



SHIPPERS' FORUM

14 December 2023



MUTE YOUR MICROPHONE,
WHEN YOU DON'T SPEAK



SWITCH ON YOUR CAMERA, ONLY
WHEN YOU ARE GIVEN THE
WORD TO SPEAK



USE THE 'RAISE HAND'
FUNCTION IF YOU WISH TO
COMMENT OR ASK A
QUESTION...



...YOU CAN ALSO WRITE YOUR
QUESTION USING THE CHAT -
THE HOST WILL ASK THE
QUESTION FOR YOU

AGENDA

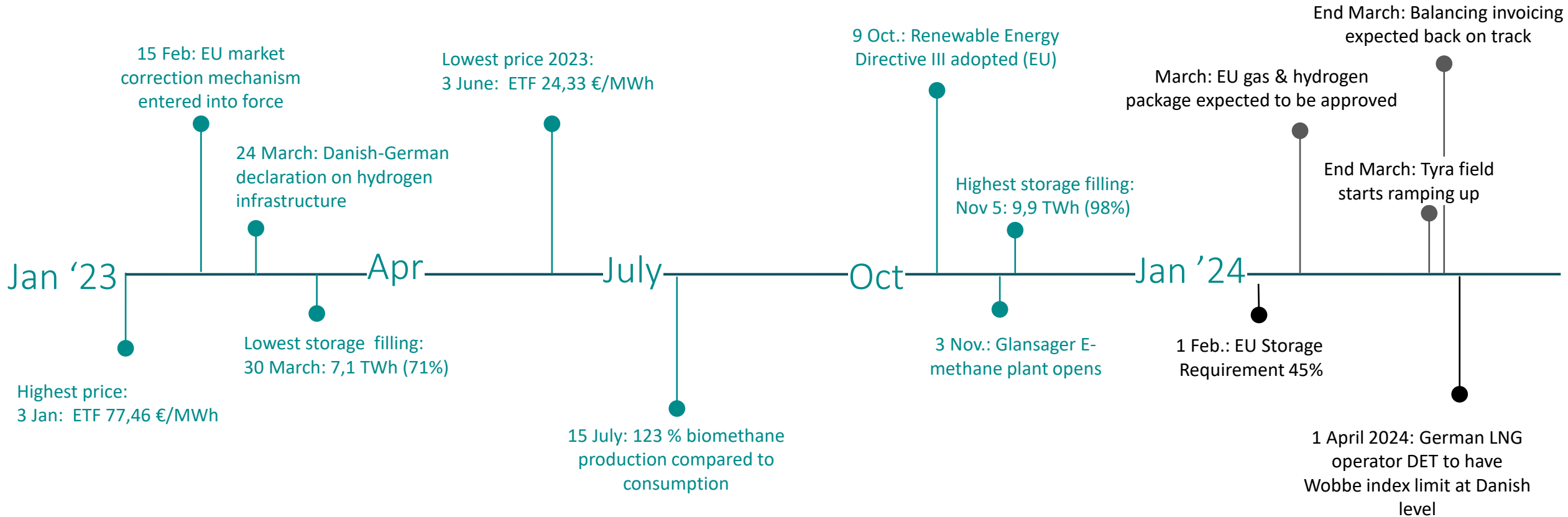
- 13.00 Welcome – *Clement Johan Ulrichsen, Energinet*
- 13.10 Security of supply – *Jane Glindvad Kristensen, Danish Energy Agency*
- 13.25 Supply situation – *Christian Meiniche Andersen, Energinet*
- 13.40 General Maintenance – *Esra Yüksel Gencay, Energinet*
- 14:00 BREAK**
- 14:15 Gas storage Denmark – *Marni Jacobsen, Gas Storage Denmark*
- 14.30 Balancing and Invoicing – *Kristoffer Modisaotsile Mitens, Energinet*
- 15:00 Final remarks – *Clement Johan Ulrichsen, Energinet*



WELCOME

Clement Johan Ulrichsen, Energinet

DEVELOPMENTS IN THE GAS MARKET 2023 – AND 2024



Power-to-X anlæg er sat i drift

3.11.2023 17:12:03 CET | [Andel](#)



Energinet to issue e-methane guarantees of origin (GO)

- Gas to be sold and marketed as e-gas – not b-gas
- GO issuance from Q1 2024
- Glansager: First PtX plant connected to gas grid
- PTX tender: 10MW PTX plant for e-methane in Roslev

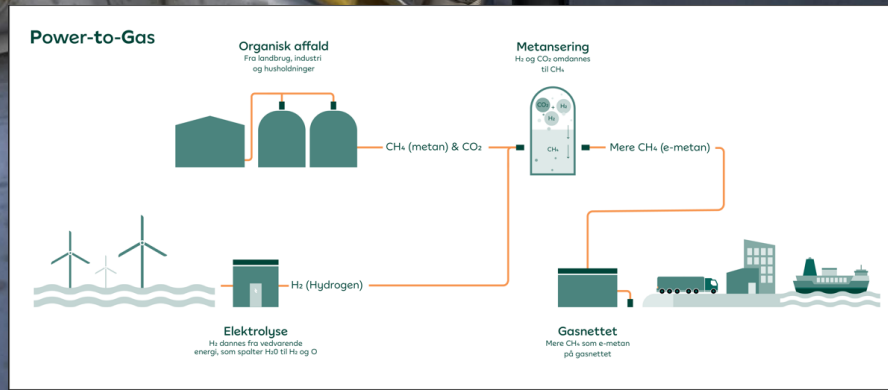
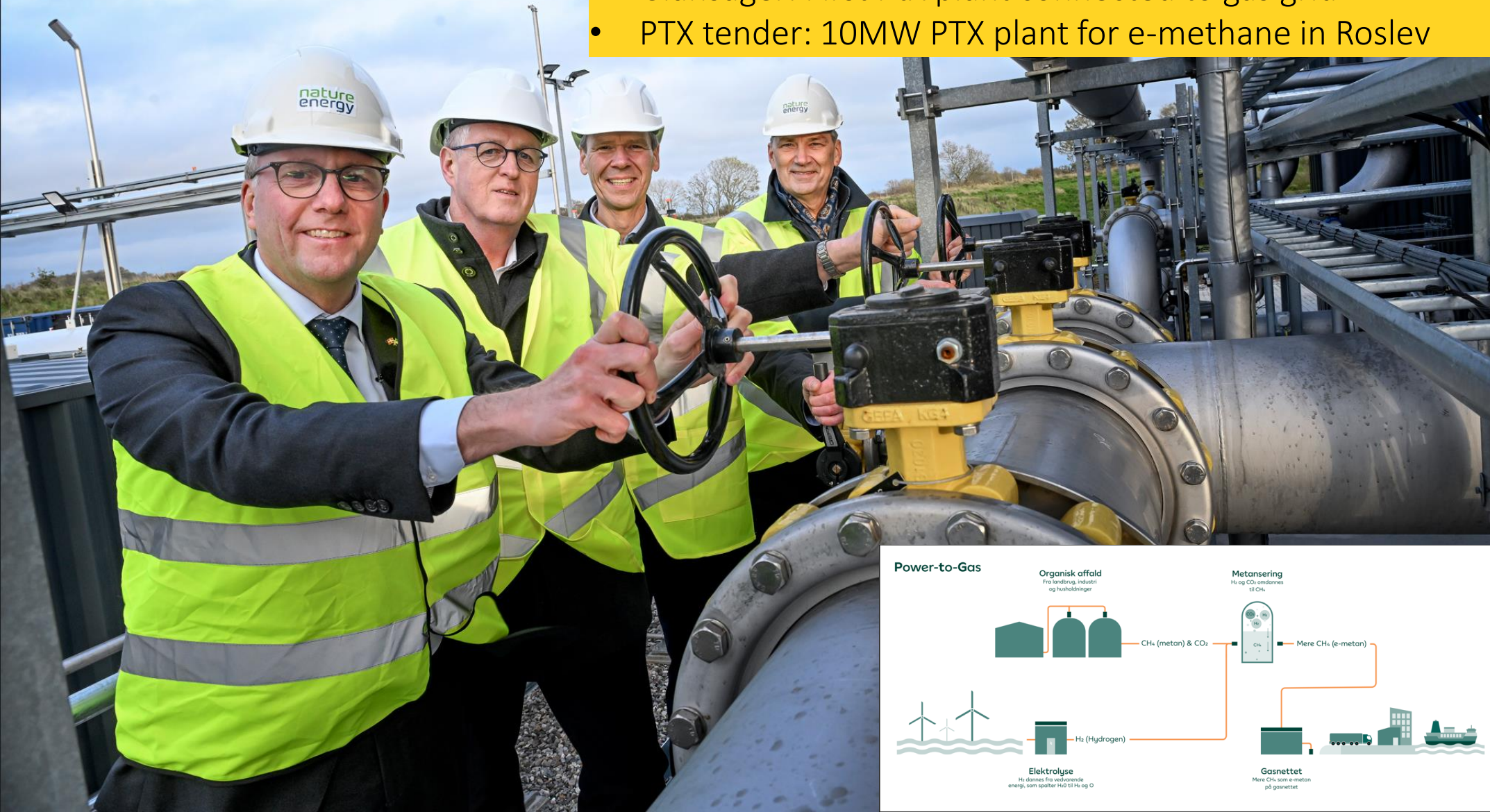
ENERGINET

b-gas

Guarantees of origin

e-gas

Guarantees of origin



SPØRGSMÅL



Contact: cju@energinet.dk



Security of gas supply – Winter 23/24

Shippers Forum 14 Dec. 2023

Jane Glindvad Kristensen

15. december 2023



Energistyrelsen

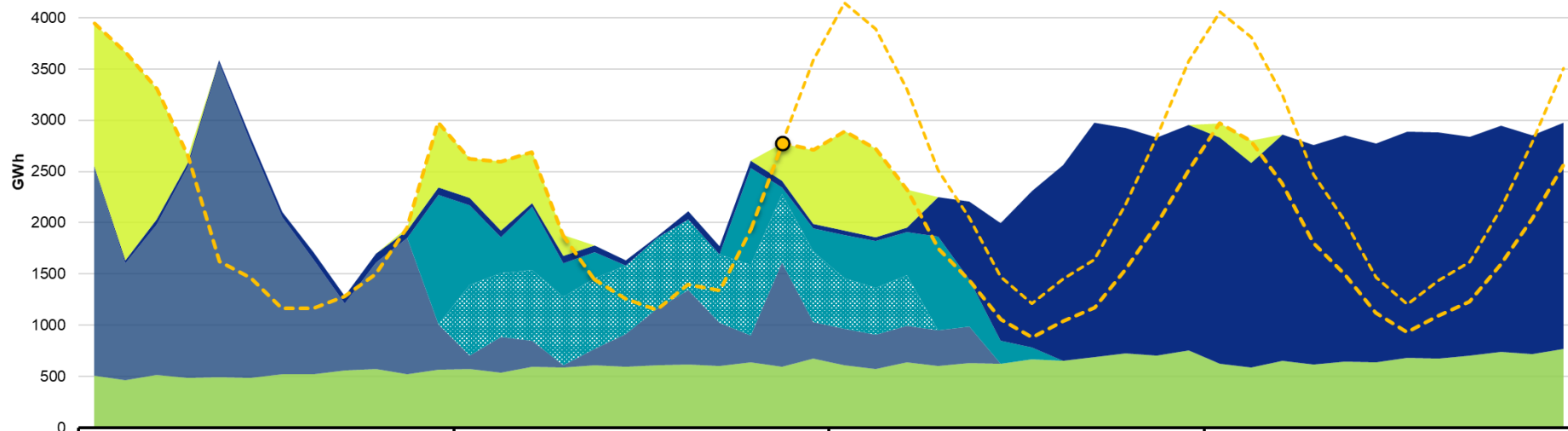
ENERGY SUPPLY SITUATION – DEC. 23 AND IN 23/24

	NOW (23)	The Following (23/24)
GAS	Stable supply. Lower but still volatile prices.	Risk for stop for Russian gas and lower LNG supply may cause increasing prices.
EL	Stable supply. Volatile prices	Risk of lower production in Europe, low risk of brownouts.
OLIE	Stable supply. Potentially high prices.	Higher prices in the 2nd half of 2023 and the beginning of 2024.
VARME & BIOMASSE	Stable supply. High prices	Higer prices like in 2022.

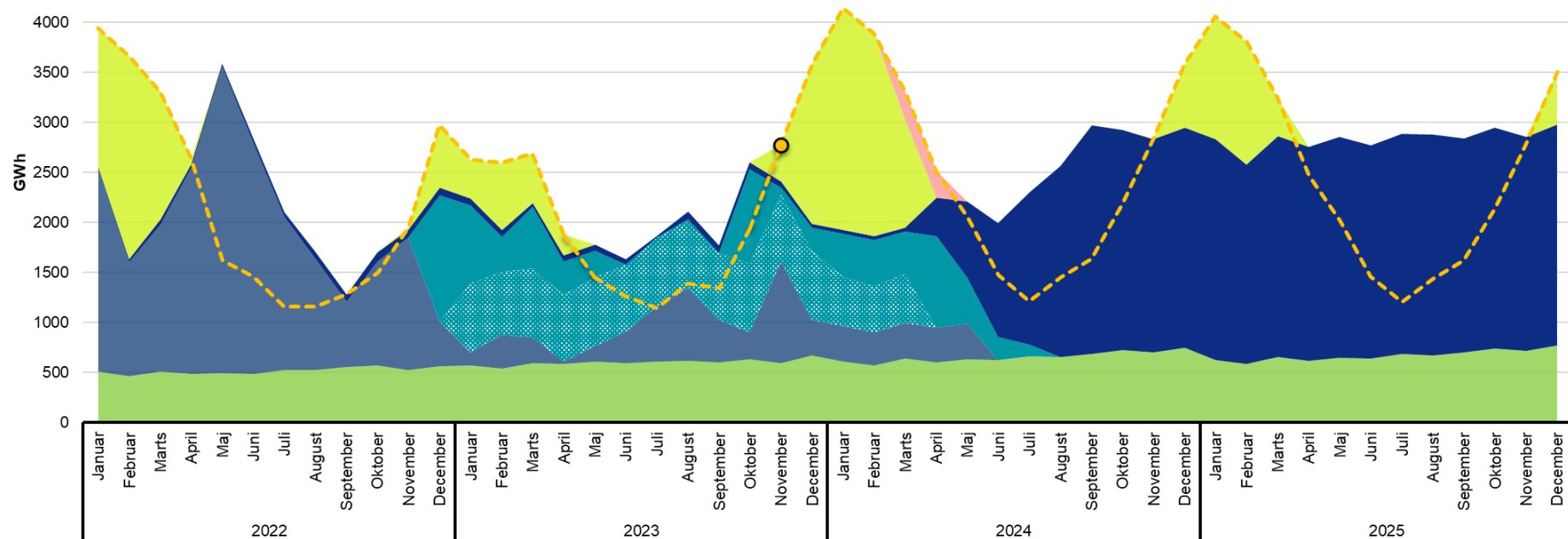


SCENARIO G0: UNCHANGED SUPPLY

G0: Unchanged supply – with continued consumption reduction



G0: Unchanged supply – with "Normal consumption levels"



At the "normal consumption" level as before the invasion, there will probably be a need to declare emergency and gas will be missing to supply some consumers at the end of the winter. Disruption of non-protected customers is likely to occur in emergency.

Low gas filling levels at the end of the winter also mean that larger quantities must be filled in storage towards the next winter season.

- DK Biogasproduktion
- Gaslagertømning
- Import Tyskland
- DK Nordsøproduktion (til DK)
- Import Norge (kontrakt)
- Import Norge (øvrige)
- Nødgaslager (kun til beskyttede kunder)
- Manko
- DK+S Forbrug med fortsat forbrugsreduktion
- DK+S "Normalt forbrug" som før invasionen

SCENARIO G1: DISRUPTION OF THE GAS MARKET

Current conditions: Uncertainty on the European gas market as a consequence of the Russian invasion of Ukraine and Danish dependence on a well-functioning European market is causing a risk also for the Danish supply in the winter of 2023/2024.

If, on the other hand, the European market works in 2023/24, Denmark and Sweden will be guaranteed a better and more stable supply due to two new supply routes – Baltic Pipe, operated since November 2022, and the Tyra platform, which will be commissioned again in March 2024.

Potential consequences for the Danish supply situation:

Commissioning of the Tyra platform adds a general higher security of supply. But the commissioning does not exclude the market risk of access to gas.

The conditions in Germany during the winter of 2023/2024 and the general European gas demand may have an impact on how large a share of the gas available in the EU Denmark can receive.

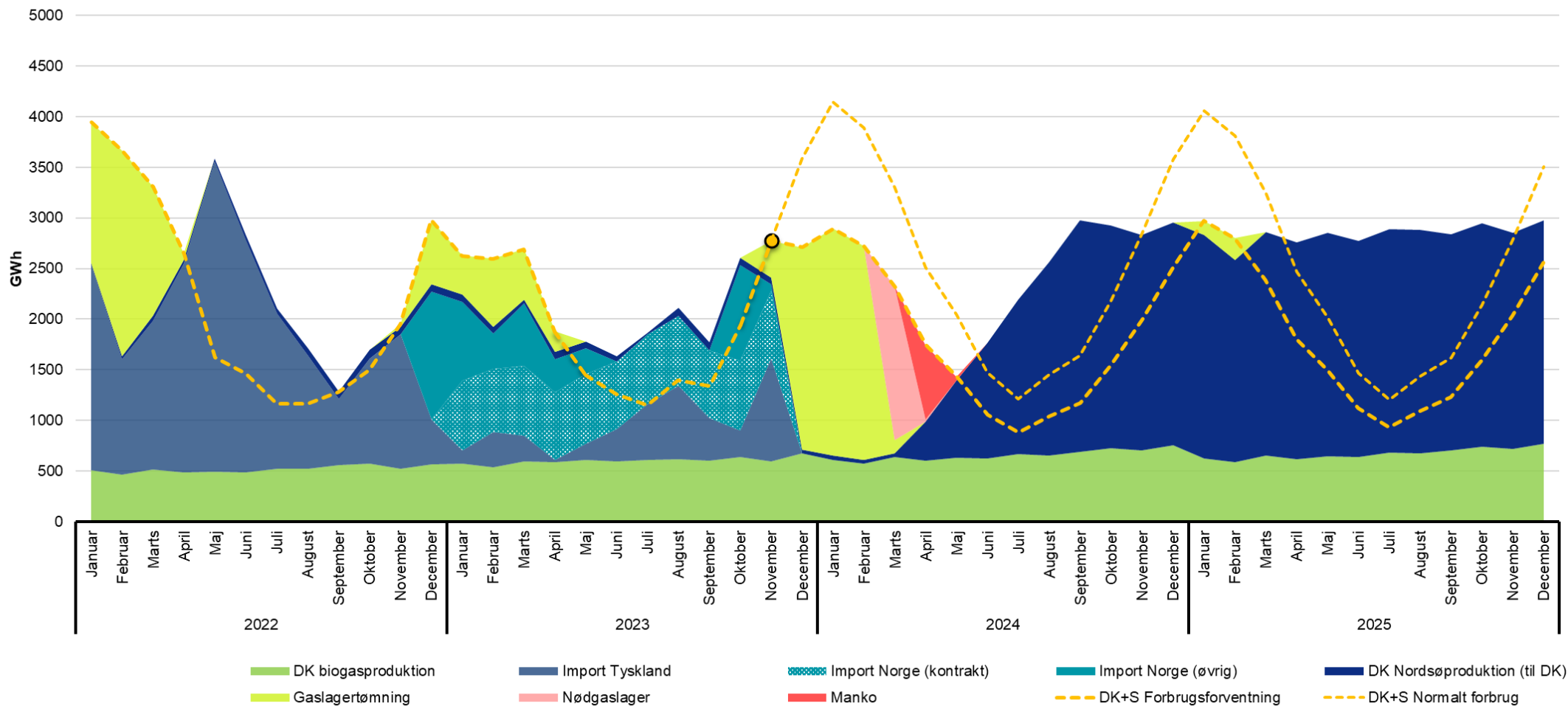
The risk for sabotage and disruptions on the major gas infrastructure could in worst case lead to increased protectionism in the member states and disrupt the gas market.

See calculations for G1 on the next slide



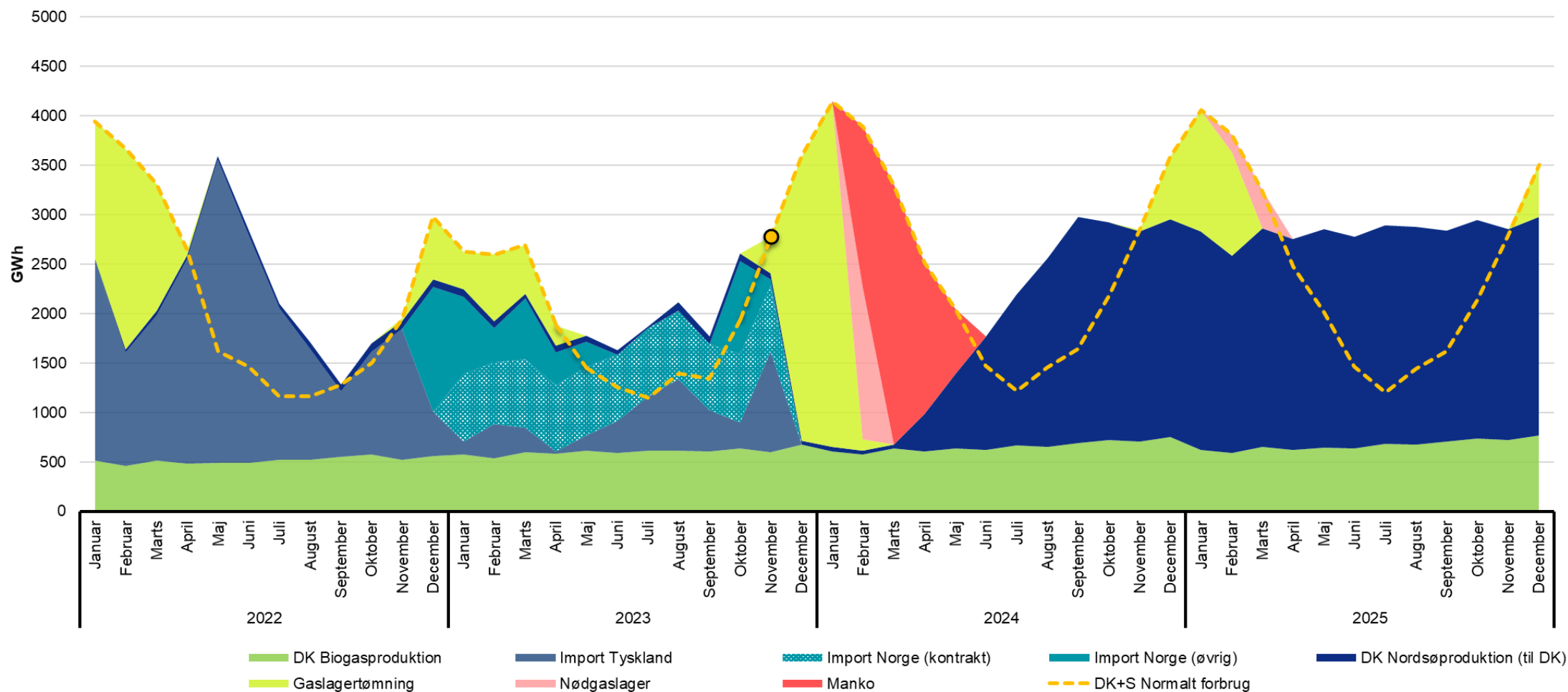
SCENARIO G1: THE GAS SUPPLY IN THE EVENT OF MARKET DISRUPTION

Scenarie G1: Markedet bryder sammen - Forbrugsforventning



SCENARIO G1: THE GAS SUPPLY IN THE EVENT OF MARKET DISRUPTION

Scenarie G1: Markedet bryder sammen - Normalt forbrug



SCENARIO G2 AND G3: REDUCED GAS SUPPLY TO EUROPE: RUSSIAN HALT OF PIPELINE GAS TO THE EU AND/OR INCREASE OF CHINESE LNG- IMPORTS

Current conditions: The supply of gas is stable in 2023. The European gas storages have been well filled, and storage withdrawal has been moderate throughout the year. Furthermore, the Danes have been great at saving gas.

China's reopening after Covid-19 in 2023 and their growing LNG consumption is expected to create uncertainty in the European market and for overall supply. This will indirectly affect the Danish supply. Provisional figures from the IEA indicate that Chinese gas consumption has increased by 7% in the first three quarters of 2023 to the same period in 2022. During the same period, gas consumption in Europe has decreased by 9%

Potential consequences for the Danish supply situation:

If Russia completely shuts down the export of gas to the EU, it will lead to increased uncertainty and higher prices on the market. Denmark should therefore prepare to have to reduce gas consumption, so that we contribute to handling the gas quantities that disappear from the market if the Russian supply to the EU stops in 2023 or in the winter of 2024.

Concretely, however, this will mean that pipeline gas to the EU will be reduced by 9% compared to the first 5 months of 2023.

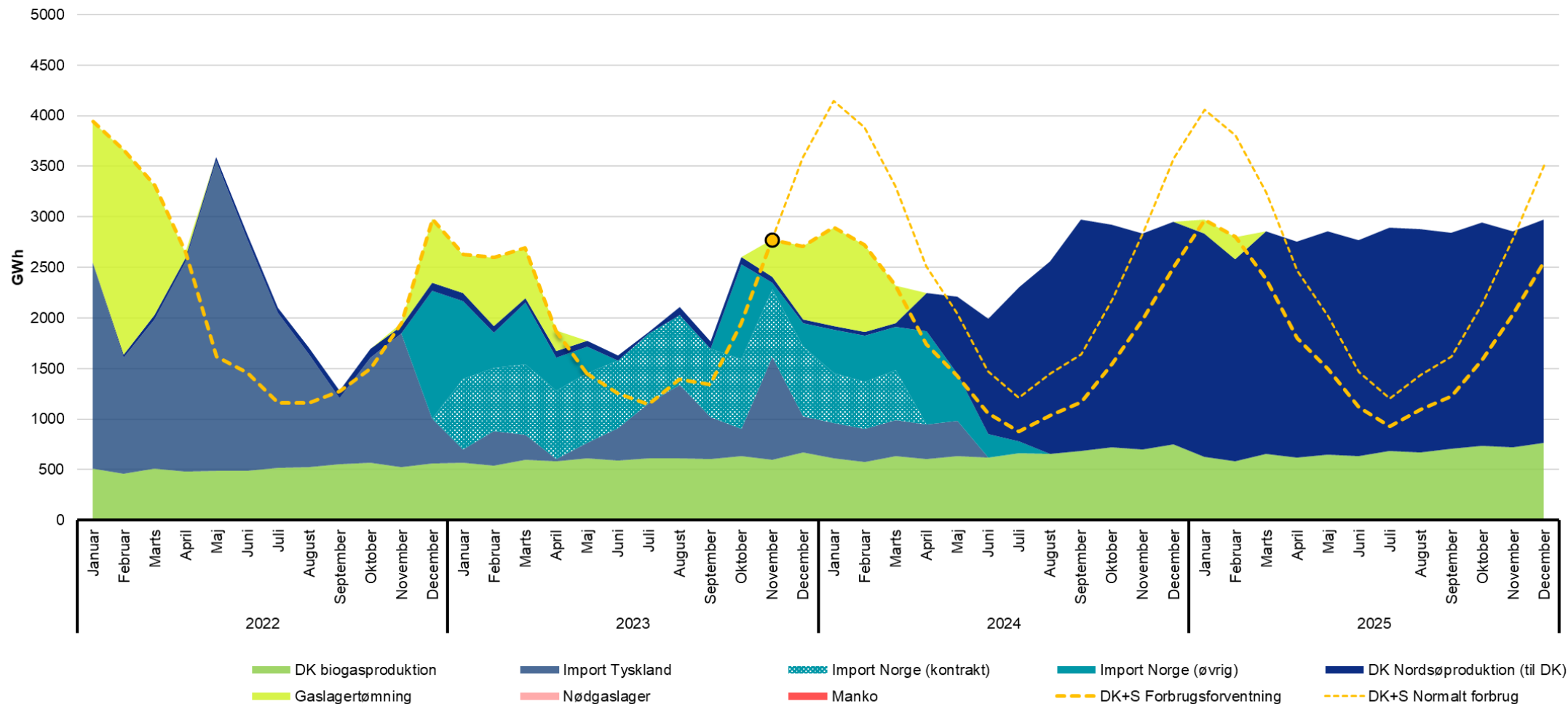
Danish imports from Germany and Norway will in the scenario be reduced by 35% compared to the 'normal import volume' before the war in Ukraine.

A reopening of the Chinese market will mean that the international market, the EU and Denmark will most likely notice a period of greater market competition between the EU, Japan, South Korea and China with occasionally rising prices.



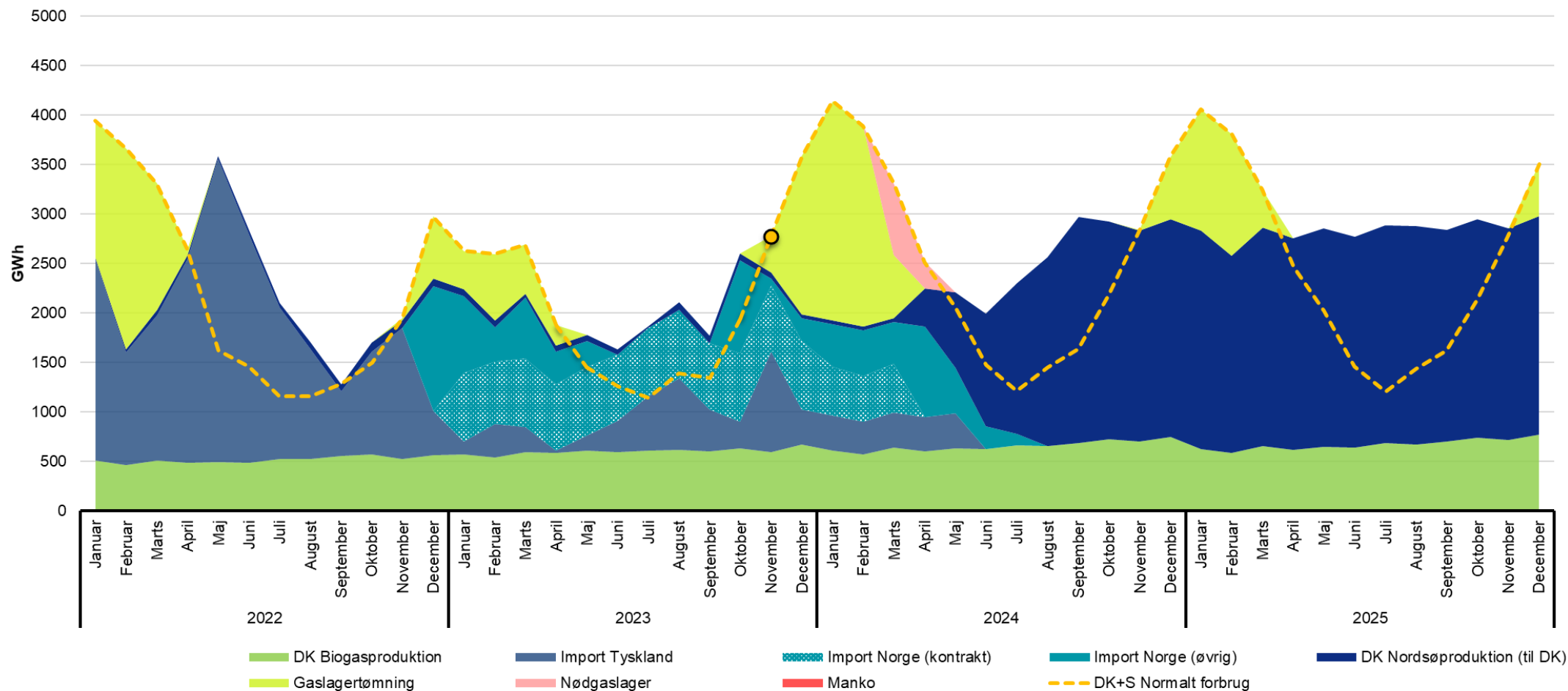
SCENARIO G2: RUSSIAN HALT OF PIPELINE GAS TO THE EU

Scenarie G2: Russisk stop - Forbrugsforventning



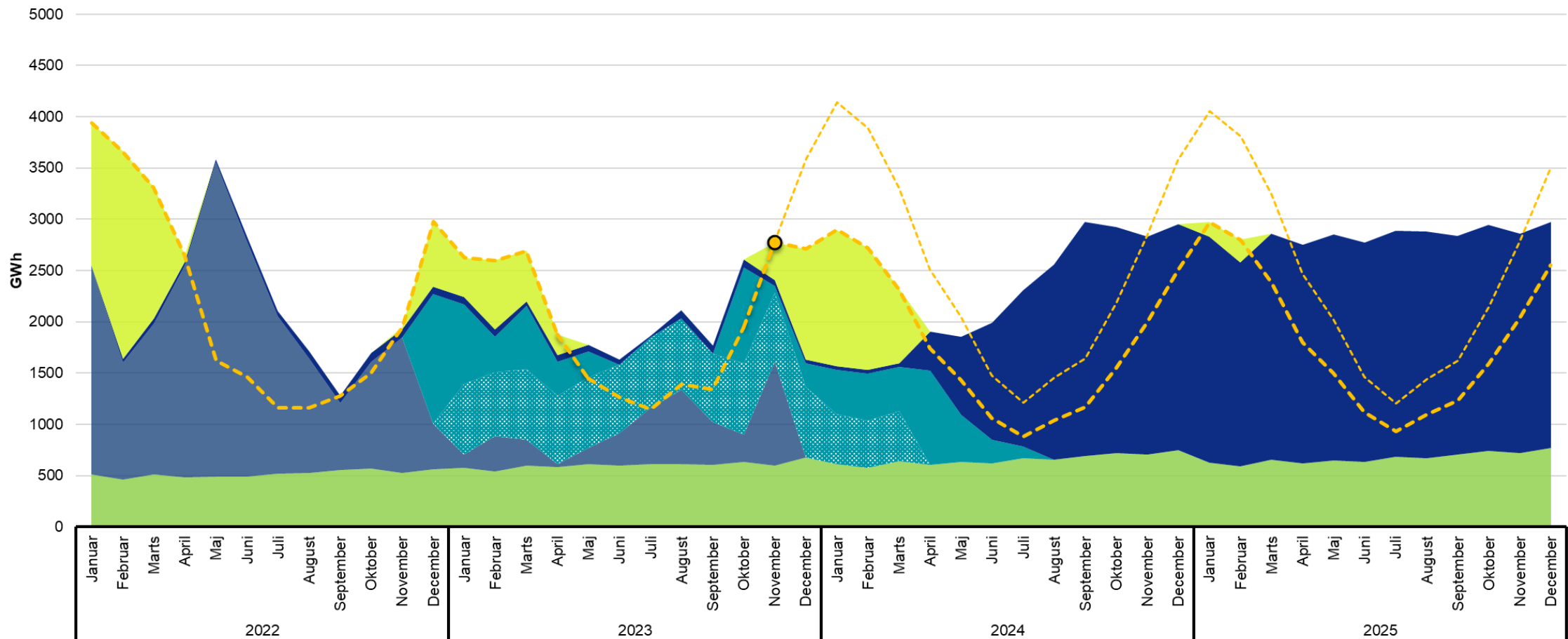
SCENARIO G2: RUSSIAN HALT OF PIPELINE GAS TO THE EU

Scenarie G2: Russisk stop - Normalt forbrug



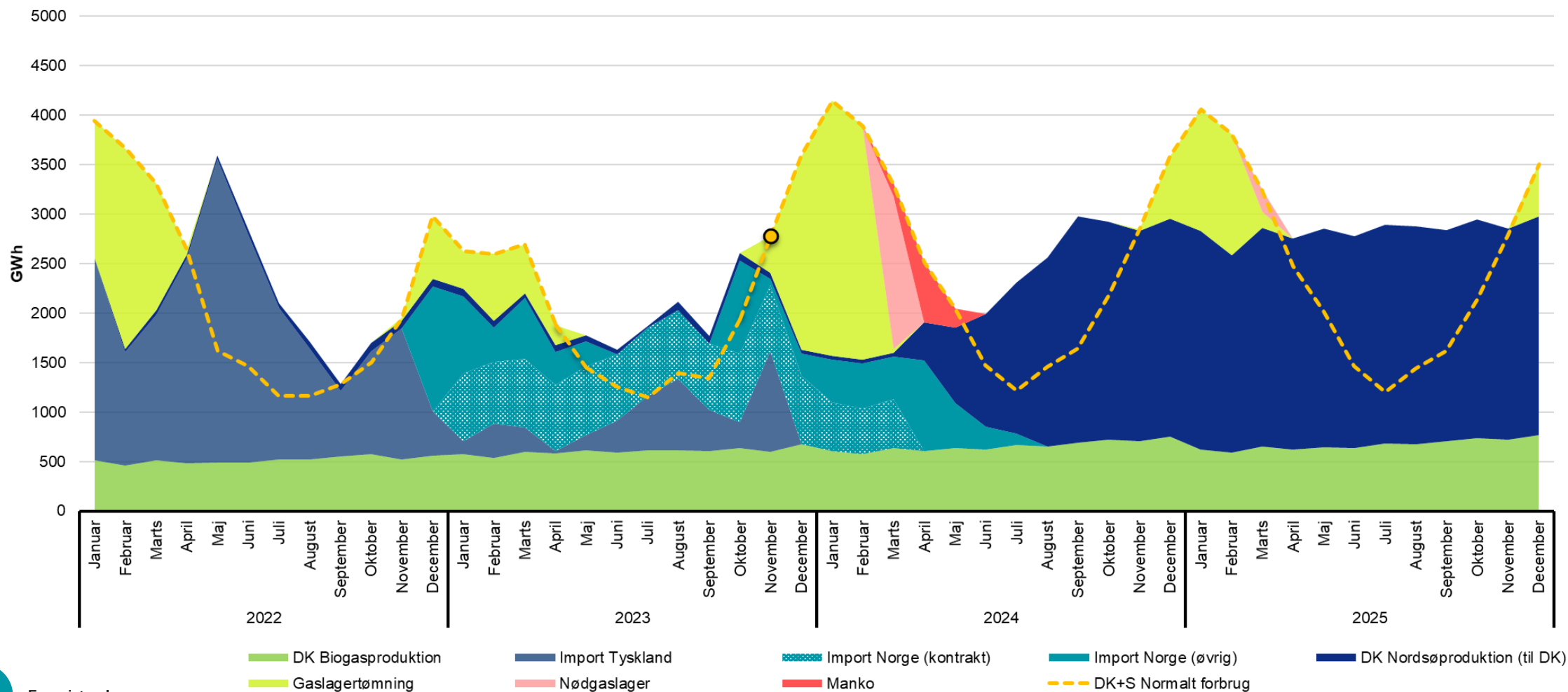
SCENARIO G3: INCREASE OF LNG-IMPORTS TO CHINA

Scenarie G3: Reducerede LNG-mængder til EU - Forbrugsforventning



SCENARIO G3: INCREASE OF LNG-IMPORTS TO CHINA

Scenarie G3: Reducerede LNG-mængder til EU - Normalt forbrug



ORDER ON THE MAINTENANCE OF GAS SUPPLY AND SECURITY



REGULATION ON THE MAINTENANCE OF GAS SUPPLY AND SECURITY **ENERGINET**

The purpose is to determine responsibilities and tasks for securing gas supply security in Denmark

Contains rules for determining which gas consumers are protected gas consumers and which are non-protected gas consumers

It is a shared responsibility to ensure security of supply

Replaces the current regulation from 2012

New BEK nr. 1349 of 27/11/2023 - [Gasforsyningssikkerhedsbekendtgørelsen \(retsinformation.dk\)](https://retsinformation.dk/da/lovgivning/2023/1349)

The new regulation enter into force 1st January 2024.

MAIN CHANGES IN THE EXECUTIVE REGULATION

DEFINITIONS

Among other things

- Place of delivery
- Protected gas consumer
- Non-protected gas consumer
- cubic meter limit

DISCLOSURE OBLIGATIONS

Includes gas companies and system-users

Information necessary to monitor and ensure gas supply security

SOLIDARITY GAS

The Danish Energy Agency can assign certain tasks to Energinet, i.a. transport of gas and market hedging

IN EMERGENCY

Non-protected gas consumers' reduction or stop of gas consumption

Also appears in the emergency supply plan

CUBIC METER LIMIT

Upper calorific value

From 3 to 2 years consumption, thus easier to get of the list

Not possible to request to be protected

SUPERVISION AND SANCTIONS

The Danish Energy Agency supervises compliance with regulation

STATUS ON AGGREGATEEU



STATUS ON JOINT PURCHASE OF GAS

No Danish participation in the demand aggregation

More than 34 bcm have been matched through the common European procurement platform through three bidding rounds, which corresponds to approx. 10 pct. of Europe's total gas consumption in 2022

174 actors have registered on AggregateEU as buyers/ and/or sellers

103 actors have requested gas volumes, of which 96 have been matched

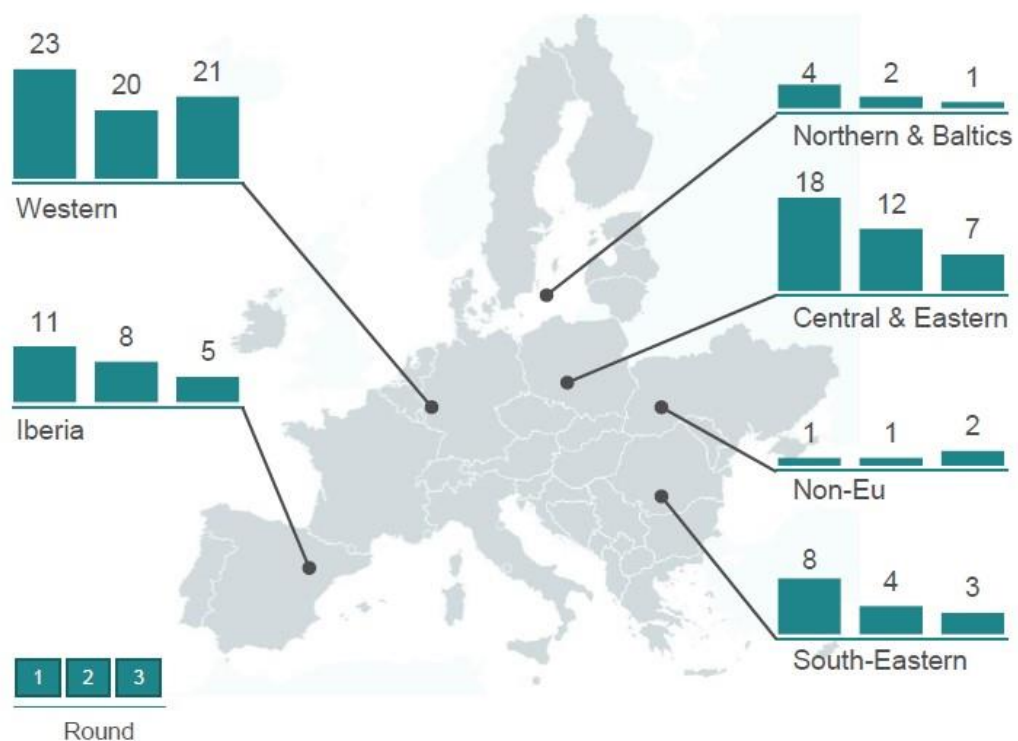
45 sellers have offered gas quantities of which 39 have been matched

Distribution of offers and demands over the three first rounds, bcm

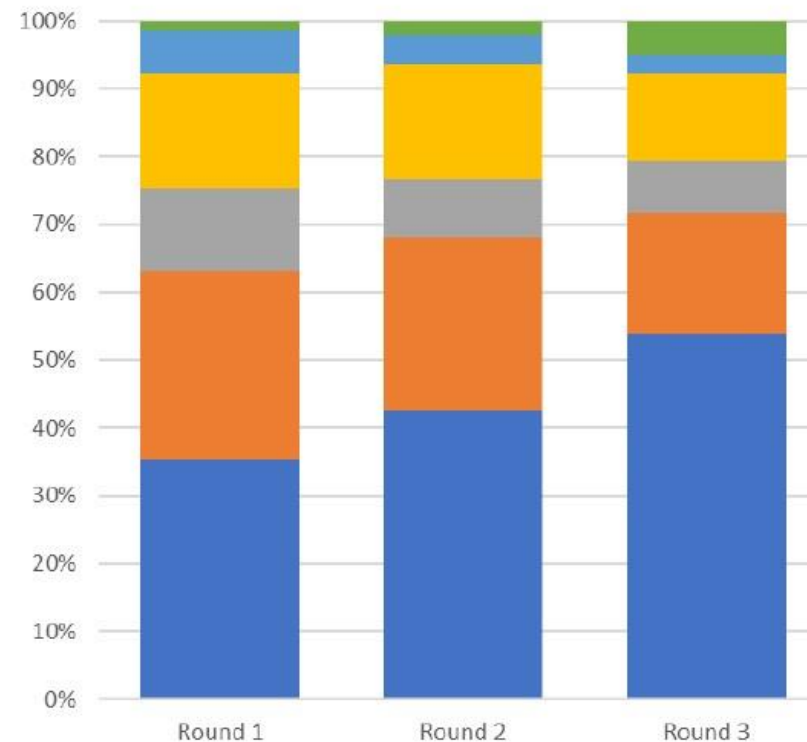


NUMBER OF ACTORS DISTRIBUTED ON REGIONS

Evolution of the number of entities per region, # of entities



Share of participants per region as % of total



PROLOGATION OF THE JOINT PURCHASE OF GAS

The fourth and last tender round in the joint purchase of gas was 23th of November and ended 7th of December 2023

Without a prologation the joint purchase of gas is set to end 31th of January 2024

The Commission assesses a continued need for the joint purchase of gas as an instrument for handling extraordinary market disruptions, especially in the light of the continuing challenges and uncertainties in the energy market

The Commission has proposed a prolongation of the two Emergency Regulations on gas: the solidarity regulation with the joint purchase of gas and the Market Correction Mechanism regulation. Is on the Agenda for the coming Energy Council next week.



Thank you for your time

15. december 2023



Energistyrelsen



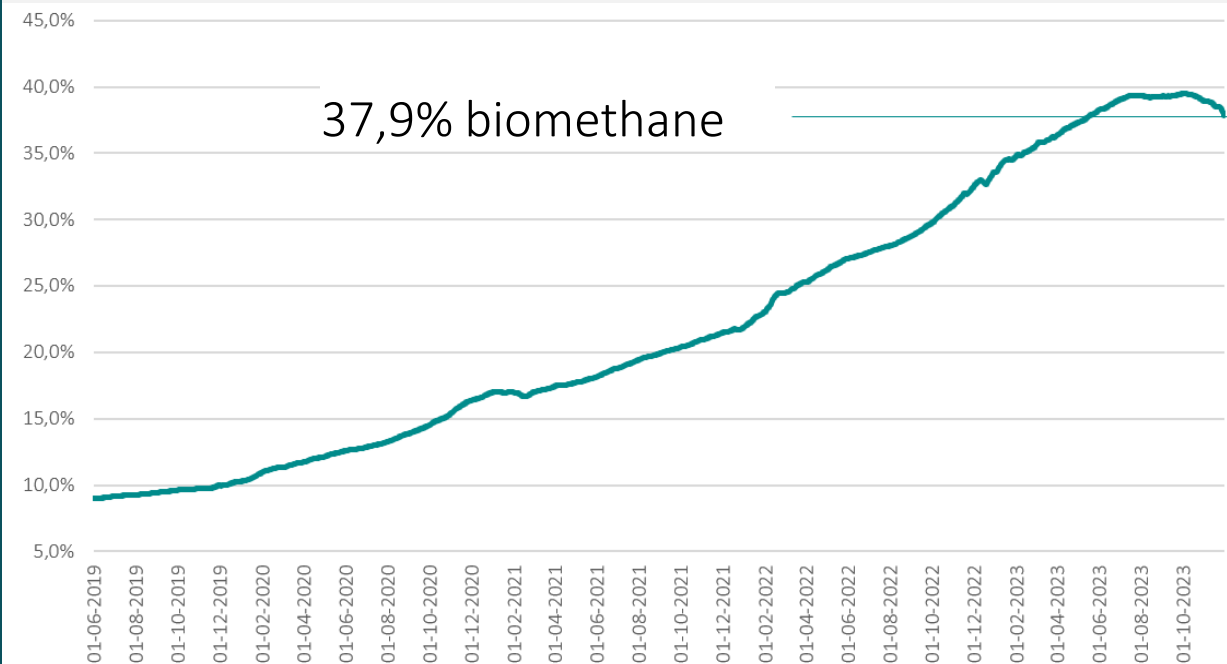
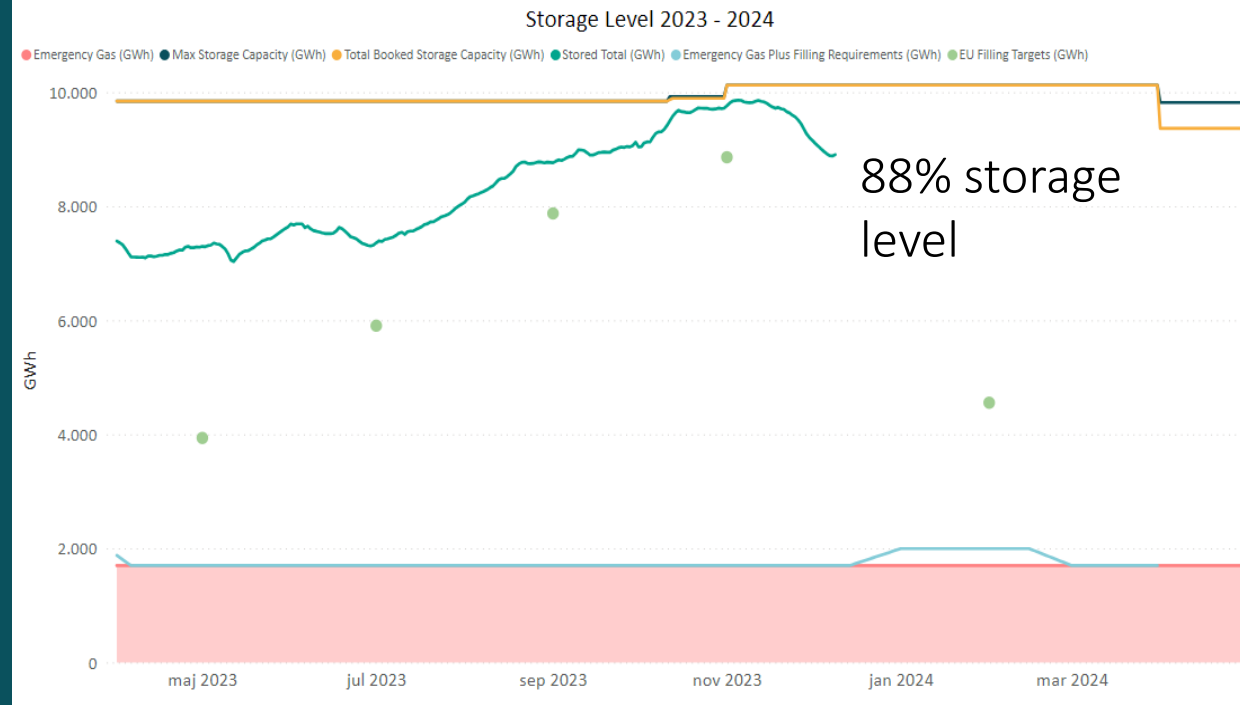
SUPPLY SITUATION

Denmark and EU

Christian Meiniche Andersen

DANISH SUPPLY SITUATION

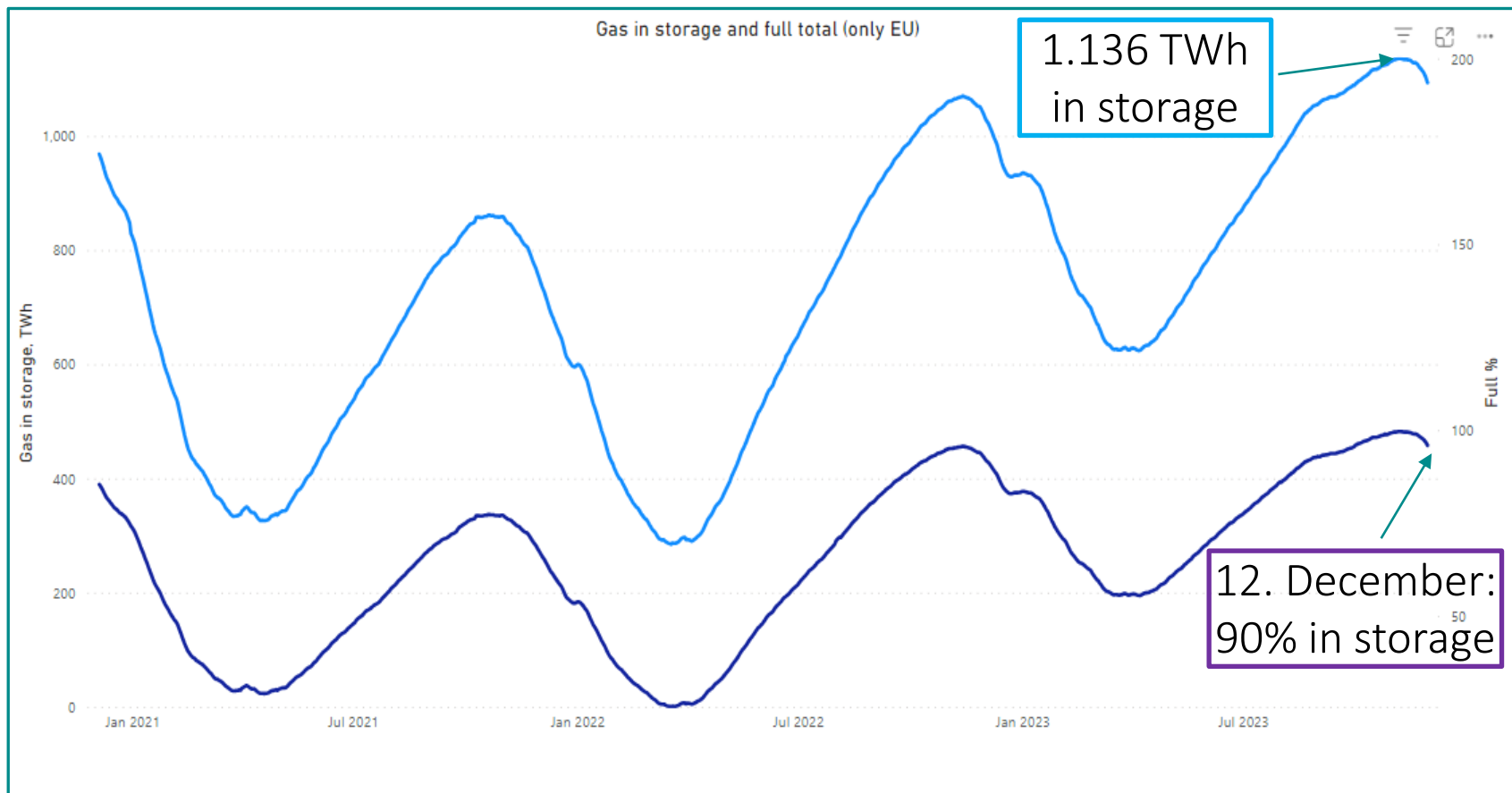
- Gasstorage level on 88%
- Biogas production was per November at 37.9% of Danish consumption
- Danish gas infrastructure supports delivery from Norway, Germany and Poland
- Danish production (Tyra) ramp-up 31. March 2024
- *Danish gas security of supply depends on European security of supply...*



EU STORAGE 2020-2023

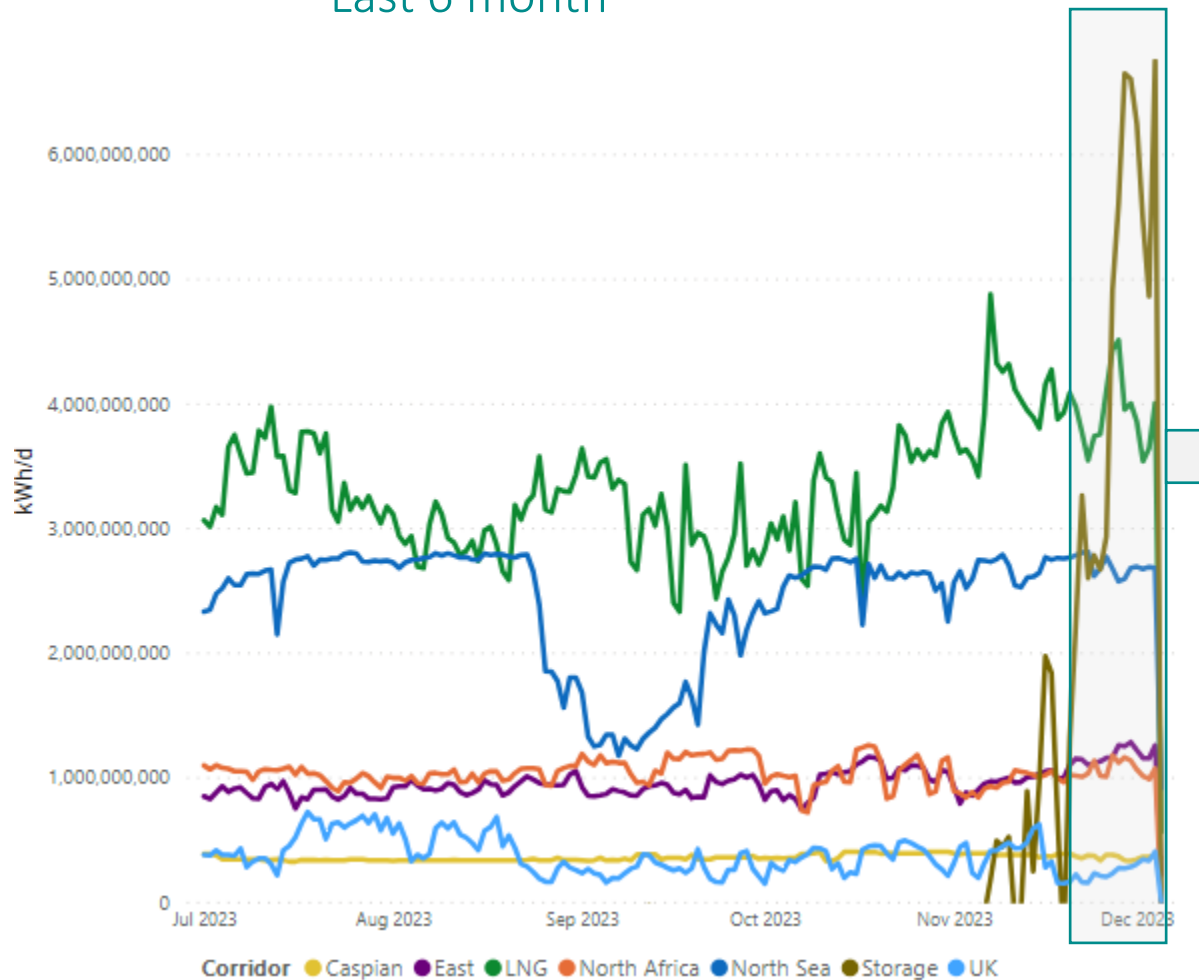
Historical high filling level this year

App. 1/3 of EU winter consumption in storage
November 2023

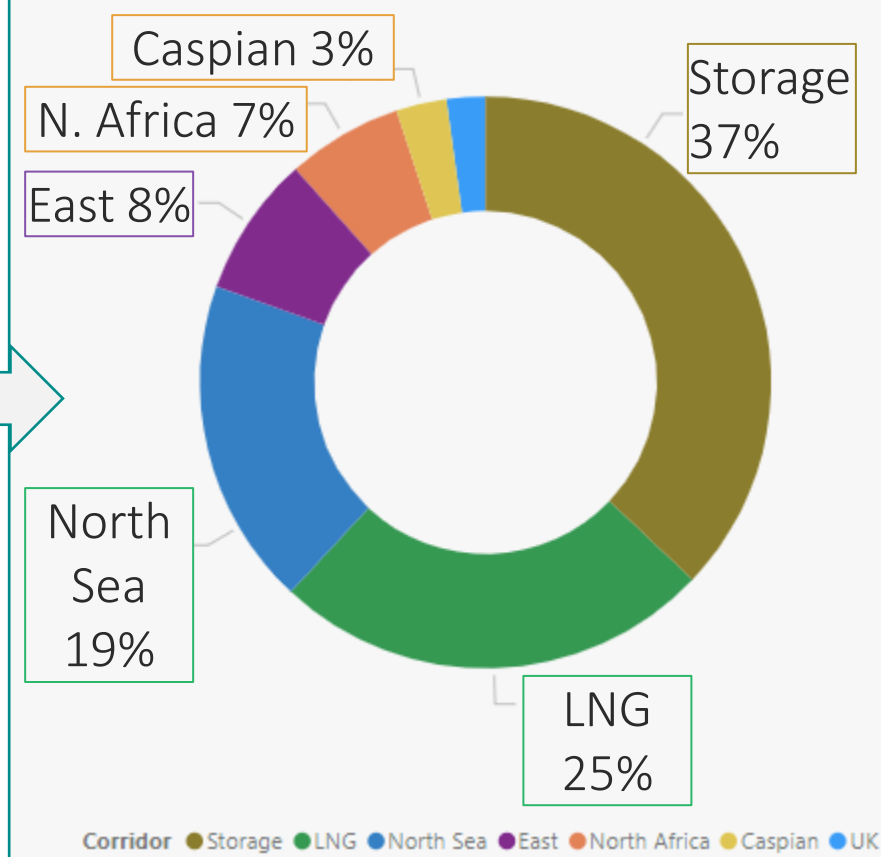


EU SUPPLY 2023

Last 6 month



Last week



WINTER SUPPLY OUTLOOK

Analysis of possible scenarios for winter 23/24
based on historical data.

Consumption scenarios:

- Warm/normal/cold winter
- Cold period: "Peak day/ 1 week/ 2 weeks"
- "Normal consumption"/15% consumption reduction

Scenarios supply:

- LNG
- No gas supply from Russia



ENTSOG WINTER SUPPLY OUTLOOK

2023/2024

CONCLUSIONS

- Maintain 15% reduction in gas consumption
- Maintain high import of LNG to Europe
- Cold winter or cold period might be critical
- Disruption of the 8% gas supply from Russia is challenging
- *LNG in competition with Asia*

Winter demand

Demand reduction-15%



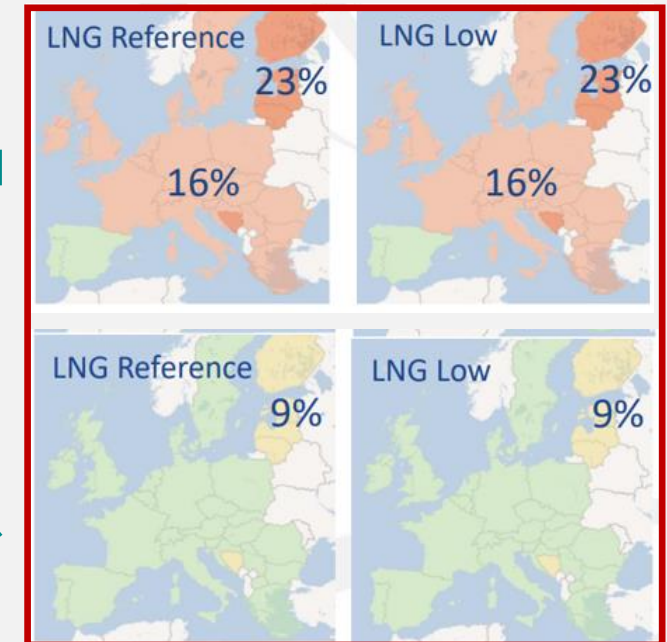
Winter Demand	RU supply	Storage Target	LNG Scenario	Demand curtailment	Final UGS filling level
Reference	Minimised	30%	Ref	No	32%
		30%	Low	No	23%
		Maximum	Ref	No	56%
	Disrupted	30%	Ref	No	32%
		30%	Low	No	12%
		Maximum	Ref	No	47%
Cold Winter	Minimised	30%	Ref	7%	9%
		30%	Low	17%	9%
		30%	Max	No	13%
	Disrupted	30%	Ref	9%	9%
		30%	Low	21%	9%
		30%	Max	3%	9%
Cold - 15%	Minimised	30%	Ref	No	32%
		30%	Low	3%	9%
		Maximum	Ref	No	38%
		Maximum	Max	No	58%
	Disrupted	30%	Ref	No	27%
		30%	Low	7%	9%
		30%	Max	No	32%
Maximum		Max	No	47%	

Table 3 . - WSO Results Summary

3.1. Reference Winter scenario with 30% storage target for 31 March 2024

Peak demand

Demand reduction-15%



QUESTIONS



Contact: can@energinet.dk

MAINTENANCE PLAN 2024

Esra Yüksel Gencay

MAINTENANCE PLAN 2024

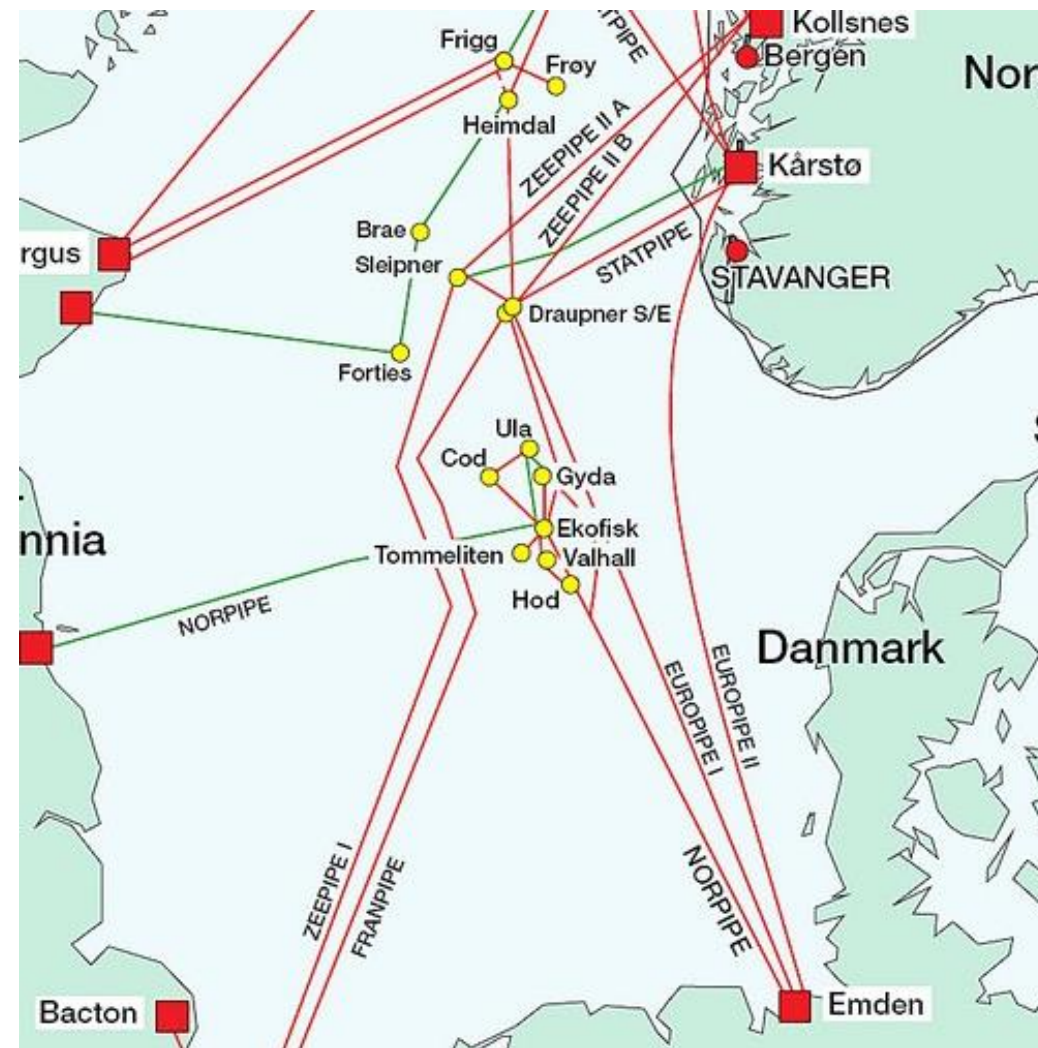
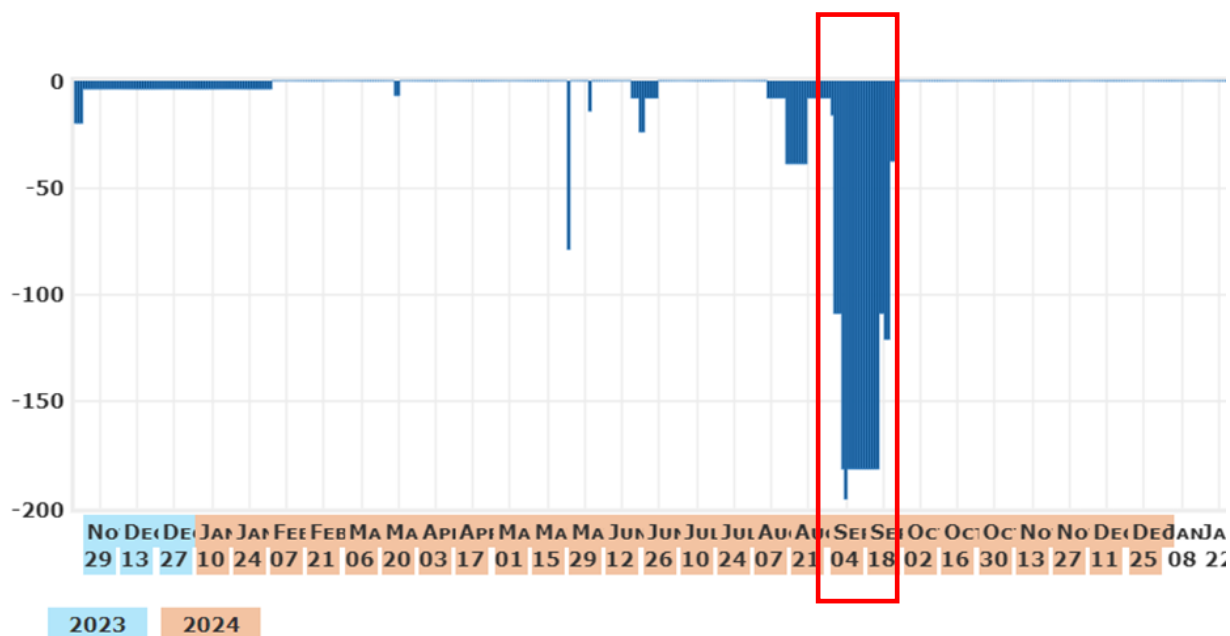
- 2024 Maintenance plan published 18th November 2023.
- New version published 13th December 2023
- Duration and dates in the plan are based on our current knowledge
- Continuously optimization of the plan is taking place
- UMM will be sent out when the activity has been matured and planned in details

Link to the plan:

[OPERATION AND MAINTENANCE \(energinet.dk\)](#)

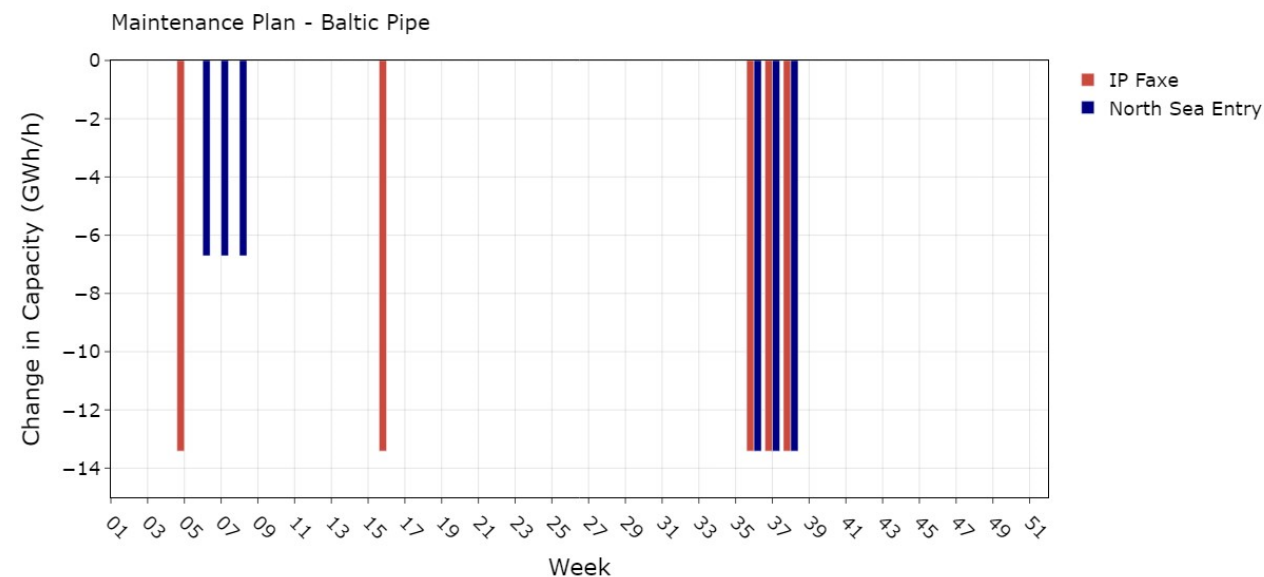
MAINTENANCE PLAN 2024

Energinet's longest shut down activities have been coordinated to match time and duration of shut down at Kårstø processing plant (2/9-24 to 22/9-24 – 3 weeks)



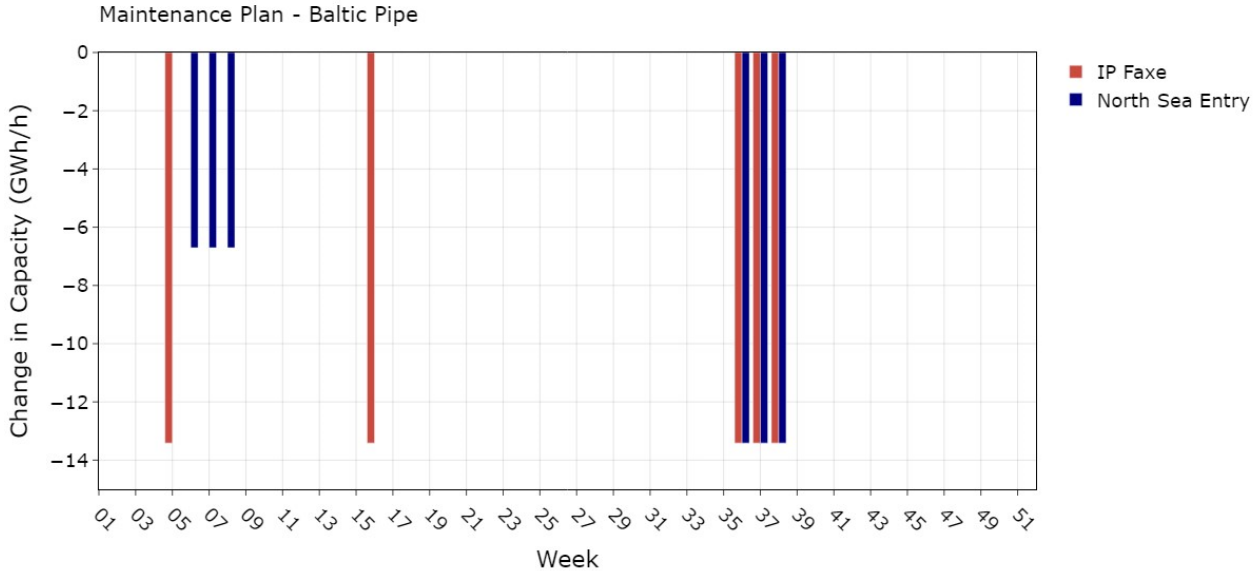
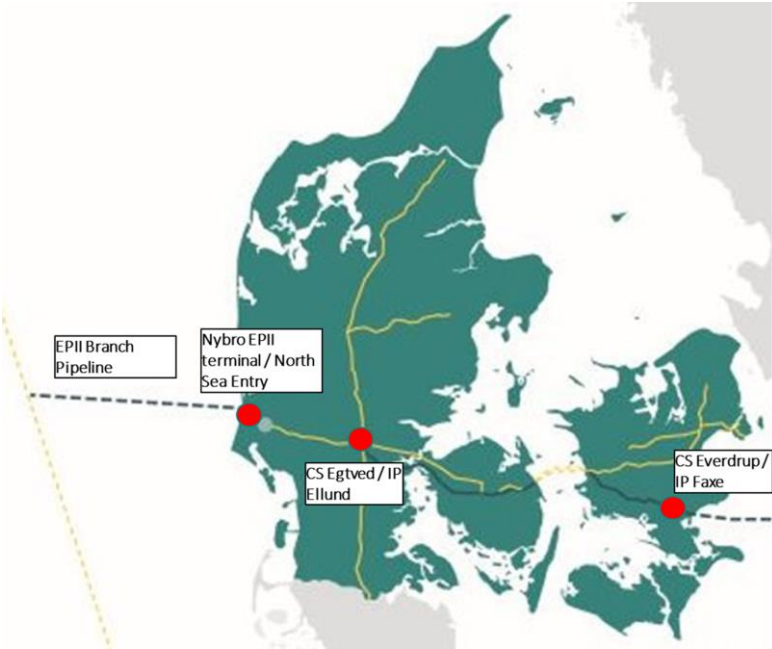
MAINTENANCE PLAN 2024 – IP FAXE

Week	duration	Name	Maintenance works	Border/IP	Consequence
5	8 hr	CS Everdrup	Annual test and repair work	IP Faxe	No flow
12	7 d	CS Everdrup	Annual test and repair work	IP Faxe	No redundancy
15	7 d	CS Everdrup	Annual test and repair work	IP Faxe	No redundancy
16	8 hr	CS Everdrup	Annual test and repair work	IP Faxe	No flow
20	7 d	CS Everdrup	Annual test and repair work	IP Faxe	No redundancy
36, 37, 38	21 d	CS Everdrup	Annual test and repair work	IP Faxe	No flow



MAINTENANCE PLAN 2024 – NORTH SEA ENTRY

Week	duration	Name	Maintenance works	Border/IP	Consequence
23	12	Nybro EPII terminal	Test and preventive maintenance	North Sea Entry	No redundancy
36, 37, 38	21 d	Nybro EPII terminal	Test and preventive maintenance	North Sea Entry	No flow
Between 6 - 8	1d	Nybro EPII terminal	EPII Branch Pipeline baseline pigging	North Sea Entry	50% reduction



QUESTIONS



Contact: eyg@energinet.dk

BREAK



—
GAS
STORAGE
DENMARK
—

SHIPPERS' FORUM

14 DECEMBER 2023

AGENDA

1. CAPACITY OVERVIEW

2. GSD NEWS

3. CO₂RYLUS TENDER RESULTS

CAPACITY OVERVIEW

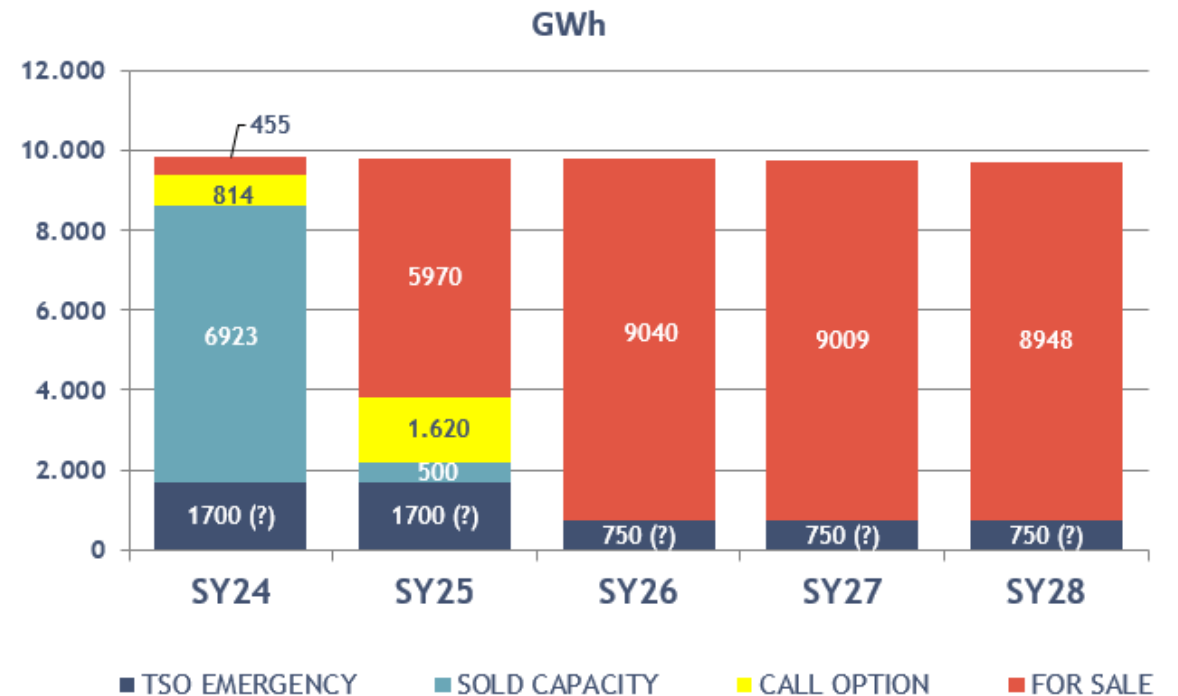
- ❑ 2024 → 455 GWh will be auctioned
- ❑ 2025+ → available for bilateral sale

Pricing:

- 170/170: 3.60 €/MWh/year
- 170/85: 4.11 €/MWh/year
- 120/60: 4.62 €/MWh/year

Pricing of Additional Flexibility:

- Injection: 750 €/MW/year
- Withdrawal: 2,100 €/MW/year



GSD NEWS → GTCGS VER. 18

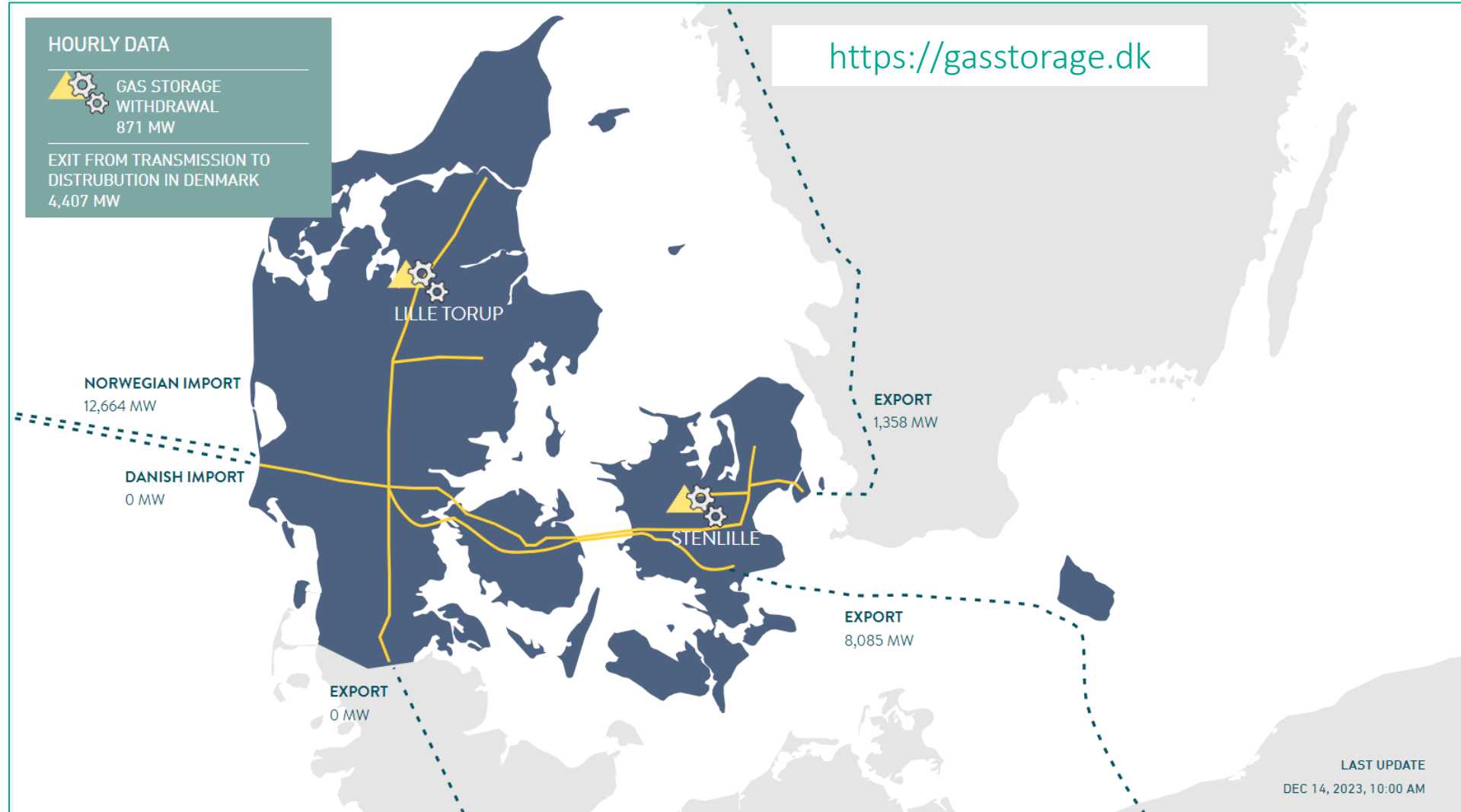
MAIN CHANGES:

- ✓ Updating Clause 6.4 to reflect the reintroduction of online booking of short-term products through the STORAGE PORTAL
- ✓ Rephrasing “Storage Customer Agreement” as “Storage Customer Framework Agreement” in Appendix 1
- ✓ Overall language improvement



If you have any comments and/or proposals to this draft version 18.0 of the GTCGS and appendices, please provide us with your written comments no later than Wednesday 20 December 2023 by email to contact@gasstorage.dk

GSD NEWS → HOURLY DATA MAP



GSD NEWS → E-WORLD



E-World

20-22 Feb 24
Essen

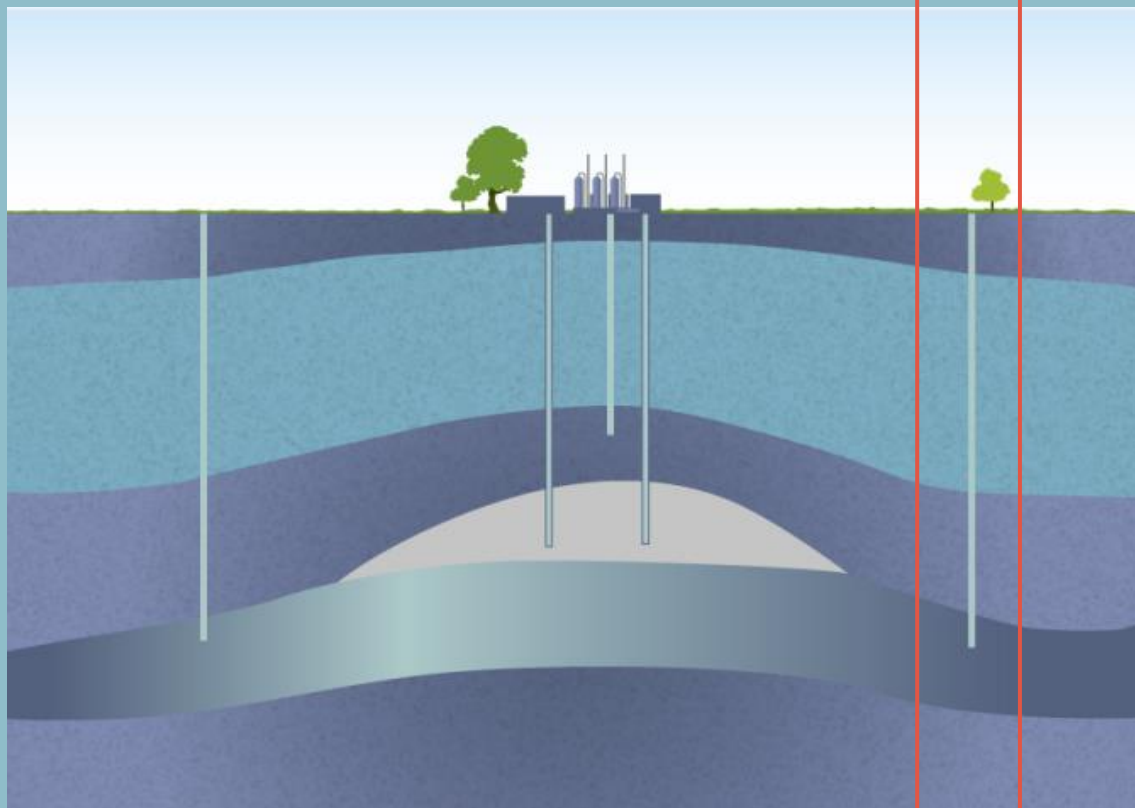


YOU ARE INVITED
TO VISIT US AT

STAND 127
HALL 2

CO2RYLUS

TENDER FOR CO2 STORAGE CAPACITY



<https://gasstorage.dk/news/2023/10/17/co2-tender-for-storage/>

TECHNICAL SOLUTION

- Convert an existing observation well into a CO₂ injection well
- Top site designed for truck delivery of CO₂ in liquid form

PURPOSE

- Fast-track project with the aim to establish a knowledge-base through early experience and provide the basis for development of new CCS value chains
- Knowledge-sharing with the market

TENDER SPECIFICATION

- Total Volume Capacity: 2,000,000 tonnes
- Injection Capacity: 200,000 tonnes/year
- Contract Length: Max. 10 years

TIMELINE

- Tender Period: 25 Oct – 24 Nov 2023
- Contract Signature: 8 Dec 2023
- Start of Delivery: 1 Apr 2026

CO2RYLUS

RESULTS OF THE TENDER

GREAT INTEREST FROM POTENTIAL BIDDERS

- During the tender period we received many questions and comments from potential bidders

BIDS and VOLUME

- Multiple storage agreements have been signed with different counterparts
- Bidders are national as well as international
- Total contracted volume is 1,766,150 tonnes (88% of the offered volume of 2,000,000 tonnes)



<https://gasstorage.dk/news/2023/12/11/co2-tender-results/>

VALUE

- In order to make the project financially viable, GSD set a reservation (minimum) price of at DKK296/tonne

CONDITION'S PRECEDENT

- GSD as well as some of the Storage Customers have reservations or Condition Precedent (CP's) incorporated in the storage agreements

CO2RYLUS

CONDITIONS PRECEDENT

GSD is not obligated to fulfil obligations unless the following conditions are satisfied (or waived):

Deadlines:

1. GSD is awarded:
 - a) The license under section 23 of the Consolidated Act no. 1533 of 16 December 2019 on the Subsoil with later amendments (in Danish: Undergrundsloven);
 - b) The permit by the Minister for Climate, Energy and Utilities under section 5 of the Consolidated Act no. 271 of 9 March 2023 on Energinet with later amendments (in Danish: Lov om Energinet);
 - c) The decision by the Environmental Protection Agency (in Danish: Miljøstyrelsen) allowing the Storage Operator to establish and operate the Stenlille Facility through a screening process (in Danish: screeningsafgørelse) according to the Consolidated Act no. 4 of 3 January 2023 on Environmental Assessment with later amendments (in Danish: Miljøvurderingsloven); and
 - d) The approval by the Minister for Climate, Energy and Utilities of the plan for storage under section 23d(2) of the Consolidated Act no. 1533 of 16 December 2019 on the Subsoil with later amendments (in Danish: Undergrundsloven).
2. The confirmation that the intended well at the Stenlille Facility is suitable for the injection of CO₂. Such confirmation must be provided by the Storage Operator in collaboration with an independent third party.
3. All storage customer condition precedents included in the storage agreements entered into by the Storage Operator (in connection with the tender for Firm Volume Capacity to store CO₂ at the Stenlille Facility held in the period from 25 October 2023 to 8 December 2023) are satisfied (or waived).

1 June 2024

1 April 2024

1 April 2025

1 April 2025

1 July 2024

16 May 2024

CONTACT



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GSD
—
GAS
STORAGE
DENMARK





BALANCING AND INVOICING

Kristoffer Modisaotsile Mitens

STATUS ON BALANCE INVOICING

After long delay Energinet has now sent out imbalance settlement invoices for Nov-22 to all shippers and expect invoicing to pick up again over the coming period

- Invoicing has been very challenged for a long period and Energinet appreciates the patience from the market
- Invoicing recommenced: Nov-22 sent out as first of many to come
- Expectations: Rest of Q4-22 invoiced before New Year – and 2023 before end of Q1-24
- Oct-22 will be credited and re-invoiced (expected today or tomorrow)
- Valid data for invoices now available on Energinet Online

Status on imbalance settlement for gas – Energinet will recommence invoicing

PUBLISHED 22.11.2023 14.54

After a period of renewed IT-development and testing, Energinet is now ready to recommence invoicing of imbalance settlement. Before Christmas we expect to invoice the period of Q4-2022, which is currently not invoiced. Energinet will start by invoicing November and December before re-invoicing October. Invoicing for all of 2023 is expected to be sent out before the end of March 2024.

IT-fix and testing finalized and system is ready for invoicing

Following the Gas news update on Oct 9, 2023 (Status on [invoicing for October 2022 \(energinet.dk\)](#)), Energinet is now ready to recommence invoicing of imbalance settlement. Final tests have now been completed according to the balancing instructions. An extra thorough check we expect to be completed before sending November 2022 we will be sending out imbalance settlement invoices for all of 2023 is expected to be sent out before the end of March 2024.

Imbalance invoices for Nov-2022 sent out – valid data can be found on Energinet Online

PUBLISHED 13.12.2023 14.08

After an aim of having all remaining 2022

EXTRAORDINARY NEUTRALISATION OF IMBALANCE FEES

Energinet finds that IT-incidents still on some days affect shippers' ability to balance and will neutralise these specific days in the imbalance settlement for 2023

Neutralisation in 2023

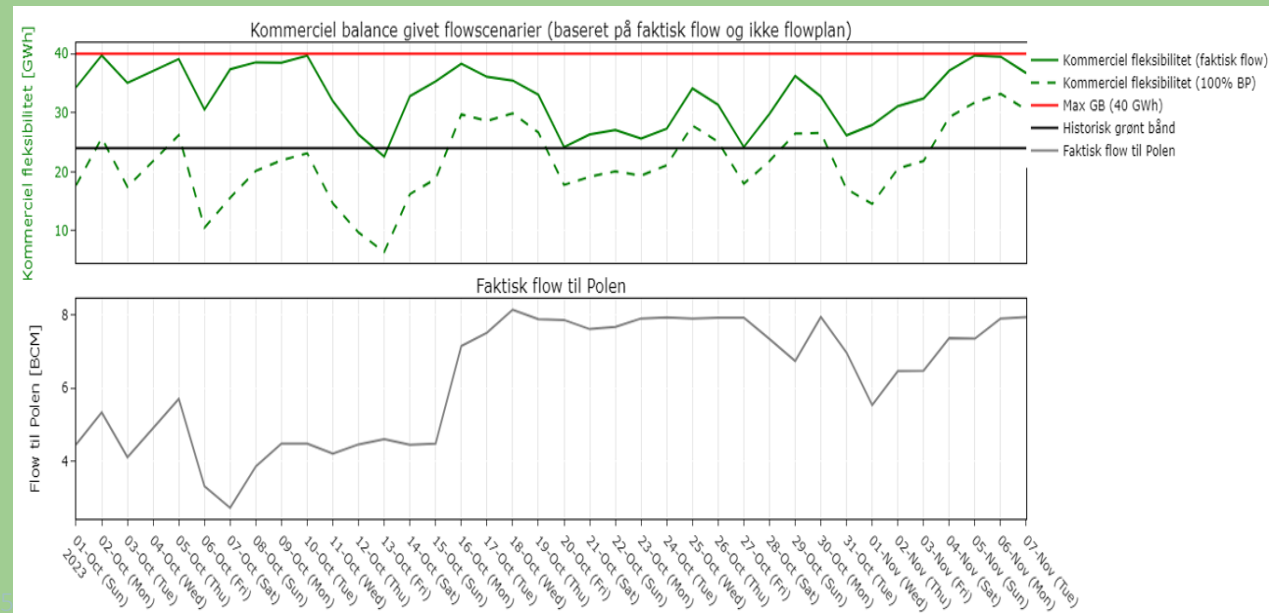
- Energinet has during Summer announced principles for imbalance fee neutralisation for Q4-22
- Energinet still experience some IT-incidents in 2023 though much fewer than in the early phase
- Energinet find that on specific days the incidents have affected shippers' ability to balance significantly
- Based on evaluation of incidents Energinet find that extraordinary neutralisation may be applicable for certain days in 2023 for all shippers
- Days evaluated for extraordinary neutralisation: 17/6, 15/8, 28/10, 7/11, 15-16/11
- Based on evaluation Energinet upholds the principles for Q4-22 and early 2023 as announced during Summer 2023
- Extraordinary neutralisation will be carried out with imbalance settlement invoicing for relevant months

IMPLEMENTATION OF DYNAMIC GREEN ZONE CALCULATION

WHAT?

- Facilitate a green zone reflecting the actual physical flexibility of the system
- Original intention in the balancing model, but blocked by IT-issues - now in state where adaption is possible
- Enlarging the green zone in most scenarios of current Baltic Pipe flow

WHY? (INCREASED GREEN ZONE FLEXIBILITY ON MOST DAYS)



WHEN?

- Final testing and preparation undergoing
- Expected in force from January 16, 2024
- Daily signal for market system
- Energinet will continuously evaluate and adapt the flexibility according to experiences

EVALUATION OF THE BALANCING MODEL

Evaluation is under way, but postponed due to problems with data for the analysis

Agreement with DUR that evaluation should have full scope before market consultation and hand-in

Some evaluation requirements ready and input from market received at earlier stage

Solution for remaining required data under way

Expected market consultation during February 2024, but confirmation on timeline will be provided in beginning of 2024

Evalueringen skal dække perioden fra den 1. oktober 2022 til den 1. marts 2023, og skal som minimum redegøre for:

- Erfaringer med regionalisering, herunder kriterierne for definitionen af regionerne, antallet af regioner, samt en analyse af den godkendte datametodes implementering i de forskellige regioner,
- Erfaringer med dataunderstøttelsen fra distributionsselskaberne, herunder kvaliteten af data, og datametodens tidsvinduer for indhentning af data,
- Erfaringer med fastsættelsen af S-max med hensyntagen til den generelle systemfleksibilitet,
- Erfaringer med tildeling af smoothing-voluminer på baggrund af netbrugernes indmeldte udjævningsprofiler,
- Erfaring med anvendelsen af markedsandele som parameter for tildelingen af smoothing-voluminer,
- Erfaringer med de anvendte metoder og modeller til brug for estimation af aftaget i JEZ,
- Erfaringer med markedsaktørernes adfærd ift. incitamentstrukturen, herunder vurdering af størrelsen af small adjustment,
- Udviklingen i markedets likviditet som følge af indførelsen af intradagforpligtelser, og
- Udviklingen i antallet af nødvendige gulzonehandler foretaget af DAM, og deres erfaringer med intradag-handel.

Postponed

QUESTIONS



Contact: kod@energinet.dk



FINAL REMARKS

Clement Johan Ulrichsen, Energinet

HYDROGEN MARKET DIALOGUE

Workshops for coming users of a future hydrogen network

- The events will be published via our homepage: <https://en.energinet.dk/about-us/events/>
At the page for events, you can sign up to receive events directly by mail.
- Presentations and key notes from previous workshops can be found at our webpage: <https://en.energinet.dk/hydrogen/hydrogen-market-dialogue/>

