



Market consultation on storage 2022-2037 Gas Storage Denmark A/S

1. INTRODUCTION

This market consultation aims to clarify the demand for gas storage and new services under the future transit gas system which will be established in Denmark with the Baltic Pipe coming into production in October 2022. This market consultation is also the start of an adaptation process which will ensure that GSDs assets are prepared to deliver according to market demands in the future - by virtue of technical performance and by virtue of in-demand products and services.

Your participation in this market consultation is very important for both GSD and for you. On one hand, it will allow us to take your feedback into consideration and decide how to adopt our assets in dialog with you. On the other hand, we have the ambition to develop the most relevant and value-creating products to the players in the future Danish gas market.

Our expectation is that the Baltic Pipe will change the way we “think” our gas businesses and the underlying physical gas flows. An attempt to describe this, might be based on the following expectations:

- declining domestic gas consumption,
- 3-fold increase in the transit flow,
- existing market players might expand their activities throughout parts of the Baltic Pipe,
- new players may introduce composite portfolios combining upstream, midstream and downstream activities stretching along the whole length of the Baltic Pipe,
- the Danish biogas production is expected to continue growing and the certification regulation may develop further to support physical accountability of the biogas transported through the system,
- new balancing regime is expected to introduce within-day-obligation which will require more attention for portfolio balance by market players,
- the dynamic of the market coupling across border points is still unclear,
- the Tyra platform in the Danish North Sea is resuming production in June 2023, which is later than the go-live day of the Baltic Pipe.

The complexity of the transit system seems to grow massively and the new physical map of the Danish transit gas system will develop to include multiple entry and exit interconnection points and, presumably, the storage facilities will play a different role for the security of supply in the future. Last, but not least, the process of transformation to the

new transit gas system will most likely call for new business models and therefrom derived needs for changes of the storage services offered by GSD today.

As previously informed, the framework for GSD's activities involves that GSD must offer negotiated access to gas storage on market terms. This framework implies that the offered storage services must be adjusted on a regular basis according to changes in the market conditions. Therefore, GSD shall use this market consultation to collect feedback for assessment of possible adjustments of the technical setup and performance of our assets – e.g. the number of wells and the reservoirs, and the configuration of the on-ground infrastructure. It is important to underline that, based on the outcome of this market consultation, GSD may come to the conclusion that the current storage facilities, should be technically reconfigured - incl. scale-up or scale-down, subject to financially responsible operations, maintenance and investments on long term.

The interest and expressions that we receive with this market consultation, must enable GSD to operate the assets that the storage customers need in the future. In return, all participants will receive an aggregated summery of the interest we have received as well as information about how we see the further process of adaptation.

2. QUALIFICATIONS

Any natural or legal person currently using the storage services of GSD or interested in using storage in the future, is invited to submit input to this market consultation by answering the following questionnaire.

3. CONFIDENTIALITY

GSD undertakes to protect the confidentiality of the content submitted by each completed questionnaire. Any studies based on submitted information and published by GSD, will show data, if any, on an aggregate anonymized level only.

4. QUESTIONNAIRE

The aim of this questionnaire is to gain insight into your company's requirements for gas storage services in the transit gas system to be established in Denmark with the Baltic Pipe coming into production in October 2022. Furthermore, this questionnaire intends to get more detailed feedback from storage users about the preferable product specification depending on intended usage and pricing level for the storage services delivered by GSD.

The present questionnaire consists of the following topics:

- 4.1 Company information
- 4.2 Company objectives for gas storage
- 4.3 Required volumes and flexibility
- 4.4 Required new services

The further process for submission of completed questionnaire followed by bilateral dialog and final output on aggregate level, is described in clause 5 in this Market Consultation Paper.

GSD is fully aware that the understanding of the future transit gas system in Denmark varies widely. We kindly ask you to answer the questions as far as possible. As the questionnaire is aimed at existing and potential new storage customers and then at any other stakeholders with interest in gas storage, the questions are drawn up to address primarily the storage customers. Therefore, please only provide answers where these are applicable to your company.

4.1. Company information

Company:	
Contact person:	
Phone number:	
E-mail address:	

Q1: Please state whether, after submitting concluded questionnaire, you wish to have the chance to elaborate on your answers or ask questions in a bilateral dialog with GSD:

YOUR INPUT	ACTIVITY	INPUT EXAMPLE
	Yes, I'm interested	✓
	It is not relevant for me and my company	-

Q2: Please describe your company (now and in future) by marking one or more of the following categories:

YOUR INPUT	ACTIVITIES	INPUT EXAMPLE
	Producer or production off-taker	-
	Wholesale supplier	✓
	Hub trader	✓
	Supplier of end customers (DK or Sweden)	✓
	Transit player/import-export	-
	Biogas producer	✓
	Biogas supplier	✓
	Other, please explain:	-

4.2. Your company objectives for gas storage

As mentioned above, the questionnaire makes a distinction between storage customers and any other stakeholders with interest in gas storage. Please answer the relevant questions for your portfolio(s).

Q3: Can you briefly describe the role of gas storage in your physical portfolio(s)?

YOUR INPUT	PURPOSE DESCRIPTION	INPUT XAMPLE
	Seasonal supply	√
	Peak supply	√
	Physical back-up of trading activity	-
	Balancing of end users (other than gas-to-power and heating)	√
	Balancing of gas-to-power	-
	Balancing of heating	√
	Back-up of upstream assets	-
	Other, please explain:	-

Q4: Can you briefly describe the role of gas storage in your portfolio(s)' risk management by rating 1-10 the following options, where the total sum must be 10 and "-" means "not relevant".

The example in the table shows that you use gas storage mainly to manage the supply risk and then to obtain lower dependency on other sources of flexibility.

YOUR INPUT	RISK MANAGEMENT DESCRIPTION	INPUT EXAMPLE
	Lower dependency on other sources for flexibility	4
	Security of supply (e.g. in case of low market liquidity, physical bottlenecks, cold spells etc.)	6
	New market player and still to learn the Danish OTC market	-
	Other, please explain:	-
10	TOTAL SUM	10

Q5: How much of your total gas portfolio in Denmark (incl. wholesale volumes, end-user sale, traded volumes, transit volumes, etc.) do you project to cover by storage on yearly basis?

YOUR INPUT	YOUR NEED FOR STORAGE	INPUT EXAMPLE
	Below 10% of my gas portfolio per year	√
	Below 20% of my gas portfolio per year	-
	Below 50% of my gas portfolio per year	-
	Below 80% of my gas portfolio per year	-
	Other, please explain:	-

Q6: What alternatives to Danish storage are you considering? To what extent can you replace storage by using your other alternatives for flexibility?

Please note your input by rating 1-10 the following options, where the total sum must be 10 and “-” means “not relevant”.

The example in the table shows that major part of the flexibility required in your portfolio is covered by purchases on the OTC market and Hub (e.g. WD or DA trading), and a minor part by bilateral agreements, which include some kind of flexibility.

YOUR INPUT	SOURCE REPLACING STORAGE	INPUT EXAMPLE
	Purchase of gas on Hub (Gaspoint Nordic, Gaspool or NCG/ Trading Hub Europe starting from 1 Oct. 2021)	4
	Purchase of gas storage in adjacent market	-
	Bilateral purchase on the OTC market	5
	Bilateral purchase agreements (incl. flexibility) on the wholesale market	1
	Structured trading (e.g. swaps)	-
	Own gas production	-
	Own biogas production	-
	Other, please explain:	-
10	TOTAL SUM	10

Q7: What would make storage a competitive option for you?

Q8: If you are potential storage customer, what developments - e.g. storage services, trading systems or compliance wise, are required before you can start?

Q9: Do you have any suggestions on how GSD might help reduce risks for your company?

Q10: Do you have suggestions if and how GSD can support your future transit flow and/or your business in the Danish market?

Q11: How do you perceive an adaptation of a product definition where a new standard product has a higher firm withdrawal rate in the summer rather than winter?

4.3. Required volumes and flexibility

Q12: What would be your preferred contract term?

YOUR INPUT	DESCRIPTION CONTRACT TERM	INPUT EXAMPLE
	1 year (or less)	√
	2-3 years	√
	5-years	-
	10 years	-
	15 years	-
	Other, please explain:	-

Q13: If possible, can you give an indication of the yearly storage volumes you expect to need in the period 2022-2037?

Please note your indication for required storage volume as shown on the example below.

Volume/Period	2022-2027	2027-2032	2032-2037
Zero			
<50 GWh			
50-100 GWh			
100-500 GWh			
500-1000 GWh			
1000-2000 GWh			
>2000 GWh			

Example for input:

Volume/Period	2022-2027	2027-2032	2032-2037
Zero	-	-	-
<50 GWh	-	-	-
Between 50 and 100 GWh	-	-	-
Between 100 and 500 GWh	✓	-	-
Between 500 and 1000 GWh	-	✓	-
Between 1000 and 2000 GWh	-	-	✓
>2000 GWh	-	-	-

Q14: If possible, can you give an indication of the flexibility (injection/withdrawal) required to your yearly storage volumes (indicated in Q2 above)?

Please note your desired options as shown on the second table below.

Explanation: 170/170, 170/85, 120/60, 30/30 (table below) show the number of days for injection (first number) and the number of days for withdrawal (last number) matching your required speed for utilization of your purchased volume capacity. For example: purchased 500 GWh storage product 120/60 means that you have access to 173,611 kWh/Hour firm injection capacity and 347,222 kWh Hour withdrawal capacity, which numbers are calculated in the following way:

- Injection capacity 173,611kWh/Hour ($500 * 1000,000 / 120 / 24$)
- Withdrawal capacity 347,222 kWh/Hour ($500 * 100,000 / 60 / 24$)

Volume/Period	2022-2027	2027-2032	2032-2037
Zero			
Low flex (170/170)			
Seasonal flex (170/85)			
High flex (120/60)			
Fast flex (30/30)			

Other, please explain:			
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Example for input:

Volume/Period	2022-2027	2027-2032	2032-2037
Zero	-	-	-
Low flex (170/170)	✓	-	-
Seasonal flex (170/85)	-	✓	-
High flex (120/60)	-	-	✓
Fast flex (30/30)	-	-	-
Other, please explain:	-	-	-

Q15: Currently, the storage year in the storage facilities of GSD is set to start on 1 May and to end 30 April the following year. As known, the seasonal contracts for Summer and Winter are traded for the total period starting on 1 April and ending on 31 March.

If possible, would you prefer that GSD changes the storage year to start on 1 April and to end on 31 March to match the trading contracts delivery period?

YOUR INPUT	YOUR PREFERENCE	INPUT EXAMPLE
	No, I am happy with the storage year as it is	-
	Yes, I will prefer alignment with the trading products	✓
	I am indifferent	-

4.4. Required new services

To update its service standards, GSD aims to gain insight into the interest of market players in new storage services that will match the desired service level in a better way.

Q16: Which of the following role(s) by GSD would best match your needs for storage in the future Danish transit gas system:

YOUR INPUT	GSD role(s)	INPUT EXAMPLE
	GSD as provider of "one storage" storage services, such as seasonal storage and/or physical back-up of other market activities (one nomination to storage as required to-day).	✓

	<p>GSD as 24/7 balance provider to your portfolio by observing your specific balance signal submitted by the Gas TSO - e.g. you balance your portfolio as a member of shared flexibility account, which GSD administrates and from which GSD delivers flexibility on short term and only for balancing purposes.</p> <p>Note: the service does not exist today and will need to be developed.</p>	-
	<p>GSD provides storage service for biogas stored on a separate account conditionally on regulation change allowing certificates to be valid for more than one year.</p> <p>Note: the service does not exist today and will need to be developed.</p>	✓
	<p>Other ideas, please explain:</p>	-

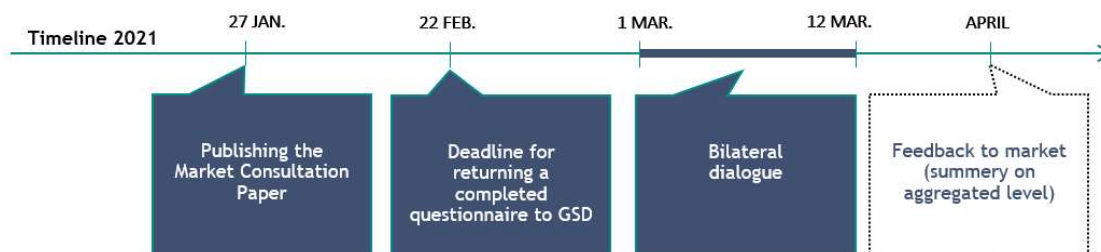
5. THE FURTHER PROCESS

This Market Consultation Paper will be published on 27th January 2021. All market players interested in gas storage, but specifically GSD's existing and coming storage customers, are invited to submit their input by filling the questionnaire in section 4.

Please return your completed questionnaire no later than **February 22nd at 16.00**, attached in a mail to contact@gasstorage.dk.

During the period from March 1st to March 12th, GSD shall contact all interested participants for bilateral dialog and further discussions.

After assessments of received input and possible adequate adjustments, GSD expects to be able to publish a feedback paper to the market in April.



6. ANY OTHER COMMENTS TO GSD

Please note if you have any other comments in relation to this market consultation.
