Megatrendy w przemyśle i energetyce w efekcie kryzysów 2021/2022

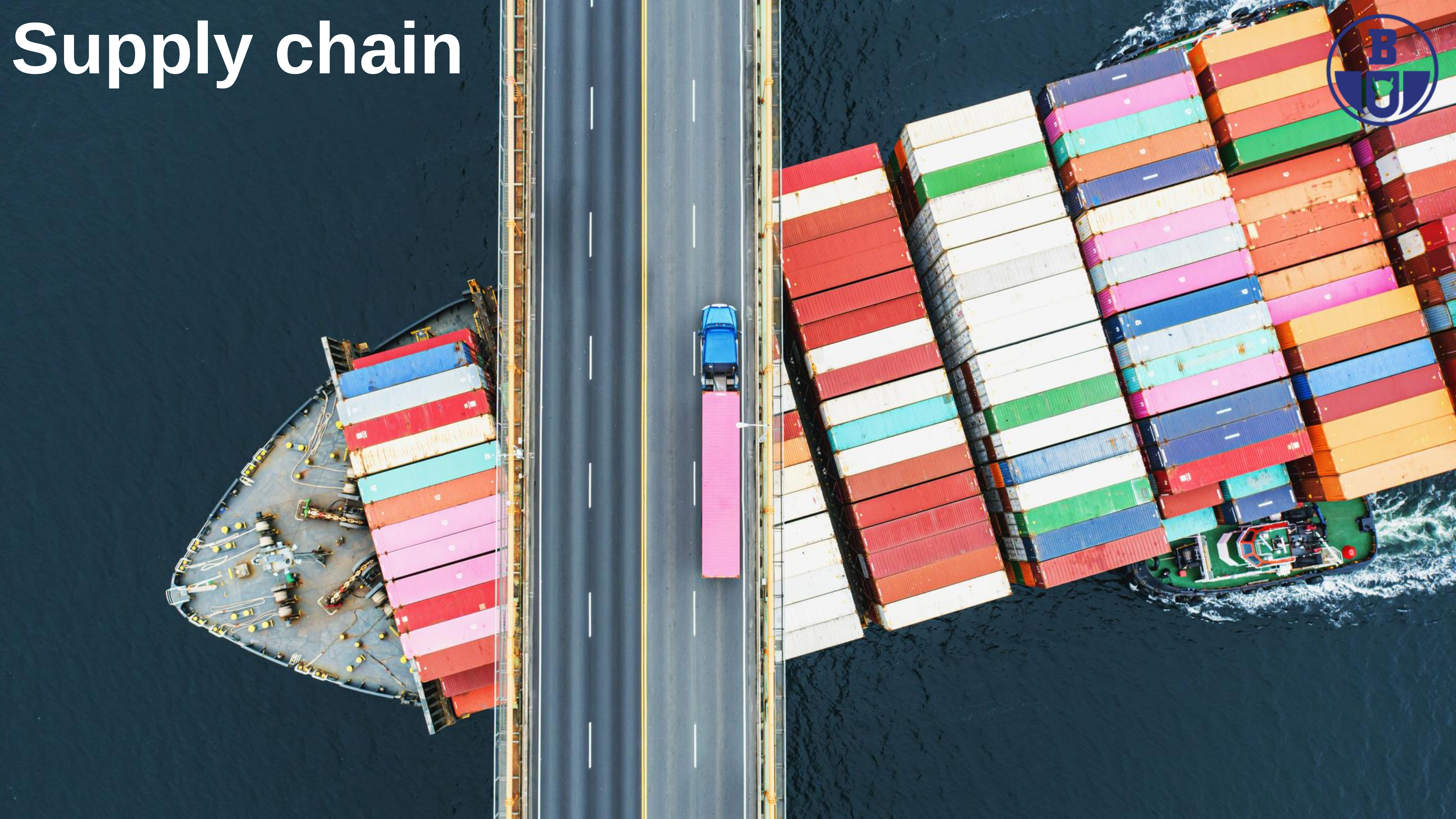
Mikołaj Budzanowski

Wiceprezes ds. Rozwoju

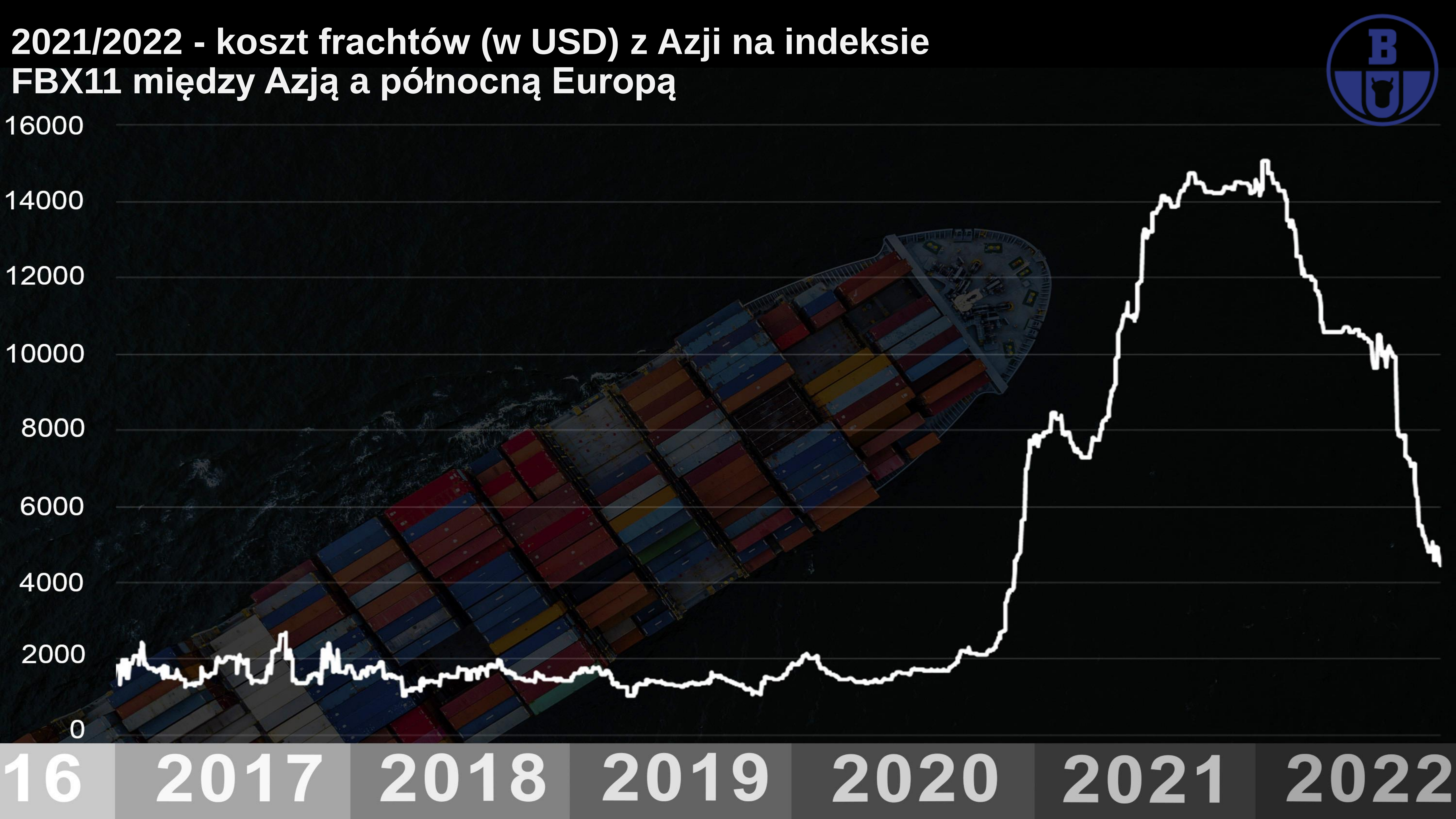
Boryszew S.A.

Jakie rodzą się nowe możliwości w wyniku obu kryzysów?

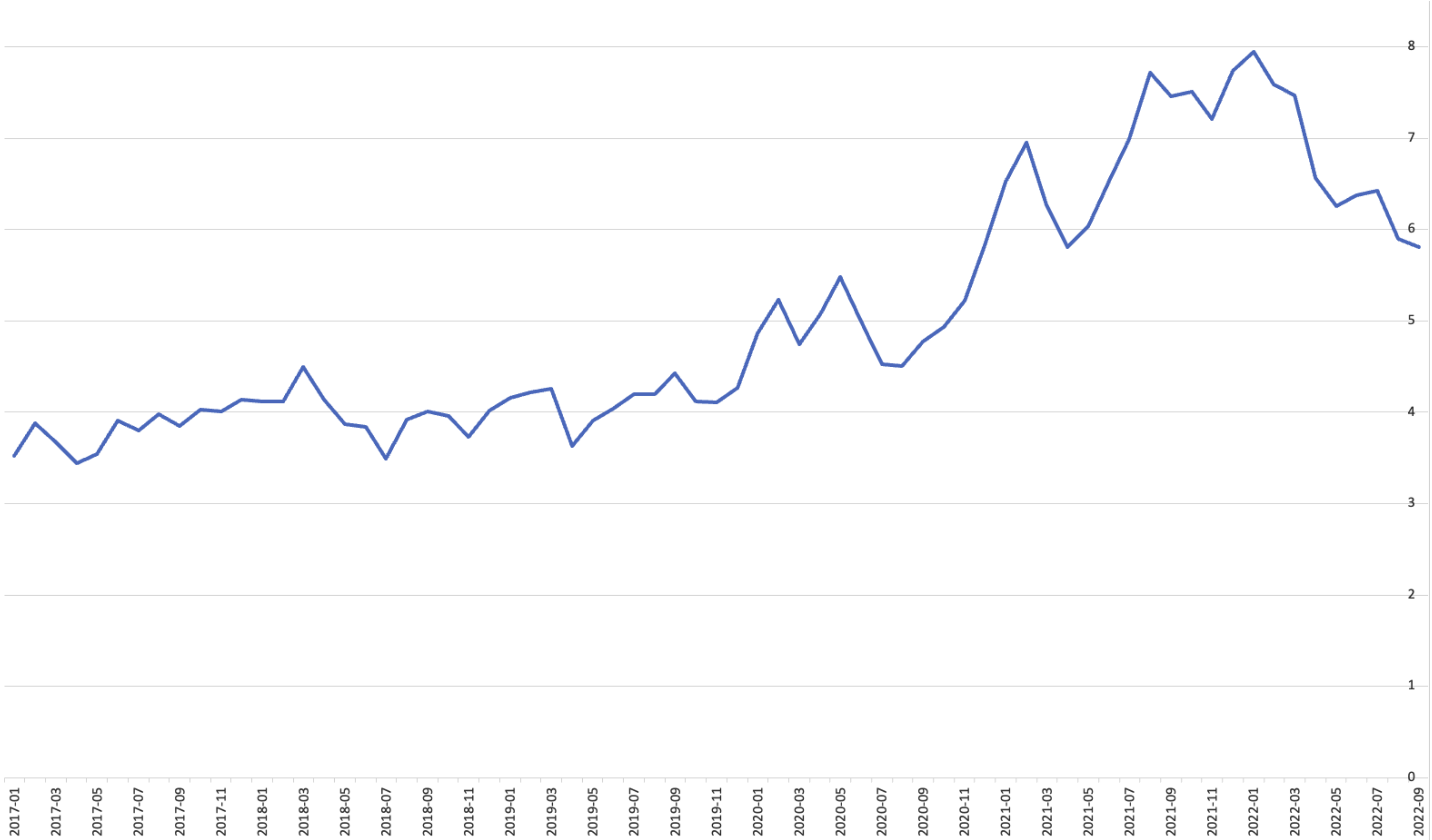
Supply chain



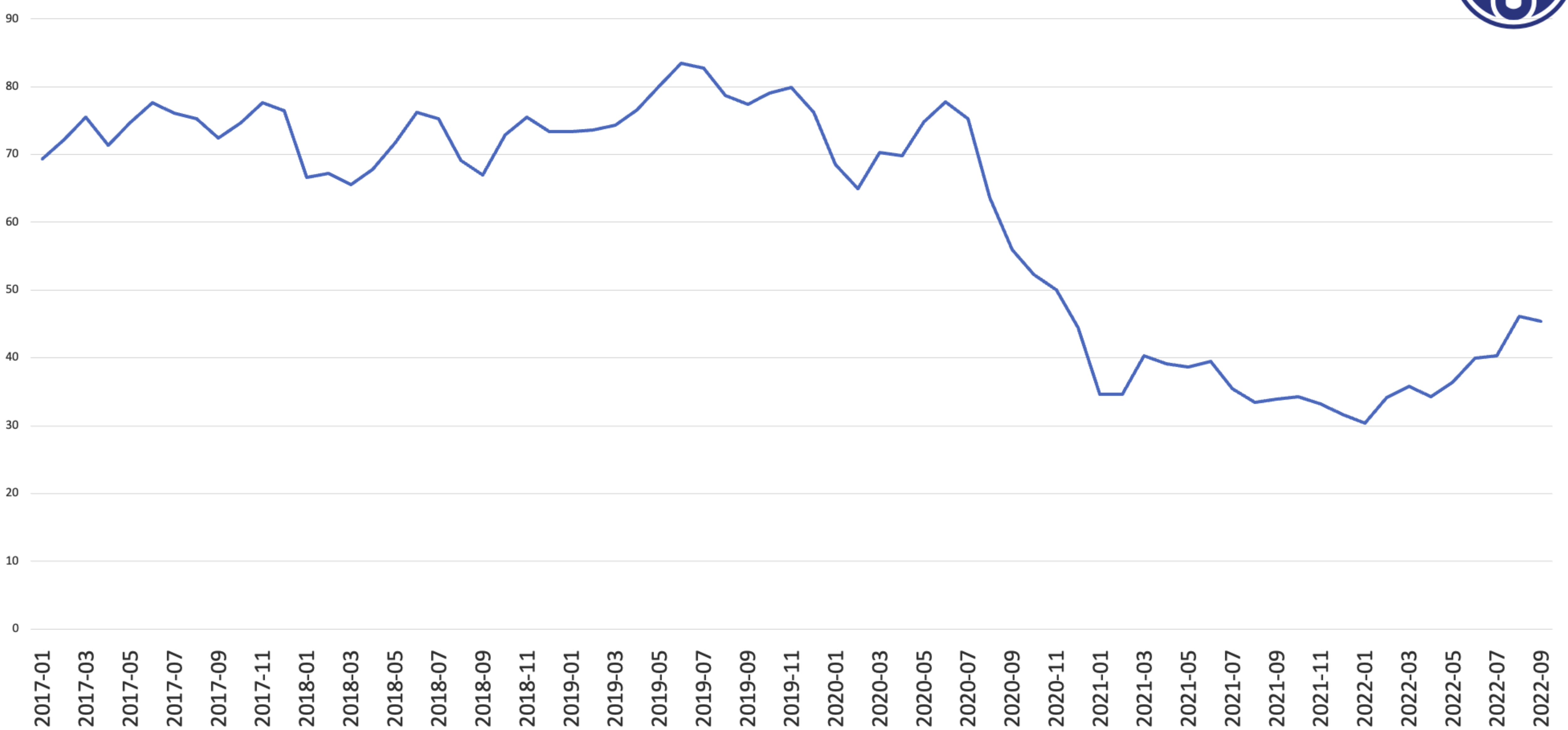
Kryzys energetyczno-gazowy


2021/2022 - koszt frachtów (w USD) z Azji na indeksie
FBX11 między Azją a północną Europą
16000
14000
12000
10000
8000
6000
4000
2000
0
16
2017
2018
2019
2020
2021
2022

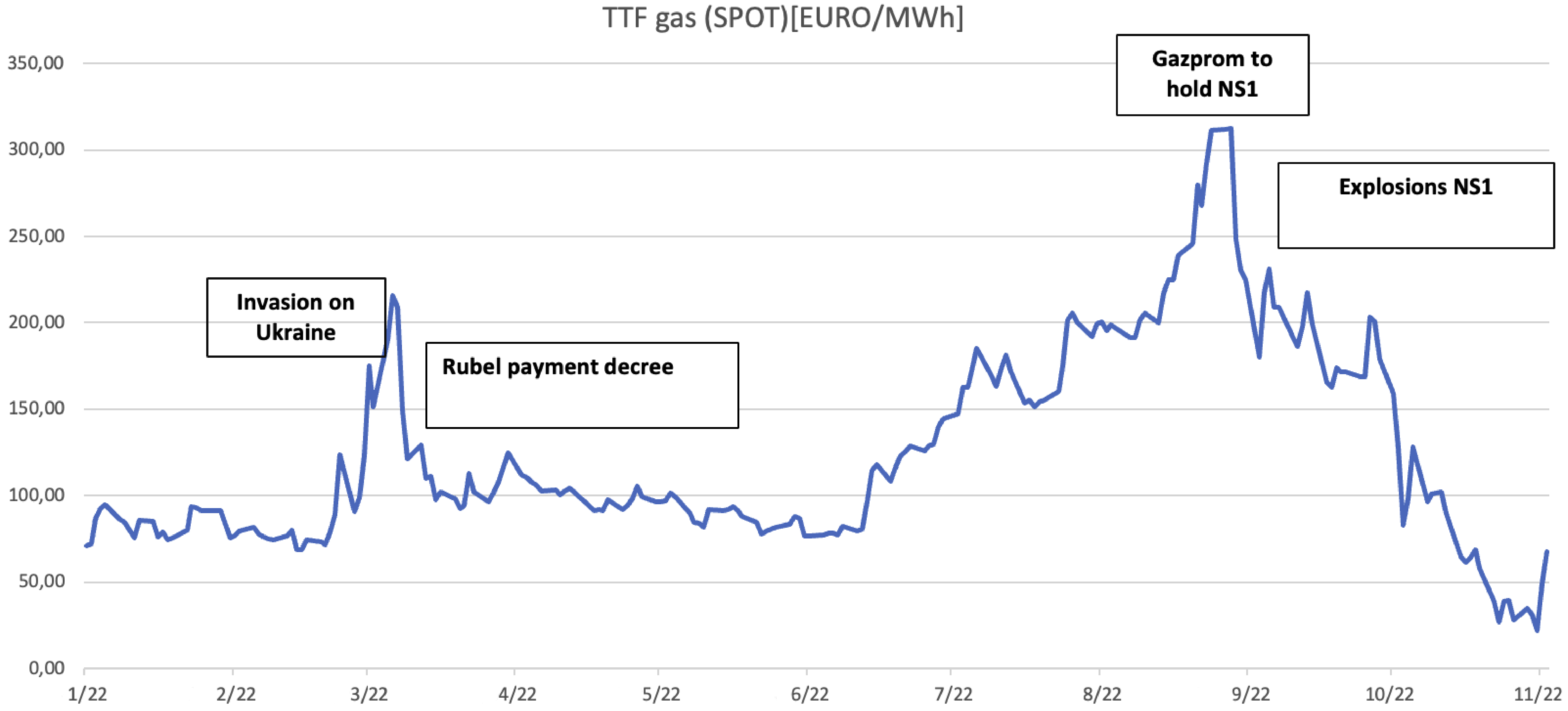
Global Average Delays for Late Vessel Arrivals by Sea Intelligence (R)



Global Schedule Reliability by Sea Intelligence (L)

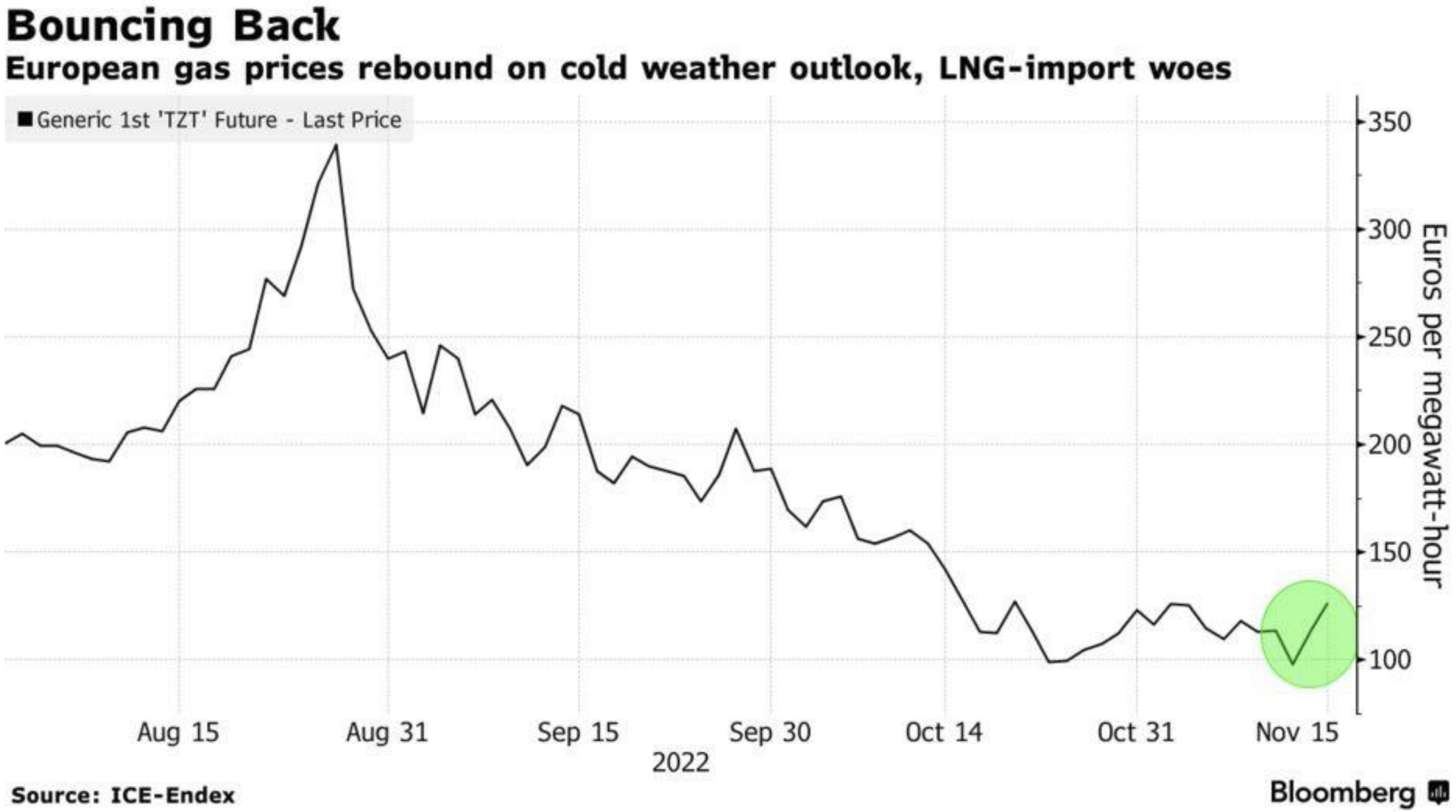


Ceny gazu

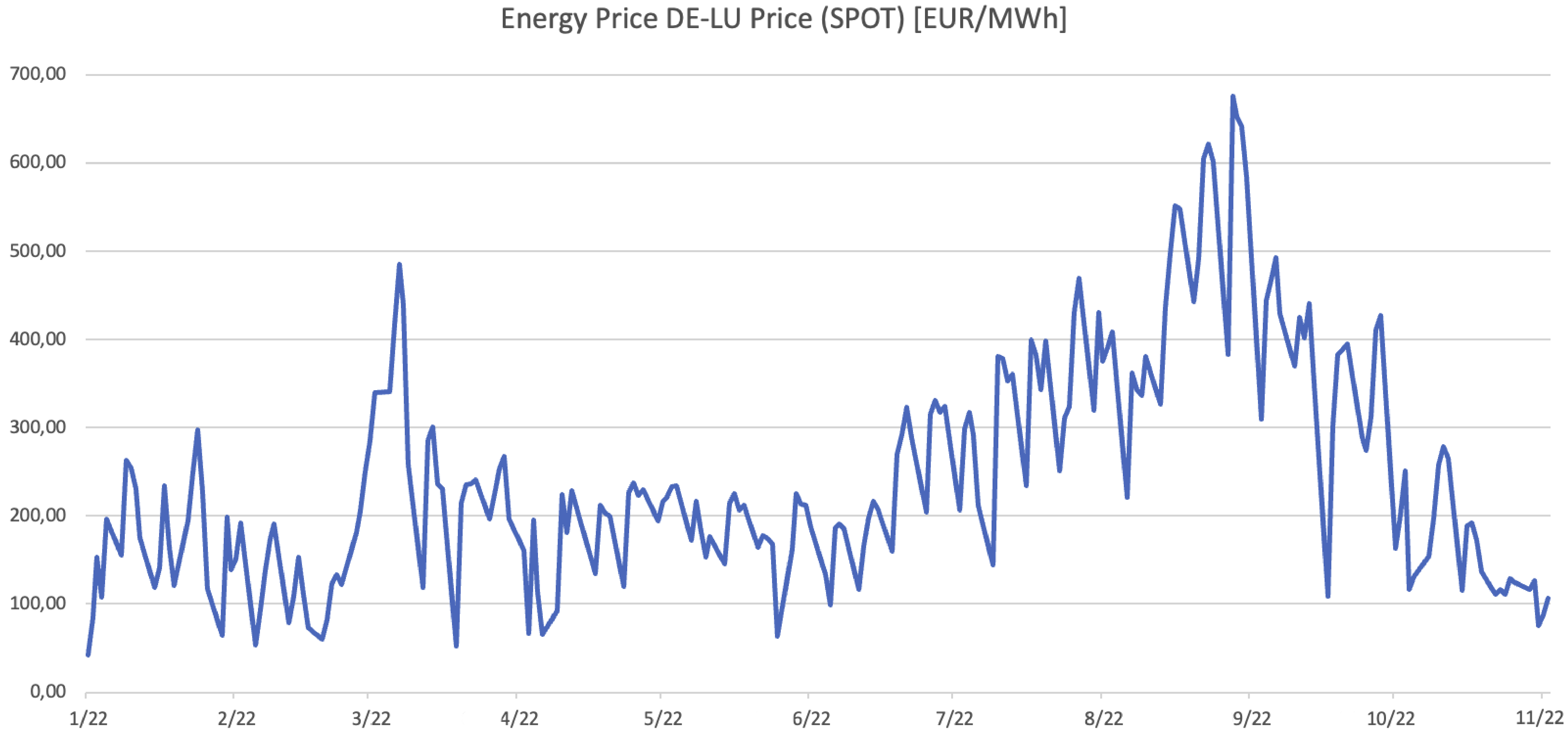


TTF gas (SPOT)[EURO/MWh]
Gazprom to hold NS1
Explosions NS1
Invasion on Ukraine
Rubel payment decree
350,00
300,00
250,00
200,00
150,00
100,00
50,00
0,00
1/22
2/22
3/22
4/22
5/22
6/22
7/22
8/22
9/22
10/22
11/22

Europe’s Energy Crunch



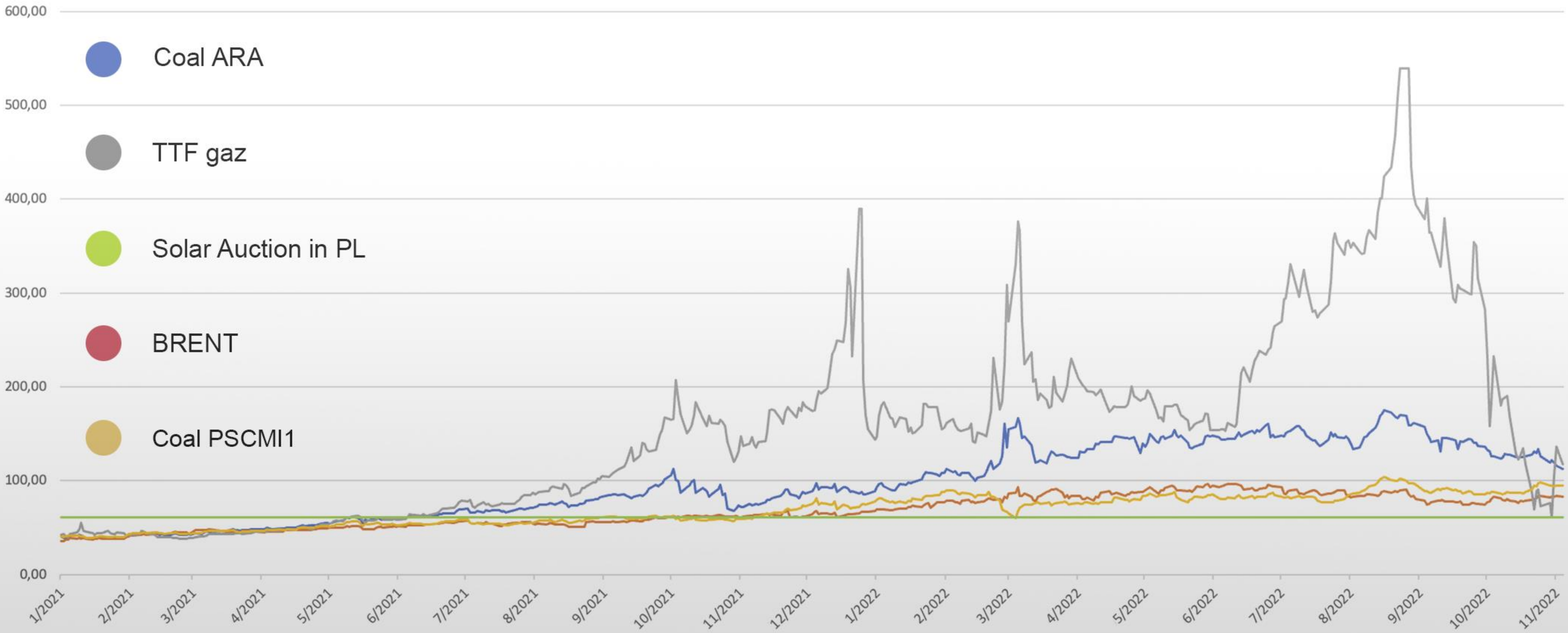
Energy prices



Coal prices


ARA Index [USD/t]
500,00
450,00
400,00
350,00
300,00
250,00
200,00
150,00
100,00
50,00
0,00
1/22
2/22
3/22
4/22
5/22
6/22
7/22
8/22
9/22
10/22
11/22

Koszty wyprodukowania 1MWh energii elektrycznej



Złudne poczucie bezpieczeństwa

Przed nami

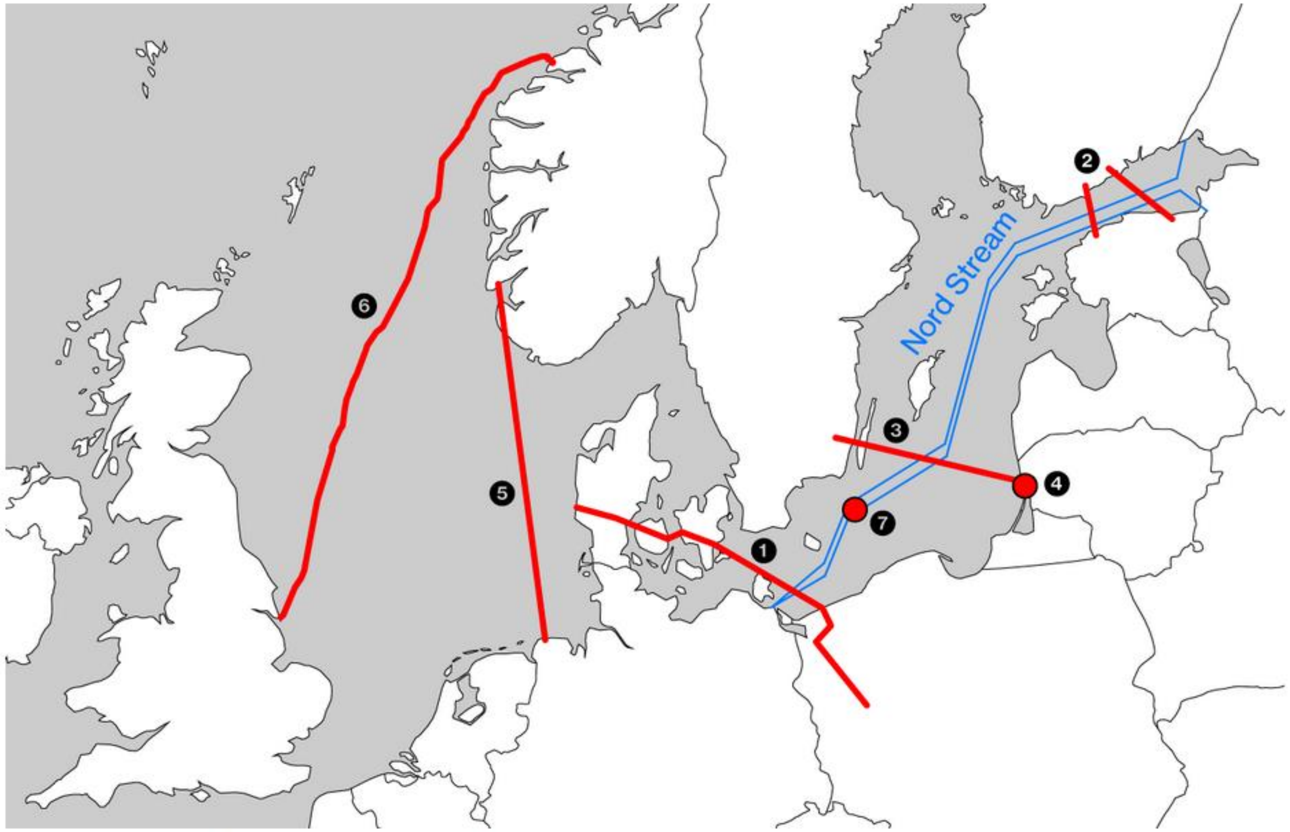
- Sezon zimowy 22/23
- Sezon zimowy 23/24

Kryzys Nord Stream

Where European Energy Infrastructure Is Vulnerable to Attack? Bloomberg, Listopad 2022

„ After explosions on the Nord Stream system, the region is seeking to bolster security on pipelines and other undersea networks”

The Most Vulnerable Sites



Sources: Global Energy Monitor, SciGRID. NordBalt and ESTLink are shown as a direct line between their two ports

① Baltic Pipe

Markets

Gazprom Threatens to Reduce Gas Flows to Europe Via Ukraine

- Gas prices rise 2% as traders have been bracing for more cuts
- Gazprom cites dispute over Moldova as reason for move

By Bloomberg News
22 listopada 2022 12:53 CET *Updated on 22 listopada 2022 13:31 CET*

Gazprom PJSC threatened to cut its gas flows to Europe via Ukraine next week, just as cold winter temperatures prompt Europeans to start tapping their gas stores.

Satellite cyber attack paralyzes 11GW of German wind turbines - Reuters

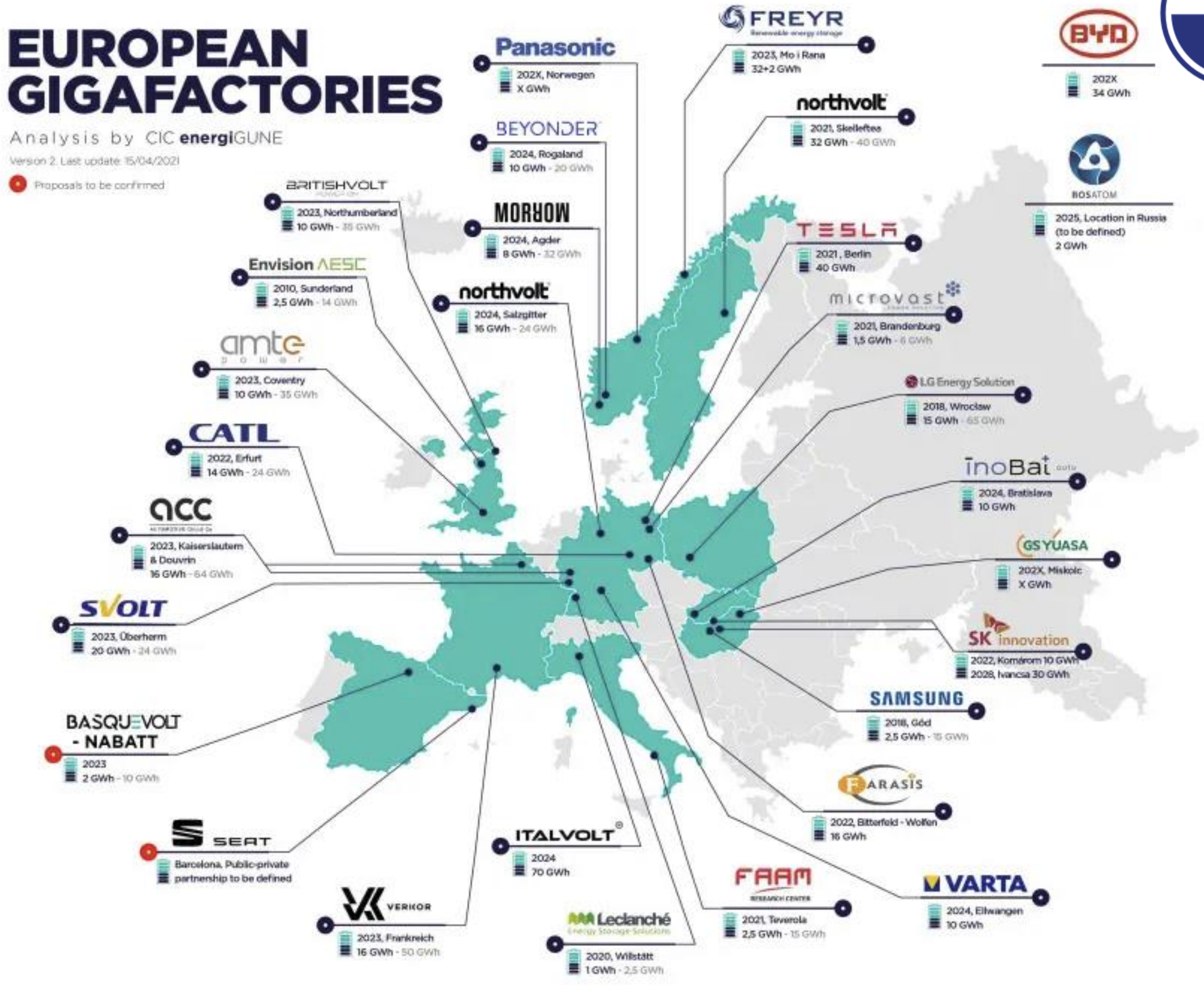
***Germany's Enercon** on Monday said a "massive disruption" of satellite connections in Europe was affecting the operations of **5,800 wind turbines in central Europe**.*
*It said the satellite connections stopped working on Thursday, knocking out remote monitoring and control of the wind turbines, which have a total capacity of **11 gigawatt (GW)**.*

Kryzys - Kijów/Berlin - 15.11 w całej Ukrainie - uszkodzenie 15 obiektów infrastruktury energetycznej; 10 mln ludzi bez prądu

BERLIN

Trend samowystarczalności

Produkcja baterii - 40 gigafactories w Europie do 2035 r.

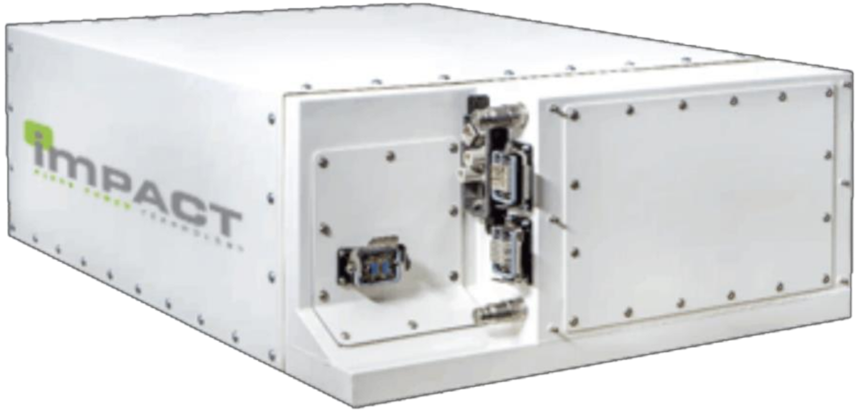


NorthVolt

Produkcja baterii - 40 gigafactories w Europie do 2035 r.

VW - zapowiedział budowę 6 gigafactory bateryjnych w Europie oraz 45.000 szybkich stacji ładowania; pierwsze fabryki powstaną w 2025 r. W Saltzgitter, kolejne w Hiszpanii, Szwecji oraz wschodniej Europie

Famur w Polsce - Impact Clean Power Technologies



BMW - 6x Battery cell factories in China, Europe and USMCA – each with total capacity of up to 20 GWh per year;

Elon Musk
@elonmusk

Replying to @stats_feed

Price of lithium has gone to insane levels! Tesla might actually have to get into the mining & refining directly at scale, unless costs improve.

There is no shortage of the element itself, as lithium is almost everywhere on Earth, but pace of extraction/refinement is slow.

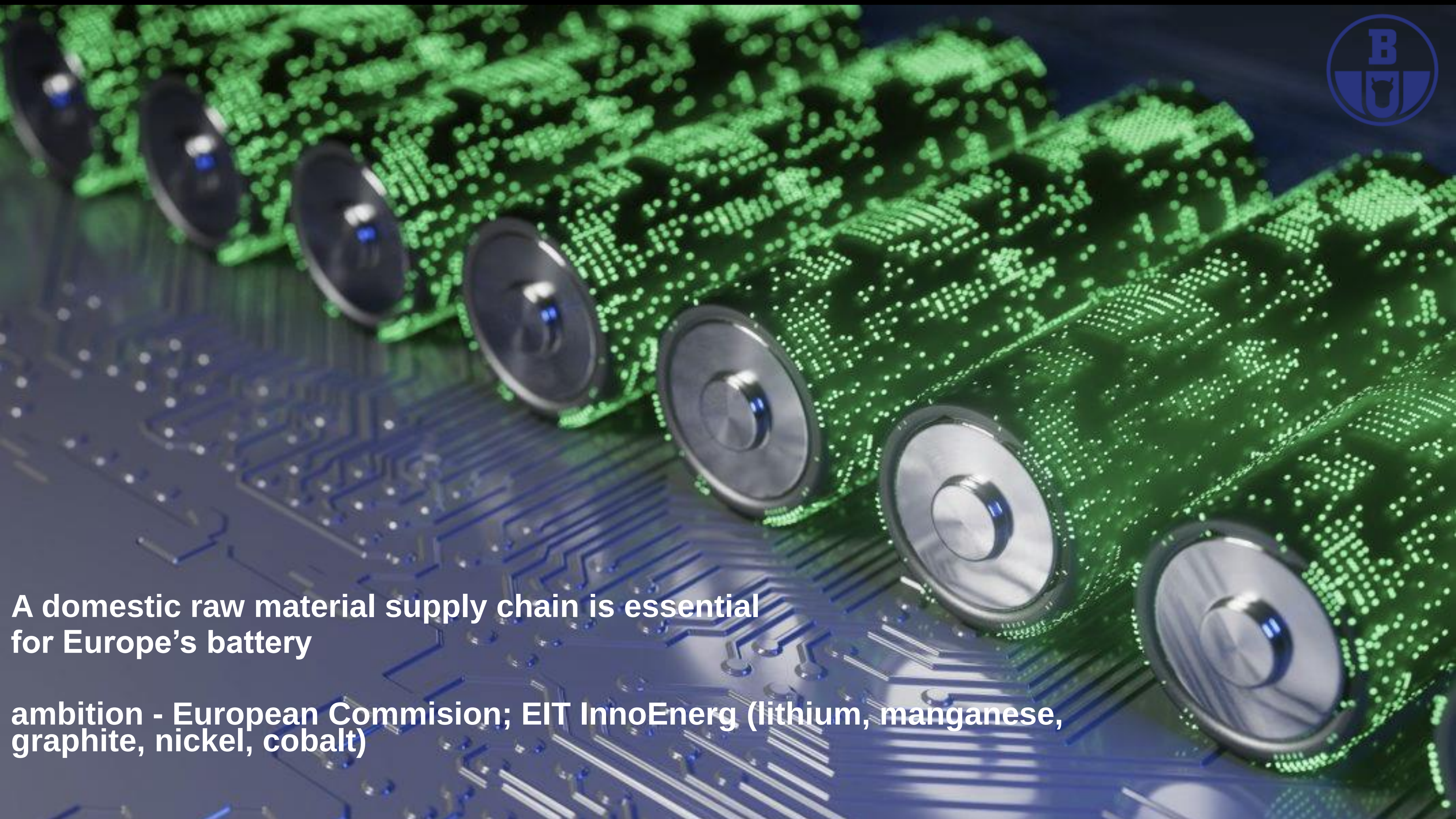
8:59 PM · Apr 8, 2022 · Twitter for iPhone

5,236 Retweets **1,266** Quote Tweets **63.3K** Likes

The rise of electric vehicles has prompted concern among carmakers and battery makers about securing supplies of raw materials such as cobalt, lithium and nickel that are needed to manufacture batteries

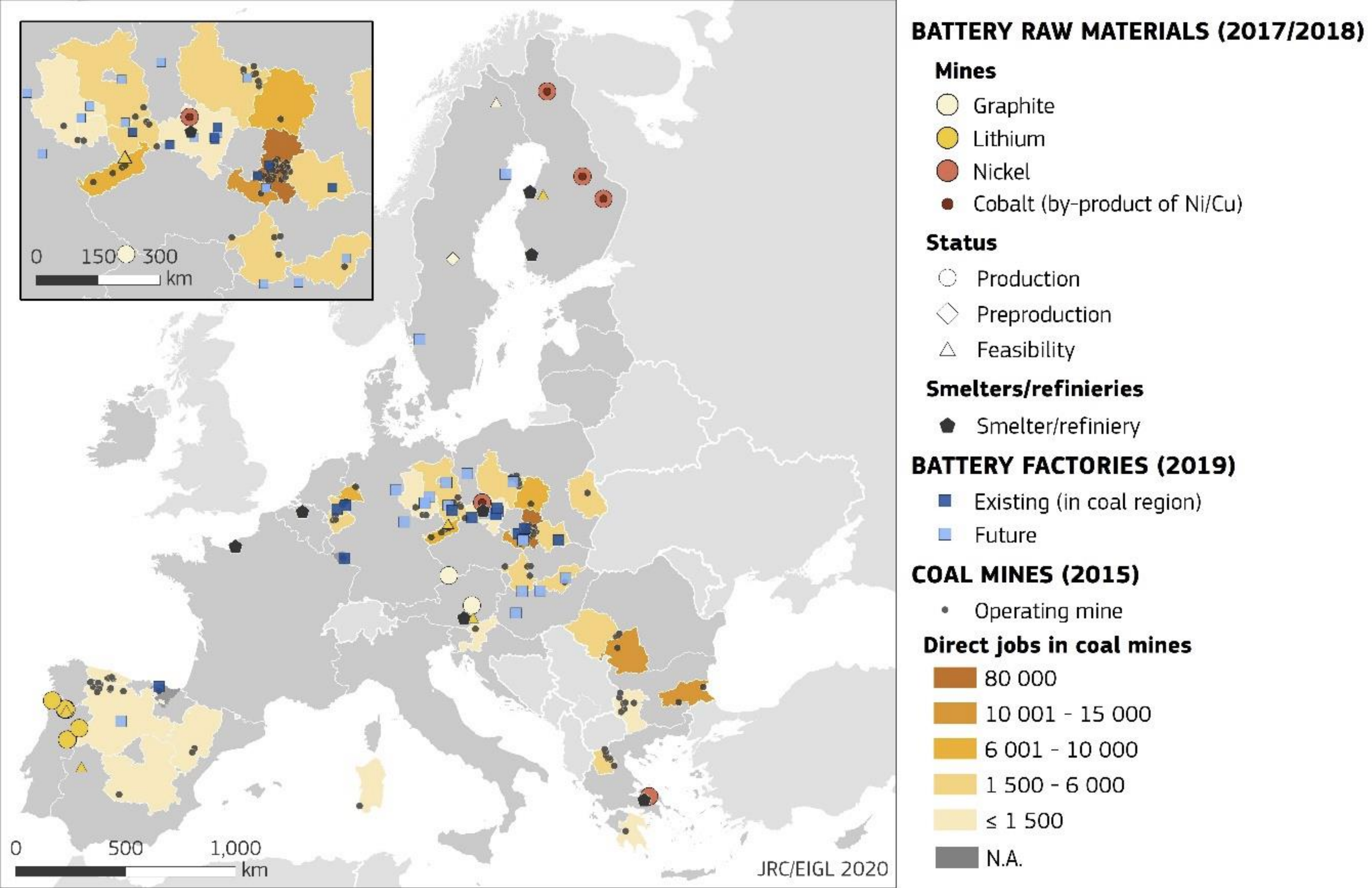
Financial Times, 31th October 2022;

2022: $78,032
2021: $17,000
2020: $6,800
2019: $11,310
2018: $14,660
2017: $12,070
2016: $8,840
2015: $5,110
2014: $4,680
2013: $4,750
2012: $4,450

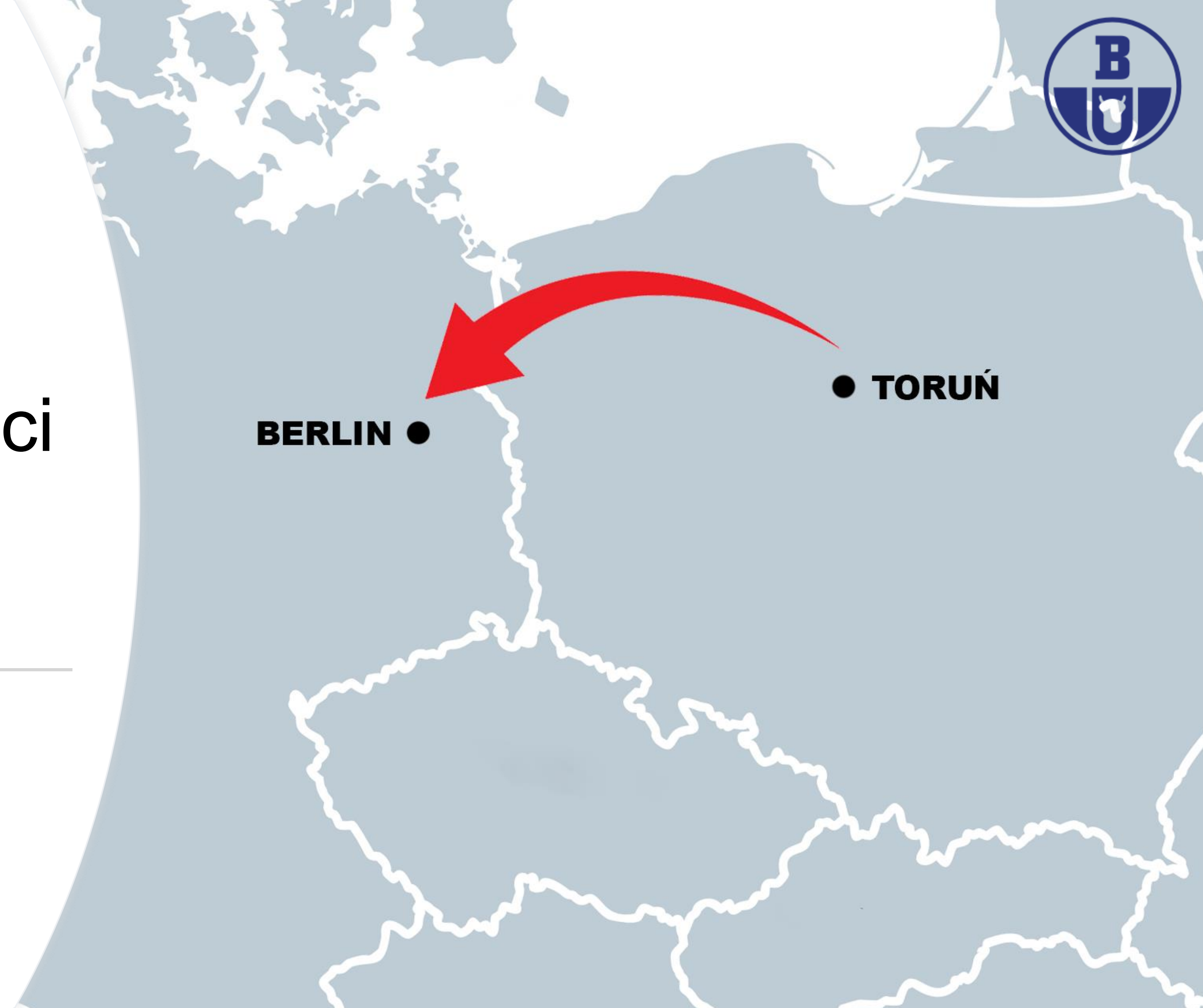


A domestic raw material supply chain is essential for Europe’s battery

ambition - European Commision; EIT InnoEnerg (lithium, manganese, graphite, nickel, cobalt)

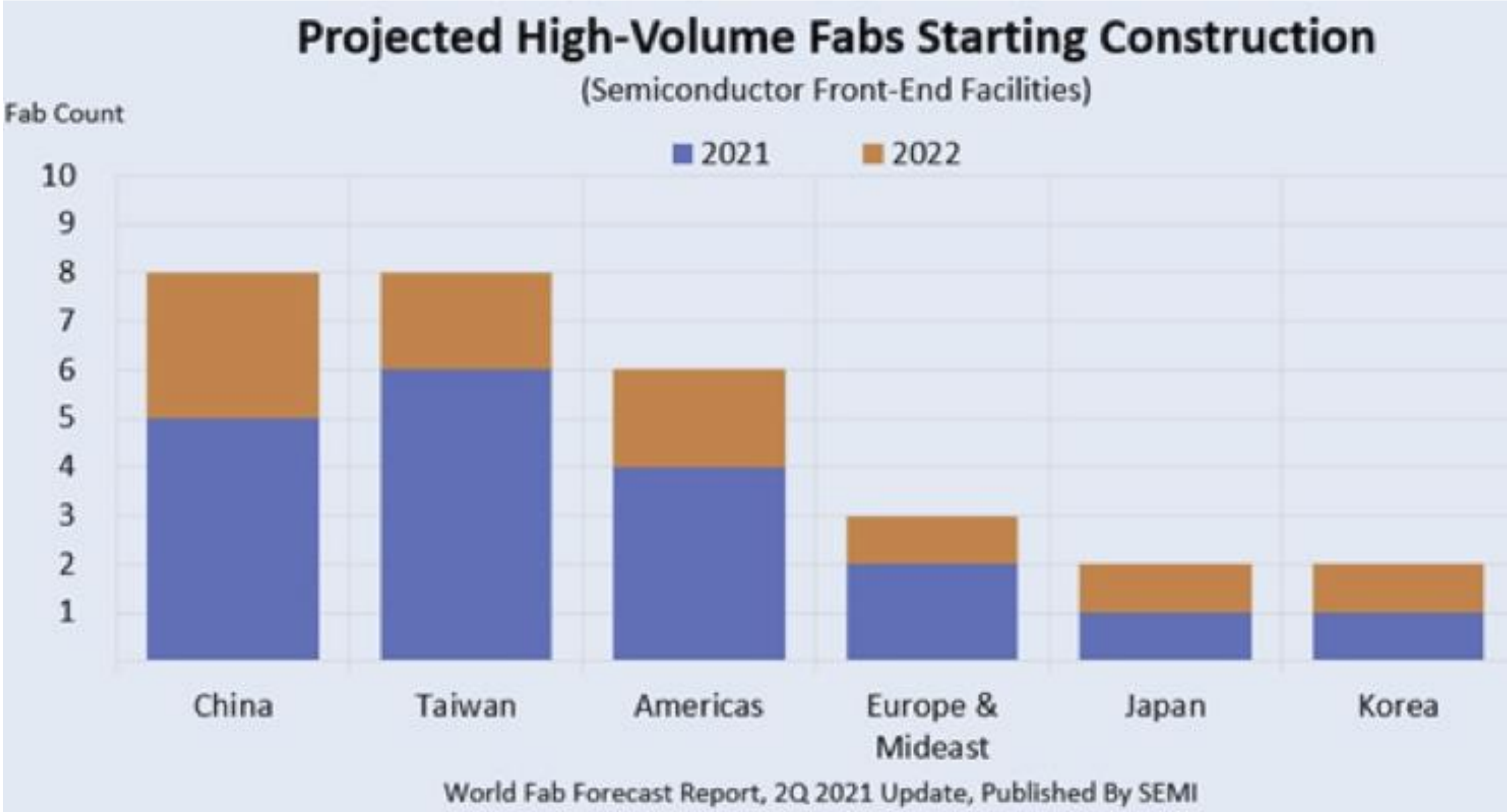

BATTERY RAW MATERIALS (2017/2018)
Mines
Graphite
Lithium
Nickel
Cobalt (by-product of Ni/Cu)
Status
Production
Preproduction
Feasibility
Smelters/refinieries
Smelter/refiniery
BATTERY FACTORIES (2019)
Existing (in coal region)
Future
COAL MINES (2015)
Operating mine
Direct jobs in coal mines
80 000
10 001 - 15 000
6 001 - 10 000
1 500 - 6 000
≤ 1 500
N.A.
0 150 300
km
0 500 1,000
km
JRC/EIGL 2020

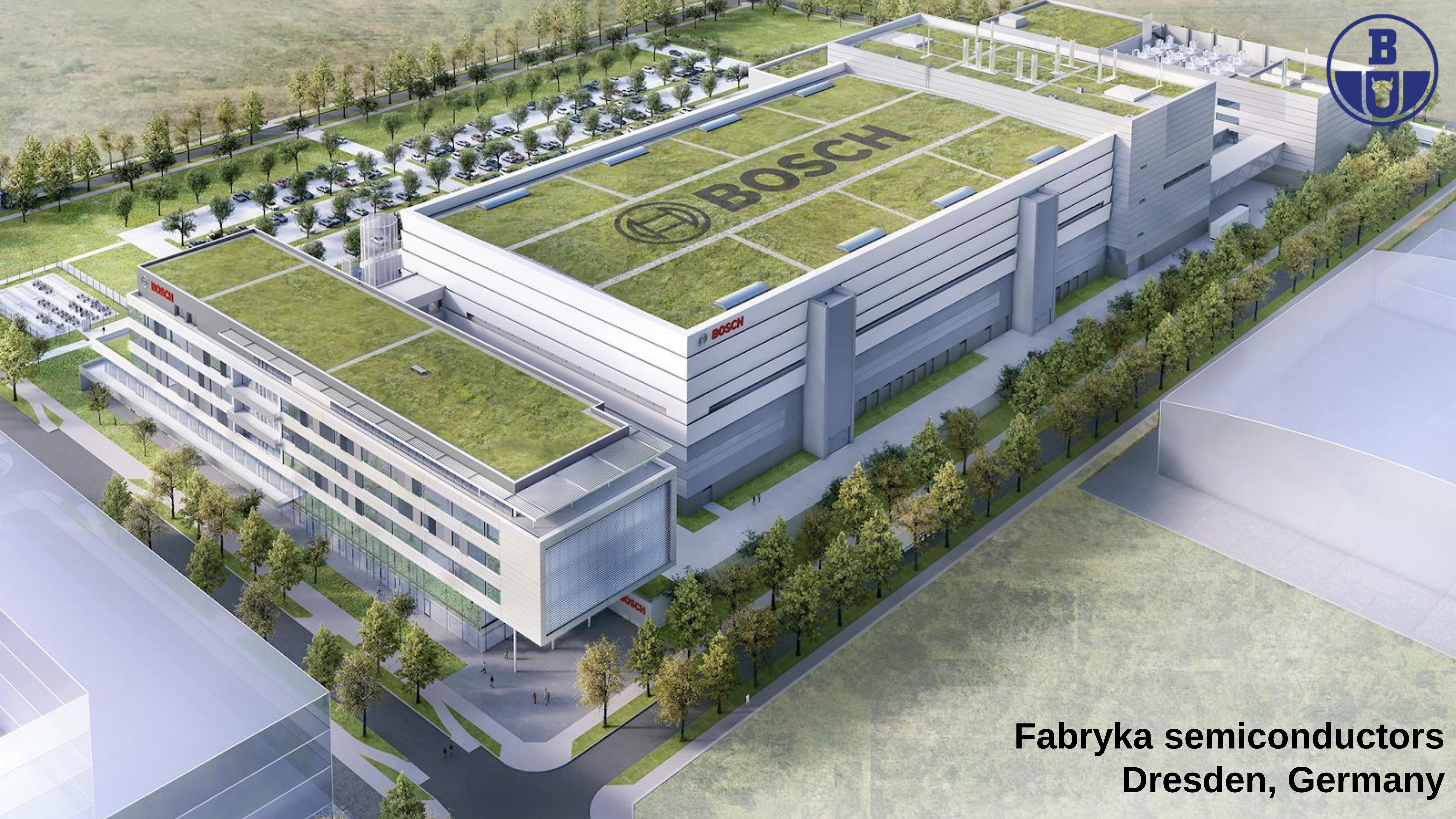
Produkcja części dla Tesli w Europie



Semiconductor Crisis "EU launches €43bn push for chip factories as shortages hit manufacturing"

Financial Times

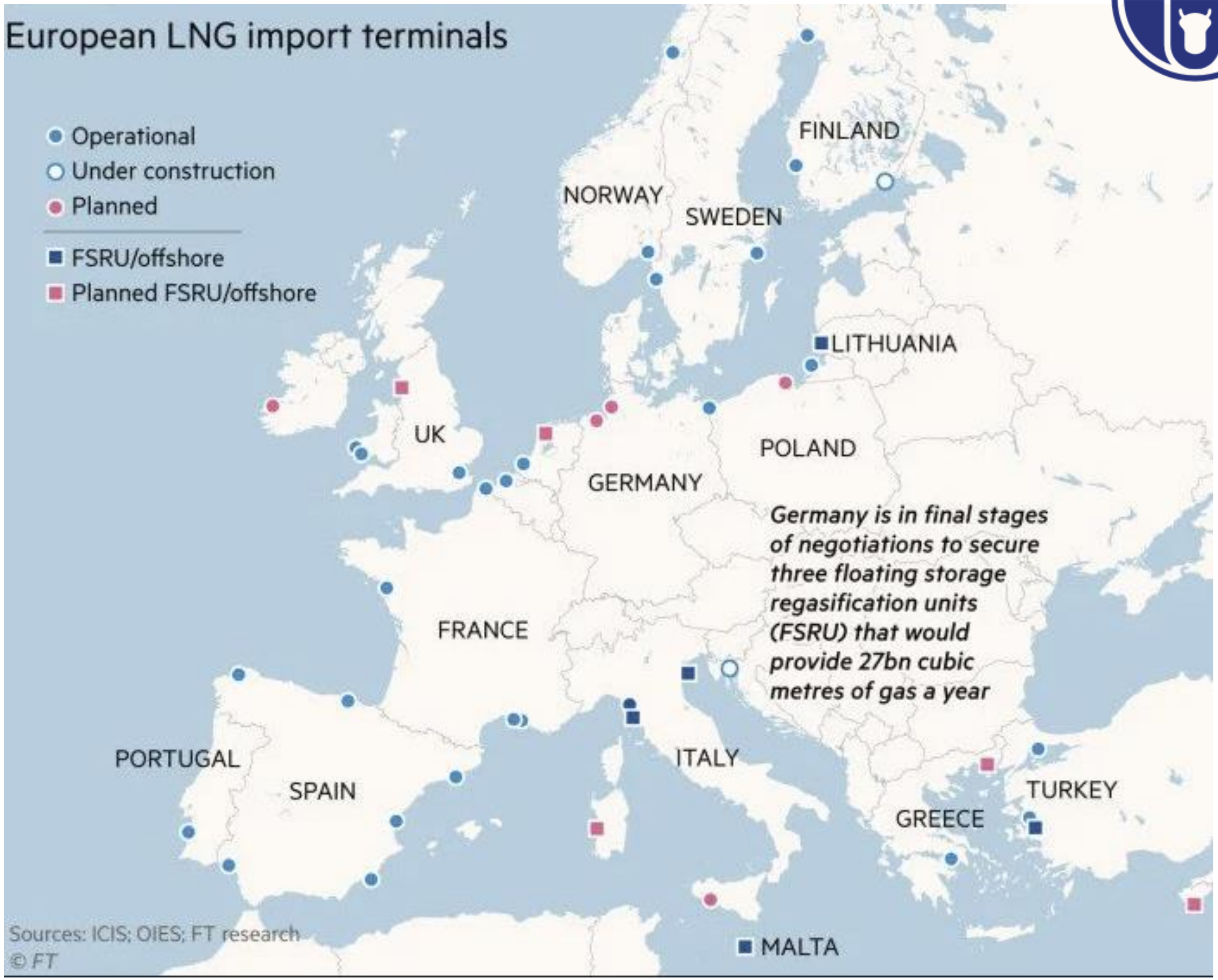




Fabryka semiconductors
Dresden, Germany

Budowy terminali LNG

nowe projekty



Niemcy
i LNG 200 dni!

Germany finishes construction of its first LNG import terminal

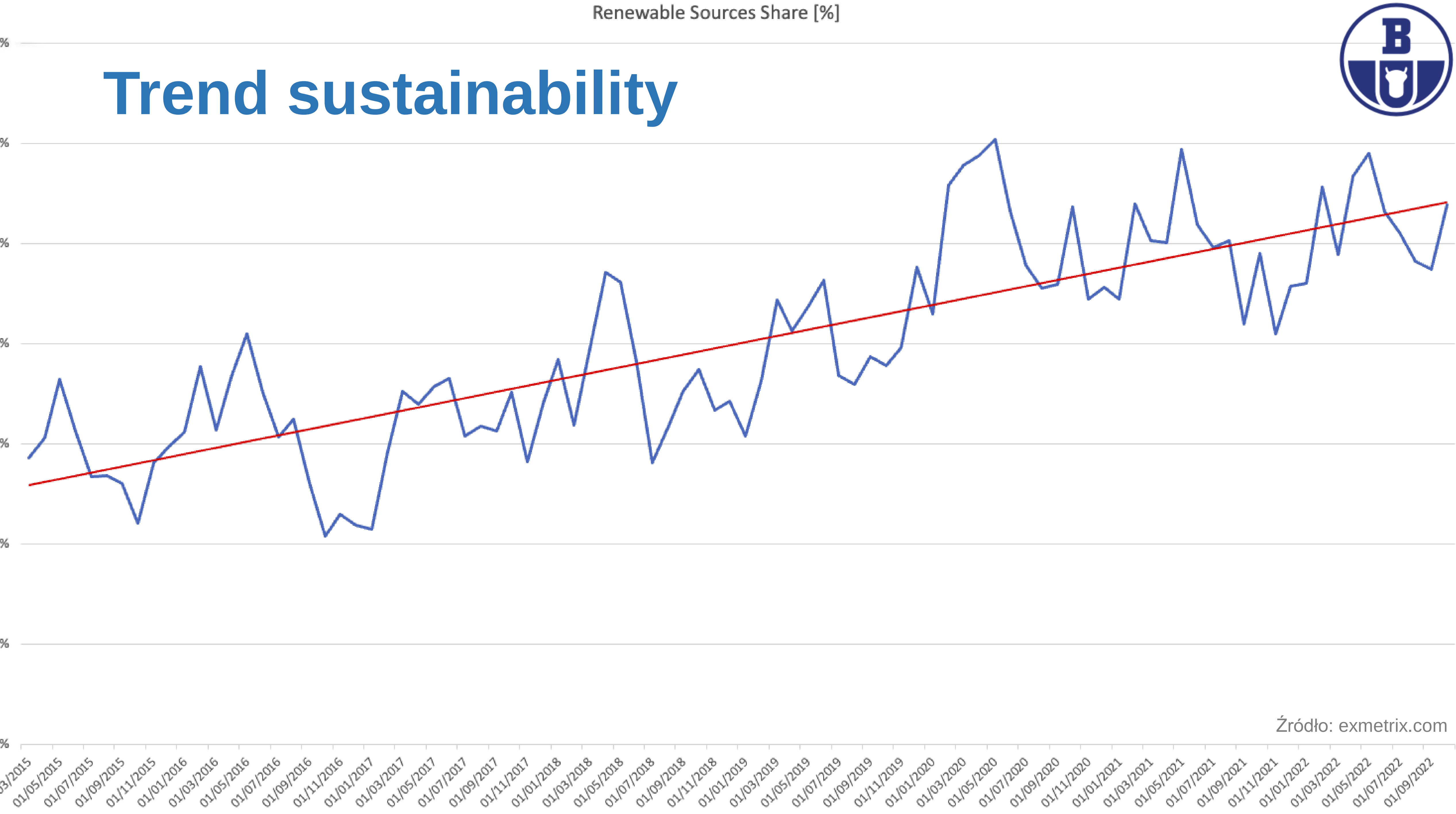
Completion of project in just 200 days eases fears of gas shortage amid cut in Russian supplies

The new LNG terminal in Wilhelmshaven, Germany © David Hecker/Getty Images

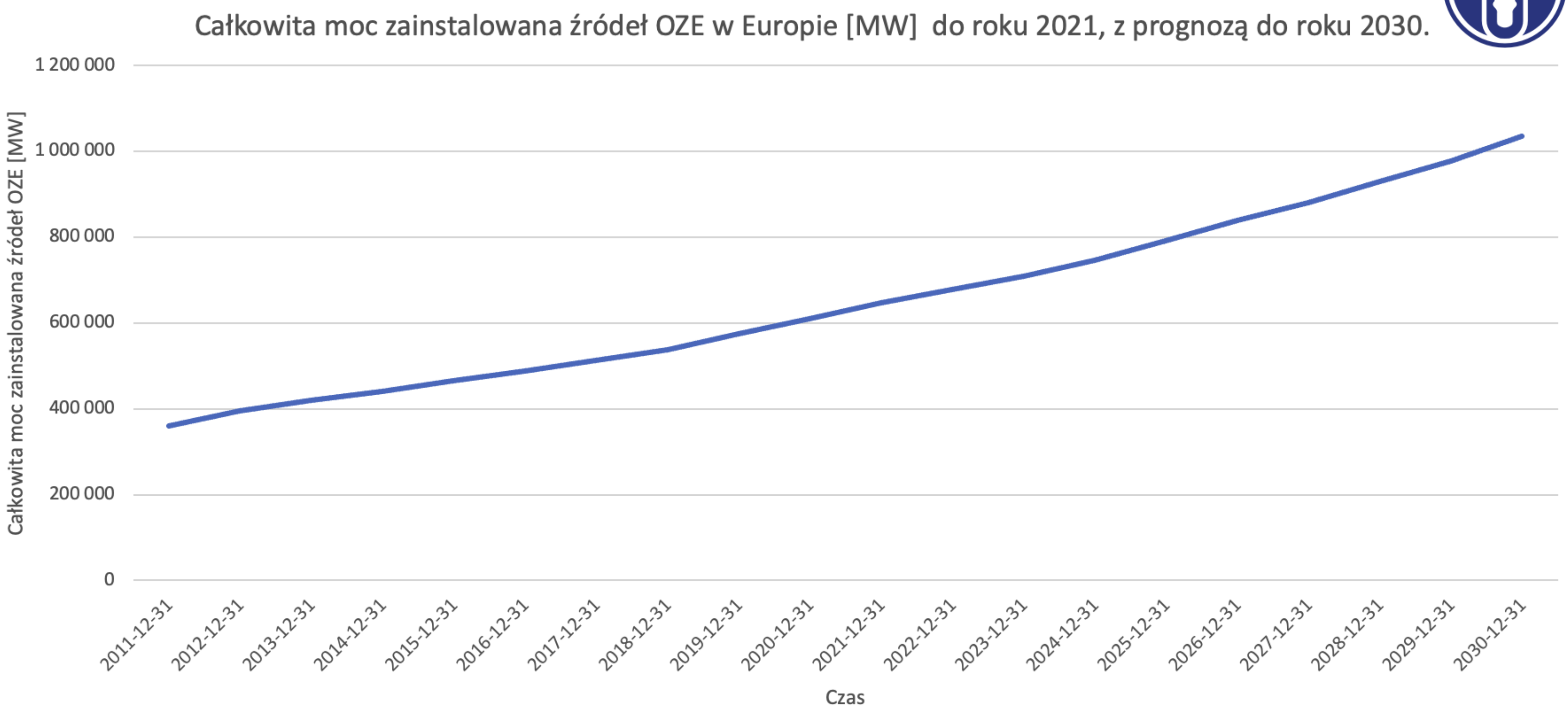
Guy Chazan in Berlin, **David Sheppard** in London and **Camilla Hodgson** in Sharm el-Sheikh
NOVEMBER 15 2022

145

Trend sustainability

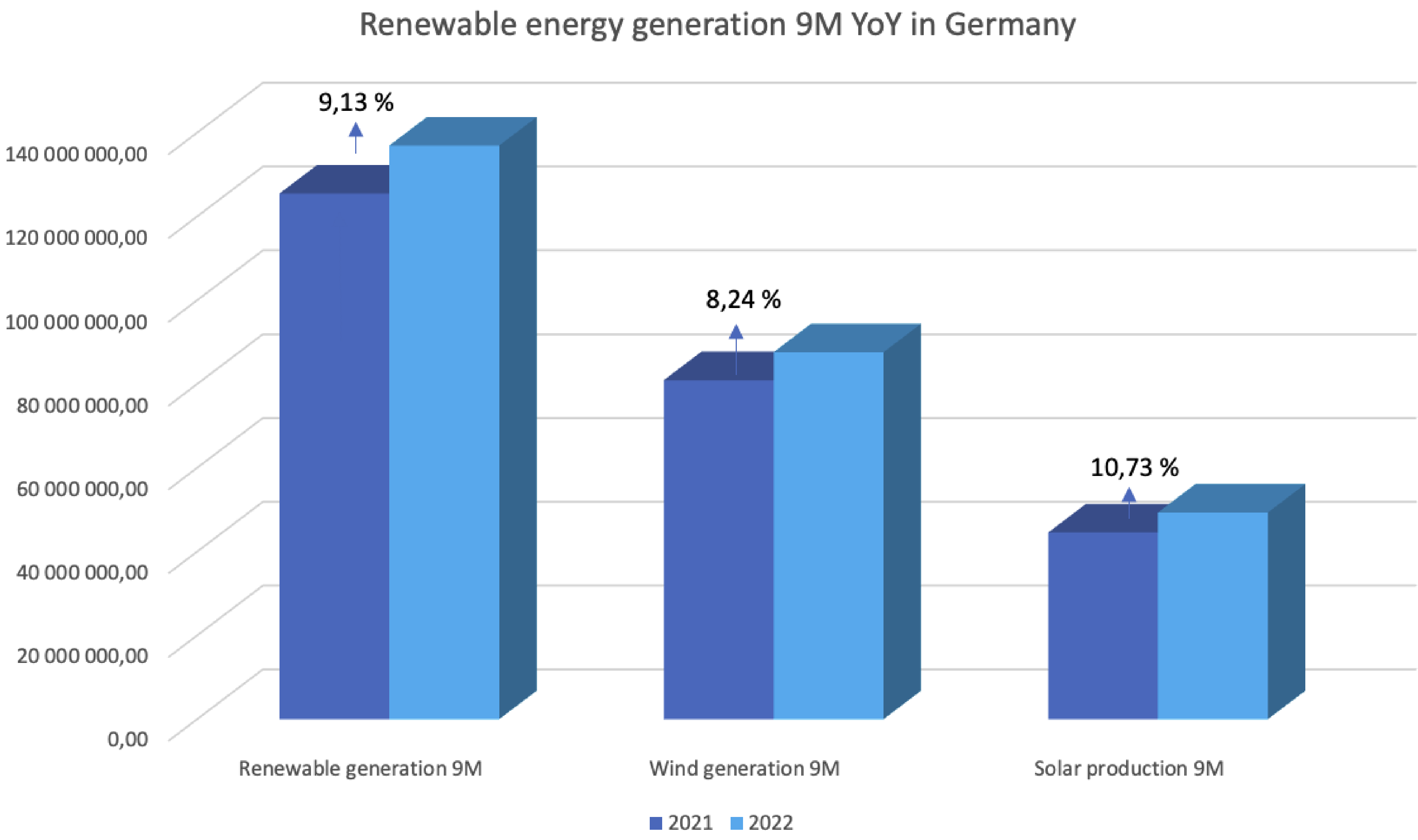


Źródło: exmetrix.com

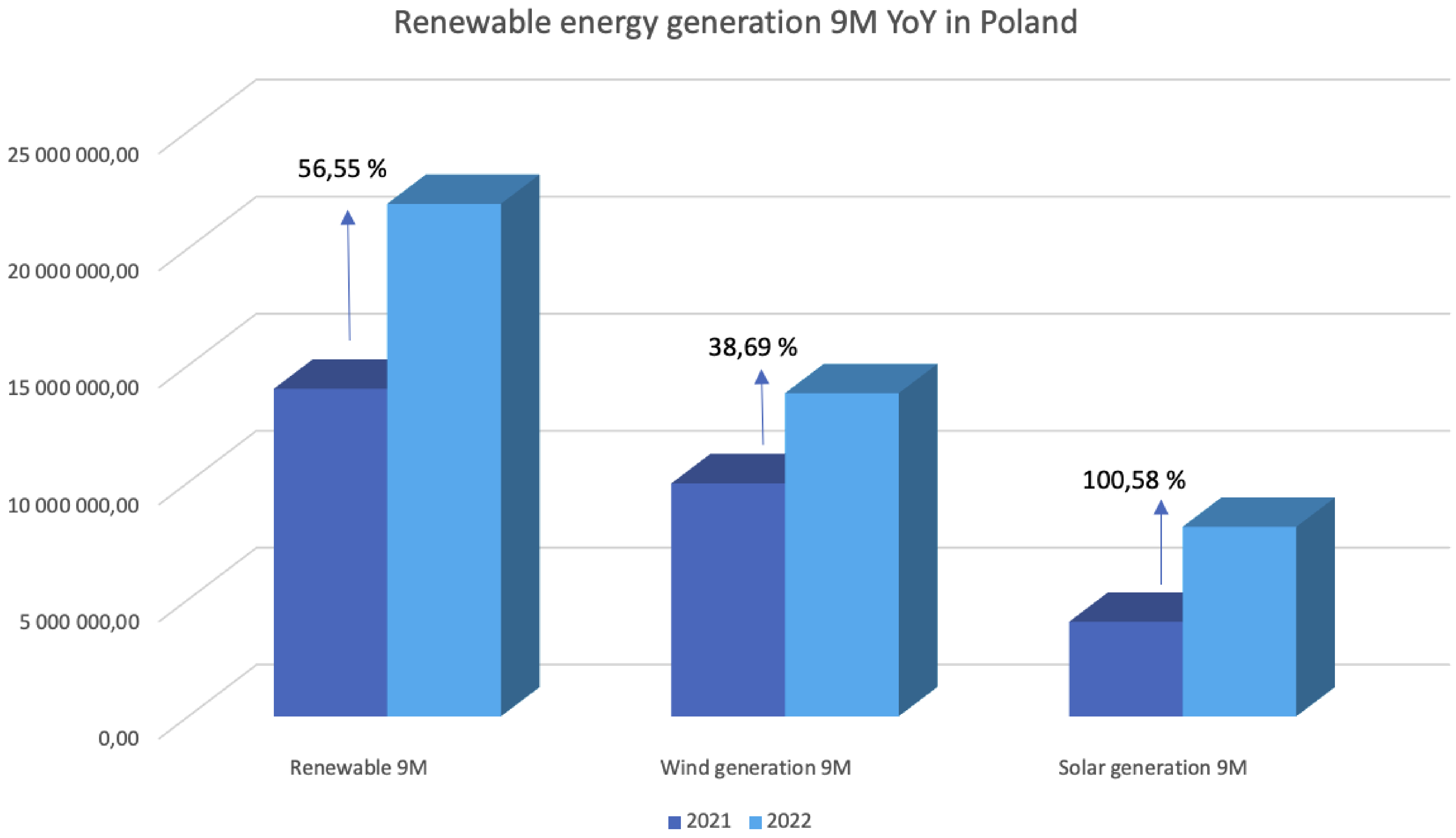


Źródło: exmetrix.com

Green Energy production in Europe 2022

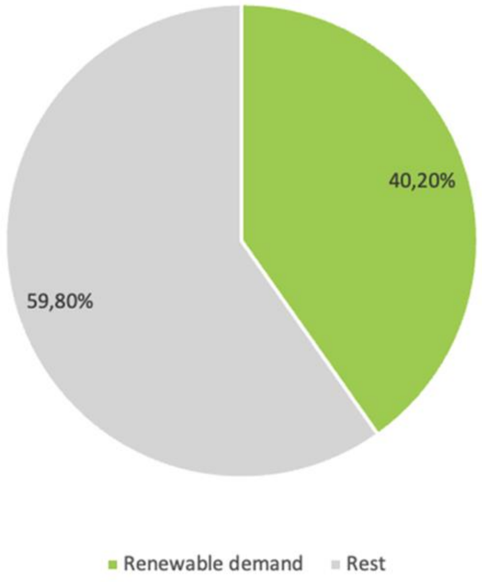


Green Energy production in Europe 2022

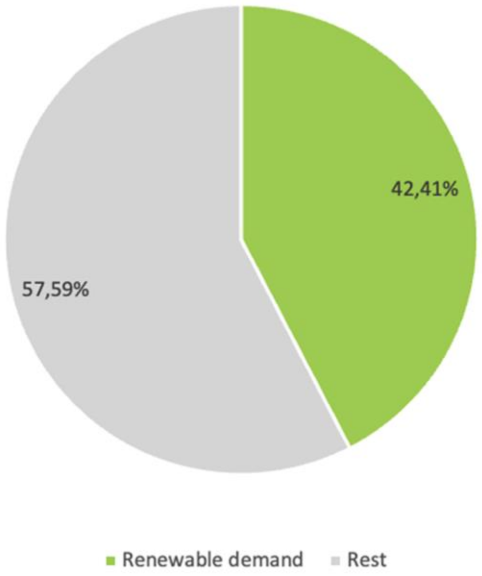


Green Energy production in Europe 2022

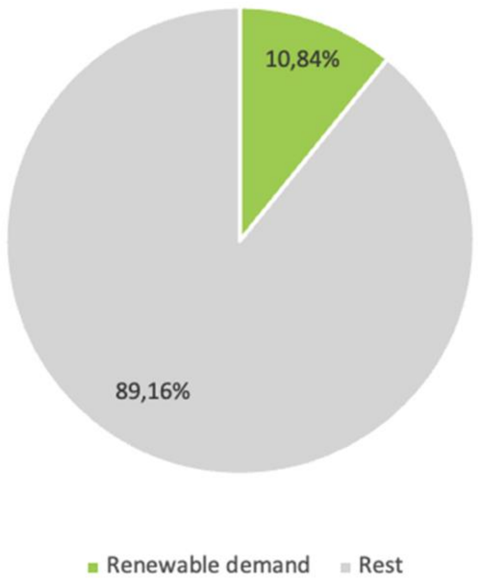
Renewable generation in Germany - 2021



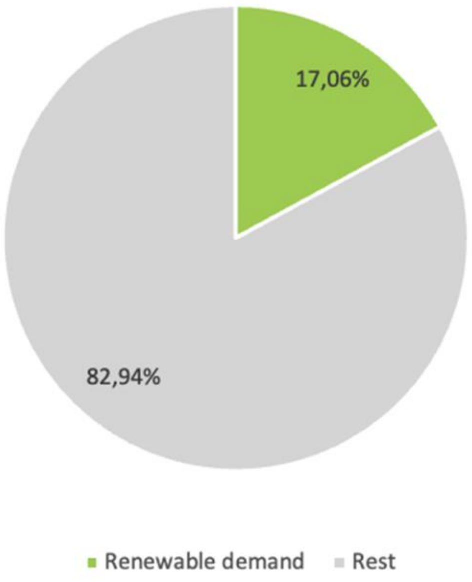
Renewable generation in Germany - 2022



Renewable generation in Polish energy- 2021



Renewable generation in Polish energy mix- 2022



Trend zazieleniania produkcji przemysłowej

H2Greensteel; Boden, Szwecja - H2 Green Steel

Produkcja zielonej stali od 2025 r.; 5 mln Mt/rocznej produkcji;


H2 green steel

H2Greensteel; Boden, Szwecja - H2 Green Steel

Elektryfikacja transportu

W 2023 przewiduje się sprzedaż około 10.8 mln aut elektrycznych; wzrost 25% YoY; (źródło Economist Unit Intelligence);

Volkswagen brand will only produce electric cars in Europe from 2033 brand chief

REUTERS®

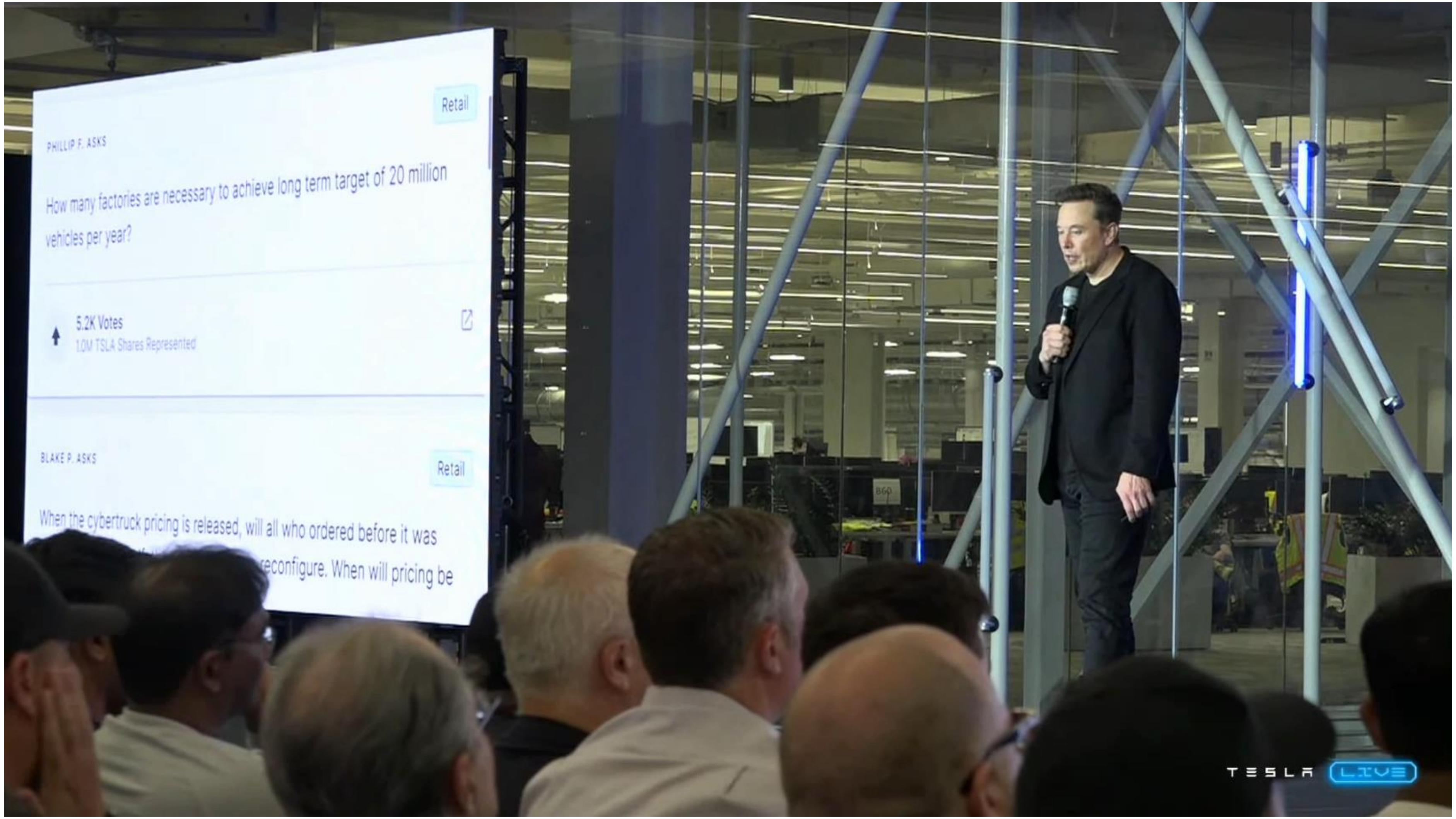
World Business Legal Markets More

Aa

A technician attaches a Volkswagen logo to a car, at the production line for electric car models of the Volkswagen Group, in Zwickau, Germany, April 26, 2022. REUTERS/Matthias Rietschel

Reuters 22 October 2022

2022 Annual Meeting of Tesla Stockholders



Rywalizacja

VW and Mercedes's Electric-Car Ambitions Run Into Trouble

- VW plans to delay EV rollout, Mercedes cuts EQS price in China
- German carmakers are under pressure to finally overtake Tesla

The Mercedes-Benz EQS 580 4MATIC. *Source: Mercedes-Benz*

By William Wilkes, Monica Raymunt, and Stefan Nicola
19 November 2022 at 07:00 CET

Rywalizacja

Bloomberg

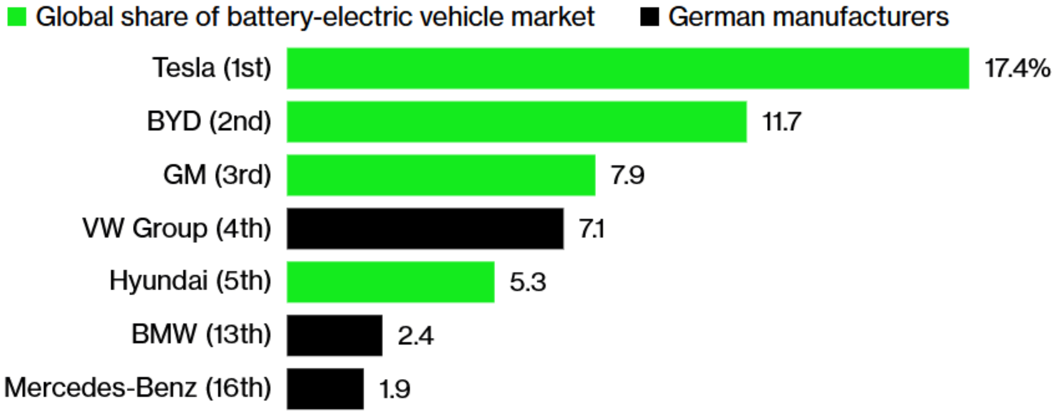
● Live Now Markets Economics Industries Technology Politics Wealth Pursuits Opinion Businessweek

Amundi, Deutsche Bank's DWS Downgrade ESG Funds in Big Reset

leading the transition, but they're not yet delivering," said Bloomberg Intelligence's Michael Dean. "They still have a long way to go."

Trailing Behind

How the Germans stack up against the world's largest EV makers



Source: EV-Volumes.com
Note: Share figures shown are for this year through September

Trend regulacyjny

Pakiet 200 mld Euro dla przemysłu niemieckiego w 2023 r.
Inflation Reduction Act - USA (przykład: Nothvolt może dostać na budowę fabryki w Niemczech dotację na poziomie 155 mln Euro, versus dotacja z IRA na poziomie 600/800 mln $)

Niemcy wprowadzają 75 Euro CAP na gaz oraz 130 Euro na energię elektryczną

Polska - wprowadza 785 zł./MWh, ale tylko dla MŚP; gaz bez wsparcia regulacyjnego;

Dotacje rządów do energetyki - jakie skutki?

EU economy + Add to myFT

European industry pivots to US as Biden subsidy sends 'dangerous signal'

Politicians warn of investment exodus across Atlantic, driven by US incentives and cheaper gas prices

Northvolt, Europe's great hope in the global battery wars, began life as a start-up focused on the continent. Now the Swedish group, backed by Volkswagen, BMW and Goldman Sachs, is looking to the US to expand production.

The reason for the pivot is the Inflation Reduction Act (IRA). The US's flagship green technology legislation, signed into law in August, would subsidise a factory in America by about $600mn-$800mn, according to Northvolt. That compares to €155mn in incentives on the table from Germany.

The IRA "is moving momentum a lot from Europe to the US", Northvolt chief executive Peter Carlsson told the Financial Times, adding that it was not only affecting European companies. "There are new Asian players who are reallocating their strategic plans and investments to North America," he said.

The combination of the Biden Administration's $369bn package and high energy costs in Europe, where even after recent declines gas prices remain five times more expensive than in North America, is sounding alarm bells in EU capitals.

Germany Plans €54 Billion Package to Contain Energy Surge

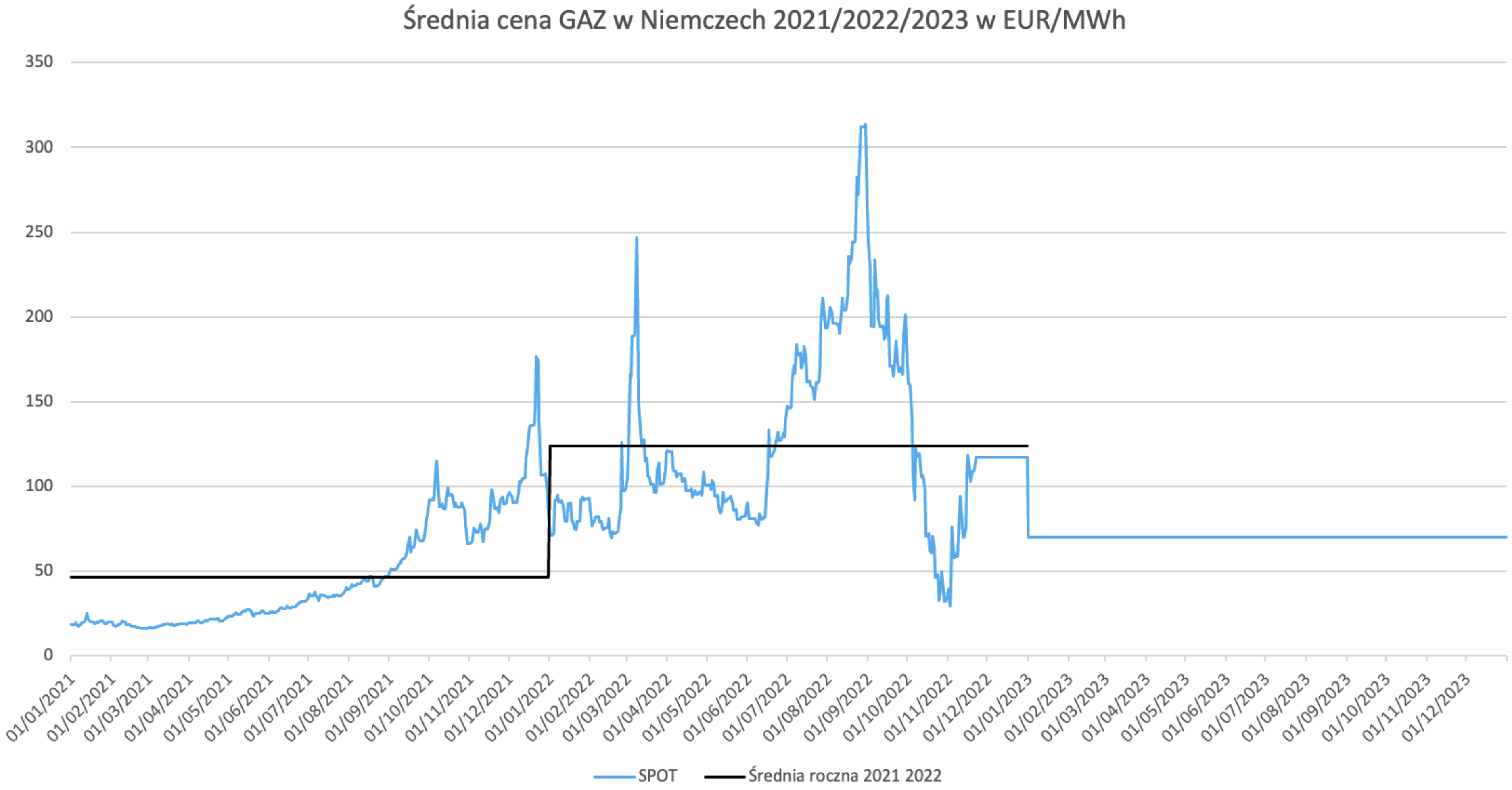
- Subsidies for gas and power bills to go into effect next year
- Prices for bulk of usage to be capped under government plan

By Arne Delfs, Kamil Kowalcze, and Vanessa Dezem
22 listopada 2022 10:42 CET *Updated on 22 listopada 2022 15:05 CET*

Germany will introduce a cap on gas and electricity prices for companies and households next year as Europe's largest economy seeks to contain the fallout from Russia's moves to slash energy supplies.

The package of measures, which will cost the government about €54 billion ($55.5 billion), will go into effect on March 1, according to government officials. The subsidies will be paid retroactively for

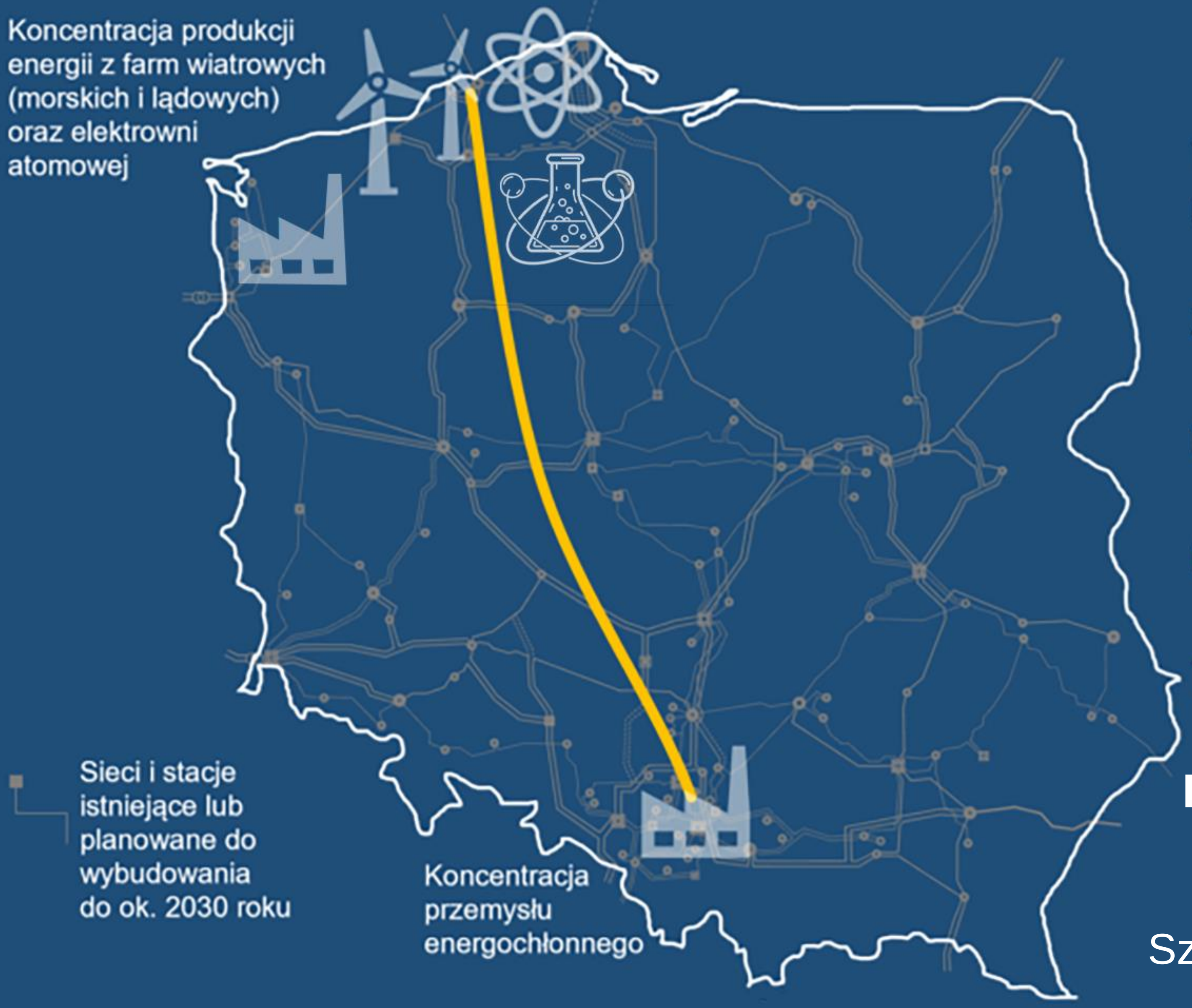
Cena surowców po dotacji rządu niemieckiego;



Skutki dla przemysłu - niskie ceny, możliwość rozwoju i szybkiego wyjścia z sytuacji kryzysowej;

Nowy okręg przemysłowy zielonej produkcji w Polsce?

Planowany most energetyczny północ-południe



Technologia: HVDC (stałoprądowa linia napowietrzna najwyższych napięć)

Zdolność przesyłu: ok. 4 GW

Długość: ok. 700 km

Koszty: ok. 10 mld zł

Termin realizacji: ok. 2032 roku

Polska na tle Europy - budowa elektrowni jądrowej na północy Polski;

Szansa - budowa nowego, czystego przemysłu chemicznego; produkcji aluminium i baterii;

Dziękuje za uwagę

mikolaj.budzanowski@boryszew.com