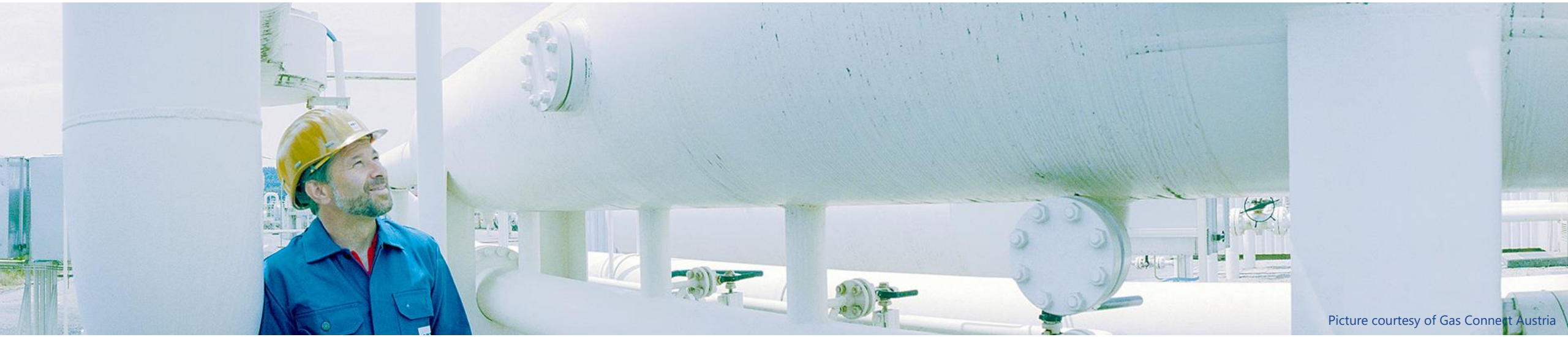

Picture courtesy of Gas Connect Austria

Addendum to EU-wide Security of Supply simulation 2017

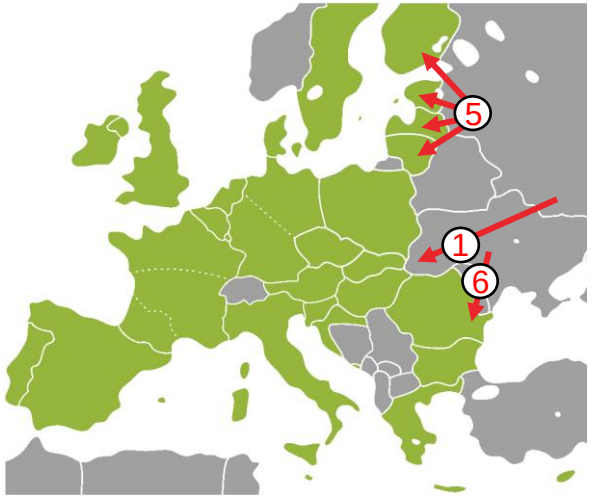
Addendum to the Union-wide simulation of gas supply and infrastructure disruption scenarios (SoS simulation) 2017

Kacper Żeromski – System Development

Brussels

Rationale

- New context since 2017
  - major infrastructures have been commissioned in 2019, beneficial for the European security of gas supply (e.g. Baltic connector between Finland and Estonia and a new import capacity from Turkey to Bulgaria)
- Some disruption scenarios are likely to show a different picture as of 2020
  - Ukraine disruption
  - Imports to the Baltic States and Finland
  - Disruption of the largest infrastructure to the Balkan region
- The impact of additional infrastructure commissioned since 2017 also needs to be assessed



In March 2020, the Gas Coordination Group (GCG) approved the publication of an addendum to the EU-wide SoS simulation for those 3 disruption scenarios

According to Regulation (EU) 2017/1938, next edition of SoS Report will be revised in 2021:
"The Union-wide simulation of gas supply and infrastructure disruption scenarios shall be repeated every four years unless circumstances warrant more frequent updates."

Assumptions

Supply

- **Storage** level in October: set at historical low **82%** across EU (42,7% in LV) using current working gas volumes **1,109 TWh**
- **EU cooperative approach:** All EU Member States are assumed to cooperate to limit the possible impacts
- Gas import potentials updated in line with TYNDP 2020 Scenario Report https://www.entsos-tyndp2020-scenarios.eu/
- National Production capacities provided by TSOs (in line with Winter Supply Outlook 2020/2021)

Infrastructure

- European infrastructure as of May 2020

Demand (same as SoS 2017)

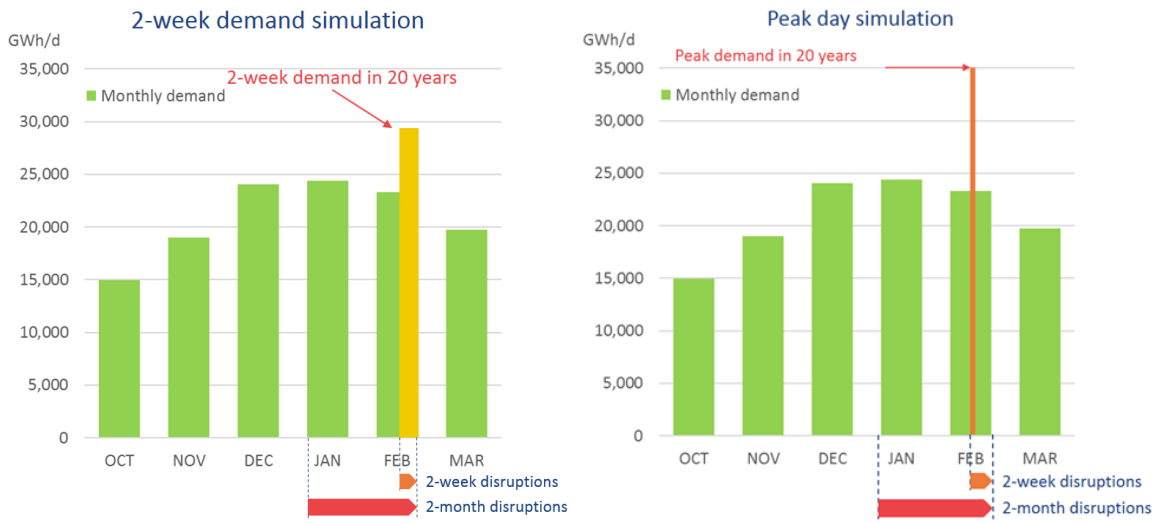
- Same demand levels as SoS 2017 simulation

Disruption cases (same as SoS 2017)

- Trans-Balkan: 2 weeks + March
- Ukraine ; Baltic States and Finland: 2 months

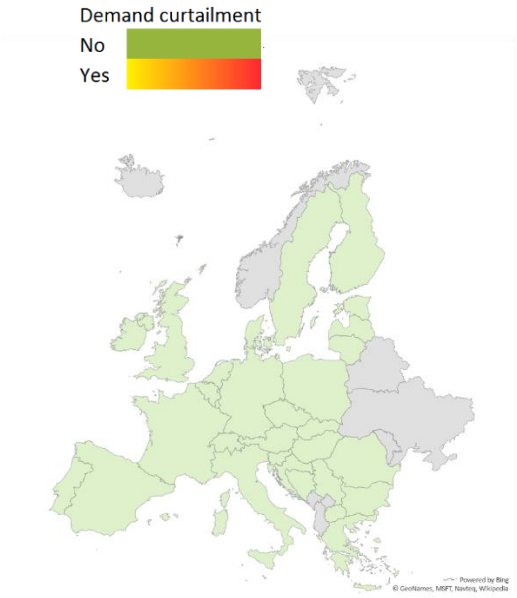
High demand situations (same as SoS 2017)

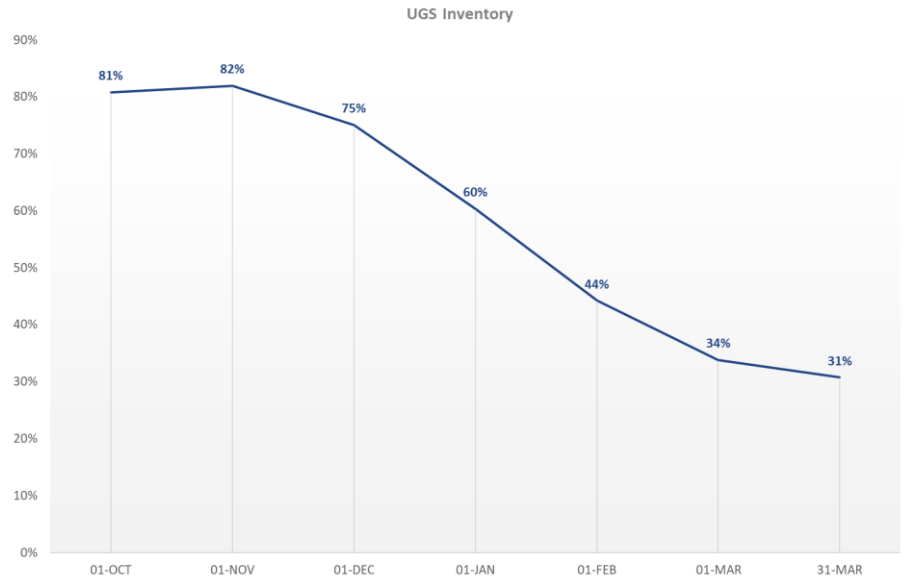
- 1-in-20 Peak day
- 1-in-20 2-week cold spell

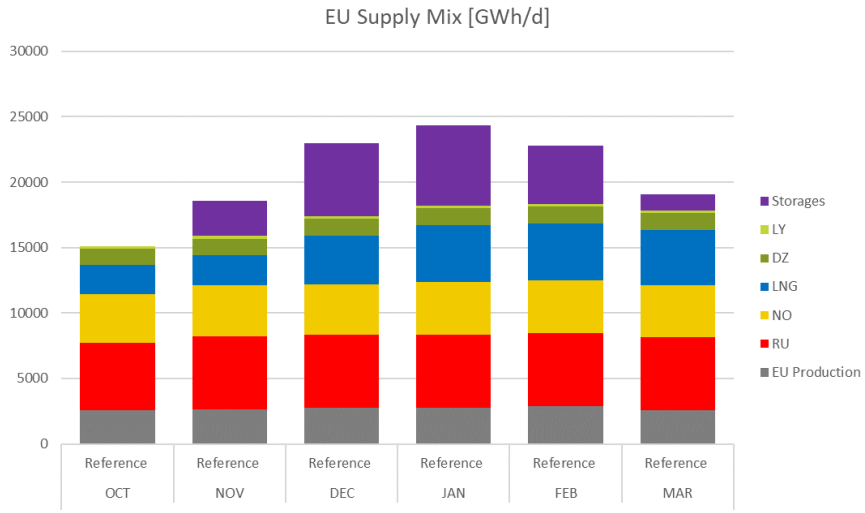


Results – Reference Scenario, Cold Winter

No supply disruption





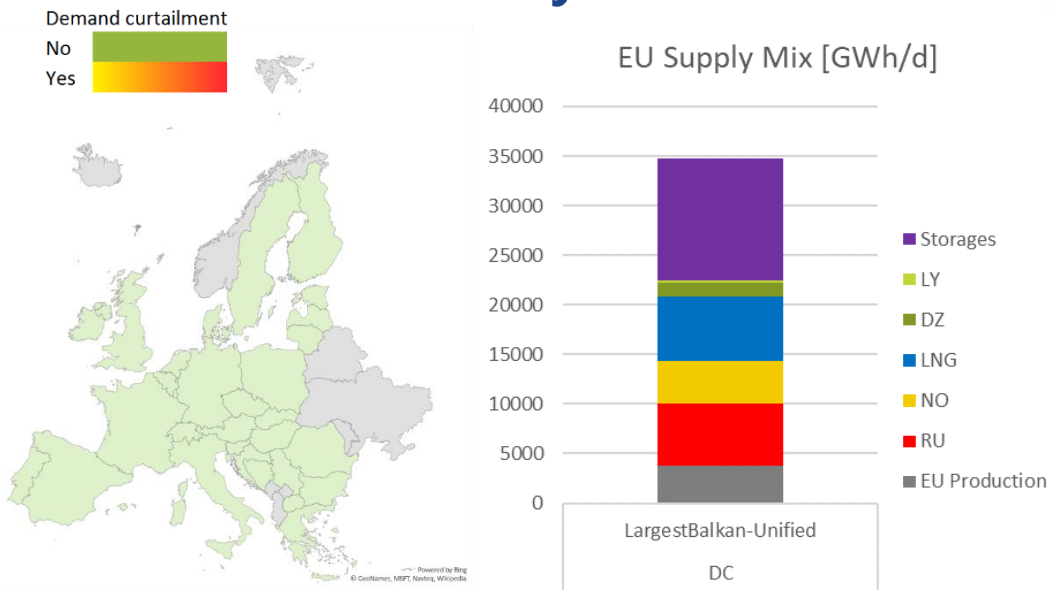


- No country is exposed to demand curtailment.
- Exports to Ukraine (UA) can be maintained.

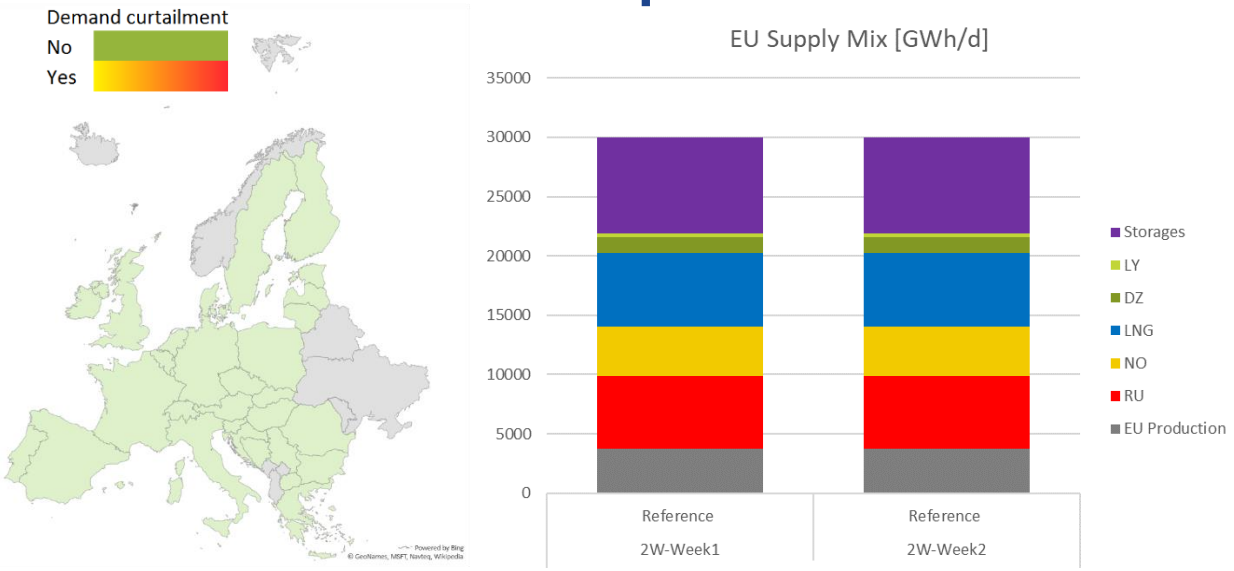
Results – Reference Scenario

No supply disruption

Peak day



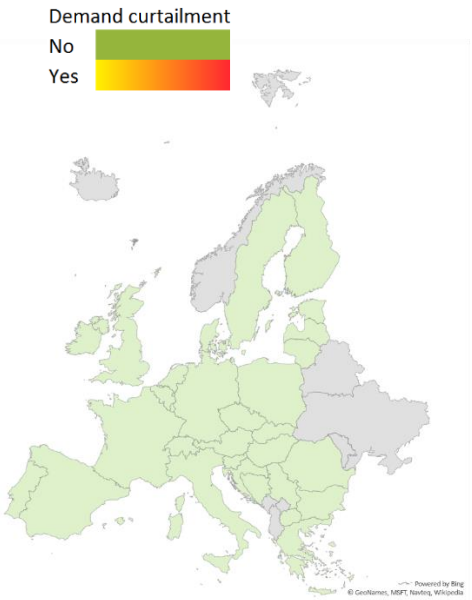
2-week Cold Spell

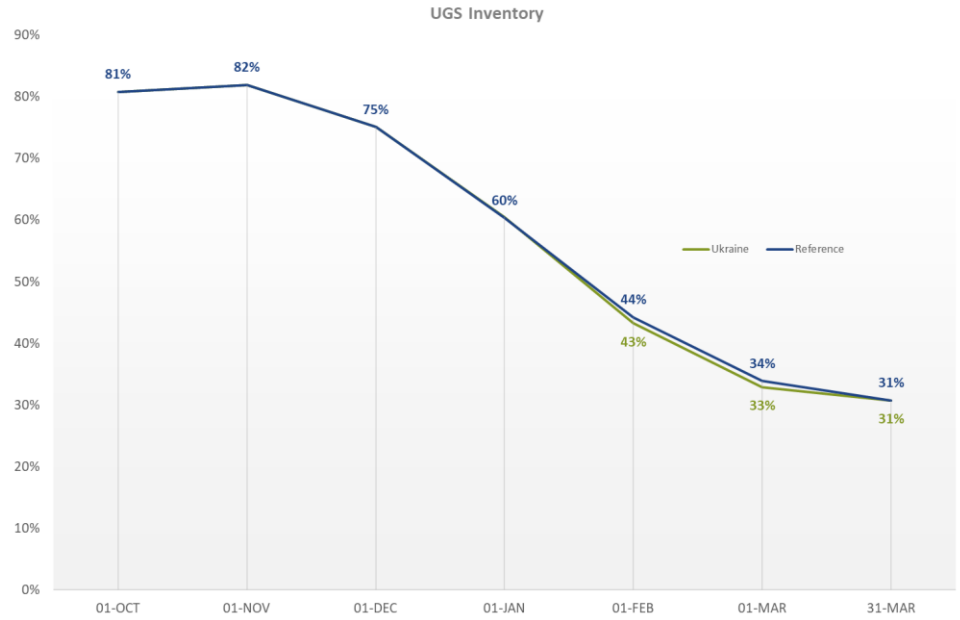


- No country is exposed to demand curtailment.
- Exports to Ukraine (UA) can be maintained.

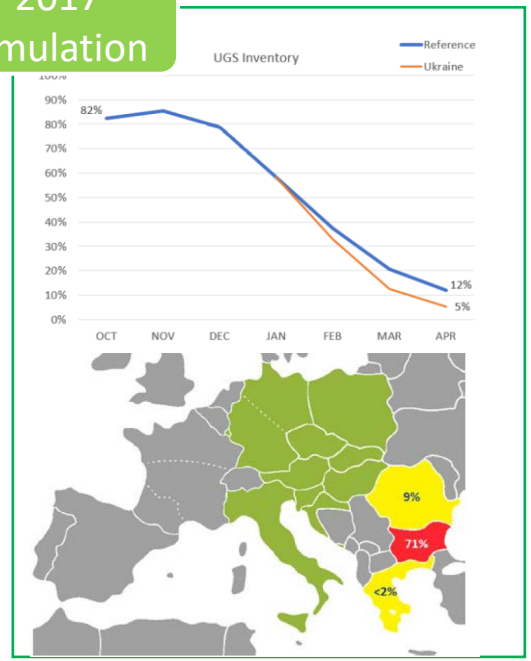
Results – Ukraine disruption Scenario

2-month disruption of EU imports via Ukraine





2017 simulation



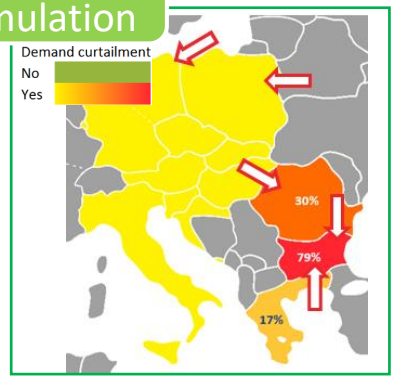
- No country is exposed to demand curtailment in an average winter day.
- Exports to Ukraine (UA) can be maintained.
- Storage usage very similar to Reference situation.

Results – Ukraine disruption Scenario

2-month disruption of EU imports via Ukraine

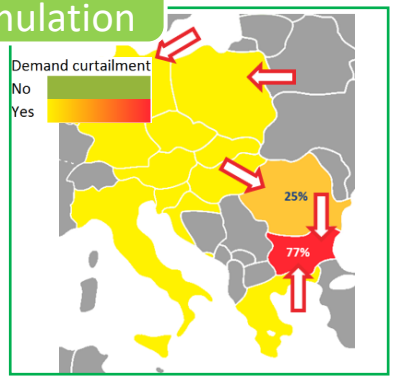
Peak day

2017 simulation



2-week Cold Spell

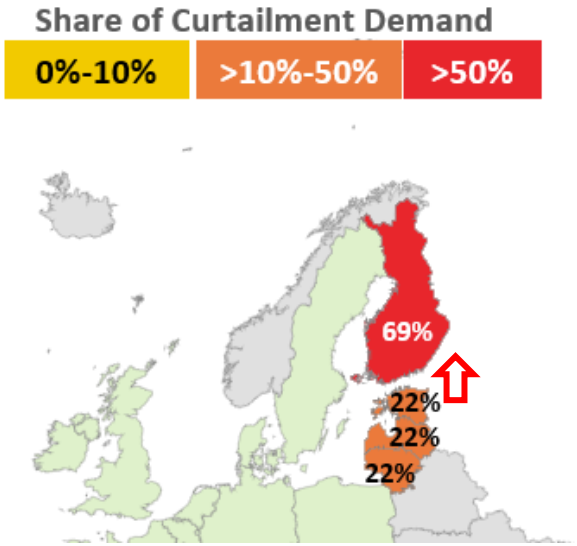
2017 simulation

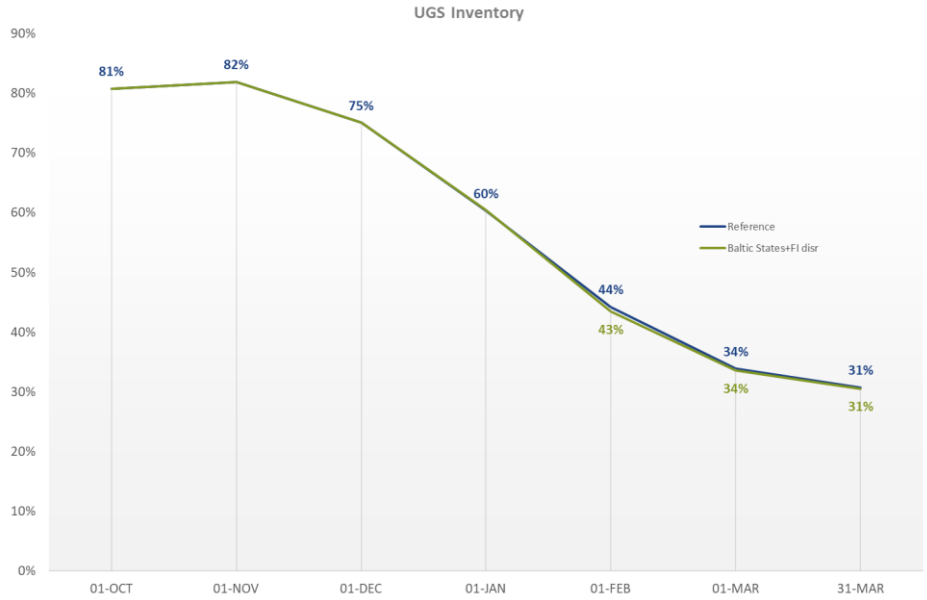


- Gas flows from Russia can be re-routed via alternative routes (Belarus, Nord Stream and Turk Stream).
- Romania remains exposed to limited demand curtailment due to infrastructure limitations with Hungary and Bulgaria.
- Exports from EU to Ukraine can be maintained..

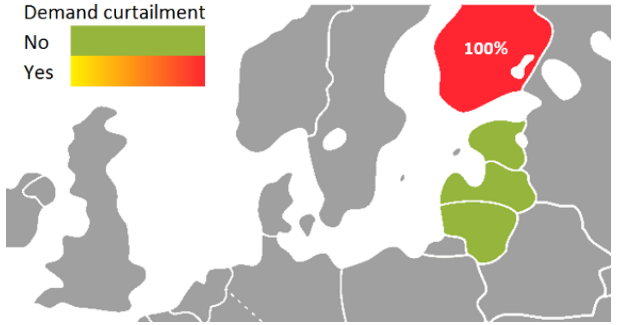
Results – Baltic States and Finland disruption Scenario

2-month disruption of EU imports to Baltic States and Finland





2017 simulation

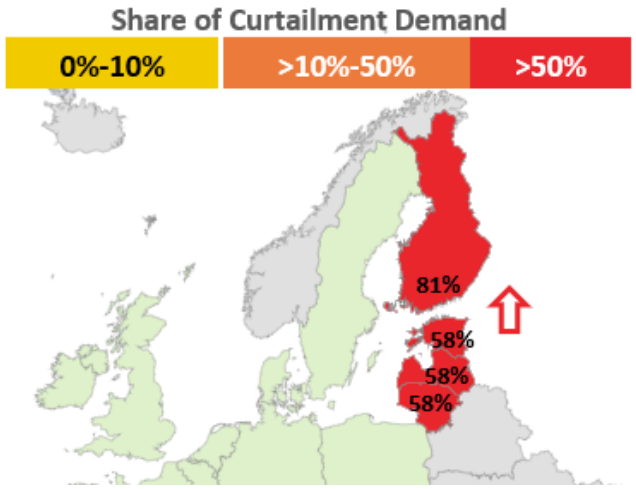


- Commissioning of Baltic connector pipeline allows Finland and the Baltic States to cooperate efficiently up to maximum technical possibility
- Finland remains potentially exposed to a significant level of demand curtailment

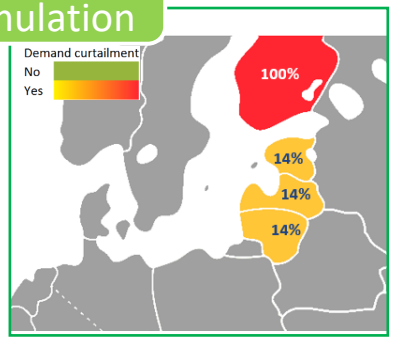
Results – Baltic States and Finland disruption Scenario

2-month disruption of EU imports to the Baltic States and Finland

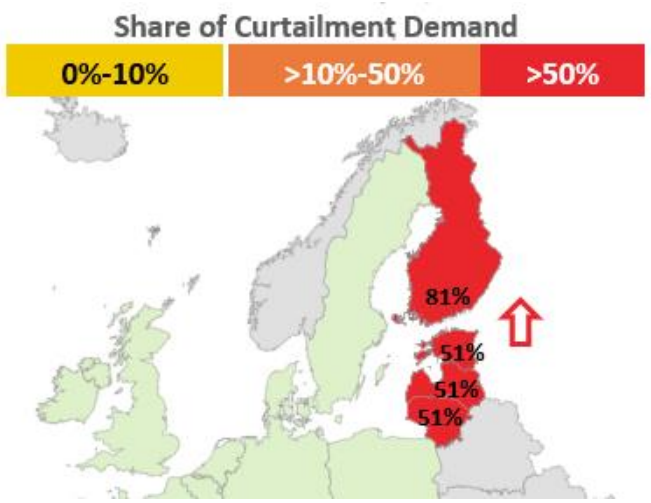
Peak day



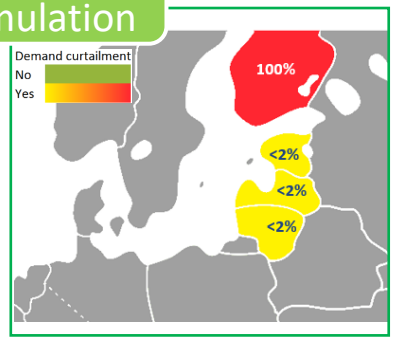
2017 simulation



2-week Cold Spell



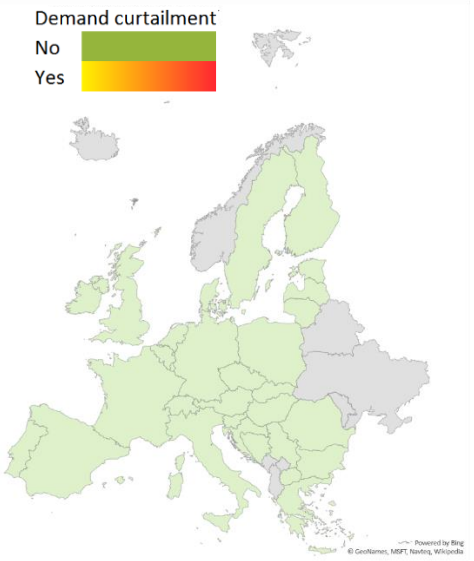
2017 simulation

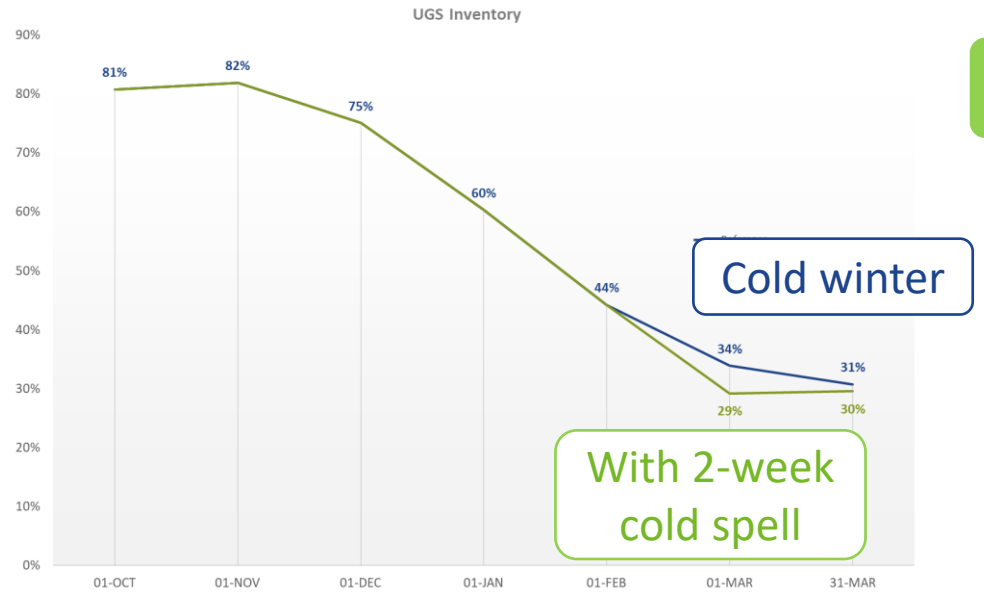


- Higher use of Latvian storage, up to maximum technical possible flow.
- Commissioning of the Baltic connector pipeline allows Finland and the Baltic States to cooperate efficiently up to maximum technical possibility.
- Finland and the Baltic States remain potentially exposed to a significant level of demand curtailment.

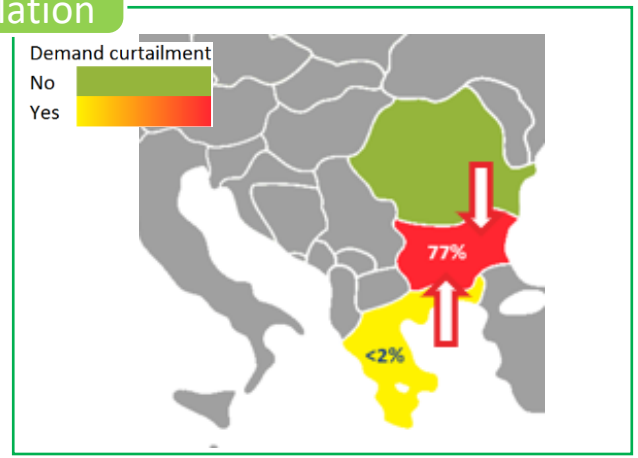
Results – Disruption of the largest infrastructure to the Balkans

Cold winter with 2-week cold spell





2017 simulation

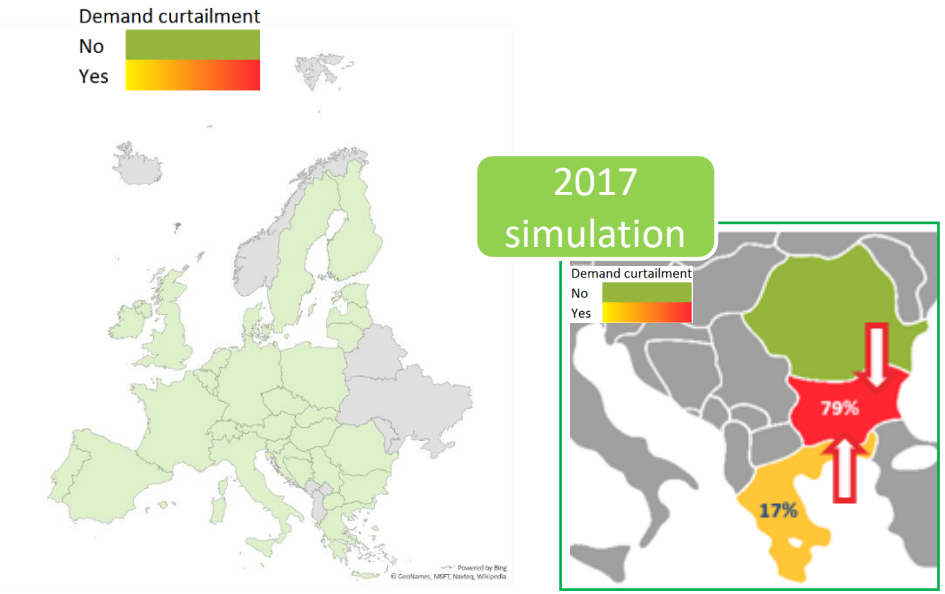


- Higher usage of storages during 2-week cold spell
- No country is exposed to demand curtailment in any demand case
- Infrastructure development in the region has mitigated the risk of demand curtailment for those countries exposed in 2017 simulation

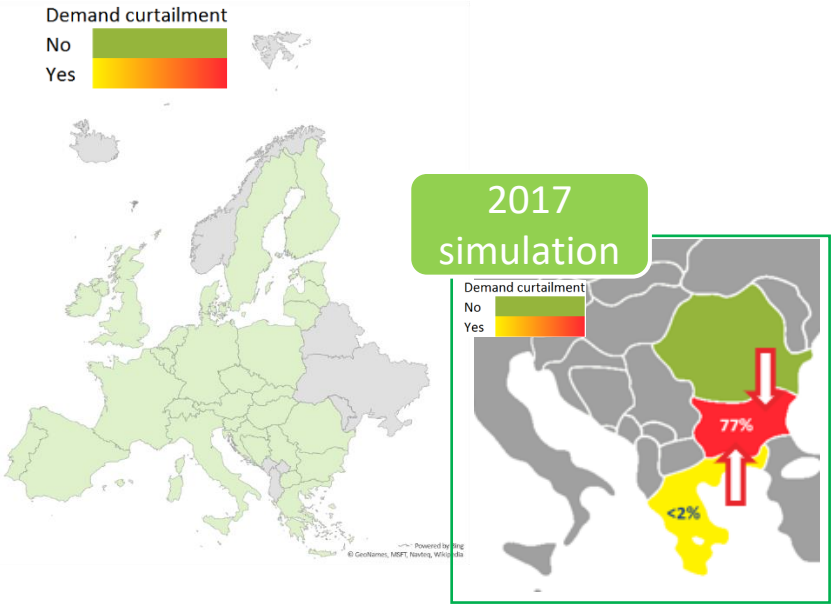
Results – Disruption of the largest infrastructure to the Balkans

2-week disruption

Peak day



2-week Cold Spell



- No country is exposed to demand curtailment in any demand case
- Infrastructure development in the region has mitigated the risk of demand curtailment for those countries exposed in 2017 simulation

Thank you for your attention

Kacper Żeromski – System Development

kacper.zeromski@entsog.eu

ENTSOG - European Network of Transmission System Operators for Gas
Avenue de Cortenbergh 100, 1000 Bruxelles

www.entsog.eu | info@entsog.eu