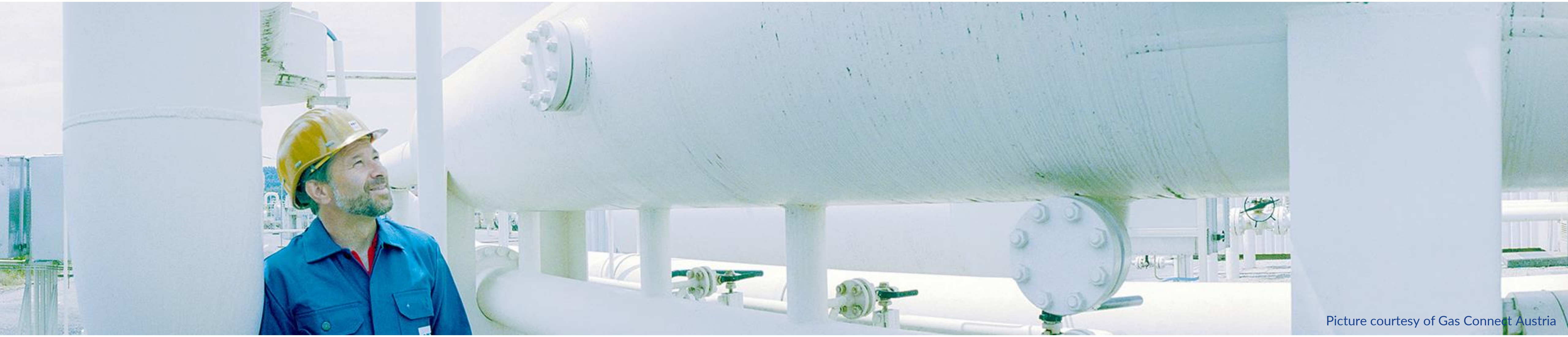
26 June 2024



Security of supply situation in the EU and the EnC

Gas(es) markets in Ukraine – the Reform and the Outlook perspective, 26 June 2024, Kyiv

ENTSOG, Hendrik Pollex and Anton Kolisnyk, System Operation Team

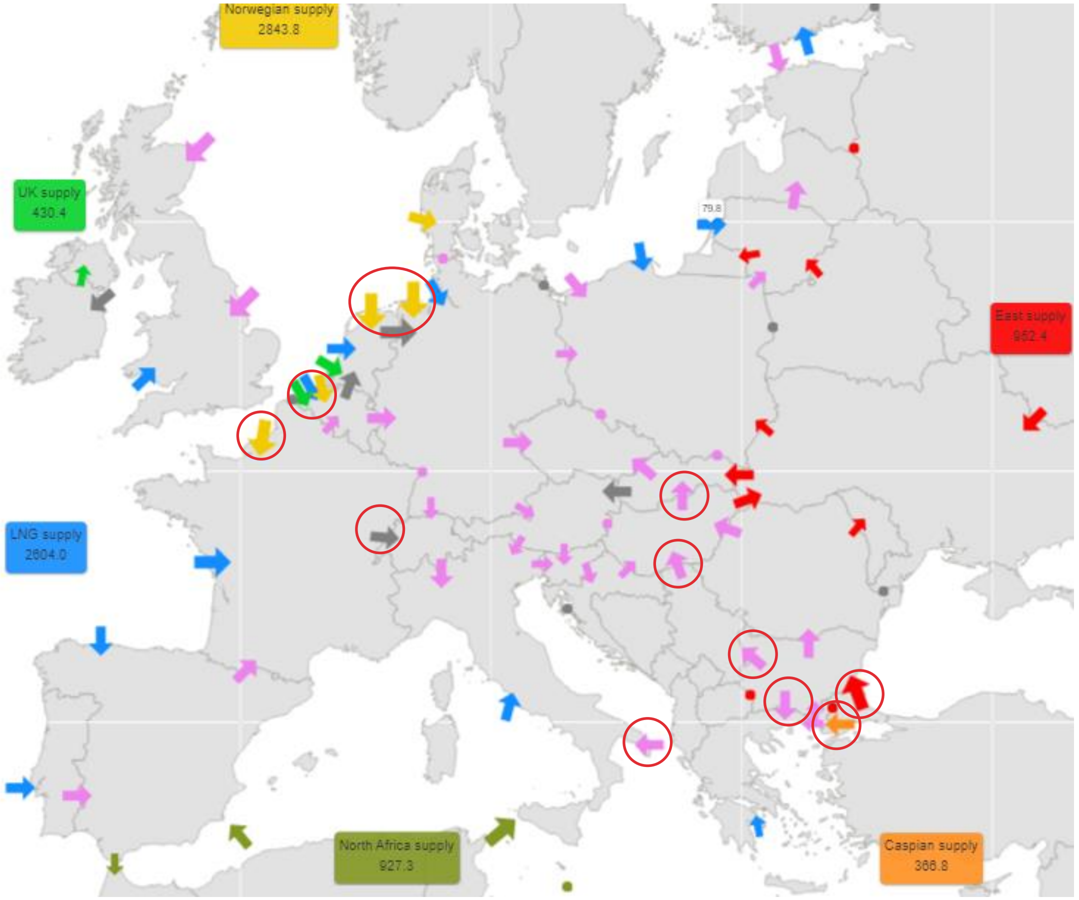
Introduction by Hendrik

- ENSTOG and GAS TSO UA as an observer
- External contact platform meetings
- Gas TSO UA in the ReCo System for Gas
- Cooperation with EnC Secretariat (SEEGAS Region, SoS Coordination Group, other)
- Bilateral meetings with Gas TSO UA
- Including UA gas system into ENTSOG's simulations of supply disruption scenarios
- Support of Ukraine since the beginning of the war

Gas Flows in Europe – Current Status

- Low gas consumption in 2024 (as in 2023) remain
- 2023-2024 – relatively stable gas flows patterns:
  - High flows and usage of LNG terminals with reasonable fluctuations
  - Supply from Norway close to max levels
    - Fluctuations due to maintenance works (impact on gas prices observed)
    - High usage of capacities from the Northwest region
  - TAP – close to max capacity usage
  - North Africa – normal gas flows to Italy and Spain
- Production:
  - Groningen field completely stopped
  - Danish productions reopened

Physical flows of gas from UA transit to SK, CZ, AT (further IT, SL)



High usage of capacities

New LNG & FSRU Projects 2022-2024

4. Germany
Brunsbuettel LNG
Start date: March 2023
Capacity: ~3,5 bcm/y

5. Germany
Baltic Energy Gate LNG
Start date: January 2023
Capacity: ~7,5 bcm/y

7. Finland
Hamina LNG
Start date: October 2022
Capacity: ~150 Mcm/y

3. Germany
Stade LNG
Start date: June 2024
Capacity: ~7,5 bcm/y

6. Finland / Estonia
Inkoo
Start date: March 2023
Capacity: ~5 bcm/y

2. Germany
Wilhelmshaven LNG
Start date: December 2022
Capacity: ~7,5 bcm/y
Wilhelmshaven LNG-2
Start date: H2 2024
Capacity: ~5 bcm/y

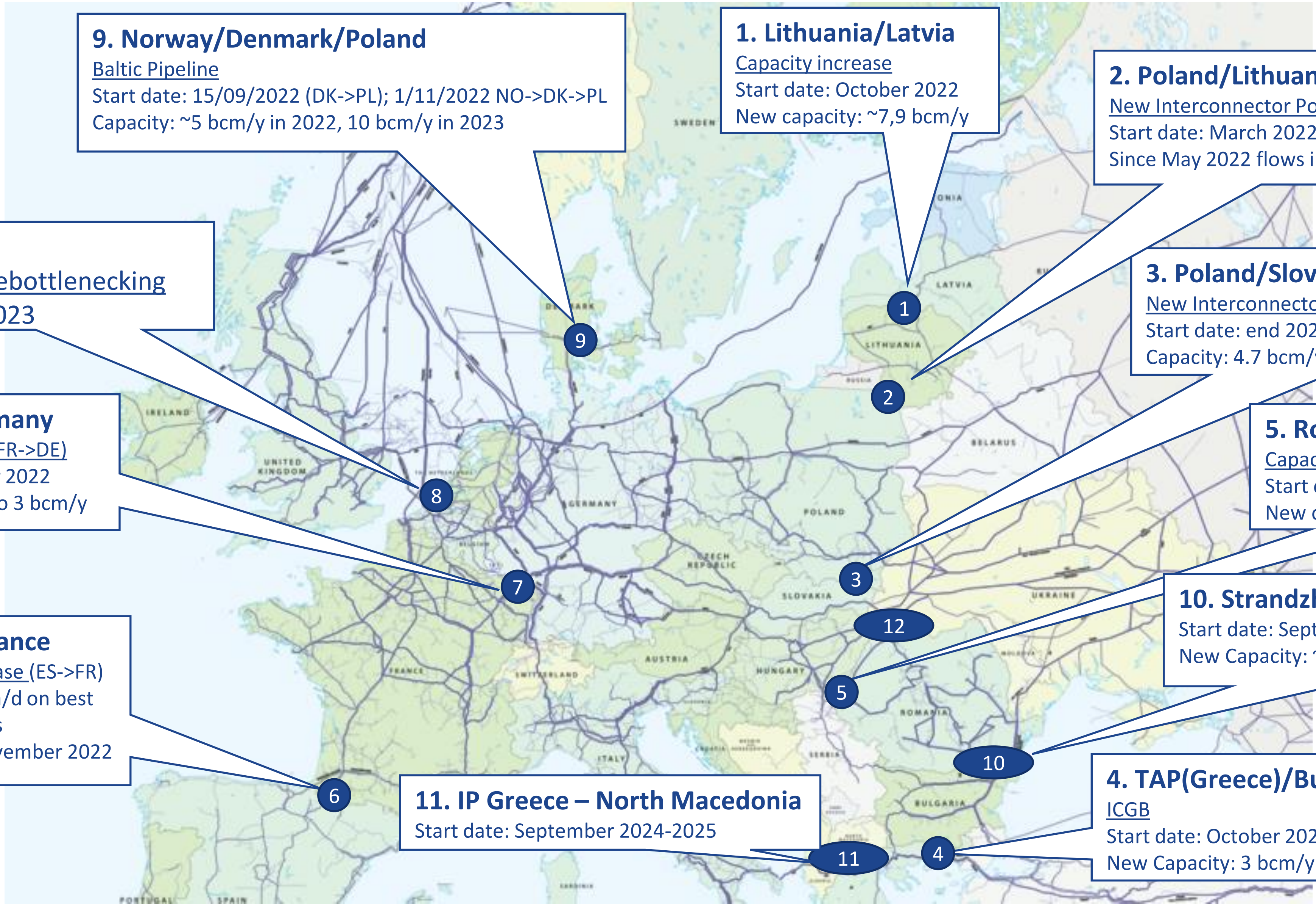
1. Netherlands
LNG EEMS ENERGY TERMINAL
Start date: 15/09/2022
Capacity: ~7 bcm/y

8. Italy
FSRU 1 (Piambino)
Start date: May 2023
Capacity: ~5 bcm/y
FSRU 2 (Ravenna)
Start date: end 2024
Capacity: ~5 bcm/y

10. Greece
FSRU Alexondropolus
Start date: June 2024
Capacity: ~5 bcm/y

9. Spain
LNG Musel
Start date: 1/07/2023
Capacity: ~8 bcm/y

New Infrastructure Projects 2022 - 2024



9. Norway/Denmark/Poland
Baltic Pipeline
Start date: 15/09/2022 (DK->PL); 1/11/2022 NO->DK->PL
Capacity: ~5 bcm/y in 2022, 10 bcm/y in 2023

1. Lithuania/Latvia
Capacity increase
Start date: October 2022
New capacity: ~7,9 bcm/y

2. Poland/Lithuania
New Interconnector Poland Lithuania
Start date: March 2022
Since May 2022 flows in both directions

8. Belgium
Zeebrugge hub debottlenecking
Start date: end 2023

3. Poland/Slovakia
New Interconnector Poland-Slovakia
Start date: end 2022
Capacity: 4.7 bcm/y (PL->SK); 5.7 bcm/y (SK->PL)

7. France/Germany
Capacity increase (FR->DE)
Start date: October 2022
New Capacity: up to 3 bcm/y

5. Romania/Hungary
Capacity increase (RO->HU)
Start date: October 2022
New capacity: ~2,4 bcm/y

10. Strandzha 1 Turkey/Bulgaria
Start date: September 2023
New Capacity: ~3,5 bcm/y

6. Spain/France
Capacity increase (ES->FR)
Around 4 Mcm/d on best endavour basis
Start date: November 2022

11. IP Greece – North Macedonia
Start date: September 2024-2025

4. TAP(Greece)/Bulgaria
ICGB
Start date: October 2022
New Capacity: 3 bcm/y in 2022 (TAP->BG)

ENTSOG Assessments on SoS

Main outcomes, based on full ru supply disruption scenarios:

- High TSO systems flexibility
  - Some risks for specific areas in case of no ru supply and severe weather conditions (e.g. Balkans)
- Importance of LNG supply and diversification locations of LNG terminals
- Importance of high storage filling levels and high withdrawal capacities during winter periods
- Lower demand helps to avoid SoS risks
- Planning in advance helps
- Importance of close cooperation between MSs
- Efficient reaction of the gas market and availability to deliver gas to the EU is crucial

1 January 2025 and No Transit via Ukraine

- Gas flows pattern will be changed - more flows from West to Central and East (AT, SK, CZ) and Italy
  - Russian gas will be replaced with more LNG to the EU:
    - Higher usage of capacities, e.g. Germany->Austria, Germany-> Czech Republic
    - Gas quality parameters will be changing in the Central East Region
  - High storage filling level is crucial to pass the coming winters
  - Usage of UA system for transporting gas between EU MSs will provide more flexibility and SoS
  - Usage of UA storage will strengthen SoS
  - Infrastructure development in the EU, and in particular connecting Balkan region will help, e.g
    - FSRU Alexondropolus
    - Vertical corridor
    - New IP between Greece and North Macedonia

Thank you for your attention

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