War and its consequences

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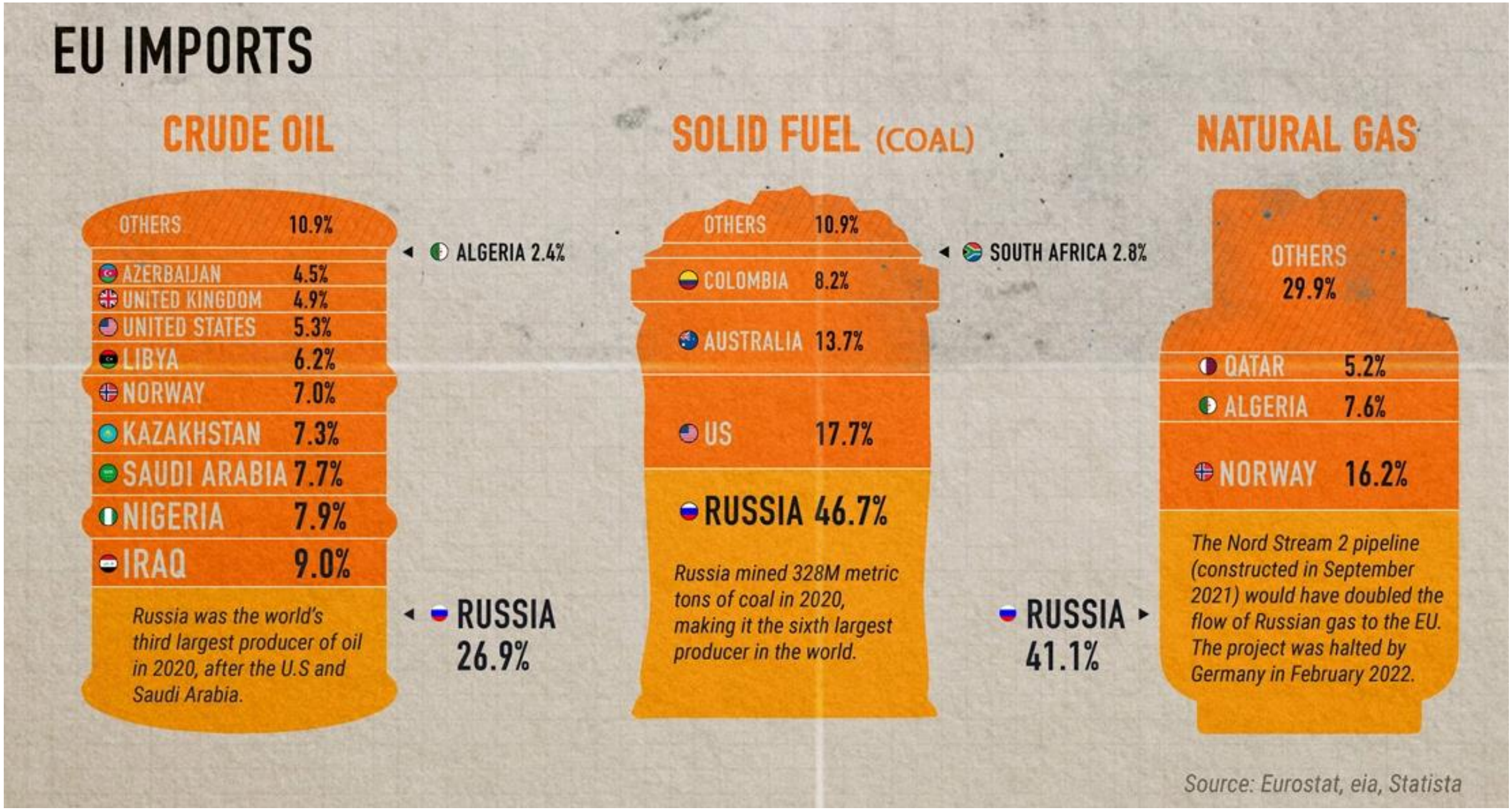
Pre-war miscalculations

- Assumption of economic interdependence as a stabilizing factor.
- View of Russia as a manageable partner.
- Confidence in existing mechanisms to address a limited crisis.
- Belief that "In the 21st century, major wars no longer occur."
- Expectation of a swift outcome.
- Perception of EU's critical energy dependence.
- "It worked before; it will work again“.
- Reliance on the special Russia-Germany relationship.
- Underestimating EU resilience.
- Overconfidence in military capabilities/underestimating Ukraine´s resilience.

EU IMPORTS



Source: Eurostat, eia, Statista

Russia´s underestimation of the West

- In 2008, the invasion of Georgia faced only verbal condemnation.
- The annexation of Crimea in 2014 triggered only limited sanctions.
- The Minsk Agreements lacked enforcement, while energy projects like Nord Stream 2 highlighted Europe's dependence and divisions.
- Cyberattacks, election interferences - Russia accused of interfering in the 2016 US election and supporting anti-EU movements in Europe through cyberattacks and disinfo campains.
- Poisoning of dissidents - A. Litvinenko in 2006, Skripals in 2018, A. Navalny in 2020.
- Explosions at Czech (2014) and Bulgarian (2011–2020) ammunition depots, linked to Russian agents

Russia-Germany special relationship

- From the Soviet Union's collapse until 2014, Germany and Russia maintained a "Sonderbeziehungen" (special relationship); belief that "European security is impossible without Russia“ and crises should be resolved politically, not militarily.
- This relationship eroded due to Russia's actions in Georgia (South Ossetia, Abkhazia) and growing revisionism, reflected in German public opinion.
- In 2012, the German parliament stated: "Since … Putin has reassumed office, … measures are taken aimed at widening control over active citizens, criminalizing critical engagement…" (in response to protests against the 2011 Duma election).
- Following Crimea's annexation, Germany backed sanctions against Russia.

Russia-Germany special relationship

Olaf Scholz, 2/27/2022: Germany's Shift in Strategy

- "We must support Ukraine. We must divert Putin from the path of war" (sanctions targeting Swift, reserve currencies, oligarchs, export of technology, and "nothing is off the table").
- Unwavering commitment to NATO obligations: troops sent to Lithuania, Romania, Slovakia, and navy deployed to the North and Baltic Seas.
- Massive military spending announced: EUR 100 billion in short-term investments and a long-term goal of 2% of GDP by 2024.
- Energy security priorities: accelerated deployment of renewable energy, reserves of coal and gas, FSRU LNG terminals, and potential re-evaluation of nuclear plant decommissioning.
- "As much diplomacy as possible, without being naive."

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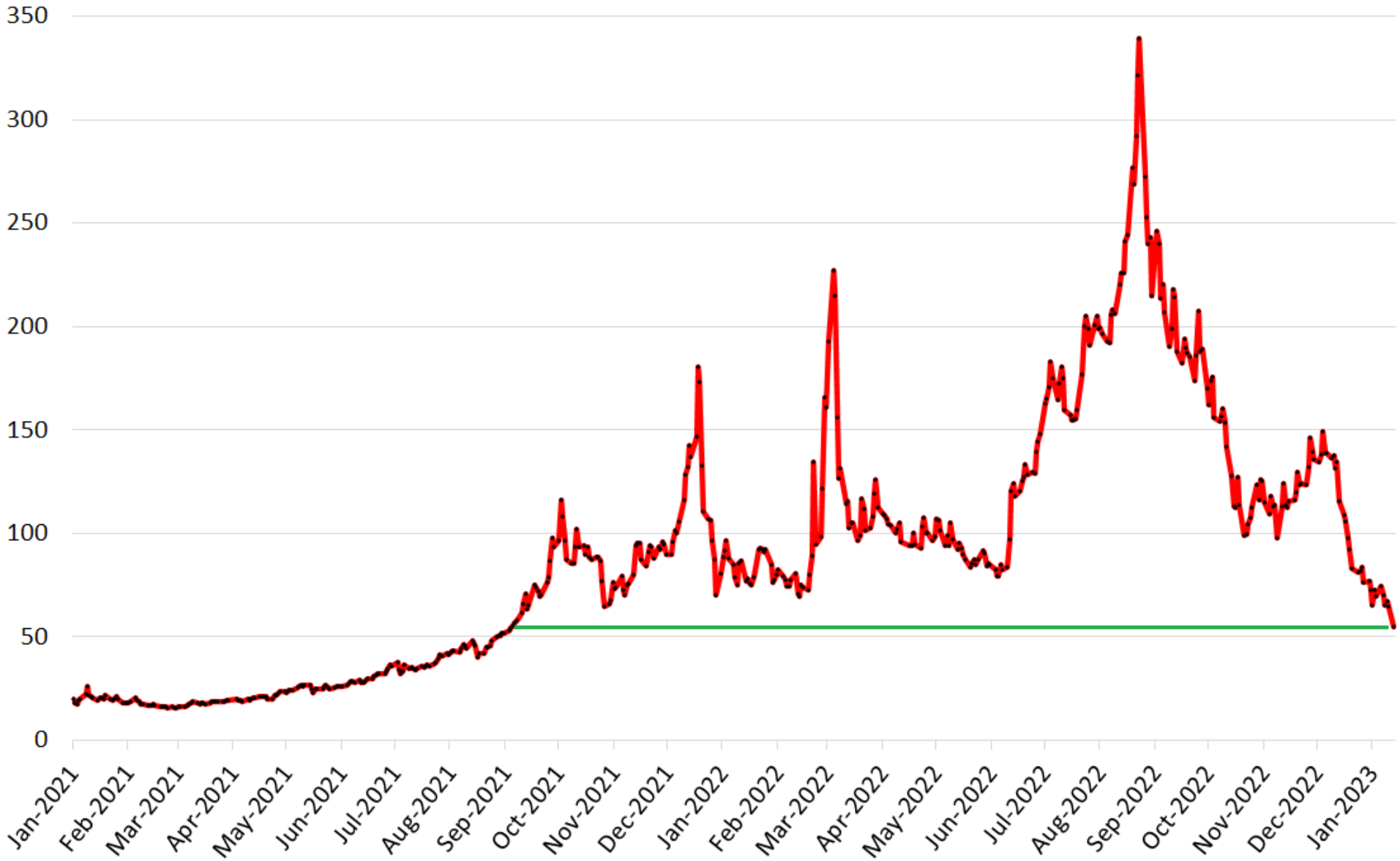
As time went on…(Financial Times)

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“

Natural Gas Futures, ICE Dutch TTF

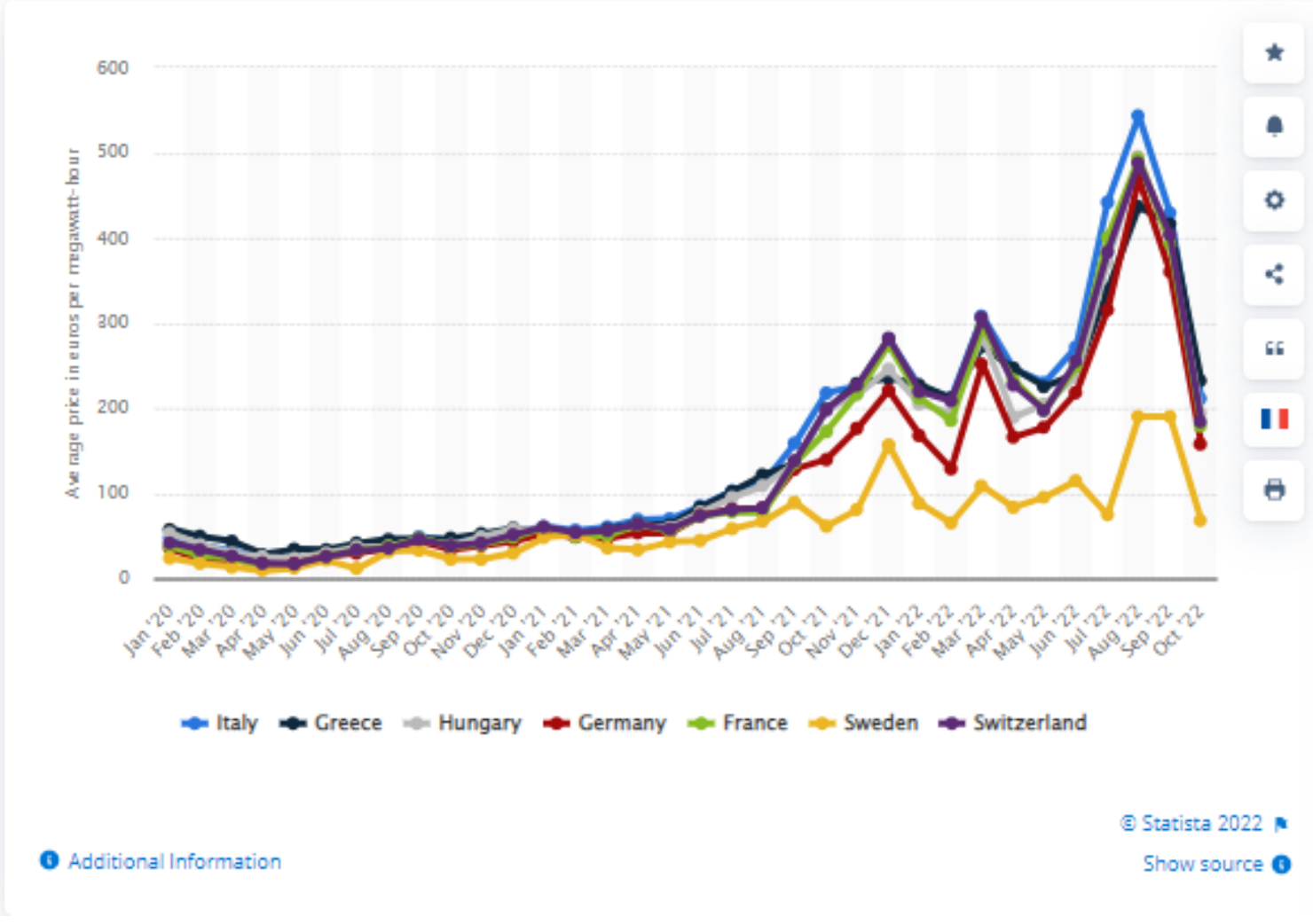
€ per megawatt-hour



Source: Investing.com

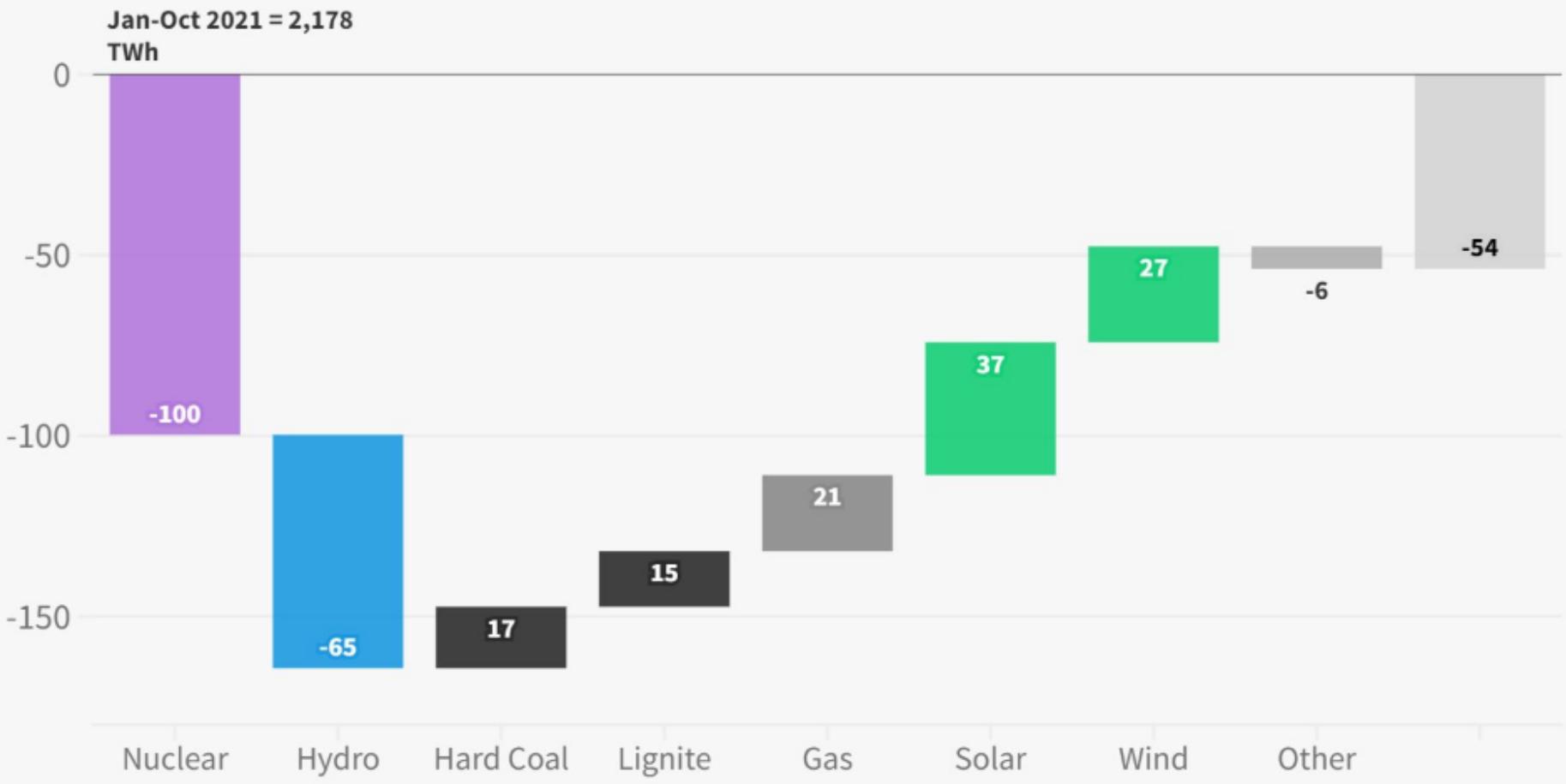
WOLFSTREET.com

Average monghtly 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

EMBER

Key energy measures and escalations

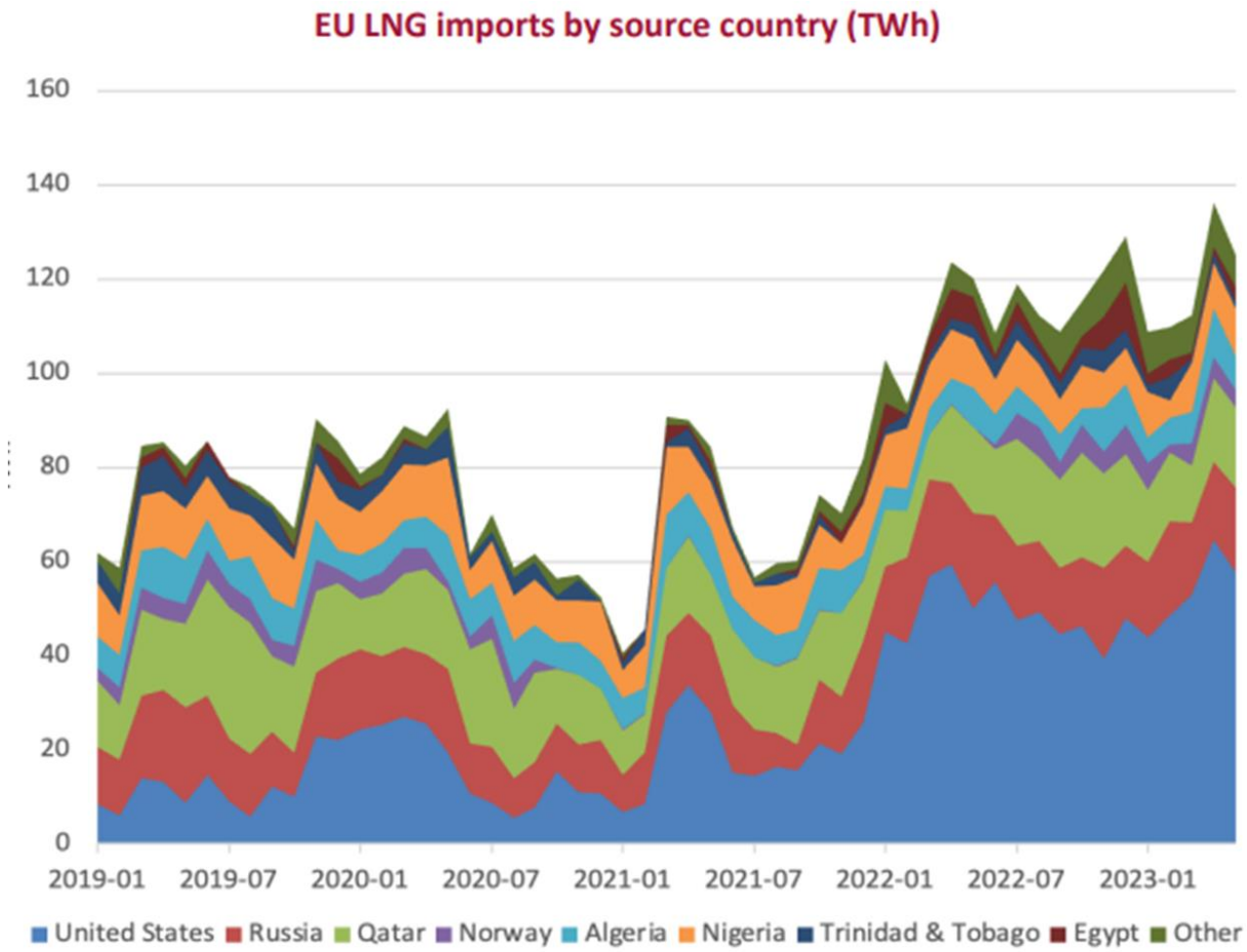
- Import embargoes on Russian coal (April 2022), seaborne crude oil (December 2022), and refined petroleum products (February 2023).
- Oil price cap of $60 on crude oil and related products starting December 2022.
- Russia demands ruble payments from "unfriendly countries, gradual reduction in Russian gas supplies to Europe, leading to price volatility and physical shortages.
- Nord Stream I maintenance disruptions, Nord Stream I and II pipelines blown up in September 2022.

- The EU survived the winter of 2022/2023 and gradually managed to stabilise the energy situation, but it paid a heavy price.

Long-term consequences: EU

- The EU rapidly transitioned away from Russian gas by diversifying imports and accelerating LNG infrastructure development.
- Electricity generation shifted toward renewables, with temporary reliance on coal and nuclear.
- Economic impacts included moderate GDP losses, higher energy prices, and inflationary pressures, offset (partially) by improved energy efficiency.
- Emissions dropped by approximately 5% as renewable adoption replaced fossil fuels, supporting EU climate goals.
- By 2027, Europe is to achieve full energy decoupling from Russia but became more reliant on non-European suppliers, raising new security concerns.
- EU's long-term focus on hydrogen and renewables should strengthened its energy resilience.

Long-term consequences: EU



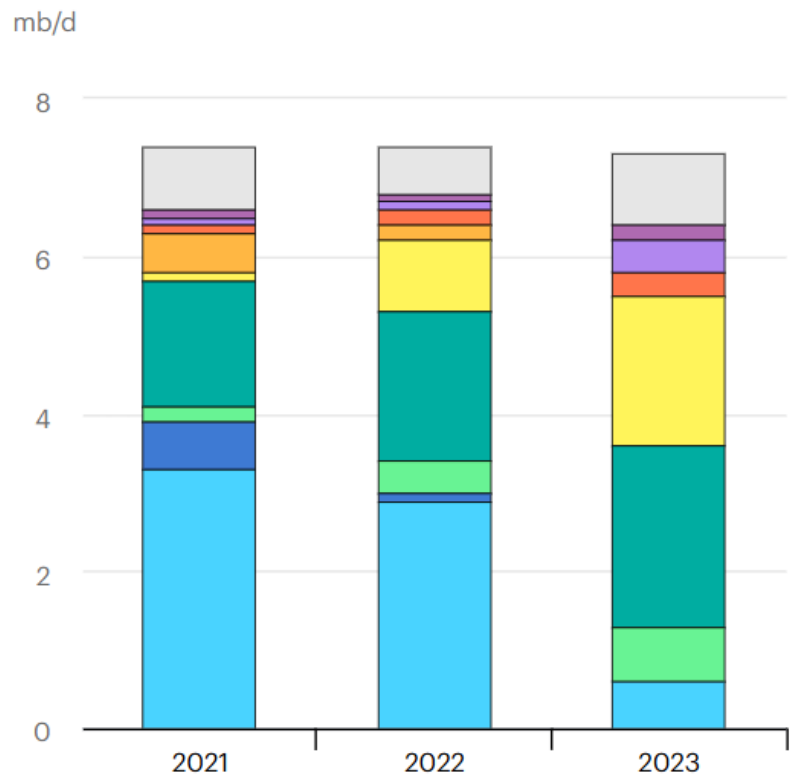
Source: Bruegel

Long-term consequences: Russia

- Russia’s natural gas exports to the EU collapsed by 90%, with limited compensation through LNG and redirection to China and India at discounted prices.
- GDP losses are projected to reach 8% by 2030, driven by reduced export revenues and strained fiscal stability.
- The Power of Siberia II pipeline (stalled) will only replace 25% of pre-war gas exports to Europe.
- Long-term impacts include a 75% drop in natural gas export volumes, deeper economic isolation, and greater reliance on fewer, less lucrative markets like China.
- Russia’s economic and energy resilience has been significantly weakened.

= Russia played an energy card and didn´t win.

Average Russian oil exports by country and region, 2021-2023



European Union
United Kingdom and United States
Türkiye
China
India
OECD Asia
Middle East
Africa
Latin America
Other and unknown

Other regions

- China imports discounted Russian oil and gas.
- India capitalizes on discounted Russian oil, benefiting its economy while maintaining diverse energy sources.
- The United States strengthens its position as a key LNG supplier to Europe, boosting export revenues and geopolitical influence, though global demand pressures domestic prices.
- European suppliers such as Norway, Algeria, and Qatar expand exports, replace Russian gas in Europe, and invest in LNG infrastructure to secure their roles in the energy market.
- Emerging markets in South Asia and Africa face higher LNG prices, turn to coal for energy needs, and grapple with worsening energy poverty.
- Global LNG markets remain volatile, driving investments in infrastructure to meet rising demand.

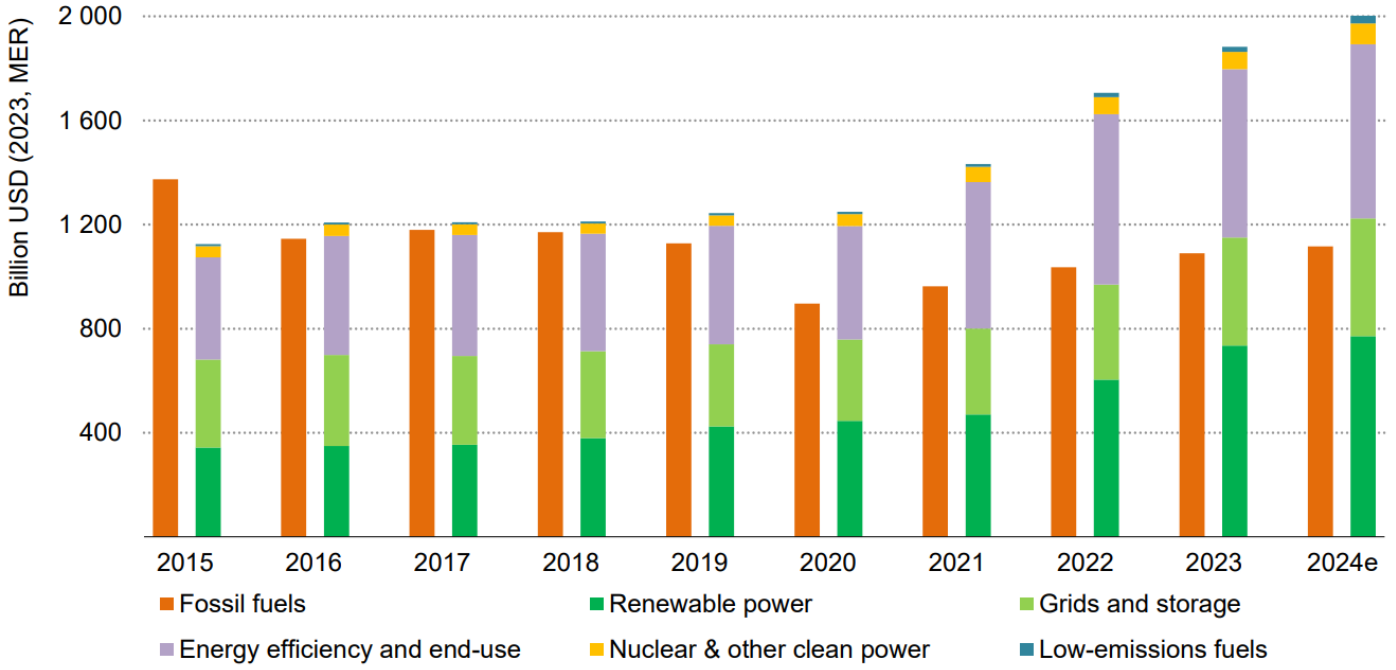
Inflation

- The war disrupted energy markets, driving up global oil, gas, and LNG prices, with food inflation surging due to blocked Ukrainian grain exports and reduced Russian fertilizer supply.
- Supply chain disruptions increased costs for key commodities and global shipping.
- Emerging economies faced rising import costs and currency depreciation, prompting interest rate hikes despite risks to growth.
- Aggressive monetary tightening and export restrictions added financial strain.
- Long-term impacts include inflation from energy transitions and fragmented trade systems, disproportionately affecting low-income and developing regions.

Emphasis on energy security

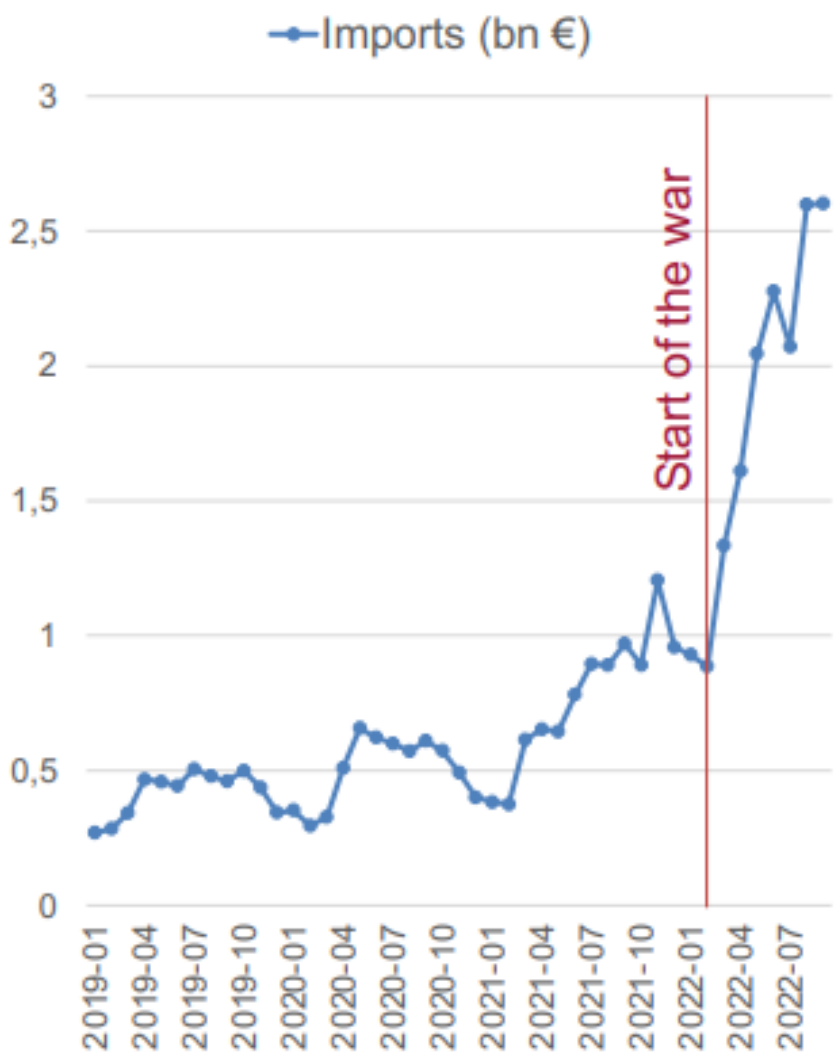
Energy transition confirmed

- While short-term actions focused on conventional sources for immediate energy security, the war has accelerated political and financial support for renewables, indicating a long-term transition to sustainable energy systems.

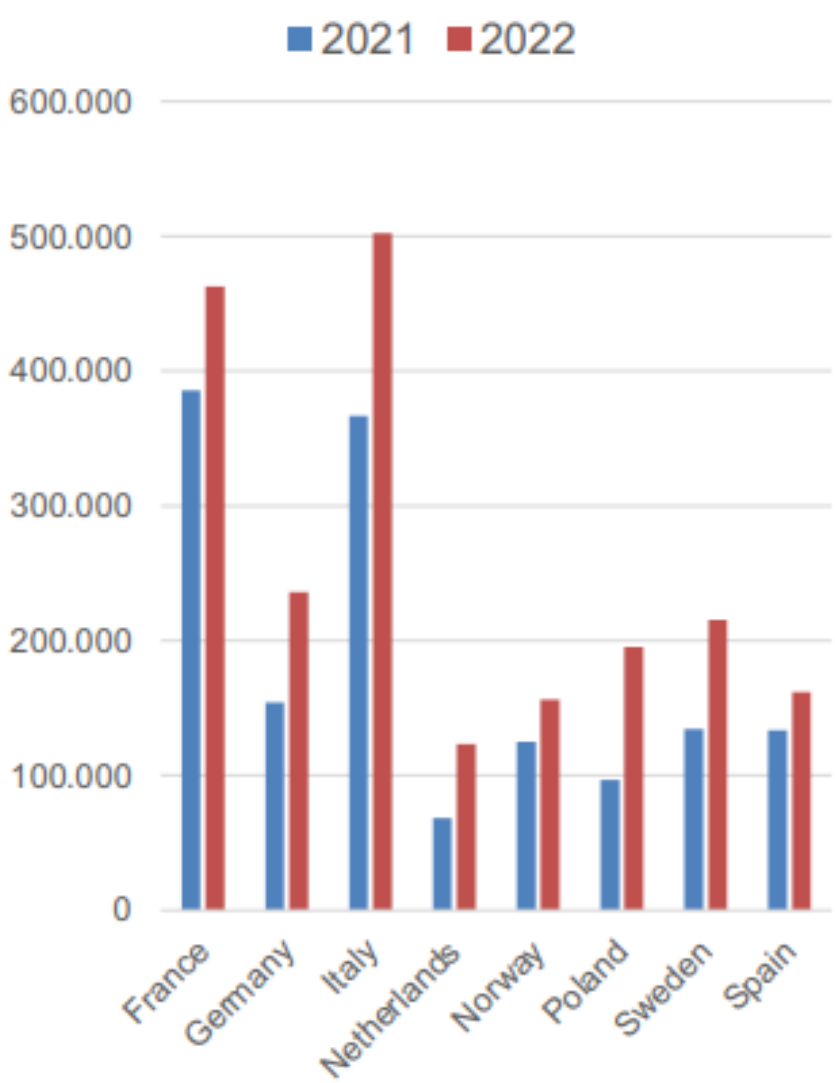


Note: Other clean power = fossil fuel power with CCUS, hydrogen, ammonia, and large-scale heat pumps. Low-emissions fuels = modern bioenergy, low-emissions H_2 based fuels, and CCUS associated with fossil fuels and also includes direct air capture. 2024e = estimated values for 2024.

EU imports of solar panels from China



Heat pumps sales in selected countries



Source: Bruegel

Climate change consequences

- Renewable energy sources are now being driven not only by climate reasons, but more so by security reasons. On the other hand, general investments in security are diverting money to armaments.