Global Energy Security and Global Energy Transition: Key Risks and Issues

Dr. Anatoly YANOVSKY,

Assistant to the Chief of Staff
of the Presidential Executive Office
of the Russian Federation

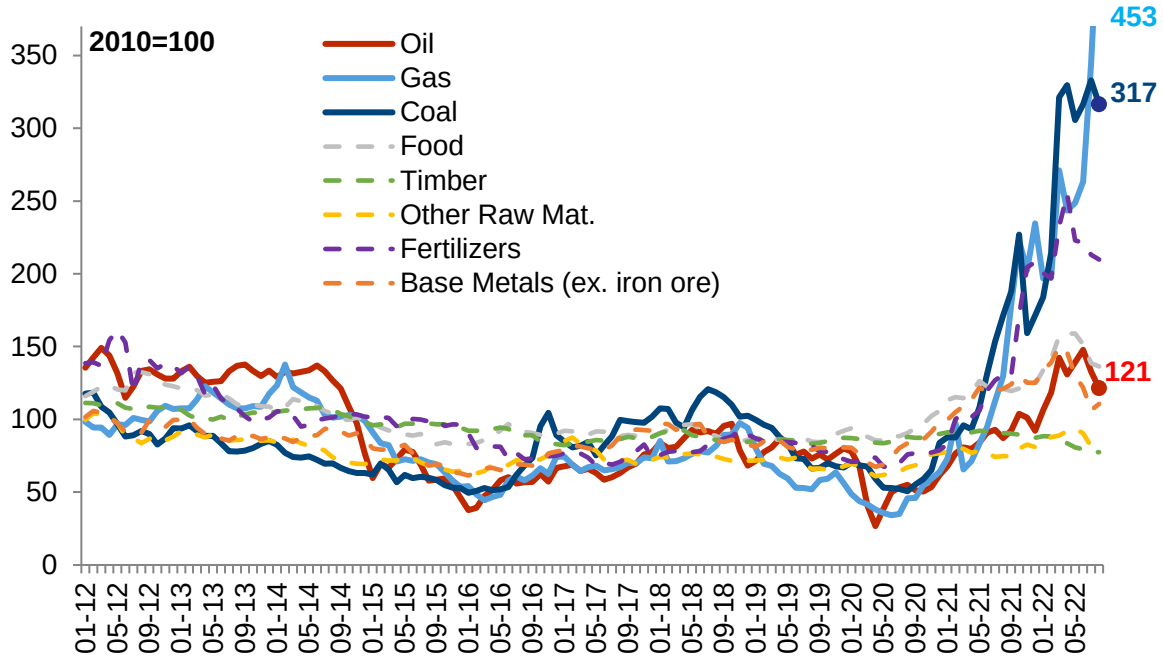
V International Online Conference
"Risk Management in Energy - 2022“

Moscow, 22 September 2022

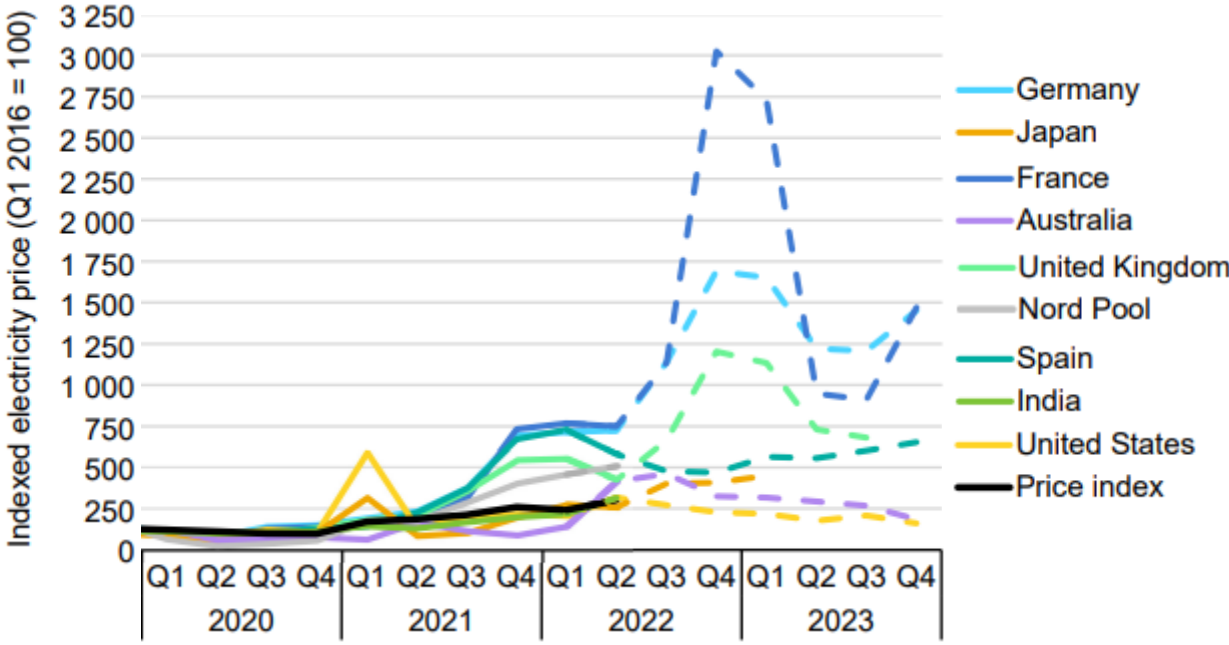
Supply shortages for basic commodities began in 2021

The 2022 sanctions only made it worse

Energy prices hit record highs



Quarterly average wholesale and futures prices for selected regions

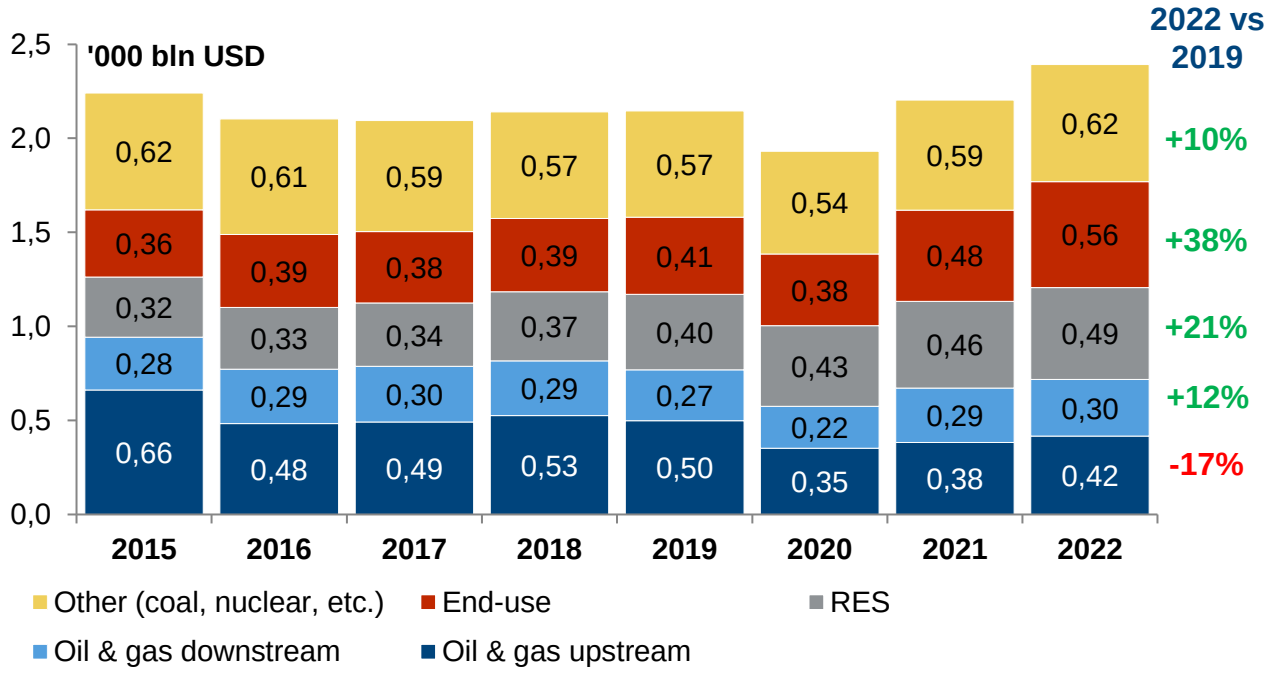


- The post-COVID-19 recovery and lack of investment in fossil fuel supply have driven commodity prices up significantly
- In August 2022, the price of coal was 110% higher (y/y), oil - by 39% (y/y), natural gas - by 249% (y/y). Sanctions could keep energy prices high for 5 years or more
- Electricity prices in many wholesale markets continue to be on the rise reaching new highs in many economies during 2022, especially in Europe

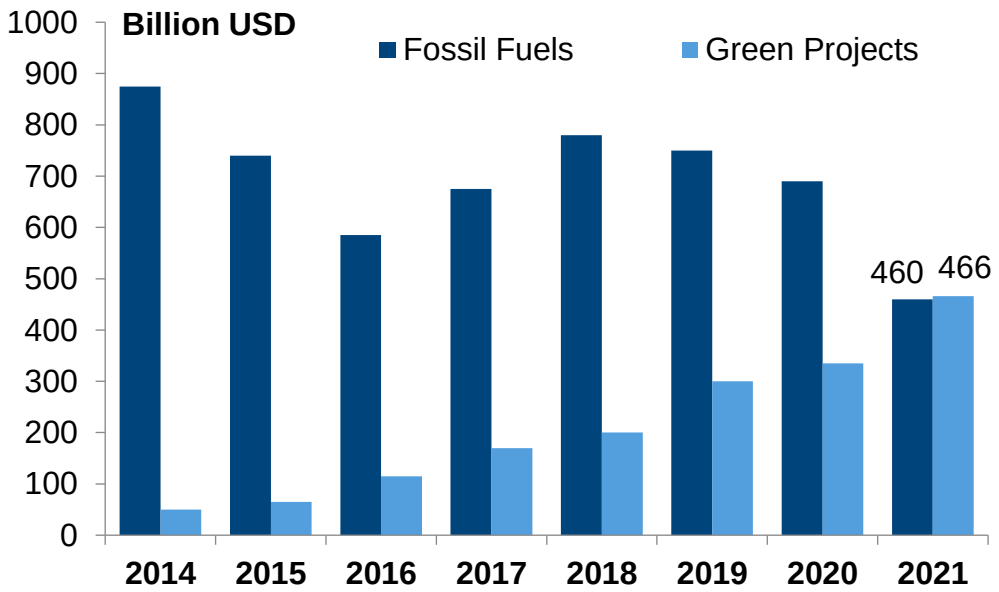
Source: World Bank, IEA, EIA

Decarbonization allocates capital across different energy sectors in a new way

World Energy Investment



Bank Issued Bonds and Loans



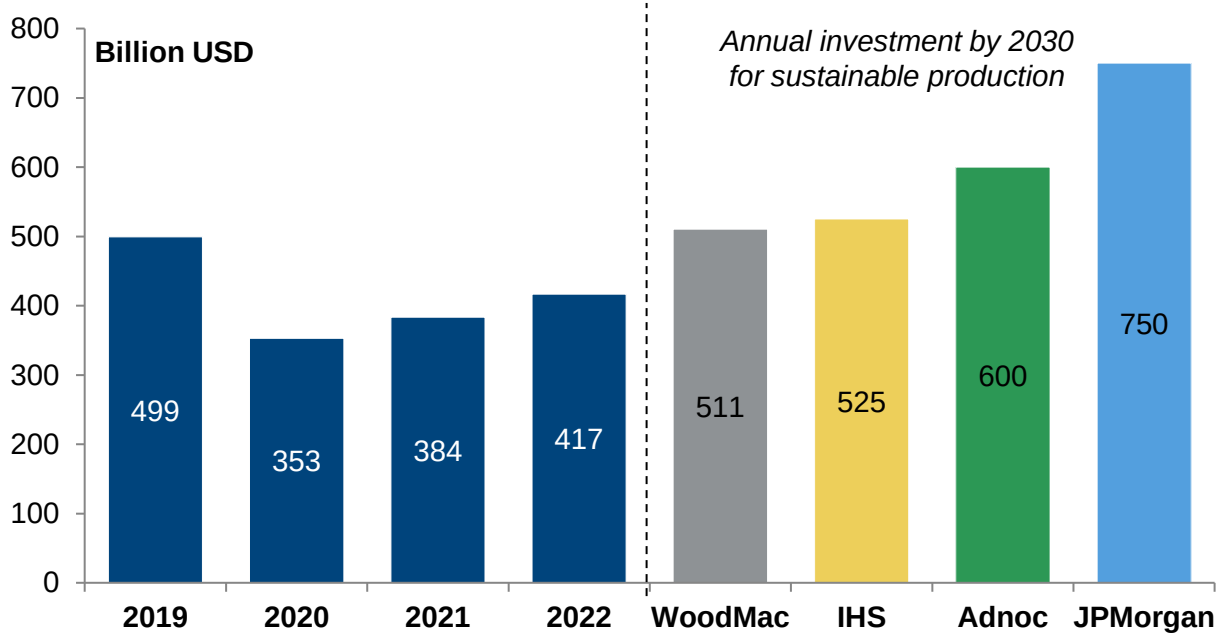
- Investment in the global energy sector will hit a record $2.4 trillion in 2022
- Investments in renewable energy and investments in energy efficiency since 2020 exceed investments in oil and gas exploration and production, which did not return to the “pre-pandemic” 2019.
- In 2021, for the first time, the hydrocarbon industry received fewer bank bonds and loans than renewable energy and other carbon-neutral projects: $460 vs $466 billion

Source: IEF, Bloomberg, IEA

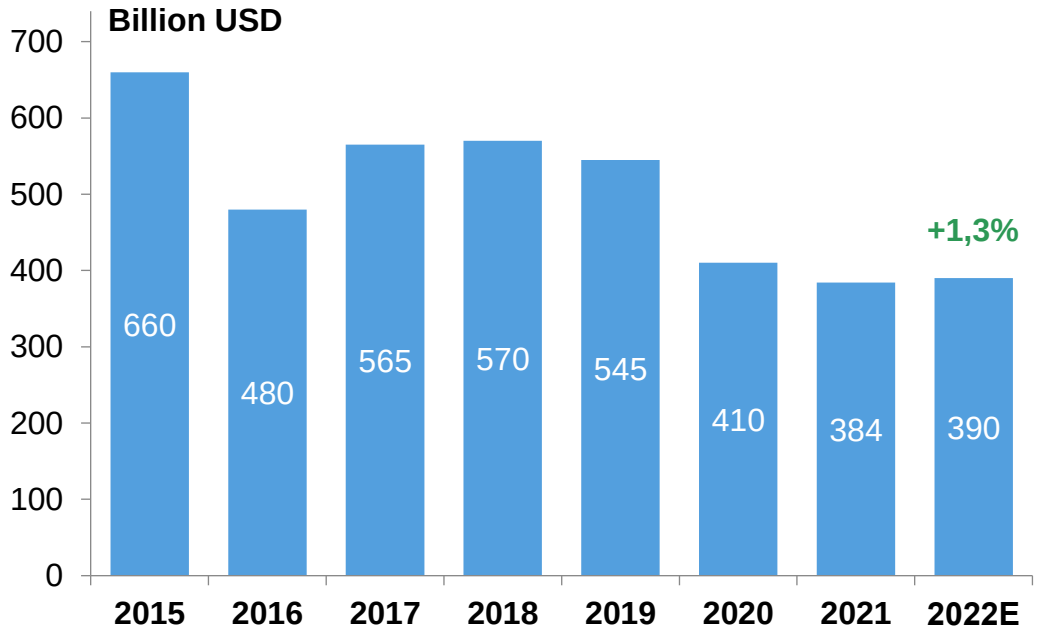
Global investment in the Oil & Gas Upstream remain insufficient

Growth in 2022 to be extremely modest despite high prices

Global investment in upstream oil and gas



Investment rebased to cost levels in 2021



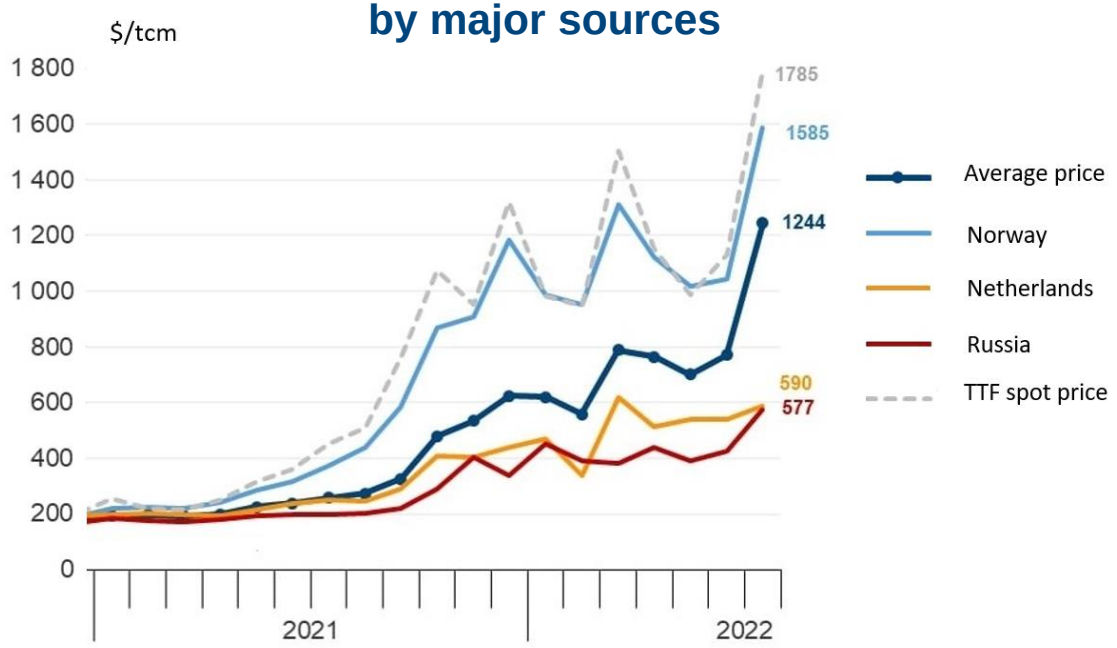
- In order to compensate for the natural depletion of oil and gas fields and meet the growing demand by 2030, it is necessary to annually invest $511-750 billion in exploration and production.
- Investments in 2022 will grow by 8.7% to $417 billion. If we adjust this estimate for industry inflation (rising prices for steel, cement and other raw materials for Upstream, higher service costs and rising wages), then the growth in capital investments will be only 1, 3% compared to 2021

Source: IEA, IHS, WoodMac, Adnoc, JPMorgan

High energy prices force economies to adjust: Natural gas case

A difficult choice between physical scarcity and sky-high price growth

The average monthly gas price in Germany by major sources



Gas consumption in the EU in 2022 to the level of 2021, %

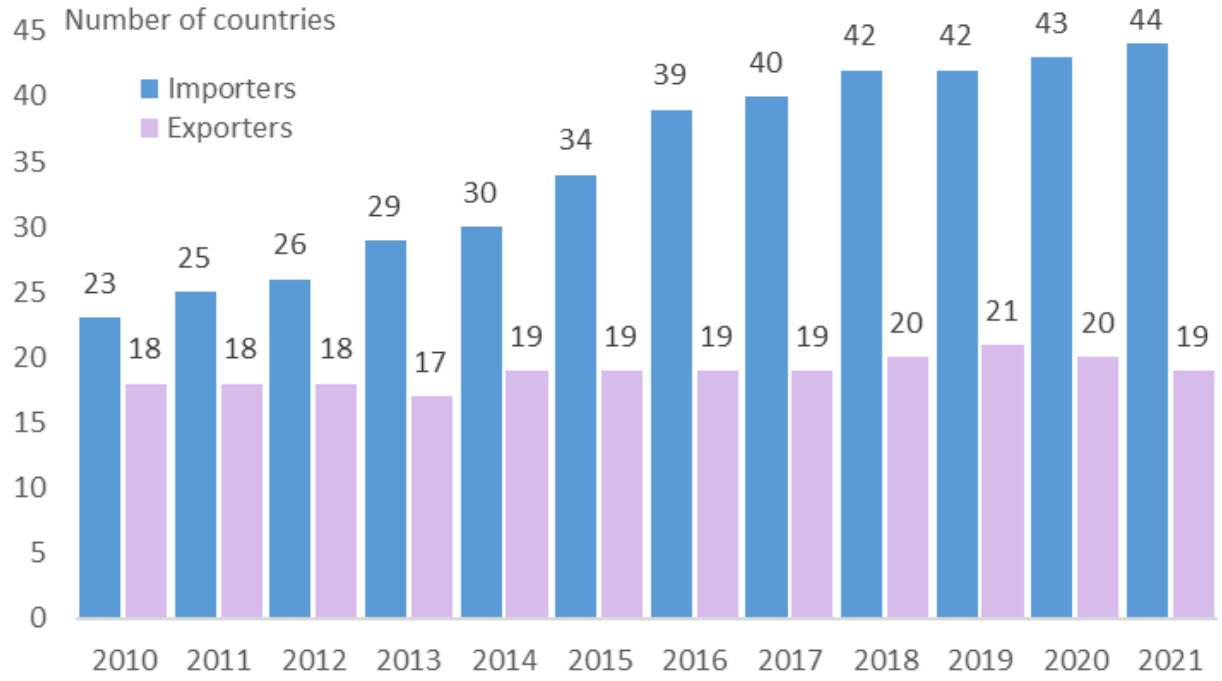
	January	February	March	April	May	June
EU-27	-6,7	-9,3	-7,1	-19,2	-19,0	-8,3
Austria	-7,3	-4,7	-1,1	-14,6	-17,5	-4,9
Belgium	-10,9	-17,1	-21,2	-27,5	-22,7	-5,0
Hungary	4,1	-6,8	-1,5	-11,1	-29,8	-10,0
Germany	-7,8	-12,1	-6,9	-17,6	-31,5	-18,3
Greece	-6,9	10,6	17,9	-45,4	5,3	-11,3
Denmark	-24,2	-31,5	-15,1	-21,1	-26,7	-6,2
Spain	5,6	20,6	6,2	-13,0	-3,8	7,4
Italy	-0,9	-0,1	4,3	-14,5	-0,4	-2,0
Netherlands	-23,2	-26,1	-26,4	-26,9	-29,3	-16,2
Poland	-12,5	-17,6	-13,3	-11,0	-16,4	-13,8
Portugal	-1,6	12,1	7,7	-20,3	3,2	-13,8
Slovakia	49,3	-9,3	53,0	-54,8	-48,0	-5,5
Finland	-56,3	-65,3	-47,4	-65,7	-25,5	-58,4
France	-2,9	-5,9	-9,9	-12,4	-23,3	0,5
Czech Rep.	-12,2	-4,2	-17,4	-22,0	-33,2	-18,2

- The replacement of cheap Russian gas in the EU occurs due to ultra-high prices. They effectively attract additional supplies and destroy demand
- Nevertheless, even very rich countries are not ready to pay so much for a long time
- And in the end, consumers will pay for everything

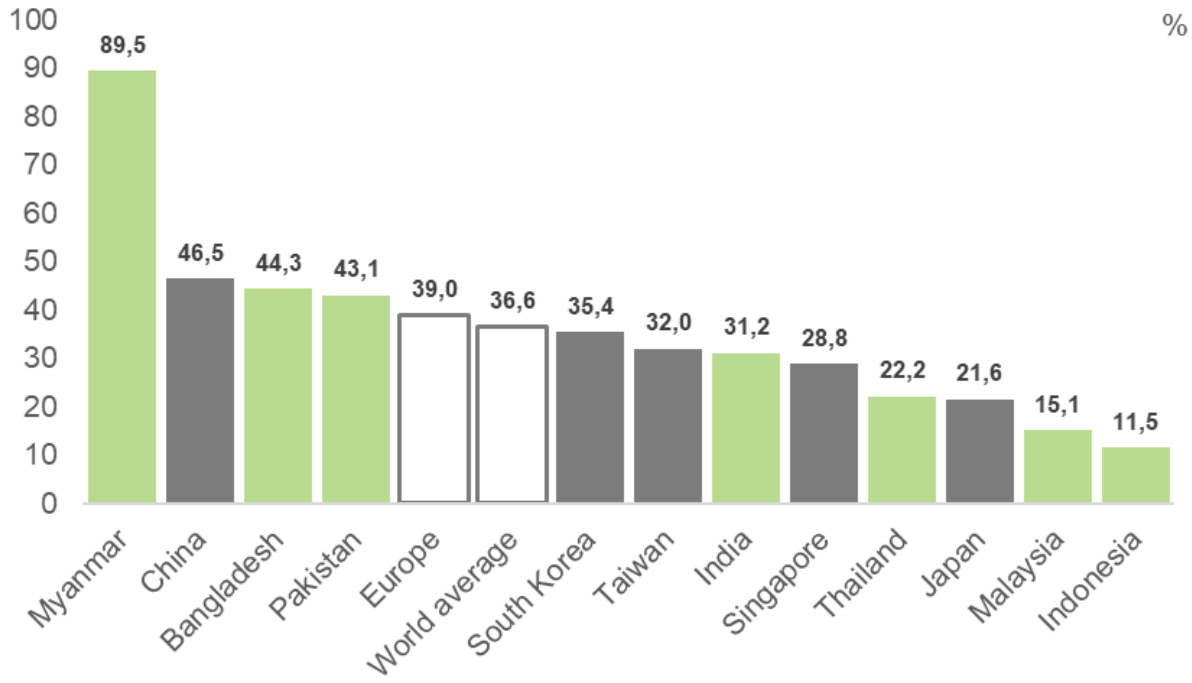
Source: Destatis, Eurostat, FIEF

The LNG is turning from an energy resource available to developing economies into an elite product for the richest countries

A sharp increase in the number of LNG market participants in the 2010s



The share of spot and short-term purchases in the structure of LNG imports in 2021

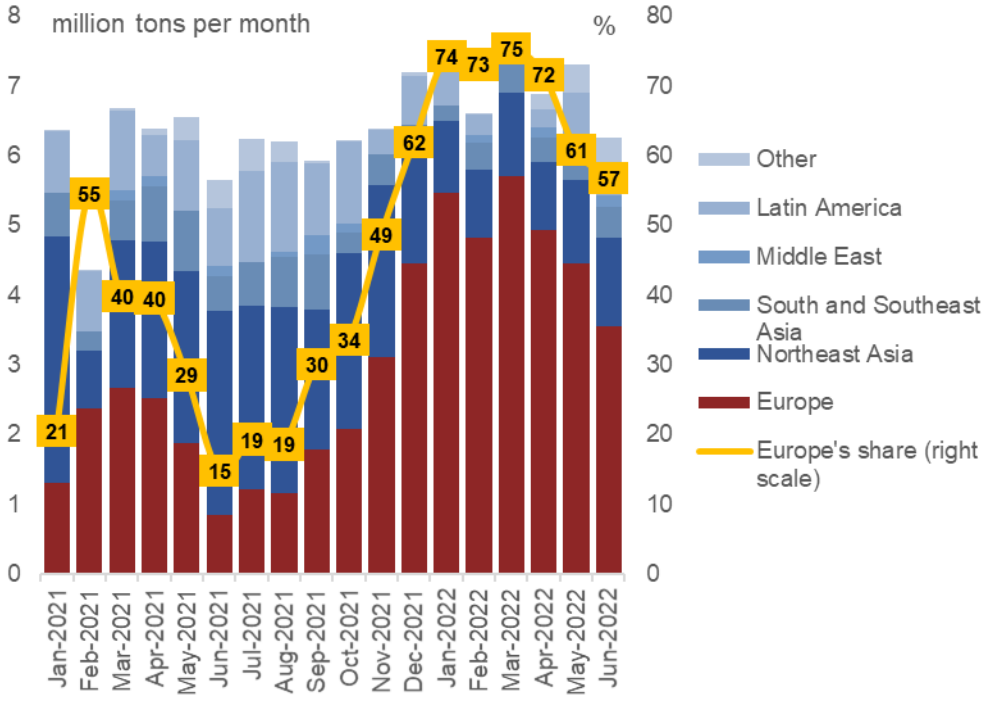


- In 2010s many developing countries looked at LNG with confidence as a reliable and relatively affordable source of energy. But the price crisis of 2021-2022 makes LNG an inaccessible commodity again.
- High sensitivity of developing countries to rising gas prices is explained not only by availability of substitute goods (coal, fuel oil, RES), but also by a relatively large share of spot and short-term gas supplies in their import structure.

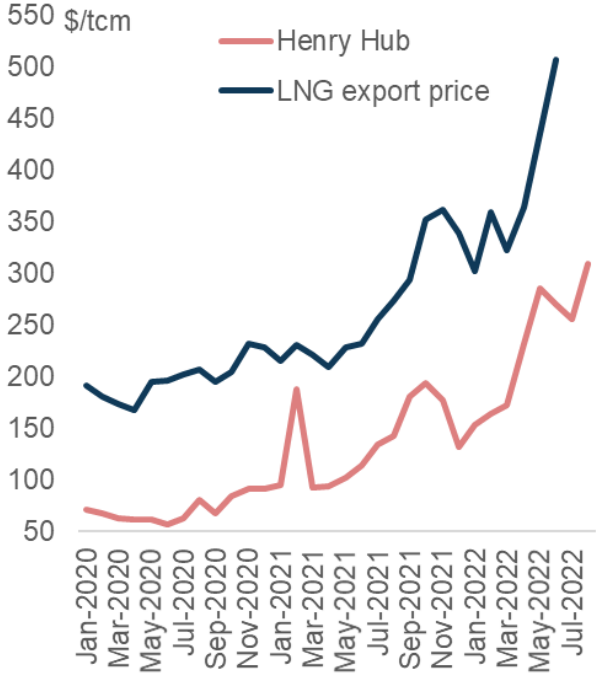
Source: GIIGNL, FIEF

The LNG market has not been able to come to a stable state for several years, and new price "swings" are ahead

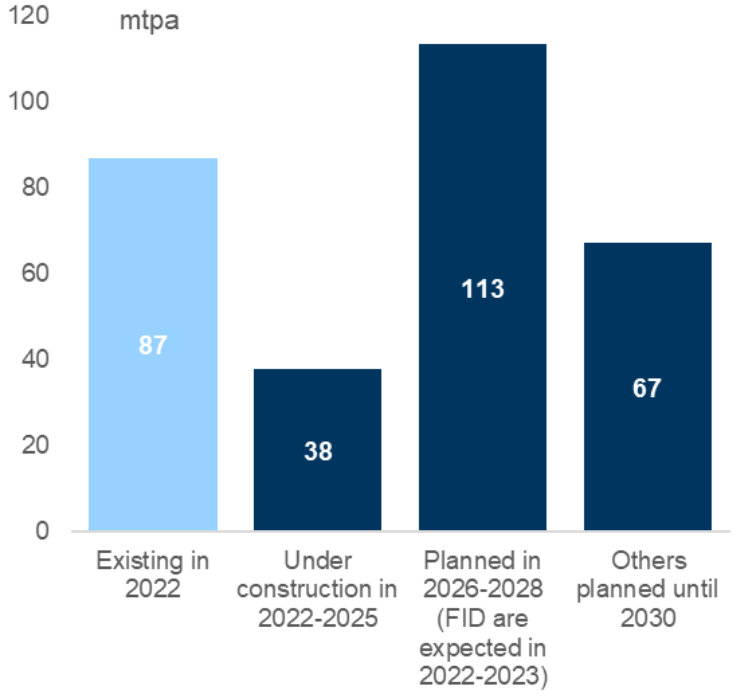
U.S. LNG exports by directions



Rising gas prices in the USA



LNG plants in the USA until 2030



- LNG suppliers are dramatically changing trade flows and leading to new price swings.
- U.S. LNG exports sharply redirect from Asia to Europe. Accordingly, it leads to the rapid growth of HH price, which, in turn, accelerates the rise of the cost of LNG.
- A lot of new expected FIDs for LNG projects create the conditions for new price swings in the future (possible sharp drop in LNG prices in 2025-2027)

Source: EIA, FIEF

Russian energy industry under significant sanctions

New mechanisms significantly offset the negative effect

Restrictions

- Import ban
- Restriction on insurance
- Trading restriction
- Financial restrictions

Adaptation

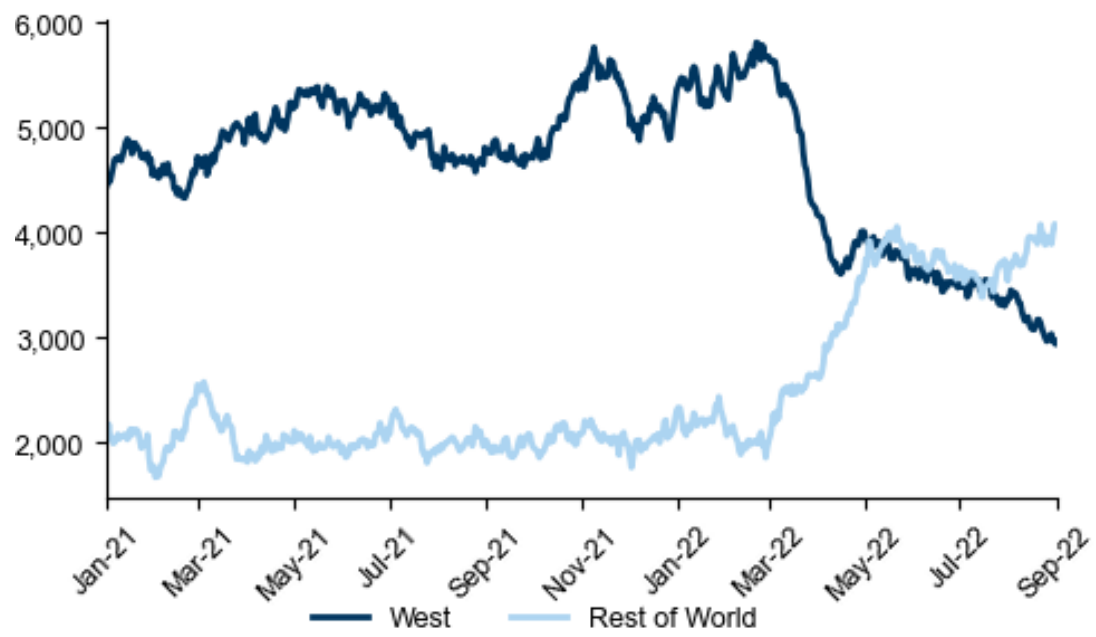
- Redirecting supplies
- Creating own insurance pool
- Price discounts
- Use of national currencies

Effect

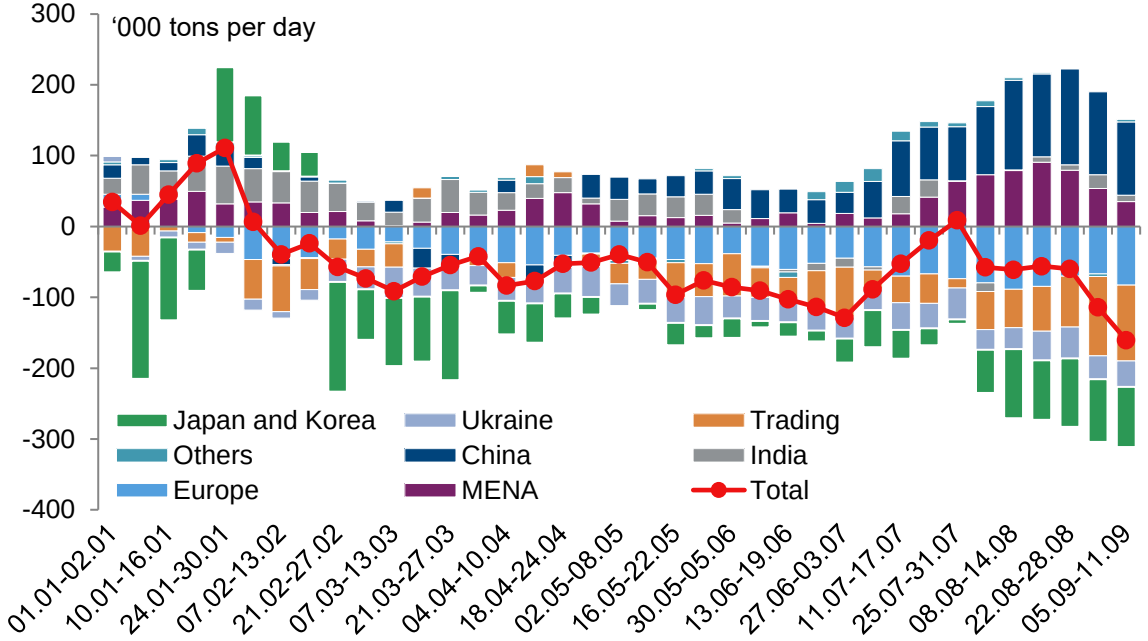
- Russian oil production has only slightly decreased to 10.9 mb/d in August (in February 11.35 mb/d)
- In January-July 2022, payments to the Russian budget of the oil sector increased by 37% (yoy), and the gas sector - by 119% (yoy)

Russia has already redirected significant volumes of energy exports to Asian markets

Russia exports of crude and oil products, kb/d



Growth (y/y) Russia Coal Export



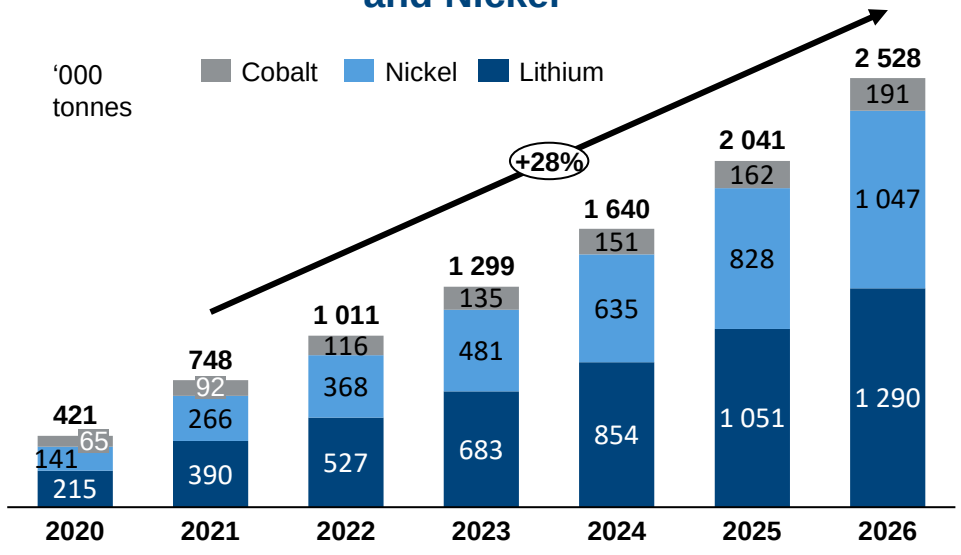
- So far, the 1.5 mb/d of Russian oil exports that have been self-sanctioned by European buyers have successfully found new destinations - initially largely to India, with China and other Asian destinations only ramping in recent weeks
- The growth of coal shipments in China, India, Turkey and the Middle East partially compensates for the reduction in other areas, incl. EU embargo from 10 August 2022

Источник: Argus, Bloomberg, Russian Customs, Kpler

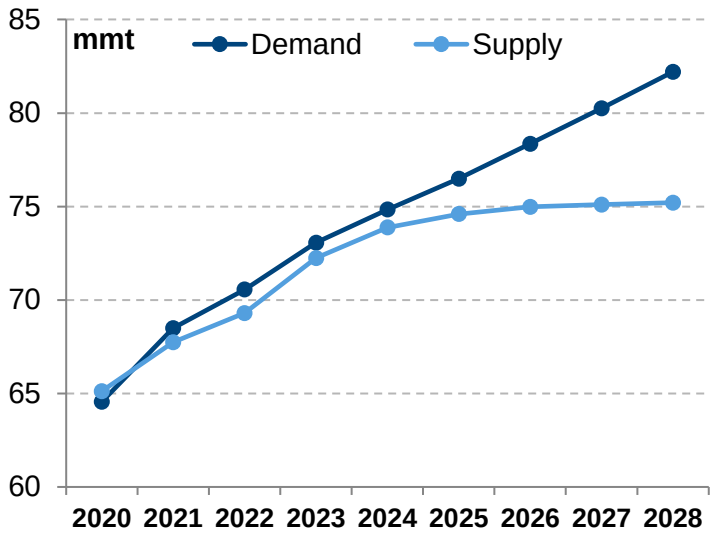
‘Green’ Metals play critical role in climate goals achievement

By 2025, there may be a significant shortage of them in the global market

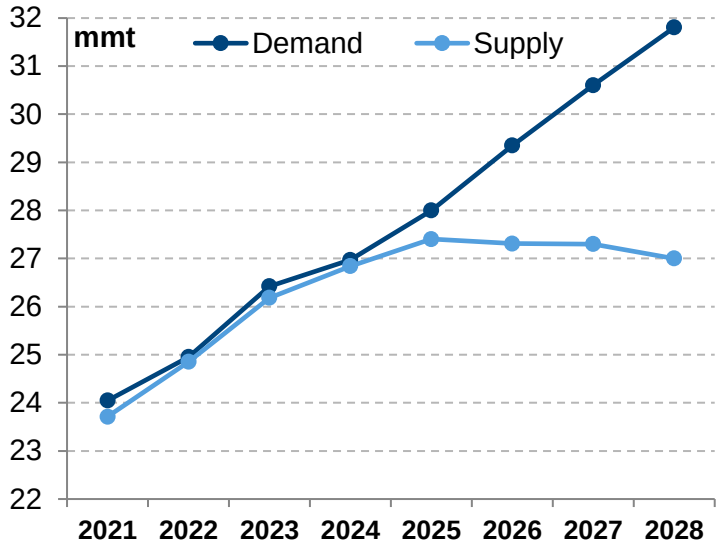
Global Demand Forecast for Lithium, Cobalt and Nickel



Global Supply-Demand for Aluminium



Global Supply-Demand for Copper



- Demand for lithium, nickel and cobalt will grow at double-digit rates on the back of strong growth in electric vehicles
- At the same time, the recycling of used batteries will not yet be sufficiently developed, which will require the use of primary metals
- PV modules are mostly 85% aluminium, and EVs use almost 7 times more copper than ICE vehicles
- Digital power grid technologies requires much more copper than traditional steel and aluminum based power lines and ultra-high voltage lines

Sources: Argus, Goldman Sachs, Wood Mackenzie, JPMorgan

Substantial uncertainty about future energy flows could boost trade and cooperation between Russia and rising economies of Asia, Africa and Latin America

Importers

- Rising energy prices and potential supply disruptions put **energy security** at the forefront
- China, India and other countries are **increasing their own production** of coal, oil, natural gas and the renewables
- However, this **only partially compensates**. And the total **cost of energy imports will rise** significantly in 2022
- Search for additional supplies and opportunities to reduce energy prices

Exporters

- Post-pandemic export volumes fail to keep pace with growing import demand
- **High uncertainty** about the future dynamics of the energy sector (sanctions, decarbonization, price volatility) **reduces investment flows in the energy sector**
- Search for additional investments to increase exports and long-term cooperation for the monetization of energy resources