



Direção-Geral
de Energia e Geologia

Reporting on Gas Demand Reduction (October 2023 – November 2023)

pursuant to article 8 (1) of Council Regulation (EU) 2022/1369

Portugal, December 2023

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1. INTRODUCTION

Following the Russian invasion of Ukraine, in February 2022, the European Commission presented a set of instruments and measures to mitigate the weight of Russian fossil fuel supplies to Member States and to increase the security of energy supply in the EU.

The adopted measures include:

- Regulation (EU) 2022/1032 of 29 June 2022, on gas storage, which introduces targets and trajectories for underground gas storage facilities, seeking to ensure that European Union increases its level of preparedness, in particular to face the winter period. Subsequently, and to strengthen the mechanisms for action at Union level.
- Council Regulation (EU) 2022/1369 of 5 August 2022, on coordinated demand-reduction measures for gas, was adopted, establishing rules to address a situation of severe difficulties in the supply of gas, with a view to safeguarding Union security of gas supply, in a spirit of solidarity.
- Council Regulation (EU) 2022/1854 of 6 October 2022, on an emergency intervention to address high energy prices was adopted to mitigate the effects of high energy prices through exceptional, targeted and time-limited measures.
- Council Regulation (EU) 2022/2576 of 19 December 2022, enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchanges of gas across borders, including the implementation of a platform that will allow for demand aggregation and joint gas purchasing.
- Council Regulation (EU) 2022/2577 of 22 December 2022, laying down a framework to accelerate the deployment of renewable energy with a particular focus on specific renewable energy technologies or types of projects which are capable of achieving a short-term acceleration of the pace of deployment of renewables in the Union.
- Council Regulation (EU) 2022/2578 of 22 December 2022, establishing a market correction mechanism to limit episodes of excessively high gas prices in the Union which do not reflect world market prices and protect Union citizens and the economy against excessively high prices.

The Council Regulation (EU) 2022/1369 of 5 August 2022, defines a set of rules, namely a voluntary reduction of gas demand of at least by 15% compared to the average gas consumption during the five consecutive preceding years in the same period. The results achieved by the Union in the winter of 2022-2023 were positive and the joint effort made during that period allows to start this new period in a safer and better prepared way. However, despite the extremely positive results it is important to reaffirm that the effort must continue.

With this in mind, the Council Regulation (EU) 2023/706 of 30 March 2023 amending Council Regulation (EU) 2022/1369 was approved, extending the measures to reduce gas consumption by 15% for another twelve months, until 31 March 2024. Accordingly, the reference period has been changed to a full year, from April to March.

More recently, by the end of November, aiming to further enhance security of gas supply and strengthen market resilience, the Commission, proposed the prolongation of several emergency measures introduced in December 2022. The proposed option, that must be approved by the Council,



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seeks to prolong by one year the period of application of Council Regulations 2022/2576, 2022/2577 and 2022/2578.

In accordance with the provisions of Article 8(1) of the Council Regulation (EU) 2022/1369 of 5 August 2022, amended by Council Regulation (EU) 2023/706 of 30 March 2023, **the present document is the fourth report on the reduction of gas consumption achieved by Portugal for the new assessment period from 1 April 2023 to 31 March 2024. On this report, maintaining the coherence with previous reports, there is also a chapter where some data related to preparedness to face the winter period is described.**

Directorate General for Energy and Geology is the National Competent Authority on energy security of supply issues, and as such it is the national entity responsible for monitoring and reporting the implementation of Council Regulation (EU) 2022/1369.

2. ASSUMPTIONS

Reference gas consumption

The “reference gas consumption”, as defined in Council Regulation (EU) 2022/1369 of 5 August 2022, amended by Council Regulation (EU) 2023/706 of 30 March 2023, means the volume of a Member State’s **average gas consumption during the periods from 1 April to 31 March during the five consecutive preceding years, starting with the period from 1 April 2017 to 31 March 2018.**

The data for Portugal is presented in table 1. Considering the available data, disaggregation is made of overall consumption, considering the consumption of “dedicated power plants (CCGT)” and “other uses”. “Other uses” include the consumption of industry, households and services (including public administration) sectors.

This division is justified by the periodicity of the reports, as defined in Council Regulation (EU) 2022/1369, since a greater disaggregation is only possible with annual data, and in the context of the provision of statistical information to the competent authorities. Furthermore, this disaggregation is important to highlight the weight of the power sector gas demand on overall demand, considering the well-known specificities of the Portuguese weather/climate conditions, National Electricity System functioning and the electricity mix.

TABLE 1 – REFERENCE GAS CONSUMPTION

**Monitoring on the implementation of the demand-reduction measures
Council Regulation (EU) 2022/1369 of 5 August 2022**

Period From April to March

Natural Gas consumption TJ	Apr/17- Mar/18	Apr/18- Mar/19	Apr/19- Mar/20	Apr/20- Mar/21	Apr/21- Mar/22	reference gas consumption Apr- Mar
Overall consumption	246 677	229 753	254 199	231 849	234 326	239 361
Dedicated power plants (CCGT)	96 773	71 826	97 304	81 062	96 451	88 683
Other uses	149 904	157 927	156 896	150 787	137 875	150 678

Note:

2021, 2022 and 2023 data are provisional

It was not accounted on the reference gas consumption the rule predicted in §5 of Article 5

An effort has been made to allow for greater disaggregation of the information, seeking to respond to the breakdown of gas consumption by sectors listed in the new wording of Article 8(1). **However, until this is possible, and seeking to maintain the comparability of data with those previously provided, the structure referred to above is maintained.**

Derogations

In accordance with Article 5 (9) of the Council Regulation (EU) 2022/1369 of 5 August 2022, although the Union's Alert State has not been declared, Portugal notified the European Commission (letter of

12th September of 2022) of evidence pertaining to the applicability to Portugal of derogations under paragraphs 5 and 7 of article 5.

Limit to the reference gas consumption associated to gas storage volume (Article 5 (5)):

- In the framework of the application of Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022, Portugal communicated the filling level of gas in Carriço's underground storage facility which, on 1 August 2022, was 107% (= 3827,1 GWh) exceeding the filling target of 72% (by 1 256,7 GWh).

In accordance with Article 5 (5) of the Council Regulation (EU) 2022/1369 of 5 August 2022, if a Union alert is declared, 1 256,7 GWh or 4 524 TJ will be deducted to the reference value, shown in Table 1 above.

Derogation associated to Interconnection capacity limitations (Article 5 (7)):

- Portugal has a firm technical export capacity of 45,7% compared to 2021 total gas consumption.
- The capacity of interconnections with Spain does not reach 90%, due to lack of demand. However, the capacity is maximized, according to article 6 of Commission Regulation (EU) 2017/459 of 16 March 2017.
- Sines LNG facilities are commercially and technically ready to re-direct gas to other Member States. To increase its capacity several infrastructure reinforcement investments have been approved (nr. 8 of the Council of Ministers Resolution No. 82/2022 of 27 September¹).

Portugal is still waiting for the assessment/opinion of the Commission on the notification submitted, but, in case of Union alert declaration, understands that the mandatory demand reduction target is 7%, instead of 15%.

¹ <https://dre.pt/dre/detalhe/resolucao-conselho-ministros/82-2022-201509699>

3. MEASURES TO SAFEGUARD SECURITY OF GAS SUPPLY

Portugal has been closely monitoring the developments in the energy price situation and has sought to implement measures to mitigate its effects, taking into consideration the specific functioning and characteristics of its gas system, as well as its electricity system.

3.1. Measures to reduce gas demand

The Council of Ministers Resolution No. 82/2022, of 27 September, approved the Portuguese Energy Saving Plan 2022-2023 (PPE). This plan has foreseen mechanisms for periodic monitoring of the evolution of gas consumption and, if necessary, proposals for changing the measures adopted shall be presented. The measures are mandatory for the central public administration and recommended for all of the other sectors. In the event of a Union alert being declared, the PPE becomes mandatory for all sectors and may include exceptional measures.

Some of the plan's most relevant actions, due to the lasting impact they may have on consumption reduction, include training and capacity building, and communication and awareness raising.

- **Training and capacity building actions**

The PPE includes the implementation of training and capacity building actions, including training of public servants for the implementation, promotion and monitoring for resource efficiency measures, training and/or capacity building to enhance energy efficiency, and training and/or capacity building to enhance water efficiency.

By the end of November 2023, 75 actions were carried out, covering about 1 769 people.

- **Communication and awareness raising actions**

The PPE foresees the development of communication and awareness campaigns for different target audiences as pivotal agents for the reduction of energy consumption. Communication and awareness raising actions are planned for the adoption of more efficient behaviours aiming at reducing energy and water consumption. These are being carried out through the media, social networks, the “Rota da Energia” (*Energy Route*) initiative, among others, involving municipalities and parishes, signatories of the Sectoral Pacts, and other entities.

A national communication campaign through social platforms was carried out at the end of the first quarter of 2023. This campaign had a very significant impact on the scope of communication actions. The national communication campaign continued throughout the year on various media and platforms, seeking to reach a significant number of participants.

These actions, as well as those in the context of training and capacity building, began prior to the approval of the plan. **By the end of November 2023, 210 actions had been carried out, reaching approximately 2 789 746 people.**

TABLE 2 – TRAINING AND CAPACITY BUILDING AND COMMUNICATION AND AWARENESS RAISING ACTIONS

Month	Number of actions		Pax involved	
	Training and capacity building	Communication and awareness raising	Training and capacity building	Communication and awareness raising
Subtotal 2022	21	84	1 016	22 910
Jan/23 to Mar/23	22	49	341	1 933 493
Apr/23	3	12	49	816 579
May/23	9	11	113	585
Jun/23	3	9	59	1 440
Jul/23	0	3	0	447
Aug/23	0	5	0	3 259
Sep/23	6	10	59	2 245
Oct/23	5	12	58	6 608
Nov/23	6	15	74	2 180
Subtotal 2023	54	126	753	2 766 836
TOTAL	75	210	1 769	2 789 746

Source: ADENE

Although the savings associated with the implementation of the communication and awareness raising measures have not yet been quantified, it is expected that they will have a relevant and long-lasting impact on the pursuing of the objectives set out in the PPE.

The website dedicated to the PPE can be consulted in <https://planopoupancaenergia.pt/> and is updated regularly during its implementation.

3.2. Measures to improve preparedness

As noted above, issues associated with security of gas supply are interconnected through multiple regulations and obligations. Within the scope of Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022, Portugal has been communicating the evolution of the filling level of its storage facilities. The following tables show the evolution of the filling level of gas in Carriço's underground storage facility, as well as in Sines LNG Terminal, since October 2023.

TABLE 3 – FILLING LEVEL OF CARRIÇO UGS

Date	UGS Physical Quantity ⁽¹⁾ (GWh)	UGS Commercial Capacity (GWh)	UGS Filling Level (%)
1 Oct 2023	3 474,9	3 570,0	97
1 Nov 2023	3 825,4	3 570,0	107
1 Dec 2023	3 716,8	3 570,0	104

(1) UGS filling level including balancing stock

TABLE 4 – FILLING LEVEL OF SINES LNG TERMINAL

Date	LNGT Physical Quantity ⁽²⁾ (GWh)	LNGT Commercial Capacity (GWh)	LNGT Filling Level (%)
1 Oct 2023	627,1	2 666,0	24
1 Nov 2023	2 086,7	2 666,0	78
1 Dec 2023	1 164,2	2 666,0	44

(2) LNGT commercial capacity, excluding dead-stock

The Commission Implementing Regulation (EU) 2022/2301 of 23 November 2022 sets the filling trajectories and the intermediate targets for 2023 aiming to achieve the objective of 90% filling level in November 2023. In the table below it is possible to see that Portugal has maintained storage levels above the values set for each intermediate target.

TABLE 5 – FILLING TRAJECTORY OF UGS FOR 2023

	1 Feb 2023	1 May 2023	1 July 2023	1 Sept 2023	1 Nov 2023
Filling Trajectory	70%	70%	80%	80%	90%
Filling Values	109%	107%	92%	103%	107%

It was published the Commission Implementing Regulation (EU) 2023/2633 of 20 November 2023 that sets the filling trajectories and the intermediate targets for 2024.

4. GAS DEMAND REDUCTION

The present report seeks to evaluate the available data for the reporting period of October 2023 and November 2023. Table 6 shows the calculation of gas demand reduction for the referred period.

TABLE 6 – NATIONAL GAS CONSUMPTION IN OCTOBER 2023 AND NOVEMBER 2023 AND RATES OF CHANGE

**Monitoring on the implementation of the demand-reduction measures
Article 8 of Council Regulation (EU) 2022/1369 of 5 August 2022
Period from 1 October to 30 November**

Natural Gas consumption TJ	Oct-Nov/17	Oct-Nov/18	Oct-Nov/19	Oct-Nov/20	Oct-Nov/21	reference gas consumption Oct-Nov	Oct-Nov/23	Δ%
Overall consumption	39 743	37 600	43 648	43 706	40 772	41 094	26 370	-35,8%
Dedicated power plants (CCGT)	15 809	13 034	17 501	17 344	17 500	16 237	7 895	-51,4%
Other uses	23 935	24 567	26 148	26 363	23 273	24 857	18 475	-25,7%

Note:

2021, 2022 and 2023 data are provisional

From the analysis of the available data, it is possible to verify **that in the period of October 2023 and November 2023, comparing with the average of the five homologous periods of the reference period, a reduction of 35,8% in the global consumption of gas was attained.**

Considering the data provided on the previous reports and the data in the previous table, Table 7 below shows the cumulative gas demand variation since April 2023:

TABLE 7 – NATIONAL GAS CONSUMPTION FROM APRIL 2023 TO NOVEMBER 2023 AND RATES OF CHANGE

**Monitoring on the implementation of the demand-reduction measures
Article 8 of Council Regulation (EU) 2022/1369 of 5 August 2022
Period from April to November**

Natural Gas consumption TJ	Apr-Nov/17	Apr-Nov/18	Apr-Nov/19	Apr-Nov/20	Apr-Nov/21	reference gas consumption Apr-Nov	Apr-Nov/23	Δ%
Overall consumption	169 834	157 512	172 645	159 695	159 714	163 880	116 777	-28,7%
Dedicated power plants (CCGT)	74 020	56 477	70 467	64 455	63 516	65 787	41 864	-36,4%
Other uses	95 814	101 035	102 179	95 240	96 198	98 093	74 912	-23,6%

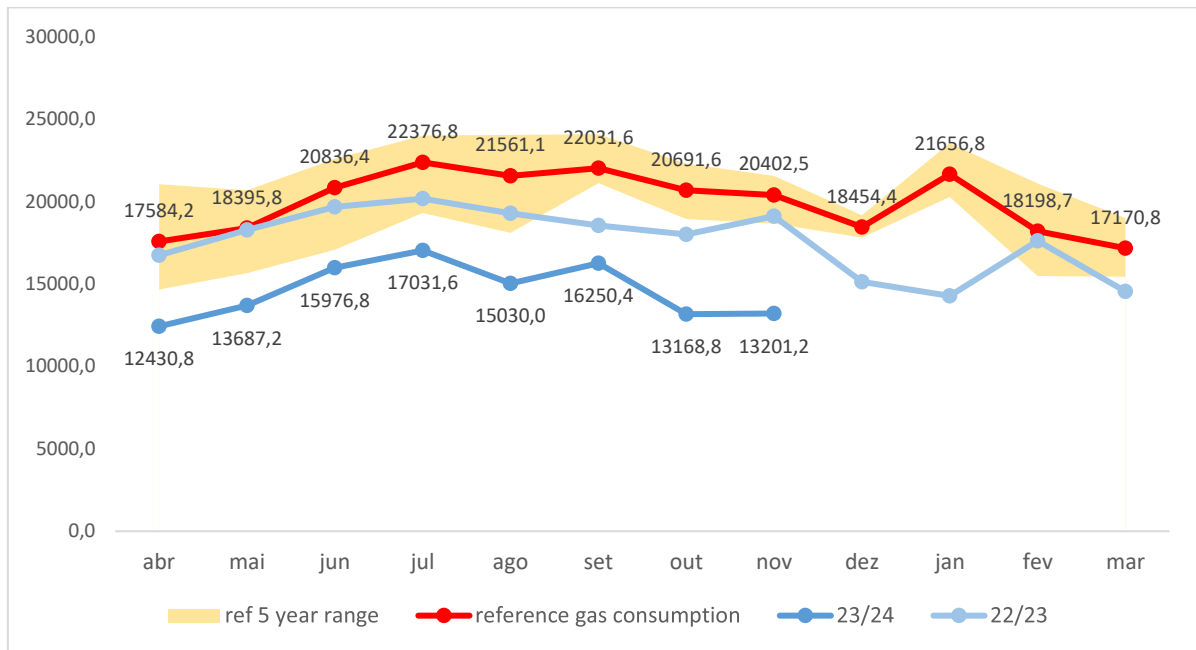
Note:

2021, 2022 and 2023 data are provisional

From the analysis of the available data, it is possible to verify **that in the eight months assessed period (April 2023 – November 2023), in comparison with the historical average of the last five homologous periods, a reduction in the global consumption of gas of 28,7% was attained.**

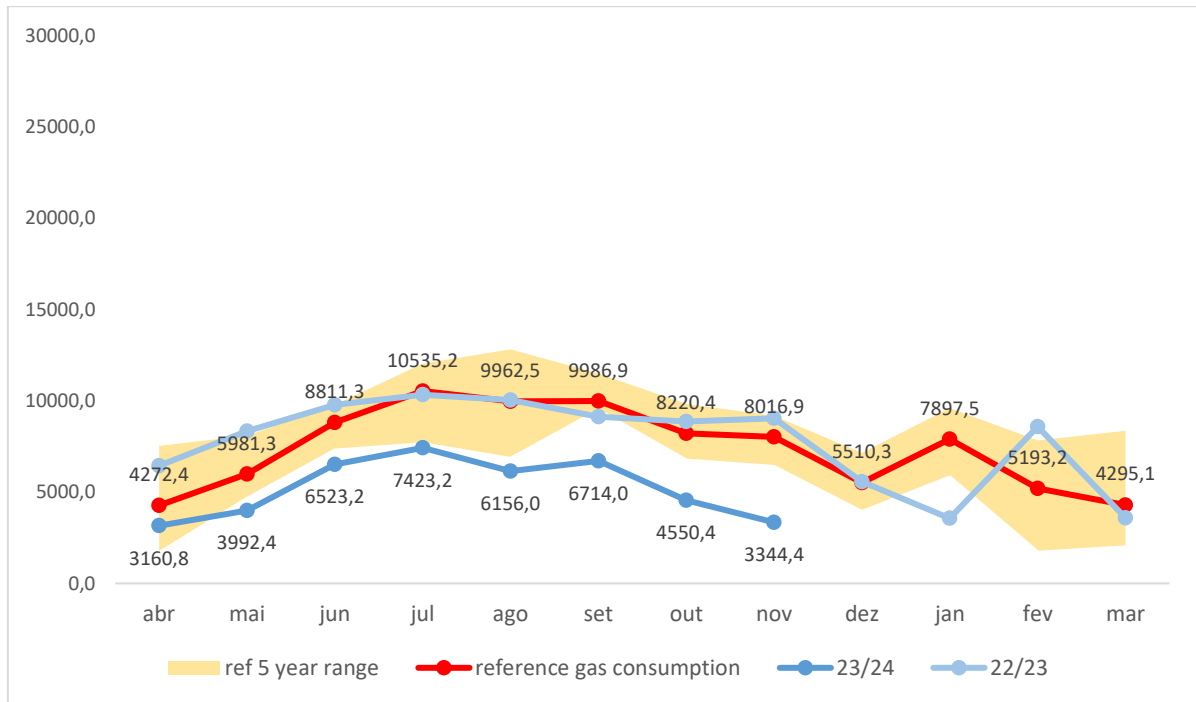
The following graphs show the evolution of gas consumption, disaggregated according to the previous tables, comparing the values for the 2023-2024 period (dark blue line) with the reference ones (red line). The consumption range shade during the 5-year reference period is also presented (light orange shade), as well as the evolution of gas consumption recorded in 2022-2023 (light blue line), so that possible trends can be verified.

FIGURE 1 – TOTAL GAS CONSUMPTION FROM APRIL TO NOVEMBER (TJ)



It is possible to see that the total gas consumption in the eight months analysed was significantly lower compared to both the reference consumption and last year's consumption. The cumulative reduction in the eight months compared to the reference consumption was 28,7%. On an annual basis (YoY), there is a reduction of 22,1% in total gas consumption verified from April to November. It seems also important to mention that the total gas consumption in these eight months was always below the minimum value of the range of the reference period. It should also be noted that there is a similar pattern of consumption over the eight-month period to that of the reference period. This situation may suggest that there is a structural reduction in gas consumption, although a more in-depth assessment of what will happen during the winter period is necessary.

FIGURE 2 – CCGT GAS CONSUMPTION FROM APRIL TO NOVEMBER (TJ)

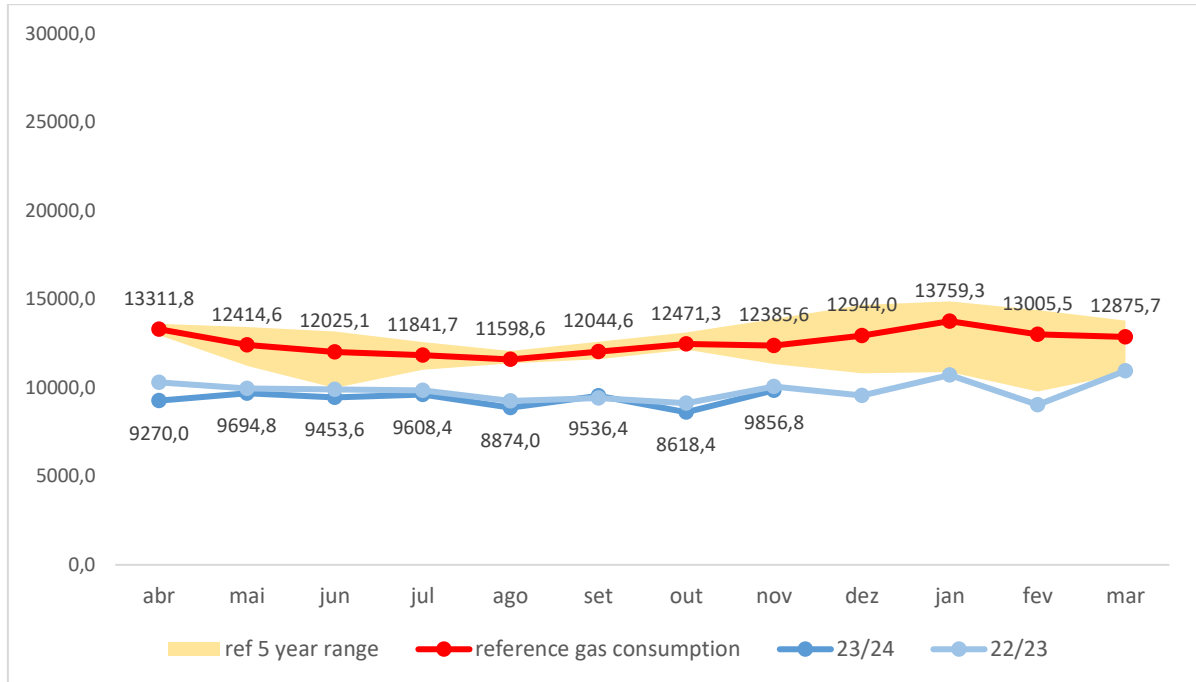


Gas consumption in dedicated power plants shows significant fluctuations throughout the year, highly dependent on the meteorological and climatic conditions observed. During October and November there was a period of significant rainfall, which allowed the levels of reservoirs associated with hydroelectric powerplants to rise significantly. This situation allowed hydroelectric production to reach significant values during these two months, reducing the need to resort to natural gas powerplants. Hydroelectric production accounted for more than 34 per cent of electricity produced in October and almost 50 per cent in November. This resulted in gas consumption in the CCGTs halving compared to the same months of the reference period.

The increase in hydroelectric production combined with periods of high wind production allowed renewable energy production to exceed national consumption needs between 31 October and 6 November, setting a 149 hour straight new record. Also, for 131 hours from 31 October 2023, renewable energy exceeded the needs of the entire National Electric System - including for pumping at hydroelectric reservoirs. This feat was achieved without resorting to conventional thermal power generation sources, like Natural Gas Combined Cycle Plants.

In cumulative terms, the gas consumption at the CCGTs during the eight-month period is significantly lower than during the same reference period (- 36,4%). The reduction compared to the same period in the previous year is even more significant (- 41,8%).

FIGURE 3 – OTHER USES GAS CONSUMPTION FROM APRIL TO NOVEMBER (TJ)



As for the consumption of gas in other uses than exclusive power generation, it is possible to verify the reduced seasonality in gas consumption throughout the year. The fluctuations are relatively small, allowing confirmation of the high dependence that fluctuations in the total gas consumption have on the production of electricity by the dedicated power plants.

As with total consumption, gas consumption in the group 'other uses' was always below the minimum value of the range of the reference period in the eight months period. The 8 months cumulative consumption remains below the reference consumption (- 23,6%), although comparing with the previous year the variation it is significantly smaller (- 3,8%).

Analysing the above graph, and reflecting on YoY variation, it appears to present a consistent downward trend in gas consumption, particularly in sectors less affected by seasonal and weather effects. However, as it was mentioned above, further assessment on the evolution of gas consumption shall be done in order to verify whether the reduction that took place in 2022-2023, that seems to continue, is structural.

5. CONCLUSIONS

Portugal has reduced until the end of November its total gas consumption by almost 28,7%, since April, when compared to the average consumption of the same period in the five years of the reference period.

The reduction in gas consumption in October and November, when compared to the reference period, -35,3%, is achieved in all sectors, although with greater significance in the electricity sector.

The consumption of 'other uses' remains well below the consumption during the reference period but when compared on an annual basis the changes are less significant. This situation, as well as the reduced variations along the eight-month period when compared with the previous year, about 4%, may demonstrate that the reduction achieved last year was permanent. It will be crucial to continue monitoring the development of these category of gas consumption in order to assess the structural extent of the reduction.

Regarding electricity generation, there is a significant decrease compared to the reference period, but the dependence of the electricity sector on weather conditions, particularly hydro, requires the permanent monitoring of consumption of CCGTs. As mentioned before, the rainfall in October and November allowed significant hydroelectric capacity to be used, significantly reducing the resort to the CCGTs.

The developments in new installed capacity, namely solar, and the use of the electricity interconnections with Spain may allow to maintain the reduction in the need to resort to electricity generation in CCGTs.

One word to the implementation of the Portuguese Energy Saving Plan 2022-2023. The consolidation of the plan and of its measures will bring lasting results, which may already be reflected in actual consumption data.

Finally, the geopolitical situation and its impact on gas prices and, more broadly, on overall energy prices and ultimately on inflation. The recent events in the Middle East, in addition to the ongoing situation in Ukraine, may have an impact on the volatility of energy prices and it is necessary to continue monitoring developments in both situations with caution. Global gas markets remain very tight and are expected to remain as such for some time, as noted by several entities, including IEA. This situation is still negatively affecting the gas prices which remain higher than pre-crisis, despite being much lower than the peak experienced in summer 2022. The stabilisation of gas prices, even at higher levels than in the past, can lead to changes in consumption trends, that must be continuously monitored.

Several non-negligible risks continue to hang over the markets and must be also constantly monitored. However, Portugal remains fully committed to the achievement of its reduction targets set by the Council Regulation (EU) 2022/1369. The data that has been collected also allows to optimistically reinforce the idea of a structural change in gas consumption in various sectors and, consequently, of the goodness of the measures adopted.