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COM(2024) 88 final

**REPORT FROM THE COMMISSION TO THE COUNCIL**

**review on the functioning of Regulation (EU) 2022/1369 on coordinated gas demand reduction, amended by Regulation (EU) 2023/706**

## I. Introduction

Since Russia’s unprovoked and unjustified military aggression against Ukraine, Russian gas supplies to the EU have been continuously disrupted. In response to the attempt by Russia to use energy as a political weapon, the Commission adopted the REPowerEU Plan, aiming to save energy, accelerate the clean energy transition and diversify energy supply to phase out its dependence on Russian fossil fuels as soon as possible. While the EU relied on Russia for 45% of its gas supplies in 2021, the supply of Russian gas has continuously decreased since February 2022 and accounted for 15% of the EU’s total gas imports in 2023.

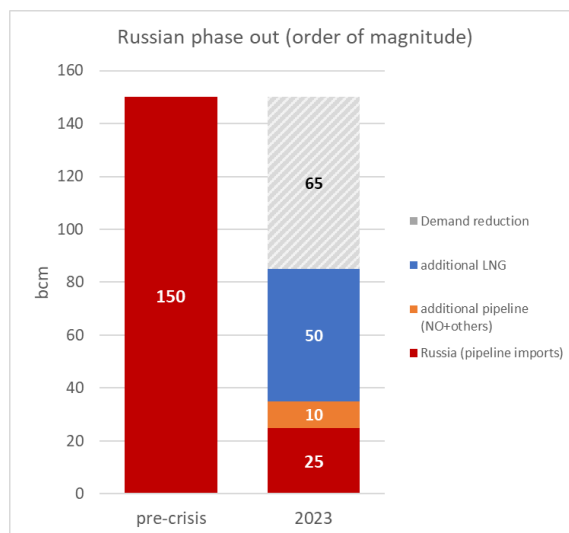
To mitigate the serious security of supply risks that materialised in 2022 as a result of further supply cuts from Russia, the EU adopted Regulation (EU) 2022/1369 in August 2022 (hereafter: “**Demand Reduction Regulation**”), to voluntarily reduce gas demand in a coordinated manner by 15%. This target becomes a mandatory reduction in case a Union alert is declared. Given the lingering risks and need for a continued coordinated reduction of gas demand, in March 2023 the EU prolonged the Demand Reduction Regulation by 1 year via Regulation (EU) 2023/706.

Article 9 of the prolonged Demand Reduction Regulation stipulates that by 1 March 2024, the Commission must carry out a review of the Regulation in view of the general situation of gas supply to the Union and present a report on the main findings of that review to the Council. Based on that report, the Commission may propose prolonging the period of application of this Regulation.

## II. Current security of supply situation

Russian pipeline imports significantly decreased since the Russian invasion of Ukraine, from 150 bcm before the crisis to 25 bcm in 2023. This decrease has mainly been compensated by demand reduction of approximately 65 bcm. Increased imports via LNG (ca. 50 bcm) and alternative pipeline imports (ca. 10 bcm) also contributed to phase out Russian gas.

**Figure 1 - Russian pipeline phase out progress 2023 vs pre-crisis**



Source: ENER B4 and Joint Research Centre, based on ENTSOG data

Global gas markets remain tight and are expected to remain as such for some time as limited new LNG liquefaction capacity globally is planned to be operational before 2026<sup>1</sup>. The supply shock resulting from Russia's invasion of Ukraine led to high and volatile gas and electricity prices in 2022 and 2023, with a peak experienced in summer 2022 when prices spiked above 300 EUR/MWh. Summer and autumn 2023 still saw episodes of significant volatility when prices increased by more than 50% in a matter of weeks<sup>2</sup>. Gas prices are still prone to volatility and higher than pre-crisis with inevitable consequences on citizens and the competitiveness of industries.

There are other remaining risks with varying degrees of probability that, if they materialise, may contribute to tightening the delicate supply and demand balance reached. These risks include: a rebound in Asian LNG demand which would reduce the availability of gas on the global gas market, a cold snap in the remainder of the winter which could lead to an increase of gas demand, extreme weather conditions potentially affecting hydropower storage or low nuclear production availability requiring higher recourse to gas-fired power generation, and further possible gas supply disruptions, including a complete halt of gas imports from Russia or a disruption of existing critical infrastructure in the gas sector.

The likelihood of such disruptions to existing critical infrastructure is difficult to assess but can be illustrated by two recent examples that occurred since the adoption of the first Demand Reduction Regulation (EU) 2022/1369. In September 2022, the NordStream 1 pipeline was sabotaged to such a degree that it cannot transport any gas in the foreseeable future. In October 2023, the Balticconnector, an important pipeline connecting Finland to Estonia with a capacity of ca. 7 mcm/d, was disrupted. An ongoing investigation is examining whether the damage was external and made by a vessel's anchor. As a result, Finland is still not able to meet the N-1 criterion as part of the infrastructure standard defined in Article 5 of Regulation (EU) 2017/1938 and declared the second highest crisis level, as per Article 11 of Regulation (EU) 2017/1938. Finland relies now for its gas supply exclusively on their LNG import capacity, predominantly through the Inkoo LNG terminal with a capacity of ca. 13 mcm/d, for a peak day demand of ca. 9-12 mcm/d. The Balticconnector is expected to return to operation only after the winter of 2023/2024.

Furthermore, since the adoption of the previous report reviewing the Demand Reduction Regulation<sup>3</sup>, the geopolitical landscape has further deteriorated. Armed conflicts of high intensity have hit several supplying and transit regions such as the Middle East and the Red Sea, in addition to Russia's war of aggression against Ukraine.

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<sup>1</sup> IEA World Energy Outlook 2023 indicates that 250 bcm/y of liquefaction capacity is expected to come online before 2030, the vast majority of which is only expected in between 2025-2027.

<sup>2</sup> Episodes of significant volatility occurred e.g. after strikes at Australian LNG facilities were announced in September and after the Balticconnector disruption and Hamas attack in October.

<sup>3</sup> Report COM(2023) 173 and SWD(2023) 63, reviewing Regulation (EU) 2022/1369.

Threats to the security of gas supply of the EU have also been highlighted by the International Energy Agency (IEA) in a report in December 2022<sup>4</sup>, which warned against complacency in the light of the improvement of the situation compared to the peak of the crisis in summer 2022. This was followed by the IEA's Gas Market Report of Q1-2024<sup>5</sup>, where IEA indicates that global gas supplies remain tight as an increase in global liquefaction capacity (+13 bcm) was not sufficient to cover a 38 bcm decline in Russian pipeline gas to the EU. Despite high storage levels in the EU, risks of late-winter cold spells and unexpected supply constraints still remain in a tight market, according to the IEA. In addition, the European Network of Transmission System Operators (ENTSO) published its 2023/2024 Winter Supply Outlook with a summer overview<sup>6</sup>, in which it indicated the importance of demand reduction for storage filling and security of supply in the EU, even though the general security of supply situation in the EU has significantly improved.

In this context, the significant reduction in demand for natural gas (-18% between August 2022 and December 2023) has been essential to preserving the delicate gas balance in the EU. In particular, a continuous gas demand reduction throughout the injection season of 2023 was a primary driver of achieving record high storage filling by 1 November 2023 (99%). This demand reduction has also contributed significantly to sensible storage management throughout the first part of the winter season 2023/2024, which are still at ca. 70% full by 1 February.

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<sup>4</sup> [How to Avoid Gas Shortages in the European Union in 2023 – Analysis - IEA.](#)

<sup>5</sup> <https://iea.blob.core.windows.net/assets/601bff14-5d9b-4fef-8ecc-d7b2e8e7449a/GasMarketReportQ12024.pdf> .

<sup>6</sup> <https://www.entsog.eu/outlooks-reviews#winter-outlooks-and-reviews> .

### **III. Voluntary demand reduction measures implemented by Member States**

In accordance with Article 7(2) of the Demand Reduction Regulation, prolonged by Regulation (EU) 2023/706 of 30 March 2023, Member States were required to update their national emergency plans established by Article 8 of Regulation (EU) 2017/1938 to reflect the voluntary demand reduction measures they had implemented. In the previous report on the Demand Reduction Regulation<sup>7</sup>, the Commission already outlined the measures taken by Member States and reported at the time of writing of the report. The measures included among others:

1. Information campaigns to raise awareness among consumers.
2. Heating and cooling limitations in e.g. public buildings.
3. Fuel switching and an acceleration of energy efficiency measures.

Since the 2023 report on demand reduction, several newly submitted national emergency plans largely include similar measures as were outlined in the national emergency plans submitted previously and highlighted in Report COM(2023) 173, namely:

- Awareness raising campaign to stimulate a reduction of gas consumption among consumers.
- Further funding for energy efficiency measures, for industries, district heating as well as for households.
- Expansion of funding and auctions for renewable energy sources, as well as increased financial support for the roll out of heat pumps.
- Rebate on gas and electricity bills in case of a reduction in consumption and/or higher tariffs for those that have significantly increased consumption.
- Facilitation of return or prolonged lifespan of power plants to reduce and substitute the gas consumption of Gas-Fired Power Plants (GFPPs), either returning from reserve into the market or those destined to shut down into reserve.
- Temporary higher capacity use of ultra-high voltage electricity grids, to facilitate the participation of certain power plants into grid reserve.
- Relaxation of environmental standards to facilitate fuel switching.
- Obligatory electricity consumption reduction in public buildings.
- Premiums to feed biomethane into the network, to replace natural gas.

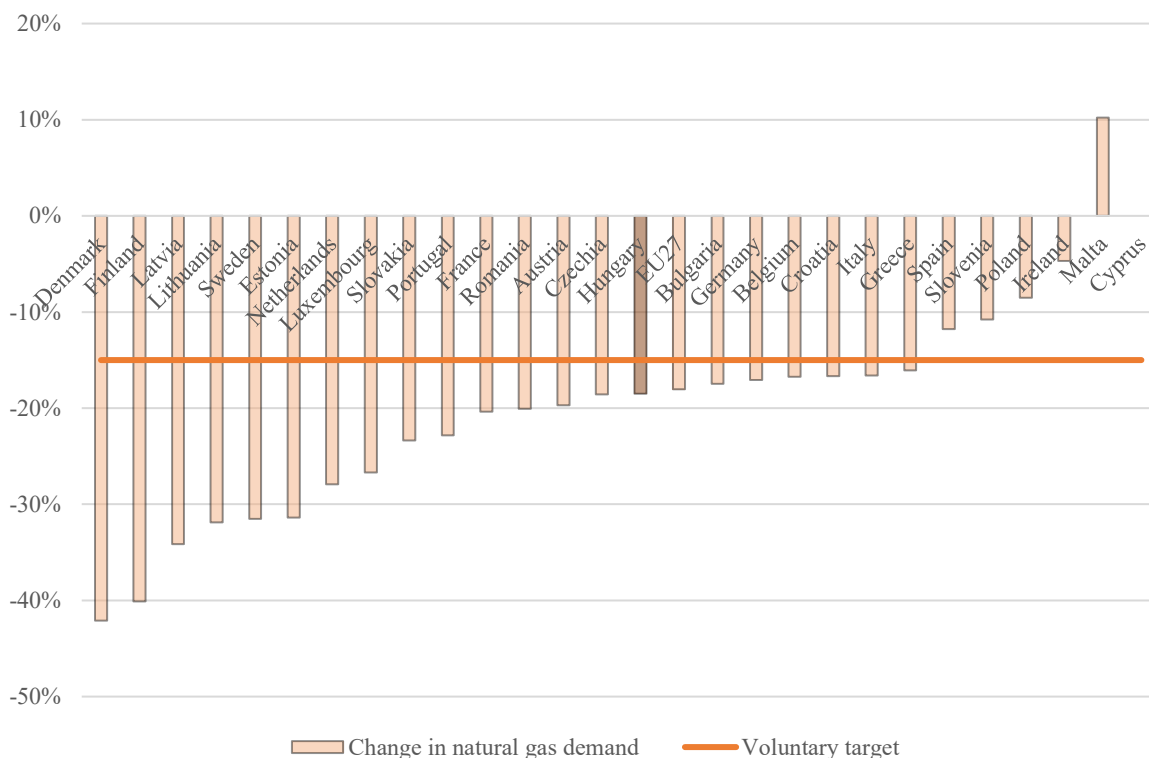
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<sup>7</sup> Report COM(2023) 173.

#### IV. Demand reduction – sectoral analysis

Between August 2022 and December 2023 (17 months), EU Member States reduced overall gas consumption by 18% (ca. 101 bcm). Figure 2 presents the change in natural gas consumption since the implementation of the Council Regulation (EU) 2022/1369 on coordinated demand-reduction measures. 21 MS reached the 15% voluntary reduction target.

**Figure 2 - Change in natural gas demand between August 2022 and December 2023 (17 months) compared to the same period of the 5-year average by Member State**



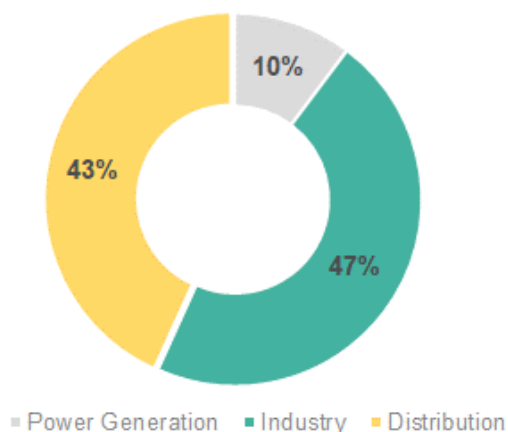
Source: ENER Chief Economist, based on Eurostat (series nrg\_cb\_gasm)

According to the 2022 Energy Balance, 36% of natural gas was used by households and services, 32% was for electricity and heat generation, and 23% in the industry (only energy use). The sectoral breakdown of gas demand for the industry, residential and power sectors is essential to understand the impact of the demand reduction measures on the EU social-economic welfare. It allows Member States and the European Commission to better understand the nature of the reductions and possibly identify any challenges. In the absence of sufficient and frequently reported official statistical data submitted to Eurostat for the purpose of this analysis, the Joint Research Centre estimated the sectoral breakdown of gas demand reduction for 2022-23 based on 9 EU MS or 80% of the EU’s natural gas consumption.<sup>8</sup> According to those estimations, the

<sup>8</sup> The 9 EU Member States are Belgium, Germany, Greece, Spain, France, Croatia, Italy, Hungary and the Netherlands. The analysis is based on public data reported only by their national transmission system operators which enable the estimation of industrial and residential gas consumers. The analysis is complemented with Eurostat data of gas consumption for power generation.

residential and industrial sectors contributed respectively 43% and 47% to overall demand reductions while the power sector contributed 10% (see Figure 3).

**Figure 3 - Sectoral contribution to gas demand reduction (EU9) between August 2022 and September 2023**



*Note: The analysis includes 9 MS or 80% of EU gas demand. The MS are BE, DE, EL, ES, FR, HR, IT, HU and NL.*

*Source: Joint Research Centre, based on Eurostat and ENaGaD database*

### ***Residential / temperature***

Gas consumption in the residential sector is strongly correlated with the outside temperature. According to the data supplied by the Joint Research Centre, the winter season of 2022/23 experienced a 7% reduction in heating-degree days (HDDs) compared to the five-year average, suggesting a slightly milder winter.<sup>9</sup> During the initial two months of the 2023 winter season, heating degree days were also 9% lower than the five-year average. At the same time, gas demand reductions amounted to 19% (winter 2022/23) and 22% (first two winter months 2023/24) which indicates that gas demand reductions were more substantial than weather variations, partly due to the above-mentioned measures.

### ***Power sector***

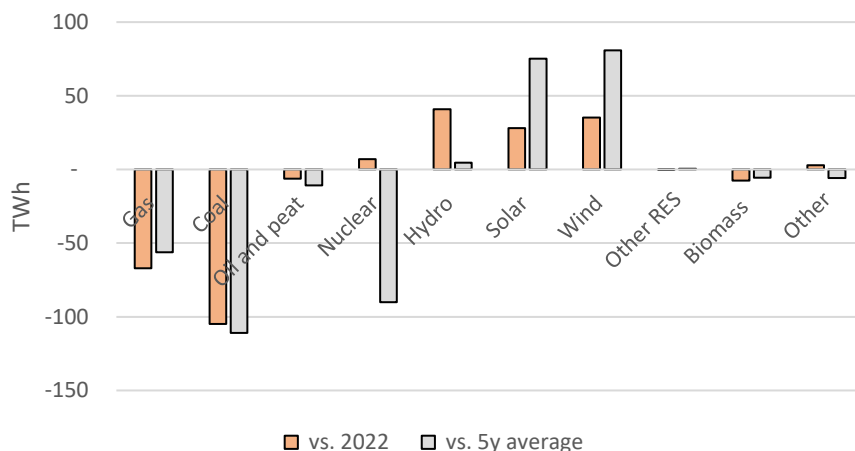
Throughout 2022, the dispatch of gas-fired power plants remained relatively stable indicating a stable generation despite increasing gas prices. Challenges in curbing gas-to-power were exacerbated by the limited availability of nuclear capacity and due to diminished contribution from hydropower. The additional wind and solar capacity added in 2022 had a counteractive effect and contributed to the additional production of 65 TWh (based on ENTSO-E), notably preventing a further increase in gas consumption.

The electricity mix in 2023 changed in comparison to the previous year due to the progressive return of nuclear capacity, high hydropower levels and further renewables deployment. Figure 4

<sup>9</sup> ENER/CET calculations based on Eurostat series NRC\_CHDD\_M. Note that Eurostat calculates the EU-total as the space-weighted (geographic) average of the data for the individual member states. In the context of the present analysis, such a weighting is inappropriate. We have therefore re-calculated an EU total as the average of the individual member states, weighted by their population (demo\_gind).

presents the change in power generation by generation type in 2023 compared to the 5-year average and 2022. Relative to the year 2022, nuclear generation in the EU witnessed a surge in output by 7 TWh, with French nuclear power plants reaching a dispatch close to the 5-year average in September 2023. Hydropower generation increased by 41 TWh capitalizing on elevated water reservoir levels in comparison to 2022. Power generation from solar and wind increased by 28 and 35 TWh, respectively. In 2022, the installation of solar and wind capacities had already attained 41.5 and 15.5 GW, respectively. Notably, in 2023, there was further augmentation in deployment, with an additional 53.5 and 16.0 GW of capacity added to the EU electricity system.

**Figure 4 - Change in power generation by generation type in 2023 (January to November)**



*Note: Power generation data for December is not yet available.*

*Note 2: Solar generation does not account for behind-the-meter power generation.*

*Source: ENER Chief Economist, based on ENTSO-E Transparency Platform*

The progressive return of nuclear and hydropower generation in 2023, coupled with the ongoing deployment of renewables throughout the period, exerted downward pressure on natural gas for power and heat generation. Furthermore, there was a reduction in electricity demand by 6% over the same period, resulting in diminished requirements for gas consumption in the power sector.

Consequently, there was a decrease of around 9% (9 bcm) of gas demand for power and heat since August 2022<sup>10</sup> in comparison to the 5-year reference period.

### **Industry**

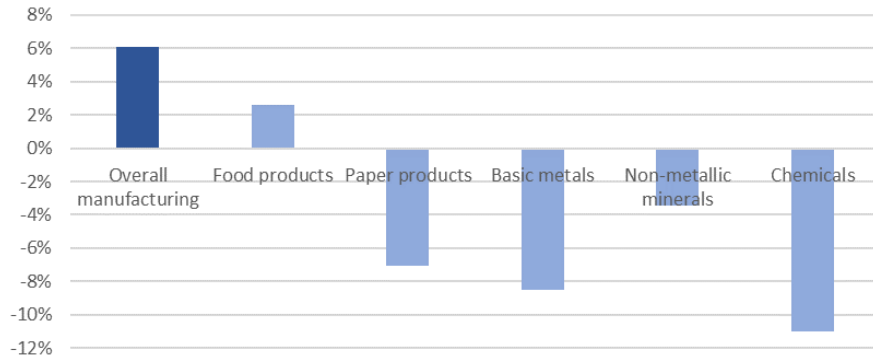
77% of annual industrial gas consumption was used in five energy-intensive subsectors<sup>11</sup>: chemicals, non-metallic minerals, food products, basic metals and paper products. The use of gas is closely linked to the level of industrial production activity. Figure 5 presents the change in industrial production of overall manufacturing and energy-intensive sub-sectors between August 2022 and September 2023 in comparison to the 5-year average.

<sup>10</sup> The reporting of gas consumption in the power sector lags behind the overall gas consumption reporting. Therefore, the timeframe includes only the period from August 2022 to October 2023.

<sup>11</sup> Energy Balance 2021



**Figure 5 - Change in industrial production in overall manufacturing and energy-intensive sub-sectors between August 2022 and September 2023 in comparison to the 5-year average**

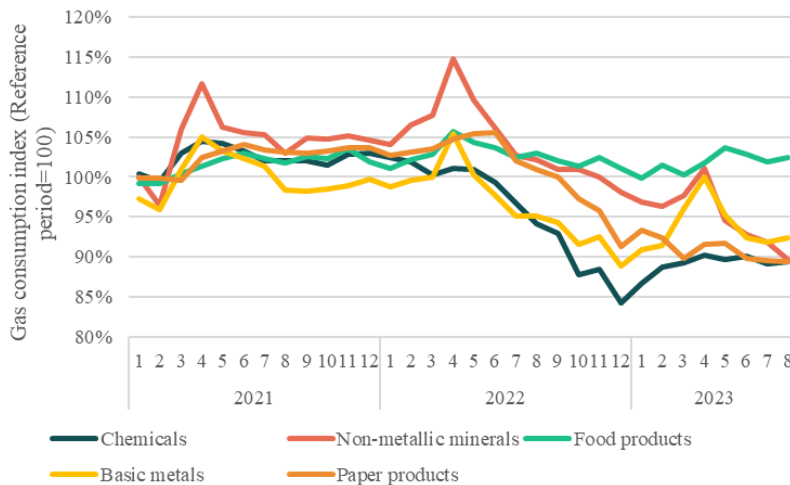


Source: ENER Chief Economist, based on Eurostat (series sts\_inpr\_m)

The decline in energy-intensive industrial production resulted in decreased use of gas, mainly in the five energy-intensive sub-sectors. Figure 6 presents monthly gas consumption in the five energy-intensive subsectors indexed in relation to the 5-year reference period. It can be observed that the chemicals and basic metals subsectors have decreased gas consumption early during the crisis, followed only in more recent months by the paper products and non-metallic minerals subsectors. The decrease in natural gas demand has materialised across most energy-intensive industrial subsectors in recent months, likely indicating a more structural decline in industrial activity in chemicals, non-metallic minerals, basic metals and paper products. Since the overall voluntary demand reduction goes beyond 15%, there was room for industrial demand to recover within the scope of the voluntary target, which thus far did not transpire.

It is important to note that the decreased gas consumption due to lowered industrial activity has further been complemented by accelerated energy efficiency measures and/or fuel switching due to the energy crisis. However, due to the lower gas price industries with dual fuel capability which switched fuels in 2022 or 2023 are expected to switch back to gas due to its lower price.

**Figure 6 - Estimated monthly gas consumption in energy-intensive subsectors in EU27**



Source: ENER Chief Economist, based on Eurostat

## V. Security of supply outlook for 2024-2025

Since August 2022 and the entry into force of the Gas Demand Reduction Regulation until December 2023, gas demand in the EU dropped by 18% (ca. 101 bcm) compared to pre-crisis levels. Gas demand reduction, as further outlined in sections 2 and 4, of all contributing factors substituted Russian gas supply most (see Figure 1).

Further decrease or a total halt of Russian imports, as part of efforts of the EU to phase out Russian dependency, or possible unilateral supply cuts from Russia as experienced in 2022-2023, is an important scenario to analyse when looking at the security of gas supply of the EU. Russian supply disruptions are in particular a relevant scenario to consider (as simulated in Figure 7), due to the end of the current transit agreement through Ukraine by 31 December 2024 (one of the remaining two Russian supply corridors – ca. 15 bcm/y). Escalating geopolitical tensions may thereafter create even higher risks of further supply cuts from Russia. Therefore, while other scenarios could occur, e.g. a disruption of the Ukraine transit route alone, the likelihood of a full Russian supply disruption scenario, regardless of the cause of the disruption, significantly increased compared to last year and is essential to consider for the security of supply of the EU.

For this reason, it is essential to consider gas demand sensitivities when preparing for future winters. This year, ENTSOG Winter Supply Outlook 2023-24<sup>12</sup> has been complemented with a summer overview and concludes that in case of a full Russian pipeline disruption, storages would need to be filled at 46% at the beginning of the injection season together with a 15% demand reduction, strong LNG supplies and enhanced capacities, to reach the required 90% at the start of the gas winter at the end of September 2024. Figure 7 presents the storage filling projections under different scenarios of continued demand reduction, without prejudice to the market or policy means that may be used to achieve this reduction, based on latest available market intelligence data and assuming a full Russian pipeline supply disruption.<sup>13</sup> Those scenarios result in a storage level of 49% full at the end of the winter (31 March 2024), considering the high storage levels reported on 16 December 2022 and based on the experience of 2023 (EU average was 56% on 1 April 2023). However, the average storage level on 1 April of the reference period<sup>14</sup> was 33%. It should also be noted that several publications<sup>15</sup> point to global gas production and liquefaction capacities not increasing significantly before 2026, meaning that natural gas availability is likely to remain limited until the winter 2026-2027.

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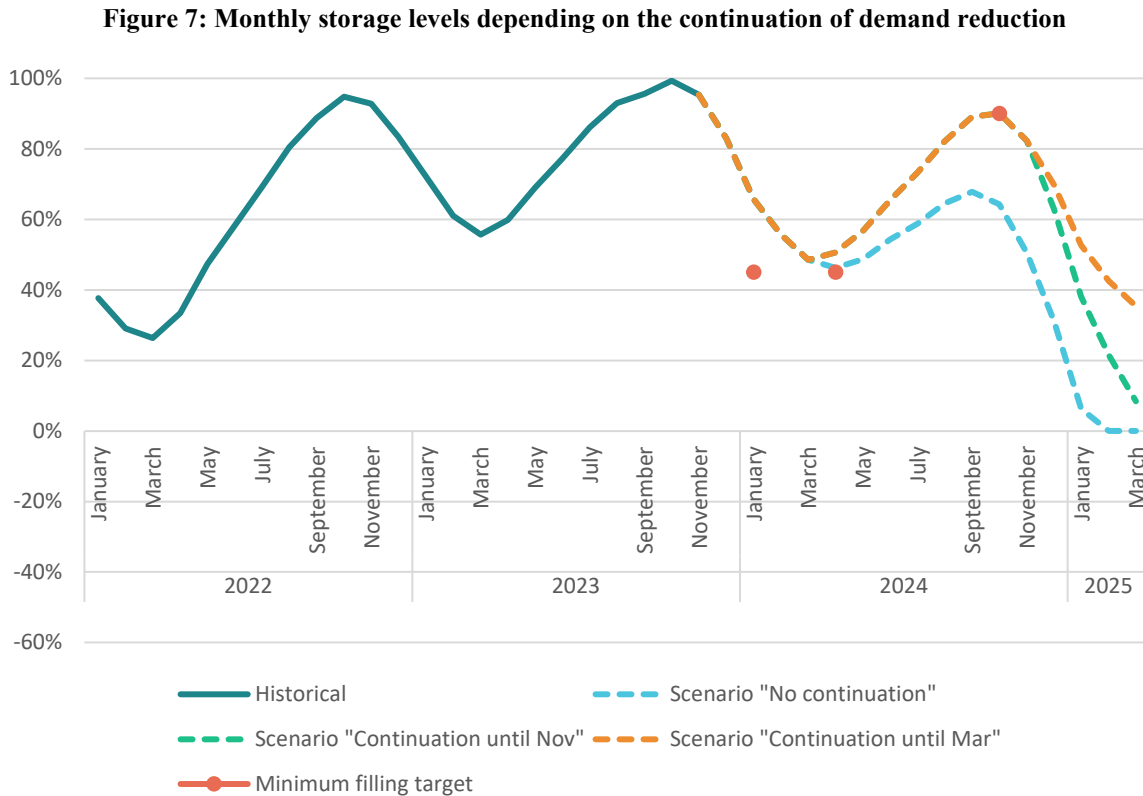
<sup>12</sup> <https://www.entsog.eu/outlooks-reviews#winter-outlooks-and-reviews>

<sup>13</sup> Assumptions:

- Storage levels as of 08 December 2023 (91.3%)
- Pipeline supply (other than Russia) is the average between January 2022 and October 2023
- No Russian pipeline supply as of the start of the simulation
- LNG supply is equal to maximum LNG supply in 2023.
- Average EU27 gas demand of the reference period, applying percentage reductions as stated.
- Exports to Switzerland, Ukraine and Moldova based 2022/23 flows.

<sup>14</sup> The reference period is from 2016-2021;

<sup>15</sup> [IEA publication](#), [GIIGNL publication](#).



*Note: The figure depicts storage levels at the end of each month.*

*Source: ENER Chief Economist, based on Eurostat, AGSI and market intelligence data on gas flows*

Figure 7 explores three scenarios:

- **“No continued demand reduction” scenario:** Russian pipeline imports are disrupted and the reduction in gas demand does not continue beyond 31 March 2024. This would lead to storage level falling to 64%, well short of the 90% target by 1 November 2024, and completely depleted by February 2025.
- **“Continued demand reduction until November 2024” scenario:** Russian pipeline imports are disrupted and with a continuation of gas demand reduction until November 2024 achieves the storage target of November but quickly depletes afterwards reaching only around 10% of filling levels by end-March 2025. Which would therefore risk the security of gas supply of the EU for the following winter 2025-2026.
- **“Continuation of demand reduction to March 2025” scenario:** The scenario in which Russian pipeline imports are disrupted and with a continued 15% demand reduction, storage levels reach the November storage target. Furthermore, the storage levels could be around 36% by the end of March 2025. Which can be considered as an adequate level before the 2025 injection season.

Those scenarios consider key elements of security of gas supply such as the evolution of the storage levels through the winter and the developments regarding the Russian and the global gas supply. Furthermore, there are an additional culmination of downside risks for the security of supply of the EU to consider that could happen on top of the aforementioned scenarios, such as potentially increased global LNG demand and a certain rebound of industrial gas demand. A particularly significant uncertainty is the weather, as a colder than average winter 2023/24 or 2024/25 would have a significant impact on the EU's security of gas supply. Assuming a 15% reduction and the highest demand for each month between 2014 and 2021, annual demand could increase by 28 bcm. ENTSOG's Winter Supply Outlook confirms that in case of a cold winter, a 15% demand reduction is necessary for the gas network to be capable of satisfying demand and reaching at least a 30% storage filling level.

Therefore, although the EU has limited leverage to increase the global gas supply, storage management (supported via the Storage Regulation's<sup>16</sup> amendments to the Gas Security of Supply Regulation and storage trajectories) and demand reduction proved effective to ensure the security of gas supply of the EU since the beginning of the crisis. They remain important tools, should storage levels reach inadequate levels during the remainder of winter 2023-2024, or should downside risks materialise. However, markets are responsive to price increases, which may facilitate sufficient demand reduction in case downside risks materialise.

Furthermore, ACER insists in its opinion<sup>17</sup> on ENTSOG's Winter Supply Outlook 2023-2024: *“The materialisation of [...] risk factors may lead to supply scarcity [...]. Forced gas demand reductions would come next and involuntary demand curtailment of non-essential gas consumers would be a last resort emergency measure”*. Acer also calls for *“continued vigilance with respect to gas supply situation and for monitoring the implementation of the EU gas demand reduction regulation”*.

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<sup>16</sup> Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022, amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.

<sup>17</sup> [ACER Opinion 11-2023 on ENTSOG Winter Supply Outlook 2023-2024.pdf \(europa.eu\)](#)

## **VI. Conclusion**

To mitigate the serious security of supply risks in 2022, in the context of REPowerEU, the EU adopted Regulation (EU) 2022/1369 in order to reduce gas demand by 15%. In March 2023, the EU decided to prolong this reduction through Regulation (EU) 2023/706, considering, among others, the urgent need to refill storages and remaining tightness in the market due to e.g. low hydro and nuclear availability.

This report indicates that, while the security of supply situation has improved thanks to targeted investments and a number of measures - including the reduction target of the Demand Reduction Regulation which has been exceeded by Member States - the situation remains delicate. This is partly due to global gas markets still being tight and expected to remain as such until 2026 when new liquefaction capacities will come online. There are other remaining risks that, if they materialise, may contribute to further tightening the supply and demand balance, such as further possible gas supply disruptions, including a halt of Russian gas imports or a disruption of existing critical infrastructure in the gas sector, a rebound in Asian LNG demand, a cold winter and low hydropower storage. Furthermore, the wider geopolitical landscape has further deteriorated, as armed conflicts of high intensity have hit several other supplying and transit regions, such as the Middle East and the Red Sea.

Demand reduction has significantly contributed to phase out 65 bcm of Russian gas in 2023, which was primarily achieved by households and in the industrial sector. Moreover, to guarantee a high level of winter preparedness and to ensure that Member States comply with the 90% storage filling target of 1 November 2024, EU storages must remain at a sufficiently high level through the winter. In 2023, like in 2022, demand reduction has been pivotal to end the winter with adequate storage levels and to provide the necessary flexibility in summer so that the 90% storage target could be met, while keeping prices to lower levels and containing volatility. Demand reduction also helped reaching the storage target in August, well ahead of November. This also led to EU market participants storing gas in Ukraine at the end of summer 2023, mutually reinforcing the security of gas supply of the EU and Ukraine.

Furthermore, it is essential to consider the Demand Reduction Regulation together with the effects of the Storage Regulation. Both elements are part of the security of supply architecture of the EU and mutually reinforce each other. Gas demand reduction gave Member States and market participants the required flexibility to meet the storage targets while preserving the already tight global gas market from additional pressure.

Should the supply situation remain tight or further deteriorate and put the 90% storage target of November 2024 at risk, demand reduction will continue to play an essential role in 2024 and beyond to stabilise the gas market.