

1.2. The effect of high energy prices on inflation in Greece and the Euro area

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Introduction

Inflationary pressures in Greece and the euro area continued to surge in September 2022 (12.0% and 10.0%, respectively) owing to extremely elevated energy prices as a consequence of the war in Ukraine. Both in Greece and the euro area, the highest contribution to the annual inflation rate came from the hikes in energy and food commodity prices. The ongoing upward trend in the energy commodity prices, and especially that of natural gas, has a significant impact on the surge of inflation, both directly, through the increase in final energy prices for consumers, and indirectly, through the increase in the cost of producing basic consumer goods. Efforts have recently been made at national and European levels to mitigate the effects of the energy crisis on households and businesses, as well as to deal with high energy prices and ensure energy sufficiency, especially during the winter season.

1.2.1. Greece

According to ELSTAT, in September 2022, headline inflation based on the National Consumer Price Index (hereinafter, CPI) stood at 12.0%, compared to 11.4% in August. The CPI recorded a monthly increase by 2.9% (m-o-m, %). Inflation based on the Harmonized CPI (hereinafter, HICP) recorded an annual increase of 12.1%, compared to 11.2% in August.

Core¹ national inflation increased at a slower pace, reaching 4.9% in September, compared to 4.2% in August. Similarly, core HICP inflation reached 7.0% in September, up from 5.8% in August.

The highest contribution to the annual Headline inflation rate in September came from Housing (+5.1 per-

centage points), Food and non-alcoholic beverages (+2.9 pp) and Transport (+1.9 pp).

More specifically, the annual increase of the General CPI in September 2022 by 12.0% is a combined result of the following changes in the price indices of sub-groups of goods and services. More specifically, increases were recorded by:

- +13.5% in the group Food and non-alcoholic beverages. This increase is mainly attributed to the rise in the prices of Bread and cereals (+18.4%), meat (+17.6%), fish (+4.2%), milk-cheese and eggs (+23.3%), oils and fats (+17.0%), vegetables (+8.7%), sugar-chocolate-sweets-ice cream (+6.2%), other foods (+12.6%), coffee-cocoa-tea (+14.3%), mineral water-soft drinks-fruit juices (+4.7%). The above increases were partially offset by fresh fruit (-4.4%).
- +2.0% in the Alcoholic beverages and tobacco group. This increase is mainly due to the rise in prices of (not served) alcoholic beverages (+4.7%).
- +3.5% in Clothing and Footwear, due to price increases in clothing and footwear.
- +35.4% in the Housing group. This increase is mainly due to the rise in prices of the following products and services: rentals for dwellings (+1.1%), services for the repair and maintenance of the dwelling (+4.3%), electricity (+30.5%), natural gas (+332.0%), and solid fuels (+16.1%).
- +9.3% in the Household equipment group. This increase is mainly due to the rise in prices of the following products and services: furniture and furnishings (+8.0%), household appliances and repairs (+5.8%), glass-tableware and household utensils (+6.8%), non-durable household articles (+14.6%) and domestic services (+3.5%).
- +14.2% in the Transport group. This increase is mainly due to price increases in the following products and services: New motor cars (+13.7%), second-hand motor cars (+15.9%), motorcycles (+6.9%), spare parts and accessories for motor cars (+9.9%), fuels and lubricants (+17.7%), maintenance and repair of motor cars – motor cycles (+2.3%), passenger transport by taxi (+32.9%), tickets for passenger transport by air (+58.7%), tickets for passenger transport by sea (+25.4%).

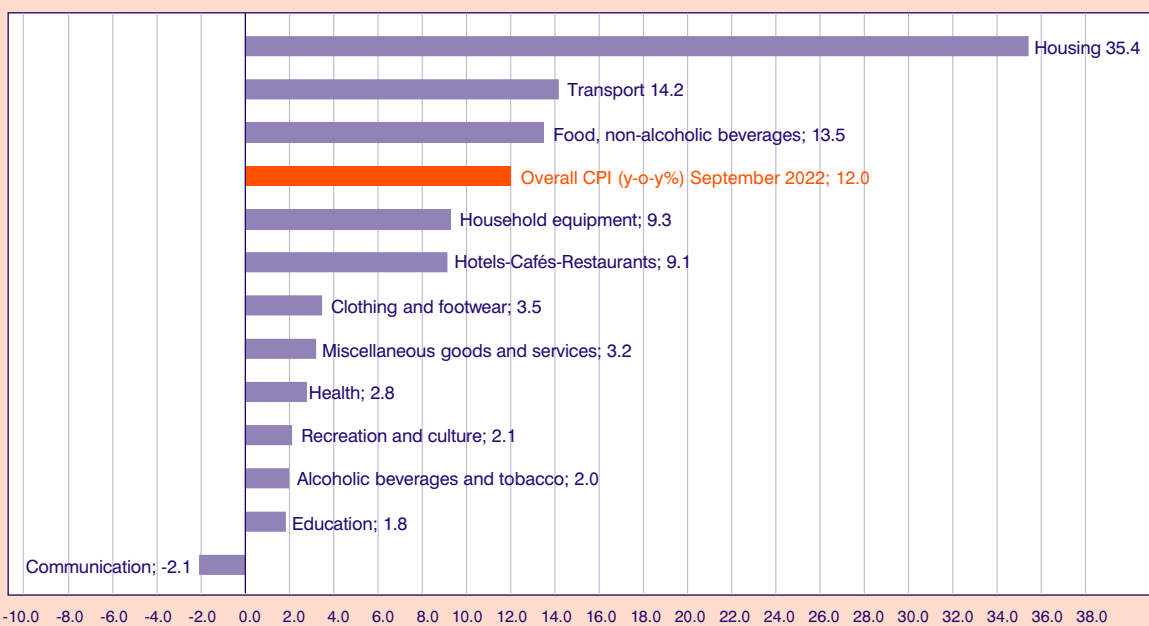
1. The Core Inflation Index is calculated from the Overall (Harmonized) Consumer Price Index excluding the divisions of Food and non-alcoholic beverages, Alcoholic beverages and tobacco and Energy prices.

TABLE 1.2.1 Inflation in Greece (%)

	National CPI	CPI (m-o-m, %)	Headline Inflation CPI (y-o-y, %)	Core Inflation	Harmonized Inflation HICP	Core HICP
2021:M9	102.2	2.4	2.2	2.4	1.9	0.2
2021:M10	103.8	1.5	3.4	1.5	2.8	0.4
2021:M11	104.2	0.5	4.8	0.5	4.0	0.7
2021:M12	105.0	0.7	5.1	0.7	4.4	1.1
2022:M1	104.7	-0.3	6.2	1.3	5.5	1.5
2022:M2	105.8	1.1	7.2	1.2	6.3	1.5
2022:M3	108.8	2.7	8.9	1.8	8.0	2.5
2022:M4	111.1	2.1	10.2	1.9	9.1	2.6
2022:M5	111.8	0.7	11.3	2.5	10.5	3.7
2022:M6	113.6	1.6	12.1	3.6	11.6	5.5
2022:M7	111.5	-1.8	11.6	3.6	11.3	5.5
2022:M8	111.2	-0.3	11.4	4.2	11.2	5.8
2022:M9	114.5	2.9	12.0	4.9	12.1	7.0

Source: ELSTAT, Eurostat.

**FIGURE 1.2.1
Annual % changes in National CPI sub-categories (September 2022)**



Source: ELSTAT.

TABLE 1.2.2 Annual % changes in National CPI sub-categories, January–September 2022

Groups of goods and services	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1 Food and non-alcoholic beverages	5.2	7.1	8.1	10.9	12.1	12.6	13.0	13.2	13.5
2 Alcoholic goods and tobacco	-0.1	-0.2	0.4	0.0	0.9	0.9	1.5	1.8	2.0
3 Clothing and footwear	7.0	5.6	6.5	1.6	5.6	4.6	3.4	2.7	3.5
4 Housing	22.6	25.4	29.9	35.2	35.0	31.5	30.9	31.4	35.4
5 Household equipment	3.0	4.1	3.7	4.2	5.1	6.5	8.2	9.5	9.3
6 Health	-0.1	0.0	0.0	0.0	0.5	0.6	0.7	2.7	2.8
7 Transport	11.1	12.2	15.4	15.4	18.8	25.0	20.6	16.0	14.2
8 Communication	-3.2	-3.1	-2.9	-2.7	-2.5	-2.3	-2.1	-2.2	-2.1
9 Recreation and culture	-0.5	-0.4	0.1	1.2	1.3	1.7	2.0	2.3	2.1
10 Education	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8
11 Hotels-Cafés-Restaurants	1.6	1.7	2.8	3.8	5.1	6.5	6.4	6.7	9.1
12 Miscellaneous goods and services	0.4	-0.2	0.1	0.9	0.4	2.3	2.5	3.7	3.2
General Index	6.2	7.2	8.9	10.2	11.3	12.1	11.6	11.4	12.0

Source: ELSTAT.

- +9.1% in the Hotels-Cafés-Restaurants group. This increase is mainly due to the rise in prices in Restaurants-confectioneries-café-buffets (+6.7%), and hotels-motels-inns (+25.8%).
- +2.8% in the Health group. This increase is mainly due to the increase in prices in pharmaceutical products (+5.9%), medical products (+4.1%), medical, dental and paramedical services (+1.3%) and hospital care (+0.6%).
- +3.2% in the Miscellaneous goods and services group. This increase is mainly due to the rise in prices of hairdressing salons and personal grooming establishments (+1.3%), and other appliances and articles for personal care (+6.7%).
- +2.1% in the Recreation and culture group. This increase is mainly due to the increase in prices in major durables for recreation and culture (+3.6%), small recreational items-flowers-pets (+2.8%), cinemas-theatres (+13.9%), stationary and drawing materials (+9.7%) and holiday packages (+12.0%). This increase was partially offset by the decrease in prices mainly in audiovisual and information processing equipment (-5.0%).
- +1.8% in the Education group. This increase is mainly due to the rise in prices of fees of primary (+2.1%) and secondary (+2.3%) education.

On the other hand, prices decreased in the following group of goods and services:

- -2.1% in the Communication group. This decrease is mainly due to the decrease in prices of mobile telephone equipment (-10.1%) and telephone services (-1.9%).

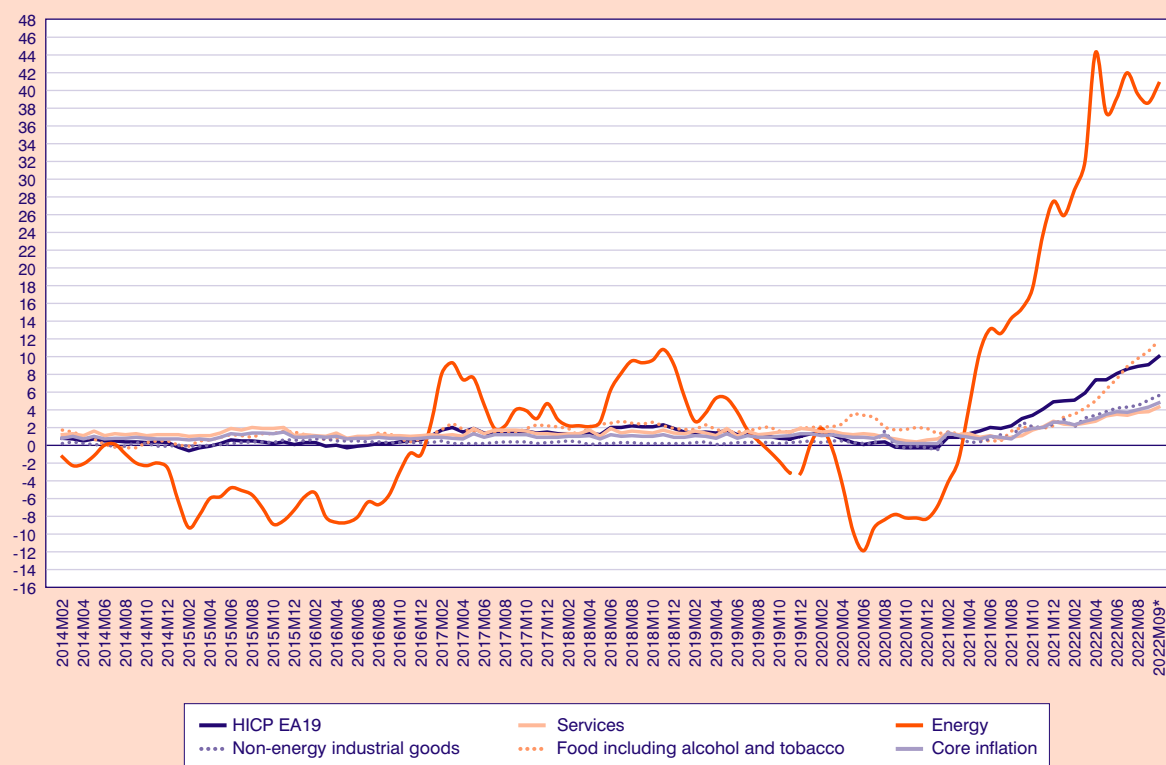
1.2.2. The Euro area

According to the flash estimates of Eurostat, inflation in the Euro area in September 2022 is expected to reach 10.0%, up from 9.1% in August and 8.9% in July. According to these estimates, core HICP inflation is expected to reach 4.8% in September 2022, higher than the 4.3% and 4.0% in August and July, respectively.

The highest annual rate of HICP inflation in the Euro area was recorded in the Energy sector (+40.8%), followed by the Food sector (+11.8%), Non-energy industrial products (+5.6%) and Services (+4.3%).

Among the Euro area countries, the highest annual rate of inflation was recorded in Estonia (+24.2%), Lithuania (+22.5%) and Latvia (+22.4%), while the lowest was in France (+6.2%), Malta (+7.3%) and Finland (+8.4%).

FIGURE 1.2.2
HICP in the Euro area, monthly data, annual % change



Source: Eurostat.

* Flash Estimates.

1.2.3. Impact of high energy prices on CPI

As mentioned before, the continuous increase in energy prices had a significant impact on the inflation of our country. Under these circumstances, it is interesting to note the annual percentage change of the individual HICP of energy products in the country's domestic sector and its comparison with the corresponding Eurozone indices (Figure 1.2.3). As seen, during the first nine months of 2022, there is a significant annual percentage increase of the HICP, both in natural gas and electricity.² More specifically, and as for electricity, the index showed a steep annual percentage increase of 80% from March to May, while the increase in August reduced to 38.5% compared to the corresponding Eurozone average 39.9%. Nevertheless, in September, the annual percentage increase was further reduced to 30.5%.³ Accordingly,

the annual percentage change of the index for natural gas showed strong fluctuations during the first nine months of 2022, a trend which is not recorded in the corresponding Eurozone index, which stood at much lower levels. Thus, the annual percentage increase in Greece followed an upward trend from June onwards, while in August, it reached 261.3%, much higher than the Eurozone average of 66.2%. In fact, in September, the annual percentage increase of the index reached 332%.

1.2.4. Evolution of energy product prices

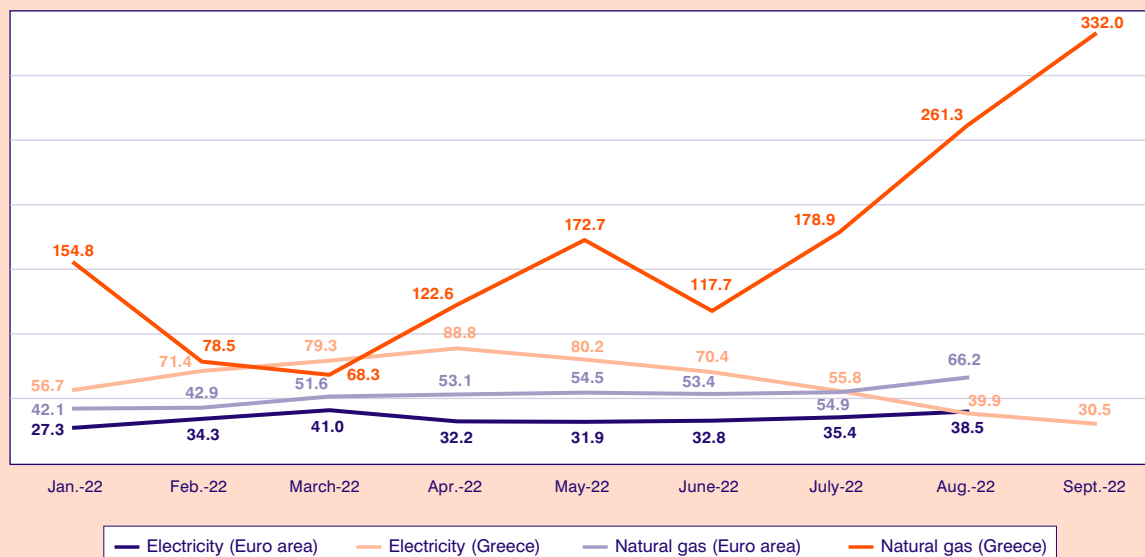
Considering the above changes, it is also interesting to examine the fluctuations of prices of the energy products in the respective periods, as well as the amount of the annual percentage change of these prices. Regarding the average monthly price of gas, and more

2. The recent data concerning the individual HICP of heating oil are not available, as the disposal of the fuel stopped from May to September.

3. Eurozone average data were not available at the time of writing.

FIGURE 1.2.3

HICP of energy products, annual percentage change, monthly data, January–September 2022



Source: Own processing of data from Eurostat.

specifically the Dutch TTF Natural Gas Futures⁴ (Figure 1.2.4), we observe the steep rise in 2022 prices compared to the corresponding prices in 2021. Especially in August 2022, the average price of natural gas reached €240/MWh, the highest price in recent years, while its annual percentage change rose to 377%. However, during September, a fluctuation in natural gas prices was recorded, leading to an encouraging downward trend towards the end of the month. Thus, the average monthly price stood at €189/MWh, and the annual percentage increase rose to 93%, much lower than in previous months. However, it has been noticed that TTF features affect the domestic market with a time lag, thus, the above decrease might have a favourable affect both on the natural gas HICP and the competitive prices of electricity from October onwards.

As is known, the large share of natural gas in the electricity generation mix of our country (about 40%) has a negative effect on electricity prices for consumers. At the same time, the energy generation by the country's lignite-fired units, accompanied by negative

environmental effects, leads also to high production costs because of the high cost of carbon emission rights. Therefore, the evolution of CO₂ emissions prices is also a significant factor, especially today when lignite production is important for the country's energy sufficiency and security. Figure 1.2.5 presents the evolution of this pricing during 2021-2022, as well as the annual percentage change. As shown, the price of carbon emission rights has significantly increased compared to the beginning of 2021, but lately, a more stable course has taken place, leading to a downward trend of the annual percentage change as well. The average price in August amounted to €81/ton of carbon dioxide emissions, while in September it fell to €66/ton. In fact, the price reached approximately last year's level, i.e., September 2021, thus recording an annual percentage change of only 6%. In this case too, the reduction in price could contribute to the reduction of the cost of electricity generation in Greece.

Finally, regarding the cost of electricity in Greece, a substantial increase of the prices has taken place from

4. Due to the large trading volume on the Dutch Title Transfer Facility (TTF), these futures have been adopted as the main benchmark for the price of natural gas in the EU. However, under the new conditions created by the energy crisis, LNG transactions have increased significantly against natural gas through pipelines. Thus, TTF is no longer considered to be the most representative indicator of the average price of contracts. In this context, the European Commission intends to propose the creation of a new benchmark, combining the TTF with other indices.

FIGURE 1.2.4

Monthly average natural gas futures (left axis) and annual percentage change (right axis), monthly data, January 2021–September 2022

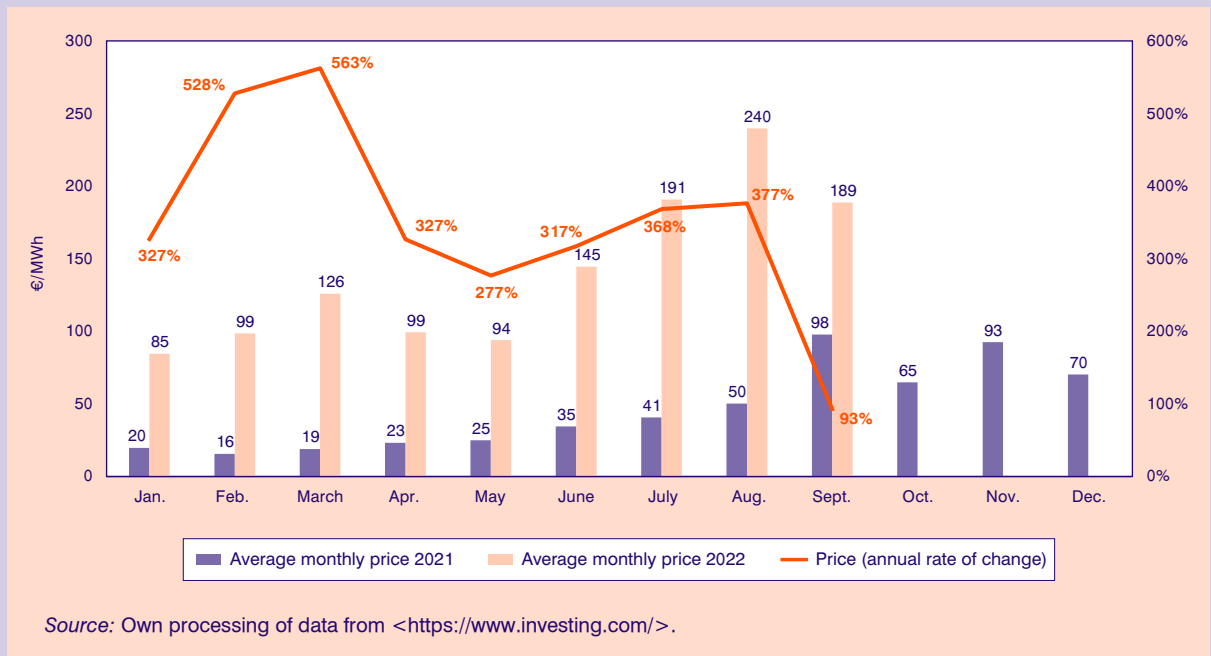
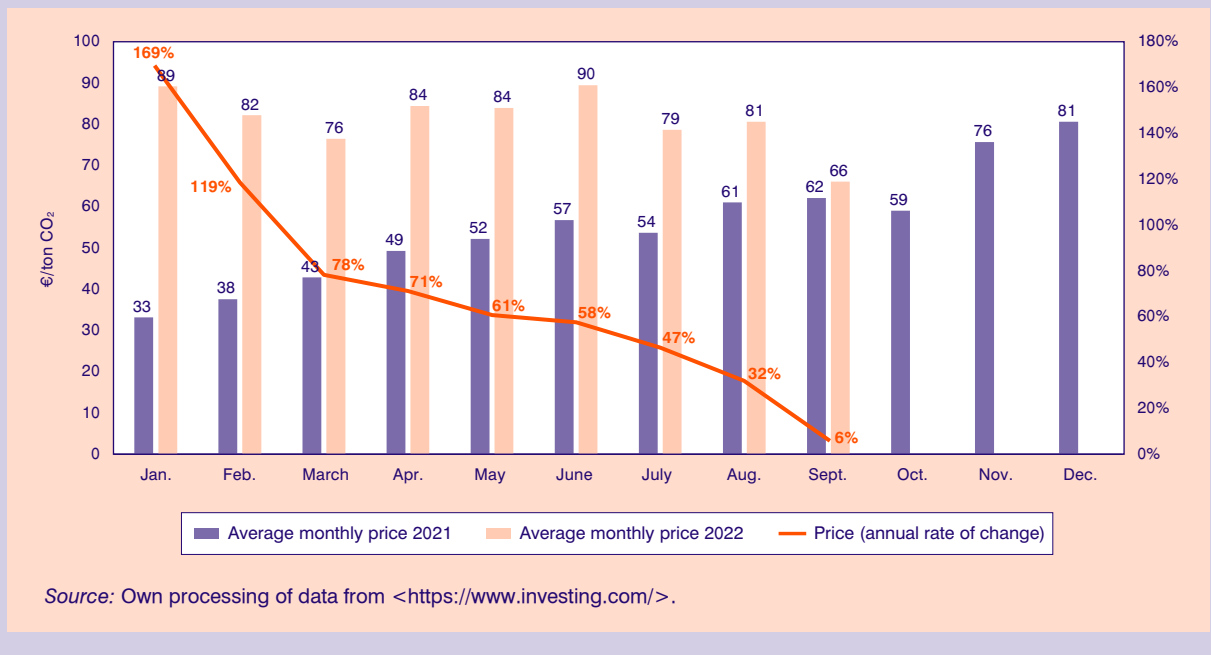


FIGURE 1.2.5

Monthly average carbon emissions futures (left axis) and annual percentage change (right axis), monthly data, January 2021 – September 2022

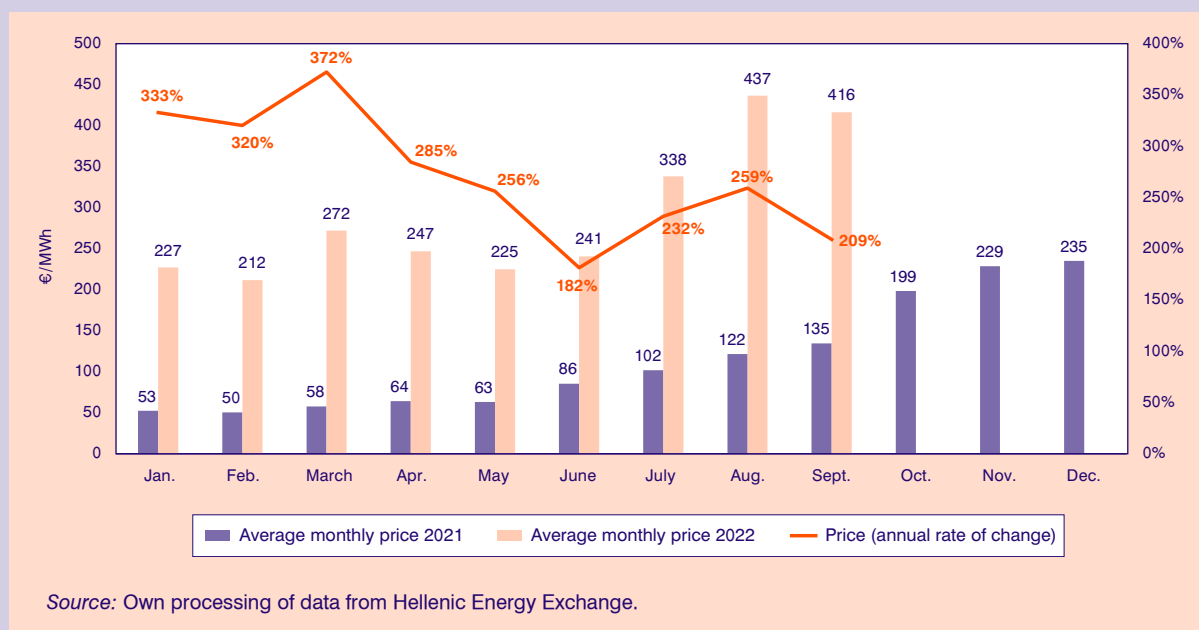


mid-2021, initially due to the restart of economic activity after the pandemic, while in 2022, this upward trend was further aggravated due to the consequences of the war in Ukraine on the global energy market. Figure

1.2.6 presents the evolution of monthly average spot prices of the Day-Ahead Market in the Hellenic Energy Exchange (HEX S.A.) during the last two years, as well as the percentage change on annual basis. In Au-

FIGURE 1.2.6

Monthly average electricity spot market prices of Day-Ahead Auctions (left axis) and annual percentage change (right axis), monthly data, January 2021 – September 2022



gust, the average price reached €437/MWh, the highest ever recorded, with an annual increase of about 260%. In September, prices exceeded €500/MWh initially, but a downward trend occurred by the end of the month. Thus, the average September price decreased to €416/MWh with an annual percentage increase of 209%.

1.2.5. European Commission initiatives to tackle the energy crisis

Aiming at mitigating the effects of the continuous rise in energy costs on households and businesses, but also at ensuring Europe’s energy security, the European Commission, during the last year, has introduced new initiatives dealing with such consequences. Hence, in October 2021, the Commission initiated a toolbox of measures that member states can use to address the impact of the sharp increases in energy prices.⁵ Addi-

tionally, in March 2022, it presented further guidelines to mitigate high energy prices of natural gas,⁶ while in May 2022, it set a series of additional short-term measures to tackle high energy prices and address possible supply disruptions from Russia.⁷

Moreover, aiming at adopting long-term strategies to manage disruptions in the global energy market, the European Commission presented, on May 18 of this year, the REPowerEU plan,⁸ concerning the transformation of Europe’s energy system and targeting both the gradual ending of the EU’s dependence on Russian fossil fuels and tackling the climate crisis. The REPowerEU plan introduces innovative measures that aim at energy savings, diversification of supplies, accelerating the rollout of renewables, reducing fossil fuel consumption in industry and transport, as well as realizing smart investments.

Finally, on September 14, the Commission presented a proposal for a Regulation to deal with high energy

5. European Commission, 2021. “Energy prices: Commission presents a toolbox of measures to tackle exceptional situation and its impacts”, Press release, 13 October 2021, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5204>.

6. European Commission, 2022. “Commission outlines options to mitigate high energy prices with common gas purchases and minimum gas storage obligations”, Press release, 23 March 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/IP_22_1936>.

7. European Commission, 2022. “Energy Markets: Commission presents short-term emergency measures and options for long-term improvements”, Press release, 18 May 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3140>.

8. European Commission, 2022. “REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition”, Press release, 18 May 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131>.

prices.⁹ The proposed interventions focus on (a) exceptional electricity demand reduction measures; (b) imposition of a temporary revenue cap on 'inframarginal' electricity producers, namely technologies with lower costs, such as renewables, nuclear and lignite that, in recent months, have been making exceptional revenues, with relatively stable operational costs and (c) establishing a temporary solidarity contribution on excess profits generated from activities in the oil, gas,

coal and refinery sectors. The scope is to redistribute the energy sector's surplus revenues to final customers in order to mitigate the impact of high retail electricity prices. These proposals were specified in the extraordinary Council of EU Energy Ministers on September 30,¹⁰ while the approval of the relevant Regulation is expected in October. At the same time, discussion about creating a new benchmark for the price of natural gas that will link TTF to other indices, as well has already started.

9. European Commission, 2022. "Energy prices: Commission proposes emergency market intervention to reduce bills for Europeans", Press release, 14 September 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/ip_22_5489>.

10. European Commission, 2022. "Council agrees on emergency measures to reduce energy prices", Press release, 30 September 2022, Brussels, <<https://www.consilium.europa.eu/en/press/press-releases/2022/09/30/council-agrees-on-emergency-measures-to-reduce-energy-prices/>>.

The Council agreed on exceptional measures to reduce energy prices and, in particular (a) a voluntary overall reduction target of 10% of gross electricity consumption and a mandatory reduction target of 5% of the electricity consumption in peak hours, (b) a cap on the market revenues at €180/MWh for electricity generators that use the so-called inframarginal technologies to produce electricity and (c) a mandatory temporary solidarity contribution on taxable profits of businesses active in the crude petroleum, natural gas, coal, and refinery sectors, in the fiscal year starting in 2022 and/or 2023, which are above a 20% increase of the average yearly taxable profits since 2018. The measures will apply from 1 December 2022 to 31 December 2023, the reduction targets of energy consumption will be applicable until 31 March 2023 and the mandatory cap on market revenues until 30 June 2023.