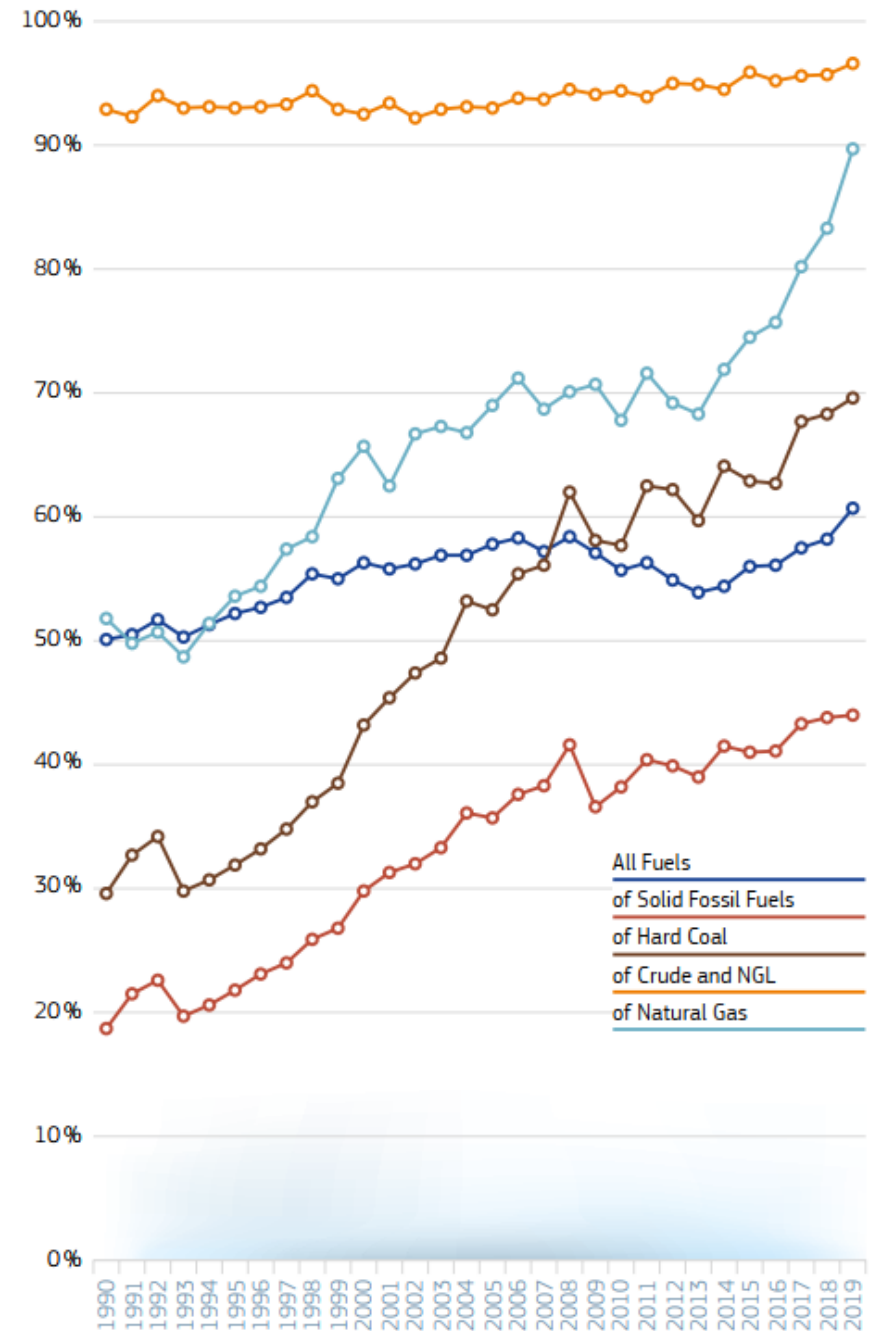


EU, security of energy supply, and war

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EU27 – import dependency

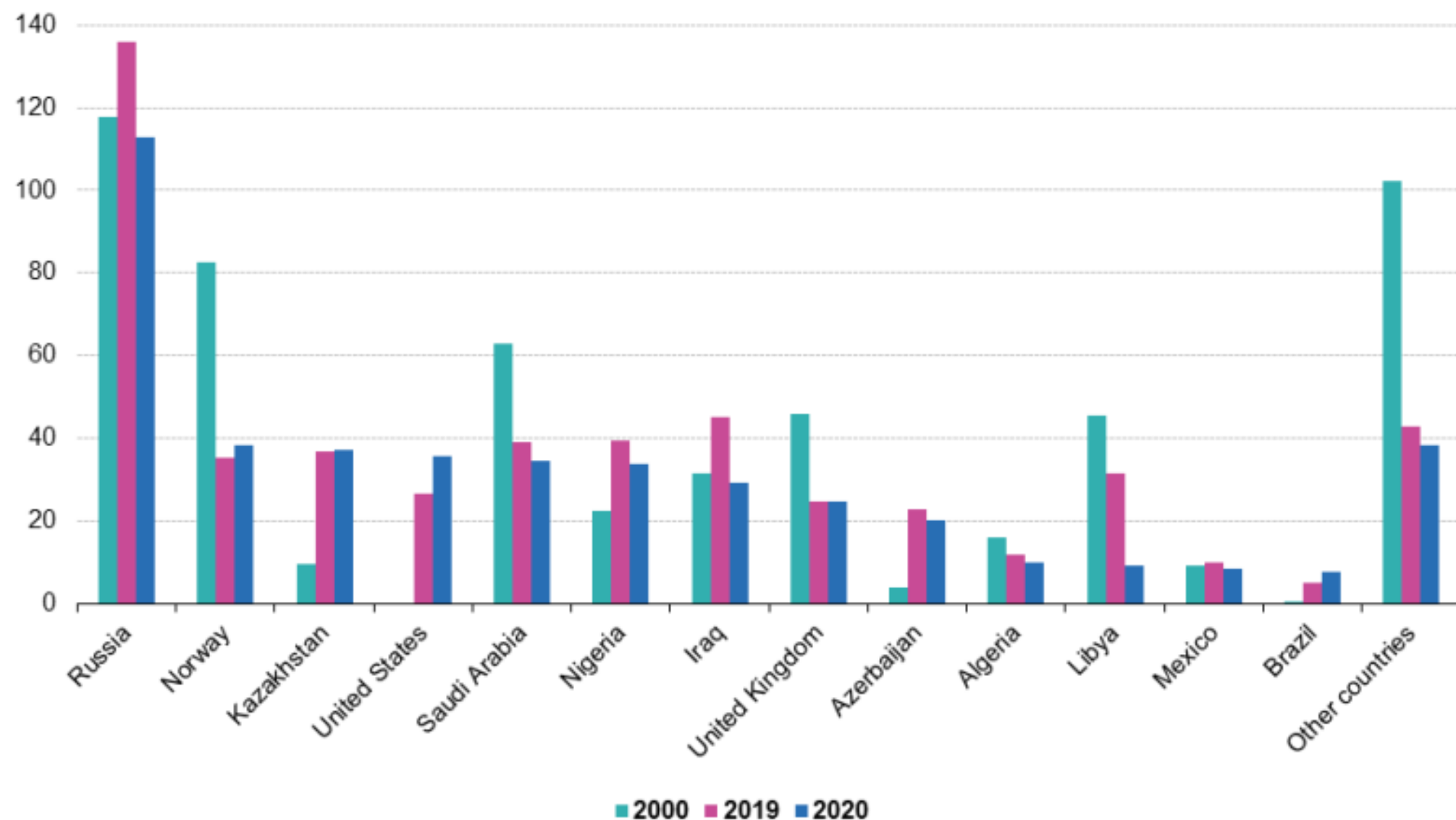


Oil imports

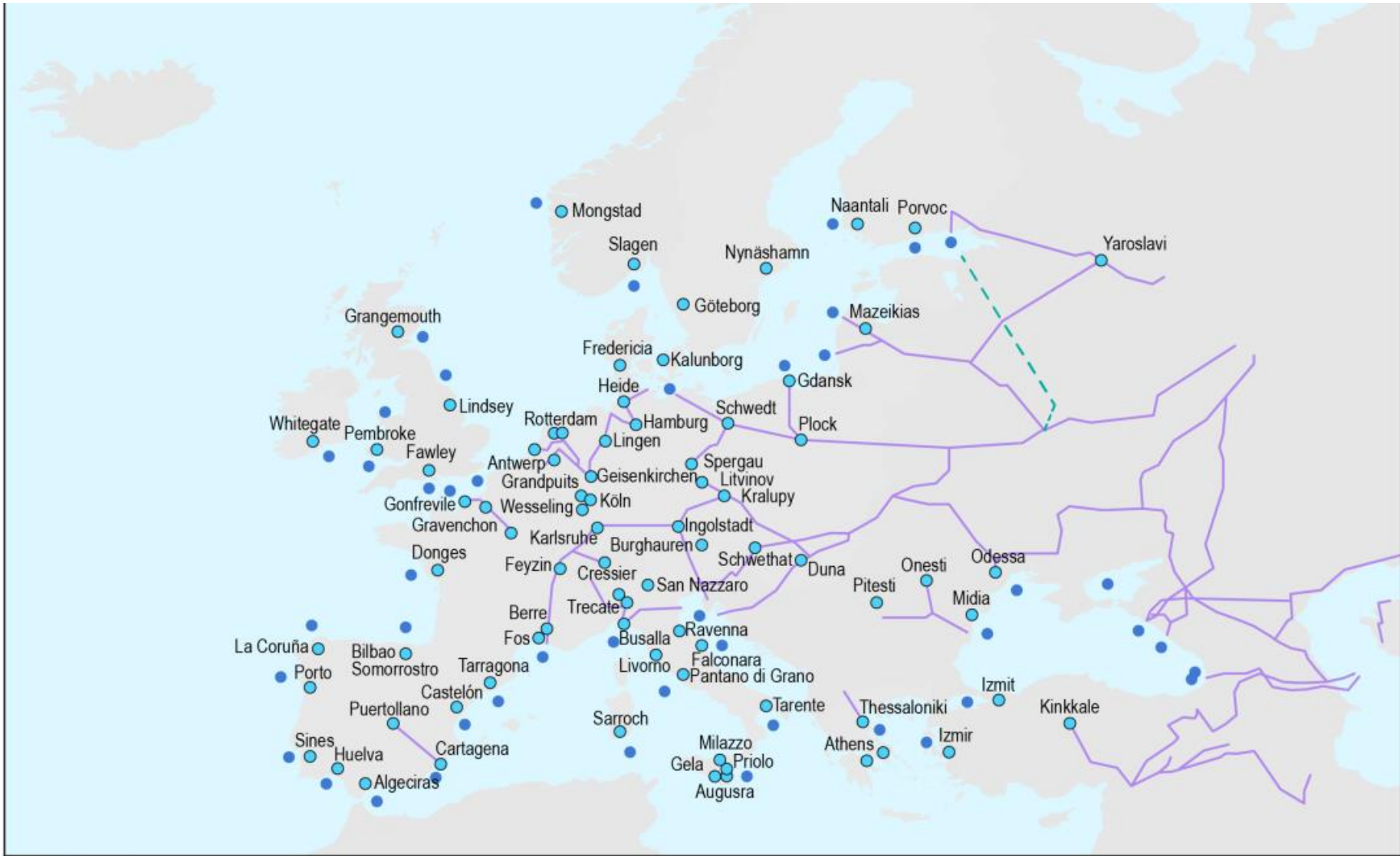
- Oil is the largest energy source in the EU (about 1/3 of TPES), consumption rather stable. Slightly more than half used in transport.
- Imported mainly by tankers, 28% by pipeline and rail.
- Long-term effort to diversify supply sources and routes.

Crude oil imports by country of origin, EU, 2000, 2019 and 2020

(million tonnes)



Source: Eurostat (online data code: nrg_ti_oil)



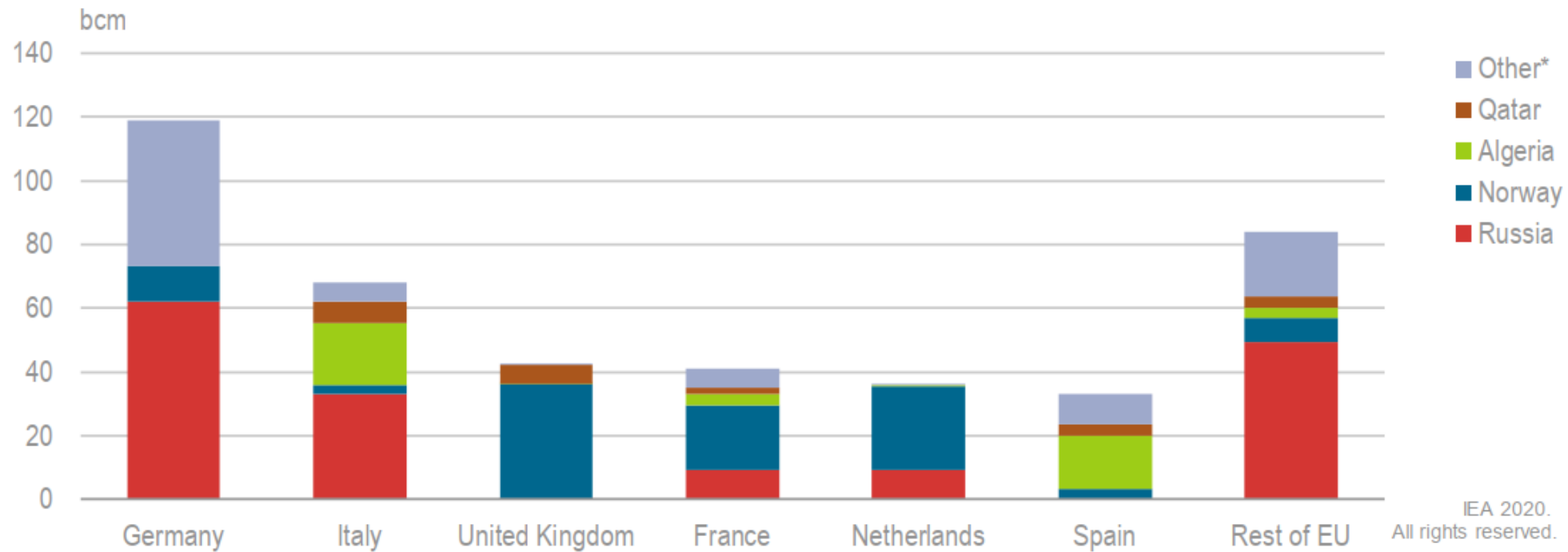
- Crude oil pipeline
- - - Under construction pipeline
- Refinery
- Tanker terminal

Nuclear energy

- Nuclear energy not considered a security problem (in terms of fuel, there are concerns about activities during building of the plants + limited amount of companies).
- Diversification of supplies.
 - Uranium deliveries from Niger (20%), Russia (20%), Kazakhstan (19%), Canada (18%), Australia (13%), Namibia (8%).
 - Enrichment (to raise the proportion of the uranium-235 isotope). The Netherlands, Germany, UK, France.
 - Fabrication.
- High energy content of fuel – Temelin (2×10^5 MW) – about 4m²/y.

Natural gas

- $\frac{1}{4}$ of TPES. Fuel essential for decarbonization effort of the EU.
- Pipeline gas (2/3) vs. LNG (1/3). 38% of gas from Russia, 25% from Norway.



Challenges

Safe and uninterrupted energy supplies at reasonable prices.

- Solidarity and speaking with one voice vs different position of MS regarding the establishment of a common external energy policy and its principles. (East vs. West).
- EU member states vs. European Commission (high vs low politics).

= The result is unstructured, random patchwork of ad hoc measures, tools, and activities. Less europeanized area.

1) Security through a common market

A liberalized and de-monopolized energy sector is the best guarantee for efficient and reliable supply of energy.

- Competitive, and efficient market, which limits the leverage of suppliers.
- Depoliticization of the energy.
- Member states physically interconnected.
- The establishment of a common energy regulatory space (export of *acquis communautaire*).

2) Security through strategic instruments

- Gradual increase in tensions between the EU and (especially) Russia.
- Over Ukraine – gas crises of 2006, 2009, occupation of Crimea and military interference in eastern Ukraine.
- But more generally, given the wider politicisation of energy by Russia.

= EU concerned both about Russia's aggressive foreign policy and its own (esp. eastern part) energy vulnerability.

2) Security through strategic instruments

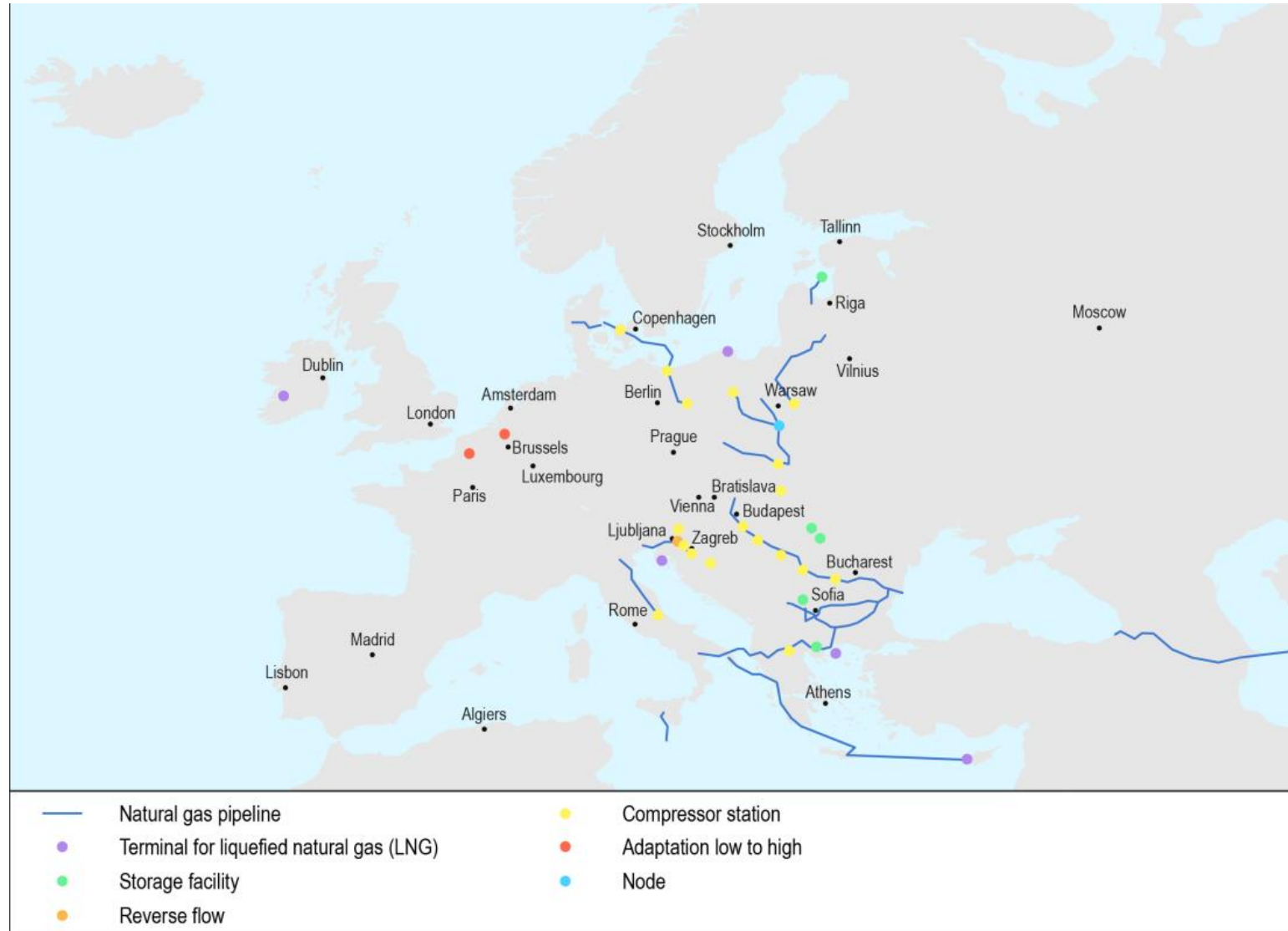
- Energy security as a (geo)political problem. Instead of over-reliance on markets strategic vision and speaking with one voice is needed.
- Promotion of national (EU) interests; focus on unity and solidarity.
- Political, legal, and economic tools to back strategic energy infrastructure projects.
- Involvement of political authorities and (state owned) energy companies.

2) Security through strategic instruments

- Strategic reserves of oil, oil products, natural gas (N-1 scenario).
- Solidarity principle - countries are obliged to help neighbouring countries, to which they are directly connected.
- Infrastructure to provide diversification and robustness of the system – reverse flows, gas storages, LNG terminals.
- Energy diplomacy and international agreements and cooperation.
- Crisis response mechanisms (such as risk-preparedness plans for electricity crisis prevention and management).

= EU focused on protecting individual MS or some smaller group (still primary focus on market rules).

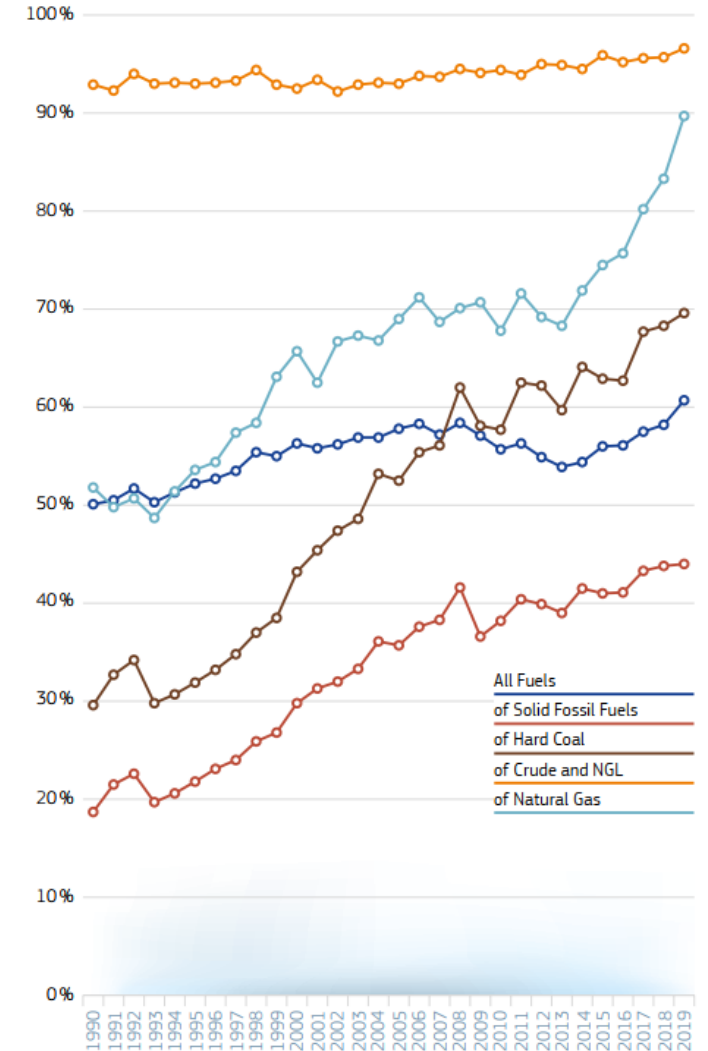
Ongoing (2020) PCI natural gas projects





3) Security through decarbonization and EE

- EU spends about USD 400 billion per year buying oil and natural gas from abroad.
- Decarbonization (also) as a tool to decrease the dependence on foreign suppliers of energy (Short/middle term perspective vs. long term perspective).



Impact of war

- 'Windmills of Freedom' vs. return to 'traditional energy' debate.

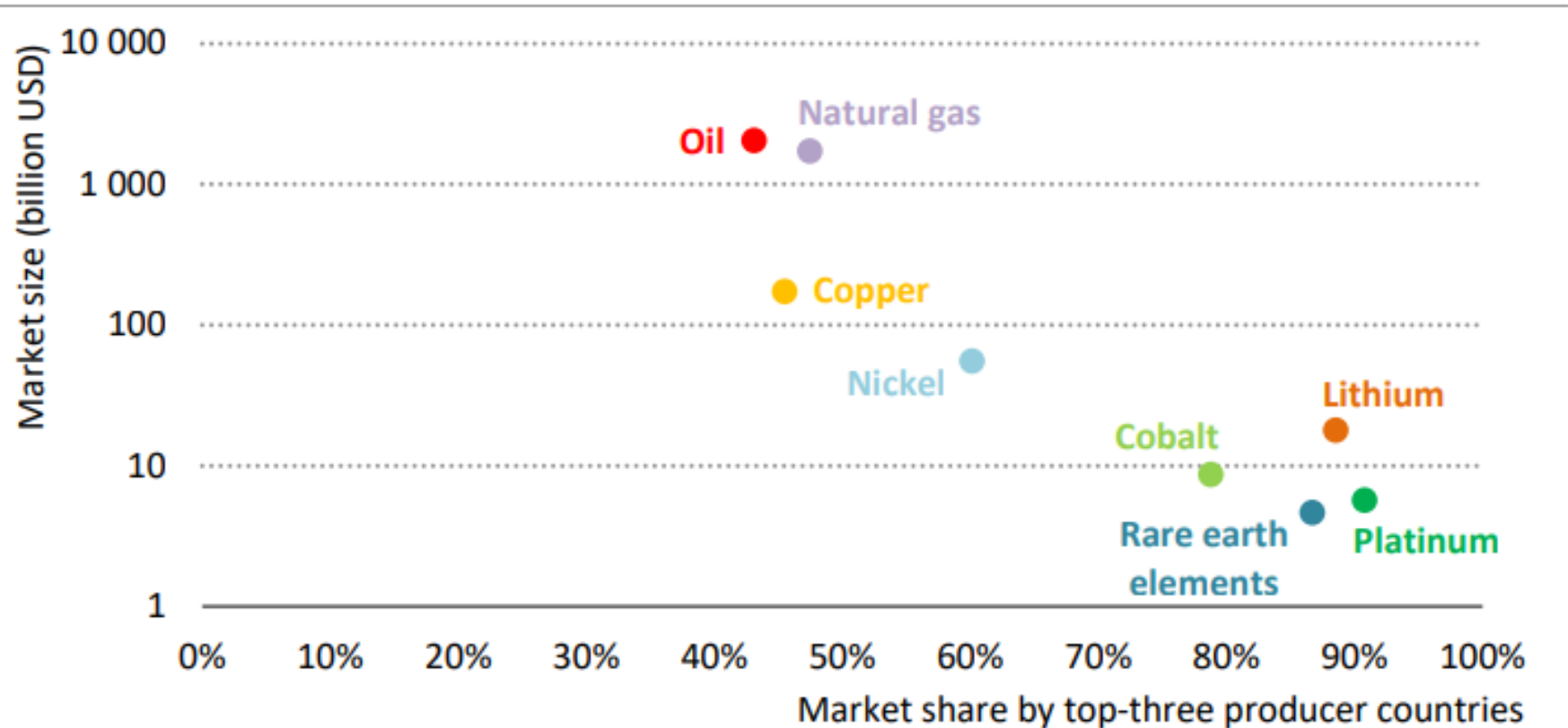
REPowerEU

- 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.
- Accelerating solar and wind projects plus renewable hydrogen to cut gas imports, faster permitting.
- Increase the biomethane production.
- An EU Save Energy Communication with recommendations for how citizens and businesses can save around 13 bcm of gas imports.
- EU-coordination demand reduction plans in case of gas supply disruption.

REPowerEU

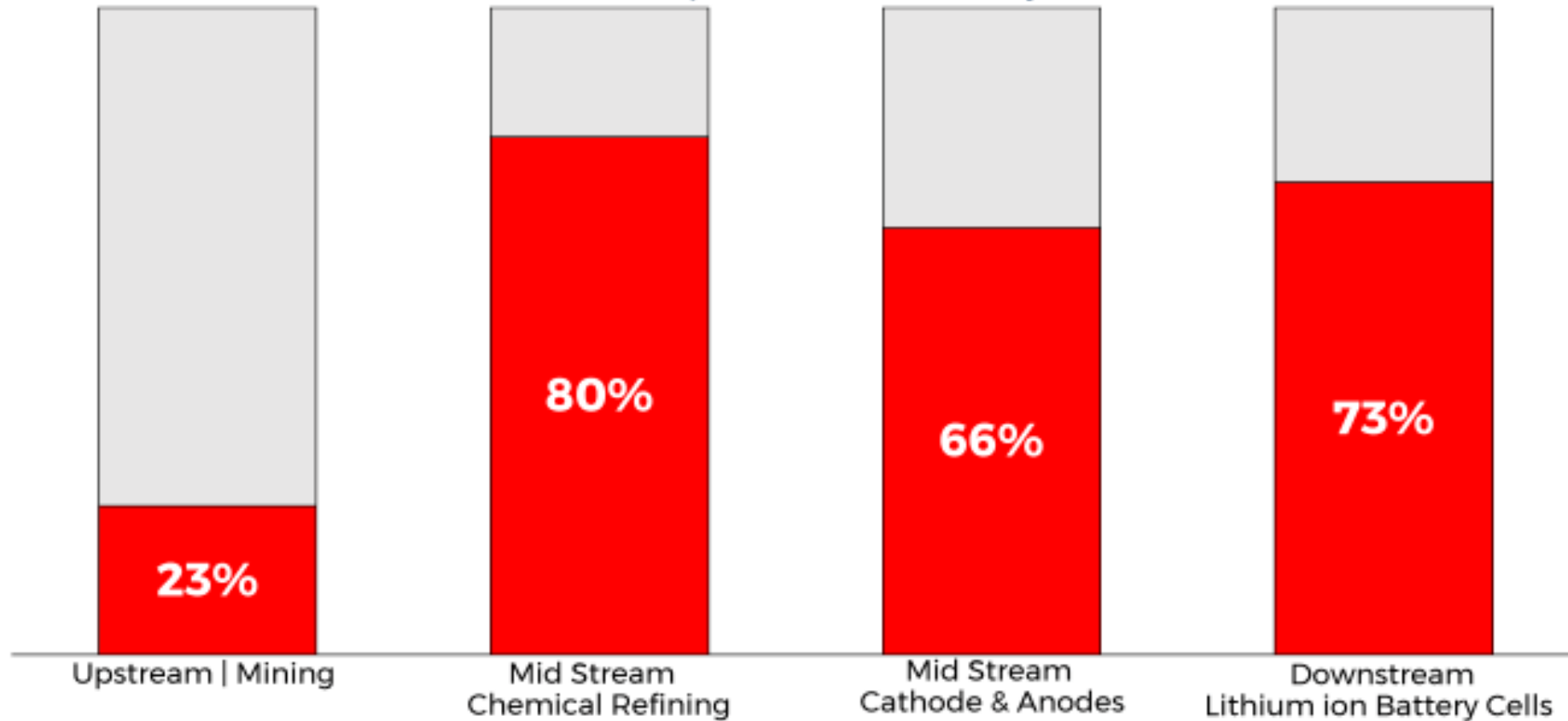
- Recovery and Resilience Fund – to support investment and reforms worth €300 billion.
- Boosting of industrial decarbonisation with €3 billion of frontloaded projects under the Innovation Fund.
- Investments in an integrated and adapted gas and electricity infrastructure network.
- Raising the EU-wide target on efficiency for 2030 from 9% to 13% and RES from 40% to 45%.
- New EU proposals to ensure industry has access to critical raw materials.
- To increase energy efficiency in the transport sector.

Average market size and level of geographical concentration for extraction of selected commodities, 2020-2022



Where does China's dominance lie in the lithium ion battery to EV supply chain?

China's share of production % in full year 2019*



*Lithium, Cobalt, Nickel, Graphite, Manganese, Cathode, Anode, Cells accounted for in calculations

Source: Benchmark Mineral Intelligence

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