



SHIPPERS' FORUM

13 December 2018





HOST



EMERGENCY
EXIT



DEFIBRILLATOR
(AED)



MEETING POINT

PROGRAMME

12.00	Lunch and networking
13.00	Welcome <i>Clement Johan Ulrichsen, Energinet Gas TSO</i>
13.10	Baltic Pipe <i>Jeppe Danø, Energinet Gas TSO</i>
13.20	Ramp down of supply from Tyra <i>Amin Abouardini, TOTAL</i>
13.40	Overview of the supply situation <i>Christian Meiniche Andersen, Energinet Gas TSO</i>
14.00	Market Measures <i>Christian Rutherford & Camilla Mejdahl Mikkelsen, Energinet Gas TSO</i>
14.20	Gas Storage Denmark <i>Hans-Åge Nielsen, Gas Storage Denmark</i>

14.35 Coffee break and networking

15.00	Joint Balancing Zone <i>Signe Louise Rasmussen, Energinet Gas TSO</i>
15.10	Flow and Capacity at Nybro <i>Michael Brock, Energinet Gas TSO</i>
15.20	Emergency Storage Agreement <i>Jeppe Danø, Energinet Gas TSO</i>
15.30	Towards a new EU gas package <i>Jan Ingwersen, ENTSOG</i>
15.50	Final remarks <i>Clement Johan Ulrichsen, Energinet Gas TSO</i>



WELCOME

Clement Johan Ulrichsen, Energinet Gas TSO

ROLES IN SECURING SUPPLY

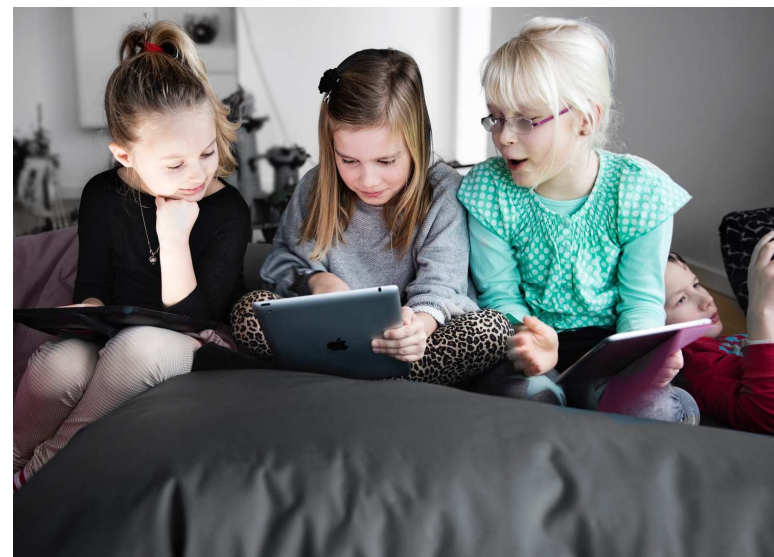
EU regulation: “The security of gas supply shall be the shared responsibility of natural gas undertakings...”

You: Market players supply gas to consumers

1. Book sufficient capacity in the gas grid to supply gas consumers at all times
2. Transport sufficient gas to cover the demand
3. Store sufficient gas in the gas storages – also late in a cold winter

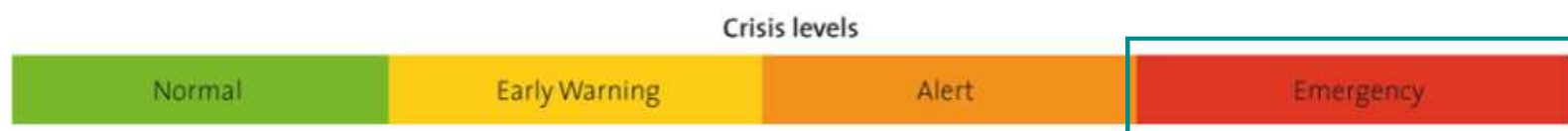
We: Energinet manages the security of supply

1. Provide sufficient capacity in the Danish gas system
2. Support efficient use of the infrastructure through market rules
3. Monitor the security of supply situation and inform authorities and market players





EMERGENCY: ONLY EXTREME SITUATIONS



Definition from EU Regulation concerning measures to safeguard the security of gas supply

- "Exceptionally high gas demand"
- "Significant disruption of gas supply"
- "Other significant deterioration of the gas supply situation and all relevant market-based measures have been implemented, but the gas supply is insufficient to meet the remaining gas demand"
- "Non-market-based measures have to be additionally introduced with a view, in particular, to safeguarding gas supplies to protected customers"

ROLES IN SECURING SUPPLY IN EMERGENCY

Market players supply gas consumers to the utmost of their ability

Energinet supplies the residual amount of gas required.

You: Market players – shippers and gas suppliers

1. Book sufficient capacity in the gas grid to supply gas consumers
2. Transport gas to the utmost of your ability to cover the demand

We: Owners of infrastructure

1. Provide as much capacity in the Danish gas system as possible
2. Monitor the security of supply situation and inform authorities and market players
3. Balance the system by using gas from emergency storage reserves

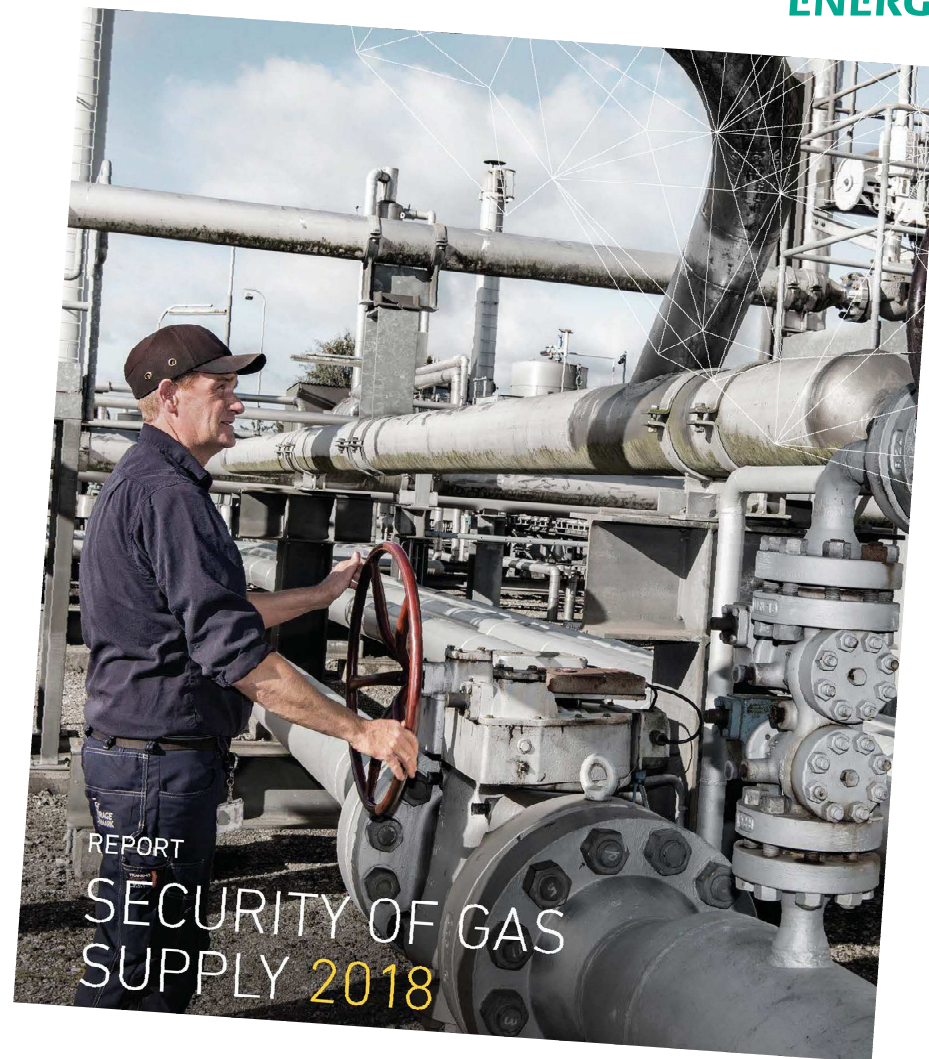




SECURITY OF GAS SUPPLY REPORT 2018

Available on:

en.energinet.dk/Gas/Security-of-Supply





NEW TARIFF METHODOLOGY FROM 2019/20

Energinet sustain proposal after Final Consultation and ACER review

Danish Utility Regulator to make final decision on proposal in/before May 2019

ENERGINET PROPOSAL

- Uniform capacity charges
- Cap: commodity charges max. 40 % of TOTEX
- Storage points: 100 % discount

ACER'S KEY POINTS

- Is the uniform method more robust?
- OPEX and gas flow correlation?
- Same commodity charge for all exit points

FROM FINAL CONSULTATION

- Overall support
- Concerns on competitive tariff levels: Tyra and long term
- Concern: Tyra security of supply

TIMELINE

- Exp. until May 2019 – DUR approval process
- 1 Oct. 2019 – New tariff methodology to enter into force

YOU NEED TO USE NEW E-MAIL TO CONTACT ENERGINET & SUBSCRIBE TO NEWS ON WEB

HOW TO CONTACT ENERGINET

- FROM TODAY

Please, all write to

gasinfo@energinet.dk

The former e-mail
anmodning@... will be
closed as of today.



SUBSCRIBE TO INFORMATION

- FROM TODAY

Please subscribe to news on

en.energinet.dk/Gas/Gas-news

Information will include:

- Market consultations
- Presentations
- Invitations

IT UPDATES

- FROM JANUARY

Automatic IT updates from

onlineinfo@energinet.dk

All users on Energinet
Online will receive these

QUESTIONS



Contact: cju@energinet.dk



BALTIC PIPE

Jeppé Danø, Energinet Gas TSO

FINAL INVESTMENT DECISION

Event November 30

In accordance with time schedule

From planning to doing



PART OF A BIGGER COOPERATION

This week in Katowice:

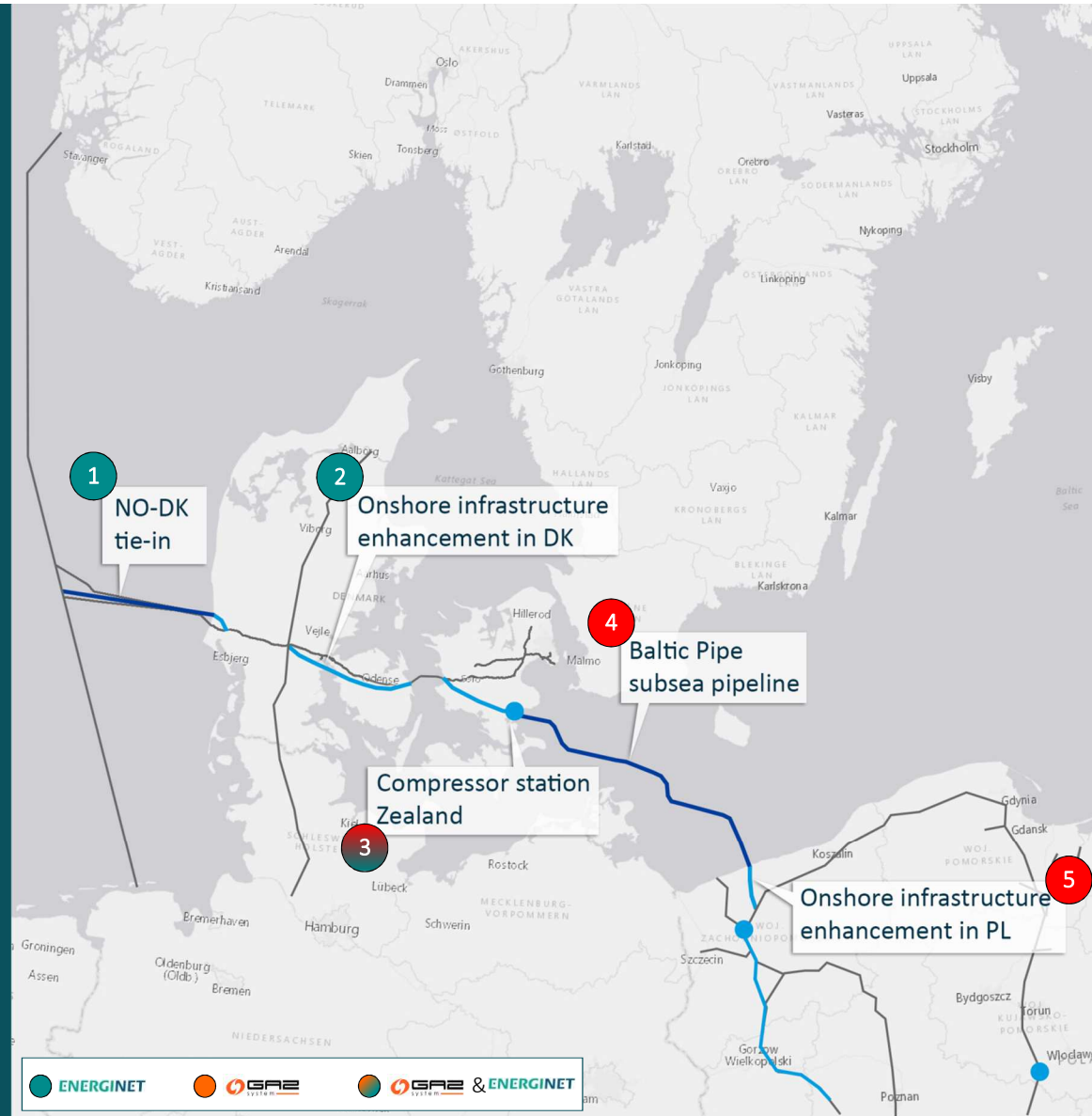
Minister handshake

MoU on energy cooperation



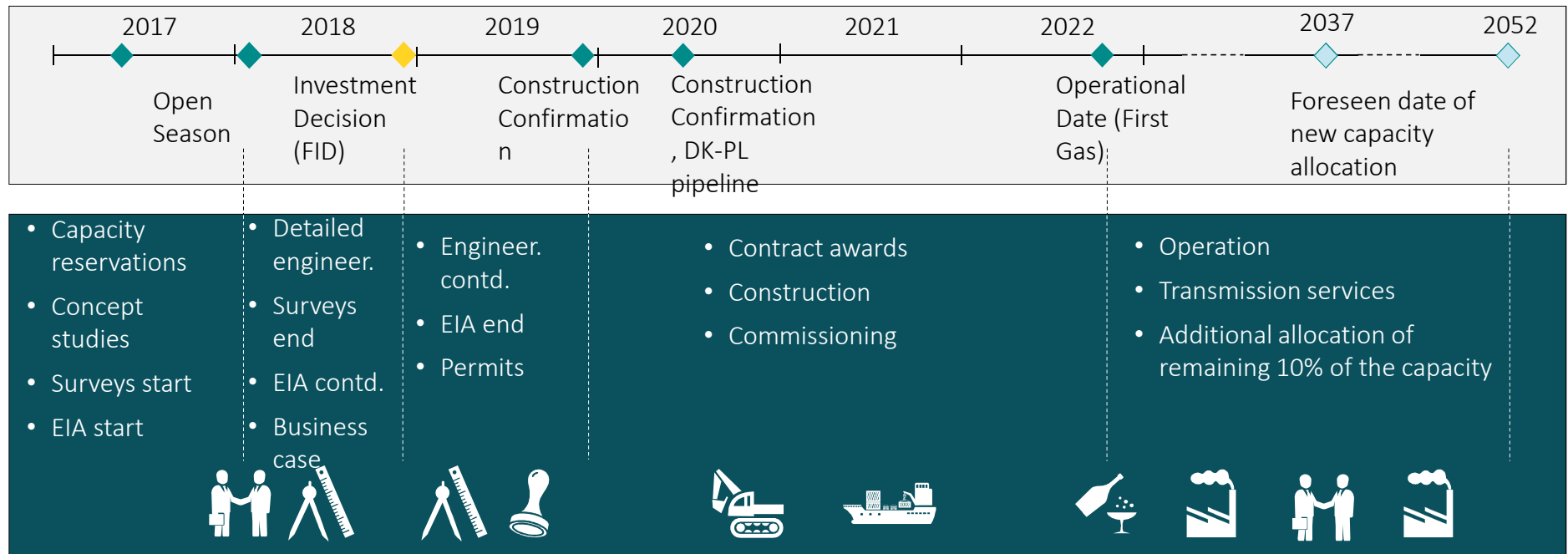
BALTIC PIPE PROJECT SCOPE OVERVIEW

1. Norwegian Tie-in: Tie-in to Europipe II and offshore gas pipeline in the Danish North Sea
2. Expansions of the Danish gas transmission system
3. Compressor Station Zealand
4. Offshore Interconnector: Bi-directional gas pipeline crossing the Baltic Sea from Denmark to Poland
5. Expansions of the Polish gas transmission system



BALTIC PIPE PROJECT - MILESTONE OVERVIEW

Project is being developed in line with time schedule. Focus on achieving Final Investment decision no later than December 2018 and on EIA being on critical path. First Gas in 2022



DEVELOPING MARKET RULES

- Invitation to an open process
- One Market Zone EP II – Baltic Sea methodology for approval in 2019
- Update to market on project progress



QUESTIONS



Contact: jda@energinet.dk



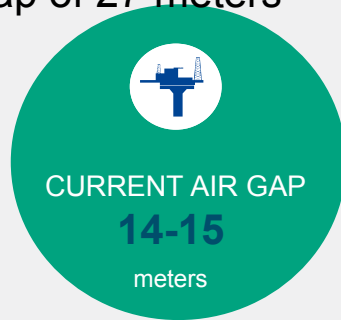
TYRA REDEVELOPMENT –THE BIGGEST JIGSAW PUZZLE IN THE NORTH SEA

Amin Abouardini, TOTAL



THE AIR GAP IS REDUCING

- +30 years of gas production has depleted and compacted the reservoirs thereby causing significant seabed subsidence (5-6 meters)
- The approximate subsidence after the redevelopment of Tyra has been estimated at 2 meters until 2042
- Future subsidence has been appropriately captured in the new design basis which stipulates an initial air gap of 27 meters





A GLOBAL JIGSAW PUZZLE..



- Frederikshavn, Danmark
- Esbjerg, Danmark
- København, Danmark
- Cadiz, Spain
- Milano, Italien
- Ravenna, Italien



- Kuala Lumpur, Malaysia
- Batam, Indonesien



Online sensors



Handheld devices



Electronic mustering



Big data insights



Performance monitoring

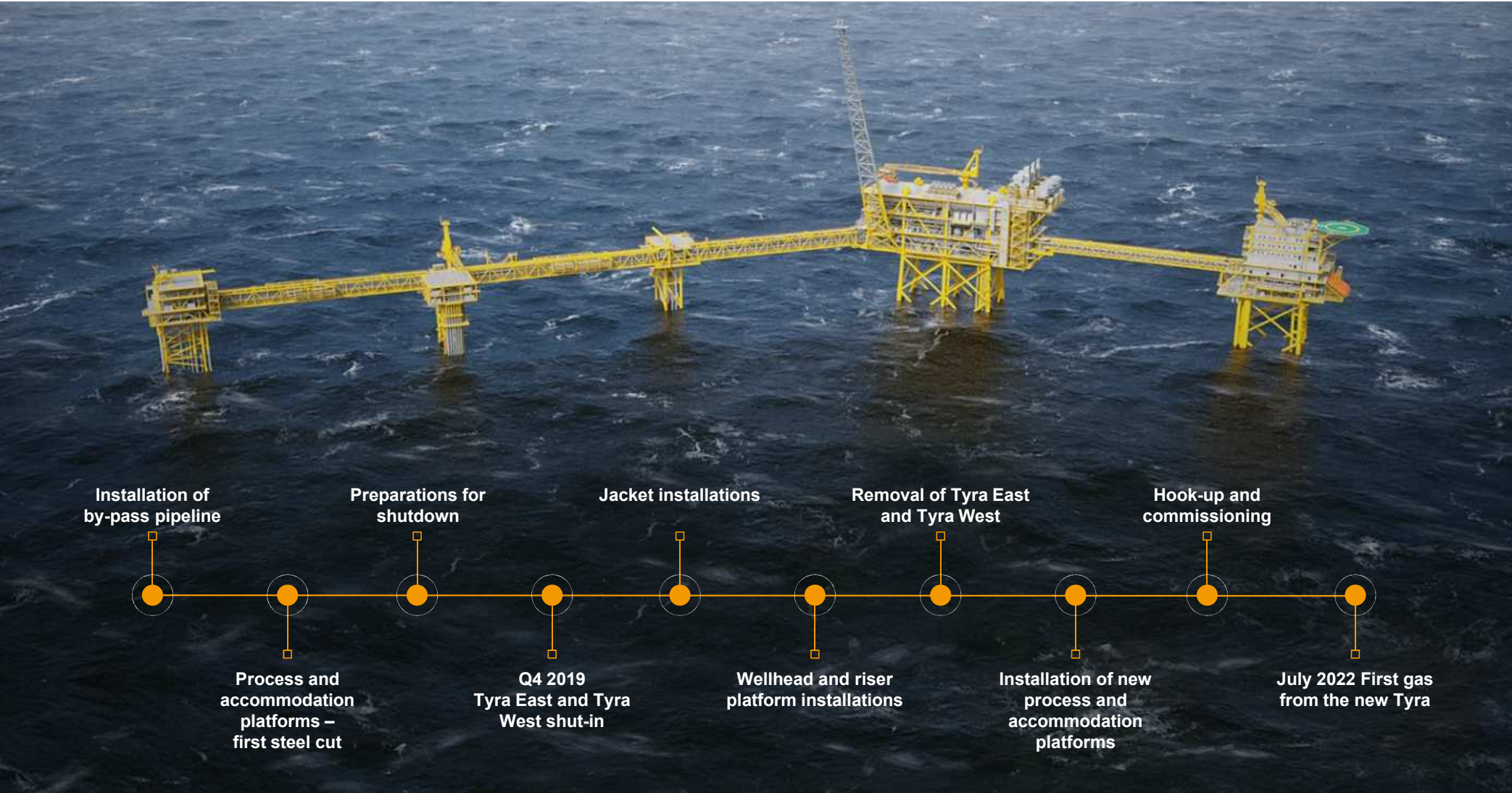
100.000 data points



Condition monitoring



OneShore



Installation of by-pass pipeline

Preparations for shutdown

Jacket installations

Removal of Tyra East and Tyra West

Hook-up and commissioning



Process and accommodation platforms – first steel cut

Q4 2019 Tyra East and Tyra West shut-in

Wellhead and riser platform installations

Installation of new process and accommodation platforms

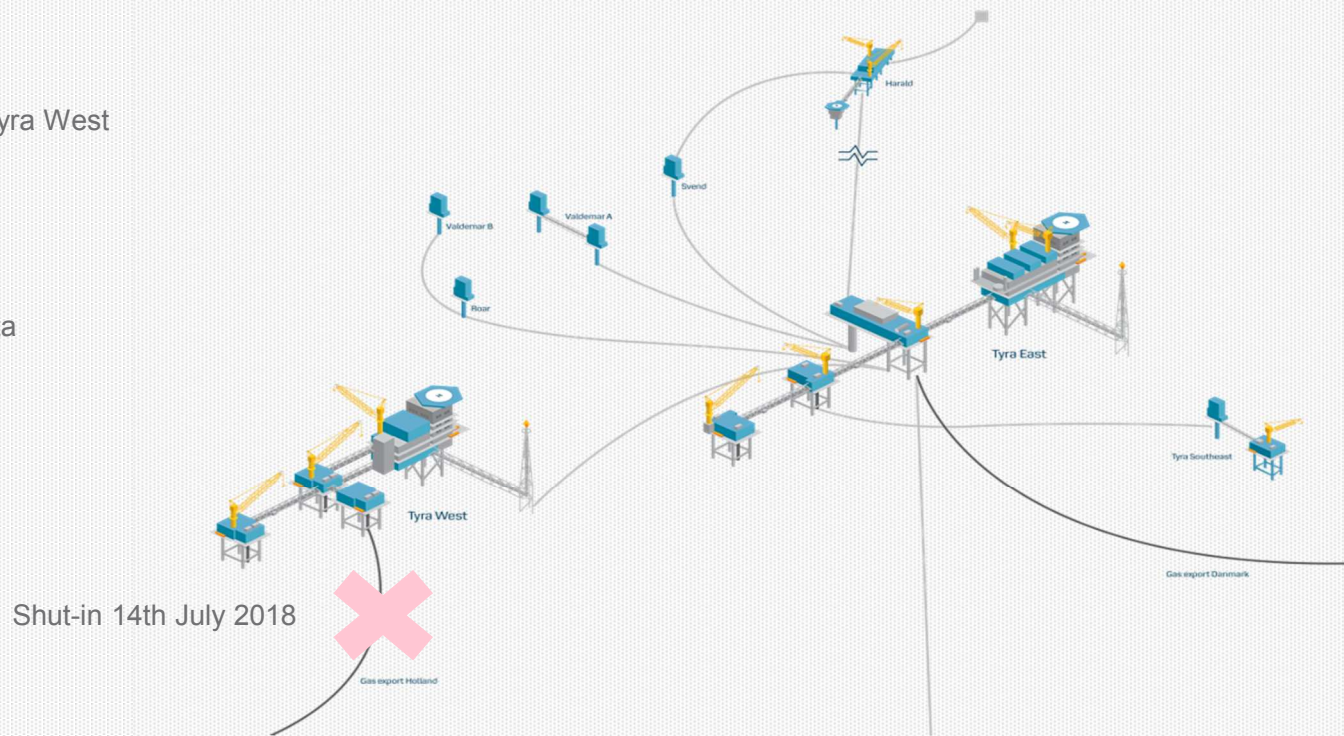
July 2022 First gas from the new Tyra

TYRA HUB TODAY

EXISTING TYRA FACILITIES

Tyra Complex

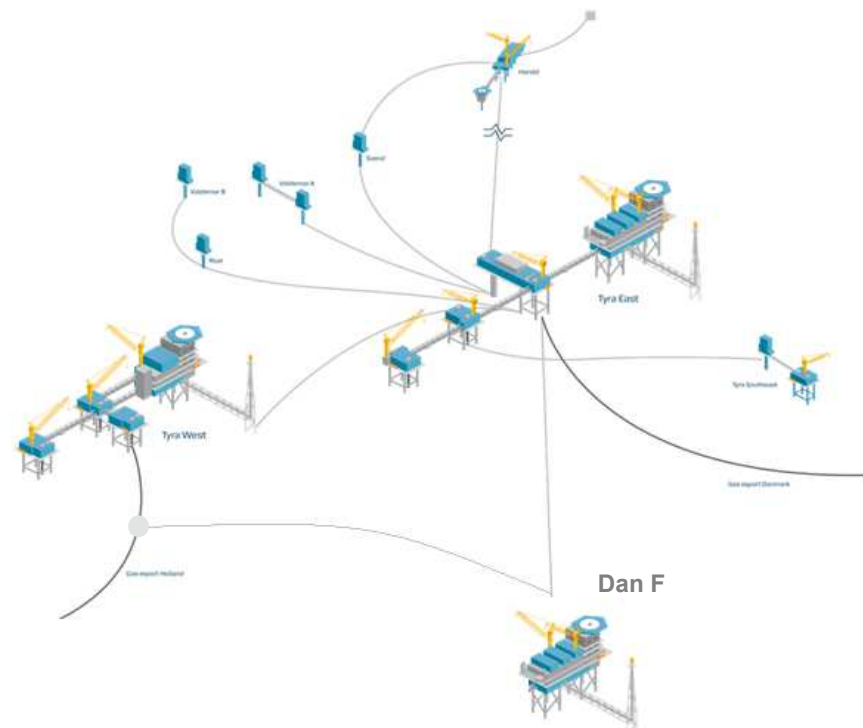
- Wells on Tyra East and Tyra West
- Satellites
 - Valdemar AA/AB
 - Valdemar B
 - Roar
 - Tyra South-East
 - Harald/Trym/Lulita



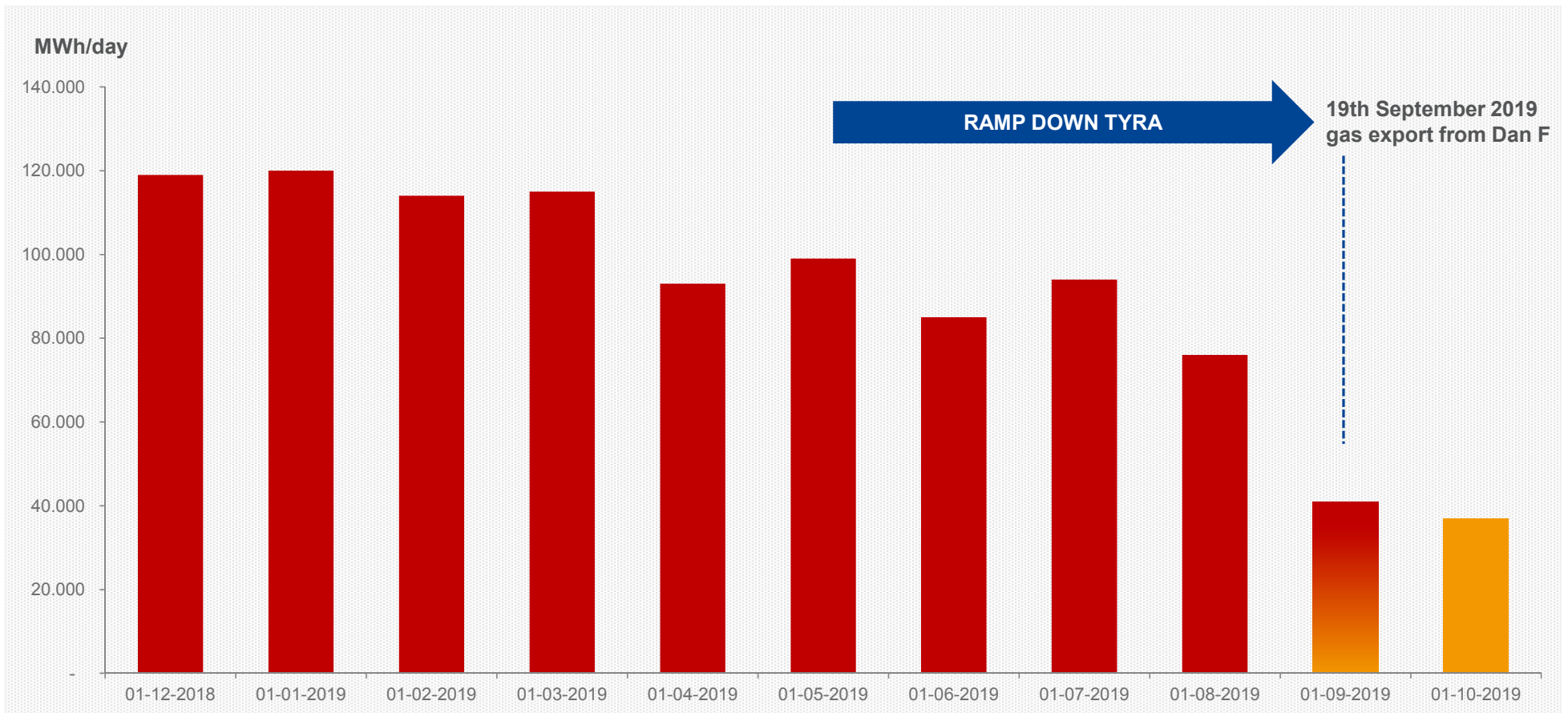
LONG BY-PASS – CONNECTING DAN F TO NOGAT

"LONG BY-PASS" PIPELINE

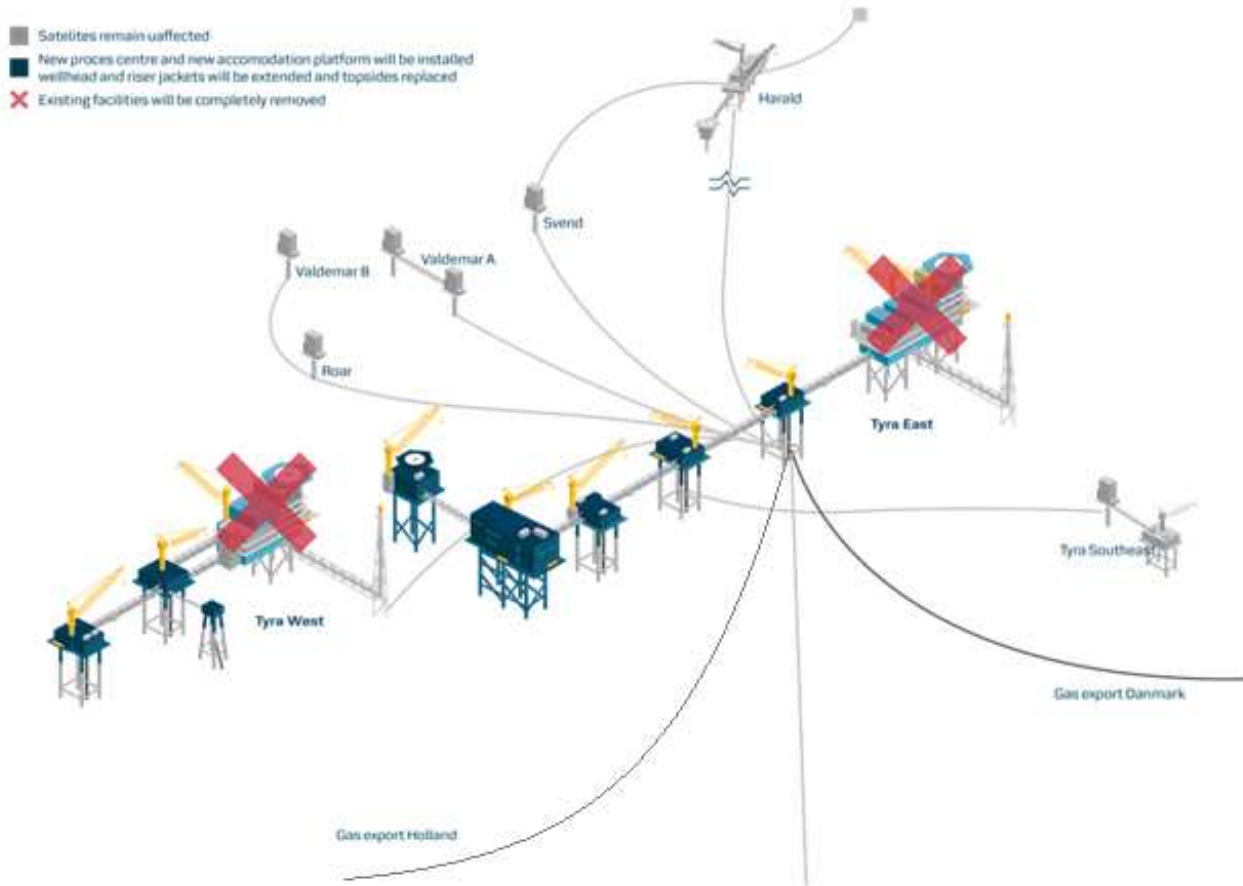
- To facilitate gas export from the Southern oil fields during Tyra shut in
- Expected gas export from Dan FC to NOGAT estimated to **37,000 MWh/d starting 19th September 2019**
- Emergency export route if earlier shut in required



TYRA RAMP DOWN – PRODUCTION PROFILE



NEW TYRA HUB



REMIT PROCEDURE CHANGED

- Update on export capacity from Tyra every month for a 4 month period (average daily rate)
- Reductions will be reported if above a certain limit to the average rate
- Quaterly update for a 12 month period; next time end December 2018

QUESTIONS?



OVERVIEW OF THE SUPPLY SITUATION

Christian Meiniche Andersen

TOPICS

- Development since 2017
- Supply and demand 2019/2020 – an estimate
- What is the risk of an emergency 2019-2022?



SUPPLY SITUATION 2019-2022

Impact on supply
situation 2019-
2022

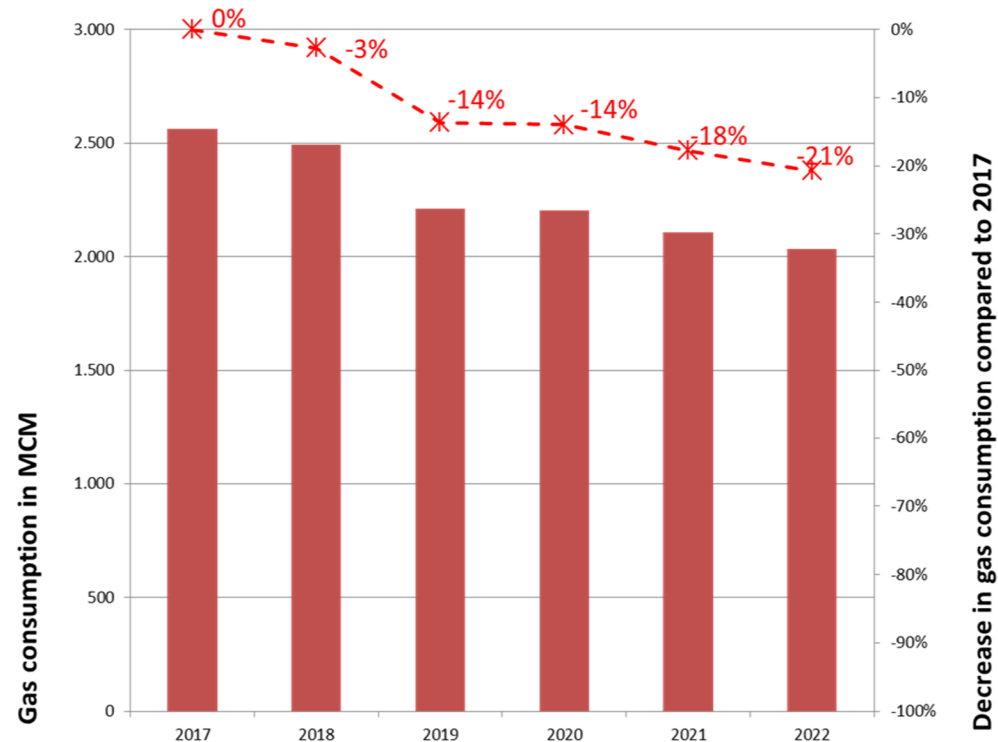
Development since 2017:

1. TOTAL has informed about the expected time schedule for ramp down and re-opening of the gas supply from Tyra to Denmark
2. Danish Energy Agency (DEA) has published Analysis Assumptions 2018
3. GasUnie Deutschland (GUD) has announced, that the capacity in Ellund towards Denmark will not be increased, as the PRISMA auction in July didn't reflect further demand from Shippers
4. Energinet has submitted an application to the Danish Utility Regulator (DUR) for approval of methodology of changes to the balancing model
5. Gas Storage Denmark has modified the Lille Torup storage facility. This allows for fulfilment of the EU Regulation (N-1 criteria) and to withdraw more gas in case of "hydraulic incidents"
6. In Early Warning 2018 storage customers tend to accept a low storage filling before end of winter season

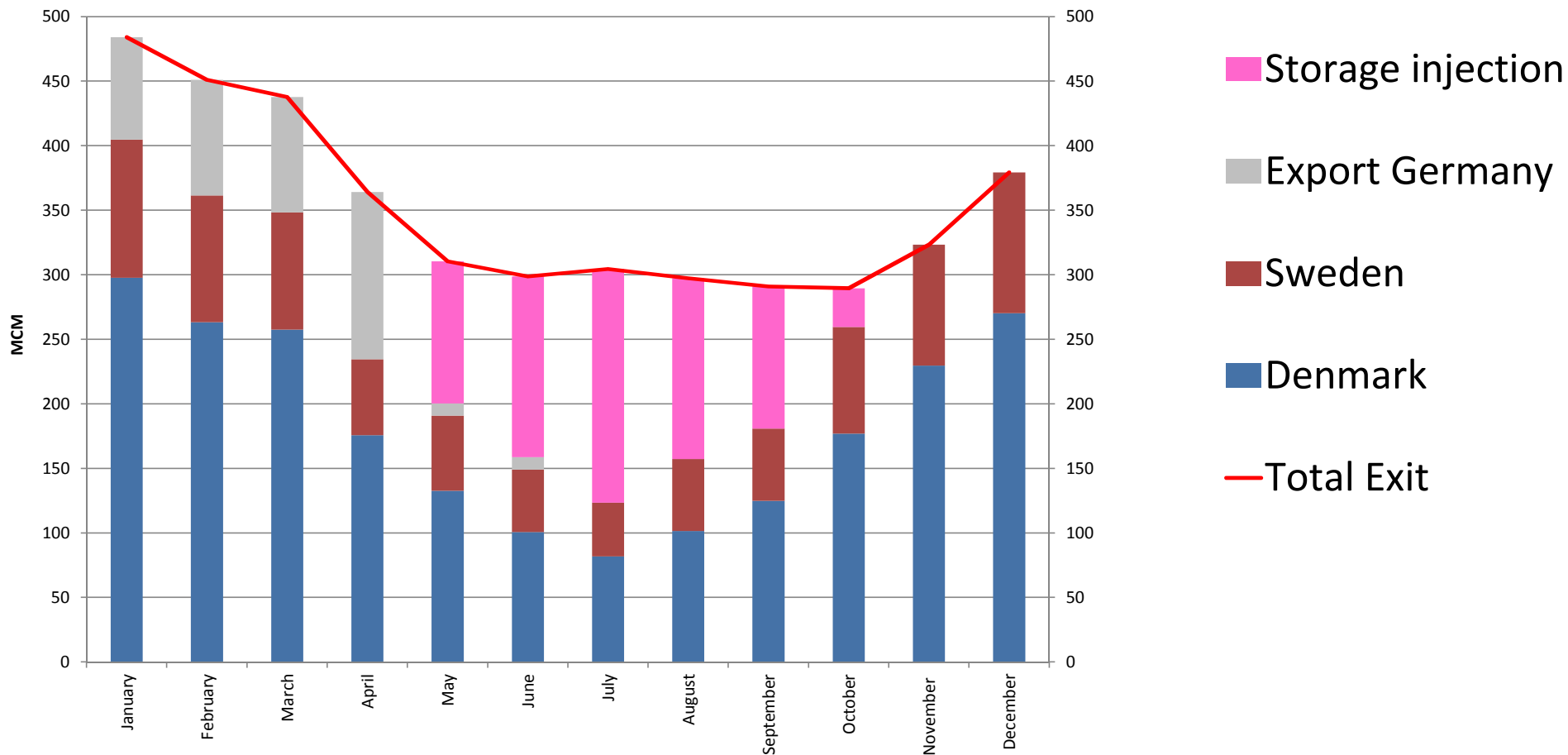


ASSUMED DANISH GAS CONSUMPTION - DANISH ENERGY AGENCY

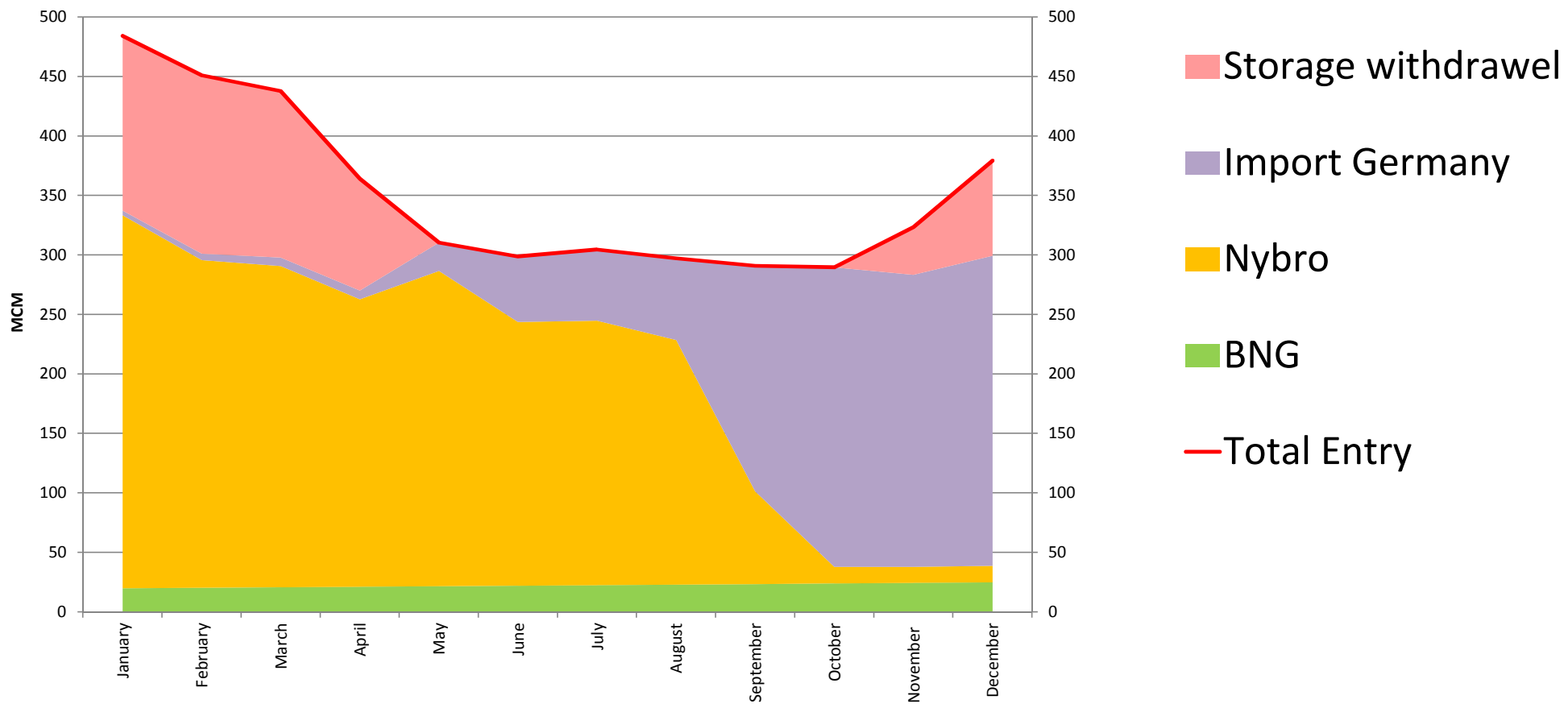
The reduction is based on expected closing of Combined Heat and Power plants (CHP).



POSSIBLE DEMAND 2019



POSSIBLE SUPPLY 2019



WHAT IS THE RISK OF MINIMUM ONE EMERGENCY DURING TYRA RENOVATION ?

The estimated risk of an emergency situation based on:

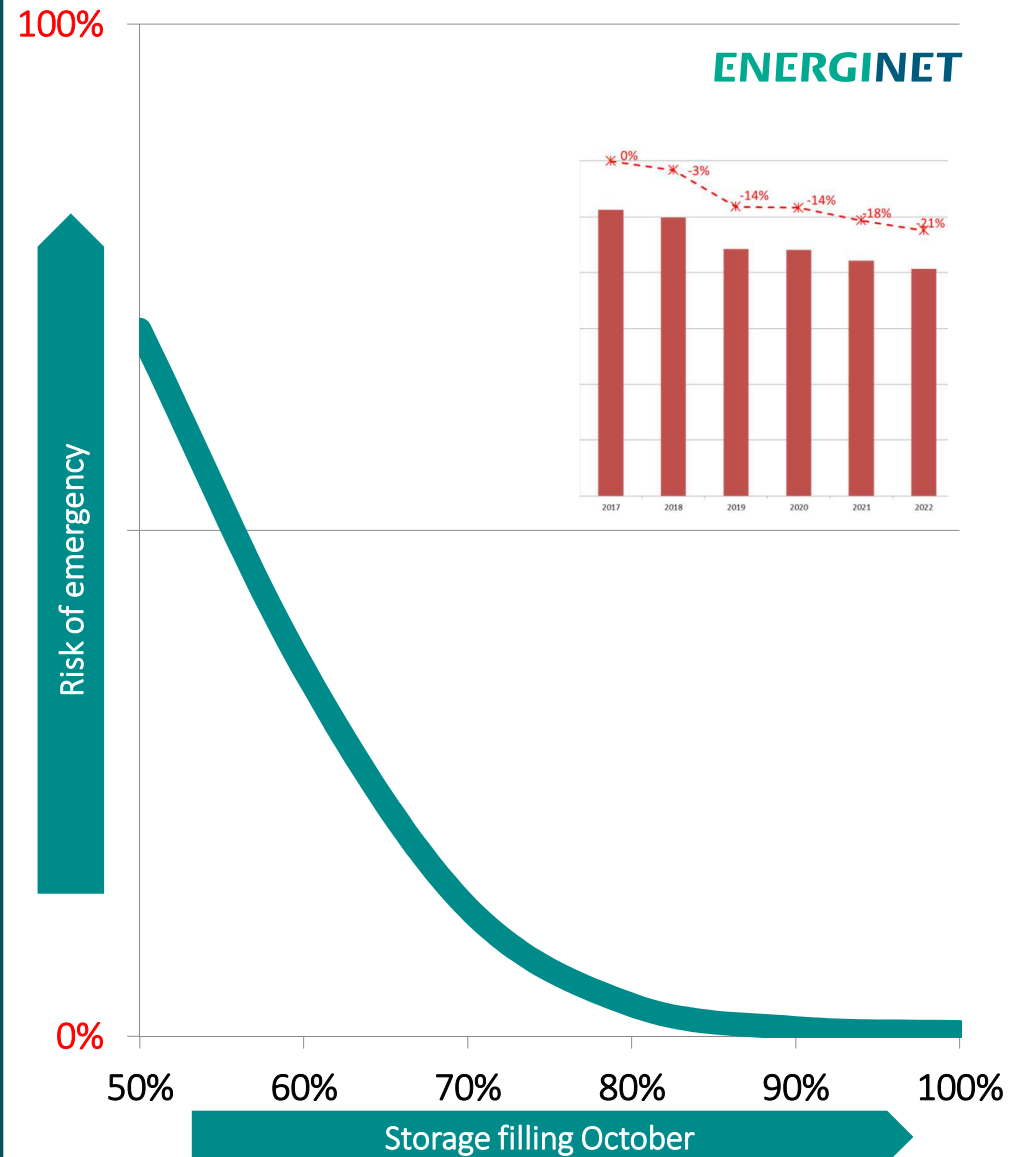
- Limited entry capacity 2019-2022
- Historical withdrawal pattern from storage
- Assumed Danish gas consumption (DEA)
- Expected temperature variations
- No technical incidents



WHAT IS THE RISK OF MINIMUM ONE EMERGENCY DURING TYRA RENOVATION ?

The estimated risk of an emergency situation based on:

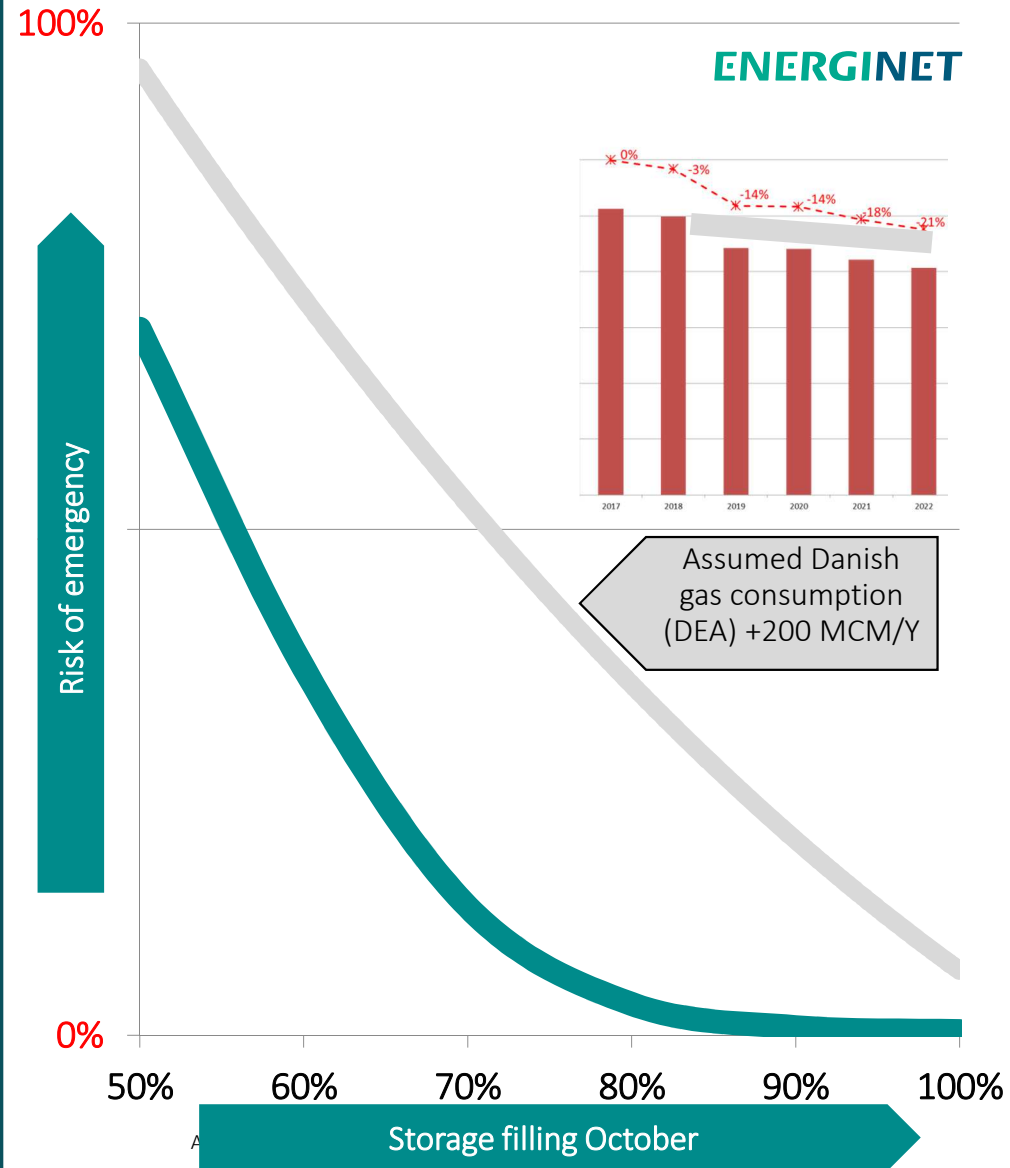
- Limited entry capacity 2019-2022
- Historical withdrawal pattern from storage
- Assumed Danish gas consumption (DEA)
- Expected temperature variations
- No technical incidents



WHAT IS THE SENSITIVITY ON CONSUMPTION (+200 MCM)

The estimated risk of an emergency situation based on:

- Limited entry capacity 2019-2022
- Historical withdrawal pattern from storage
- Assumed Danish gas consumption (DEA) **+200 MCM/Y**
- Expected temperature variations
- No technical incidents



SUPPLY SITUATION 2019-2022

Compared to supply and demand situation described in august 2017 the situation seems improved - however:

1. Denmark and Sweden will still depend on gas from storage to support demand during winter days
2. Supply of the Danish and Swedish gas market is *highly dependent* on:
 - actual consumption *decrease* as expected by The Danish Energy Agency.
 - amount of *commercial* gas stored in the Danish gas storage facilities
3. The supply situation *will be critical every year* – if the volume left in the Danish storage facilities is low. Special attention to February, March and April



QUESTIONS



Contact: can@energinet.dk



MARKET MEASURES

Christian Rutherford & Camilla Mejdahl Mikkelsen,
Energinet Gas TSO

TOPICS

- Overall timeline for implementation
- Bundled product - update
- Focus on 3 specific measures
 - Pricing of imbalances in Emergency
 - Adjustment step 2
 - Emergency workshop
- Booking situation and possible measure



OVERALL TIMELINE

When can you expect the market measures are implemented

Activity	1 quarter 2019	2 quarter 2019	3 quarter 2019	4 quarter 2019
Minimal Storage Filling – online view	1 May 2019 ★			
Emergency Workshop(s)	Mar 2019 ★	September 2019 ★		
New Secondary products at PRISMA		1 October 2019		★
Interruptible within-day nomination at Ellund		1 October 2019		★
Interruptible capacity re-introduced at Ellund entry		1 October 2019 (offered in July 2019)		★
Removal of price caps*	1 April 2019 ★			
New price for Small Adjustment step 2*	1 April 2019 ★			
New imbalance prices in Emergency*	1 April 2019 ★			

**Subject for
DUR
Approval*



BUNDLED PRODUCT

Update

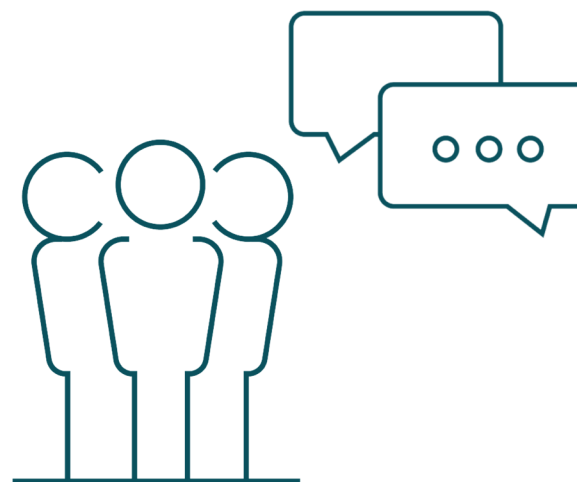
MARKET CONSULTATION - BUNDLED PRODUCT

Market consultation from 8 November to 29 November on the concept of a bundled product consisting of a storage product with filling requirements.

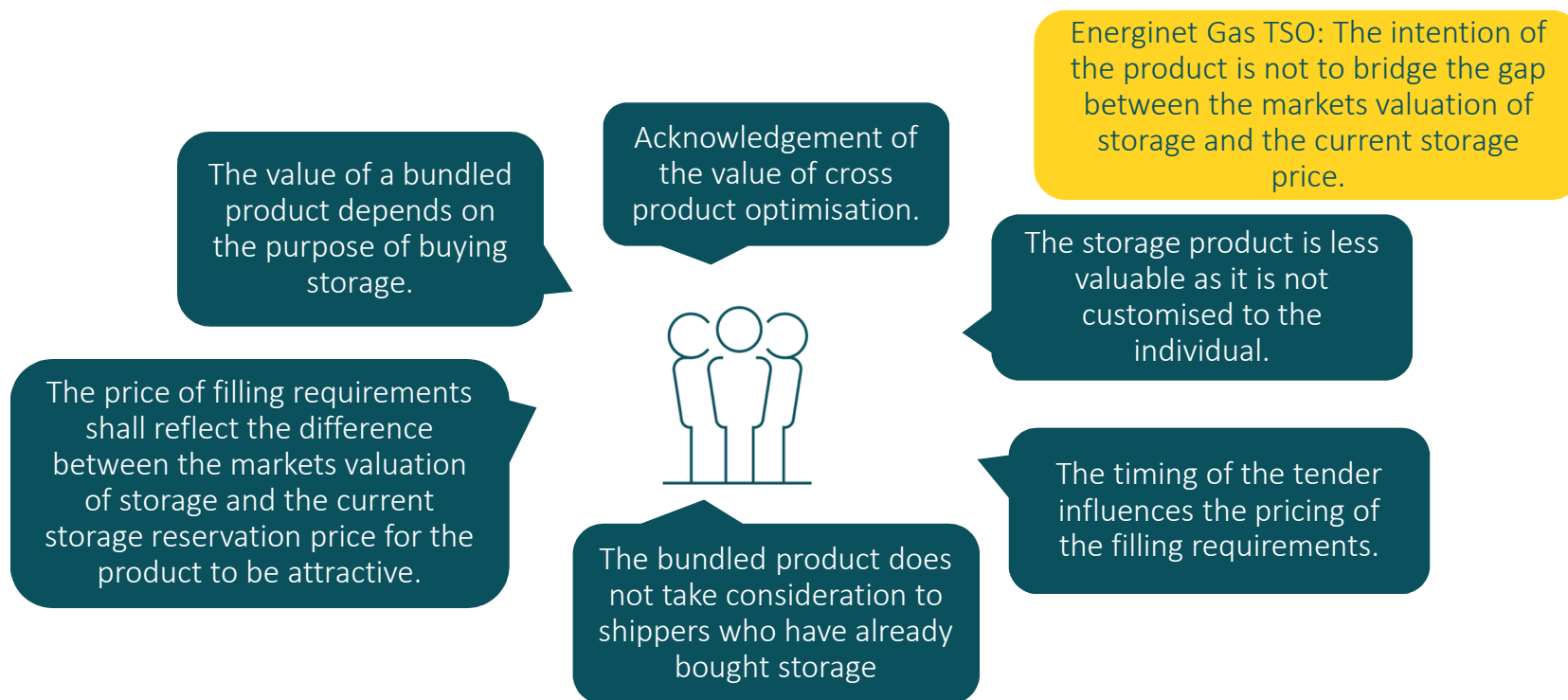
Thank you for your input!

The comments revolves around:

- The bundled product,
- Gas Storage Denmark's prices and
- Energinet Gas TSOs purchase of storage capacity for Emergency



EXTRACT OF COMMENTS TO THE PRODUCT



NOW WHAT?

Given the current situation together with the comments received Energinet Gas TSO will not develop the product further.





FOCUS ON 3 MEASURES

PRICING OF IMBALANCES IN EMERGENCY – 1 OF 2



For Exit Zone

Price today:

- Force majeure price = Neutral gas price

Price from 1 April 2019:

- Force majeure price = **New Formula***

(*the highest day-ahead index price registered at either GPN, NCG or GASPOOL during a storage year, being 1 May-30 April)



PRICING OF IMBALANCES IN EMERGENCY – 2 OF 2

For all other **negative** imbalances

Price today:

- Highest of
 - EITHER: Neutral gas price + adjustment step 1 or 2
 - OR: Marginal yellow zone trade

Price from 1 April 2019:

- Highest of
 - EITHER: **New Formula*** + adjustment step 1 or 2
 - OR: Marginal yellow zone trade

(*the highest day-ahead index price registered at either GPN, NCG or GASPOOL during a storage year, being 1 May-30 April)



ADJUSTMENT STEP 2 PRICE



Stronger incentive to stay within green zone end-of-day

New method details

- Change from a fixed percentage to a percentage per month – calculated before the gas year
- Calculated on the basis of alternative costs of sourcing gas – highest of:
 - Ellund entry day-ahead transport capacity
 - Interruptible withdrawal cost at GSD

Calculated percentage based on current prices at Ellund and GSD

Month	Percentage
October	6%
November	6%
December	6%
January	10%
February	10%
March	10%
April	10%
May	6%
June	6%
July	6%
August	6%
September	6%

2ND EMERGENCY WORKSHOP

Save the date

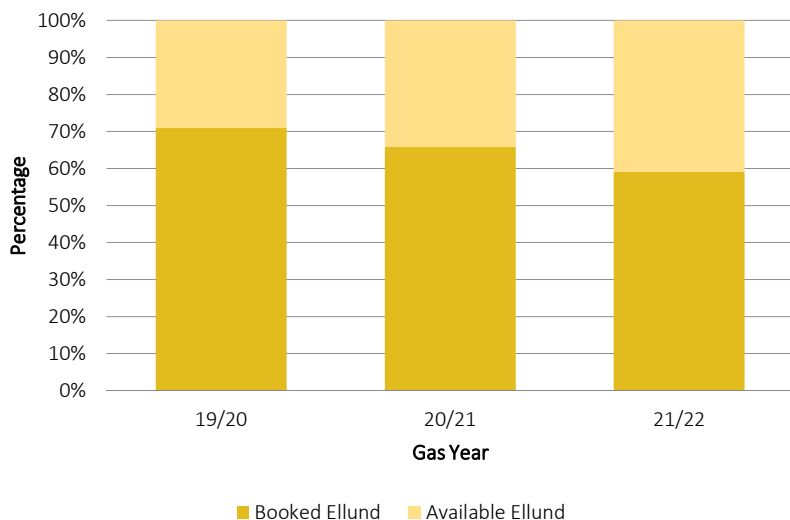
- The next Emergency workshop will be held on 7 March 2019
 - Before the Shippers Forum the same day
- Purposes
 - To follow up on outstanding questions from last workshop
 - To present crisis levels and tools, given DUR's final response on Energinet's Methods application on balancing tools



BOOKING SITUATION AND POSSIBLE MEASURE

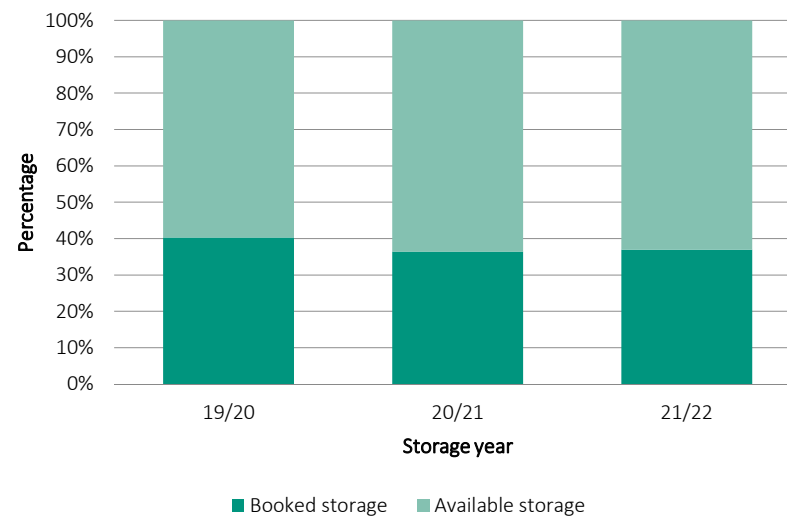
STILL LOW BOOKING PERCENTAGE

Ellund capacity - Booked and available
DE->DK*



*Percentages calculated based on bookings on German side of Ellund

Danish commercial storage capacity -
Booked and available **



**Percentages calculated based on capacities without expected TSO Emergency capacity

SEASONAL TARIFFS CONSIDERED...

...to increase security of supply

- Energinet Gas TSO are considering to (re)introduce seasonal tariffs as a temporary measure during Tyra redevelopment period - TAR NC allows for this
- Reasoning:
 - By (re)introducing seasonal tariffs we can help ensure a more efficient booking and use of the system, and thereby increase the security of supply
 - Seasonal tariffs were removed in 2016 due to the supply situation after the Ellund expansion was finalised – during the Tyra redevelopment period it is possible that Ellund might become a bottleneck again during winter

Energinet Gas TSO expect to forward model suggestion for consultation and invite for User Group, in January 2019

QUESTIONS



Contact: cmj@energinet.dk & cru@energinet.dk



SALE - STATUS STORAGE YEAR 2019

SHIPPERS FORUM 13 DECEMBER 2018

Hans-Åge Nielsen

RESULTS OF AUCTIONS IN NOVEMBER

Product: Call options with deadline on 1st March 2019 - flexibility up to 120/60 days

1st auction

Auction day: 20 November

Capacity: 1,000 GWh

Reservation price: 0,01 €/MWh

Total demand: 3,300 GWh

Market clearing price: 0,021 €/MWh

Sold out

2nd auction

Auction day: 22 November

Capacity: 1,000 GWh

Reservation price: 0,02 €/MWh

Total demand: 3,600 GWh

Market clearing price: 0,051 €/MWh

Sold out

COMPLETED AUCTIONS & SALE

SALE	DATE	OFFERED CAPACITY	PERIOD	RECEIVED BIDS	SOLD	TYPE OF THE SALE
Auction	13 Dec 2016	1 TWh	SY 2018-2023	0 TWh	0 TWh	SBUs 170/85
Auction	2 May 2018	2 TWh 2 TWh 2 TWh	SY 2019 SY 2020 SY 2021	1.3 TWh 1.3 TWh 1.3 TWh	1.3 TWh 1.3 TWh 1.3 TWh	Call Options with deadline 13/7-18
Auction	20 Nov 2018	1 TWh	SY 2019	3.3 TWh	1 TWh	Call Options with deadline 1/3-19
Auction	22 Nov 2018	1 TWh	SY 2019	3.6 TWh	1 TWh	Call Options with deadline 1/3-19
Called option	13/7-18	200 GWh	SY 2019	200 GWh	200 GWh	Capacity
Billateral sale	August 2018	100 GWh	SY 2019	100 GWh	100 GWh	Capacity with guarantee

SALE STATUS

SOLD

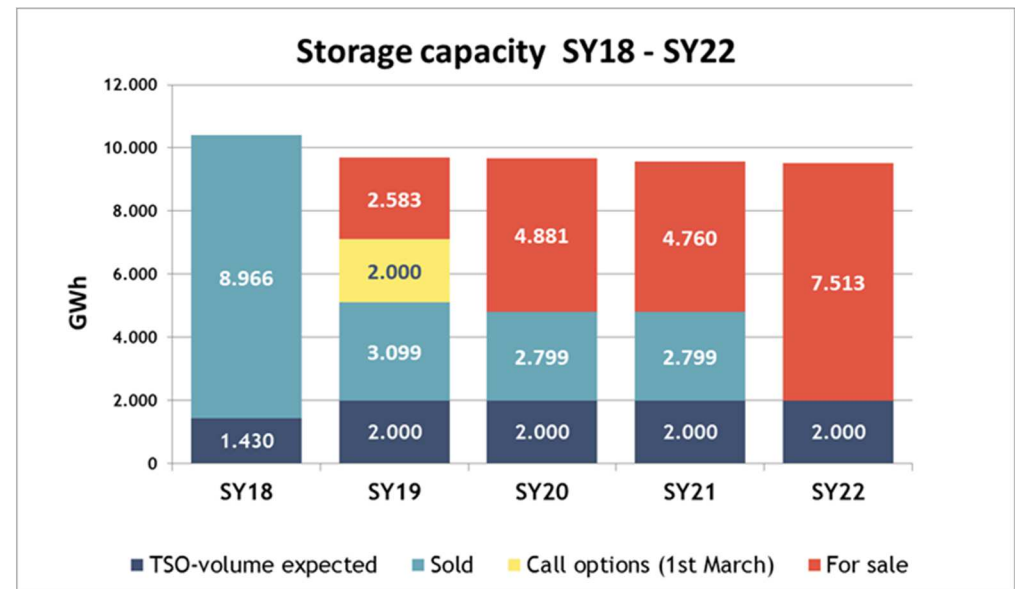
Long Term capacity inkl. SY21	2,799 GWh
SY19 Capacity	300 GWh
SY19 Call Options with deadline 1/3-19	2,000 GWh

RESERVED

2,000 GWh for TSO Emergency until 2022	2,000 GWh
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AVAILABLE FOR SALE

SY2019	2,583 GWh
SY2020	4,881 GWh
SY2021	4,760 GWh
SY2022	7,513 GWh



ACCESS TO STORAGE CAPACITY 2019

FCFS CAPACITY OFFERED via GSD's ONLINE System

- 1.5 TWh can be booked online since 4/12-2018

Capacity for negotiated agreements

- Minimum 1.0 TWh is available for negotiated agreements (contact us)

ALL CAPACITY IS OFFERED WITH PRICE GUARANTEE

- GSD guarantees transparent and non-discriminatory sale of the storage capacity

FCFS CAPACITY VIA ONLINE

- ❑ **The offered capacity is 1,500 GWh equally divided between 3 different SBUs**
 - 500 GWh 170/170 days product fixed price 2.6 €/MWh (0.01940 DKK/kWh)
 - 500 GWh 170/85 days product fixed price 3.3 €/MWh (0.02463 DKK/kWh)
 - 500 GWh 120/60 days product fixed price 4.0 €/MWh (0.02985 DKK/kWh)

The capacity will be available until sold out or until GSD chooses to take the products of Online.

❑ Price guarantee

GSD guarantees that the prices notified above are the best prices for corresponding SBU-product or for any other derived SBU-product, sold on auction or FCFS conducted by GSD in the period from 4 December 2018 to 30 April 2019

<https://gasstorage.dk/News/2018/08/21/FCFS-SY19-with-price-guarantee>

MAIN CHANGES IN RGS VERSION 13.0

- ❑ Introduction of “Online Agreement” (Appendix 5) and “REMIT Agreement” (Appendix 6)
- ❑ Thorough editing of Clauses 4-9 and 17 in order to achieve better clarification and readability
- ❑ Transfers of Injection Restrictions (old Clause 8.5) and Withdrawal Restrictions (old Clause 8.6) are no longer relevant
- ❑ Lowering the minimum Credit Limit depending on the size of the storage customer
 - GSD determines the minimum Credit Limit (!! today the Credit Limit is fixed 2 mill. DKK)
 - This Credit Limit covers at least the value of
 - a) The expected charges for booked Firm Capacity in 1 month - the month with highest value
 - b) 5% (!! today 25%) of the maximum expected charges for Interruptible Capacity (WGV, IR, WR) in 2 months - the 2 consecutive months with highest value



MARKET CONSULTATION ON RGS VERSION 13.0



**Written comments to contact@gasstorage.dk
may be sent until **Monday 17/12-2018, COB****

BREAK

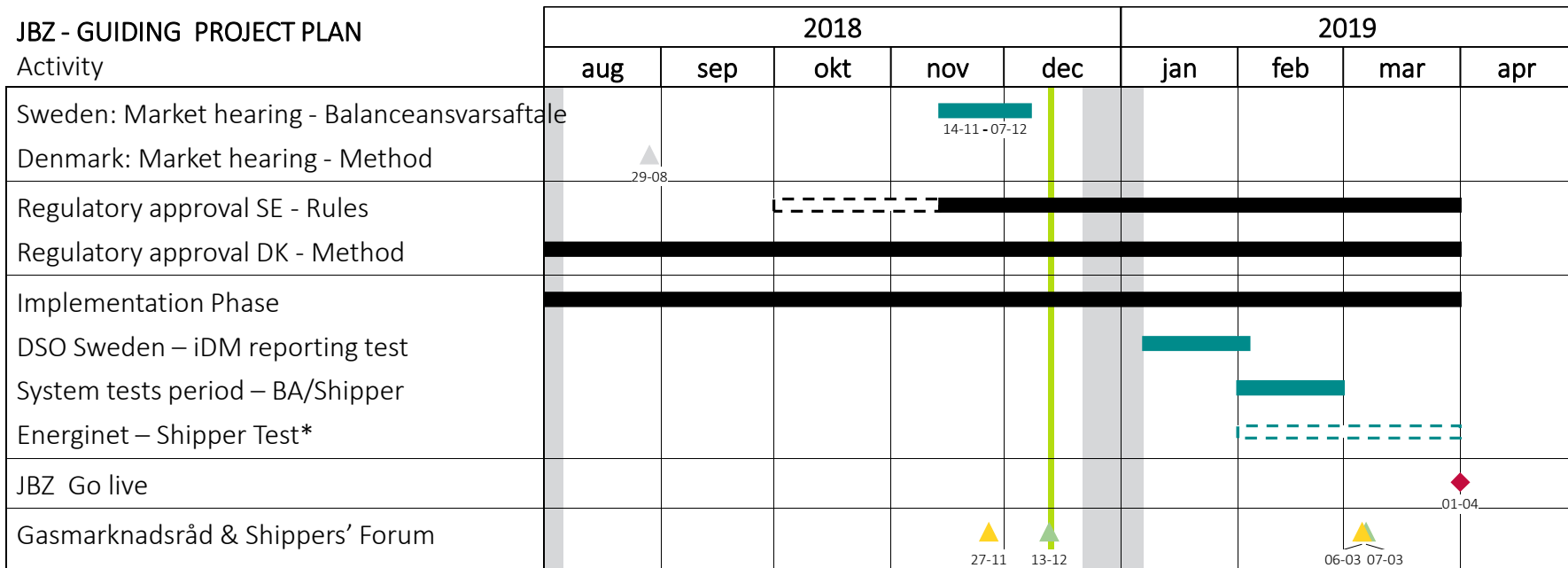




JOINT BALANCING ZONE

Signe Louise Rasmussen, Energinet Gas TSO

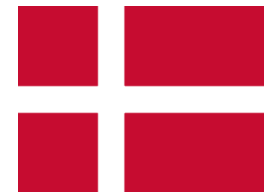
PROJECT PLAN



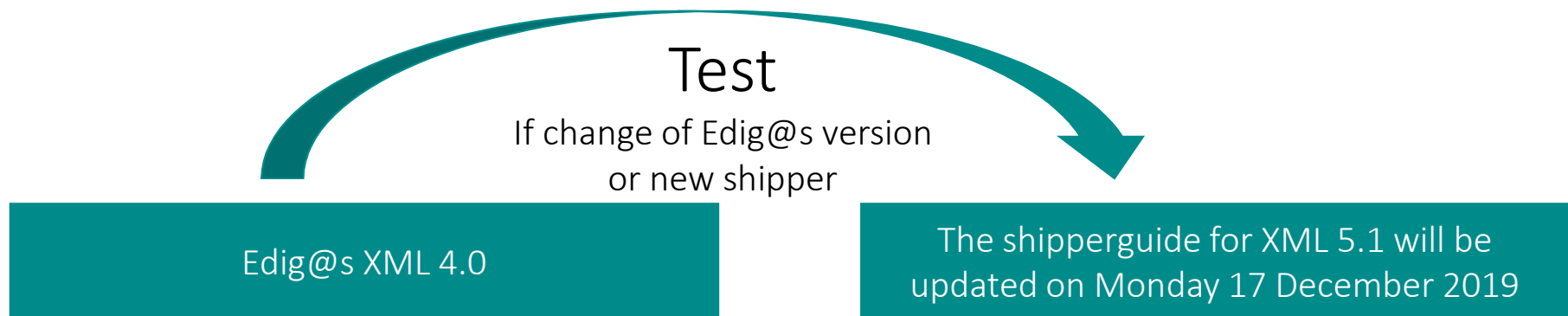
■ Holiday period *Energinet Shippers are always welcome to test the existing functions

THERE ARE NO IT CHANGES FOR DANISH SHIPPERS

If not active in Sweden



- The EIC for the Joint Exit Zone will be the same as the Danish Exit Zone today.
- Shippers nominate to the same Danish portfolios (as today) under Joint Exit Zone.
- The Danish Exit Zone changes name to Joint Exit Zone.





GENERAL CHANGES FOR DANISH SHIPPERS

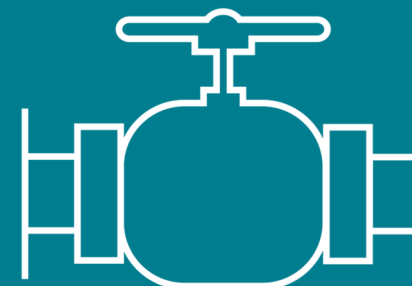
TRADES



BOOKING PLATFORM:
ENERGINET ONLINE



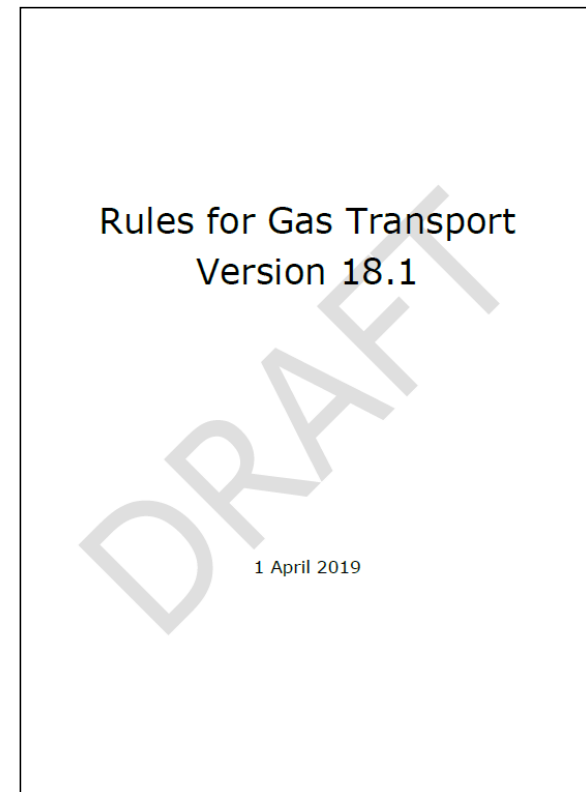
CAPACITY CONVERTED
TO JOINT EXIT ZONE



CHANGES TO RULES FOR GAS TRANSPORT

Rules adopted to JBZ published on webpage - DRAFT

Public consultation on Rules for Gas Transport
planned in March 2019



CHANGES TO PRICE LIST

Price list is divided in two – One for transport in transmission system and one for balancing gas - DRAFT

- Pricelist for balancing - Changes in price list for balancing gas is related to market measures (Tyra redevelopment)
- Price list for transmissions tariffs – A separate balancing charge (price neutral)
- Planned effect from 1 April 2019

Balancing	
Purchase and sale of balancing gas	
Definition of neutral price for balancing gas: The within-day reference price based at Gaspoint Nordic, expressed in DKK/kWh.	
- Resulting price converted into DKK/kWh using the daily exchange rate as published by Danmarks Nationalbank (the Danish Central Bank)	
Purchase price for balancing gas	
- Adjustment step 1:	Neutral gas price minus 0.5 % of the neutral gas price
- Adjustment step 2:	Neutral gas price minus 3.0 %* of the neutral gas price
- Marginal purchase price:	Lowest price of either 1) lowest traded price by Energinet in the yellow zone during the relevant gas day, or 2) the relevant adjustment price (step 1 or 2).
Sales price for balancing gas	
- Adjustment step 1:	Neutral gas price plus 0.5 % of the neutral gas price
- Adjustment step 2:	Neutral gas price plus 3.0 %* of the neutral gas price
- Marginal sales price:	Highest price of either 1) highest traded price by Energinet in the yellow zone during the relevant gas day, or 2) the relevant adjustment price (step 1 or 2).
In situations of "Early Warning", "Alert" or "Emergency", the percentages of adjustment step 1 and 2 can increase up to 100%.	
* To be updated due to new methodology	
Force majeure and emergency prices	
Force majeure price**	The highest Day-ahead Index set at either Gaspoint Nordic, Gaspool or Net Connect Germany during the current storage year (1 May - 30 April).
In case a gas supply crisis (being either Early Warning, Alert or Emergency) is ongoing, when entering a new storage year, it is still the price from the previous storage year that is valid after 1 May, until the crisis is cancelled.	
Purchase price for balancing gas	
- Adjustment step 1:	Neutral gas price minus 0.5 % of the neutral gas price
- Adjustment step 2:	Neutral gas price minus 3.0 %* of the neutral gas price
- Marginal purchase price:	Lowest price of either 1) lowest traded price by Energinet in the yellow zone during the relevant gas day, or 2) the relevant adjustment price (step 1 or 2).
Energinet's sales price for balancing gas	
- Adjustment step 1:	Force majeure price plus 0.5 % of the neutral gas price
- Adjustment step 2:	Force majeure price plus 3.0 %* of the neutral gas price
- Marginal sales price:	Highest price of either 1) highest traded price by Energinet in the yellow zone during the relevant gas day, or 2) the relevant adjustment price (step 1 or 2).
In situations of "Emergency", the percentages of adjustment step 1 and 2 can increase up to 100%.	
* To be updated due to new methodology	
** Payments covering deliveries in force majeure situations (including emergency)	

Variable charges

- Commodity charge	0,00460 DKK/kWh
- Balancing charge	DKK/kWh

The commodity and balancing components are charged at the Joint Exit Zone and exit points - not at entry.

KEEP UPDATED VIA PROJECT WEBSITE

www.energinet.dk

Energinet and Swedegas received questions

IT IMPLEMENTATION

General IT guide to Shippers, Balancing Administrators and Swedish DSOes

Read more about Energinet's Edig@s communication |

How to use the capacity model and the balancing model

QUESTIONS



Contact: slr@energinet.dk or jbz@swedegas.se

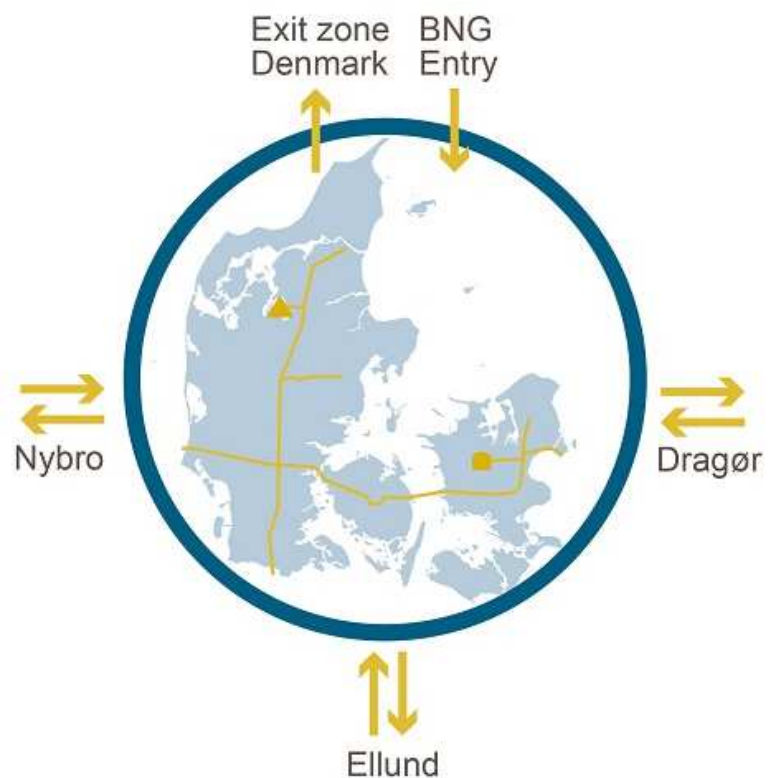


FLOW AND CAPACITY AT NYBRO

Michael Brock, Energinet Gas TSO

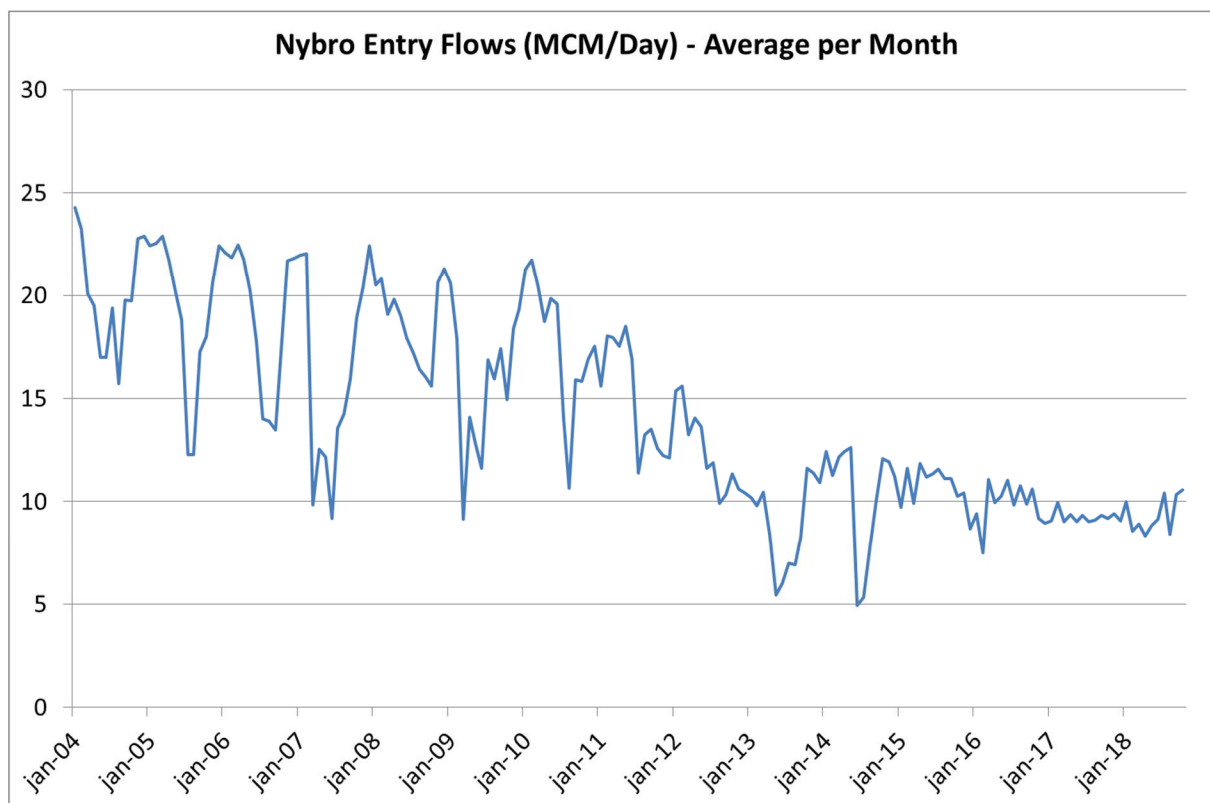
NYBRO IS THE ENTRY POINT FROM UPSTREAM

Capacity in Nybro is in effect the ability to move gas from West to East in the system



PLENTY OF SPARE CAPACITY

Currently flow at around 10 MCM/day



WITH BALTIC PIPE: HIGH UTILIZATION

But, no constraints expected!

- Utilization of system significantly improved
- This benefits shippers (tariffs)
- Ability to move gas East is essential
 - Scenario-dependent ability
 - Flow to Germany helps
- Tyra platform has export capacity of 8.5 MCM/day
 - Applicable for *all* users of Tyra platform

2022:



Baltic
Pipe



New Tyra:
< 8.5 MCM

+ Syd Arne field

CONTINUED DEPENDENCY ON TYRA PLATFORM?

Will some future North Sea field developments create new export solutions?

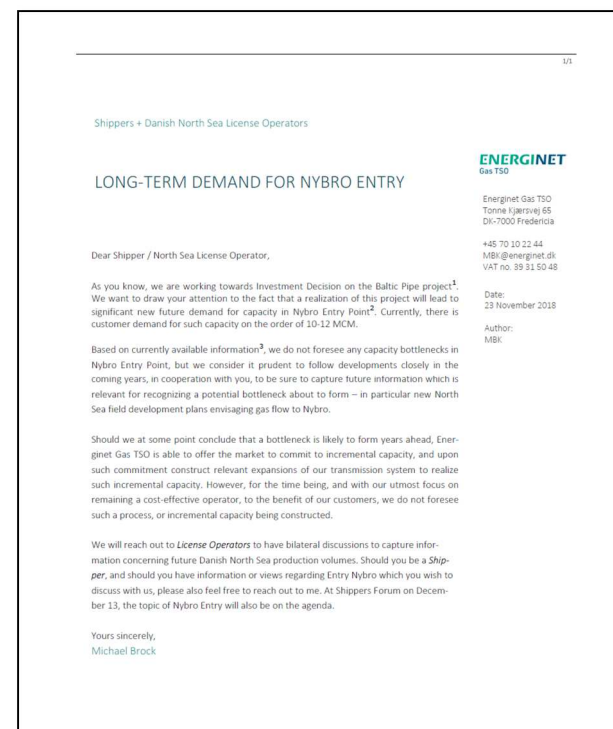
- New North Sea production, independent of Tyra platform?
- In that case, not constrained by Tyra capacity



ENERGINET INVITES TO DIALOGUE

Come to us earlier rather than later

- Avoiding TSO overinvestment onshore
- TSO radar is active from now on
- Favorable reaction time
 - Long upstream development timelines
 - Shorter onshore timelines
 - (*Potential* new pipeline Nybro – Egtved)



<https://en.energinet.dk/Gas/Shippers/Baltic-Pipe-Market>

QUESTIONS



Contact: mbk@energinet.dk



EMERGENCY STORAGE AGREEMENT 2018/19

Jeppe Danø, Energinet Gas TSO

EMERGENCY STORAGE PURCHASE 2018/19

Negotiations with GSD finalised. Agreement and legal opinion and description on cost plus price setting soon to be finalised and published.

Storage Purchase 2018/19	Volume [GWh]	Price[MDKK]
Emergency volume	935	22.9
Emergency supporting volume	495	8.7
Emergency withdrawal capacity	All available	17.5
Filling requirements	910	3.1
Total	2,340	52.2

- Cost plus for emergency volume and withdrawal capacity
- 72,5 % of cost plus price for supporting volume capacity
- Restrictions on commercial withdrawal

RESULTS OF TWO TENDERS

1. Emergency gas

- Actual purchase: 492 GWh
- Average price: 28.23 €/MWh
- On last Shippers' Forum, Energinet expected to purchase up to 110 GWh
 - Increased due to expected new emergency storage agreement
- Tender was on **2 October 2018**
- Tender by a pay-as-bid auction

2. Individual filling requirements

- Actual purchase: 910 GWh
- Average price: 0.46 €/MWh
- Tender was on **3 October 2018**
- Tender by a pay-as-bid auction

QUESTIONS



Contact: jda@energinet.dk

Towards a new EU gas package in 2020

Energinet Shippers Forum

December 13, 2018

Jan Ingwersen

ENTSO-G



Overview Gas Package 2020 Related Activities

EC



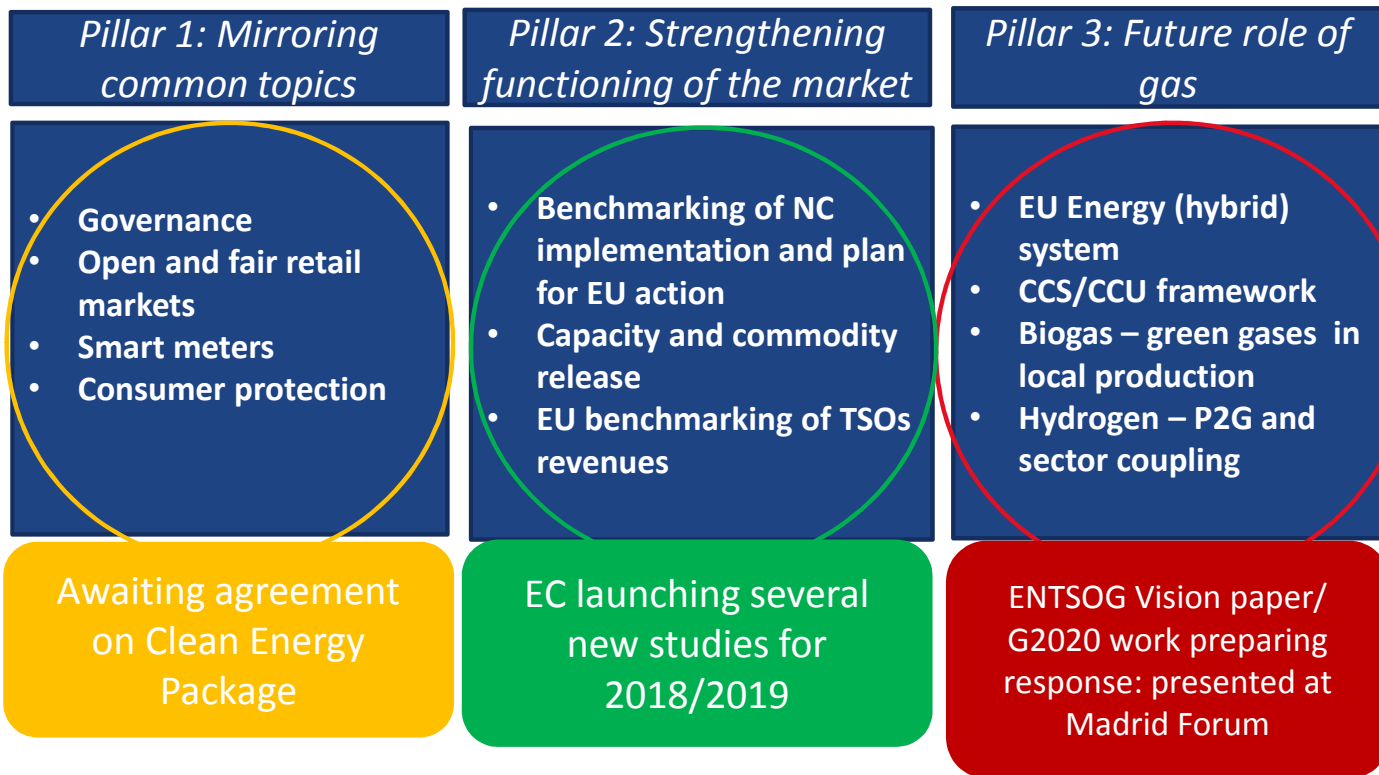
Timing:
Decision of New European
Commission (Nov 2019)

ENTSOG



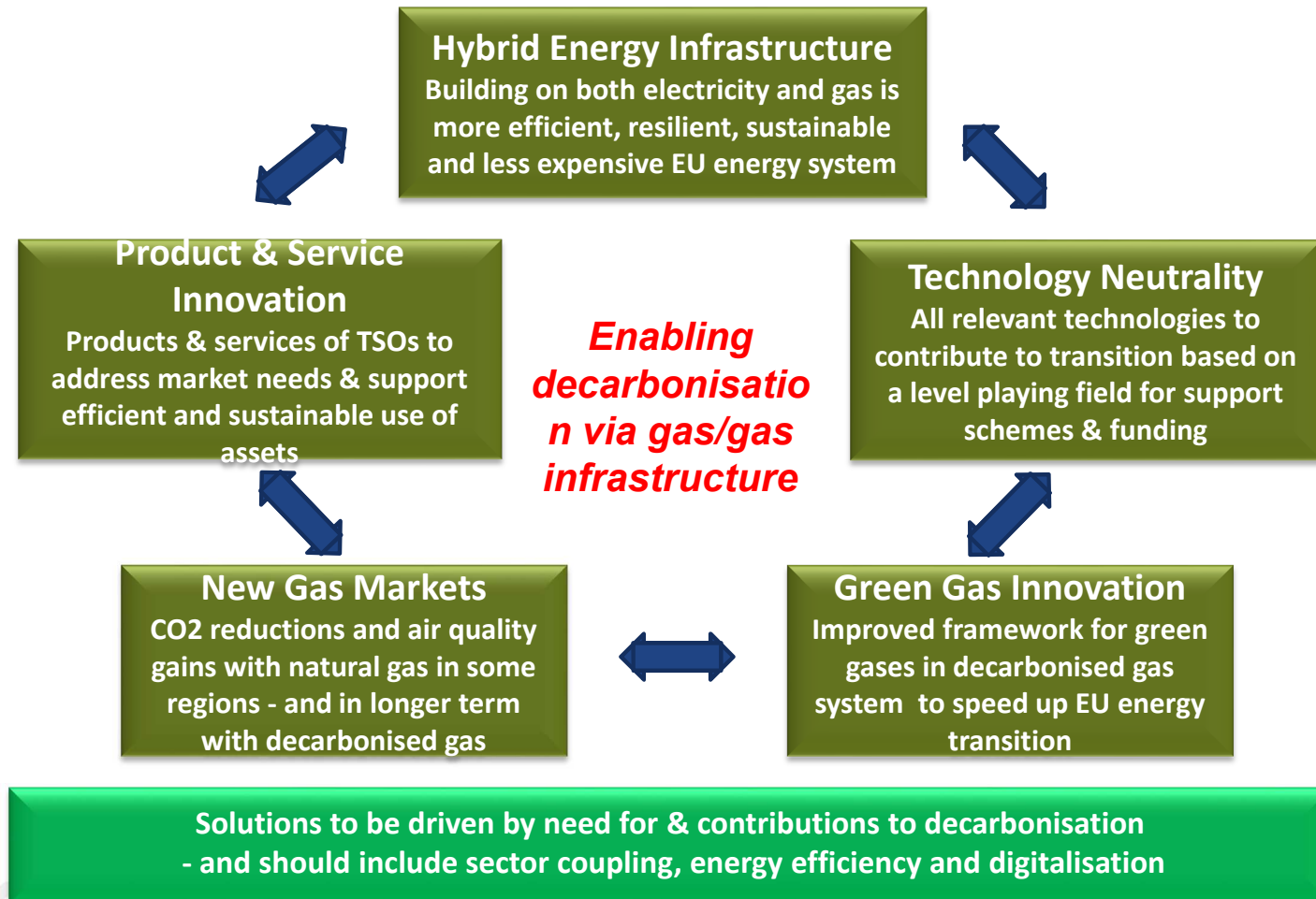


Scope of G2020 Package





ENTSOGs Themes for Gas Package 2020





Some quantification of gas potentials

Further EU-wide substantiation needed

Cost efficiency with green gases vs. full electrification in studies:

- Pöyry 2018 Decarbonisation Study estimates 94 B€/y savings for EU
- Ecofys 2018 "Gas for Climate" study estimates 138 B€/y savings for EU
- Frontier Economics 2017 Green Gas Study estimates 12B€/y savings for Germany

European-wide exchange and storage of renewable energies via the gas infrastructure



1 000 GW
cross-border capacities
>100% of EU demand

Gas cross-border transmission capacity equals more than 3x current wind/solar capacity



270 GW
EU wind & solar capacity



1 100 TWh
EU Gas storage capacity

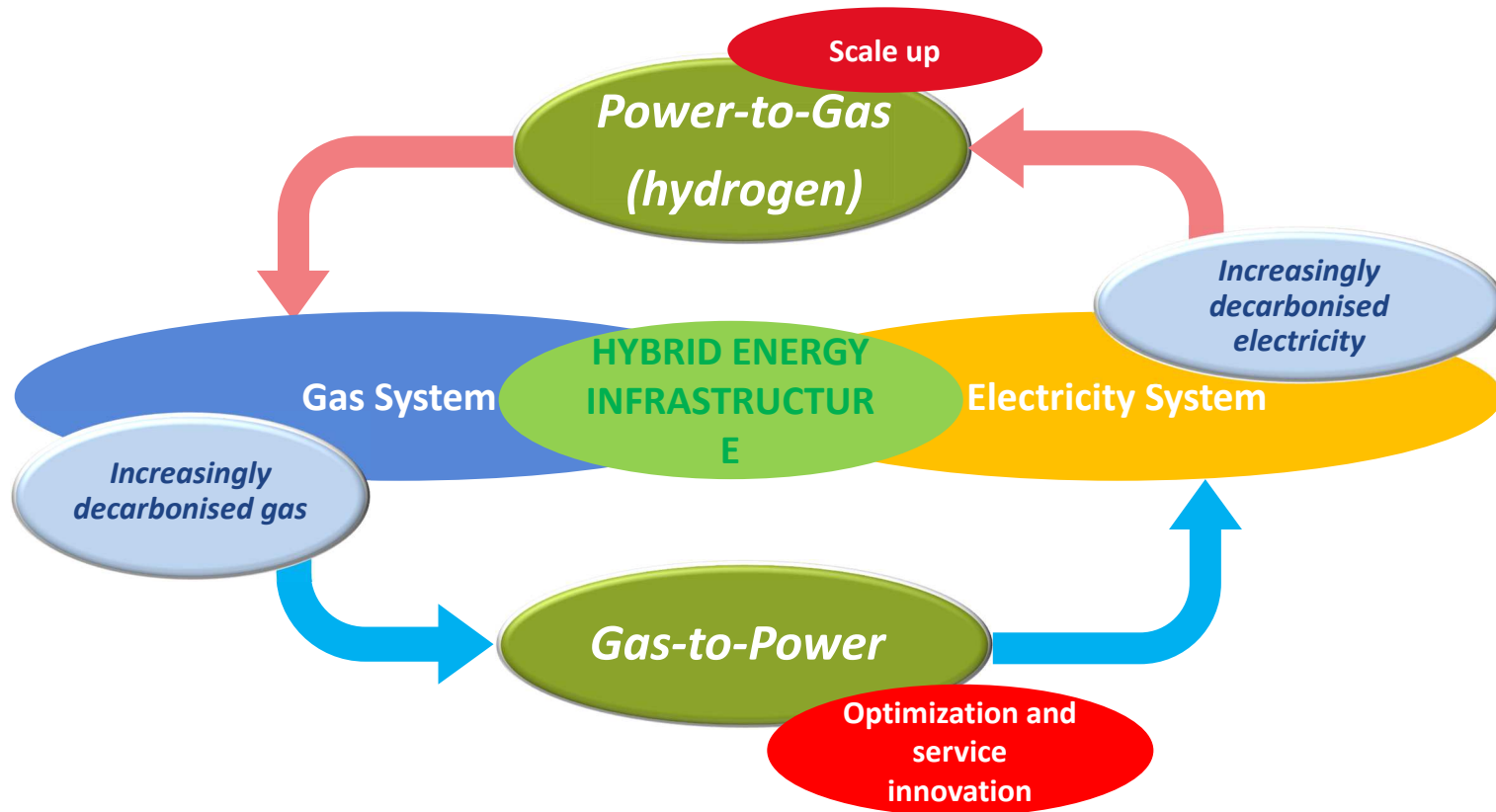
Gas storages equals 3x annual energy production from current variable e-RES



372 TWh
EU wind & solar generation 2016



Electricity and gas sector integration





ENTSOG Messages for Gas Package 2020

- *Energy policy building on an EU hybrid energy carrier system - utilizing electricity and gas assets efficiently and obtaining improved flexibility and security of supply => lower consumer costs*
- *Improve sector integration between electricity and gas, including transport and heat*
- *Obtain better regulatory coordination of electricity and gas on both EU and MS level*
- *Ensure level playing field for clean energy technologies, including support schemes and EU-wide certification system for renewable and decarbonized gases – both including H2*
- *Incentivize TSO product/service innovation - meeting needs to decarbonize EU energy system and to facilitate sector integration*
- *Clarify role of grid operators in facilitating decarbonizing of EU energy system – including scaling up R&D/pilot projects, investing & operating P2G and biogas facilities etc.*

ENTSOG suggests giving high priority to

- **enabling sector integration in practice**
- **decarbonizing gas/gas infrastructure**



Thank You for Your Attention

Jan Ingwersen
General Manager

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FINAL REMARKS

Clement Johan Ulrichsen, Energinet Gas TSO

ENERGINET

E-WORLD 2019

- We will be there on 5 and 6 February
- Please contact us for a meeting
- Send an email to gasinfo@energinet.dk



SHIPPERS' FORUM 2019

7 March 2019

6 June 2019

5 September 2019

5 December 2019

For more information go to:

<https://en.energinet.dk/About-us/Events>

