gasunie transport services

A robust European natural gas supply

Measures to strenghten resilience against a prolonged disruption of natural gas supply

Vision of Gasunie Transport Services (GTS)
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Summary

The EU is not sufficiently prepared for a prolonged disruption of natural gas supplies

The European security of supply regulations for natural gas (hereinafter: Security of Supply Regulation, SoS) date back to a time when gas supply was considered stable and reliable. The focus of the SoS Regulation and the national emergency plans based on it, is therefore on resilience to short-term infrastructure outages. Prolonged disruptions of natural gas supply resulting from infrastructure sabotage or geopolitical developments were considered unthinkable until the Russian invasion of Ukraine in 2022. Consequently, the European Union (EU) is insufficiently prepared for a prolonged (six months) disruption of the natural gas supply.

The gas crisis led to a strengthening of natural gas infrastructure.

The 2022 gas crisis was a game-changer for the European gas market. Russia's share of European gas consumption, initially accounting for 45 percent, shrank to less than 15 percent. As a result of the reduced supply, gas prices increased sharply, while gas demand in the EU fell by approximately 20 percent. Households turned their thermostats down by a few degrees en masse. Industries were forced to scale back production. Inflation in the EU rose to over 10 percent, resulting in costs of hundreds of billions of euros. In the Netherlands, the government felt compelled to provide financial support, including a one-time payment to all households and a price ceiling for energy.

Within a relatively short period, the EU, national governments, gas producers, gas traders, gas storage operators, LNG terminal operators, and transmission system operators have developed new alternative supply capacity required to meet the continued demand for gas in the EU. The connectivity and flexibility of the European natural gas infrastructure has been significantly improved since 2022. Pipeline infrastructure, particularly in the eastern part of the EU, has been expanded to connect to supply routes from the western part. In addition, parties have invested in the construction and expansion of floating and land-based LNG terminals and their connection to the networks.

Regular security of supply in the EU has improved.

The loss of Russian gas has been partly replaced by additional imports from Norway. In addition, a large amount of additional liquefied natural gas (LNG) has arrived, particularly from the United States (US). Since 2025, more LNG has become available on the global market. This trend will continue in the coming years. According to the International Energy Agency (IEA), by 2030, the equivalent of approximately 3,000 TWh of additional LNG will be available globally annually[1].
This could even mean a structural supply surplus on the global gas market. However, this is not yet certain, as global gas demand is also expected to increase in the coming years[2].
Under normal circumstances, these developments would appear to meet important preconditions for security of supply in the EU: sufficient supply, sufficient import capacity, and a well-connected and flexible EU transport infrastructure.

1 *https://www.iea.org/news/coming-surge-in-lng-production-is-set-to-reshape-global-gas-markets. The IEA estimates an additional annual LNG production volume of 300 billion cubic meters; this is ten times the annual consumption of the Netherlands. GTS uses a conversion factor of 10 to translate this amount into TWh. This represents an increase in LNG production of approximately 50% compared to the current situation*

2 *Growth in global demand for natural gas is set to accelerate in 2026 as LNG wave spreads through markets - News - IEA*

This assessment also applies to the security of natural gas supply in the Netherlands. The Dutch government plays a crucial role in safeguarding the security of natural gas supply in the Netherlands. As the gas transmission system operator, Gasunie Transport Services (GTS) is legally[3] obligated to prepare an annual assessment of the security of natural gas supply. In its most recent assessment, GTS concludes[4] that security of supply has improved since the gas crisis. This improvement can be attributed to the appointment of Energie Beheer Nederland (EBN) as the filling agent for the gas storage facilities, the realization of additional LNG import capacity, and investments made in GTS's gas transport network. The Netherlands now meets key European capacity and volume standards. The government has updated the national gas emergency plan. As a result, the Netherlands now has a number of realistic intervention measures, primarily on the demand side, including both voluntary and mandatory demand reductions, which can be deployed in the event of an emergency.

The importance of increasing resilience

In the same assessment of security of natural gas supply, GTS also identifies several credible threats that could have a long-term impact on the security of gas supply in Europe. These threats are likewise recognized by the EU, the Dutch government, and the national security services NCTV and AIVD, all of which emphasize the importance of strengthening resilience. This includes the forthcoming Critical Entities Resilience Act, under which GTS will be designated as a critical entity and provider of essential services.

Dependence on a limited number of import sources increases vulnerability

Currently, approximately 90 percent of the EU's total gas consumption is imported. These imports originate from a limited number of countries, making natural gas supplies vulnerable. The EU has become largely dependent on pipeline gas from Norway and LNG from the US. Russia also still supplies approximately 15 percent. This share will decrease further in 2027, ultimately reaching zero percent, due to the recent EU decision to completely ban gas from Russia. The Russian share will be replaced primarily by LNG from other countries. Sourcing LNG from a broader range of regions and supplier countries, preferably under long-term contracts, can contribute to increased resilience. However, diversification of supply alone does not provide a sufficient safeguard in the event of the failure of a major import source or critical infrastructure, such as an LNG terminal.

3 Energy Act, Article 3.66. Overview of security of gas supply: https://wetten.overheid.nl/BWBR0050714/2026-01-01

4 https://www.gasunietransportservices.nl/gasmarkt/leveringszekerheid-gas/rapportage-overzicht-leveringszekerheid

European problem requires European solution

Sabotage of energy infrastructure and the use of energy as a geopolitical instrument have become tangible realities in recent years. Disruptions of LNG imports from geopolitically unstable regions also represent a real risk. The recent closure of the Strait of Hormuz is a clear example of this. The North Sea and the Baltic Sea, with their dense concentration of gas pipelines and LNG terminals, constitute particularly vulnerable areas and potential targets for sabotage. Consequently, it can no longer be taken for granted that LNG and pipeline gas will continue to flow into the EU without disruption in the coming years. GTS is especially concerned about the risk of a prolonged disruption of gas supplies from the United States or Norway. Currently the EU has no effective alternative available. The risk of a renewed gas crisis is therefore increasing.

Since 2022, all EU Member States have been required to incorporate scenarios involving a prolonged disruption of a supply source into their periodic risk assessments. To date, this requirement has not been sufficiently addressed by Member States. As a prolonged disruption of natural gas supply constitutes a shared European risk, these risk assessments should preferably be conducted jointly at the European level. This should be followed by a well-considered and explicit decision at EU level on whether additional measures are required and, if so, which measures should be implemented.

Measures are needed on both the demand and supply side

GTS has assessed the risks and potential impacts of a prolonged disruption of gas supply and has identified the options available to strengthen the resilience of the natural gas system. Calculations[5] by the European Network of Transmission System Operators for Gas (ENTSOG) indicate that a six-month disruption of gas supply could result in a supply shortfall of approximately 500 TWh[6] at EU level. As supply and demand must always be physically balanced[7], a prolonged disruption in the absence of replacement supply will inevitably lead to demand reduction and extremely high gas prices.

To mitigate these effects, short-term measures are required on both the demand and supply sides. Demand-side measures include voluntary or mandatory demand reductions and fuel switching, for example by maximizing electricity generation from coal-fired power plants and thereby minimizing generation from gas-fired power plants. On the supply side, Member States may seek to maximize the use of European gas storage facilities and domestic gas production. Governments could also reduce the risk of a prolonged disruption by concluding long-term gas and LNG supply contracts with suppliers from a range of countries.

However, according to GTS, these currently available measures are insufficient to fully address a supply disruption of 500 TWh at EU level. Additional supply-side measures are therefore required.

5 https://www.entsog.eu/sites/default/files/2025-01/ENTSOG%20EU-wide%20Security%20of%20Supply%20Report%202024.pdf

6 That's about 30% of the EU's six-monthly gas consumption

7 No more gas can be consumed than is available. In the event of a prolonged disruption to supply, supply and demand will "seek" a new physical equilibrium at a lower consumption level.

Emergency stock in gas storage facilities: towards a more robust natural gas supply

GTS concludes that maintaining an emergency volume in gas storage facilities can be an effective measure to strengthen security of supply. Such an emergency volume may consist of working gas volumes that are not required for regular seasonal flexibility, as well as cushion gas, provided that the production of existing cushion[8], gas is enabled. At EU level, sufficient cushion gas may potentially be available in existing gas storage facilities to fully absorb a supply disruption of approximately 500 TWh.

By maintaining an emergency volume on EU territory, the EU and its Member States increase their autonomy over gas supplies and are better able to absorb a prolonged disruption of supply. This can mitigate market panic, limit price shocks, and reduce sharp declines in demand. As the deployment of cushion gas requires technical, regulatory, and operational preparation, an early start is essential.

In the context of this vision document, the Groningen gas field is not considered a potential mitigating measure (i.e. as an emergency volume) in relation to a prolonged and large-scale disruption of natural gas supply. Although this would be technically feasible, the current legal and political reality is that the field will remain permanently closed. From this perspective, the need for an alternative safety net becomes all the more urgent.

Deployment of an emergency reserve in the event of a prolonged supply disruption

Gas designated as an emergency volume may be deployed only in the event of an emergency situation. In the case of a prolonged disruption of natural gas supply and where an emergency reserve is available, the European Security of Supply (SoS) Regulation should state more explicitly than is currently the case that a prolonged supply disruption constitutes sufficient grounds for declaring an emergency situation[9]. This would allow the emergency reserve to be deployed immediately once an emergency has been declared, thereby enabling the supply disruption to be effectively addressed.

8 Part of the natural gas that normally remains in a gas storage facility and ensures sufficient pressure in the reservoir

9 In 2022, following the loss of Russian pipeline gas, the Minister of Economic Affairs and Climate Policy (KGG) did not declare an emergency. Should a prolonged supply interruption occur (again) in the future, there should be no doubt that any existing emergency supplies could be deployed at that time. Therefore, a prolonged supply interruption is grounds for declaring an emergency.

Conclusion and recommendations

- The EU is insufficiently prepared for a prolonged disruption of natural gas supplies. According to GTS, short-term supply-side measures are required to absorb the impacts of such a disruption.
  GTS therefore specifically advocates the establishment of a sufficiently sized emergency reserve in existing gas storage facilities, both through the designation of working gas volumes and through the ability to produce cushion gas. This would significantly strengthen the resilience of the natural gas system.
- In addition, maintaining existing infrastructure, including LNG terminals, remains essential, as does further diversification of supply through long-term contracts.
- Because a prolonged disruption of natural gas supply constitutes a European wide risk, EU Member States should assess this risk at the European level. The ongoing Brussels process to amend the Security of Supply (SoS) Regulation provides an opportunity to conduct this risk assessment at EU level.
- GTS recommends that European gas storage operators and transmission system operators, acting on behalf of the responsible EU ministries, investigate as soon as possible how cushion gas can be deployed as an emergency reserve. For the Netherlands, this includes the gas storage operators of Alkmaar, Bergermeer, Grijpskerk and Norg, as well as GTS in its role as transmission system operator.
- GTS also recommends that the SoS Regulation state more explicitly that an emergency situation may be declared when there is a credible likelihood of a prolonged supply disruption. This would allow emergency volumes to be released swiftly where circumstances so require.
- Until a decision has been taken on whether to establish a sufficiently sized emergency reserve, GTS recommends keeping existing gas storage facilities operational. This also applies to the Norg gas storage facility, for which an extraction permit has been submitted.

Contents

1 Background and context

The EU was and remains unprepared for a prolonged disruption of supply

The Security of Supply Regulation (SoS Regulation) entered into force on 1 November 2017 with the objective of safeguarding security of natural gas supply in the European Union by ensuring the smooth and continuous functioning of the internal gas market. The regulation was drafted at a time when gas supply was widely regarded as abundant, stable, and reliable. The Netherlands and Norway produced substantial volumes of natural gas, while Russia was considered a dependable supplier.

As a result, both the SoS Regulation and the national emergency plans based on it primarily focused on resilience against short-term disruptions in import capacity and transport infrastructure. Scenarios involving disruptions of supply itself, let alone prolonged supply disruptions, were not taken into account. Until 2022, such scenarios were considered unthinkable. The Russian invasion of Ukraine and the ensuing gas crisis fundamentally changed this perception. The prolonged loss of a major and indispensable supplier proved to be a game-changer for the European gas system.

The EU responded by strengthening its natural gas infrastructure.

Following the gradual curtailment of Russian gas exports to Northwest Europe, Russia's share of European gas consumption declined from approximately 45 percent to less than 15 percent. As a consequence of the reduced supply, gas prices increased sharply, while gas demand in the EU declined by around 20 percent. Households lowered thermostat settings en masse, and industrial production was scaled back. Inflation in the EU rose to more than 10 percent, resulting in economic costs amounting to hundreds of billions of euros.

In the Netherlands, the government felt compelled to intervene through extensive financial support measures, including a one-off payment to households and the introduction of an energy price cap. Despite these interventions, energy poverty increased significantly.

In response, the EU, national governments, gas producers, gas traders, gas storage operators, LNG terminal operators, and transmission system operators acted swiftly to secure alternative sources of supply and adapt transport flows. Billions of euros were invested in European gas infrastructure. Pipeline capacity, particularly in Eastern Europe, was expanded to connect to supply routes from Western Europe. In addition, significant investments were made in the construction and expansion of both onshore and floating LNG terminals.

Within a relatively short period, new alternative supply capacity was developed to meet ongoing gas demand. As a result, the connectivity and flexibility of the European gas infrastructure improved substantially.

Regular security of supply in the EU has improved.

A large part of the lost Russian gas has been replaced by pipeline imports from Norway and a lot of additional LNG, particularly from the US. Of all LNG imports into the EU, approximately 60 percent now comes from the US. Since 2025, more LNG has become available on the global market. This trend will continue in the coming years. According to the International Energy Agency (IEA), approximately 3,000 TWh of additional LNG production volume will be achieved globally by 2030. This could even mean a structural supply surplus[10] on the global gas market. However, this is not yet certain, as global gas demand will also increase in the coming years[11]. Under normal circumstances, this appears to meet important preconditions for security of supply in the EU: sufficient supply, sufficient import capacity, and a well-connected and flexible EU transport infrastructure. This also applies to the security of supply of natural gas in the Netherlands. The Dutch government plays a crucial role in safeguarding the security of natural gas supply in the Netherlands. GTS is legally [12]required to provide with an overview of the security of gas supply every year. In its most recent overview, GTS[13] concluded that the security of supply situation has improved since the gas crisis: the Netherlands is prepared for cold winters and possible short-term interruptions of the gas supply.

With the introduction of Energie Beheer Nederland (EBN) as a filling agent for the gas storage facilities, the realization of additional LNG import capacity, investments in the GTS gas transport network, and the additional LNG imports, important European capacity and volume standards are now being met. The government has updated the national gas emergency plan. As a result, the Netherlands now has a set of realistic measures that primarily intervene on the demand side during an emergency, in the form of voluntary and mandatory demand reductions.

However, in the same overview of the security of natural gas supply, GTS also notes that there are several real threats that could affect the security of natural gas supply in Europe in the long term. The EU, national governments, and national security services (including the NCTV and the AIVD) also mention these threats and emphasize the importance of (increasing) resilience, including through the upcoming Resilience of Critical Entities Act, which will designate GTS as a critical entity.

Natural gas will continue to play a crucial role in industrial processes, in heating buildings, and as a flexible means of electricity production until at least 204514. As a transition fuel, natural gas is15 an essential component of the energy transition. In short, natural gas will continue to play a crucial role for both European and Dutch society in the coming decades. Because current resources and measures are insufficient to absorb a prolonged supply disruption, the resilience of the EU gas system must therefore be strengthened.

10 *https://www.iea.org/news/coming-surge-in-lng-production-is-set-to-reshape-global-gas-markets. The IEA estimates an annual additional LNG production volume of 300 billion cubic meters; GTS uses a conversion factor of 10.*
11 *Growth in global demand for natural gas is set to accelerate in 2026 as LNG wave spreads through markets - News - IEA*
12 *Energy Act, Article 3.66. Overview of security of gas supply: https://wetten.overheid.nl/BWBR0050714/2026-01-01*
13 *https://www.gasunietransportservices.nl/gasmarkt/leveringszekerheid-gas/rapportage-overzicht-leveringszekerheid*
14 *Especially when green energy from solar and wind is not or less available*
15 *Letter to Parliament on the Sector Agreement on Gas Extraction in the Energy Transition | Parliamentary Document | Rijksoverheid.nl and https://open.overheid.nl/documenten/f347746f-b1b1-4f11-947d-92973954c7cf/file*

GTS is concerned about resilience to a prolonged disruption of supply

In its vision[16] on the security of supply of natural gas of March 26, 2024, the "Security Overview 2025 with Preliminary Results"[17] and "GTS Response to the draft Energy Supply Crisis Management Act (WBE)"[18] GTS indicates that the Netherlands is not resilient to a prolonged supply disruption and advocates for the creation of an emergency reserve in gas storage facilities. GTS writes that several options are available for establishing an emergency reserve, such as using working gas or making sufficient production and transport capacity available to use the underlying cushion gas of a gas storage facility as an emergency reserve. GTS is concerned about the fact that (as far as we know) no investigations have yet been initiated or measures taken. Therefore, GTS indicated in its most recent overview of natural gas supply security, dated September 2025, that it intends to share its vision on this matter in a separate report for the benefit of public debate.

GTS describes its vision in this document

This document describes GTS's vision, which focuses primarily on the limited resilience of the EU natural gas system to a prolonged supply disruption. The EU currently has little alternative supply[19] available to absorb a prolonged supply disruption. For a long time, the Groningen field served as the Netherlands' and Europe's ultimate "insurance" against a potential gas crisis. The Netherlands and other EU countries cannot absorb a prolonged supply disruption with replacement supplies. The 2022 gas crisis made this painfully clear. In retrospect, that crisis began in 2021 when Gazprom stopped filling gas storage facilities in northwest Europe. As a result, the Netherlands began the winter of 2021/2022 with a relatively low fill rate of the storages of around 60 percent. Replacement supply was unavailable, putting pressure on security of supply and driving up gas prices. Thanks to a relatively warm winter, no shortages arose. The subsequent war in Ukraine ultimately led to the almost complete loss of Russian pipeline gas. Despite increased LNG supply, the record-breaking completion of the Eems Energy Terminal, and increased production from Norway, total supply in the EU fell by approximately 20 percent. As a result of the reduced supply and extremely high gas prices, demand in the Netherlands fell from 380 TWh to 300 TWh.

About 90 percent of the EU's total gas consumption is now imported, approximately two-thirds of which is pipeline gas and one-third LNG. These imports originate from a limited number of countries. The EU has become largely dependent on pipeline gas from Norway (almost half of total pipeline imports) and LNG from the US (approximately 60 percent of all LNG imports). Russia still supplies approximately 15 percent. Due to the EU's recent decision to completely ban gas from Russia, this will decline further in 2027, ultimately reaching zero percent. This share will be largely replaced by LNG from countries other than Russia. Importing LNG from as many different regions and countries as possible (under long-term contracts) can increase resilience.

16 *See Chapter 12: https://www.gasunietransportservices.nl/gasmarkt/leveringszekerheid-gas/visie-2024*
17 *https://www.gasunietransportservices.nl/gasmarkt/leveringszekerheid-gas/rapportage-overzicht-leveringszekerheid*
18 *https://www.internetconsultatie.nl/wbe/reactie/5cf845f5-f291-4f8d-9df5-efcdd3e6cc02*
19 *Some EU member states, including Italy and France, have limited emergency reserves*

Meanwhile, sabotage[20] and the use of energy as political leverage have become a reality. LNG imports are partly sourced from geopolitically unstable regions. Diversification of sources and routes is necessary, but in practice, it rarely materializes. This has significantly increased vulnerability to prolonged and/or large-scale disruptions.

Without effective precautions, the EU is not resilient to a prolonged gas supply disruption. A subsequent, prolonged disruption, without supply-side precautions, could lead to unrest, high prices, and a demand reduction. In extreme cases, physical shortages could lead to forced industrial shutdowns.

20 Blow up Nord Stream, tear apart Baltic Connector

2 Historical context of security of supply

Security of supply was guaranteed in particular by the Groningen field

For decades, the Netherlands was one of the largest gas producers in Europe thanks to the Groningen field, which had been a mainstay of the national energy supply since the 1960s and a significant export source. Security of supply in the Netherlands was guaranteed through the Groningen field, the smaller fields, and pipeline gas from Norway and Russia. As a producing country, the Netherlands earned a significant amount of money from the sale of its gas. The Groningen field not only supplied a large amount of gas but was also flexible: gas production could be increased in the winter. Security of supply was not an issue for the Netherlands.

Gas market changes due to regulations, declining production in Groningen field

In the EU, the period from 2000 onwards was characterized by the liberalization and integration of gas markets. The Third Energy Package directives (2009) and the subsequent European network codes stimulated competition, transparency, and cross-border trade. The Netherlands developed as a gas hub for Northwest Europe, with connections to neighboring countries and a strong trading position through the Title Transfer Facility (TTF), which has become the most important and liquid price index in Europe.

The issue of earthquakes in Groningen rose sharply to the political agenda, increasing public pressure to limit gas extraction. Starting in 2014, this led to a series of production restrictions, culminating in the decision to completely halt gas extraction from the Groningen field in April 2024. Decommissioning of the field is underway but not yet complete. Completion will certainly take several years. At the EU level, LNG has become increasingly important, primarily due to investments in terminals in Southern and Eastern Europe to reduce dependence on pipeline gas. Nevertheless, Russia, through Gazprom, remained a dominant supplier, thanks to long-term contracts on existing pipelines and major infrastructure projects such as Nord Stream 1.

The EU's energy transition and climate goals (Green Deal, Fit for 55) have led to a decline in demand for fossil fuels, but gas will remain a crucial "transition fuel" in the coming decades. Import dependency has increased dramatically due to declining domestic production. This applies to both the Netherlands and the EU as a whole.

Security of natural gas supply is no longer a given

The 2022 gas crisis was caused by a combination of factors: low gas storage inventories before and after the winter, recovering gas demand after COVID-19, limited LNG supplies due to Asian competition, and geopolitical tensions with Russia. The Russian invasion of Ukraine in February 2022 led to a drastic reduction in Russian gas supplies, pushing TTF gas prices to historic highs. This was a turning point. Europe responded by investing in LNG import terminals and importing more LNG, particularly from the US. The closure of the Groningen field and the aforementioned developments increased the importance of existing (seasonal) gas storage, LNG production, and LNG import capacity. Since the gradual closure of the Groningen field, the security of natural gas supply in the Netherlands has no longer been a given but a continuing challenge that (unlike in previous decades) is costly. This became clearly visible during the 2022 gas crisis.

3 Legal framework for security of supply of natural gas

To ensure the security of gas supply within the EU, the EU has established a comprehensive legal framework, the core of which is the Security of Supply Regulation (hereinafter: SoS Regulation)[21]. This regulation obliges EU Member States to take measures to prevent and manage gas crises, with special attention to protected consumers (households and, under certain conditions, essential services). This chapter describes the main objectives, obligations, and standards of the SoS Regulation and the Dutch implementation of the regulation. The regulation has been in force since 1 November 2017.

The SoS Regulation

The main objective of the regulation is to ensure a secure and uninterrupted gas supply throughout the EU and to increase resilience to disruptions. EU Member States must have measures in place to manage potential disruptions to the gas supply, particularly to ensure the continued supply of gas to protected customers for as long as possible. The SoS Regulation promotes regional cooperation and obliges Member States to conduct risk assessments, draw up preventive action plans, and develop emergency plans. Solidarity among EU Member States forms the basis for this[22].

Risk assessment

When preparing a risk assessment, EU Member States are divided into risk groups. Within each group, competent authorities[23] jointly assess risk factors, such as natural disasters, technical, commercial, and geopolitical risks. Each EU Member State also conducts a national risk assessment tailored to its risk group(s). Since the 2022 gas crisis, this assessment must also consider scenarios involving prolonged disruption of a supply source. The preventive action plan or emergency plan must explain whether and how risks are taken into account and what risk acceptance level is considered acceptable in future gas crisis scenarios, so that it is clear for which risks a measure is taken and for which risks not.

Based on the national risk assessment, the competent authority of each EU Member State draws up two plans to mitigate or reduce the identified risks:

- A preventive action plan with primarily market-based measures to mitigate or limit the identified risks and
- An emergency plan that may also include non-market-based measures in the event of a serious disruption that cannot be resolved by the precautionary measures in the preventive action plan.

21 Regulation 2017/1938: https://eur-lex.europa.eu/eli/reg/2017/1938/oj/eng?eliuri=eli%3Areg%3A2017%3A1938%3Aoj&locale=nl
22 Article 1: This Regulation also establishes, in a spirit of solidarity, transparent mechanisms for the coordination of planning for, and responses to, emergencies at national, regional and Union level
23 For the Netherlands this is the Minister of KGG

Preventive Action Plan

The preventive action plan includes, among other things, the measures, volumes and capacities required to meet the following three standards.

1. Infrastructure standard: sufficient supply capacity on peak days, even in the event of a failure of the largest infrastructure (the so-called N-1 standard).

2. Gas supply standard: sufficient gas for protected customers during cold periods and average winter conditions in combination with failure of the largest supply infrastructure.

3. Filling standard for gas storage: minimum amount of gas at the start of a winter season.

These standards are assessed annually by GTS in its report on security of supply[24]. The standards do not take into account prolonged disruption of a source.

The preventive action plan primarily contains market-based measures that must be cost-effective and cause minimal disruption to the functioning of the gas market.

Emergency plan

The emergency plan describes the approach in the event of an impending or serious deterioration in the gas supply situation. The goal is to guarantee security of supply for as long as possible, particularly for protected customers, and to provide clarity in emergency situations. There are three crisis levels: early warning, alarm, and emergency. Each level has specific criteria and measures, depending on the severity of the situation and the effectiveness of market measures.

The first level may be declared when information indicates that an event may occur that could significantly deteriorate the gas supply situation and lead to an alert or emergency level.

The second level of a gas crisis is declared when a gas supply disruption or exceptionally high gas demand occurs that significantly worsens the gas supply situation, but the market is still able to absorb this disruption or demand without having to resort to non-market-based measures.

An emergency, the third and highest level of gas crisis, can be declared when exceptionally high gas demand, a significant disruption of the gas supply, or another significant deterioration of the gas supply situation occurs and all relevant market- based measures have been implemented, but the gas supply is insufficient to meet the remaining gas demand, and therefore additional non-market-based measures must also be taken, in particular to safeguard gas supplies to protected customers.

24 https://www.gasunietransportservices.nl/gasmarkt/leveringszekerheid-gas

Dutch risk assessment, preventive action plan and emergency plan

The 2023 Dutch risk assessment[25] concludes that the situation has become more unstable and uncertain, but does not explicitly address the risk of a prolonged disruption of a supply source. The government concludes that this more unstable and uncertain situation requires measures. These measures are included in the 2023 preventive action plan[26] and consist of voluntary demand reduction and acceleration of the energy transition. The government also encourages energy conservation through campaigns, subsidies, and obligations for large consumers.

Because no replacement supply is available, the Netherlands must rely on the non-market-based measures from the emergency plan[27], which focus on mandatory demand reduction from unprotected end consumers.

The Netherlands does not meet all legal SoS requirements: introduction of WBE necessary

The gas crisis has made the government realize that the Netherlands is not fully compliant with the SoS Regulation and that some options from the SoS Regulation still need to be enshrined in national legislation. The Energy Supply Crisis Management Act (WBE)[28], expected to be implemented in mid-2027, should address these omissions and provide the legal basis for non-market-based measures:

1. Who are the protected customers? The current group of protected consumers consists of end consumers with a small connection. The government wants to align itself with the definition in the SoS regulation: households, and under certain conditions, also essential social services.

2. Preventive measures such as having gas storage facilities filled by a so-called filling agent, for example, when regular market parties do not do this in regular situations for sufficient winter volume (EBN implemented this from 2022 at the request of the government)

3. Powers to take, implement and, where appropriate, enforce non-market-based measures to prevent and respond to an emergency situation. The WBE provides the basis for actually requiring unprotected consumers (primarily industry) to switch back to minimum flow in the event of an emergency. According to the government, this option is currently only available under state emergency law, which doesn't align well with the specific characteristics of a gas crisis.

25 https://www.government.nl/documents/reports/2023/07/27/the-netherlands-national-risk-assessment-2023
26 https://www.government.nl/documents/reports/2024/02/29/preventive-action-plan-2023-the-netherlands
27 https://open.overheid.nl/documenten/8823440f-4bf6-4c65-9d76-57906219828e/file
In the Netherlands, the emergency plan is called the "Bescherm- en Herstelplan"
28 https://www.internetconsultatie.nl/wbe/b1

Recent amendments and revision of the SoS Regulation

The SoS Regulation entered into force on 1 November 2017, at a time when the gas supply was considered ample, stable, and reliable. The Netherlands and Norway produced a lot of gas, and Russia, with a large share (approximately 45 percent), was considered a reliable gas supplier. The focus of the SoS Regulation and the national emergency plans based on it was on resilience to short-term disruptions in supply capacity and/or transport capacity. There was absolutely no attention paid to supply disruptions, let alone prolonged supply disruptions. At the time, what happened in 2022 was unthinkable: the prolonged loss of a major and crucial gas supplier. The Russian aggression and the resulting gas crisis were a game-changer.

The European Commission quickly announced a series of (emergency) measures, including (but not limited to) the 90% fill limit for all EU gas storage facilities, a mandatory 15% demand reduction for EU member states, a maximum TTF price, the introduction of a joint EU trading platform, and measures to prevent contractual congestion. Risk assessments must also consider scenarios of a prolonged disruption of a single supply source, and attention has been given to the creation of an emergency reserve and the release of gas from it. All these measures led to an amendment to the SoS Regulation[29] on June 30, 2022.

The fact that attention has been paid to building an emergency reserve in a gas storage facility since then is perfectly logical. In GTS's view, gas serving as an emergency reserve may only be produced (released) as a non-market-based measure during an emergency, after prior notification and a government permit for its release[30]. The SoS regulation could more explicitly state than is currently the case that an emergency situation can be declared if it is likely that there is a supply disruption that could be prolonged. This would allow an emergency reserve to be released immediately as a non-market-based measure during an emergency. In GTS's view, it would be highly illogical to have an emergency reserve and not be able to use it as a non-market-based measure during a (prolonged) supply disruption.

GTS will use two examples below to explain how it believes a prolonged supply disruption should proceed. These examples involve a significant disruption to the gas supply or another significant deterioration in the gas supply situation.

29 https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32022R1032
30See also Article 10, paragraph 1, point i of the SoS Regulation

Example: Norwegian gas supply partially disappears

Sabotage could render one or more Norwegian gas supply pipelines unusable. In such a situation, it's immediately clear that repairs, even if possible, will take several months. Declaring an emergency is the obvious solution, so that the available emergency supply can be deployed as quickly as possible.

Example: LNG supply partially disappears

Due to geopolitical tensions, some LNG supplies cannot reach the EU because, for example, the Strait of Hormuz is closed[31] or the US imposes an export ban. Although it is less clear in this example how long such a disruption could last, an emergency situation should also be declared in this situation so that the available emergency supply can be made available as quickly as possible.

The European Commission also sees weaknesses in security of supply

Like GTS, the European Commission also sees weaknesses in security of supply. This is evident from the fitness check[32]recently[33] published by the Commission. The Commission also sees clear weaknesses in the legal framework regarding preparation for the 2021-2023 energy crisis[34]. Prolonged disruptions of a source were not taken into account. The fact that the EU had to introduce additional emergency measures to address the energy crisis highlights the need for more robust risk assessments and scenario planning, including emerging risks such as cybersecurity, hybrid threats, and geopolitical tensions regarding access to critical minerals for the energy transition and climate change.

On 15 September 2025, the European Commission[35] announced a revision of the SoS Regulation. The revision aims to strengthen energy security and ensure that the EU energy system remains sufficiently safe, resilient, and well-adapted to a changing energy, climate, and geopolitical landscape. The proposal for the revised regulation is expected in the first half of 2026.

31 By March 2026, this had become a reality, with LNG exports and production temporarily suspended
32 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52025SC0435&qid=1767610011921
33 https://energy.ec.europa.eu/commission-publishes-fitness-check-eu-laws-covering-security-electricity-and-gas-supply-view-future-2026-01-05_en
34 GTS refers here to pages 47, 48/49 and 61
35 https://energy.ec.europa.eu/news/commission-takes-first-step-strengthen-eus-energy-security-framework-2025-09-15_en#:~:text=The%20Commission%20has%20today%20launched%20a%204-week%20call,security%20framework%20in%20the%20first%20quarter%20of%202026

4 Risk assessment: prolonged disruption of supply

GTS will describe in this chapter the potential risks of a prolonged supply disruption and the consequences this may have if no (additional) precautionary measures are taken.

Definition and extent of a prolonged disruption of gas supply

On January 22, 2025, ENTSOG, together with the Gas Coordination Group, published[36] its Union-wide simulation[37] (hereinafter: SoS simulation), prepared in accordance with the SoS Regulation. This report defines a prolonged disruption of a supply source as a six-month disruption to offshore infrastructure. The report contains twelve scenarios with supply disruptions at different locations and scales. In each scenario, the goal is to maintain a minimum 30 percent fill level in gas storage facilities at the end of winter, so that they can be filled to at least 90 percent again during the injection season for the following winter. This is necessary to be able to survive the following winter without problems.

In the reference scenario, which assumes the availability of all resources, a demand reduction of approximately 287 TWh is necessary to maintain the fill level at 30 percent at the end of a cold winter. This represents approximately 10 percent of the EU's gas demand in a cold winter. The calculations above assume no supply interruptions. The interruption scenarios determine whether, beyond this 10 percent demand reduction, additional demand reductions are necessary to achieve the 30 percent fill level.

For the twelve scenarios, the required EU demand reduction ranges from 287 to 482 TWh. Since supply and demand must always be physically balanced, a prolonged disruption of a source, without replacement supply, will always result in a demand reduction. The required demand reduction from the ENTSOG simulations can therefore also be considered a supply disruption of the same size.

Zooming in on the Netherlands, Norwegian gas via pipelines and LNG via the Gate terminal are the most important sources. Prolonged disruptions of these sources lead to a significant loss of supply. As an example, Norwegian supply is approximately 110 TWh per year; a six-month disruption, for example due to sabotage, results in a loss of approximately 55 TWh. LNG disruptions, for example due to problems with the supply to Gate, lead to a loss of approximately 110 TWh in six months. The recent concern[38] about the possible loss of LNG from the US is understandable. In 2025, 180 TWh of LNG originated from the US. This represents approximately 80 percent of the total LNG imports for the Netherlands. A six-month disruption of LNG from the US results in a supply disruption of approximately 90 TWh, falling within the aforementioned range of 55-110 TWh.

36 Commission Advisor to facilitate the coordination of security of supply measures in the event of a Union or regional emergency: https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&do=groupDetail.groupDetail&groupID=1096

37 https://www.entsog.eu/sites/default/files/2025-01/ENTSOG%20EU-wide%20Security%20of%20Supply%20Report%202024.pdf

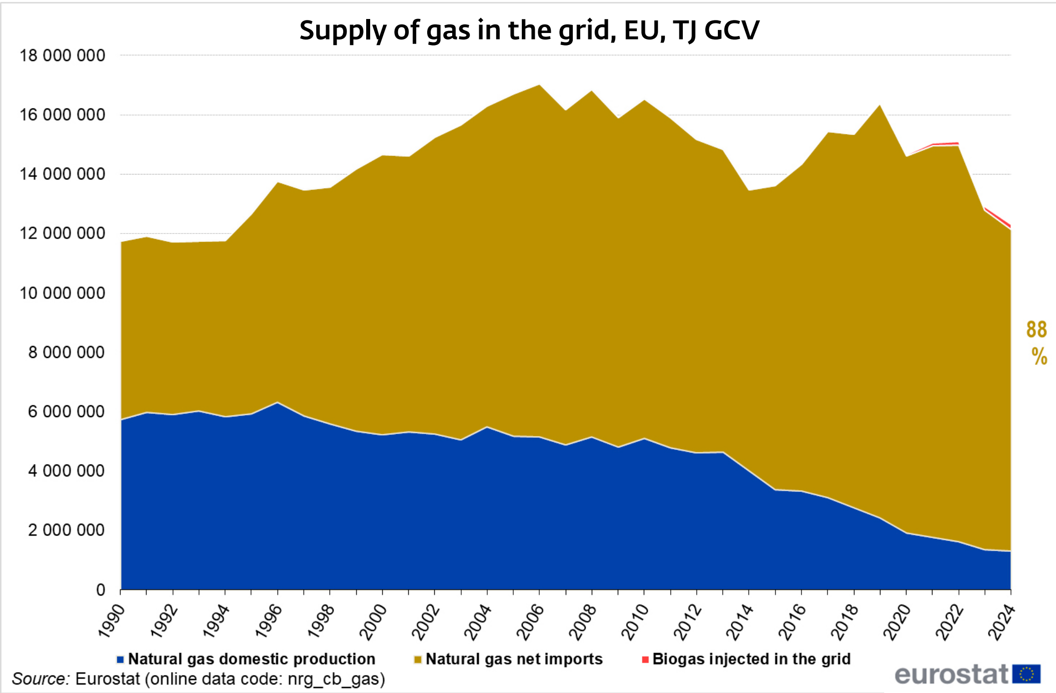
38 https://www.nu.nl/klimaat/6383198/russisch-gas-maakt-plaats-voor-amerikaans-lng-wil-je-niet-nog-een-keer.html

In the event of a prolonged gas supply disruption, the Netherlands and the other EU member states have no replacement supply available for such a large supply shortage. Without replacement supply, the balance between supply and demand must be restored through a large-scale demand reduction, resulting in high gas prices and a significant economic impact, as happened during the 2022 gas crisis.

Risk of prolonged disruption of gas supply has increased

Imports will account for a growing share of the EU's natural gas supply between 1990 and 2024. Figure 1 shows the development, broken down by EU natural gas production, EU net imports, and EU biogas production. Dependence on natural gas imports is growing as EU production declines. In 2024, net imports accounted for a staggering 88 percent[39] of the gas supply.

Figure 1: EU import dependency has increased sharply in recent years



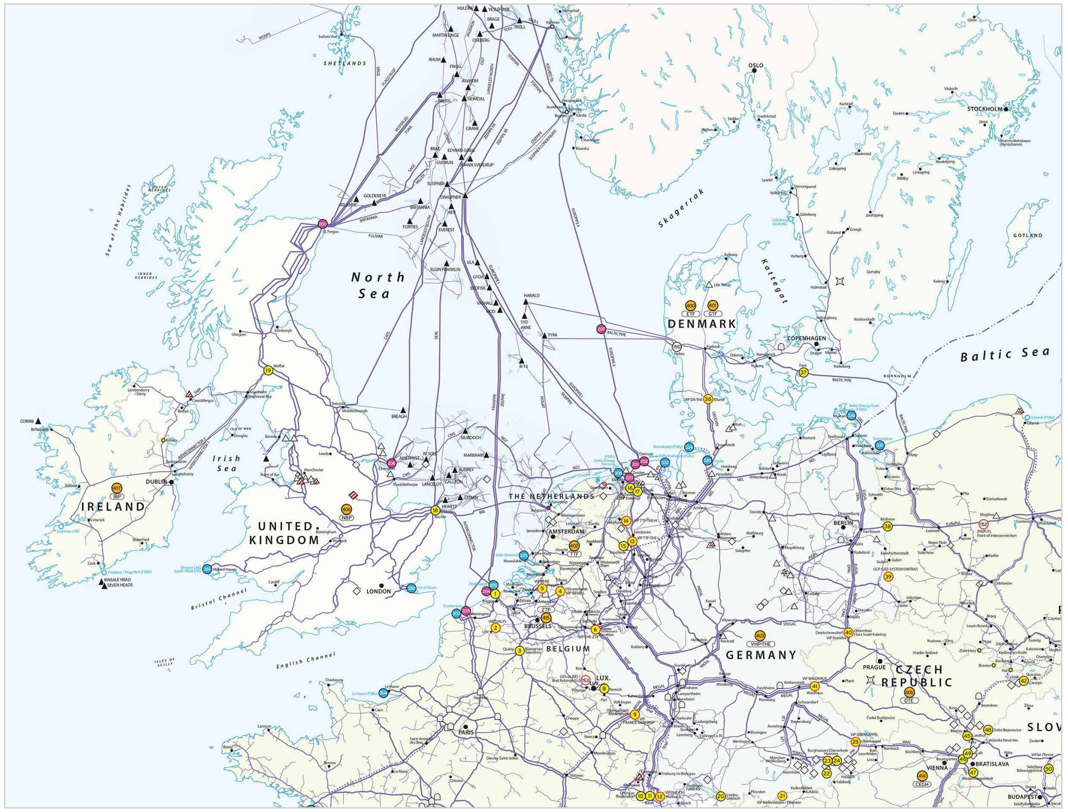
Moreover, despite EU efforts to phase out Russian gas entirely, Russian LNG still accounts for approximately 10 percent of the EU's LNG supply. Diversification, necessary to reduce dependence on a few major suppliers, is non-existent[40, 41]. US LNG accounts for approximately 60% of total EU LNG imports, and for the Netherlands, this figure is even close to 80%.

39 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_production_and_imports
40 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_imports_of_energy_products_-_latest_developments
41 https://www.consilium.europa.eu/nl/infographics/where-does-the-eu-s-gas-come-from/

That doesn't have to be a problem if the gas suppliers are reliable and continue to deliver according to contract. Experience has shown that this isn't always the case.

The dependence on a few major players is even more concerning because some LNG suppliers are located in geopolitically unstable regions or in countries that use energy as leverage. Higher trade tariffs[42] and the use of energy as political leverage can impact gas availability [43, 44]. This significantly increases the risk of disruptions. Vulnerabilities, as also defined by ENTSOG [45], relate to onshore and offshore infrastructure and LNG supply routes. From a gas supply perspective, the North Sea and the Baltic Sea, with their numerous gas pipelines and LNG terminals (see Figure 2), are a vulnerable area and a potential target for sabotage.

Figure 2: Pipelines for gas transport in the North Sea and Baltic Sea



Safety in the North Sea and the Baltic Sea is no longer a given. This is evident, among other things, from the explosion of three of the four Nord Stream pipelines and the destruction of the Baltic Connector. There are concerns about increased activity by Russia's so-called shadow fleet. In addition, the threat of cyberattacks on critical infrastructure is growing[46].

42 https://www.clingendael.org/publication/europes-selective-blindness-gas
43 https://bijlagen.nos.nl/artikel-23839529/USA-Qatar_Joint_Letter.pdf
44 https://www.nu.nl/klimaat/6383198/russisch-gas-maakt-plaats-voor-amerikaans-lng-wil-je-niet-nog-een-keer.html
45Map: https://www.entsog.eu/sites/default/files/2025-01/ENTSOG_GIE_SYSCAP_2025_1600x1200_FULL_114_FLAT.pdf
46 https://www.ncsc.nl/nieuws/cybersecuritybeeld-2025-dreigingen-divers-en-onvoorspelbaar-digitale-basishygiene-op-orde-blijft

LNG imports depend on several narrow and strategic shipping routes, including:

- Red Sea: Where attacks by armed groups threaten shipping.
- The Strait of Hormuz: a crucial passage between Iran and Oman, through which approximately 20 percent of global LNG trade passes, primarily from Qatar. This strait has only two narrow channels, 2 kilometers wide, one for ships sailing into the Persian Gulf and one for ships sailing out.
- Panama Canal: Vital for LNG transport from the US to Asia

It is therefore not a given that LNG and pipeline gas will continue to flow unhindered into the EU in the coming years. These risks significantly increase the likelihood of prolonged disruptions. CE Delft's recent analysis, "Strategic Cushion Gas Reserves,"[47] describes similar vulnerabilities.

Without a replacement supply, the impact of a prolonged disruption of gas supply is enormous

In analyses from 2018[48] and 2019[49] the potential consequences of a gas shortage have been investigated. Both analyses show that the consequences of a supply shortage are drastic, comparable to those experienced during the recent gas crisis.

During the 2022 gas crisis, a significant portion of the gas supply was cut off for an extended period, resulting in gas prices that were significantly higher than before 2021 for a prolonged period (see Figure 3), rising above €300/MWh.

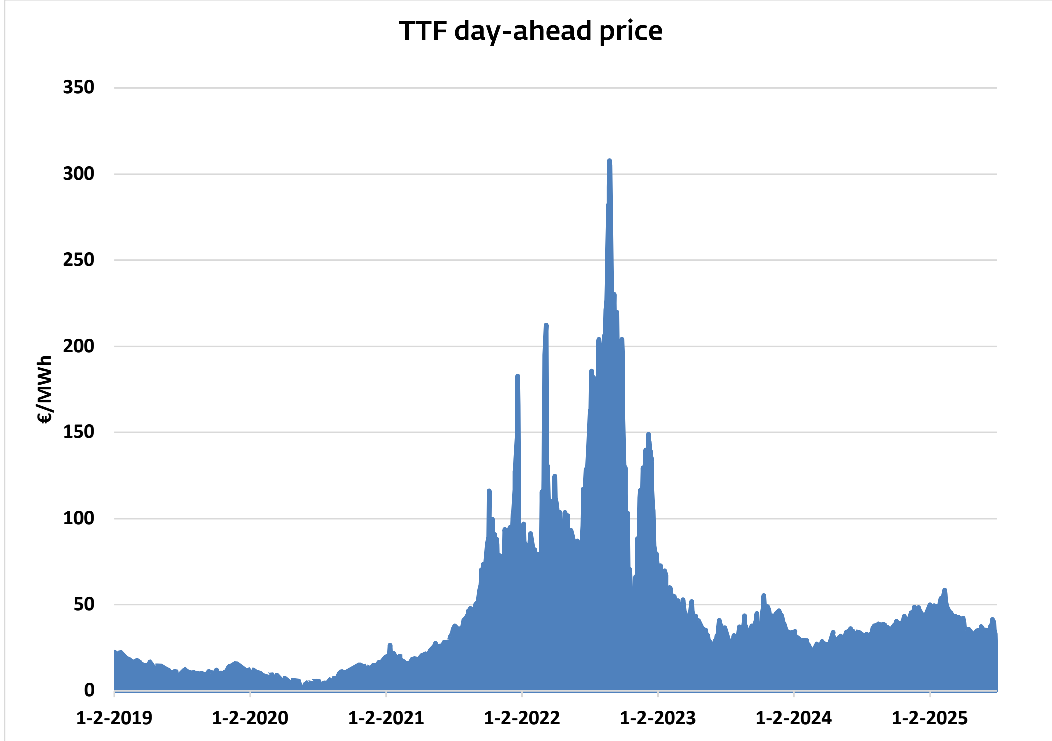
Even with prolonged supply shortages, a new physical equilibrium between supply and demand always arises: no more gas can be consumed than is available. Supply and demand "search" for a new physical equilibrium, at a much lower consumption level. Despite the approximately 20 percent reduction in consumption, the costs for the end user were much higher than before the gas crisis.

47 *Strategic cushion gas reserves, An analysis of measures to improve the security of supply and affordability of gas: https://ce.nl/publicaties/strategische-kussengasreserves/*

48 *https://www.rvo.nl/files/file/2018/08/Ov_COT%20Verkennende%20scenarioanalyse%20gaswinning%20onder%20leveringszekerheid.pdf*

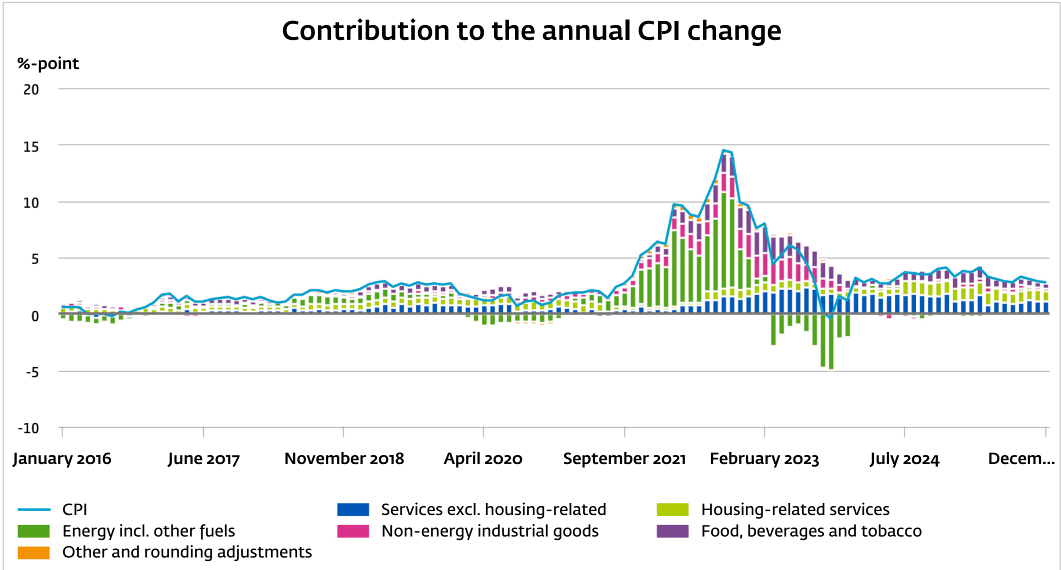
49 *https://zoek.officielebekendmakingen.nl/blg-899822.pdf*

Figure 3: Increase in the TTF Day-ahead gas price during the 2021/2022 gas crisis clearly visible



The consumer prices dashboard, based on the CBS consumer price index (CPI)[50], clearly shows the impact of rising gas prices (and therefore electricity prices) on inflation. The gas crisis thus had a huge impact on the Dutch economy.

Figure 4: Sharply rising inflation in the Netherlands during the gas crisis in 2021/2022

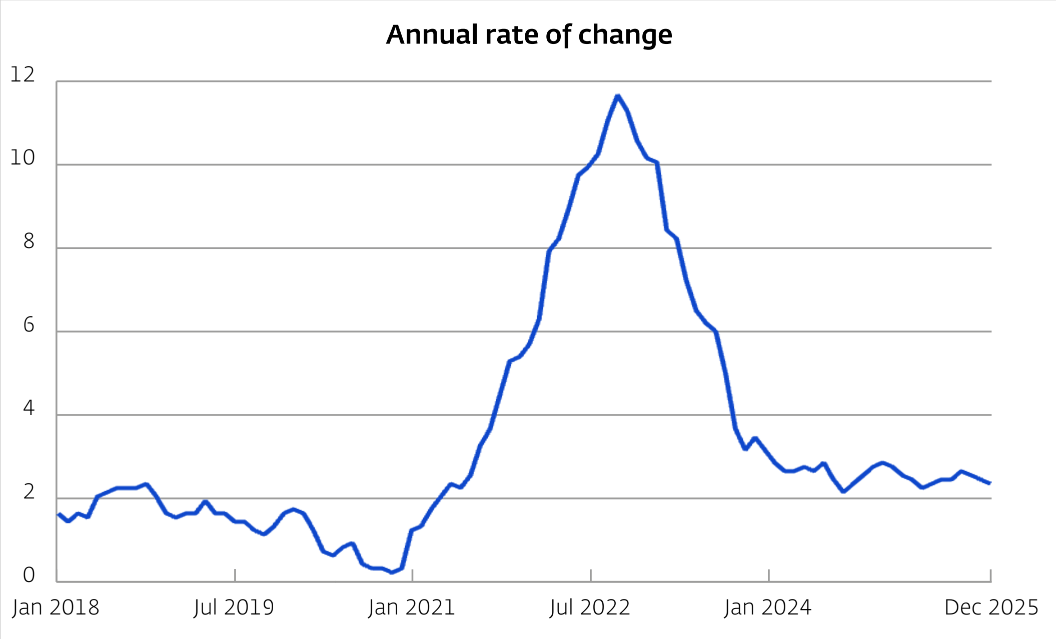


50 *https://www.cbs.nl/nl-nl/visualisaties/dashboard-consumentenprijzen*

Figure 4 shows inflation over the years. The green section clearly shows that the high gas price had a major impact on rising inflation. With a Dutch Gross Domestic Product (GDP) of approximately €1 trillion and average inflation of around 10 percent in 2022, this means that the cost of goods and services has increased by approximately €100 billion, without any improvement in the performance of those goods and services. The gas crisis has therefore had a huge negative financial impact on the Netherlands.

A similar impact is visible at EU level (harmonised indices of consumer prices, HICP[51]). Inflation rose to around 10%, resulting in costs amounting to hundreds of billions of euros[52]

Figure 5: Sharply rising EU inflation, starting during COVID-19 but peaking during the gas crisis in 2022



51 https://ec.europa.eu/eurostat/cache/dashboard/prices/
52 https://www.sciencedirect.com/science/article/pii/S221462962300261X?via%3Dihub

5 GTS: measures in case of prolonged disruption of supply

In this chapter, GTS explains several possible measures, most of which are also described in the SoS regulation. These measures include:

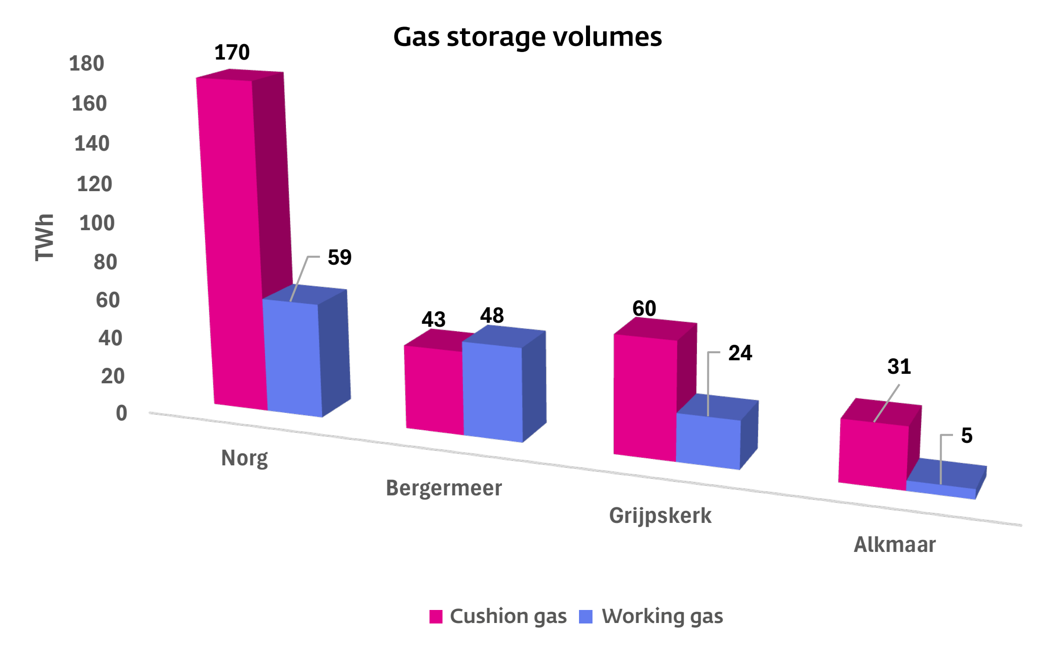
Supply side:
- Use of an emergency stock;
- Forced use of alternative fuel supplies;
- Forced use of electricity generated from sources other than gas;
- Forced increase in gas production levels;
- Forced withdrawal from gas storage;
- LNG as a backup.

Demand side:
- Various successive options for mandatory demand reduction, such as forced fuel switching;
- Forced use of contracts with interruptibility clauses, when not fully used as part of market-based measures;
- Forced shutdown of companies.

Supply side: use of an emergency stock

An emergency supply can be created by storing additional working gas or by making the existing cushion gas producible. GTS focuses on the four gas storage facilities (Alkmaar, Bergermeer, Grijpskerk, Norg) that utilize a gas field. The working gas is produced in the winter and replenished in the summer. Cushion gas is permanently stored in the gas storage facility and is needed to produce the working gas at sufficient pressure in the winter. The combined working gas volume of the four gas storage facilities is approximately 137 TWh. The combined cushion gas volume is approximately 300 TWh.

Figure 6: Working gas and cushion gas volumes of the four major Dutch gas storage facilities



Emergency stock with limited volume from working gas volume

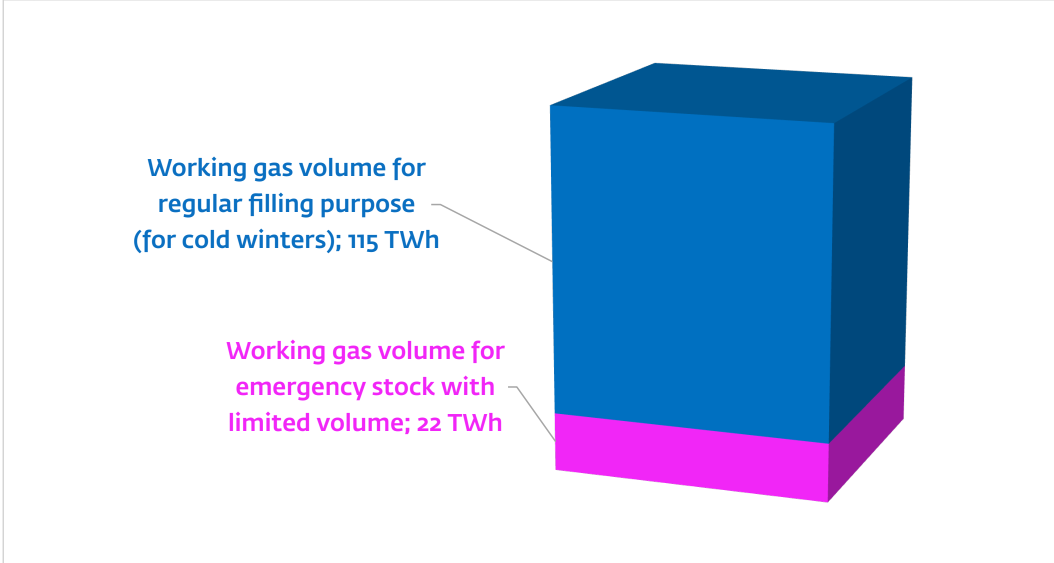
The explanatory memorandum (MvT) of the consulted WBE indicates that the act will provide greater certainty by creating the option to create and maintain a limited emergency stock. The MvT further states that this form of emergency stock can be deployed by order of the Minister to tackle a short-term emergency (for example, a maximum of 30 days). Deploying the emergency stock thus ensures more time for careful preparation and implementation of non-market-based measures from the emergency plan, specifically forcing unprotected consumers to minimum flow. The intention is to start by fully filling the Alkmaar peak gas facility with 5 TWh and then maintain this working gas volume as an emergency stock. Incidentally, GTS previously recommended in its vision on security of supply[53] to maintain 15 TWh as an emergency stock (to tackle a short-term emergency) in one or more gas storage facilities.

Given the current geopolitical climate, GTS can easily imagine that instead of maintaining 15 TWh as an emergency reserve for short-term emergencies, the remaining available working volume will be used fully as an emergency reserve. The total working gas volume of the four gas storage facilities is approximately 137 TWh. With a recommended filling target of 115 TWh for the winter of 2026/2027, 22 TWh of working gas would then have to be designated as an emergency reserve.

Volumes stored in the summer in seasonal gas storage facilities for complying with the filling target, intended for the higher winter demand, is a regular market-based measure and does not fall under emergency gas stock.

53 *Chapter 12: https://www.gasunietransportservices.nl/gasmarkt/leveringszekerheid-gas/visie-2024*

Figure 7: Working gas volume for both regular filling purpose and limited emergency supply



Emergency supply with a large volume using cushion gas

A large-volume emergency reserve offers important additional benefits, namely stabilizing the market during supply shocks, countering unrest and speculation in the gas market, dampening price spikes, and autonomy over gas supplies.

Autonomy over gas (stocks) in an emergency offers a major strategic advantage because it makes the Netherlands and other EU member states less dependent on LNG suppliers and Norwegian gas. When using an emergency reserve, gas storage facilities that utilize a depleted old gas field have the greatest potential in terms of available volume. This volume is much larger than that of so-called caverns.

According to AGSI, the EU has approximately 1,100 TWh of total gas storage (working gas), in both old gas fields and caverns. Old gas fields contain relatively large amounts of cushion gas. Italy, Austria, Germany, and Hungary, like the Netherlands, have gas storage facilities with large amounts of cushion gas. GIE[54] estimates the working volume of all gas storage facilities in old gas fields at approximately 800 TWh. Because cushion gas must provide sufficient pressure to the working gas volume, most gas storage facilities contain at least as much cushion gas as working gas. This means the EU has at least 800[55] TWh of cushion gas.

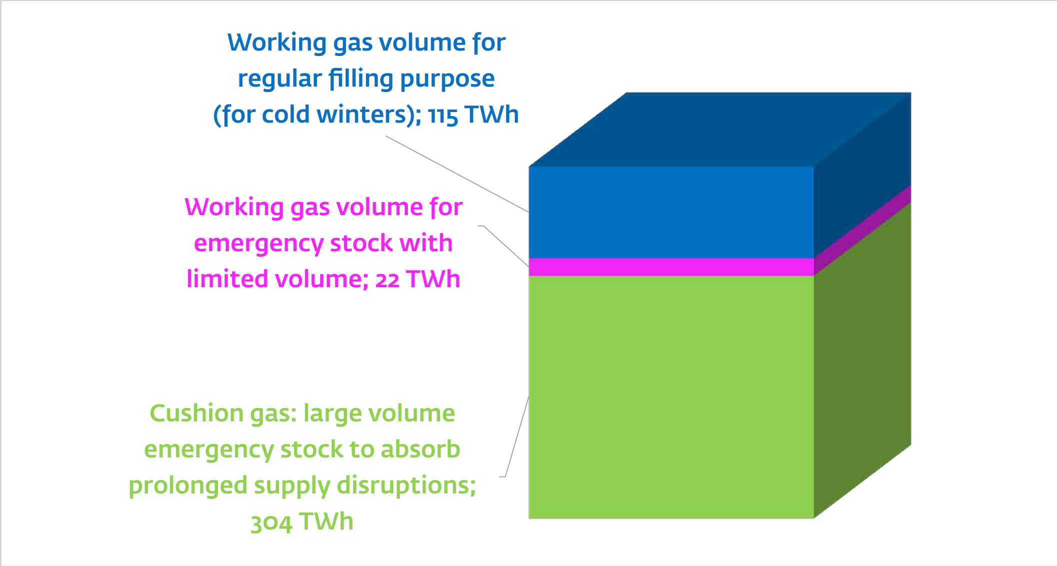
According to SoS simulations, a prolonged disruption could lead to a supply disruption of 287-482 TWh for the EU. The available cushion gas in EU gas storage facilities offers significant potential to absorb such a large supply disruption.

54 *https://www.gie.eu/transparency/databases/storage-database/*
55 *https://www.woodmac.com/press-releases/tapping-working-gas-volume-could-cushion-blow-of-europes-energy-crunch/*

Building up volumes in large gas storage facilities

Including the filling advice, which is intended for regular situations including a cold winter, but without prolonged supply disruptions, the volumes for the four large gas storage facilities in Alkmaar, Bergermeer, Grijpskerk, and Norg can be classified as follows:

Figure 8: Regular working gas, working gas as an emergency supply and cushion gas as an emergency supply



Research into possible production of cushion gas is necessary

The production of cushion gas must be assessed against multiple criteria, comparable to a production plan. This includes, for example, an assessment of the technical suitability of installations and the risks of leakage or corrosion. Following production, the reservoir must be capable of being re-injected, which requires sufficient capacity and technical feasibility.

The technical suitability of installations and the risk of leaks or corrosion must be assessed. After production, the reservoir must be capable of being injected again, which requires sufficient capacity and technical feasibility.

Cushion gas production often requires additional permits, partly due to potential emissions and environmental impacts. Production capacity decreases as pressure drops, potentially requiring compressors. The gas storage operator should simulate the pressure level at which production remains safe and feasible. The infrastructure must also be suitable for production at lower pressures. Cushion gas often has a different composition than working gas, which may require additional gas treatment or adjustments to the GTS network. The market value, production costs, and impact on regular storage activities must be investigated. Finally, in an emergency, the Minister determines who, when, and how much cushion gas will be marketed, and ownership, cost allocation, and benefits must be clear.

Such research must also be conducted in part if the owner of the cushion gas intends to produce it commercially. This is already happening with the Norg gas storage facility. A production plan has been submitted for commercial production of cushion gas. Both applications essentially concern the responsible production of cushion gas. A standard production plan can serve as a model for research into an emergency supply of cushion gas.

Interaction of emergency stock with gas market in regular situations

An emergency supply of working gas or cushion gas is an emergency measure that may only be used in an emergency situation and after the Minister has issued a mandate. It does not affect the filling target recommended by GTS, which is necessary to have sufficient gas during a cold winter in regular situations. It also does not intervene during normal market conditions.

Organization of emergency stock using cushion gas

Ideally, EU member states would collectively decide on precautionary measures to absorb a prolonged disruption of a source. According to GTS, cushion gas from gas storage facilities could serve as a solution. For its own "defense," the Netherlands needs a sufficient emergency reserve: between 55 TWh and 110 TWh, according to GTS. The remaining available (or realistically producible) cushion gas volume in the Netherlands could be offered for a fee to EU countries without gas storage facilities or with limited cushion gas volumes. According to GTS, the recently initiated EU process for improving the SoS regulation offers the opportunity to put this on the agenda and take swift action.

This does not affect the fact that the Netherlands must take an independent decision on strengthening the resilience of the natural gas system through precautionary measures on the supply side.

Thanks to NAM's submitted extraction plan for Norg, a great deal of knowledge is now available about the gas quality of that cushion gas and the recoverable free-flow portion without additional compression. GTS believes this research should also be conducted for the other gas storage facilities. This is not only wise for risk diversification but also necessary to ensure sufficient capacity and the maximum possible cushion gas volume that can be produced without (additional) compression. Furthermore, using cushion gas from all four gas storage facilities is also wise to ensure that cushion gas is produced evenly during a prolonged disruption, preventing any gas storage facility from becoming completely depleted. This makes refilling each gas storage facility after an emergency less extensive than using only one gas storage facility as an emergency supply.

The study must also consider the decline in the market for Groningen-quality low-calorific gas (G-gas) in Germany and France. Furthermore, G-gas consumption in the Netherlands will also decrease over time. The cushion gas from Bergermeer and Grijpskerk is also necessary because it is high-calorific gas (H-gas). GTS believes an emergency supply of both G-gas and H-gas must be made available. Initially, GTS would opt for a 50%-50% split, although the current market demand split is 2/3 for G-gas and 1/3 for H-gas. H-gas can also be converted into pseudo-G-gas through nitrogen blending, making this type of gas attractive for both markets. The exact distribution should ultimately be determined partly based on the outcome of the research, which should, among other things, provide insight into the recoverable free flow portion of the cushion gas per gas storage facility, and what portion of the cushion gas can be produced so that the gas storage facility can function as gas storage again after cushion gas production through a rapid refill.

To ensure a sufficient emergency supply (55-110 TWh), the Dutch government could purchase cushion gas (in advance) to make the Netherlands more resilient to a prolonged disruption of a source. Assuming this gas (as NAM already plans to do with Norg) will eventually be produced, this is an investment that will generate (unknown) revenue at a later date (when the cushion gas is produced).

A purchase option at a predetermined gas price is an interesting alternative to explore. Such an option would only need to be exercised in an emergency situation and the cushion gas needs to be used to address the supply shortage. The investment in a purchase option would be considerably lower than purchasing the gas outright, and here too, it's an investment that will generate revenue at some point.

GTS assumes that due to the possibility of cushion gas production in an emergency, emergency financial measures, such as those implemented in 2022 and 2023, will not be necessary, and that gas prices will rise less than during the 2022 gas crisis due to the available emergency supply.

Some other EU member states also have cushion gas available. These countries should also investigate how cushion gas can be produced during an emergency. GTS therefore advises the government to investigate the use of cushion gas as an emergency reserve at the EU level as a possible solution for a prolonged disruption of a source. The portion of cushion gas that can realistically be produced and that the Netherlands does not need to use itself can be made available to other EU countries (for a fee).

When choosing an emergency reserve using cushion gas, establishing a central management entity can be considered. The Dutch model for strategic oil reserves, with the Central Agency for the Stockpiling of Petroleum Products (COVA)[56], can serve as an example. The financing of oil reserves is efficiently structured, often with a government guarantee, to keep social costs low.

Supply side: forced use of alternative fuel stocks

In the event of a serious disruption to the gas supply, gas demand can be reduced by (mandatory) use of alternative fuels. The Netherlands has strategic oil reserves that can replace gas consumption in emergency situations, for example, in power plants or industries that can technically switch from gas to oil. Coal reserves can also be utilized, depending on infrastructure and environmental regulations. Biofuels such as bio-oil or biogas are an alternative in some sectors. Furthermore, mandatory use of electricity from sources other than gas, such as wind, solar, nuclear, or imported power, can contribute to reduced gas consumption. However, the temporary use of alternatives can lead to higher emissions, which would require a temporary relaxation of environmental regulations.

This measure was used in 2022 when the government[57] decided to temporarily lift the production restriction for coal-fired power stations, allowing them to operate at full capacity again, which could then result in gas savings of up to 26 TWh per year[58].

56 https://cova.nl/
57 https://www.rijksoverheid.nl/actueel/nieuws/2022/06/20/kabinet-neemt-maatregelen-voor-energiezekerheid
58 https://www.gasunietransportservices.nl/nieuws/deze-winter-geen-tekort-in-nederland-bij-wegvallen-russisch-aardgas

It should also be investigated whether and to what extent industries can switch over directly. The Netherlands has never in the past made a massive effort to implement a dual fuel strategy, primarily due to the availability of the Groningen field and sufficient gas supply from Norway, Russia, and domestic production from small fields. The risk of a prolonged disruption to the gas supply was considered low, making investing in alternative fuels cost-inefficient. In recent years, the emphasis has been on energy transition (electrification, hydrogen, biofuels) rather than fossil alternatives. Investing in, for example, oil backup is considered unsustainable. GTS estimates the potential savings of alternative fossil fuels on natural gas consumption in the event of a prolonged disruption to be low.

Supply side: forced use of electricity, generated from sources other than gas

Power plants that are technically capable of switching from gas to alternative sources (such as coal, oil, nuclear, wind, or solar) could be required to increase their production from these sources. The Netherlands could also try to import more electricity from neighboring countries, provided infrastructure and international regulations permit. Consumers of electricity from gas-fired power plants, such as industries and businesses, could be required to switch to electricity from other sources. These measures are subject to the same legal restrictions and practical considerations as the forced use of alternative fuels. The Netherlands has never, in the past, made a massive effort to implement a dual-fuel system, that allows only a limited portion of gas-fired power stations to switch to another fuel (e.g. coal).

Especially during cold, dark winter days, with little sun and wind (known as ™Dukelflaute∫), gas-fired power plants are used to maintain electricity production. In addition, there remains a significant need for so-called controllable capacity as electricity production becomes increasingly dependent on non-controllable power from solar and wind. Gas-fired power plants supply part of this controllable capacity, thus supplementing the fluctuating power production from solar and wind power. As a result, these plants are essential for the electricity grid as long as no viable alternatives are available. With an annual Dutch gas consumption of less than 60 TWh from all gas-fired power plants combined, and the limited options for switching to coal, the potential natural gas savings are limited: a maximum of 26 [59]TWh annually, while the Netherlands requires between 55 and 110 TWh over six months during a prolonged disruption.

Supply side: forced increase in gas production levels

This will force all gas production sites to operate at maximum capacity. However, with the continued decline in production from small fields that operate at near-maximum capacity daily, this measure will have limited practical effect. However, it was noted during the gas crisis that, partly due to the high gas price, it became attractive for producers to incur additional costs for increased production.

59 https://ned.nl/nl/dataportaal/energie-consumptie/gas/gascentrales

Supply side: forced withdrawal from gas storage

In the event of a prolonged disruption to the gas supply, almost all available dispatch capacity will almost certainly be utilized, especially in winter. Existing gas storage facilities are expected to operate at maximum production capacity. If there is still available dispatch capacity, utilizing it may offer some relief.

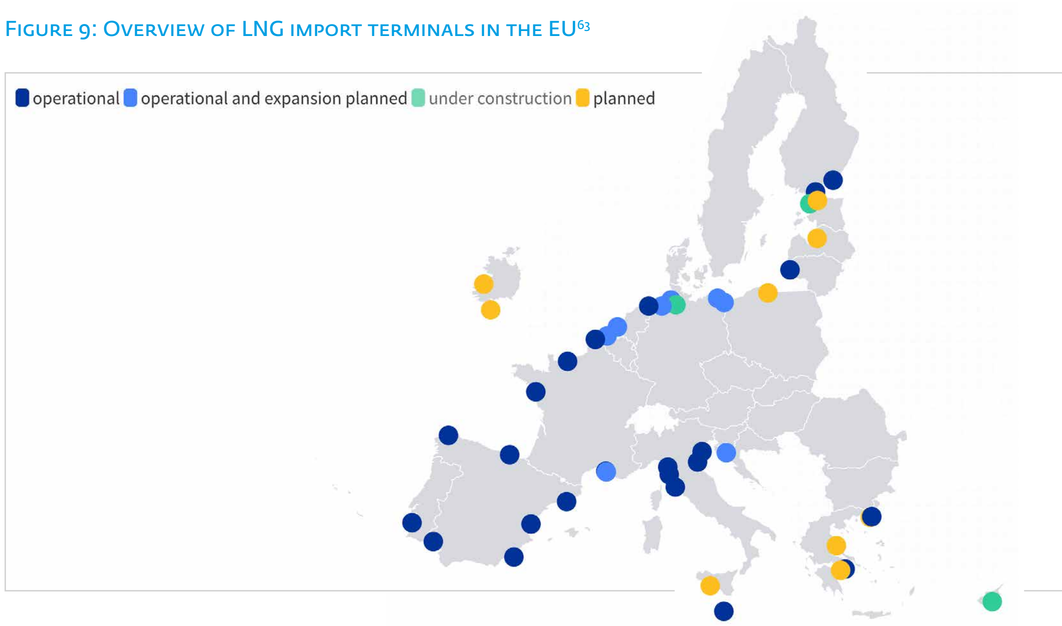
Supply side: LNG as backup

Between 2025 and 2030, 3000 TWh of new LNG production volume will be added annually on a global scale. The US leads the way and is expected to supply more than half of this new capacity. Qatar is also investing heavily and expanding its position as one of the largest and cheapest LNG producers. Mozambique, Senegal, Australia, and Indonesia are also contributing, but to a lesser extent. This additional LNG production capacity[60] will ensure a larger gas supply and can therefore strengthen regular security of supply (including a cold winter, but without prolonged supply disruptions).

In 2023/2024, the EU's LNG import capacity grew by a total of around 700 TWh per year, driven primarily by the continued pursuit of energy security and the desire to be less dependent on imports from Russia.

Between 2025 and 2030, an additional 600 TWh of LNG import capacity is expected in the EU, based on projects under construction or planned. According to Gas Infrastructure Europe (GIE)[61, 62] the EU's total LNG import capacity will reach over 4,000 TWh per year by 2030.

Figure 9: Overview of LNG import terminals in the EU[63]



60 https://alsi.gie.eu/
61 https://globalenergymonitor.org/wp-content/uploads/2024/02/GEM_Europe_Gas_Tracker_2024.pdf
62 https://www.gie.eu/wp-content/uploads/filr/10809/241120-PR-LNG-Map-is-Out-pdf.pdf
63 https://www.consilium.europa.eu/en/infographics/lng-infrastructure-in-the-eu/

After 2030, the number of new projects is expected to decline, partly due to uncertainty about future gas demand and European climate policy.

The additional LNG is beneficial for the security of natural gas supply, but there are reservations about whether additional LNG is suitable as a precautionary measure in the event of a prolonged supply disruption. The LNG market is global, and LNG must be purchased in competition with Asian countries (e.g., China, Japan, India). If, for example, Norwegian gas was to disappear, the EU would become more dependent on LNG, which would lead to price increases. Moreover, this additional LNG also remains sensitive to geopolitical risks, and some of it could be unavailable for extended periods or become extremely expensive. To deploy LNG as a precautionary measure, volumes would have to be contractually reserved and then made available on demand. One option is to use an EU procurement procedure or consider long-term contracts with a (supra) national party. In such a procurement procedure, the EU (or each EU member state for its own part) describes its needs and the preconditions for an LNG supply[64]. But even with contractual guarantees, the EU does not have full autonomy over LNG.

Demand side: mandatory demand reduction, such as forced fuel switching

On the demand side, mandatory demand reduction is an option, for example, through lower gas consumption or a forced fuel switch. This aligns with emergency supply-side measures, such as the mandatory use of electricity from sources other than gas and the use of alternative fuel supplies. GTS estimates the potential savings on natural gas consumption to be low.

Demand side: forced use of contracts with a disconnection clause

Contracts with a disconnection clause are particularly relevant for large-scale industrial consumers, as households, as "protected consumers," are generally not disconnected. The total volume that can be disconnected depends heavily on the share of industrial gas consumption. Public sources do not provide insight into the number of disconnection contracts or the volume that can be disconnected.

Demand side: forced demand reduction of companies

This measure is a non-market-based measure already included in the Dutch emergency plan (measure C.5). It targets unprotected consumers (industries) who are then temporarily required to reduce their gas consumption to a predetermined minimum flow rate. However, forced disconnection can only be enforced after the Energy Supply Crisis Management Act (WBE) comes into effect.

64 Procedure similar to the purchasing procedure that GTS uses for contracting and reserving peak capacity and peak volume for its statutory peak management task

6 Conclusion and recommendations

The 2022 gas crisis was a game-changer

In the EU, the Security of Supply (SoS) Regulation entered into force on 1 November 2017 with the objective of safeguarding security of gas supply by ensuring the smooth and continuous functioning of the internal natural gas market. The regulation was drafted at a time when gas supply was widely regarded as ample, stable, and reliable. The Netherlands and Norway produced substantial volumes of natural gas, while Russia, with a market share of approximately 45 percent, was considered a reliable gas supplier.

Accordingly, the SoS Regulation and the national emergency plans based on it focused primarily on resilience to short term disruptions in supply capacity and transport infrastructure. Scenarios involving disruptions of supply itself, let alone prolonged supply disruptions, were not taken into account. At the time, developments such as those witnessed in 2022 - the prolonged loss of a major and indispensable gas supplier - were considered unthinkable. The Russian aggression and the resulting gas crisis therefore proved to be a gamechanger.

Russia gradually curtailed most of its natural gas exports to Northwest Europe. As a result, Russia's share of European gas consumption, which had initially amounted to approximately 45 percent, declined to less than 15 percent. The resulting reduction in supply led to a sharp increase in gas prices and a demand reduction in the EU of around 20 percent. Households lowered their thermostat settings en masse, while industrial production was scaled back.

Inflation in the EU rose to approximately 10 percent, resulting in economic costs amounting to hundreds of billions of euros65. In the Netherlands, the government felt compelled to introduce extensive financial support measures, including a one-off payment to households and the introduction of an energy price cap. Despite these interventions, energy poverty in the Netherlands increased significantly.

The EU, national governments, gas producers, gas traders, gas storage operators, LNG terminal operators, and transmission system operators have made substantial efforts to secure gas supplies from alternative sources and to adjust transport flows accordingly. Billions of euros have been invested in the EU's natural gas infrastructure. Pipeline infrastructure, particularly in Eastern Europe, has been expanded to connect to supply routes from Western Europe. In addition, significant investments have been made in the construction and expansion of LNG terminals, both onshore and floating.

As a result, new alternative supply capacity required to meet ongoing gas demand has been developed within a relatively short period. The connectivity and flexibility of the European natural gas infrastructure have improved significantly. Of the three preconditions for security of supply - sufficient supply, supply capacity, and transport capacity - the latter two are currently sufficiently robust. This does not yet apply to the supply itself: in the event of a prolonged disruption, no replacement supply is available.

65 https://www.sciencedirect.com/science/article/pii/S221462962300261X?via%3Dihub

Regular security of supply in the EU has improved.

In addition to the aforementioned demand reduction, the loss of Russian gas has been offset by pipeline imports from Norway and a substantial increase in LNG imports, particularly from the United States. Approximately 60 percent of all LNG imports into the EU now originate from the US. Since 2025, additional LNG volumes have become available on the global market, a trend that is expected to continue in the coming years. According to the International Energy Agency (IEA), by 2030 global LNG production capacity is projected to increase by approximately 3,000 TWh on an annual basis[66]. This could potentially result in a structural supply surplus on the global gas market. However, this outcome is not yet certain, as global gas demand is also expected to increase in the coming years[67].

Under normal circumstances, these developments would appear to meet the third precondition for security of supply in the EU: sufficient gas supply.

This assessment also applies to the security of natural gas supply in the Netherlands. As the national gas transmission system operator, Gasunie Transport Services (GTS) is legally68 obliged to provide the Minister of KGG with an annual assessment of security of natural gas supply. In its most recent assessment, GTS69 concluded that the security of supply situation has improved since the gas crisis. The Netherlands is currently prepared for cold winters and potential short-term disruptions of gas supply. This improvement can be attributed to the appointment of Energie Beheer Nederland (EBN) as filling agent for gas storage facilities, the expansion of LNG import capacity, investments in the GTS gas transport network, and increased LNG imports. As a result, key European capacity and volume standards are now being met. In addition, the government has updated the national gas emergency plan. Consequently, the Netherlands now has a set of realistic measures available that primarily intervene on the demand side during an emergency, including both voluntary and mandatory demand reductions.

In the same overview of the security of natural gas supply, GTS also notes that several real threats could have a impact on the security of natural gas supply in Europe. Current resources are insufficient to absorb a prolonged supply disruption. The EU, national governments, and national security services (including the NCTV and AIVD) also mention these threats and emphasize the importance of (increasing) resilience, including through the upcoming Critical Entities Resilience Act, which designates GTS as a critical entity.

Natural gas will continue to play a crucial role in industrial processes, building heating, and as a flexible means of electricity production until at least 2045[70]. As a transition fuel, natural gas[71] is an essential component of the energy transition. In short, natural gas will continue to play a crucial role for both European and Dutch society in the coming decades. Because current resources and measures are insufficient to absorb a prolonged supply disruption, the resilience of the EU gas system must therefore be strengthened.

66 https://www.iea.org/news/coming-surge-in-lng-production-is-set-to-reshape-global-gas-markets
67 Growth in global demand for natural gas is set to accelerate in 2026 as LNG wave spreads through markets - News - IEA
68 Energy Act, Article 3.66. Overview of security of gas supply: https://wetten.overheid.nl/BWBR0050714/2026-01-01
69 https://www.gasunietransportservices.nl/gasmarkt/leveringszekerheid-gas/rapportage-overzicht-leveringszekerheid
70Especially when green energy from solar and wind is not or less available
71 Letter to Parliament on the Sector Agreement on Gas Extraction in the Energy Transition | Parliamentary Document | Rijksoverheid.nl and https://open.overheid.nl/documenten/f347746f-b1b1-4f11-947d-92973954c7cf/file

Security of supply has become a challenge following the closure of the Groningen field

For decades, the Netherlands benefited from a highly reliable gas supply, underpinned by the Groningen gas field, which provided both large volumes and a high degree of flexibility. This made security of supply and low costs effectively a given. From 2014 onwards, however, increasing seismic activity led to significant restrictions on gas production, ultimately resulting in the complete cessation of production at the Groningen field in 2024.

As a result, the Netherlands lost its most important safety net for ensuring security of supply. At the same time, the European gas market underwent structural changes due to market liberalization, the growth of LNG imports, and declining domestic production. Dependence on imported gas increased substantially, while geopolitical risks also intensified.

The 2022 gas crisis was the result of a combination of factors, including low gas storage levels before and after the winter, a recovery in gas demand following the COVID-19 pandemic, limited LNG availability due to competition from Asian markets, and escalating geopolitical tensions with Russia. The Russian invasion of Ukraine in February 2022 led to a drastic reduction in Russian gas supplies, driving TTF gas prices to historic highs. This marked a clear turning point.

Europe responded by investing in LNG import terminals and increasing LNG imports, particularly from the United States. The closure of the Groningen gas field, combined with these developments, significantly increased the importance of existing seasonal gas storage, LNG production, and LNG import capacity. Since the gradual closure of the Groningen field, security of natural gas supply in the Netherlands has no longer been a given, but has become a persistent and ongoing challenge.

The Netherlands does not yet fully comply with all obligations

The EU has established a comprehensive legal framework to safeguard the security of natural gas supply. Central to this framework is the Security of Supply (SoS) Regulation. The primary objective of the regulation is to ensure a safe and uninterrupted gas supply throughout the EU and to enhance resilience to supply disruptions. To this end, EU Member States are required to have measures in place to manage potential gas supply disruptions, in particular to ensure the continued supply of gas to protected customers for as long as possible. The SoS Regulation obliges EU Member States to carry out risk assessments, draw up preventive action plans, and develop emergency plans to prevent and manage gas crises. Since 2022, these risk assessments must also explicitly take into account scenarios involving prolonged disruptions of gas supply. On the basis of these assessments, preventive action plans (primarily comprising market-based measures) and emergency plans (including non-market-based measures for use in emergency situations) are established.

The Netherlands does not yet fully comply with all obligations under the Security of Supply (SoS) Regulation. For this reason, the Energy Supply Crisis Management Act (WBE) is currently being prepared. This legislation is required to provide a clear legal basis for, among other things, the establishment of an emergency reserve, the exercise of powers for non-market-based interventions, and unambiguous definitions of protected customers. The WBE, which is expected to enter into force in mid-2027, will provide the legal framework for measures such as the release of an emergency reserve in the event of a supply disruption. Depending on the nature and scale of a potential future gas crisis, the government will be able to use the WBE to implement additional measures quickly and effectively in response to both a supply disruption and an emergency situation.

The SoS Regulation was originally designed to address short-term disruptions in supply capacity or transport infrastructure, reflecting the prevailing assumption at the time of its entry into force in 2017 that European gas supply was ample, stable, and reliable. The prolonged loss of a major supplier—such as occurred as a result of Russian aggression and the subsequent gas crisis—was considered unthinkable at that time. In response to the developments of 2022, the European Commission introduced a package of emergency measures, including the 90 percent gas storage filling requirement, mandatory demand reduction, the introduction of a maximum TTF price, and the establishment of an EU trading platform. In addition, it was stipulated that risk assessments must explicitly consider scenarios involving prolonged disruptions of a single supply source and that greater attention must be paid to the role of strategic gas storage.

An emergency situation must be declared swiftly

GTS emphasizes that gas from an emergency reserve may only be released as a non-market based measure in an emergency situation, and that such an emergency situation may be declared in the event of a prolonged disruption of gas supply. The deployment of an emergency reserve is subject to strict government oversight. GTS therefore recommends that this be stipulated more explicitly in the Security of Supply (SoS) Regulation.

Like GTS, the European Commission also identifies scope for improvement in security of supply. This is reflected in the fitness check recently published by the Commission[72]. In September 2025, the Commission announced its intention to revise the SoS Regulation. The revision aims to strengthen energy security and to ensure that the EU energy system remains sufficiently safe, resilient, and well adapted to an evolving energy, climate, and geopolitical environment.

Scenarios show: Prolonged supply disruption is a real danger

According to European Security of Supply (SoS) simulations, a prolonged disruption is defined as a six-month interruption of a key supply source. Such a disruption could result in a supply shortfall of approximately 500 TWh at EU level. GTS has analysed the risks and potential consequences of a prolonged disruption of gas supply and identifies two realistic scenarios: first, sabotage of Norwegian gas pipelines, requiring lengthy repair periods; and second, geopolitical disruptions of LNG flows, such as a closure of the Strait of Hormuz or a US export ban. In both scenarios, an emergency situation would need to be declared swiftly in order to mobilize emergency supplies.

72 eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52025SC0435&qid=1767610011921

For the Netherlands, Norwegian pipeline gas and LNG imports via the Gate terminal are critical supply sources. The loss of either source would result in a supply shortfall of between 55 and 110 TWh, depending on which source is disrupted. Given the high dependence on a limited number of suppliers, combined with increasing geopolitical tensions and sabotage risks, the likelihood of prolonged supply disruptions has clearly increased in recent years.

The EU is now approximately 90 percent dependent on gas imports, while diversification of supply sources remains limited. LNG supplies are particularly vulnerable due to geopolitically sensitive maritime chokepoints, such as the Red Sea and the Strait of Hormuz. From a gas supply perspective, the North Sea—given its dense concentration of gas pipelines and LNG terminals—constitutes a vulnerable area and a potential target for sabotage. As a result, it cannot be taken for granted that sufficient LNG and pipeline gas will continue to reach Europe without disruption.

Previous analyses, as well as the experience of the 2022 gas crisis, demonstrate that prolonged supply disruptions lead to sustained high prices, a sharp reduction in demand, significant economic damage, and, in extreme cases, forced industrial shutdowns.

Current available measures are insufficient in the event of prolonged disruptions

GTS has identified a range of supply-side measures, as provided for under EU regulations. These measures include the use of alternative fuel reserves, the use of electricity generated from sources other than gas - such as switching power generation from gas-fired to coal-fired power plants - increasing gas production levels from small fields, and maximizing withdrawals from gas storage facilities. Taken together, these measures can provide some relief in the event of a prolonged supply disruption. However, according to GTS, they are insufficient to address the full scale of the supply shortfall. Addressing such a disruption therefore requires an additional volume in the form of an emergency reserve.

Building up emergency supplies: working gas and cushion gas

An emergency supply may consist of pre-stored gas in the form of working gas volumes that are not required under normal operating conditions, or of existing cushion gas, provided that the production of such cushion gas is enabled. It is also possible for the emergency supply to consist entirely of existing cushion gas, thereby eliminating the need to procure additional working gas in advance.

EU gas storage facilities have a total working gas storage capacity of approximately 1,100 TWh, located in both depleted gas fields and salt caverns, as well as an estimated 800 TWh or more of cushion gas capacity in depleted gas fields. Of these volumes, around 137 TWh of working gas and approximately 300 TWh of cushion gas are located in Dutch seasonal storage facilities. Under the mandatory EU requirement that gas storage facilities be filled to at least 90 percent during regular periods - such as cold winters and short-term supply disruptions - approximately 10 percent of capacity remains available for other purposes. At EU level, this corresponds to around 110 TWh that could be designated as an emergency supply of working gas.

The remaining emergency supply could then be drawn from existing cushion gas volumes. Alternatively, the emergency supply could be composed entirely of cushion gas, thereby avoiding the need to purchase additional working gas upfront. Ownership of the gas designated as an emergency supply - whether working gas or cushion gas - determines to whom that gas may ultimately be sold.

Reserved and on-demand volumes of LNG

While LNG volumes coming onto the market in the coming years will increase global gas supply, they will not automatically result in greater diversification of European gas imports. To deploy LNG as a supply-side measure in the event of a supply disruption or emergency, volumes would need to be contractually reserved and available on demand. Even with such contractual guarantees, the EU does not have full autonomy over LNG supplies. Nevertheless, this possibility should be explored.

Energy Supply Crisis Management Act

The Energy Supply Crisis Management Act (WBE), which is expected to enter into force in mid-2027, will provide the legal basis for measures such as the release of an emergency supply in the event of a supply disruption. Depending on the nature and scale of a potential future gas crisis, the government will be able to use the WBE to implement additional measures quickly and effectively.

By maintaining an emergency supply on EU territory, autonomy over gas supplies is increased and supply shortages can be absorbed in the event of a prolonged disruption. This will help to mitigate market panic, limit price shocks, and reduce sharp declines in demand.

Conclusion and recommendations

The EU was and remains unprepared for a prolonged disruption of gas supply. According to GTS, supply-side measures are required to absorb the impacts of such a disruption. By maintaining an emergency reserve in gas storage facilities on EU territory, autonomy over gas supplies is increased and supply shortages can be absorbed in the event of a prolonged disruption. This would strengthen the resilience of the EU gas system. Market panic, price shocks, and sharp declines in demand can thus be mitigated by maintaining gas demand at more stable levels. In this way, an emergency reserve complements existing demand-side measures with a highly effective supply-side instrument.

GTS therefore recommends that European gas storage operators and transmission system operators, acting on behalf of the responsible ministries, investigate as soon as possible how cushion gas production can best be enabled. For the Netherlands, this includes the gas storage operators of Alkmaar, Bergermeer, Grijpskerk and Norg, as well as GTS in its role as transmission system operator. The costs of such a study are expected to be limited.

Because a prolonged disruption of gas supply constitutes a European-wide risk, GTS believes that this risk should be assessed at the European level. The recently initiated EU process to strengthen the SoS Regulation provides an opportunity to prioritize and map this risk at EU level and to commission the aforementioned study. On this basis, GTS considers that a well-considered and explicit decision should be taken at EU level on whether to introduce an emergency reserve in existing gas storage facilities.

In addition, GTS recommends that the SoS Regulation state more explicitly than is currently the case that an emergency situation may be declared when there is a credible likelihood of a prolonged supply disruption. This would allow an emergency reserve to be released swiftly as a non-market-based measure during an emergency, following prior notification and the issuance of a government authorization.

Until a decision has been taken on whether to establish a sufficiently sized emergency reserve, GTS recommends keeping existing gas storage facilities operational, including the Norg gas storage facility.

Colophon

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