

# **Addressing the energy crisis: Greece's performance and the utilization of funds**

Briefing note



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# Addressing the energy crisis: Greece's performance and the utilization of funds

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Cite as:

The Green Tank (2023) “Addressing the energy crisis: Greece’s performance and the utilization of funds”

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The unprecedented energy crisis that has been unfolding at least since mid-2021 has hit households and businesses in Greece, as well as the Greek economy as a whole. According to the International Energy Agency<sup>1</sup>, this is a fossil fuel crisis; it is directly linked to Europe's dependence on fossil gas, whose soaring prices skyrocketed following Russia's war against Ukraine, pushing up the cost of electricity to unimaginable heights.

In response to these developments, the Greek government, as well as other EU-27 governments, allocated significant financial resources to mitigate the effects of the crisis. At the same time, under the REPowerEU plan, developed to address the energy crisis, the European Union decided to set much higher targets regarding the reduction of fossil gas consumption by 2030, as compared to those of the pre-war 'fit for 55' package. Furthermore, the EU decided to take additional and more urgent measures to reduce gas use in view of this winter (2022-2023), aiming specifically at:

**Reducing overall gas consumption:** To ensure an adequate supply of fossil gas, under Regulation 2022/1369<sup>2</sup>, each EU-27 Member State was obliged to reduce its total consumption of fossil gas -regardless of origin- over the eight-month period of August 2022-March 2023 by at least 15% compared to a reference period. The latter was determined as either the average of the corresponding eight-month periods of the last five years (2017-2021) or the previous eight-month period alone (August 2021-March 2022) for Member States that during the past year increased their dependence on fossil gas by at least 8% compared to the five-year average -a condition that Greece fulfilled.

**Reducing gross electricity consumption:** In addition to reducing gas consumption, and in order to address the electricity price crisis, the European Union also decided that each Member State should take measures to reduce gross electricity consumption, both overall and during peak hours, thus reflecting its emphasis on energy savings as a means of addressing the energy crisis.

In particular, under Regulation 2022/1854<sup>3</sup>, "*Member States shall endeavor to implement measures to reduce their total monthly gross electricity consumption by 10 % compared to the average of gross electricity consumption in the corresponding months of the reference period*". The latter was defined as "*the period from 1 November to 31 March in the five consecutive years preceding the date of entry into force of this Regulation, starting with the period from 1 November 2017 to 31 March 2018*".

**Reducing gross electricity consumption during peak hours:** Regulation 2022/1854<sup>3</sup> included an additional target regarding peak hours. Specifically, each Member State was required to reduce daily gross electricity consumption during peak hours over the period December 2022 - March 2023 by 5% compared to a reference scenario. The latter would be determined by the Transmission System Operators of each Member State and could include

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<sup>1</sup> IEA, World Energy Outlook 2022, <https://bit.ly/3jipSK6>

<sup>2</sup>Council Regulation (EU) 2022/1369 of 5 August 2022 on coordinated demand-reduction measures for gas. <https://bit.ly/3HnISif>

<sup>3</sup>Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices <https://bit.ly/3HelMe4>

historical data from the reference period of the Regulation, namely, the past five years. The peak hours in Greece were set to be 18:00-21:00<sup>4</sup>. However, the reference scenario has yet to be formally defined.

The time-periods during which the emergency measures to reduce the use of fossil gas and limit electricity consumption -overall and during peak hours- were in force have now come to an end. It is, therefore, important to examine the country's performance in relation to these three obligations in conjunction with the financial resources that were funneled into the Greek economy to address the crisis.

This briefing note assesses Greece's performance with regard to the three aforementioned obligations; the analysis is based on data by national (Hellenic Gas Transmission System Operator SA, DESFA; Independent Power Transmission Operator S.A., IPTO) and European databases (Eurostat, ENTSO-e)<sup>5,6</sup>. Subsequently, the national funds collected from various sources are presented, along with the ways in which they were used.

## I. Fossil Gas Consumption

As Greece qualified for the derogation provided by Regulation 2022/1369 on gas demand reduction measures, the country's contractual obligation was to reduce its total fossil gas consumption during August 2022 - March 2023 by 15% *as compared to the previous eight-month period alone (August 2021 - March 2022)* rather than the corresponding five-year average.

In absolute terms and according to DESFA's data, with the previous year's period used as a reference for the calculation of the 15% cut, gas consumption during this eight-month reduction period should not have exceeded 40.98 TWh; if the reduction were to be calculated based on the five-year average, the consumption in the period August 2022 - March 2023 would have to be limited to 35.33 TWh. In other words, the derogation that the Greek government invoked immediately following the European Commission's announcement -a derogation eventually obtained- has led to a much looser commitment compared to most EU-27 Member States, increasing the allowed domestic consumption by 5.65 TWh.

Nevertheless, the country's performance during the entire eight-month implementation period (August 2022 - March 2023) far exceeded the bar set by the government (Figure 1). Specifically, Greece managed to restrict its eight-month consumption to 32.88 TWh, thus reducing it by 31.8% compared to the respective period of 2021 (more than double the contractual obligation) and by 20.9% (-8.69 TWh) compared to the 2017-2021 average. These findings prove that

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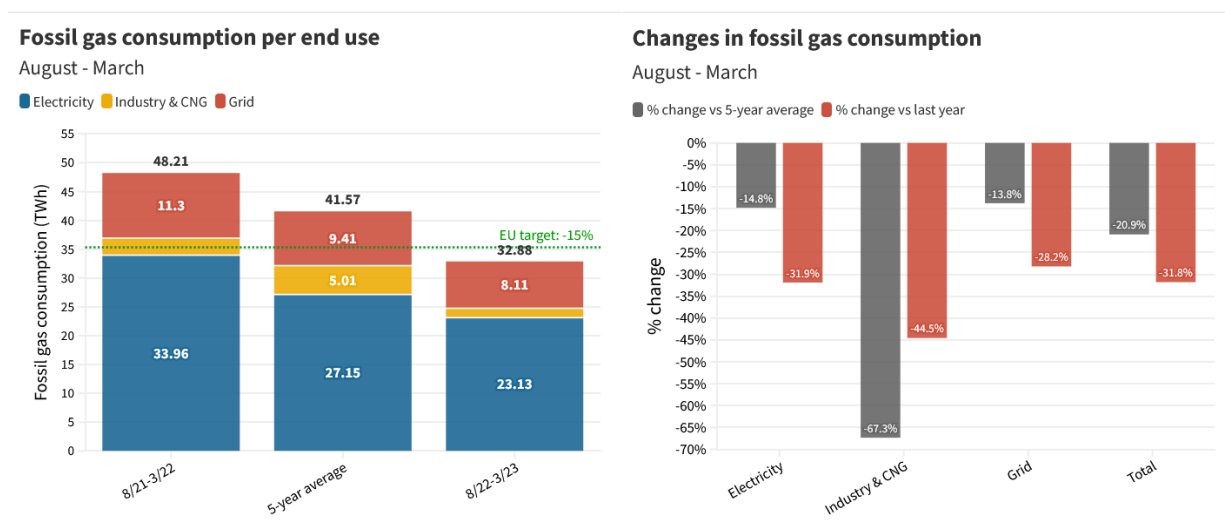
<sup>4</sup>Law no. 4001/2011 (article 143Z) and JMD of the Ministry of Finance and the Ministry of Environment and Energy ΥΠΕΝ/ΔΗΕ/135277/4706/20.12.2022 GG B 6649/23.12.2022 <https://bit.ly/3HMNWys>

<sup>5</sup>For more information on trends in electricity production, please see our monthly reports: [https://thegreentank.gr/trends\\_electricity\\_en/](https://thegreentank.gr/trends_electricity_en/)

<sup>6</sup>For more information on trends in domestic fossil gas consumption and imports, please see our monthly reports: <https://thegreentank.gr/gaswatch-en/>

Greece did not need to invoke any derogation in order to contribute to the common target to the same extent as most EU-27 Member States.

The end-use category that contributed most to this performance was electricity production, with consumption during the eight-month period of August 2022 - March 2023 decreasing by 4.02 TWh compared to the five-year average, followed by industry (-3.37 TWh) and distribution networks (-1.3 TWh). When compared to the same period of the previous year alone, the respective reductions were much larger for electricity production (-10.83 TWh) and distribution networks (-3.19 TWh) but not as significant for industry (-1.3 TWh).



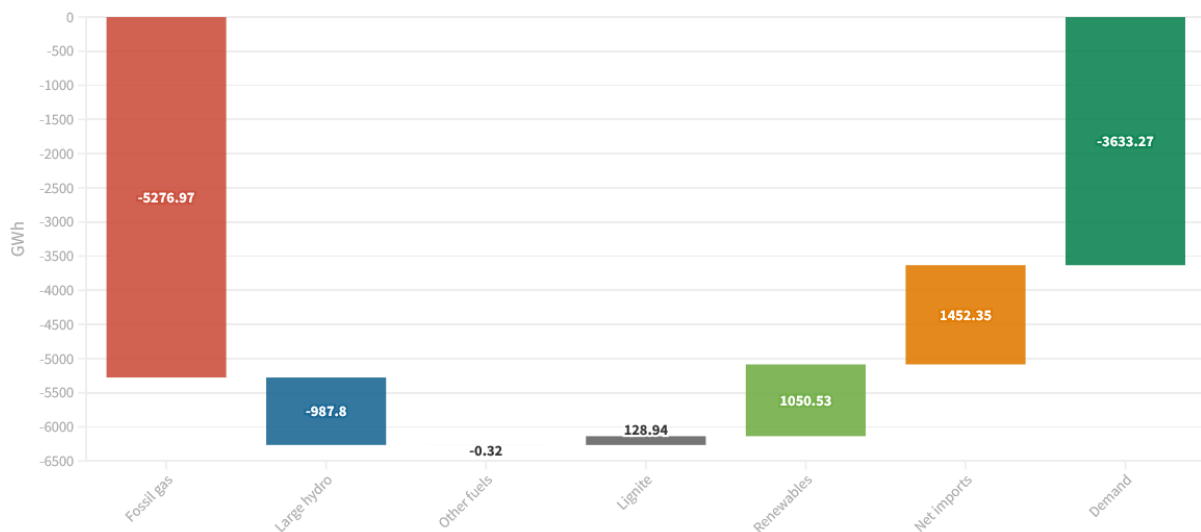
Source: DESFA

**Figure 1:** Fossil gas consumption (left) and respective rates of change (right), overall and by use category, during the eight months of August 2022 - March 2023, as compared to the same period of the previous year; the 2017-2021 five-year average; and the 15% reduction target compared to the five-year average set by the EU-27 (dotted line). Source: DESFA

In particular, the decrease in primary gas use for electricity production by 10.83 TWh (5.28 TWh in net electricity production) in the August 2022 - March 2023 eight-month period, as compared to the corresponding period of the previous year, was offset principally by the drop in demand in the interconnected grid (-3.63 TWh or -10.1%) and, secondly, by the increase in both electricity imports (+1.45 TWh or +75.8%) and RES (+1.05 TWh or +8.7%). On the contrary, despite administrative decisions and announcements on doubling lignite production, during the August 2022 - March 2023 eight-month period, lignite contributed merely an additional 0.13 TWh (+3.5%) - as compared to the same period of the previous year- to bridge the gap created by the slump in both fossil gas use (-35.3%) and output from large hydro (-0.99 TWh or -30.6%) (Figure 2).

## Changes in electricity demand coverage

August 2021-March 2022 vs August 2022-March 2023



Source: ADMIE

**Figure 2:** Change in covering electricity demand over the eight-month period of August 2022 - March 2023, as compared to the same period of the previous year. Source: ADMIE (Greek IPTO)

### ***Dependence on Russian fossil gas***

Following Russia's invasion of Ukraine, reducing dependence on fossil gas -especially of Russian origin- became a priority for the entire EU, constituting one of the key goals of the REPowerEU plan.

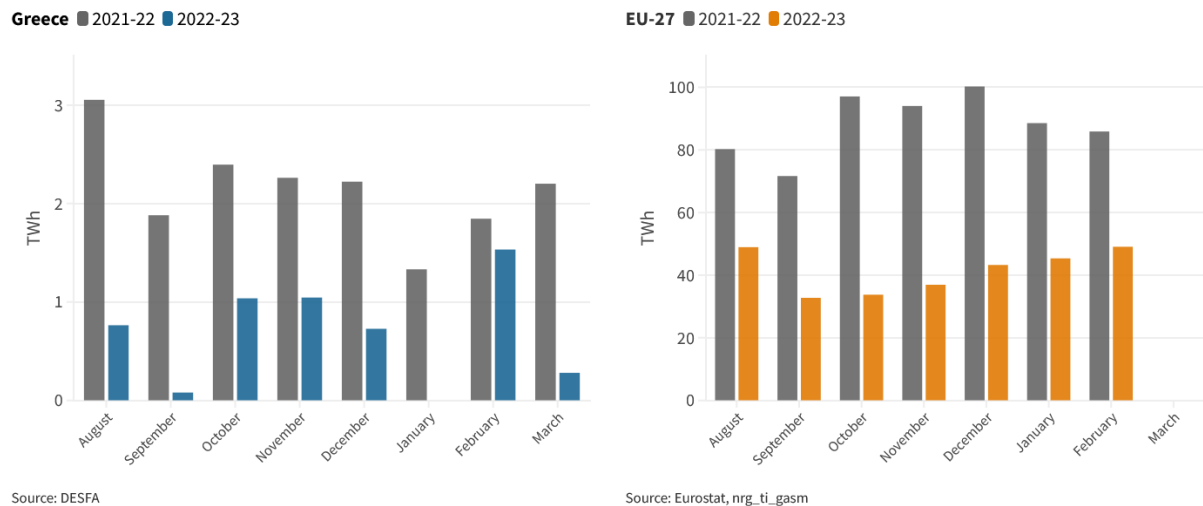
DESFA's data show that during the eight-month reduction period of total gas consumption set by the EU-27 (August 2022 - March 2023), Greece succeeded in reducing the Russian gas imported through the Sidirokastro gateway and used to meet domestic needs by 86.2%, compared to the same period of the previous year. Specifically, net imports from Russia through the Turkstream pipeline decreased from 17.2 TWh (35.59% share of total net imports)<sup>7</sup> during August 2021 - March 2022 to merely 2.38 TWh (7.25% share) during August 2022 - March 2023. In fact, in January 2022, Russian gas imports through the Sidirokastro gateway were literally nil (-100%), while every month of autumn 2022 (September-November) the corresponding reduction exceeded 95%.

It should however be noted that, according to DESFA and IPTO data, in October 2022, November 2022, and February 2023, Greece imported a greater quantity (3.09 TWh) of liquefied natural gas (LNG) from Russia via the Agia Triada gateway; part of this quantity was exported to neighboring countries. Adding up imports from Russia both via the Turkstream pipeline and in the form of LNG, the aforementioned share rises to 16.65% of total net imports in the August 2022 - March 2023 eight-month period. Moreover, compared to the previous year's respective eight-month period, the use of LNG and piped Russian fossil gas to meet domestic gas demand was reduced by 68.2%.

<sup>7</sup>Total imports minus exports from the Sidirokastro gateway

Greece’s performance was significantly better compared to the EU average. As the monthly data from Eurostat -updated until February 2023- show, over the seven-month period of August 2022 - February 2023, the EU-27 reduced its total imports of Russian gas, both via pipelines and in the form of LNG, by 53% compared to the previous year’s respective seven-month period; Greece’s corresponding reduction in the same seven-month period was 65.4%. The EU-27’s dependence on Russian gas would have been further reduced had Russian LNG imports not increased by 35.3% over the same period, accounting for a significant share of total Russian gas imports (34.8%).

### Imports from Russia



**Figure 3:** Monthly imports of Russian gas delivered via pipeline and in the form of LNG in Greece (left) and in the EU-27 (right). Sources: DESFA; Eurostat

## II. Total Electricity Consumption

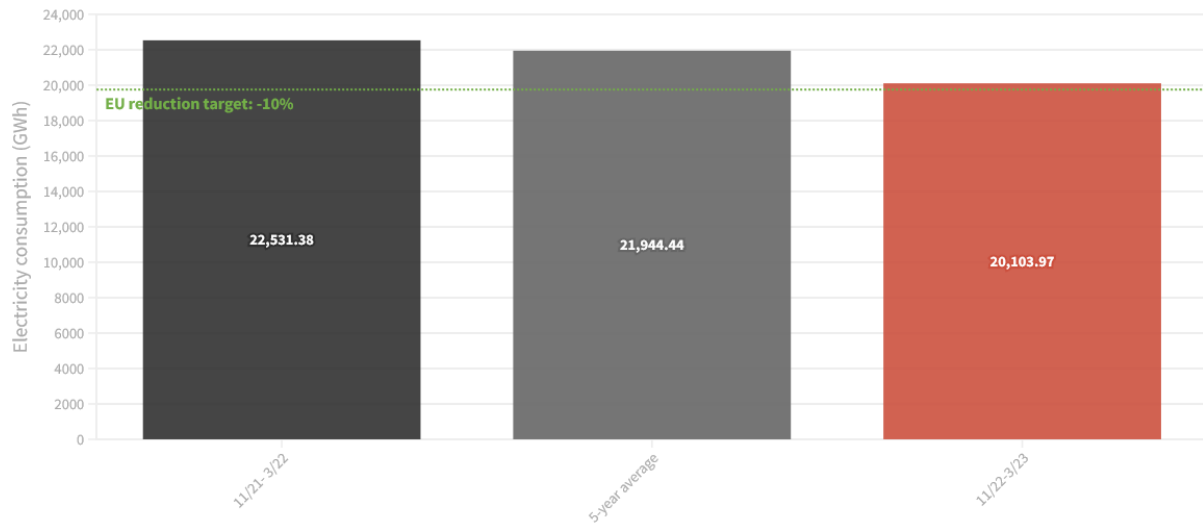
EU’s target of cutting monthly gross electricity consumption by 10%, as compared to the 2017-2021 five-year period average, is evaluated next. Below, we present cumulative data for the entire five-month period (November 2022-March 2023), based on IPTO’s data on the interconnected grid.

In November 2022, the first month that the measure was implemented, Greece approached the target, lowering consumption by 8.16% compared to the five-year average. In both December 2022 and January 2023, this performance improved considerably and the country exceeded the target, as consumption was reduced by 10.87% and 12.14%, respectively. However, February proved to be the worst month of the examined period, with Greece recording merely a 2.63% cut compared to the five-year average; furthermore, in March the country again fell short of the -10% target, recording a decline of 7.37%.

Thus, cumulatively for the November 2022 - March 2023 five-month period and taking into account the interconnected grid alone, Greece failed to meet the target set by the EU-27, as its electricity consumption was reduced by 8.39% compared to the five-year average (Figure 4). Nonetheless, over the entire eight-month period of fossil gas consumption reduction (August 2022 - March 2023), the decrease in electricity consumption exceeded 10% (-10.1%).

### Total electricity consumption

November 2022 - March 2023



Source: ADMIE

**Figure 4:** Cumulative gross electricity consumption during November 2022 - March 2023 and comparison with consumption during the previous year's respective period; the five-year average; and the European target of -10%. Source: IPTO

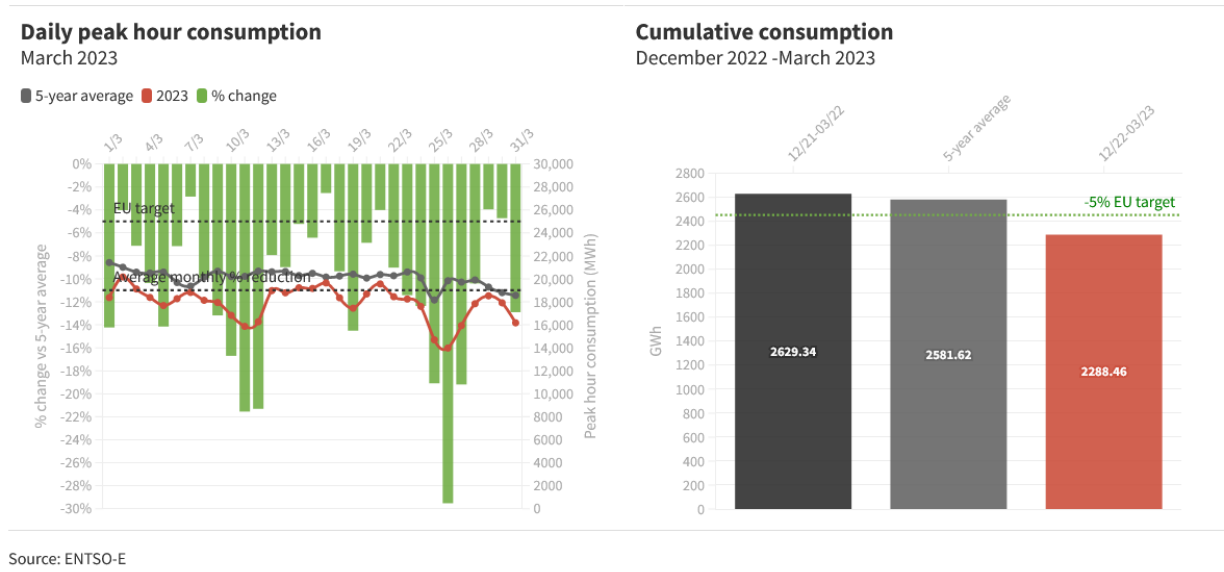
### III. Electricity consumption during peak hours

Subsequently, we assessed the country's progress towards achieving a 5% cut in daily electricity consumption during peak hours (18:00 to 21:00, as set by Greece). The reference scenario on the basis of which the reduction was calculated has yet to be determined; thus, the electricity consumption in the interconnected grid during the peak hours of each day of the December 2022 - March 2023 period -namely, of the entire period of implementation of the Regulation's relevant provision- was compared with the average consumption during the same peak hours of the respective days of the past five years (2017-2021). The calculations were based on ENTSO-e hourly data.

The results (Figure 5) show that during the entire four-month period of the measure, Greece reduced its aggregate peak-hour consumption by 11.4% compared to the five-year average. The best performance was observed in January 2023 with -14.5%, followed by December 2022 and March 2023 with -13.7% and -11%, respectively; the worst performance was noted in February 2023 with a -5.5% decline in peak-hour consumption. Despite exceeding the target both on average each month of the reduction period and overall, on 23 individual days out of the total of 121 of the four-month period (19%) the -5% target was not met, specifically 2 days in January, 15 days in February and 6 days in March.



## Electricity consumption during peak hours: 18.00-21.00



**Figure 5:** Daily electricity consumption during peak hours 18.00-21.00 (left) and cumulatively for the month of March 2023 (left) and comparison of the cumulative performance over the entire four-month period of the measure (December 2022-March 2023) with the corresponding five-year average and the respective period of the previous year (right). Source: ENTSO-e

## IV. Financial resources

As the global economy was on its way to recover from the pandemic crisis, the fossil gas supply prices started to rise as a result of an increase in demand. This crisis, which spilled over the electricity market, was exacerbated after Russia's invasion of Ukraine, affecting both households and enterprises. In an effort to offset its consequences, the Greek government established the new Energy Transition Fund (ETF)<sup>8</sup>, to which large amounts were channeled through various mechanisms and sources, including the state budget. Distinct, additional resources from the state budget were also directly used for crisis relief.

### Revenues used to address the energy crisis

By the end of 2022, nearly €10.7 billion were raised for the implementation of measures to address the energy crisis (Table 1). Each source of funding is detailed separately below.

**Table 1:** Revenue sources to address the energy crisis (September 2021-December 2022)

Mechanism/source	(€) million
Temporary Mechanism for Partial Returns of Day-Ahead and Intraday Market Revenues (7/2022-12/2022)	2889
Emission Trading System (ETS) (2021 & 2022)	1776
Contribution from the state budget to the ETF	1600
Special Account for RES (ELAPE)	1100

<sup>8</sup> Law no. 4839/2021 (Article 61) GG A 181/02.10.2021

Special Utility Account (YKO)	400
Extraordinary levy on electricity producers (10/2021-6/2022)	367
Extraordinary levy on fossil gas producers 10€/MWh (11-12/2022)	57.7
<b>Subtotal (ETF)</b>	8196
State budget (excluding ETF) and Public Investment Program	2500
<b>Total</b>	<b>10689.7</b>

**Revenues from the Emissions Trading Scheme - ETS:** The first source of revenue used to mitigate the effects of the energy crisis involved the public revenues from the auctioning of emission allowances under the Emissions Trading System (ETS) that are allocated to Greece, similar to every EU member state. The ETS collects revenues generated by the sale of emission allowances to plants and companies included in the scheme, namely electricity and heat production plants, energy-intensive industries, and aviation within the European Economic Area (EEA).

These public revenues, which have been particularly high in the last three years due to high carbon prices, are distributed each year to different beneficiaries in Greece according to a Decision by the Ministry of Environment and Energy. Based on the decisions issued for the years 2021-2023, approximately 3/4 of Greece's ETS revenues were allocated to the Energy Transition Fund, namely 73.86% for 2021<sup>9</sup> and 77.275% for 2022<sup>10</sup> and 2023<sup>11</sup>. The funds corresponding to these percentages amount to €749 million in 2021 and €1027 million in 2022, while for 2023 they are estimated at approximately €1296 million.

It should be noted that under the current EU ETS Directive<sup>12</sup>, at least 50% of each Member State's revenues from the trade of emission allowances must be used for climate action. The most recent revision increased this share to 100%, starting in 2024<sup>13</sup>. Nevertheless, the Directive allows the utilization of funds to financially support low- and middle-income households, which is aligned with the ETF's intended purpose.

**Mechanisms to recover part of the revenues of electricity producers:** This category includes two different mechanisms put in place to constrain windfall profits that were generated for certain categories of electricity producers as a result of high fossil gas prices combined with the manner in which the electricity market operates. In particular:

A) The extraordinary, retroactive tax on electricity producers, equal to 90% of their increased - compared to the previous year- profit. The measure was implemented from October 2021 until June 2022 under Law no. 4936/2022<sup>14</sup> and the relevant Joint Ministerial Decision<sup>15</sup>, yielding €367 million<sup>16</sup>.

<sup>9</sup> GG B/6295/08.02.2023

<sup>10</sup> GG B/ 5404 / 19.10.2022

<sup>11</sup> GG B/603/08.02.2023

<sup>12</sup> Directive 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814. <https://tinyurl.com/2018-410>

<sup>13</sup> Council of the European Union, Brussels 8.2.2023 6210/23, Provisional agreement on the EU ETS <https://bit.ly/3MpaOq3>

<sup>14</sup> Law no. 4936/2022 (article 37) GG A 105/27.05/2022

B) The Temporary Mechanism for the Partial Return of Day-Ahead and Intraday Market Revenues, known as “the cap” measure. Implemented during July 2022 - June 2023, this mechanism retains a portion of electricity producers' revenues that exceed an upper limit (the cap). The latter is determined each month for each electricity production technology based on fossil fuels (lignite and fossil gas) under the provisions of the relevant law<sup>17</sup>, while with regard to renewables and hydroelectricity, the cap remains fixed. According to data published daily by the Energy Regulatory Authority (RAE)<sup>18</sup>, since the implementation of the measure on 8 July 2022 and until the end of 2022, this mechanism has yielded a total of €2.889 million to the ETF. The largest part of this sum (61.7%) came from Renewable Energy Sources (RES), while the rest was obtained from lignite-fired plants (16.7%), large hydropower plants (12.4%) and fossil gas-fired plants (9.2%).

**Transfers from the Special Account for Renewable Energy Sources (ELAPE):** Before the establishment of the "cap" measure, through which RES contributed €1783 million to the ETF from July 2022 until the end of the year, clean energy financed the ETF with an additional €1100 million through the Special Account for Renewable Energy Sources (ELAPE), namely the account from which RES producers are paid for the electricity they contribute. Specifically, €780 million were transferred in May 2022<sup>19</sup>, while €320 million were deposited in September 2022<sup>20</sup>.

**Transfers from the Special Utility Account:** In 2022, the ETF received a total of €400 million - €300 million in August<sup>21</sup> and €100 million in November<sup>22</sup>- from the Special Utility account, namely the account that compensates for the extra cost of electricity production on non-interconnected islands, while also subsidizing part of the electricity supply costs for financially vulnerable groups and large families.

**Extraordinary levy on fossil gas producers:** To further strengthen the ETF, Law no. 4986/2022<sup>23</sup> provided for an extraordinary tax of €10 per megawatt hour (MWh) used for electricity production by fossil gas plants. Combined Heat and Power plants (CHP) that have concluded an Operational Support Contract or a contract for the sale of electricity were exempted. In 2022, the measure was only implemented in November and December. Using DESFA's data on gas use by fossil gas-fired electricity production plants for these two months, it is estimated that this measure yielded €57.7 million by the end of 2022.

**State Budget and Public Investment Program:** In addition to the above, the ETF was also separately financed by the state budget. According to the budget implementation data of the

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<sup>15</sup> GG B/4658/05.09.2022 <https://bit.ly/3feLRet>

<sup>16</sup> Decision to disburse funds to the ETF, ΥΠΕΝ/ΔΟΙΚΑ/16573/1240, <https://bit.ly/3yzyu39>

<sup>17</sup> Law no. 4951/2022 (article 138), GG A 129/04.07.2022 <https://bit.ly/3pInSOi>

<sup>18</sup>RAE, Daily information on the implementation of the Temporary Mechanism for the Partial Return of Day-Ahead and Intraday Market Revenues <https://bit.ly/3M3uhLh>

<sup>19</sup> GG B/1101/11.03.2022

<sup>20</sup> GG B/ 3476/05.07.2022

<sup>21</sup> GG B/4266/11.08.2022

<sup>22</sup> GG B/6166/05.12.2022

<sup>23</sup> Law no. 4986/2022 (article 62) GG A 204/28.10.2022 <https://bit.ly/3OdEMOR>

Ministry of Environment and Energy<sup>24</sup>, a total of €1600 million of the state budget was channeled to the ETF, namely €150 million in August<sup>25</sup>, €850 million in September<sup>26</sup> and €600 million in October 2022<sup>27</sup>. In addition, according to the 2023 preliminary State Budget Report, €2488 million of the regular budget and €12 million of the Public Investment Program were directly allocated to crisis response measures<sup>28</sup>. Thus, together with the amount channeled to the ETF, over the period September 2021-December 2022, the state budget and the Public Investment Program contributed a total of €4100 million towards crisis relief.

### ***Utilization of resources to respond to the crisis***

The funds raised financed the implementation of measures to address the energy crisis and were channeled to various beneficiaries, both citizens and enterprises. According to the preliminary State Budget Report for 2023<sup>28</sup>, the €10.7 billion were channeled primarily into crisis relief interventions of a "subsidy" nature, which can be grouped into the following three categories:

- *Direct subsidies* totaling €9,783 million, such as electricity and fossil gas consumption allowances to households and businesses; the subsidy of 80% of the increase in electricity costs applied to rural power supplies for the period August - December 2021; the increase in the heating allowance; the subsidy provided to farmers for the increased cost of animal feed; the inclusion of animal feed transportation into the transport equivalent, especially in Crete; the increase in the subsidy for animal feed transportation to the small islands of the Aegean; the coverage of electricity and fuel costs incurred by general government bodies; the prepaid card issued to households for the purchase of motor fuel (fuel pass); the subsidy for motor oil (12 cents per liter); the reimbursement of 60% of the increase in electricity costs for the primary residence of households with an income of up to €45,000 (power pass); the subsidy granted to farmers for the increased cost of fertilizers; and the subsidy for heating oil (20 cents per liter)
- *Income subsidies* totaling €821 million, such as the distribution of €200 in April 2022 and €250 in December 2022 to pensioners with a monthly income of up to €600 and €800, respectively, as well as to 35,000 uninsured senior citizens, beneficiaries of the Organization of Welfare Benefits and Social Solidarity (OPEKA) and to 172,000 recipients of disability benefits. Other subsidies, such as the double instalment of minimum guaranteed income in April 2022 and December 2022 to 225,000 beneficiaries; the one and a half extra monthly instalment of OPEKA's child allowance in April 2022 and December 2022 to 800,000 beneficiaries; the €200 aid to taxi drivers in April due to increased fuel prices; and the €250 subsidy in December 2022 to 100,000 long-term unemployed.
- *Tax reliefs* totaling €102 million, such as the refund of excise duty on diesel fuel to farmers and the reduction of VAT on animal feed and fertilizers from 13% to 6%.

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<sup>24</sup>Ministry of Environment and Energy, State Budget implementation data (1/1/2022 έως 31/12/2022), <https://bit.ly/4087S5c>

<sup>25</sup> Ministry of Environment and Energy, OPN: ΩΔ7Υ4653Π8-Υ2Α <https://bit.ly/31eq9Hw>

<sup>26</sup> Ministry of Environment and Energy, OPN: ΨΚΧ34653Π8-50Θ

<sup>27</sup> Ministry of Environment and Energy, OPN: ΨΥΧΞ4653Π8-ΥΗΝ

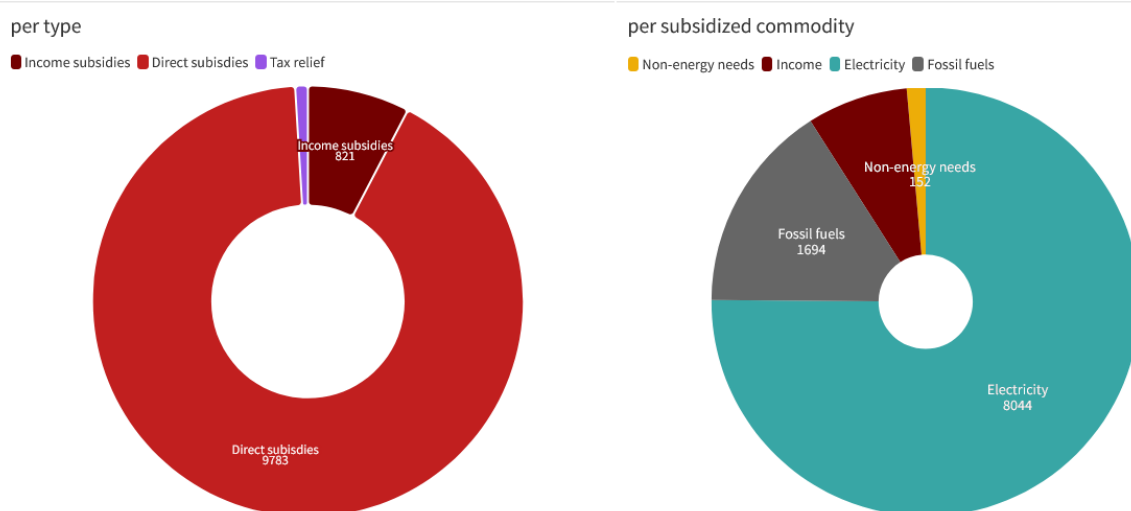
<sup>28</sup> Ministry of Finance, November 2022, Preliminary Budget Report 2023 <https://bit.ly/455Qpxu>

The utilization of resources can also be classified according to the needs they addressed. Funds were dedicated to:

- cover the cost of electricity consumption (€8044 million),
- cover the cost of consumption of fossil fuels mainly for heating and transportation needs (€1694 million),
- meet the non-energy needs of farmers and stockbreeders (€152 million). This expenditure relates to VAT reductions on animal feed and fertilizers; subsidies to farmers for the increased cost of animal feed; subsidies to farmers for the increased cost of fertilizers; and subsidies for the transport of animal feed to Crete and to small islands in the Aegean Sea.
- provide strictly income support (€816 million)<sup>29</sup>.

The above classifications of expenditure totaling €10.7 billion towards crisis relief from September 2021 to December 2022 are illustrated in the figure below.

#### Expenditure to address energy crisis



Source: State budget report 2023

**Figure 6:** Budgetary expenditure to address the energy crisis by expenditure type (left) and by subsidized commodity (right), according to the data of the preliminary State Budget Report.

These interventions served to mitigate the impact of the crisis on households, businesses and specific professional and population groups. Nevertheless, they did not contribute to the permanent decoupling from fossil fuels, which had triggered the crisis in the first place; thus, they did not have a lasting impact on reducing energy bills.

#### Other resources and expenditure

<sup>29</sup>The amount of €816 million is obtained by deducting the €5 million which were paid to taxi drivers in April due to increased fuel prices from the €821 million dedicated to income support under the previous classification by type of expenditure. In the present classification (type of commodity supported), this amount is considered to have supported the consumption of fossil fuels.

While the €10.7 billion of national funds were dedicated exclusively to "subsidies", EU funds were invested in projects aimed at permanently reducing carbon footprint and, consequently, the energy bills of citizens and businesses.

In particular, through the "Recycle - Change Appliance" program, the replacement of old energy-intensive household appliances with new more efficient ones was subsidized, along with the subsequent recycling of older appliances, with the aim to save energy (on average 1 MWh per household per year) and, in turn, reduce both household costs and greenhouse gas emissions. According to Article 61 of Law no. 4839/2021, this program was among the eligible expenditures of the ETF; nonetheless, its financing -finally amounting to €286 million in 2022<sup>30</sup> utilized by nearly 380,000 households- was provided by the European Regional Development Fund (ERDF) and national funding through the "Transport Infrastructures, Environment and Sustainable Development" Operational Program.

In addition, during the crisis, €1.138 billion<sup>31</sup> was invested in the energy efficiency upgrading of 87,578 households through the 6<sup>th</sup> "Economise" program; of these resources, €201.8 million were allocated to 14,246 financially disadvantaged households<sup>32</sup>. Financed by the Recovery and Resilience Fund, the "Economise 2021" program aims to improve the energy rating of households by at least 3 energy classes, saving more than 30% of primary energy.

## Conclusions

The findings of this analysis indicate that **Greece met two out of three of its obligations** under the two extraordinary Regulations adopted in August and October 2022, respectively. In particular, the country has been able to achieve:

- **a 20.9% reduction** in total fossil gas consumption during the August 2022 - March 2023 eight-month period, as compared to the five-year average, thus exceeding the -15% target set by the EU.
- **an 86.2% reduction** in dependence on imported -via the Turkstream pipeline- Russian gas used to meet domestic demand over the August 2022-March 2023 eight-month period. Taking into account Russian LNG imports as well, the decrease in total Russian gas imports used to meet part of domestic demand dropped to 65.4% over the seven-month period August 2022-February 2023; this still constitutes a significantly better performance than the corresponding EU-27 average (-53%).

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<sup>30</sup>GG B/6442/16.12.2022 ΥΠΕΝ/ΕΣΠΑΕΝ/133395/2162 "Amendment (3rd) of the decision no. ΥΠΕΝ/ΕΣΠΑΕΝ/61929/864/17.06.2022 of the Minister of Environment and Energy entitled "Announcement of the "Recycle - Change Appliance" program to be implemented under the NSRF 2014-2020" (B 3099)" <https://bit.ly/3Mv6s0o>

<sup>31</sup>GG B/5111/30.09.2022 ΥΠΕΝ/ΕΣΠΑΕΝ/98728/1508 "Amendment (4th) of the JMD no. ΥΠΕΝ/ΕΣΠΑΕΝ/118225/2849/10.12.2021 of the Deputy Minister of Finance, the Deputy Minister of Development and Investment and the Minister of Environment and Energy, entitled "Announcement of the "Economise 2021" program, to be implemented under the Recovery and Resilience Fund (B 5778)" <https://bit.ly/3WvEL19>

<sup>32</sup> Ministry of Environment and Energy, Press Release 28.04.2022 "Record-breaking participation in the 'Economise 2021' program" <https://bit.ly/3Ikeyqd>

- **an 8.4% reduction** in electricity demand on the interconnected grid -as compared to the five-year average- in the November 2022-March 2023 five-month period, during which the relevant EU Regulation applied; the latter set a target of a 10% reduction for every month of the period compared to the previous five-year average. Despite failing to meet the target for the entire five-month period, Greece exceeded the -10% threshold in December 2022 (-10.9%) and January 2023 (-12.1%), while the reduction in total consumption was lower in the remaining three months.
- **an 11.4% decrease** in electricity consumption on the interconnected grid during all peak hours (18:00 to 21:00) over the four-month period of measure implementation (December 2022 to March 2023) compared to the five-year average. Despite exceeding the target in each of the four months and across the entire reduction period, the -5% target was not met on 23 individual days out of the total of 121 (19%), namely, on 2 days in January, 15 days in February and 6 days in March.

In addition, between September 2021 and December 2022 **Greece raised €10.7 billion from different sources and channeled them into crisis relief measures**. Of these, €9,783 million directly subsidized electricity and gas bills, €821 million directly supported the income of various citizen groups, while the remaining €102 million represented tax reliefs.

This impressive concentration of funds and their channeling into society and the economy in a very short period of time largely compensated for the effects of the crisis, mitigating the consequences of price surges on consumers. In this respect, these resources had an immediate impact. In the long term, however, they do not protect consumers from a subsequent price spike, as they did not reduce their fossil fuel dependence, which was the root cause of the energy price crisis. In contrast, **the more modest EU funds totaling €1.424 billion** provided by the European Regional Development Fund and the Recovery and Resilience Fund were utilized to achieve longer-term objectives; through the “Recycle and Change Appliance” and the “Economise 2021” programs, these resources financed efforts to reduce households' overall energy consumption, and, consequently, consumer vulnerability to price volatility in the long term.

The above findings combined demonstrate that Greece has great potential to reduce its carbon footprint, while protecting households and businesses from the energy crisis. This is especially true if the substantial resources available to the Greek State are channeled in the future into projects and actions that promote the decoupling from fossil fuels on a permanent basis -rather than being used to maintain a policy of subsidizing fossil fuel-based energy consumption.