



SHIPPERS' FORUM

10 March 2022



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

PROGRAMME

- 13.00 Welcome – *Clement Johan Ulrichsen, Energinet*
- 13.10 Supply situation – *Birgitte Troelsen and Christian Meiniche Andersen, Energinet*
- 13.40 Danish Utility Regulator – *Peter Lyk-Nielsen, Danish Utility Regulator*
- 13.55 Current balancing model issues – *Christian Rutherford, Energinet*
- 14.10 **BREAK**
- 14.25 Baltic Pipe – *Jeppe Danø and Christian Rutherford, Energinet*
- 14.55 Green gas strategy – *Jane Glindvad Kristensen, Danish Energy Agency*
- 15.10 Gas Storage Denmark – *Iliana Nielsen, Gas Storage Denmark*
- 15:30 Final remarks – *Clement Johan Ulrichsen, Energinet*



WELCOME

Clement Johan Ulrichsen, Energinet



UKRAINE

Danish Energy Agency FAQ:

<https://ens.dk/ansvarsomraader/forsyning/faq-om-energiforsyning>

EDIG@S XML 5.1 & AS4 PROTOCOL

From 1 May 2022 shippers must change their communication form from XML 4.0 to XML 5.1.
Change of protocol from AS2 to AS4 postponed until further notice.

- Make sure to book time for test of XML 5.1 by contacting our Back Office team at backoffice@energinet.dk
- For further details see gas news published 22 Feb 2022
<https://en.energinet.dk/Gas/Gas-news/2022/02/22/Implementation-of-AS4-protocol-with-deadline-1-May-2022-postponed>



TARIFFS FOR THE COMING YEAR

No sneak peak on the tariffs for the coming year due to many and large uncertainties

Tariffs to be published no later than 3 June

$$\text{Tariff} = \frac{\text{Cost base} - \text{Over-/Under-recovery}}{\text{Forecasted capacities}} = ?$$

Cost base:

- The effect of the crisis is unknown
- Lack of clarification about the effect of the new economic regulation

Over-/Under-recovery:

- The annual report of 2021 is not yet published

Forecasted capacities:

- Possible changes in the booking behavior and flow on the basis of the crisis

Approval of the tariff methodology

We will publish the tariffs applicable from the 1 October 2022 at the **latest on 3 June**.
On Shippers Forum **on 10 June 2022** we will present the calculations and the assumptions.

QUESTIONS



Contact: cju@energinet.dk



SUPPLY SITUATION

Birgitte Troelsen and Christian Meiniche Andersen, Energinet

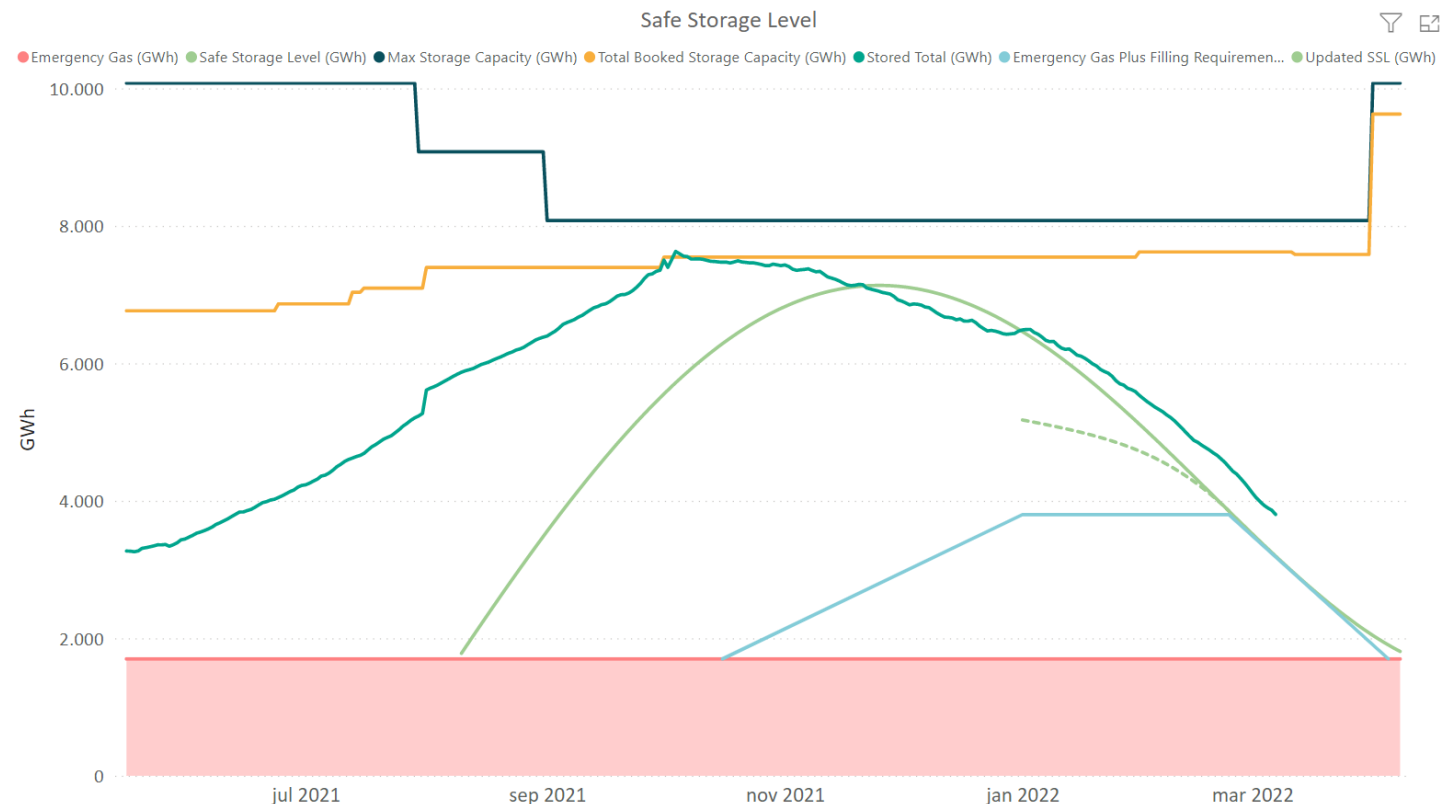
SAFE STORAGE LEVEL



Additional entry capacity in Ellund 0,57 GWh/h is included in dashed green line



Filling requirements decreases until 5 April 2022 and daily release of 50 GWh



DAILY SUPPLY AND CONSUMPTION

A cold spell at this season will be critical

GWh/d	Average	Extraordinary cold weather (once in 20 years)
Demand Denmark	98	120
Demand Sweden	22	50
Biogas	19	19
Nybro	1	1
Ellund	139	139
Storage - released		
FR	50	50
Surplus/Shortage	+89	-39

Average temp [°C]	Surplus/shortage [GWh]
-1	25
-3	0
-5	-24

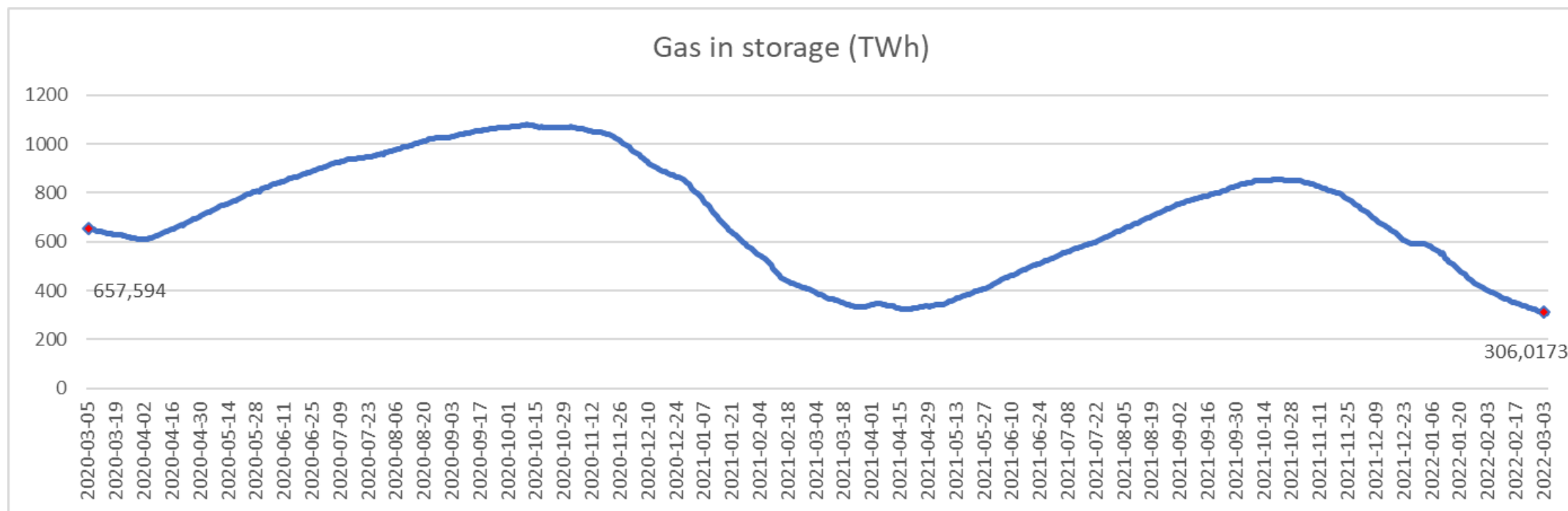
SUPPLY TO DENMARK

- North Germany depends on supply from NS1
- Denmark and Sweden depends 80% on supply from North Germany
- Transit flows from Russia to Europe are not affected by the war so far
- Be aware that security of supply in Denmark and Sweden depends on sufficient storage filling in Denmark in the current situation



EUROPEAN INVENTORY LEVEL

European storage level as per 5 March 2020 and 5 March 2022



Source: [AGSI+ \(gie.eu\)](https://www.gie.eu)

GAS SUPPLY TO EUROPE

There are four main supply sources to EU from January to March 2022



Storage

29%



LNG

22%



Eastern Corridor

21%



North Sea

17%



Q&A

WHAT IS A NON-PROTECTED CUSTOMER AND WHAT IS THE IMPLICATION OF BEING NON-PROTECTED?

Every year a cubic meter limit is calculated by Energinet and a list over non-protected customers is published at Energinet's homepage.

In case of emergency, Energinet can reduce the gas supply to non-protected customers after 72 hours.

IN CASE OF EMERGENCY, WHO WILL TAKE OVER THE GAS VOLUMES AND HOW WILL THE PRICES BE SET?

The market players will continue to distribute all the gas. Interruption of non-protected customers ensures that the market-players together has a smaller portfolio of customers to supply.

HOW WILL THE GAS PRICE BE SET IN AN EMERGENCY SITUATION, WHERE ONLY THE PROTECTED CUSTOMERS ARE SUPPLIED WITH GAS?

In case of emergency, the price for the gas volumes that market players cannot deliver themselves are set as in RfG.

The price is the highest gas price in Denmark/Germany since the beginning of the storage year.

FOR FURTHER INFORMATION GO TO:

EU Regulation
[EUR-Lex - 32017R1938 - EN - EUR-Lex \(europa.eu\)](#)

Danish Regulation (in Danish)
[Naturgasforsyningsloven \(retsinformation.dk\)](#)

Danish Energy Agency
[Forsyningssikkerhed for naturgas | Energistyrelsen \(ens.dk\)](#)

SECURITY OF SUPPLY

During abnormal state of operation, Energinet activate each of three crisis levels depending on the supply situation.

- **Early warning**
- **Alert**
- **Emergency**

Prior to or at each of the three crisis levels, Energinet will inform the Shippers and other relevant Players about the supply situation.

This includes information about capacities available or reduced in the Transmission System.

Energinet will update the information at regular intervals during the three crisis levels.

For more details go to <https://en.energinet.dk/Gas/Rules> *“Terms and Conditions for gas transport - Clause 16 Security of supply”*

QUESTIONS



Contact: can@energinet.dk

Current cases and pipeline

The Danish Utility Regulator

Energinet Shippers' Forum

March 10, 2022

DUR/TERI/PELJ



Current Cases and Pipeline

Current Cases:

1. Offshore tariff complaints 2011-2020

- Expect decisions **second half of 2022**
- Comparison to market practice ongoing
- **Four** new complaints received 2020-21
 - **Decision** on second new complaint published February 4th
 - **Decision** on third new complaint to be published soon

2. Baltic Pipe – joint market zone

- Integration of North Sea offshore part into the current DK/S market model
- **Decision** (approval) published February 17th
 - **Separate accounts** for transmission and upstream
 - **Regulated costs**

3. Tariff methodology

- New tariff methodology from October 2022
- Main proposals:
 - Duration 5 years
 - Uniform tariff
 - 100 pct. capacity tariff
 - Discount on long bookings
 - Upstream costs as uniform non-transmission tariff
 - From gas to calendar year
- ACER has issued its opinion
- Expect consultation in April and decision before May 14th

4. Balancing model issues

- Expect submission of methodology for extra trading window soon



Publications

Response to war in Ukraine:

EU Commission

REPowerEU: Joint European action for more affordable, secure and sustainable energy

March 8, 2022

https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511

Hydrogen and Decarbonised Gas Market Package:

EU Commission proposals on amended third gas directive (2009/73/EC) and regulation (715/2009) expected to be published December 14th



CURRENT BALANCING MODEL ISSUES

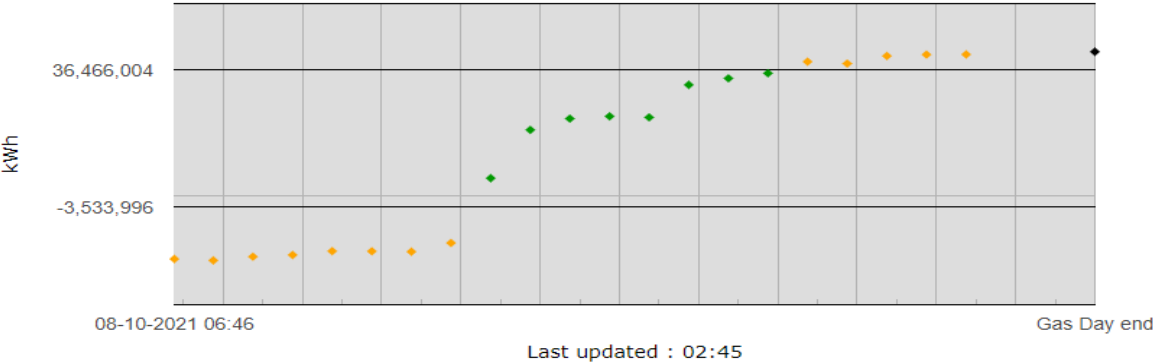
Christian Rutherford, Energinet

CURRENT BALANCING ISSUE

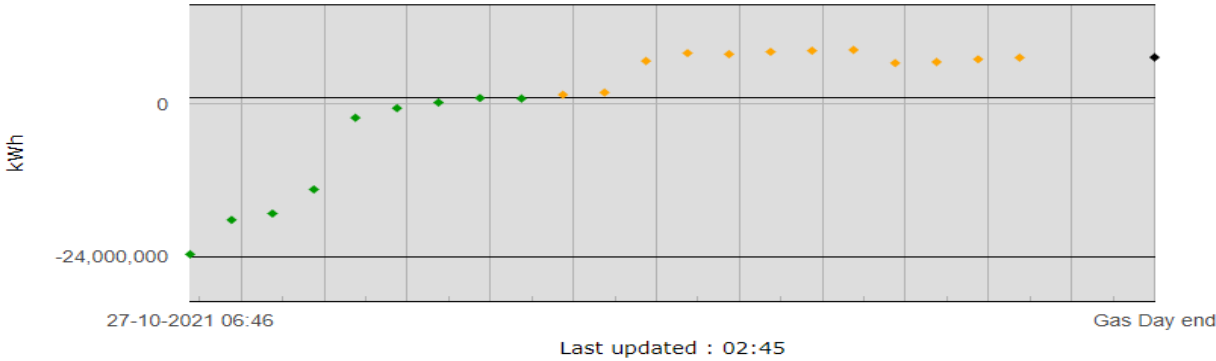
Unusual market behavior, due to high prices and volatility

Current behavior has caused high balancing costs for the Balancing Area Manager

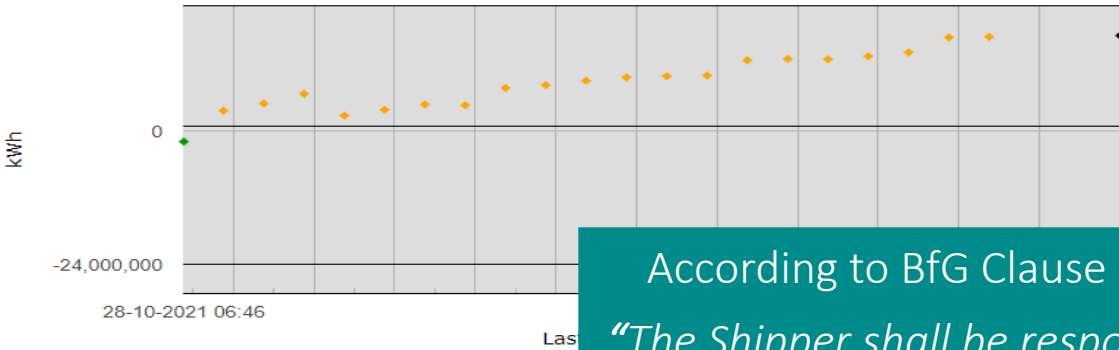
Gas Day : 08-10-2021



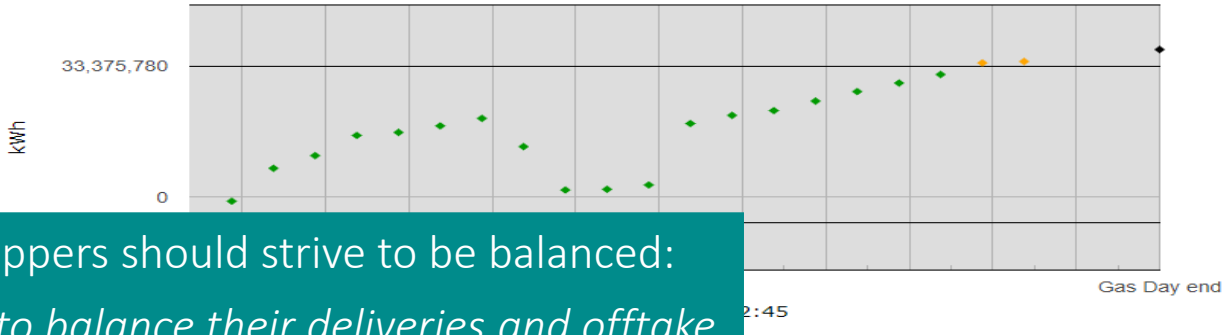
Gas Day : 27-10-2021



Gas Day : 28-10-2021



Gas Day : 23-12-2021



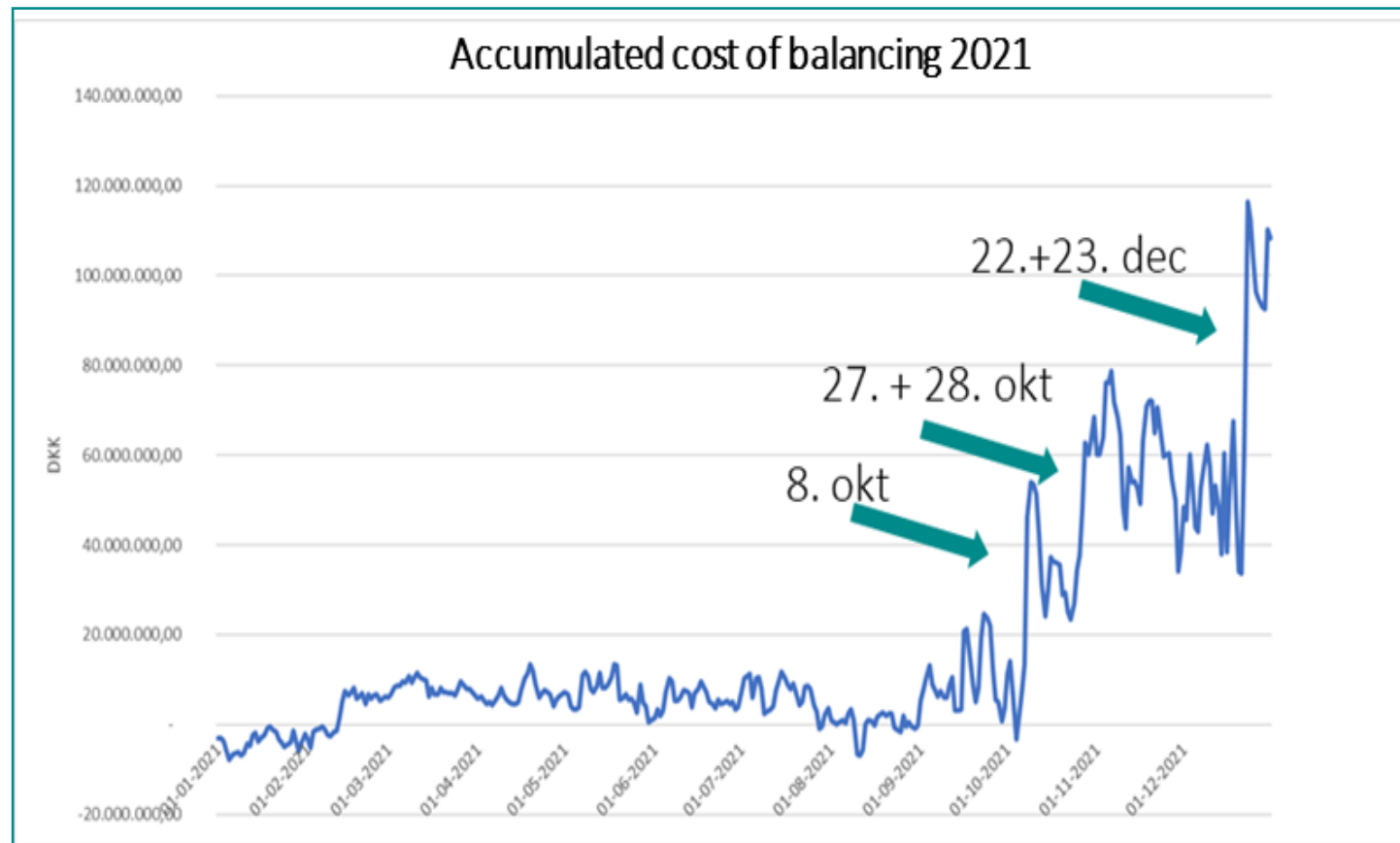
According to BfG Clause 9.1, shippers should strive to be balanced:
“The Shipper shall be responsible to balance their deliveries and offtake in order to minimize the need for the transmission system operator to undertake balancing actions”
 Reduction in available flexibility and need for additional incentives

COST OF BALANCING 2021

Accumulated cost of balancing 2021:

- Total value of trades ~ minus 110 mil. DKK
- Value of difference in linepack ~ plus 45 mil. DKK
- = Expected net cost of balancing ~ minus 65 mil. DKK

Primarily related to 3 short periodes in Q4 2021



SHORT-TERM SOLUTIONS IN CURRENT MODEL

REDUCTION OF GREEN ZONE SIZE

- Green zone reduced
- Lower flexibility due to current behavior
- May be increased when other measures are in place

NEUTRAL GAS PRICE

- Today based on WD-price notification at EEX
- Notification only based on 10 hours (8-18)
- EEX will calculate additional WD price, for all hours

TRADING WINDOW AT NIGHT

- Create incentive to balance late in the gas day
- Mixed signals from consultation
- Energinet considering affect on method application

STRENGTHEN CLAUSE 9.1 IN TERMS AND CONDITIONS FOR GAS TRANSPORT

- Any suspicion of speculation will be reported to regulator

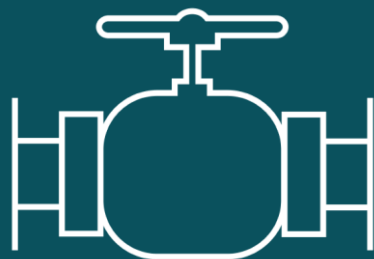
QUESTIONS



Contact: cru@energinet.dk

BREAK





BALTIC PIPE IS MOVING ON

Jeppe Danø and Christian Rutherford, Energinet

NEW ENVIRONMENTAL PERMIT RESTARTS CONSTRUCTION ON HALTED PARTS

We have restarted construction on parts of the project in the eastern part of the Jutland peninsula and on the western part of the island of Funen.

In May, the Environmental- and Foods Appeal Board repealed the environmental permit for the Baltic Pipe Project in Denmark issued two years earlier by the Danish Environmental Protection Agency (DEPA).

The decision meant that a new environmental assessment report had to be issued.

We now have a new permit with a few additional conditions protecting wildlife.

SOON THE PHYSICAL CONNECTION TO NORWAY IS ESTABLISHED

This 215 ton yellow Pipeline End Manifold is now on 40 m water 105 km from Denmark.

This week the link to Norway will be established from this unit and the commissioning process can begin (drying etc.).



TIME PLAN AS PREVIOUSLY REPORTED

Partial capacity from 1 October 2022, by using parts of the existing gas transmission system in Denmark.

1 January 2023, the entire project is expected to be operational at full annual capacity of up to 10 BCM.



JOINT MARKET ZONE APPROVED



- The Danish Utility Regulator approved the joint market zone methodology on 18 January 2022
- First concept described during OS 2017 for Baltic Pipe
- Will enable shippers to directly enter the Danish/Swedish market zone from Norway

BALANCING – GENERAL STATUS

NOMINATION GUIDE

- Published yesterday at: [Secure Communication | Energinet](#)
- Updated to include changes due to Baltic Pipe and balancing
- More detailed implementation plan will follow
- If questions to guide, please contact backoffice@energinet.dk

REDUCED NOMINATION LEAD-TIME

- Energinet and Gas Storage Denmark will reduce lead-time at storages from 2 to 1 hour on 1 October 2022
- Energinet will also reduce lead time for GTF point to 1 hour

STATUS ON DATA QUALITY FROM EVIDA

- Evida has tested equipment in terms of collecting data every hour
- Test went well, so no changes to expected data quality level

STATUS ON CAPACITY PLATFORM AT FAXE

- Rotation of platform (PRISMA/GSA) is decided to be every 3rd. year
- Energinet and Gaz-System have agreed to start with GSA platform, from summer 2022
- Main reason: easiest short-term implementation route, as Energinet IT-provider previously have communicated with GSA platform



PRISMA
EUROPEAN CAPACITY PLATFORM

The PRISMA logo features the word "PRISMA" in a bold, blue, sans-serif font. To its right is a stylized graphic composed of several colored squares (blue, green, yellow) arranged in a grid-like pattern. Below the main text, "EUROPEAN CAPACITY PLATFORM" is written in a smaller, blue, sans-serif font.

GSA Platform

The GSA Platform logo consists of a stylized orange and red graphic on the left, followed by the text "GSA Platform" in a bold, black, sans-serif font.

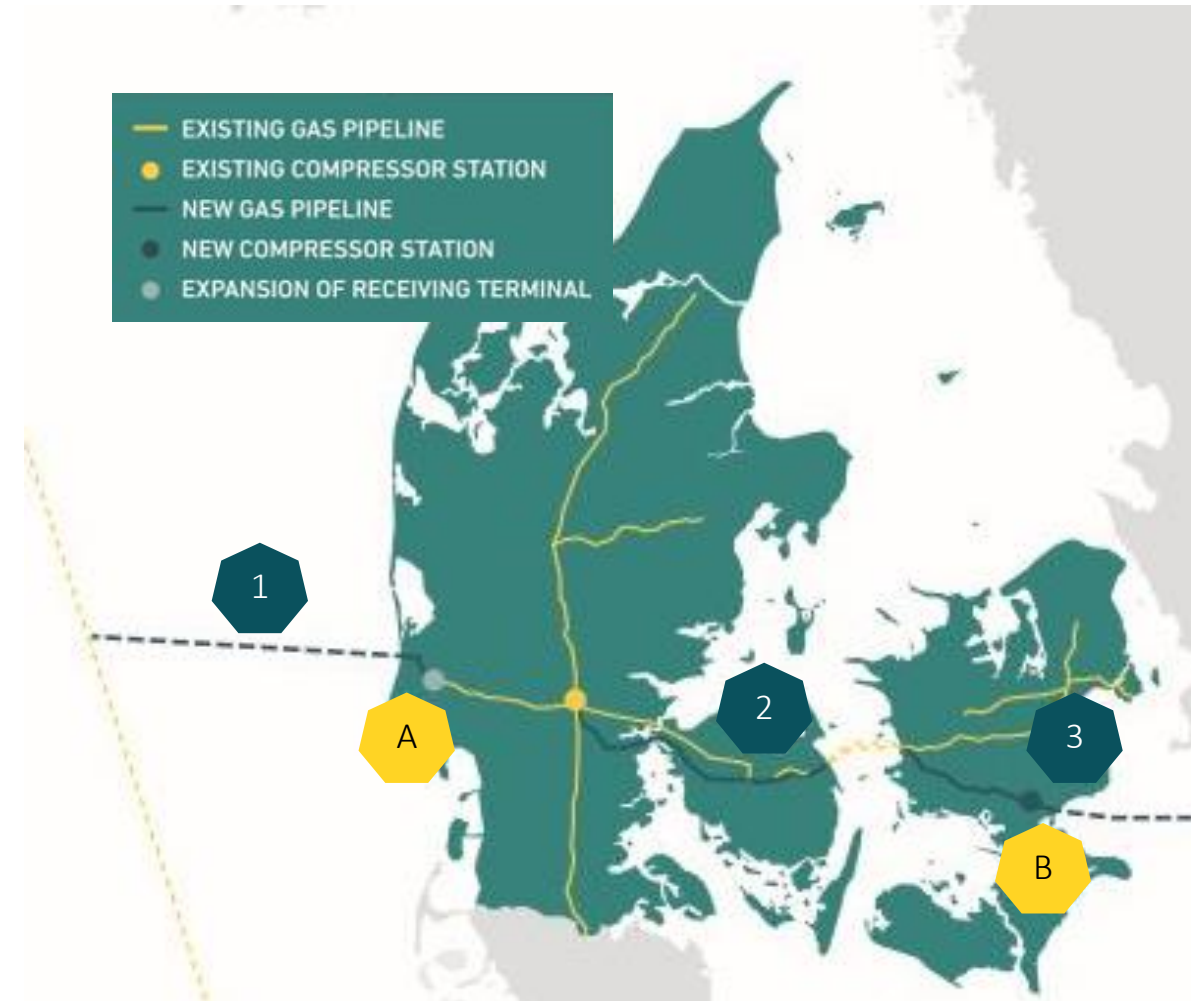
UPDATE ON GAS FILLING AND FLOW TESTS OF BALTIC PIPE

Gas filling of pipelines

1. Offshore
2. Onshore
3. Interconnector

Flow tests

- A. EPII terminal Nybro
- B. Compressor station Everdrup



UPDATE ON GAS FILLING AND FLOW TESTS OF BALTIC PIPE

Gas filling of pipelines

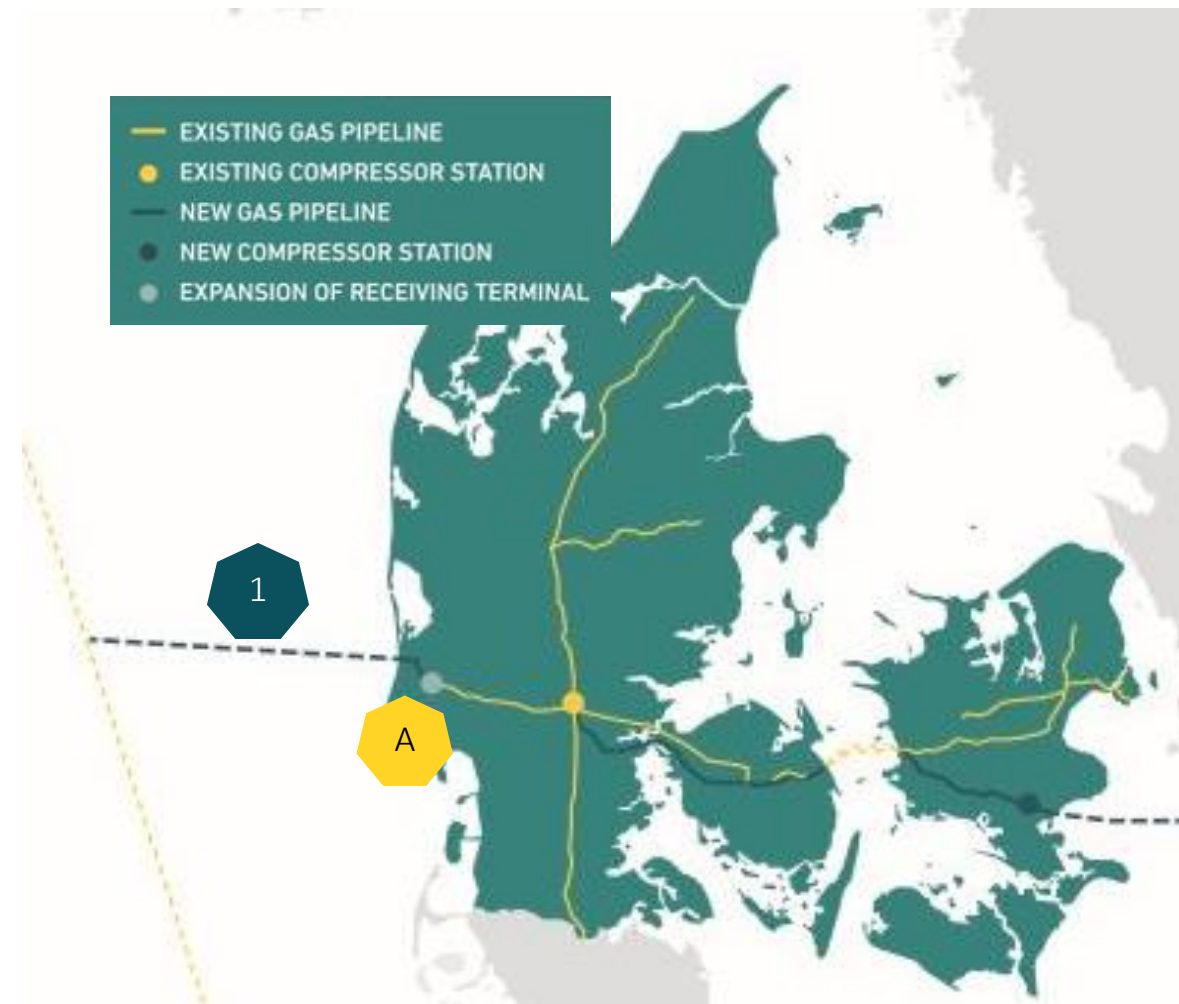
1. Offshore

- ✓ Tender to buy gas held in January for the first part of the filling (March)
- Tender to buy gas from the Norwegian market for the second part of the filling (April) will be announced soon

Flow tests

A. EPII terminal Nybro

- ✓ TSO-SWAP



GAS MARKET MESSAGE ON WEEK 18

Gas Market Message forwarded this morning on operation in beginning of May
Please notice that we are having trouble accessing ENTSOG's platform

REMIT

Current Id: 3012
Messagetype: New message
Title: Baltic Pipe - operations affecting capacity between 2nd and 8th May

General message:
Dear player on the Danish gas market

As part of the Baltic Pipe project, the control system at the Egtved compressor station needs to be reprogramed. This operation will take place in the week between the 2nd and 8th May, and will require that the transmission system is operated at a lower pressure level than normal.

- Consequence: Reduction in the total commercial injection capacity at Gas Storage Denmark. The injection capacity is set to 2.71 GWh/h.

Please also be aware that during the same week from 2nd to 8th May, Gasunie Deutschland will perform a technical operation on their transmission system

- Consequence: 3 gas days with zero capacity towards Denmark. Please contact Gasunie Deutschland for more information.

Attachments:

[Close](#)

QUESTIONS



Contact: jda@energinet.dk or cru@energinet.dk



Præsentation af Grøn gasstrategi

Torsdag den 10. marts 2022

17. december



Det danske gassystem – udviklingstendenser

Decentralisering af produktion – centralisering af forbrug

*Fra central produktion i Nordsøen til decentral biogasproduktion rundt omkring i landet
Fra mange, forskelligartede kunder til færre, mere ensartede – primært – industrikunder*

1

Fra sort til grøn

Den danske produktion af naturgas i Nordsøen lukker ned frem mod 2050. I stedet stiger produktionen af biogas fra flere og flere biogasanlæg rundt om i Danmark.

2

Et nyt forbrugerlandskab - fra mange til få store

Elektrificering og energieffektivisering betyder et fald i gasforbruget. Gas til individuel boligopvarmning udfases. Derved leverer gassystemet i fremtiden gas til færre og større forbrugere, primært i industrien.

3

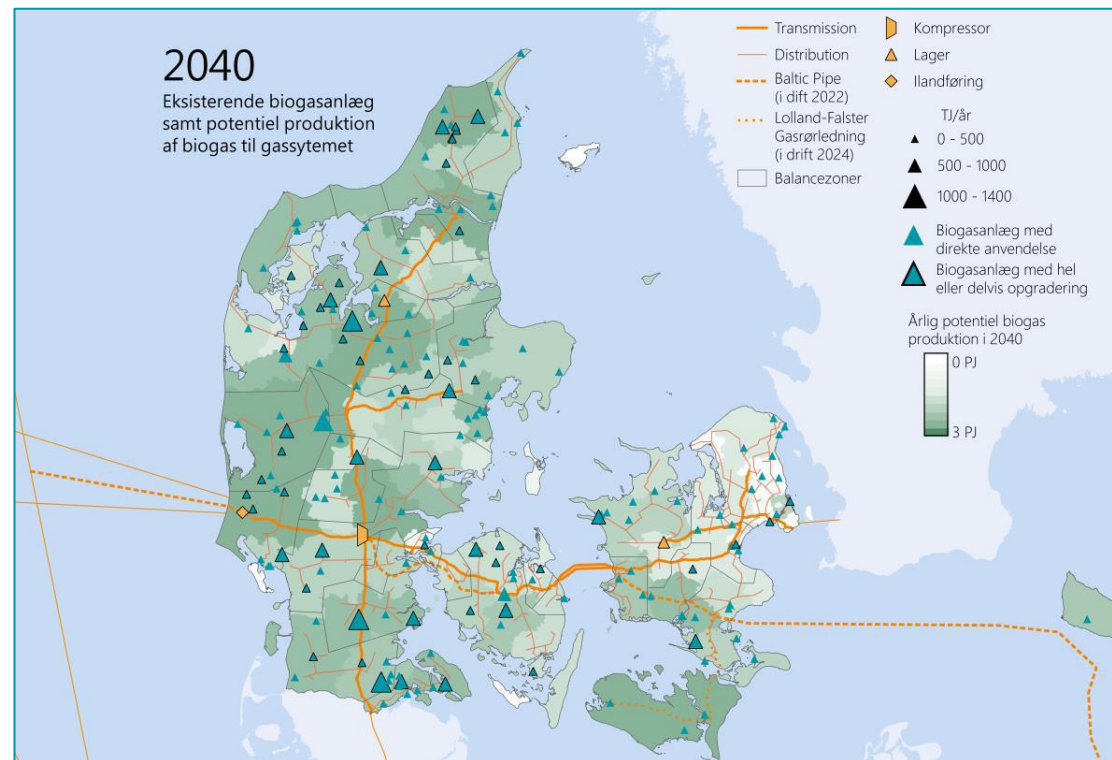
Mere transport på tværs af landet

Gasforbruget falder i Danmark. Med Baltic Pipe-forbindelsen til Polen, som sættes i drift 2022, samt med genopbygning af Tyra-feltet i Nordsøen, vil der blive en større transport af gas igennem det danske gassystem.

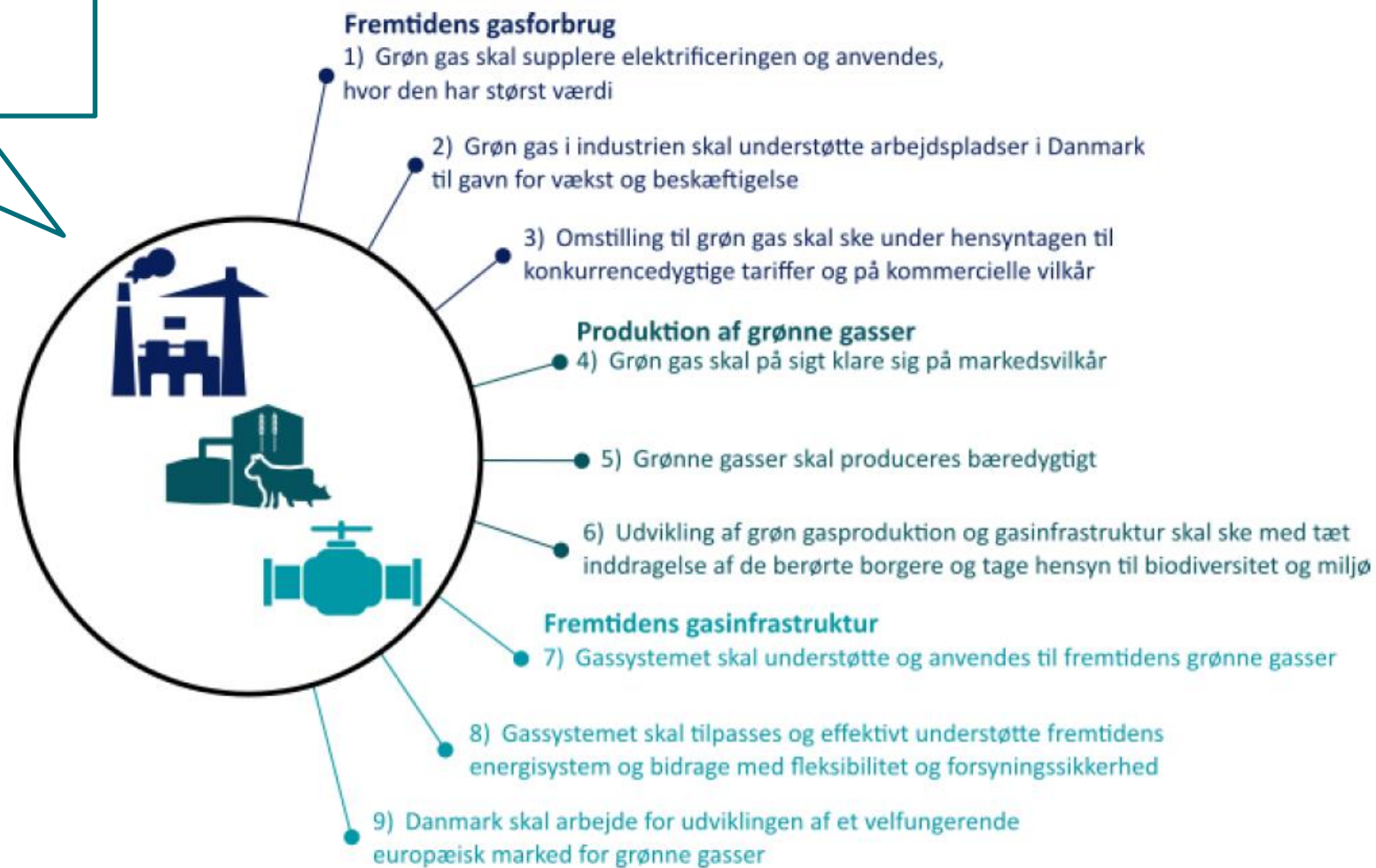
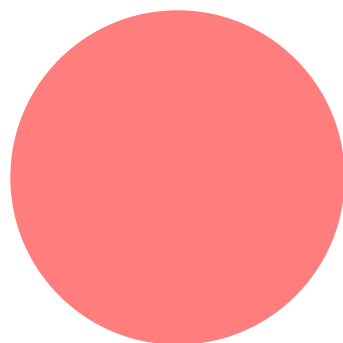
4

Fra én slags gas til mange - flere gassystemer parallelt med hinanden

Det eksisterende gassystem transporterer metan, som både kan være fossil naturgas fra Nordsøen og grøn biogas og e-metan. I fremtiden bliver der brug for brintinfrastruktur og gasrør til CO₂-transport. Transport af rå biogas kan også blive relevant.



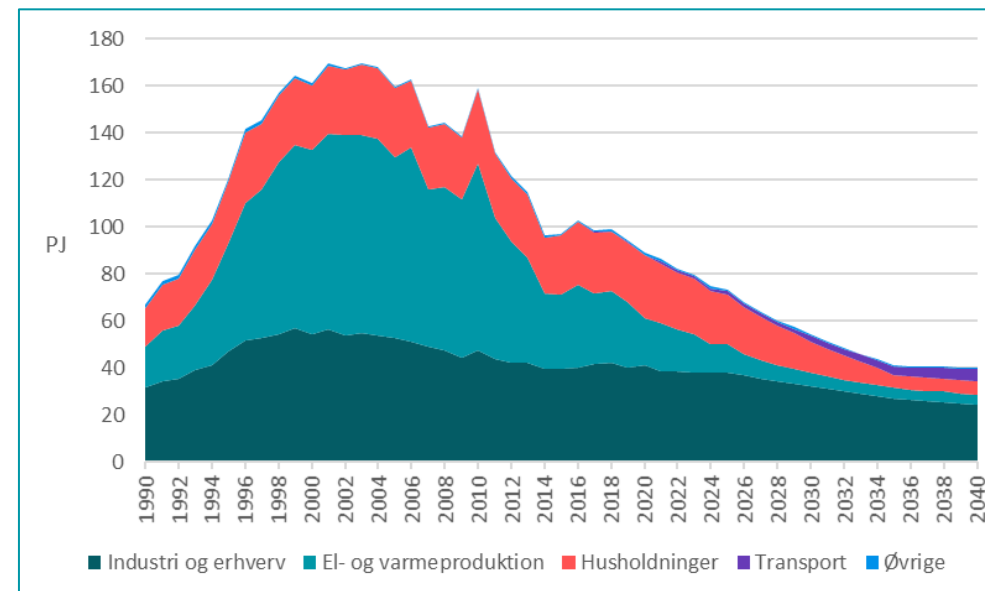
Ni pejlemærker



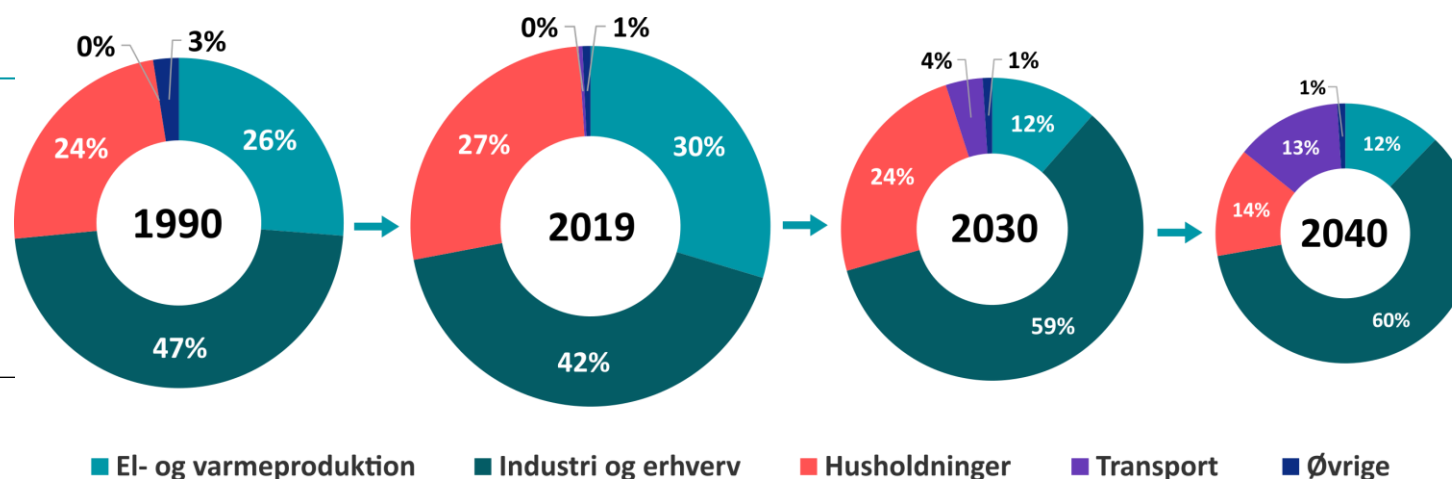
Hvor skal gassen bruges i fremtiden?

Budskaber og hovedkonklusioner

- Biogas kræver **mere støtte** end VE-el og skal **derfor bruges, hvor den skaber størst værdi** for Danmark. Energieffektivisering og elektrificering skal altid være den første mulighed, der undersøges.
- Gas er især relevant til **industri (højtemperatur)** og til **el- og varmeproduktion**, når forsyningsikkerheden er udfordret.
- Der er et **potentiale for gas til transport** – direkte og indirekte med gas som byggesten til f.eks. metanol og flybrændstof.



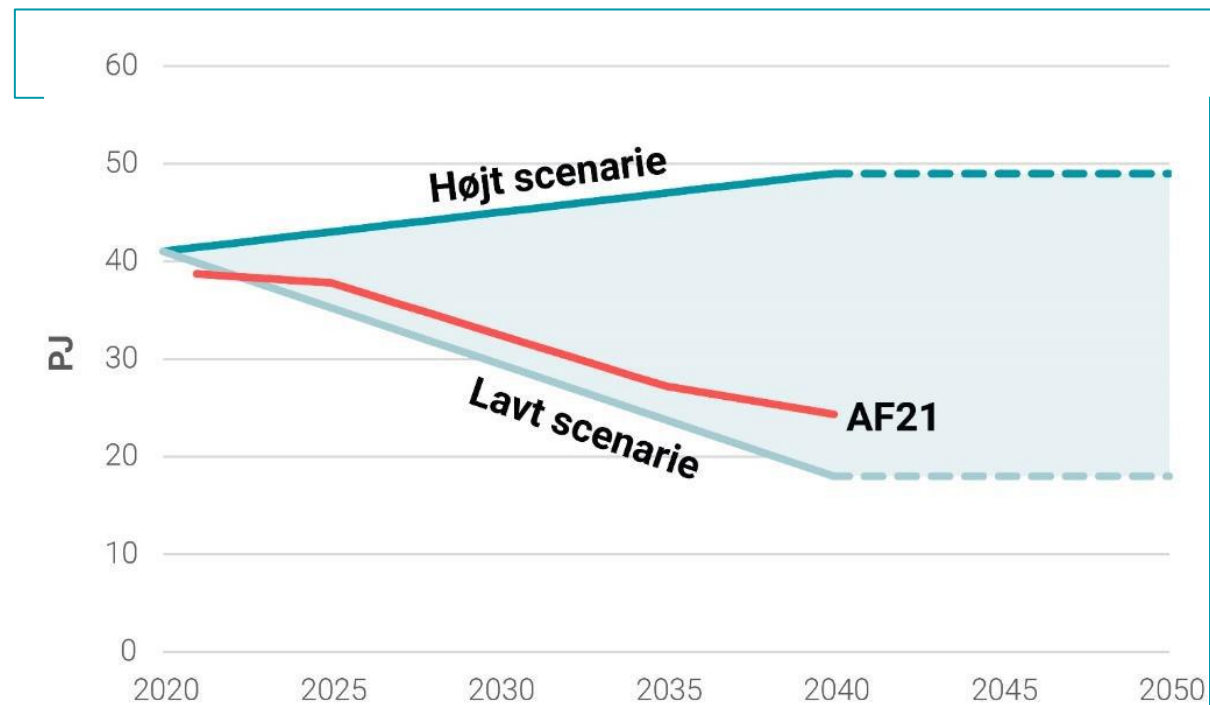
Fordeling af ledningsgasforbruget i Danmark på forbrugssegmenter. Fordelingerne i 2030 og 2040 er baseret på AF21.



Grøn gas skal supplere elektrificeringen og anvendes, hvor den har størst værdi

Budskaber og hovedkonklusioner

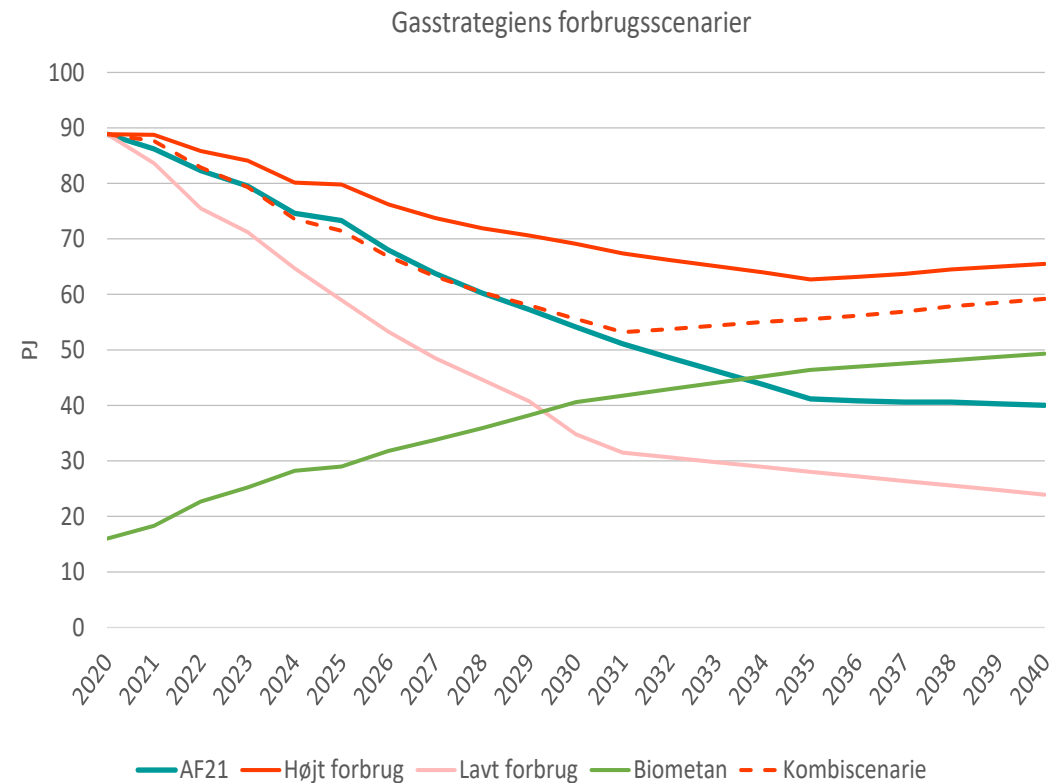
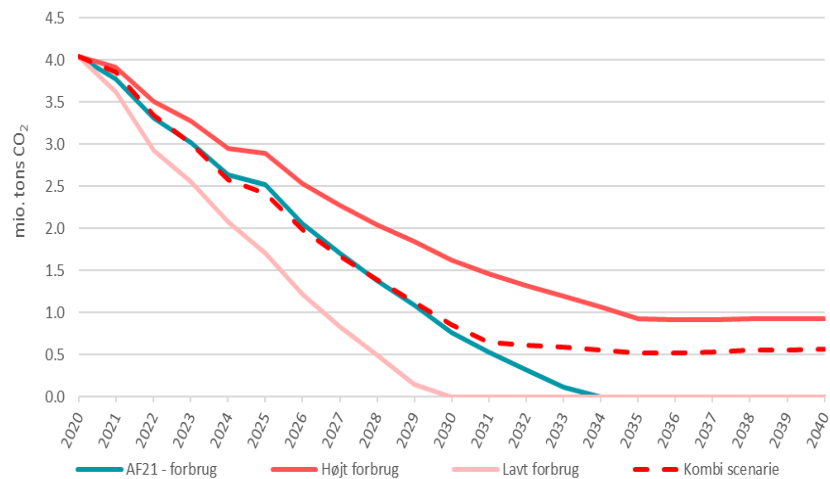
- Biogas modtager højere produktionsstøtte end VE-el. Derfor er der brug for, at man politisk prioriterer de anvendelser, som skaber størst værdi.
- Individuelle gasfyr skal udfases.
- Konvertering af industri: Lav- og mellemtemperaturer skal elektrificeres.
- På **nogle virksomheder** (f.eks. Nordic Sugar, Aalborg Portland) sker konvertering fra kul/olie **til gas**.



Scenarier: Hvordan udvikler gasforbruget sig i fremtiden?

Budskaber og hovedkonklusioner

- Forventningen er at **forbruget af ledningsgas generelt vil falde**.
- AF21 viser, at gasforbruget kan være **omstillet til biogas inden 2035**.
- **Udledningen af CO₂ fra forbrug af ledningsgas vil falde** i alle scenarier, grundet øget produktion af biometan og faldende ledningsgasforbrug

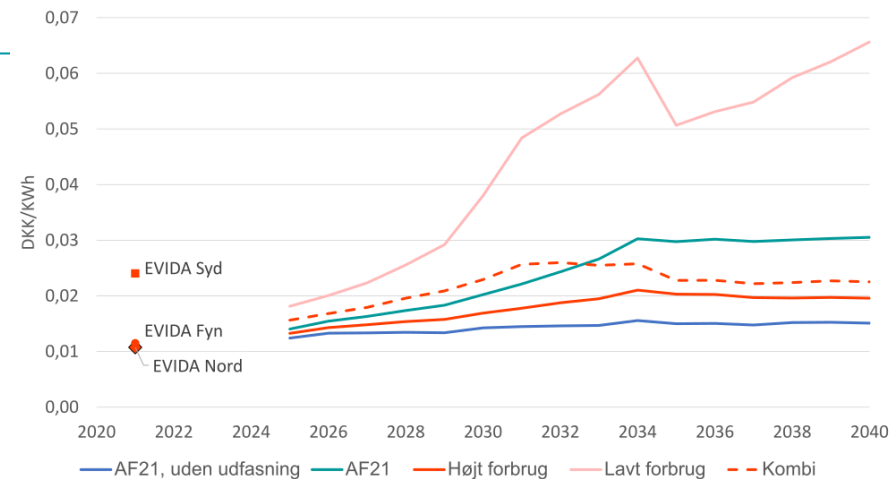


Omstilling til grøn gas skal ske under hensyntagen til et lavt tarifniveau og på kommercielle vilkår

Budskaber og hovedkonklusioner

- **Tarifferne skal holdes så lave som muligt**, så de kunder, der forbliver gasforsynet, kan få gas til konkurrencedygtige priser sammenlignet med udlandet.
- **Tilpasningen af gassystemet skal ske så billigt som muligt.** Derfor:
 - **Udfasning af gasfyr** skal ske kontrolleret og gennemtænkt.
 - **Nye biogasanlæg** skal tilsluttes, så der både tages hensyn til tilgang til biomasseressourcen og gassystemet.
 - **Dele af gassystemet kan konverteres til brint**, hvilket kan bidrage til at reducere driftsomkostningen i det tilbageværende, traditionelle metangassystem.

DSO



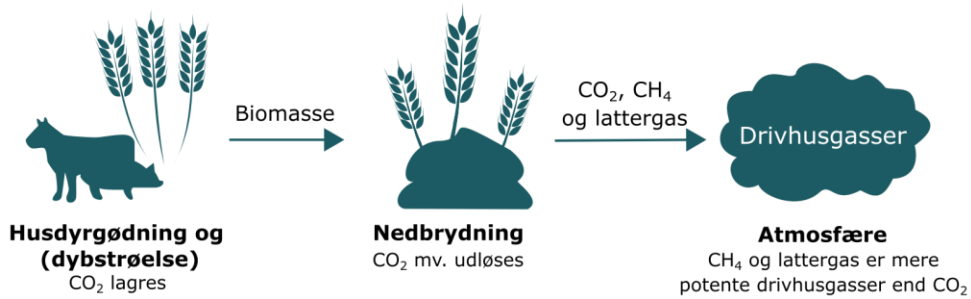
TSO



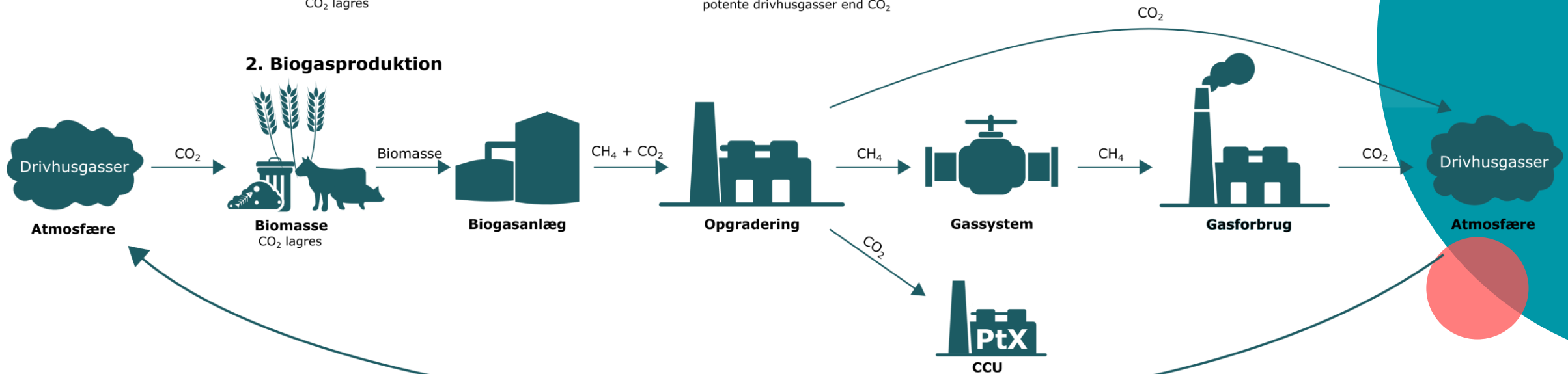
Den samlede biogasværdikæde

Affald konverteres til energi og gødning

1. Naturlig proces



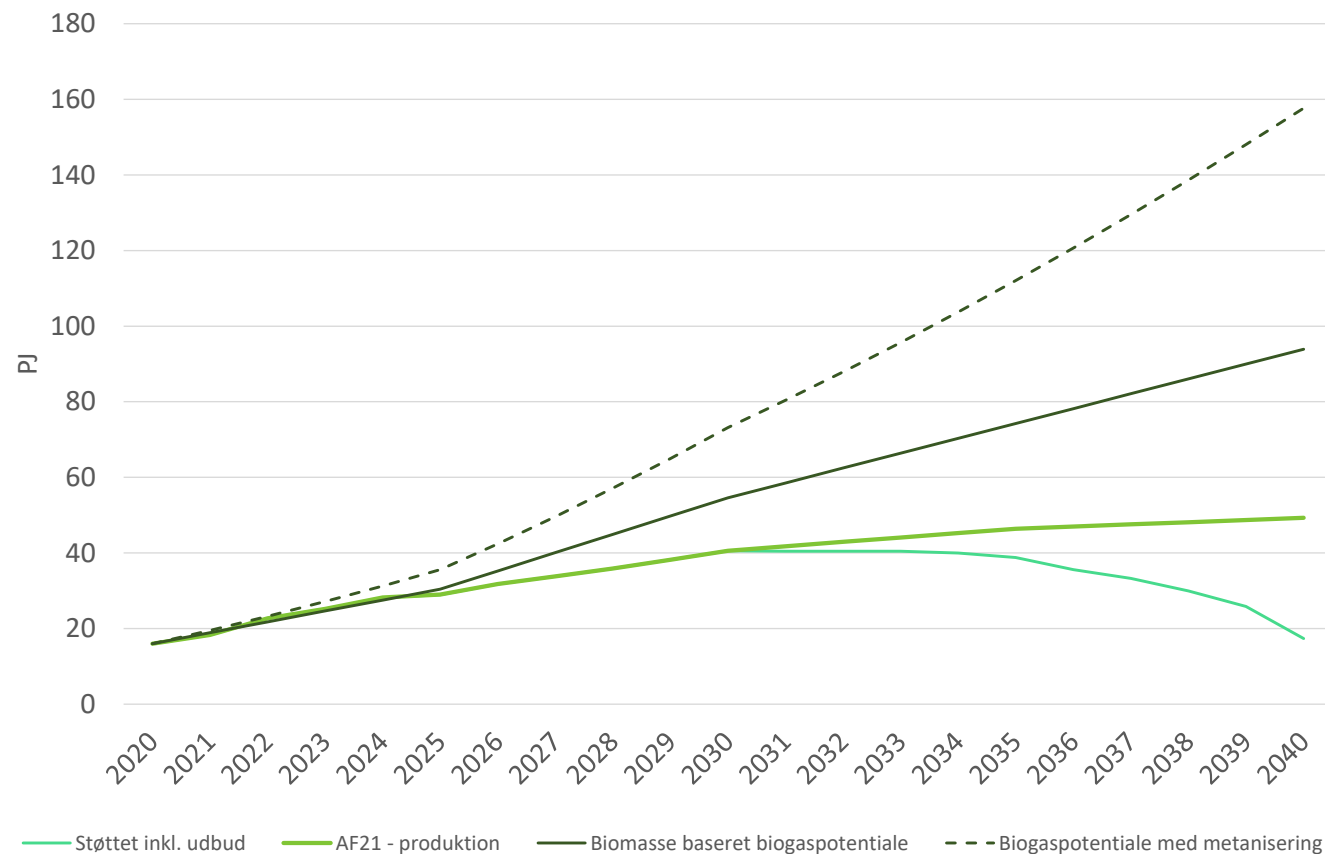
2. Biogasproduktion



Scenarier: Hvordan udvikler gasproduktionen sig i fremtiden?

Budskaber og hovedkonklusioner

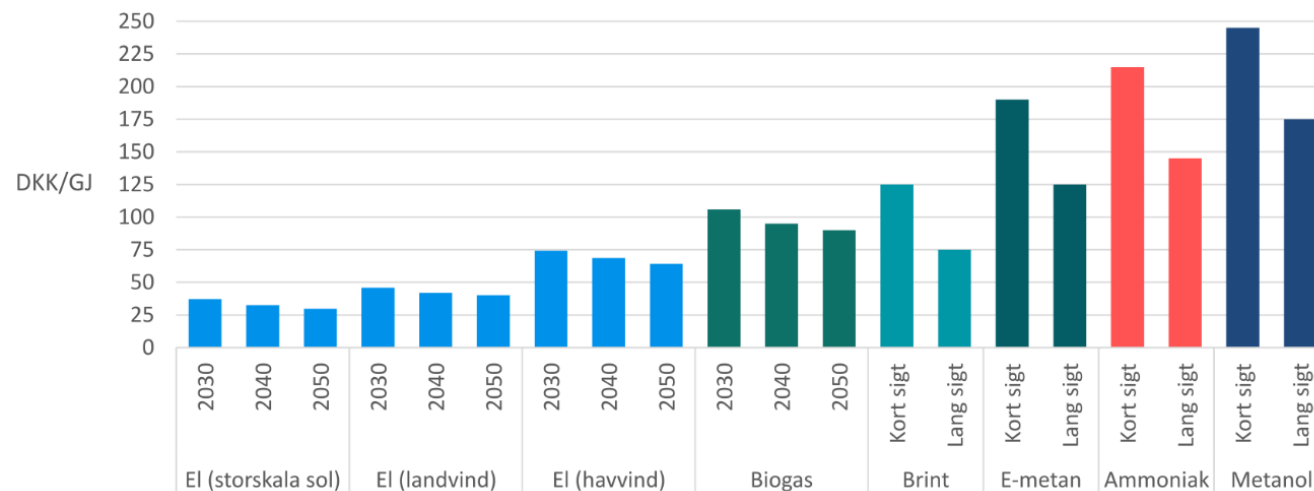
- Produktionen af biogas forventes at **stige**, men det kræver fortsat støtte eller andre tiltag
- AF21 indeholder både **eksisterende ordninger, de vedtagne støtteudbud og forventningen om noget mere** – f.eks. en efterspørgsel på ikke-støttet biogas



Grøn Gas skal på sigt blive konkurrencedygtig med andre grønne alternativer

Budskaber og hovedkonklusioner

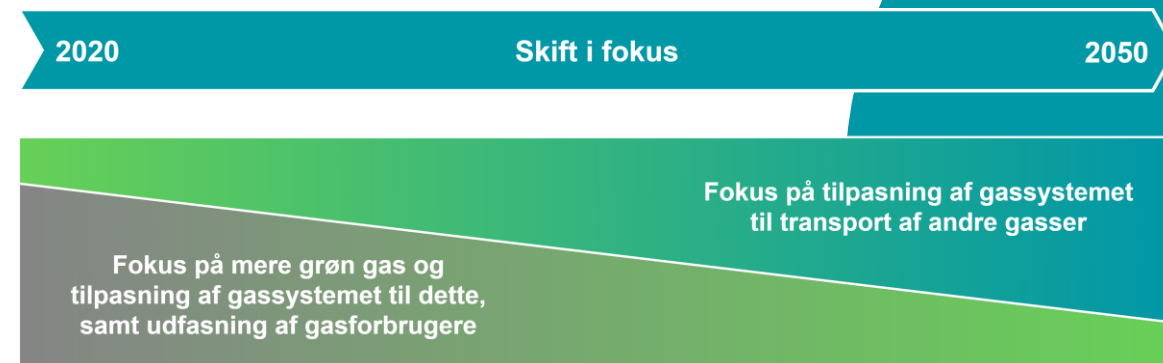
- **Støtteomkostningerne skal bringes ned.** Det forventes at ske ved at konkurrenceudsætte biogas og e-metan.
- Der kan opstå et **nyt marked i transportsektoren ikke-ustøttet biogas.**
- **Produktionsomkostninger forventes at falde frem mod 2050** for både el, biogas, brint, e-metan og metanol, men der er stor forskel.
- På sigt kommer forbrugerne til at betale den fulde pris for de grønne gasser.
- Pyrolyse er en mulig fremtidig teknologi i forhold til at reducere landbrugets udledninger (biokul).



Figur 18: Samfundsøkonomiske produktionsomkostninger for el, biogas, brint, e-metan, ammoniak og metanol. Anm.: Figuren udtrykker den samfundsøkonomiske produktionsomkostning ved at producere én enhed energi fra en given teknologi. Figuren udtrykker derfor ikke omkostningen for den service, som brændslerne kan bruges til at levere (varme, el, kørt km mv.), da der i den enkelte proces vil være et tab af energi. Dette tab er typisk forskelligt fra proces til proces. Kilde: Energistyrelsens Teknologikatalog.

Budskaber og hovedkonklusioner

- **Forsyningsbilledet af gas ændrer sig.** Produktionen af gas skifter fra at være centralt placeret i Nordsøen til at være decentralt placeret i de enkelte distributionsområder.
- **Gassystemet skal tilpasses** og ombygges til at kunne håndtere biogas. Det skal gøres hensigtsmæssigt, så omkostningerne til tilpasning og løbende drift holdes nede. Dette vil være hovedfokus frem til ca. 2030.
- Fra ca. 2030 og frem tager en mulig **ombygning til brint** i afgrænsede områder fart. F.eks. kan dublerede ledninger (f.eks. Egtved-Ellund) retrofittes til brint.
- Der kan i fremtiden opstå behov for etablering af **flere forskellige gassystemer** med transport af hver sin gasart.

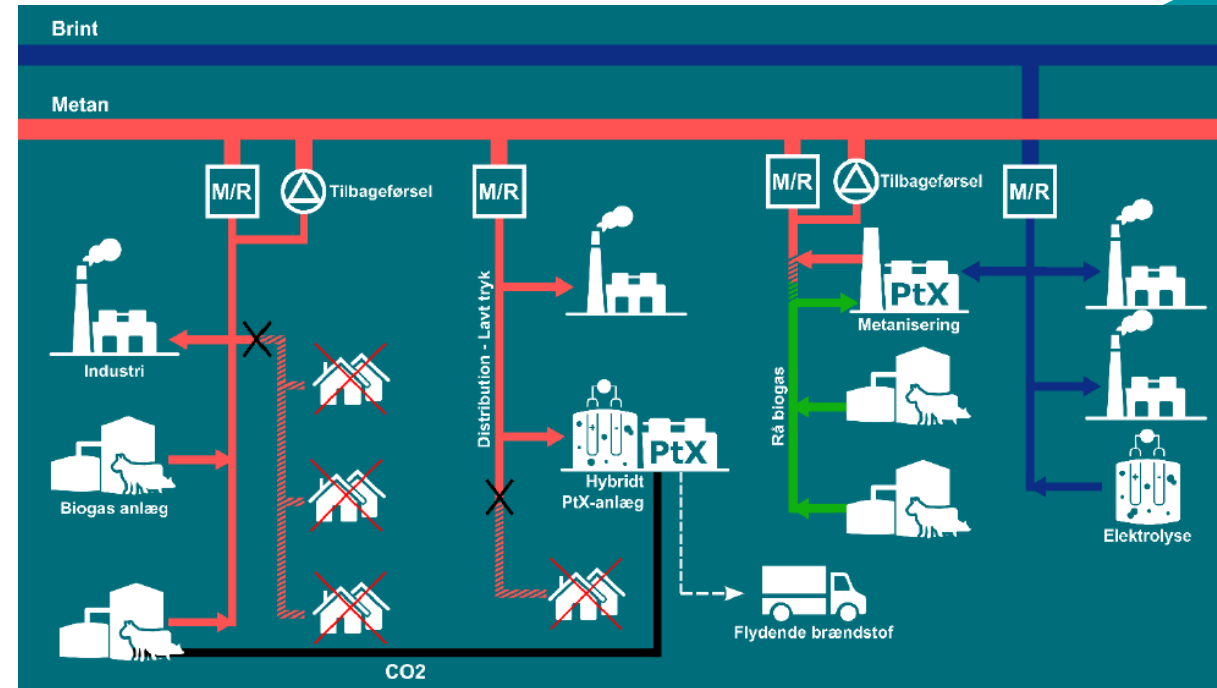



Gassystemet skal understøtte og anvendes til fremtidens grønne gasser

Pt. fokus på brint, men det kan også blive relevant med andre systemer

Budskaber og hovedkonklusioner

- Det er **usikkert, hvornår og hvor meget af gassystemet, som bliver ledig til transport af andre gasser.**
- Store dele af gassystemet er bundet flere år ud i fremtiden pga. af produktionen af **biogas** og transport af gas til Polen via **Baltic Pipe** mv.
- Brintinfrastruktur kan skabe værdi både gennem fleksibilitet og transport:
- **Fleksibilitet:** Brintforbrugere, fx PtX anlæg med syntese til metanolproduktion mv., har brug for fleksibilitet, da produktionen af brint afhænger af elprisen mens syntesen typisk skal køre kontinuerligt. Flexibiliteten kommer bl.a. fra storskala lagring af brint.
- **Transport:** Brintinfrastruktur skaber værdi ved at forbinde producent og forbruger, og giver mulighed for eksport til andre markeder.
- Der angives andre alternative anvendelser end blot brint: **Ikke-opgraderet biogas og CO2.**





Tak for i dag

—
**GAS
STORAGE
DENMARK**
—

SHIPPERS FORUM

10 MARCH 2022

— AGENDA

1. OVERVIEW SOLD CAPACITIES 2022+

2. CURRENT MARKET SITUATION BY GSD

- i. SPREADS
- ii. CAPSIZED STORAGE VALUATION
- iii. OUR ROLE NOW

3. MISCELLANEOUS

STATUS 2022+

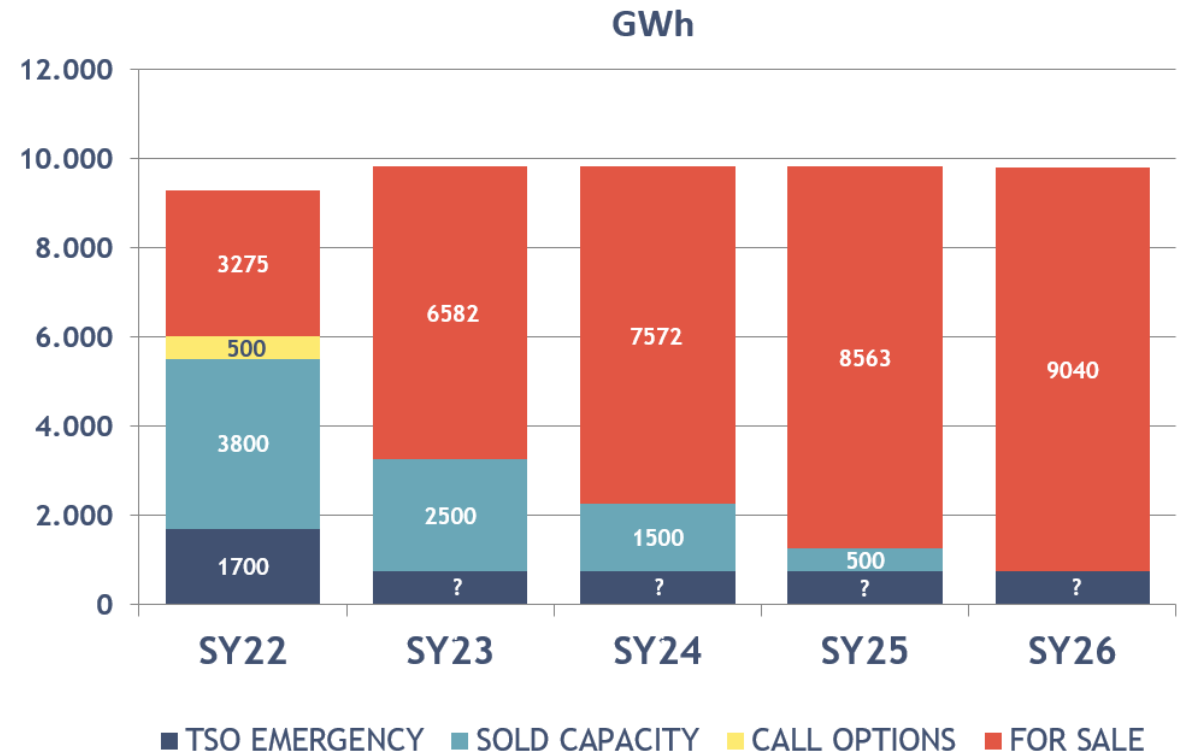
☐ 3275 GWh for sale now,
available per 1st April

Pricing:

- 120/60: 4.0 €/MWh/year
- 170/85: 3.5 €/MWh/year
- 170/170: 3.0 €/MWh/year

Additional flex:

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



CURRENT MARKET SITUATION

STORAGE VALUE, EUR/MWh		Last traded: 07-03-2022			
	SY 22	SY 23	SY 24	SY 25	SY 26
TTF	-61,89	-8,64	-1,50	-1,40	0,80
THE	-60,18	-7,91	-2,56	-1,43	0,05

	DA-MA	Q4 22 - Q3 23	Q1 23-Q3 23
TTF	4,54	86,48	38,44
THE	1,43	87,35	41,09

CAPSIZED STORAGE VALUATION

- the need for storage has never been bigger than now
- negative spreads do not accommodate decision to invest
- persistent lack of market self-correction

Gas in storage is the primary way to secure a steady supply of gas, a security that has never been more valuable than now. In spite of this the market spread is badly reversed.

OUR ROLE NOW

- 3275 GWh are for sale and our primary goal is to find a way to sell to all interested storage customers
- Selling inverse storage comes at the cost of regular storage capacity - which might be sorely needed in the near future. Even though the product is extremely lucrative for the storage operator, no more inverse storage capacity will be sold for the time being

Switching to EDI@S XML 5.1 per 1st May

1 HOUR lead time for renomination to storage per 1st October 2022

Valdemar Kentved has joined our Sales team per 1st March





QUESTIONS?

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FINAL REMARKS

Clement Johan Ulrichsen, Energinet

QUESTIONS



Contact: cju@energinet.dk