

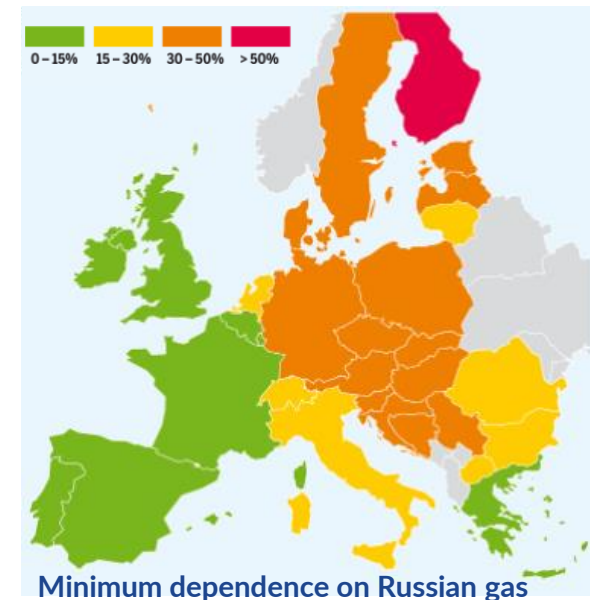
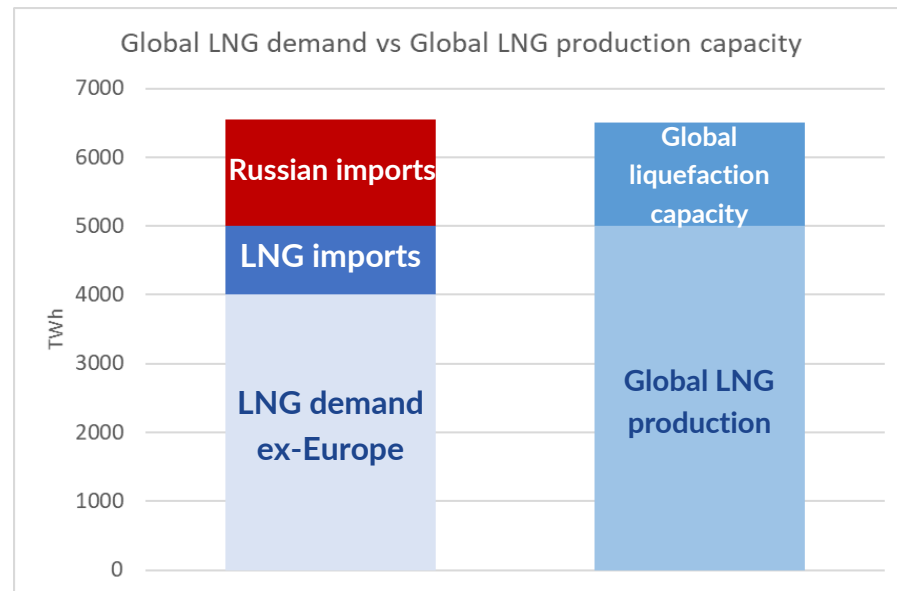
Dependence of the EU on Russian gas supply

REpowerEU assessment

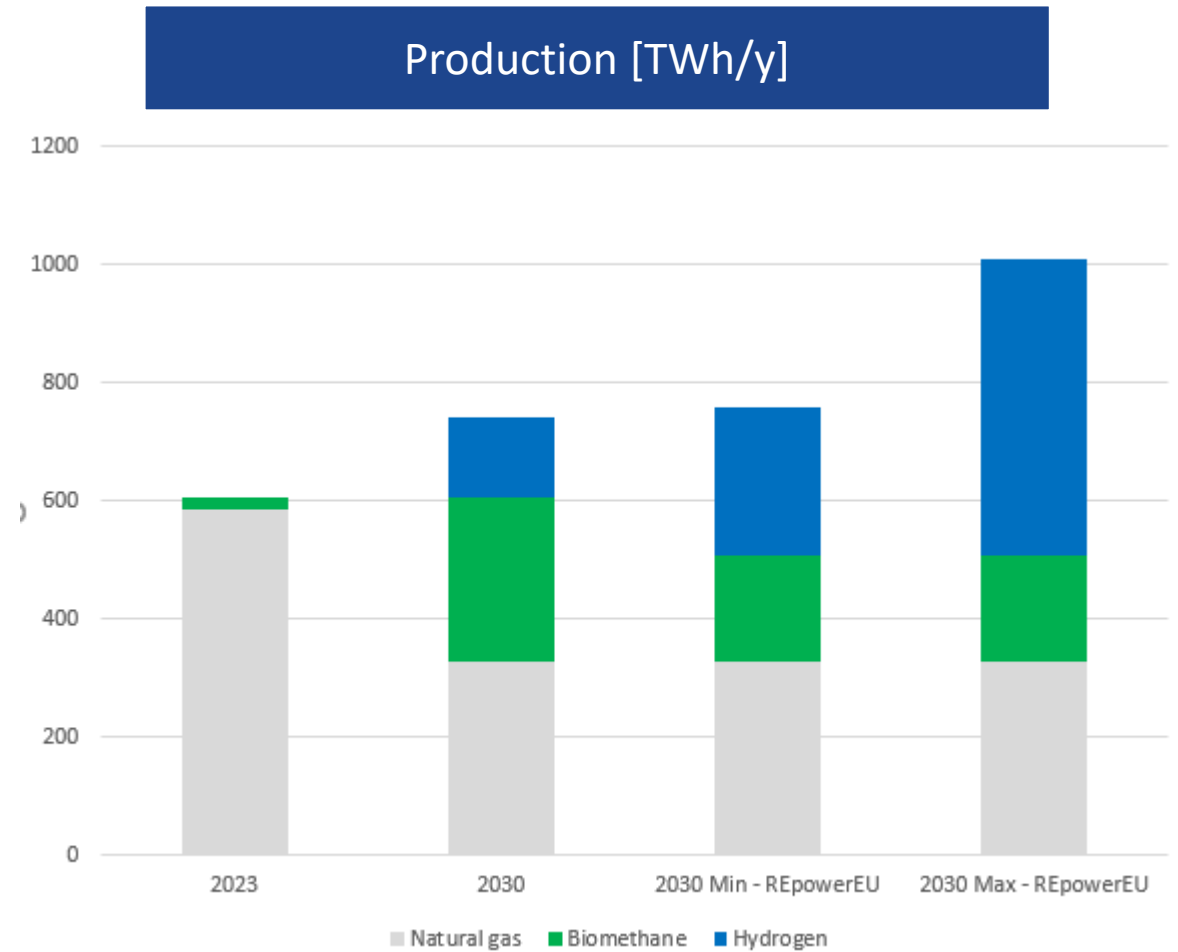
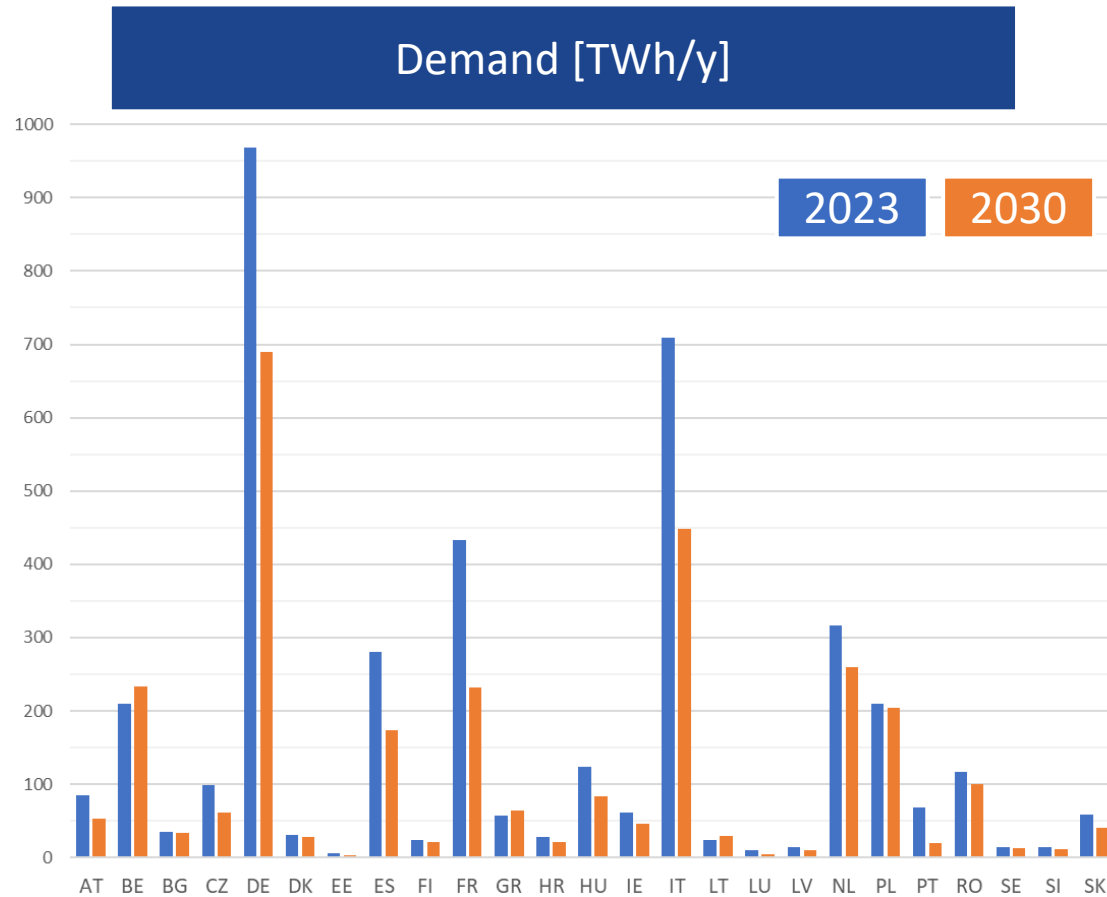
Europe's dependence on Russian gas supply

The EU currently imports ca. 155bcm of Russian gas every year and depends on Russian gas to cover minimum 25% (125 bcma) of its annual demand

- The global gas production capacities are too tight to supply the global market and for the EU to be able to replace Russian gas on the short term. It would require:
 - use of 100% of global liquefaction capacities 365/24/7
 - Possibly additional LNG carriers to be commissioned
- EU alternative import capacities, including LNG are too limited to be able to replace Russian import capacities. It would require:
 - use of 110% European import capacities 365/24/7
- Infrastructure bottlenecks within the EU additionally prevent from using 100% of the alternative import capacities and prevent from perfect cooperation between Member States (some MSs are more dependent than others)



Assumptions demand and production



Assumptions

2023 demand (current levels)

- based on TYNDP 2020 best estimate with Coal before Gas in the electricity production merit order (4000 TWh vs 4400 TWh in 2020)

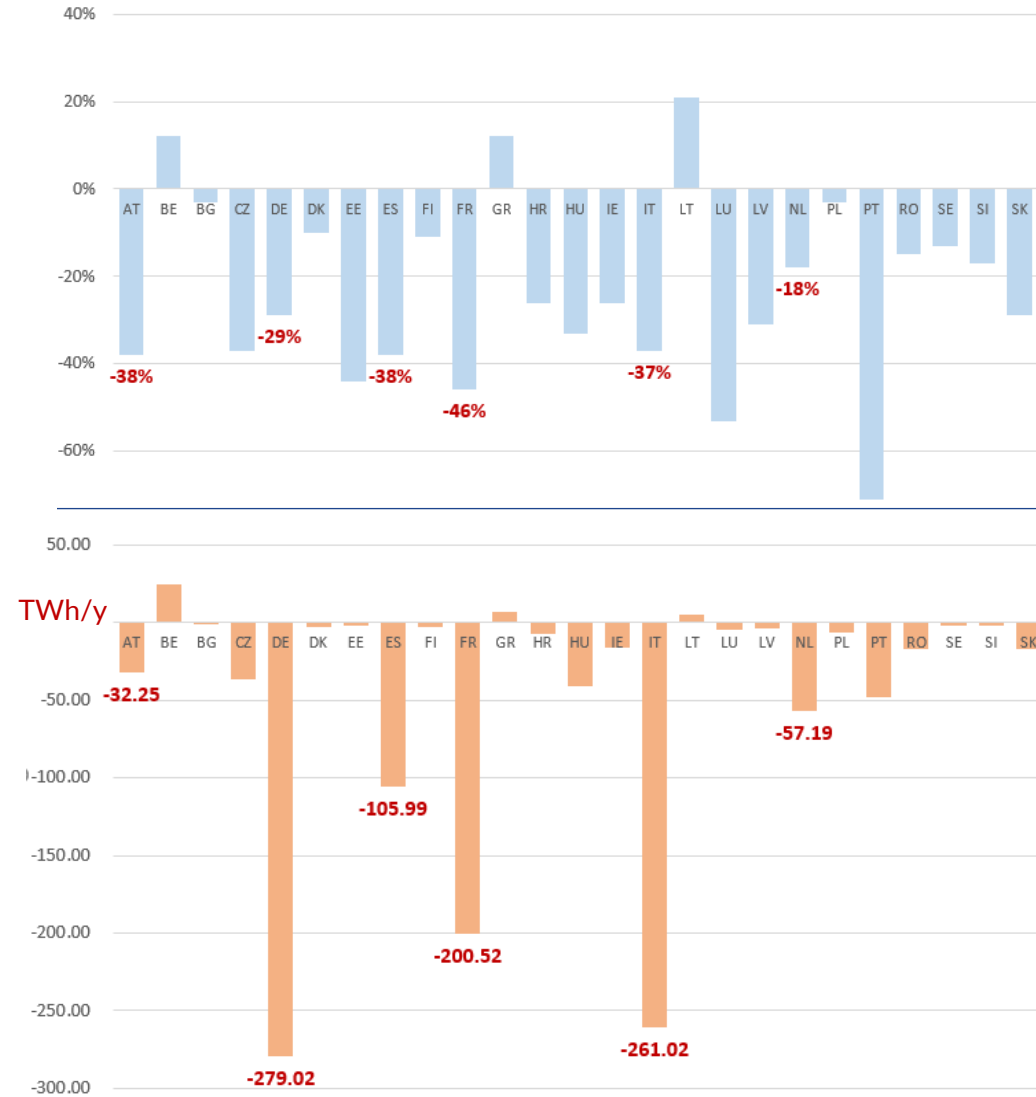
2030 demand

- Based on information provided by EC (Fit-for-55 demand reduction objectives) with significant reduction compared to 2025 demand levels (-27% at EU level from 4 000 to 2900 TWh/y)

Production in 2030

- Based on TYNDP 2020 Distributed Energy (+22% at EU level):
 - 330 TWh conventional
 - 280 TWh Biomethane
 - 136 TWh H2
- REpowerEU actually foresees higher domestic production

Gas demand – 2030 vs current



Infrastructure layers

Different infrastructure layers are modelled to assess how additional infrastructure can reduce the dependence on Russian gas supply

- Layer 0: infrastructure as of 1 January 2023
- Layer 1: additional FID projects in TYNDP 2020 + advanced PCIs
- Layer 2: Layer 1 + several LNG terminals (including pipeline connections) and TAP expansion

Assessment of the dependence of the EU gas system on Russian gas supply

Dependence on Russia with gas infrastructure as of 1 January 2023 Infrastructure layer 0

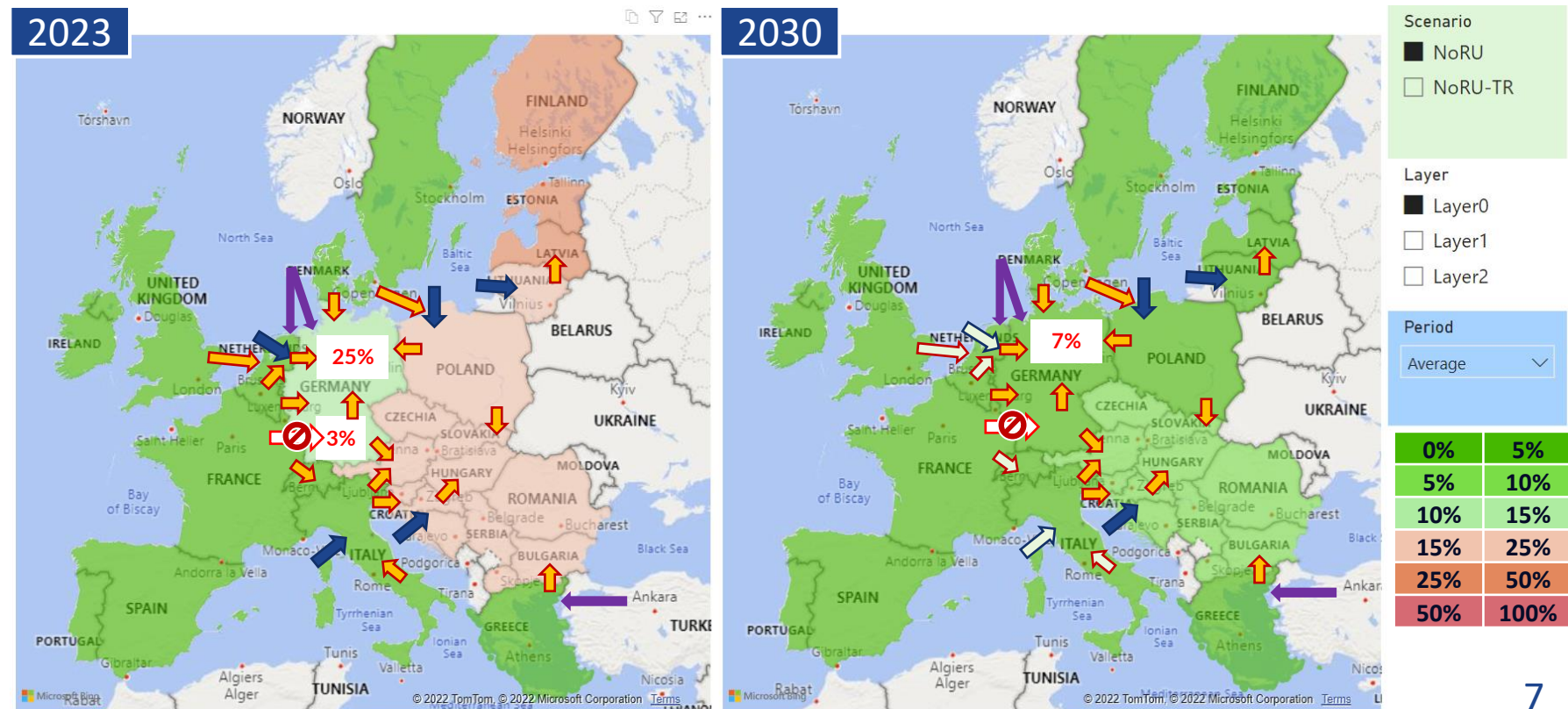
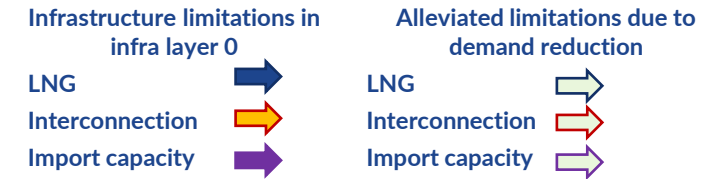
Demand and supply sensitivity

- Demand reduction and increase in domestic production mitigates the dependence on Russian gas in 2030 (5% dependence in CEE and Northern Germany – ex-Gaspool area)

LNG sensitivity

- Access to additional LNG does not reduce the dependence on Russian gas in 2023 due to infrastructure limitations (imports or internal interconnections)

Infrastructure limitations prevent perfect cooperation from West to East and South to North. In Germany, internal bottlenecks also prevent cooperation from south to North. Northern Germany (ex-gaspool area) shows a dependence of 25% in 2025 and 5% in 2030 whereas Southern Germany shows no dependence on Russia gas.



Impact of projects of infrastructure layer 1

Alleviated infrastructure limitation by infrastructure layer 1

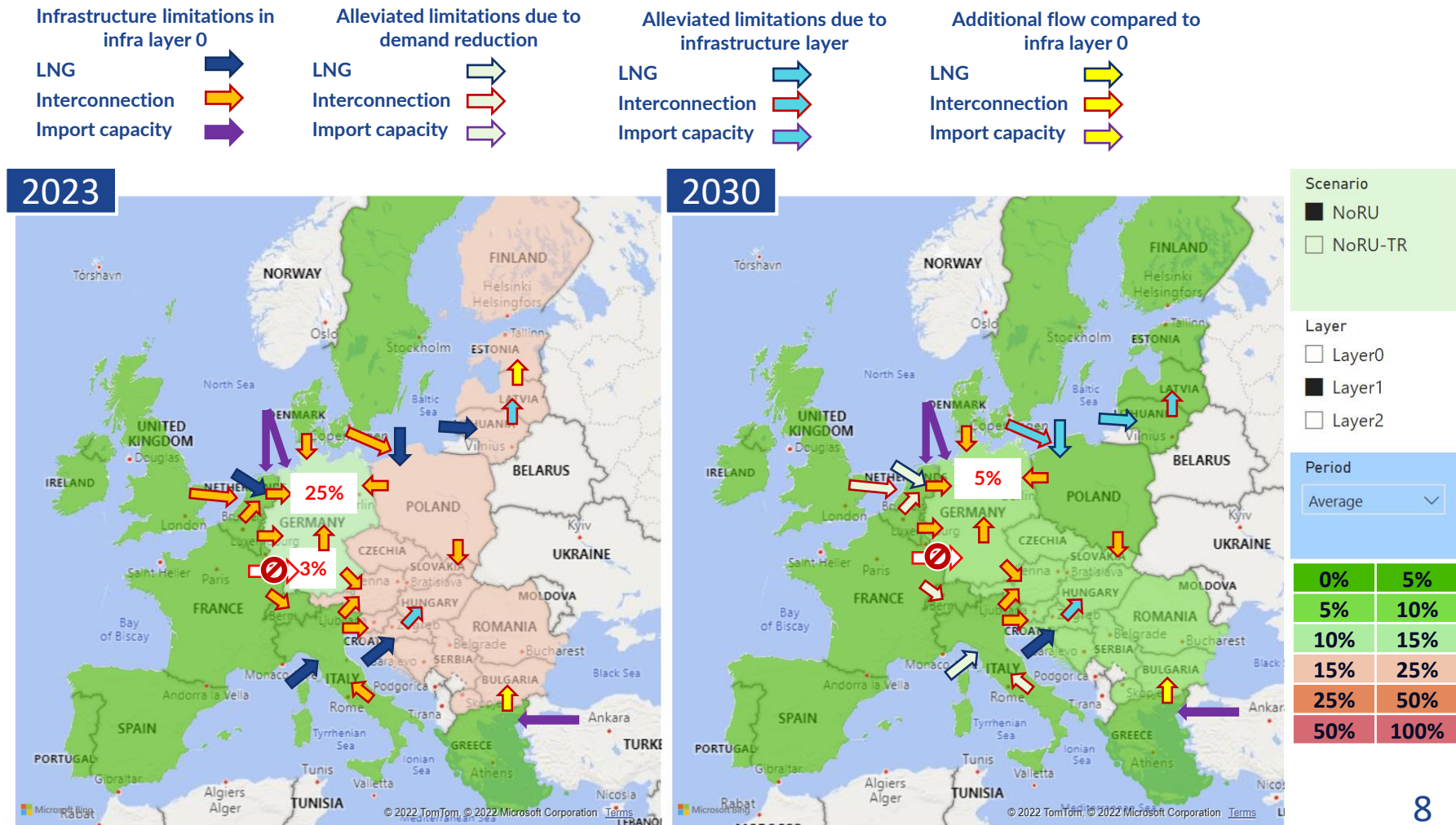
- 2023 demand (current levels)
 - LT to LV, which increases the flow from LV to EE
 - HR to HU
- 2030 demand (fit-for-55 demand reduction)
 - DK to PL
 - LNG in PL and LT

Improvements with remaining limitations: additional capacity creating additional flow and 100% used

- GR to BG in 2025 and 2030
- LNG imports in PL in 2023

Infrastructure development helps reducing the dependence on Russia in North Eastern Europe:

- PL and LT: from 25% to 15% in 2023
- LT, LV, EE and FI: from 40% to 15% in 2023



Impact of projects of infrastructure level 2

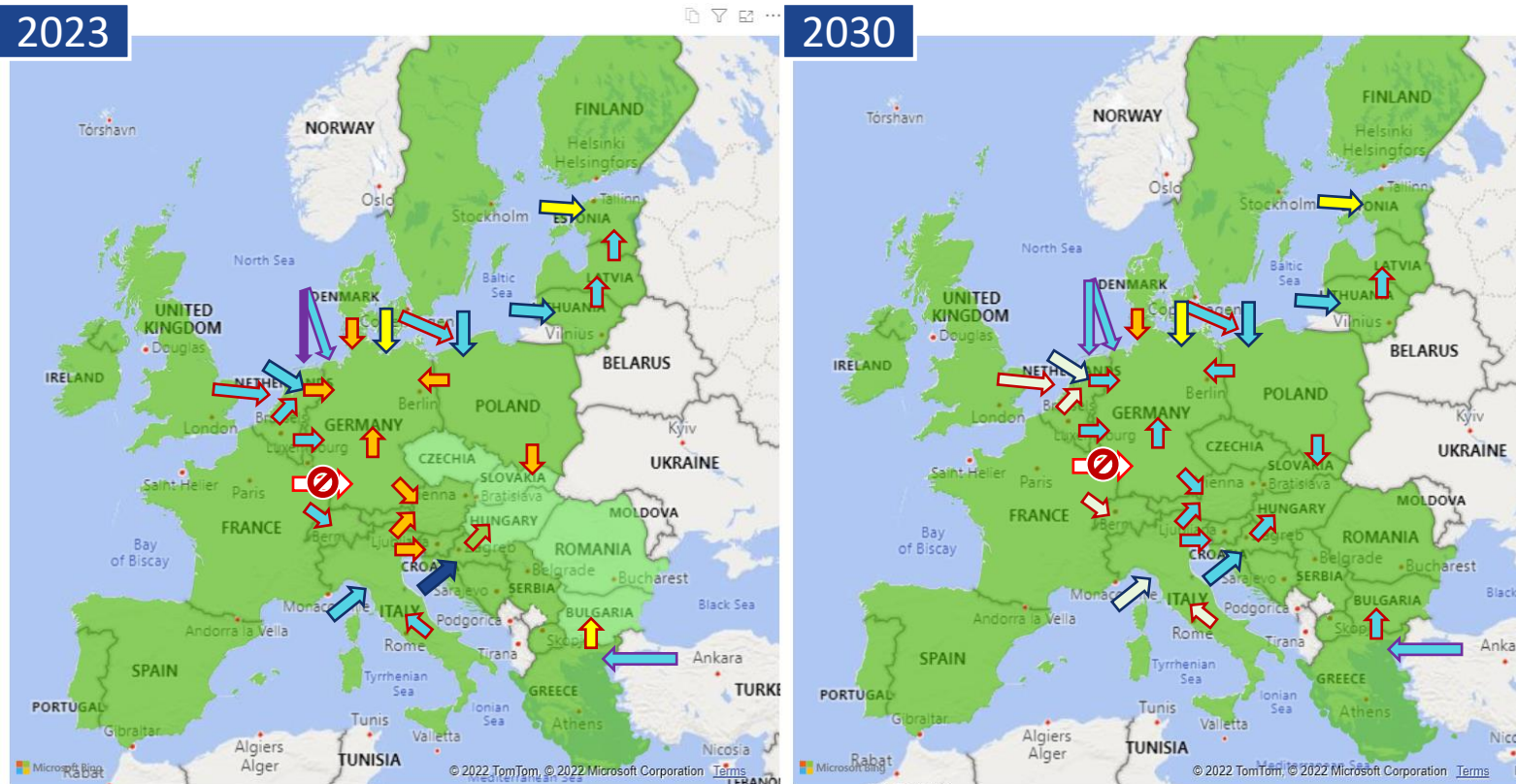
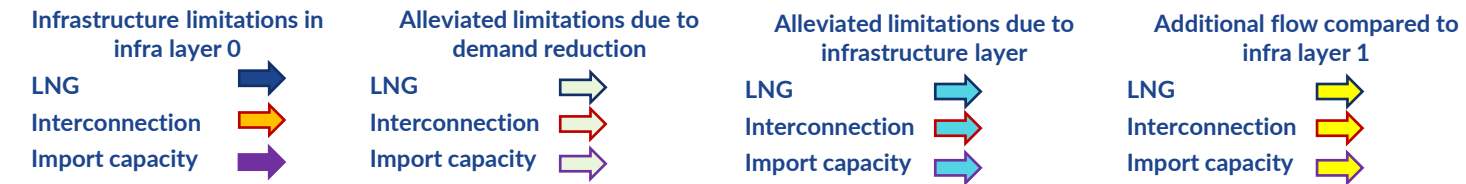
Alleviated infrastructure limitation by infrastructure layer 2

- 2023 demand (current levels)
 - Imports from Caspian to GR
 - HR to HU
 - IT: South to North limitation
 - LNG imports in IT
 - LNG imports in PL
- 2030 demand (fit-for-55 demand reduction)
 - LNG imports to HR and DE
 - Internal bottleneck South -> North in DE

Improvements with remaining limitations: additional capacity creating additional flow and 100% used

- LNG imports in HR and DE in 2023

Infrastructure development in infrastructure layer 2 fully mitigates the dependence on Russian gas in 2030, and almost fully mitigates the dependence on Russian gas with current demand and production levels (5% remaining dependence in CZ, SK, HU, RO and BG in 2023)



Scenario

- NoRU
- NoRU-LNG
- NoRU-TR

Layer

- Layer0
- Layer1
- Layer2

Period

Average

0%	5%
5%	10%
10%	15%
15%	25%
25%	50%
50%	100%

Conclusions

- Significant reduction in natural gas demand in line with fit-for-55 demand reduction (-27%) and increasing domestic gases production (+22%) can significantly mitigate the dependence on Russian gas supply in 2030
- With infrastructure layer 0 (infrastructure development as of 2023), reaching the Fit-for-55 demand reduction objectives would reduce the dependence of Central Eastern Europe on Russian gas in 2030 down to 5% - 10%
- Infrastructure gaps are mainly identified under current levels of demand and production (2023 simulation) which prevent gas flowing from West to East showing therefore significant differences in dependence on Russian gas between Western and Eastern Europe
- Projects from infrastructure layer 1 reduce the dependence of the EU on Russian gas of PL, LT, LV, EE and FI (2023 simulation)
- Projects from infrastructure layer 2 can complement demand reduction in line with fit-for-55 objectives to fully mitigate the dependence on Russian gas in 2030.