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Global Demand: Pellets Are Mainstream

A journey from the past to the future

WPAC Conference, Ottawa

William Strauss, President, FutureMetrics and Erisa Senerdem, Editor Biomass Markets, Argus Media

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A view of Argus

- Headquartered in the UK, Argus has over 1,200 staff working in 29 offices in the world's principal commodity trading and production centres.
- Argus publishes more than 42,000 daily and weekly spot and forward price assessments, along with commentary, news and analysis for global commodities and energy markets.
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 - Oil, natural gas, power, hydrogen, coal, biomass, asphalt, base oils, emissions and carbon
 - Biofuels
 - Fertilizers
 - Agriculture
 - Chemicals, including petrochemicals and oleochemicals
 - Metals, ferrous, non-ferrous, battery materials, and scrap
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 - Market reporting, news, and analysis
 - Consulting and forecasting
 - Conferences
- Argus prices are used as benchmarks worldwide, including for:
 - US crude oil
 - European gasoline and biofuels
 - Asia-Pacific LPG
 - Coal
 - European steel
 - US and European environmental markets



Argus Biomass Markets

- Weekly report, launched May 2009
- Weekly wood pellet, wood chip and PKS spot prices
- Weekly European forward prices – wood pellets and chips
- Short-sea and Trans-Atlantic freight rates
- Market news, in-depth analysis
- Power breakeven prices – pellet, coal, natural gas
- Data and downloads (web)

MARKET COMMENTARY

Atlantic basin: Spot up with activity

The spot price of industrial wood pellets for deliveries to northwest Europe (NWE) rose in the week, as trading activity picked up and some concerns over wood pellet supply during the coming heating season remained.

The 90-days industrial wood pellet price rose by \$4.23/t to \$211.02/t cif NWE on Wednesday.

A deal for 5,500t of industrial wood pellets for delivery to a small commercial user in the second half of October concluded at €225/t (\$241.42/t) cif NWE on Friday.

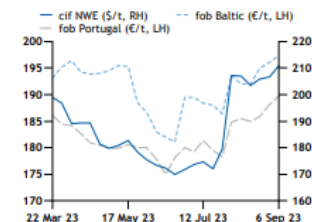
And firm talks were ongoing for a handy-sized cargo for delivery in end of November to early December at just over \$225/t cif NWE, with a deal expected to conclude in the coming days.

Much higher premiums can be achieved for spot deliveries smaller volumes on short sea routes in Europe, compared with larger handy- or supramax-sized cargoes typically loaded out of North America. The premium could be even higher if industrial pellets carry qualities of residential pellets, such as lower ash content.

Although spot prices for large cargoes are expected to firm once consumption rebounds, and this week's deal price could point to how much the marginal supply would cost when that happens, a participant said.

Currently, most end users are well supplied, with stocks near capacity at utility and other sites or barges. But concerns over supply availability once stocks are depleted

Argus industrial wood pellet index



EUROPEAN INDUSTRIAL WOOD PELLETS

	Week Index		Month Index		
	Price	±	Aug	Jul	Jun
Wood pellets - within 90 days (spot)					
cif NWE \$/t	211.02	+4.23	206.08	174.94	171.81
fob Baltic €/t	197.32	+1.12	193.75	188.06	183.86
fob Portugal €/t	189.67	+1.50	185.88	179.58	177.74

	Price		±
Wood pellets - within 90 days (spot)			
cif NWE \$/MWh		44.69	+0.90
fob Baltic €/MWh		41.79	+0.24
fob Portugal €/MWh		40.17	+0.32

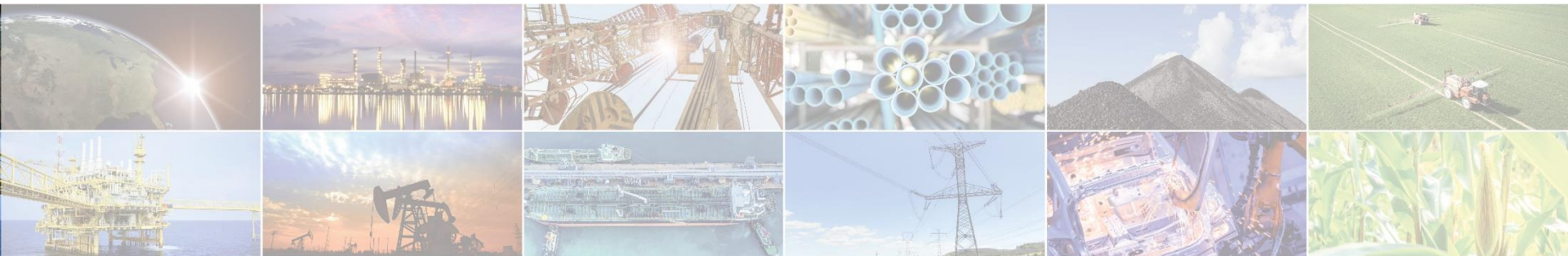
	Bid		Ask		±
Wood pellets - forward prices					
cif NWE \$/t					
4Q23	222.00		228.00		nc
1Q24	232.00		238.00		nc
2Q24	217.00		223.00		nc
3Q24	217.00		223.00		nc
2024	224.50		230.50		nc
2025	222.00		228.00		nc
2026	212.00		218.00		nc
fob Baltic €/t					
4Q23	209.00		215.00		nc
1Q24	217.00		223.00		nc
2Q24	203.00		209.00		nc
3Q24	203.00		209.00		nc
2024	210.00		216.00		nc
2025	207.00		213.00		nc
2026	202.00		208.00		nc
fob Portugal €/t					
4Q23	203.50		209.50		nc
1Q24	212.00		218.00		nc
2Q24	199.00		205.00		nc
3Q24	199.00		205.00		nc
2024	205.50		211.50		nc
2025	200.00		206.00		nc
2026	195.00		201.00		nc

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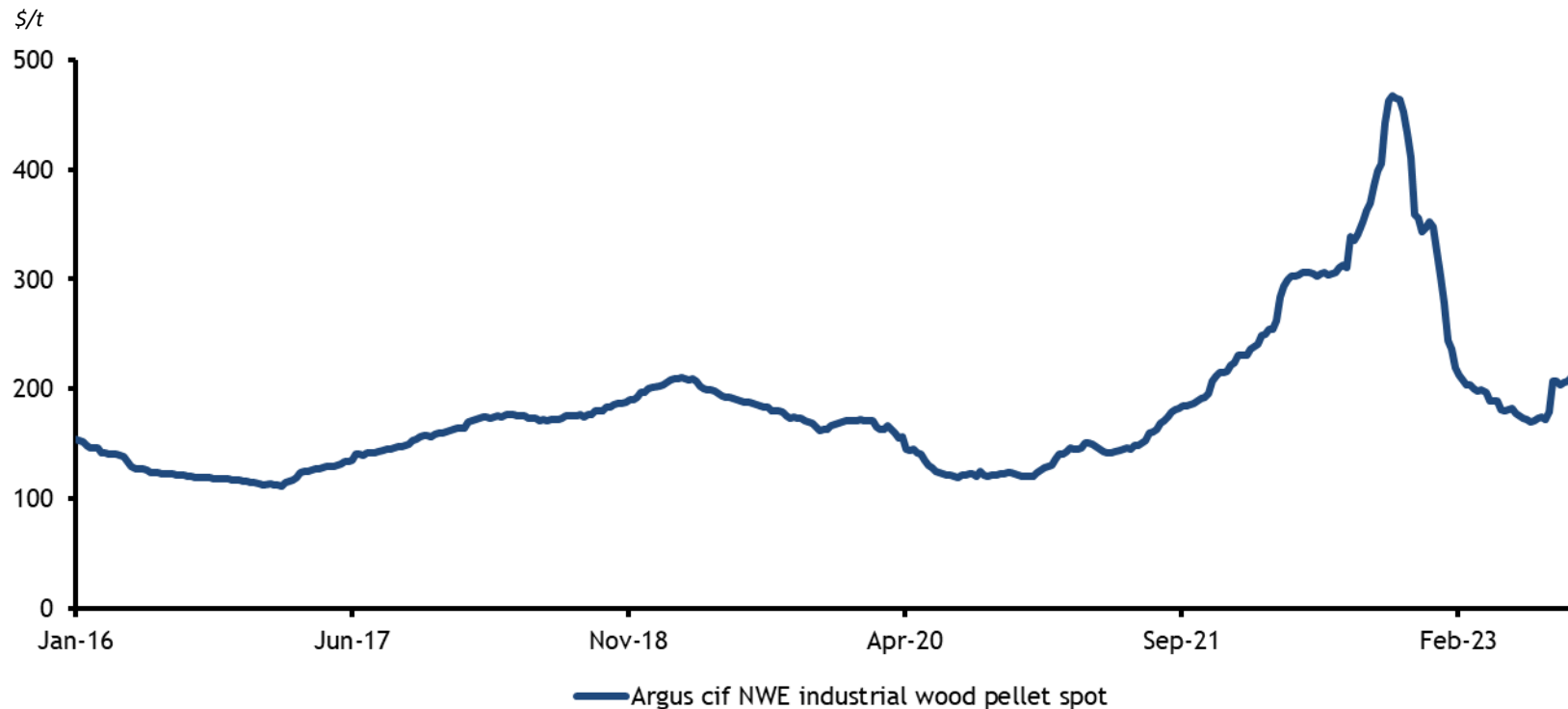
Atlantic basin industrial wood pellets	1
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Near term outlook

Will industrial demand recover in winter?

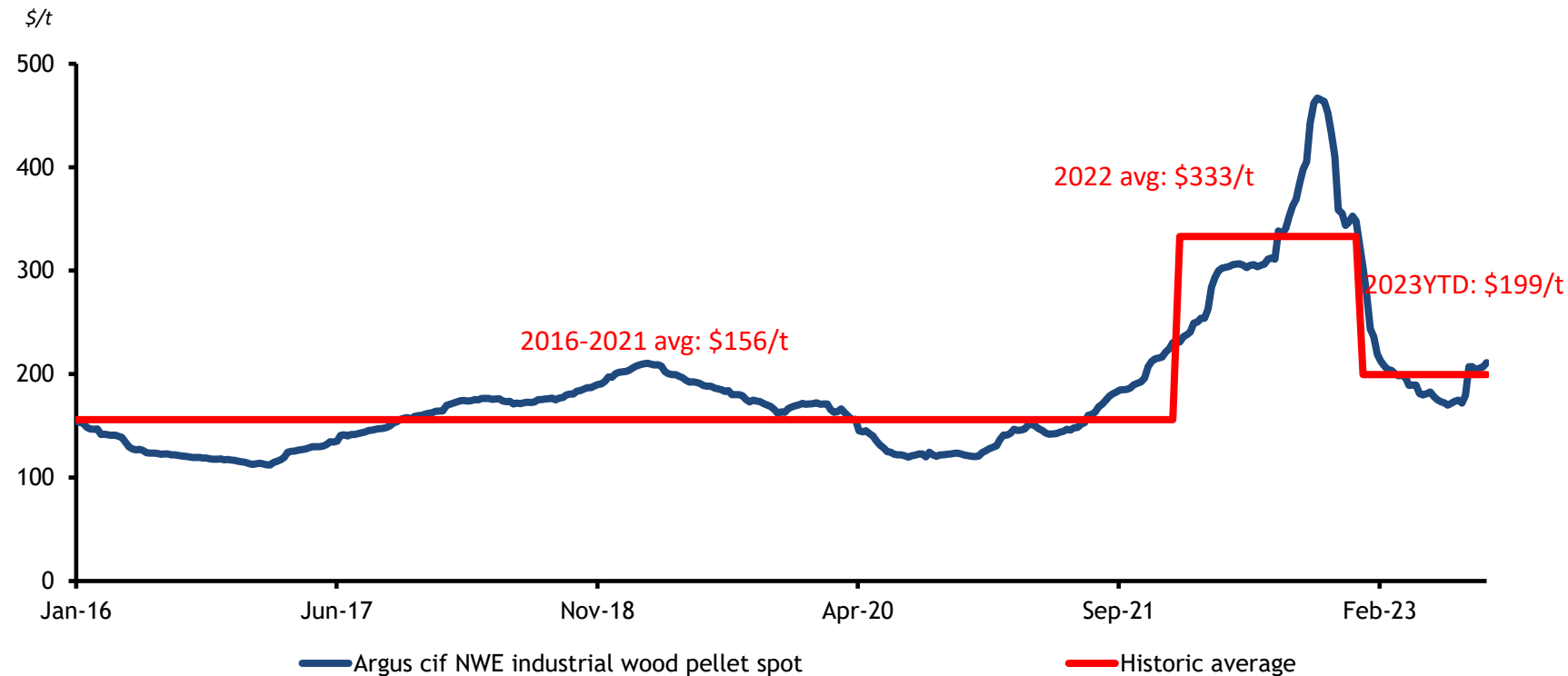


cif NWE spot : a new normal?



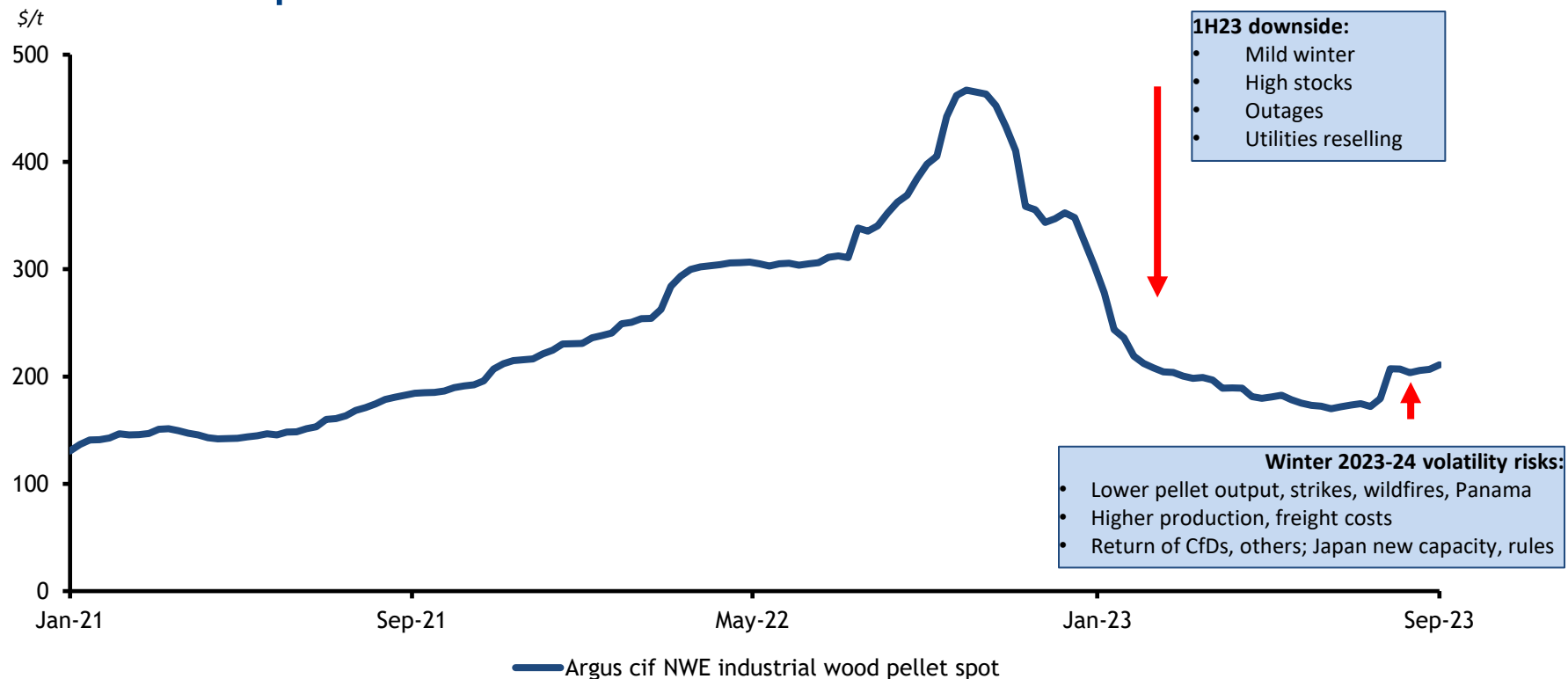
Source: Argus

cif NWE spot : a new normal?



Source: Argus

cif NWE spot : a new normal?



Source: Argus

Demand drivers

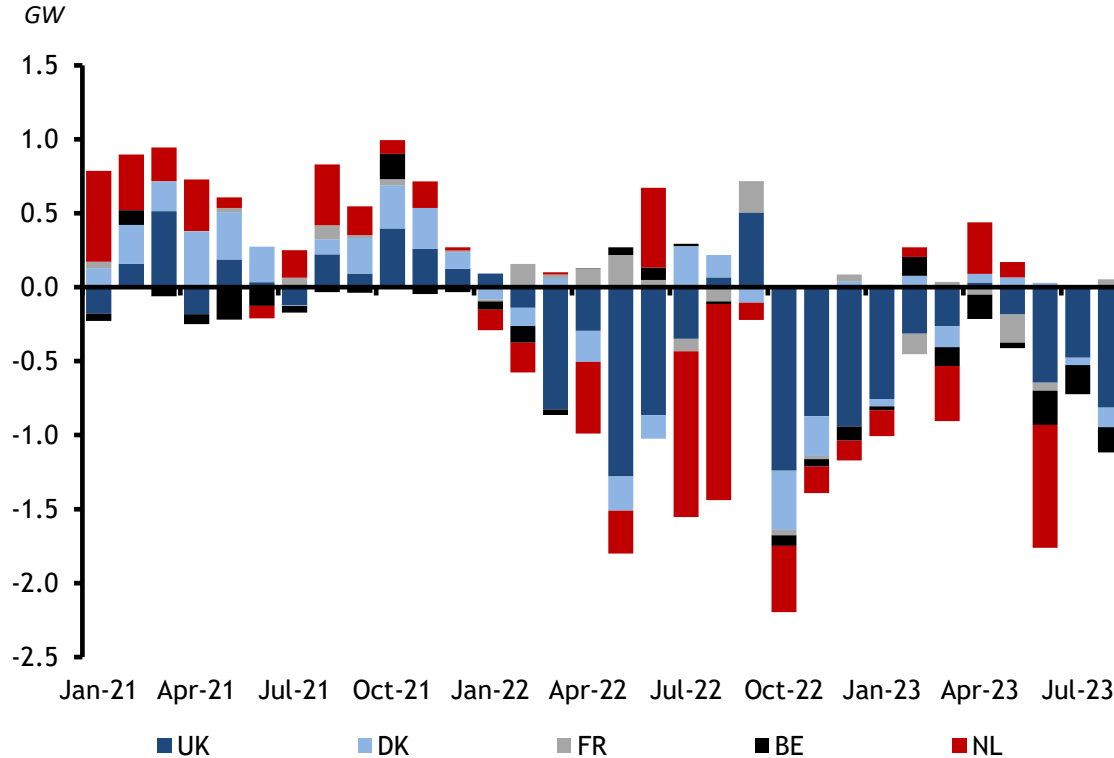
Europe

- CfD generation outlook
- Weather
- Residential demand
- Other generation fuels

Asia-Pacific

- New capacity start up
- New PKS certification rules

NWE power generation down yoy



NWE pellet-fired output			
	2021	2022	8M23
NWE gen, GW	4,447	3,735	2,867
NWE gen, mn t	20.7	17.3	8.9
NWE yoy, mn t	2.7	-3.4	-3.1
UK	0.7	-2.4	-1.3
UK CfD	-0.5	-2.0	-1.5
DK	1.0	-0.4	-0.1
BE	-0.2	-0.1	-0.3
NL*	1.0	-0.6	-0.3
FR	0.1	0.2	-0.1

Studstrup 3

Rodenhuize 4

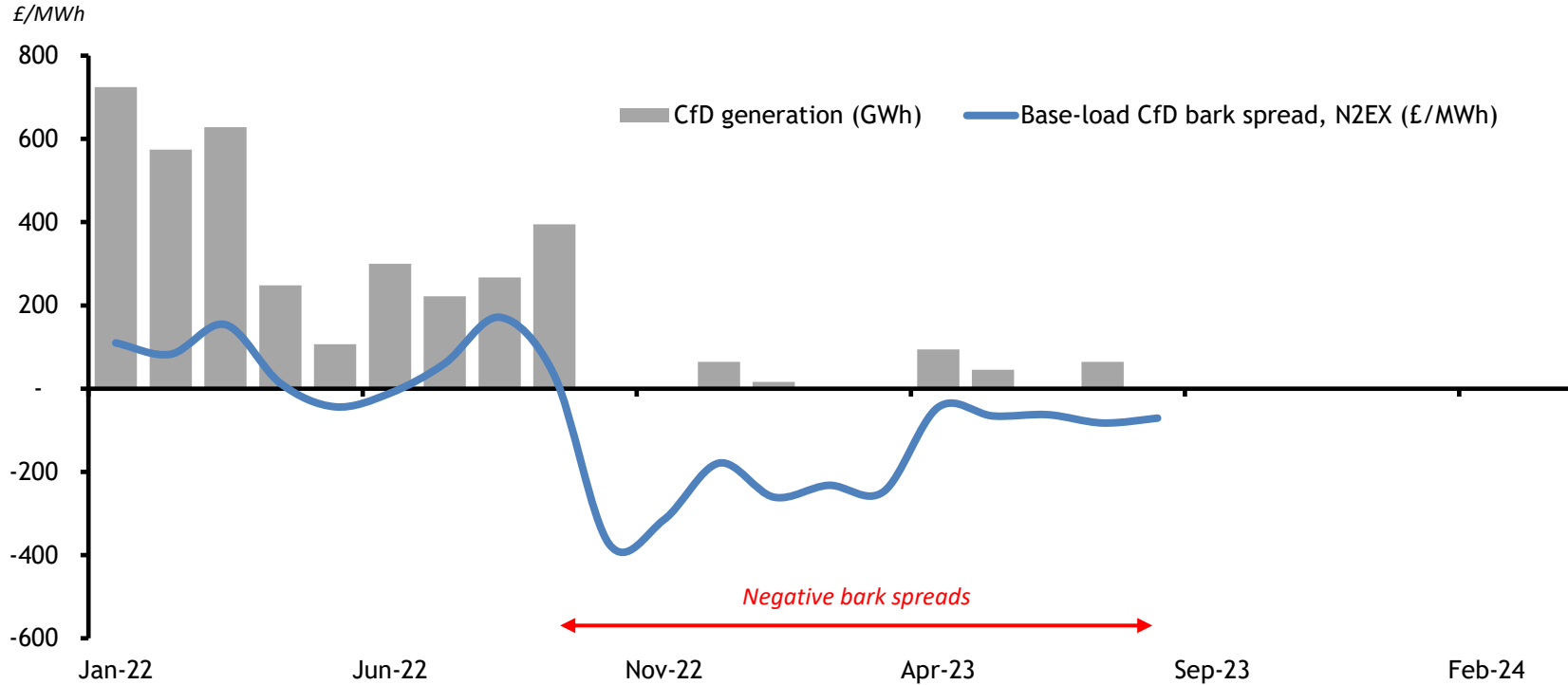
Outages

Source: National Grid, CBS, Entsoe, Argus calculations.

Note: Dutch figures available only for 1H23. Entsoe and CBS data may wood chips and other forms of biomass. Figures in mn t of wood pellet equivalent assume 40pc efficiency.

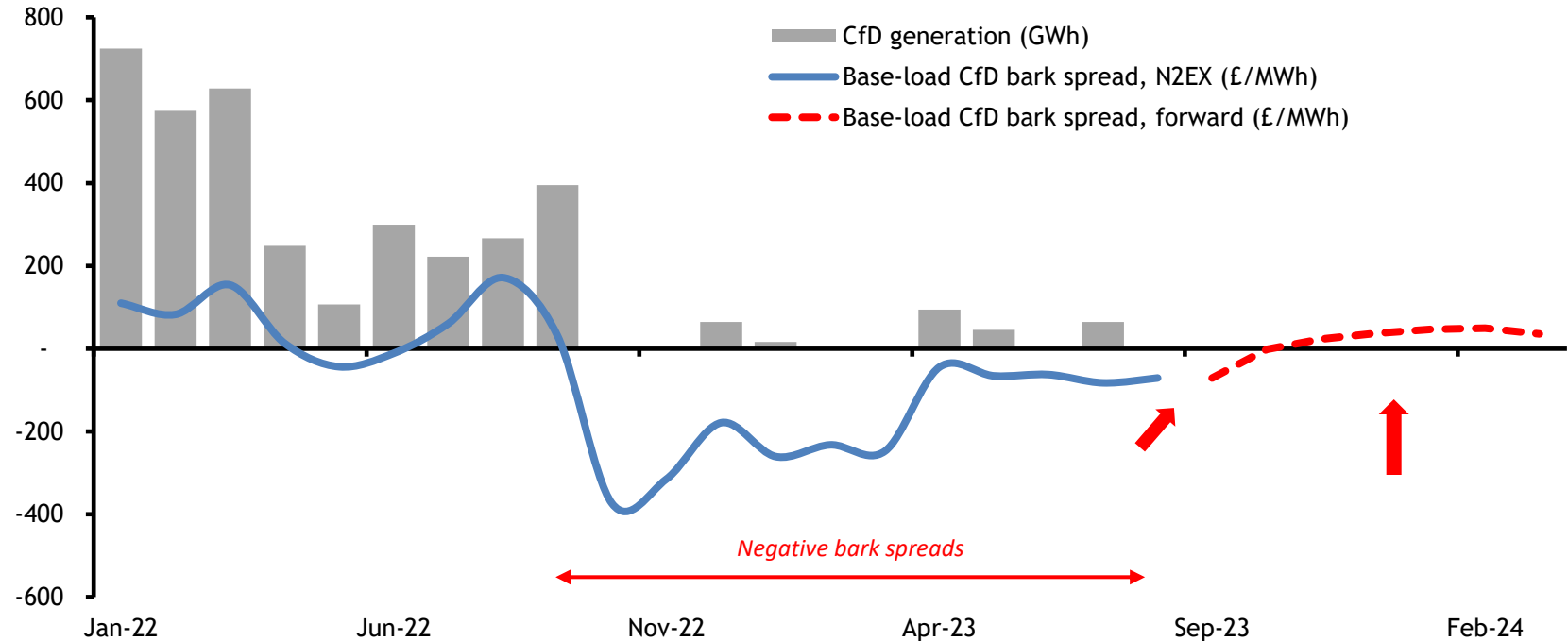
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UK's CfD winter outlook

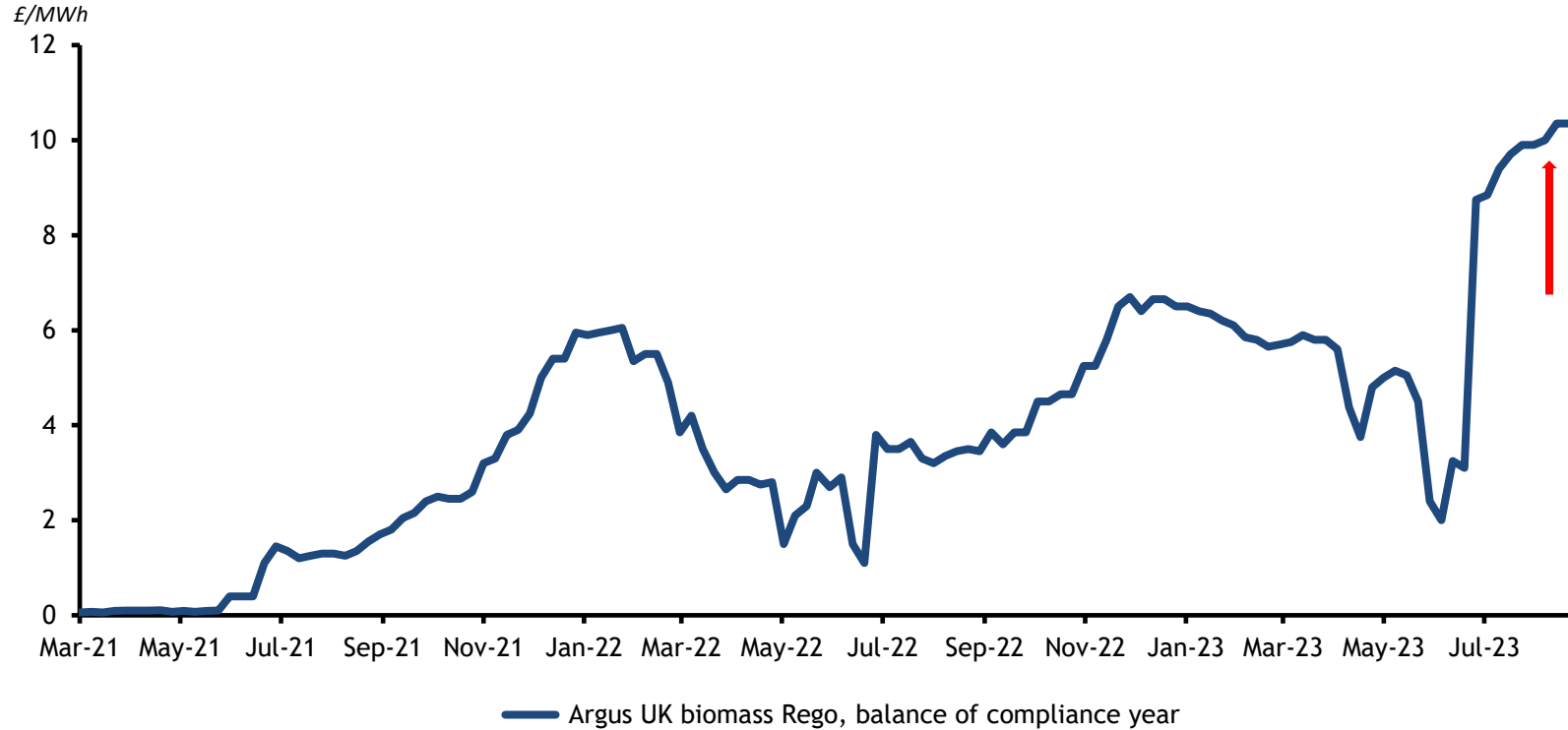


UK's CfD winter outlook

£/MWh

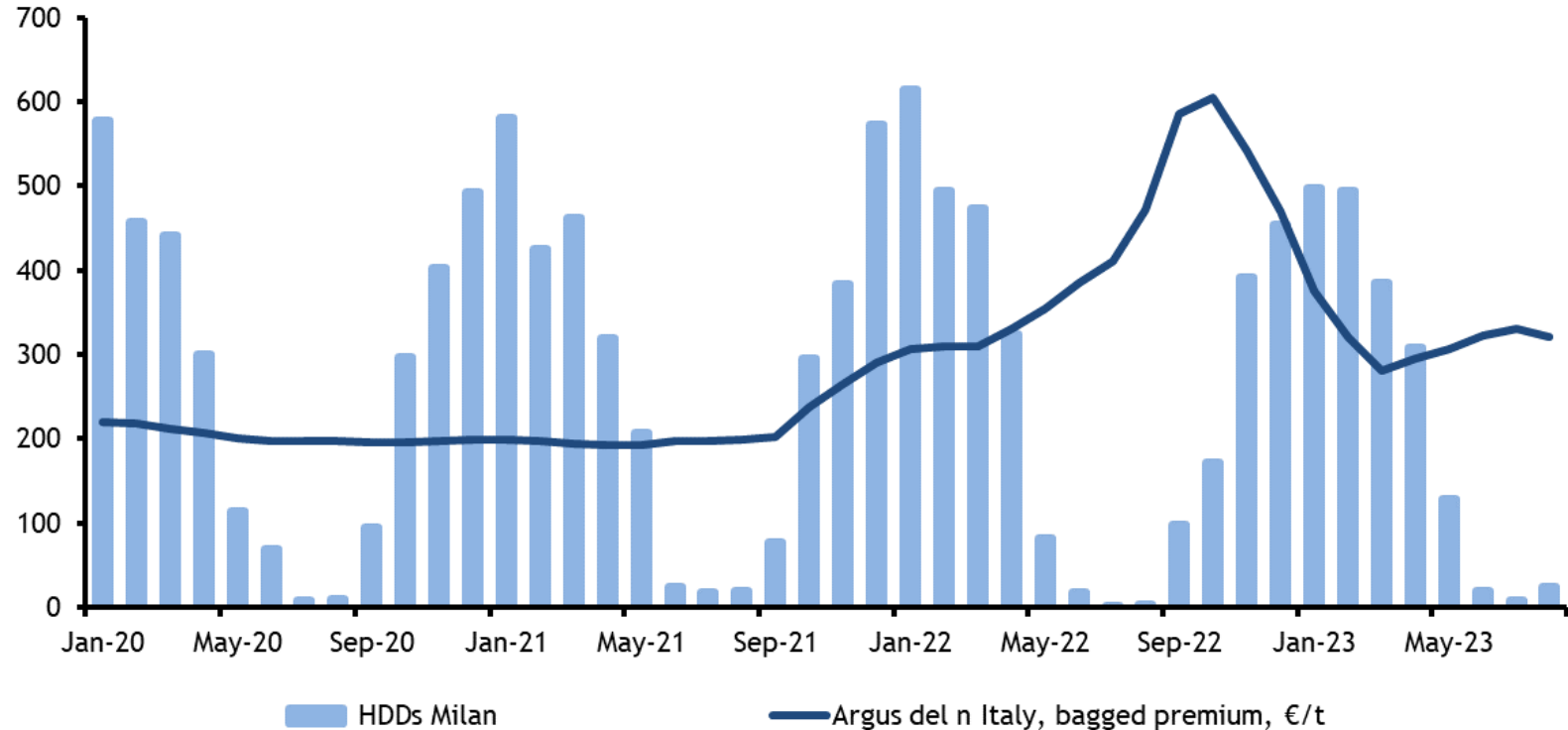


Firmer Regos may help CfD bark spreads

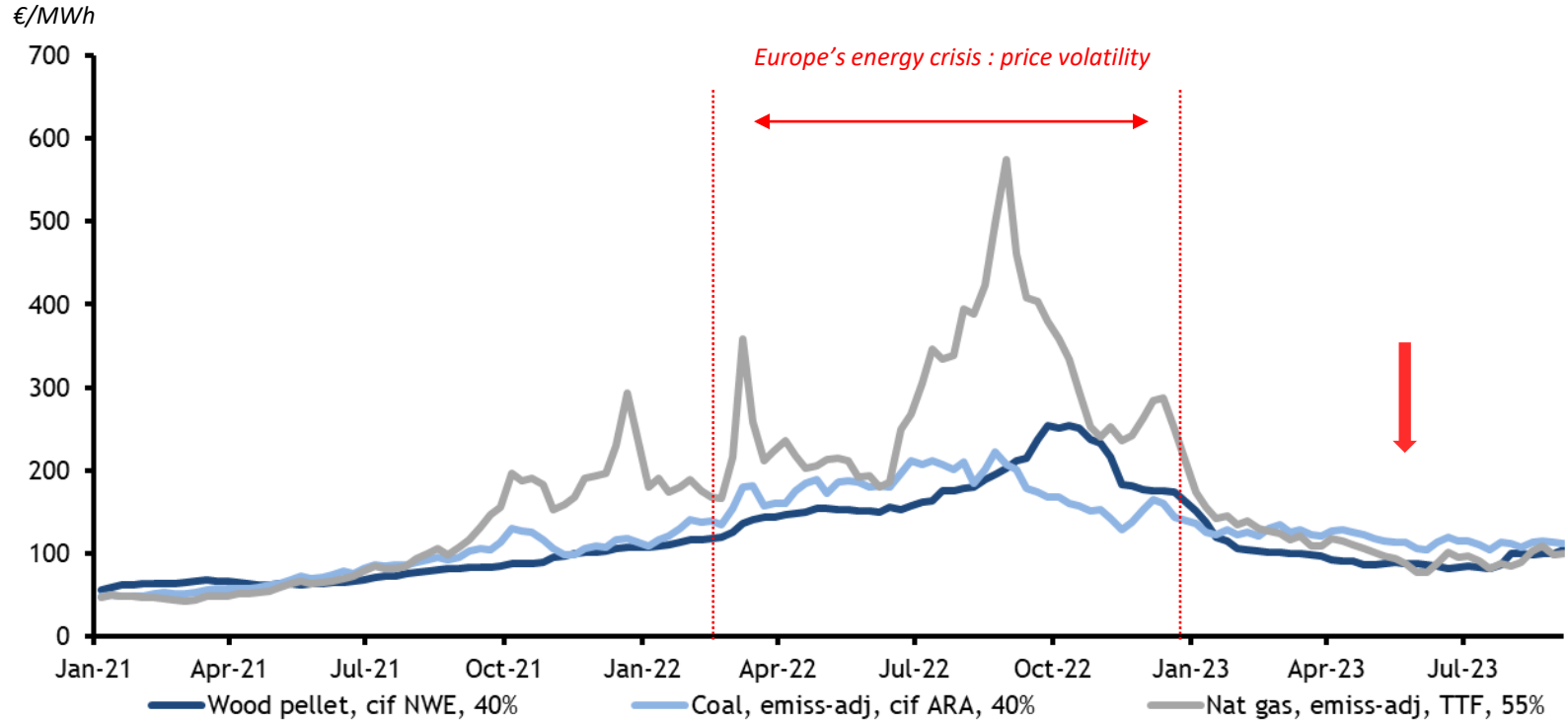


Source: Argus

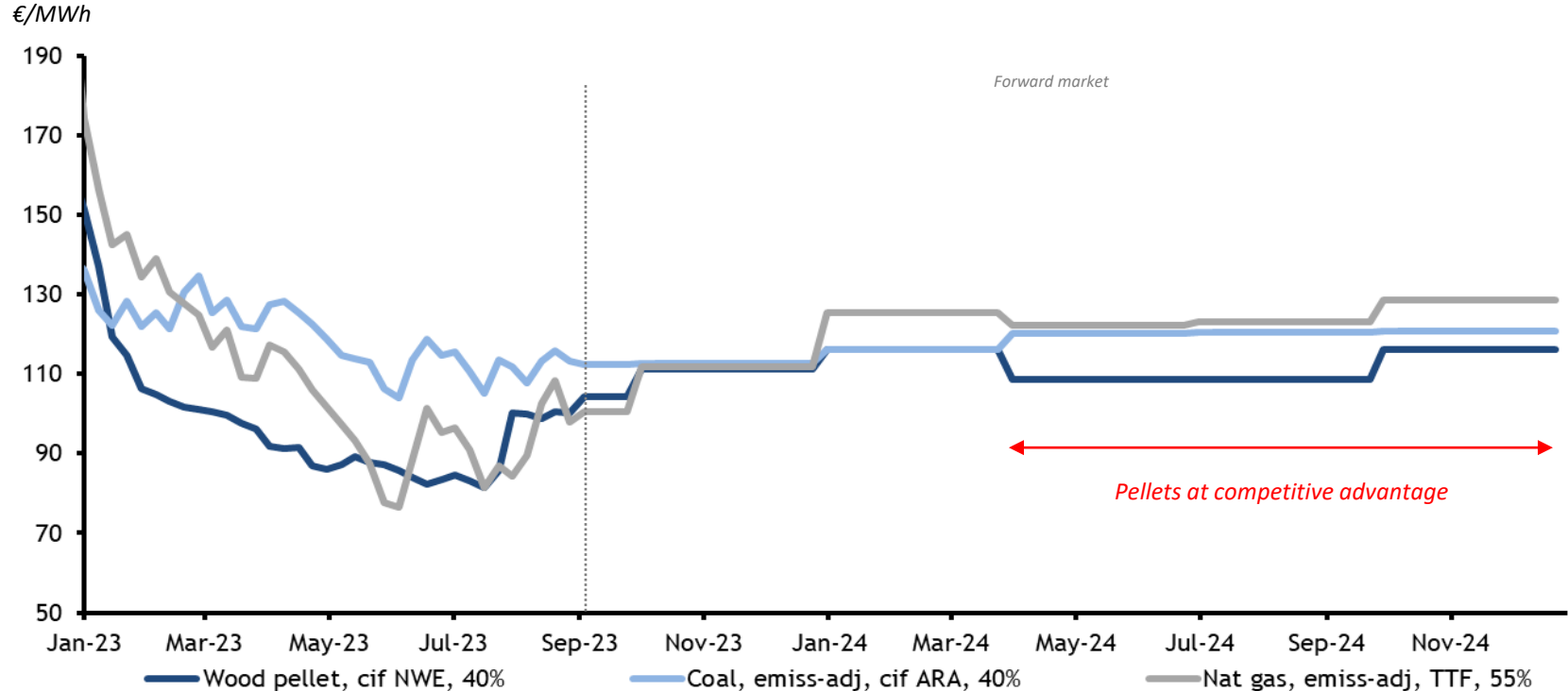
Weather impact on industrial, residential demand



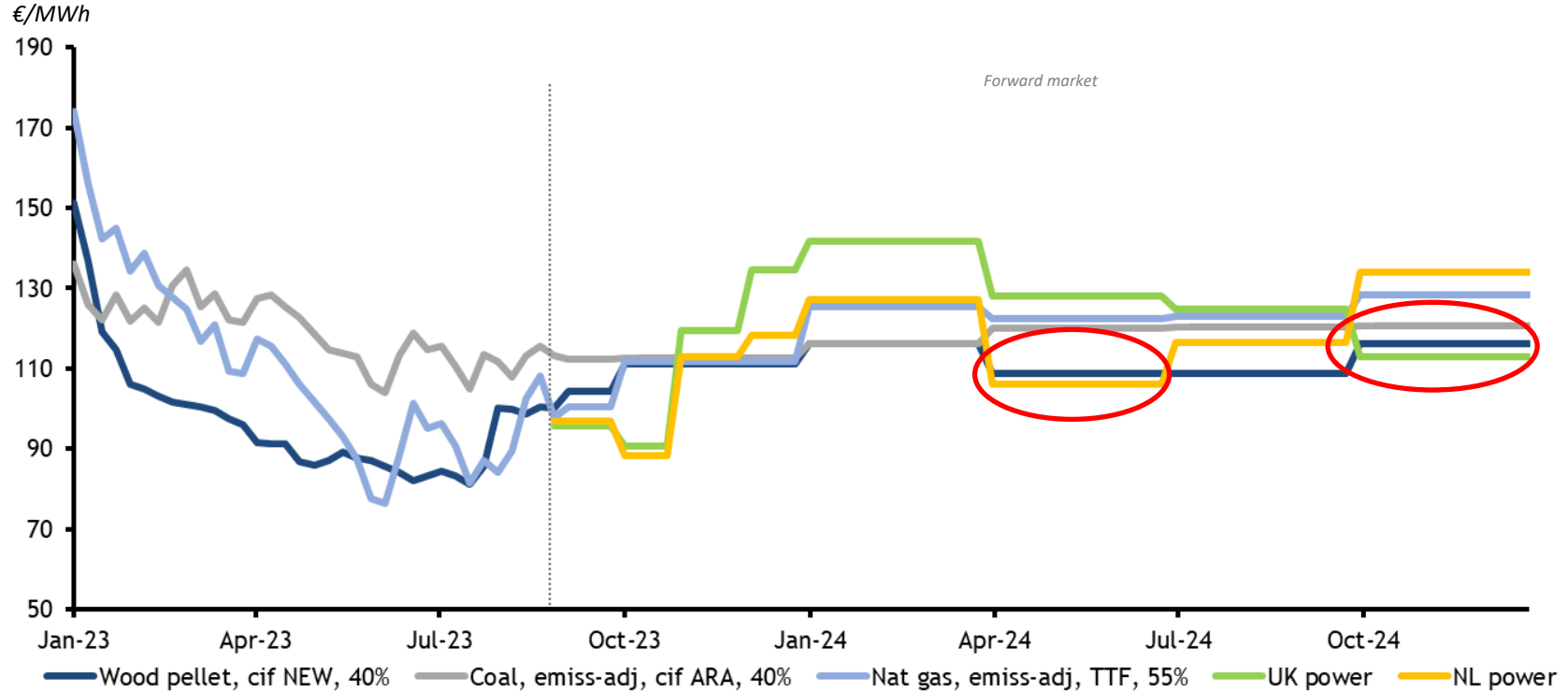
Power fuel costs: pellets' competitive advantage narrows



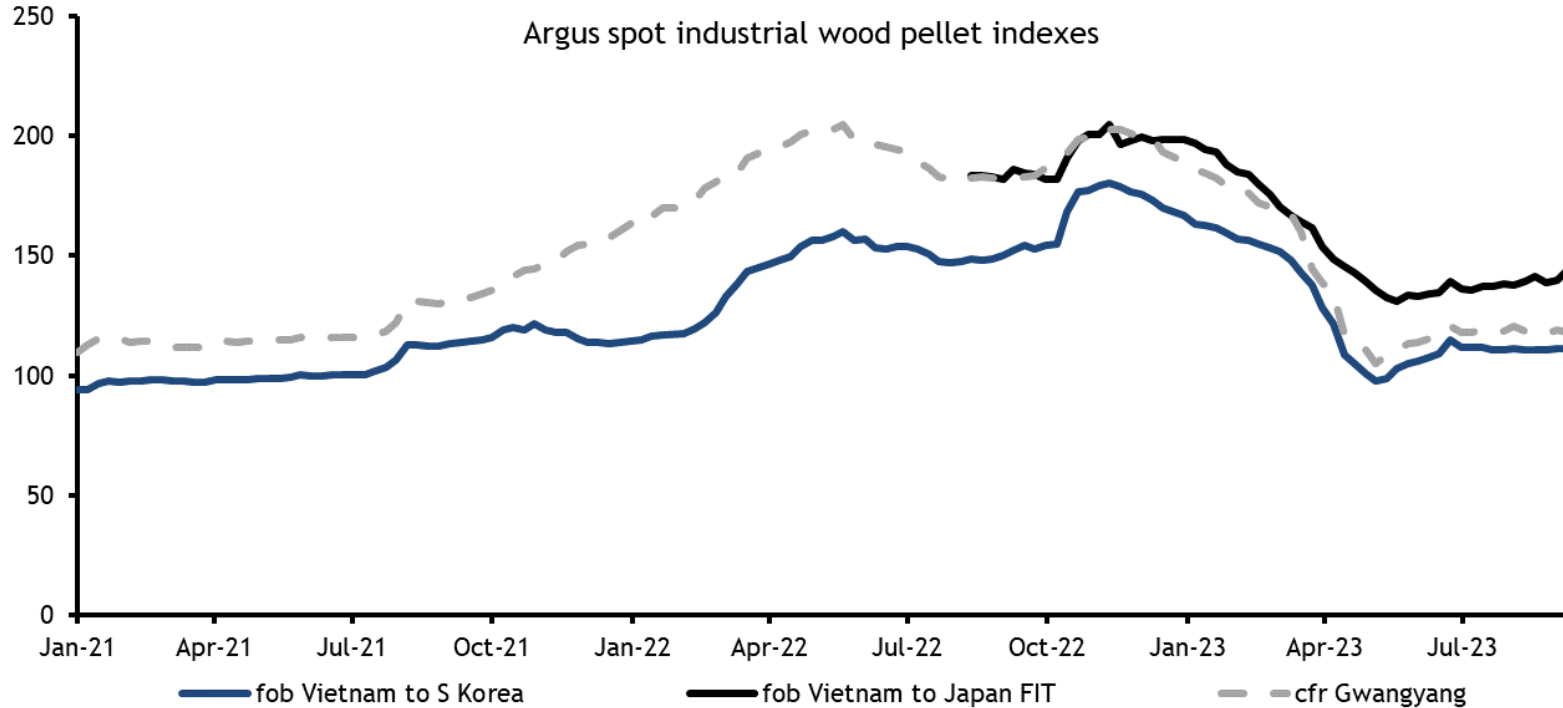
Power fuel costs: pellets ahead from summer '24



European genfuels complex: forward power prices



Asia-Pacific: demand to rise with capacity



Asia-Pacific: Japan, S Korea capacity ramping up

Japan's installed biomass-fired generation capacity

Company	Plant name	Unit	Capacity (MW)	Commissioning	Location
Nippon Paper, Sojitz	Yufutsu		75.0	02-Feb-23	Hokkaido
Ishikari Bio Energy	Ishikari Bio Energy		51.5	02-Mar-23	Hokkaido
Japex and partners	Abashiri	Unit 3	9.9	08-Mar-23	Hokkaido
Kansai Electric Power	Aioi		200.0	24-Mar-23	Hyogo
Okumura, Iwahori, Shikoku Electric Power	Fukushima Hiratamura	Unit 2	2.0	02-Apr-23	Fukushima
Marubeni, Chubu Electric Power	Godo		7.5	02-Apr-23	Gifu
Renova	Tokushima-Tsuda		74.8	01-May-23	Tokushima
Total additions by May 2023			420.7		
Total additional planned by end 2023			1,030.0	2023	

South Korea's new biomass-fired generation capacity

Company	Plant name	Unit	Pellet consumption ('000t/yr)	Commissioning	Location
Posco, Doosan, other	Samcheok Blue Power		380	1H24	Gangneung
Gwangyang Green Energy	Gwangyang Green Energy		880	4Q24	Gwangyang



Asia-Pacific: Japan's new PKS requirements

For PKS, third-party certification compulsory from 1 April 2024

- **Approved schemes:**

- Malaysian Sustainable Palm Oil (MSPO) - **NEW**
- Roundtable on Sustainable Palm Oil (RSPO)
- Roundtable on Sustainable Biomaterials (RSB)
- Green Gold Label (GGL)
- International Sustainability and Carbon Certification (ISCC)

- **Under consideration:**

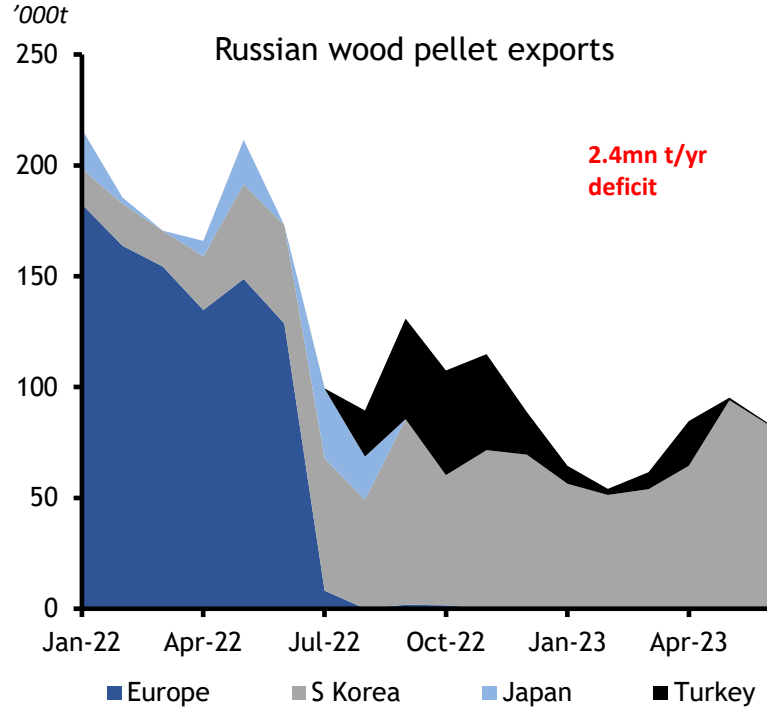
- Agricultural Resource Certification (ARC, for PKS)
- Indonesian Sustainable Palm Oil (ISPO, for PKS and palm oil)
- Vive sustainability supply programme

- **PKS shortages?**
- Only 30-50pc of PKS production is estimated to be certified by Japanese ministry Meti's deadline.
- Certified PKS volumes to start trading from 4Q23.
- Likely less than 1mn t of PKS – or less than a fifth of consumption – substitutable by wood pellets.
- Given the status quo, these could lift demand for wood pellets in winter.

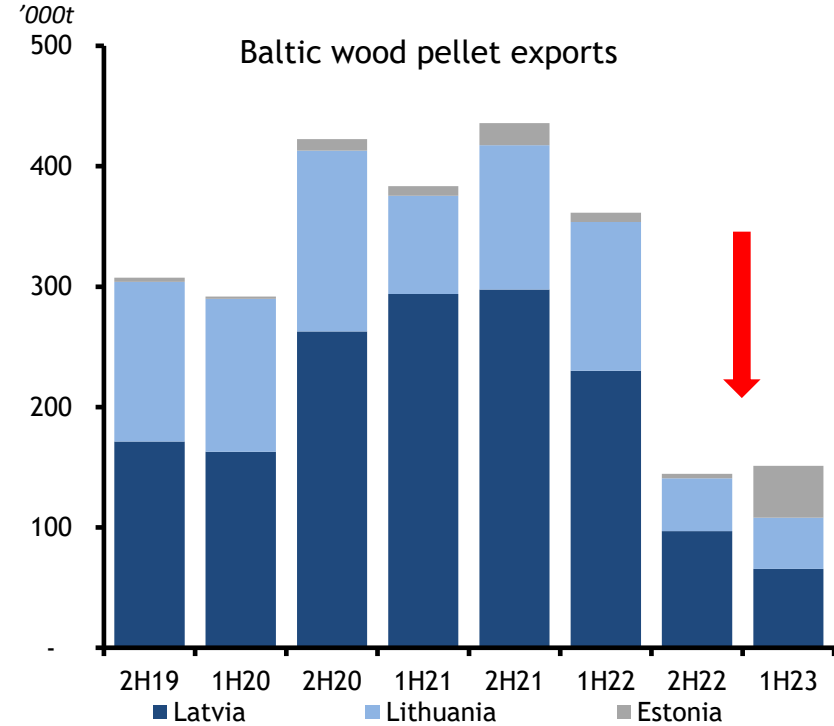
Supply drivers

- Russia deficit
- Lower Baltic, N American production
- Strikes, Panama Canal
- Higher production, freight costs

Supply deficit from sanctions

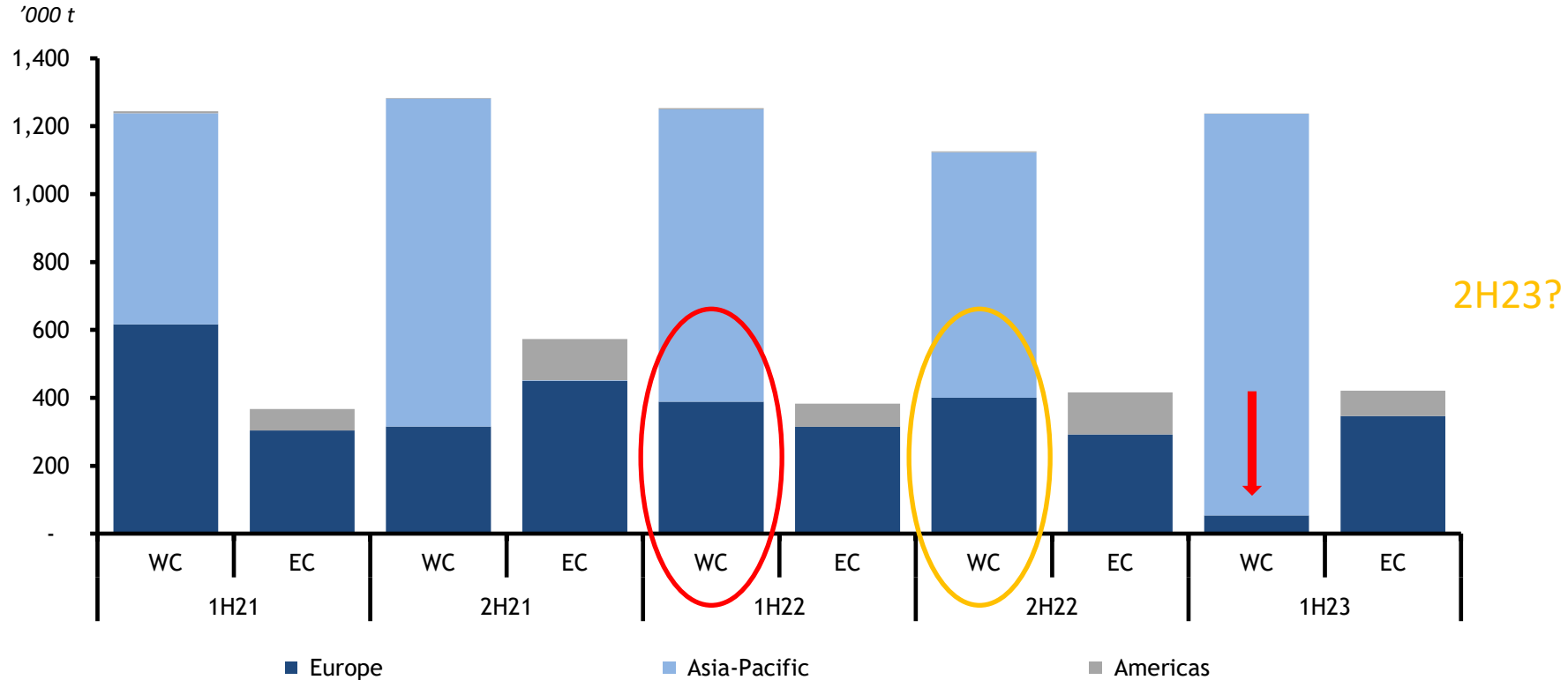


Source: Russian customs, Argus research

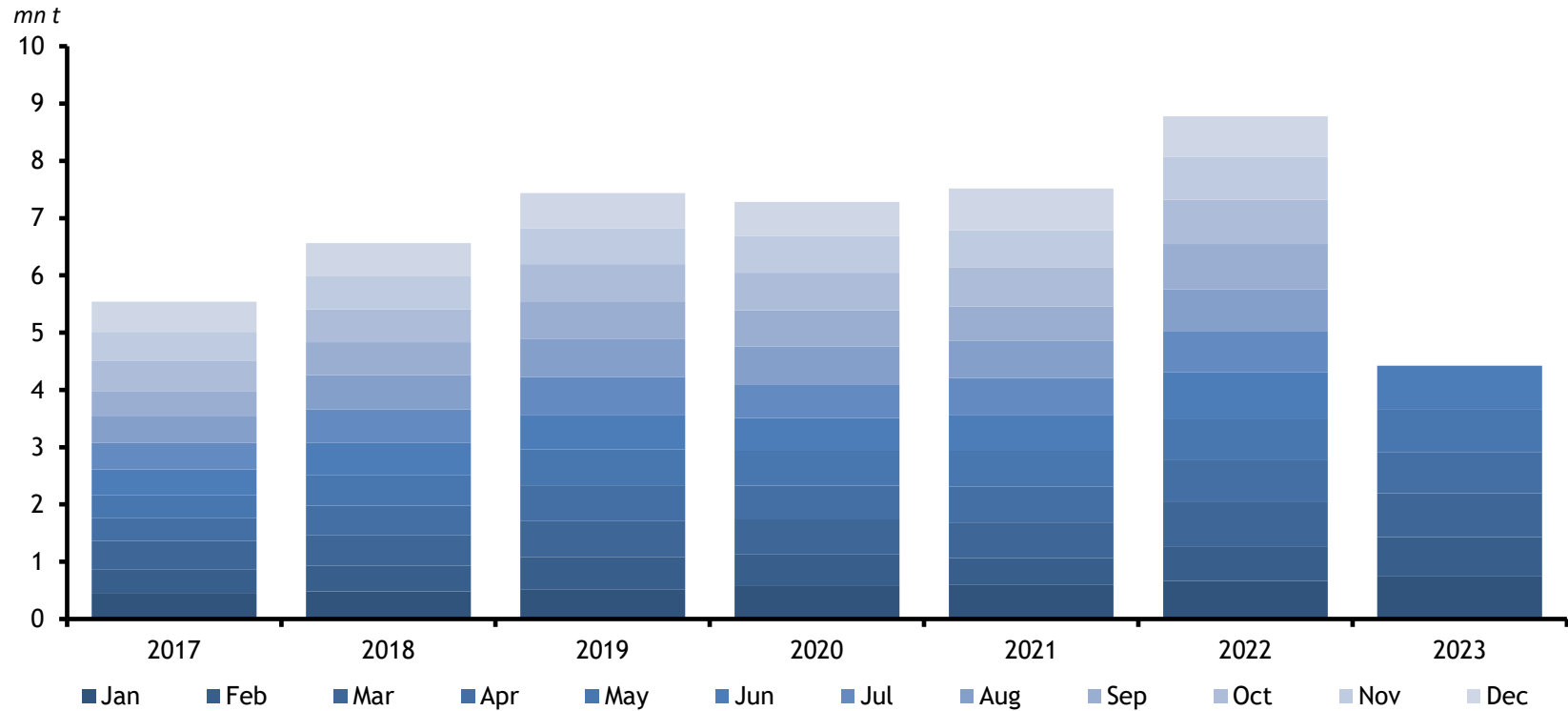


Source: customs data

Supply chain disruptions: strikes, Panama Canal

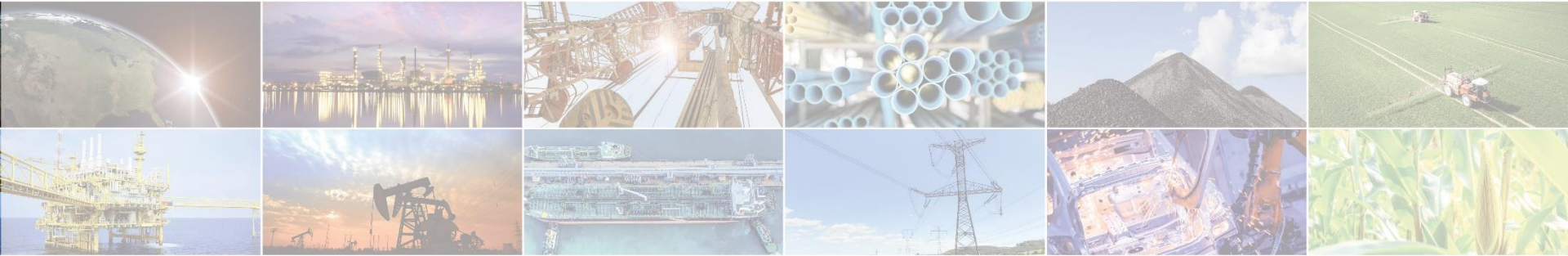


US production revised lower



Longer term outlook

Regulatory risk or opportunity?



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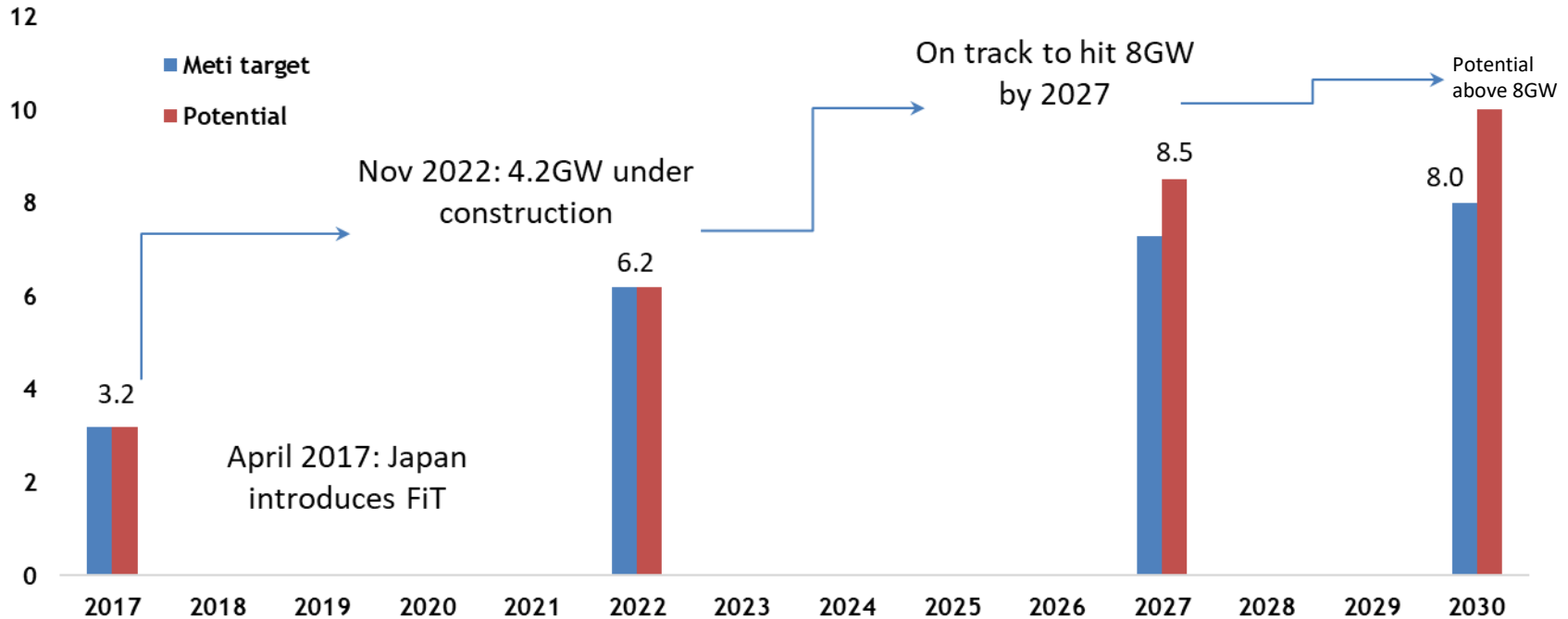
Longer term outlook

- **Demand**
 - Post-subsidy power generation
 - BECCS/BECCUS
 - New power sector demand
 - UK-MGT/France/Germany/Poland
 - Asia – Japan, S Korea, Taiwan

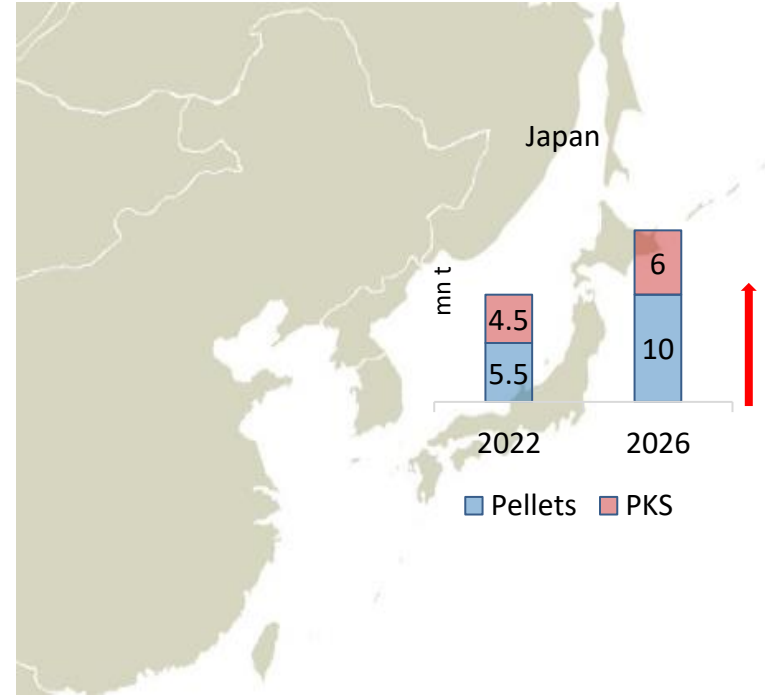
Source: Argus research



Japan's Biomass capacity ambitions



Japan to overtake UK as world's biggest pellet importer



Longer term outlook

- **Demand**
 - Post-subsidy power generation
 - BECCS/BECCUS
 - New demand?
 - UK-MGT/France/Germany/Poland
 - Asia – Japan, S Korea, Taiwan
 - Hard to abate sectors

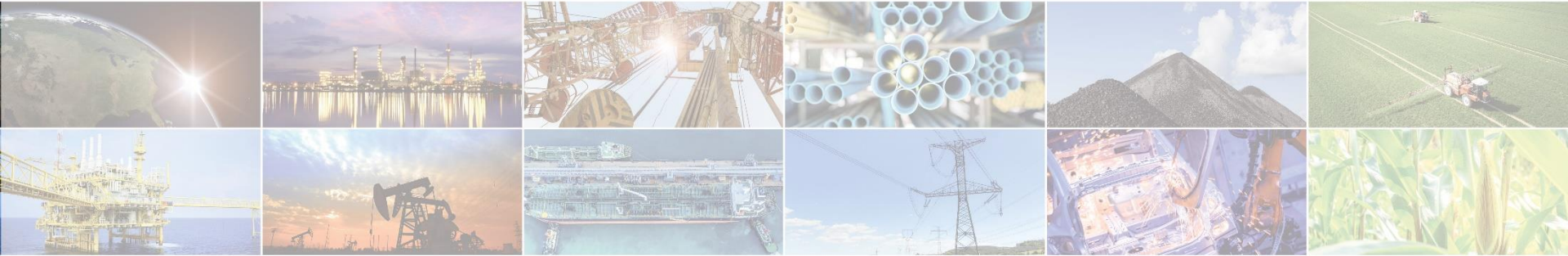
- **Supply**
 - Capacity additions
 - Supply gap - sanctions
 - Diversification of product
 - Carbonized pellets
 - Agricultural biomass

- **Regulatory, policy**
 - RED III
 - IRA act
 - IPCC, BECCS
 - UK strategy
 - Canada govt. support

Planned wood pellet capacity additions (mn t/yr)	
	2022-26
Europe	1.0
N America	7.0
S America	2.3
Asia	2.0
Total	12.3

Source: Argus research

Concluding thoughts



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Concluding thoughts

- Power-sector wood pellet demand set to rise in Europe, Asia in winter 2023-24.
- Supply structurally tight – sanctions gap, lower US/Baltic output, rising production costs, supply chain disruptions.
- Pellets have become mainstream!
- Important role in the transition to a decarbonized economy throughout the world.
- But there are risks: regulation, policy, investment, public awareness.



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Thank you!

Erisa Senerdem
Editor, Argus Biomass Markets

erisa.senerdem@argusmedia.com
London



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