SHIPPERS' FORUM

10 December 2020

WELCOME

Clement Johan Ulrichsen, Energinet Gas TSO

PROGRAMME

13.00 **Welcome**
Clement Johan Ulrichsen, Energinet Gas TSO

13.15 **Baltic Pipe**

Project status
Johnny Thomas Holst, Energinet Gas TSO

Overview of PGNiG Capital Group activities
Marek Woszczyk PGNiG Upstream Norway AS

Methodology and tariffs in the Danish market model
Poul Johannes Poulsen, Energinet Gas TSO

Balancing model 2022
Julie Frost Szpilman, Energinet Gas TSO

14.10 **The Tyra redevelopment**
Claus Møller Petersen, Energinet Gas TSO

14.20 **The Danish Utility Regulator informs about pending cases and topics in the pipeline**
Peter Lyk-Jensen , The Danish Utility Regulator

14.35 **Gas Storage Denmark**
Mads Vejlby Boesen, Gas Storage Denmark

15.00 **Gas Distribution in Denmark**

Evida and biomethane in Denmark
Henrik Brask Pedersen, Evida

15.20 **Closing remarks**
Clement Johan Ulrichsen, Energinet Gas TSO

NEW GIE PRESIDENT

- Torben Brabo is the new president of Gas Infrastructure Europe
- Torben Brabo is also the CEO of Energinet Gas TSO
- Gas Infrastructure Europe is representing 70 member companies in transmission pipelines, storage facilities and LNG terminals.

NEW REPORT

SECURITY OF GAS SUPPLY 2020

The security of supply is still high and the gas supply situation to Denmark will remain robust – also given the postponed reopening of the Tyra platform

Publication
Before Christmas on Energinet's website

FUTURE ELLUND SOUTHBOUND CAPACITY

Energinet discussion with Gasunie Deutschland to reinstall firm capacity when Tyra is redeveloped

- Consultation document from Energinet led to process to find a solution for possible future demand for southbound capacity – involving the regulators in Denmark and Germany
- 3 main reasons for capacity reduction:
  - General: German market merger
  - Specific for Ellund: investments needed in Ellund compressor
  - Specific for Ellund: possible future LNG terminals in North of Germany
- GUD is currently recalculating future scenarios on a “reasonable endeavor” basis to reinstall firm capacity to a satisfying degree – an agreement is feasible but not yet in place
- Possible escalation if no agreement between Energinet and GUD is reached

NEW GERMAN GAS QUALITY STANDARD?

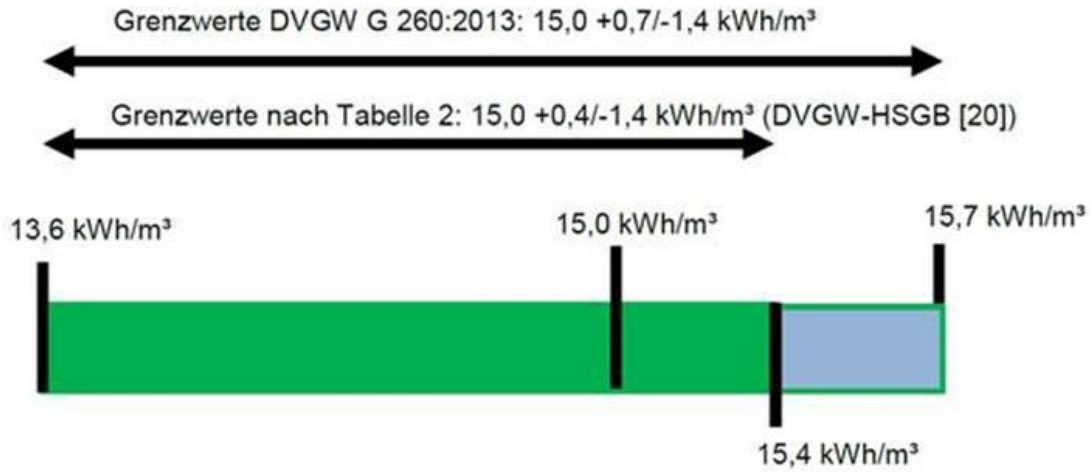
Public consulation from the German Association for Gas and Water (DVGW) of an amended industry standard on the composition of fuel gases in public gas supply "*G 260 Gasbeschaffenheit*"

Consultation draft:

- The upper limit for Wobbe index reduced from 15.7 to 15.4 kWh/Nm3 - compared to 15.5 in Denmark
- Vague formulation that entry points with higher Wobbe can have an exception.

In the consultation, Energinet will state a need for an upper limit of 15.5 kWh/Nm3 - to maintain and preserve the current gas quality specification for south bound flow.

The standard is in public consultation until 15 December 2020.



MORE FIRM CAPACITY AT ELLUND ENTRY

Increase of 1.65 GWh/h to maximise possible flow at Ellund

- Gasunie Deutschland have increased firm capacity at Ellund Entry for much of the gas year
  - on a short-term basis during due to a more dynamic approach towards capacity calculation
- To match this for bundled and unbundled capacity, Energinet has reassessed the entry capacity at Ellund
- Result: Energinet is able to increase the total firm capacity level from 7.7 GWh/h to 9.35 GWh/h = increase of 1.65 GWh/h
- Increase will at least be valid from 12 December 2020 (offered 11 December) and the rest of the current gas year
  - will be considered for following gas years

GREEN GAS LOLLAND-FALSTER

Nothing new to add. Project awaiting political process.

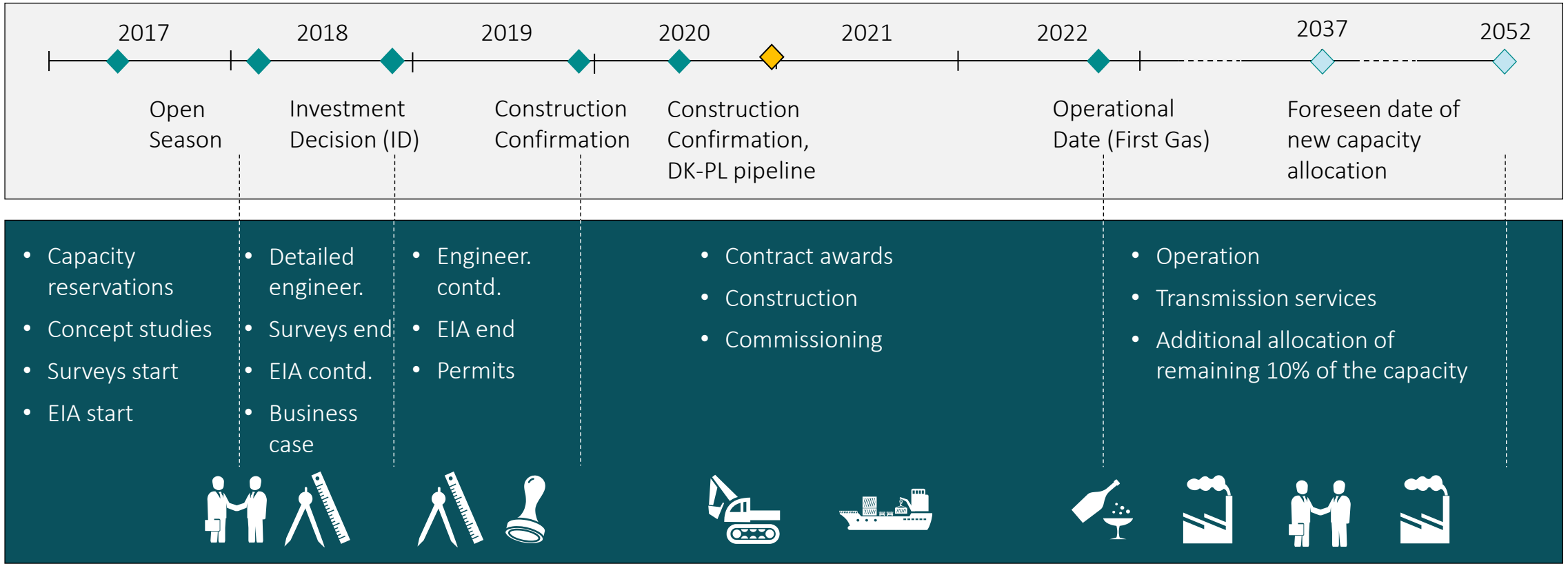
QUESTIONS

Contact: cju@energinet.dk

BALTIC PIPE

Johnny Thomas Holt, Energinet Gas TSO

HIGH LEVEL SCHEDULE – ON TRACK



BALTIC PIPE PROJECT SCOPE OVERVIEW (EN)

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

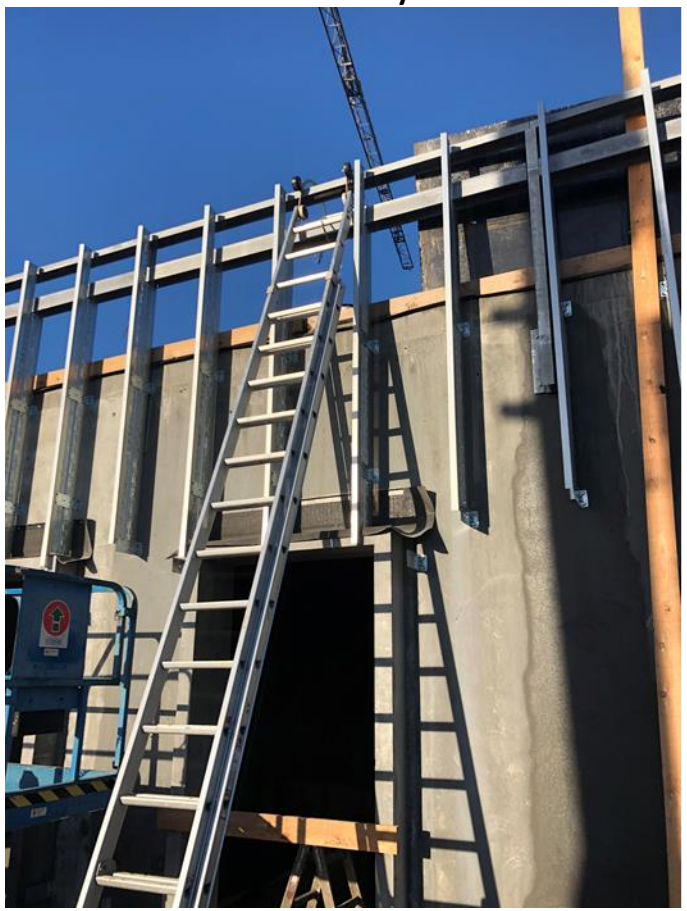
5. Expansions of the Polish gas transmission system

NORWEGIAN TIE-IN – PROGRESS

4600 of total 8750 pipes for the North Sea offshore pipeline have been recieved at Esbjerg Port

GAS TERMINAL UNDER CONSTRUCTION

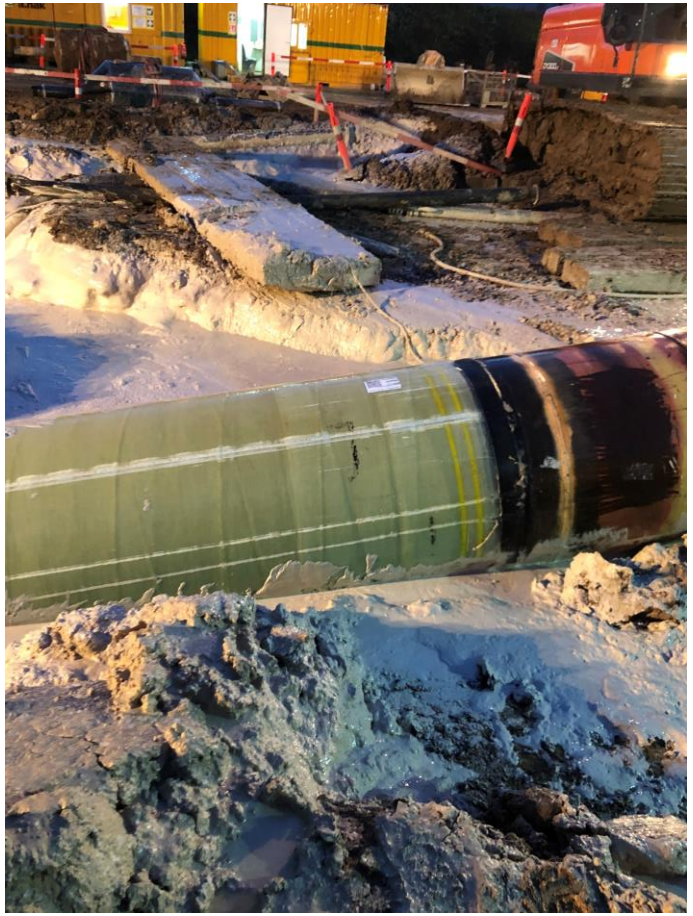
Gas Terminal Installation at Nybro



CROSSING OF HOUSTRUP BEACH COMPLETED

LILLE BÆLT CROSSING COMPLETED

ZEALAND ACTIVITIES ONGOING



COMPRESSOR STATION UNDER CONSTRUCTION

Activities in progress and completed:

- Process Plant – Construction started. Civil works for foundations of service and compressor buildings are ongoing. Engineering and procurement ongoing and following plan
- Administration & Storage buildings – Detailed design has commenced and the outline proposal is completed
- Compressor fabrication – Seal Gas Panel, Rotor & Impeller tests are completed successfully for all units. 1st compressor test run and 1st motor test run completed successfully

Activities planned until February 2021:

- Process Plant – Engineering complete
- Administration & Storage – Tender detailed design complete & Tendering initiated
- Compressor fabrication – Test run and final assembly of gears complete
- Power Supply – Civil construction complete & Electrical installation initiated

DEFI

LINK TO POLAND ON TRACK

CONCLUSION

Activities in progress and completed:

- Houstrup HDD – Installation of pipeline ca. 750 m under the dunes was challenging. Successful HDD pull-in achieved
- Lillebælt Crossing – Pipeline pulled across Lillebælt. System pressure-tested and accepted
- Jutland & Funen Onshore Pipeline – Revised tenders received from 3 qualified tenders. Contract for Jutland installation awarded
- Vasegrøften HDD - successful pull-in of the complex ca. 1000 m long pipe
- Zealand Pipeline Installation, 25 km Pipeline laid and backfilled. Completion postponed to summer 2021

Activities planned until February 2021:

- Contract for Funen installation awarded
- Lillebælt reinstatement complete
- Houstrup reinstatement complete
- Jutland, contractor engineering complete
- Jutland & Funen construction of pipe storage site complete

QUESTIONS

Contact: jth@energinet.dk

Polish Oil and Gas Company („PGNiG")

Overview of PGNiG Capital Group activities

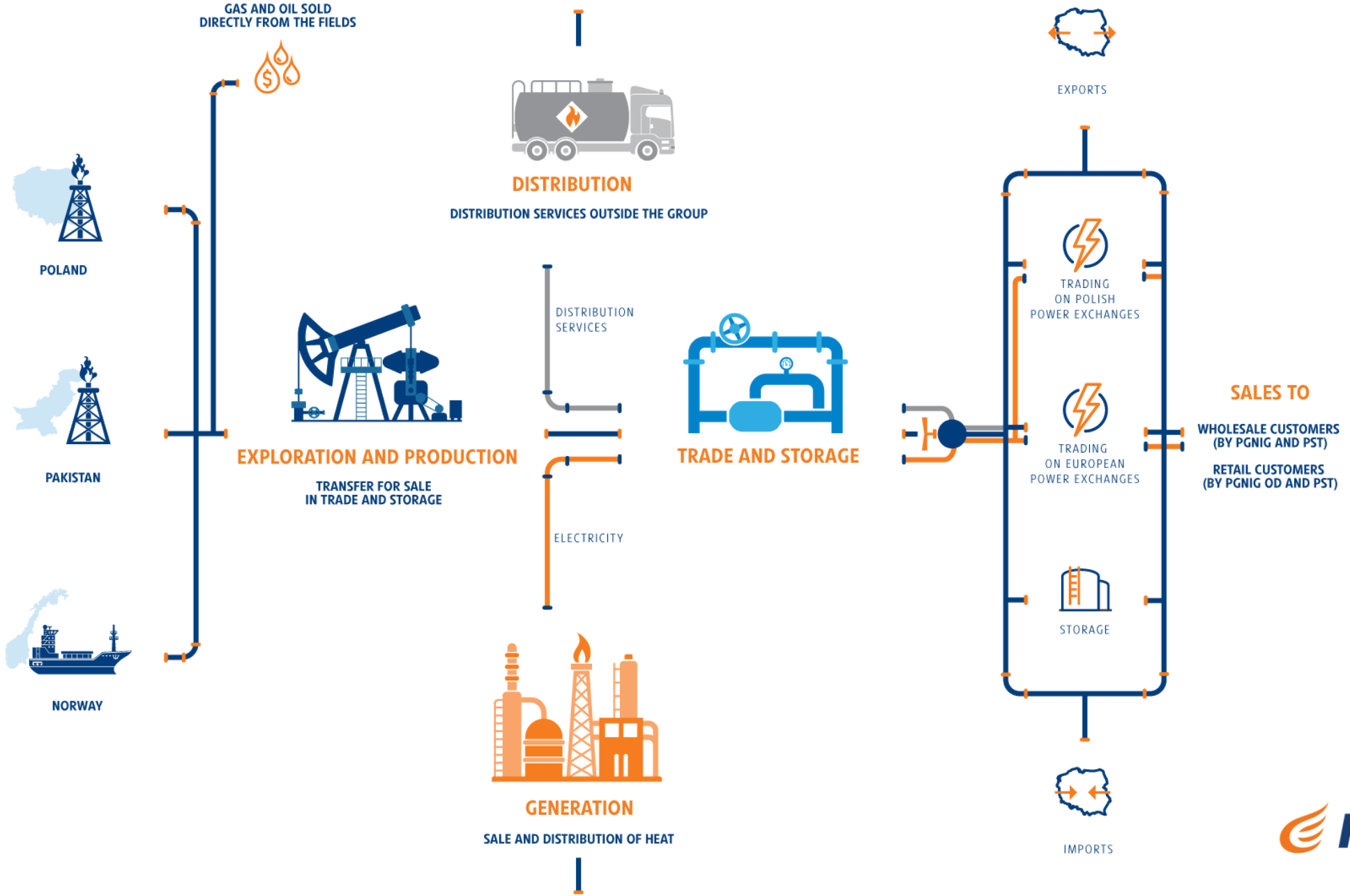
10 December 2020

Agenda

1. PGNiG Capital Group
2. Natural Gas Demand in Poland
3. Strategic Objectives
4. PGNiG Wholesale Branch
5. PGNiG Supply & Trading
6. PGNiG Upstream Norway
7. Summary & invitation to cooperation

PGNiG Capital Group

Poland’s no.1 integrated group in the oil and gas sector



Leader in production of gas and crude oil in Poland

PGNiG's resource base in Poland**:

- proved gas reserves: 557 mm boe (86.4 bcm)
- proved oil reserves: 113 mm boe (15.4 m tonnes)

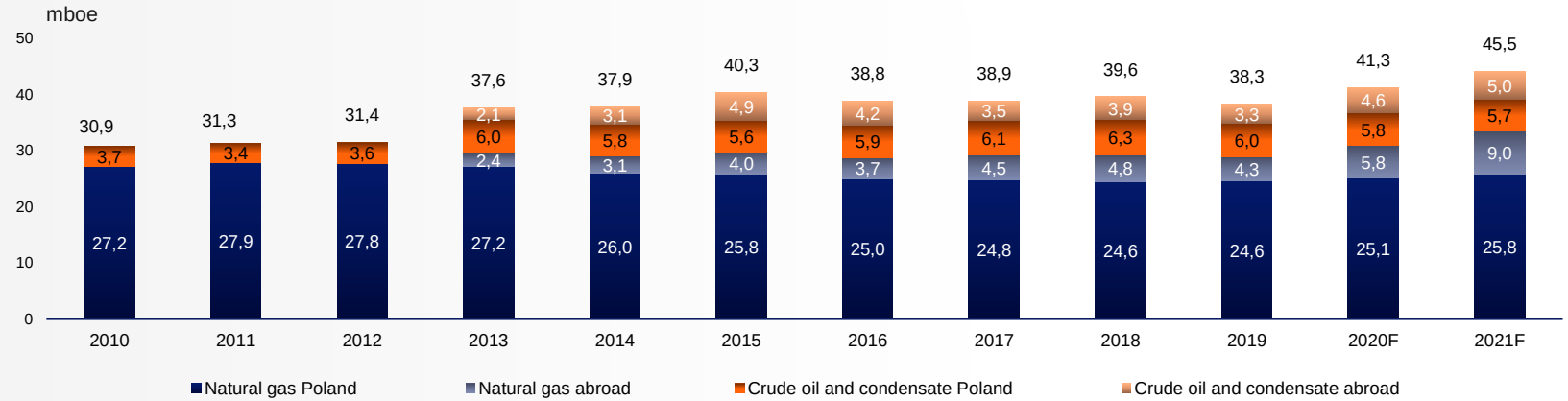
Oil & Gas concessions in Poland**:

- 12 exploration/appraisal
- 35 combined licences

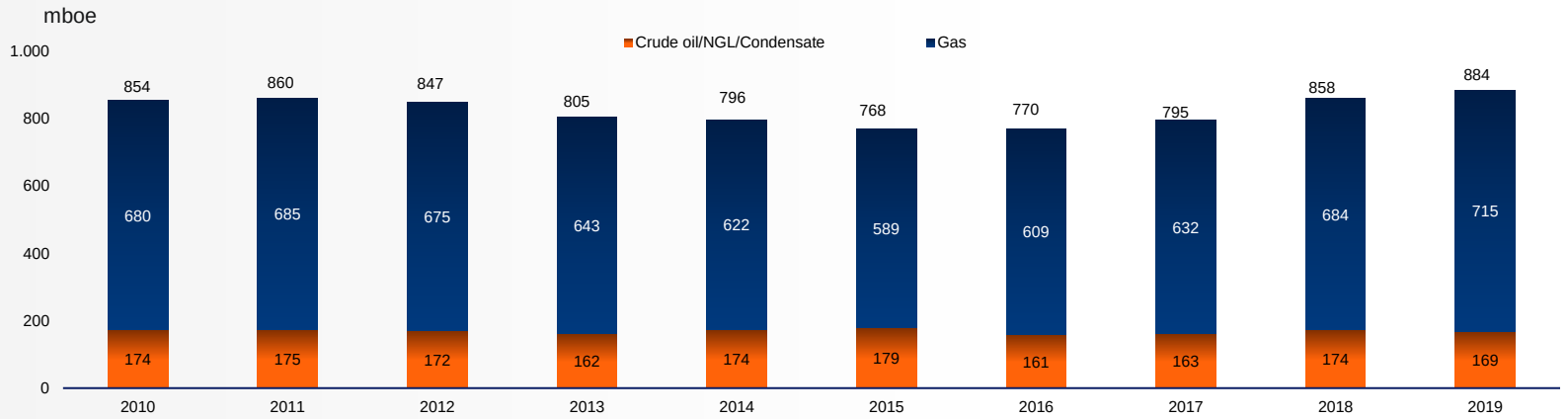
Exploration & Production activities:

- 54 production facilities in Poland
- over 2 thousand producing wells

Production volumes*



Reserves of natural gas and crude oil

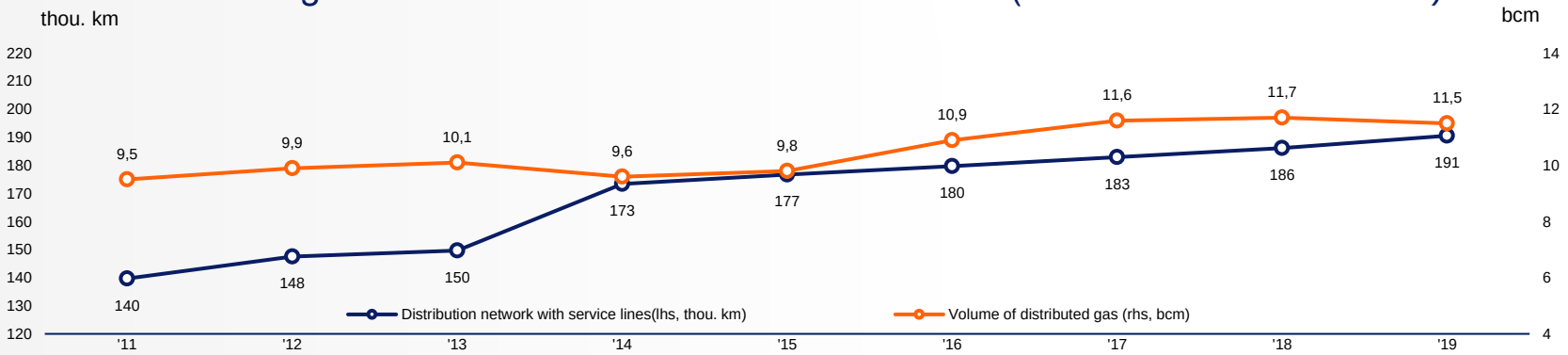


*High-methane gas equivalent / **As at December 31st 2019

Distribution

- Owner of approximately 97% of Poland's distribution network and nearly 99% of the gas service lines*.
- Transports natural gas from gas sellers to households, industrial and wholesale customers.
- Responsible for operation, maintenance and development of gas pipelines.
- Segment comprises of Polska Spółka Gazownictwa (PSG).

Stable network's growth and increase of distributed volumes (+2.3% CAGR 2005-2019)



Coverage of distribution network (ca. 64,4% of Poland)

Tariff:

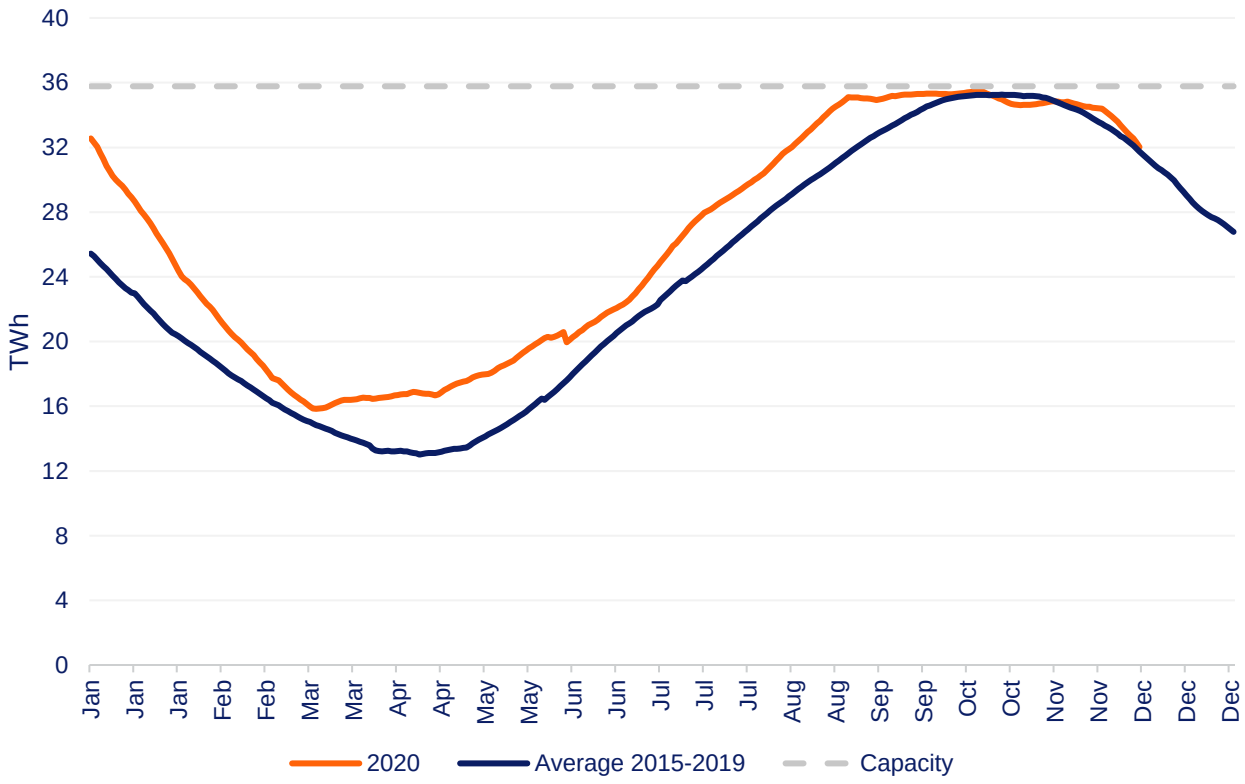
- Tariff No. 8 approved by the President of the Energy Regulatory Office in March 2020 and has applied from April 3rd 2020.
- Cost + return on capital (6.0% WACC x PLN 13.1bn RAB)

* As at December 31st 2017

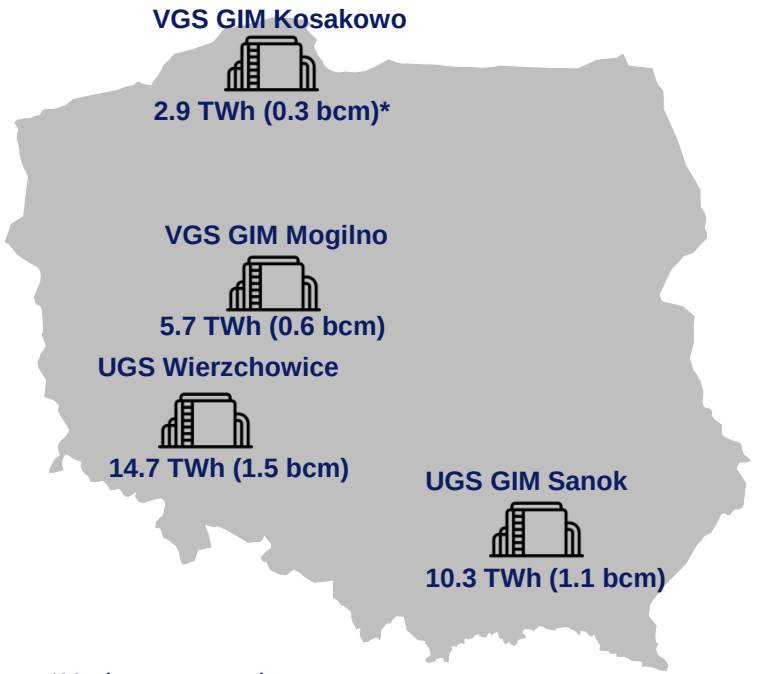
Gas storage

- Owner of all UGS sites in Poland which are operated by subsidiary Gas Storage Poland sp. z o.o.

Volume of natural gas in Polish storages



Capacities of natural gas storages



*Under construction

Total capacity: 31.3 TWh; 2.85 bcm

Source: https://agsi.gie.eu/#/historical/PL, http://en.pgnig.pl/trade/ticketing-service/underground-gas-storage-facilities

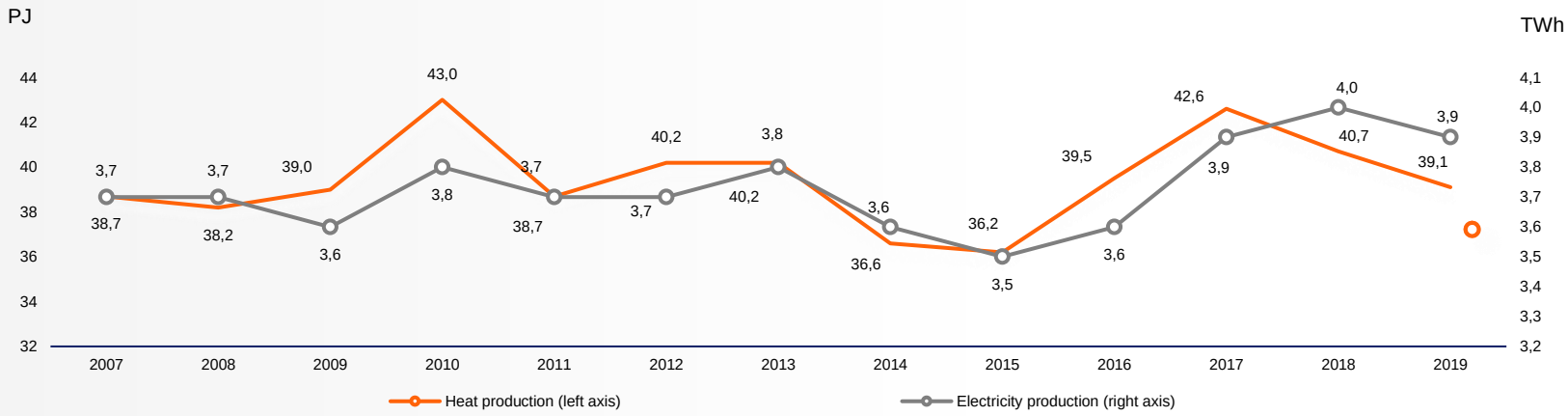
Heat and Power Generation

- Share on the domestic market*:
  - heat power 10%
  - volume of heat sales 11%
- Share on the Warsaw market:
  - largest producer of heat and electricity in cogeneration
  - estimated coverage of total heat demand about 70%
  - estimated total electricity demand around 50%
  - heat supplied to the city network about 98%.

PGNiG Termika Group operating data

Installed heat power	5.1 GWt
Installed electric power	1.2 Gwe
Heat sales in 2019 (regulated)	39.3 PJ
Produced electricity sales in 2019	3.9 TWh

Production of heat and own generation electricity

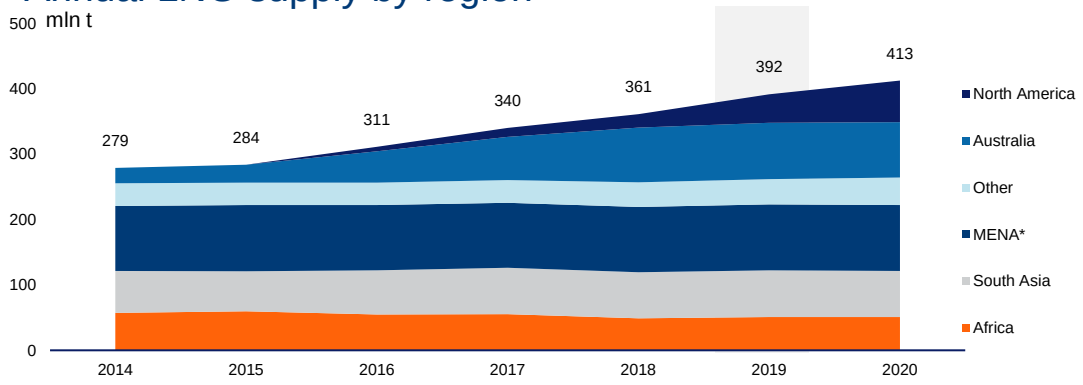


* Source: Thermal energy in numbers 2018

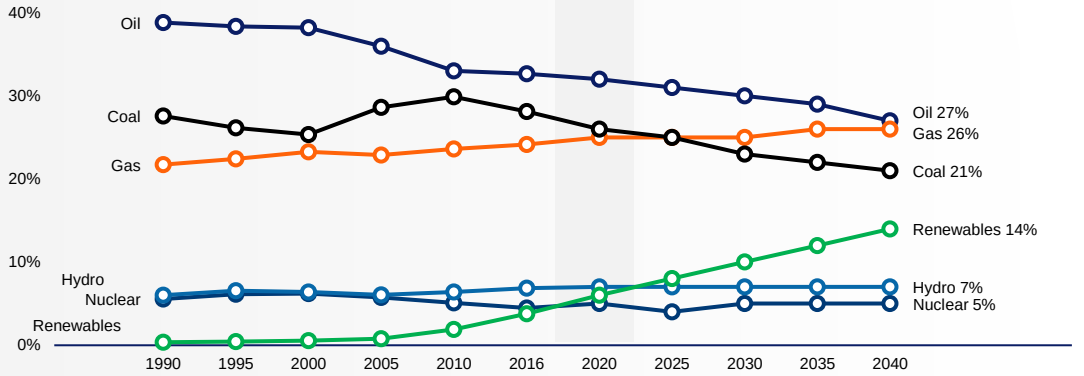
Natural gas demand in Poland

Gas market worldwide

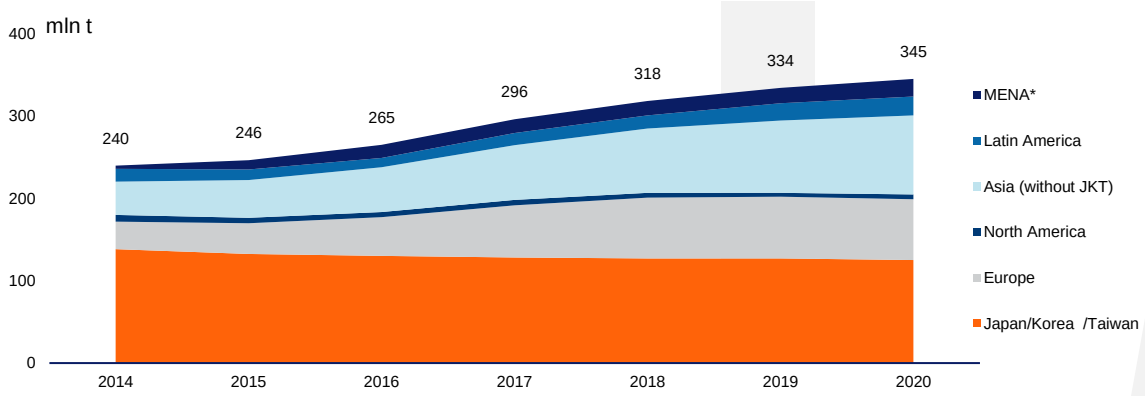
Annual LNG supply by region



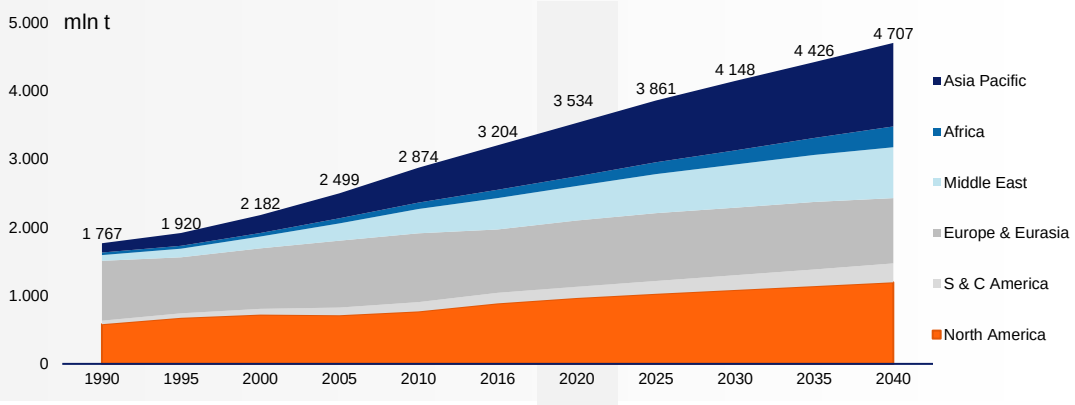
Primary energy consumption by fuel



Annual LNG demand by region



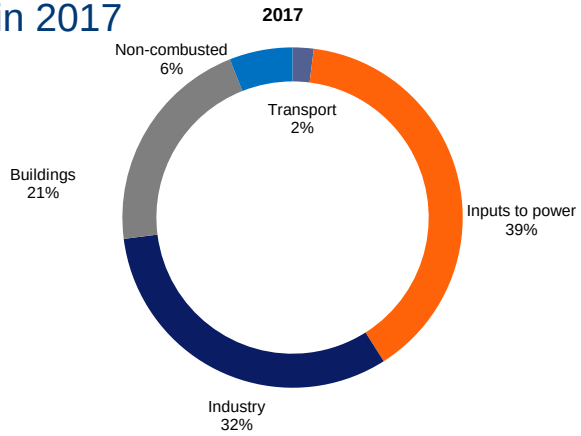
Natural gas demand



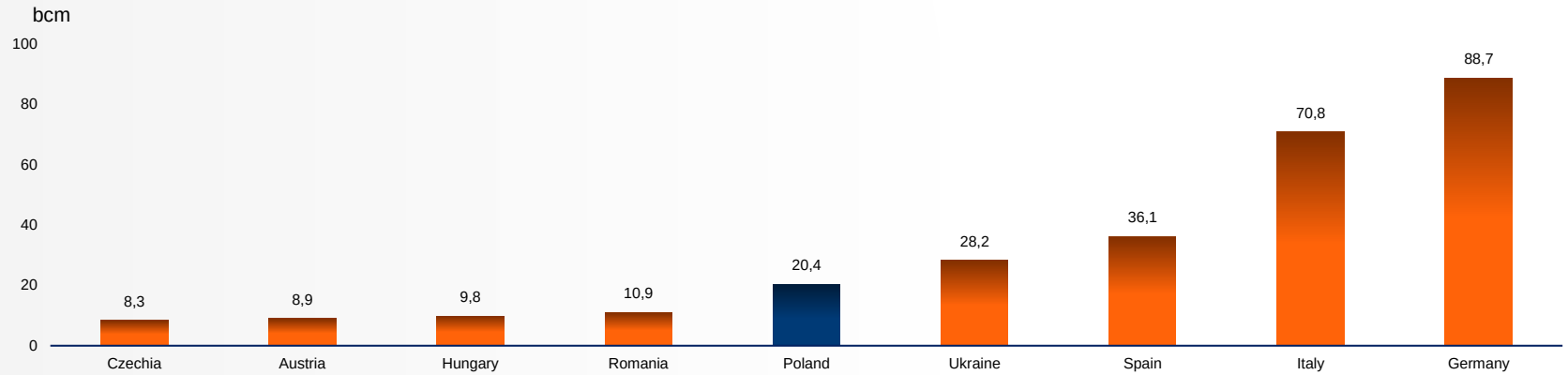
* Middle East-North Africa / Source: IHS, BP Energy Outlook 2018

Gas market in Poland: Low consumption with growth potential

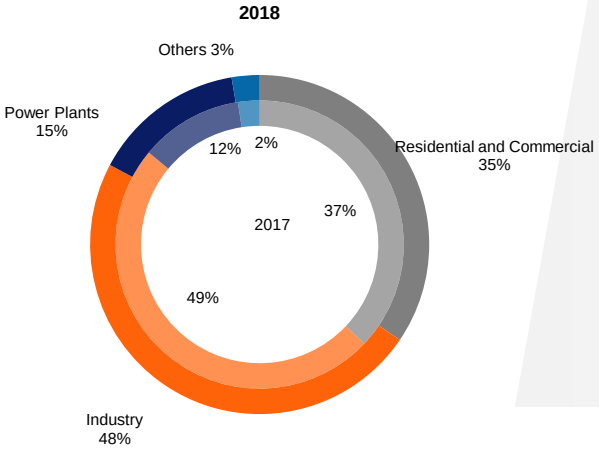
Natural gas sales by sector in the world in 2017



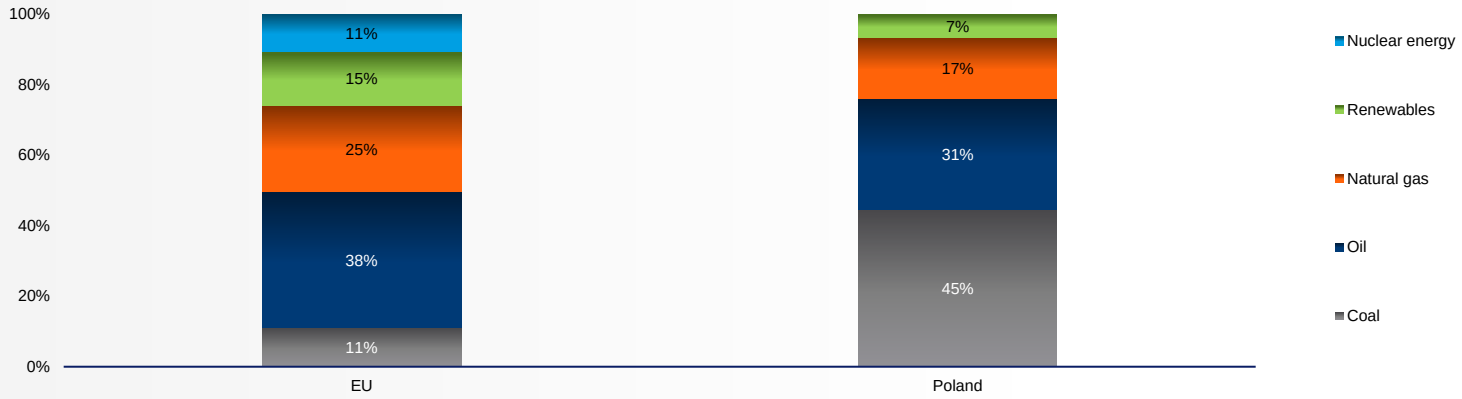
Natural gas consumption by country in 2019



Natural gas sales by sector by PGNiG in Poland in 2018 and 2017



Primary energy consumption by fuel (data for July 2020)



Source: BP Statistical Review 2020, BP Energy Outlook 2019 / Gas consumption comprises sales, as well as in-house consumption and change of inventories

Strategic objectives

PGNiG Group Strategy for 2017-2022

The PGNiG Group Strategy for 2017–2022 (extended until 2026)

#1 Mission statement

We are a trustworthy supplier of energy for households and businesses

Trustworthy

The customers can depend on premium quality and reliability of our services

Energy supplier

Our customers are offered a full range of energy products (gas + electricity + heat + other/services)

Households and businesses

We care for and value all our customers: households, businesses, and institutions

#2 Vision

We are a responsible and effective provider of innovative energy solutions

Responsible

We act transparently, in line with the principles of corporate social responsibility

Effective

We have implemented process and cost optimisation measures

Innovative solutions

We are an innovation leader in the energy sector

#3 Primary objective

Increasing the PGNiG Group's value and ensuring its financial stability

Value growth

Our primary ambition is to create added value for our shareholders and customers

Financial stability

We seek to secure long-term financial stability and creditworthiness

The Group’s key strategic objectives

Strategic objective:

competitive position while supporting the development and ensuring security of the gas market in Poland

PGNiG's strong competitive position

Securing new gas supply sources to strengthen the Group's competitive position following expiry of the Yamal contract in 2022

Production projects in Norway focused on increasing annual gas output to ca. 2.5 bcm from 2022 onwards

Participation in the Baltic Pipe project to secure direct gas imports from Norway

Developing gas and LNG trading functions to make PGNiG more competitive on gas markets in Europe and in Poland

Increase the PGNiG Group's value and ensuring its financial stability

Development of gas market in Poland

More rapid expansion of distribution network in order to enable more new customer connections and gas market growth

Expanding the upstream business in Poland to replenish hydrocarbon reserves and to maintain high levels of production

Significant improvement of customer service quality through digitalisation of service channels and expansion of the product portfolio expansion

Ambitions in the key business areas

1. Exploration and Production

- Increase the base of documented hydrocarbon reserves by 35% (to 1,208 mm boe in 2022)
- Increase annual hydrocarbon production by 41% (to 55 mm boe in 2022)

2. Wholesale

- Diversified gas supply portfolio after 2022
- Increasing the overall volume of natural gas sales by 7% (to 178 TWh in 2022)
- Cumulative natural gas sales volume on wholesale markets in Poland and abroad 1000 TWh

3. Retail

- Maximising retail margins
- Maintaining the total volume of retail gas sales at ca. 67-69 TWh/year

4. Storage

- Securing access to storage capacities adjusted to actual demand
- Improve storage efficiency

5. Distribution

- More than 300 thousand new service lines in 2017–2022
- The annual growth rate in the number of service lines by 17%
- Increase gas distribution volume by 16% (to 12.3 bcm in 2022)

6. Power and Heat Generation

- Increase power and heat sales volumes by 20% (to 18 TWh in 2022)

7. Corporate Centre

- Effective execution of R&D&I projects
- Operational efficiency improvement across the PGNiG Group
- Enhancing the PGNiG Group's image

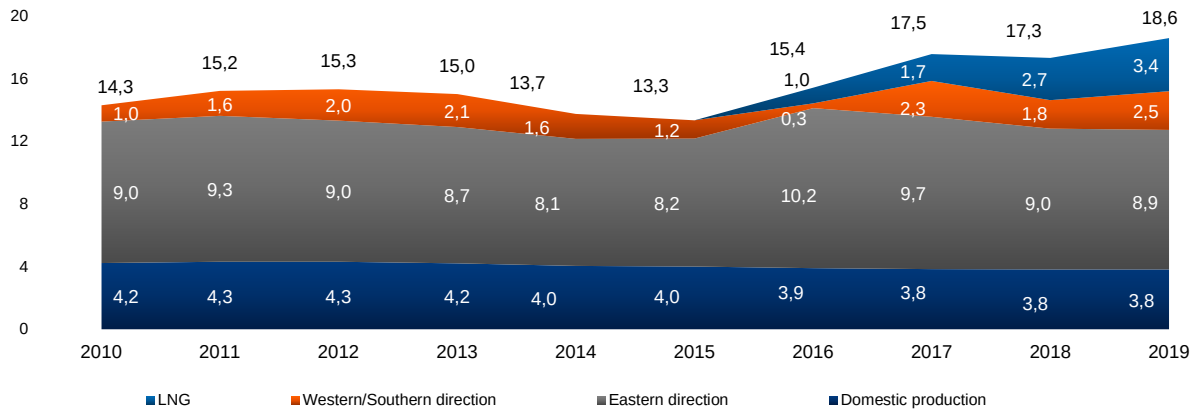
PGNiG Wholesale Trading Branch

PGNiG Wholesale Trading Branch

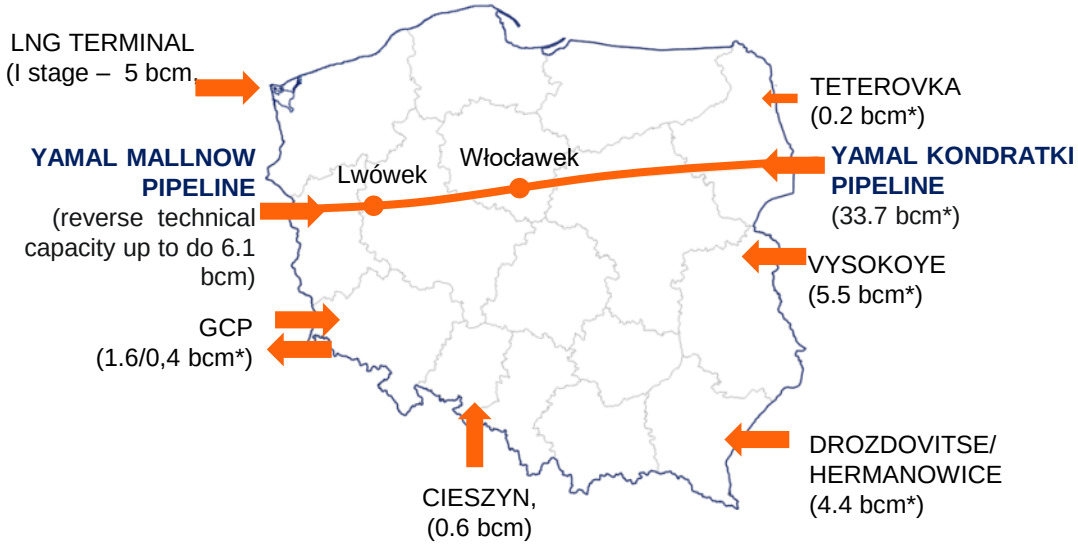
Guardian of the energy security

- Wholesale Trading Branch is an organizational unit of PGNiG responsible for trading natural gas, LNG, crude oil, electricity, carbon allowances and property rights.
- Our customer base includes major industrial plants, resellers, and gas system operators.
- Current natural gas procurement portfolio based on a long term contracts with Gazprom Export and Qatargas, combined with approx. 4 bcm of domestic production. Short term pipeline deliveries and spot LNG cargoes play supplementary role.

Sources of gas supply of PGNiG SA in Poland



Existing interconnections



* Technical capacity

Existing interconnectors

PGNiG Wholesale Trading Branch

Opportunities associated with development of infrastructure

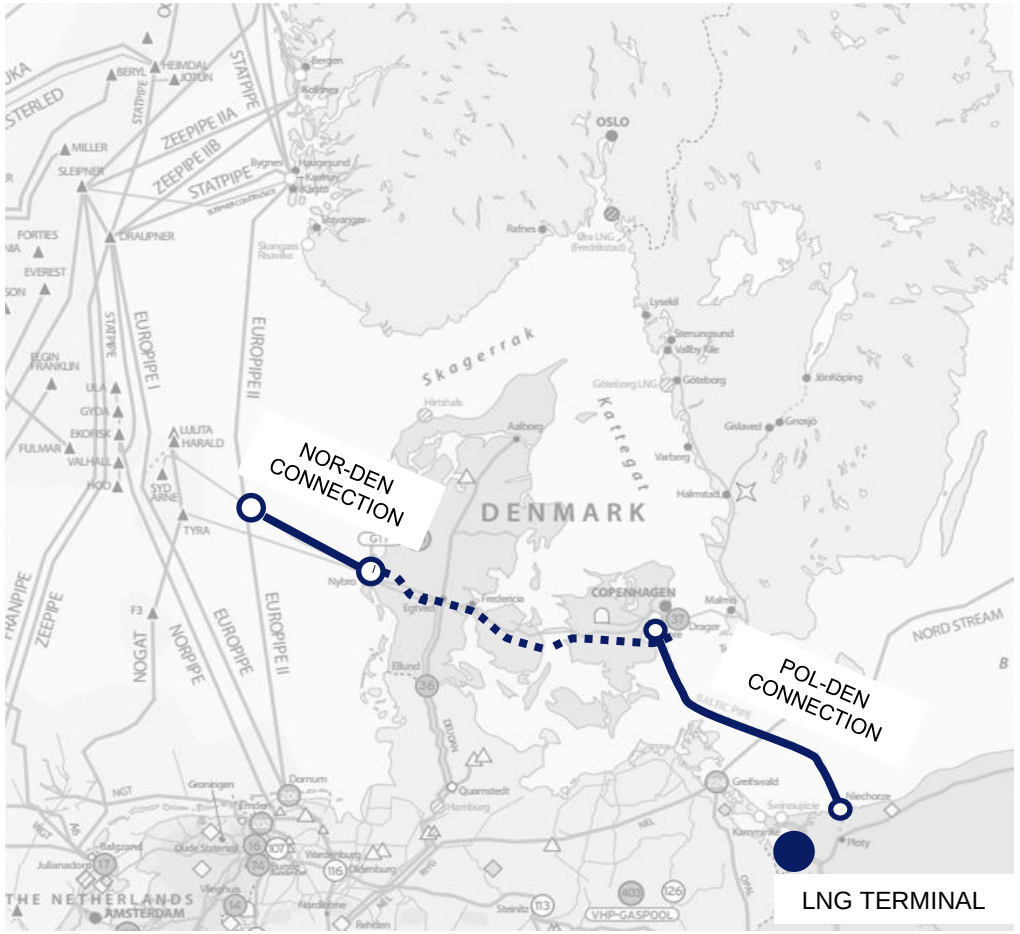
Interconnections enable diversification

* Technical capacity

Existing interconnectors

Interconnectors planned, under construction (transmission capacity into/from Polish grid, year of completion)

Special Focus on the Baltic Pipe project

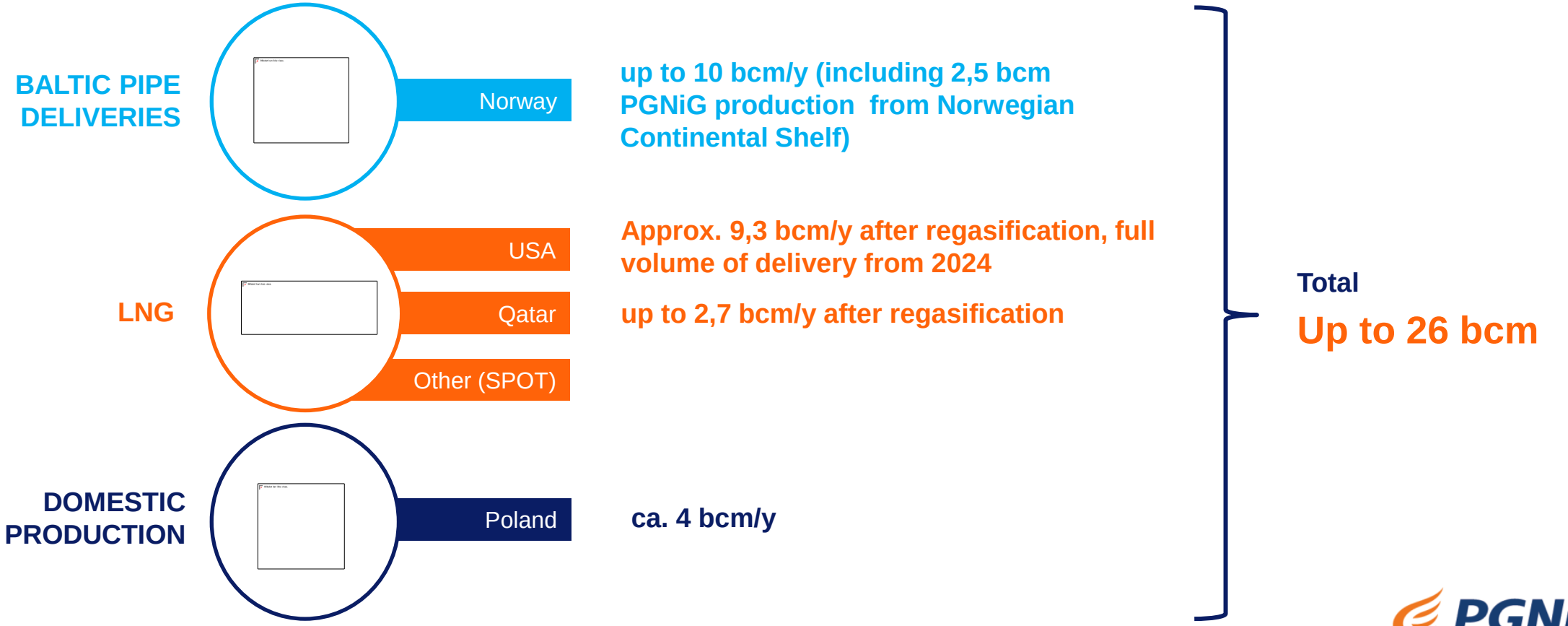


PGNiG Wholesale Trading Branch

On the path to diversification

› Since 2016 import reliance on deliveries from eastern direction has decreased by approx. 30%.

PGNiG GAS PORTFOLIO FROM 2023



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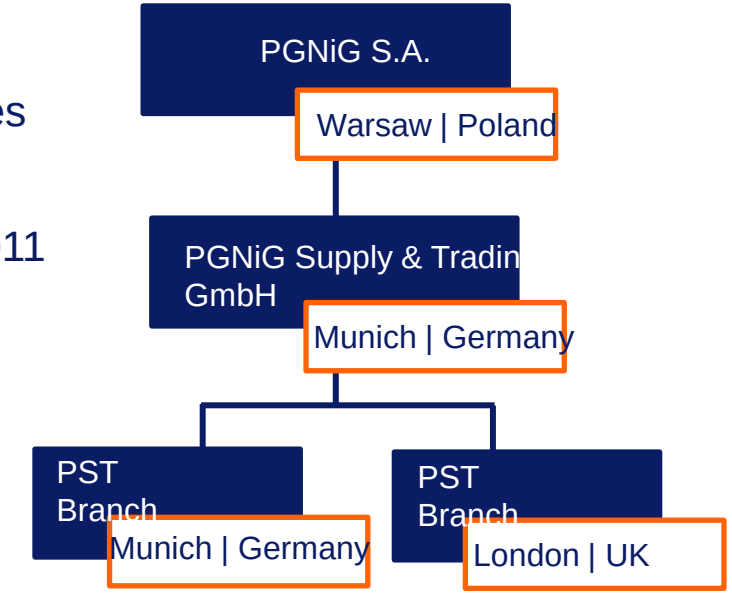
PGNiG Supply & Trading

PGNiG Supply & Trading GmbH

A strong European player

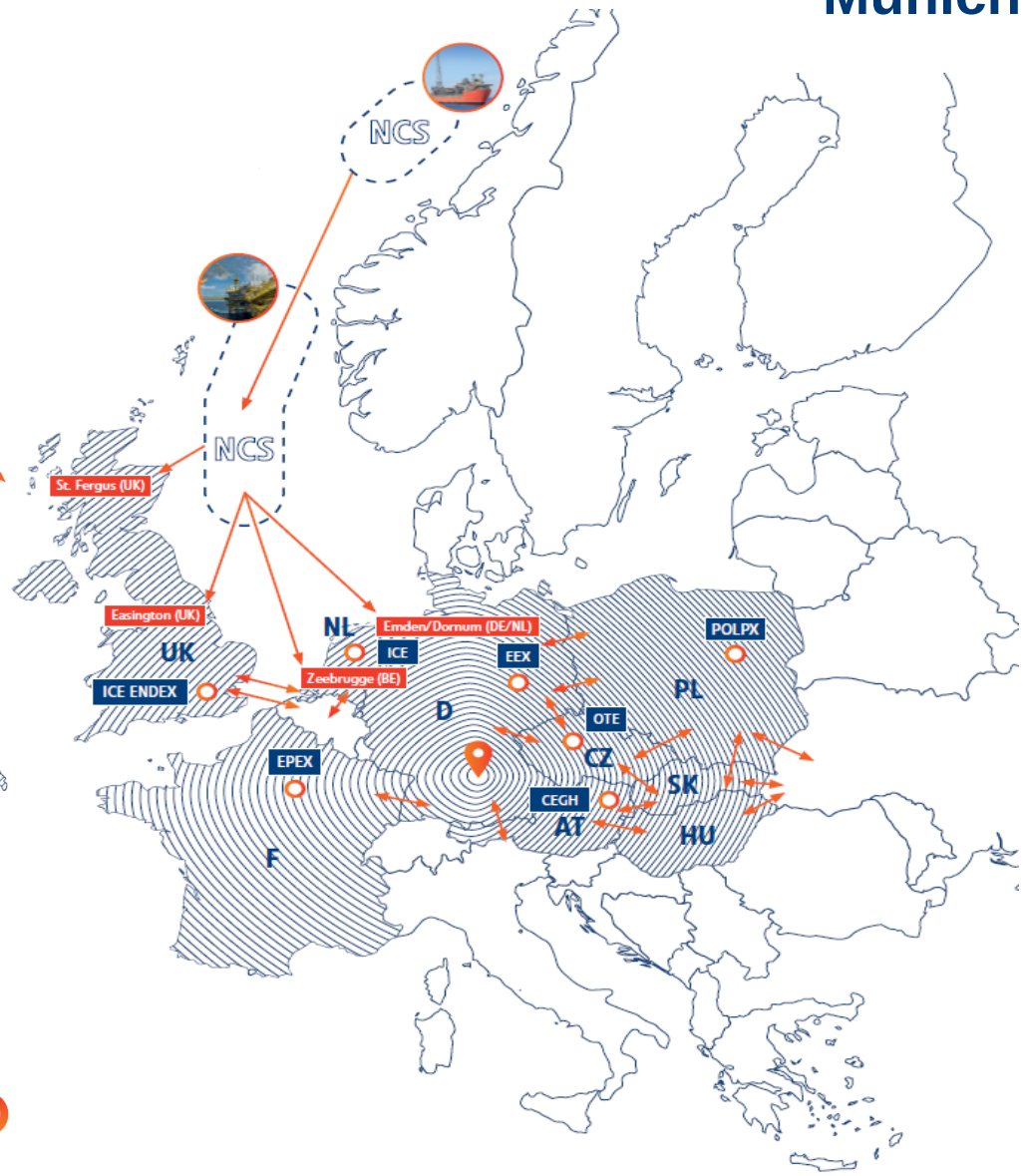
- 100% subsidiary of PGNiG S.A.
- Headquarter in Munich with operational Branches in Munich and London
- Officially established in 2010, operative since 2011
- > 50 employees
- Natural gas, LNG & power trading
- access to European wholesale markets and global LNG markets



PST is certified as climate-neutral company by Zukunftswerk

PGNiG Supply & Trading GmbH

Munich Branch: Market coverage & trading activities



› PST has established a strong presence on the European Gas markets with direct access to all relevant trading markets, exchanges and hubs

Covered Commodities:

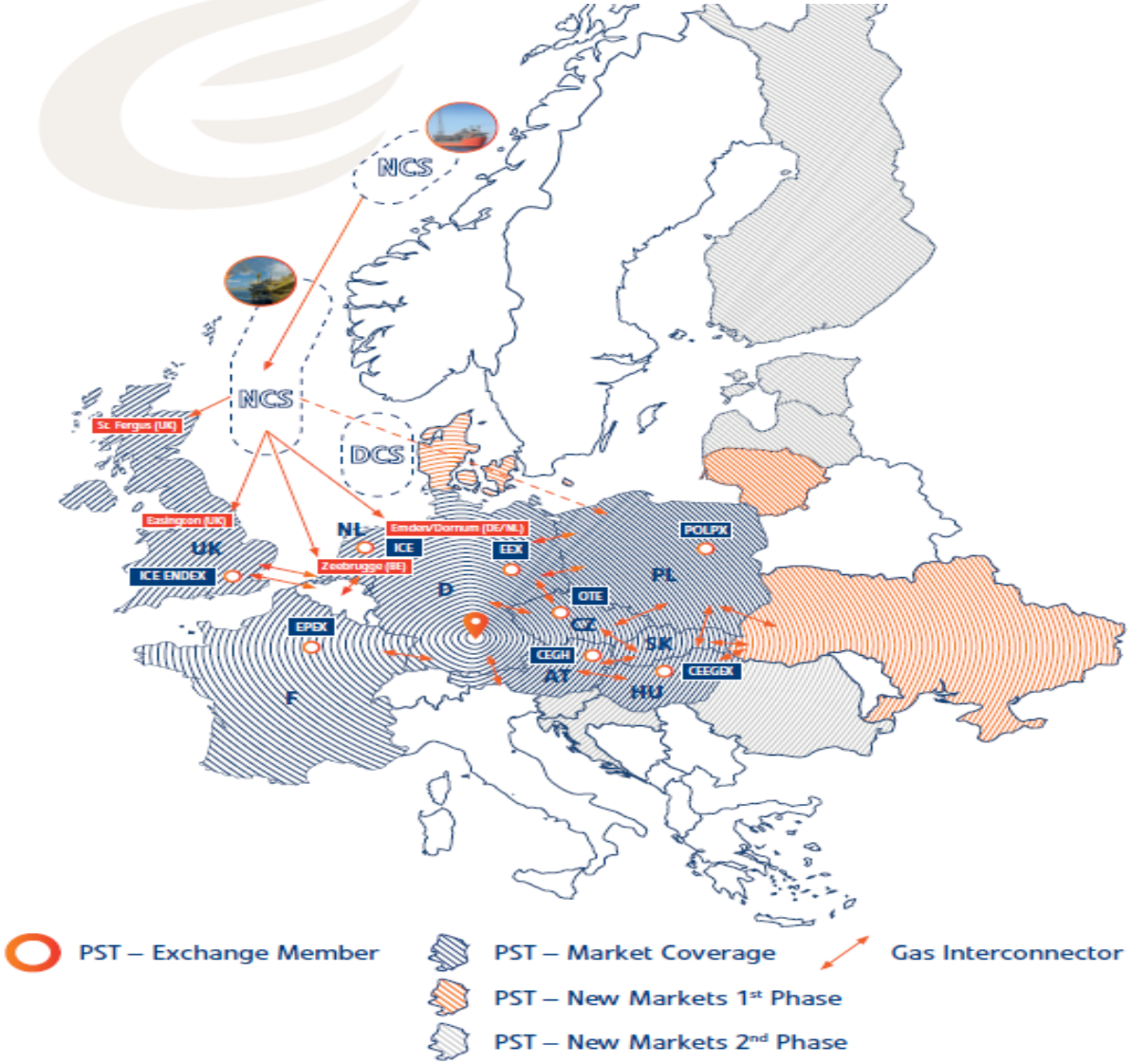
› Natural Gas
› Power
› LNG
› Oil
› Guarantees of Origin
› CO2-Certificates

Covered Products:

› Standard Products
› Structured Products
› Cross-border
› Storage
› Flexibility
› Market Access
› Logistics & Transport

PGNiG Supply & Trading GmbH

Munich Branch: Expansion of Trading activities



- PST is looking to expand its trading activities in Europe
- Markets under current development:
  - Denmark
  - Lithuania
  - Ukraine
- Further growth of business activities in the NCS and CEE region and will strengthen PST's position in the market.

PGNiG Supply & Trading GmbH

London Branch: a global player in LNG

- PST is the LNG competence center of the Group which opens the door to the international gas markets
- Short- and mid-term LNG trading and optimization for the Group
- PST completed numerous spot transactions since 2016 and is sourcing LNG on a mid-term base from Sabine Pass Terminal

<u>Key Hub: LNG Terminal Świnoujście in Poland</u>

- Largest LNG regasification facility in the Baltic region
- PGNiG S.A. is sole long-term regasification capacity holder
- Long-term agreements for American LNG in place
- LNG supplies on short-/mid-term managed by PST London
- Further expansion of the terminal in progress

PGNiG Upstream Norway

PGNiG Upstream Norway

More than 10 years of activity on the Norwegian Continental Shelf in the role of the Operator.

Key mid-term goal to increase own gas production 5 times from 0.5 bcm in 2019 to 2.5 bcm in 2022/2023 onward.

Long-term strategy of exploration and production in the Norwegian Continental Shelf in order to secure undisrupted supply of hydrocarbons.

Member of the PGNiG Group, a leading integrated oil and gas player in Poland with well-established upstream position in Norway and proven financial track record.

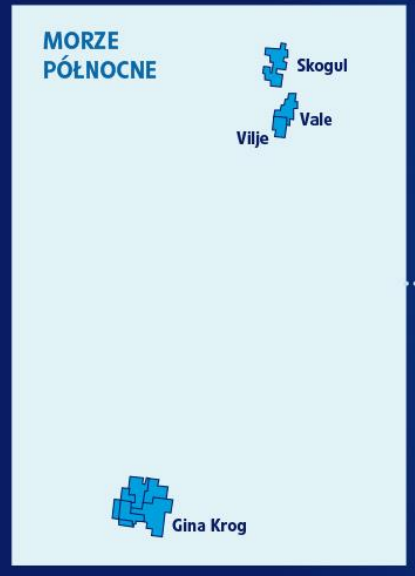
The partner and one of the main beneficiaries in the Baltic Pipe project. PGNiG booked a decent part of the pipeline long-term capacity

PGNiG's portfolio on the NCS

32 licenses*

9 fields in production*

3 fields in development



* After pending approval of transaction with Norske Shell by the Norwegian oil and fiscal administration

Kvittebjørn
Valemon
Duva
Norwegia
Vesterled
King Lear
Tommeliten Alpha
Dania
Europipe II
Europipe I
Baltic Pipe
Langeled
Norpipe
Wielka Brytania
Franpipe
Zeepipe I
Belgia
Francja
Niemcy
Polska

Acquisitions and key investment decisions in 2017-2020

PGNiG | UPSTREAM NORWAY

› **Important field acquisitions in 2017-2020:**

1. 35% shares in the Skogul field from AkerBP
2. 20% shares in the Fogelberg field from Spirit Energy and Faroe Petroleum
3. 42.38% shares in the Tommeliten Alpha field from Equinor
4. 22.2% shares in the King Lear field from Total
5. 30% shares in the Duva field from Wellesley (20%) and Pandion Energy (10%)
6. 3.3% shares in the Gina Krog field from Aker BP
7. 11.9175% shares in the Alve Nord field from Aker BP
8. **6.45% share in the Kvitebjørn and 3.225% in the Valemon field from Norske Shell**

› Company reserves and contingent resources (2P and 2C) increased from 83 (2017) mmboe to 214 mmboe (2020)*

› **Key investment decisions in 2017-2021:**

› Development of the Ærfugl gas field, production to start in 2020. This development will translate into significantly higher production of natural gas which we intend to transmit from Norway to Poland through the planned new gas pipeline via Denmark

› Development of the Skogul field, production to start in 2020

› Development of the Duva field, production expected in 2021

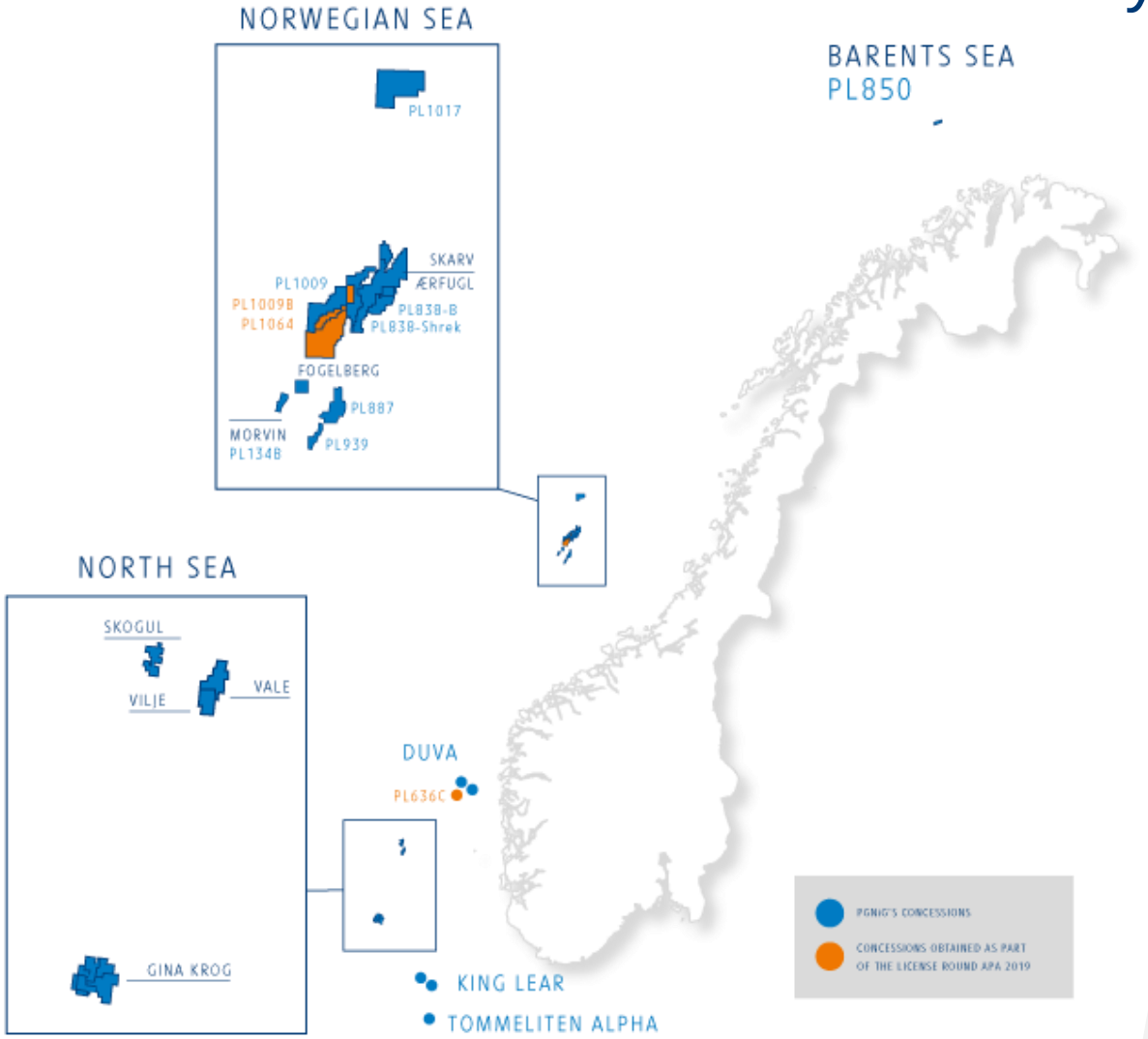
› Selection of development concepts for Tommeliten Alpha and King Lear

› Commercial discovery in the first operated offshore exploration well (Shrek discovery on PL838)

› **Two exploration wells drilled in 2020 and two important discoveries** (PL127C Alve NE and PL1009 Warka)

* incl. pending approval of transaction for Kvitebjørn and Valemon with Norske Shell by the Norwegian oil and fiscal administration

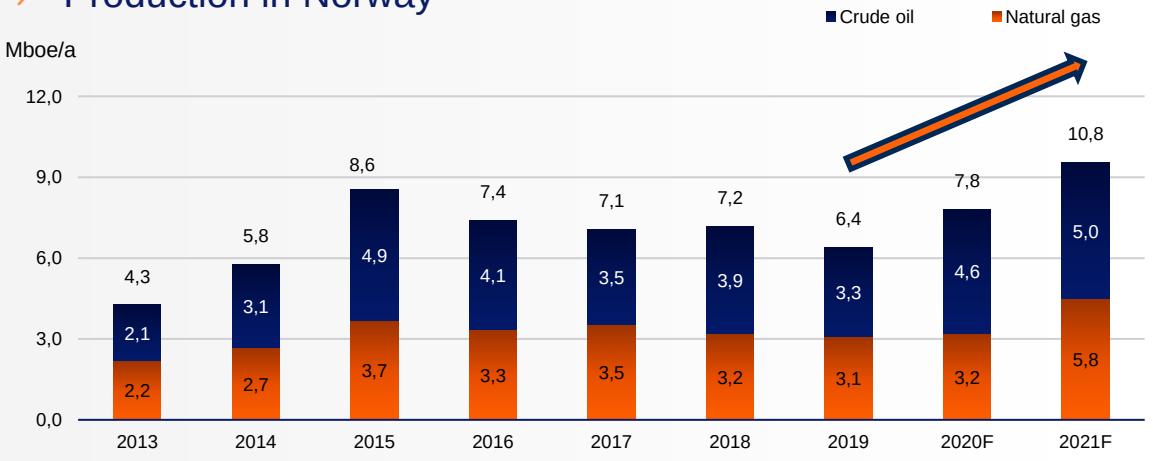
International E&P activities – Norway



Reserves in Norway (as at June 30th, 2020)

	Natural Gas	Crude Oil & NGL	TOTAL (mboe)
Skarv	9.6	4.3	15.9
Ærfugl & Snadd Outer	23.4	7.5	30,8
Gina Krog	8.7	7.4	18.9
Vilje	0.0	3.1	3.1
Vale	0.8	0.4	1.2
Morvin	0.4	0.2	0,8
Tommeliten Alpha	37.6	15.6	55.5
Skogul	2.6	0.2	2.9
Duva	15.4	8.3	27.3
King Lear	13.6	9.3	22.9
Alve Nord	3.4	1.0	5.1
Total	115.5	57.3	184.4

Production in Norway



PGNiG Upstream Norway has been extracting hydrocarbons from the Skarv, Morvin, Vilje, Vale, Gina Krog, Ærfugl (formerly Snadd), Skogul (formerly Storklakken) fields and working on the development of the Tommeliten Alpha, King Lear, Duva and Fogelberg fields.

Thank you for your attention

METHODOLOGY AND TARIFFS

Poul Johannes Jacobsen, Energinet Gas TSO

Baltic Pipe

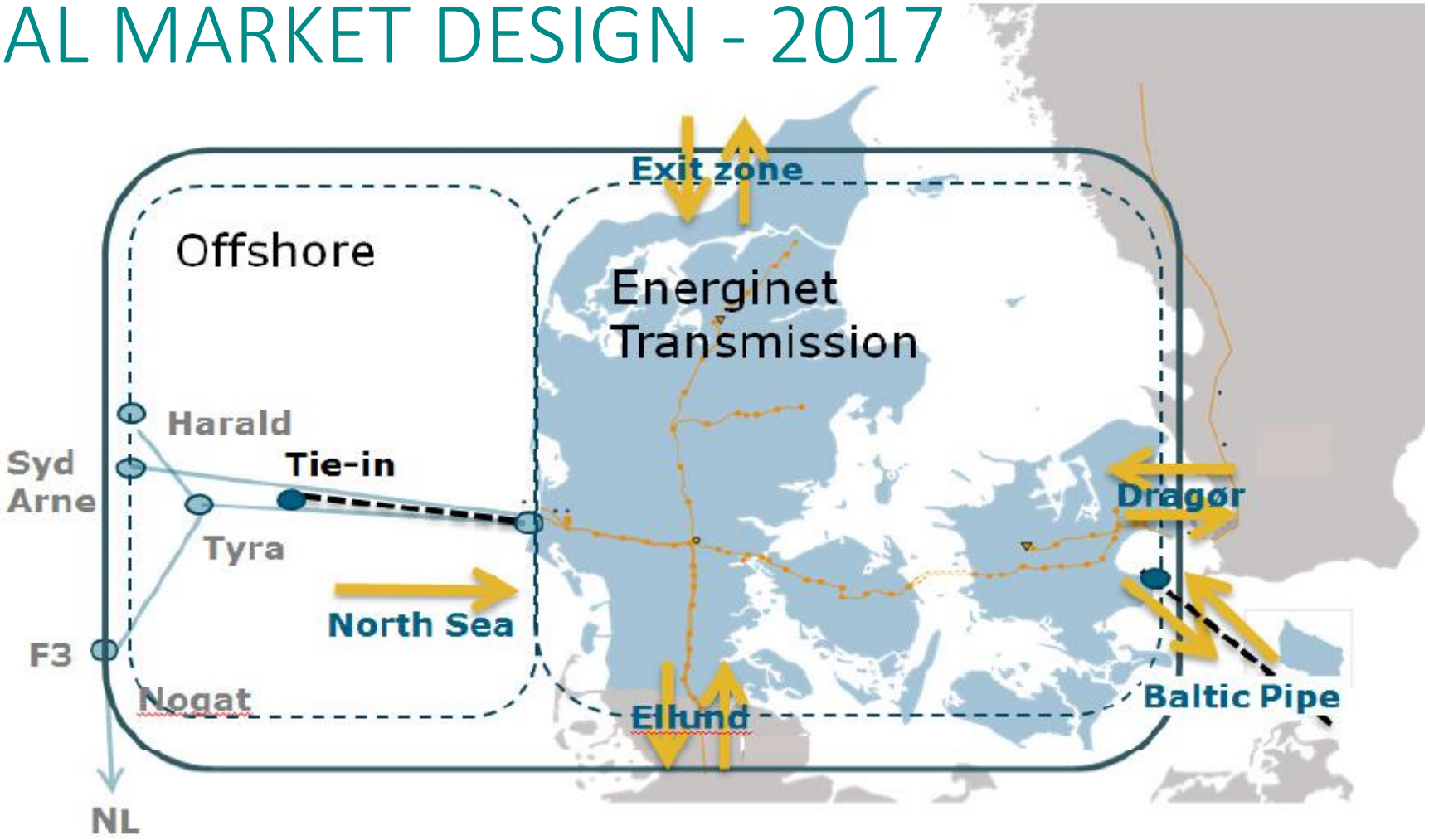
Offshore part of Baltic Pipe
- Upstream regulation

Onshore part of Baltic Pipe
- Transmission regulation

Main aim of the methodology is to create a simple model for shippers which is seamless, transparent by:

- One Market Model
- One Balancing Model
- One set of rules (RfG)
- One Tariff system

ORIGINAL MARKET DESIGN - 2017



One joint Danish market model

Joint

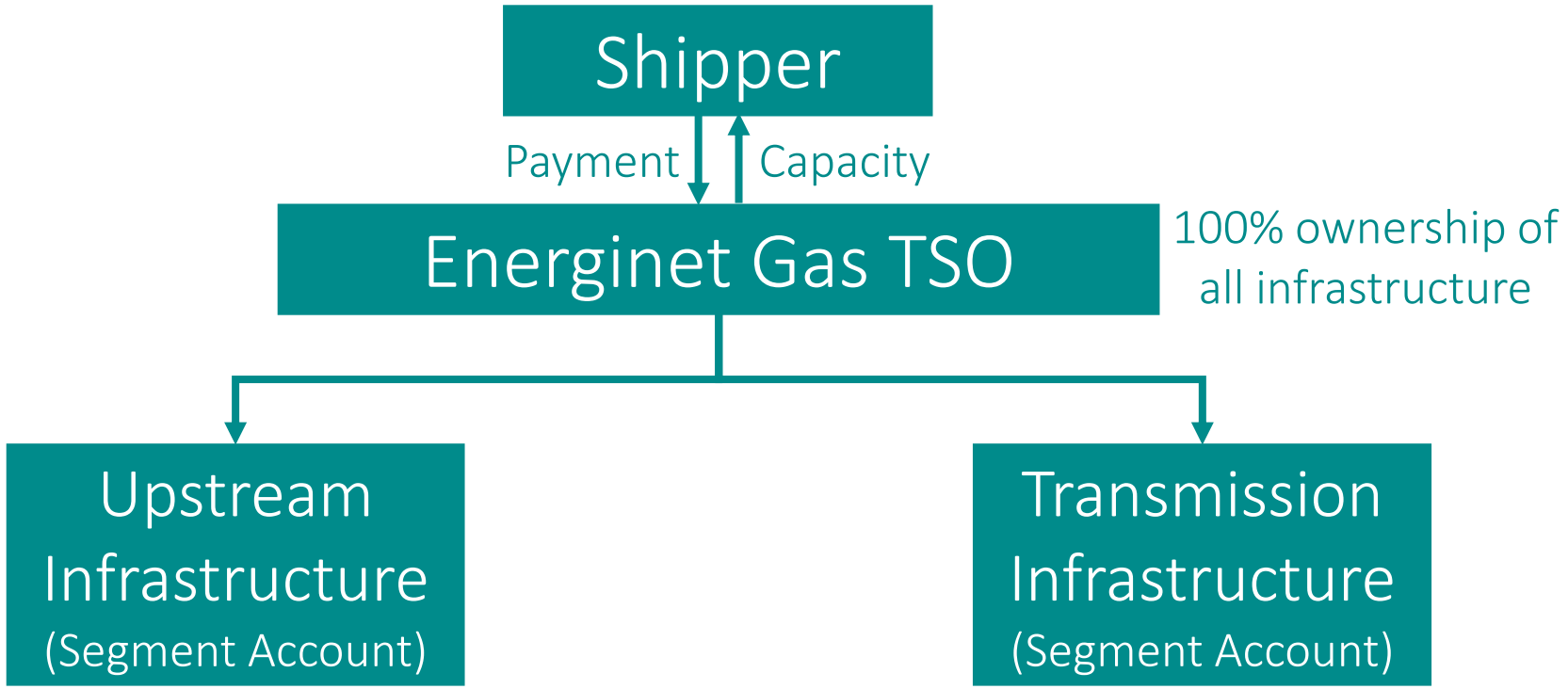
- Balancing model
- Tariff model
- Products (CAM)
- IT-interface
- Platform (PRISMA)
- Terms
- Gas quality
- System operation
- Rules for gas transport, with specific rules on e.g. N-TPA for the upstream point
- Operational responsibility

Separate

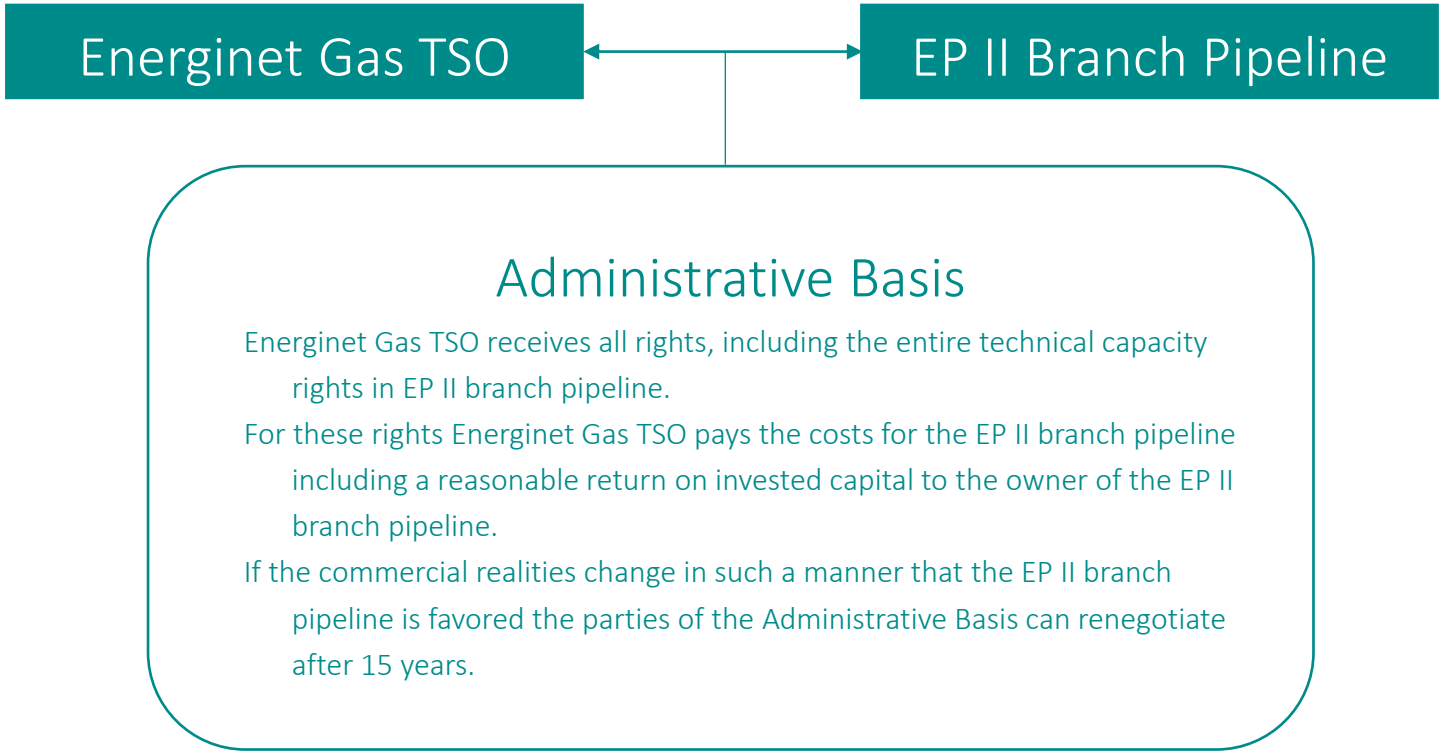
- Regulation

- Accounting - system operation costs and deprecation will be allocated to the respective company

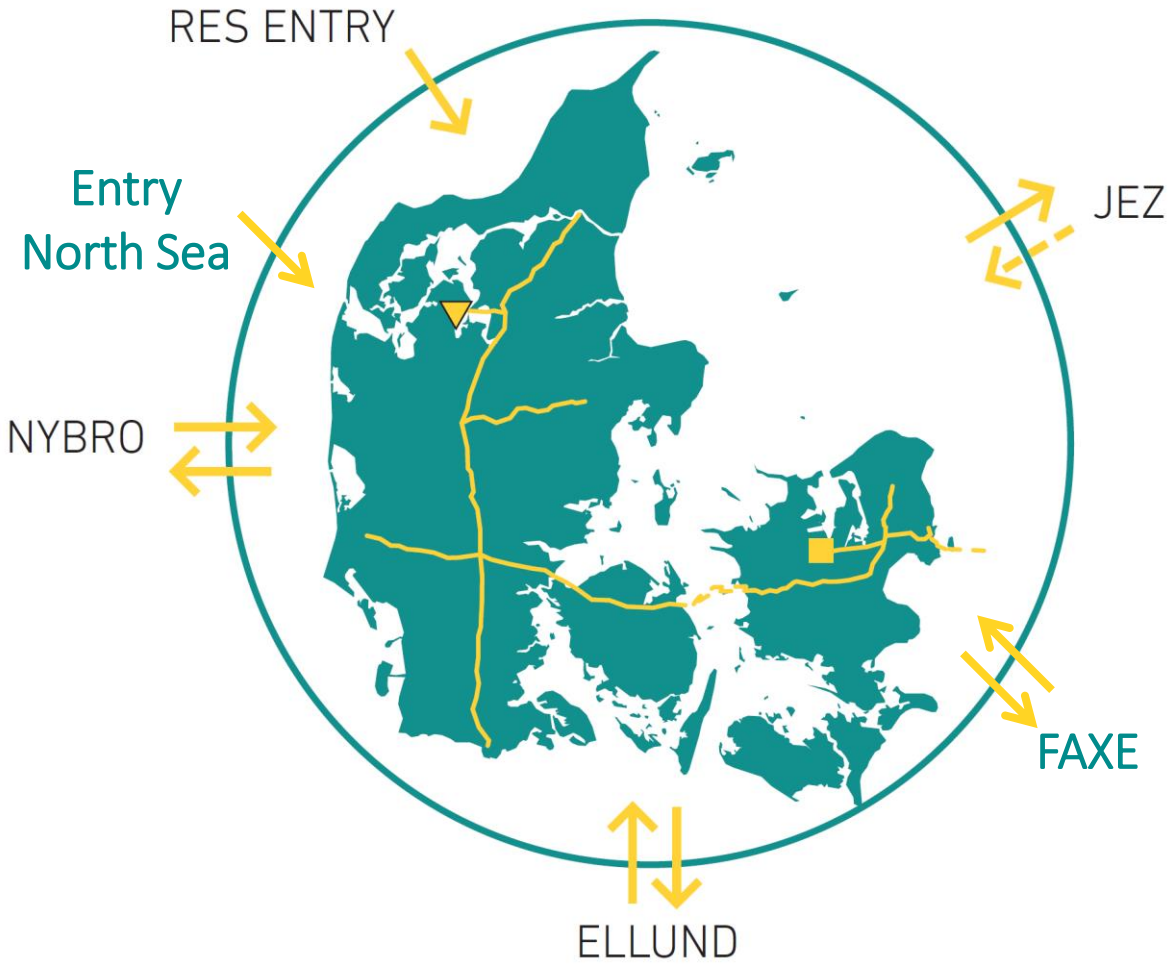
SEGMENT ACCOUNTS



ADMINISTRATIVE BASIS



NEW POINTS - PART OF THE ENTRY/EXIT SYSTEM



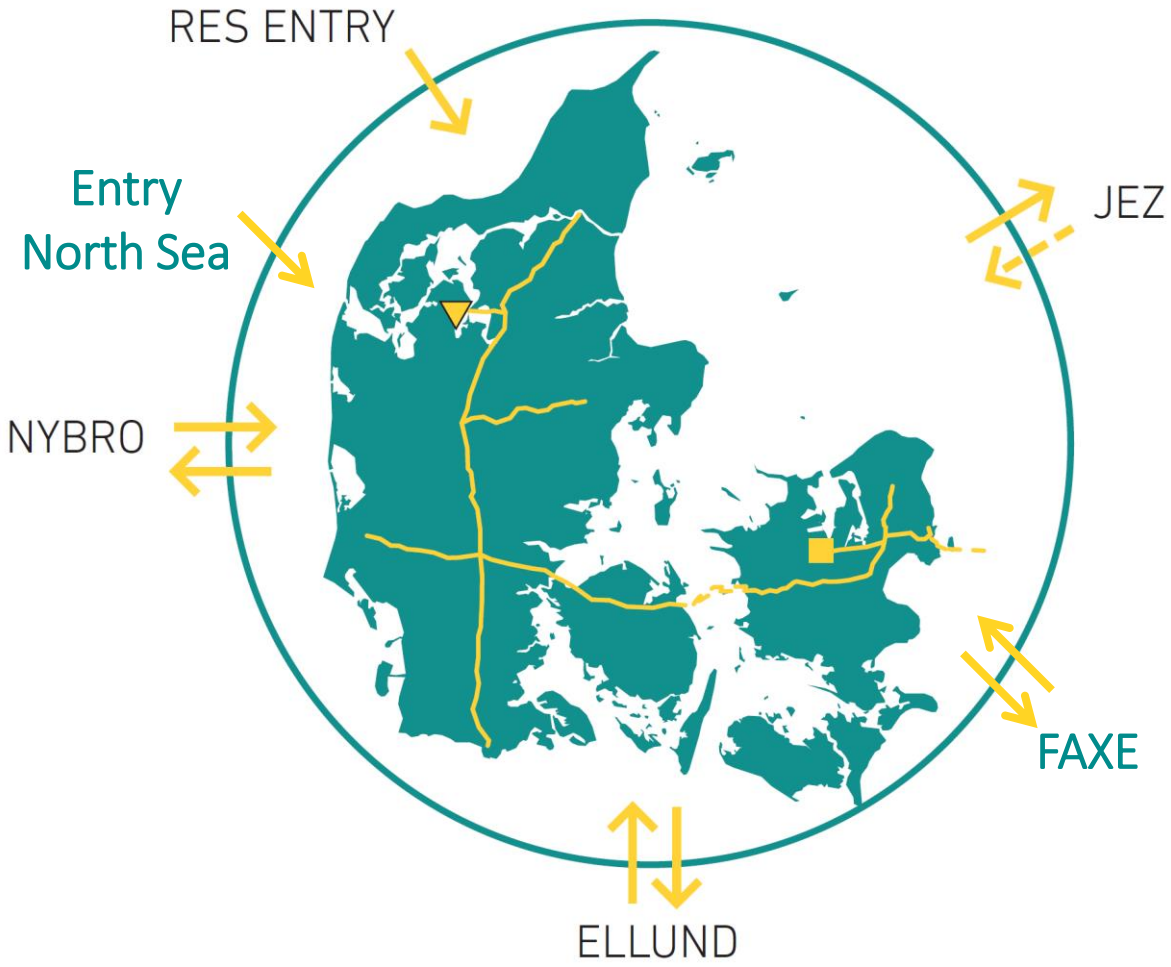
JEZ – JOINT EXIT ZONE

→ JEZ = DANISH CONSUMPTION & SWEDISH NET CONSUMPTION

⇠ REVERSE DIRECTION. ONLY FROM SWEDEN TO DENMARK

Shipper benefit

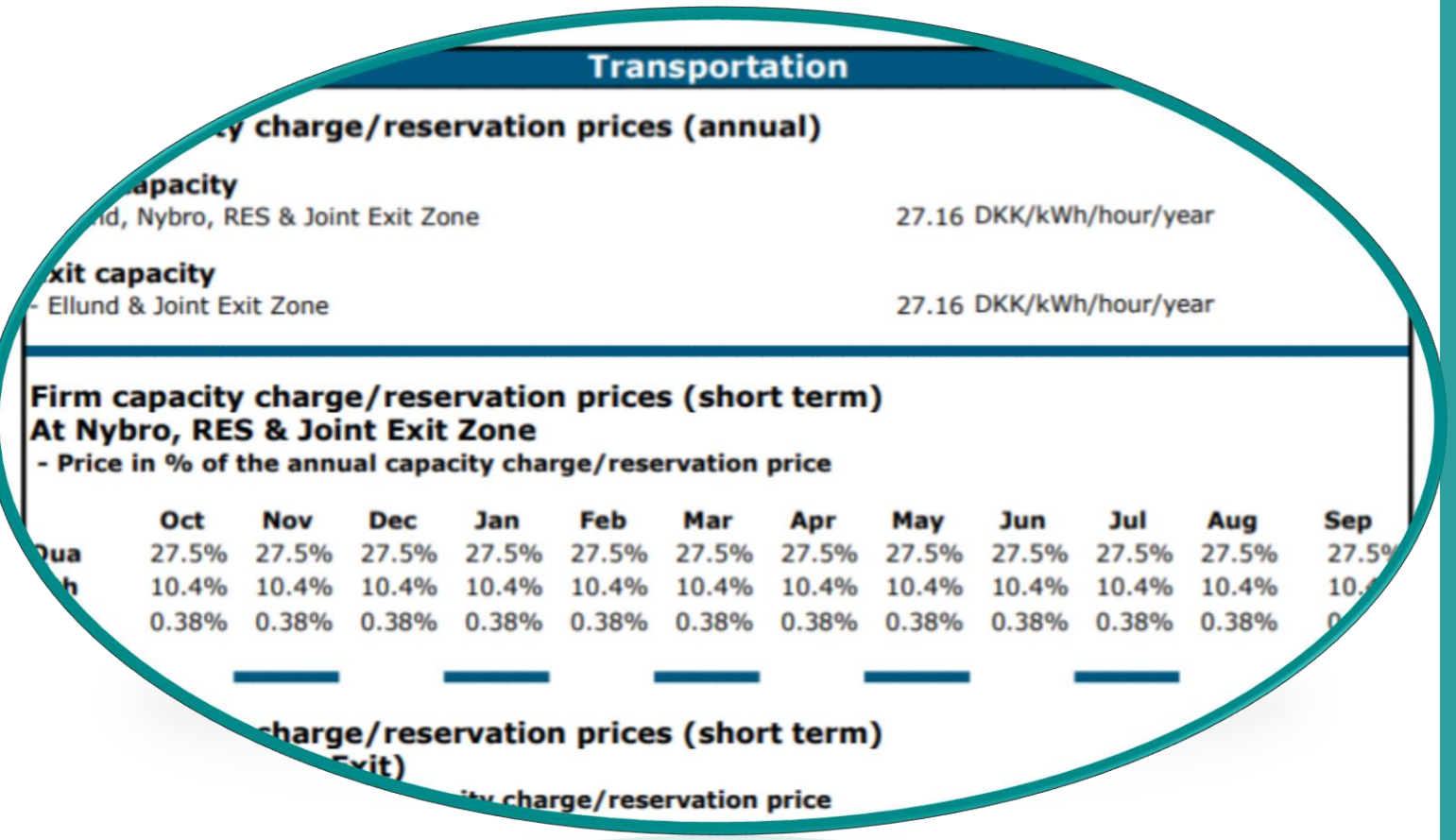
- One market model
- One balancing market
- One set of rules (RfG)
- One tariff system



USER GROUPS ON BALTIC PIPE TOPICS – ON 14 JANUARY 2021

Market Model:

- Methodology will be published in a few days
- Want to hear your views, incl. on Auction Calendar
- Ambition to sell Entry North Sea, summer 2021



Transportation

charge/reservation prices (annual)

apacity

d, Nybro, RES & Joint Exit Zone 27.16 DKK/kWh/hour/year

xit capacity

- Ellund & Joint Exit Zone 27.16 DKK/kWh/hour/year

Firm capacity charge/reservation prices (short term)

At Nybro, RES & Joint Exit Zone

- Price in % of the annual capacity charge/reservation price

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
ua	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%
h	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%
	0.38%	0.38%	0.38%	0.38%	0.38%	0.38%	0.38%	0.38%	0.38%	0.38%	0.38%	0

charge/reservation prices (short term)

Exit)

ity charge/reservation price

USER GROUPS ON BALTIC PIPE TOPICS – ON 14 JANUARY 2021

Tariffs discussion on:

- Capacity-/commodity-split, which today is 70%/30%
- Long-term multiplier, the possibility for rebate when making long-term bookings (e.g. 5%-10%)
- Gas-year vs. Calendar-year – should we stick to the known?

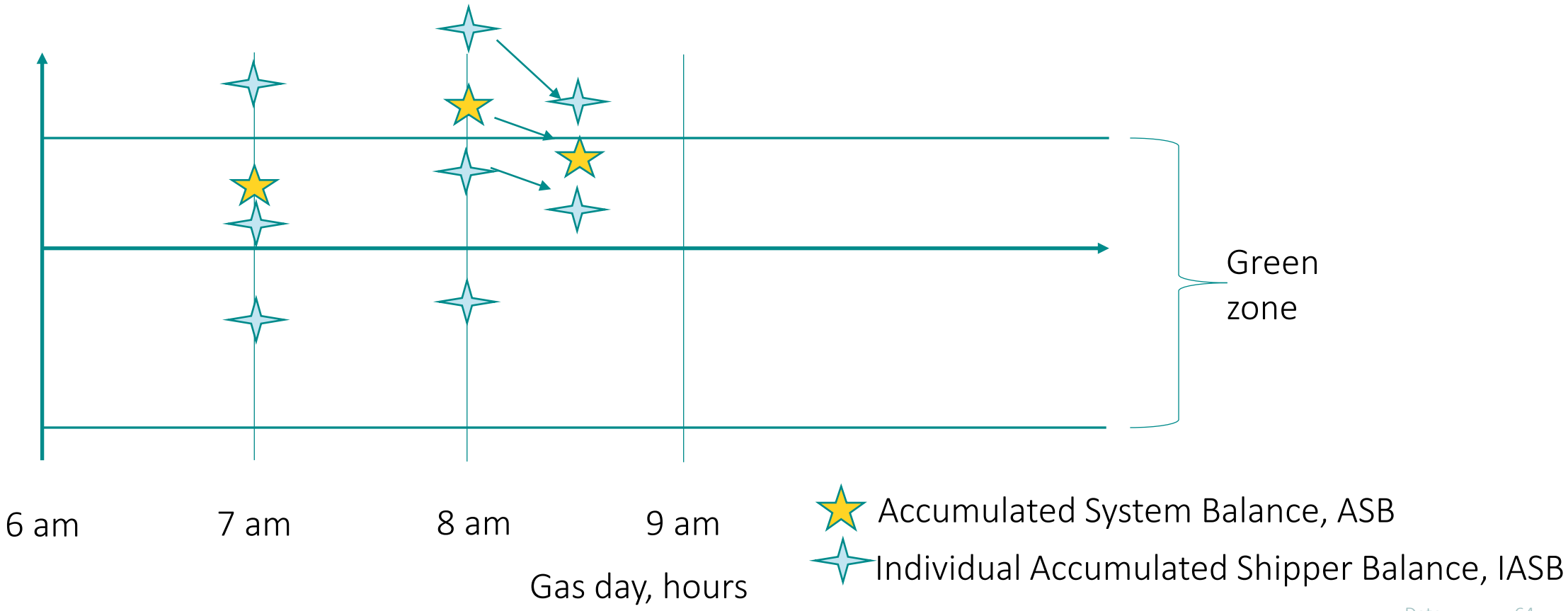
QUESTIONS

Contact: pjj@energinet.dk

BALANCING MODEL 2022

Julie Frost Szpilman, Energinet Gas TSO

BALANCE MODEL 2022 WILL INTRODUCE WITHIN DAY OBLIGATION (WDO) AND HELPER-CAUSER METHODOLOGY



WHAT IS THE DATA MODEL?

The data model is every parameter used to calculate ASB and IASB

The Accumulated System Balance is defined as:

$$\text{ASB} = \sum_{h=1}^{x} Entry - \sum_{h=1}^{x} Exit - \sum_{h=1}^{x} JEZ,$$

Where data for *Entry* and *Exit* is known every hour via nominations, while *JEZ* is calculated every hour via MR data (city-gate flow)

The Individual Accumalated Shipper Balance is defined as:

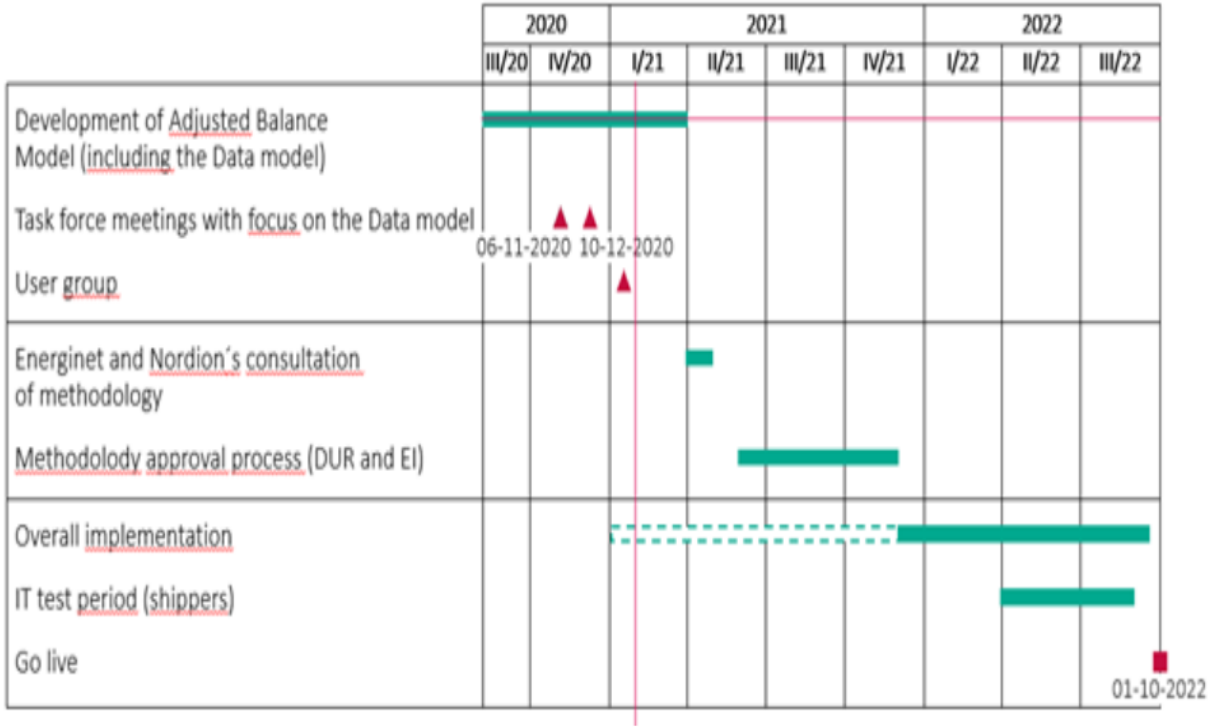
$$\text{IASB} = \sum_{h=1}^{x} Entry\,(i) - \sum_{h=1}^{x} Exit\,(i) - \sum_{h=1}^{x} JEZ(i),$$

Where *i* is an individual shipper, and where *Entry* and *Exit* is known every hour via the shipper's nominations, while *JEZ* is not known for the individual shipper

FEED BACK FROM OUR SHIPPER TASK FORCE MEETINGS

NEXT STEPS

- Follow our website with updated Q&A and presentations, https://en.energinet.dk/Gas/Shippers/Gas-balancing-model
- User group: **10th of February 2021 10 am**
- Energinet and Nordion will prepare the methodology approval process
- Energinet and Nordion will together with the dsos start the implementation process



QUESTIONS

Contact: jfs@energinet.dk

PAUSE

TYRA REDEVELOPMENT

Claus Møller Petersen, Energinet Gas TSO

TYRA

Under reconstruction until summer 2023

YEAR ONE WITHOUT TYRA – HOW DID WE DO?

Market behavior and other factors

First year:

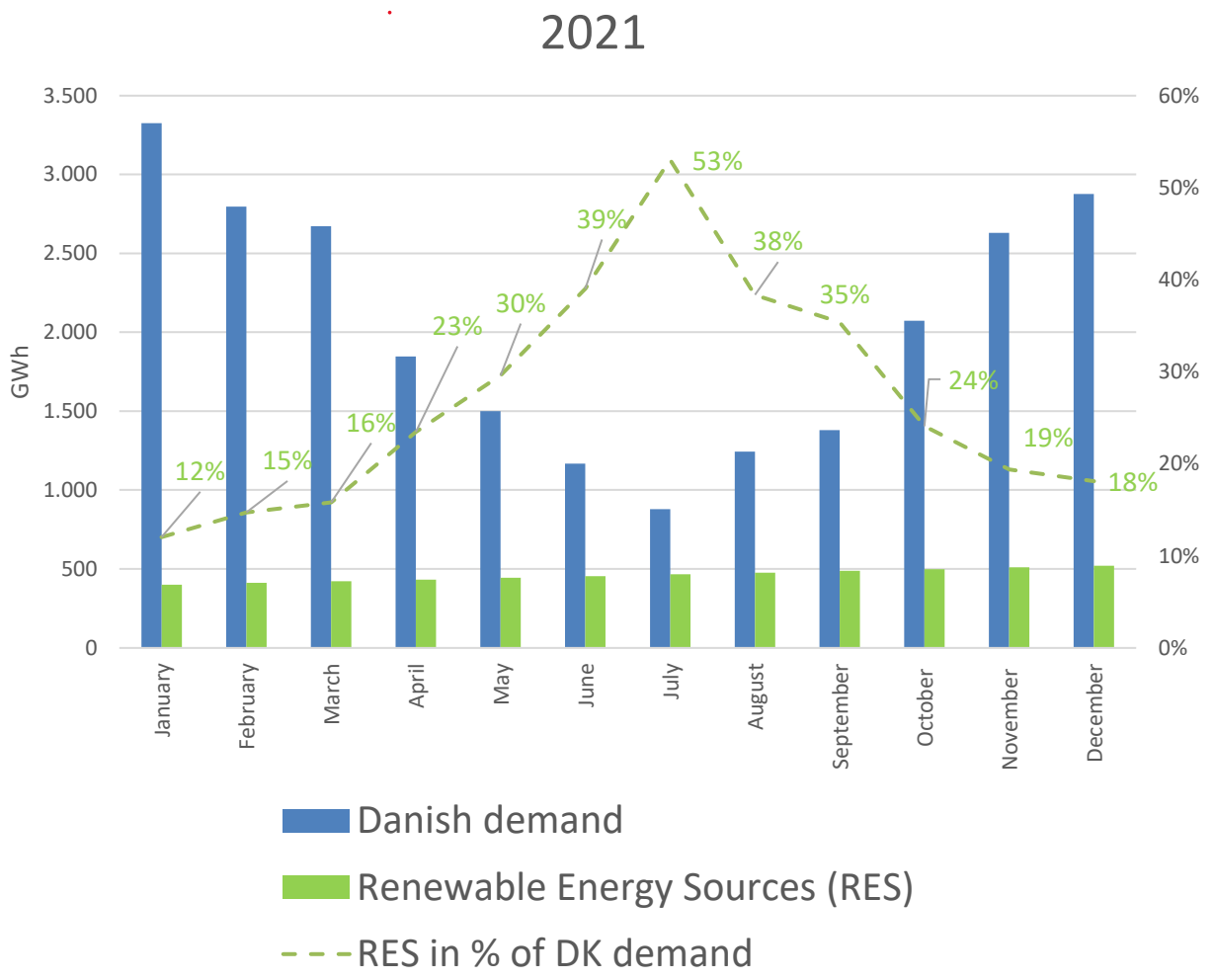
- Large quantities of gas imported from Germany
- High storage level before last winter season
- Decreasing Danish and Swedish consumption
  - Warm winter 2019-2020
- Increasing local, biomethane production

Expectations to the coming year(s):

- Continued imports from Germany
- High storage level for this (2020-2021) winter
- Decreasing consumption in Denmark and Sweden
- Continued increasing biomethane production

DANISH DEMAND AND RENEWABLE ENERGY SOURCES

Analysis 2020 assumptions from the Danish Energy Agency (DEA)



What is Energinet doing ?

RISKS

Germany
– available capacity

Storage facilities
– filling remain essential

POSSIBILITIES

Baltic Pipe
– from October 2022

Biomethane
– production keeps on increasing

Consumption
– keeps on decreasing

QUESTIONS

Contact: cmp@energinet.dk

Current cases and pipeline

The Danish Utility Regulator

Energinet Shippers' Forum
December 10, 2020

DUR/TERI/PELJ

Current cases and Pipeline

Current Cases:

1. **Offshore tariff** complaints 2011-2018

2. **Ellund** Incremental Capacity Process
   - DUR and BNetzA have received Joint Proposal from GUD, OGE and Energinet. Joint decision expected by April 2021

3. **Baltic Pipe** URE/DUR agreement
   - Regulatory responsibility Baltic Pipe DK/PL

4. **Gas Target Model**
   - Postponed till after Tyra-Rebuild

Pipeline:

Expected **submissions** of methodology for regulatory approval:

Baltic Pipe:

- New DK/S balancing model
- Integration of North Sea offshore part into the current DK/S market model

NC TAR:

- New tariff methodology from October 2022

Market Report 2020

- Focus areas: Ellund, Tyra-rebuild, Trading

QUESTIONS?

The Danish Utility Regulator

DUR/TERI/PELJ

GAS STORAGE DENMARK

Shippers Forum

10. December 2020

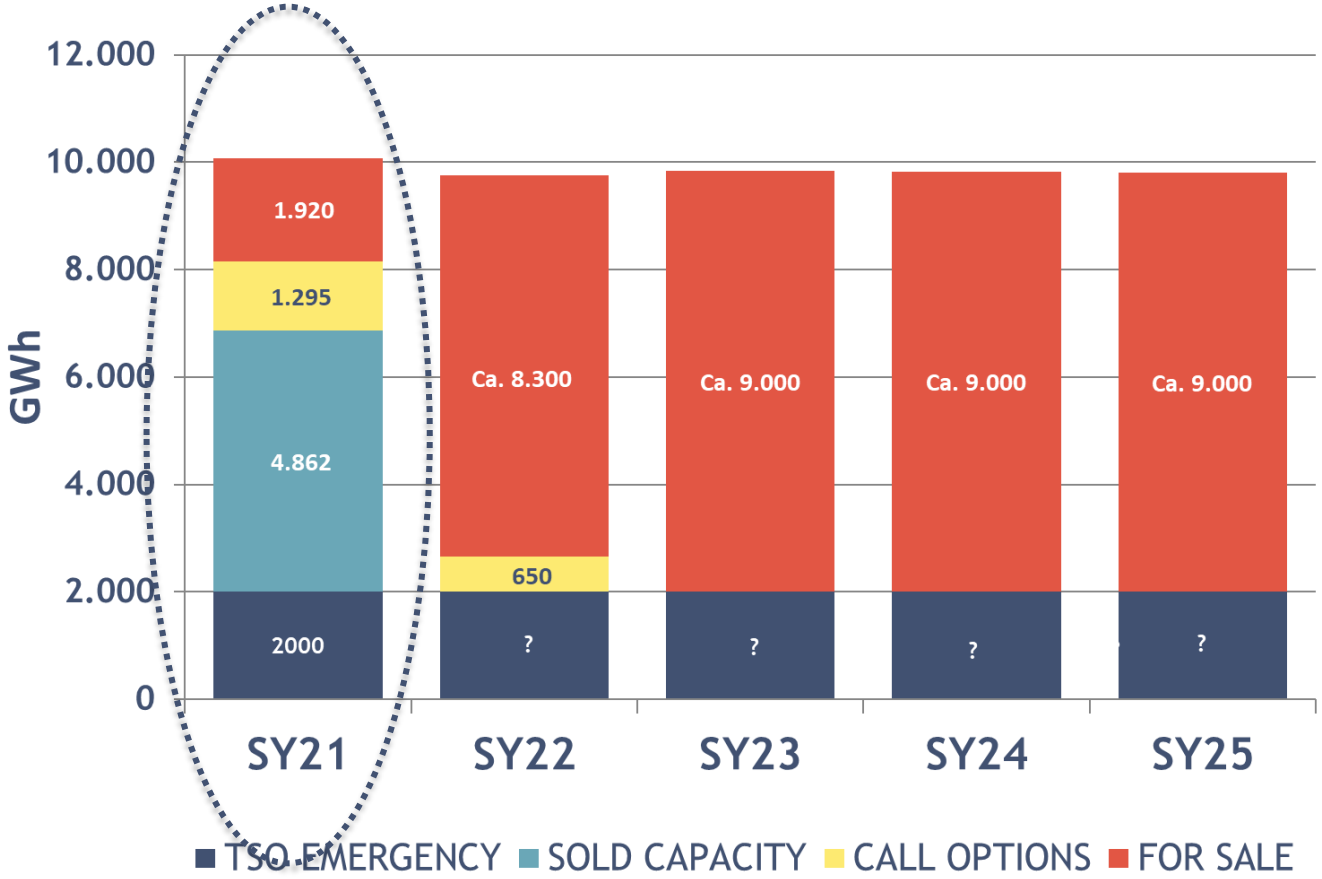
Presented by: Mads V. Boesen

AGENDA

1. SY21 capacity for sale
2. SY22 capacity for sale
3. Pricing SY-21 and SY-22
4. Market consultation
5. Green Hydrogen Hub

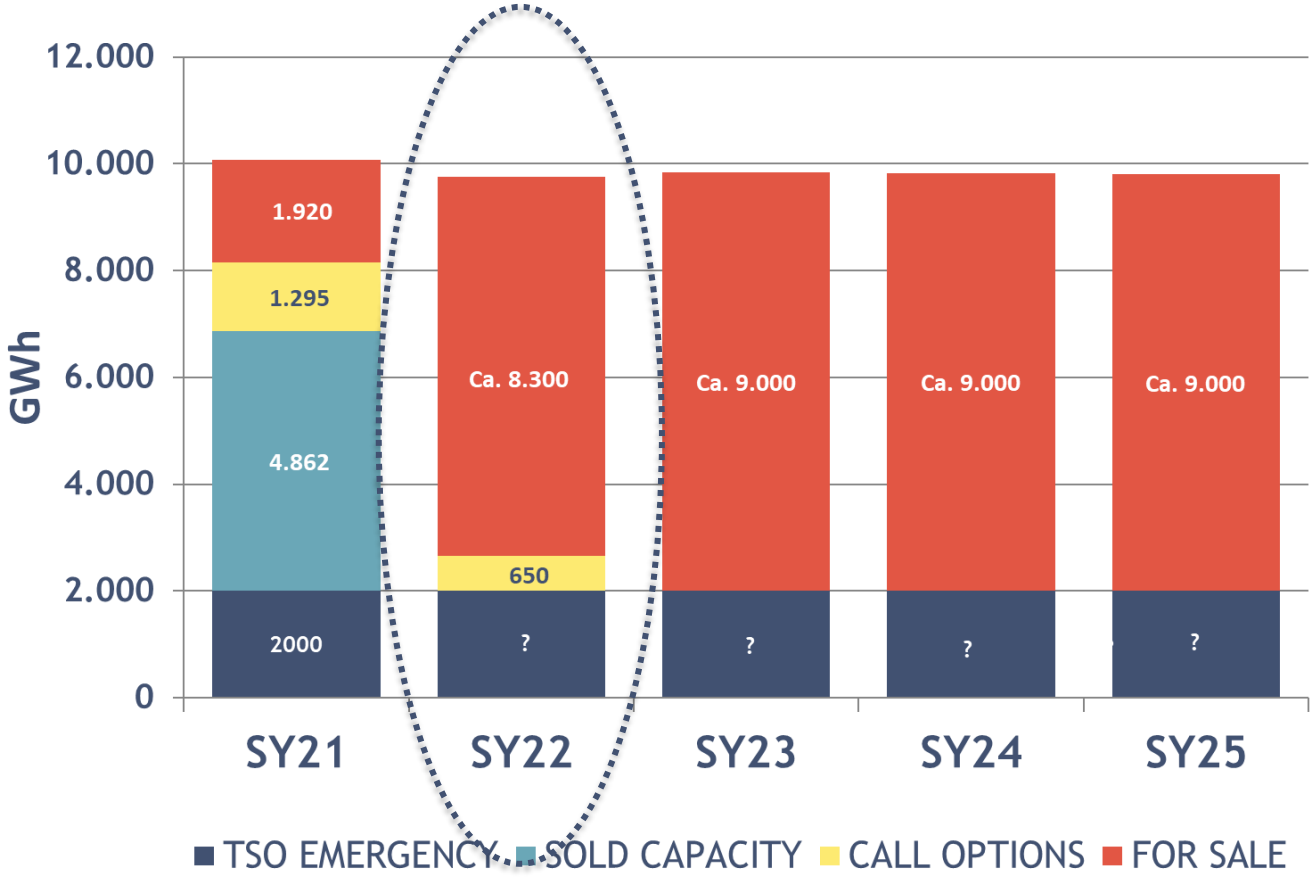
SY21 CAPACITY FOR SALE

- 920 GWh options are back for sale on FCFS
- 1,000 GWh reserved for auction Q1
- 1,295 GWh reserved on options (expires in Q1)



SY22 CAPACITY FOR SALE

- Tyra comeback postponed to June 2023
- 8,300 GWh for sale FCFS. Same pricing as previous years
- TSO emergency reservation:
  - Expected < 2.000 GWh
- 650 GWh reserved on options



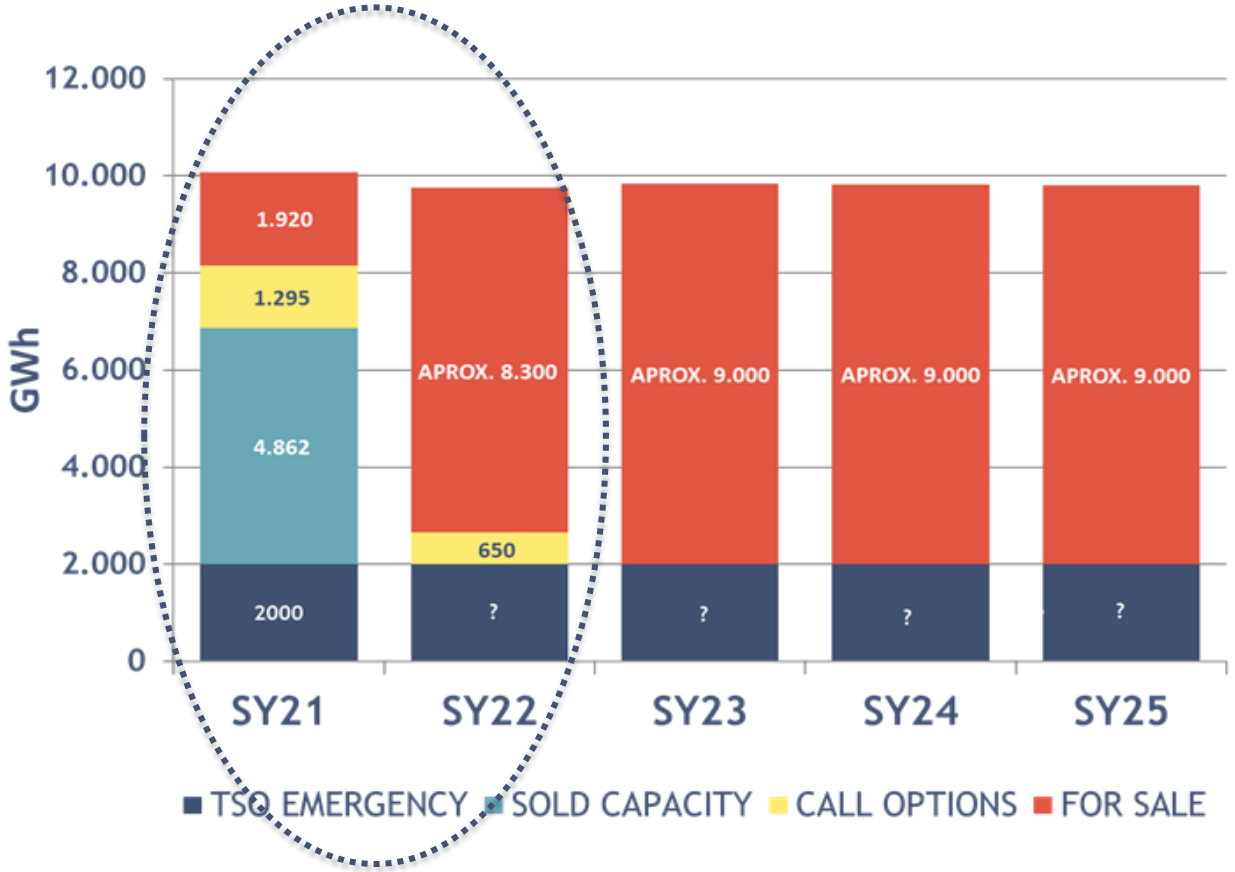
SY21 AND SY22 PRICING

SBU 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



Q1 2021 MARKET CONSULTATION

The Danish gas system is changing

- New pipelines
- New entry/exit flows
- New balancing regime
- Decreasing Danish consumption
- Increasing biogas production
- Low Ellund cap. after German mergers

GSD experiences interest for long term storage

- Design of new products & services needed ?
- Are the storage facilities optimized and prepared for the new needs ?
- The right decisions for investments/divestments are taken ?

Therefore GSD will conduct a market consultation

We invite all customers to share their thought about their storage positions in the future (from 2022)

- Questionnaire to all storage customers will be sent out
- Videomeetings for further clarification and discussions

GREEN HYDROGEN HUB

- GSD in collaboration with Eurowind Energy and Corre Energy is exploring the possibilities of establishing GREEN HYDROGEN HUB (GHH) combining giga-watt scale electrolyser plant with underground hydrogen-based storage solutions
- GHH aims to be the first fully commercially viable, 100% green, large-scale hydrogen production, storage and CAES solution
- More information on
  - gasstorage.dk
  - greenhydrogenhub.dk


Happy Holidays to all of you from GSD

GAS DISTRIBUTION

Henrik Brask Pedersen, Evida

Shippers Forum

Henrik Brask Pedersen

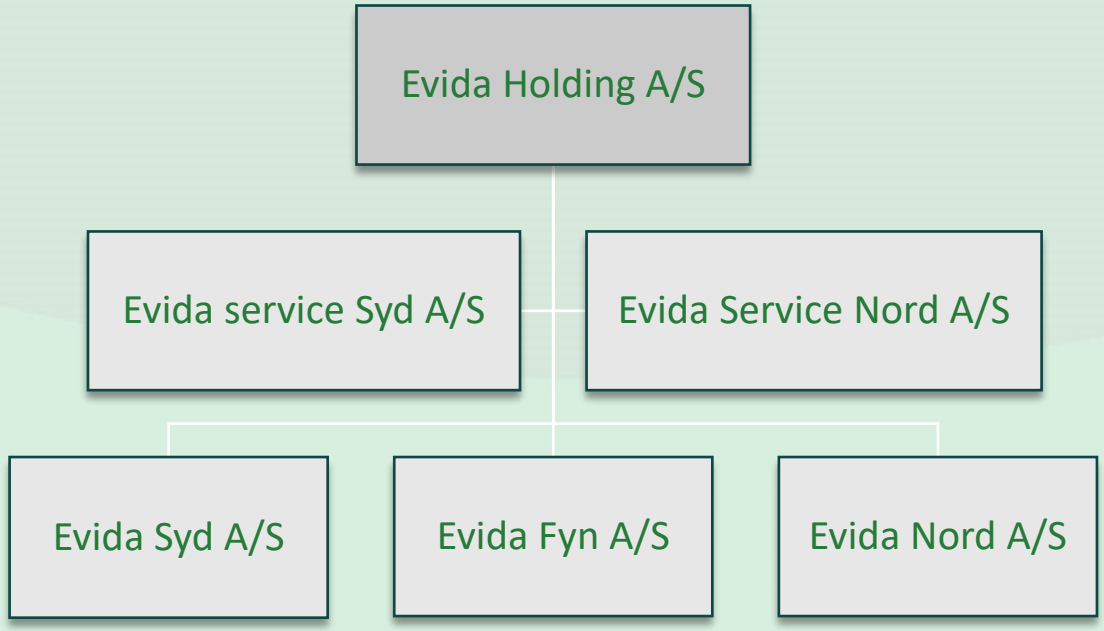
evida

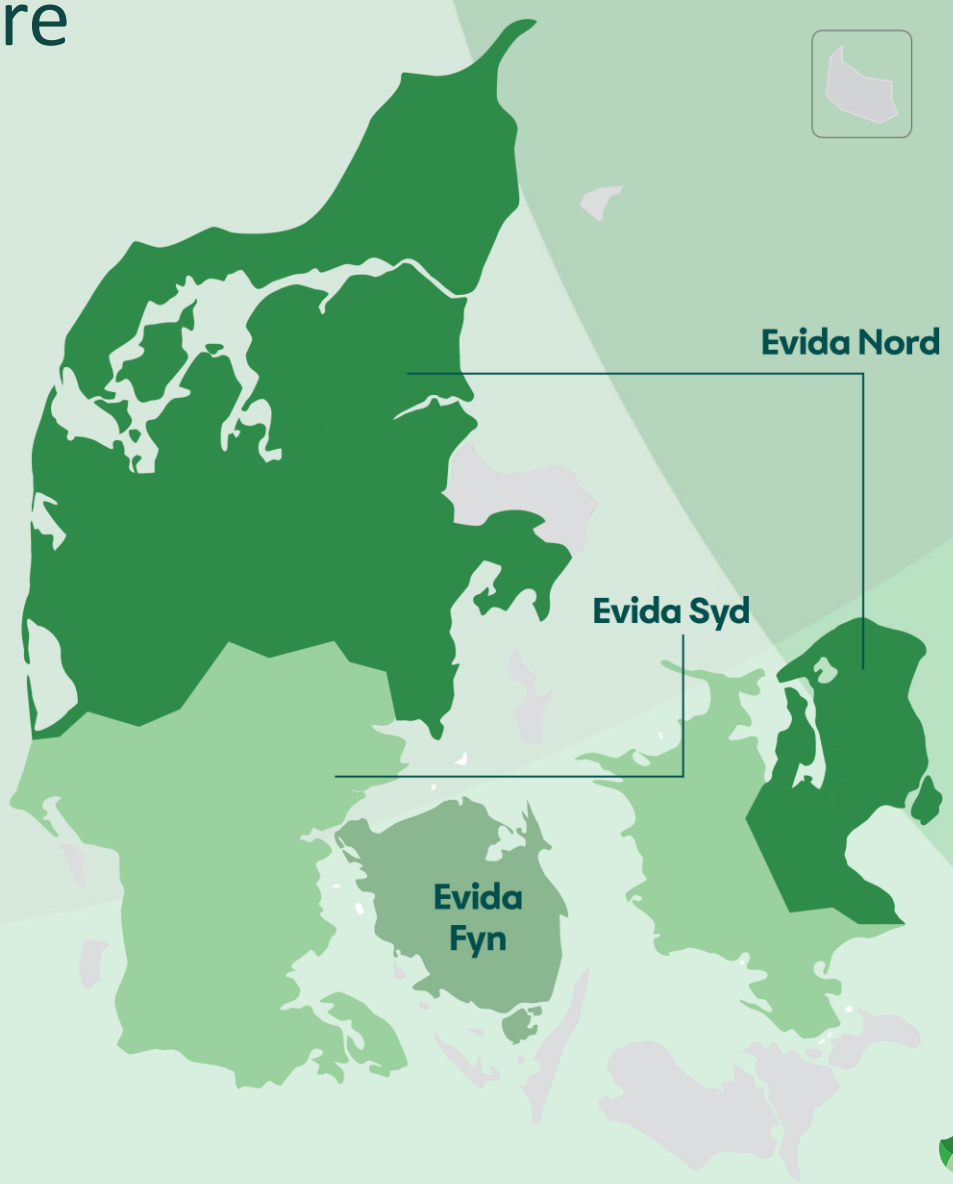
Ownership and company structure

Evida was bought by the Danish Ministry of Finance just last week

Until then a subsidiary of Energinet

Evida was established in October 2019 and is a merger of NGF Nature Energy, Dansk Gas Distribution and HMN GasNet





evida

Evida – the national gas distributor

✓ **Gasgrid**
We operate, maintain and construct the gas distribution grid across the country as part of Denmarks critical infrastructure

✓ **Consumers**
We transport gas to the consumers

✓ **Green transition**
We participate in the green transition by connecting biogas plants to the gas grid

✓ **Regulation**
We conduct tasks on behalf of the Danish Safety Technology Authority among them safety inspections of consumers gas appliances

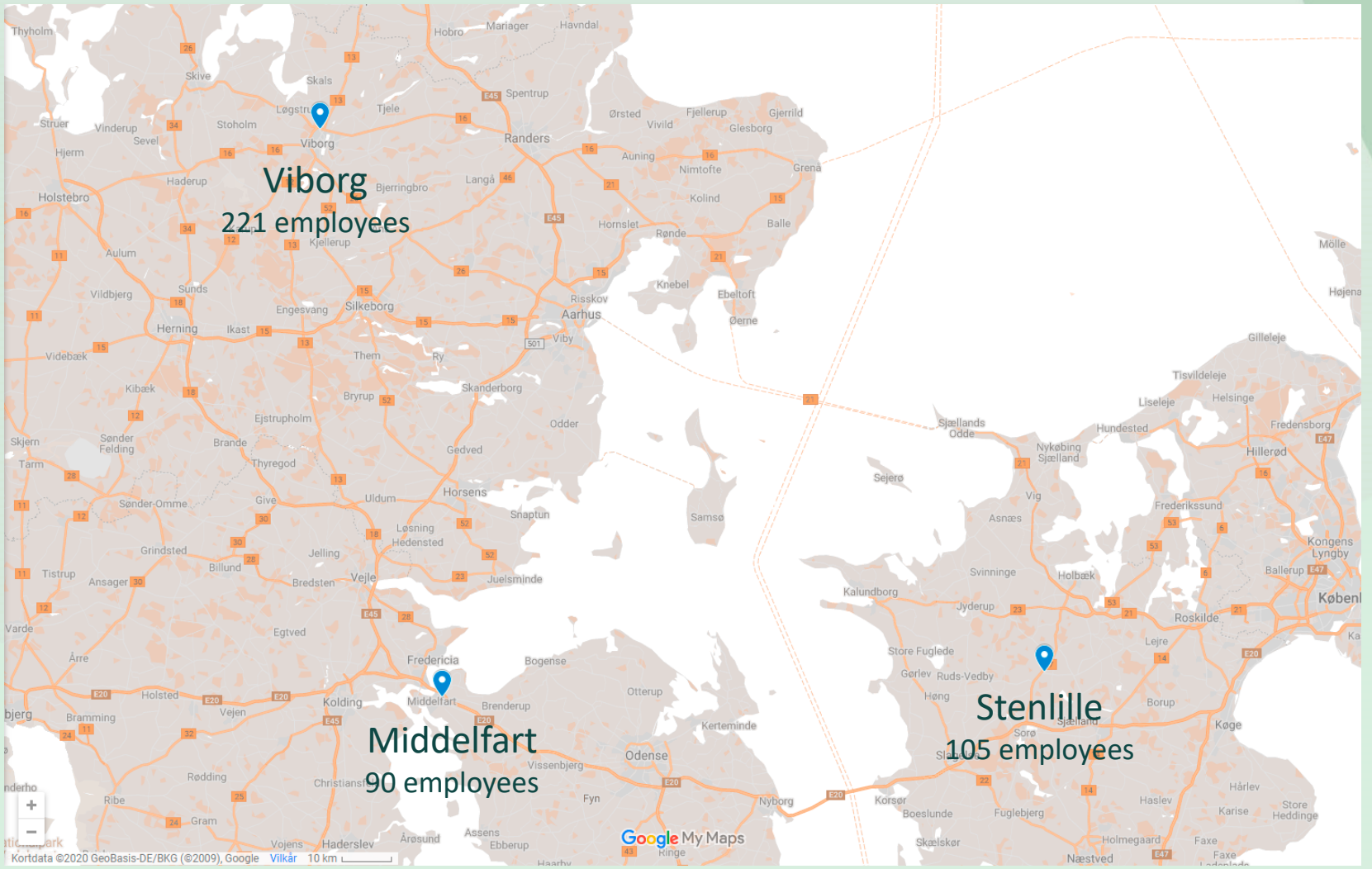
evida

Vision & mission

Our vision
Every we day work to design, maintain and develop the gas system enabling it to transport green renewable energy

Our mission
We ensure a safe and stable supply of gas and contribute actively in the green transition – with benefits for our costumers and the society

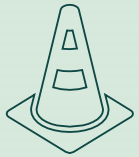
Locations and employees



Technical key figures – 2019

18.300 kilometer
plastic and steel pipes

49,3 kilometer
new gas grid in 2019 – hereof 35 km. to connect biogas plants



1.128 new service lines
Evida connects new costumers

1.959 disconnected service lines
when changing to an other energy carrier

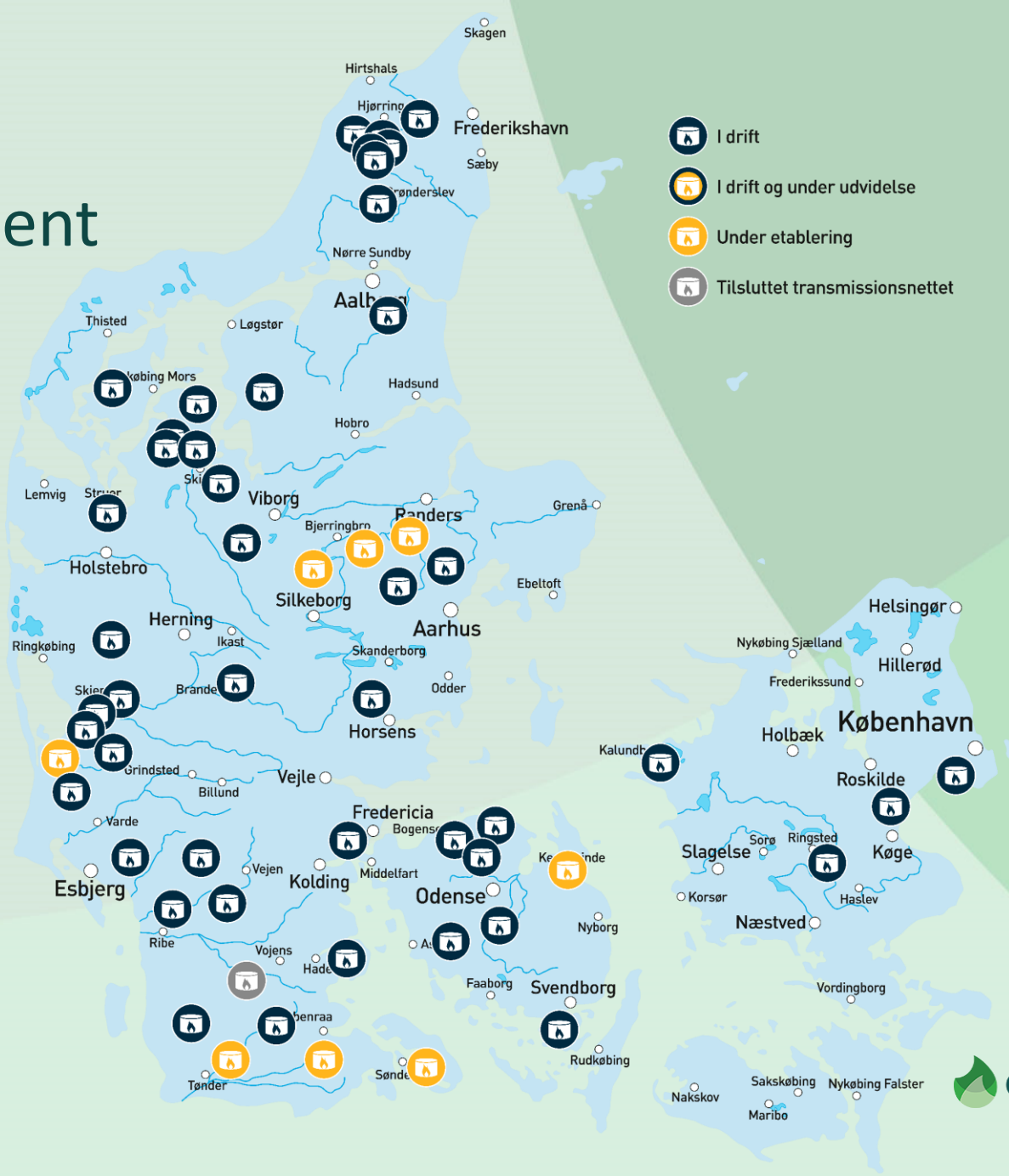
508 MR-stations
and 48 BMR-stations are monitored around the clock

58 compressors
put pressure on the biogas. The number is continually growing

evida

Current biogas development

- A share of about 21,2 % biogas in the Danish gas consumption as of December 2020
- An expectation of about 7 TWh / 630 mio. m³ of biogas by the end of 2020
- 52 biogas plants connected to the grid by the end of 2020



The future biogas plants

2014
Rønnovsholm
260 m³/h (3 MW)

Skraafoto

2018
Korskro
3.000 m³/h (33 MW)

Nature Energy

2019/2020
Vinkel Bioenergi
6.000 m³ (66 MW)

Steen Don / Skive Folkeblad

2018
Limfjordens Bioenergi
1.650 m³/h (18 MW)

Bigadan

2019
Arla Hvidebæk
2.600 m³ (28 MW)

Nature Energy

2020
Vesthimmerland
4.000 m³ (44 MW)

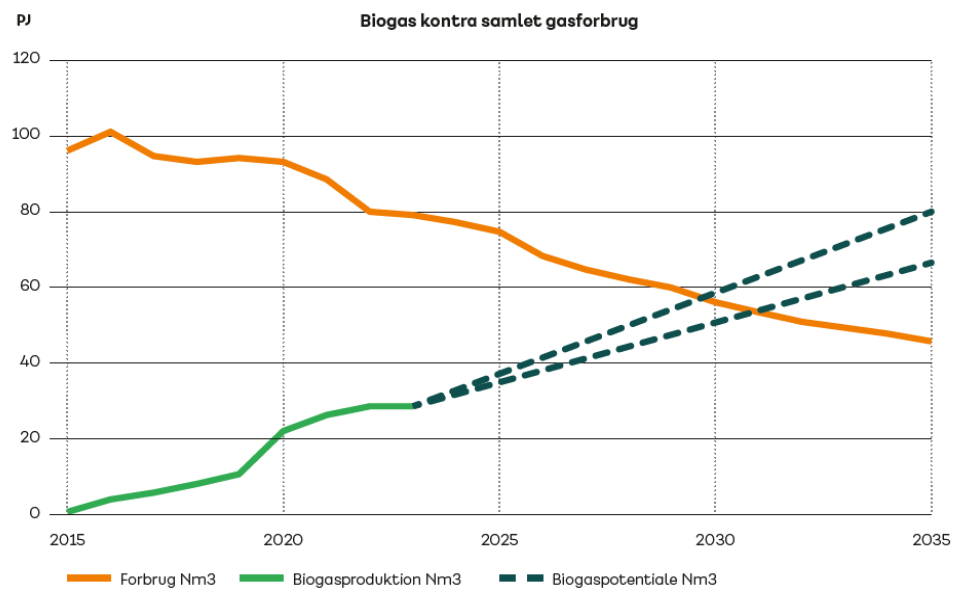
Henri Louis Simonsen / Nordjyske

evida

Evidas expectations the next couple of years

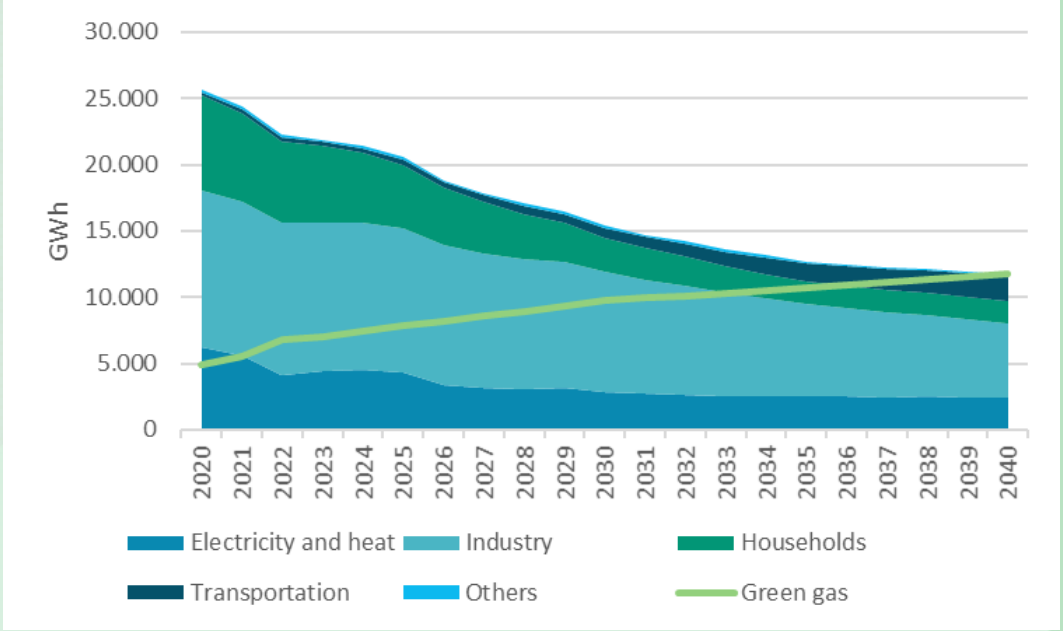
- By 2023 we expect a biogas share of 30 %
- The future is unclear but we expect more biogas

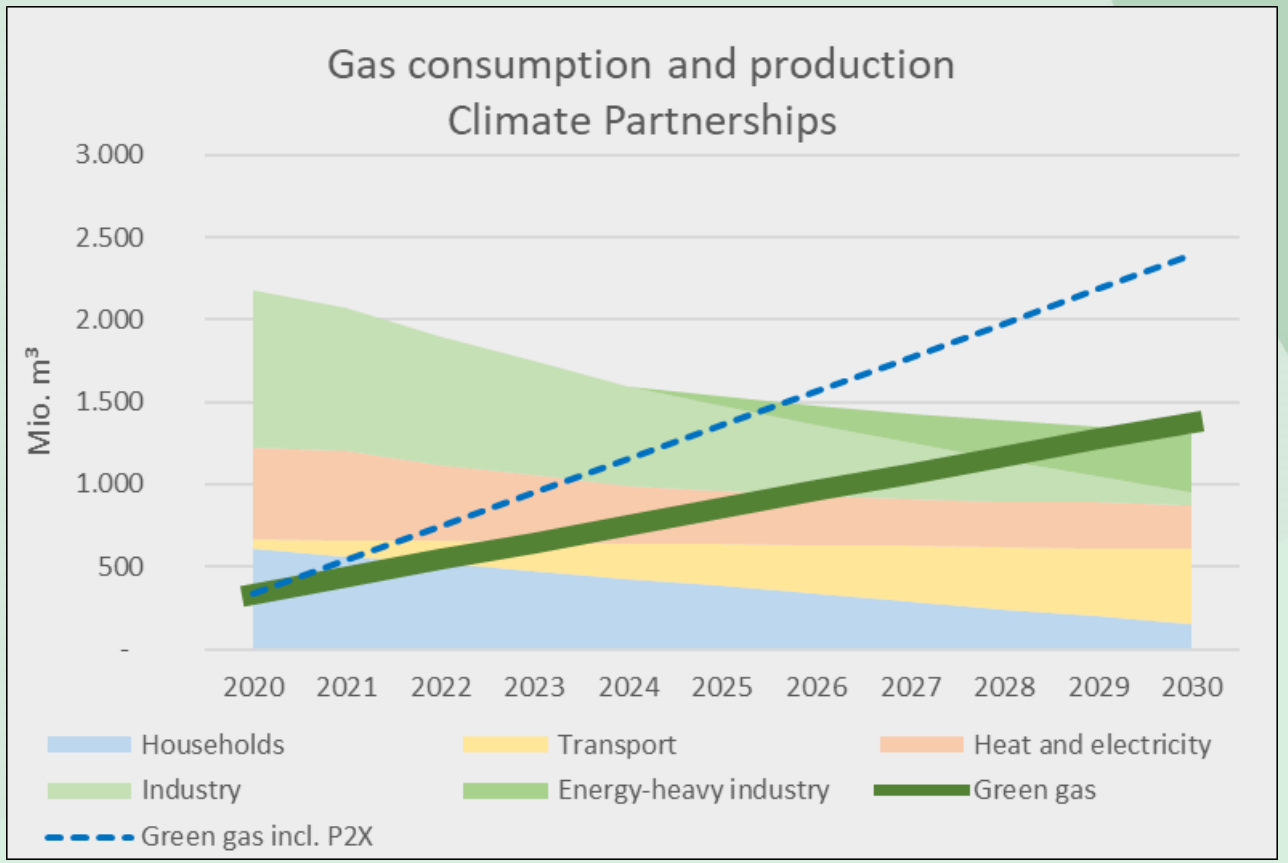
Udvikling i andelen af biogas i forhold til det samlede gasforbrug



Note: Det historiske forbrug er baseret på Energistyrelsens månedlige energistatistik for naturgas.
Fremtidigt forbrug er baseret på Analyseforudsætninger Energinet 2020.
Biogas frem til og med 2019 er faktisk forbrug.
Biogas fra og med 2020–2023 er fremskrivning af forventet biogasproduktion på baggrund af indgåede tilslutningsaftaler.
Biogas fra og med 2024–2035 er linueær fremskrivning af potentialet.

Projection of the gas demand and supply according to Energistyrelsens Analyseforudsætninger 2020




Gas consumption and production
Climate Partnerships
3.000
2.500
2.000
1.500
1.000
500
-
Mio. m³
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Households
Transport
Heat and electricity
Industry
Energy-heavy industry
Green gas
Green gas incl. P2X

The future for biogas in Denmark

- There is a huge potential for biogas in Denmark
- Research from SDU and SEGEs shows that the production of biogas can increase to 40 PJ by 2030 and 60 PJ by 2040 (Energiafgrødeanalysen 2020)
- There is a technical potential of more than 90 PJ
- Methanization can increase the potential to about 160 PJ
- The price of biogas is rapidly decreasing
- A recent study by Aarhus University, Danish Gas Technology Centre, Planenergi et al. funded by EUDP show a decline in the production cost of biogas by 30 % the last five years
- A potential for further reductions in the cost

evida

FINAL REMARKS

Clement Johan Ulrichsen, Energinet Gas TSO

SHIPPERS' FORUM 2021

Quarterly meetings

Second Thursday of the month

MARCH	JUNE	SEPTEMBER	DECEMBER
11	10	9	9

QUESTIONS

Contact: cju@energinet.dk