and the well-integrated EU energy markets helped to manage supply risks, spending on energy use in buildings, transport and industry in the EU in 2022 rose above USD 2 trillion, equivalent to 12% of GDP.

The European Union's clean energy ambitions require a large quantity of raw materials, and it is currently highly dependent on imports. Like many other regions responding to post-Covid-19 pressures on supply chains and the fallout from the global energy crisis, the European Union has sought to promote investment in domestic production as a way to increase the resilience of energy supply chains. While recognising the benefits of trade and the importance of international co-operation, the proposed EU Net Zero Industry Act (NZIA) would require the EU clean manufacturing capacity to reach at least 40% of deployment needs by 2030, while the proposed European Critical Raw Materials Act (CRMA) would require 10% of the EU annual consumption to be extracted in the region, and less than 65% of its annual consumption of each mineral to have been processed in a third country.

In this context, the important role of energy and energy security in particular in today's geopolitically unstable world, as well as the strategic importance of reducing Europe's energy dependence on Russia, in the wake of the war in Ukraine, will be highlighted by the Institute of Energy for Southeast Europe (IENE) in its 27th Annual National Conference "Energy & Development" which will take place in Athens on November 14-15, 2023.

1. Prospects of Global Economic Growth

The global recovery from the COVID-19 pandemic, Russia's invasion of Ukraine and Israel-Hamas conflict remains slow and uneven. Despite economic resilience earlier this year, with a reopening rebound and progress in reducing inflation from last year's peaks, it is too soon to take comfort.

Economic activity still falls short of its pre-pandemic path, especially in emerging market and developing economies, and there are widening divergences among regions. Several forces are holding back the recovery. Some reflect the long-term consequences of the pandemic, the war in Ukraine, the Israel-Hamas conflict and increasing geoeconomic fragmentation. Others are more cyclical in nature, including the effects of monetary policy tightening necessary to reduce inflation, withdrawal of fiscal support amid high debt, and extreme weather events.

Based on the estimates from the International Monetary Fund (IMF) (1), global growth is forecast to slow from 3.5% in 2022 to 3.0% in 2023 and 2.9% in 2024. The projections remain below the historical (2000-2019) average of 3.8%, and the forecast for 2024 is down by 0.1% from the July 2023 Update to the World Economic Outlook.

Table 1: Real GDP Growth, Annual % Change, 2022-2024

	2022	2023	2024
World Output	3.5	3.0	2.9
Advanced Economies	2.6	1.5	1.4
United States	2.1	2.1	1.5
Euro Area	3.3	0.7	1.2
Germany	1.8	-0.5	0.9
France	2.5	1.0	1.3
Italy	3.7	0.7	0.7
Spain	5.8	2.5	1.7
Japan	1.0	2.0	1.0
United Kingdom	4.1	0.5	0.6
Canada	3.4	1.3	1.6
Other Advanced Economies	2.6	1.8	2.2

Source: IMF's World Economic Outlook (October 2023)

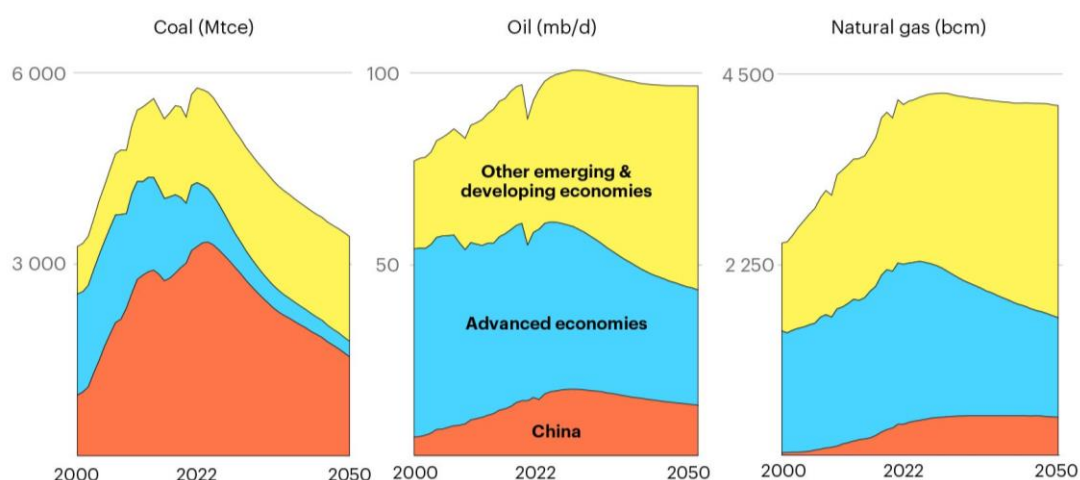
For advanced economies, the expected slowdown is from 2.6% in 2022 to 1.5% in 2023 and 1.4% in 2024, amid stronger-than-expected US momentum but weaker-than-expected growth in the euro area. Emerging market and developing economies are projected to have growth modestly decline, from 4.1% in 2022 to 4.0% in both 2023 and 2024, with a downward revision of 0.1% in 2024, reflecting the property sector crisis in China.

Forecasts for global growth over the medium term, at 3.1%, are at their lowest in decades, and prospects for countries to catch up to higher living standards are weak. Global inflation is forecast to decline steadily, from 8.7% in 2022 to 6.9% in 2023 and 5.8% in 2024. But the forecasts for 2023 and 2024 are revised up by 0.1% and 0.6%, respectively, and inflation is not expected to return to target until 2025 in most cases.

2. Trends of Global Energy Demand

Conflict and uncertainty provide an inauspicious backdrop to the new World Energy Outlook (2), the annual reference study published by the International Energy Agency (IEA). Following Russia's invasion of Ukraine, instability in the Middle East could lead to further disruption to energy markets and prices. This underscores once again the frailties of the fossil fuel age, and the benefits for energy security as well as for emissions of shifting to a more sustainable energy system.

Figure 1: Fossil Fuel Demand in the IEA's Stated Policies Scenario, 2000-2050

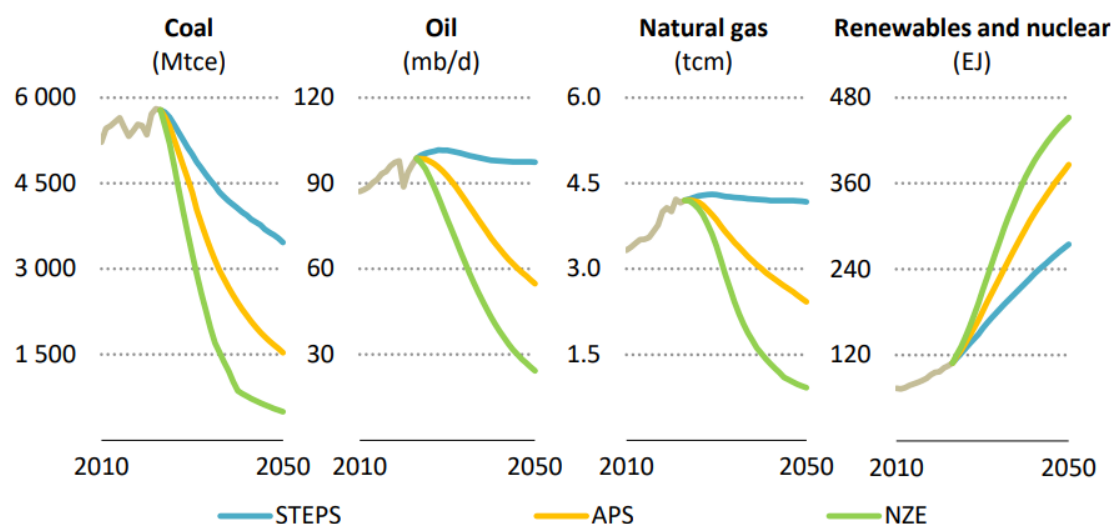


Source: IEA's World Energy Outlook 2023

Clean energy projects are facing headwinds in some markets from cost inflation, supply chain bottlenecks and higher borrowing costs. But clean energy is the most dynamic aspect of global energy investment. How fast it grows in the coming decades in response to policy and market stimuli is key to explain the differences in trajectories and outcomes across our three main scenarios. In all scenarios, the momentum behind the clean energy economy is enough to produce a peak in demand for coal, oil and natural gas this decade, although the rates of post-peak decline vary widely.

In the Stated Policies Scenario, average annual growth rate of 0.7% in total energy demand to 2030 is around half the rate of energy demand growth of the last decade. Demand continues to increase through to 2050. In the Announced Pledges Scenario, total energy demand flattens, thanks to improved efficiency and the inherent efficiency advantages of technologies powered by electricity – such as electric vehicles and heat pumps – over fossil fuel-based alternatives. In the Net Zero Emissions by 2050 Scenario, electrification and efficiency gains proceed even faster, leading to a decline in primary energy of 1.2% per year to 2030.

Figure 2: Global Total Energy Demand by Fuel and Scenario, 2010-2050

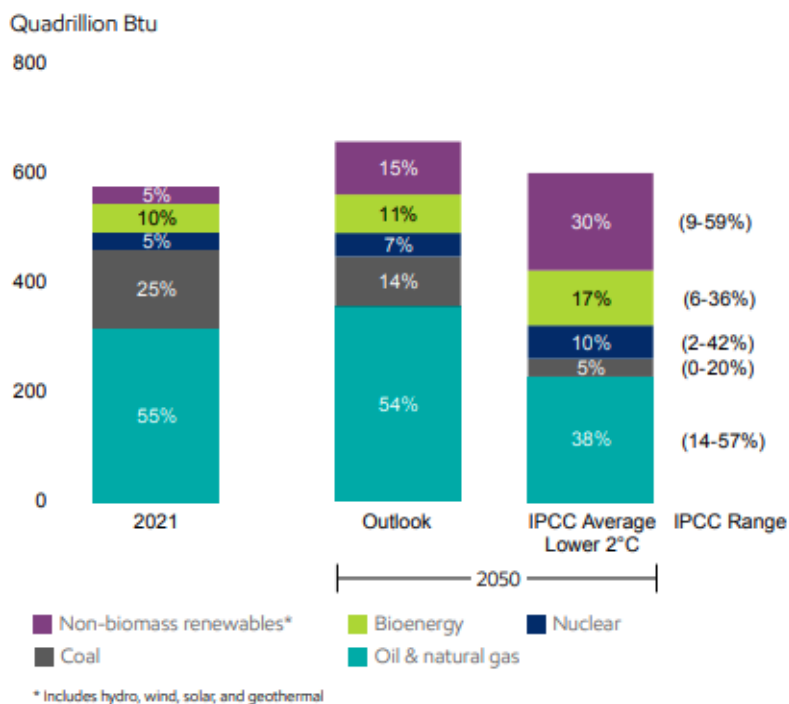


Source: IEA's World Energy Outlook 2023

According to the Exxon Mobil's Global Outlook (3), oil and natural gas are still projected to meet more than half (54%) of the world's energy needs in 2050. The utility of oil and natural gas in meeting the world's needs remains unmatched. They are energy dense, portable, available, and affordable - and serve as essential raw materials for many products we use today. Given that oil and natural gas are projected to remain a critical component of a global energy system through 2050, sustained investments are essential to offset depletion as production naturally declines by 5%-7% per year.

Oil use is expected to decline significantly in personal transportation but will remain essential for the industrial processes and heavy-duty transport like shipping, long-haul trucking, and aviation that underpin economic growth. We could consider that if every new passenger car sold in the world in 2035 was an electric vehicle, oil demand in 2050 would still be 85 million barrels per day, the same as it was around 2010. Natural gas use is projected to increase by more than 20% by 2050 given its utility as a reliable and lower-emissions source of fuel for electricity generation, hydrogen production, and heating for both industrial processes and buildings.

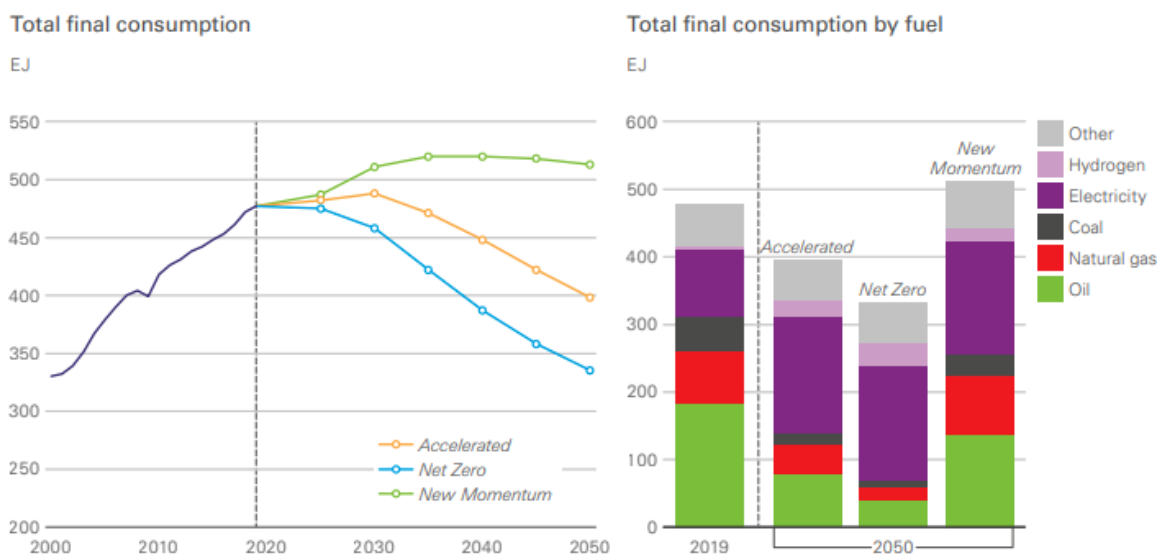
Figure 3: Global Energy Mix, 2000-2050



Source: Exxon Mobil's Global Outlook 2023

Based on BP's estimates (4), oil demand declines over the outlook, driven by falling use in road transport as the efficiency of the vehicle fleet improves and the electrification of road vehicles accelerates. Even so, oil continues to play a major role in the global energy system for the next 15-20 years. The prospects for natural gas depend on the speed of the energy transition, with increasing demand in emerging economies as they grow and industrialize offset by the transition to lower carbon energy sources, led by the developed world.

Figure 4: Global Final Energy Consumption, 2000-2050



Source: BP Energy Outlook 2023

3. Current Energy Situation in Europe

Ahead of winter 2023-2024, the EU is well prepared to ensure energy security thanks to the availability of various energy sources, filled gas storage facilities, reduced energy demand, and increasingly diversified energy suppliers. However, risks remain such as a possible complete halt of pipeline imports and attacks on critical infrastructure. More frequent extreme weather events can also affect the energy system and energy security of supply. A balanced approach and solidarity among Member States will continue to play a key role in the EU's collective resilience.

The measures adopted in 2022 have considerably eased the pressure on energy markets and gas prices. Nevertheless, gas prices are still higher than during the period 2015-2019 when on average gas prices ranged from €15-20 per MWh. Prices remain volatile and react to any disruption on the global market, as illustrated by the recent increase in gas prices due to the Middle East crisis and the temporary closure of a gas field in Israel, as well as the leak discovered on a gas pipeline in the Baltic region connecting Finland to Estonia. The EU needs to stay vigilant as the cumulative impact of these events combined with market uncertainty could affect European and global energy markets.

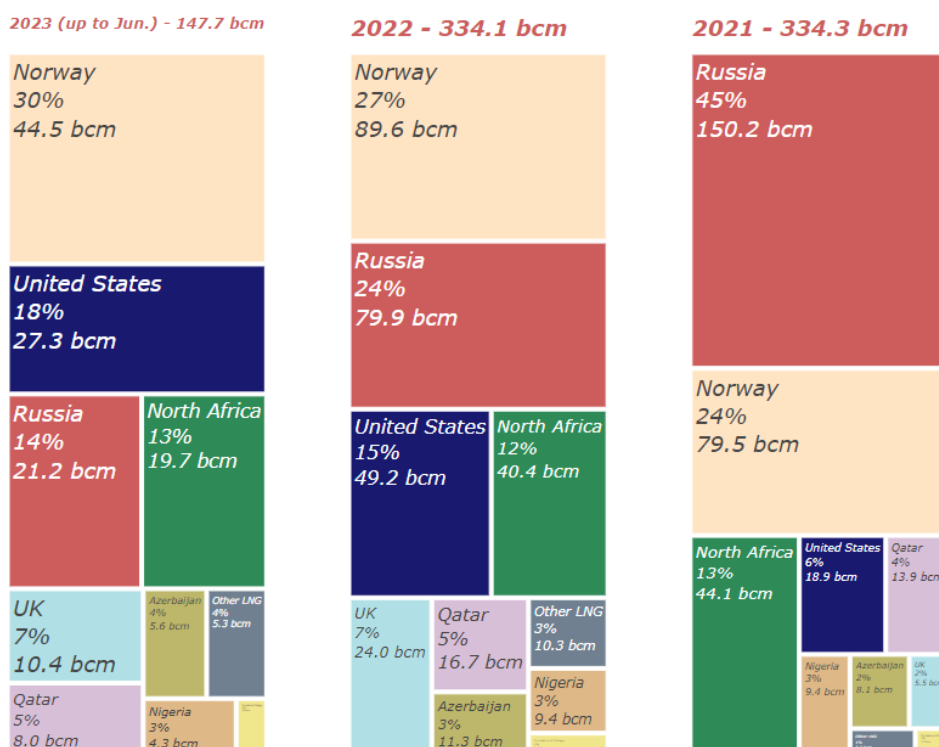
Energy Supply with Reduced Imports from Russia

The years 2022 and 2023 were among the most challenging for the EU energy system, but the EU managed to maintain and even increase the security of its energy supply. The swift and successful implementation of the REPowerEU plan has helped to significantly reduce the share of Russian gas in EU imports, while ensuring sufficient gas for high-demand periods and pushing energy prices down from historic highs. (5)

For natural gas, security of supply has improved significantly over the past year and the EU is on track to meet the REPowerEU target to be independent of Russian fossil fuels by 2027. In 2022, total imports of Russian gas (LNG and piped natural gas) fell to 80 bcm (24% of EU imports), compared with pre-crisis annual imports of 155 bcm (45%). Even though LNG imports from Russia have increased since 2021, they represent a very small portion of overall gas imports.

Total imports are falling even further in 2023, projected to be approximately 40-45 bcm. In June 2023, only 8% of gas imports came through Russian pipelines, compared with over 50% before the war of aggression. Thanks to the important diversification efforts and reduction in demand, the EU has been able to compensate for all the missing Russian volumes. The new storage policy not only ensured energy security for winter 2022-2023, but it also ensures a more comfortable situation for the winter ahead.

Figure 5: Composition of Natural Gas Imports (Pipeline and LNG), 2021-2023



Source: ENER Chief Economist team, based on data from JRC, ENTSO-G, Refinitiv

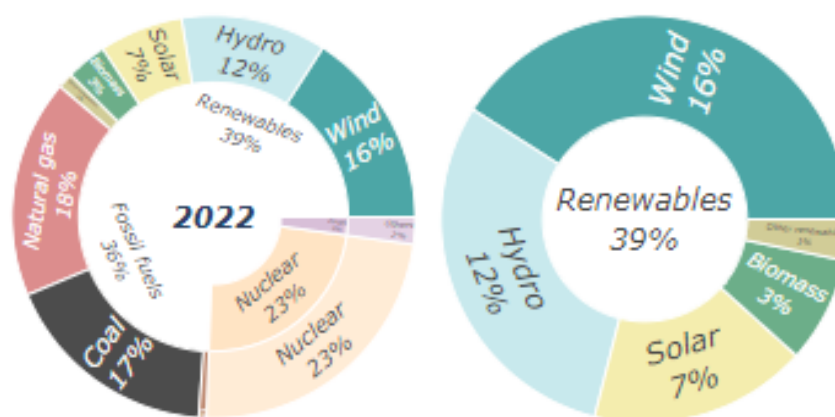
Russian oil imports into the EU have decreased by 90% since March 2022 without significant impacts on the EU economy. Member States are holding emergency oil stocks in line with EU legislation. The EU sanctions and G7 price cap on oil imported from Russia did not affect the EU's oil security of supply while having the intended effect of limiting Russian oil revenues. In its 11th package of sanctions, the EU introduced anti-circumvention tools to prevent imports of oil products produced in other countries from Russian oil or products with unknown origin. The Commission is closely monitoring oil markets along with Member State experts in the Oil Coordination Group as further OPEC and Russian cuts could increase market tightness. Even though, Member States hold high levels of emergency oil stocks, in particular diesel oil, it has to be recognised that the cumulative impact of recent events could potentially affect the EU's security of supply and global energy markets.

In the face of the energy crisis, the EU increased and accelerated the installation of renewable energy technologies, which strengthened the EU's energy supply and crucially underpins the long-term elimination of Russian fossil fuels imports. Based on REPowerEU, the EU adopted the Permitting Regulation¹, which simplified and speeded up renewable permitting procedures by focusing on specific technologies and projects with the highest potential for quick deployment, such as solar photovoltaic (PV) on artificial structures and heat pumps, as well as repowering.

¹ COM(2022) 591 - Council Regulation (EU) 2022/2577.

In 2022, 57 GW of new renewable energy capacity was installed, essentially solar PV and wind turbines. In both sectors, this is about 50% more than in 2021. This helped to more than balance out low production of hydropower in 2022 (12% of total power production), even though it recovered towards average levels in 2023 due to increased rainfall and higher reservoir levels². In the renewable heating sector, the use of heat pumps rose by 39% compared with 2021³.

Figure 6: Share of Renewables in Electricity Supply, 2022



Source: ENER Chief Economist team, based on data from Fraunhofer, ENTSO-E

The solar thermal market increased by almost 12%⁴. Electricity production from solid biofuels was stable, representing around 3% of total electricity production (2.9% in 2020 and 3.1% in 2021). Combining energy for the generation of electricity and heat, the main renewable energy source in the EU remains bioenergy (around 60%). In total, the share of renewable energies in the energy mix has increased considerably over the course of 2022 and 2023 and the EU agreed to speed up the deployment of renewable energies, with a target of 42.5% in the EU energy mix by 2030, and the ambition to reach 45%⁵.

Nuclear energy continues to contribute to the security of electricity supply. In 2023, it generated around 24% of total electricity produced in the EU (23% in 2022 and 26% in 2021). The EU's nuclear power plants are ageing, while new advanced nuclear technologies, such as small modular reactors, are emerging, requiring significant investments in this sector. In view of this, the Commission has adopted measures to improve the investment environment for long-term operation and new capacities⁶. In this situation, those Member States having nuclear energy as a part of their energy mix need to take timely decisions regarding investments in the long-term operation of existing nuclear power plants and make appropriate safety and efficiency improvements.

² [EU fossil generation hits record low as demand falls | Ember \(ember-climate.org\)](https://ember-climate.org/news/eu-fossil-generation-hits-record-low-as-demand-falls/)

³ [Market data – European Heat Pump Association \(ehpa.org\)](https://ehpa.org/market-data/)

⁴ [Solar thermal and concentrated solar power barometer 2023](https://www.solarthermal.eu/solar-thermal-and-concentrated-solar-power-barometer-2023)

⁵ [European Green Deal: EU agrees stronger legislation to accelerate the roll-out of renewable energy](https://ec.europa.eu/euro-pressroom/content/european-green-deal-eu-agrees-stronger-legislation-to-accelerate-the-roll-out-of-renewable-energy)

⁶ EU Complementary Delegated Act that under strict conditions includes specific nuclear activities in the EU taxonomy and Net-Zero Industry Act.

Energy Demand

The Commission proposed several measures to save energy and reduce energy consumption in line with the “energy efficiency first” principle. In May 2022, the Commission outlined in its Communication EU “Save Energy”⁷ possible measures for Member States to cut energy consumption and increase energy efficiency, in buildings, industry and transport. This was complemented by the Energy Saving Sprint⁸ - an initiative launched by the Commission, the EU Covenant of Mayors and the European Committee of the Regions, to support cities in taking immediate measures in the same direction.

In 2022, the Council agreed on a voluntary gas demand reduction target of 15% (or 45 bcm) by spring 2023, which was overachieved with demand dropping by 18% (or 53 bcm) with all sectors reducing their gas demand. Building on this experience, the voluntary target was extended to March 2024 and is estimated to save around 60 bcm of gas. In October 2022, the Council introduced exceptional time-limited measures to reduce electricity demand and to redistribute the energy sector's exceptionally high revenues to final customers⁹. The Regulation set the target to reduce overall electricity demand by 10% and by at least 5% during peak hours. While the reduction in demand during peak hours was achieved, the reduction in overall electricity consumption by 10% was challenging for Member States.

The EU made major steps to reinforce legislation for more energy efficiency. With the update of the Energy Efficiency Directive¹⁰, the EU is expected to reduce final energy consumption at EU level by 11.7% by 2030 compared with the projections of the 2020 reference scenario. Moreover, new rules have been adopted for standby consumption of electrical appliances¹¹, and the European Product Registry for Energy Labelling¹² database, a new tool for the public at large and public procurers to identify efficient products, was made available.

Diversification of Energy Sources

As a consequence of the REPowerEU plan and the EU's efforts to phase out its dependency on Russian fossil fuels, the EU significantly diversified its energy supply. In April 2022, the Commission, mandated by the European Council, created an EU Energy Platform¹³ to pool the EU's demand for gas and to coordinate voluntary joint purchase in view of achieving favourable contracts with non-Russian international suppliers. The EU energy platform was also opened to Georgia, Moldova, Ukraine and the Western Balkan countries, with Ukraine, Moldova and Serbia subscribing to the platform.

The demand aggregation platform “AggregateEU” was launched on 25 April 2023, with so far three successful tendering rounds taking place in May and June/July and

⁷ COM(2022) 240 final.

⁸ [Cities Energy Savings Sprint](#)

⁹ COM(2022) 473 - Council Regulation (EU) 2022/1854.

¹⁰ COM(2021) 558 final, Directive (EU) 2023/1791.

¹¹ Commission Regulation (EU) 2023/826.

¹² [European Product Registry for Energy Labelling \(EPREL\)](#)

¹³ COM(2022) 549 - Council Regulation (EU) 2022/2576.

September/October 2023. These three rounds resulted in the aggregated demand of 44.75 bcm, received bids of 52 bcm, and in total 34.78 bcm partially or entirely matched between offers and demand. Demand expressed by EU buyers in the first two calls alone was twice the mandatory target of 13.5 bcm set by Council Regulation (EU) 2022/2576. The EU Energy Platform has some 170 companies subscribed and the aggregated volumes indicate that this is an effective tool in leveraging the EU political and market weight. In the context of the interinstitutional negotiations on the proposed hydrogen and decarbonised gas market package, the co-legislators are discussing possibilities of prolonging AggregateEU for purchases of gas beyond 2024 and expanding the mechanism to other products, such as renewable hydrogen and other renewable gases.

The Commission has supported Member States in addressing the gas infrastructure bottlenecks identified as part of the REPowerEU plan, and in implementing projects of common interest on the fifth Union list selected in line with the former Trans-European Energy Infrastructure Regulation. Many are backed financially through the Connecting Europe Facility (CEF) and cohesion policy funds. Under the CEF alone, grants of €1.64 billion were awarded to energy infrastructure projects of common interest in 2021 and 2022. The projects of common interest finalised in recent months have ended the dependency of all Member States on a single energy supplier and the EU has made remarkable progress in diversifying its energy supplies and optimising existing natural gas infrastructure by way of pipelines, e.g. the Baltic Pipe, Poland-Slovakia, Interconnector Greece-Bulgaria, enabling reverse flow between France and Germany, and LNG terminals, e.g. in Germany, Greece, Italy and Finland. For the energy security of Member States and regions, the EU will continue supporting critical projects, which are not economically viable without EU financial or regulatory help, for instance through CEF, the RRF, permitting acceleration, and exemptions, where relevant.

In addition, the Commission has worked on strengthening relations with international partners and diversifying its imports of gas and LNG towards more reliable, non-Russian, suppliers. The EU expanded its imports of natural gas and LNG from Norway and the US to make up for reduced imports from Russia. With 49.3 bcm, LNG imports from the US more than doubled in 2022 (2021: 18.9 bcm). Pipeline gas imports from Norway increased from 79.26 bcm in 2021 to 86.69 bcm in 2022, enlarging Norway's share of total EU imports via pipeline from 30% to 40%. The Commission has a regular dialogue with Nigeria, the largest LNG producer in Africa. In July 2023, new memoranda of understanding on cooperation on the energy transition were signed with Uruguay and Argentina. In July 2022, the EU and Azerbaijan adopted a new Memorandum of Understanding on a Strategic Partnership in the Field of Energy and the EU increased gas supplies from this country by 40%. Both parties agreed to double gas delivery to the EU by 2027 via the Southern Gas Corridor and to enhance their cooperation on clean energy, energy efficiency, electricity transmission and on methane emissions.

In the Mediterranean region, the Commission continued working with Egypt, Israel and the East Mediterranean Gas Forum on the implementation of the trilateral Memorandum of Understanding, which helped to boost LNG supplies from Egypt to the EU from 1.1 bcm in

2021 to 4.2 bcm in 2022. The Commission will continue to monitor the situation in the Middle East and its potential impact on global energy markets. At the same time, the EU continued its dialogue with both Algeria and Egypt on efforts to reduce methane emissions, including through the implementation of the “You Collect We Buy” approach, by which companies would be able to collect and sell the recovered gas that otherwise would be vented or flared. The EU continued its dialogue with Algeria in order to further develop its strategic partnership on energy. Algeria is the main Mediterranean supplier of natural gas to the EU and could potentially become a supplier of low-carbon and renewable energy in the future. Total energy imports from Algeria decreased slightly in 2022 to 40.35 bcm (2021: 44.1 bcm). Pipeline imports to Spain decreased, while imports to Italy increased.¹⁴

The EU intends to increase supply of renewable hydrogen as part of a diversified and decarbonised energy system independent of Russian energy imports. The proposed hydrogen and decarbonised gas market package will define the market set-up for hydrogen and ensure easier market access for renewable and low-carbon gases. The European Hydrogen Bank¹⁵ will help to overcome initial investment challenges for renewable hydrogen by covering the cost gap between renewable hydrogen and fossil fuels. The demand aggregation of hydrogen could enable matching of future producers and off-takers of hydrogen, and it would help to leverage the EU's political and market weight vis-à-vis international hydrogen producers, thereby resulting in more affordable prices. The EU seeks partnerships with countries in the Mediterranean basin, the North Sea region, the Gulf countries, Saudi Arabia and Ukraine for the possible import of renewable hydrogen. In 2022, at COP 27 in Sharm el-Sheikh, the EU already concluded a partnership with Egypt to facilitate the uptake of renewable hydrogen investments and trade.

4. The Role of Oil and Gas

The global energy mix is constantly changing as countries and industries strive to meet the world's growing energy demands. The oil and gas industry is a critical component of the global energy mix, accounting for approximately 60% of the world's energy consumption. Oil is the most widely used fuel in the world, accounting for around 33% of the global energy consumption. It is used in a variety of industries, including transportation, heating and cooling, and electricity generation. Gas is also an important fuel, accounting for around 24% of the world's energy consumption. It is used primarily for electricity generation and heating, but also in transportation and industrial processes.

The oil and gas industry faces significant challenges in terms of environmental concerns related to greenhouse gas emissions, including carbon dioxide and methane. The industry is exploring ways to reduce its environmental impact through technological innovation, including Carbon Capture and Storage (CCS) and improvements in energy efficiency. Another challenge for the industry is the volatility of energy prices. The price of oil, in particular, can fluctuate significantly due to factors such as geopolitical tensions, production levels, and

¹⁴ ENER Chief Economist, based on data from JRC, ENTSO-G Transparency

¹⁵ COM(2023) 156 final.

global demand. This can impact the profitability of the industry and result in periods of uncertainty.

In October 2023, the IEA released its annual World Energy Outlook report that projects global demand for coal, oil and natural gas will hit an all-time high by 2030, a prediction the IEA's Executive Director Fatih Birol had telegraphed in September. "The transition to clean energy is happening worldwide and it's unstoppable. It's not a question of 'if,' it's just a matter of 'how soon' — and the sooner the better for all of us," Birol said in a written statement published alongside his agency's World Outlook (6). "Taking into account the ongoing strains and volatility in traditional energy markets today, claims that oil and gas represent safe or secure choices for the world's energy and climate future look weaker than ever."

A few days earlier, Chevron announced plans to acquire oil and gas company Hess for \$53 billion in stock (7) and less than two weeks prior, Exxon Mobil announced it is acquiring oil company Pioneer Natural Resources for \$59.5 billion in stock (8). But based on their acquisitions, Chevron and Exxon Mobil are seemingly preparing for a different world than the IEA is portending.

"The large companies - non-government ones - do not see an end to oil demand any time in the near future. That's one of the messages you have to take from this. They are committed to the industry, to production, to reserves and to spending," Larry J. Goldstein, a former president of the Petroleum Industry Research Foundation and a trustee with the not-for-profit Energy Policy Research Foundation, recently told CNBC. (9)

"They're in this in the long haul. They don't see oil demand declining anytime in the near term. And they see oil demand in fairly large volumes existing for at least the next 20, 25 years," Goldstein told CNBC. "There's a major difference between what the big oil companies believe the future of oil is and the governments around the world." So, too, says Ben Cahill, a senior fellow in the energy security and climate change program at the bipartisan, non-profit policy research organization, Center for Strategic and International Studies. "There are endless debates about when 'peak demand' will occur, but at the moment, global oil consumption is near an all-time high. The largest oil and gas producers in the United States see a long pathway for oil demand," Cahill told CNBC.

Continued demand for oil and gas despite growing momentum in clean energy is due to population growth around the globe and in particular, growth of populations "ascending the socioeconomic ladder" in Africa, Asia and to some extent Latin America, according to Shon Hiatt, director of the Business of Energy Transition Initiative at the USC Marshall School of Business.

Oil and gas are relatively cheap and easy to move around, particularly in comparison with building new clean energy infrastructure. "These companies believe in the long-term viability of the oil and gas industry because hydrocarbons remain the most cost-effective and easily transportable and storable energy source," Hiatt told CNBC. "Their strategy suggests that in emerging economies marked by population and economic expansion, the adoption of low-carbon energy sources may be prohibitively expensive, while hydrocarbon

demand in European and North American markets, although potentially reduced, will remain a significant factor.”

Also, while electric vehicles are growing in popularity, they are just one section of the transportation pie, and many of the other sections of the transportation sector will continue to use fossil fuels, said Marianne Kah, senior research scholar and board member at Columbia University's Center on Global Energy Policy. Kah was previously the chief economist of ConocoPhillips for 25 years. “While there is a lot of media attention given to the increasing penetration of electric passenger vehicles, global oil demand is still expected to grow in the petrochemical, aviation and heavy-duty trucking sectors,” Kah told CNBC.

Geopolitical pressures also play a role. Exxon and Chevron are expanding their holdings as European oil and gas majors are more likely to be subject to strict emissions regulations. The US is unlikely to have the political will to force the same kind of stringent regulations on oil and gas companies here. “One might speculate that Exxon and Chevron are anticipating the European oil majors divesting their global reserves over the next decade due to European policy changes,” Hiatt told CNBC.

“They are also betting domestic politics will not allow the US to take significant new climate policies directed specifically to restrain or limit or ban the level of US oil and gas domestic production,” Amy Myers Jaffe, a research professor at New York University and director of the Energy, Climate Justice and Sustainability Lab at NYU's School of Professional Studies, told CNBC.

Goldstein expects the ever-expanding US national debt will eventually put all kinds of government subsidies on the chopping block, which he says will also benefit companies such as Exxon and Chevron. “All subsidies will be under enormous pressure,” Goldstein said, the intensity of that pressure dependent on which party is in the White House at any given time. “By the way, that means the large financial oil companies will be able to weather that environment better than the smaller companies.”

Also, sanctions of state-controlled oil and gas companies in countries like those in Russia, Venezuela and Iran are providing Exxon and Chevron a geopolitical opening, Jaffe said. “They likely hope that any geopolitically driven market shortfalls to come can be filled by their own production, even if demand for oil overall is reduced through decarbonization policies around the world,” Jaffe told CNBC. “If you imagine oil like the game of musical chairs, Exxon Mobil and Chevron are betting that other countries will fall out of the game regardless of the number of chairs and that there will be enough chairs left for the American firms to sit down, each time the music stops.”

Oil and gas reserves that can be brought to market relatively quickly “are the ideal candidates for production when there is uncertainty about the pace of the energy transition,” Kah told CNBC, which explains Exxon's acquisition of Pioneer, which gave Exxon more access to “tight oil,” or oil found in shale rock, in the Permian basin.

5. The Expanding Presence of LNG

According to the REPowerEU plan, the EU could import 50 bcm more of LNG (e.g. from Qatar, USA, Egypt, West Africa) on a yearly basis, equivalent to 37 million tonnes of the superchilled fuel. Diversification of pipe sources (e.g. Azerbaijan, Algeria, Norway) could deliver another 10 bcm of yearly savings on Russian gas imports. Such an objective seems very challenging, given current European import capacity and the cost at which this would be done. It is worth noting that the EU and the UK together imported 67.55 million tonnes last year and 73.5 million tonnes in 2020.

It is worth noting that the EU quickly diversified its energy imports away from Russia, which ultimately guaranteed its energy security. Total Russian gas imports fell to around 80 bcm in 2022 and to an estimated 40-45 bcm in 2023, compared with an annual 155 bcm before the crisis. To make up for reduced imports from Russia, the EU expanded its imports of natural gas and LNG from Norway and the US. While imports of Russian LNG have increased, the overall share of Russian gas (LNG and piped natural gas) in total EU gas imports has fallen from 45% to 50% in the pre-crisis years to 15%, and the share of Russian pipeline gas to below 10% since January 2023.

Another key factor which EU planners tend to disregard is the instant availability of almost 10% of global LNG production. In other words, where are these extra quantities of LNG going to come from? Which countries are going to supply 50 bcma at short notice and at what cost? And where is this additional LNG going to be stored? These are serious questions which are begging for answers, especially if we are talking about the SE European region, where the LNG market is not so developed compared to the rest of Europe.

Regardless of developments in Ukraine, LNG demand in SE Europe is expected to grow over the next few years, as the regional market keeps expanding. The rapid penetration of LNG in the region will be similar to the recent past such as Spain, Portugal, Italy, Greece and Turkey. It appears that LNG prospects in SE Europe and the East Mediterranean in particular are far better placed than they were five years ago, with the aforementioned new projects getting ready to progress and LNG clearly emerging as a priority fuel for several industrial consumer groups helped by lower prices and increased availability.

Greece, Croatia and Turkey are the only countries in the broader Black Sea-SE European region which at present possess LNG gasification terminals which are well linked and integrated into their national gas systems. It is thus anticipated that the SE European region, from Croatia to Turkey, will play a significant role in expanding LNG trade in Europe through the construction and operation of several new LNG regasification projects, with the prospect of feeding gas quantities into the Greek, Bulgarian, Serbian and Turkish gas systems, among others.

As shown in Table, the total nameplate receiving capacity of existing LNG terminals in SE Europe currently stands at 26.6 MTPA. If we add both Gulf of Saros (7.5 MTPA) and Vassilikos (0.6 MTPA) FSRUs, combined with the planned Dioryga Gas and Alexandroupolis FSRUs (4 MTPA), which undoubtedly will increase Greece's capacity, we are talking about a

total nameplate receiving capacity by 2030, which will reach more than 40 MTPA. Therefore, we can easily appreciate the important role LNG can play over the next years in SE Europe's gas supply and its impact on European gas supply at large, but it can make only a small contribution to Europe's effort to reduce dramatically its reliance on Russian gas in the context of the REPowerEU plan. **(10)**

Table 2: Existing and Under Construction LNG Terminals in SE Europe

	Country	Terminal or Phase Name	Start Year	Nameplate Receiving Capacity (MTPA)	Owners	Concept
Existing	Turkey	Marmara Ereglisi	1994	5.9	Botas (100%)	Onshore
		Aliaga Izmir LNG	2006	4.4	EgeGaz (100%)	Onshore
		Dortyol - MOL FSRU Challenger	2018	4.1	Botas (100%)	FSRU
		Etki LNG terminal - Turquoise	2019	5.7	Terminal: Etki Liman (100%), FSRU: Kolin Construction (100%)	FSRU
	Greece	Revithoussa	2000	4.6	DEPA (100%)	Onshore
	Croatia	Krk - Golar FSRU	2021	1.9	Terminal: HEP (85%), Plinacro (15%), FSRU: Golar (100%)	FSRU
Under Construction	Turkey	Gulf of Saros terminal – Ertugrul Gazi	2022	7.5	Botas (100%)	FSRU
	Greece	Alexandroupolis FSRU	2022	4.0	DESFA (20%), Kopelouzos Group (20%), DEPA Commerce (20%), GasLog Cyprus Investments Ltd. (20%), Bulgartransgaz EAD (20%)	FSRU
	Cyprus	Vassilikos FSRU	2022	0.6	DEFA (100%)	FSRU

Sources: IGU, IENE

On October 7, 2023, Hamas attacked Israeli communities near the Gaza strip, sparking a huge Israeli military response that has now developed into an air and ground war in Gaza itself, both events bringing unprecedentedly high casualty numbers on both sides. Impacts on Israel's offshore gas sector were almost immediate. Two days after the Hamas attack, the Israeli Ministry of Energy requested that Chevron, as operator, shut down the offshore Tamar field, which produced 10.3 bcm in 2022, 47% of Israel's output. Subsequently, export flows of gas to Egypt through the offshore EMG pipeline were suspended, although some of those exports were re-routed through Jordan.

With tight gas balances and reduced imports from Israel, the prospect of the EU receiving more LNG from Egypt in the short and medium term looks unachievable. The June 2022 Memorandum of Understanding between Egypt, Israel, and the EU, committing to higher supply, is now probably undeliverable. In the event that Israeli production falls further if there were to be problems at either Leviathan and/or Karish gas field, threatening exports to Jordan, then global LNG supply potentially could be tightened by some 10 million tonnes per annum from a combination of lower Egyptian supply (potentially, 7 million tonnes per annum) and Jordan returning as an LNG buyer (+3 million tonnes per annum). **(11)**

6. Energy Security Remains Paramount

Energy policy in the EU has been an unstructured process in which member states participated voluntarily in the recent past, while they have been acting independently without a common energy strategy. There are several political parameters and beliefs affecting the stance of member states since they have been unwilling to act and contribute to any common policy in EU. Until the end of the last century, there was no vision within the EU to create a common energy policy, even though its existence was critical for member states and other involved parties including the European Commission. From the beginning of the 2000s, it became clear that EU had to deal with contemporary challenges that affected its economy and industries.

Finally, in 2005, the EU decided to establish a new energy policy, and after two years, the European Commission issued “An energy policy for Europe”, which was then adopted by the European Council and the European Parliament. “This policy will firmly commit the European Union to a low consumption economy based on more secure, more competitive and more sustainable energy. Priority energy objectives involve ensuring the smooth functioning of the internal market in energy, security of strategic supply, concrete reductions in greenhouse gas emissions caused by the production or consumption of energy and the EU’s ability to speak with a single voice on the international stage”.

Taking into account each country’s specific conditions, energy security should be dealt with in parallel with developing domestic energy sources and their best possible use with increased energy efficiency, shifting to a more balanced energy mix. This should be done especially in countries that are mostly dependent on fossil fuels and thus the EU should take actions such as:

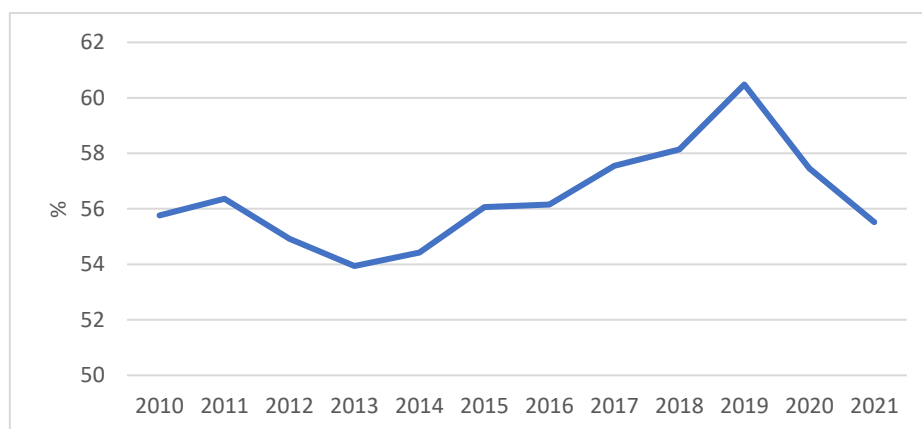
- Increasing the geographical diversification of oil and gas imports.
- Avoiding single sourcing policies from sole suppliers.
- Improving the level of integration within the EU gas and electricity markets.
- Developing cross-border interconnections (electricity and gas) between neighbouring countries.
- Increasing storage capacity for oil and gas.

With regard to the energy security of European countries, some countries are more vulnerable to the risk and one of them is considered to be Cyprus. Cyprus is considered to be an energy island with a policy already in place to establish electricity and gas connections with other countries. EU member states, and particularly the vulnerable ones, should improve their energy security and rank it as a priority of their policies and actions. EU legislation forces member states to maintain minimum stocks of oil in order to secure the oil supply to the EU. Any supply crisis related to the supply of petroleum from third countries being unexpectedly interrupted would most probably have a significant effect on the European economic activity.

In 2021, the energy dependence of the EU-27 stood at 55.5%, very close to 2010 levels, based on Eurostat’s data (12). As illustrated in Figure 7, the evolution of EU-27 energy

dependence has not been constant over 2010-2020; however, it has continuously stood above 54% since 2010. The policy of the EU is aimed at minimizing its dependency on irregularities in energy supplies due to the growing dependence on energy imports of or via politically unstable regions. However, this is not actually happening as the EU continues to be highly dependent on imports from unstable regions or even from countries where foreign affairs relations have not been kept at a healthy level. The best example is the relations between the EU and Russia, where the EU's energy imports are the biggest from Russia, while at the same time the economic sanctions raised against the country do not match with such a fact at all.

Figure 7: Evolution of the EU Energy Dependence (%) over 2010-2021



Sources: Eurostat, IENE

A key energy security issue includes the lack of more and better electricity interconnections, which are preventing regional market development. This is especially visible in island regions, such as Greece and Cyprus. Advancing international electricity interconnections especially between Italy and Western Balkans and between mainland Greece and the Israel-Cyprus-Crete axis is becoming a priority in view of the fast-advancing electricity market integration in the region.

7. SE Europe and the Energy Crisis

The Covid-19 pandemic caused a significant economic shock in the Western Balkans. According to the World Bank, the GDP of countries in the region contracted by 3.2% in 2020, before rebounding to 7.4% growth in 2021. However, the global surge in energy prices is threatening the region with a new range of economic challenges. This means that policymakers working on the European Commission's Green Agenda for the Western Balkans will need to reconcile rising prices and energy security with the goal of environmental protection. This will require strong and coordinated action from governments in the region, along with a great deal of support from the European Union. **(13)**

Russia's war on Ukraine has weakened the Western Balkans' already fragile energy security. The region has long experienced periodic blackouts in winter. With the exception of Albania, which relies mainly on hydropower, Western Balkans states source much of their energy

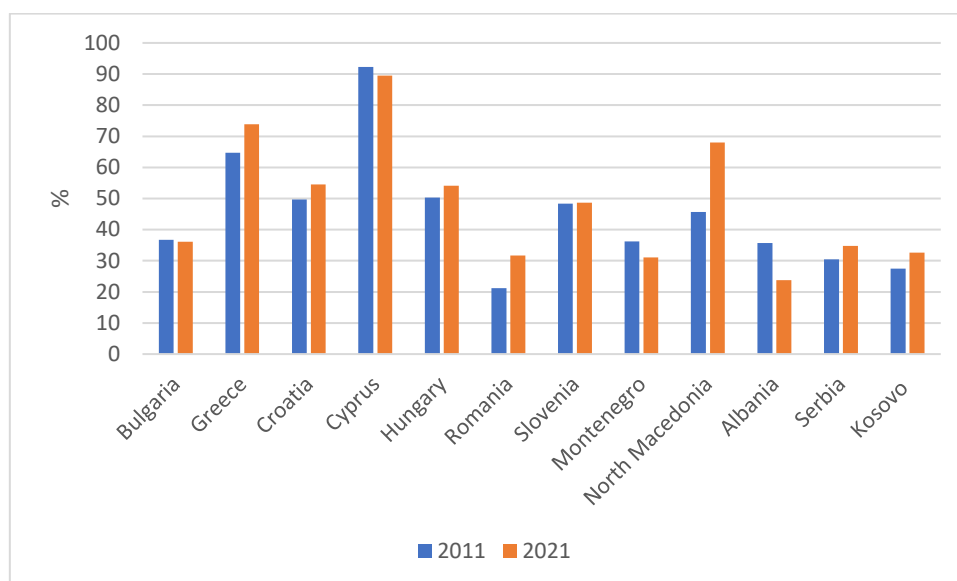
from fossil fuels - especially coal. Serbia, Bosnia and Herzegovina, and North Macedonia are largely dependent on Russia for natural gas, but this only accounts for a small proportion of their energy mix. So, even though all Western Balkans countries except Bosnia and Serbia have joined EU sanctions on Russia, their limited use of natural gas prevents the Kremlin from retaliating against them by cutting off their energy supplies - especially given that only Serbia has recently renewed its gas contract with Russia (at a relatively low cost). This also helps protect them from the direct impact of surging natural gas prices. Nonetheless, high prices for imported electricity mean that the Western Balkans will not emerge from the crisis unscathed. Several states in the region are vulnerable to these rising costs - particularly as winter approaches and demand for energy rises.

Most states in the Western Balkans rely mainly on coal-fired power plants to meet their energy needs. The use of these plants jeopardises their ability to fulfil the commitments outlined in the European Green Deal - one of which is a 55% reduction in carbon emissions (compared to 1990 levels) by 2030. Nonetheless, given the immediate pressure of the energy crisis, these countries will need to continue burning coal in the short term. Indeed, North Macedonia and Kosovo have already announced that they will delay plans to phase out their coal-fired power plants over the next few years. It is worth mentioning that Bulgaria, although it is in the Eastern Balkans, has decided to retain coal as a main energy source until 2035. To survive the energy crisis, Western Balkans states will also need to improve their cooperation with one another within the framework of the Berlin process. They could do so by preparing joint investment proposals in renewable energy and the integration of the electricity and gas markets.

The European Commission's REPowerEU document outlines a €300 billion plan to cut the EU's dependence on Russian fossil fuels by two-thirds by the end of 2022, and to import no Russian energy at all by the end of 2030. This strategy marks a historic shift in the Union's approach to energy issues. It will also have a significant impact on the Balkans energy sector. The plan focuses on accelerating the green transition and diversifying supply through investment in liquefied natural gas terminals and other gas infrastructure.

The Balkans could become an important transportation corridor for Europe's energy supplies - particularly natural gas - in the medium term. This is especially true of various gas pipelines that could connect EU member states to countries on the Caspian Sea, such as Azerbaijan, and to the Greece-Bulgaria interconnector that is from October 1, 2022 in operation. There are also planned FSRUs in Alexandroupolis and Corinth, which will connect to the TAP and should become operational in 2023.

At SEE level, the overall energy dependence also varies significantly between countries and averaged at 46.6% in 2021, taking into account the countries shown in Figure 8. These figures are issued by Eurostat, along with the publication of the detailed 2021 annual results on energy supply, transformation and consumption in the EU.

Figure 8: Energy Dependence (%) in SE Europe, 2011 and 2021

Sources: Eurostat, IENE

It is worth noting that IENE highlighted the issue of energy security in Greece and made recommendations of how to enhance it, in a special study for the country's Ministry of Environment and Energy prepared in November 2018. Although the reduction of energy dependence should have been a constant and non-negotiable target of energy policy, there is no mention at all of this dire situation in most policy papers nor is this reflected in official government policy. IENE had suggested as a prime target of Greece's energy policy the gradual reduction of the country's current energy dependence from the present high number to the average EU dependency (58%-60%) (14). In order to achieve to lessen energy dependence, new policy priorities should be put in place, which should aim at:

- the reduction of the imported energy flows in parallel with
- an increase of the indigenous energy sources, with emphasis on renewables, hydrocarbons (and gas in particular) and an improvement in energy efficiency, mainly in transport and residential sectors and
- the stabilization, if not the increase, of the current share of lignite in the country's energy mix
- the diversification of gas supply routes

8. Renewable Energy Sources Provide Much Needed Input

Over the last years, the renewables in the five EU member states on the Balkan Peninsula, i.e. Greece, Romania, Bulgaria, Croatia and Slovenia, have been the fastest growing energy fuel and have promising perspectives to offset electricity generated from fossil fuels in the medium to long term.

The development of the renewable electricity sector in SE Europe in the next years will continue to be defined by the process of transition to net-zero economy and the EU's target

for a RES share of 32% in the energy mix by 2030¹⁶. In order to achieve this goal, renewable energy will be further scaled up with the regulatory support of policymakers in the region. In light of the Russian invasion of Ukraine, which raised the question of energy security especially in SE Europe, where most of the countries were heavily dependent on imports of natural gas and crude oil from Russia, renewables have become more important than ever for the diversification of the national energy systems of all five analysed countries.

According to data from the Ember (15), 2022 was the year of record-high electricity generation from solar and wind in Europe, with annual rises in the five countries ranging between 33% in Greece and 3% in Slovenia. Taking into account the fact that newly installed solar and wind capacities also hit record heights in 2022, this upward trend is expected to intensify in 2023 and beyond.

This conclusion is supported by the accelerating PPA market in SE Europe. Three of the countries in scope, i.e. Bulgaria, Greece and Romania, have been included in the 2022 edition of EY's Renewable Energy Country Attractiveness Index Corporate PPA, with Bulgaria and Romania landing spots for the first time. Based on the financial analysis of the companies' performance between 2019 and 2021, the RES sector in Greece, Romania, Bulgaria, Croatia and Slovenia is projected to expand its size to €20.8 billion by 2024 from €12.9 billion in 2021, increasing its annual operating revenue at an average annual rate of 17%. (16)

In terms of employment, however, the sector is expected to grow at a much slower pace, facing shortage of highly skilled labour, and add around 2,000 new employees to its headcount in the next three years. Further ahead, with the gradual phase-out of coal in the five countries, all of which operate large thermal power plants employing thousands of people, an additional pool of workforce could be available for the renewable sectors. The attractiveness of the sector in the region is further highlighted by the accelerating mergers and acquisition dynamics in the last three years.

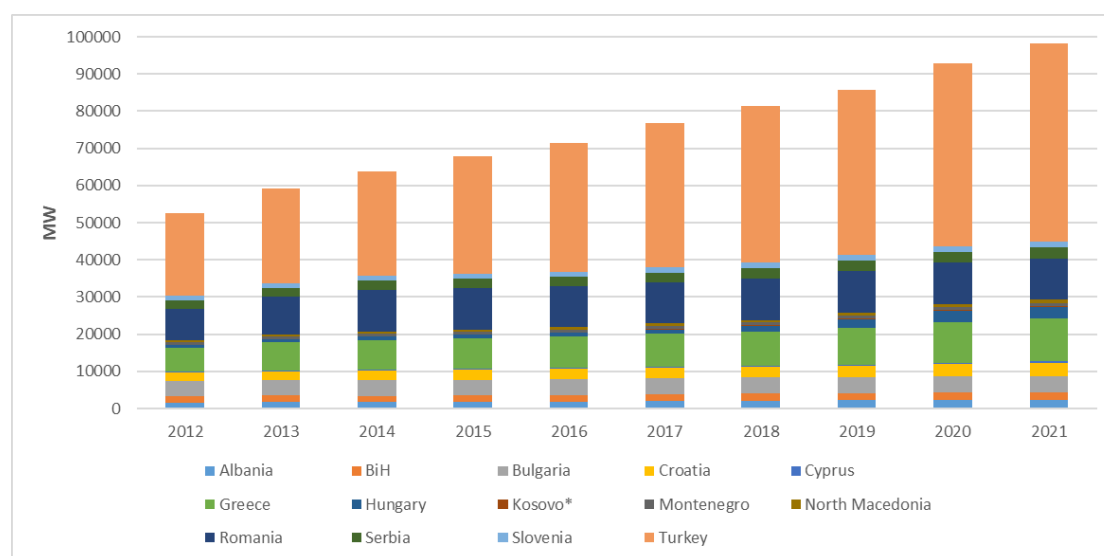
Furthermore, a large number of traditional energy producers and large players in the oil and gas sector in all five countries have embarked on sweeping overhauls of their portfolios in the direction of renewables, with solar being the clear favourite as the most suitable way to utilise industrial and mining sites. Facilitated by the easier access to financing for renewable projects mainly through the National Recovery and Resilience Plans, an ever-growing number of industrial, transportation, logistics, agricultural, retail and real estate companies are also turning to solar facilities for own use – a trend that will persist in the near future.

¹⁶ The recast Renewable Energy Directive 2018/2001/EU established a binding renewable energy target for the EU for 2030 of at least 32%. The Commission presented Europe's new 2030 climate targets, including a proposal for amending the Renewable Energy Directive, on 14 July 2021. It sought to increase the 32% target to at least 40% renewable energy sources in the EU's overall energy mix by 2030. On 18 May 2022, the Commission published the REPowerEU plan. As part of its scaling up of renewable energy in power generation, industry, buildings and transport, the Commission proposed to increase the target in the directive to 45% by 2030.

Given the geographical location of the SEE region and the current structure of its RES sector, solar will be the major source of expansion of renewable capacities. Hydropower plants will continue to dominate the total installed renewable capacity in the region for a while, but most of the facilities, especially the large ones of national importance, were built decades ago and new investments are few and far between. At a national level, the surge in renewables will be driven by different sources – solar will most dynamically expand its presence in Greece, Romania and Bulgaria, while Croatia could benefit from suitable conditions for onshore and offshore wind facilities.

As SE Europe doubles down on its efforts to decarbonate power generations the installed capacity of renewable energy systems in the region has almost doubled during the past decade, with local systems reaching 98.19 GW of installed capacity in 2021, according to IENE's data (17). This represents an increase of 86.7% since 2012, when the region counted 52.6 GW of installed RES units. In addition, the power generation from RES, including hydro, has exceeded 222 TWh in 2020, which corresponds to a 72.5% increase over the last decade.

Figure 9: Total Installed Capacity of RES Systems by Country in SE Europe, 2012-2021



Note: *Kosovo is presented separately without prejudice to positions on status and in line with the United Nations Security Council Resolution 1244 (1999)

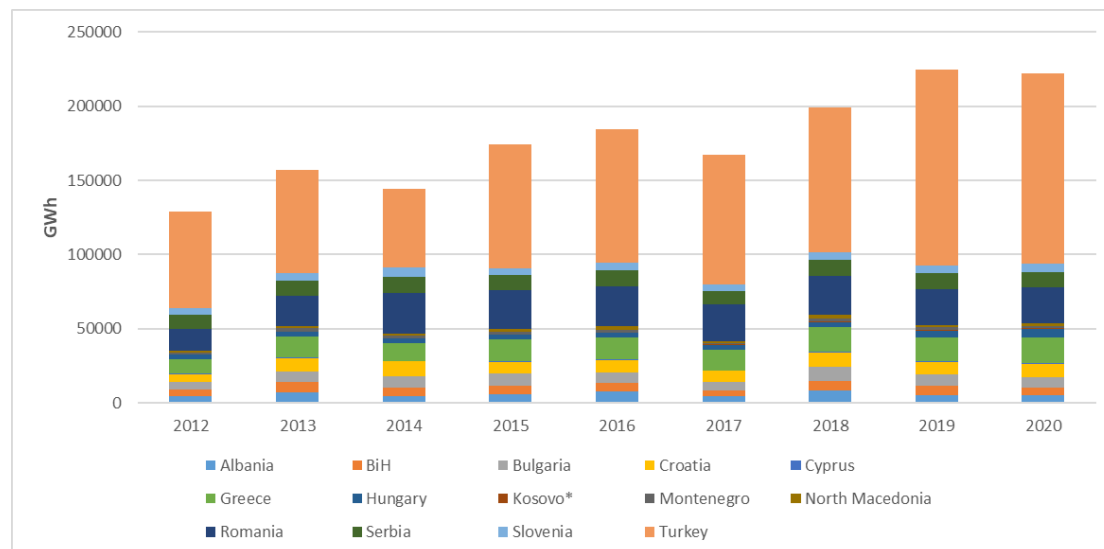
Source: IRENA

Electricity generation from RES in SE Europe is heavily affected by the hydrologic cycle, which has shown signs of heavy volatility throughout the decade. Most notably the region was affected by drought especially during 2014 and 2017, when it halted the increase of y-y generation from RES, despite the increased deployment of other RES systems, mainly wind and solar. The most affected countries by the hydrologic cycle were Turkey, Croatia, Albania and Bosnia and Herzegovina.

The most widely deployed renewables are by far in Turkey, which has an RES fleet that consists mostly of hydro and wind, with a considerable capacity of geothermal energy, which

in total exceeded 53.2 GW of installed capacity in 2021. Turkey is followed by Greece and Romania, with installed RES capacity of 11.5 GW and 11.1 GW respectively in 2021.

Figure 10: Power Generation from RES, including Hydro, by Country in SE Europe, 2012-2020



Note: *Kosovo is presented separately without prejudice to positions on status and in line with the United Nations Security Council Resolution 1244 (1999)

Source: IRENA

As RES are being recognized as one of the most important energy resources in mitigating climate change, the global market is amidst an ongoing ramp up in terms of new installations, with production costs of variable renewables' systems having fallen rapidly during the past decade. Consequently, lower costs have driven an escalation in the deployment of solar PV and wind turbines across the region, making them competitive.

9. Energy Efficiency as a Champion Energy Source

The SE European region is characterized by distinctly different, in terms of structure and operation, and frequently segregated, energy markets in various stages. This also holds true for Energy Efficiency (EE) development. As of the six EU member states in the region, i.e. Bulgaria, Croatia, Cyprus, Greece, Romania and Slovenia, all have implemented the required steps towards the smooth adaptation of EU Energy and Environmental policies and have transposed all relevant Directives.

The West Balkan countries, i.e. Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia, are in a transition process and all are operating within the Energy Community framework. Turkey, the biggest energy hub in the region, with a rapidly growing economy during reporting period, became one of the fastest growing RES markets in the world and with notable steps in EE, especially in the building sector.

Regarding Energy Efficiency in SE Europe, all states in the region have transposed the EU legislation on EE (EED and EED recast – Green Deal, etc.). Following the requirements of the EE Directive, each EU Member State has set its own indicative national EE target, prepared, and published a three-year National EE Action Plan, so-called NEEAP, which was approved by the European Commission with an annual progress report published every year thereafter, showing the achieved progress. Israel and Turkey have also prepared their own NEEAPs, with targets until 2030. Regarding Albania, Bosnia and Herzegovina, Kosovo, Montenegro and North Macedonia, their NEEAPs were expected in late 2021 (or early 2022), having received the assistance of the Energy Community, in order to be in compliance with the EED requirements.

As for the actions for EE projects in the SE European countries, it can be seen that along with national funding, the EU-funded Structural Supporting Fund, introduces designated operational programmes for EE projects, with incentives for EE measures and actions, in all sectors, including building, industry and transportation. For all the other countries, an important role for the promotion of EE projects is played by specialized programmes funded either by the EU and/or other International Financial Instruments, as WB, UNDP, USAID, JICA, etc.

It is evident that there is a plethora of Energy Efficiency projects and programmes in the region. The overall target being to provide and support EU's long-term target to become the first "climate-neutral" continent, by 2050. Energy Efficiency projects in the building sector, especially in public buildings, are acting as a "locomotive train" aiming to push forward other sectors such as transportation and SMEs/Industry.

However, as Eurostat announced, the gross inland consumption across Europe is rising despite the efforts to reduce it, as it stood at 1.4 Mtoe in 2021, compared to 1.3 Mtoe in 2020. The EU-27 GDP grew rapidly, between 2014 to 2017, from €11,782 billion to €13,964 billion, indicating that economic activity has not yet decoupled from energy consumption. The COVID-19 pandemic, which severely hit Europe from 2020 onwards, led to a decrease in energy consumption in 2020/2021, as a result of widespread lockdowns and a slowdown of the economic activity. However, it is expected that economic recovery will lead to a rebound in energy consumption, or at least bring it up to its previous levels. Accordingly, the proposed NEEAPs by all EU Member States in the region and of the ones to be submitted shortly by other countries, are of great importance and must be applied with reverence and great attention to detail, in order to achieve most or all of the proposed targets. **(18)**

10. Discussion

Slowly but steadily, Europe is emerging from an energy crisis that threatened to stymie the post-pandemic recovery and plunge its economy into recession once more. After Russia's weaponisation of energy supplies left European governments scrambling to secure alternative fossil fuels for the better part of 2022, the energy outlook today has defied the most pessimistic expectations: supplies are ensured, storages are adequately filled and energy prices are returning to pre-crisis levels. Consequently, the focus in Brussels has

shifted from navigating the crisis to ensuring that the transition to renewables, as enshrined in the European Green Deal, does not jeopardise European energy security once more.

Yet the roadmap for doing so is complex. Drawing on the lessons learnt during the crisis, European energy security arguably rests on two pillars: secure supply chains and efficient energy use. Only the combination of the two can successfully emancipate Europe from energy dependency, and bolster the often-touted resilience of the European economy.

In a joint statement, the governments of Hungary and Serbia recently said that Bulgaria's decision to introduce a tax on the transit of Russian gas is aimed against these two countries. The move, announced at the start of the heating season, when gas consumption is higher, could revive the energy crisis and threaten the supply of natural gas in SE Europe, with regard to the market's fragility due to the war in Ukraine.

A complete separation of Europe from Russian oil imports will not be possible for some years to come since several EU countries, including Germany, Poland, Hungary, Slovakia, Czech Republic and Austria, are dependent on the Soviet era Druzhba pipeline network, which delivers some 800,000 barrels of oil daily to European refineries. In addition, Russian refineries continue to supply almost half of Europe's diesel needs. It will be really difficult, if not impossible, over a short period of time to replace such fixed assets, as the Druzhba pipeline system, by building alternative pipeline systems.

Hence, the diversification of energy supplies still remains an undisputed pillar of energy policy and the basis of energy security. Ignoring energy security can easily lead to complacency and overdependence from a particular source or country and so when the time comes of establishing new political priorities decoupling from a particular supplier becomes a nightmare.

In the case of Europe, and with gas being such a strategic fuel, corresponding to more than 20% of all energy consumption, enhancing indigenous gas production is another priority. Europe has every reason to want to exploit its not significant gas resources, which according to estimates amount to 10.0 to 12.0 trillion cubic metres and can be found in the North Sea, the Black Sea, the Adriatic, the Ionian and the East Mediterranean. Today, Europe covers only 11% of its gas needs from indigenous production with ever greater reliance on gas imports. If Europe is to survive and prosper with low carbon gas being fully integrated in its energy system, it must scale up its local production.

Today's energy crisis, which started more than a year ago as energy supplies started becoming scarce, and is now fully blown following the war in Ukraine and Europe's embargo against its major energy supplier, is morphing into an economic crisis with recession looming in the horizon. Yet, this crisis is an opportunity for a radical change in EU energy policy and thinking where energy security will once again regain its key role together with an approach, which favours maximisation of indigenous energy production.

Furthermore, the economic knock-on effects of the Russian invasion of Ukraine are already being felt throughout Europe. While the overall economic fallout is still difficult to predict, the impact will be different for different member states. It shows that the EU's member

states' economic vulnerability to the Russian invasion of Ukraine is very unevenly distributed. To cushion the economic blow and ensure political unity, the EU will need to share some of the economic burden of this crisis. (19)

Direct costs from sanctions and trade disruptions, rising inflation due to higher energy and commodity prices and mounting uncertainty will become a drag on Europe's economy. After the pandemic, the Russian invasion of Ukraine is yet another external economic shock with asymmetric consequences across Europe.

This unequal distribution of the economic hardship across EU member states is not only an economic problem: it matters politically. Making sure that Europe sticks together in the coming months and possibly years in the face of Russia's aggression will require burdensharing to avoid some member states being affected much more than others.

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