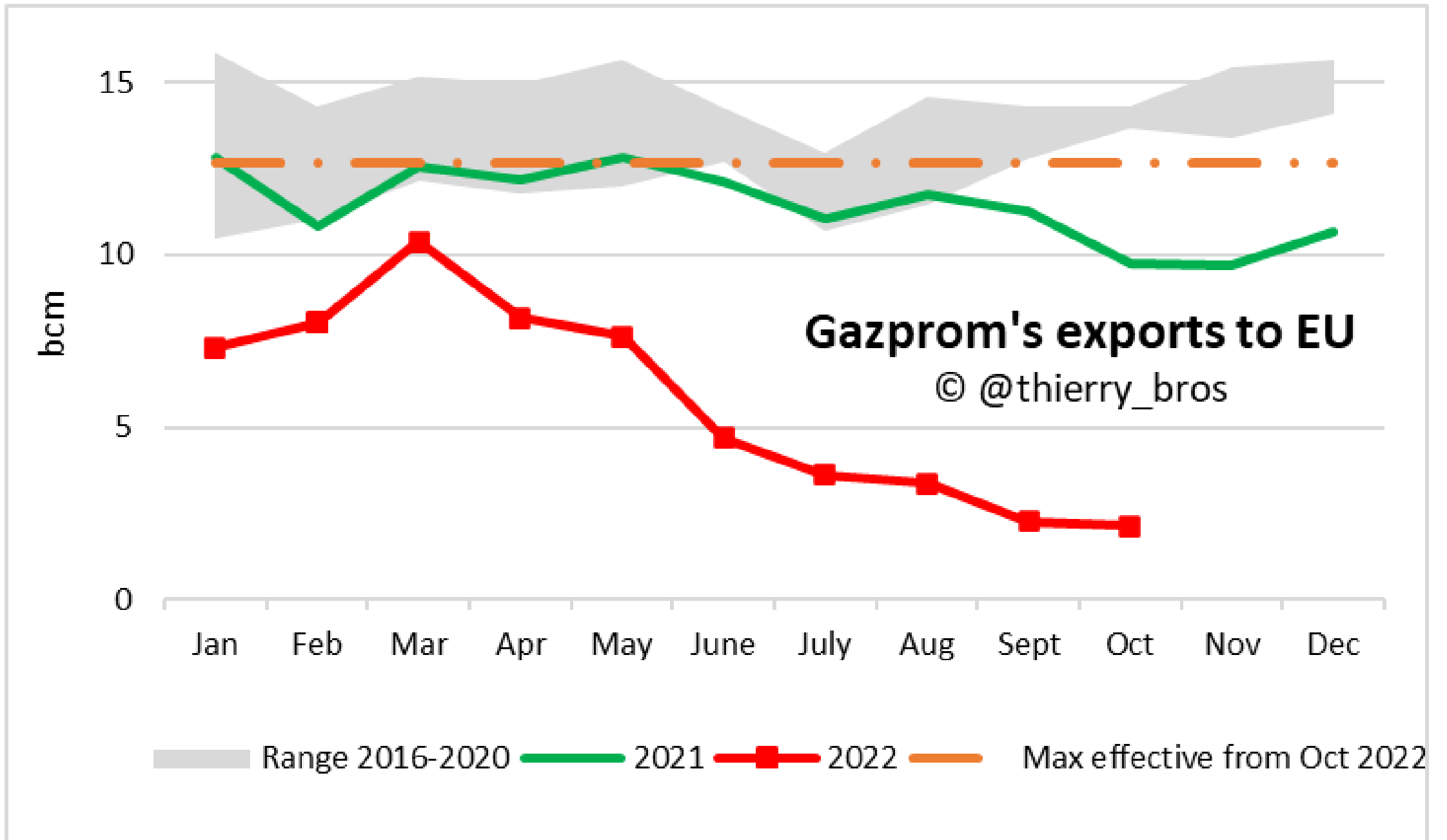


# Russia's war against Ukraine: When decarbonisation meets geopolitics

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# Sample questions

- Identify and describe five energy-related challenges faced by contemporary sub-Saharan Africa.
- What was the “Debt crisis”? How did it relate to international energy relations?
- Compare the prospects of nuclear and renewable sources of energy as two main low-carbon energy options to decarbonize the global energy mix. Structure your answer focusing on economic, social and political aspects of these sources.
- Choose five factors hindering the global dissemination of low-carbon means of transportation (electricity cars). Describe and explain these factors.



# As time went on...(Financial Times)

2/2022: „Can Europe survive without Russian gas?“

3/2022: „British drivers advised to limit speed to 55mph to battle against Putin“

4/2022: „Energy chiefs warn of ‘truly horrific’ autumn for British households“

5/2022: „EU accepts it will burn more coal in move away from Russian gas“

6/2022: „Europe at risk of winter energy rationing...“

7/2022: „Energy crisis intensifies as gas prices surge“

8/2022: „German recession fears deepen as economy is hit by ‘perfect storm’“

9/2022: „European metals industry warns of ‘existential threat’“

10/2022: „Europe at risk of ‘much worse’ energy crisis next year, warns Qatar“

11/2022: „US and EU argue over claims of gas crisis profiteering“

*„Weak and naive EU, with its Green Deal and obsession with the climate change, has manoeuvred itself into a situation where Russia has it on the hook. And it will pay for this naivety with the destruction of its industry and economic recession“ –  
Every armchair energy general out there.*

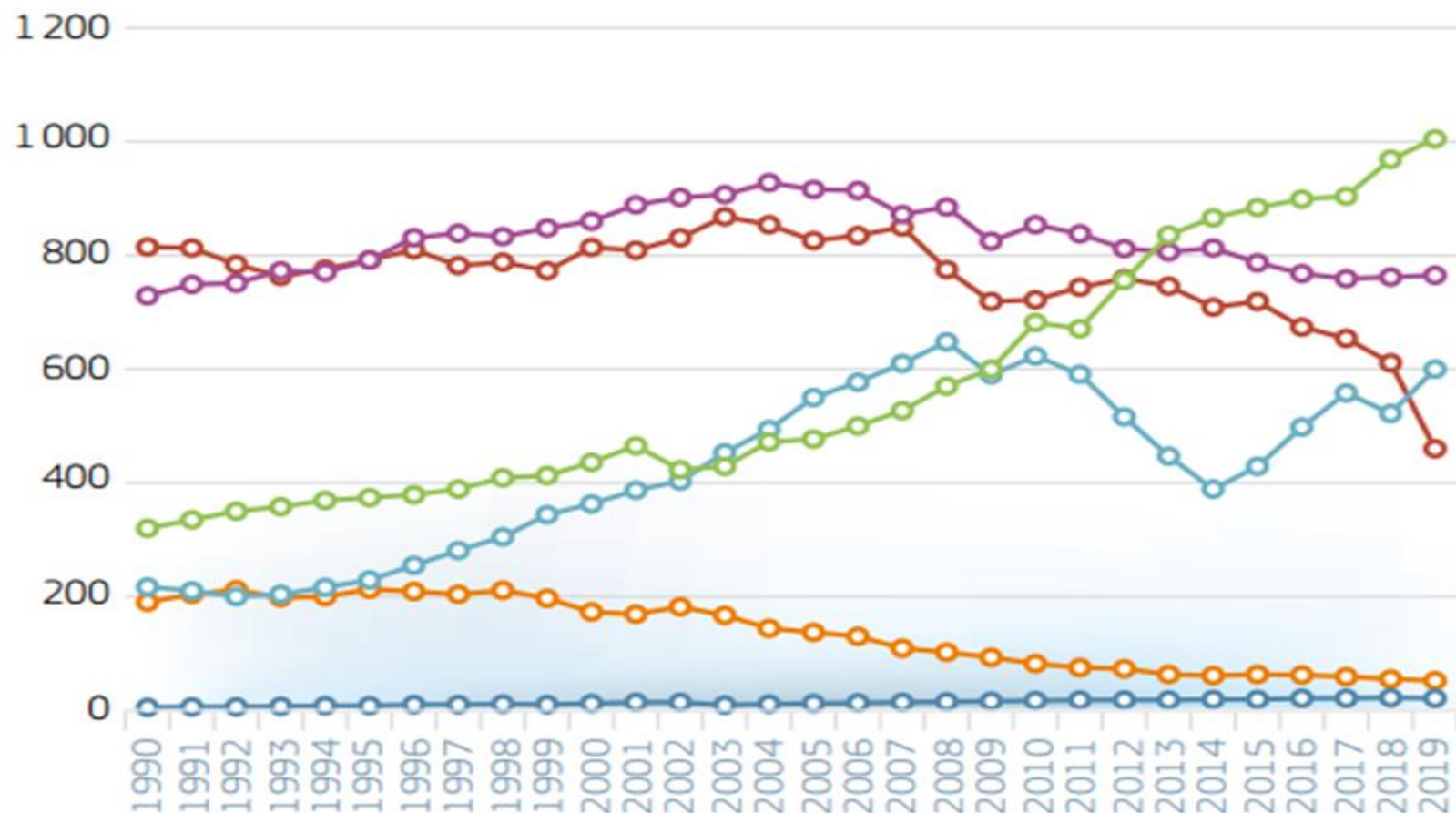
# Climate dimension of EU energy policy

- 2019 Clean Energy Package (2030 targets – GHGs, RES, EE).
- 2019 European Green Deal (set of policies to make EU climate neutral by 2050).
- 2021 European Climate Law (legally binding target of net zero greenhouse gas emissions by 2050; 55 % by 2030).
- 2021 Fit for 55 package.

=> It will drive the energy transition.

## 2.6.2 Gross Electricity Generation

EU27\_2020 – BY FUEL – ALL FUELS – 1990-2019 (TWh)



Solid Fossil Fuels, Peat, Oil Shale and Sands

Renewables and Biofuels

Nuclear

Natural and Manufactured Gases

Oil and Petroleum Products

Wastes non-RES

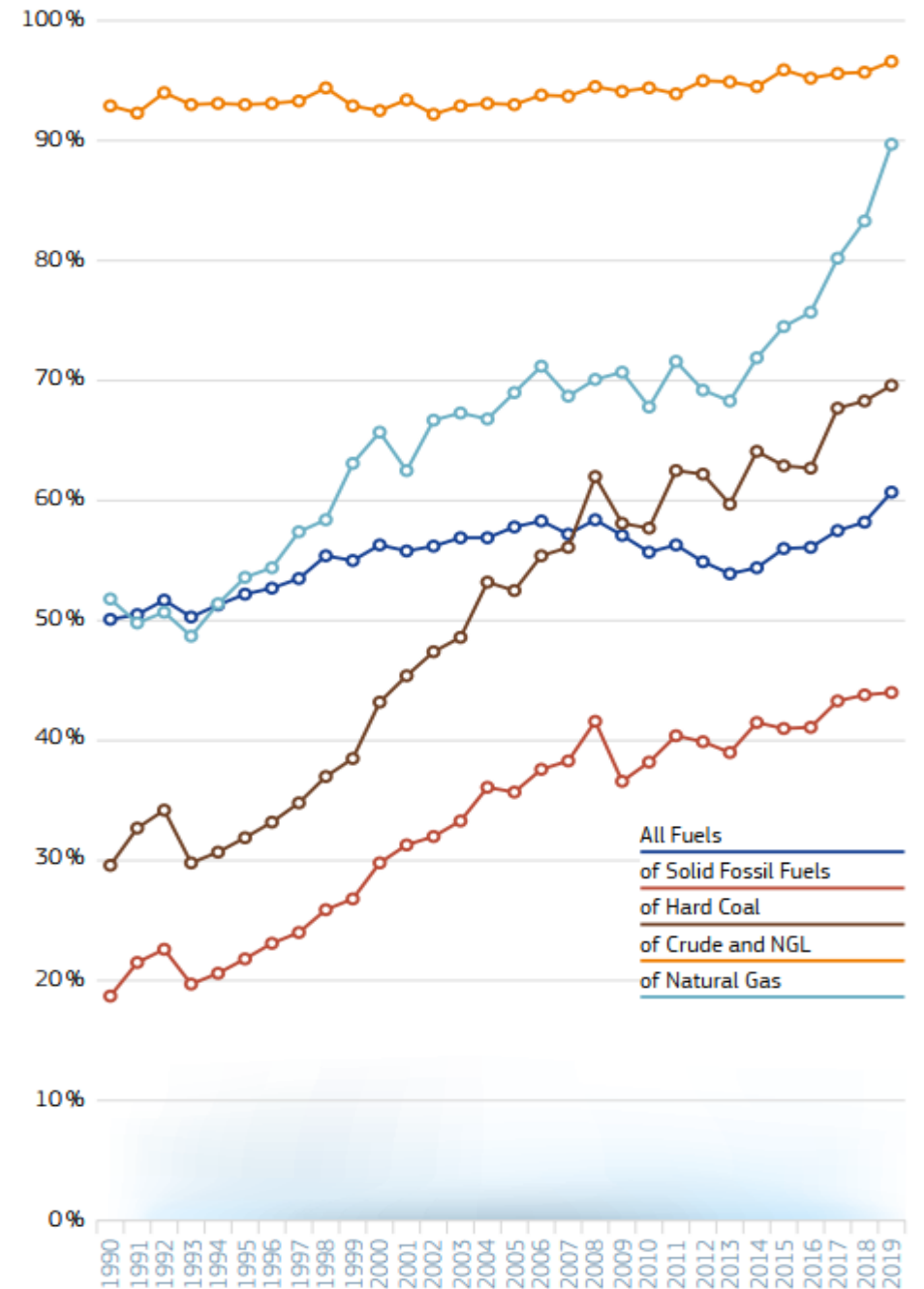
# Market dimension of EU energy policy

- Liberalized, de-monopolized and common Internal Energy Market <= regulatory and financial framework + infrastructure.
  - ⇒ It should deliver market (economically efficient) prices.
  - ⇒ It should deliver security and safety of supplies.



# External dimension of EU energy policy

- To ensure safe and uninterrupted energy supplies at reasonable prices.
- ⇒ Activities focused on external supply.
- ⇒ Domestic activities.



# So what went wrong?

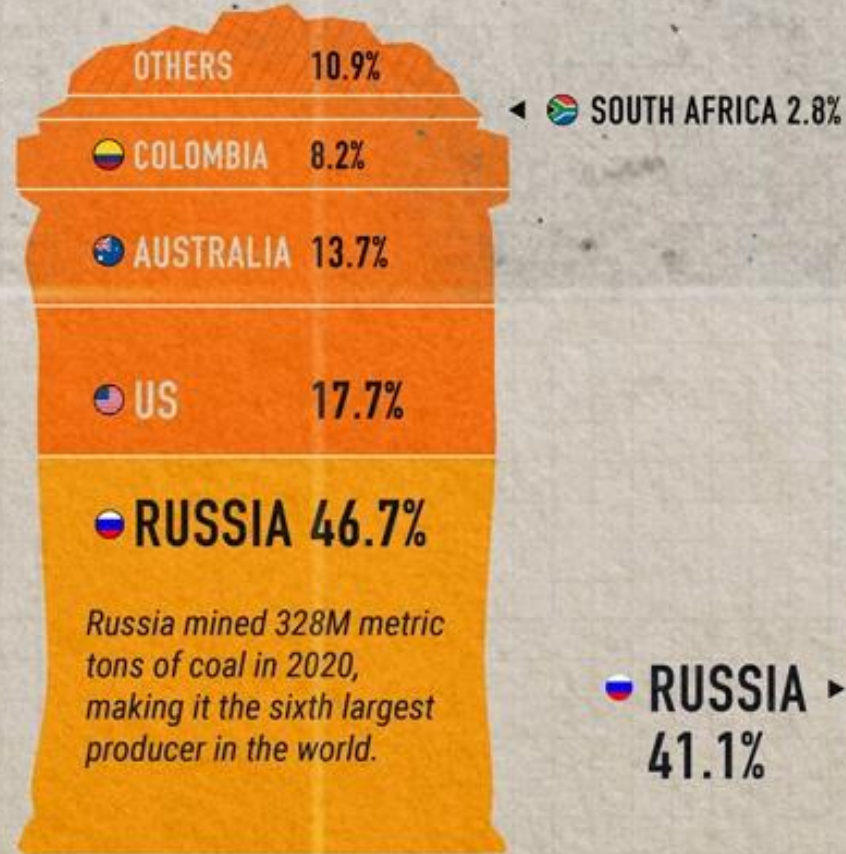
- Russia did not expect 1) a decisive response from 2) united EU (and Ukraine, indeed).
  - Previous hostile attacks against the EU or established international system accepted without serious repercussions.
  - EU's energy dependency (different for different countries).
  - Reaction of Germany.
  - Timing.

# EU IMPORTS

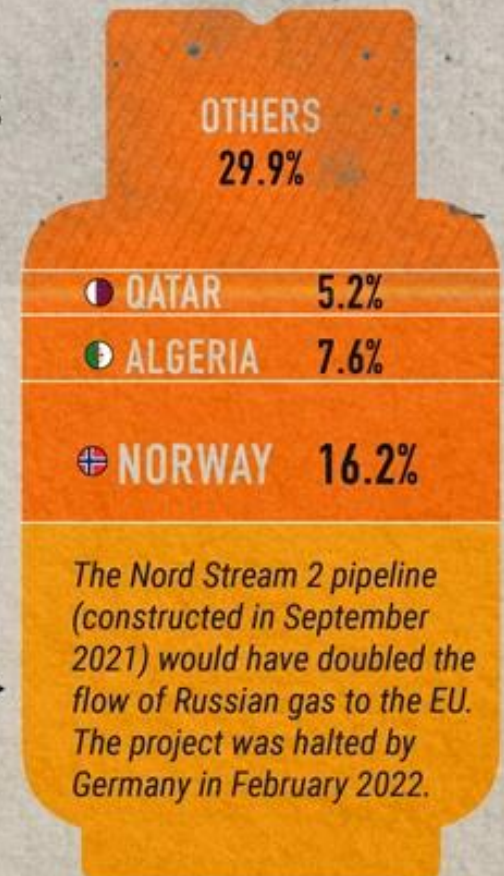
## CRUDE OIL



## SOLID FUEL (COAL)



## NATURAL GAS



# So what went wrong?

- The EU was preparing for a different kind of war.
- Time limited (but significant) increase in the dependency on natural gas.
- Russia's imperial ambitions in Ukraine are only part of the energy problem.

# Gas pipelines and LNG carriers

European Union in 2019  
Gas producer supplying EU

## Alliances and bypasses

Three Seas Initiative country  
Country bypassed by Russia  
Country with gas pipeline agreement with Russia

## Major gas pipelines supplying EU

Existing  
Under construction  
Planned  
Ukraine bypass system

## Transport capacity in Gm<sup>3</sup>/year

Over 50  
20 to 50  
5 to 20

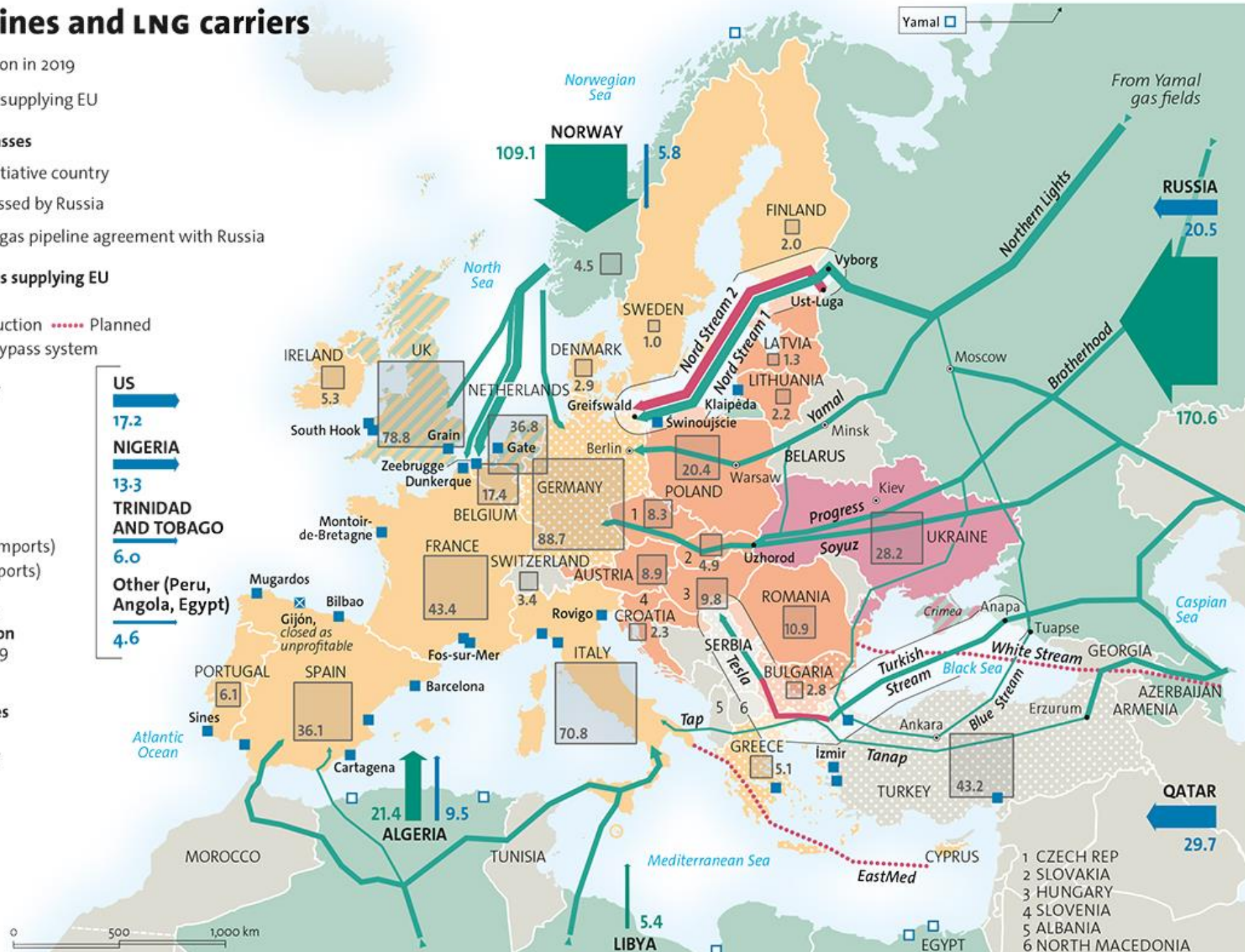
## LNG terminals

Regasification (imports)  
Liquefaction (exports)

Annual gas consumption in Gm<sup>3</sup>, 2019

## EU imports from non-member states in Gm<sup>3</sup>, 2019

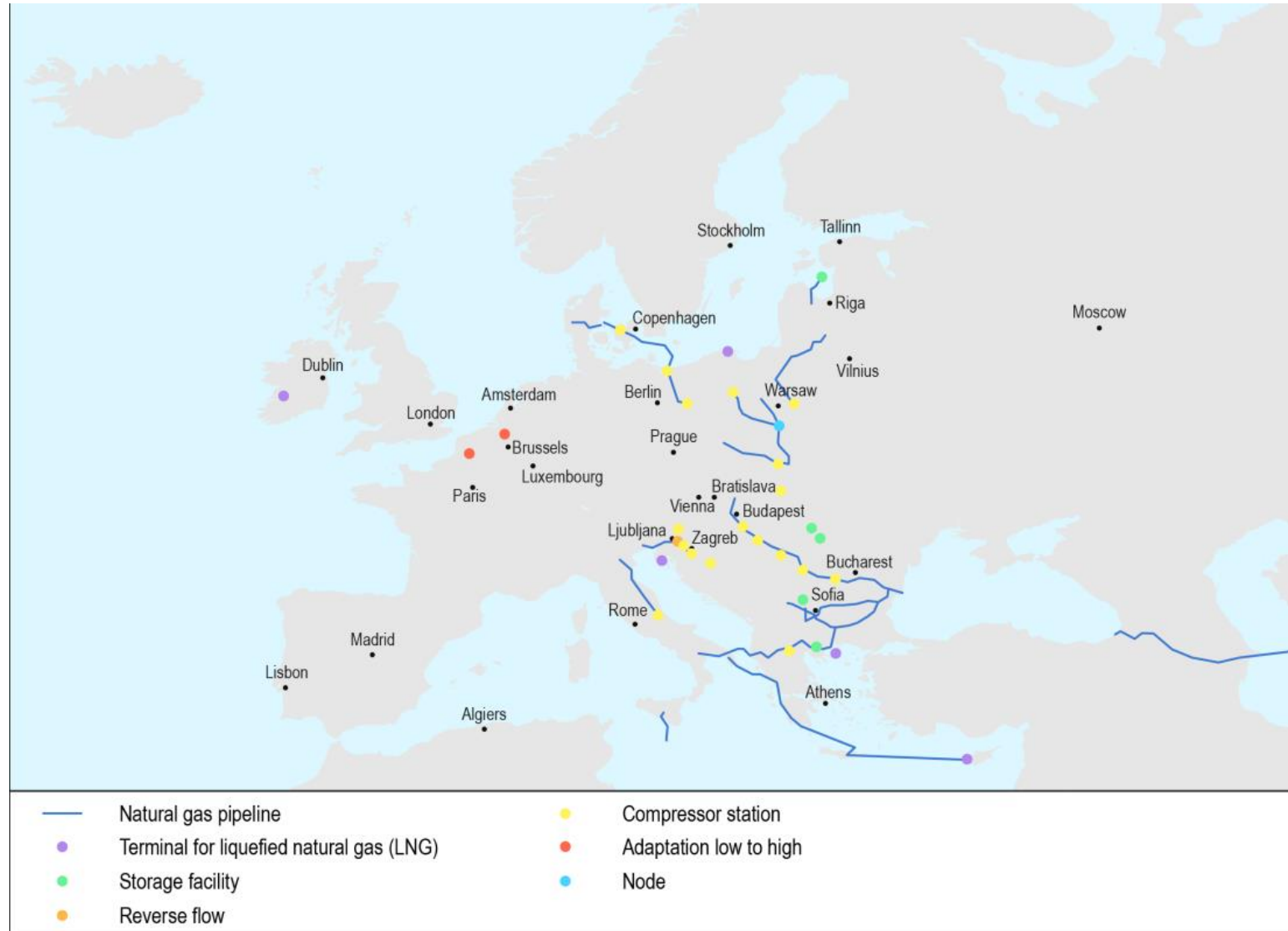
By LNG carrier  
By pipeline



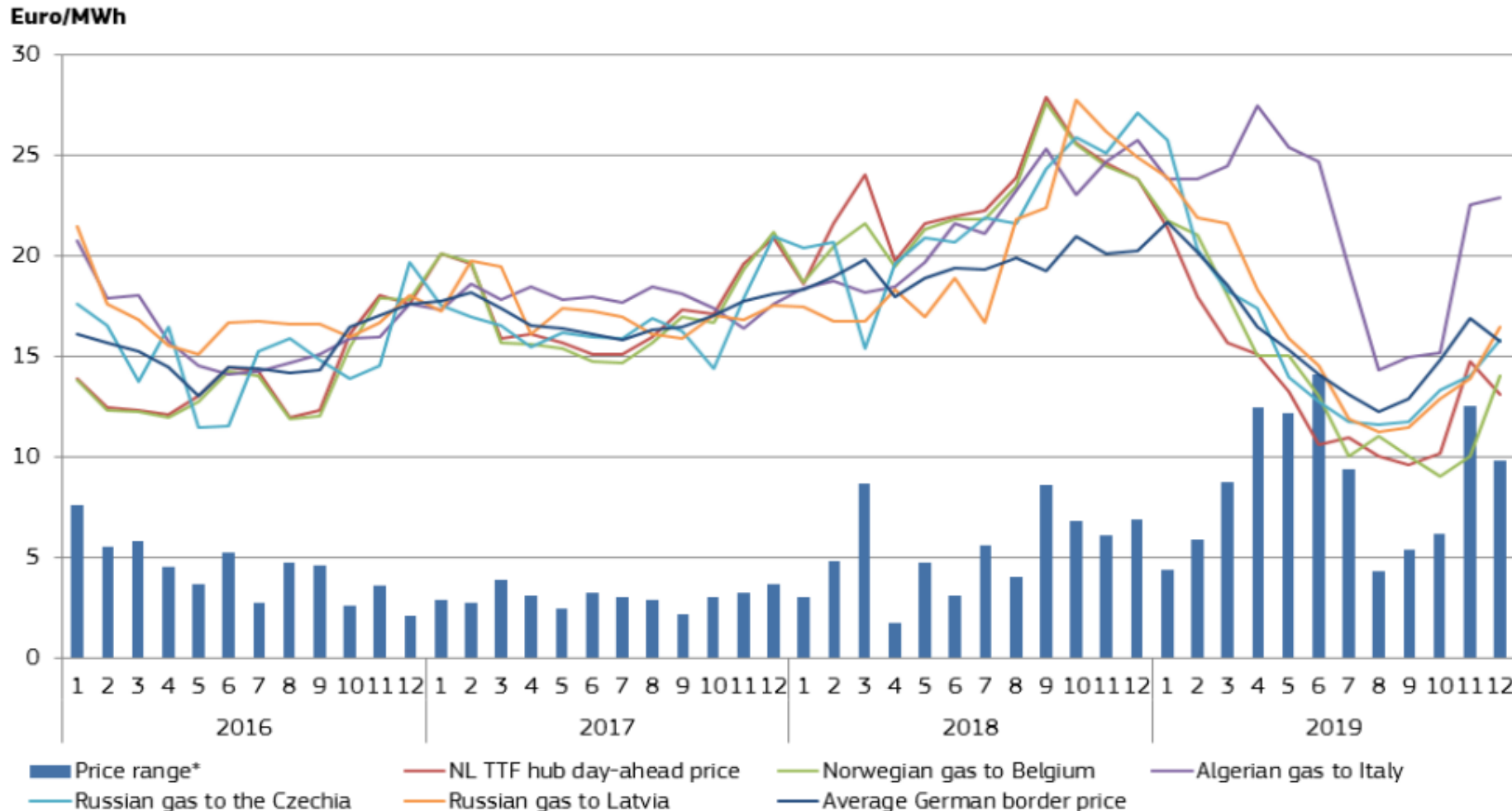
- 1 CZECH REP
- 2 SLOVAKIA
- 3 HUNGARY
- 4 SLOVENIA
- 5 ALBANIA
- 6 NORTH MACEDONIA

Source: Le Monde diplomatique

# Ongoing (2020) PCI natural gas projects



# Comparison of EU wholesale gas price estimations

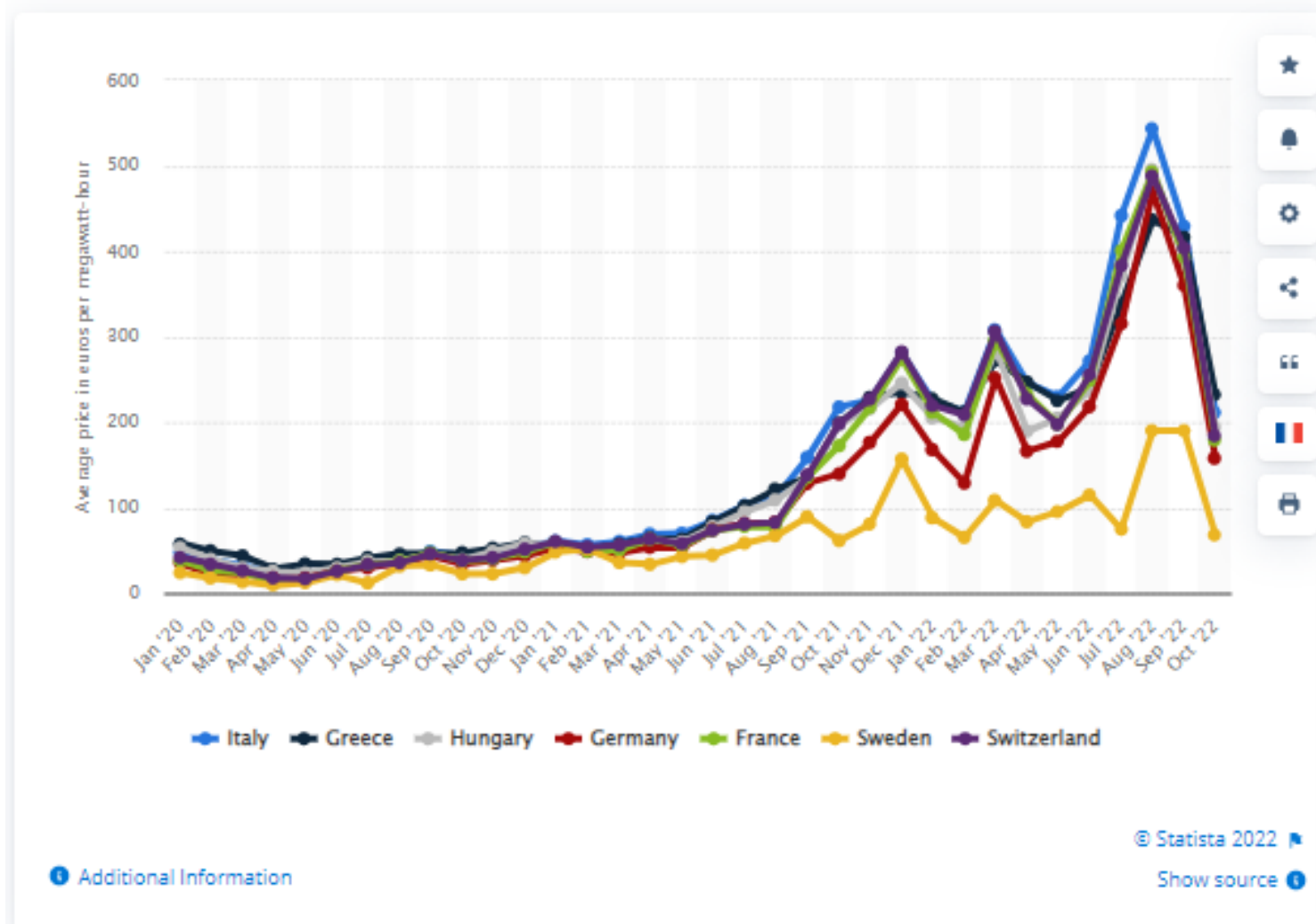


# EU's resilience

- Russia's ability to blackmail member states gradually gets limited.
- Member states part of the EU gas market, prices linked to spot market, diversification of supplies, EU supervision of contracts, increased competition and switching...

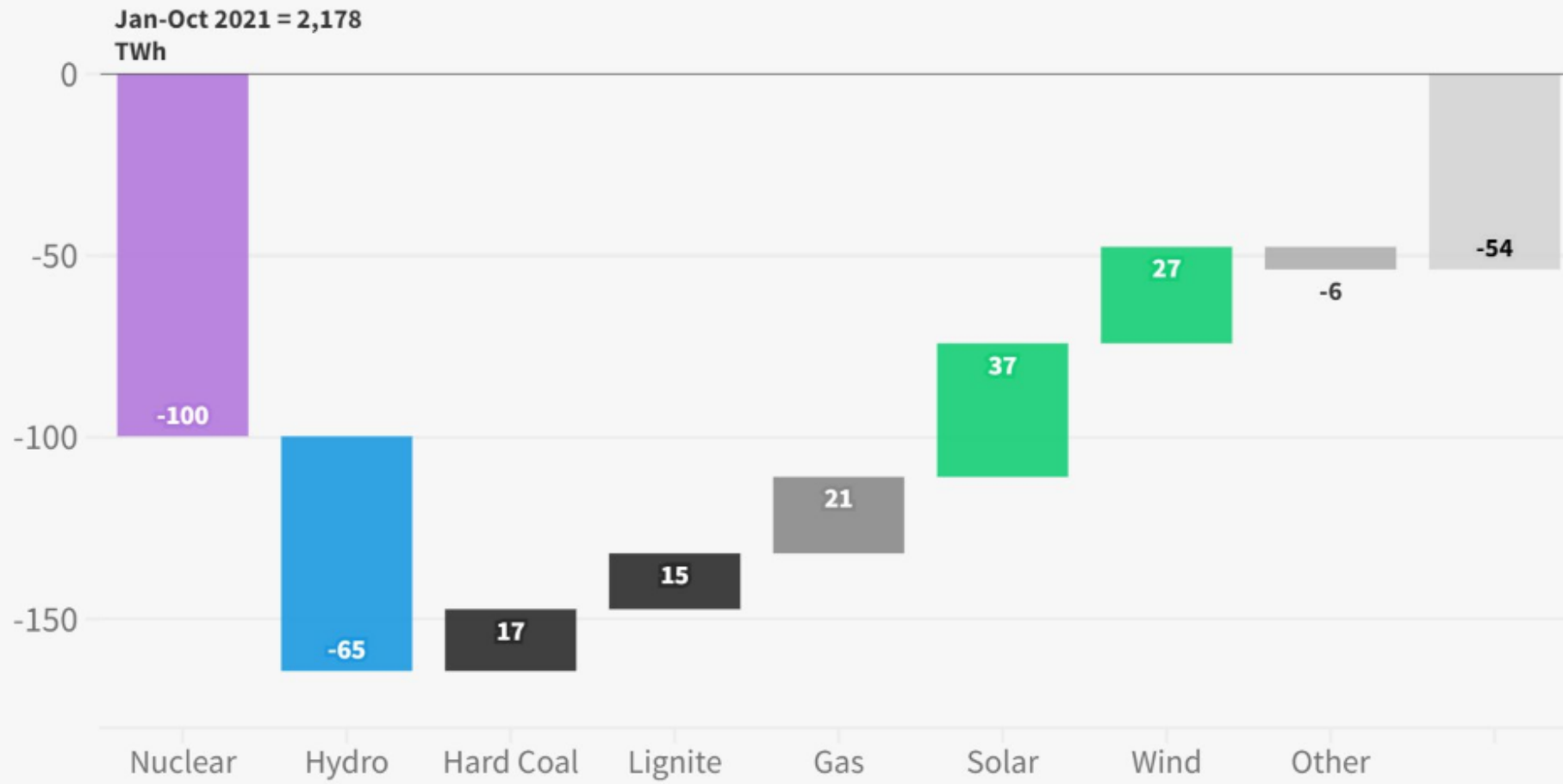


# Average monthly electricity wholesale prices, €/MWh



# Europe saw a large deficit of nuclear and hydro power in 2022; it was replaced with coal, gas, solar and wind.

Change in EU-27 electricity generation for Jan-Oct, 2022 vs 2021 (terawatt hours)



Source: Ember monthly electricity data  
Other includes bioenergy, other renewables and other fossil fuels

# REPowerEU – Short-term measures

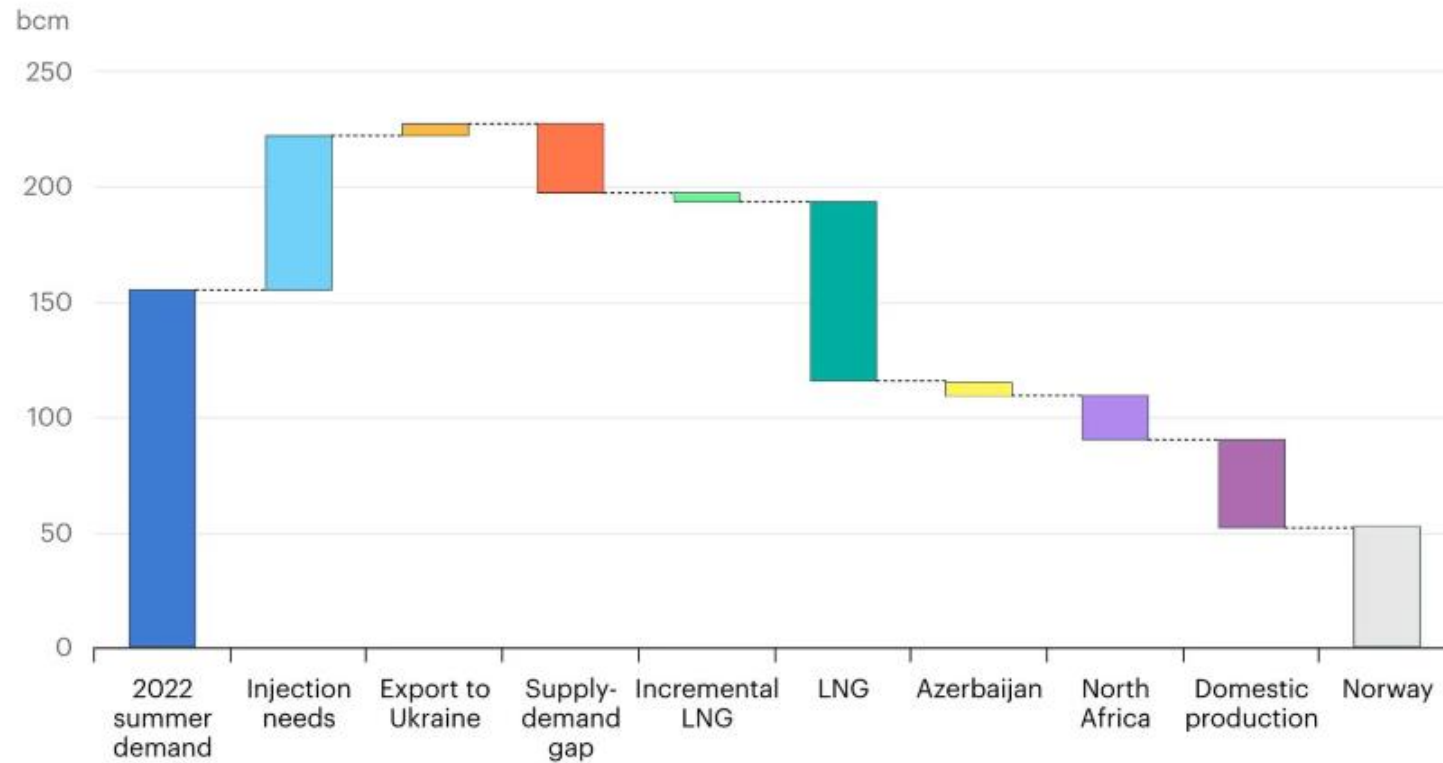
- Common purchases of gas, LNG and hydrogen via the EU Energy Platform.
- New energy partnerships with reliable suppliers, including future cooperation on renewables and low carbon gases.
- Rapid roll out of solar and wind energy projects combined with renewable hydrogen deployment to save around 50 bcm of gas imports.
- Increase the production of biomethane to save 17 bcm of gas imports.
- Approval of first EU-wide hydrogen projects by the summer.
- An EU Save Energy Communication with recommendations for how citizens and businesses can save around 13 bcm of gas imports.
- Fill gas storage to 80% of capacity by 1 November 2022.
- EU-coordination demand reduction plans in case of gas supply disruption.

# REPowerEU – Medium-term measures by 2027

- New national REPowerEU Plans under the modified Recovery and Resilience Fund – to support investment and reforms worth €300 billion.
- Boosting industrial decarbonisation with €3 billion of frontloaded projects under the Innovation Fund.
- Faster permitting of renewables.
- Investments in an integrated and adapted gas and electricity infrastructure network.
- Raising the EU-wide target on efficiency for 2030 from 9% to 13%
- Increase the European renewables target for 2030 from 40% to 45%
- New EU proposals to ensure industry has access to critical raw materials.
- To increase energy efficiency in the transport sector.
- A hydrogen accelerator to build 17.5 GW by 2025 of electrolysers to fuel EU industry with homegrown production of 10 million tonnes renewable hydrogen
- A modern regulatory framework for hydrogen.

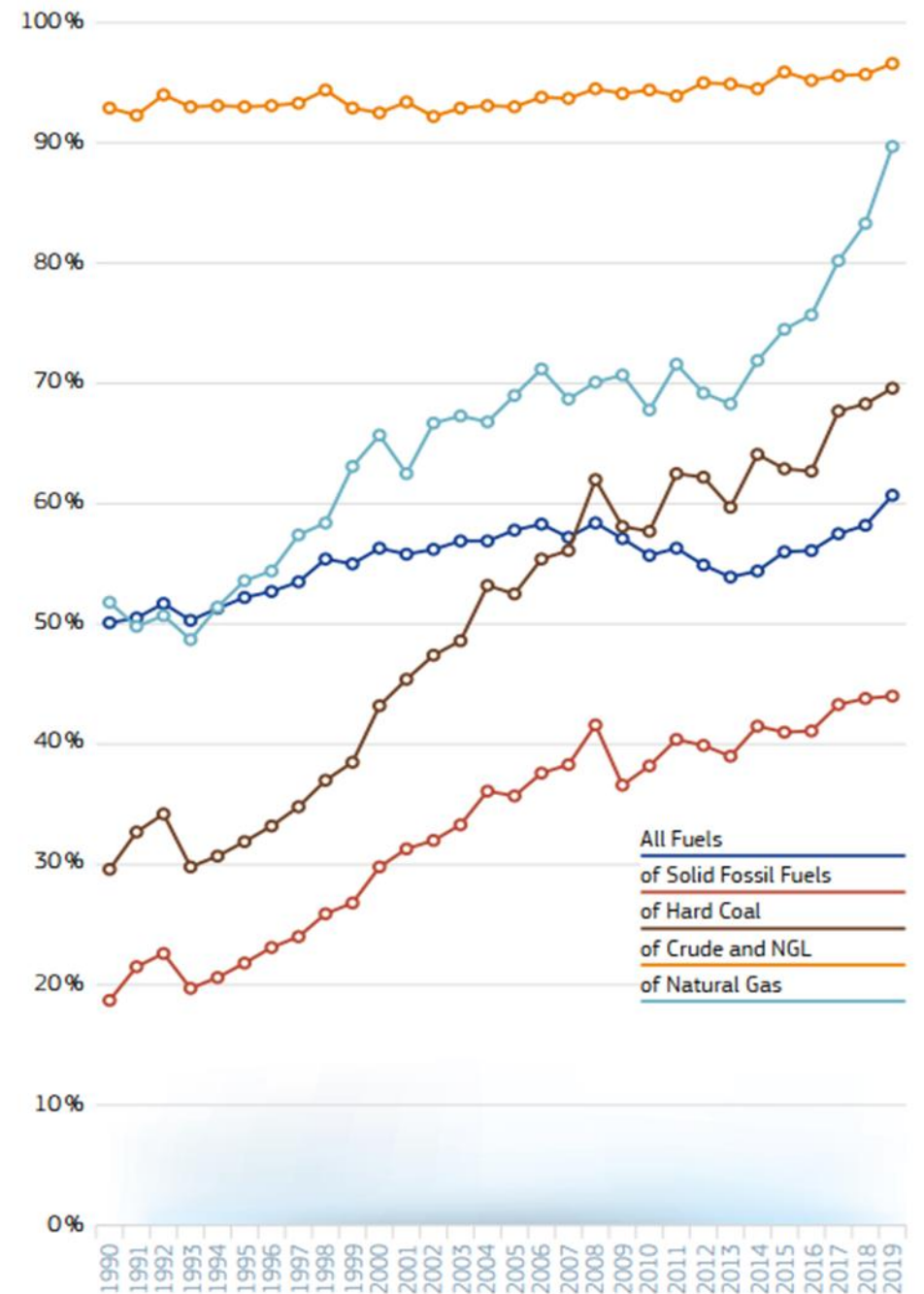
# Short term future

**Breakdown of the summer 2023 natural gas balance of the European Union and the United Kingdom in case of full cessation of Russian flows and limited LNG availability**



# „Windmills of Freedom“ vs. return to „traditional energy“

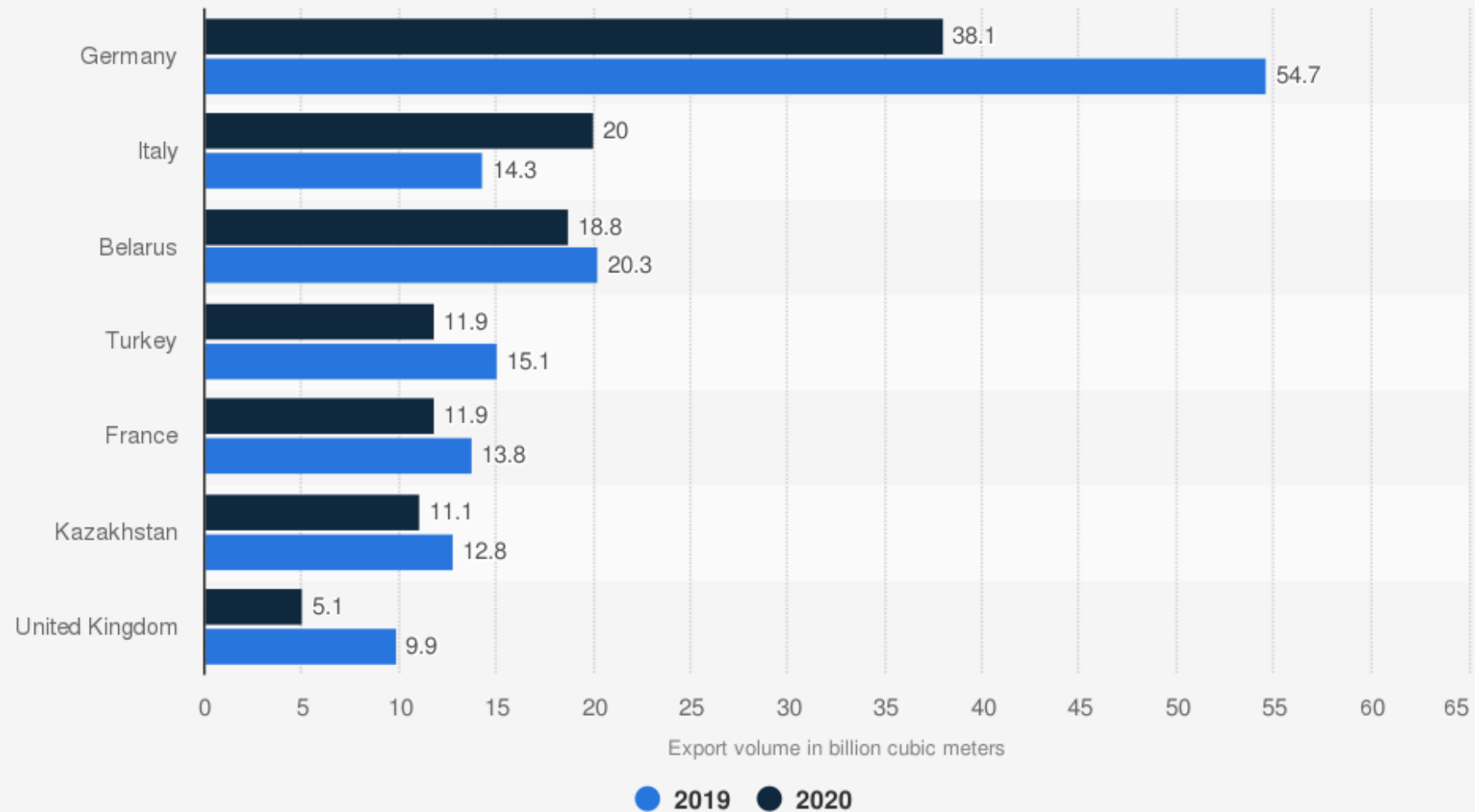
- Decarbonization rebranded as a source of security.



# Sources

- EC (2022): REPowerEU: affordable, secure and sustainable energy for Europe.

## Export volume of pipeline natural gas exports in Russia from 2019 to 2020, by country of destination (in billion cubic meters)



### Sources

Analytical Center for the Government of the Russian Federation; Federal Customs Service of Russia

© Statista 2021

### Additional Information:

Russia; Federal Customs Service of Russia; 2019 to 2020