

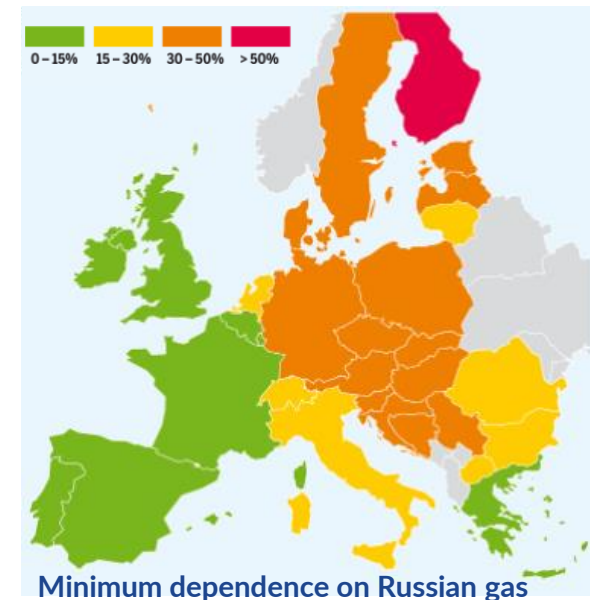
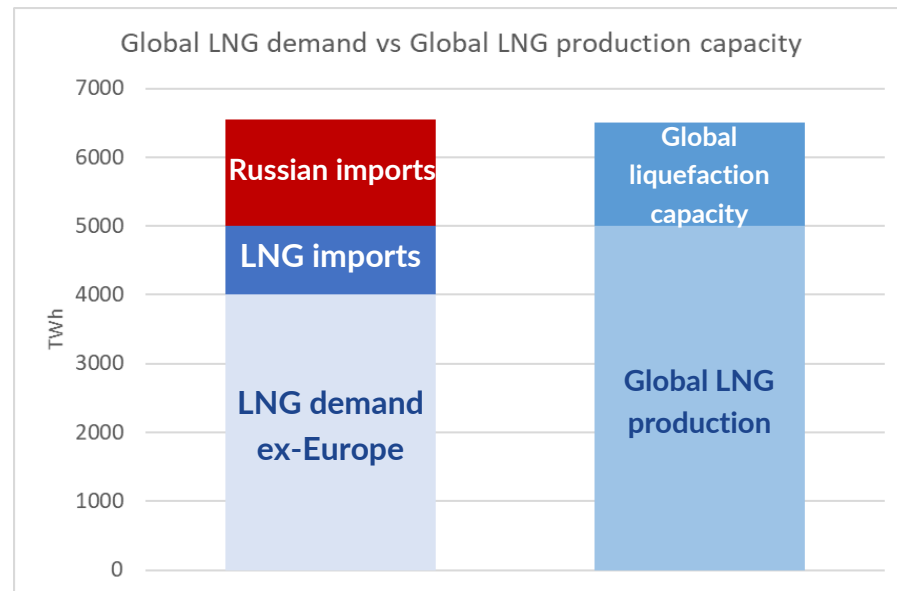
Dependence of the EU on Russian gas supply

REpowerEU assessment – Project assessment for the CESEC region

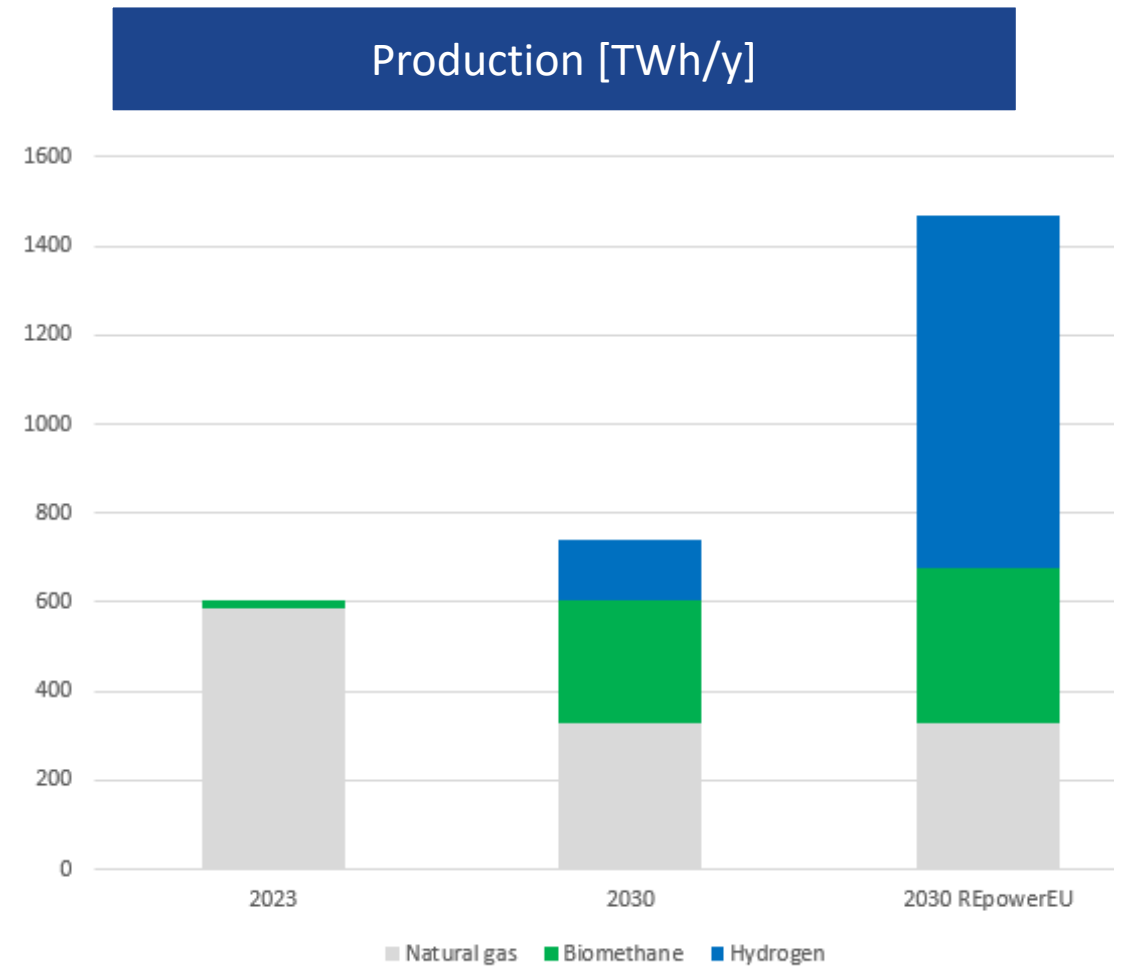
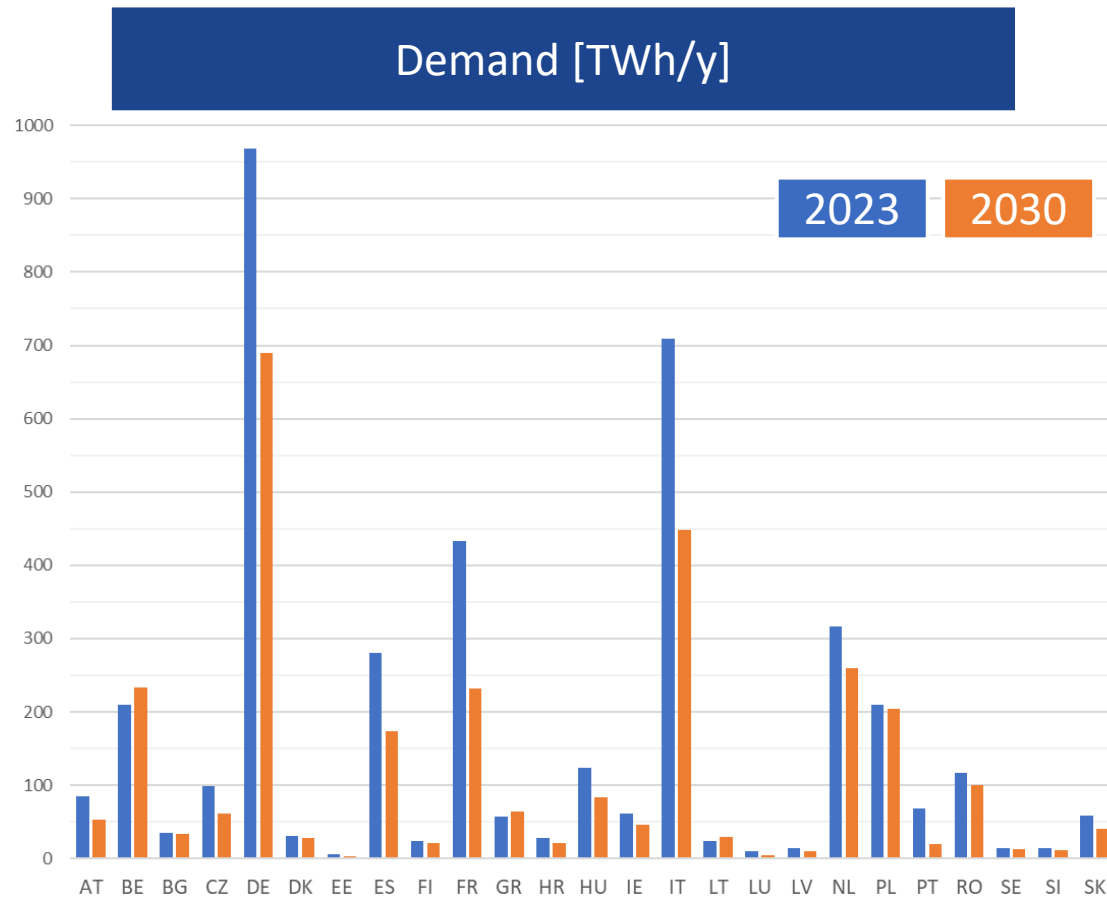
Europe's dependence on Russian gas supply

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)

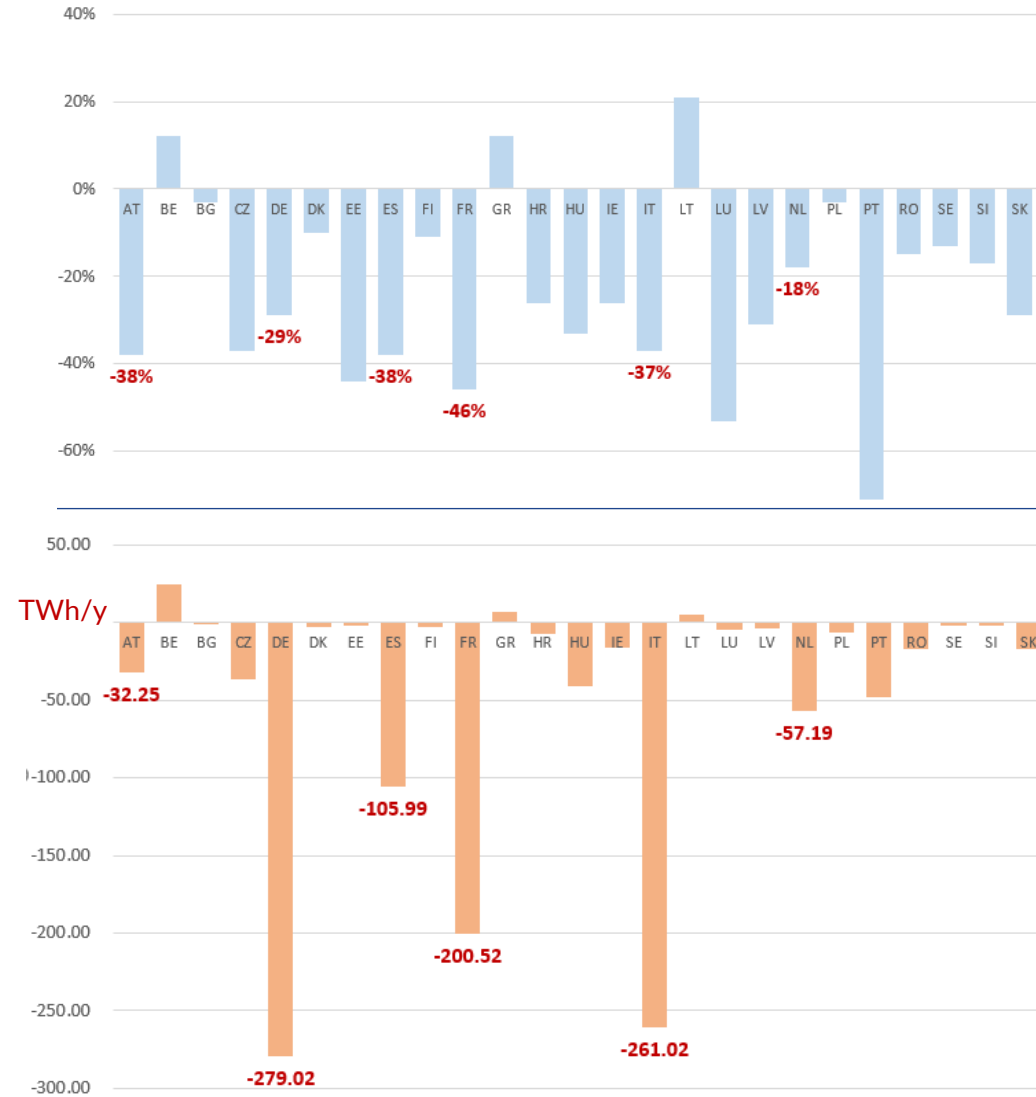
2030 demand

- Based on information provided by EC (Fit-for-55 demand reduction objectives) with significant reduction compared to 2023 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

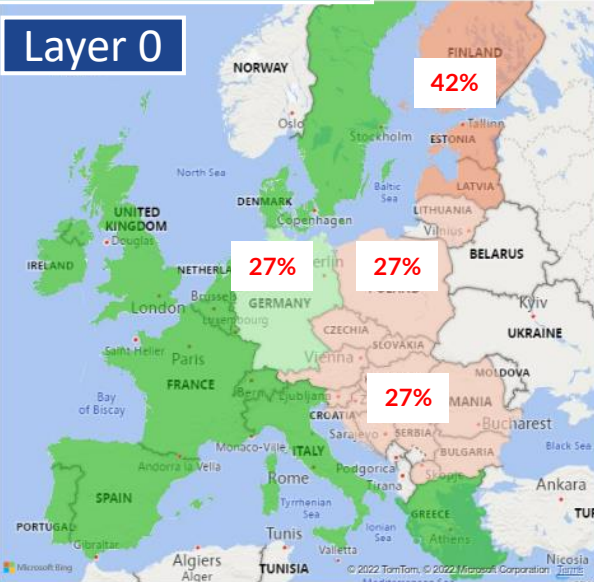
Different infrastructure layers are modelled to assess how additional infrastructure can reduce the dependence on Russian gas supply

- 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

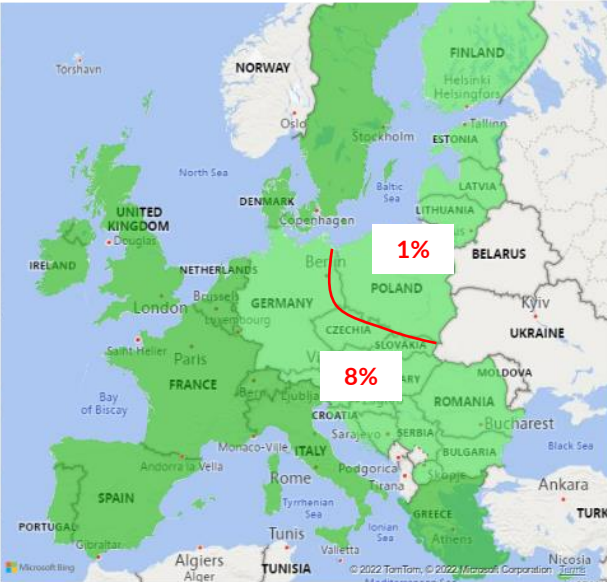
PL- CZ Interconnection

Impact of PL-CZ project

Current demand and production



2030 – Fit-for-55 demand and production



Improvement of cooperation in CEE and overall reduction of dependence on Russian gas

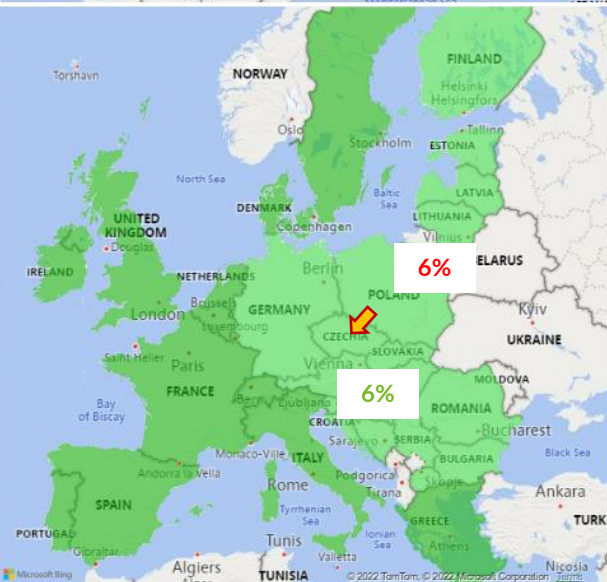
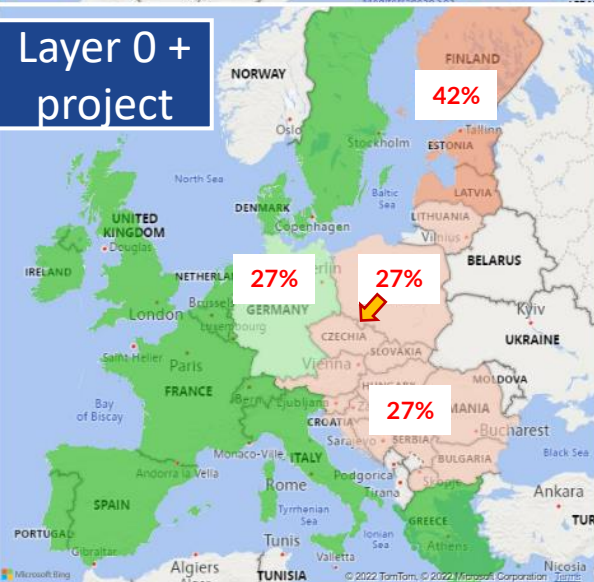
Current levels of demand and production

– No significant impact due to lack of additional import capacities

2030

– Overall -2% dependence in CEE region and Northern DE (PL, LV and LT can further support, this is why they increase their dependence by 5 percent)

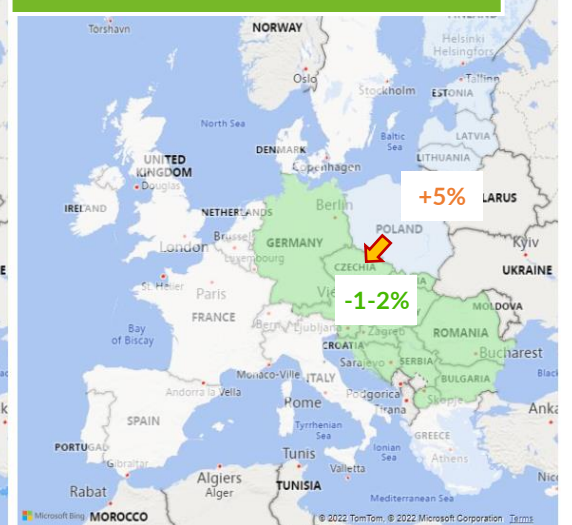
Layer 0 + project



Current demand and production



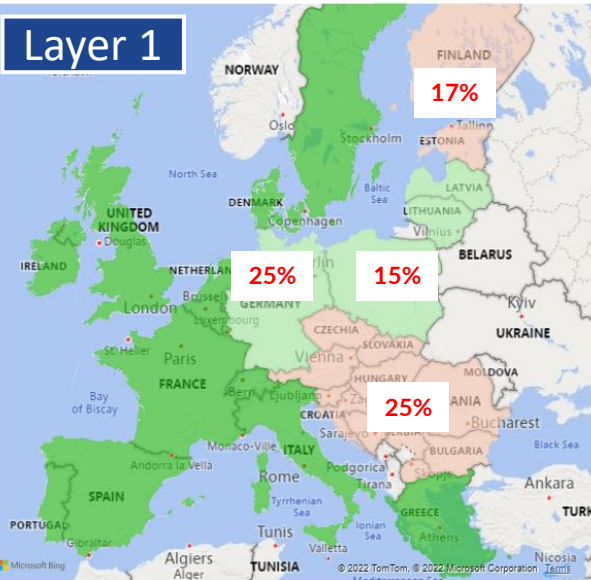
2030 – Fit-for-55 demand and production



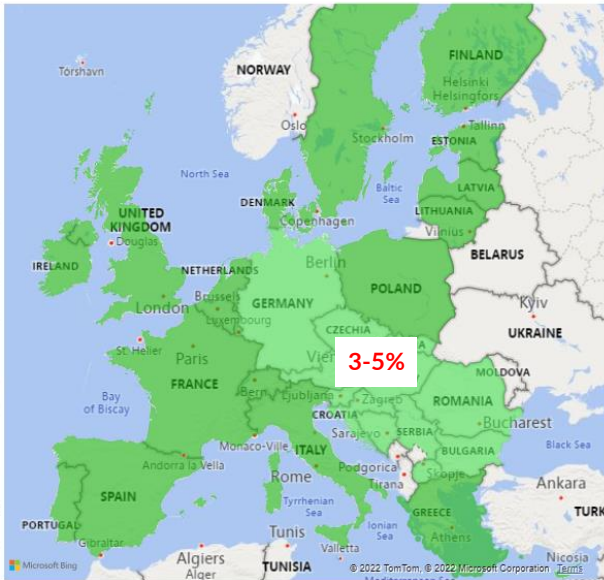
*PL projects depend on the enabling project: North South Corridor Poland which is reinforcement of the national transmission system for the cross border flow purposes

Impact of PL-CZ project

Current demand and production



2030 – Fit-for-55 demand and production



Improvement of cooperation in CEE and overall reduction of dependence on Russian gas

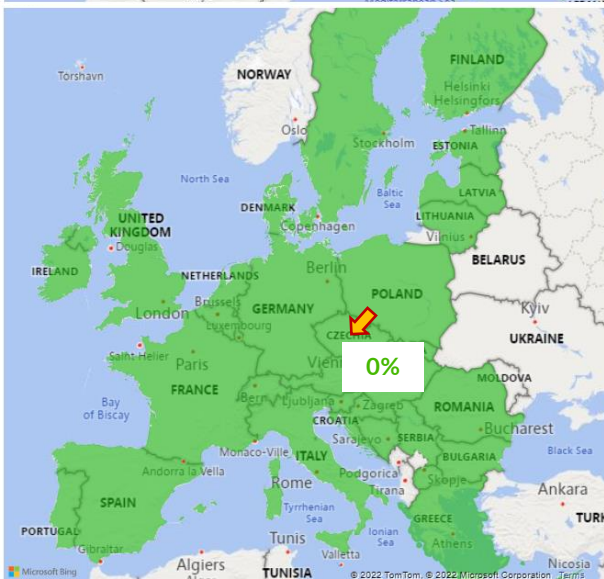
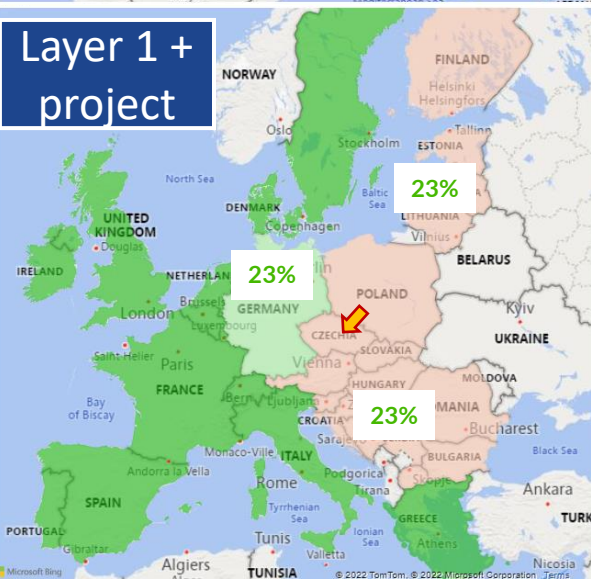
Current levels of demand and production

- Overall -2% dependence in CEE region and Northern DE (PL, LV and LT can further support and this is why they increase their dependence by 8 percent)

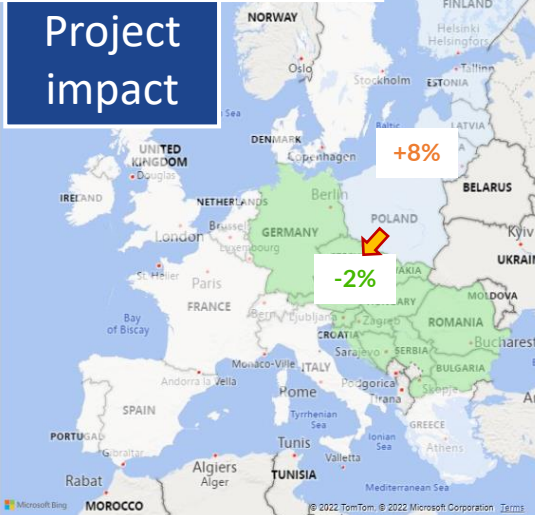
2030

- Overall -4% dependence in CEE region and Northern DE (PL, LV and LT can further support)

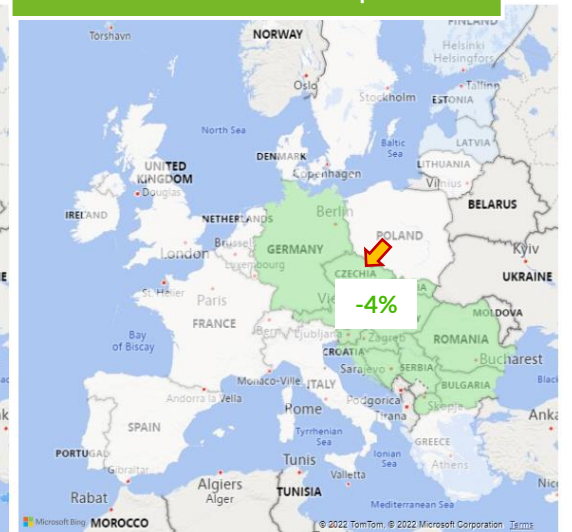
Layer 1 + project



Current demand and production



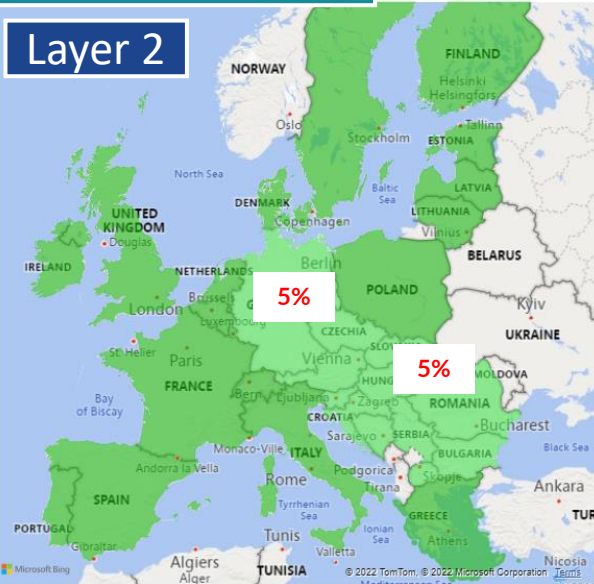
2030 – Fit-for-55 demand and production



*PL projects depend on the enabling project: North South Corridor Poland which is reinforcement of the national transmission system for the cross border flow purposes

Impact of PL-CZ project

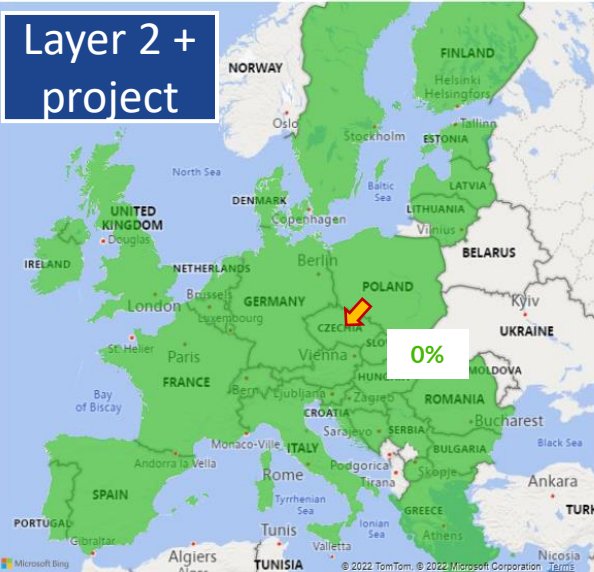
Current demand and production



2030 – Fit-for-55 demand and production



Layer 2 + project



Improvement of cooperation in CEE and overall reduction of dependence on Russian gas

Current levels of demand and production

- Overall -5% dependence in Northern DE, CZ, SK, HU

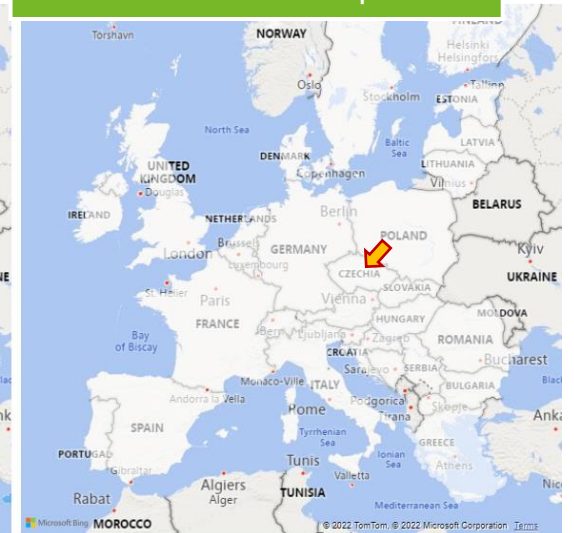
2030

- No additional impact in infra layer 2

Current demand and production



2030 – Fit-for-55 demand and production

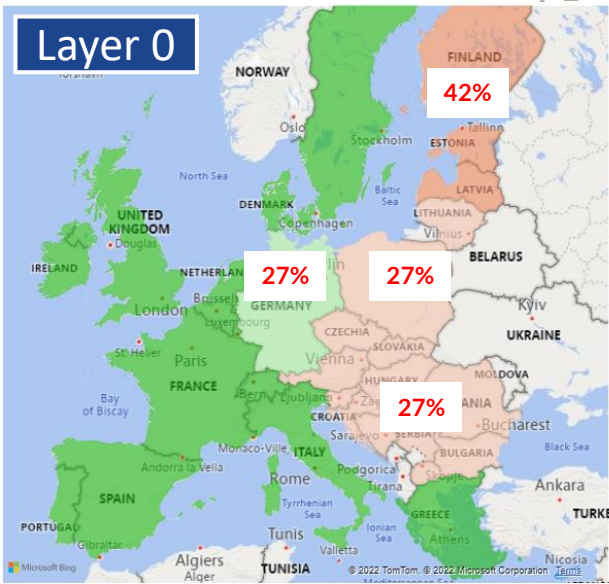


*PL projects depend on the enabling project: North South Corridor Poland which is reinforcement of the national transmission system for the cross border flow purposes

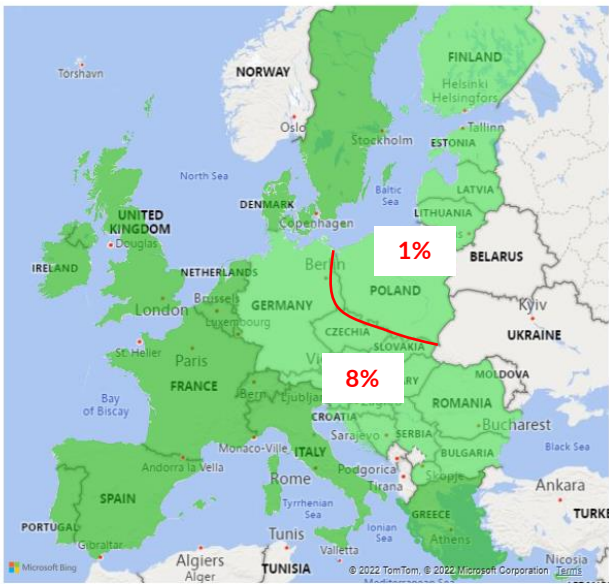
Gdansk FSRU

Impact of Gdansk FSRU

Current demand and production



2030 – Fit-for-55 demand and production



Improvement of cooperation in PL and LT

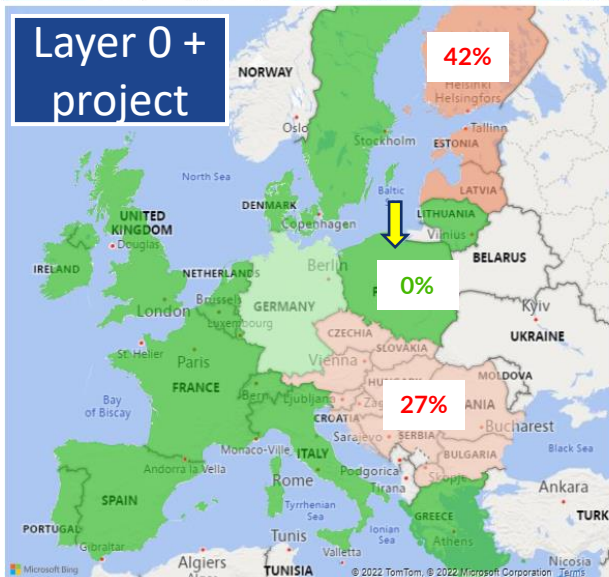
Current levels of demand and production

- Mitigation of dependence for PL and LT (-27%)

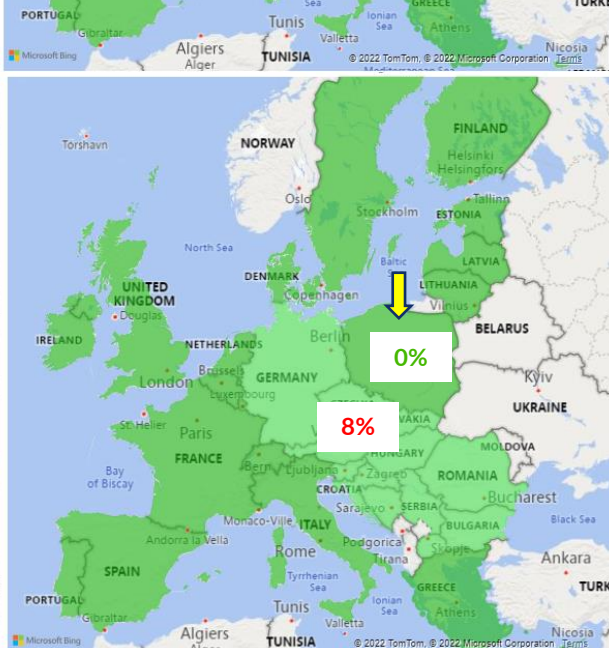
2030

- Achieves to mitigate the dependence on Russian gas for Poland, the Baltic States and Finland resulting mainly from demand reduction (-1%)

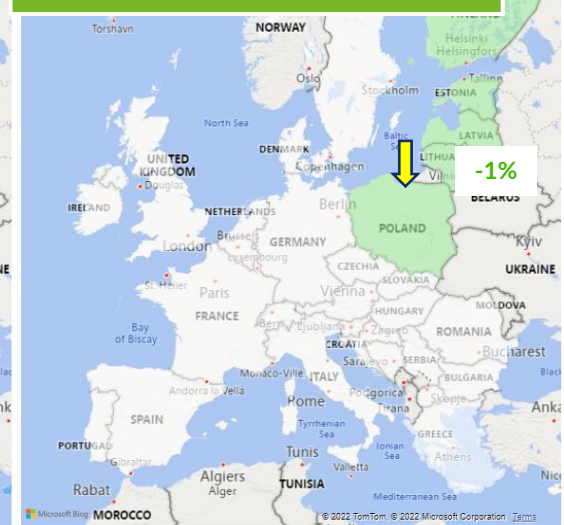
Layer 0 + project



2030 – Fit-for-55 demand and production



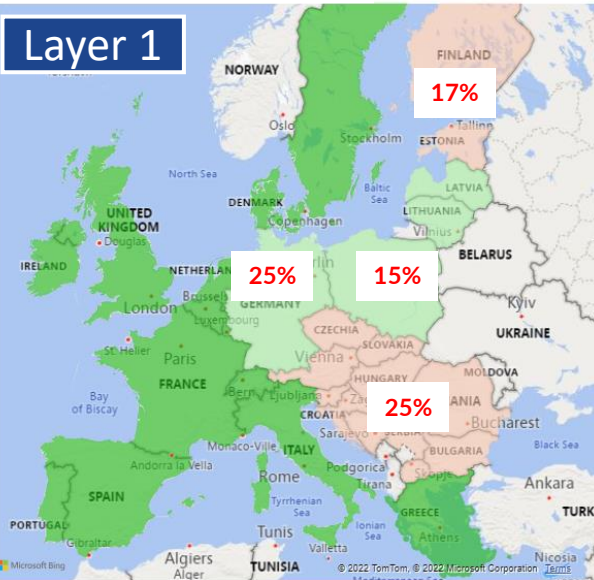
Current demand and production



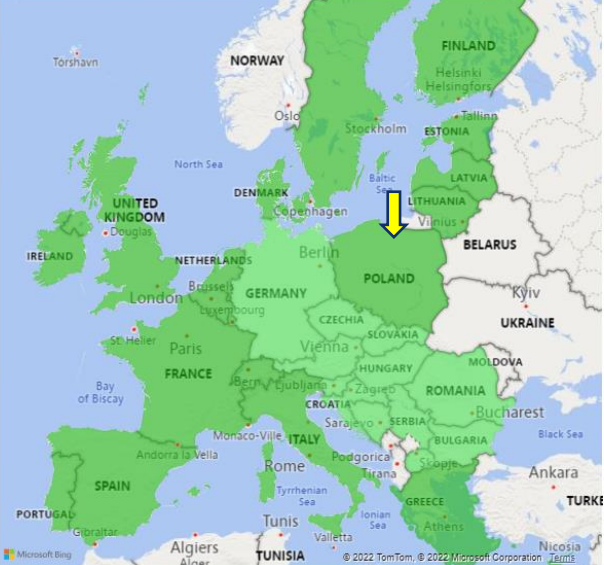
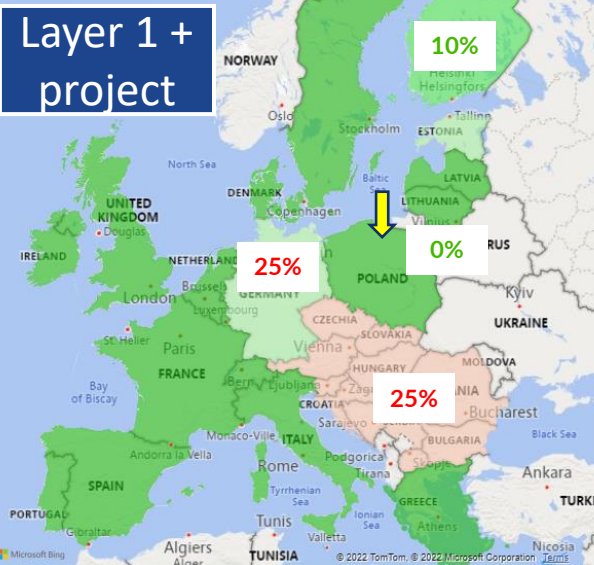
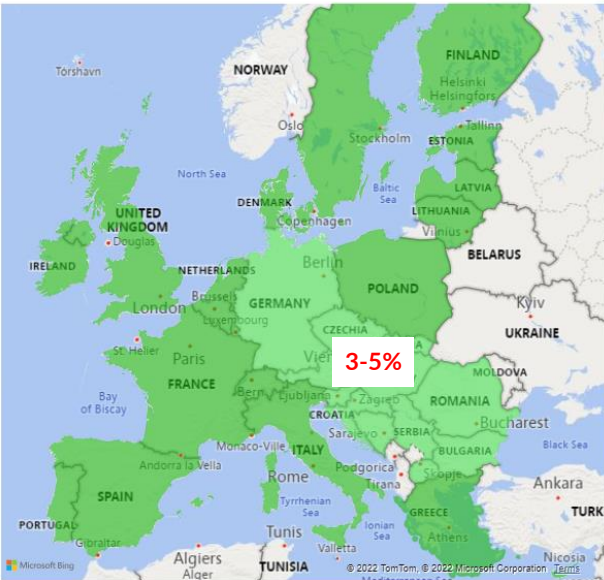
*PL projects depend on the enabling project: North South Corridor Poland which is reinforcement of the national transmission system for the cross border flow purposes

Impact of Gdansk FSRU

Current demand and production



2030 - Fit-for-55 demand and production



Improvement of cooperation in PL, LT, LV, EE and FI

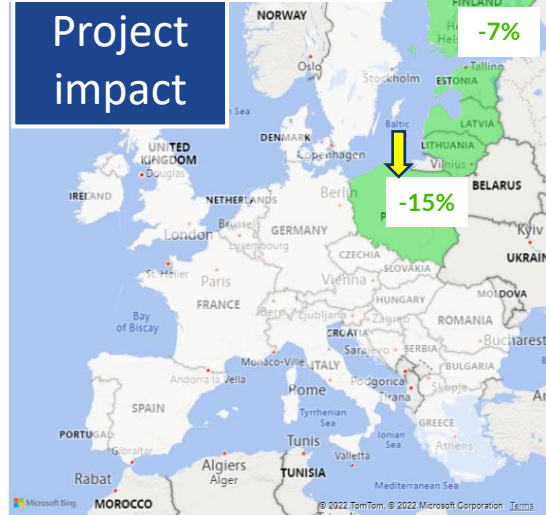
Current levels of demand and production

- Mitigation of dependence for PL, LT and LV (-15%)
- Improvement in EE and FI (-7%)

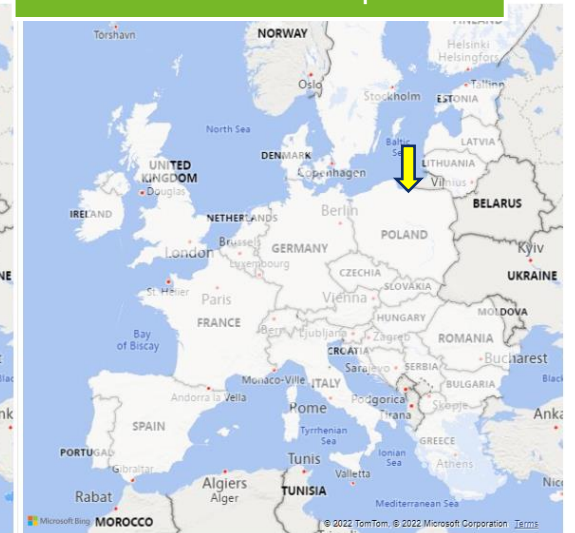
2030

- The total mitigation of the dependence on Russian gas for Poland, the Baltic States and Finland results from demand reduction

Current demand and production



2030 - Fit-for-55 demand and production



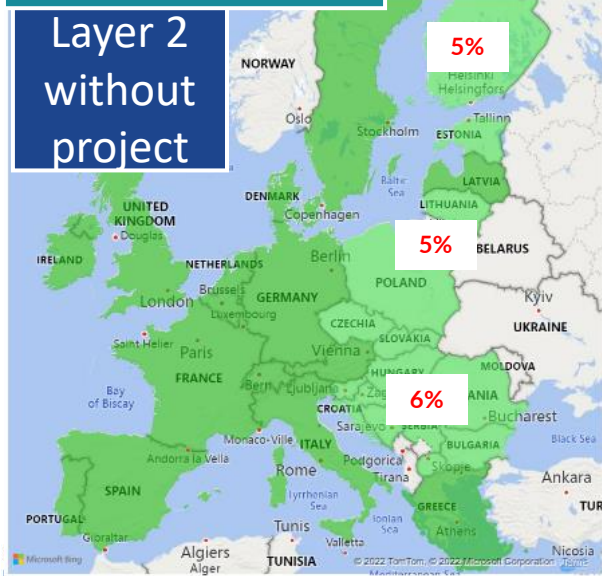
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Impact of Gdansk FSRU

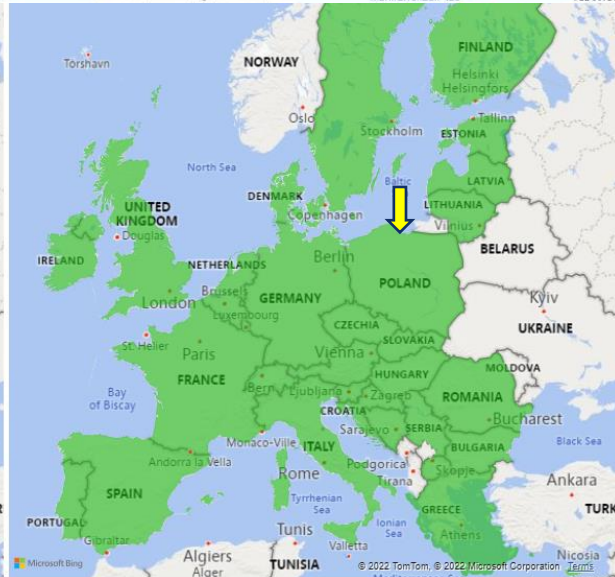
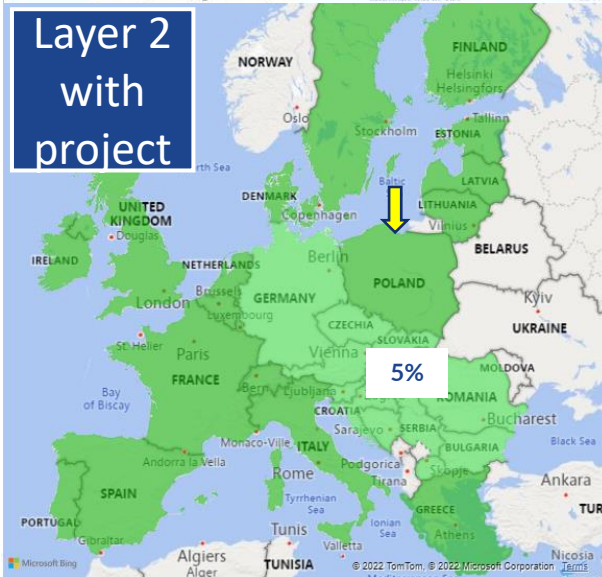
Current demand and production

2030 – Fit-for-55 demand and production

Layer 2
without
project



Layer 2
with
project



Improvement of cooperation in PL, LT, LV, EE and FI

Current levels of demand and production

- Mitigation of dependence for PL, LT, LV, EE, FI (-4%)
- Improvement in SEE and CEE (-1%)

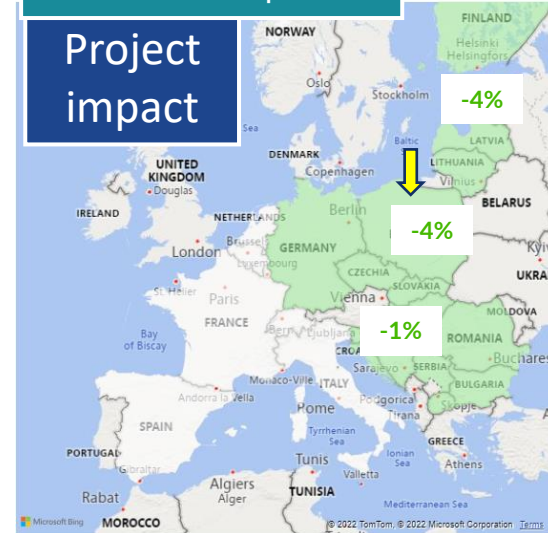
2030

- The total mitigation of the dependence on Russian gas for Poland, the Baltic States and Finland results from demand reduction

Current demand and production

2030 – Fit-for-55 demand and production

Project
impact



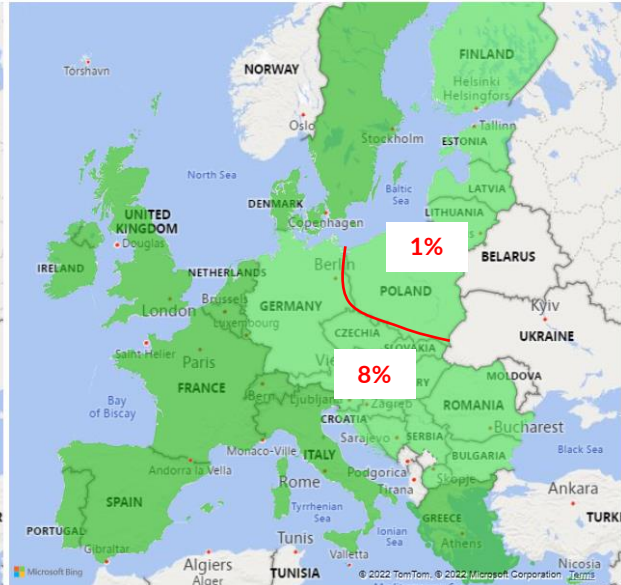
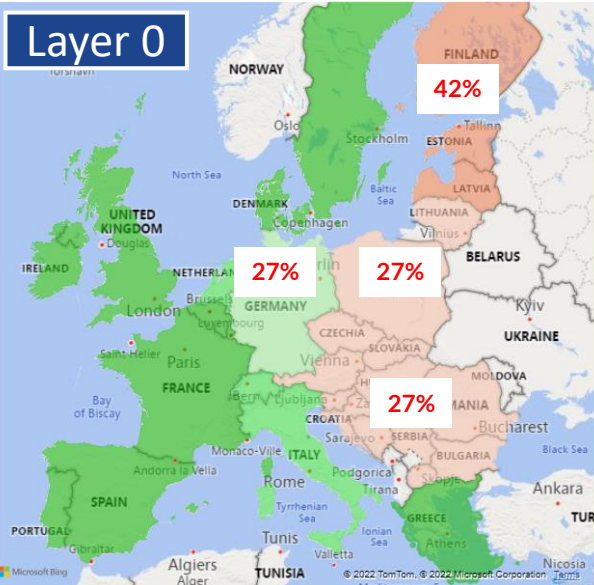
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LNG KrK (2nd phase)

LNG KrK (2nd phase)

Current demand and production

2030 – Fit-for-55 demand and production



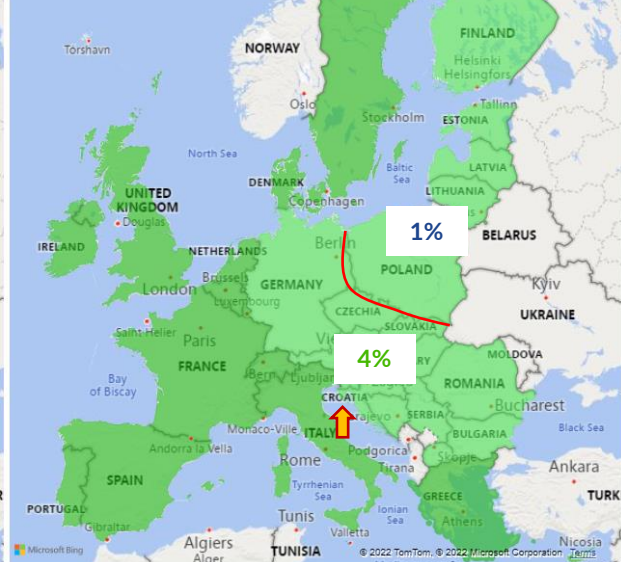
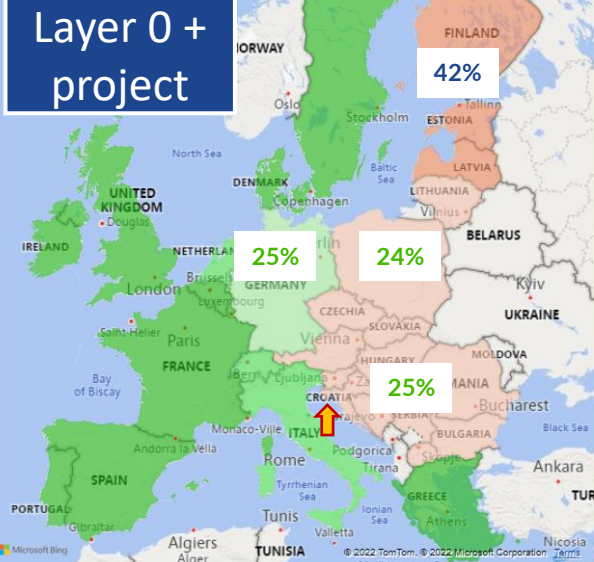
Improvement of cooperation and reduction of dependence on Russian gas in CEE and SE

Current levels of demand and production

- Improvement in CEE and SE (2-3%)

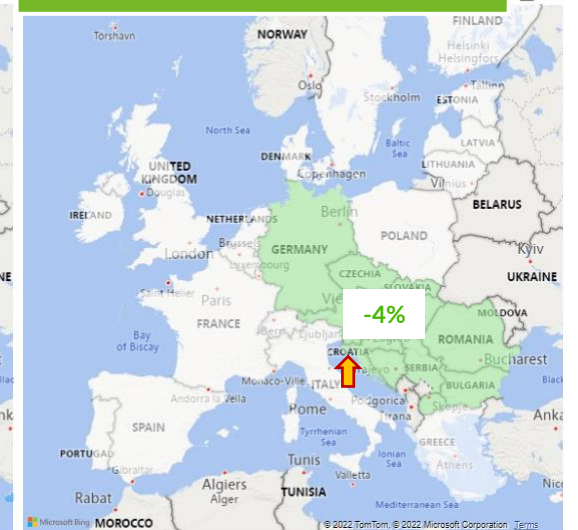
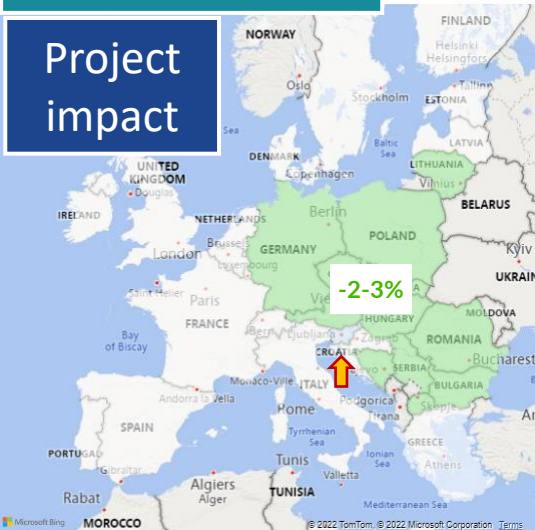
2030 – Fit-for-55 demand and production

- Improvement in CEE and SE (4%)



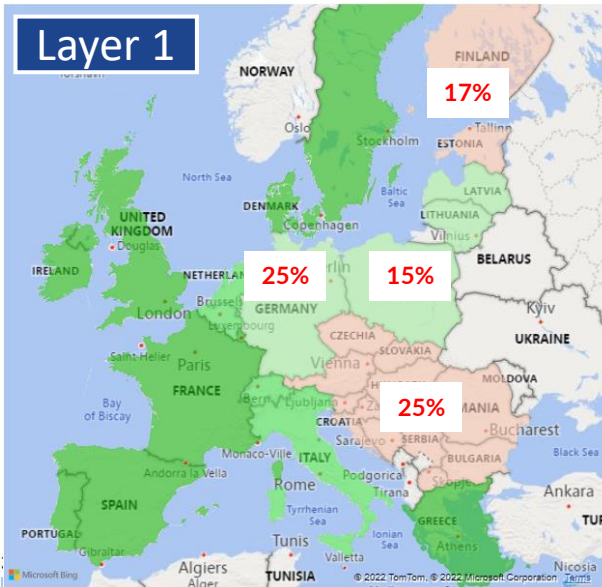
Current demand and production

2030 – Fit-for-55 demand and production

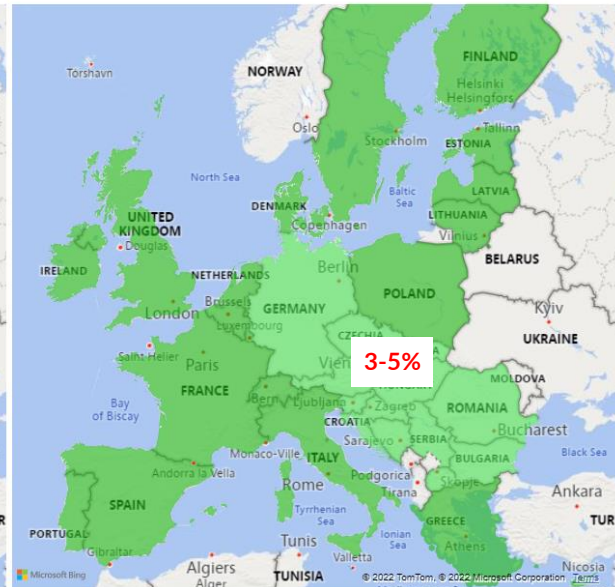


LNG KrK (2nd phase)

Current demand and production



2030 – Fit-for-55 demand and production



Improvement of cooperation and reduction of dependence on Russian gas in CEE and SE

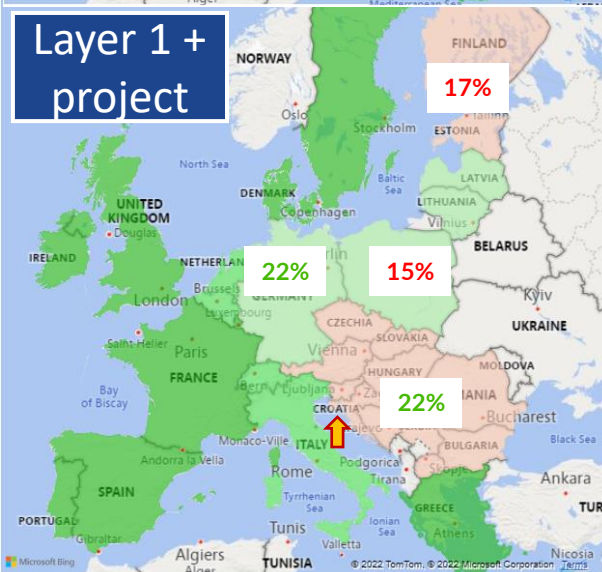
Current levels of demand and production

- Improvement in CEE and SE (3%)

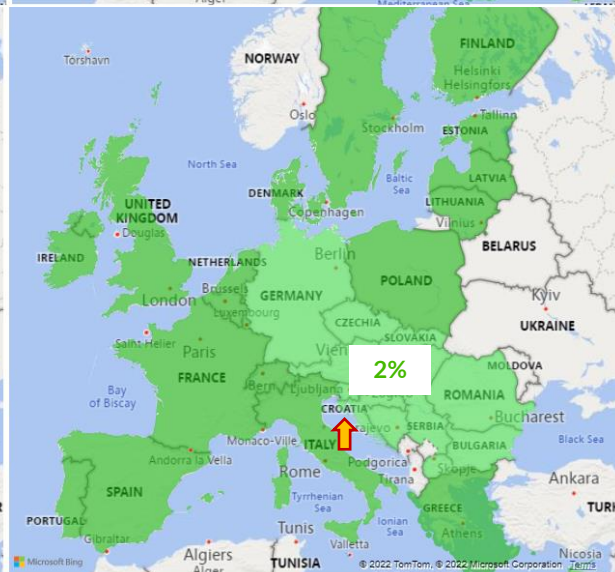
2030 – Fit-for-55 demand and production

- Improvement in CEE and SE (2-3%)

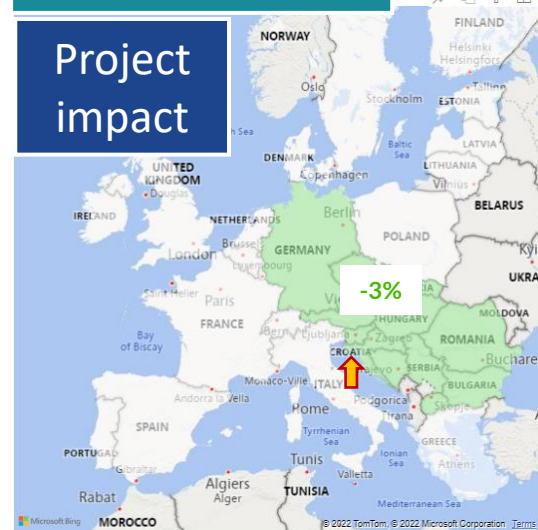
Layer 1 + project



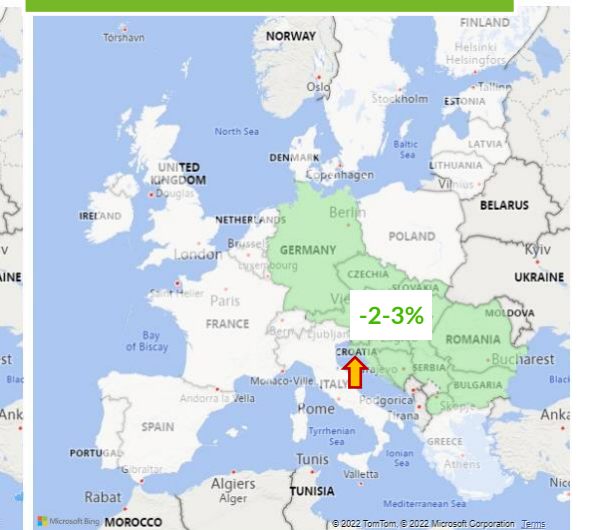
2030 – Fit-for-55 demand and production



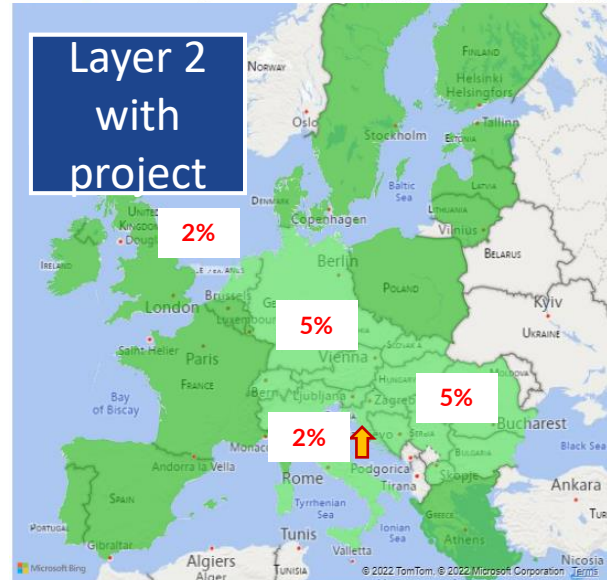
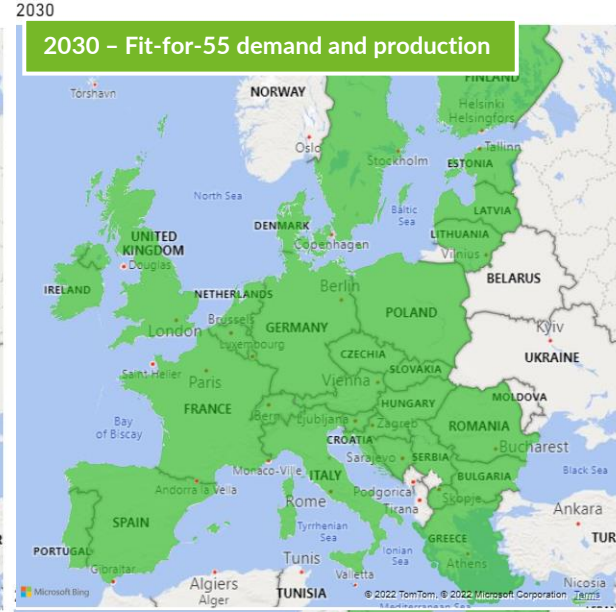
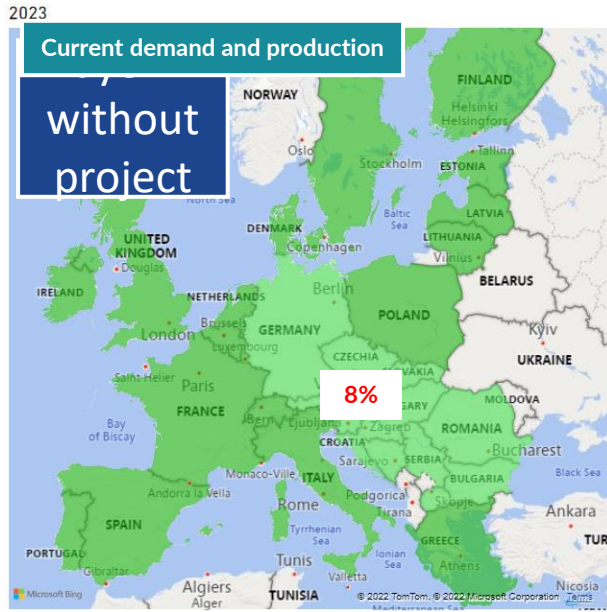
Current demand and production



2030 – Fit-for-55 demand and production



LNG KrK (2nd phase)



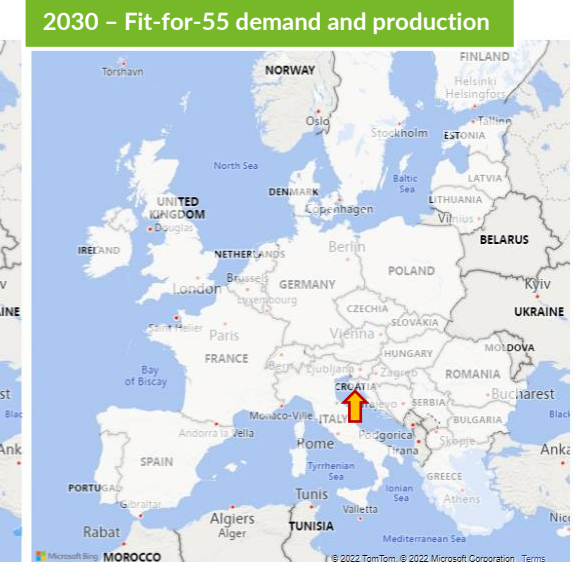
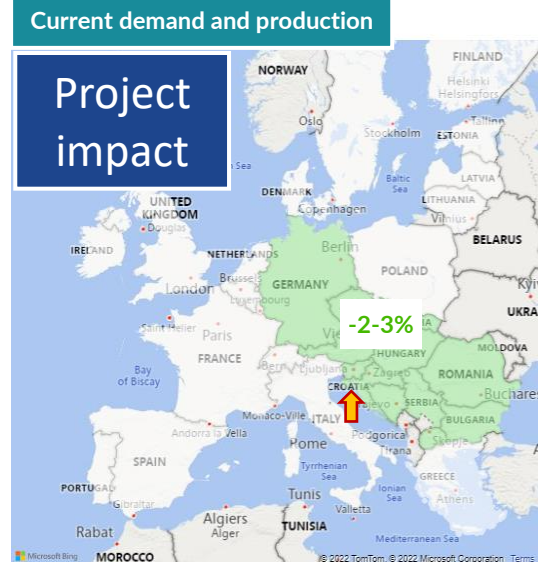
Improvement of cooperation and reduction of dependence on Russian gas in CEE and SE

Current levels of demand and production

- Improvement in CEE and SE (3%), allows for a better cooperation and potentially increase of LNG import

2030 – Fit-for-55 demand and production

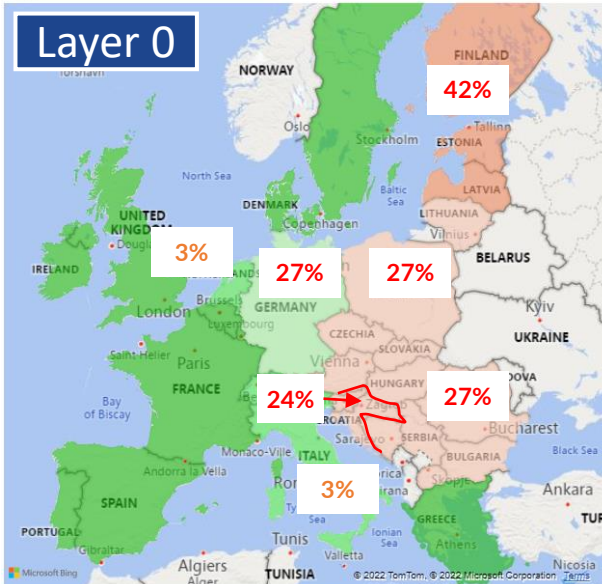
- No impact observed



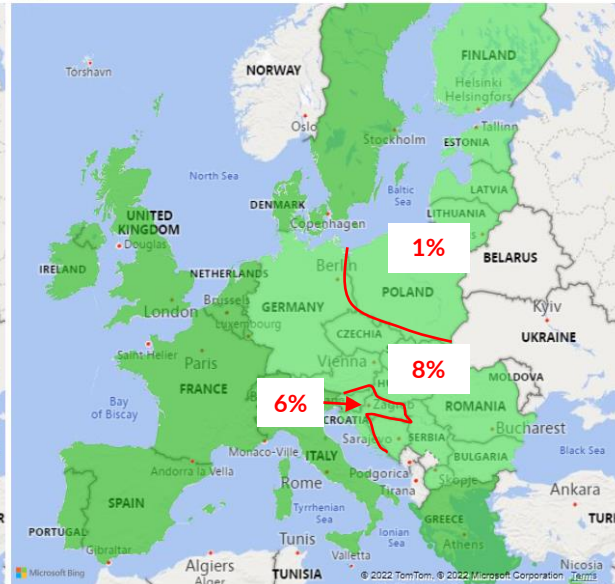
Hungary - Slovenia interconnection

Impact of Hungary - Slovenia interconnection

Current demand and production



2030 - Fit-for-55 demand and production



Additional capacity from IT to SI and between SI and HU

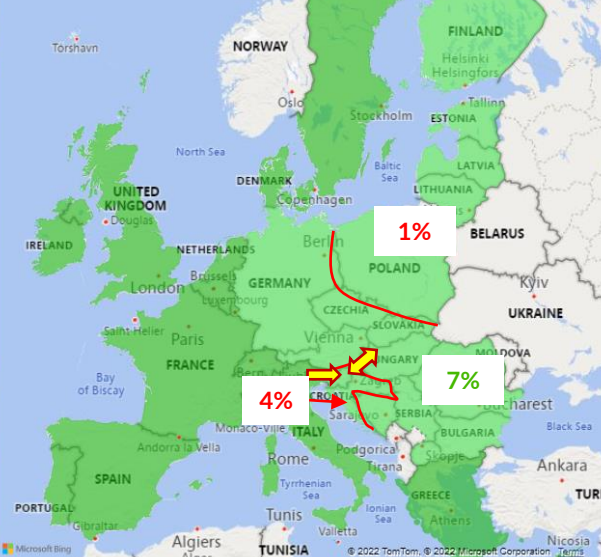
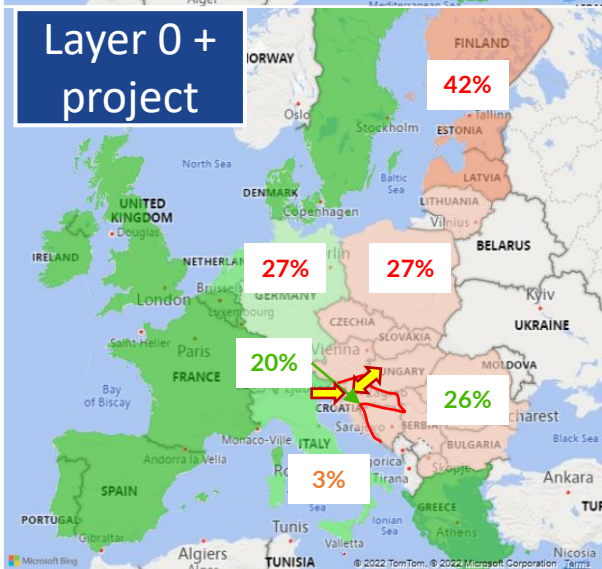
Current levels of demand and production

- Overall reduction of 4% dependence in SI and HR, and 1% in the CEE region.

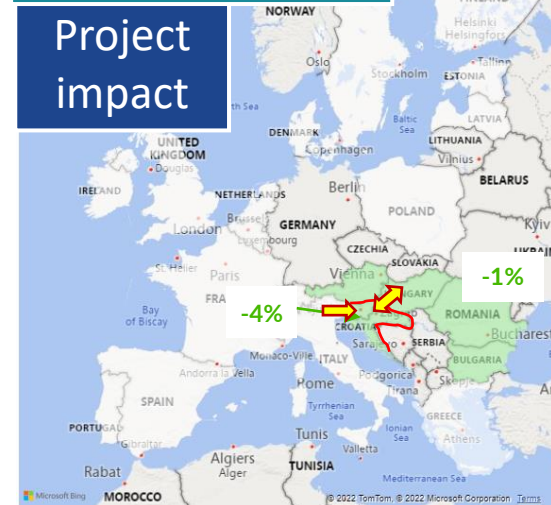
2030

- Overall reduction of 2% dependence in SI and HR, and 1% in the CEE region.

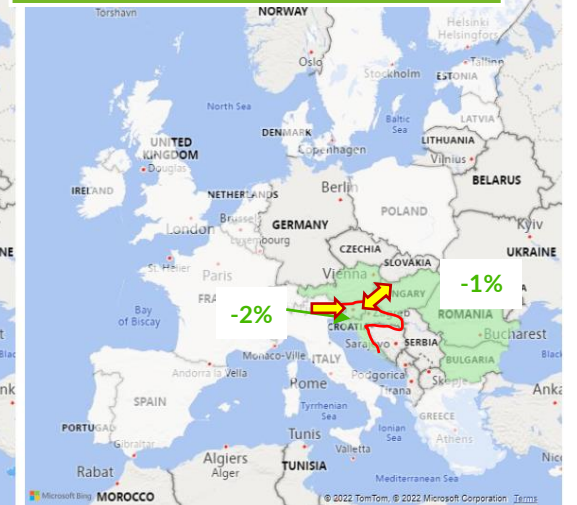
Layer 0 + project



Current demand and production

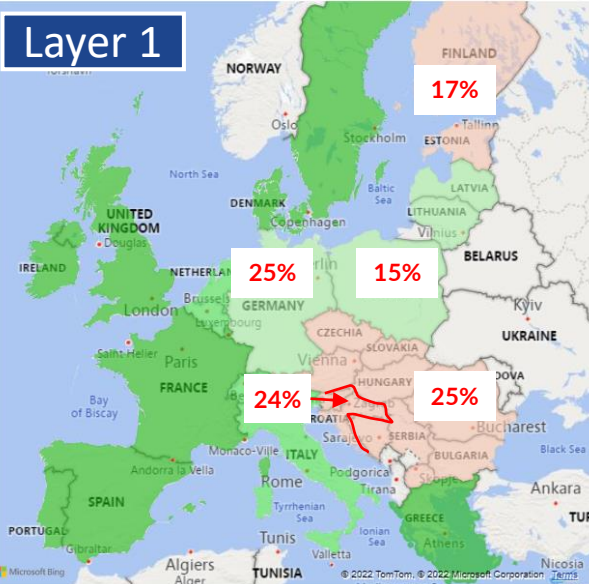


2030 - Fit-for-55 demand and production

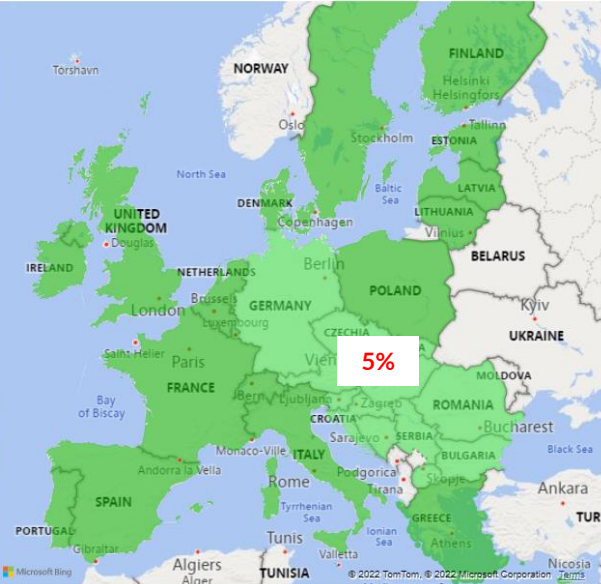


Impact of Hungary - Slovenia interconnection

Current demand and production



2030 - Fit-for-55 demand and production



Additional capacity from IT to SI and between SI and HU

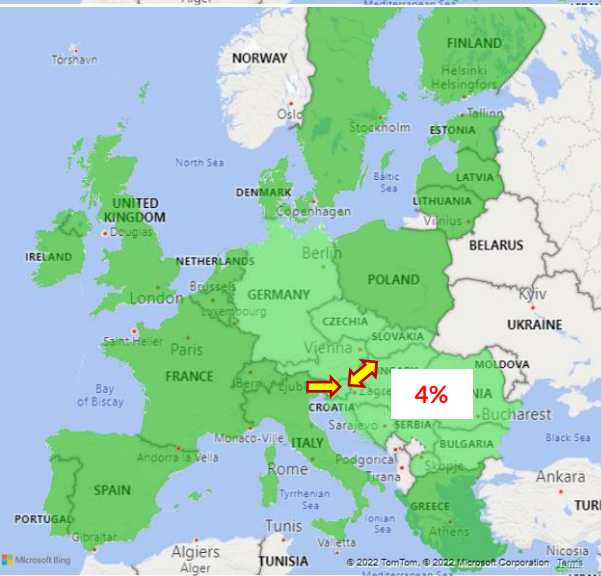
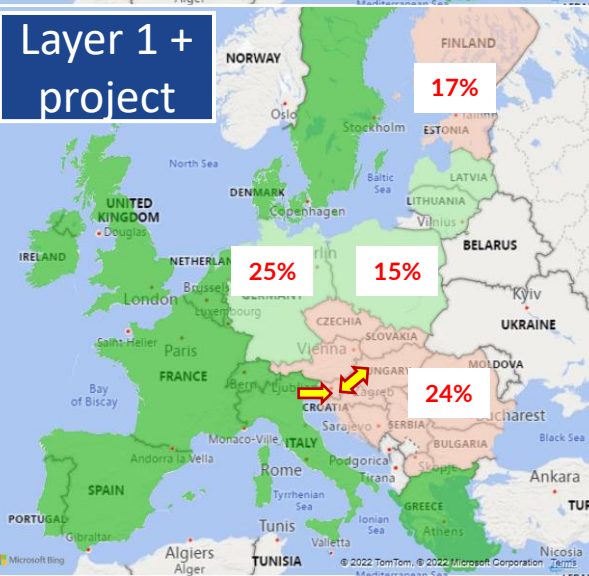
Current levels of demand and production

- Alleviates the limitation between SI and HR with the rest of CEE, allowing for more efficient cooperation. All countries show the same dependence with an overall reduction of 1% in the region.

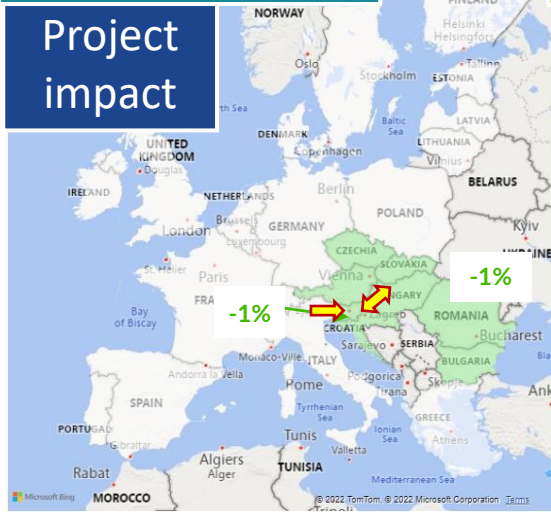
2030

- Overall reduction of 1% dependence in the CEE region.

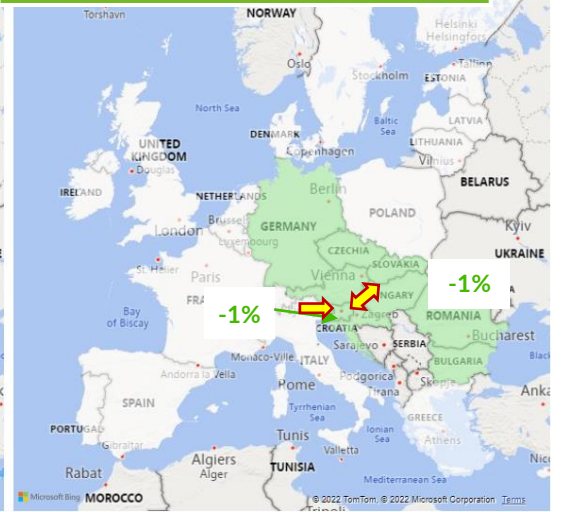
Layer 1 + project



Current demand and production

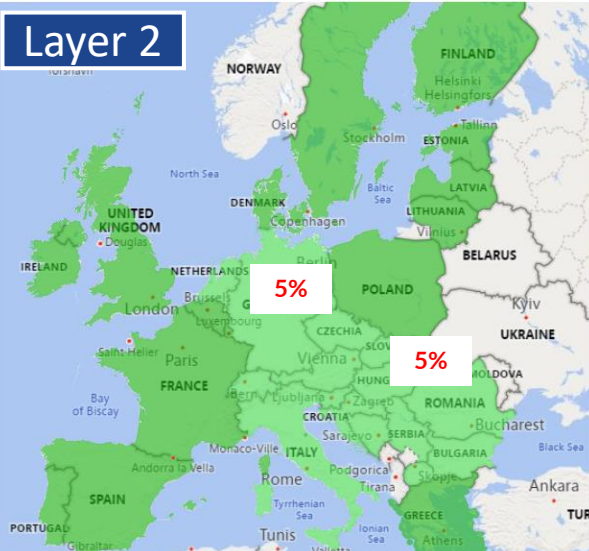


2030 - Fit-for-55 demand and production



Impact of Hungary - Slovenia interconnection

Current demand and production



2030 - Fit-for-55 demand and production

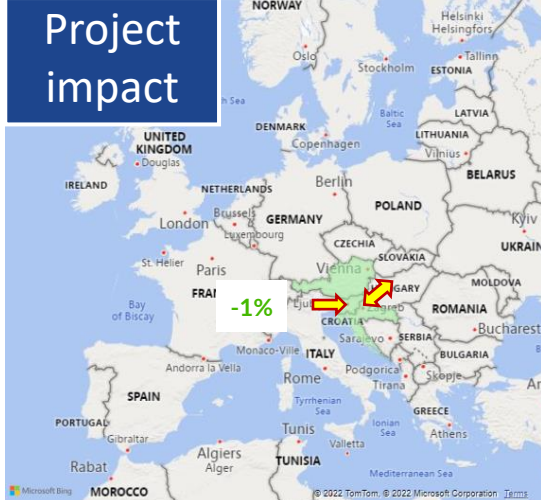


Additional capacity from IT to SI and between SI and HU

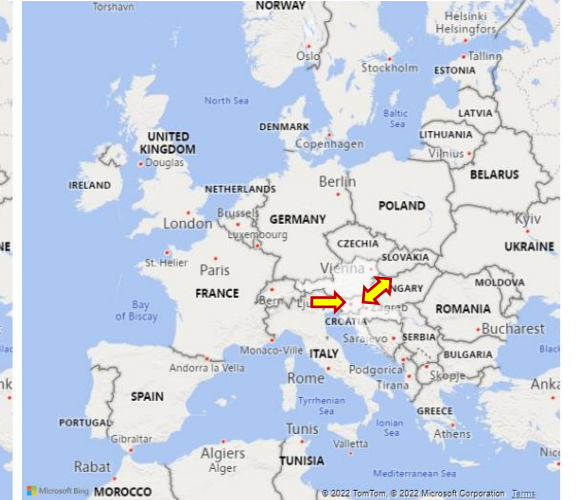
Current levels of demand and production

- Reduces dependence in AT, SI and HR by 1%
- 2030
- No additional impact

Current demand and production

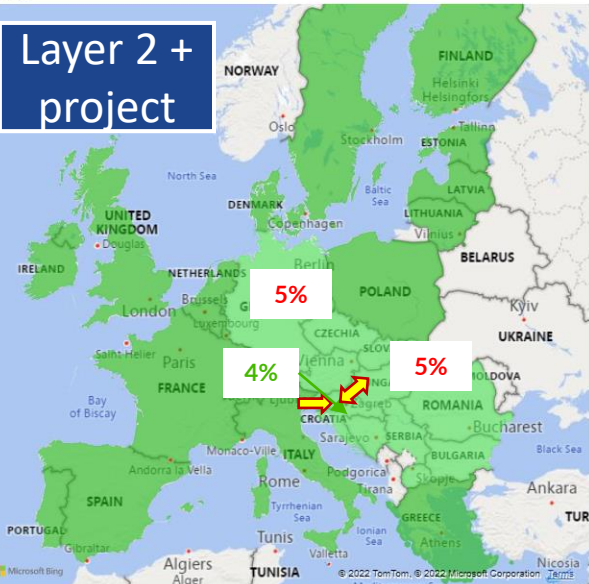


2030 - Fit-for-55 demand and production

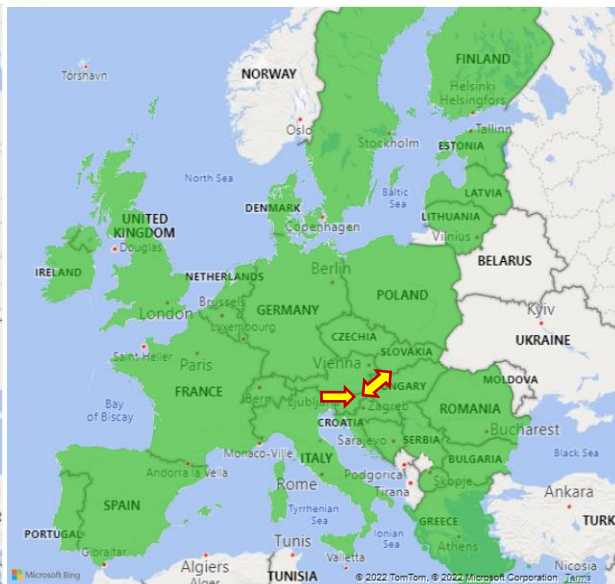


2023

Layer 2 + project



2030



Bidirectional gas route Austria-Slovenia

Bidirectional gas route Austria-Slovenia

Current demand and production

2030 - Fit-for-55 demand and production

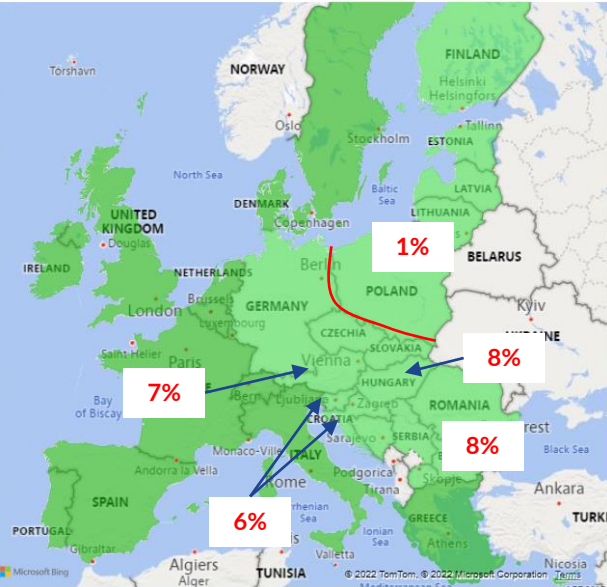
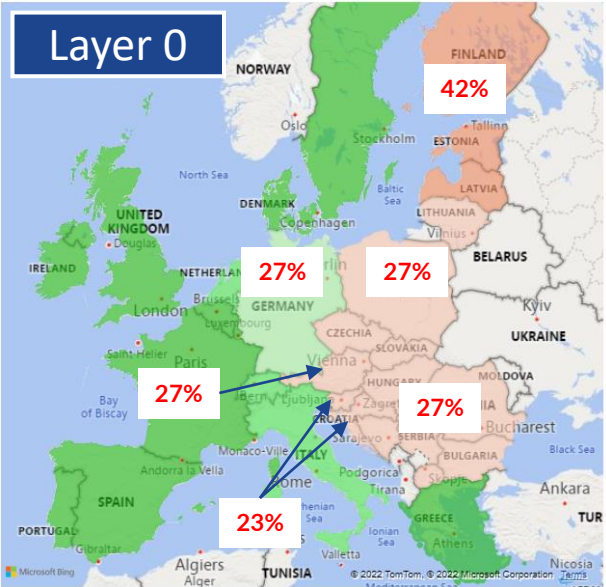
Project allows for a better cooperation between Austria, Slovenia and Croatia

Current levels of demand and production

- Improvement in AT (-1%), possibility from Slovenia and Croatia to help (+3%)

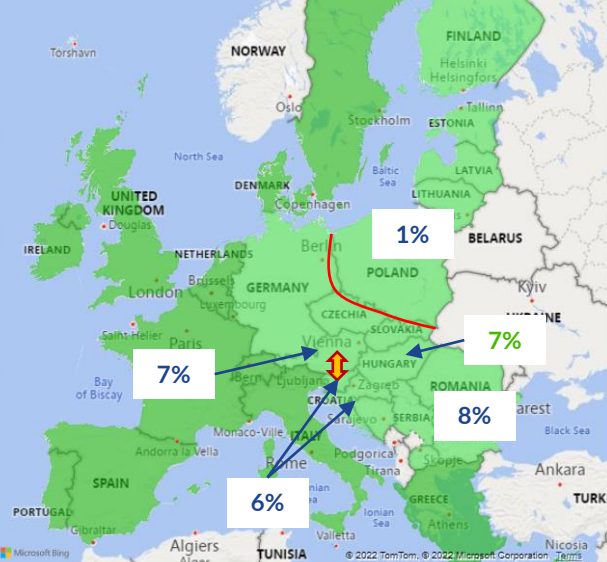
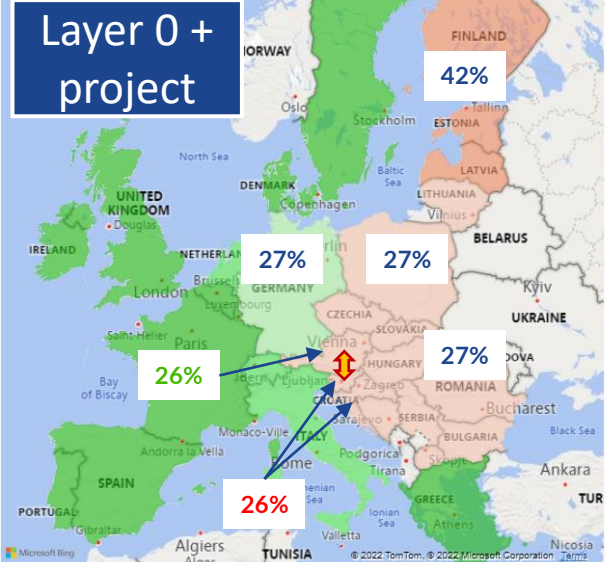
2030 - Fit-for-55 demand and production

- Improvement in HU and AT (-1%), possibility from Slovenia and Croatia to help (+3%)

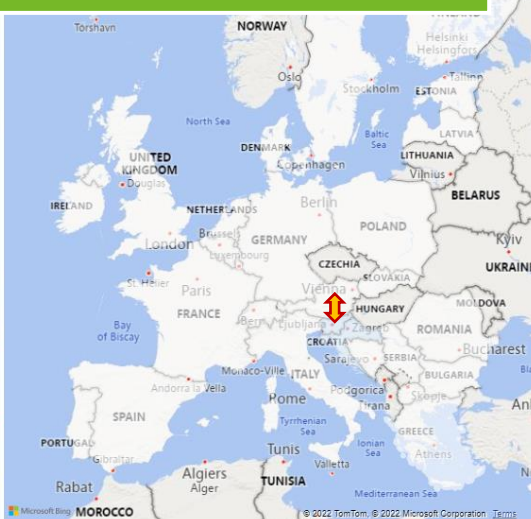
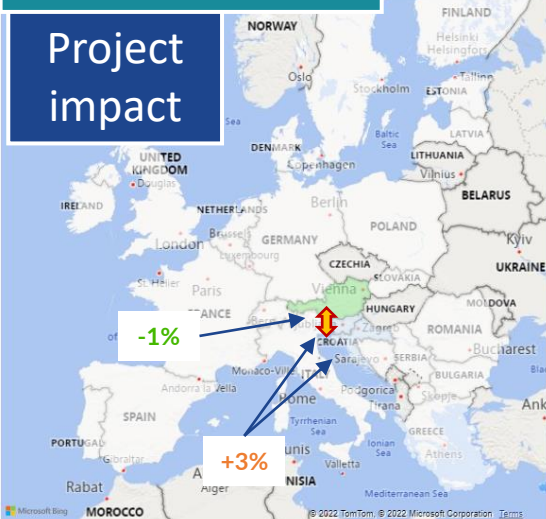


Current demand and production

2030 - Fit-for-55 demand and production



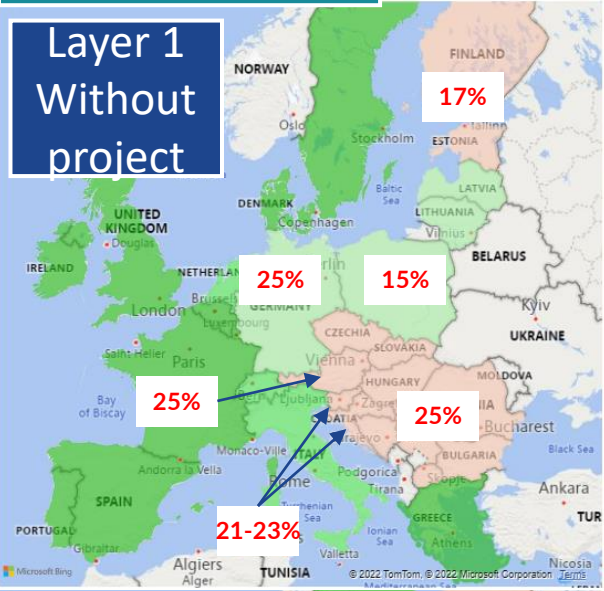
Project impact



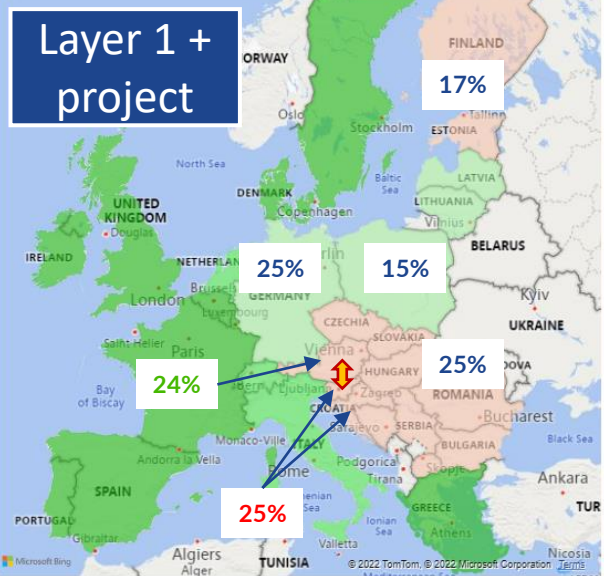
Bidirectional gas route Austria-Slovenia

Current demand and production

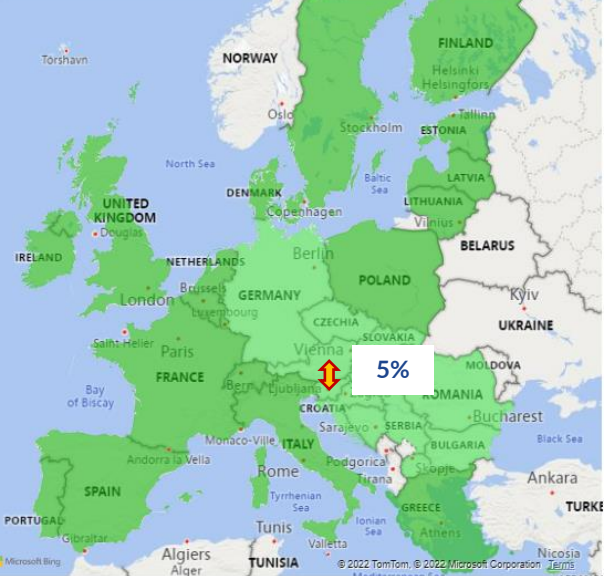
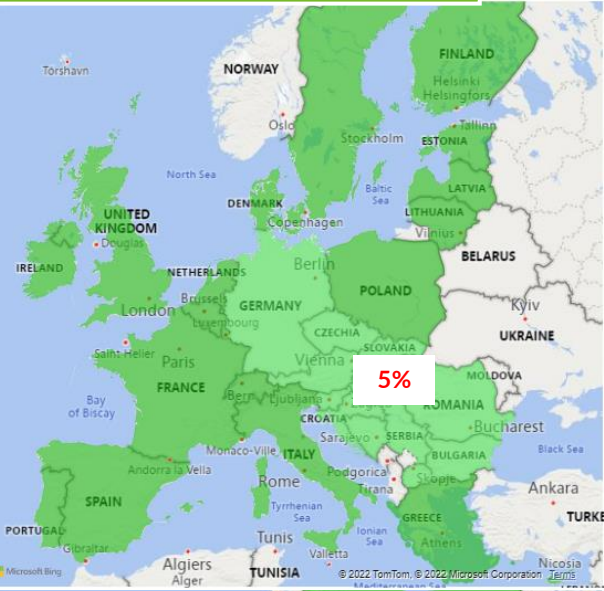
Layer 1
Without
project



Layer 1 +
project



2030 - Fit-for-55 demand and production



Project allows for a better cooperation between Austria, Slovenia and Croatia

Current levels of demand and production

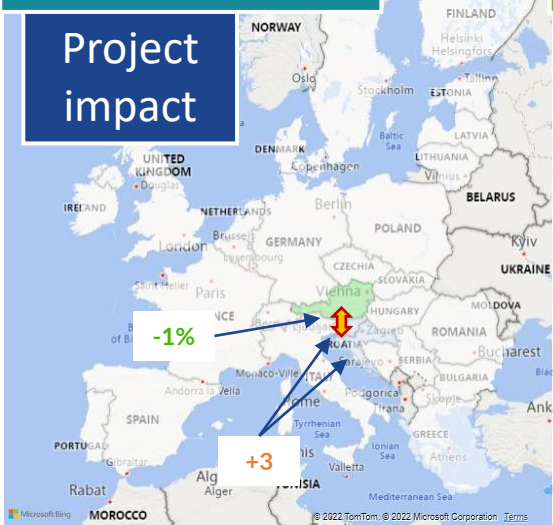
- Improvement in AT (-1%), possibility from Slovenia and Croatia to help (+3%)

2030 - Fit-for-55 demand and production

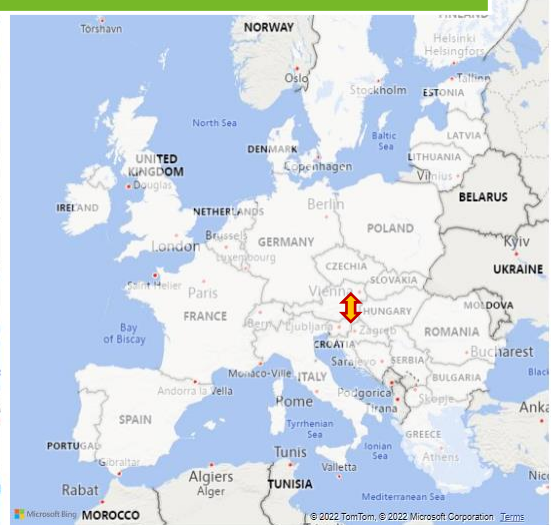
- No additional impact

Current demand and production

Project
impact



2030 - Fit-for-55 demand and production



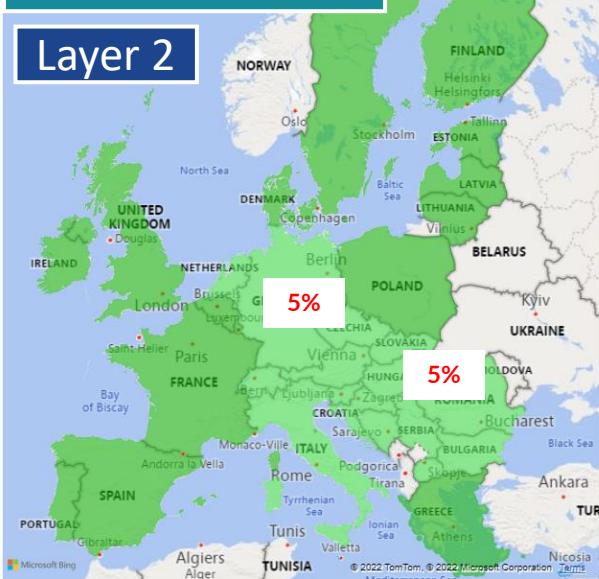
Bidirectional gas route Austria-Slovenia

Current demand and production

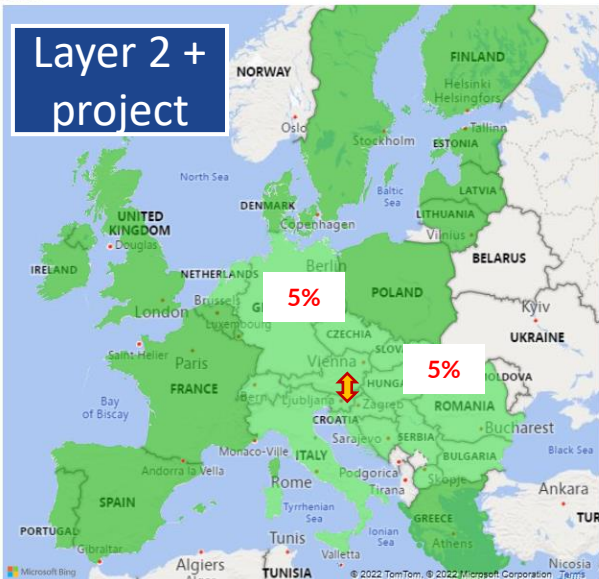
2030 – Fit-for-55 demand and production

No additional impact in layer 2

Layer 2



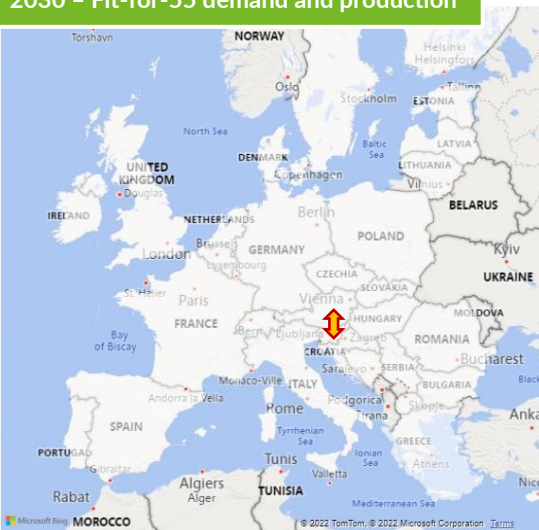
Layer 2 + project



Current demand and production

2030 – Fit-for-55 demand and production

Project impact



Czechia – Austria interconnector

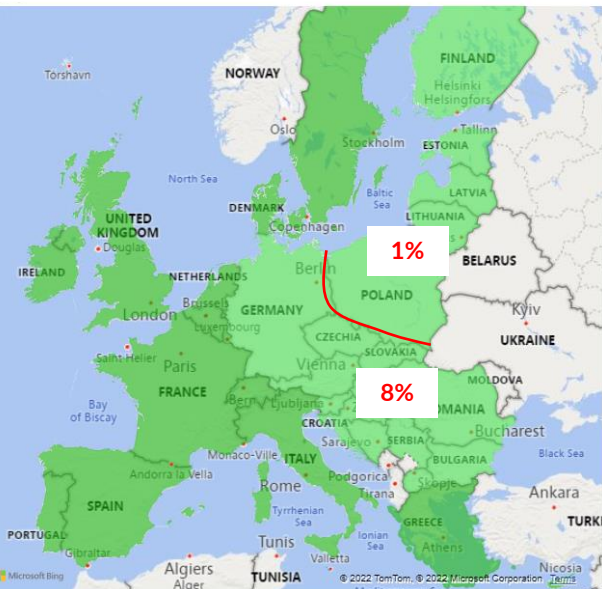
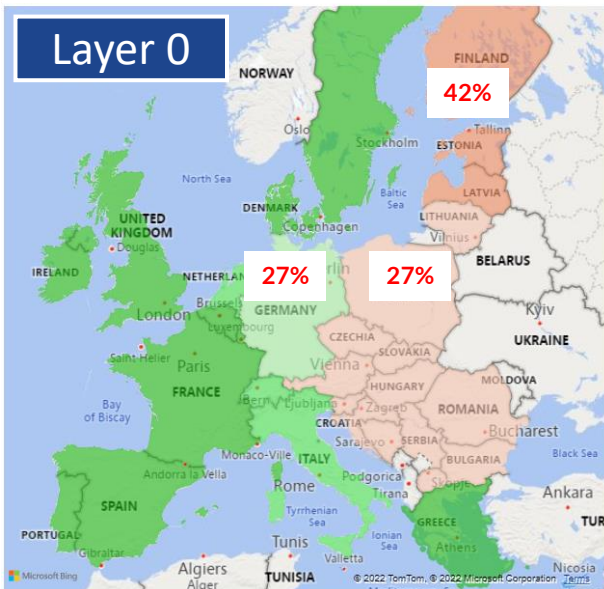
Czechia - Austria interconnector

Current demand and production

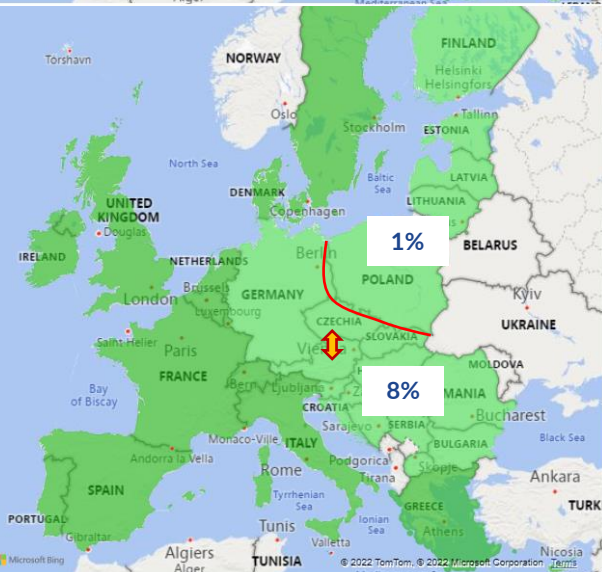
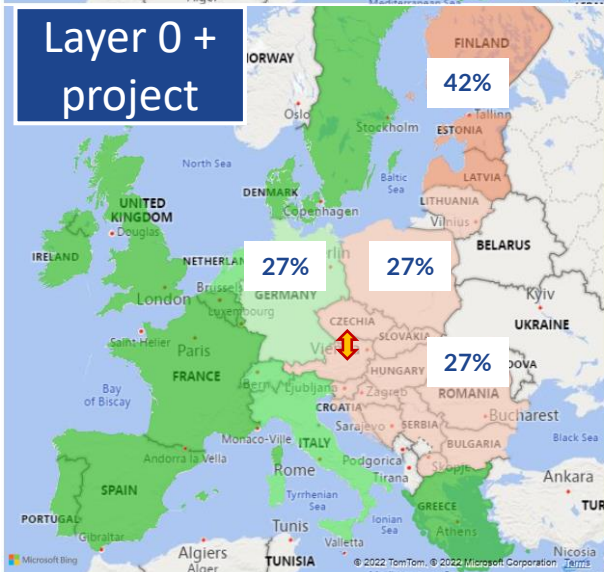
2030 - Fit-for-55 demand and production

Modelling results do not show any change in dependence of the EU on Russian gas

Layer 0



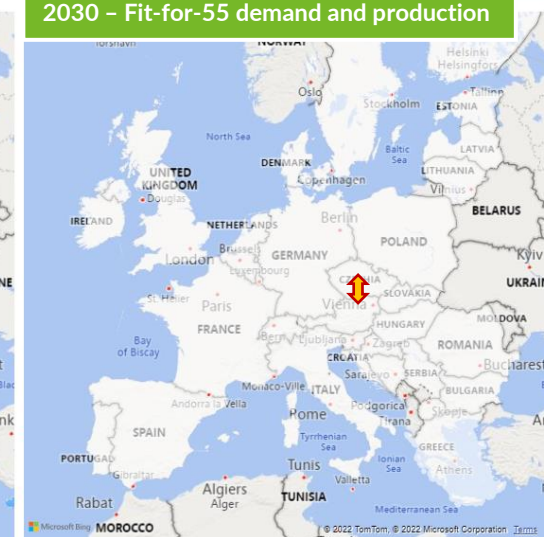
Layer 0 + project



Current demand and production

2030 - Fit-for-55 demand and production

Project impact

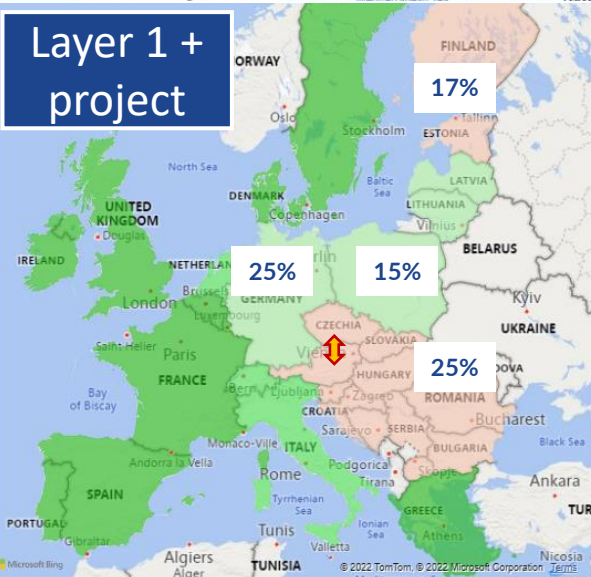
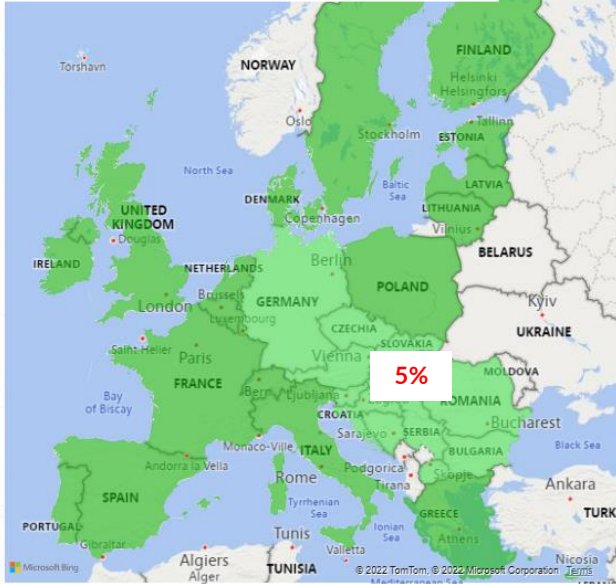
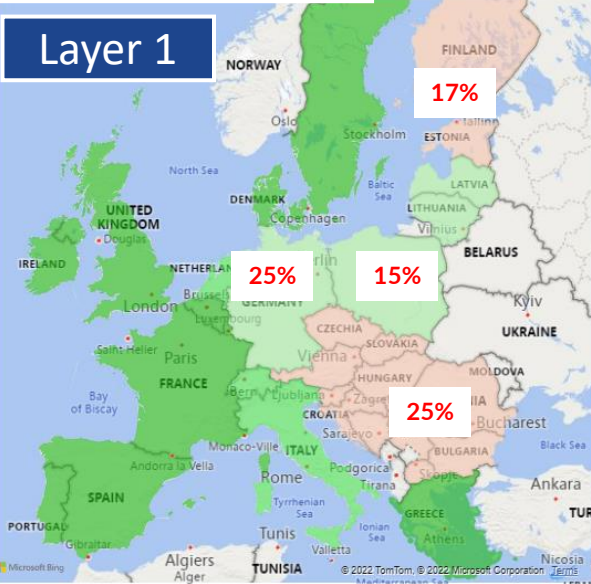


Czechia - Austria interconnector

Current demand and production

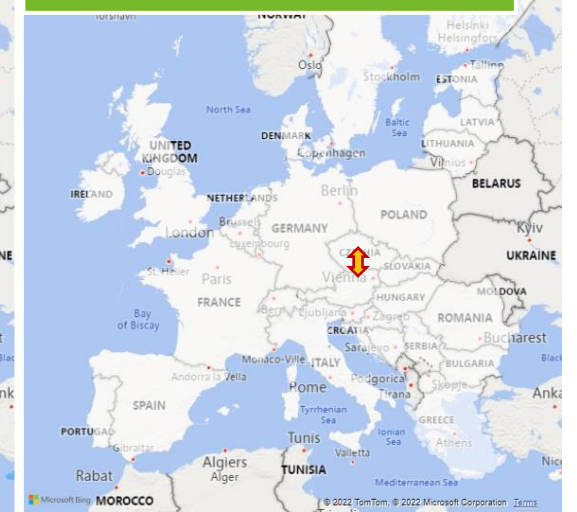
2030 - Fit-for-55 demand and production

Modelling results do not show any change in dependence of the EU on Russian gas



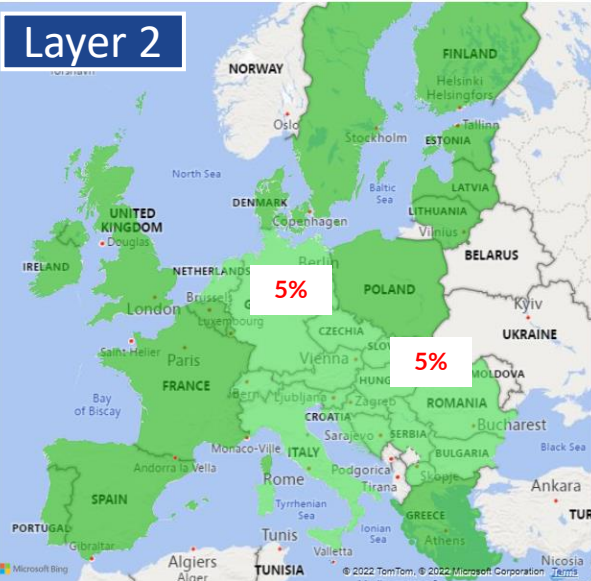
Current demand and production

2030 - Fit-for-55 demand and production



Czechia - Austria interconnector

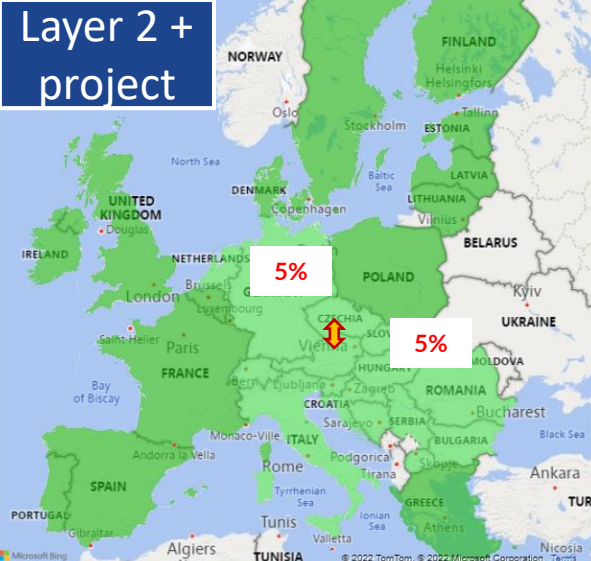
Current demand and production



2030 - Fit-for-55 demand and production



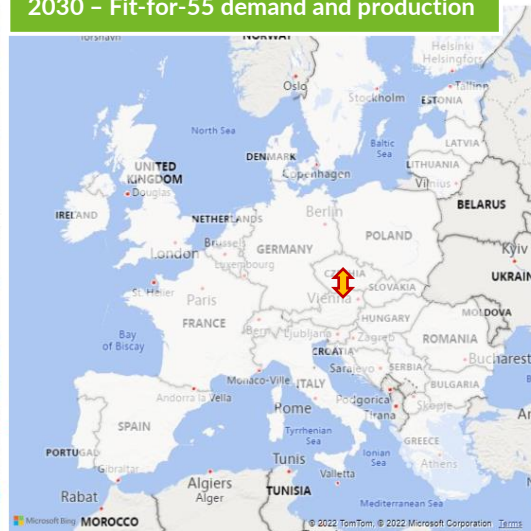
Modelling results do not show any change in dependence of the EU on Russian gas



Current demand and production



2030 - Fit-for-55 demand and production



Interconnection Italy – Slovenia

Interconnection Italy – Slovenia

Current demand and production

2030 – Fit-for-55 demand and production

Project allows to lower dependence in CESEE region, especially in Slovenia and Croatia

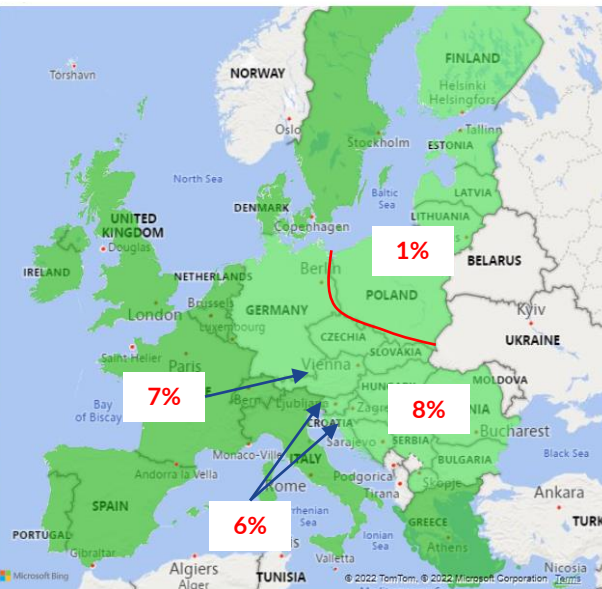
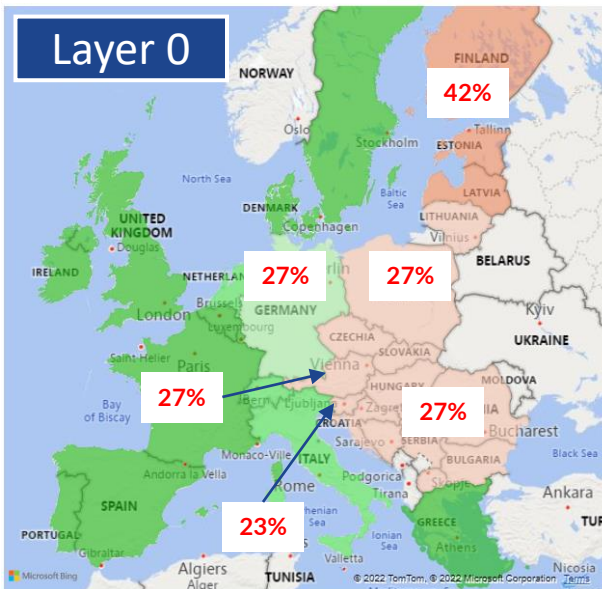
Current levels of demand and production

- Improvement in SI (-7%) and HR (-6%), and SEE region (-1%)

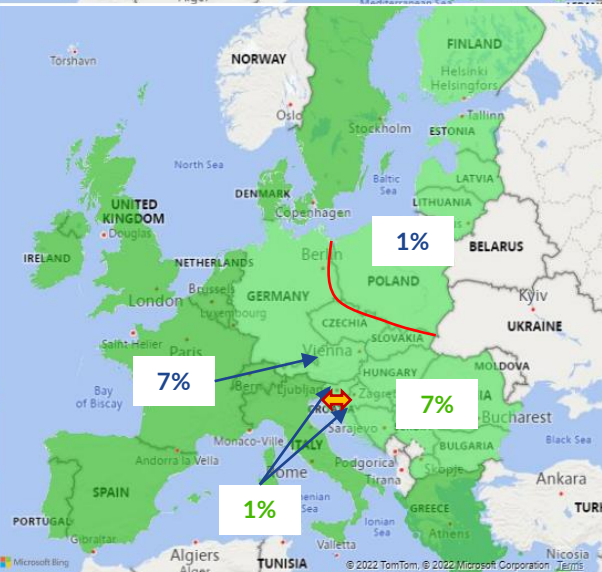
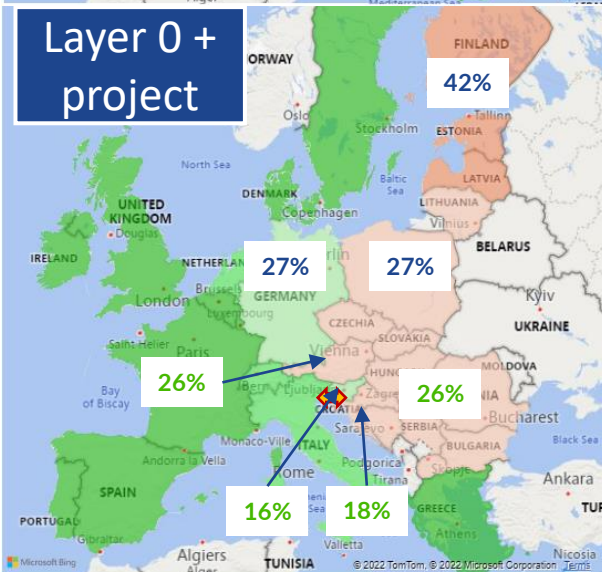
2030 – Fit-for-55 demand and production

- Improvement in SI, HR (-5%) and SEE region (-1%)

Layer 0

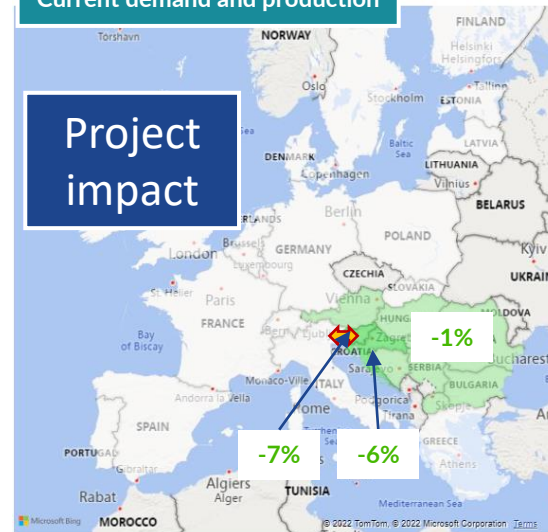


Layer 0 + project

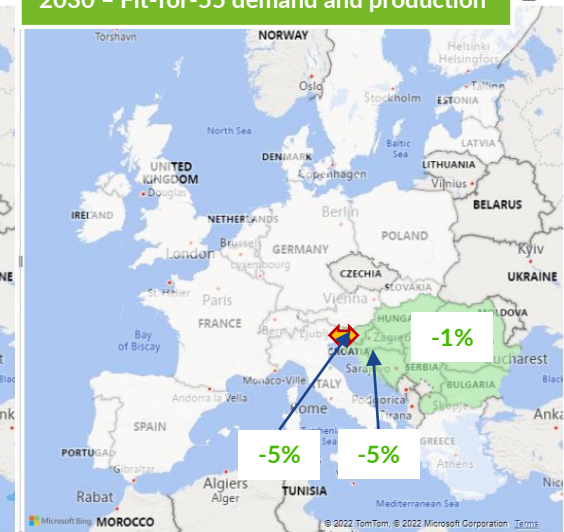


Current demand and production

Project impact

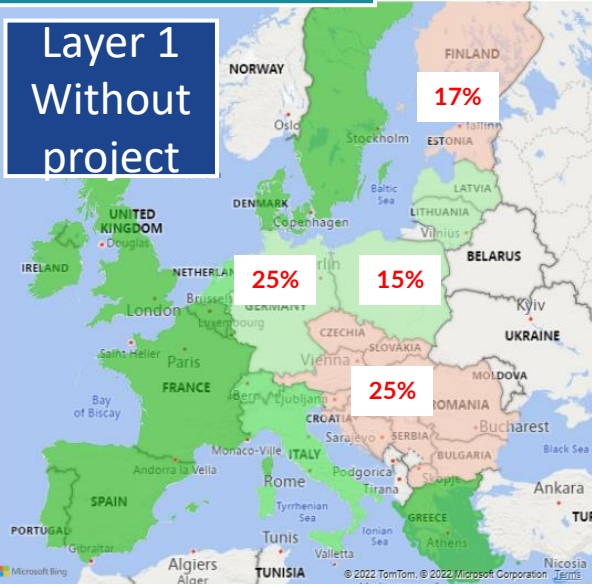


2030 – Fit-for-55 demand and production

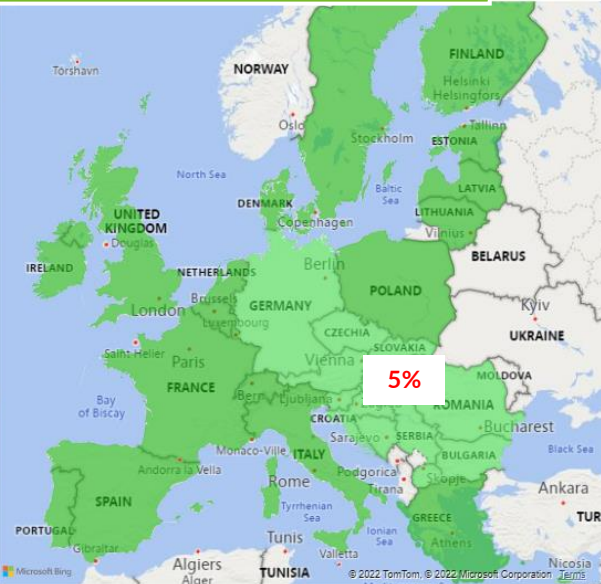


Interconnection Italy – Slovenia

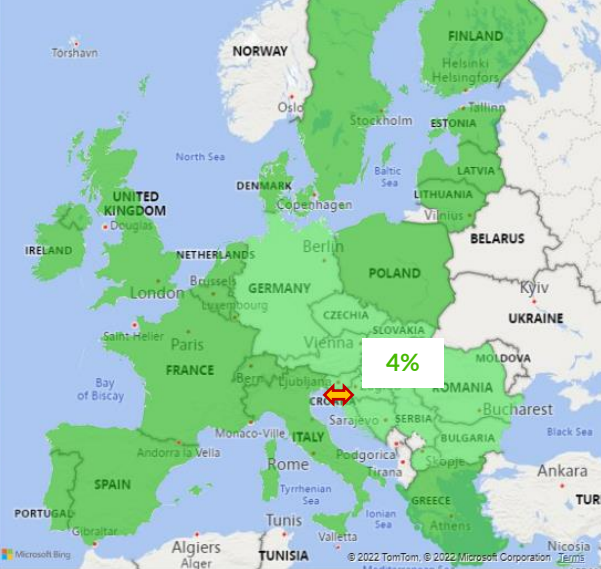
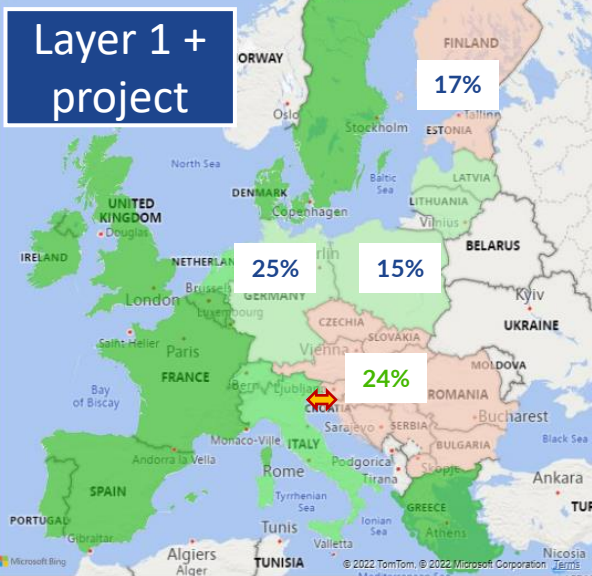
Current demand and production



2030 – Fit-for-55 demand and production



Layer 1 + project



Project allows to lower dependence within most of the CESEE region

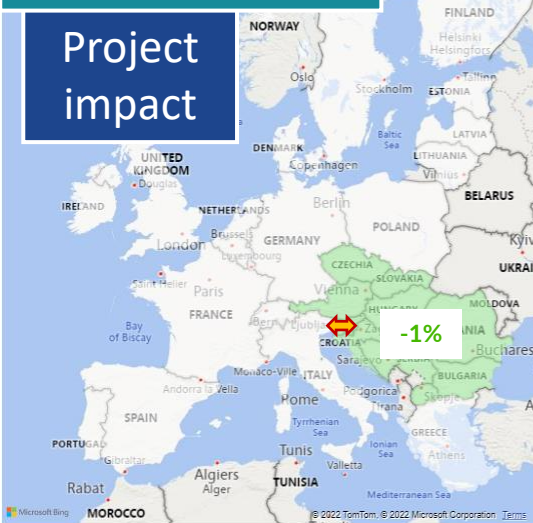
Current levels of demand and production

- Improvement in CESEE region (-1%),

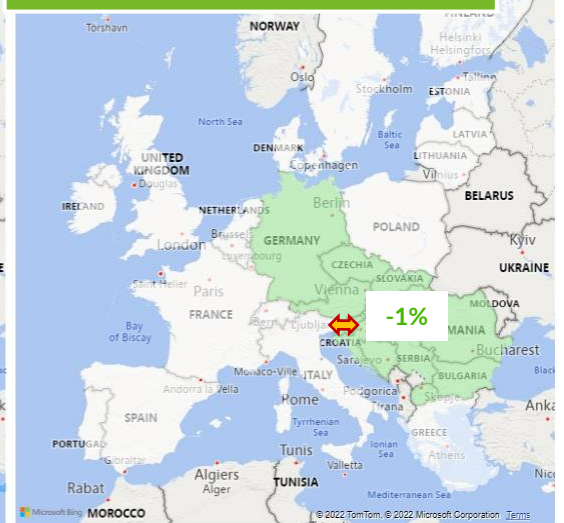
2030 – Fit-for-55 demand and production

- Improvement in CESEE region (-1%)

Current demand and production

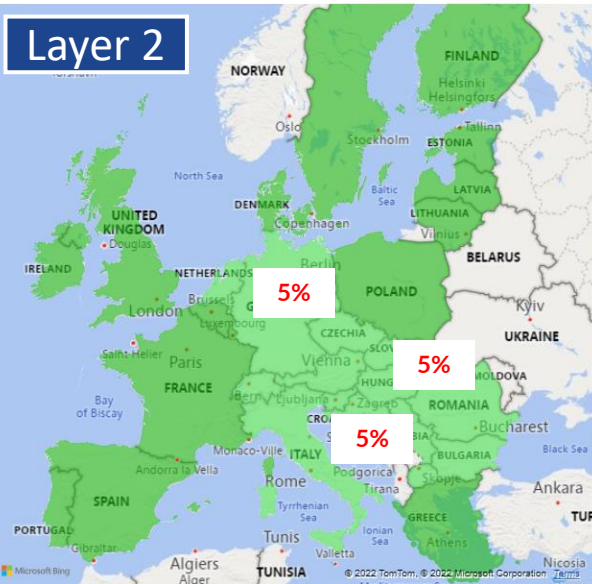


2030 – Fit-for-55 demand and production



Interconnection Italy – Slovenia

Current demand and production



2030 – Fit-for-55 demand and production

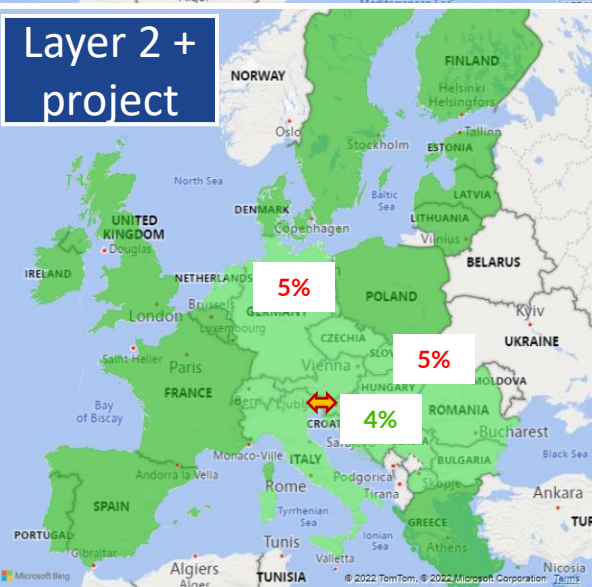


Project allows for a better cooperation between Austria, Slovenia and Croatia

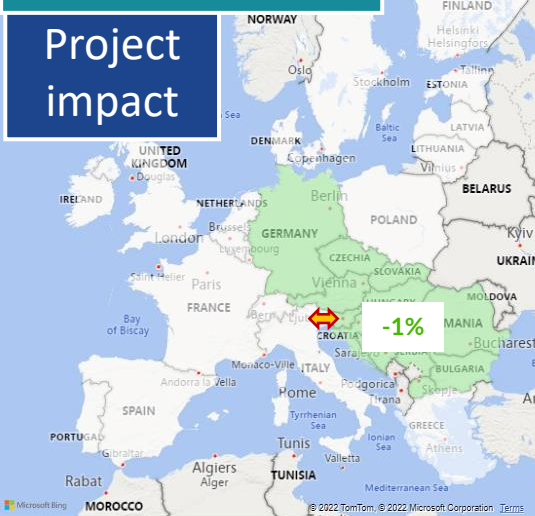
Current levels of demand and production

- Improvement in CESEE region (-1% or below), 2030 – Fit-for-55 demand and production
- No additional impact in layer 2

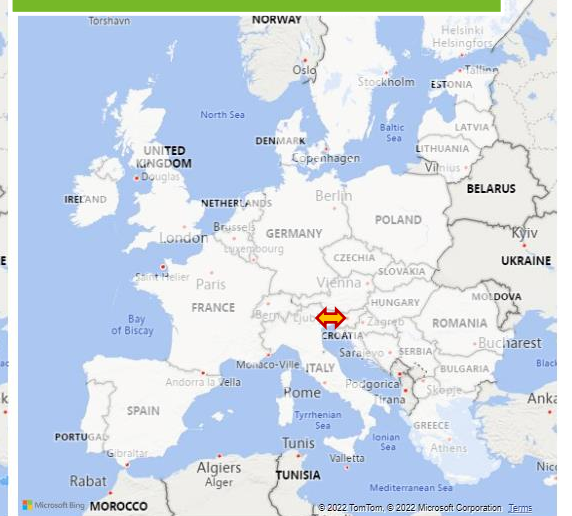
Layer 2 + project



Current demand and production



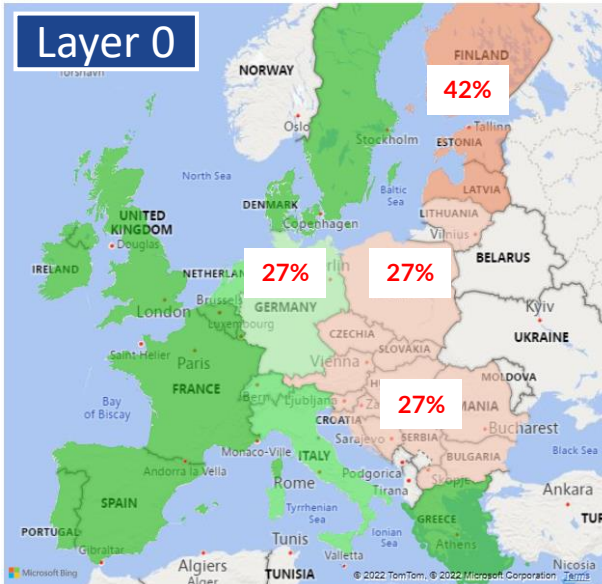
2030 – Fit-for-55 demand and production



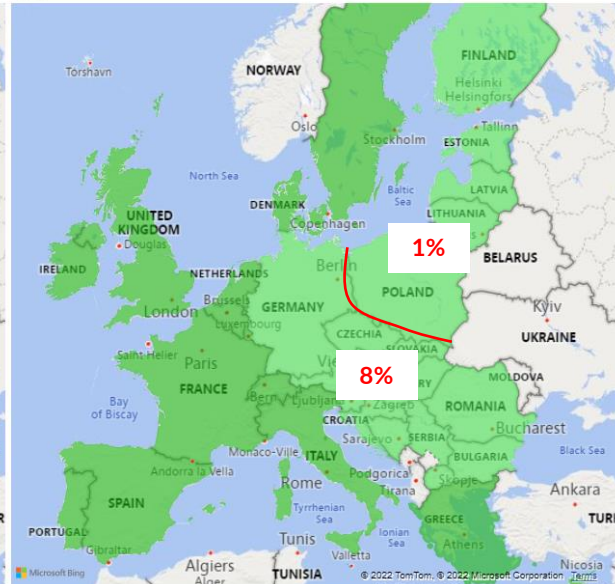
IGB phase II

IGB phase II

Current demand and production

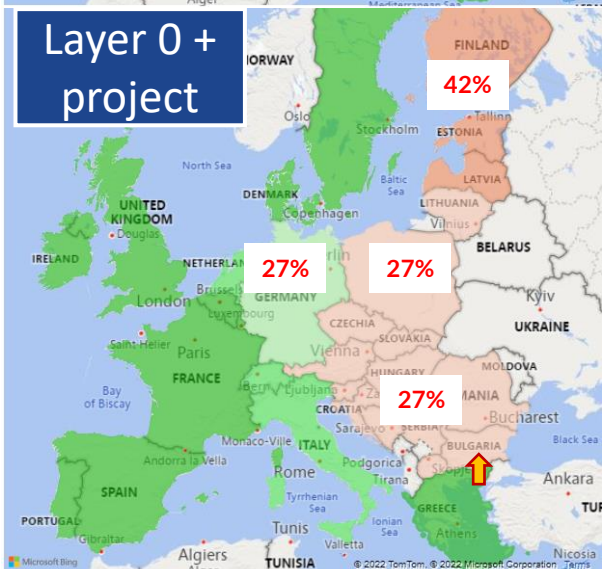


2030 - Fit-for-55 demand and production

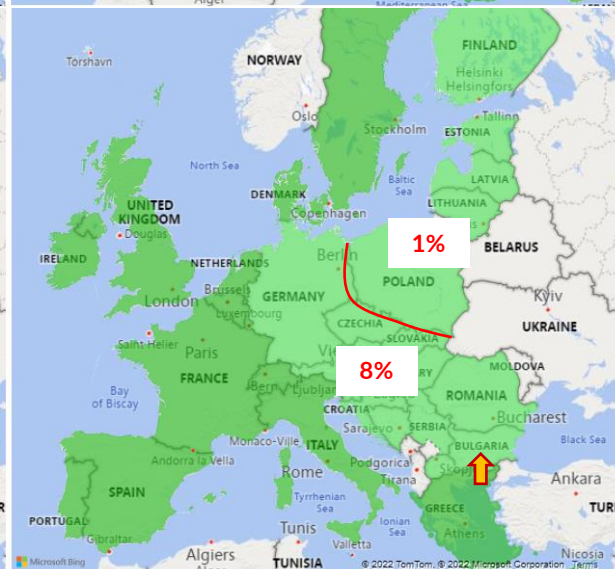


IGB phase II was not modelled as phase I of this project is not included in Layer 0

Layer 0 + project



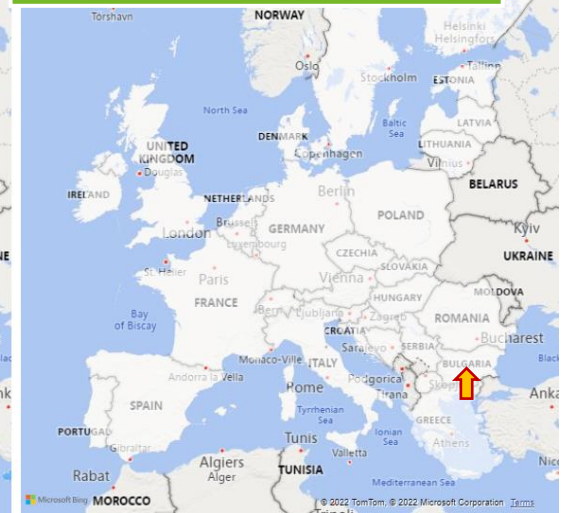
2030 - Fit-for-55 demand and production



Current demand and production

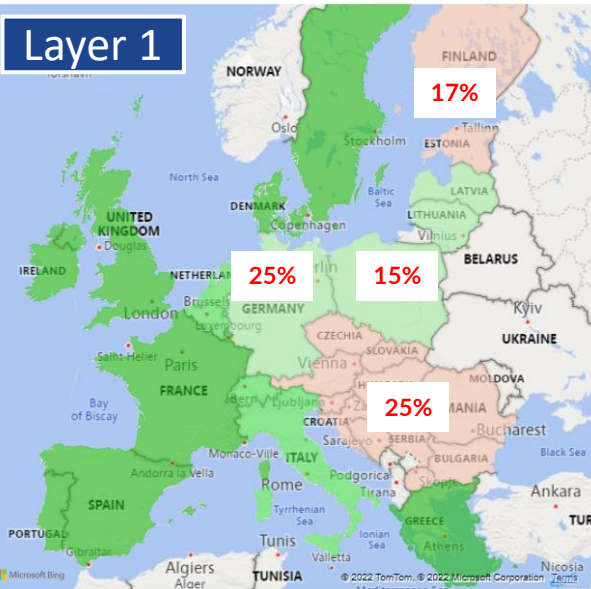


2030 - Fit-for-55 demand and production

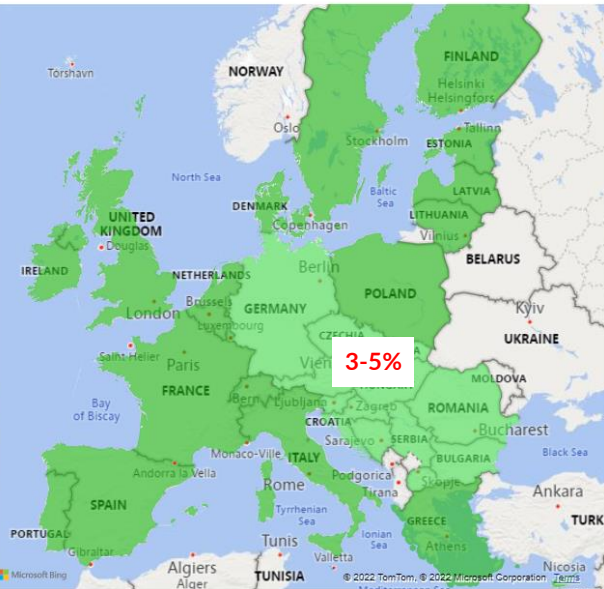


IGB phase II

Current demand and production



2030 - Fit-for-55 demand and production

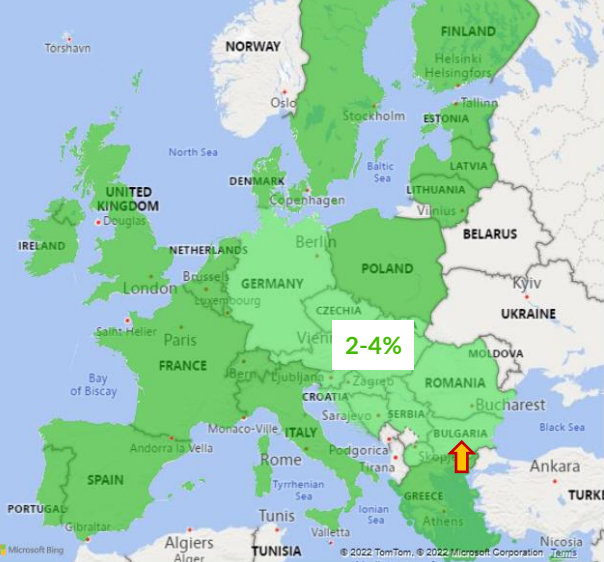
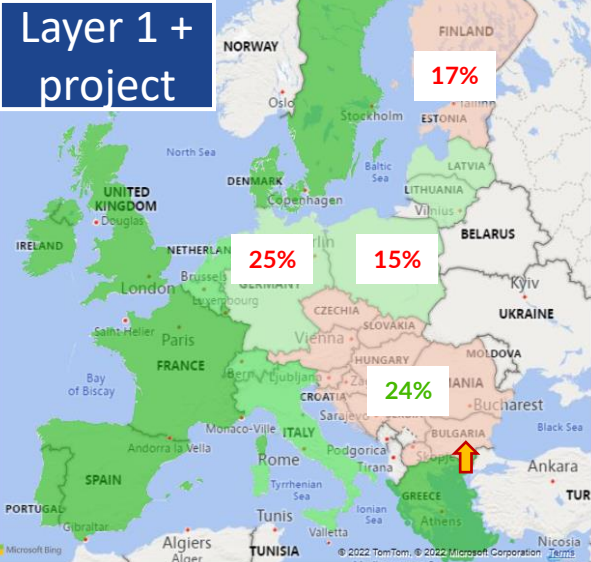


Current levels of demand and production

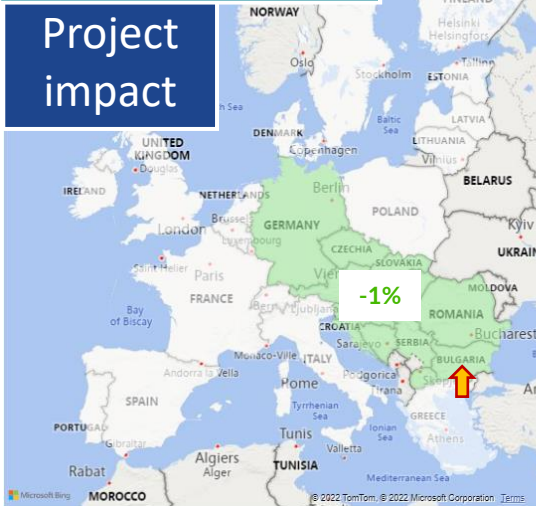
- Improvement in CESEE region (-1% or below),

2030 - Fit-for-55 demand and production

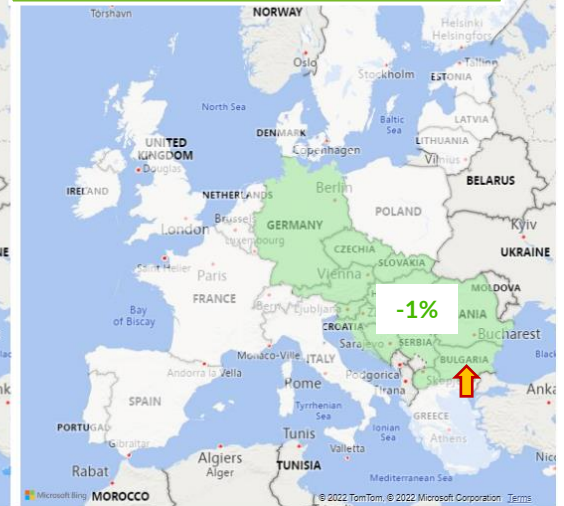
- No additional impact in layer 2



Current demand and production

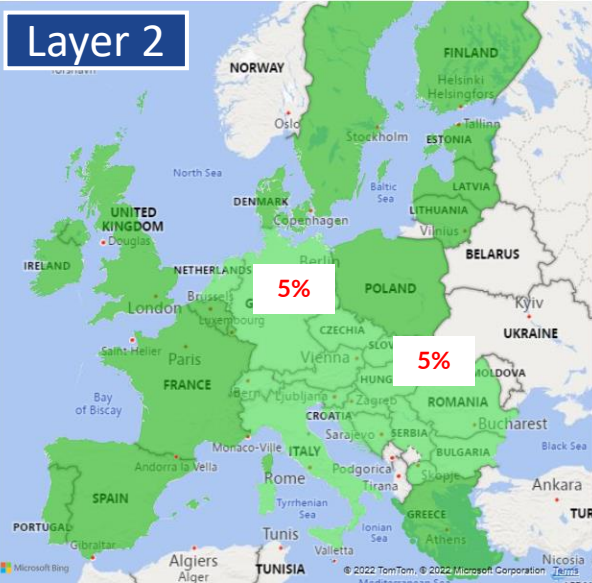


2030 - Fit-for-55 demand and production



IGB phase II

Current demand and production



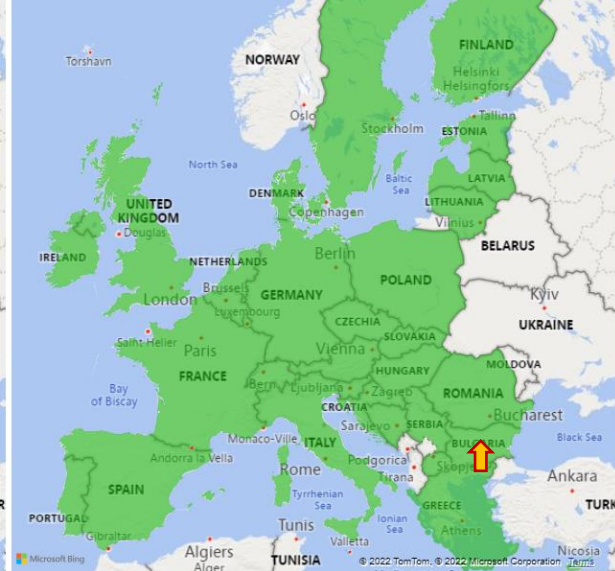
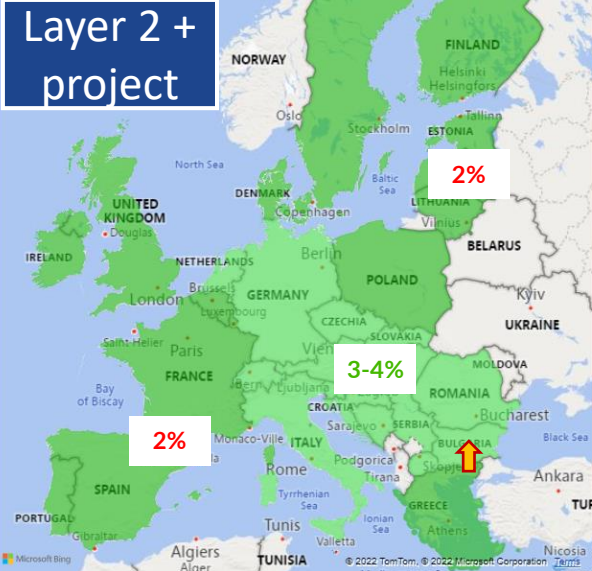
2030 - Fit-for-55 demand and production



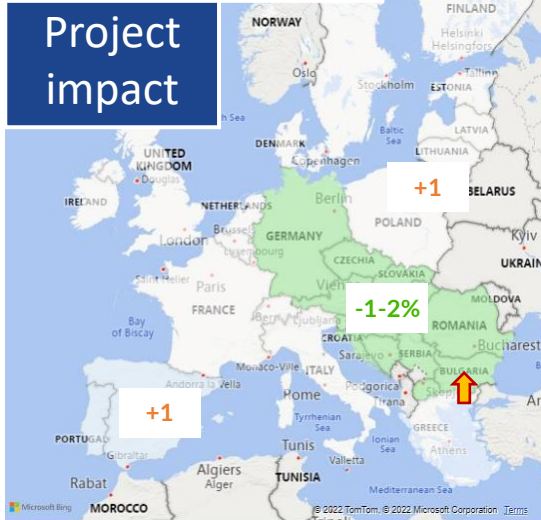
The project can bring more import to GR and send it to BG. Part of the LNG is redirected there, allowing to improve cooperation. Additional LNG volumes are needed to improve overall situation.

Current levels of demand and production

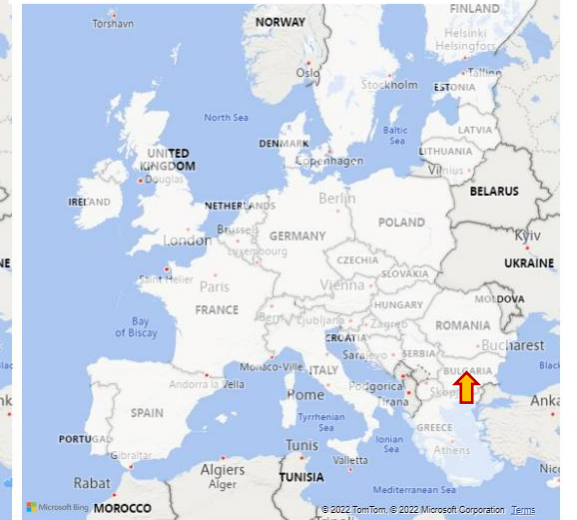
- Improvement in CESEE region (between -1 and -2%), 2030 - Fit-for-55 demand and production
- No additional impact in layer 2



Current demand and production



2030 - Fit-for-55 demand and production



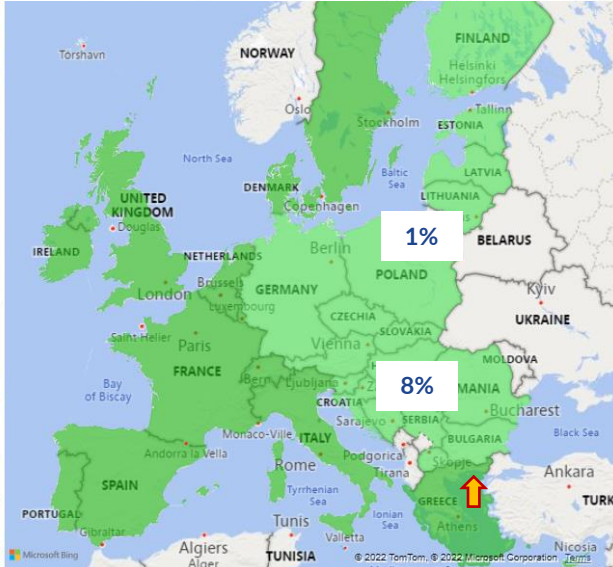
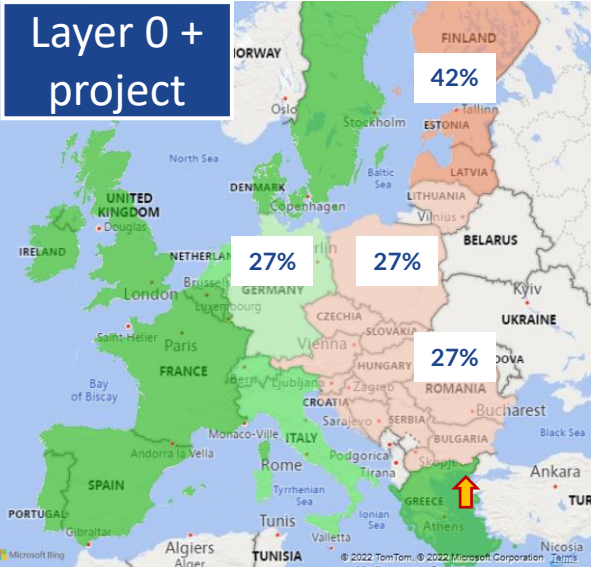
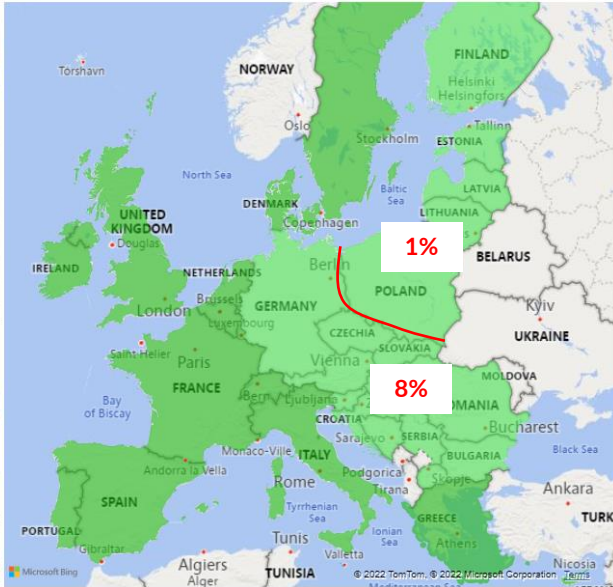
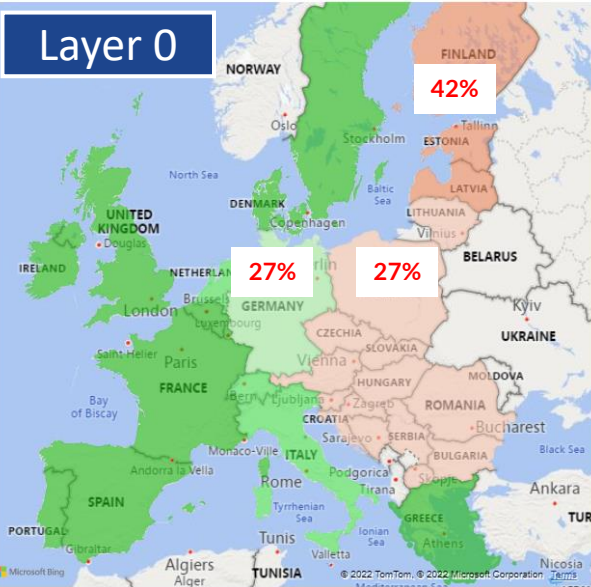
Alexandroupolis, Greece

Alexandroupolis, Greece

Current demand and production

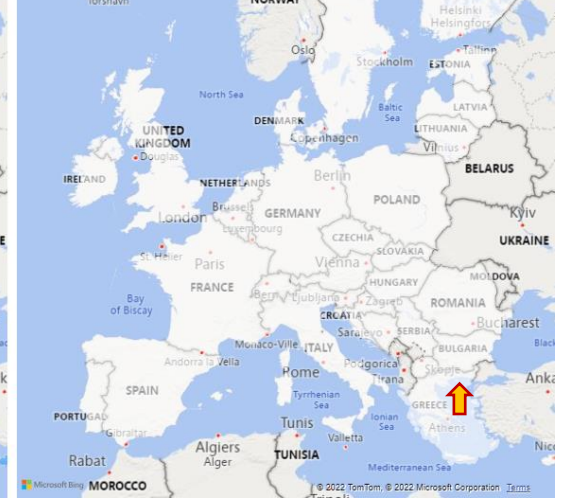
2030 - Fit-for-55 demand and production

Modelling results do not show any change in dependence of the EU on Russian gas



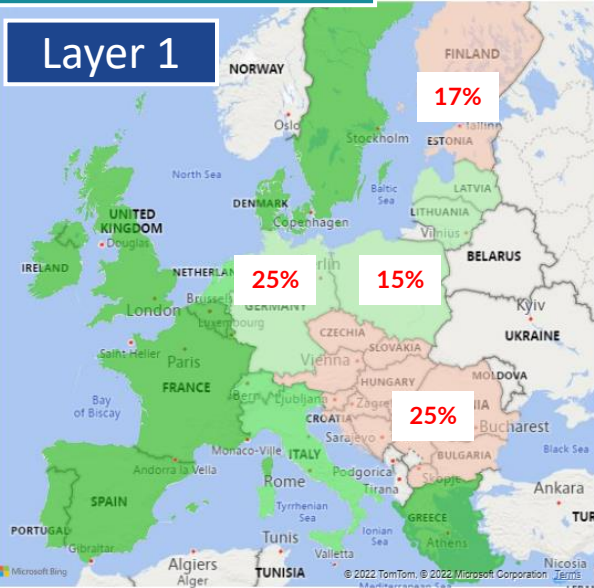
Current demand and production

2030 - Fit-for-55 demand and production

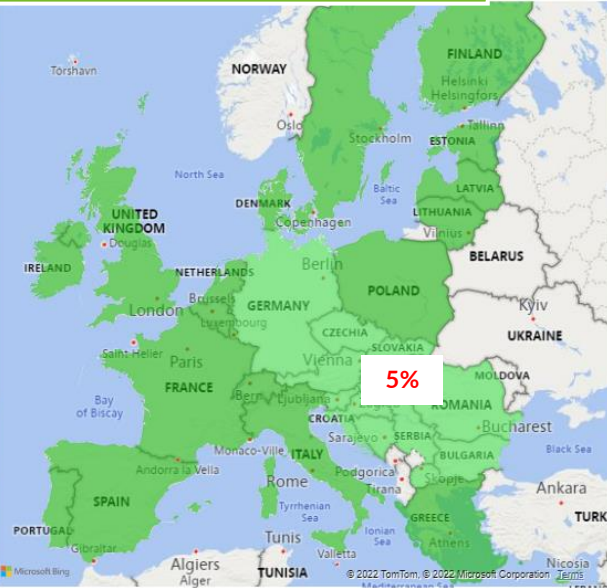


Alexandroupolis, Greece

Current demand and production

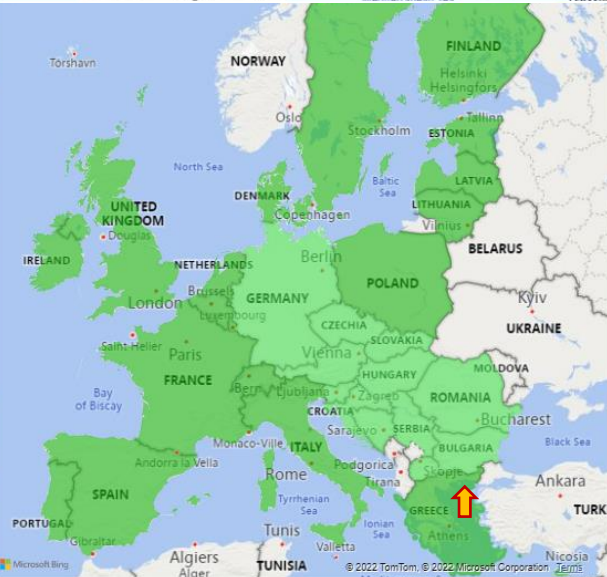
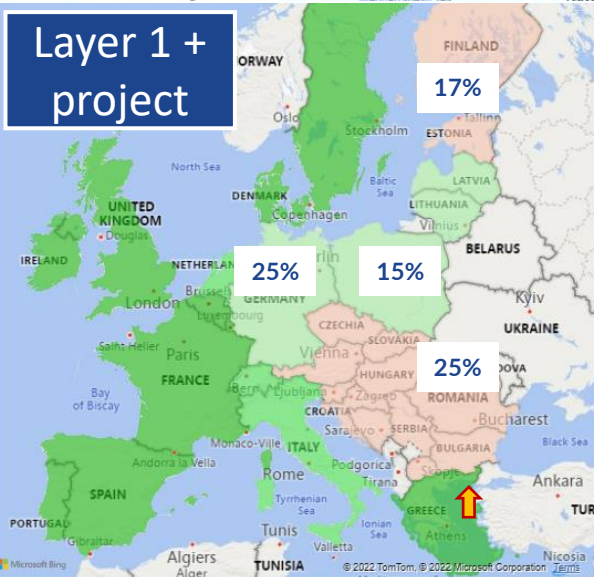


2030 – Fit-for-55 demand and production



Modelling results do not show any change in dependence of the EU on Russian gas

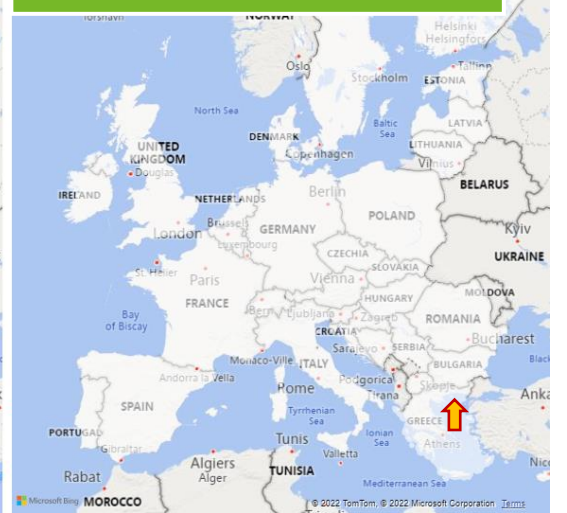
Layer 1 + project



Current demand and production

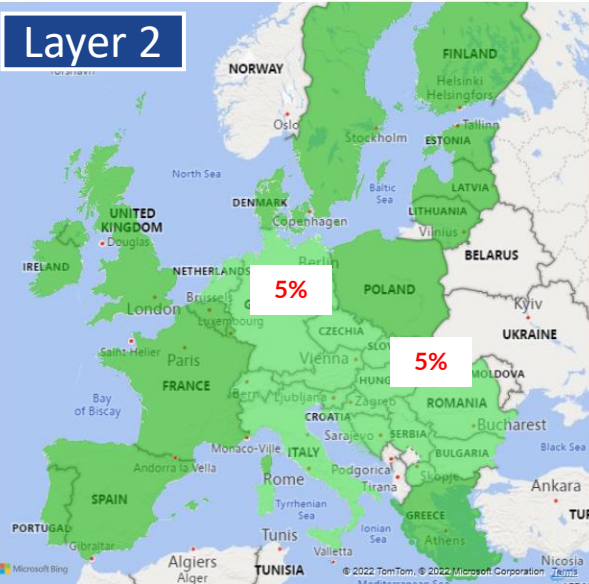


2030 – Fit-for-55 demand and production



Alexandroupolis, Greece

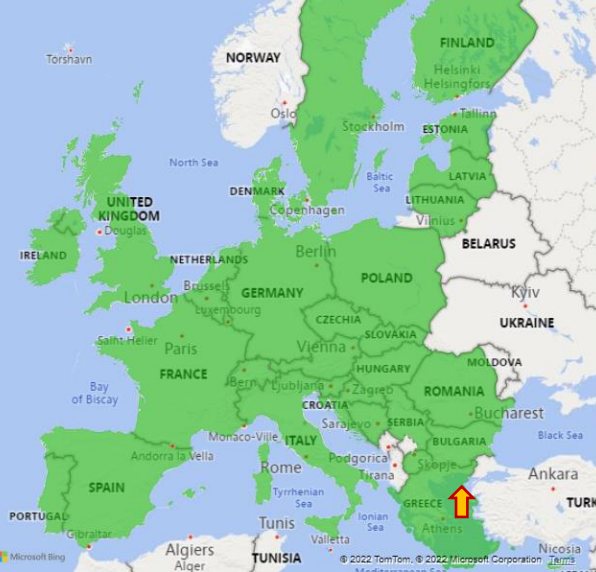
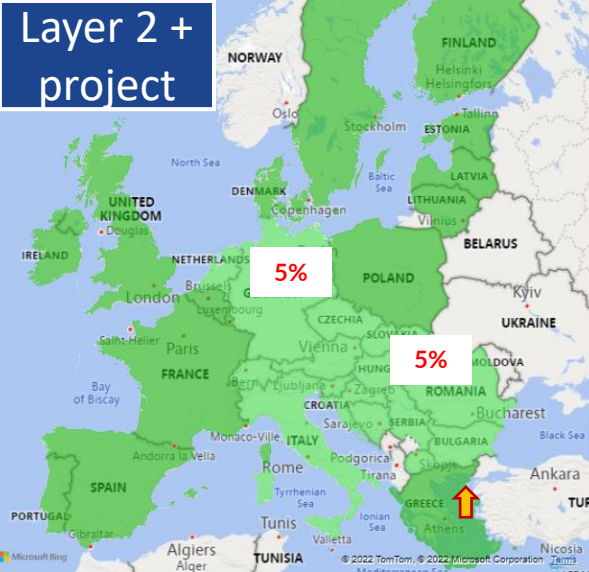
Current demand and production



2030 – Fit-for-55 demand and production



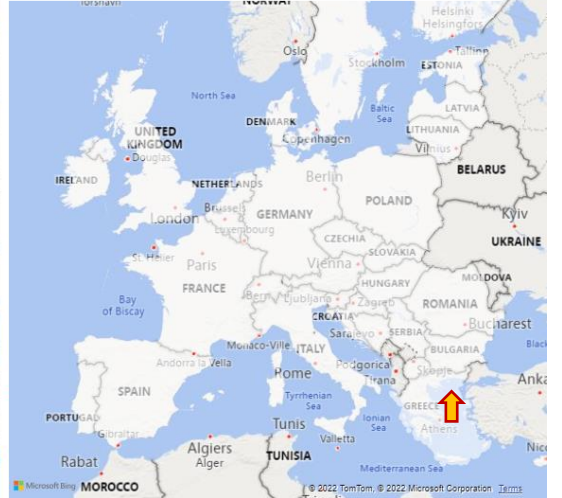
Modelling results do not show any change in dependence of the EU on Russian gas



Current demand and production



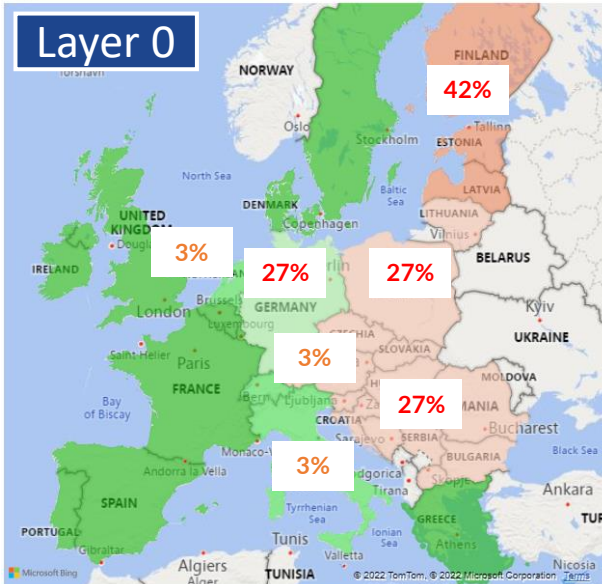
2030 – Fit-for-55 demand and production



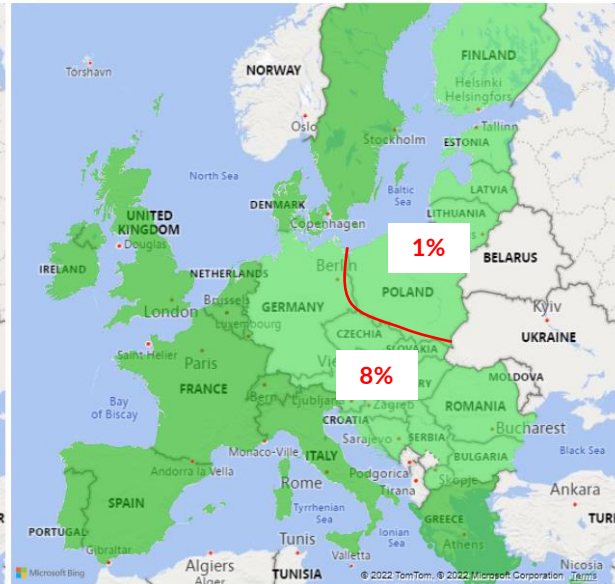
Adriatica line

Adriatic line

Current demand and production



2030 - Fit-for-55 demand and production



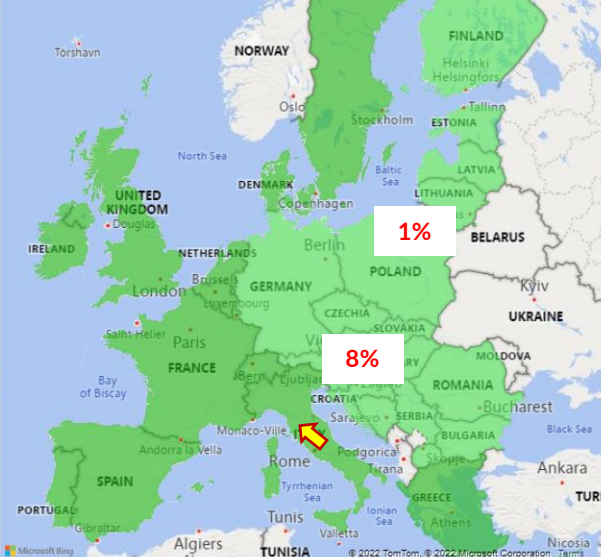
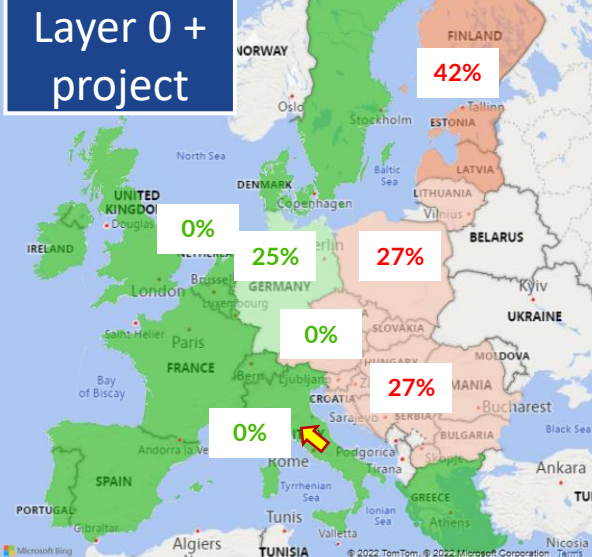
Additional capacity $IT_{South} \rightarrow IT_{North}$ allows to increase the use of imports from the South

Current levels of demand and production

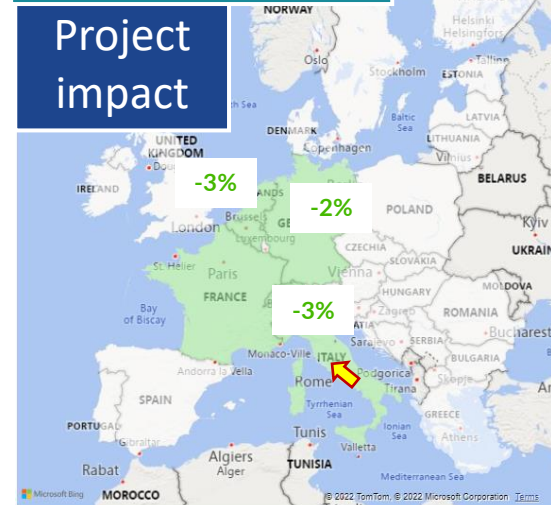
- 3% dependence on Russian gas for NL, DE_{South}, CH and IT

2030

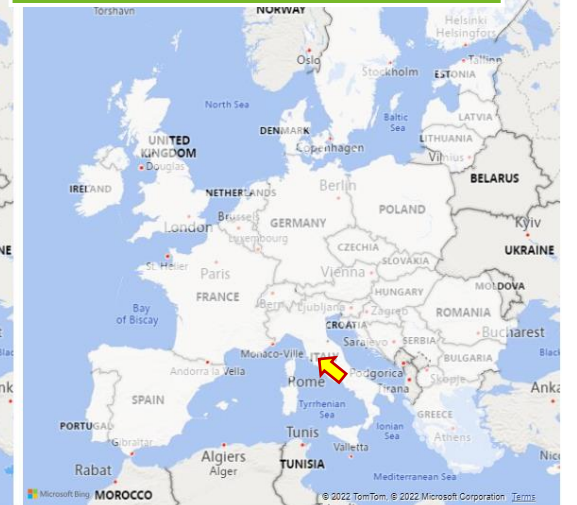
- No additional impact



Current demand and production

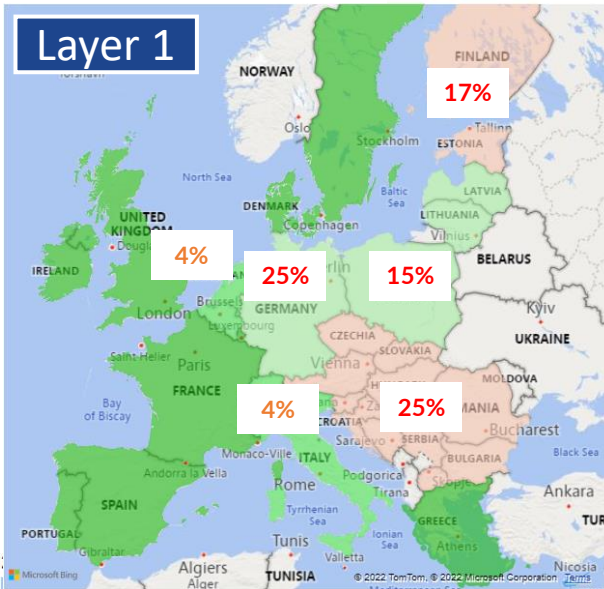


2030 - Fit-for-55 demand and production

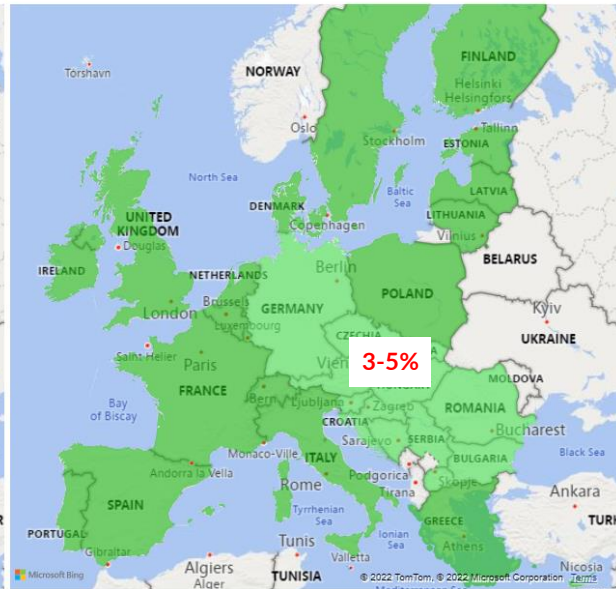


Adriatic line

Current demand and production



2030 - Fit-for-55 demand and production



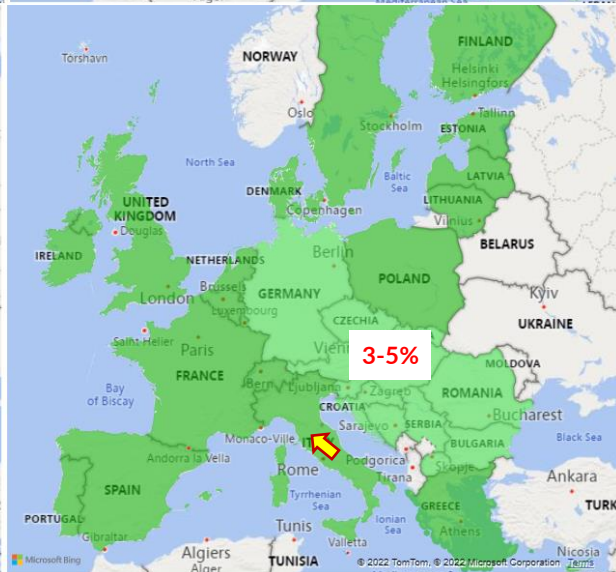
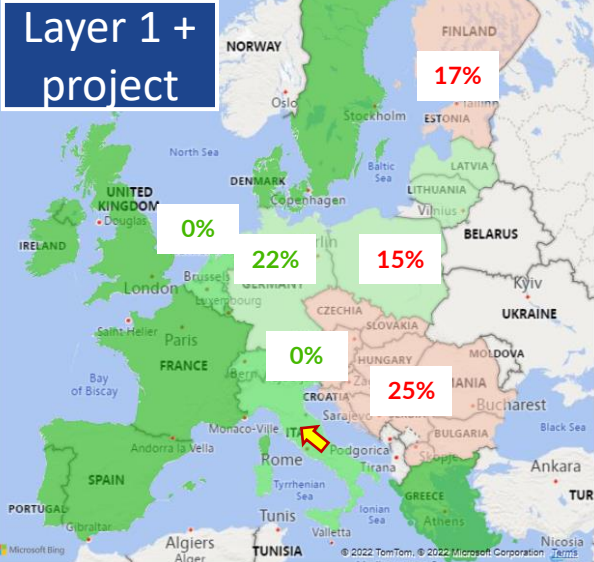
Additional capacity $IT_{South} \rightarrow IT_{North}$ allows to increase the use of imports from the South

Current levels of demand and production

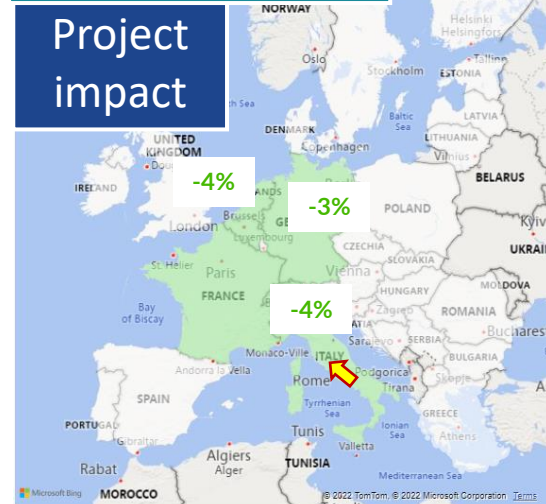
- 4% dependence on Russian gas for NL, DE_{South}, CH and IT

2030

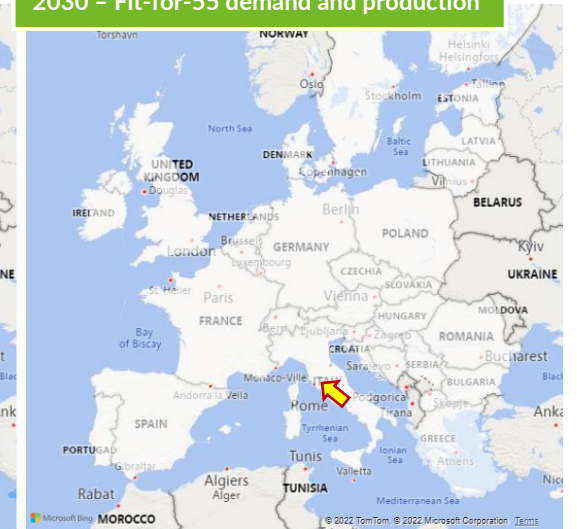
- No additional impact



Current demand and production



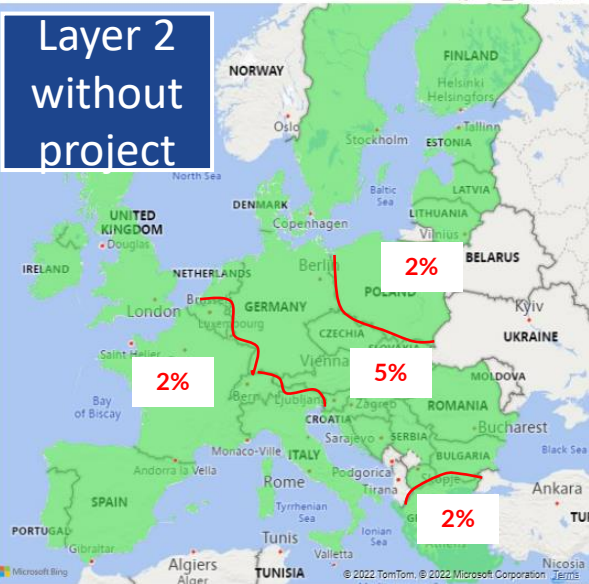
2030 - Fit-for-55 demand and production



Adriatic line

Current demand and production

Layer 2
without
project



2030 – Fit-for-55 demand and production



Additional capacity $IT_{South} \rightarrow IT_{North}$ allows to increase the use of imports from the South

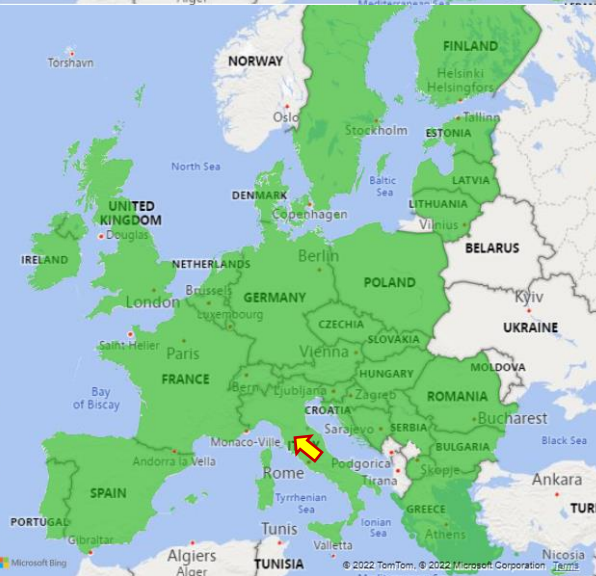
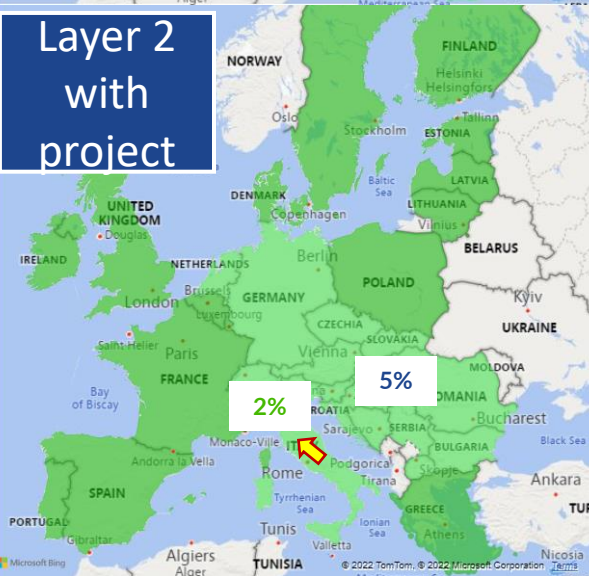
Current levels of demand and production

- 2% dependence for Western and North Eastern regions as well as Greece
- The project can bring flexibility to replace part of the LNG imports to IT and reroute it to other places. Otherwise, additional LNG volumes are needed.

2030

- No additional impact

Layer 2
with
project

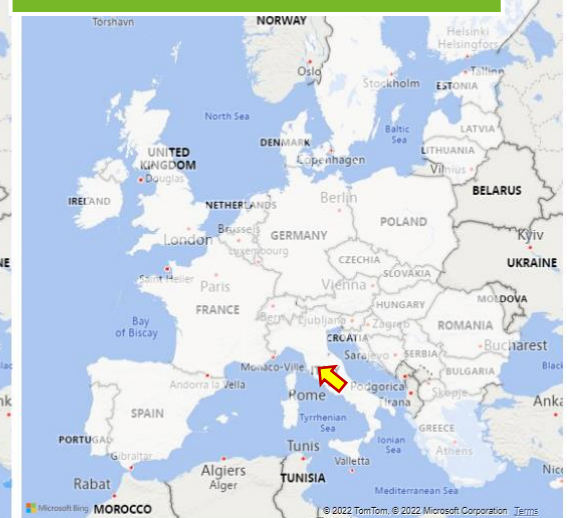


Current demand and production

Project
impact



2030 – Fit-for-55 demand and production



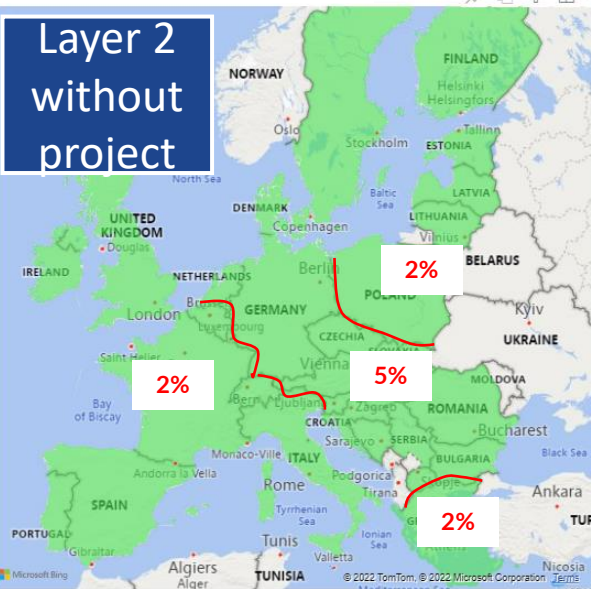
TAP Expansion

Modelled only with infra layer 2 where the capacities of the project are matched by the adjacent TSOs

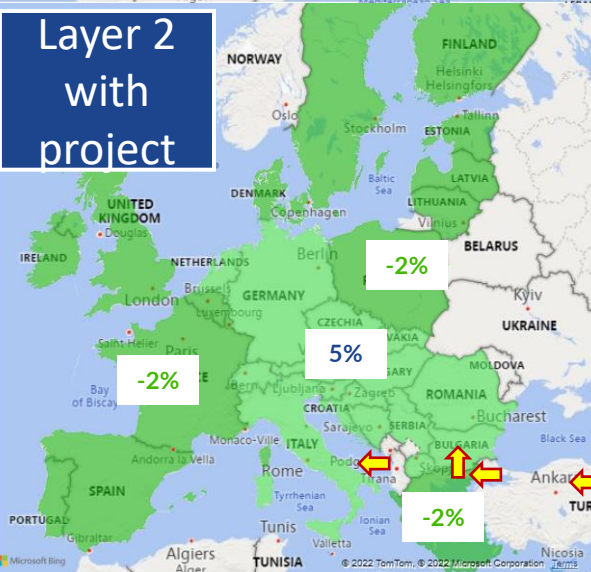
TAP expansion

Current demand and production

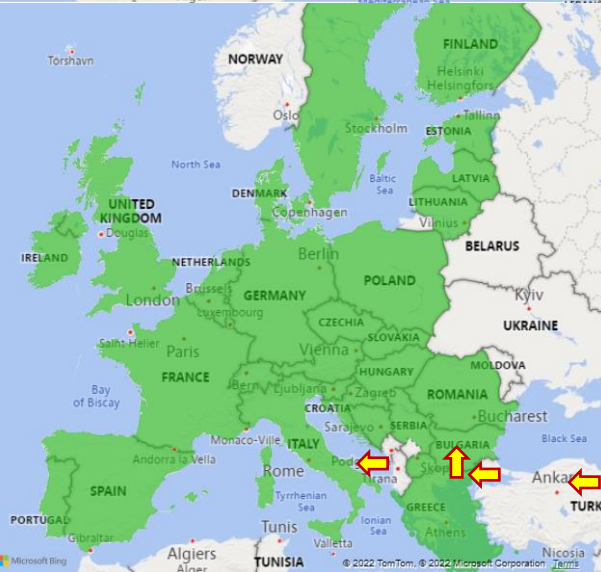
Layer 2
without
project



Layer 2
with
project



2030 - Fit-for-55 demand and production



Additional capacity from TAP expansion as well as $IT_{South} \rightarrow IT_{North}$ allows to increase the use of imports from the South and reduce additionally the dependence on Russian gas

Current levels of demand and production

- The project can bring flexibility to replace part of the LNG imports to IT and reroute it to other places. Otherwise, additional LNG volumes are needed.

2030

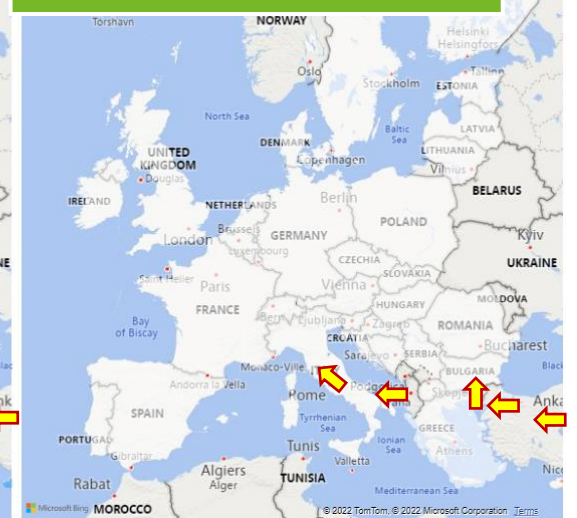
- No additional impact

Current demand and production

Project
impact



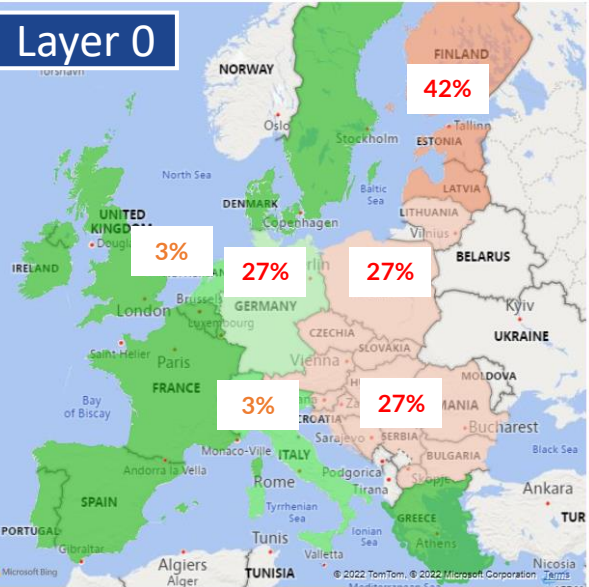
2030 - Fit-for-55 demand and production



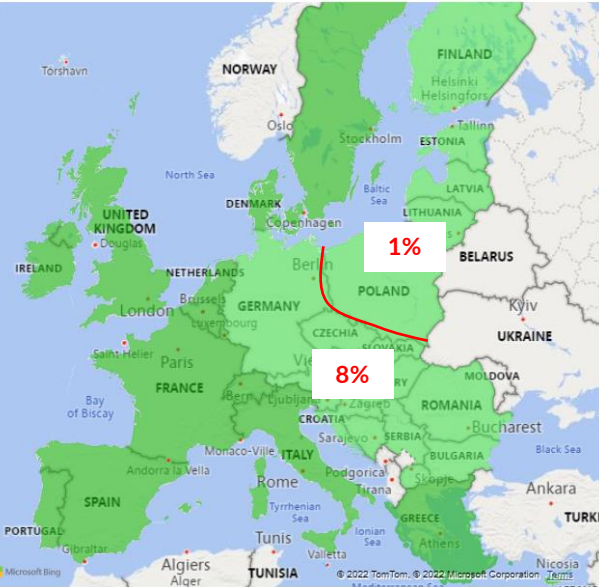
Generic LNG Terminal in Italy

Generic LNG Terminal in Italy

Current demand and production



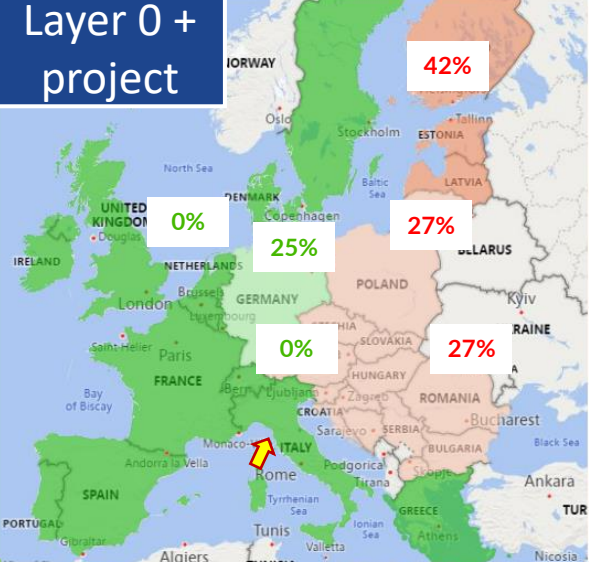
2030 - Fit-for-55 demand and production



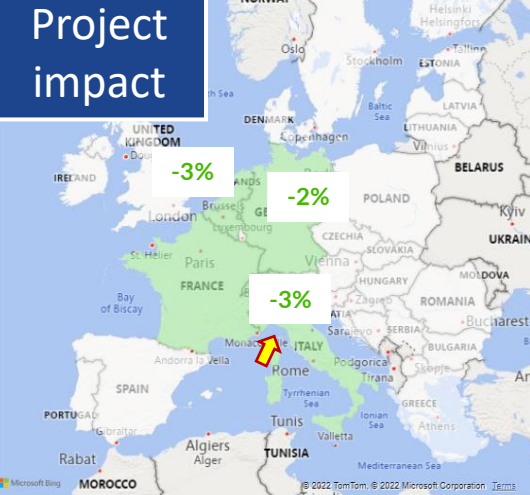
Additional LNG terminal located on the North of Italy would allow to increase the use of imports as it is not limited directly by the internal IT bottleneck.

Current levels of demand and production

- 3% dependence on Russian gas for NL, DE_{South} (-2%), CH and IT
- 2030
- No additional impact



Current demand and production

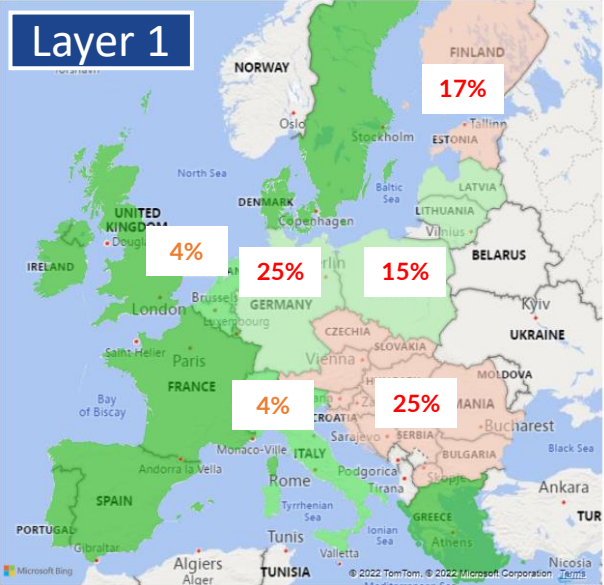


2030 - Fit-for-55 demand and production

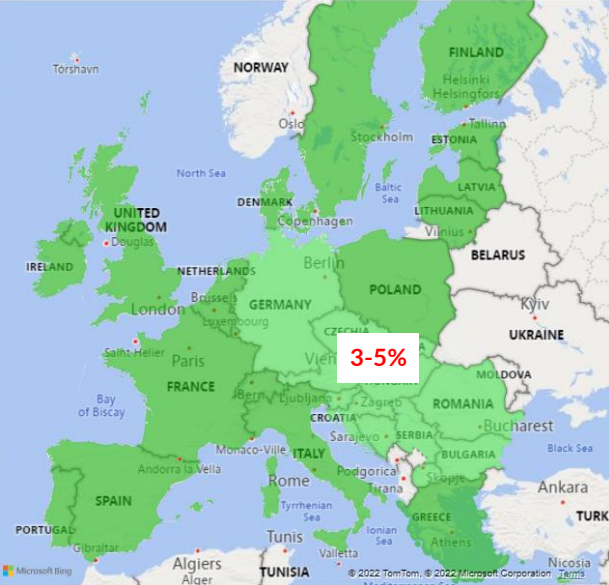


Generic LNG Terminal in Italy

Current demand and production



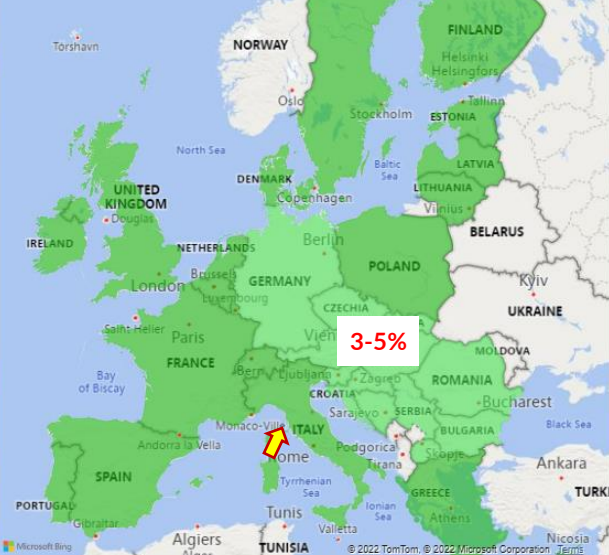
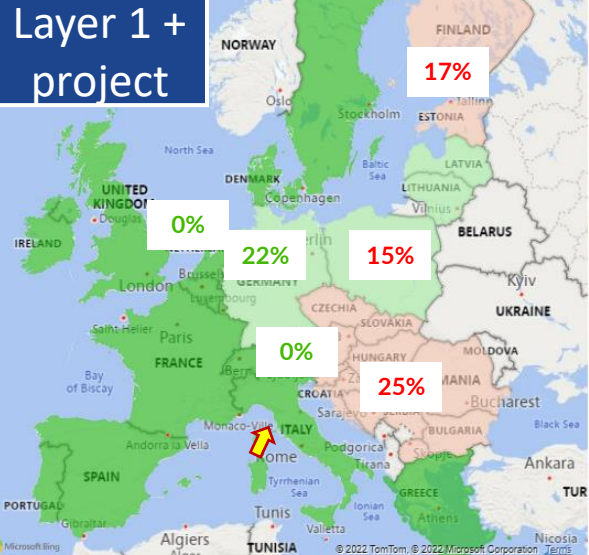
2030 - Fit-for-55 demand and production



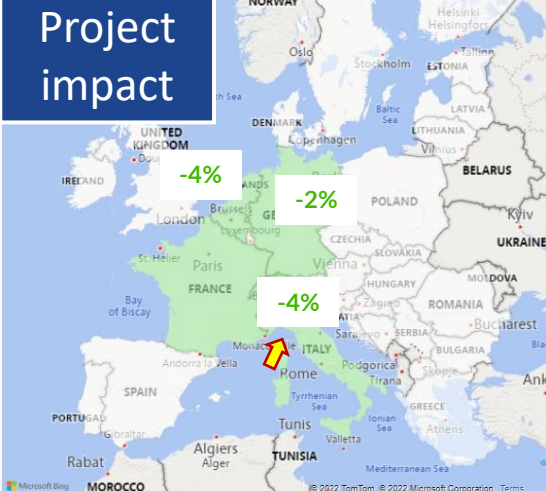
Additional LNG terminal located on the North of Italy would allow to increase the use of imports as it is not limited directly by the internal IT bottleneck.

Current levels of demand and production

- 4% dependence on Russian gas for NL, DE_{South} (-2%), CH and IT
- 2030
- No additional impact



Current demand and production



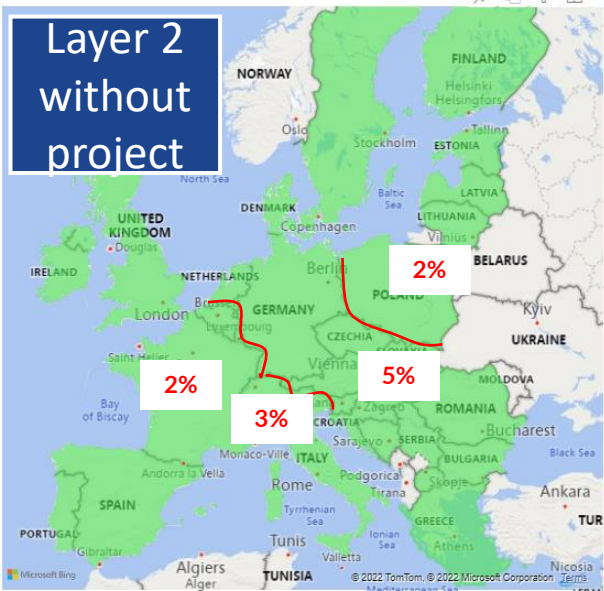
2030 - Fit-for-55 demand and production



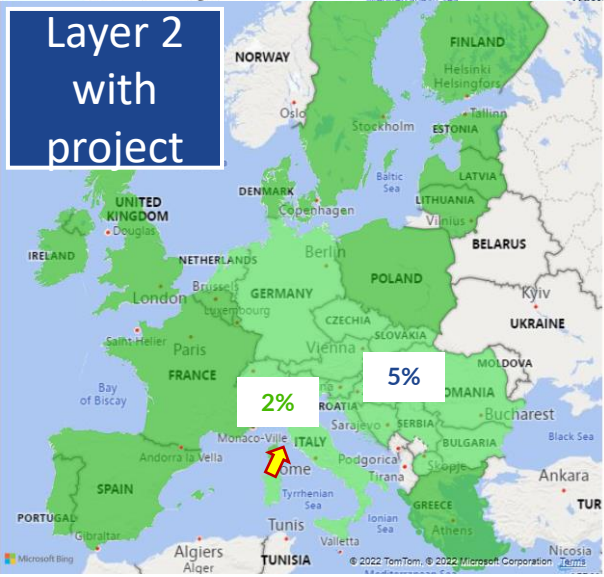
Generic LNG Terminal in Italy

Current demand and production

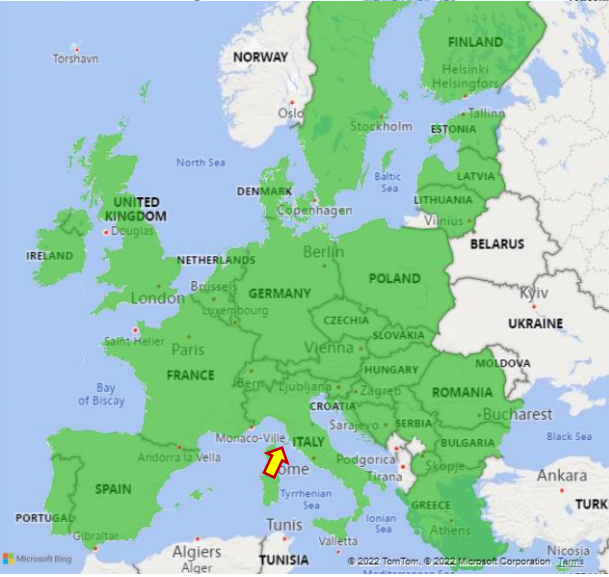
Layer 2 without project



Layer 2 with project



2030 - Fit-for-55 demand and production



Additional LNG terminal located on the North of Italy would allow to increase the use of imports as it is not limited directly by the internal IT bottleneck.

Current levels of demand and production

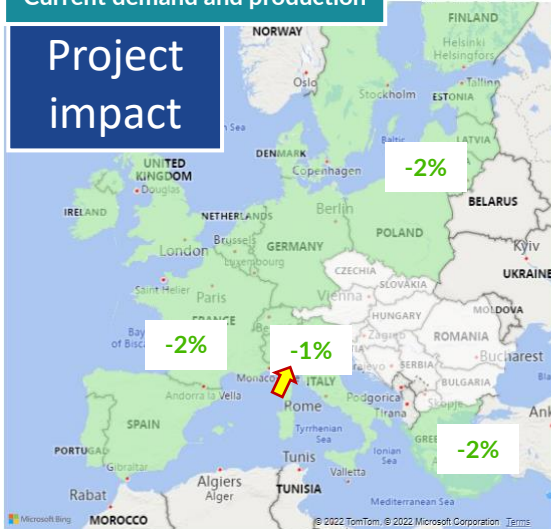
- 2% dependence on Russian gas for -NL, DE_{South} CH, it, PL and Baltic States

2030

- No additional impact

Current demand and production

Project impact



2030 - Fit-for-55 demand and production

