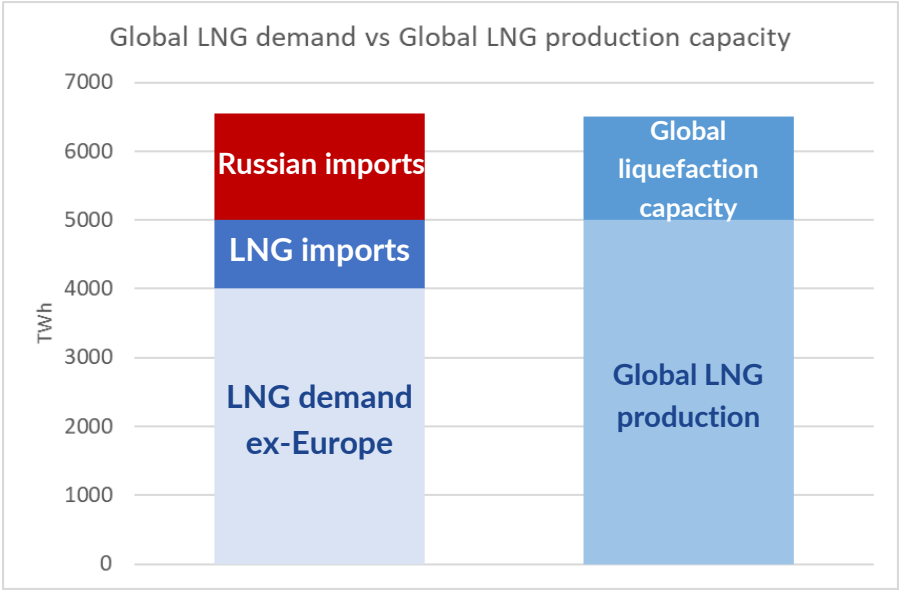
Dependence of the EU on Russian gas supply

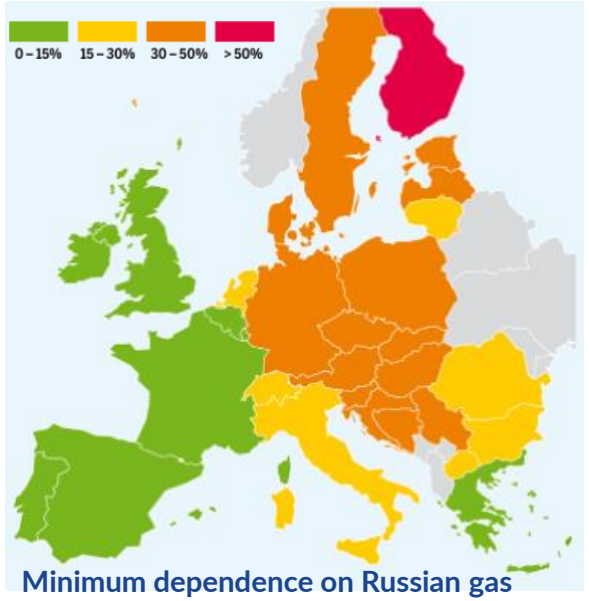
REpowerEU assessment – Project assessment for the SW region

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)

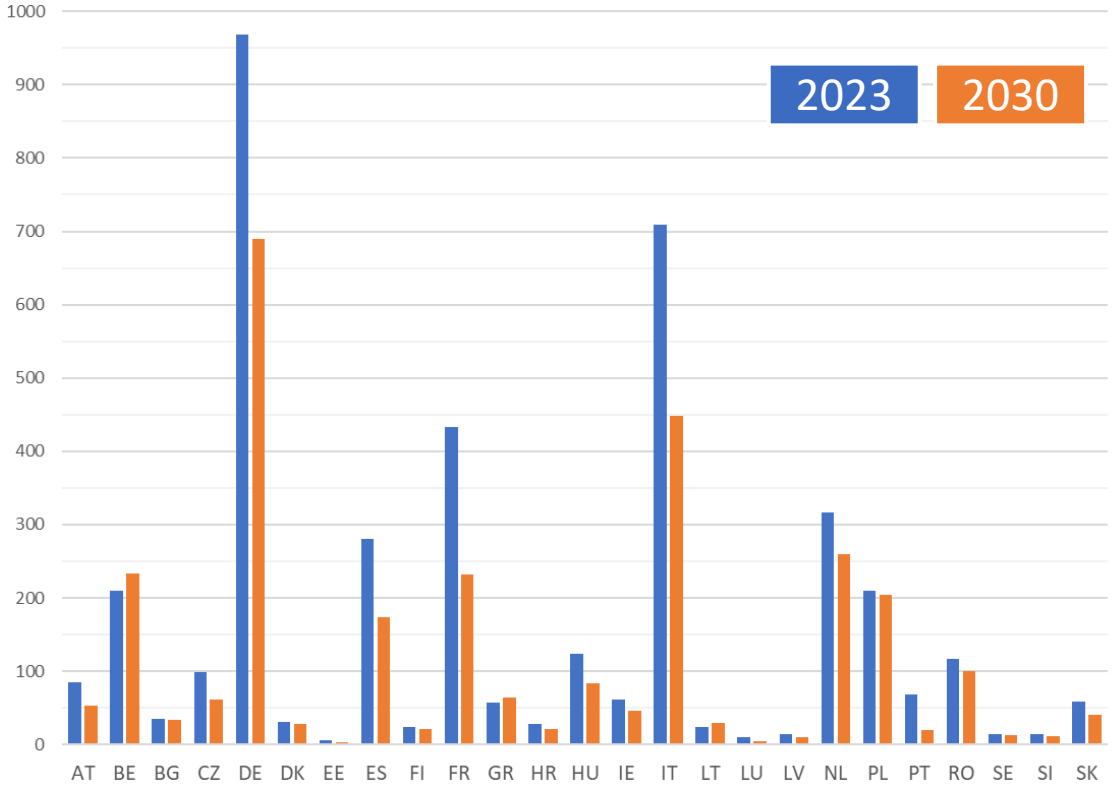




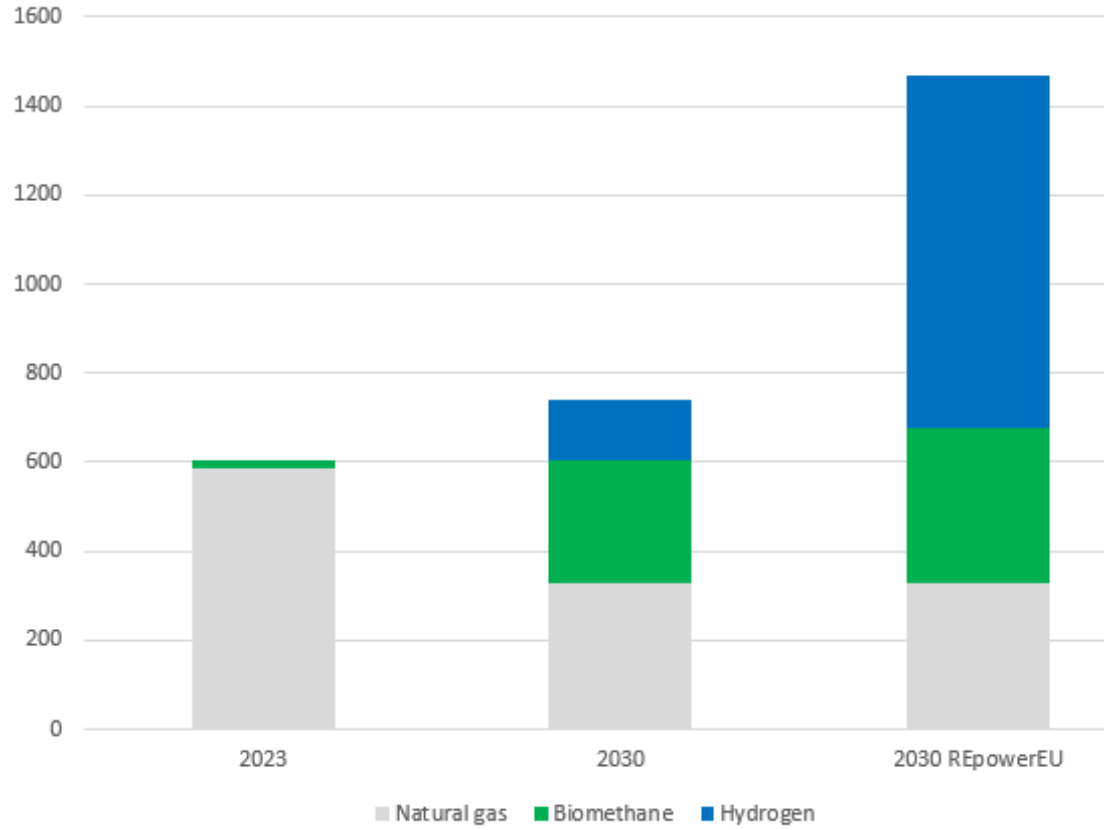
Minimum dependence on Russian gas

Assumptions demand and production

Demand [TWh/y]



Production [TWh/y]



Assumptions

2023 demand (current levels)

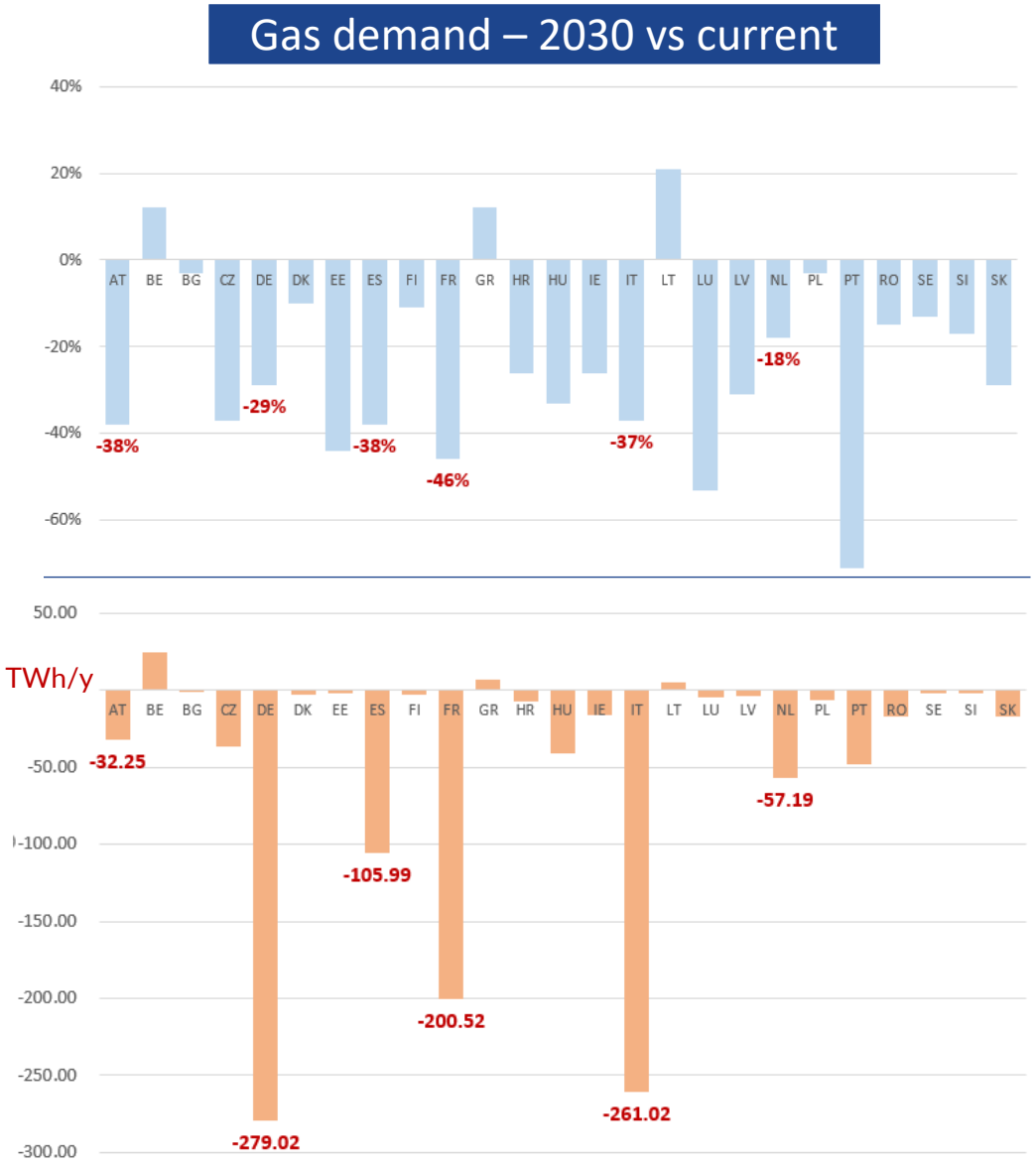
- based on TYNDP 2020 best estimate with Coal before Gas in the electricity production merit order (4000 TWh vs 4400 TWh in 2020)

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



Infrastructure layers

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

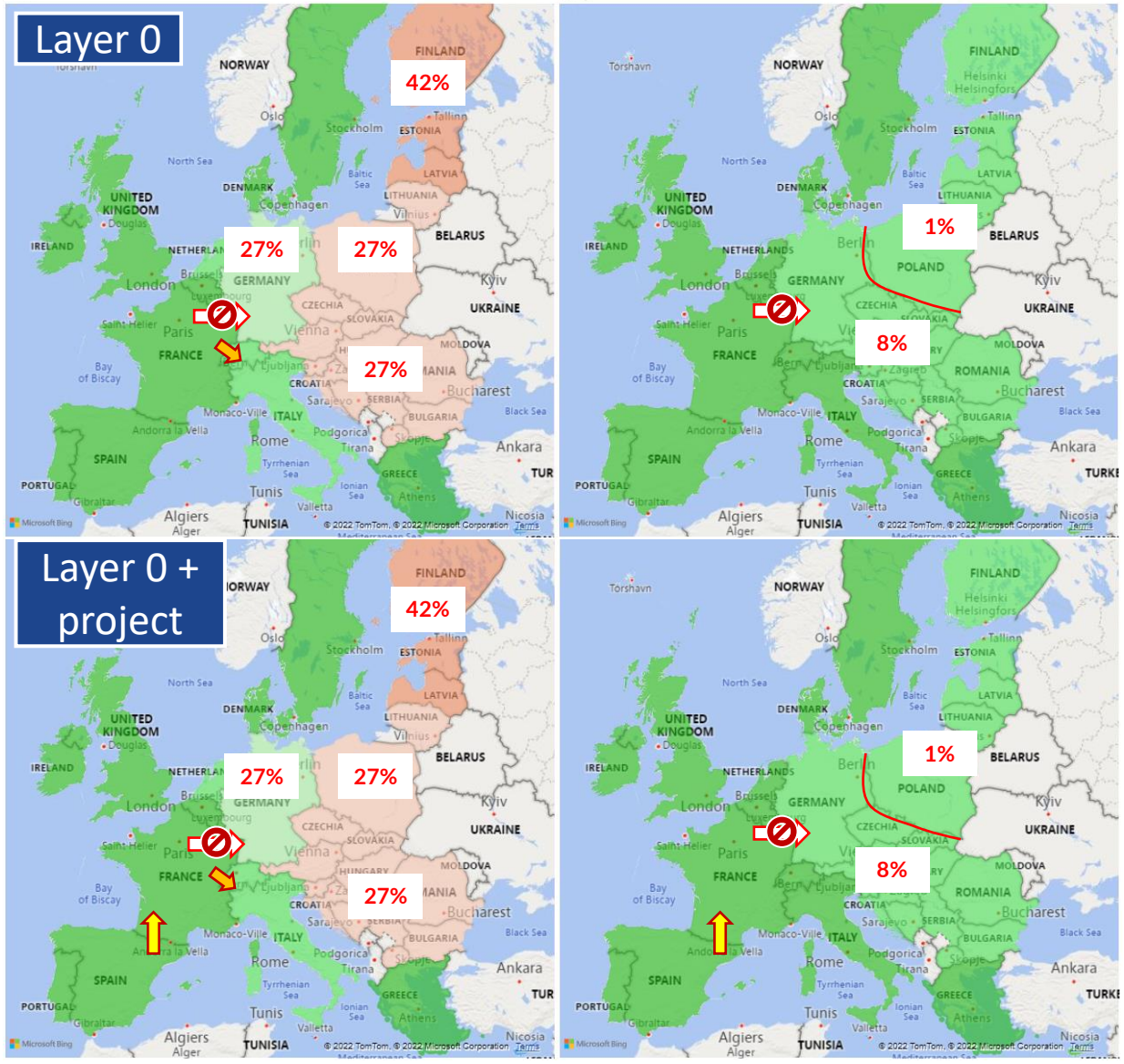
- Layer 0: infrastructure as of 1 January 2023
- Layer 1: additional FID projects in TYNDP 2020 + advanced PCIs
- Layer 2: Layer 1 + several LNG terminals (including pipeline connections) and TAP expansion

MidCat

Impact of MidCat project

Current demand and production

2030 – Fit-for-55 demand and production



Capacity ES→FR is not identify as limitation in the infrastructure layer 0 since neither ES nor FR are showing dependence on Russian gas

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

Current levels of demand and production

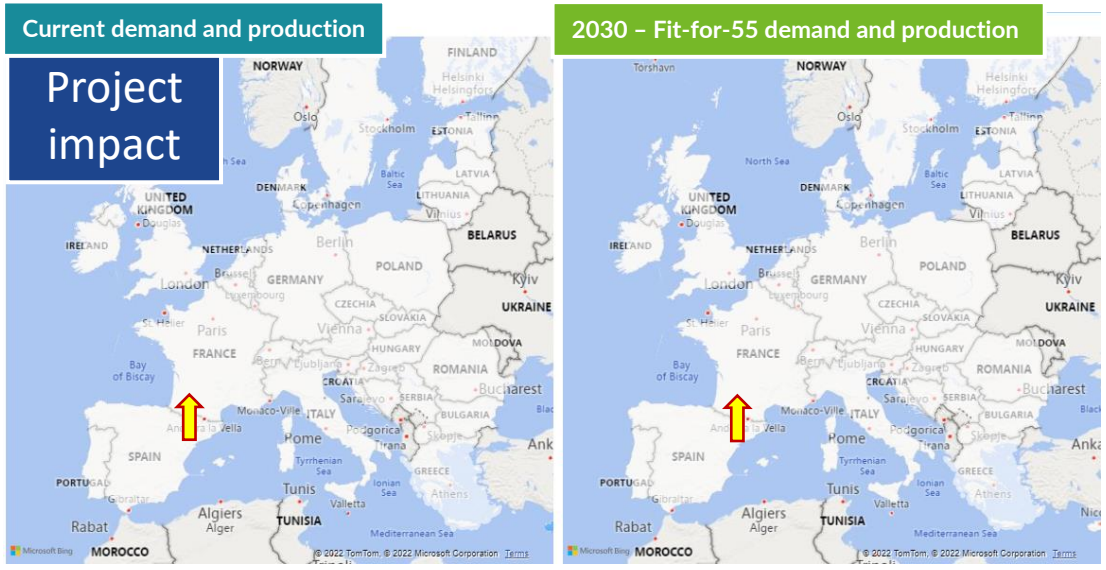
- No additional impact

2030

- No additional impact

Current demand and production

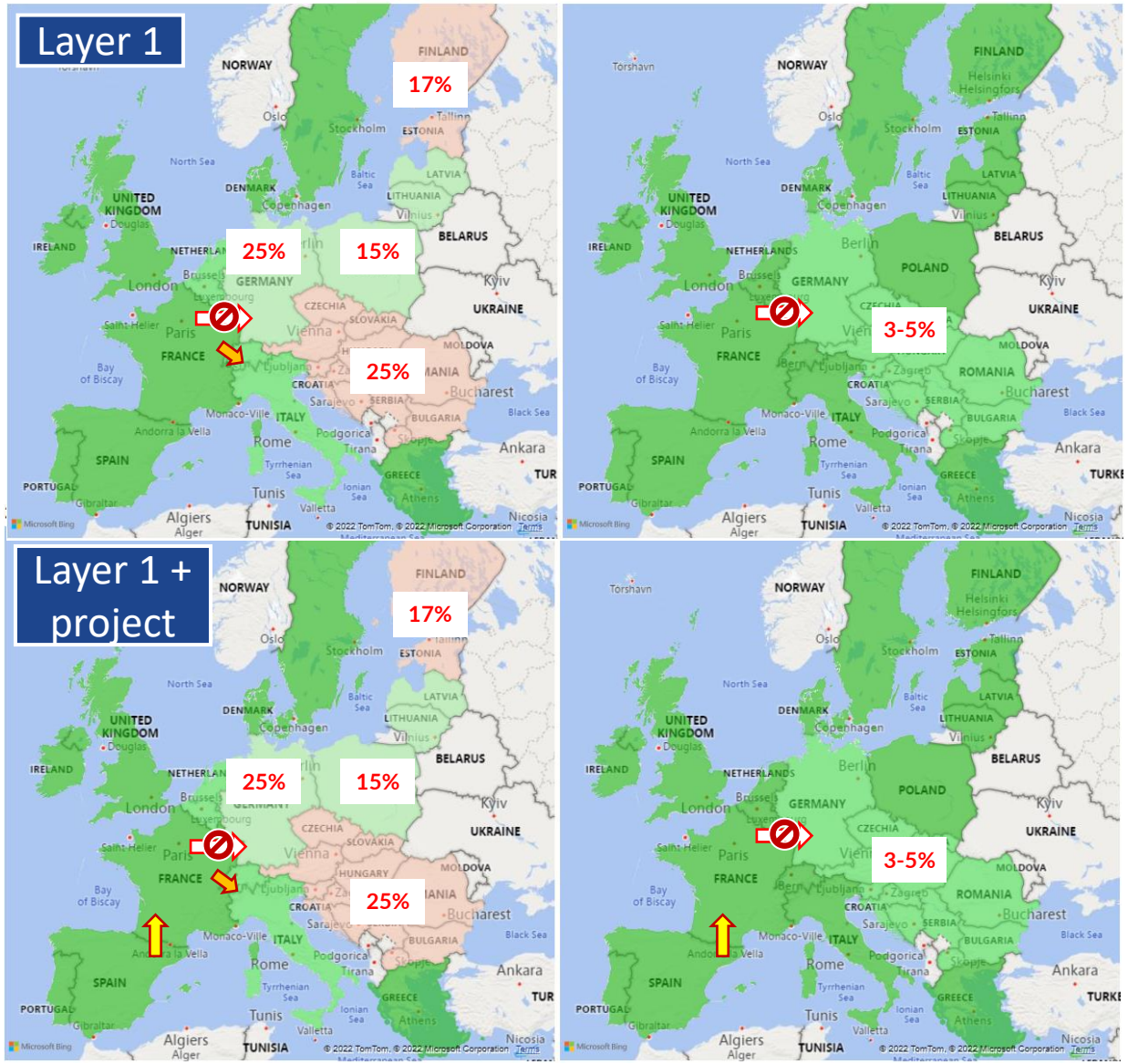
2030 – Fit-for-55 demand and production



Impact of MidCat project

Current demand and production

2030 – Fit-for-55 demand and production



Capacity ES→FR is not identify as limitation in the infrastructure layer 1 since neither ES nor FR are showing dependence on Russian gas

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

Current levels of demand and production

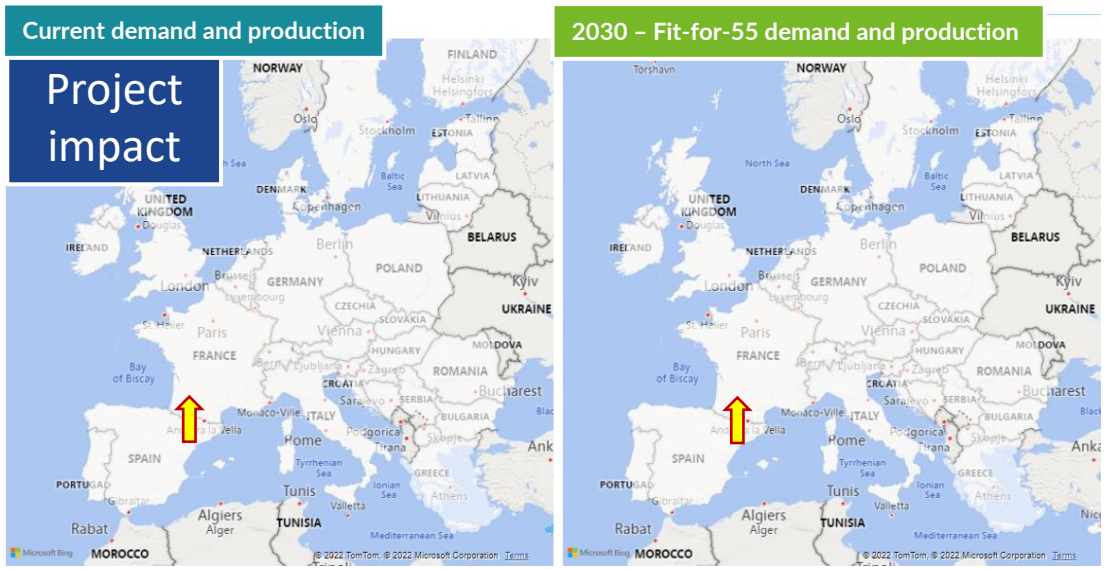
- No additional impact

2030

- No additional impact

Current demand and production

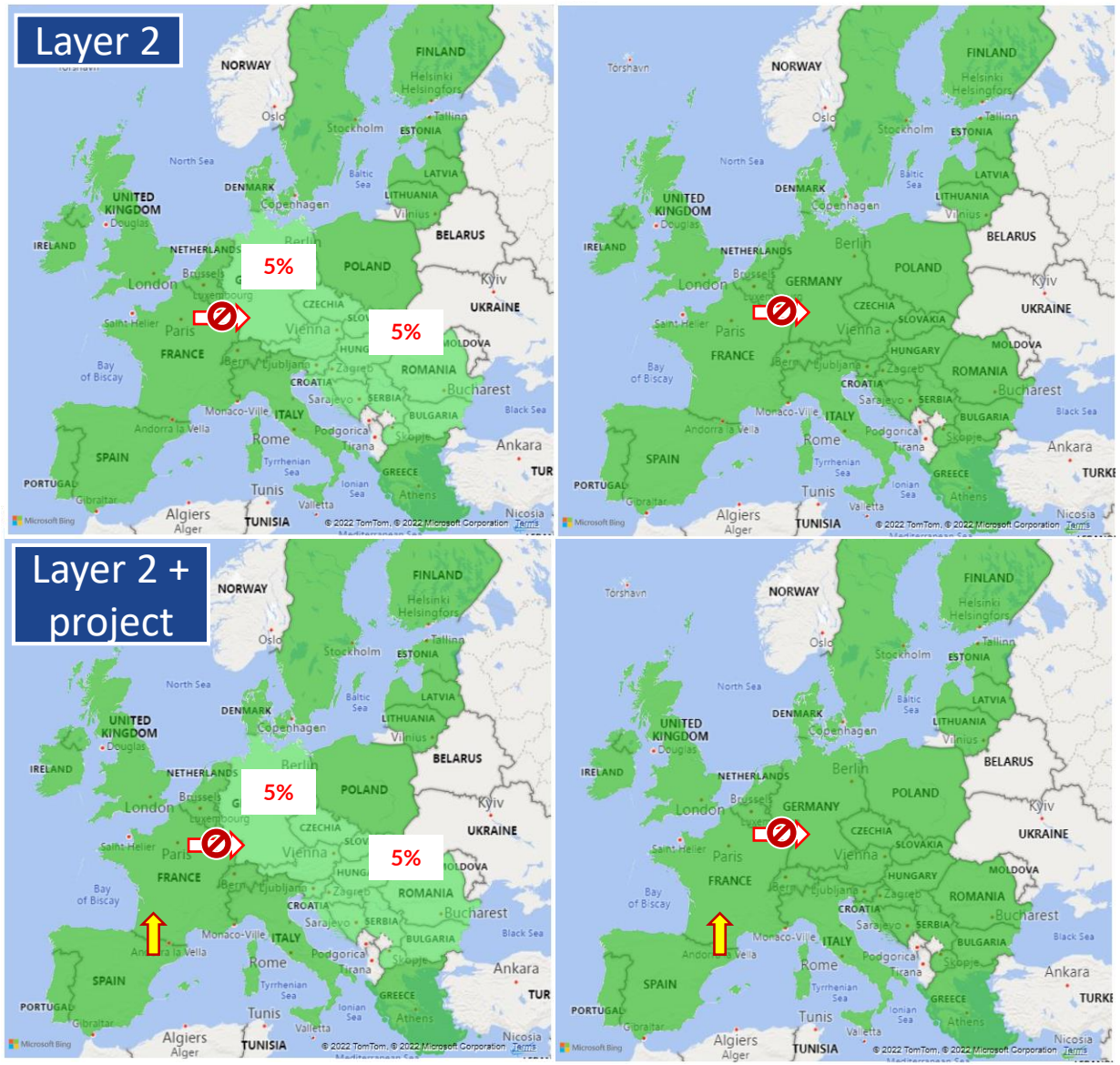
2030 – Fit-for-55 demand and production



Impact of MidCat project

Current demand and production

2030 – Fit-for-55 demand and production



Capacity ES→FR is not identify as limitation in the infrastructure layer 2 since neither ES nor FR are showing dependence on Russian gas

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

Current levels of demand and production

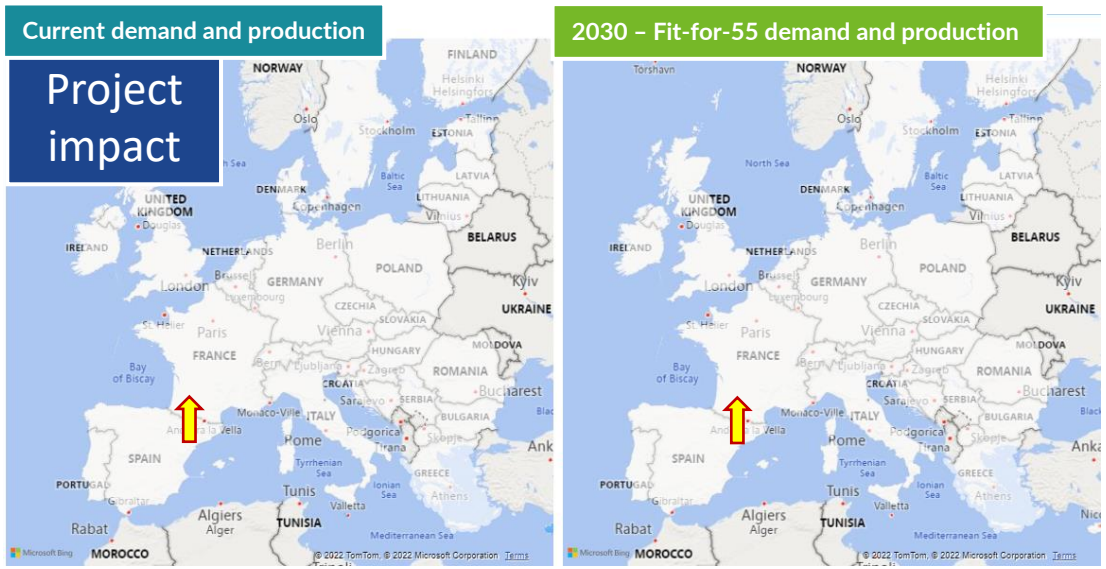
- No additional impact

2030

- No additional impact

Current demand and production

2030 – Fit-for-55 demand and production

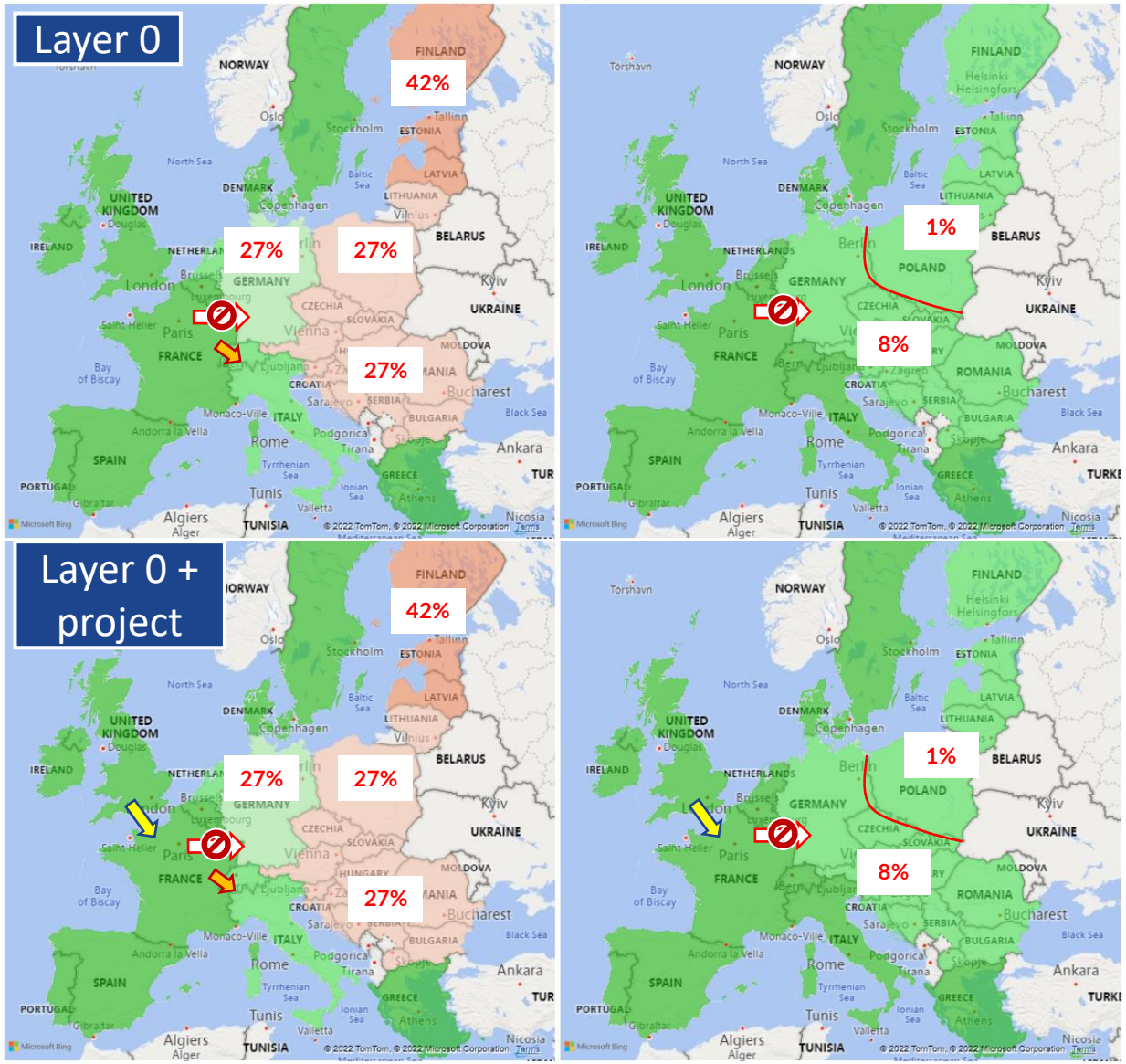


Le Havre FSRU

Impact of Le Havre FSRU project

Current demand and production

2030 – Fit-for-55 demand and production



LNG imports to FR is not identify as limitation in the infrastructure layer 0 since FR is not showing dependence on Russian gas

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

Current levels of demand and production

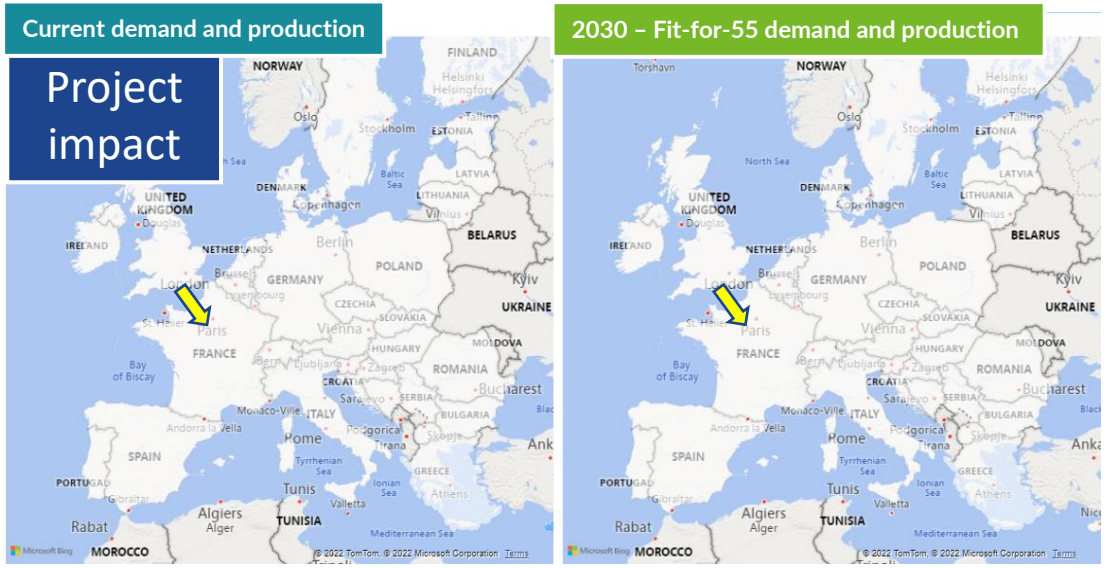
- No additional impact

2030

- No additional impact

Current demand and production

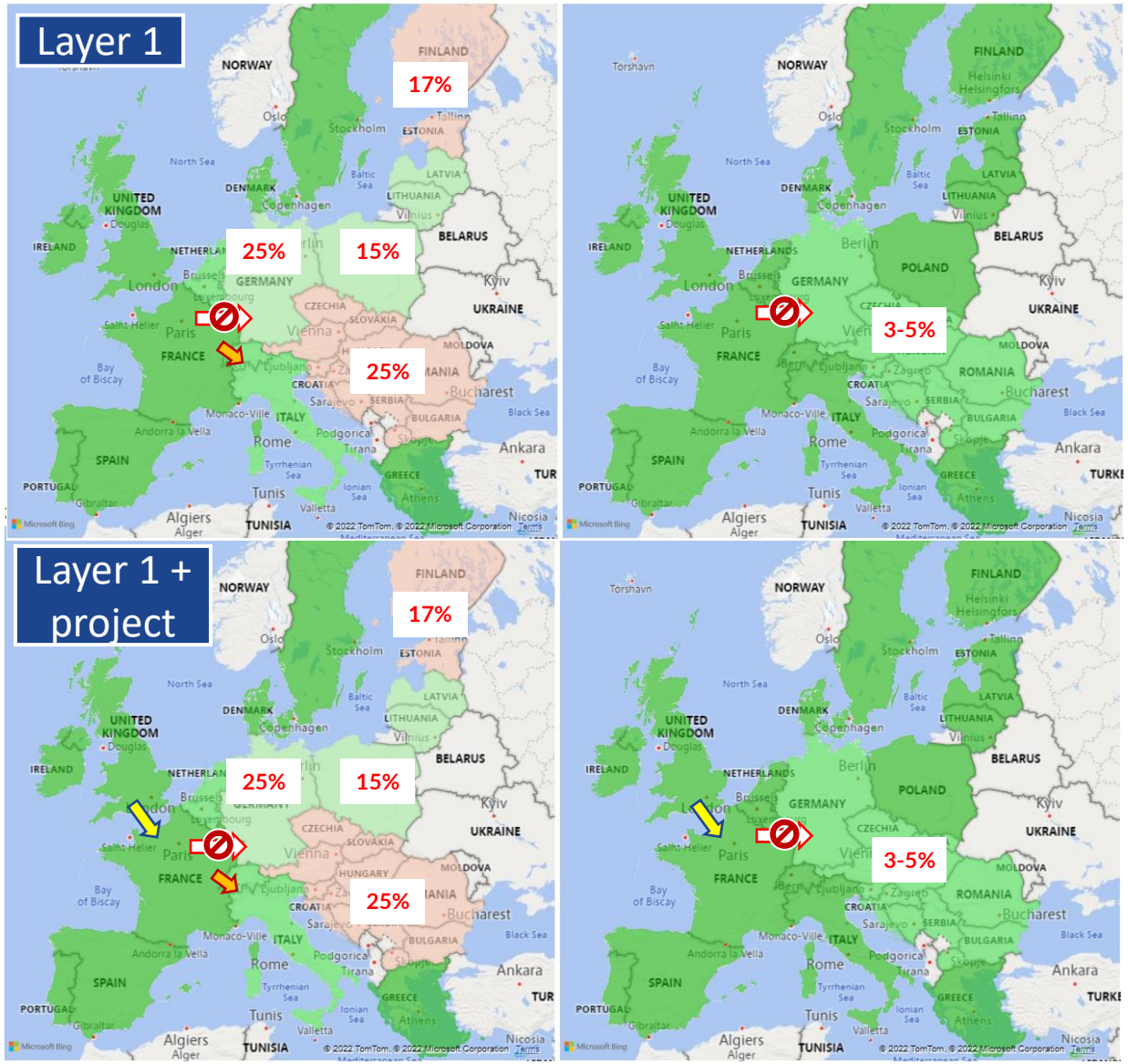
2030 – Fit-for-55 demand and production



Impact of Le Havre FSRU project

Current demand and production

2030 – Fit-for-55 demand and production



LNG imports to FR is not identify as limitation in the infrastructure layer 1 since FR is not showing dependence on Russian gas

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

Current levels of demand and production

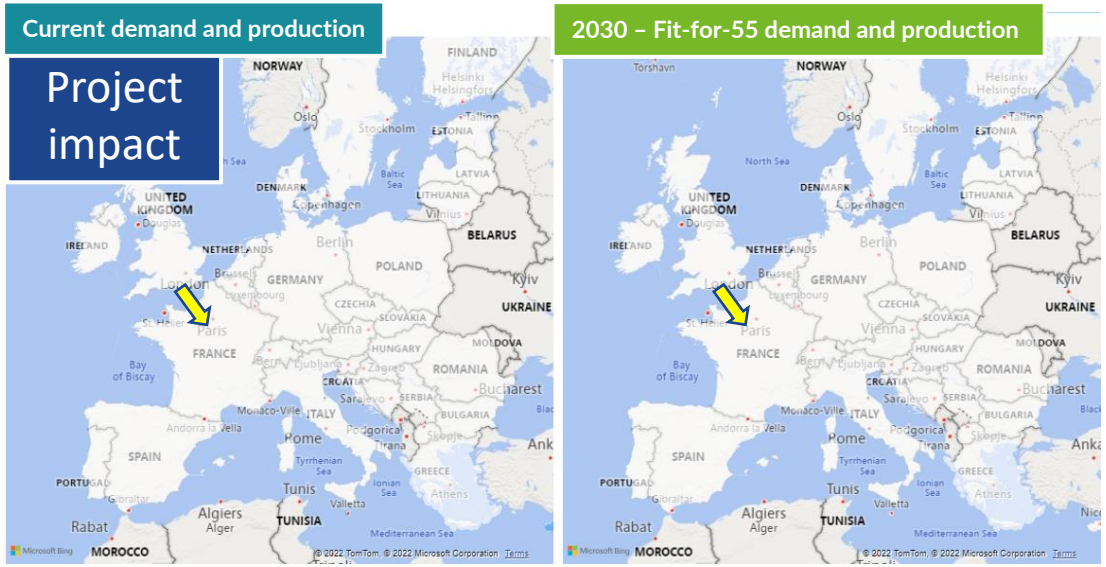
- No additional impact

2030

- No additional impact

Current demand and production

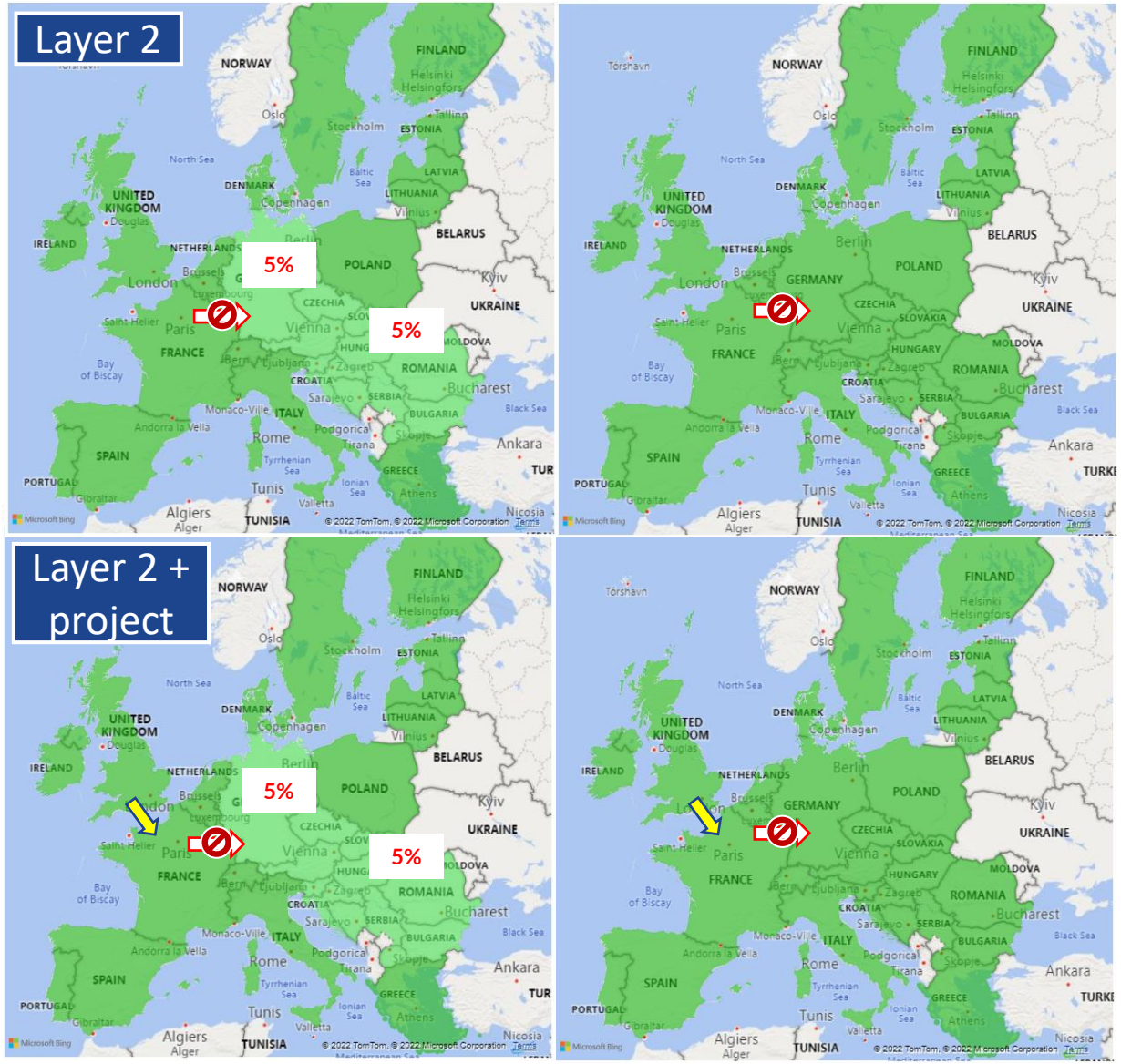
2030 – Fit-for-55 demand and production



Impact of Le Havre FSRU project

Current demand and production

2030 – Fit-for-55 demand and production



LNG imports to FR is not identify as limitation in the infrastructure layer 2 since FR is not showing dependence on Russian gas

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

Current levels of demand and production

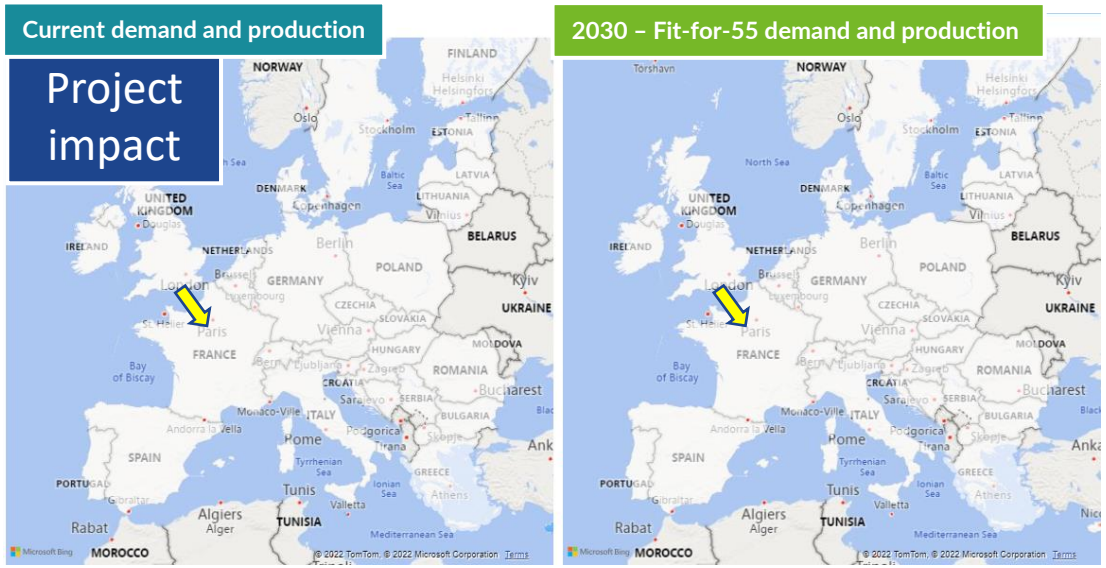
- No additional impact

2030

- No additional impact

Current demand and production

2030 – Fit-for-55 demand and production

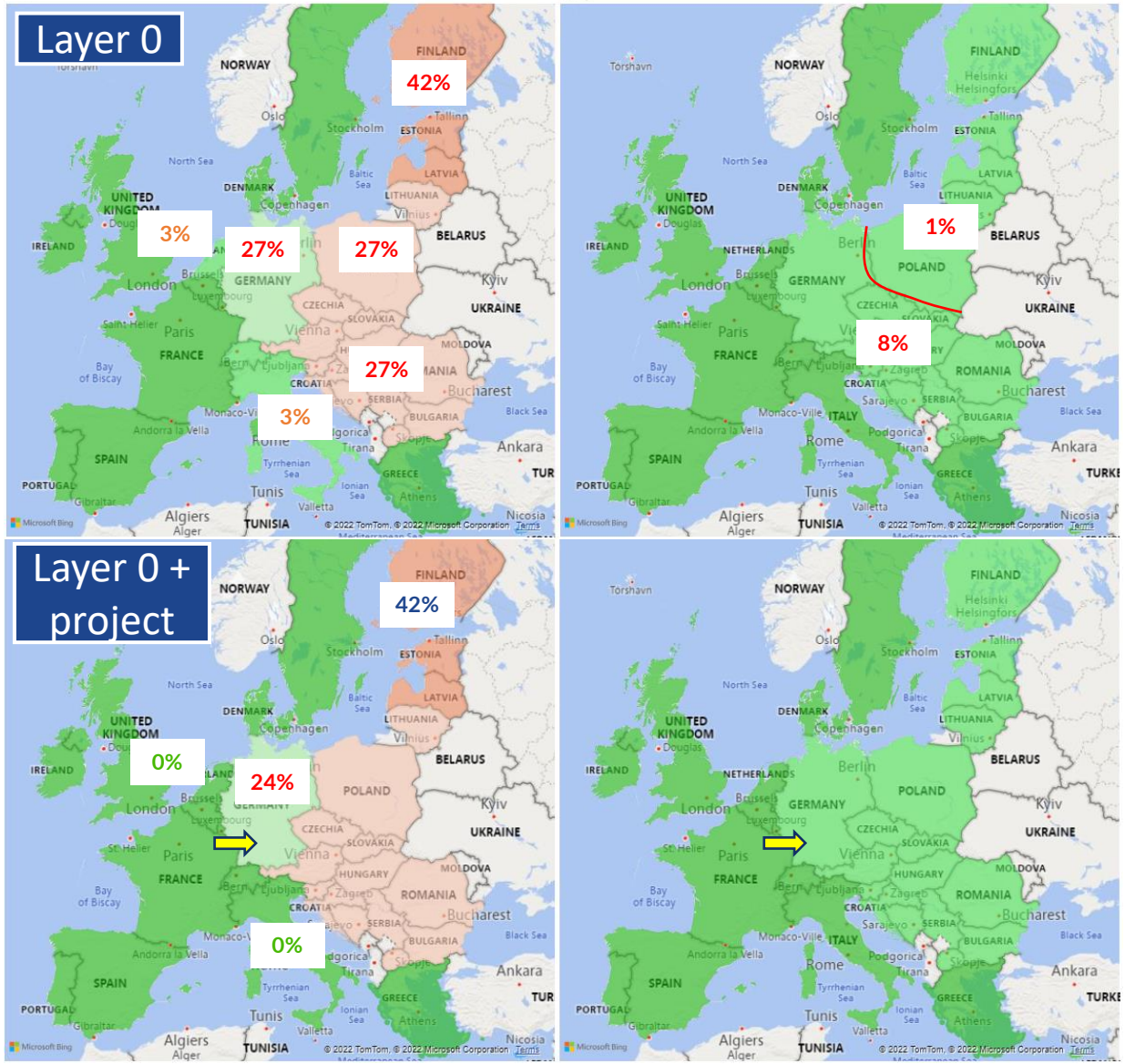


Reinforcement $FR_{North\text{-}East}$ + Interconnection FR → DE

Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE

Current demand and production

2030 – Fit-for-55 demand and production



Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH and IT

Current levels of demand and production

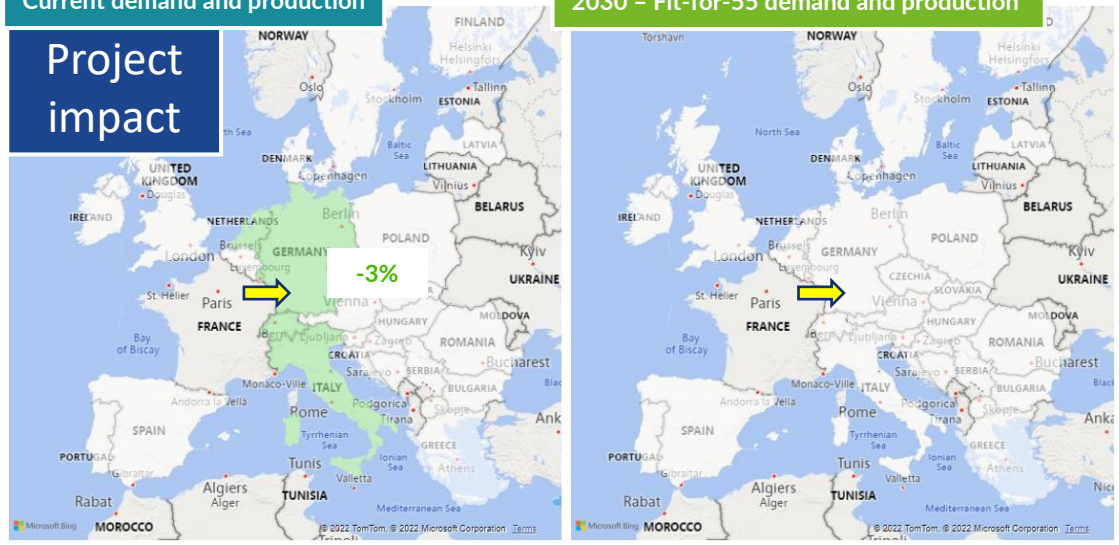
- Mitigation of Russian dependence in NL, DE_{South}, CH and IT
- Reduction of dependence in DE_{North} (-3%)

2030

- No additional impact

Current demand and production

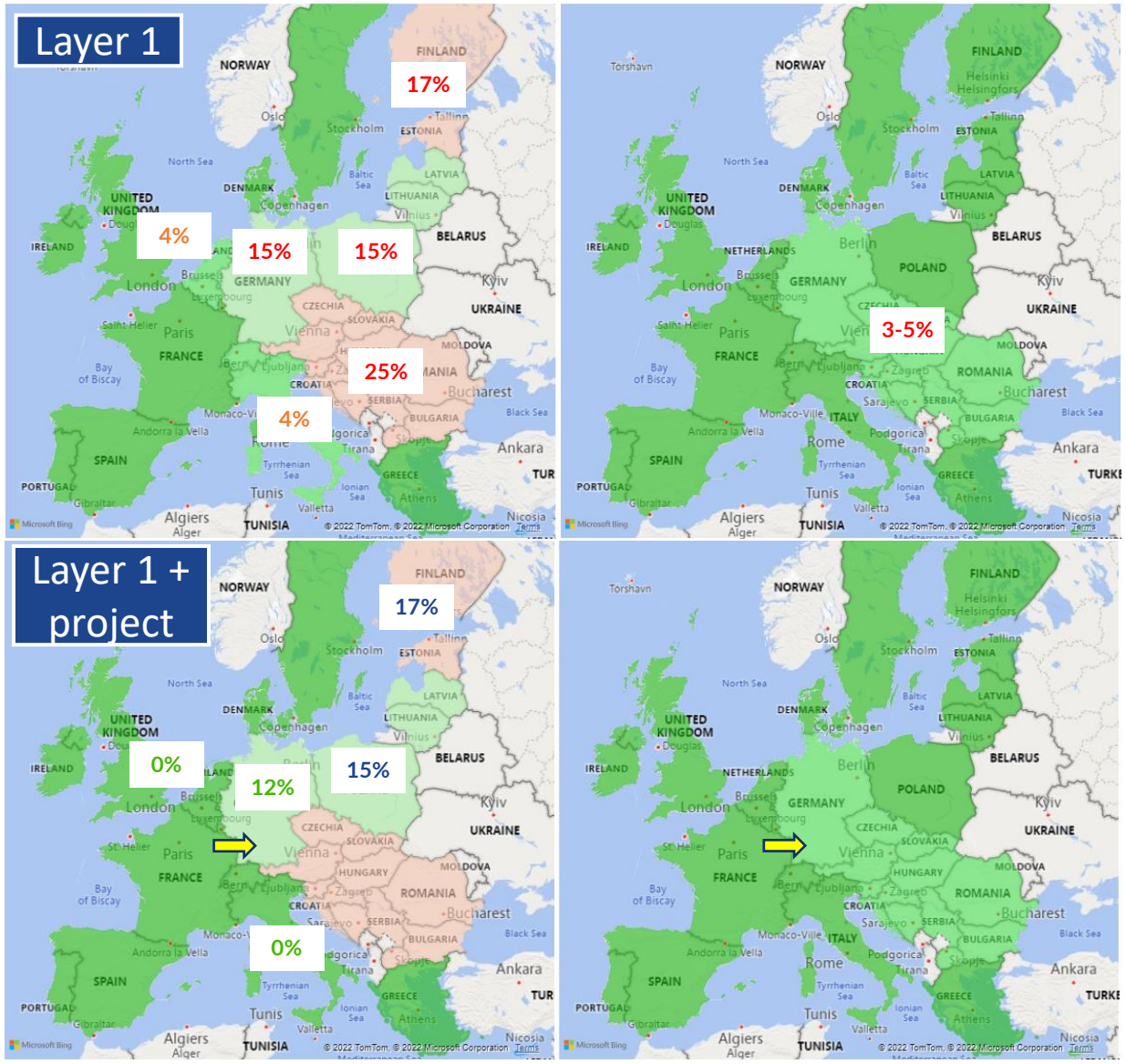
2030 – Fit-for-55 demand and production



Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE

Current demand and production

2030 – Fit-for-55 demand and production



Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH and IT

Current levels of demand and production

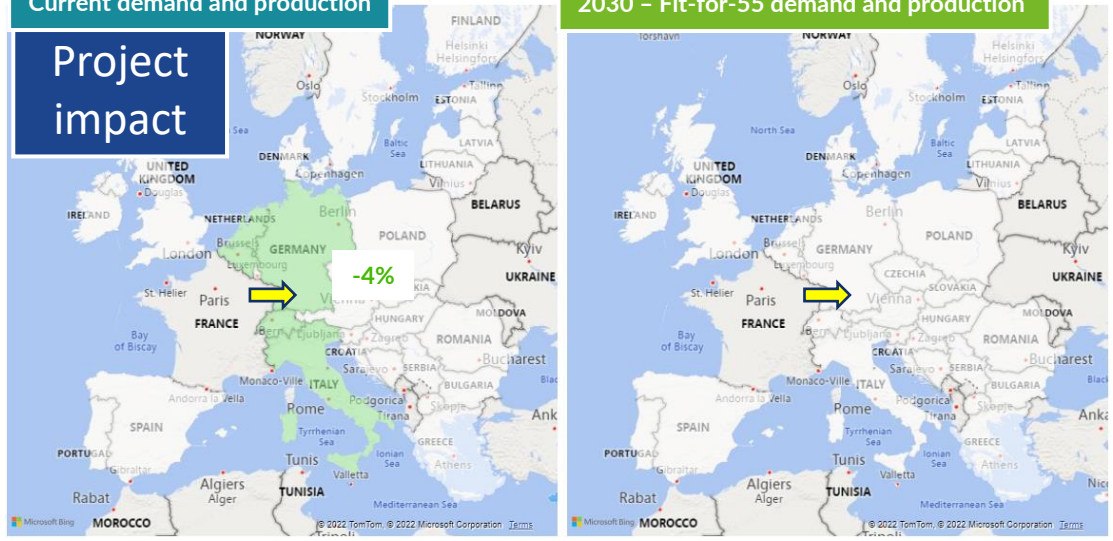
- Mitigation of Russian dependence in NL, DE_{South}, CH and IT
- Reduction of dependence in DE_{North} (-2%)

2030

- No additional impact

Current demand and production

2030 – Fit-for-55 demand and production

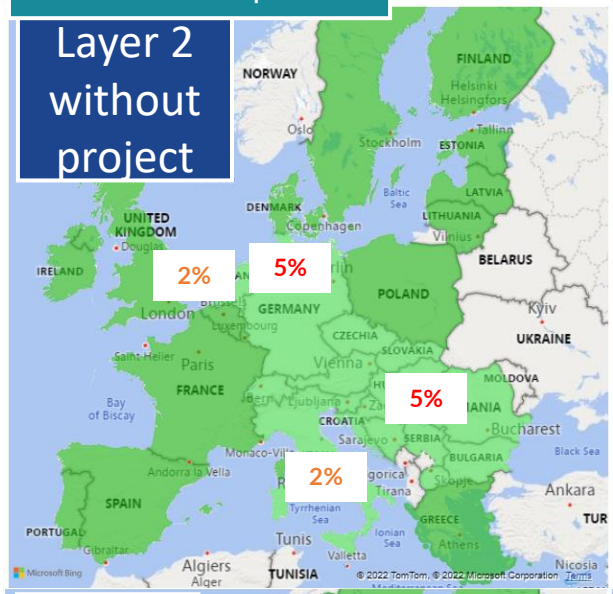


Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE

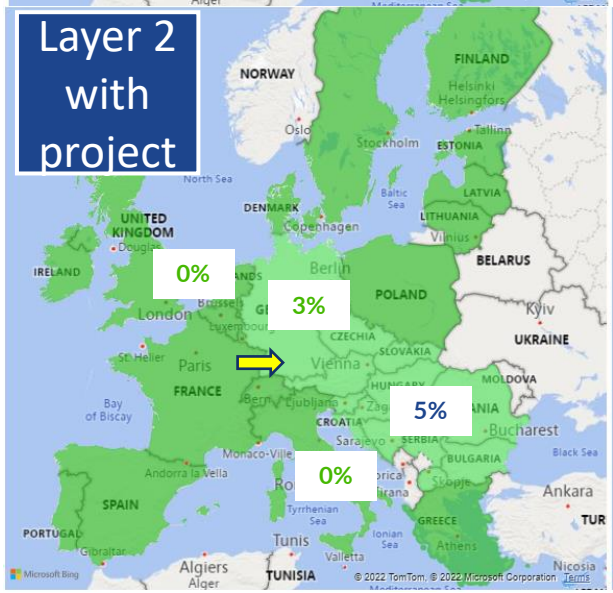
Current demand and production

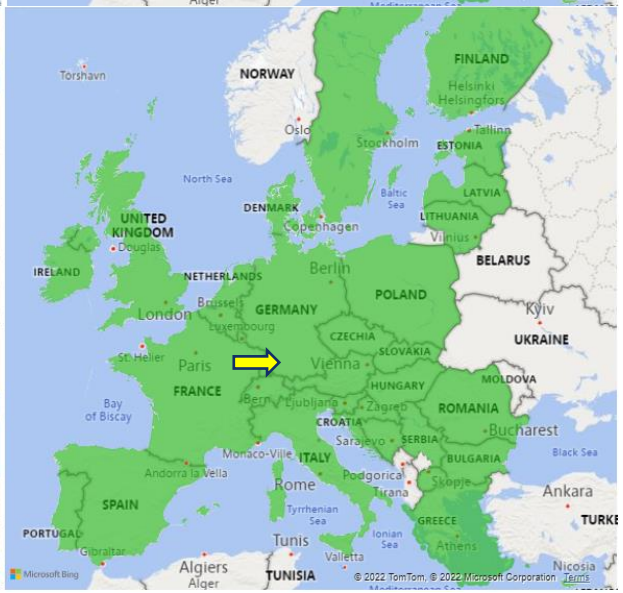
2030 – Fit-for-55 demand and production

Layer 2 without project



Layer 2 with project





Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH and IT

Current levels of demand and production

- Mitigation of Russian dependence in NL, DE_{South}, CH and IT
- Reduction of dependence in DE_{North} (-2%)

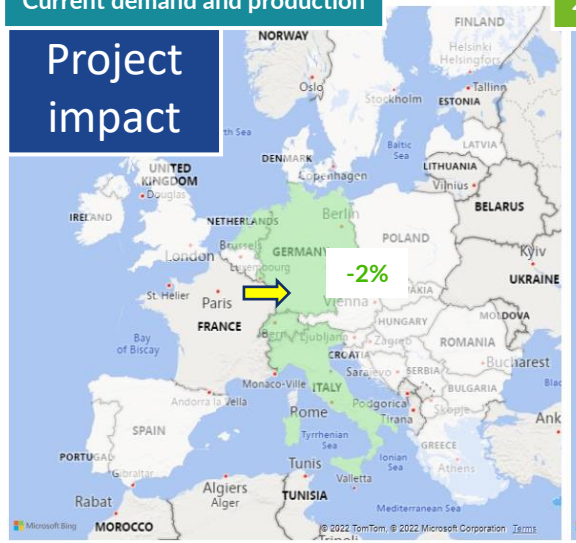
2030

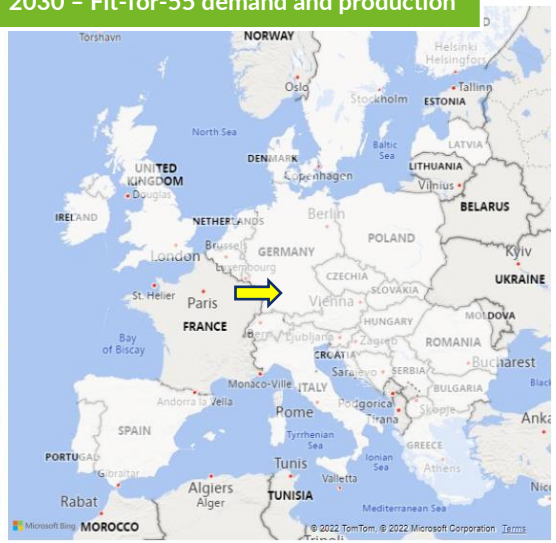
- No additional impact

Current demand and production

2030 – Fit-for-55 demand and production

Project impact



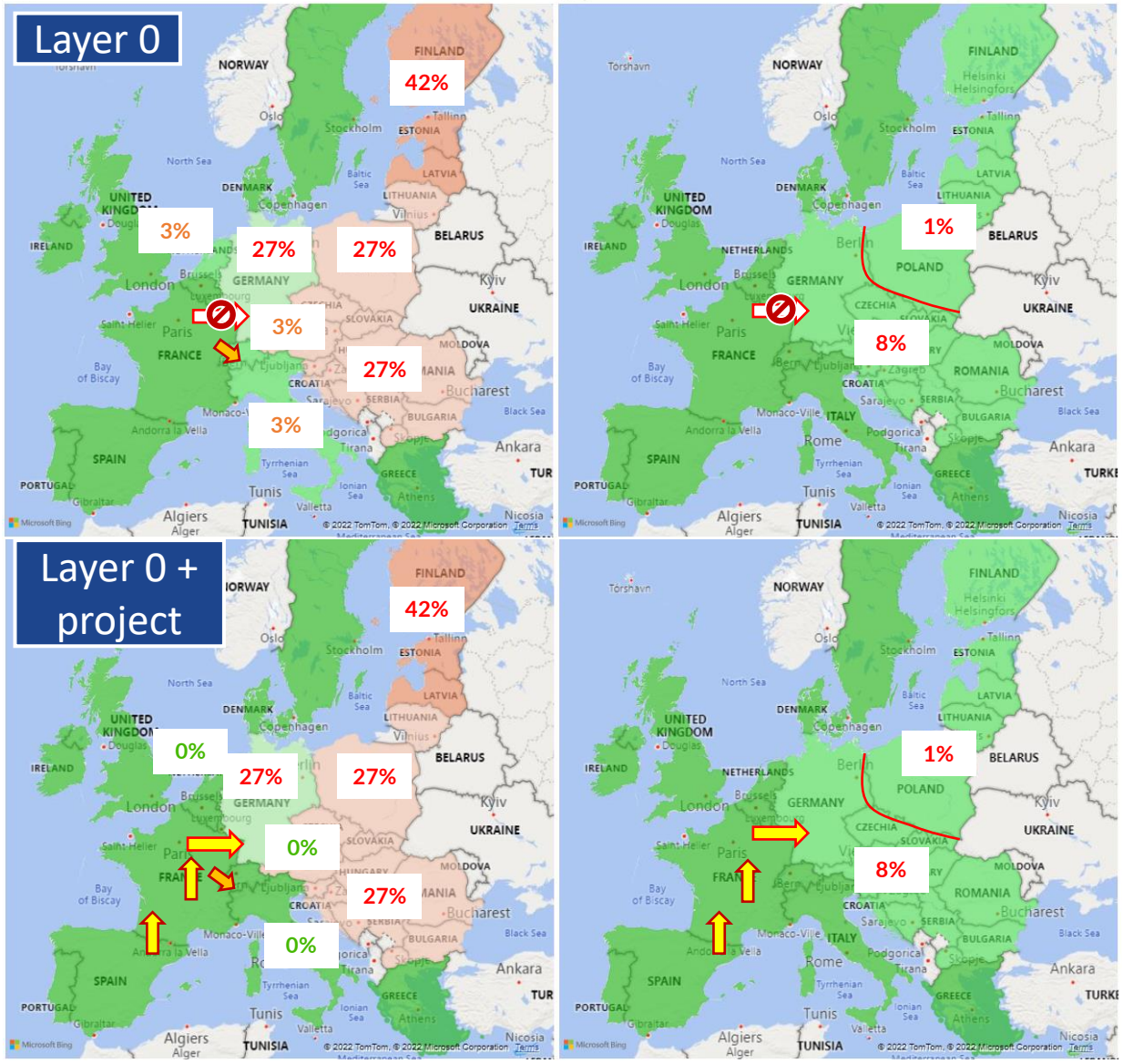


Reinforcement $FR_{North\text{-}East}$ + Interconnection FR → DE + Midcat

Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE + MidCat

Current demand and production

2030 – Fit-for-55 demand and production



Additional impact of MidCat with Reinforcement $FR_{North-East}$ + Interconnection FR→DE

Current levels of demand and production

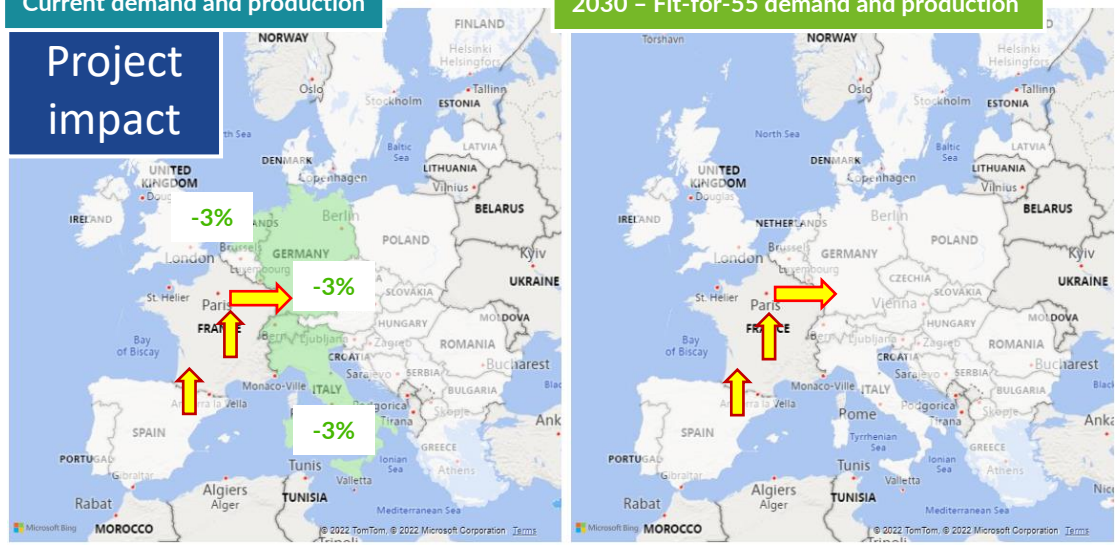
– No additional impact

2030

– No additional impact

Current demand and production

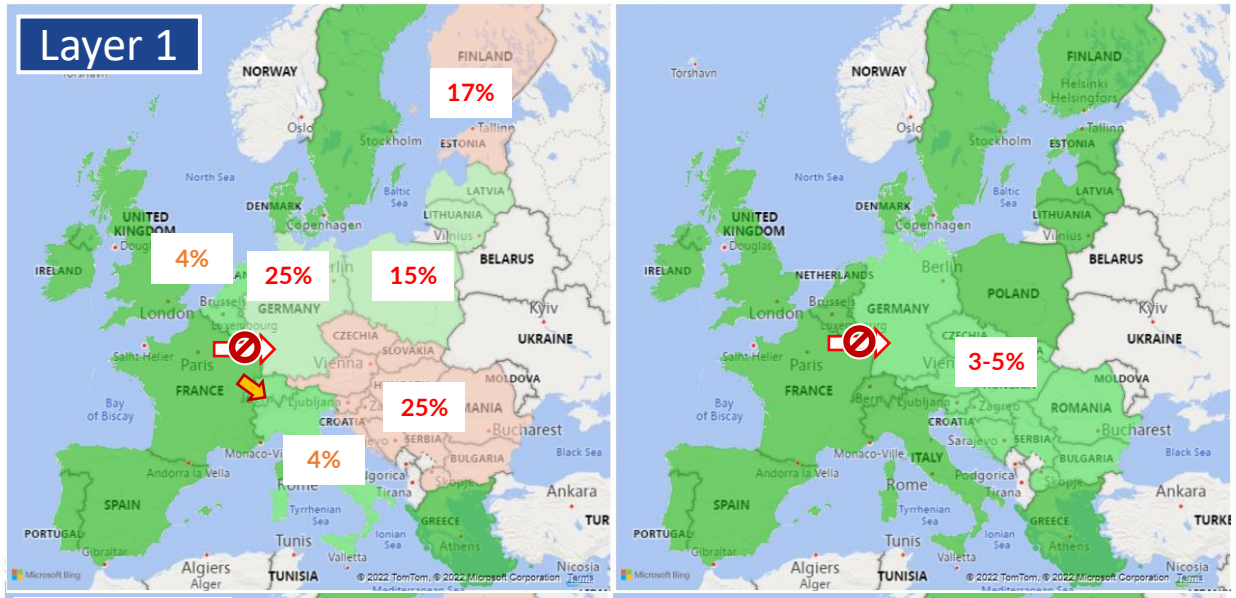
2030 – Fit-for-55 demand and production

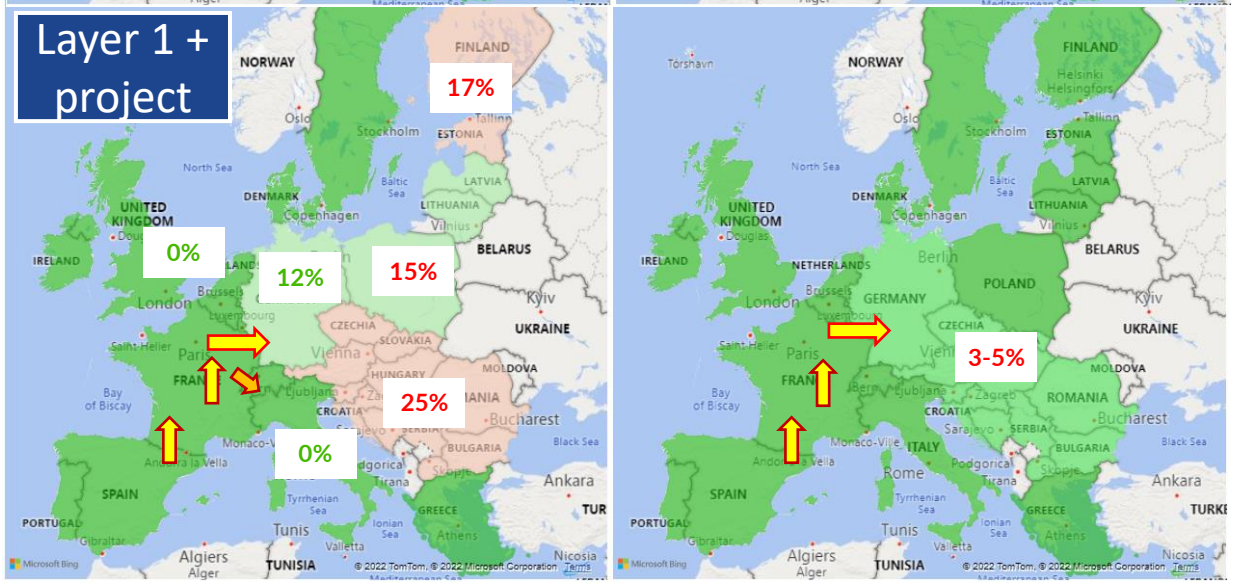


Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE + MidCat

Current demand and production

2030 – Fit-for-55 demand and production





Additional impact of MidCat with Reinforcement $FR_{North-East}$ + Interconnection FR→DE

Current levels of demand and production

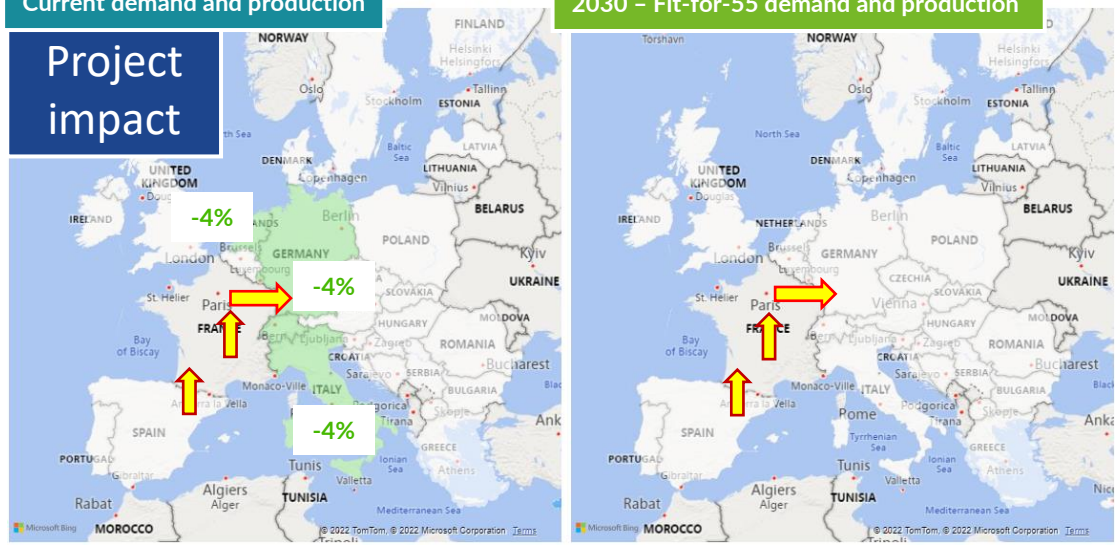
– No additional impact

2030

– No additional impact

Current demand and production

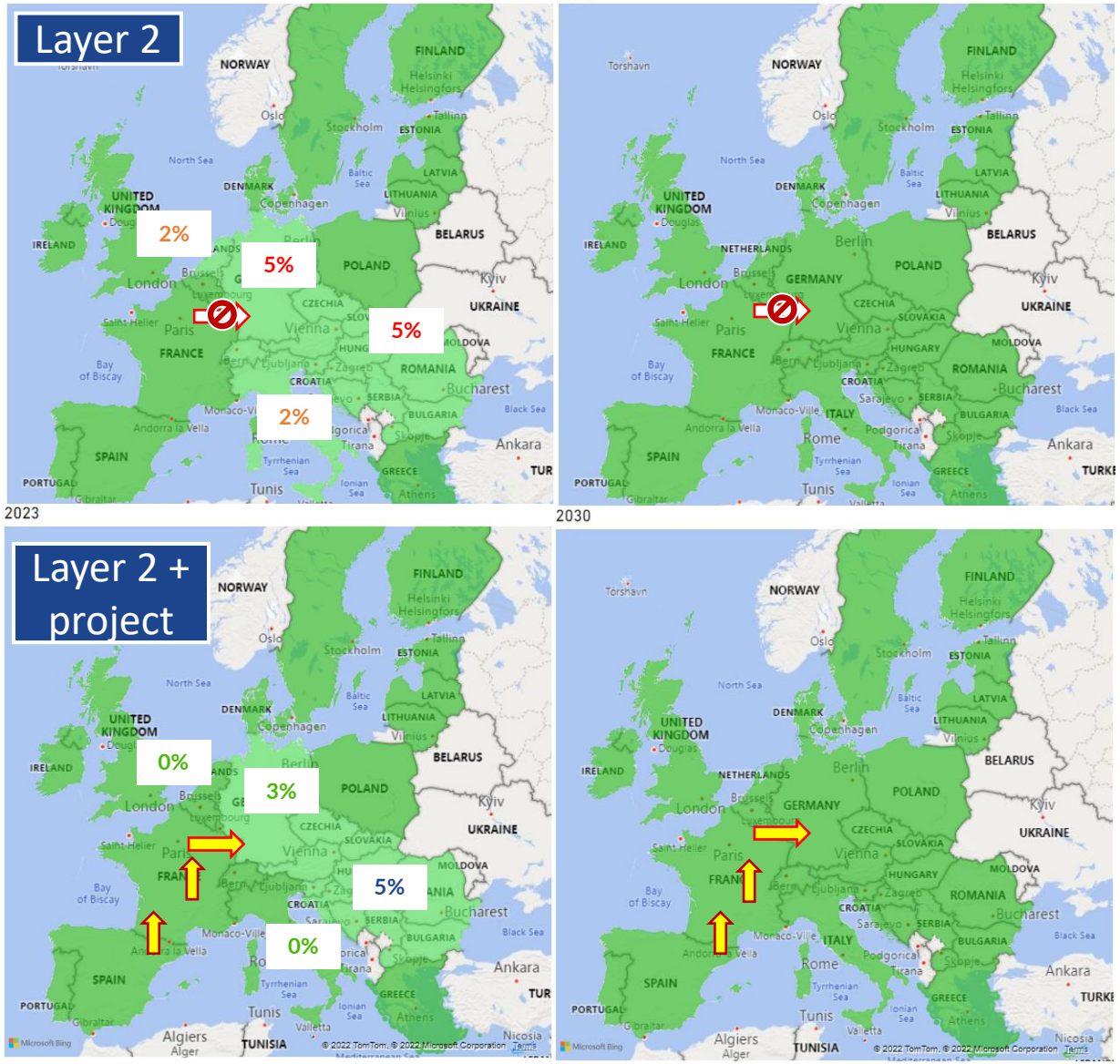
2030 – Fit-for-55 demand and production



Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE + MidCat

Current demand and production

2030 – Fit-for-55 demand and production



Additional impact of MidCat with Reinforcement $FR_{North-East}$ + Interconnection FR→DE

Current levels of demand and production

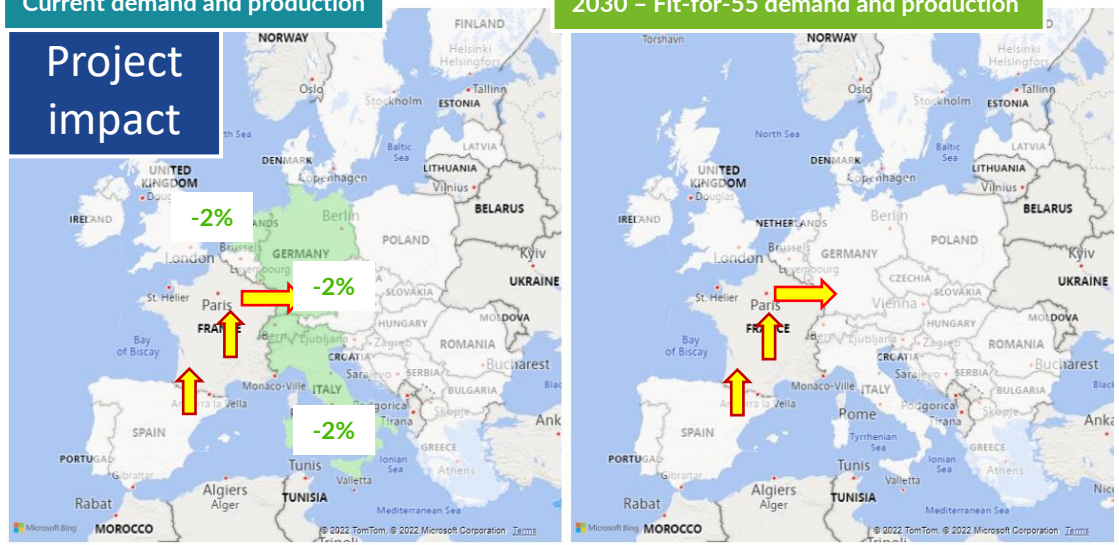
– No additional impact

2030

– No additional impact

Current demand and production

2030 – Fit-for-55 demand and production

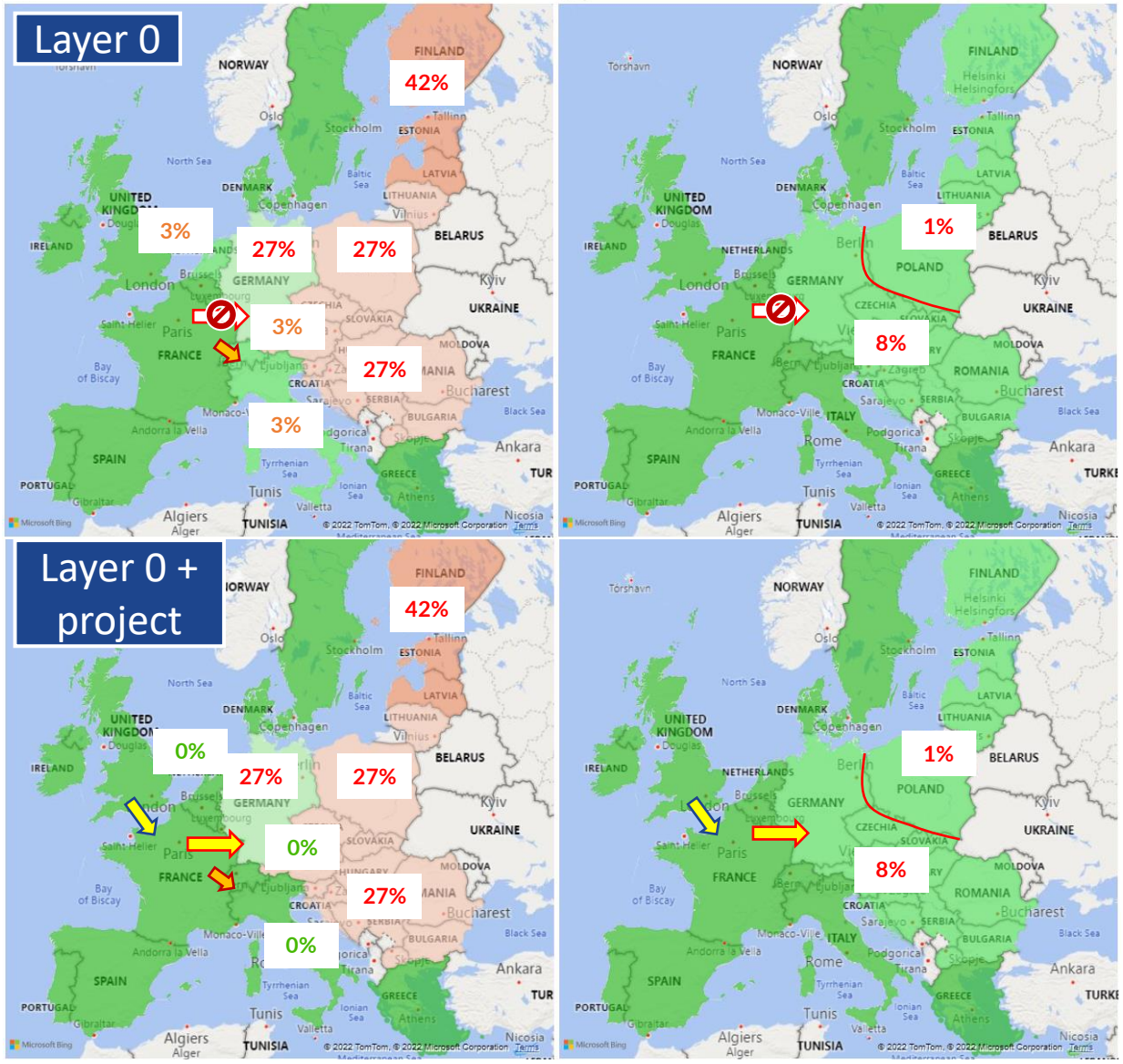


Reinforcement $FR_{North-East}$ + Interconnection FR→DE + Le Havre FSRU

Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE + Le Havre FSRU

Current demand and production

2030 – Fit-for-55 demand and production



Additional impact of Le Havre FSRU with Reinforcement $FR_{North-East}$ + Interconnection FR→DE

Current levels of demand and production

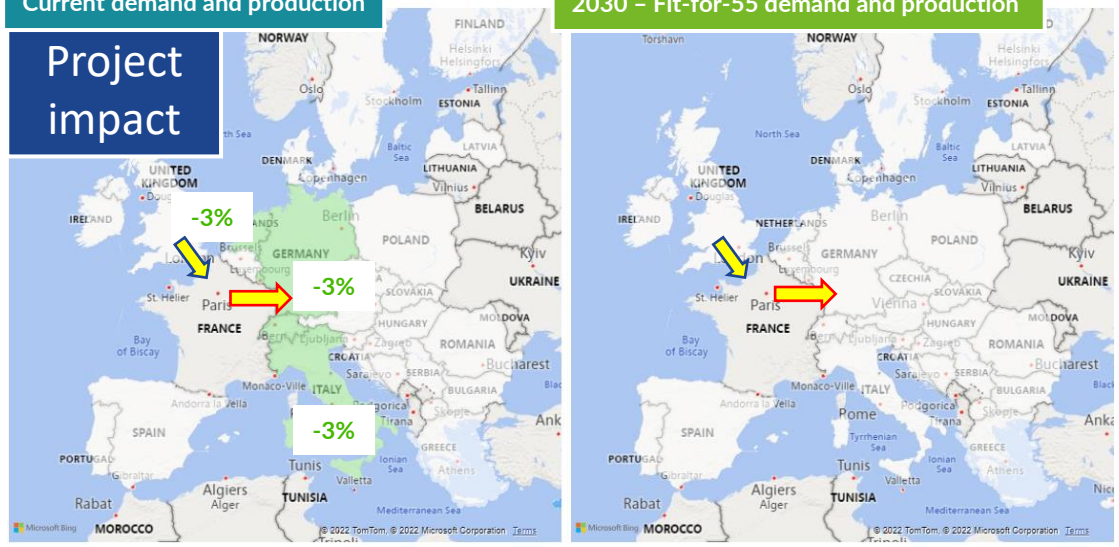
– No additional impact

2030

– No additional impact

Current demand and production

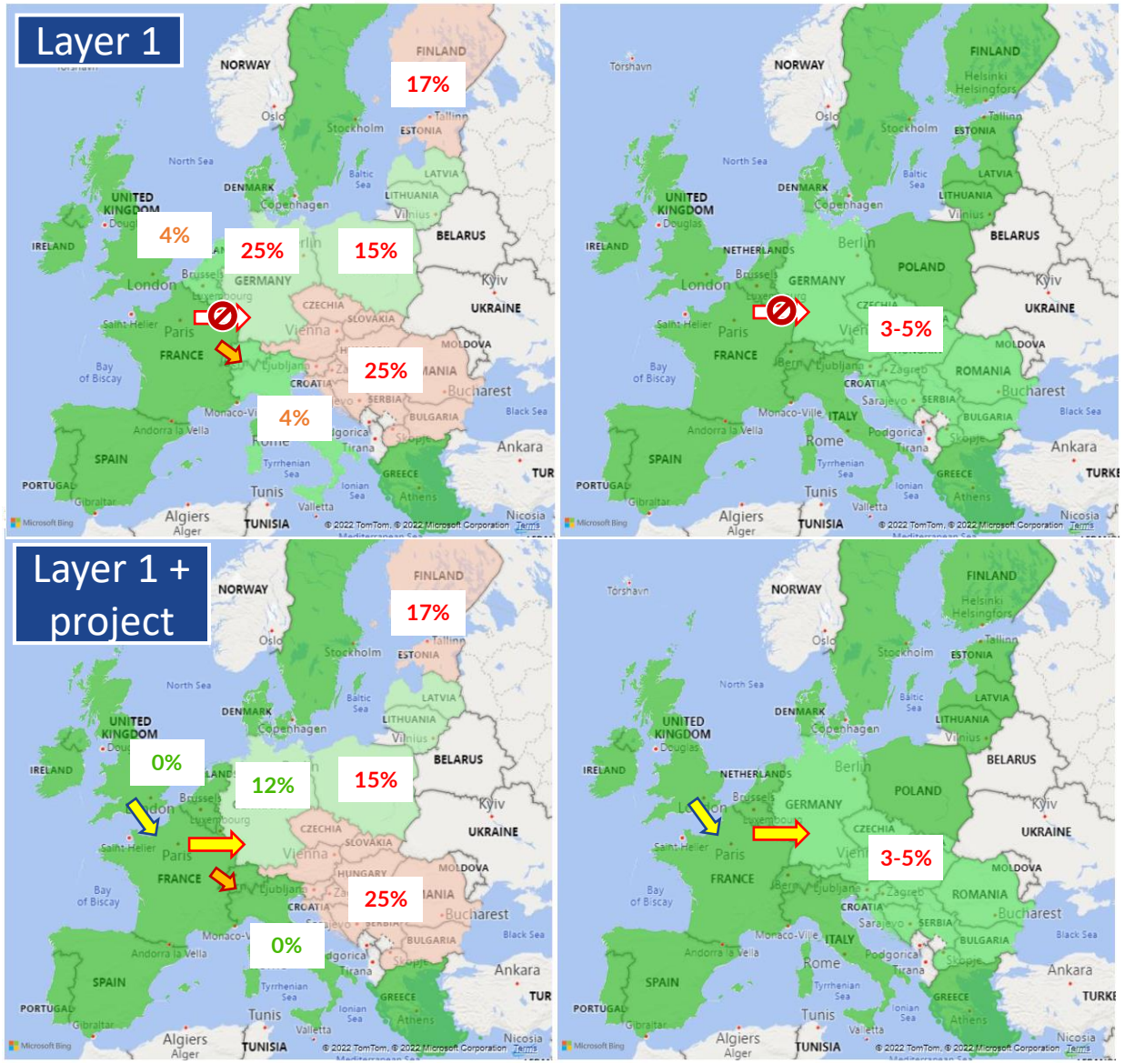
2030 – Fit-for-55 demand and production



Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE + Le Havre FSRU

Current demand and production

2030 – Fit-for-55 demand and production



Additional impact of Le Havre FSRU with Reinforcement $FR_{North-East}$ + Interconnection FR→DE

Current levels of demand and production

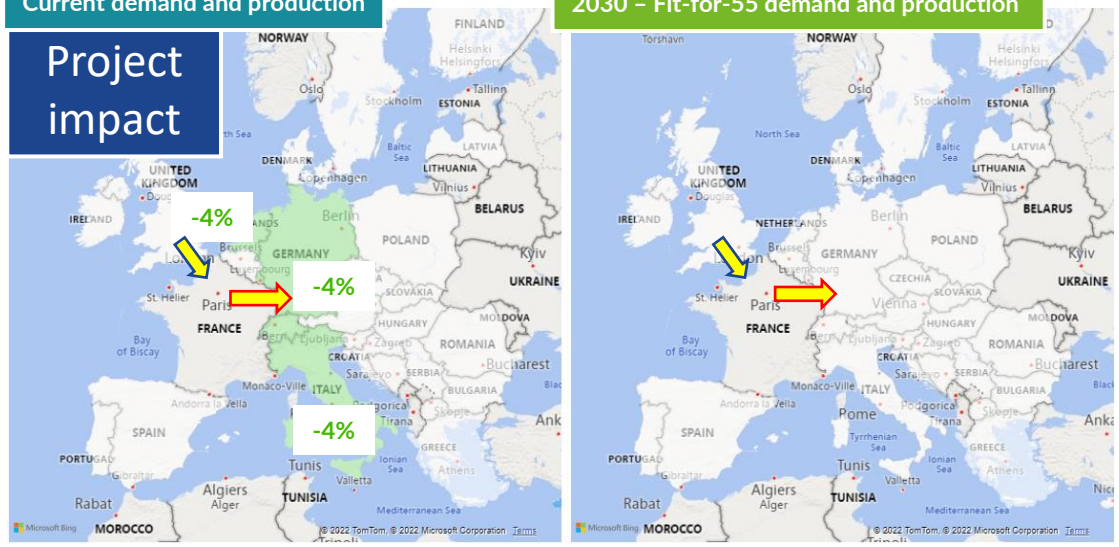
– No additional impact

2030

– No additional impact

Current demand and production

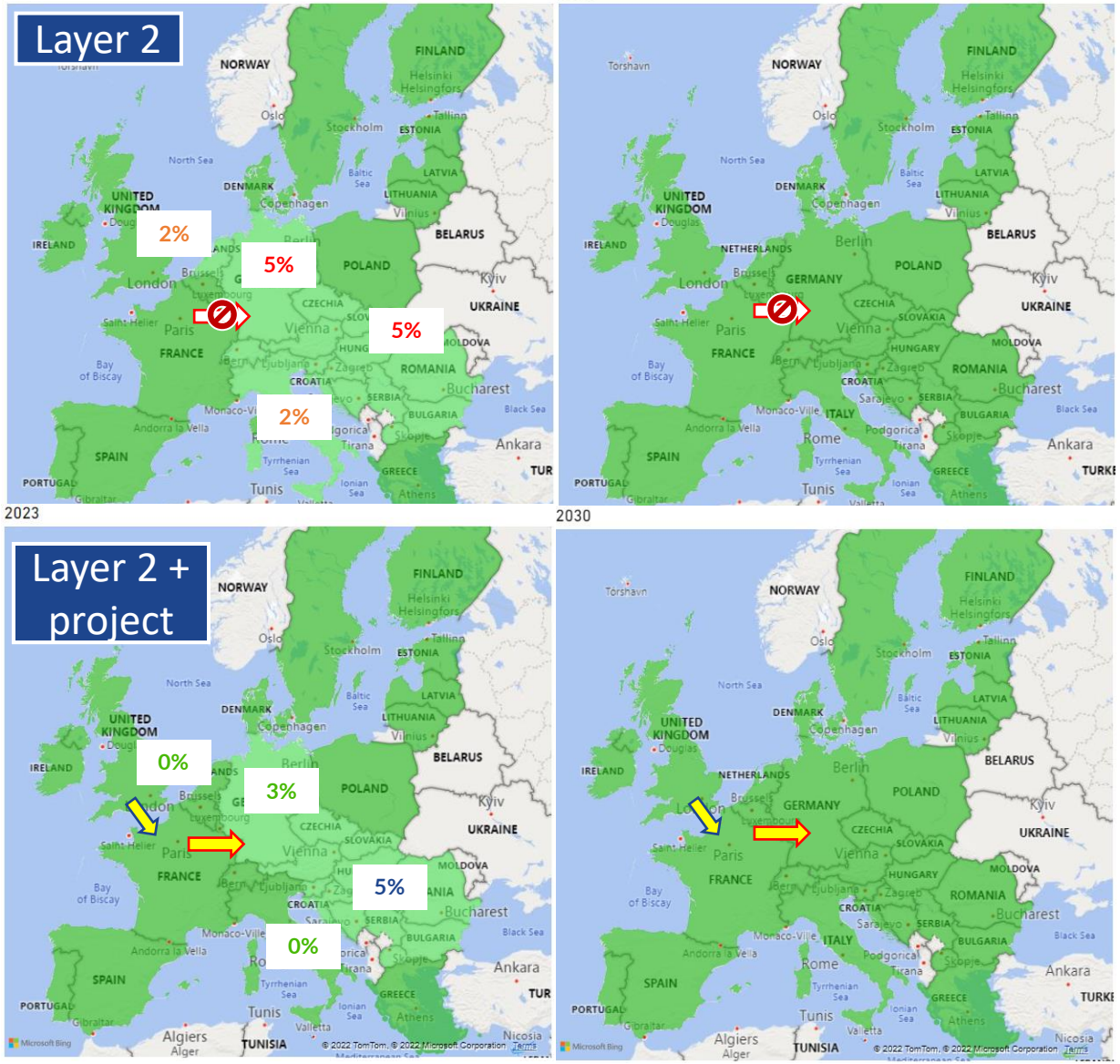
2030 – Fit-for-55 demand and production



Impact of Reinforcement $FR_{North-East}$ + Interconnection FR → DE + Le Havre FSRU

Current demand and production

2030 – Fit-for-55 demand and production



Additional impact of Le Havre FSRU with Reinforcement $FR_{North-East}$ + Interconnection FR→DE

Current levels of demand and production

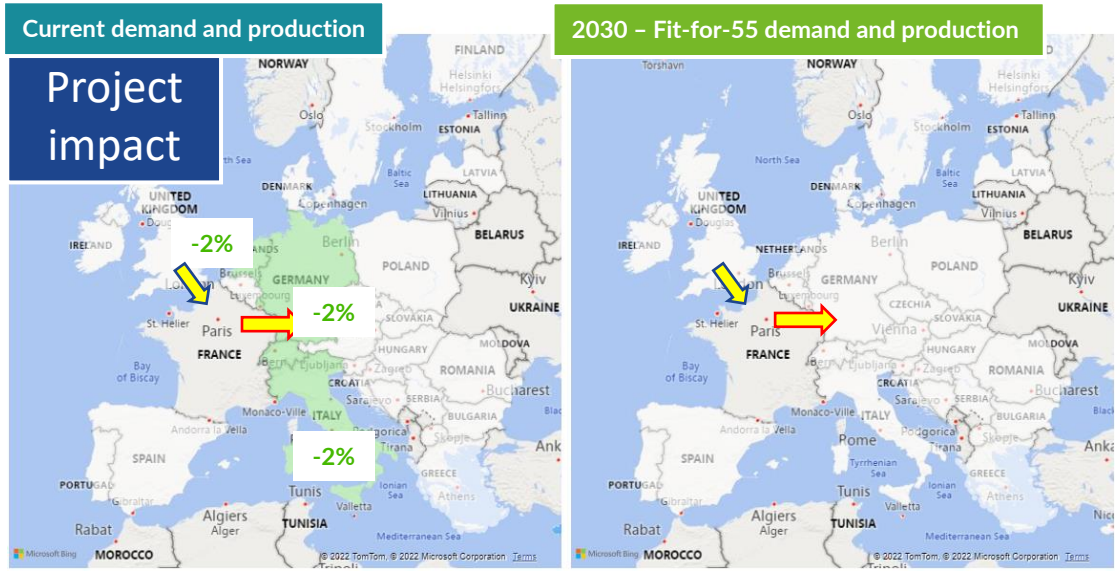
– No additional impact

2030

– No additional impact

Current demand and production

2030 – Fit-for-55 demand and production

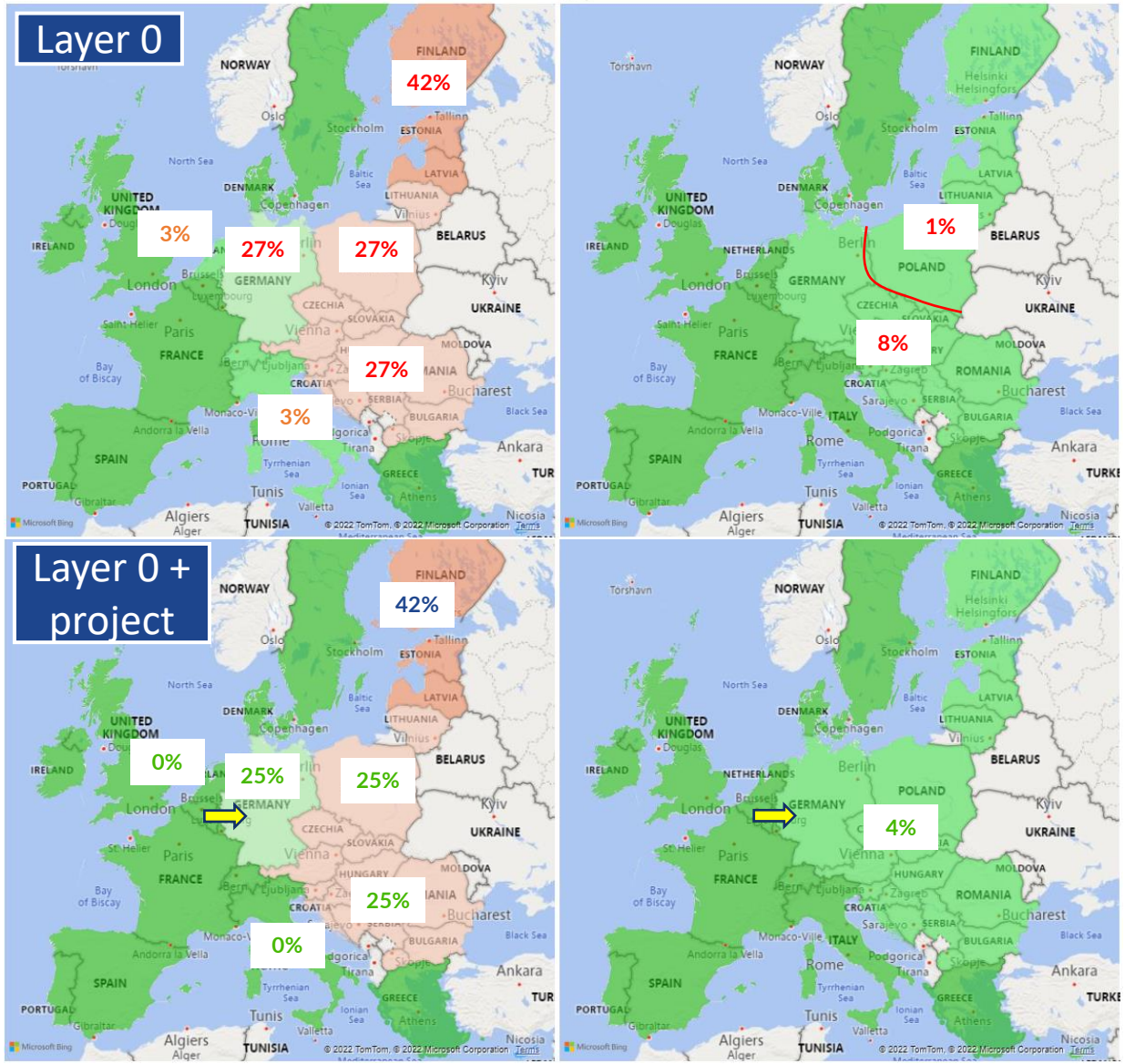


Interconnection BE → DE

Impact of Interconnection BE → DE

Current demand and production

2030 – Fit-for-55 demand and production



Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH, IT and CEE

Current levels of demand and production

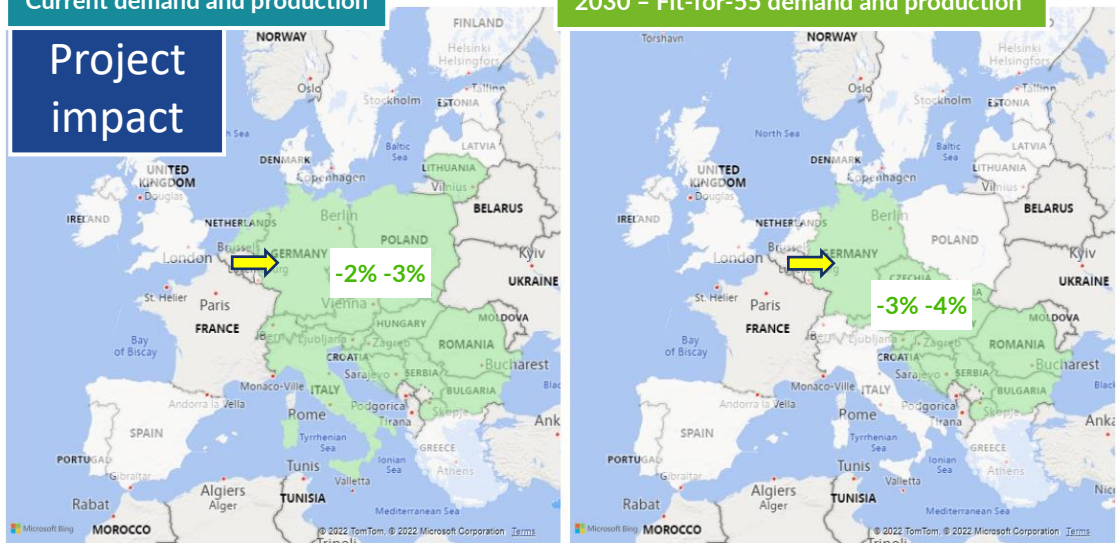
- Mitigation of Russian dependence in NL, DE_{South}, CH and IT
- Reduction of dependence in DE_{North} and CEE (-3%)

2030

- Reduction of dependence in DE_{North} and CEE (-4%)

Current demand and production

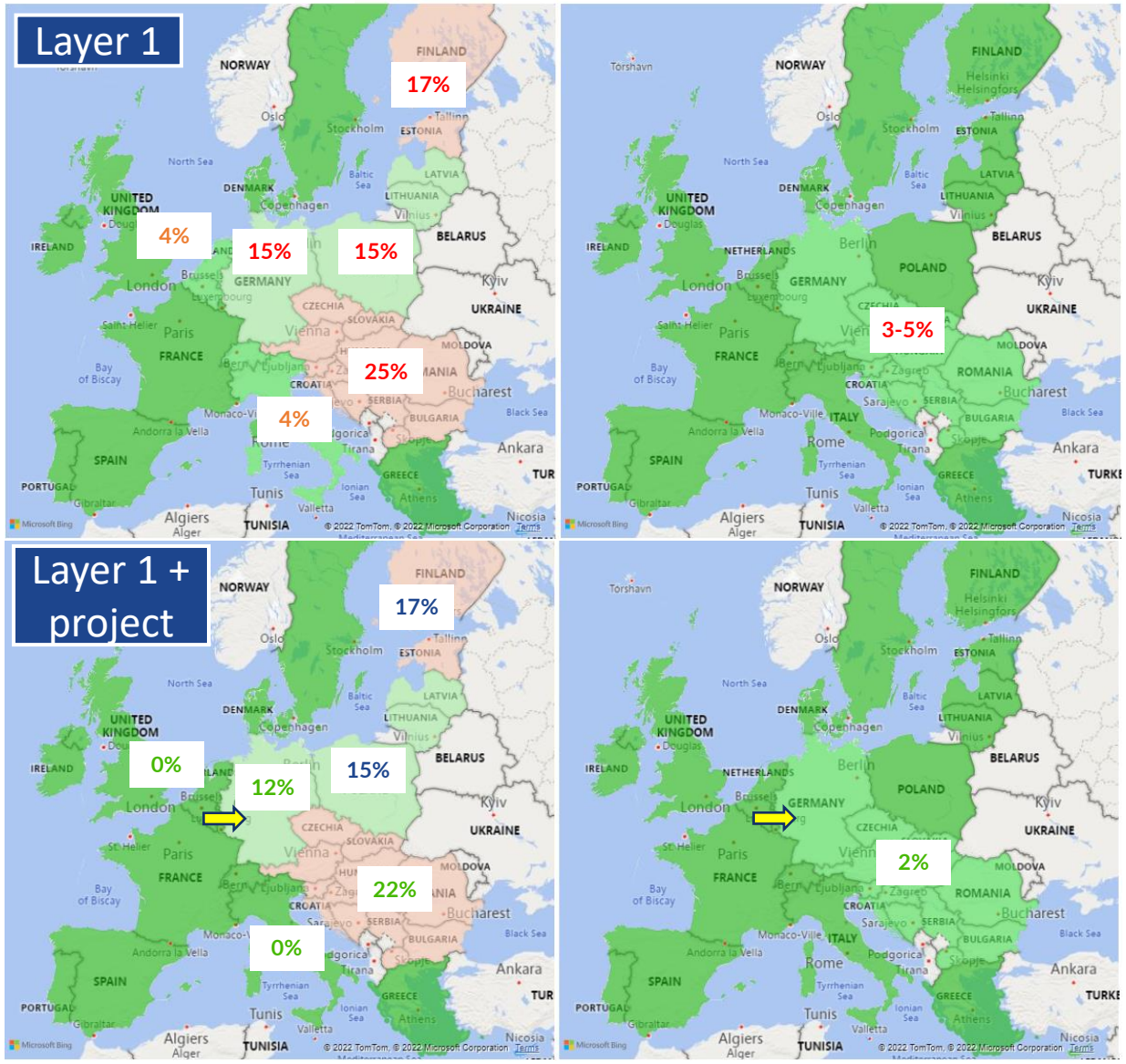
2030 – Fit-for-55 demand and production



Impact of Interconnection BE → DE

Current demand and production

2030 – Fit-for-55 demand and production



Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH, IT and CEE

Current levels of demand and production

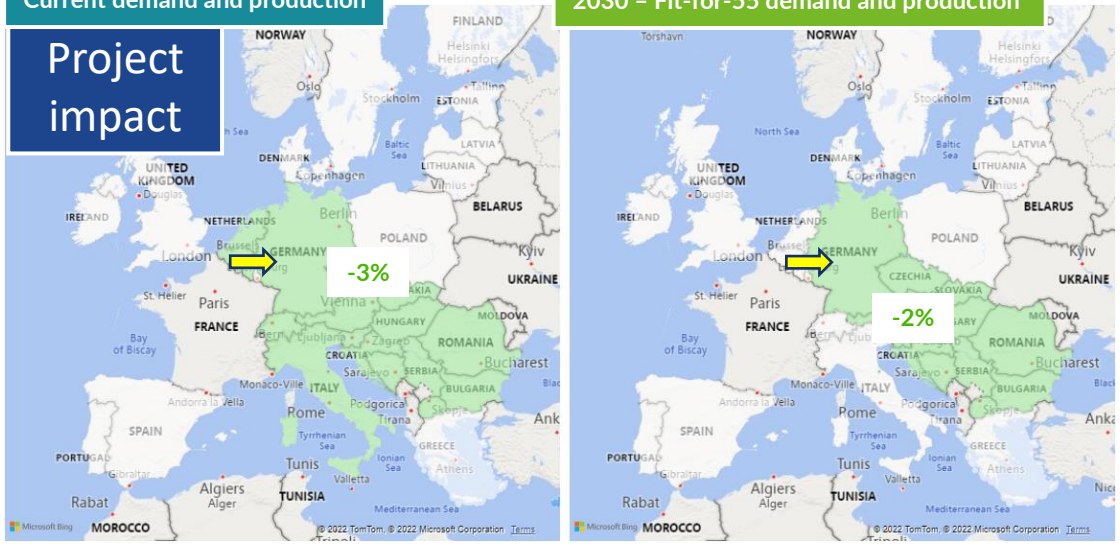
- Mitigation of Russian dependence in NL, DE_{South}, CH and IT
- Reduction of dependence in DE_{North} and CEE (-3%)

2030

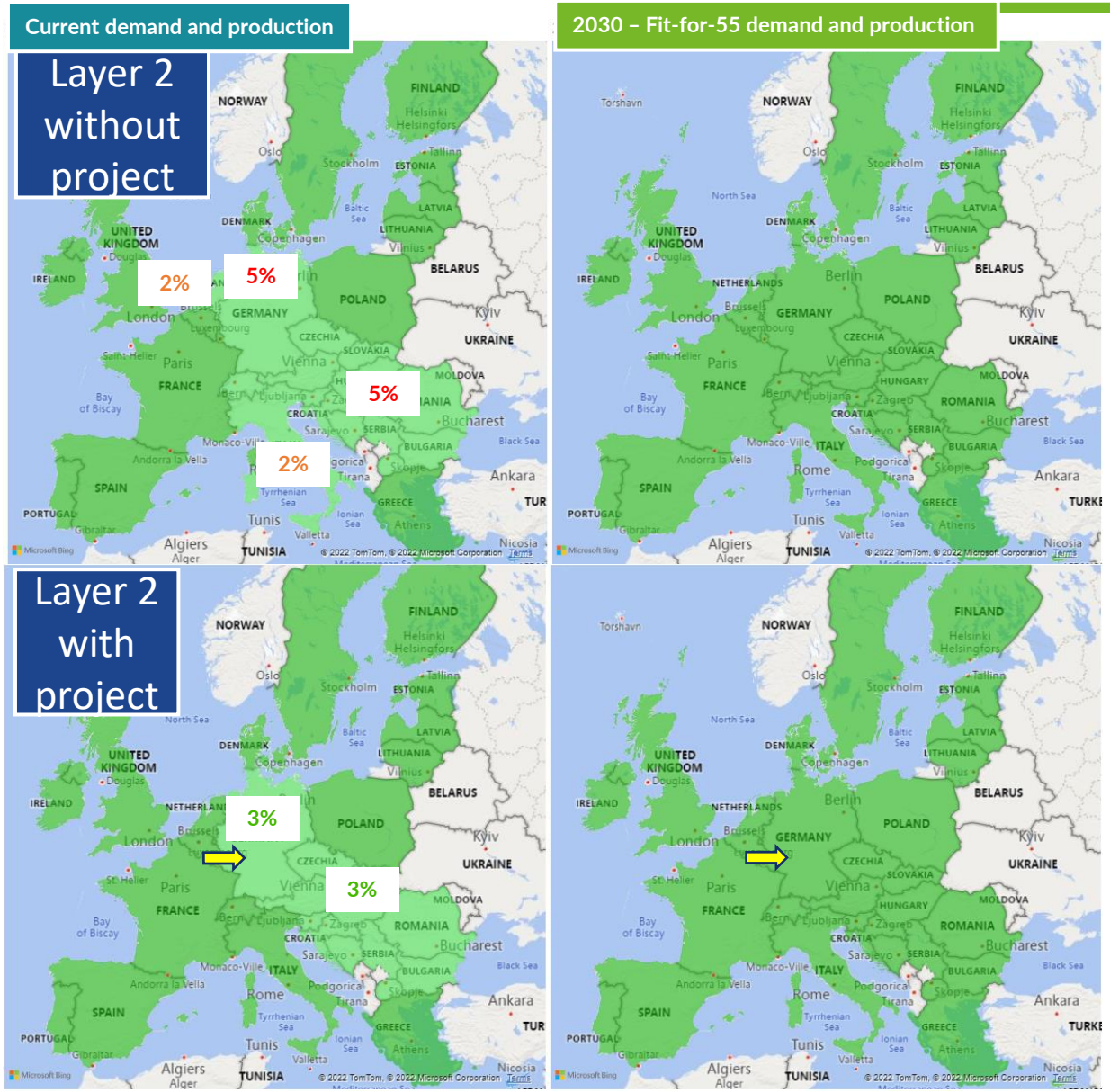
- Reduction of dependence in DE_{North} and CEE (-2%)

Current demand and production

2030 – Fit-for-55 demand and production



Impact of Interconnection BE → DE



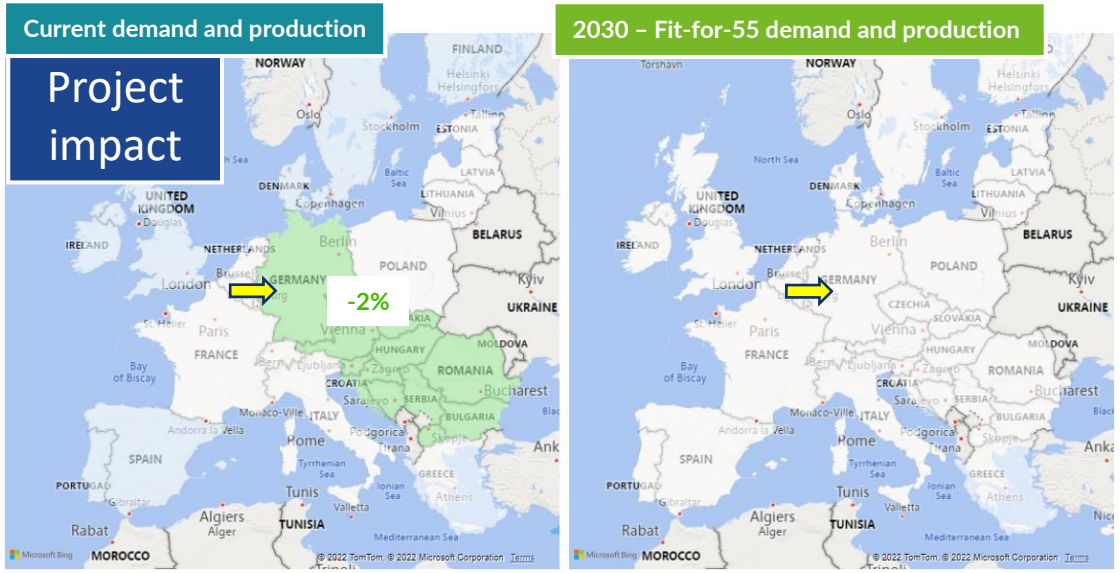
Improvement of cooperation in CEE and overall reduction of dependence on Russian gas

Current levels of demand and production

– Overall -2% dependence in Northern DE and in CEE region

2030

– No additional impact

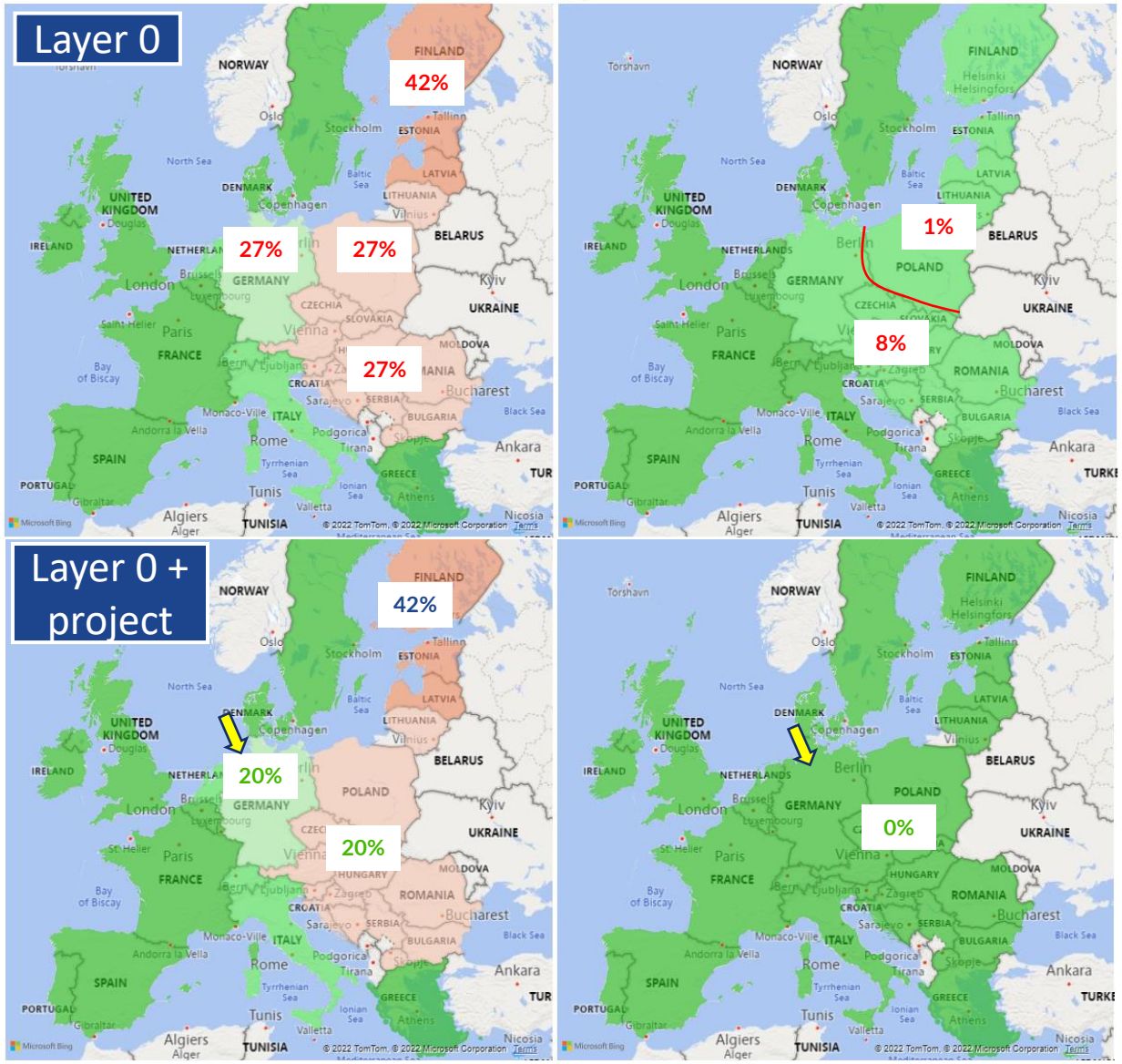


LNG Terminal Brunsbüttel

Impact of LNG Terminal Brunsbüttel

Current demand and production

2030 – Fit-for-55 demand and production



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

Current levels of demand and production

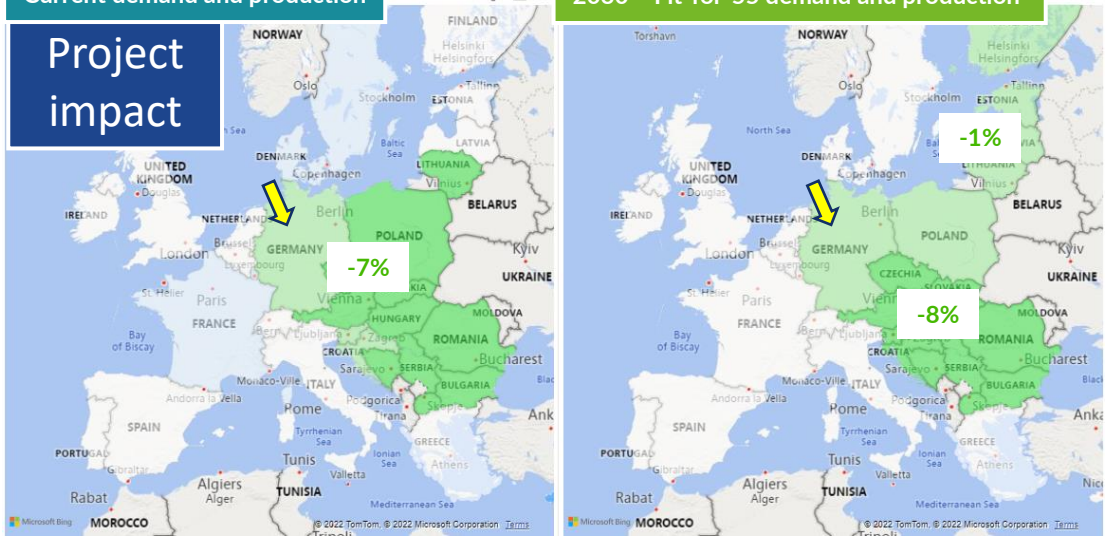
- Improvement in Northern DE, PL, LT and CEE (-7%)

2030

- Achieves to mitigate the dependence on Russian gas for Poland, the Baltic States and Finland resulting mainly from demand reduction (-1%)
- Achieves to mitigate the dependence on Russian gas in CEE (-8%)

Current demand and production

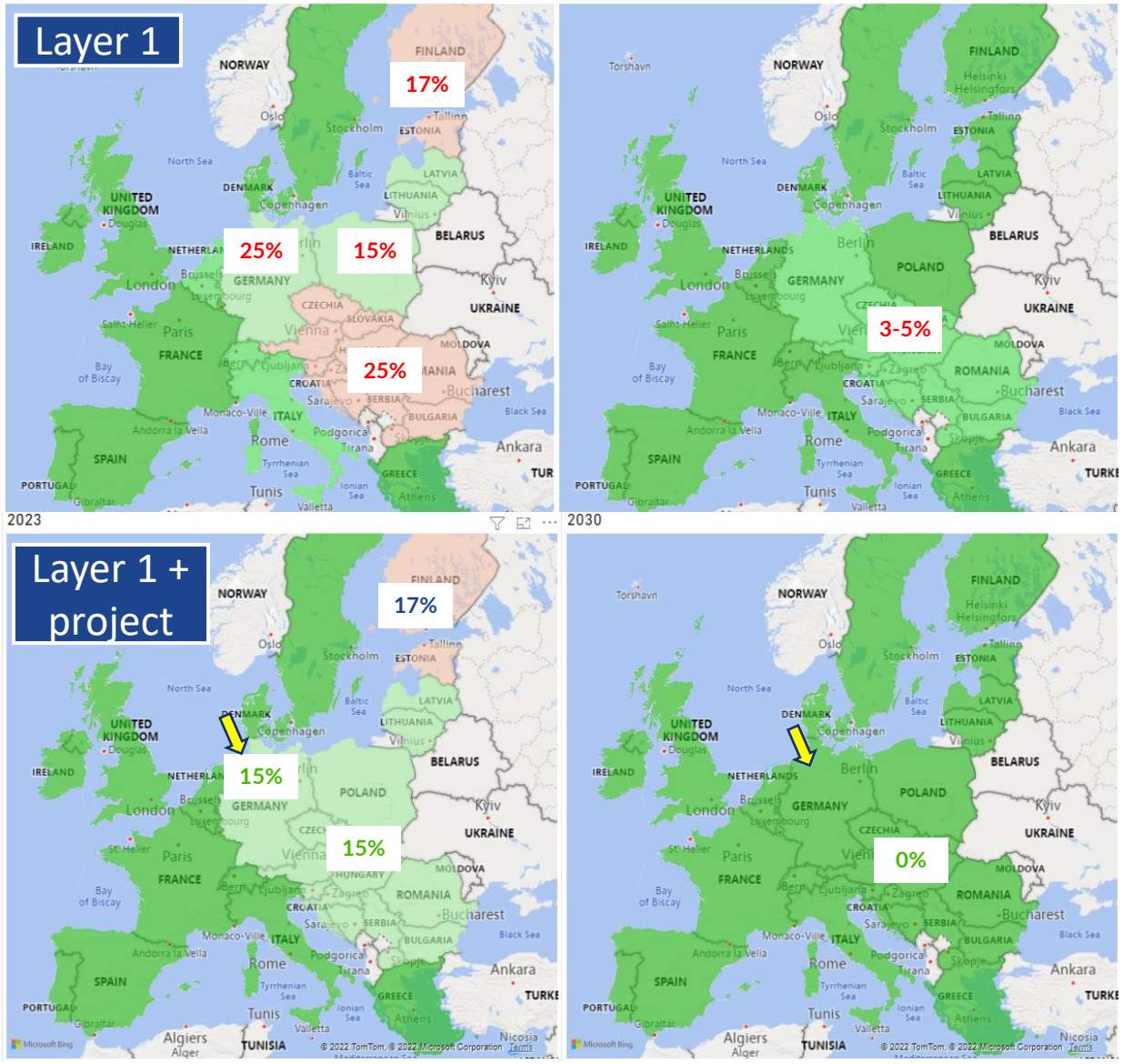
2030 – Fit-for-55 demand and production



Impact of LNG Terminal Brunsbüttel

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

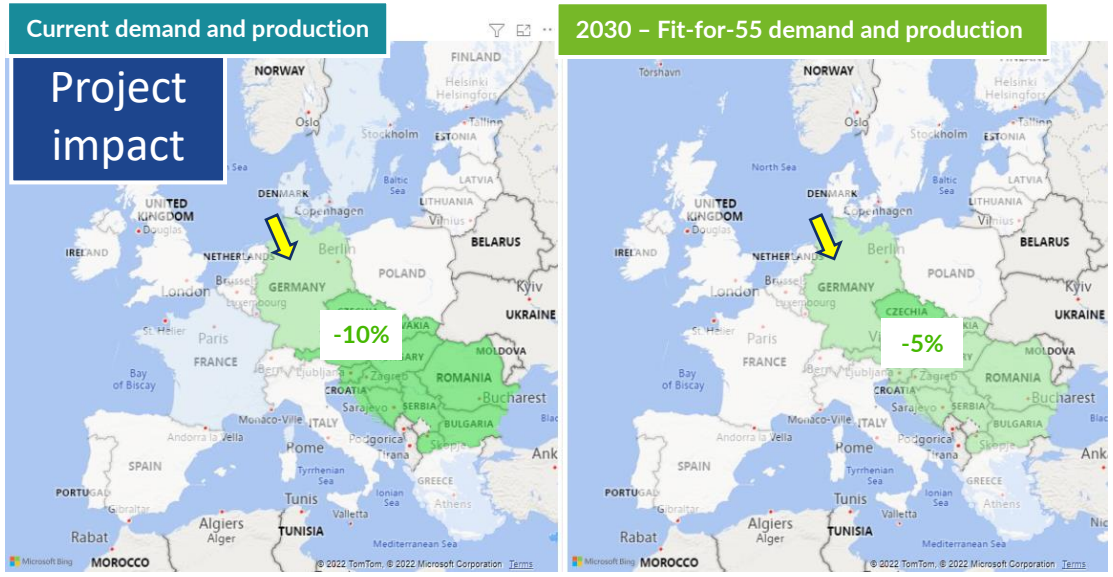
- Overall -10% dependence in CEE region and Northern DE

2030

- Overall -5% dependence in CEE region and Northern DE

Current demand and production

2030 – Fit-for-55 demand and production

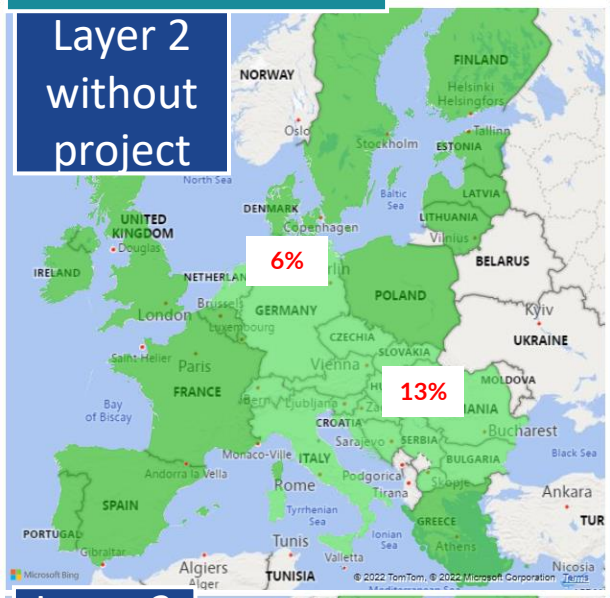


Impact of LNG Terminal Brunsbüttel

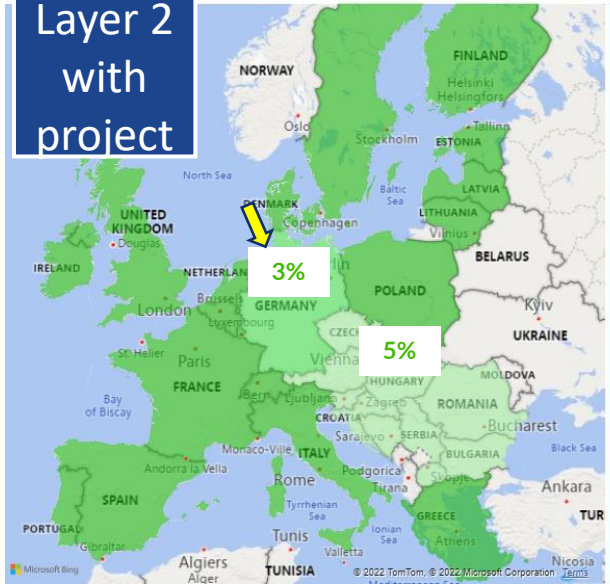
Current demand and production

2030 – Fit-for-55 demand and production

Layer 2 without project



Layer 2 with project



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

Current levels of demand and production

- Overall -3% dependence in Northern DE and 8% in CEE region

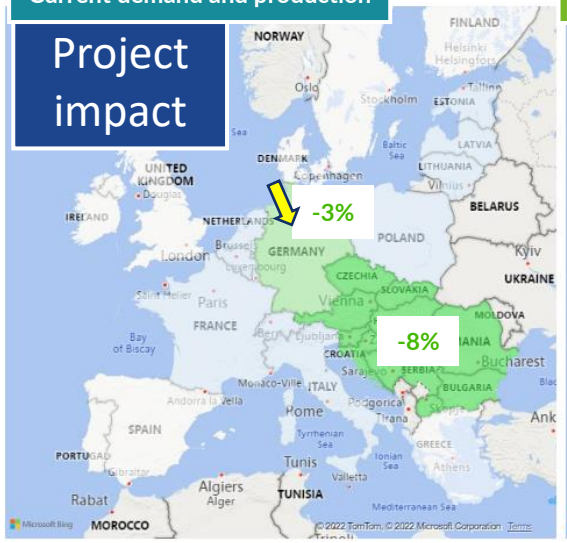
2030

- The total mitigation of the dependence on Russian gas results from demand reduction

Current demand and production

2030 – Fit-for-55 demand and production

Project impact

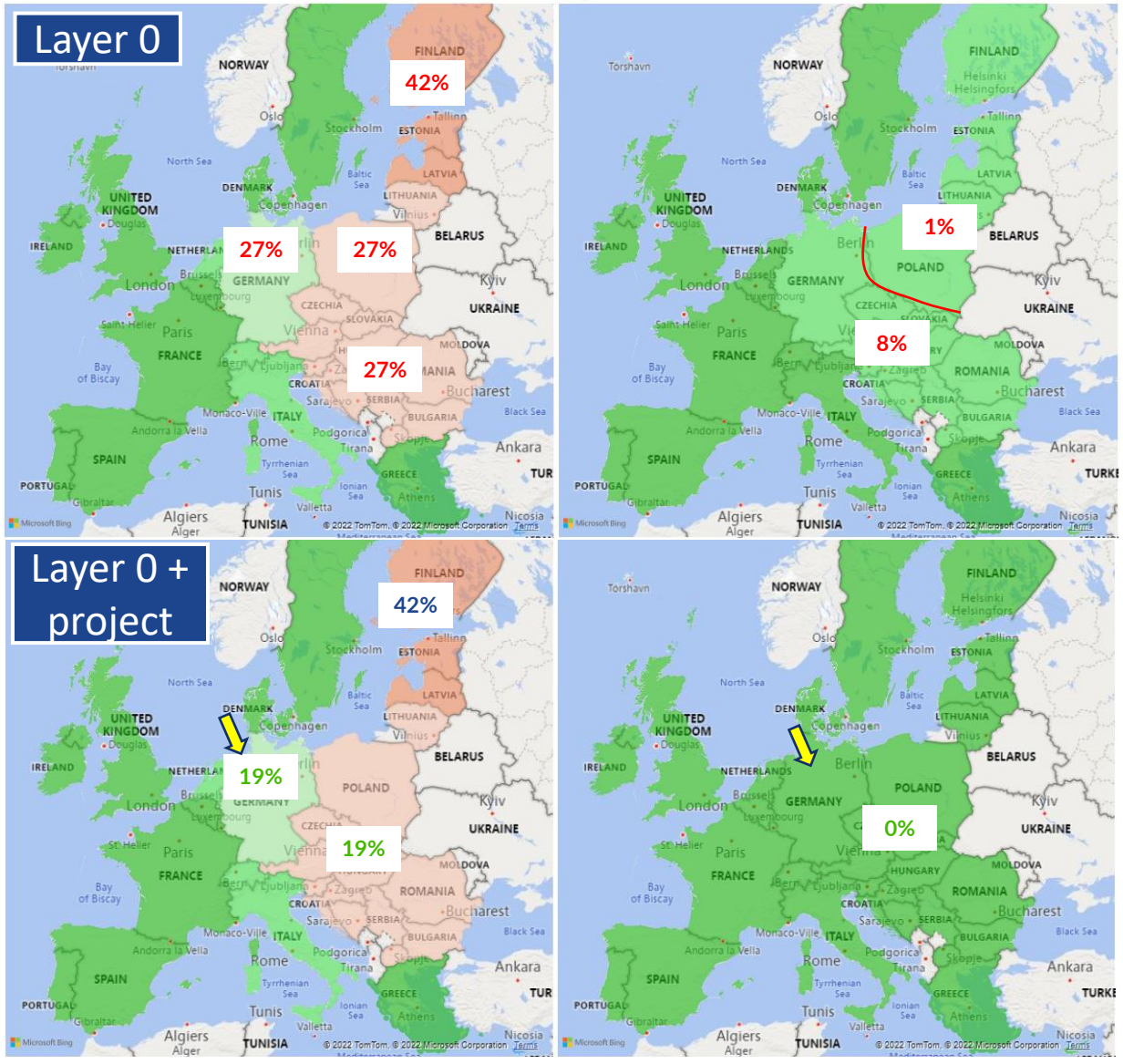


Wilhelmshaven FSRU

Impact of Wilhelmshaven FSRU

Current demand and production

2030 – Fit-for-55 demand and production



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

Current levels of demand and production

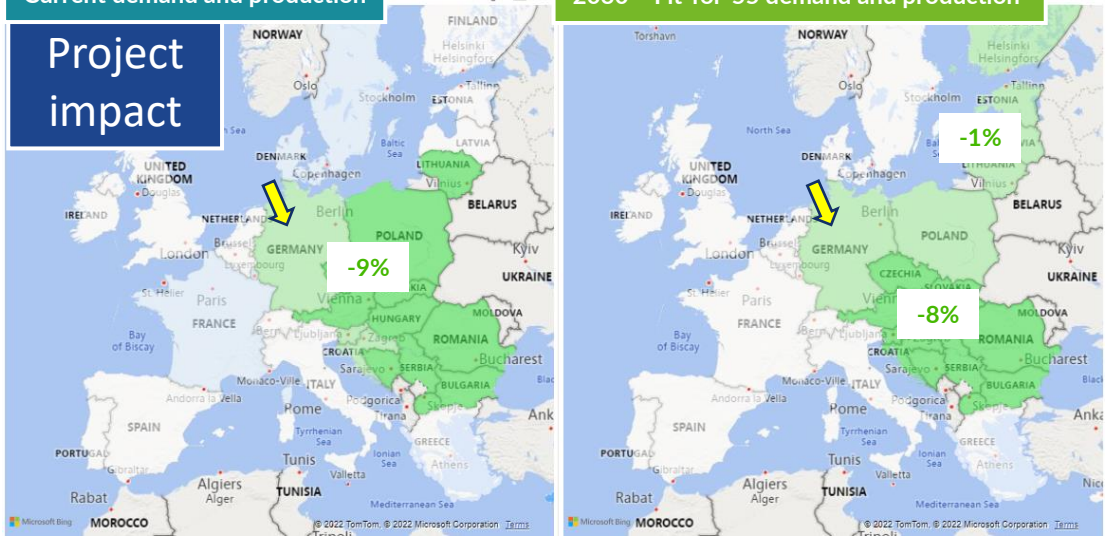
- Improvement in Northern DE, PL, LT and CEE (-8%)

2030

- Achieves to mitigate the dependence on Russian gas for Poland, the Baltic States and Finland resulting mainly from demand reduction (-1%)
- Achieves to mitigate the dependence on Russian gas in CEE (-8%)

Current demand and production

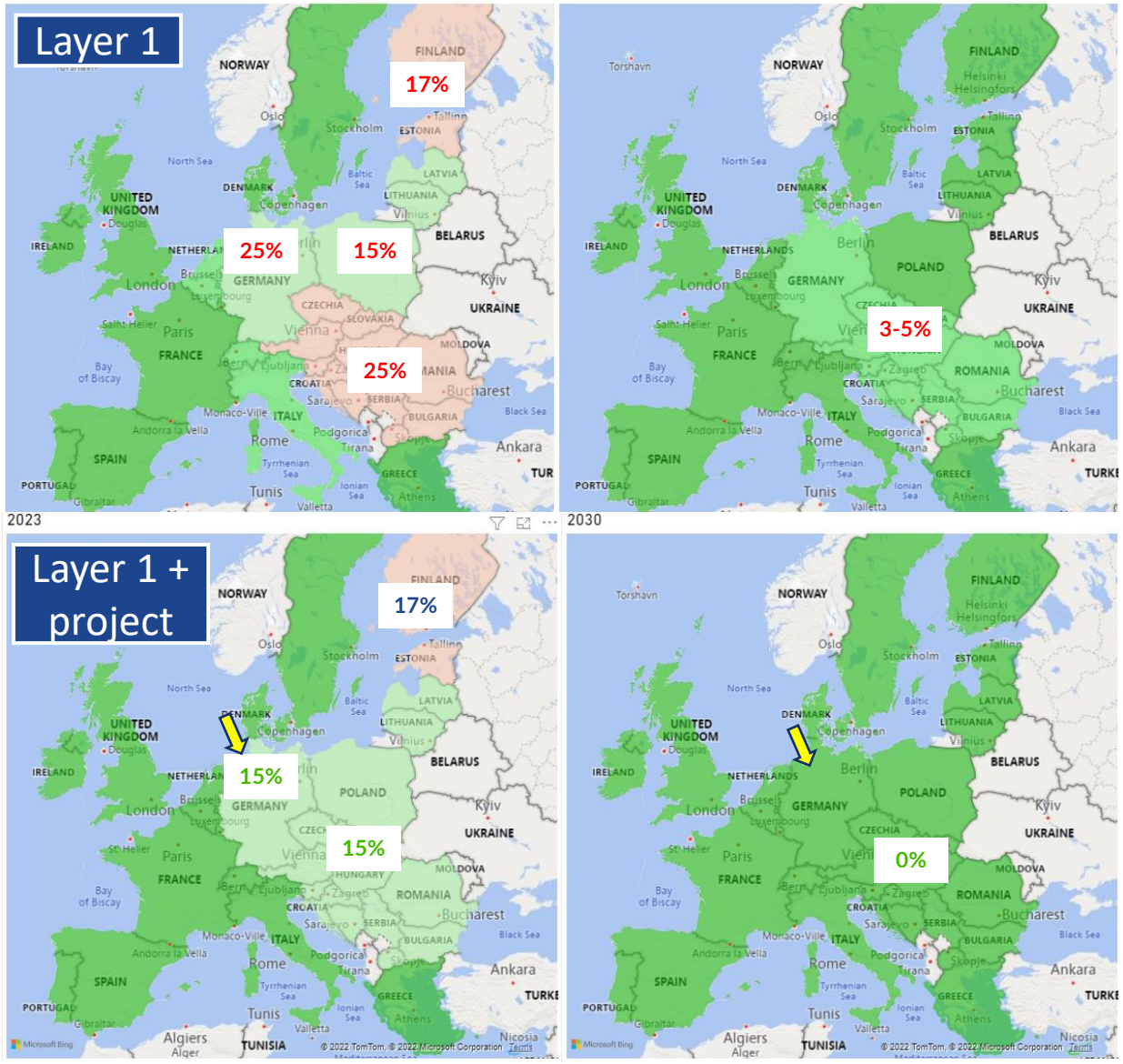
2030 – Fit-for-55 demand and production



Impact of Wilhelmshaven FSRU

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

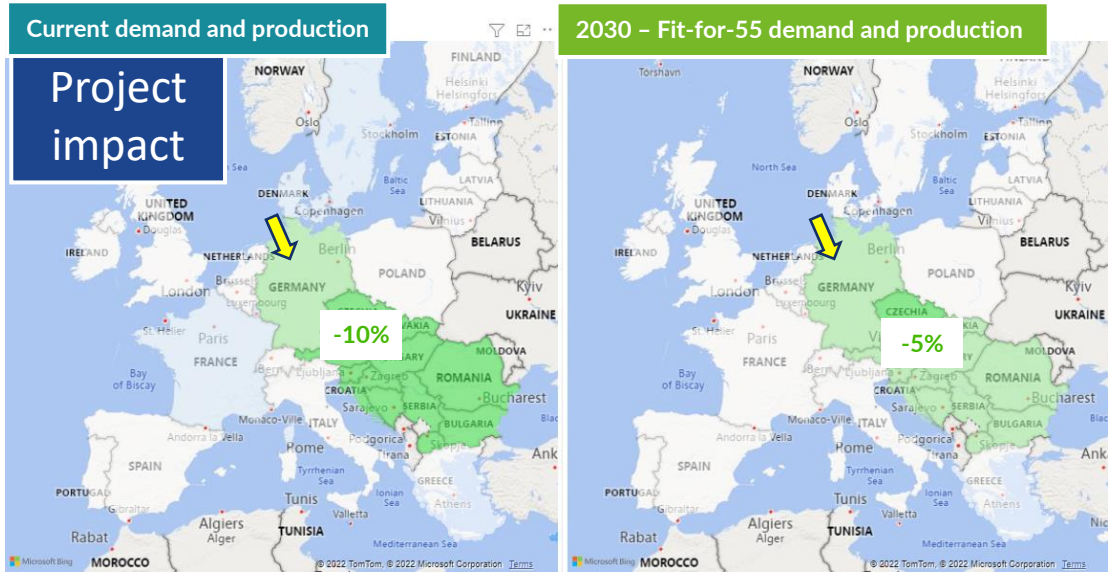
- Overall -9% dependence in CEE region and Northern DE

2030

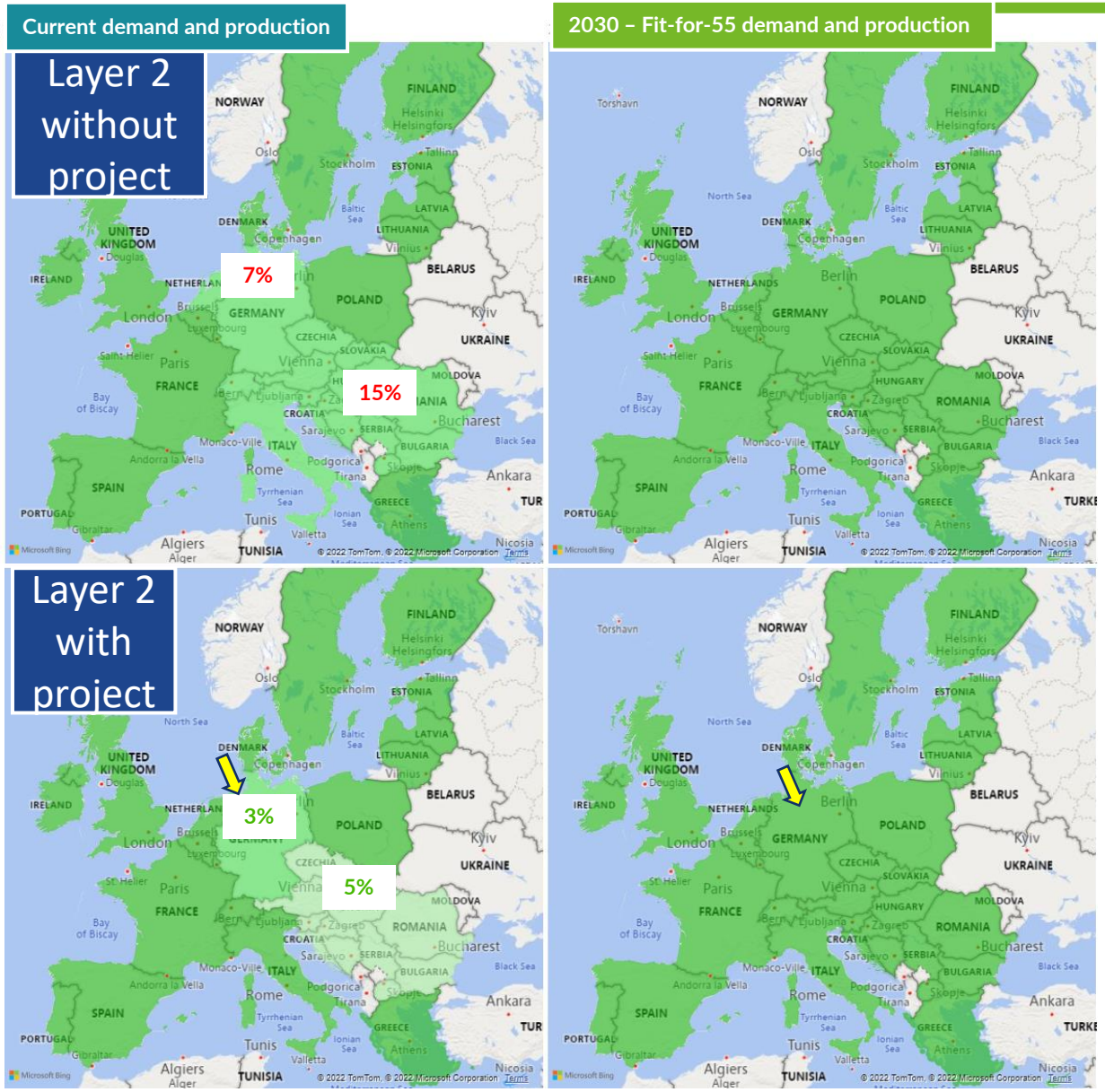
- Overall -5% dependence in CEE region and Northern DE (PL, LV and LT can further support)

Current demand and production

2030 – Fit-for-55 demand and production



Impact of Wilhelmshaven FSRU



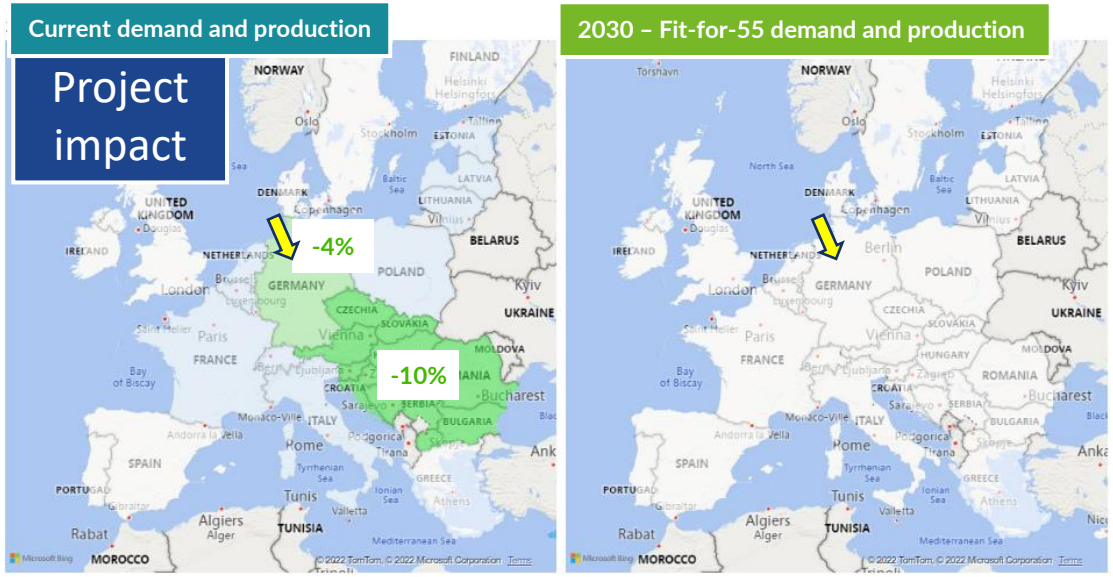
Improvement of cooperation in CEE and overall reduction of dependence on Russian gas

Current levels of demand and production

- Overall -4% dependence in Northern DE and 10% in CEE region

2030

- The total mitigation of the dependence on Russian gas results from demand reduction

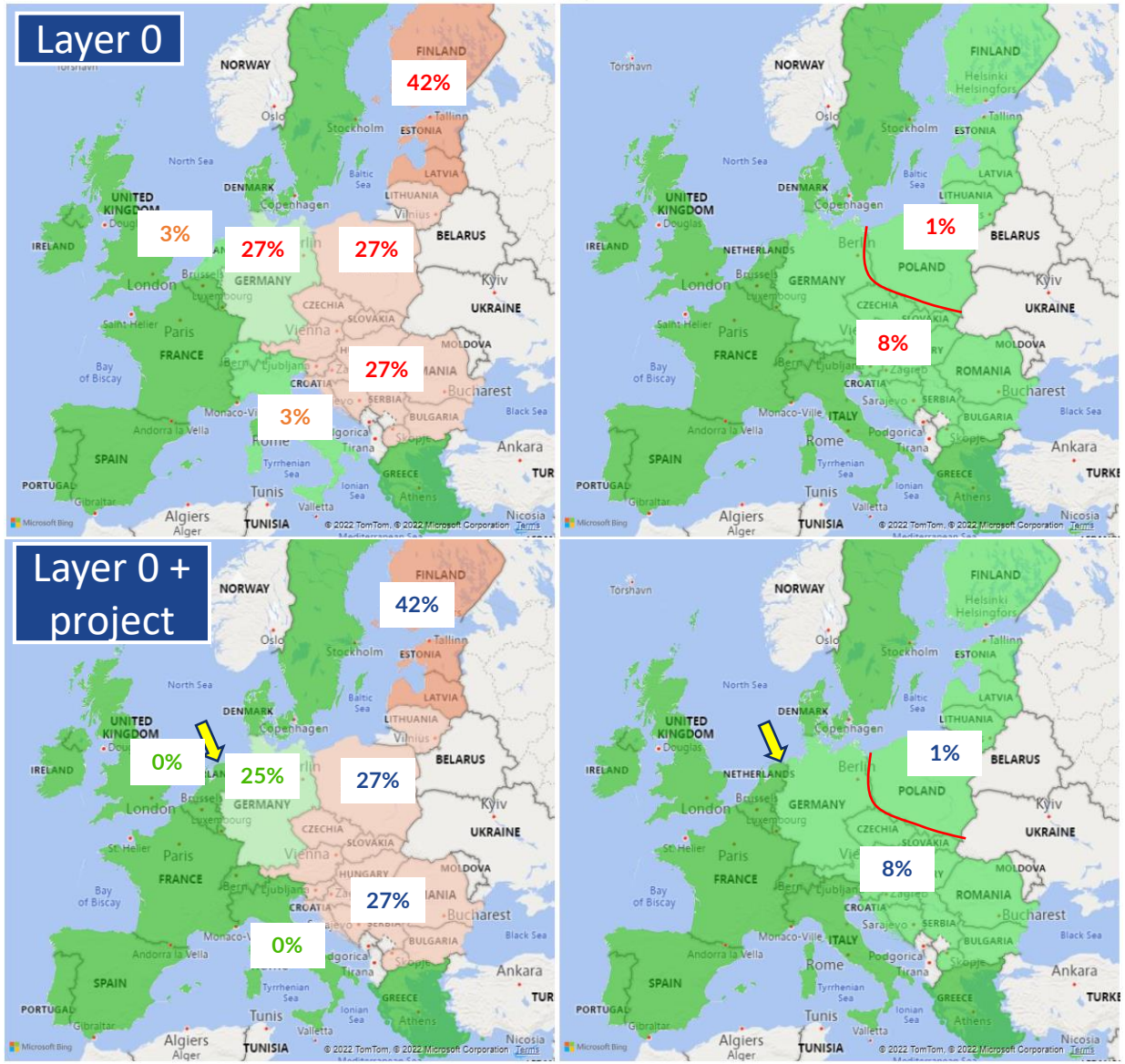


Eemshaven FSRU

Impact of Eemshaven FSRU

Current demand and production

2030 – Fit-for-55 demand and production



Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH and IT

Current levels of demand and production

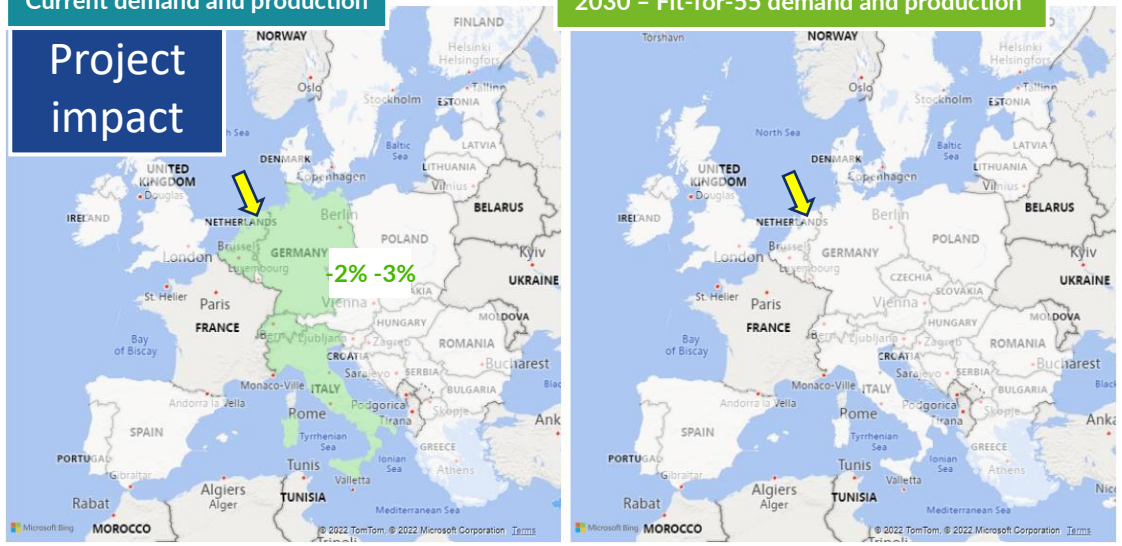
- Mitigation of Russian dependence in NL, DE_{South}, CH and IT
- Reduction of dependence in DE_{North} (-2%)

2030

- No additional impact

Current demand and production

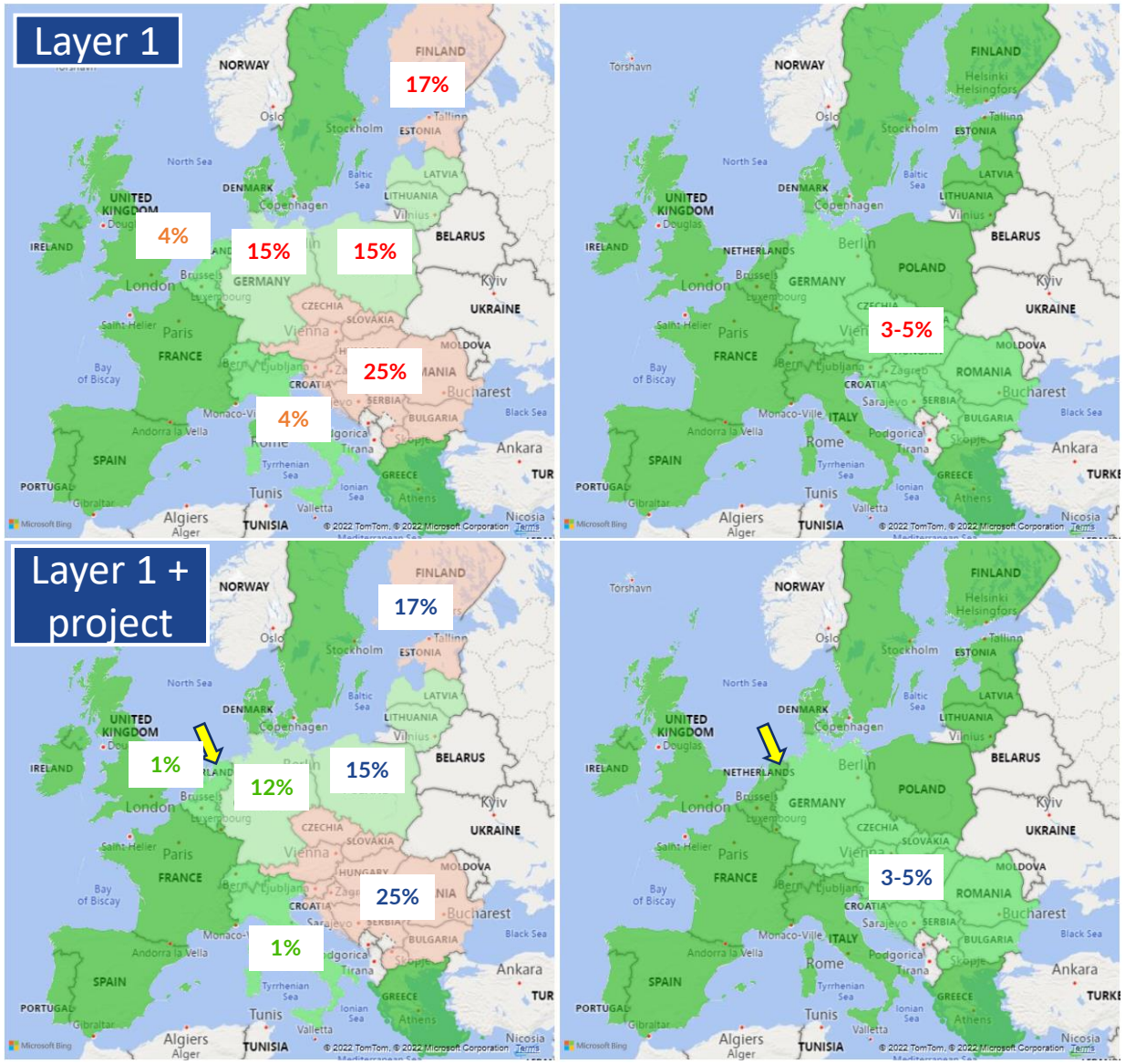
2030 – Fit-for-55 demand and production



Impact of Eemshaven FSRU

Current demand and production

2030 – Fit-for-55 demand and production



Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH and IT

Current levels of demand and production

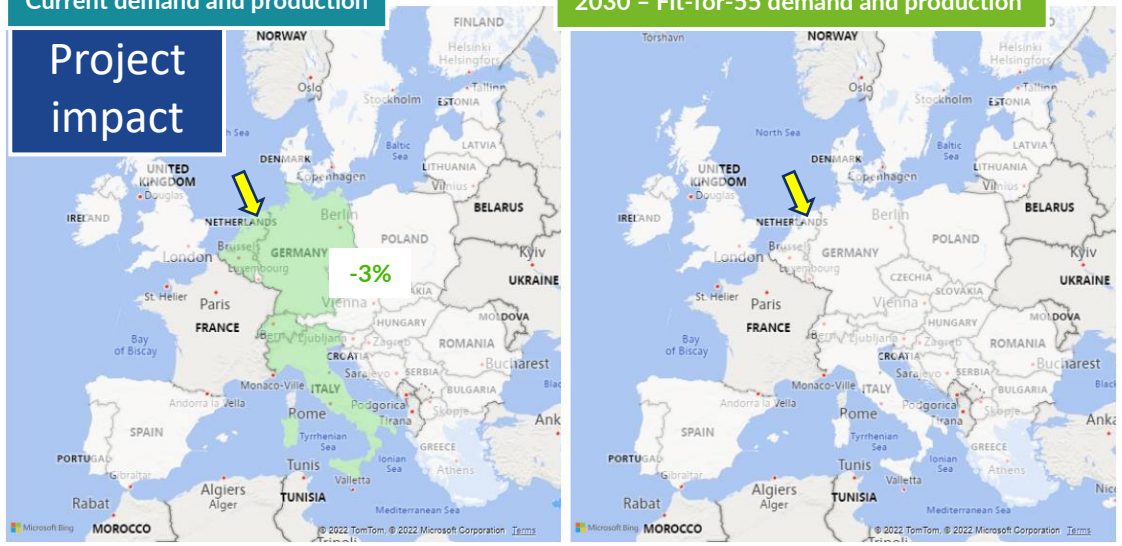
- Reduction of Russian dependence in NL, DE, CH and IT (-3%)

2030

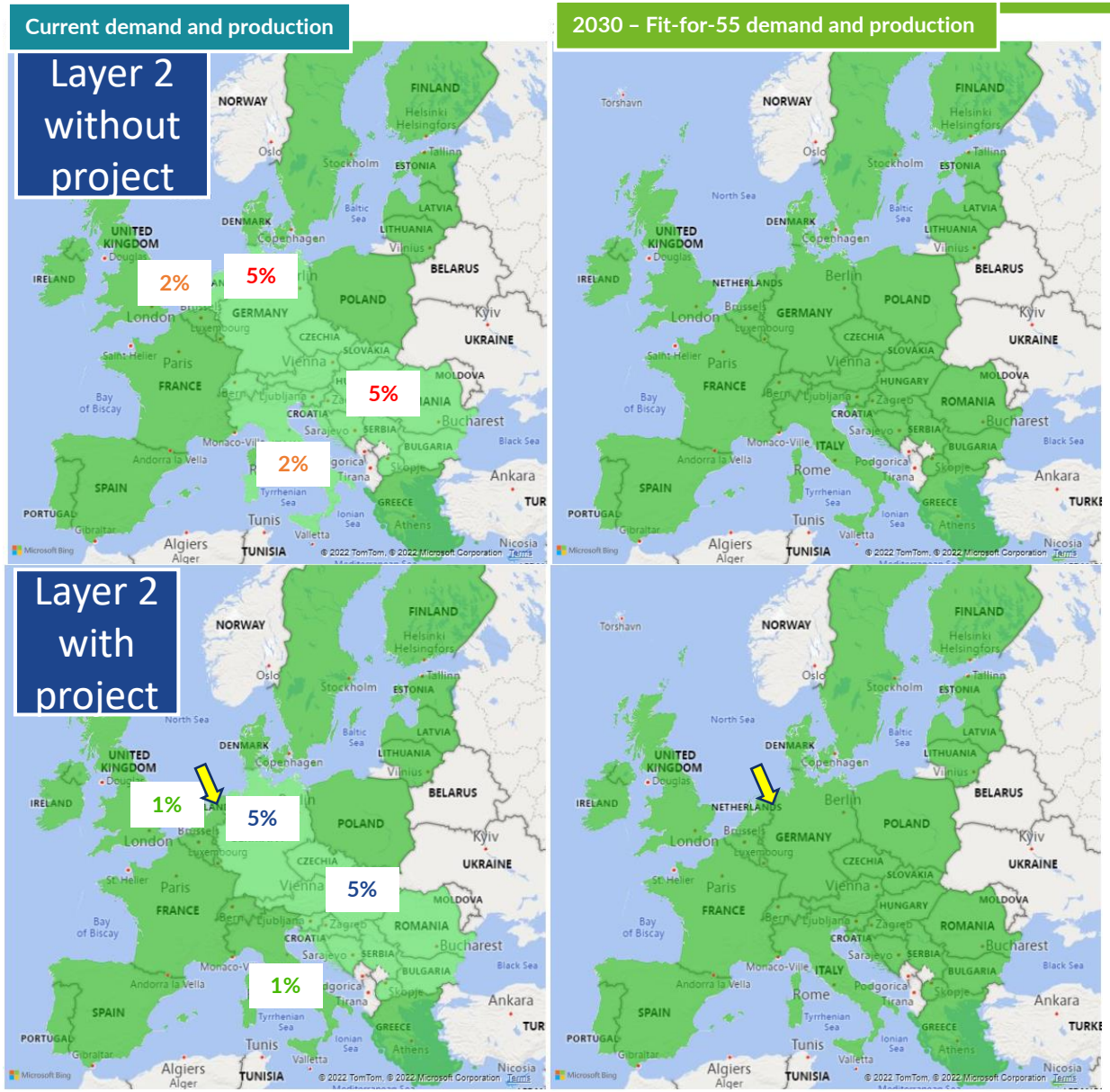
- No additional impact

Current demand and production

2030 – Fit-for-55 demand and production



Impact of Eemshaven FSRU



Improvement of cooperation and reduction of dependence on Russian gas in NL, DE, CH and IT

Current levels of demand and production

- Reduction of Russian dependence in NL, DE, CH and IT (-1%)

2030

- No additional impact