INSTITUTE OF ENERGY
FOR SOUTH-EAST EUROPE

Energy Trends 2023-2024

IENE Study Series on Energy Sector Trends

IENE Study (M80)

Athens, May 2024

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Preface

In recent years, the Greek energy sector has been significantly affected by the energy and health crisis. In the context of monitoring the changes in the domestic energy sector by sector and fuel, it was deemed necessary, on the part of the Institute, to publish, twice a year, a relatively short yet and comprehensive study, which will record and focus on specific energy developments and will highlight prevailing trends.

More specifically, the changes in electricity, natural gas and oil prices in Europe and Greece, the changes in total energy demand, as well as in the demand for electricity, natural gas, oil and petroleum products, will be covered in this study. At the same time, imports and exports, mainly of electricity and natural gas, as well as the fuel mix in power generation, are some of the energy parameters that will be analyzed.

1. Introduction

2022 was a very different year than the previous ones due to extremely high prices in almost all energy products. In contrast, 2023 was characterized by a gradual decline in international energy prices. In particular, the international price of natural gas fell by 63% in 2023, compared to the historically high levels of the previous year, affected on the one hand by reduced demand due to slowing growth rates and on the other hand by increased supply. In Europe in particular, milder weather conditions, the acceleration of the green transition and the historically high natural gas reserves in underground gas storage facilities also contributed to the reduction of gas prices.

At the same time, the average international price of crude fell by 17% year-on-year in 2023, mainly due to the global economic slowdown and the deterioration of the outlook for China's economy in the first half of the year. According to IMF estimates, international crude prices are expected to ease slightly in 2024, partly as a result of lower demand.

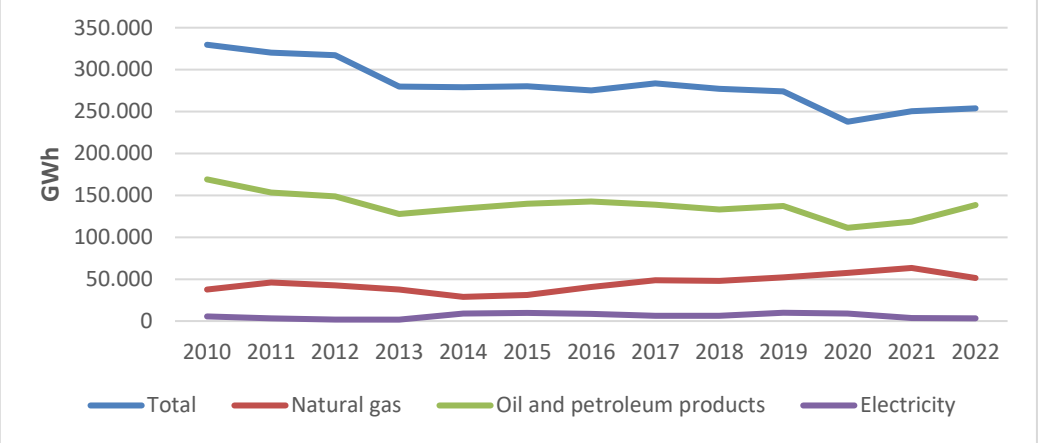
The Institute of Energy for SE Europe (IENE) completed and sent last February to its members an Energy Analysis Report for 2023, which presents detailed data on how the Greek energy market performed in the past year. However, it is necessary to present and highlight the most important energy issues that emerged. The present IENE study focusses on the important changes in the main energy market that occurred during the first quarter of 2024, explains the reasons behind and briefly refers to the outlook for the entire 2024.

2. Sharp Decline in Greece's Energy Demand

Based on Eurostat's data (3), the energy demand in Greece decreased significantly in recent years, with no recovery in sight so far. In particular, the total energy demand decreased significantly from 329.7 TWh in 2010 to 253.8 TWh in 2022, recording a fall of 23%.

Energy demand per fuel in Greece shows a significant decrease in the period 2010-2022 for oil and petroleum products, as well as for electricity, which declined by 18.1% (138.5 TWh in 2022) and 39.6% (3.4 TWh in 2022) respectively, in contrast to natural gas which increased by 36.1% (51.2 TWh in 2022), as shown in Figure 1.

Figure 1: Gross Inland Consumption, 2010-2022



The economic crisis experienced by the country had serious effects on the formation of energy demand, which was also observed during the recent health crisis, with the outbreak of the coronavirus pandemic. More specifically, the suspension of activity in many sectors of the economy and the imposition of lockdowns, except for those necessary, internally and externally, had temporary dramatic impact on energy demand, mainly from the transport, services and trade sectors, which with the gradual withdrawal of restrictive measures eased.

The electricity demand fell significantly from April to June 2020, before returning in July to the levels of previous years. However, in August 2020, it was lower compared to the previous year due to the contraction in tourism demand. Overall, in the period January-August 2020, electricity demand was 5.2% lower compared to the same period in 2019, based on IOBE's data (4). The demand for electricity in Greece fell in the period 2010-2013, as a consequence of the economic crisis, while in 2020 a noticeable decrease was recorded compared to 2019, mainly due to the pandemic and the restrictive measures imposed. For the entire period of 2010-2022, gross domestic electricity consumption recorded small

fluctuations, with clear downward trends. A general conclusion is the intertemporal stagnation of electricity demand, which ranges from 4.0-8.0 GW in the winter months and 7.0-11.0 GW in the summer months.

The stagnation and/or reduction in the demand for electricity had significant effects on the operation of the power grid, to which more and more RES units are connected, resulting in congestion and having to reject significant amounts of injected energy, which affects to a large extent the planning of further investments (see below).

The impact was stronger in the fuel sector, whose retail sales decreased in the period January-July 2020 by 12% compared to the corresponding period in 2019, according to the 2023 Annual Report of IENE on the Greek energy sector **(5)**. Domestic market sales, due to the gradual recovery of fuel demand in the second half of 2021 and the increase in tourist traffic, showed an increase of 2% compared to 2020 and amounted to 4.1 million tons, with fuels returning to their respective 2019 levels (pre-pandemic period).

2021 was a record year for natural gas consumption in Greece, according to DESFA's annual data **(6)**. Domestic consumption during the period January-December 2021 increased by 10.81% and reached 69.96 TWh from 63.1 TWh in 2020. In contrast, for 2022 the total consumption decreased by 19.04%, reaching 56.64 TWh. In addition, the total demand for natural gas (domestic consumption & exports) increased by 3.84% in 2022, reaching 38.91 TWh compared to 37.47 TWh during the corresponding period last year. A decrease of 10.33% was noted in domestic consumption from 33.80 TWh to 30.31 TWh, while the increase in natural gas exports by 134.33%, from 3.67 TWh to 8.60 TWh, was notable.

Rejected Energy in Grids Due to RES Becomes an Important Issue

In Greece, the rapid and rather unplanned penetration of RES and the high investment interest in green energy over the last two years led to the rejection of thousands of megawatt-hours of electricity produced, due to the inability of the system to absorb the energy produced by photovoltaics and wind farms during the day. Now the system has reached its limits and the power rejections are being made permanent to prevent widespread blackouts, which occurred in certain regions in the Easter days.

In the past, Greece used to be at risk of blackouts at times when energy production could not meet demand, during periods of prolonged heat. The countermeasure par excellence was the selective interruptions in consumption that thousands of households experienced harshly in previous years.

Today, the problem is linked to the particularly low levels of electricity demand due to the mild weather conditions and the already low consumption (as a result of the energy crisis), combined with the increased production of RES, especially during the midday hours. This combination, which characterizes the country's electricity system, mainly in spring and autumn, has created several problems in the grid due to the ongoing installation of new RES capacity, and constitutes a potentially great threat to the electricity system that creates risks of blackouts, especially on days when loads are very low.

The Greek electricity system is only a part of the European system with certain particularities, such as limited international interconnections, which make things even more difficult. The problem is not, however, confined to the grids in Greece, as several other countries in the region begin to face similar problems. These arise mainly during lunch hours due to the overproduction of photovoltaic systems.

At the same time, there is a strong concern from RES investors as well as banks, which are demanding for more guarantees for the financing of projects due to the prevailing uncertainty of the market. In order to keep Europe's electricity systems running smoothly, investments of €67 billion a year by 2030 will have to be implemented at a full speed, according to estimates by the Federation of the European Electricity Industry (Eurelectric).

In addition, in order to maximize RES generation in Europe, storage capacity will need to increase from 4 GW today to 191 GW by 2030. With the current grid and storage capacity data, energy cuts from RES are expected to reach 30%-35% in several regions of Europe by the end of the decade.

The concerns of electricity companies in Greece and Europe are related to the significant lack of grid development and their potential evolution into a threat not only to the achievement of the European climate goals, but also to the energy security of the continent. This reality of Europe's electricity systems is the result of a design that emphasized the development of RES, without taking into account the capacity of networks and storage to absorb and manage their ever-increasing and volatile generation.

Managing this new reality, combined with declining energy demand, is a daily exercise for many managers of the European electricity systems, which becomes increasingly difficult as the penetration of RES increases. The key tool for managers across Europe to maintain the stability of electricity systems is green energy cuts, which, combined with increasingly frequent zero and negative prices, limit investment returns.

3. Decrease in Electricity Demand in 2023 and Increase in the First Quarter of 2024 on an Annual Basis

Regarding the electricity demand in Greece, it reached 48.5 TWh in 2023, reduced by 6.4% compared to 2022 (51.9 TWh). Similarly, electricity demand stood at 12.6 TWh in Q1 2024, up 7.2%, compared to Q1 2023, which was at 11.8 TWh.

Figure 2: Electricity Demand, 2022-2023

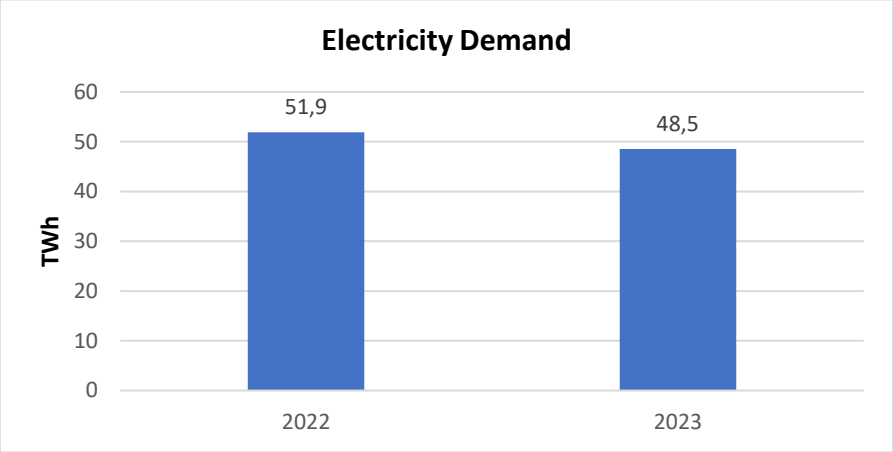
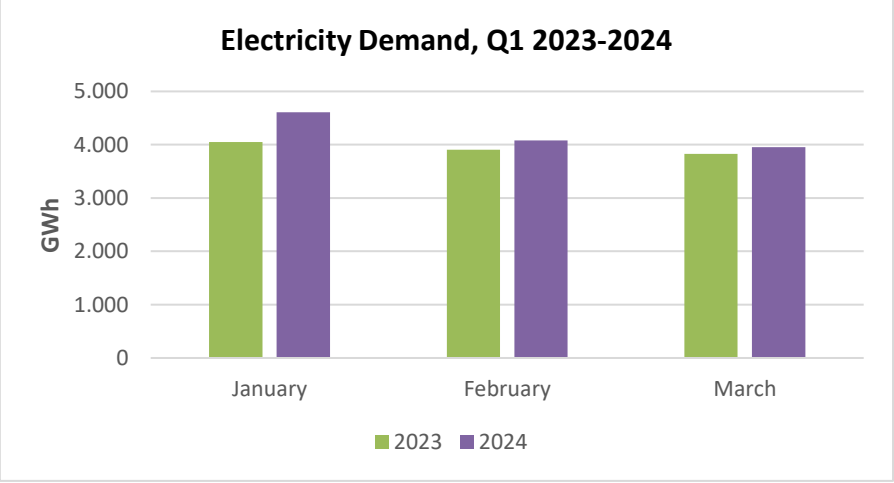


Figure 3: Electricity Demand, Q1 2023-2024

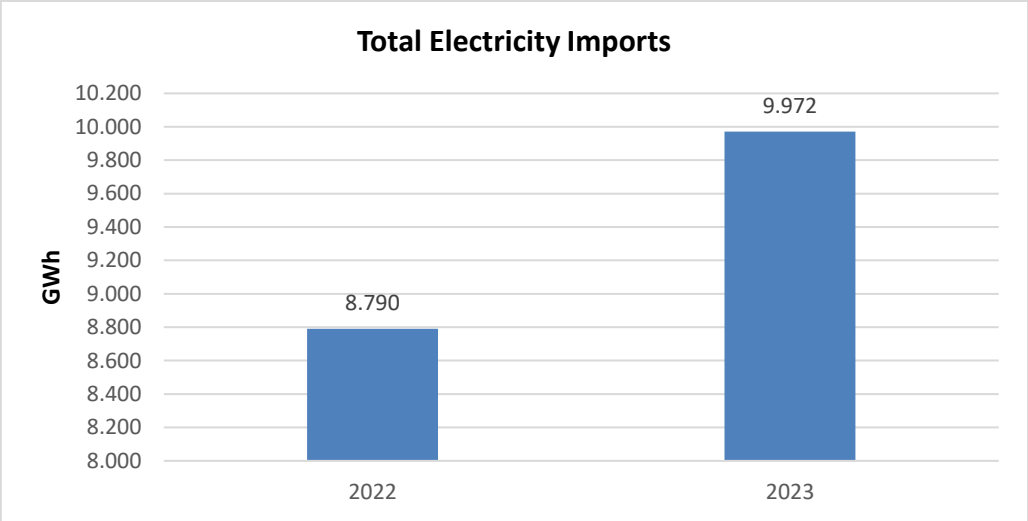


4. Electricity Imports Decreased and Electricity Exports Increased in Q1 2024 and Reversed in 2023 on an Annual Basis

In 2023, electricity imports stood at 9.9 TWh, up 13.4%, compared to 2022, which were at 8.8 TWh. It is worth mentioning that the very high percentage of electricity imports in the

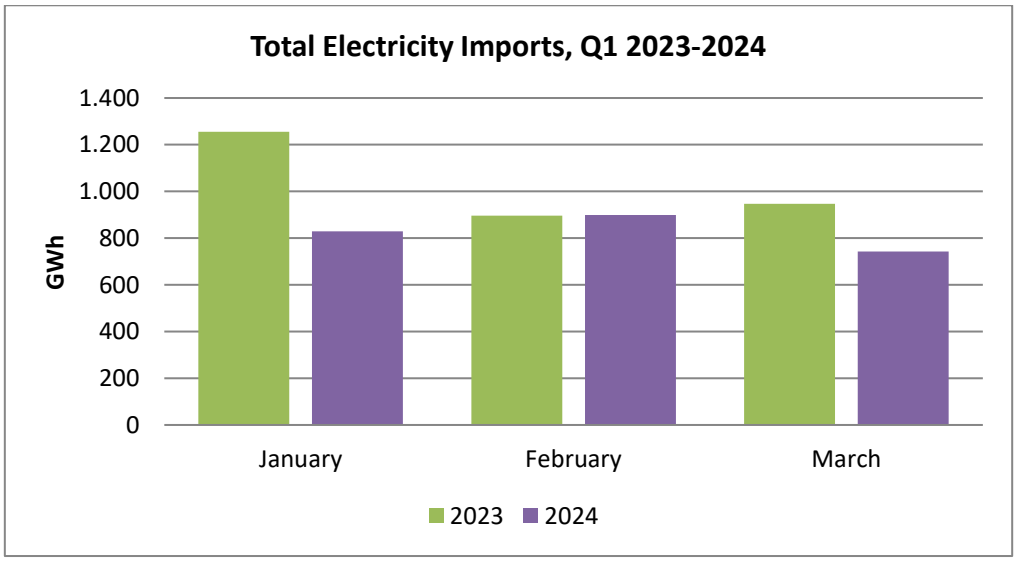
Greek electricity system creates dependency tendencies, while burdening the system's finances and contributing to the rise in prices for the average consumer.

Figure 4: Total Electricity Imports, 2022-2023



In the first quarter of 2024, electricity imports stood at 2.5 TWh, down 20.3%, compared to the first quarter of 2023, which amounted to 3.1 TWh.

Figure 5: Total Electricity Imports, Q1 2023-2024



Similarly, in 2023, electricity exports amounted to 4.1 TWh, down 17.7%, compared to 2022, which reached 4.9 TWh. In the first quarter of 2024, electricity exports amounted to 1.6 TWh, increased by 153.84%, compared to the first quarter of 2023, which reached 0.65 TWh.

Figure 6: Total Electricity Exports, 2022-2023

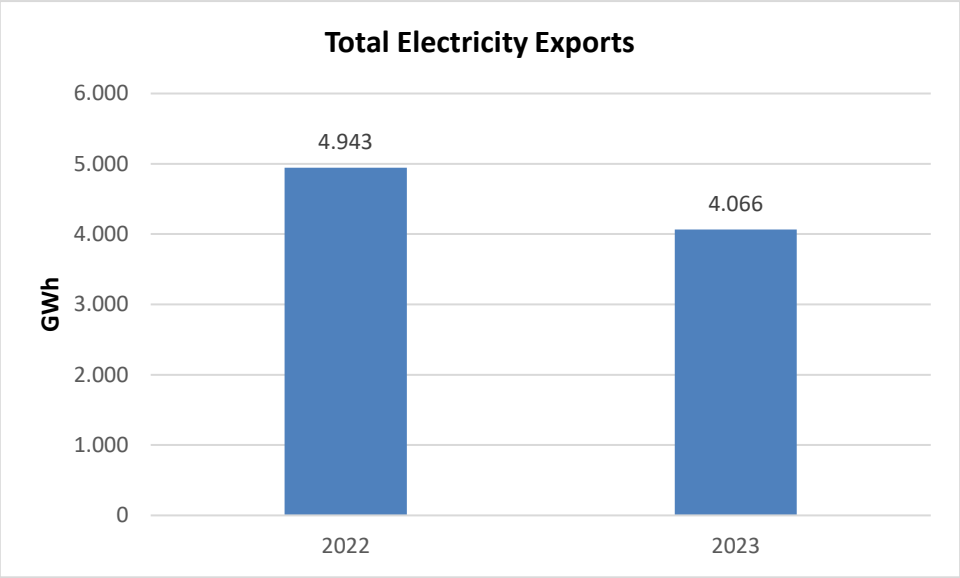
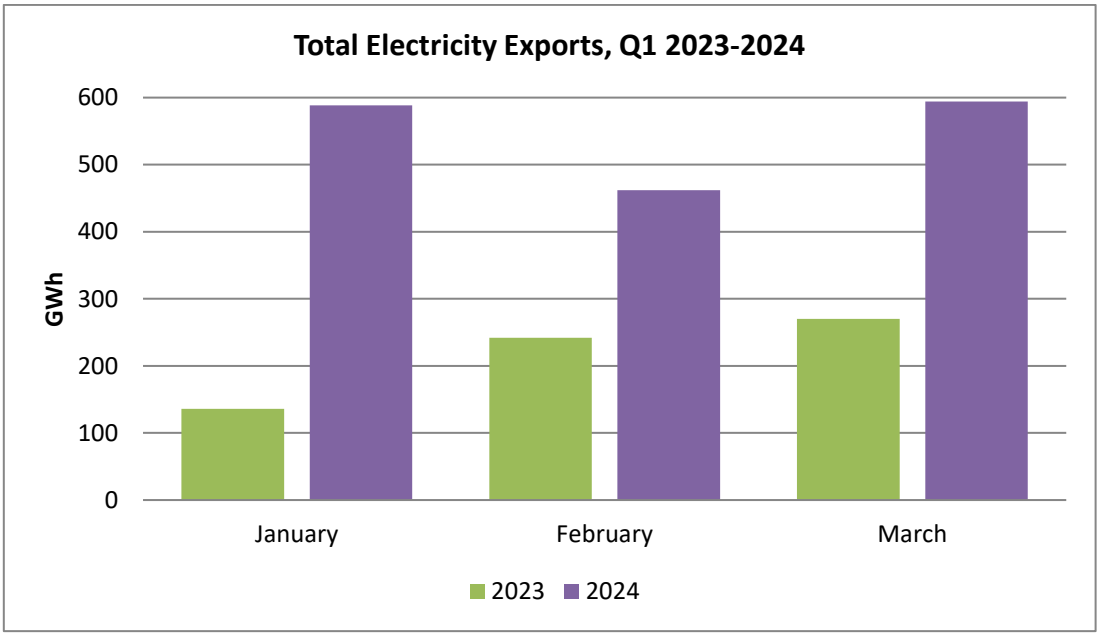


Figure 7: Total Electricity Exports, Q1 2023-2024



In 2023, total net imports reached 5.9 TWh, up 53.5% compared to 2022 (3.8 TWh). Total net imports stood at 825.3 GWh in Q1 2024, down 66.3% from 2,450.6 GWh in Q1 2023.

Figure 8: Total Net Electricity Imports, 2022-2023

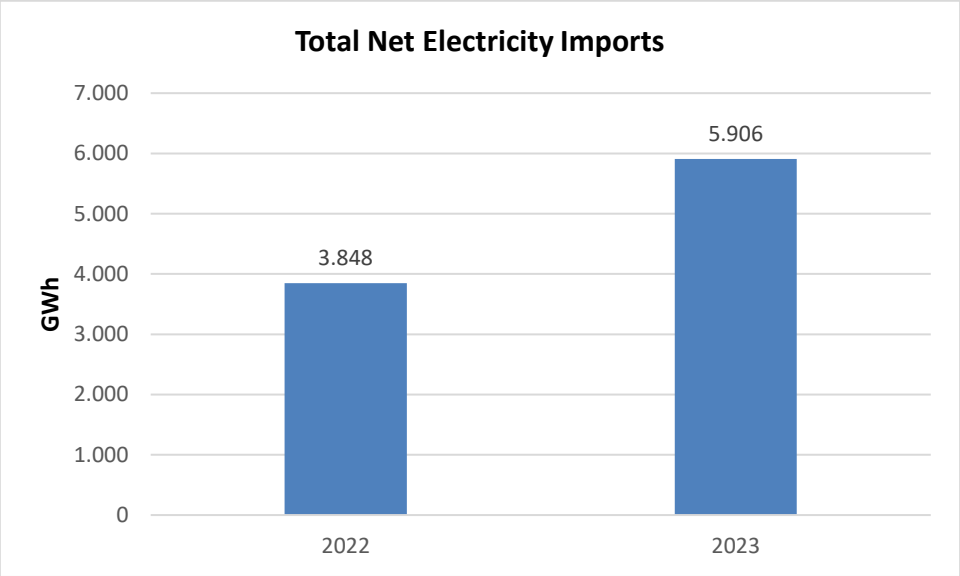
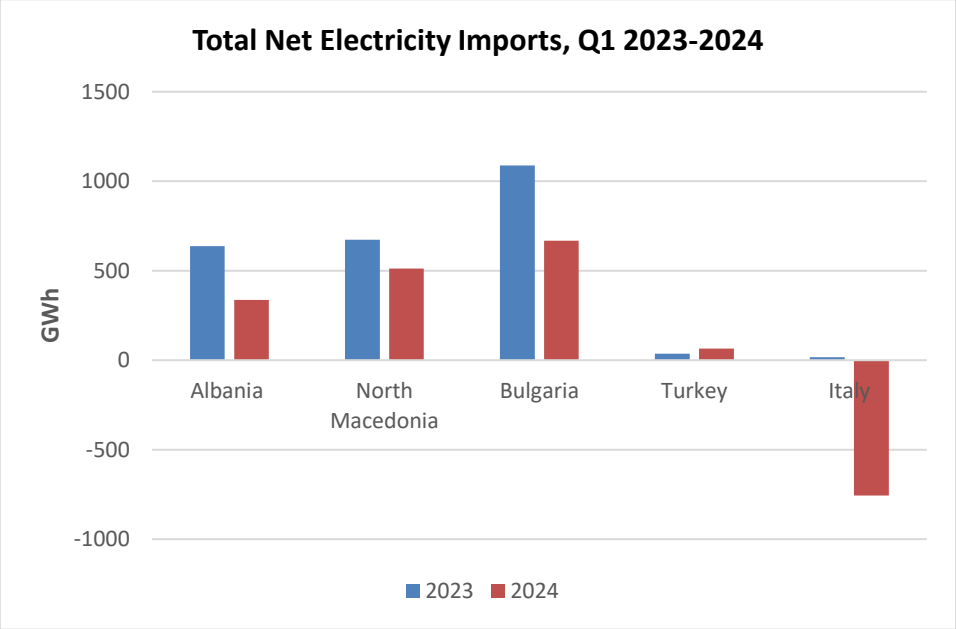


Figure 9: Total Net Electricity Imports per Neighboring Country, Q1 2023-2024



5. Strong Diversification of the Power Generation Mix in 2023 and the First Quarter of 2024 on an Annual Basis

It is worth noting that the total electricity generation in Greece in 2023 amounted to 46.2 TWh, reduced by 5.9%, compared to 49.1 TWh in 2022, with RES (17.4 TWh) and natural gas (15.7 TWh) making the largest contribution, followed by the net imports (5.9 TWh), lignite (4.0 TWh) and hydro (3.3 TWh). Similarly, in the first quarter of 2024, compared to the first

quarter of 2023, there was an increased use of natural gas and RES and a significant drop in the use of hydro and lignite.

Figure 10: Fuel Mix in Power Generation (TWh), 2022-2023

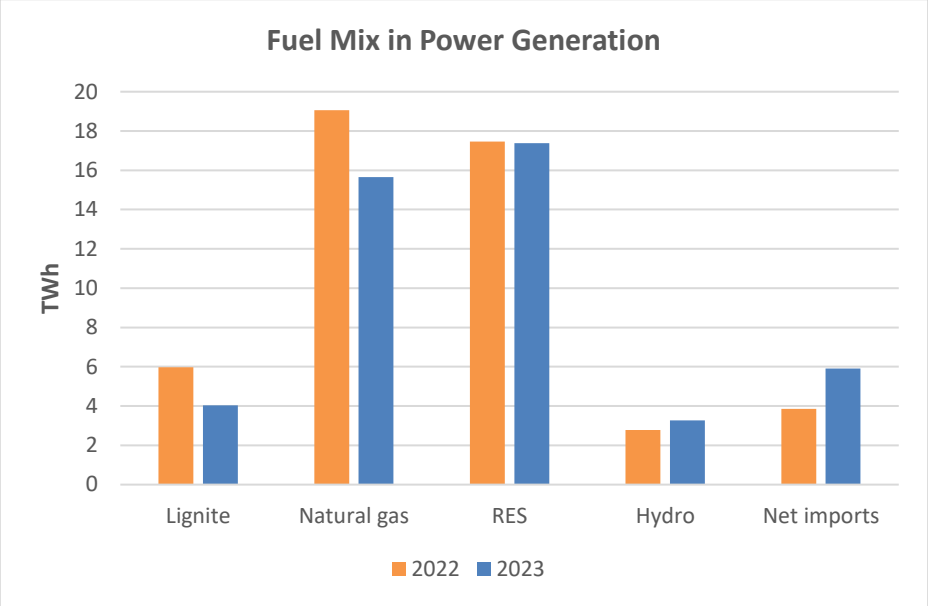


Figure 11: Fuel Mix in Power Generation (TWh), Q1 2023-2024

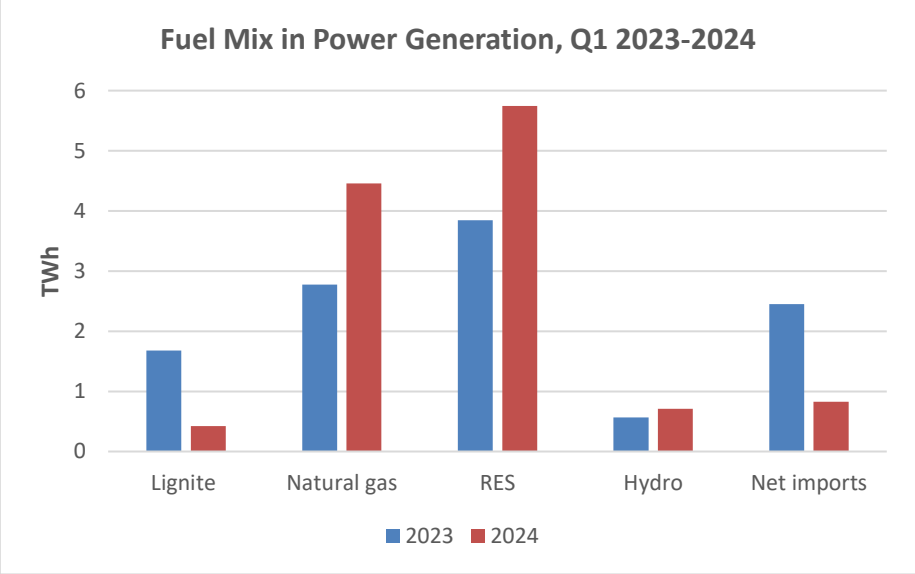


Figure 12: Fuel Mix in Power Generation (%), 2019, 2022-2023

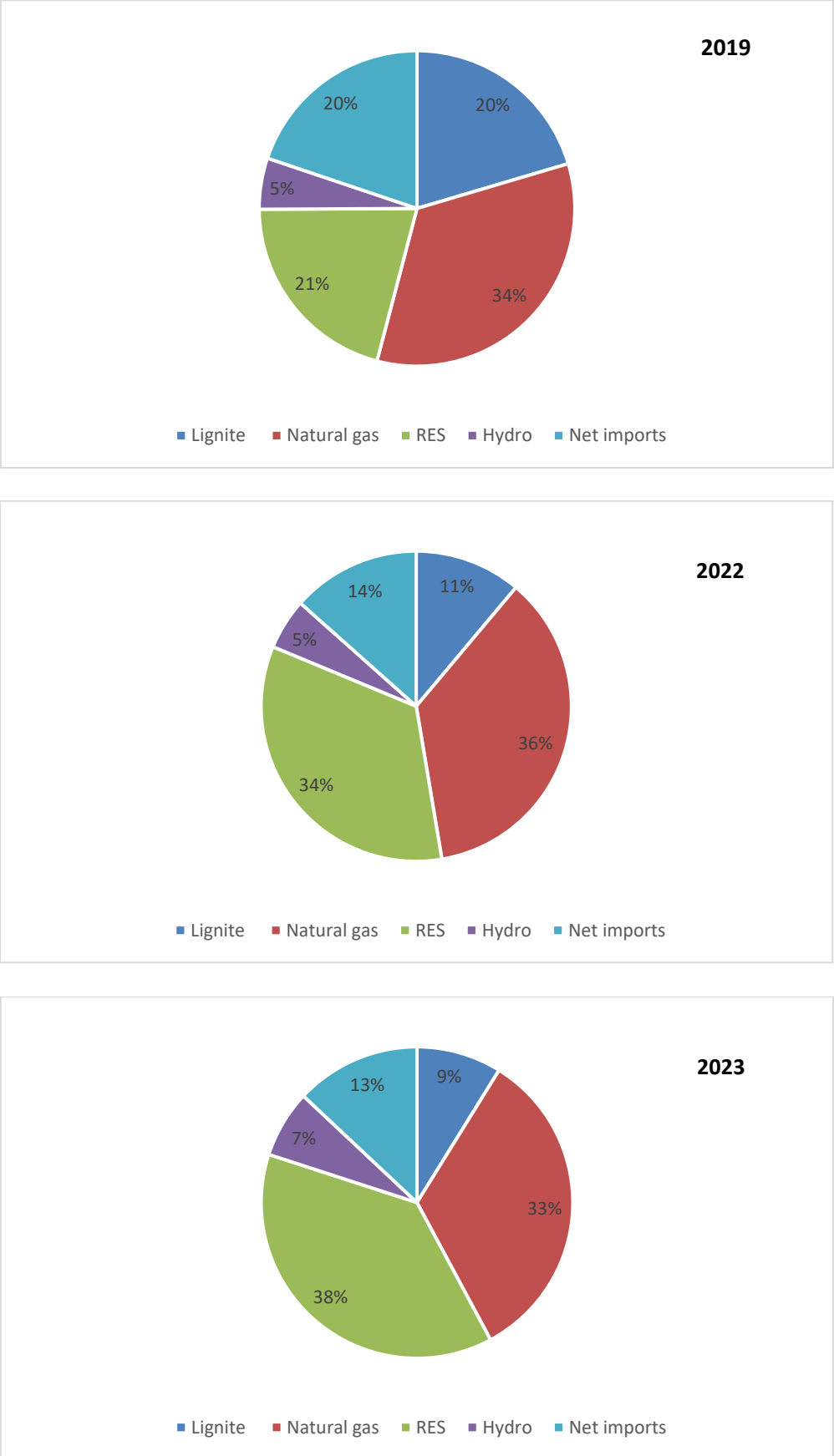


Figure 13: Fuel Mix in Power Generation (%), Q1 2023

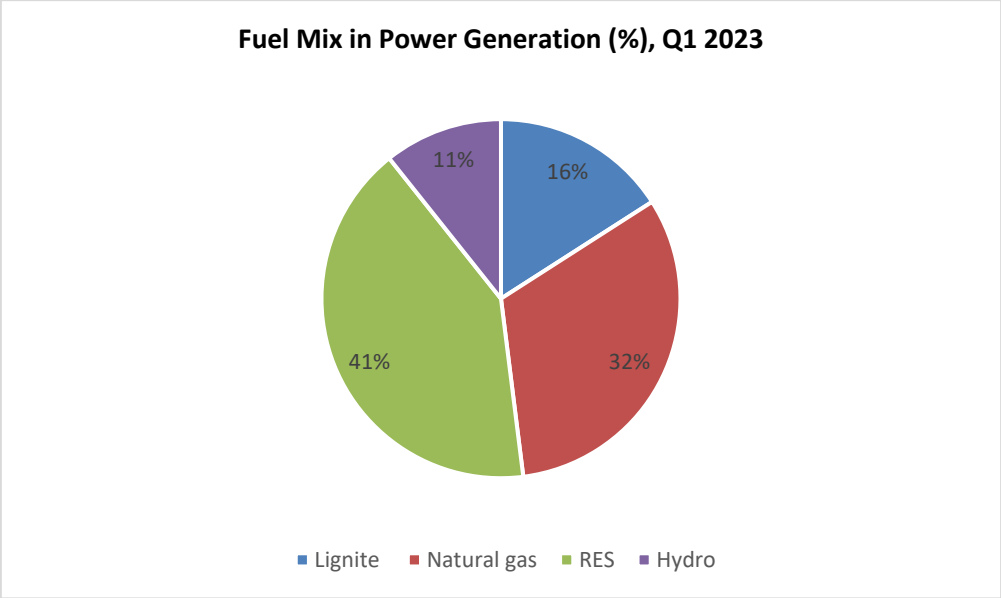
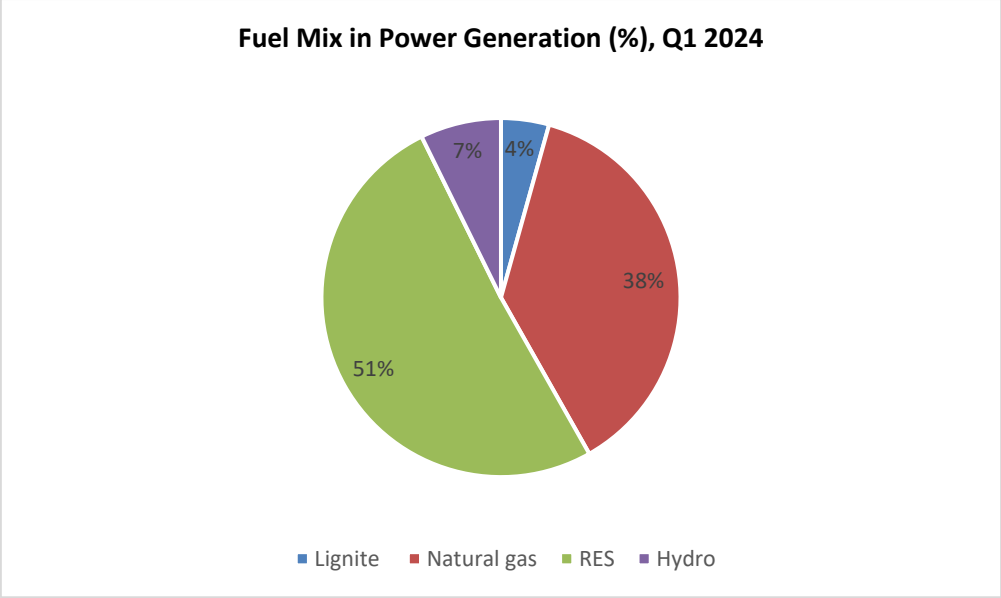


Figure 14: Fuel Mix in Power Generation (%), Q1 2024



6. Natural Gas Imports Increased in the First Quarter of 2024 on y-o-y Basis

In 2023, Greece's total natural gas imports amounted to 53.9 TWh, down 13% compared to 2022, which reached 62.0 TWh, and up 6% compared to 2019 (57.5 TWh). In the first quarter of 2024, Greece's total natural gas imports reached 16.2 TWh, up 14% compared to the first quarter of 2023, which reached 14.2 TWh.

Imports of Russian natural gas to Greece, both through the pipeline at Sidirokastro and in the form of LNG at the Revithoussa terminal, were up in 2023. Russian natural gas and especially LNG is still a key source of supply for the EU countries, despite declarations of phasing out following Russia's invasion of Ukraine in February 2022.

In Greece, Russian natural gas imports through Sidirokastro were increased by 65% in 2023, compared to 2022, i.e. from 8.9 TWh in 2022 to 14.7 TWh in 2023, while between 2021 and 2022 there was a reduction by almost the same percentage (68%). If the imports of Russian natural gas, through the Turkstream pipeline, but also in the form of LNG in Revithoussa terminal (7.34 TWh) are added up, then it follows that Russian natural gas in 2023 was responsible for at least 22.05 TWh or 41% of the total natural gas imports in the country.

Figure 15: Total Natural Gas Imports (TWh), 2022-2023

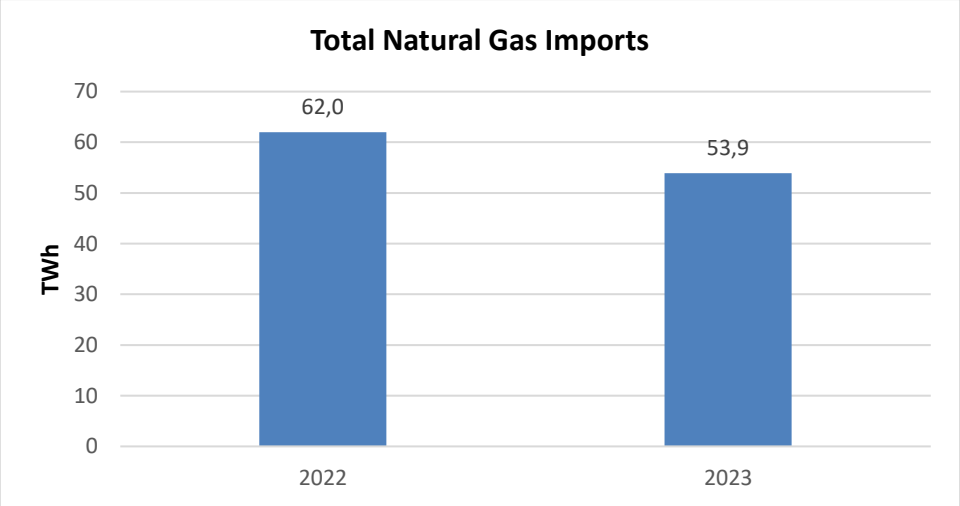
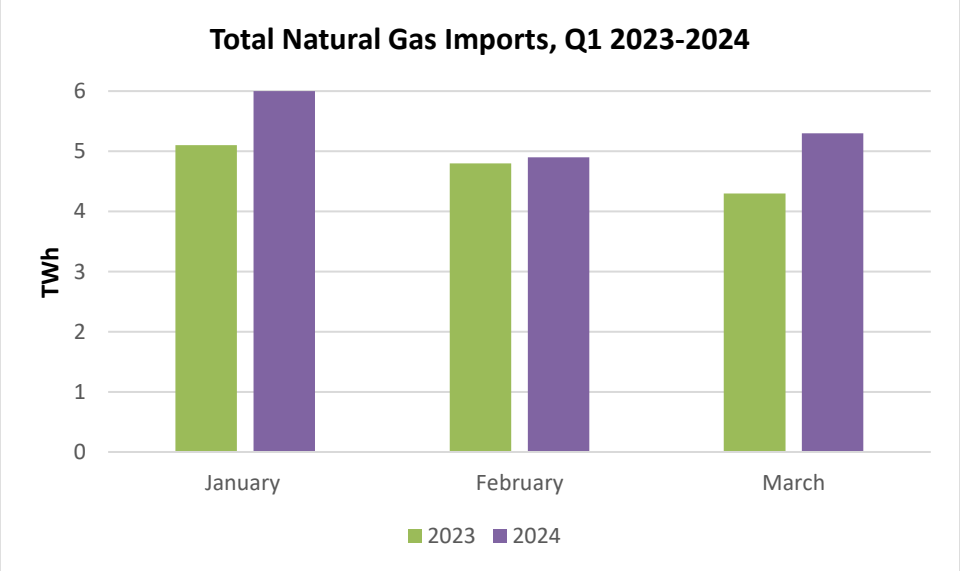


Figure 16: Total Natural Gas Imports (TWh), Q1 2023-2024



As previously analysed, Greece's total natural gas imports for the first quarter of 2024 amounted to 16.2 TWh, with 6.4 TWh or 39% being imported via Agia Triada (LNG coming from the Revithoussa terminal), 7.1 TWh or 44 % being imported via Sidirokastro, 0 TWh or 0% being imported via Kipoi, while 2.8 TWh or 17% were imported via Nea Mesimvria. LNG's contribution of 56% in 2023 is considered one of the highest percentages in recent years, highlighting the important role that the fuel already plays and is expected to play in the coming years in the context of phasing out Russian natural gas.

However, declining LNG imports were recorded in the first quarter of 2024, as shown in Figure 18. The reasons for this significant decline should be sought in the competitive prices of natural gas imported via pipeline from Russia.

Figure 17: Total Natural Gas Imports per Entry Point, 2022-2023

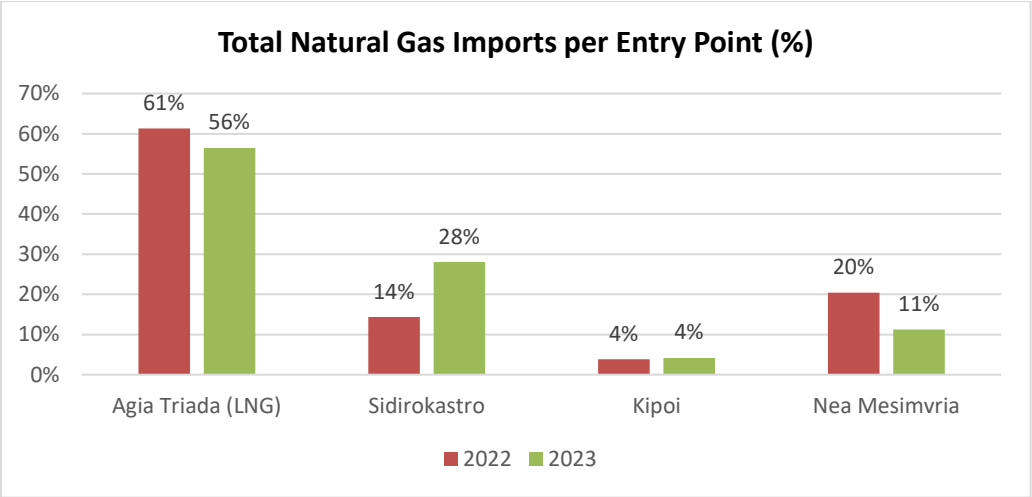
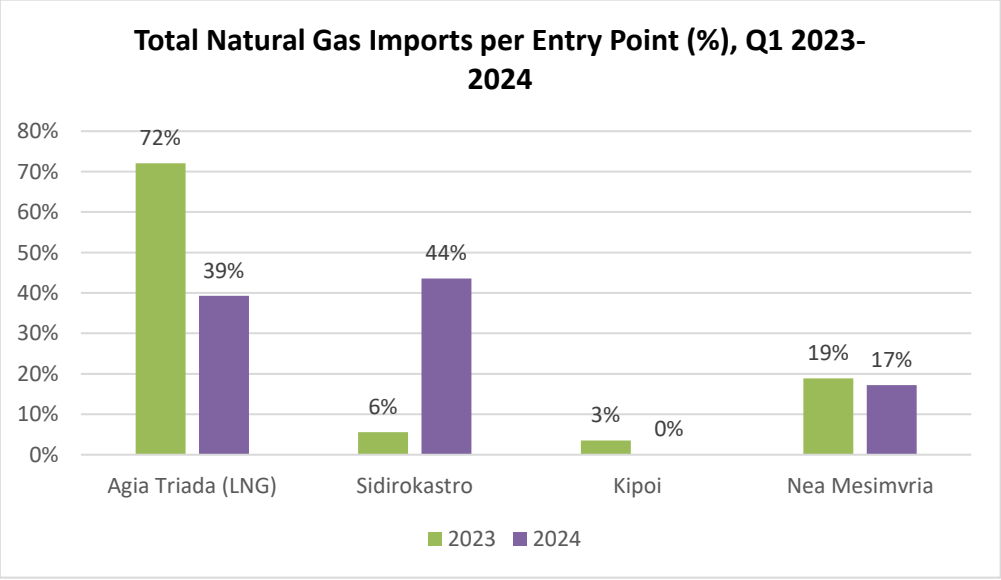


Figure 18: Total Natural Gas Imports per Entry Point, Q1 2023-2024



7. Sharp Drop in Electricity Prices in Europe and Greece

In Europe

The following maps summarize the wholesale electricity prices in Europe's day-ahead markets (DAM) throughout 2022 and 2023, based on available IENE data, through the Energylive platform (1). As shown in Figures 19 and 20, Greece was in 2022 and 2023 among the most expensive countries in Europe. In particular, for 2023, Greece had the highest electricity price (€119.11/MWh), after Italy (€127.24/MWh) and Ireland (€121.92/MWh).

Figure 19: Average Day-Ahead Wholesale Electricity Price in Europe, 2023

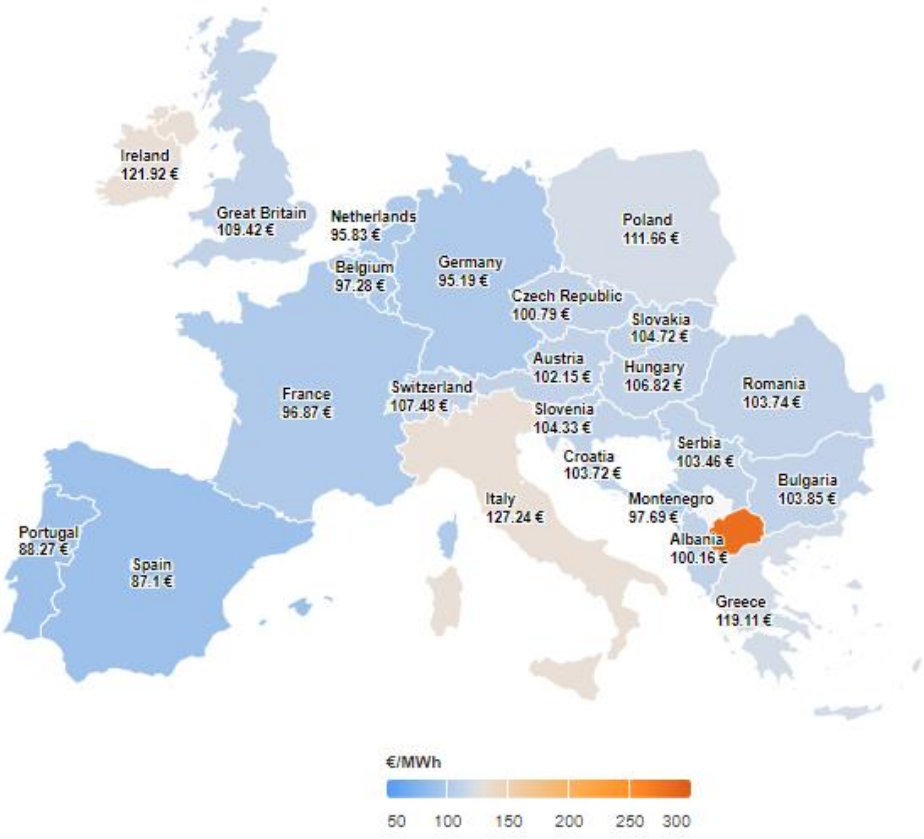
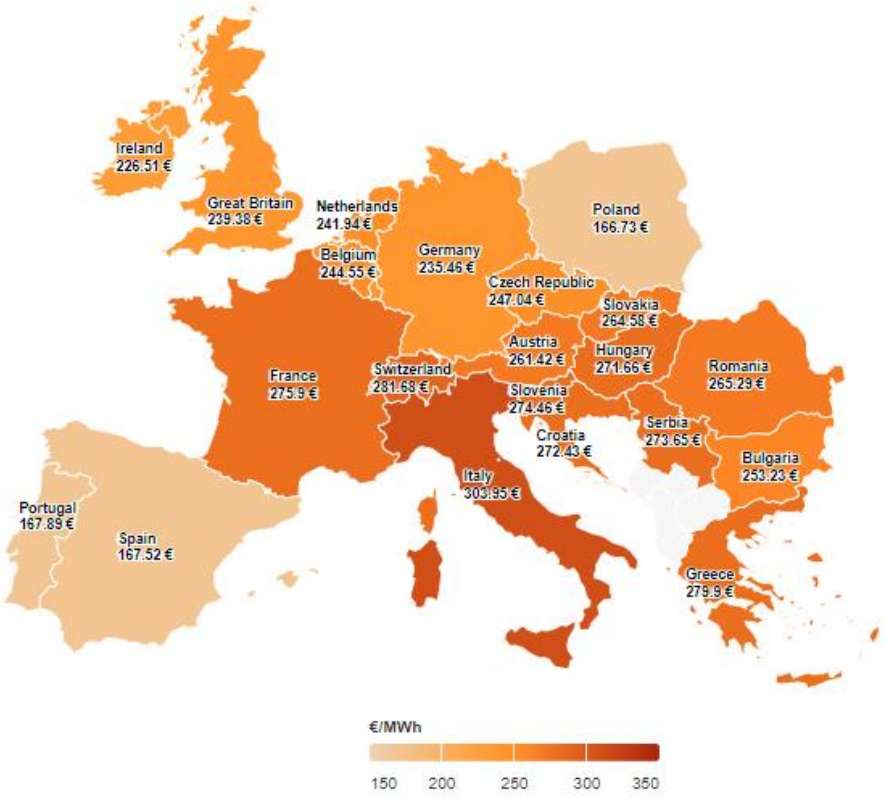


Figure 20: Average Day-Ahead Wholesale Electricity Price in Europe, 2022



In 2023, the price in neighboring Bulgaria was €103.85/MWh, in France €96.87/MWh, while in Germany €95.19/MWh. In Spain and Portugal, the price was €87.1/MWh and €87.1/MWh respectively. It should be noted that DAM prices are not the only ones, since the final prices also include quantities, the supply of which is made on the forward market through bilateral contracts, as well as in the balancing market. It should be noted that these markets are developed to a different extent in the several countries of Europe.

Figure 20 shows Europe's average wholesale electricity prices for 2022, showing a clear reduction in day-ahead market prices compared to 2023 (see Figure 19). The percentage reduction of the average annual DAM price between 2022 and 2023 is for Germany 59.6%, for Greece 57.4%, for France 64.9%, for Bulgaria 58.9% and for Spain 48%.

Similarly, Figures 21 and 22 show the downward trajectory of Europe's electricity prices in the first quarter of 2024, compared to the corresponding quarter of 2023.

Figure 21: Average Day-Ahead Wholesale Electricity Price in Europe, Q1 2024

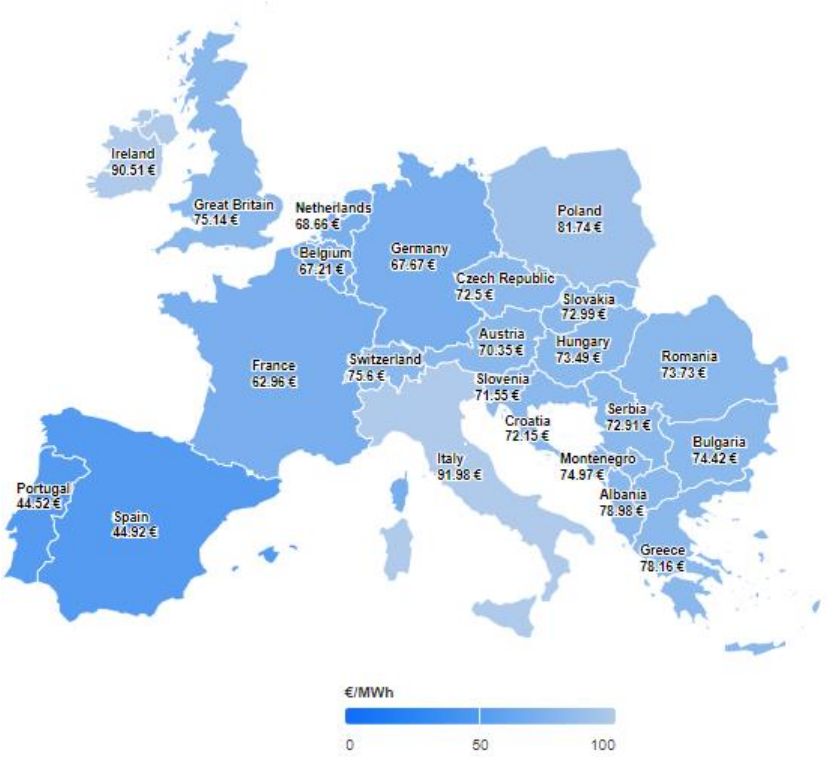
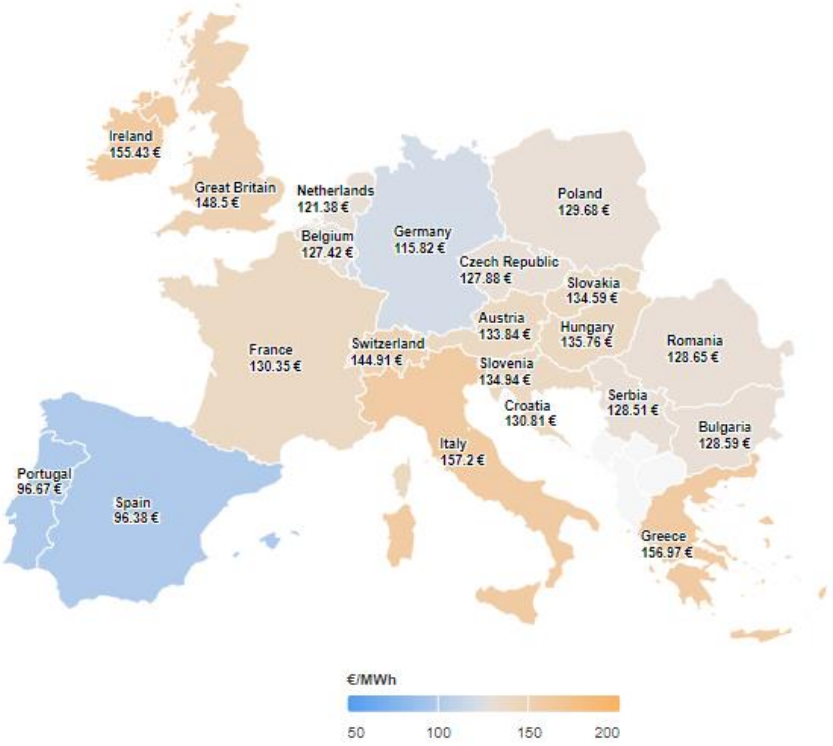


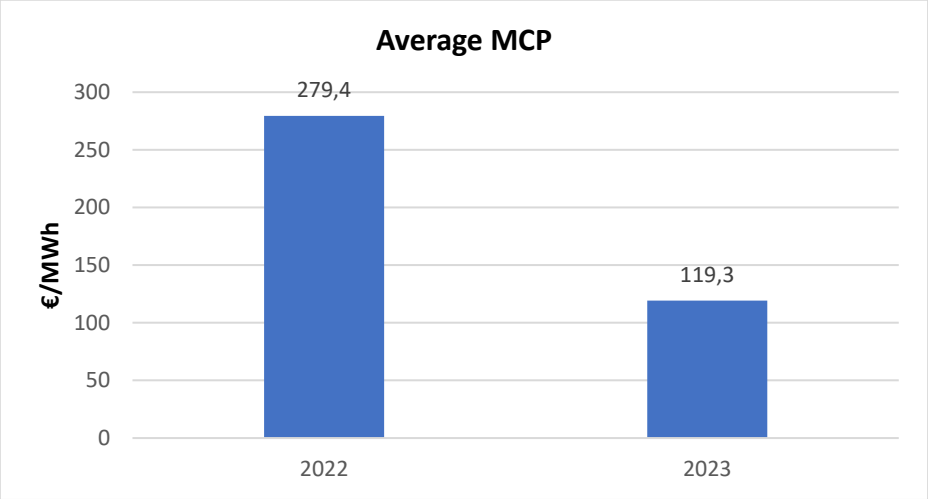
Figure 22: Average Day-Ahead Wholesale Electricity Price in Europe, Q1 2023



In Greece

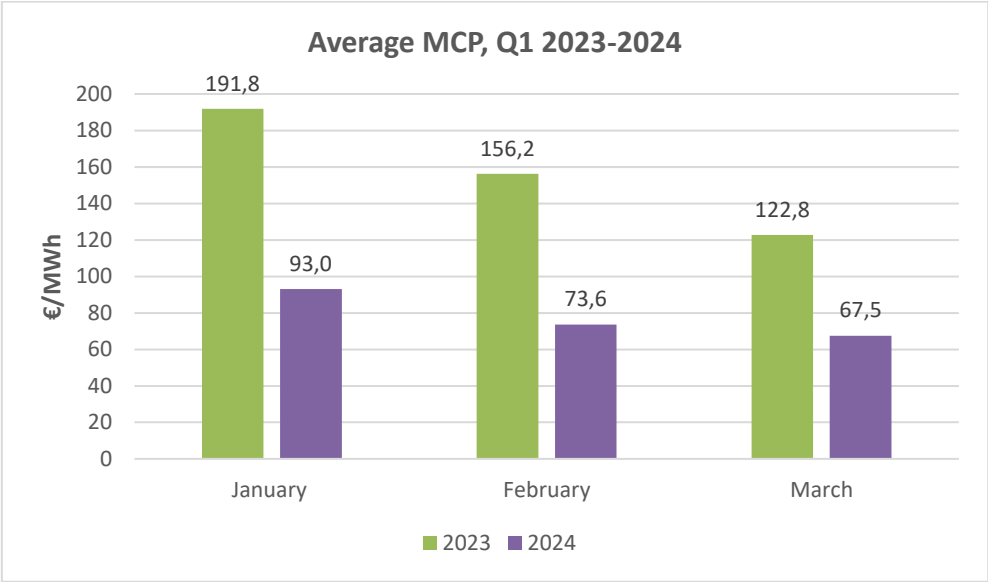
The average Market Clearing Price (MCP) on the Greek Energy Exchange averaged €119.3/MWh in 2023, significantly reduced by 57.3% compared to 2022, which amounted to €279.4/MWh, according to the IENE Energy Analysis Bulletin for 2023 (2).

Figure 23: Average Market Clearing Price (MCP), 2022-2023



Similarly, the average MCP stood at €78.04/MWh in the first quarter of 2024, significantly decreased by 50.3% compared to the first quarter of 2023, which amounted to €156.93/MWh. The significant fall in the domestic electricity price is mainly attributed to the drop in natural gas prices in Europe and in Greece.

Figure 24: Average Market Clearing Price (MCP), Q1 2023-2024



8. Downward Trend of Natural Gas Prices in Europe and Greece

In Europe

The price of the Dutch TTF is widely quoted as the reference point for natural gas in Europe. The price of TTF fell in early 2023 to the level of €75/MWh, lower than the period before the Russian invasion of Ukraine in February 2022, while in August 2022 it had exceeded €340/MWh.

The factors that led over the last 12-18 months to the drop in the price at TTF were (a) the seasonally high temperatures in Europe that led to a reduction in demand for heating, (b) the securing of alternative sources of natural gas supply, mainly with the rapid development of new LNG terminals, (c) the reduction in demand resulting from the implementation of energy saving programmes in EU countries, (d) the further development of RES, which replaces electricity generation from natural gas and (e) the increased reserves of natural gas in underground gas storages in Europe, at much higher levels than the previous years.

In 2023, the average price of the TTF reached €42.07/MWh, reduced by 69%, compared to 2022 (€135.79/MWh). Accordingly, the average price of the TTF reached €28.45/MWh in the first quarter of 2024, reduced by 49%, compared to the same period in 2023 (€56.07/MWh).

Figure 25: Reference Price in Dutch TTF (€/MWh), 2020-2024

Figure 26: Reference Price in Dutch TTF (€/MWh) Over the Last 3 Months

Figure 27: Reference Price in Dutch TTF (€/MWh), 2022-2023

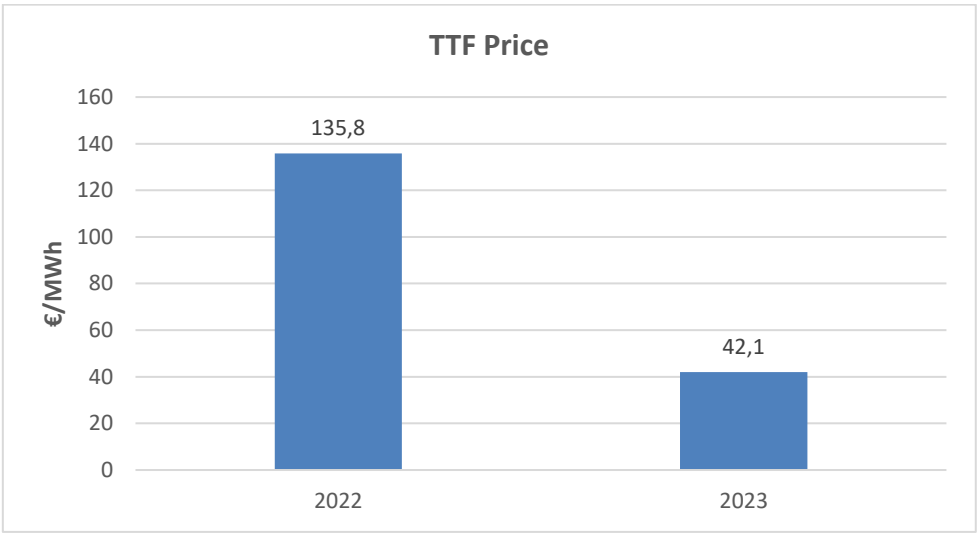
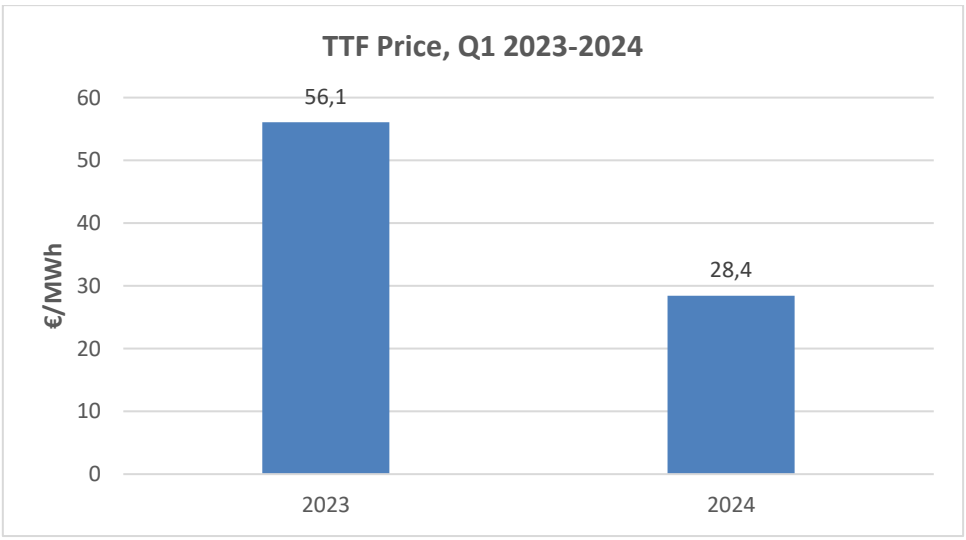


Figure 28: Reference Price in Dutch TTF (€/MWh), Q1 2023-2024



In Greece

The Balancing Gas Reference Price averaged €40.7/MWh in 2023, down 13.1% from the levels of €46.9/MWh in 2022. Similarly, the Balancing Gas Reference Price averaged €28.5/MWh in the first quarter of 2024, moving downwards compared to €58.7/MWh in the first quarter of 2023. The decrease in the natural gas price in Greece came from the huge drop in the wholesale price at TTF, which is considered the European benchmark, and it had a downward impact on gas supply contracts through pipelines, but also through LNG.

Figure 29: Balancing Gas Reference Price (€/MWh), 2022-2023

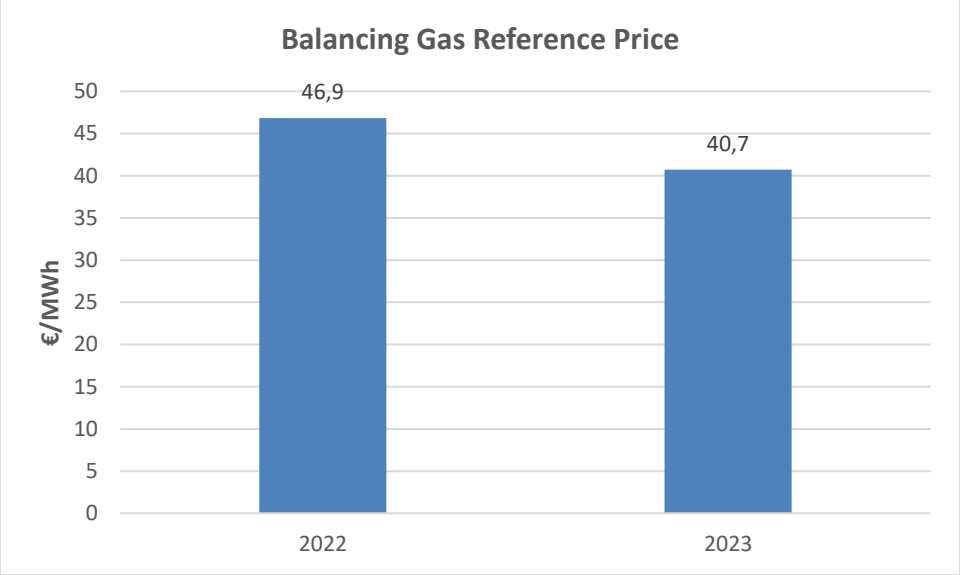
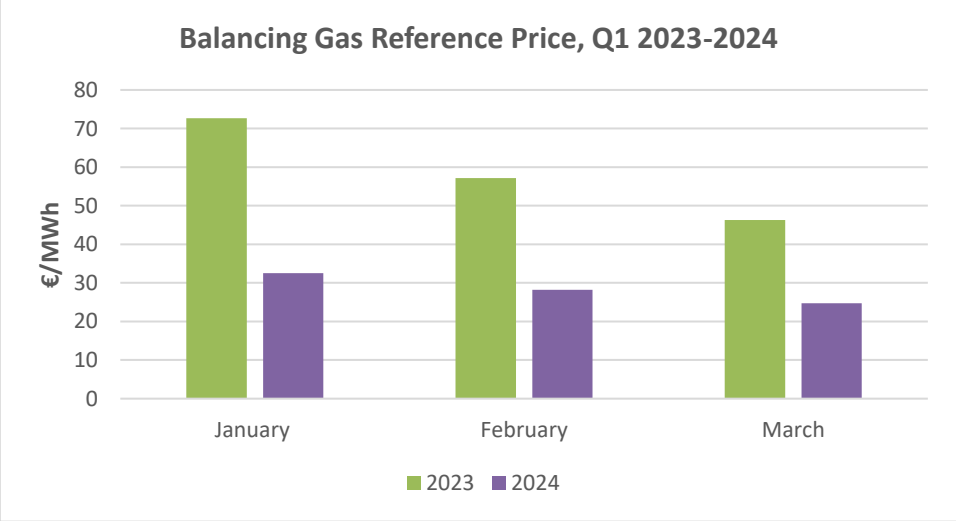


Figure 30: Balancing Gas Reference Price (€/MWh), Q1 2023-2024



LNG Prices

In early 2023, a year after Russia's invasion of Ukraine, gas markets in Europe and Asia were still in turmoil as fears of gas shortages continued to prevail in Europe, keeping global gas prices down and LNG at high levels. **(7)**

In May 2023, the price of LNG in Asia was $21.85/MWh, while the price in Europe was $19.30/MWh. During the same period, the price of US LNG was $3.20/MWh, with the US, thanks to its significant shale gas production, not only being self-sufficient, but also exporting significant quantities to the global market, through liquefaction plants and corresponding export terminals. Last winter, however, turned out to be warm. And the actions taken by the European gas industry were more than enough to push stocks to high levels. In the corresponding period this year, prices in Asia fell to $9.30/MWh or 57%, while in Europe they reached $8.90/MWh or 54% lower. US LNG fell only 20% to $2.70/MWh.

9. High Fluctuations in the Prices of Crude and Petroleum Products in Europe and Greece

In the International Market

With reference to the price of Brent crude, which is the international benchmark, this averaged at $82.5 per barrel in 2023, down 18.3% compared to the 2022 price ($100.9 barrel). Accordingly, the price of Brent crude in the first quarter of 2024 reached $82.9 per barrel, increased by 2.3% compared to the levels of the same period in 2023 ($81.02 per barrel).

Figure 31: Brent Crude Oil Price Over the Last Year

Figure 32: Brent Crude Oil Price Over the Last Week

Figure 33: Brent Crude Oil Price, 2022-2023

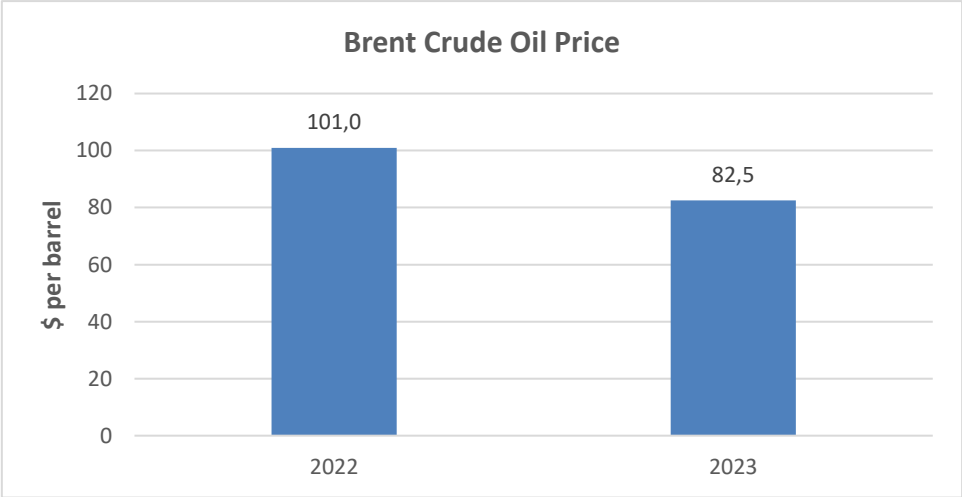
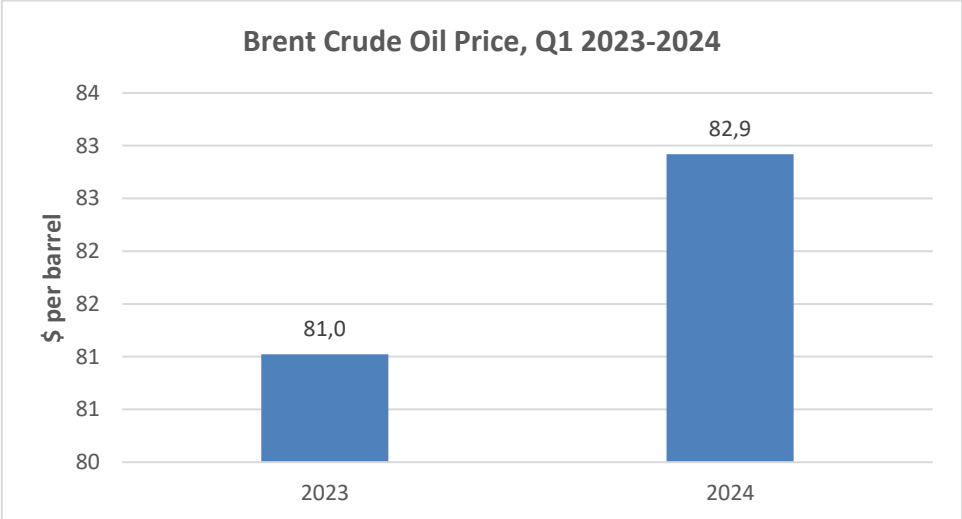


Figure 34: Brent Crude Oil Price, Q1 2023-2024



In Greece

Regarding the prices of various oil products, as announced by the Liquid Fuels Price Observatory of Greece's Ministry of Development (8), these averaged in 2023 at €1.28/litre for home heating diesel, €1.70/litre for motor diesel, €2.09/litre for unleaded of 100 octane, €1.90/litre for unleaded of 95 octane and €0.91/litre for LPG, recording a fall of 5.2%, 9.2%, 6.7%, 7.6% and 12.2% respectively, compared to 2022.

Similarly, prices averaged in the first quarter of 2024 at €1.32/litre for home heating diesel, €1.69/litre for motor diesel, €2.07/litre for unleaded of 100 octane, €1.87/litre for unleaded of 95 octane and €0.89/litre for LPG, recording an increase of 8.1% for home heating diesel, while for the rest of the fuels there was a drop of 2.8%, 0.5%, 1.0% and 10.0% respectively, compared to Q1 2023.

Based on the latest available data from the European Union, we see that the average price for unleaded in Greece reached €1.82/litre in mid-January 2024, with countries such as France and Germany recording lower prices, at €1.80/litre and at €1.79/litre respectively. In SE Europe, Greece has the highest price for unleaded, when in Bulgaria it is €1.30/litre, in Romania €1.36/litre and in Croatia €1.46/litre.

A big portion of that price refers to tax. According to the same data, Greece is in second place in the EU in terms of the highest fuel taxation, on par with Italy and the Netherlands. In all 3 of these countries, 59% of the fuel price are taxes.

Figure 35: Average Price of Unleaded at Fuel Stations, 2017-2024

Figure 36: Average Price of Diesel at Fuel Stations, 2017-2024

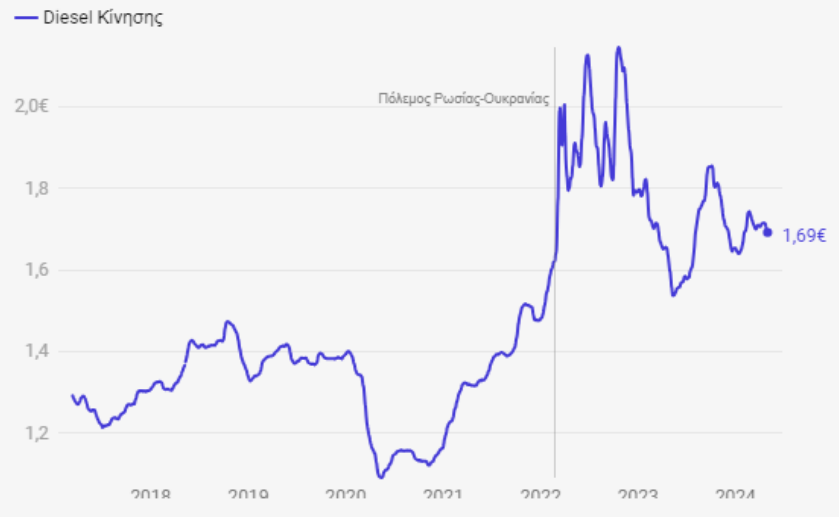
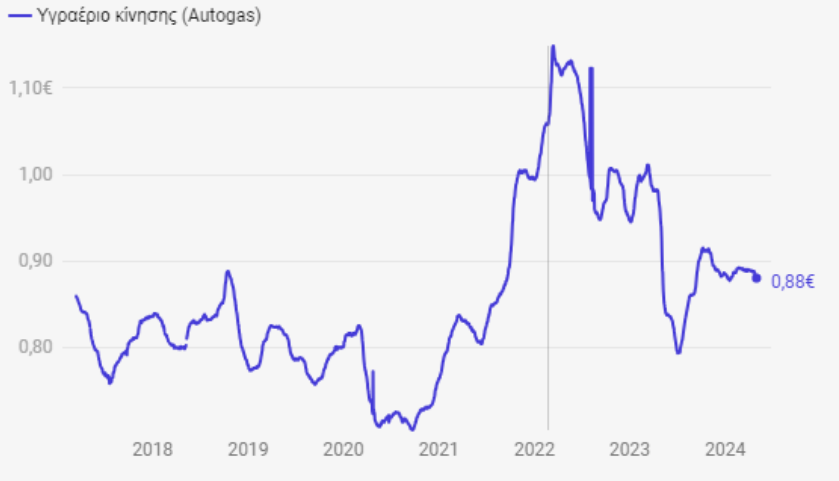


Figure 37: Average Price of Autogas at Fuel Stations, 2017-2024



10. Conclusions

The main conclusions, which can be drawn from the present study, are summarized as follows:

- A sharp drop was observed in the prices of electricity, natural gas, crude oil and petroleum products in Europe and Greece throughout 2023 and the first quarter of 2024
- A decline in total energy demand was recorded throughout this period
- There was a significant drop in demand for electricity and natural gas
- Electricity exports decreased and electricity imports increased in Greece in the period 2023-2024

- Gas imports in Greece decreased, but Russian gas imports via Sidirokastro increased, especially in 2024
- Increased LNG imports via Revithoussa terminal were recorded in 2023, followed by an upward movement in Russian gas imports in the first quarter of 2024
- Fuel prices in Greece continue to be among the highest in Europe, despite the decrease in international oil prices
- There was a strong diversification of the power generation mix, with a significant contribution of RES

11. What Can We Expect in 2024

During the year we are already passing through, several energy developments are going to be implemented in Greece, which can be summarized as follows:

1. The outlook for electricity and natural gas prices is looking bright as investment in new LNG import terminals matures at European level, combined with high levels of EU natural gas storage capacity (58% as of March 31 2024).
2. There is no imminent risk of natural gas supply disruption as LNG imports are continuously taking place, while the commercial operation of the Alexandroupolis FSRU is expected to begin by the end of May 2024 and plans are underway for the construction of new ones.
3. Seismic surveys for the location of natural gas reserves in the offshore areas of Crete have been completed and the first exploratory drilling is already being planned for 2025, while seismic surveys in the Ionian Sea have also been completed and the data interpretation is underway.
4. The further development of electricity and natural gas networks is now progressing, according to the Development Plans of the electricity and gas system operators.
5. The signing of long-term contracts for the supply of energy produced by RES, i.e. “green” PPAs, is encouraged, which is expected to have a positive impact on the formation of wholesale electricity prices within 2024.
6. By the end of 2024, further grid problems are expected due to the oversupply of RES and the saturated electricity system. Therefore, discussions will come to the fore between the Regulatory Authority for Energy, Waste and Water (RAEEY), Ministry of the Environment and Energy and the Independent Power Transmission Operator (IPTO) on the issue of compensation for autoproducers, as the quantities of rejected energy will increase.

References

1. Energylive (2024), “Average day-ahead prices”, https://www.energylive.cloud/pwr-hour/dam-maps
2. IENE (2024), “Energy Analysis Bulletin for the Greek Energy Market in 2023”, No365
3. Eurostat (2024), “Complete energy balances”, https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_c/default/table?lang=en&category=nrg.nrg_quant.nrg_quanta.nrg_bal
4. Vettas, N. et al. (2021), “The Energy Sector in Greece: Trends, Prospects and Challenges”, in Greek, https://www.dianeosis.org/wp-content/uploads/2021/07/Energy-VERSION-30.06.2021.pdf
5. IENE (2023), “The Greek Energy Sector – Annual Report 2023”, https://www.iene.eu//articlefiles/inline/the%20greek%20energy%20sector%202023_small_2new.pdf
6. DESFA (2023), “DESFA data for natural gas consumption in 2022”, https://www.desfa.gr/en/press-center/press-releases/stoixeia-desfa-gia-thn-katanalwsh-fysikoy-aerioy-to-2022
7. Liberal (2024), “LNG: Over 50% price cut in Europe and Asia in 2023”, in Greek, https://www.liberal.gr/emporeymata/lng-pano-apo-50-meiothike-i-timi-toy-se-eyropi-kai-asia-2023
8. Ministry of Development (2024), «Liquid Fuel Prices Observatory», in Greek, http://www.fuelprices.gr/