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**CEER Vision on the Regulatory
Arrangements for the Gas Storage
Market**

A CEER Public Consultation Paper

Ref: C14-GWG-112-03

22 October 2014

INFORMATION PAGE

Abstract

This public consultation on a “Vision on the regulatory arrangements for the gas storage market” (C14-GWG-112-03) outlines key elements to help achieve a competitive, sustainable framework for gas storage in Europe. It examines the current conditions of the gas storage market and presents regulatory principles, identified by CEER, to improve the functioning of the gas storage market.

This paper builds on the work undertaken by CEER and GSE in response to the low levels of gas in store following the winter period in 2013. It provides a set of regulatory and policy options to ensure that storage can compete in a flexibility market, where present. It also proposes that where a functioning market is not present, measures may be put in place to safeguard supplies whilst a functioning wholesale market is developed.

Target Audience

European Commission, energy suppliers, traders, gas/electricity customers, gas/electricity industry, consumer representative groups, network operators, storage system operators, Member States, academics and other interested parties.

Keywords

Gas Storage; LNG; Wholesale Markets; Security of Supply; 3rd Package; National Regulatory Authorities (NRAs).

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How to respond to this consultation

Deadline: **12 December 2014**

This public consultation is carried out through a dedicated [online questionnaire](http://www.ceer.eu/portal/page/portal/EER_HOME/EER_CONSULT/OPEN%20PUBLIC%20CONSULTATIONS) on the European energy regulators' website. To participate in the consultation please go to:
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All responses except confidential material will be published on the website www.ceer.eu.

Treatment of Confidential Responses

In the interest of transparency, CEER:

- i) will list the names of all respondents (whether confidential or not) or, alternatively, make public the number (but not the names) of confidential responses received;
- ii) requests that any respondent requesting confidentiality submit those confidential aspects of their response by marking them as “confidential” in the dedicated online questionnaire. CEER will publish all parts of responses that are not marked confidential.

For further information on CEER’s rules, see [CEER’s Revised Guidelines on Public Consultation Practices](#), C07-EP-16-03, Revised version 2, (24 April 2012).

Related Documents

CEER documents

- [“Minutes of joint CEER-GSE workshop on Gas Storage and Security of Supply”](#), CEER, 23 June 2013
- [“Amendment of the Guidelines of Good Practice for Third Party Access \(TPA\) for Storage System Operators \(GGPSSO\): Guidelines for CAM and CMP”](#), CEER, 14 July 2011, Ref. C11-GST-15-03
- [“CEER Interim Report on Changing Storage Usage and Effect on Security of Supply”](#), CEER, 20 November 2013, Ref. C13-GWG-102-03

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EXECUTIVE SUMMARY

Background

This paper builds on the work previously undertaken by CEER and Gas Storage Europe (GSE) in response to the low levels of gas in store following the winter period in 2013. It seeks to provide a set of regulatory and policy options to ensure that storage can compete in a flexibility market, where present. It also proposes that where a functioning wholesale gas market is not present, measures can be put in place to safeguard supplies whilst a market is developed.

Objectives and Contents of the Document

Following the consultation, the aim is that the final Vision document may be used as an input to further policy and regulatory work by the European Commission, Member States or the Agency for the Cooperation of Energy Regulators (ACER) in the field of underground gas storage.

The specific issues addressed in this document include:

- The role of gas storage in the market and how to create a level playing field between flexibility sources; and
- How security of supply can be appropriately valued in the market or, where there is need, interventions could be put in place to safeguard supplies.

The content of the document is as follows:

- A review of the work undertaken to date in this area;
- An analysis of the underlying principles of gas storage utilisation;
- A review of the current climate for gas storage;
- An analysis of and recommendations on potential regulatory measures which could improve the market functioning of storage; and
- An analysis of and recommendations on potential storage interventions to safeguard supplies where a functioning market is not yet present.

Brief summary of the conclusions

Gas storage competes with other sources in a flexibility market and therefore the regulatory arrangements within Member States should facilitate, not stifle, this open competition. Examples include allowing non-discriminatory access to storage and removing limitations on the tradability and utilisation of gas in store. System Storage Operators (SSOs) should seek to innovate and develop new products. National Regulatory Authorities (NRAs) should seek to develop appropriate regulatory regimes which facilitate innovation and competition between sources.

Storage plays an important role in delivering security of supply for European consumers. CEER considers that well-functioning markets are best placed to value and deliver security of supply and that effective competition between different sources of flexibility should deliver the most economic and efficient solution. However, in some European markets, storage interventions may be required in order to correct a specific market failure. Any intervention should have transparent rules around usage and the impact on market functioning should be understood and minimised. In addition, any intervention must have an exit strategy and not prohibit the development of efficient wholesale markets. CEER notes that markets across Europe are at different stages of development and therefore pan-European rules to ensure security of supply may have unintended consequences.

1. Introduction

1.1. Background

1.1.1. Objective and Purpose of this paper

The purpose of this Consultation Paper is to seek stakeholders' views on CEER's vision on the regulatory arrangements for the gas storage market. It builds on work carried out by CEER and GSE throughout 2014.

1.1.2. Work to date

CEER Interim Report

Following the low stock levels observed across Europe at the end of the 2012/2013 gas storage season, CEER conducted analysis to understand:

- a) the reasons why storage users book storage capacity;
- b) why less storage capacity was booked; and
- c) whether this is a temporary (spread related) or a more permanent trend.

CEER sent a questionnaire¹ to storage users and storage operators in order to obtain further information on the gas storage market. The findings from the CEER interim report on changing gas storage usage and effects on security of supply² concluded that the reasons for booking storage have not changed; market participants continue to book storage to meet their flexibility needs and also as a financial trading product. However, the market that storage operates in is evolving. Market participants are able to meet their flexibility needs from a variety of sources, such as flexible gas production, import contracts, interconnection, line pack, swaps, interruptible contracts, scale down contracts, Liquefied Natural Gas (LNG) and hub products. Several market participants, in response to the CEER questionnaire, considered that booking storage was not attractive at that time for several reasons (including transportation tariffs). In addition, they noted that storage competed with these alternative flexibility tools.

The 24th Madrid Forum (October 2013) welcomed the work done on storage and noted “the need for strategic discussion [...] and invites CEER and GSE to prepare such a discussion for the next meeting”³. The initial outcomes of these discussions were shared at the 25th Madrid Forum (May 2014). The Forum thanked CEER and GSE for the assessments of storage and invited both organisations to continue their work on an appropriate framework that reflects the role and value of storage both in efficient market functioning and in security of supply situations.

¹ The questionnaire can be found in Annex 4 of the [CEER Interim Report on changing gas storage usage and effects on security of supply](#) (Ref. C13-GWG-102-03), CEER, 20 November 2013.

² [CEER Interim Report on changing gas storage usage and effects on security of supply](#), CEER, C13-GWG-102-03, 20 November 2013.

³ [Conclusions of the 24th Madrid Forum](#).

CEER Vision

Given the rapidly changing market environment and the responses to the initial questionnaire on storage launched in 2013, CEER decided to look at the following questions:

1. Are storage markets in Europe functioning? If not, are measures needed to facilitate storage competing with other sources of flexibility?
2. Can storage play an appropriate role in providing security of supply in the current regulatory framework? What impact do interventions have on the storage market?

In order to address the questions above, CEER and GSE organised in late June 2014 a joint workshop⁴ with representatives from across the gas industry, including gas storage operators, transporters, shippers, traders and policy makers. CEER has also been engaged in an ongoing dialogue with GSE during the preparation of this report.

This public consultation is divided into two sections to reflect the role storage plays in different scenarios; ensuring a competitive flexibility market and security of supply. For the avoidance of doubt, it is emphasised that this document builds on the CEER interim report on changing storage usage and effect on security of supply and is based primarily on the responses from participants at the joint workshop organised in June 2014, the CEER questionnaire responses and discussions between CEER and GSE.

1.2. Questions for Public Consultation

In addition to inviting relevant stakeholders and market participants to respond generally to this consultation, CEER seeks the opinion of respondents on a number of specific issues related to the scope and applicability of the document.

Respondents are therefore invited to reply and provide comments on the following questions:

Storage market fundamentals

1. Do market participants value all three values of storage identified by CEER (arbitrage, system and insurance) in the market price? [Section 2.1]
2. If the value of storage is not reflected in the market price, please elaborate on your understanding of the reasons hindering this and potential solutions. [Section 2.1]
3. Respondents to the previous CEER questionnaire (launched in 2013) identified that users are currently less likely to enter into long-term commitments than previously. In your view, is this temporary (e.g. price related) or structural (e.g. long-term commitments are no longer desired)? [Section 2.3]
4. Do you agree with CEER's observation that storage competes within a wider flexibility market (e.g. with LNG, interconnection and virtual products)? [Section 3]
5. In your view, are there further barriers to competition that have not been considered by CEER in this public consultation document? [Section 3]

⁴[CEER-GSE Joint Workshop on Gas Storage and Security of Supply](#), 23 June 2014.

Security of supply

6. Do you agree with the CEER recommendations for delivering security of supply through market mechanisms? [Section 4]
7. Where interventions are necessary, do you agree that the characteristics of interventions identified by CEER (e.g. transparency, clear roles and responsibilities, exit strategy) can help to minimise any potential adverse impact on the market? [Section 4]

1.3. Customer perspective

CEER believes that functioning wholesale markets can deliver the best outcomes for customers. Gas storage facilities play a key role in the supply of gas to customers by allowing market participants to store gas to manage seasonal swings and also to have sufficient flexibility to respond to short term variations in demand.

By setting out a vision for the regulatory arrangements for the gas storage market, CEER aims to ensure that gas storage can continue to play an important role for customers in the most efficient way by competing with other sources of supply and by helping to deliver appropriate levels of security of supply.

2. The role of storage

Gas storage refers to a spectrum of different facilities which serve the market by allowing participants to inject gas from the transportation system to the storage facility at times of low prices/demand and to withdraw from the storage facility at times of high prices/demand. There are two main types of storage facility that operate in the storage market in Europe:⁵

- **Seasonal storage** - These facilities are traditionally larger and can be constructed from depleted gas fields or saline aquifers. They are characterised by having large capacity compared to their injection and withdrawal rates⁶. As such, they are traditionally used to meet “seasonal swing”, i.e. participants inject gas to the facility during low demand periods in the summer and withdraw in the winter, thus their primary storage cycles tend to be annual. The primary driver behind the value of this type of storage is the summer-winter (price) spread.
- **Fast-cycling storage** - Storage facilities which tend to be smaller and have higher injection or withdrawal rates fall into the category of fast-cycling storage. Unlike seasonal storage, these facilities offer much shorter storage cycles and thus primarily take advantage of shorter term price differentials, e.g. weekday/weekend spread, in addition to providing some more traditional seasonal products. This allows these types of facilities to play an active role in balancing.

2.1. The value of storage

In a well-functioning market, the value of a storage product rises and falls depending on market fundamentals. In this way, market participants appropriately price the value of storage into their trading activities. However, until completion of the internal market through the 3rd Package, it is possible that the value of storage is not appropriately recognised in all markets. In particular, some aspects of storage may be undervalued. The different value streams that make up the overall value of storage are:

- System value
- Insurance value
- Arbitrage value

System Value

Storage provides benefits along the entire gas value chain from production, through transmission networks to end-user supply.

⁵ It is recognised that there are also peak shaving storage facilities that tend to be used exclusively by Transmission System Operators (TSOs) for system management. In many cases, they are not subject to Third Party Access and hence are not discussed further in this paper.

⁶ Injection and withdrawal rates refer to the amount of gas that can be injected into or withdrawn from a gas storage facility in a given period of time. They may, for example, be expressed in terms of million cubic metres per day (mcm/day). Injection and withdrawal rates at specific storage facilities are variable, and depend on a number of factors including the amount of gas in store, pressure conditions and compression capability.

Underground gas storage located near production facilities can allow for more efficient production operations⁷ and provide security in case of technical problems. This translates into reduced costs, extended lifespan of production fields and maximised volumes extracted. When located close to demand areas, storage helps to lower network investment costs by reducing the size of the pipelines necessary to meet peak demand and can improve the efficiency of system operations⁸.

Insurance Value

Storage also contributes to ensuring continuity of gas supply and safeguarding suppliers from sudden price spikes. Storage is a flexibility tool that can be physically guaranteed, allowing a shipper to hedge the supply and price risk. In other words, it provides an insurance against unexpected events. Such events may be of a different nature but are often triggered by supply disruptions or adverse weather conditions, for instance cold snaps or prolonged periods of below-normal temperatures, such as those witnessed in Europe in 2012 and 2013 or in the USA in early 2014. This is important as these unexpected events can have significant intensity and length, resulting in elevated demand and market prices.

Whilst the choice of flexibility tool is driven by economics, unlike virtual spot market trading, storage offers the advantage of being a physical asset located close to demand areas. The ability of storage facilities to inject gas quickly onto a transmission system, near demand centres, is an important tool for shippers to balance their positions at the end of the day and for transmission operators to ensure physical system integrity.

On a national and international level, having gas in store can provide a safeguard against the high impact of unexpected technical failures in production systems or pipelines, or even against geopolitical risk. This reduces vulnerability and creates higher bargaining power in politically sensitive situations. For instance, during the 2009 Russia-Ukraine dispute the availability of gas in store was the main mitigating measure.

Arbitrage Value

The arbitrage value of gas storage has two components: (1) intrinsic and (2) extrinsic value.

- **Intrinsic Value** - This is the value, driven by price spreads in forward markets that can be realised at the time of purchase of a storage product. This involves a simple hedge, buying gas for the summer period when the price is low and selling a forward contract to deliver gas in the winter period when the price is high. Typically, this transaction is carried out when the storage product is purchased and, depending on the timing and product characteristics, is likely to be of a purely seasonal nature.
- **Extrinsic Value** - In addition to realising this intrinsic value by undertaking the simple hedge, a market participant can extract more value from their storage product by refining the hedge. Although extrinsic value is more difficult to assess, it can generate substantial revenues. A good example of an opportunity to harvest extrinsic value

⁷ Investment expenditure in wells and surface facilities can be reduced by having a storage facility which enables steady exports from production facilities throughout the year whilst the storage facility can provide a cost efficient method of managing production variability.

⁸ By providing additional pressure to the system, storage also helps reduce the run time of compressor stations along the transport lines thus lowering the operating costs.

from storage is when a spread between the spot price and the month-ahead futures price develops during the winter season. This enables the storage customer to buy spot gas and at the same time conclude a futures contract to sell the gas month ahead. Furthermore, storage can be used to capture price opportunities in case of sudden price spikes and thus has an “optionality” value.

Figure 1 below shows how a market participant can achieve the intrinsic value through a simple hedge (purchasing a contract for gas in the summer and selling a contract for gas in the winter) and extract further value by refining the hedge (purchasing and selling monthly/daily/within-day gas contracts to capture more value from the same molecules of gas in store).

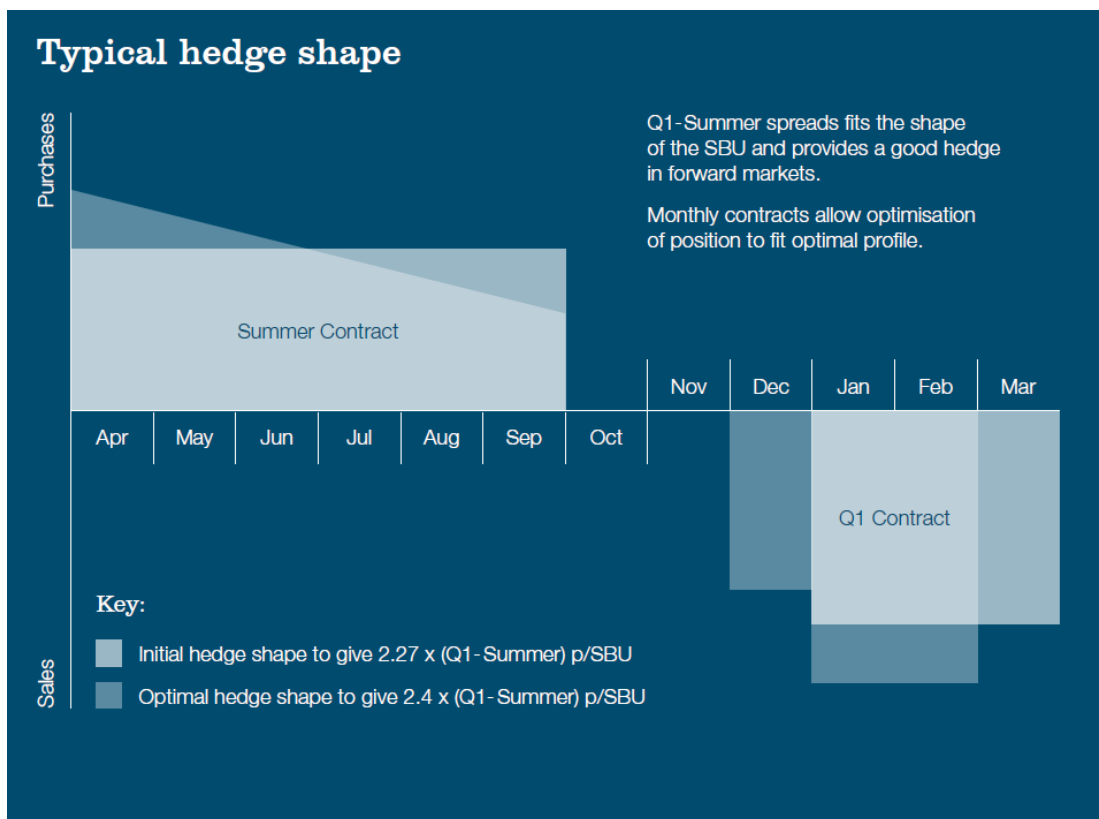


Figure 1: Intrinsic and extrinsic values of storage⁹

⁹ Source: Centrica Storage Limited.

2.2. The current climate for storage

The booking of storage capacity and the utilisation of that capacity depends on several factors. In this section, we briefly outline recent trends in the key drivers behind storage utilisation. Respondents to the CEER Interim report highlighted that the rationale for using gas storage has not changed. Nonetheless, the underlying market conditions have changed considerably in the last five years.

European Demand

There is uncertainty regarding European consumers' future gas needs. However, trends in recent years indicate a decline in European demand, as illustrated in Figure 2 below. The main factors affecting demand are growth rates in European industrial processes, the impact of increased energy efficiency in domestic heating and, most pertinently for many SSOs, the role of gas-fired power generation. Power generation is affected by several factors, including competition from coal generation due to lower coal prices and increased renewable electricity sources. Fast-cycling storage is ideally positioned to facilitate more flexible outputs from gas-fired power stations. However, if the seasonal fluctuations in industrial and domestic demand continue to decrease, the picture for seasonal storage is not as clear.

Storage capacity in Europe

Against the backdrop of falling demand, new storage facilities have come online in the past five years. Figure 2 below shows that storage capacity has increased by more than 20% since 2009. Given that storage capacity has not sold out at a number of facilities across Europe in recent years¹⁰, it may be the case that Europe has already built sufficient gas storage capacity for current demand levels.

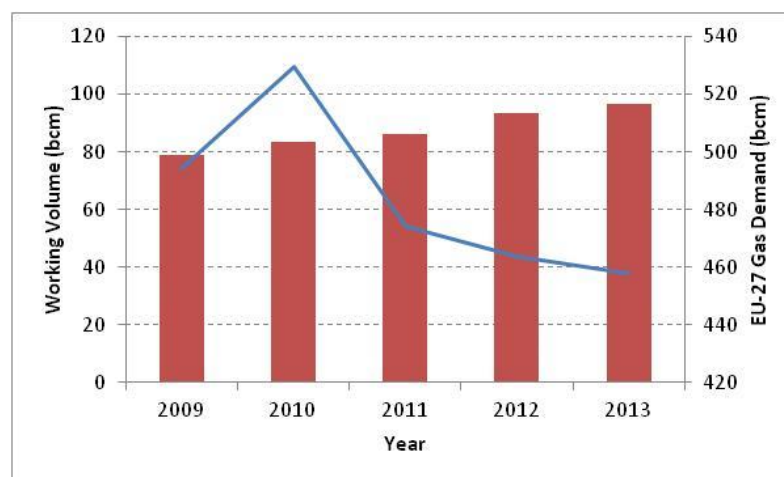


Figure 2: Graph showing gas demand in the EU-27¹¹ against maximum EU working volume¹²

¹⁰ [CEER Interim Report on changing gas storage usage and effects on security of supply](#), CEER, C13-GWG-102-03, 20 November 2013.

¹¹ [ACER/CEER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2012](#) (ACER, Eurostat).

¹² [Eurogas Statistical Reports](#).

Flexibility market

Demand for gas is subject to significant variations. These variations can be predictable (e.g. seasonal variations) or unpredictable (e.g. demand from domestic customers which is highly variable and temperature driven). This variable demand pattern requires flexible gas supplies capable of varying flows, in order to balance supply and demand. Market participants obtain the flexibility needed to manage these fluctuations by having access to storage and other flexible supply sources (e.g. LNG and interconnection), or by trading in the market.

The flexibility of a supply source is dependent on its technical characteristics as well as contractual arrangements. Given that storage competes with other sources to provide market participants the flexibility they need, the availability and price of these other sources of flexibility has an impact on the demand for storage. Since 2009, LNG regasification capacity in Europe has increased 44%, up to 186 bcm in 2013, mainly due to developments in the Netherlands and the United Kingdom¹³. There has also been an increase in trading and hub-based products. This, in addition to decreased demand for flexibility needs from market participants due to lower overall demand, creates a greater opportunity for market participants to meet their flexibility needs from alternative sources and thus puts pressure on storage facilities to compete.

Indigenous production

Indigenous production has been declining in EU Member States, especially in the United Kingdom (UK) and the Netherlands. Without a significant decrease in demand, which as described above remains an uncertain outcome, this will likely require more reliance on imported gas. This can be achieved through pipeline gas or LNG terminals.

Summer-Winter spreads¹⁴

All of the factors described above impact the prices observed in liquid wholesale markets. Participants will decide whether or not to book storage capacity based on market prices. In particular, seasonal storage relies heavily on summer-winter spreads. Market participants inject gas into seasonal storage facilities in the summer when the price is cheaper and withdraw in winter when the price rises. Figure 3 below shows that the trend in recent years has been for a decline in this spread.

This trend is driven by a number of factors including increased storage capacity, increased flexibility of supply contracts, competition from LNG and hub products and decreased seasonal demand swing. It should be noted that in recent months the summer-winter spread has widened (gotten larger). This is in part driven by the high volumes of gas in store at the end of the winter period which reduced summer demand, and hence prices, creating a larger spread. Geopolitical risk, stemming from the uncertainty around Ukrainian gas transport has also seen an increase in winter prices causing a wider spread between the summer-winter contracts.

¹³ [CEER Status Review and evaluation of access regimes at LNG terminals in the EU](#), CEER, C12-LNG-15-03, 12 March 2013.

¹⁴ The summer/winter spread is defined as the difference in price for the purchase of a summer contract and the subsequent sale of the following winter contract.

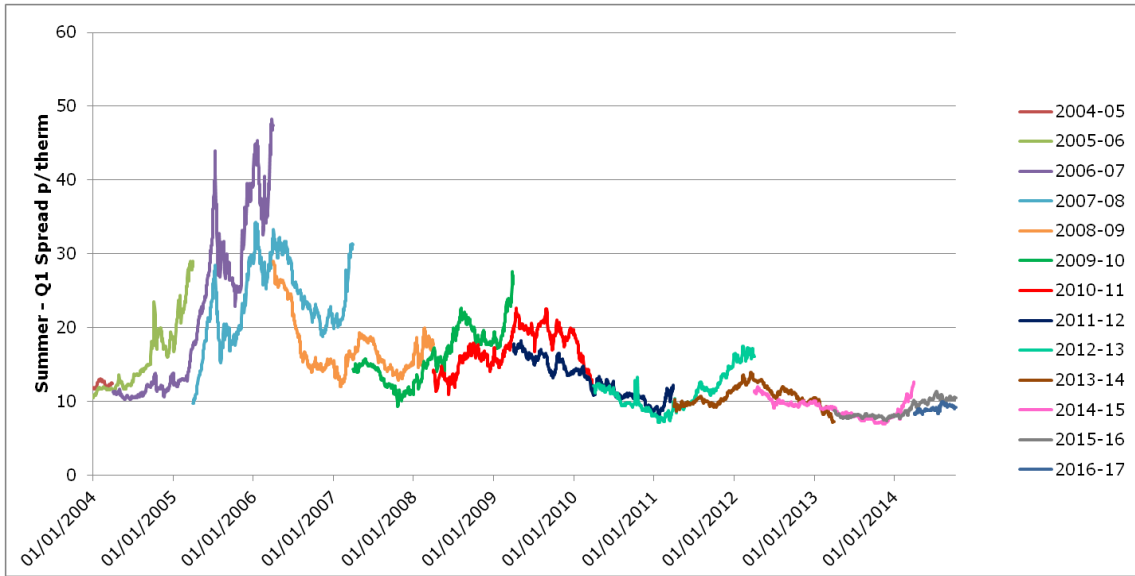


Figure 3: Summer/Winter Spreads in Great Britain¹⁵

Booking Levels

As mentioned above, in the opinion of market participants the fundamental reasons for booking gas storage have not changed. Booking levels at most facilities for the year ahead have been strong, indicating that market players are responding to market signals. High stock levels at the end of a mild winter (2013/2014), widening summer-winter spreads and concern about the situation in Ukraine are among the factors behind the current record high stock levels across Europe. Figure 4 below shows the current fill levels in Europe and shows a contrast to the situation following the winter of 2012/2013.

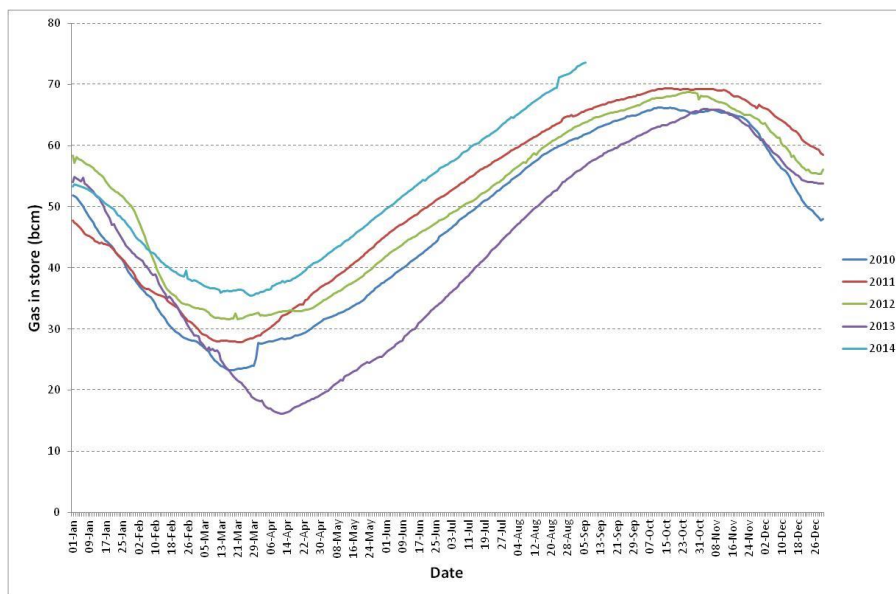


Figure 4: Volumes of gas in store in Europe¹⁶

¹⁵ Source: Heren data.

2.3. The outlook for the storage market

The long-term forecast for gas demand in Europe is unclear. Whilst increases could be expected if the economic downturn of recent years is reversed, alternative fuel sources and energy efficiency could keep demand levels permanently suppressed. Regardless of the underlying level of demand, and absent regulatory or political intervention, it is clear that storage investment occurs where users are prepared to make the necessary financial commitments which will enable the investment to be funded. Analysis carried out by GSE¹⁷ concluded that stock levels in many countries have been on a steady downward trajectory over recent years, whilst analysis by CEER¹⁸ showed that the rationale for booking storage capacity had not changed. Currently, there is little willingness to make long-term bookings, and based upon received responses to the CEER questionnaire in 2013 it is unclear whether this is temporary (e.g. price related) or structural (e.g. long-term commitments are no longer desired).

If the reticence to make long-term commitments is price related, then it highlights the importance of regulatory arrangements that allow storage to compete with other sources of flexibility on a level playing field. This would ensure the right investment signals are delivered and efficient, diverse flexibility markets develop across Europe.

Demand for flexibility will likely increase

The demand side for flexibility will likely recover in the future, largely based on a new role for gas-fired power generation as a source of backup for renewable sources of power generation. Gas-fired power stations are ideally placed to fulfil the flexibility requirements needed to balance an electricity grid which will have ever increasing amounts of intermittent (and largely inflexible) sources of generation. In addition, implementation of the Network Code on Gas Balancing in Transmission Systems¹⁹ will ensure that shippers are responsible for balancing their inputs and off-takes from the system. This will introduce a shift towards more short term flexibility, and potentially an opportunity for fast-cycling storage, because network users need to balance their portfolio on a daily basis.

Finally, shippers' behaviour also impacts the need for short term flexibility. During the last three years, storage operators have witnessed storage requests mainly coming from trading companies that have an interest in short term contracts for storage capacity. However, it should be noted that where a scarcity of storage capacity (and deliverability) exists there will be an incentive for participants to enter into longer term contracts. Storage operators consider that network users book less storage capacity and utilise the booked capacity to the fullest extent possible. Accordingly, storage operators believe the emphasis will predominantly be on delivery rates to make use of short term arbitrage opportunities and much less on working gas²⁰ volume.

¹⁶ Source: [GSE Transparency template](#).

¹⁷ [GSE presentation delivered to the 25th Madrid Forum](#).

¹⁸ [CEER Interim Report on changing gas storage usage and effects on security of supply](#), CEER, C13-GWG-102-03, 20 November 2013.

¹⁹ [Commission Regulation \(EU\) No 312/2014 of 26 March 2014 establishing a Network Code on Gas Balancing of Transmission Networks](#).

²⁰ Volume of gas that is commercially available to the market.

Stock levels can vary year on year due to the underlying drivers, as shown in this section, and highlights the importance of developing a level playing field for storage facilities within the flexibility market despite the fact that, for this year at least, stock levels within storage facilities are high.

3. Creating an undistorted market

It is important to recognise that storage forms part of a wider flexibility market and accordingly the regulatory arrangements in place should allow for competition between sources. This competition can not only deliver the most economic and efficient solution, but can also help improve security of supply for consumers. To create competition, a level playing field should exist and many of the building blocks for this are already in place. The requirements of the 3rd Package ensure transparency, open access to transmission and storage facilities and the foundations for competitive wholesale markets. This chapter examines whether the current arrangements are sufficient to create a level playing field for a flexibility market or whether further work is necessary to deliver a transparent, competitive marketplace.

The Impact of current developments

Implementation of the current suite of Network Codes, developed as part of the 3rd Package, is of primary importance to create the conditions for completion of the internal energy market. The creation of efficient wholesale markets with robust reference prices is important for all sources of flexibility, particularly storage. The Network Code on Gas Balancing in Transmission Systems²¹ will deliver price signals in markets across Europe and reflect the value of storage in the market prices, whilst the Network Code on Capacity Allocation Mechanisms²² will increase the opportunities to trade between markets.

As highlighted in the responses to the CEER questionnaire launched in 2013, market participants no longer rely solely on storage to meet their flexibility needs; in many markets they can choose from various sources. The development of the internal energy market has led to a situation where storage facilities are in competition with other forms of flexibility. Participants can choose alternatives to gas storage such as flexible gas production, import contracts, interconnection, line pack, swaps, interruptible contracts, scale down contracts, LNG and hub products. To illustrate, below is a case study showing the different sources of supply to Great Britain (GB) in the 2012-2013 gas year.

²¹ [Commission Regulation \(EU\) No 312/2014 of 26 March 2014 establishing a Network Code on Gas Balancing of Transmission Networks.](#)

²² [Commission Regulation \(EU\) No 984/2013 of 14 October 2013 establishing a Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems and supplementing Regulation \(EC\) No 715/2009 of the European Parliament and of the Council.](#)

Case study: The Flexibility Market in Great Britain²³

Figure 5 below shows that demand is met from a range of sources that are flexible enough to change their output in response to price signals. Storage sources are in direct competition with LNG, flexible import contracts and other flexible infrastructure to deliver the needs of the market. This picture of a flexibility market, coupled with the decreasing summer-winter spreads shows that in order for storage facilities to be competitive a level playing field with these other sources is necessary.

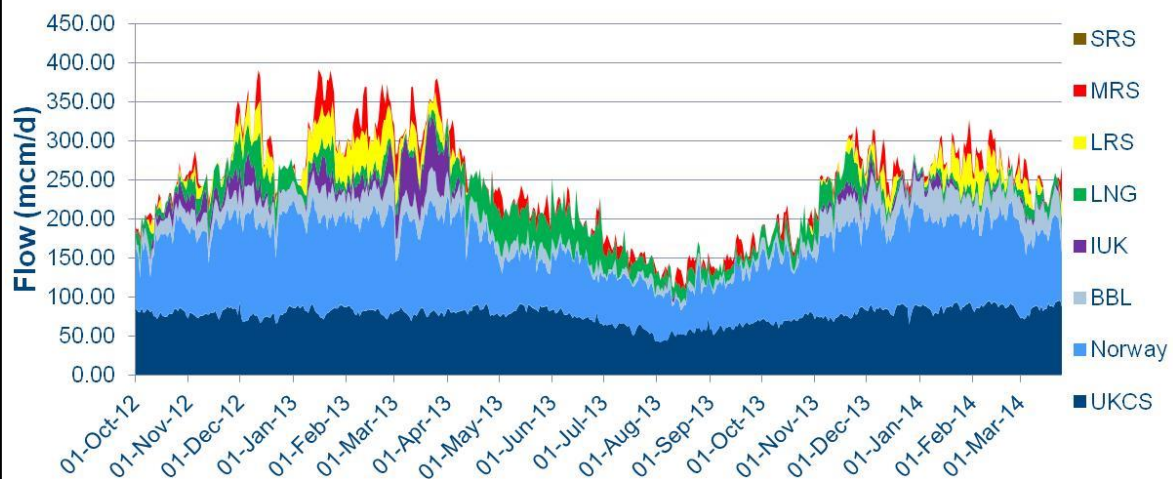


Figure 5: Great Britain flexibility market, October 2012 - April 2014

Whilst most markets in North West Europe are functioning and storage utilisation follows price spreads, it is important to note that across Europe markets are at different stages of development. For example, given the reliance on long-term contracts, particularly in Eastern Europe, price signals in many markets do not reflect the value of flexibility. Therefore, further pan-European rules designed to increase competition within the flexibility market may not be appropriate; rather an analysis of the characteristics of each market is necessary to ensure efficient targeting of regulatory levers (should they be required).

CEER recommends that any regulatory levers or policy interventions are targeted to situations where there is clear evidence of market failure to minimise unintended consequences.

Set out below are several areas that CEER and market participants have recognised as important to ensure fair competition between flexibility sources and address issues which CEER does not believe will be resolved despite Network Code implementation.

²³ In Figure 5, UKCS is domestic production on the UK Continental Shelf; Norway is Norwegian pipeline imports; BBL is the interconnector with the Netherlands; IUK is the interconnector with Belgium; LNG is Liquefied Natural Gas imports; LRS is long-range storage; MRS is medium-range storage; SRS is short-range storage,

3.1. Additional potential regulatory levers

Access to storage

In order to meet demand efficiently, and to realise the values of storage outlined above, it is necessary for market participants to have access to storage capacity. Efficient, non-discriminatory access to storage facilities (and other flexibility products) is fundamentally important to allow participants to balance their portfolios and enhance wholesale market functioning. Respondents to the CEER questionnaire launched in 2013, and participants in the joint CEER-GSE workshop in 2014, highlighted concerns that currently not all storage capacity (e.g. Standard Bundled Units (SBU), injection, space and withdrawal products) is open to market participants on a non-discriminatory basis (i.e. capacity reserved for specific segments of the markets). In addition to primary capacity purchases, workshop participants observed that restrictions on secondary market trading of storage products could lead to inefficiencies. This has the potential to create market distortions, both in the price of access to storage and on the wholesale market signals. Further analysis of the impact of storage obligations is covered in Section 4.

CEER recommends that, where possible, Member States allow SSOs to offer all storage capacity to the market on a non-discriminatory basis. This capacity should be fully contestable and have no restrictions on usage. Furthermore, SSOs should offer a wide range of products to the market and these should be freely tradable on the secondary market to ensure the most efficient use of the infrastructure.

Product development

As gas markets across Europe have liberalised and become more developed so too have the needs of market participants. Those purchasing storage capacity now want to use it in more advanced ways to maximise the return on their outlay. This has led to the market for gas storage becoming increasingly complex as storage operators react to develop products that can meet the needs of their market. Storage operators are receiving an increasing number of requests for individualised products/pricing regimes.

An example of innovation is in new pricing models and the development of index-based prices. There has been a growth in storage operators offering pricing structures which are formula based and 100% market orientated, therefore allowing for risk to be shared between user and operator (low spread = lower price, high spread = higher price). Other examples include offering storage services from multiple facilities, overbooking capacity and the integration of transport services.

In some instances, stakeholders have identified conflicts between this drive for innovation and the regulatory/policy framework. For example, participants at the joint CEER-GSE workshop in June 2014 stated that unbundling requirements under the Gas Directive²⁴, which prohibit storage operators from trading gas “except for the efficient operation of the system”, may restrict innovation in product offerings (such as virtual storage) and may inhibit the ability of storage to compete with other sources of flexibility. To resolve this issue, the policy framework for storage could, for instance, allow storage operators (in certain circumstances) to trade gas (for the purpose of offering virtual storage), thus allowing storage to compete with other flexibility sources.

CEER recommends that SSOs should not be prevented from innovating and developing new products. Where this is not possible due to regulatory (or policy) arrangements, NRAs (or Member States) should seek to develop arrangements that facilitate innovation where appropriate, not stifle it.

Transportation tariffs

In addition to the cost of purchasing the commodity and storage capacity, market participants also have to pay a transmission fee to inject gas into, and withdraw gas from, a storage facility. Restrictions imposed by high transportation tariffs can make accessing storage facilities less attractive and make them uncompetitive with other sources of flexibility. The draft Network Code on Harmonised Gas Transmission Tariff Structures²⁵ sets out the framework under which all cost allocation methodologies should be designed. It includes provisions for the NRA to consider the costs and benefits of storage to the network. Whilst it is the responsibility of each NRA to determine the appropriate charging regime for its system, CEER encourages regulators to take the impact of transportation tariffs on different flexibility sources into account. This is necessary as the level of competition between flexibility sources varies across Member States.

CEER recommends that transportation tariffs should consider the benefits and costs that storage facilities provide to the overall system.

Information Provision

CEER welcomes the work undertaken by GSE in developing a transparency template²⁶ and aggregating inventories²⁷ across Member States. This information is vital to ensure that market participants can manage their risk exposures and is key to developing functioning wholesale markets.

CEER acknowledges the good progress being made by SSOs to increase information transparency and encourages SSOs to continue to work with market participants to publish appropriate information. CEER will monitor the information provision of SSOs on a regular basis to ensure it delivers sufficient transparency.

²⁴ [Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.](#)

²⁵ [Initial Draft Network Code on Harmonised Tariff Structures for Gas for Public Consultation.](#)

²⁶ [GSE Transparency template.](#)

²⁷ [http://transparency.gie.eu/.](http://transparency.gie.eu/)

Competition Test

In 2012, CEER reviewed the implementation of Third Party Access (TPA) across Member States.²⁸ TPA²⁹ is a requirement under Article 33 of Directive 2009/73/EC (the Gas Directive)³⁰ which is intended to increase transparency and facilitate functioning markets by creating rules around the non-discriminatory access to storage facilities. The report concluded that while an access regime (either regulated or negotiated) had been chosen in most Member States, in many cases this has not been based upon defined criteria. Whilst CEER appreciates that sound reasoning has been used for the decisions, the lack of a clear competition test makes it difficult for NRAs to monitor the effectiveness of the implementation and whether changes in market conditions justify a change in regulatory regime (e.g. from regulated TPA to negotiated TPA).

CEER encourages Member States to adopt a clear competition test to enable NRAs to monitor the effectiveness of each TPA regime.

Regional Approach

During the joint CEER-GSE workshop in 2014, market participants highlighted the importance of cross-border access to storage in facilitating competition in the storage market and in promoting the efficient flows of gas within and between entry-exit systems. Member States and NRAs should develop a framework which allows users to book storage capacity in adjacent countries without restrictions on its use.

CEER believes that users should be able to access storage capacity in adjacent markets without restriction on its use.

²⁸ [CEER Monitoring Report on Article 33 and Article 41 of Directive 2009/73/EC regarding gas storage](#), Ref. C12-GWG-85-03, 9 July 2012.

²⁹ Under Article 33, Member States (or regulatory authorities where Member States have so provided) must define and publish a clear framework that determines the appropriate regulatory regime applicable to storage facilities. This may be through regulated prices or negotiated between the SSO and potential storage users.

³⁰ [Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC](#).

4. Reviewing the role of storage in security of supply

As discussed in Section 2.1.2, storage plays an important role in European security of supply. The insurance value of storage can protect market participants, and hence consumers, from supply disruptions and external shocks. Other flexible sources of gas, such as LNG and interconnectors, also provide an insurance value to the market. The insurance value of different sources is dependent upon their technical characteristics as well as contractual arrangements.

This paper does not seek to determine an appropriate level of security of supply or the amount of storage a given market requires in order to meet a specified level of security of supply. We consider that well-functioning markets are best placed to value and deliver security of supply and that effective competition between different sources of flexibility should deliver the most economic and efficient solution. However, in some European markets, intervention may be required in order to correct a specific market failure. As such, the objective of this section is to consider the role that undistorted markets play in promoting security of supply and to analyse the risks and benefits associated with different interventions.

Storage and security of supply in well-functioning markets

Efficient wholesale markets with robust reference prices are important for all sources of flexibility, particularly storage. In a functioning market, price will determine the role storage plays in delivering an appropriate level of security of supply by creating appropriate incentives on market participants (including storage users) to provide security of supply.

Case study: The gas security of supply significant code review in Great Britain³¹

In Great Britain, reforms have been developed to ensure that imbalance prices in a gas emergency provide appropriate incentives on gas shippers to balance supply and demand. These reforms ensure that imbalance prices remain dynamic throughout an emergency, with no cap on prices. If smaller consumers (e.g. domestic households) are interrupted, this would be treated as a balancing action by the system operator, and priced at an estimate of the Value of Lost Load. Funds recovered through imbalance charges would be used to make payments to interrupted consumers.

These reforms focus on improving the efficiency of price signals and transferring risks from consumers to shippers. Incorporating the cost of an emergency into market prices can create appropriate incentives on market participants (including storage users) to deliver supply security. It ensures that the most efficient actions are taken and that the strength of the incentive is proportional to the risk of an emergency.

³¹ The significant code review introduces the concept of Value of Lost Load (VoLL) into the regime in Great Britain. VoLL can be defined as the price that consumers would be willing to pay to maintain gas supply. In theory, if gas prices increased above this level, consumers would rather have their supply curtailed or disconnected than receive an additional unit of gas. More information can be found at: <https://www.ofgem.gov.uk/gas/wholesale-market/market-efficiency-review-and-reform/gas-significant-code-review>

This emphasises the importance of developing the internal energy market through the ongoing implementation of the Network Codes. The requirements of the 3rd Package ensure transparency, open access to transmission and storage assets and the foundations for competitive wholesale markets. Network code on Gas Balancing in Transmission Systems will deliver price signals in markets across Europe and reflect the value of storage in market prices. In addition, the Capacity Allocation Mechanisms Network Code will increase the opportunities to trade between markets. The ongoing implementation of the Network Codes should have a positive impact on the flexibility market and the role of storage in delivering security of supply.

CEER proposes that undistorted markets are the most effective approach to delivering efficient levels of security of supply. The development of the internal energy market and the implementation of the Network Codes should help to ensure security of supply through well-functioning markets.

Access to storage in crisis situations

In order for market participants to play an active role in managing a gas supply crisis, the rules around non-discriminatory access to storage facilities should be respected in these situations. When supply is tight or insufficient to meet demand, the value of having gas in store is greatest because the price is likely to increase, presenting financial opportunities for storage users. Any measures that restrict utilisation of storage in these situations could reduce the incentive to store gas and therefore reduce the amount of gas in store when a crisis occurs. In addition, reducing price volatility may reduce the incentive to store gas and secure supplies.

CEER believes that market participants, in the main, put gas in store for economic reasons. Allowing non-discriminatory rules for gas storage access to continue in emergency situations enhances the value of storage to the market and allows participants to realise the insurance value of storage.

A cross-border approach to security of supply

A regional approach should be taken when considering security of supply and the role of storage. It is important that Member States cooperate with each other to ensure that multiple Member States are not relying on the same molecule of gas for their security of supply. It is also more efficient for storage to be built in the right areas, e.g. where the geology is favourable. To allow a regional approach to work, it is important that full cooperation between Member States is achieved; there should be no restriction on the use of storage across borders, including in emergency situations. This will allow for the most efficient solution to European security of supply to be pursued. Such an approach is also emphasised in the European Energy Security Strategy paper published by the Commission³².

CEER believes security of supply across Europe should be assured through a regional approach. Any restrictions on the cross-border use of storage between Member States, including in emergency situations, should be reviewed.

³² [European Energy Security Strategy \[COM\(2014\)330\]](#)

The need for intervention

In many of the developed markets in North West Europe (NWE), security of supply is delivered through wholesale market price signals. Market participants consider that further intervention to deliver security of supply in these markets is likely to be unnecessary.

Gas storage capacity has increased by over 20% across Europe since 2009. However, capacity alone does not provide security of supply. There is a risk that, where the market does not appropriately value storage, not enough gas will be stored in facilities to provide a security of supply level that Member States are comfortable with. This issue has been brought sharply into focus by recent events in Ukraine leading to heightened fears of supply disruptions. Against this backdrop, it is important to note that approaching winter 2014/2015, storage levels across Europe are the highest seen in recent years, as shown in Figure 4.³³ Figure 6 below shows the fill levels across Member States.

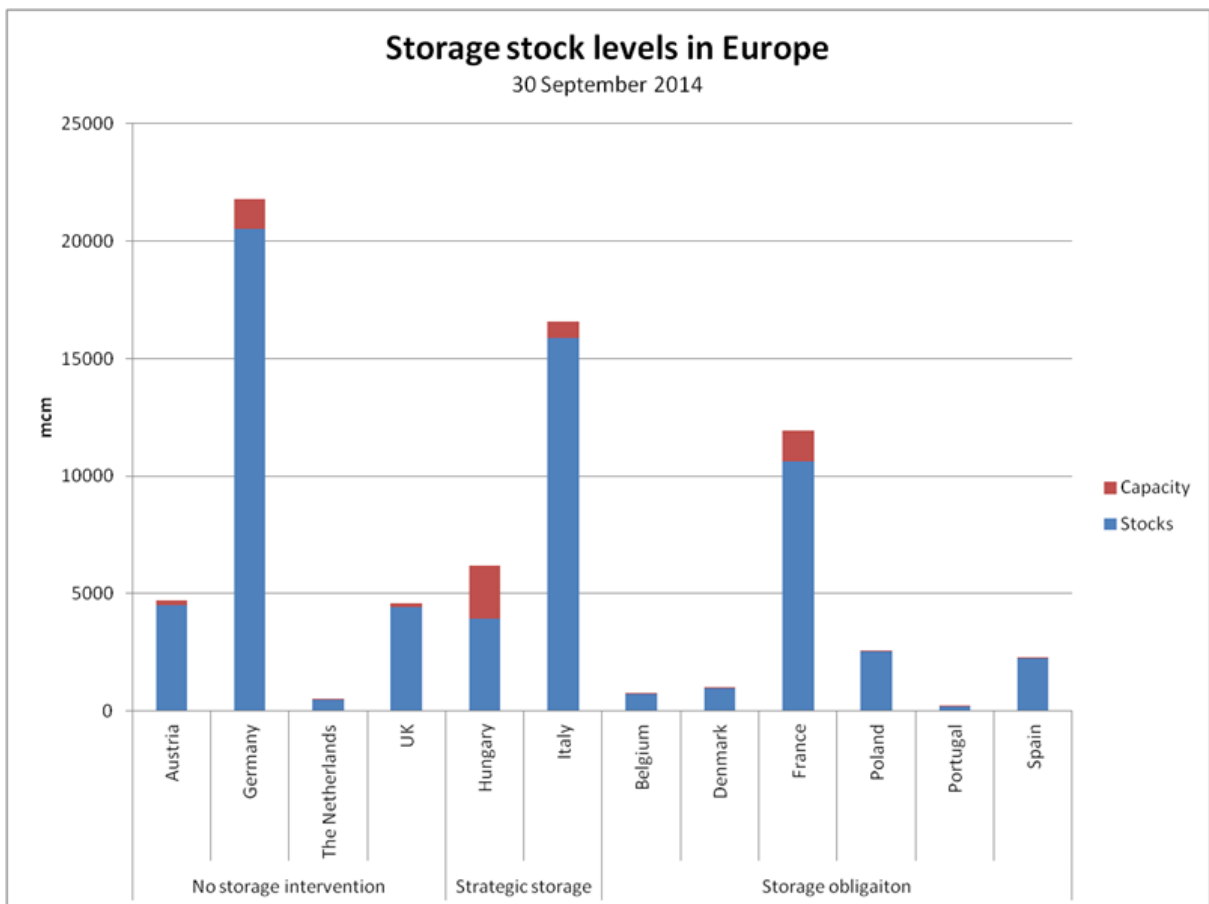


Figure 6: Graph showing gas in store against capacity across Europe³⁴

³³ Data from [GSE Transparency template](#)

³⁴ Source: [GIE Transparency platform](#) from 30 September 2014.

Markets across Europe are at different stages of development³⁵. Therefore, the practical need for intervention may vary. Where liquid wholesale markets do not yet exist, and hence there are no robust price signals incentivising market participants to store gas, there may be a need for intervention in the market to ensure security of supply. Examples of possible interventions include:

- Storage obligations
- Strategic storage

These two types of intervention are discussed in detail below. Interventions distort the efficient functioning of markets and should only be considered where there is clear evidence of market failure. Possible negative impacts on the market include:

- Reducing the amount of storage available to the market and thus the overall level of flexibility;
- Reducing the amount of gas in store (historical data reveals that some countries with security of supply obligations have lower fill levels than those without);
- Hindering market participants' ability to manage their portfolio (e.g. storage utilisation in a crisis situation) and respond to market signals, leading to sub-optimal actions;
- Increasing storage tariffs, making storage less competitive with other flexibility sources; and
- Reducing volatility or restricting trading opportunities, in turn reducing incentives to store gas and secure supplies.

Given these possible negative impacts on the market, interventions should only be considered where there is clear evidence of market failure and should fit with the concept of improving security of supply in the EU as set out in Regulation 994/2010³⁶. Furthermore, any intervention should be implemented only after all market-based measures have been exhausted. Before proposing interventions, NRAs and policy makers should review and understand the causes of the market failures which necessitate further intervention.

CEER believes that, where possible, the value of security of supply should be established in the market without the need for further intervention. Where there is clear evidence of market failure, interventions may be necessary but they must be at a national/regional level and designed to minimise the impact on market functioning, not foreclose the growth of wholesale markets and have an exit strategy when the relevant market is sufficiently developed. Any intervention must be transparent, non-discriminatory and publicly known.

³⁵ For example, in parts of Eastern Europe wholesale markets are less developed and there is reliance on a single external supplier.

³⁶ [Regulation \(EU\) No 994/2010 of the European parliament and Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC.](#)

Current storage interventions in Europe

There are storage interventions in place in several Member States that predate the shift towards market-based balancing and prices which reflect the full value of storage. Figure 7 below shows the different interventions in place across Europe³⁷.

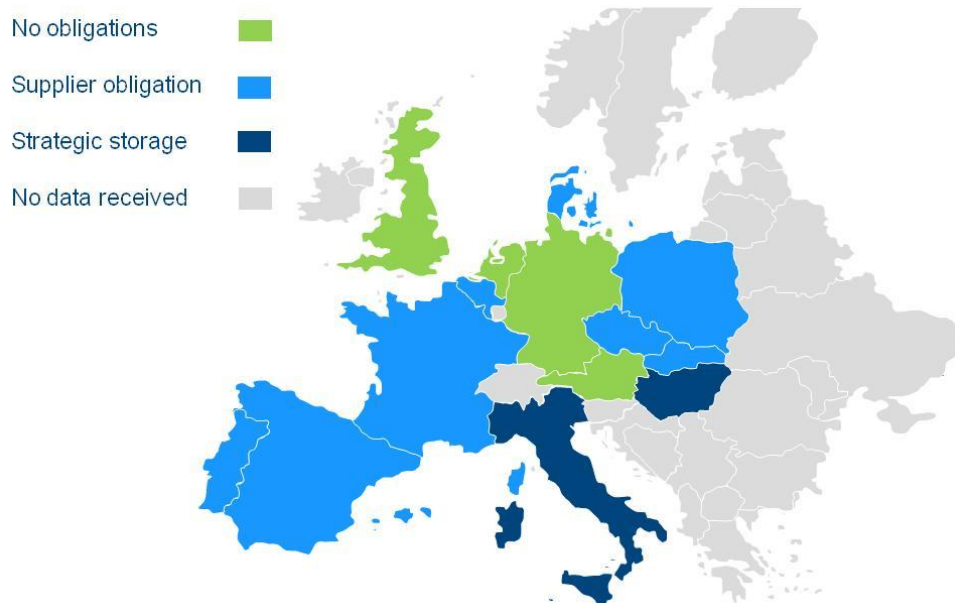


Figure 7: Map showing current interventions in the storage market in Europe³⁸

Many of these obligations were put in place for good reasons and have successfully delivered security of supply in the respective countries. However, market dynamics have changed. Since any intervention should address a specific market failure and the impact on the efficient functioning of the market should be understood and minimised, we recommend that existing storage obligations be reviewed in light of changing market dynamics.

CEER recommends that Member States review policies designed to ensure security of supply in light of changing market dynamics.

4.1. Storage Obligations

Storage obligations place an obligation on market participants to procure storage based on their customers or portfolios and ensure that a certain level of gas is in store at a specified time. The rationale for introducing storage obligations is to alleviate a presumed failure of the market to properly anticipate on the need for storage in case of tension between supply and demand.

³⁷ Based on information gathered by [CEER Interim Report on changing gas storage usage and effects on security of supply](#), CEER, C13-GWG-102-03, 20 November 2013.

³⁸ Source: [CEER Interim Report on changing gas storage usage and effects on security of supply](#), CEER, C13-GWG-102-03, 20 November 2013. N.B. not all Member States responded to the survey.

The drawback of storage obligations is that they may distort price signals and the economic valuation of storage based, among other things, on seasonal price spreads in wholesale markets. The risk is that price volatility is reduced, thus distorting the price signals and the efficient functioning of the market.

Storage obligations could act as a barrier to entry for new market players, perpetuate market concentration or stifle competition. Such obligations, where necessary, should therefore be used and designed carefully in order to minimise restrictions on when injections/withdrawals from storage facilities can take place, which could prevent market participants from responding efficiently to market signals. Such restrictions could hamper market participants' ability to manage their portfolios, distort the merit order for flexibility and prevent storage from being fully optimised. In cases of contractual congestion on storage, obligations should not artificially reduce the amount of storage available to the market and therefore the overall level of flexibility.

Storage obligations can reduce the market value of storage, which may have a negative impact on security of supply.

Case Study: Storage obligations in France

Ministerial order No. 2014-328 of 12 March 2014 provides that, every year, normative consumption profiles associated to each category of final consumers are defined, and used to calculate the rights of each supplier to get access to a certain quantity of storage capacity, based on its portfolio.

Every year, by 1 November, all suppliers have to store a volume of gas amounting to no less than 80% of their storage capacity rights related to their consumers connected to the distribution network. The storage capacity rights take into account both the volume and the withdrawal rate needed.

The Ministerial order No. 2014-328 also provides that Transmission System Operators (TSOs) have priority access to storage capacity through a specific contract for flexibility and security, in order to comply with their public service obligations.

CEER recognises that storage obligations can provide a degree of certainty regarding the level of storage bookings, however their implementation should be restricted to situations where there is clear market failure and should take into account the national and regional contexts and the impact on the market should be understood and minimised. Therefore, regulators and policymakers should be careful when thinking about introducing such measures.

4.2. Strategic Storage

A strategic storage intervention is one in which a volume of gas is taken out of the market, possibly by the TSO, to be used only in an emergency situation. The rationale for this type of intervention is to ensure a security buffer for the Member State in the event of a market failure or an emergency, or to protect the integrity of the transmission system in extreme circumstances. Examples of Member States with strategic storage include Hungary and Italy.

Case Study: Strategic storage in Hungary

In 2006, the Hungarian Parliament adopted legislation that created an obligation for the strategic stockpiling of 1.2 billion m³ of natural gas and the construction of the necessary underground storage facility up to 2010. The strategic stockpiles can be utilised exclusively to supply households and communal consumers in crisis situations.

The Hungarian Hydrocarbon Stockpiling Association (HUSA) announced and granted to MOL plc a tender according to the law to implement a strategic storage facility. HUSA and MOL plc created MMBF Co to construct and operate the strategic storage. Execution works started in 2007 at the Szőreg-I site and commercial injection started from 1 October 2009 with the required 1.2 billion m³ injected by the end of the year. The reserves have not yet been used.

In 2011, the Minister of National Development lowered the working gas volumes of the strategic storage temporarily to 916 million m³. The 284 million m³ gas thus released was sold by HUSA to two gas traders under the provisions of the Decree.

Case Study: Strategic storage in Italy

Legislative Decree No. 164/2000 (which started the liberalisation process of the Italian gas market) defines the strategic storage as the storage aimed at facing potential shortages or reductions in supply or crisis situations of the gas system.

According to Article 12, paragraph 11-*bis* of the above mentioned Decree, as amended by the Legislative Decree No. 93/11, and Article 1, paragraph 1, of the Ministerial Decree of 29 March 2012, costs underlying the strategic storage service shall be borne by gas producers and importers on the basis of a share of their produced and/or imported gas volumes. That share is defined annually by the Ministry of Economic Development taking into account the capacity developments of both import infrastructure and national production. Charges to be applied to producers and importers are defined by the Italian national regulatory authority, AEEGSI (Resolution No. 149/2012/R/gas), through a variable unit called CST that is paid by the above parties to storage operators.

The total amount of strategic storage is settled by the Ministry of Economic Development on an annual basis and in consultation with the Emergency and Monitoring Committee of the natural gas system. For the storage year 1/04/2014 – 31/03/2015, the total amount is 4.620 mln Smc.

CEER recognises that a strategic storage option might be required where clear evidence of market failure has been shown. The design and usage of such an intervention is crucially important to minimise the impact on the market. Below are some of the aspects which should be considered:

- Distinguish between ordinary market functioning and extraordinary crisis situations;
- Clarity on the roles and responsibilities of different actors;
- Non-discriminatory rules for storage users in system emergency situations;
- Clear triggering events; and
- Information provision to market participants on size/cost/impact of strategic storage.

CEER recognises that in certain cases interventions may be required to correct proven market failure. Where interventions are introduced, the impact on the market should be understood and minimised. For example, where strategic storage is introduced, clear rules, responsibilities and boundaries are needed to minimise the impact it has on the functioning of the wholesale market.

5. Conclusions

Consumers' interests are best served by a functioning wholesale gas market. Storage plays an important role in facilitating the efficient functioning of the market. CEER recognises that market development is at different stages across Europe and therefore the priority must be to develop efficient markets through implementation of the European Network Codes by delivering price signals and access to cross border capacity.

Creating an undistorted market

The market for storage is changing as participants use multiple sources to meet their flexibility needs. To ensure that storage continues to be able to play an important role in the market, it is necessary that SSOs can compete with other sources on a level playing field. CEER (through discussions with market participants, policy makers and SSOs) has identified potential barriers which should be removed to allow this to happen:

- Any regulatory levers or policy interventions are targeted to situations where there is clear evidence of market failure to minimise unintended consequences.
- Where possible, Member States should allow SSOs to offer all storage capacity to the market on a non-discriminatory basis. This capacity should be fully contestable and have no restrictions on usage. Furthermore, SSOs should offer a wide range of products to the market and these should be freely tradable on the secondary market to ensure the most efficient use of the infrastructure.
- SSOs should not be prevented from innovating and developing new products. Where this is not possible due to regulatory (or policy) arrangements, NRAs (or Member States) should seek to develop arrangements that facilitate innovation where appropriate, not stifle it.
- Transportation tariffs should consider the benefits and costs that storage facilities provide to the overall system.
- CEER acknowledges the good progress being made by SSOs to increase information transparency and encourages SSOs to continue to work with market participants to publish appropriate information. CEER will monitor the information provision of SSOs on a regular basis to ensure it delivers sufficient transparency.
- Member States should adopt a clear competition test to enable NRAs to monitor the effectiveness of each TPA regime.
- Users should be able to access storage capacity in adjacent markets without restriction on its use.

Reviewing the role of storage in security of supply

CEER believes that the creation of well-functioning wholesale markets can provide the most efficient mechanism for delivering security of supply. However, CEER recognises that all markets are different and that, currently, a pan-European policy approach may not be the most efficient solution. In certain Member States, intervention may be required to help deliver of security of supply while a functioning wholesale market develops.

CEER has identified some practical proposals that could be considered by NRAs, SSOs and policy makers:

- Undistorted markets are the most effective approach to delivering efficient levels of security of supply. The development of the internal energy market and the implementation of the Network Codes should help to ensure security of supply through well-functioning markets.
- CEER believes that market participants, in the main, put gas in store for economic reasons. Allowing non-discriminatory rules for storage access to continue in emergency situations enhances the value of storage to the market and allows participants to realise the insurance value of storage.
- Security of supply across Europe should be assured through a regional approach. Any restrictions on the cross border use of storage between Member States, including in emergency situations, should be reviewed.
- Where possible, the value of security of supply should be established in the market without the need for further intervention. Where there is clear evidence of market failure, interventions may be necessary but they must be at a national/regional level and designed to minimise the impact on market functioning, not foreclose the growth of wholesale markets and have an exit strategy when the relevant market is sufficiently developed. Any intervention must be transparent, non-discriminatory and publicly known.
- Member States should review policies designed to ensure security of supply in light of changing market dynamics.
- CEER recognises that storage obligations can provide a degree of certainty regarding the level of storage bookings, however their implementation should be restricted to situations where there is clear market failure and should take into account the national and regional contexts and the impact on the market should be understood and minimised. Therefore, regulators and policymakers should be careful when thinking about introducing such measures.
- CEER recognises that in certain cases interventions may be required to correct proven market failure. Where interventions are introduced, the impact on the market should be understood and minimised. For example, where strategic storage is introduced, clear rules, responsibilities and boundaries are needed to minimise the impact it has on the functioning of the wholesale market.

Annex 1 – CEER

The Council of European Energy Regulators (CEER) is the voice of Europe's national regulators of electricity and gas at EU and international level. Through CEER, a not-for-profit association, the national regulators cooperate and exchange best practice within and beyond Europe's borders. CEER includes national regulatory authorities from 33 European countries (the EU-28, Iceland, Norway, Switzerland, FYROM, Montenegro and growing).

One of CEER's key objectives is to facilitate the creation of a single, competitive, efficient and sustainable EU internal energy market that works in the public interest. More specifically, CEER is committed to placing consumers at the core of EU energy policy. CEER believes that a competitive and secure EU single energy market is not a goal in itself, but should deliver benefits for energy consumers.

CEER works closely with (and supports) the [Agency for the Cooperation of Energy Regulators \(ACER\)](#). ACER, which has its seat in Ljubljana, is an EU Agency with its own staff and resources. CEER, based in Brussels, deals with many complementary (and not overlapping) issues to ACER's work such as international issues, smart grids, sustainability and customer issues. European energy regulators are committed to a complementary approach to energy regulation in Europe, with the Agency primarily focusing on its statutory tasks related to EU cross-border market development and oversight, with CEER pursuing several broader issues, including international and customer policies.

The work of CEER is structured according to a number of working groups and task forces, composed of staff members of the national energy regulatory authorities, and supported by the CEER Secretariat.

This report was prepared by the Gas Storage Task Force of the Gas Working Group.

CEER wishes to thank in particular the following regulatory experts for their work in preparing this document: Ryan McLaughlin, Tamás Körösi, Menno Van Liere and Edward Freeman.

Annex 2 – List of abbreviations

Term	Definition
ACER	Agency for the Cooperation of Energy Regulators
AEEGSI	Autorita per l'energia elettrica il gas ed il sistema idrico (Italian NRA)
BBL	The shorthand name for the Balgzand (Holland) to Bacton (UK) pipeline
CEER	Council of European Energy Regulators
GB	Great Britain
GSE	Gas Storage Europe
HUSA	Hydrocarbon Stockpiling Association
IUK	The shorthand name for the Bacton (UK) to Zeebrugge (Belgium) bi-directional gas pipeline
LNG	Liquefied Natural Gas
LRS	Long Range Storage
MRS	Medium Range Storage
NRA	National Regulatory Authority
NWE	North West Europe
SBU	Standard Bundled Unit
SRS	Short Range Storage
SSO	Storage System Operator
TPA	Third Party Access
TSO	Transmission System Operator
VoLL	Value of Lost Load