Foodservice: Fiber-based packaging industry review

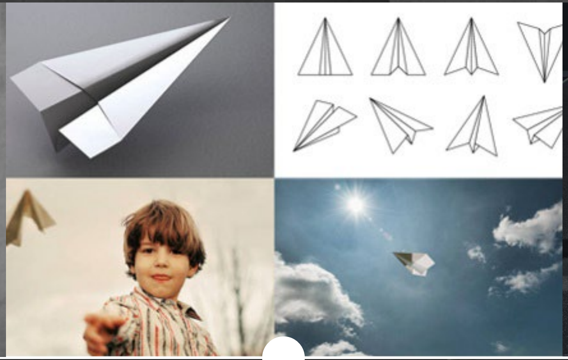
Presentation by Soile Kilpi, AFRY Management Consulting

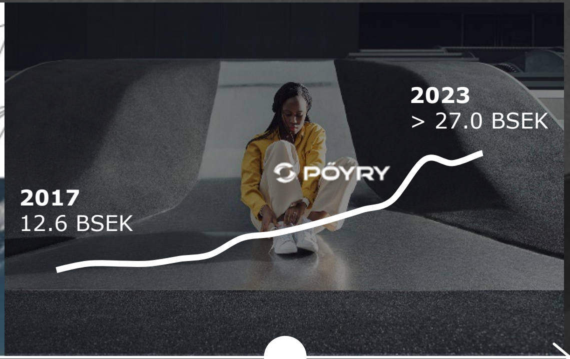
OCTOBER 24TH, 2024

Storyline

1. AFRY in brief
2. Foodservice fiber-based packaging - industry developments
   - Cartonboard
   - Kraft paper bags & wraps
   - Corrugated boxes
   - Molded fiber
3. Wrap up

We are proud of our unique company history





1895

The steam boiler association is founded by owners of steam boilers and pressure vessels to prevent accidents

1958

Jaakko Pöyry starts his business with the roots in Finnish forest industries

2019

ÅF and Pöyry join forces, creating a leading company within engineering, design and advisory services

Today

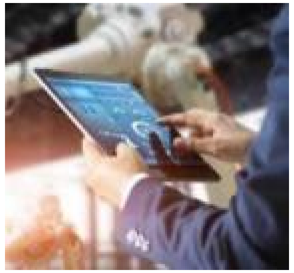
Pioneers of technology and leading partner in the sustainability transition

AFRY is organized in five divisions, with more than 19,000 employees globally and net sales of USD 2.6bn in 2023

Infrastructure

Real estate, Rail & Road Architecture, Environment, Water

Industrial & Digital Solutions



Food & Life Science, Product and Software Design, Automation, Defence

Process Industries

Pulp & Paper, Mining & Metals, Steel Industry, Oil & Gas

Energy

Hydro, Renewables, Nuclear, Transmission & Distribution

Management Consulting

Bioindustry, Wood Products, Energy, Capital Industry

WE HAVE	WE HAVE APPROX. NET SALES	NUMBER OF COUNTRIES WITH OFFICES	NUMBER OF COUNTRIES WITH PROJECTS
19,000 Employees globally (as of 2023)	**2.6bn USD** in 2023	**>50**	**>100**

AFRY

Leading advisor for the transition of the bioindustry sector

People

>200 management consultants

5 continents

25 nationalities

Offering

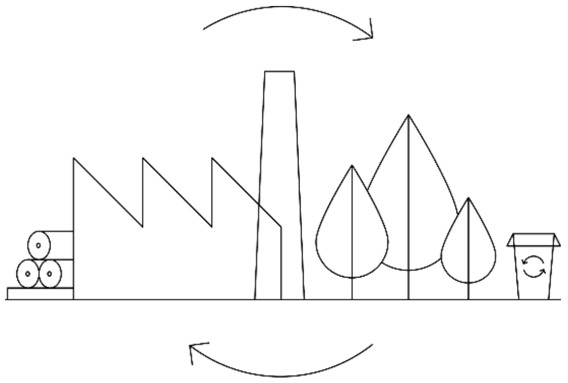
Strategic advice

Forward looking market analysis

Operational and digital transformation

M&A Advisory and Transaction Services

Close cooperation with the engineering, design, and digitalisation teams at AFRY



Forest & Biomass

- Forestry
- Carbon
- Biomass
- Pellets

Wood Products

- Wood-based panels
- Surfacing materials
- Solid wood
- Engineered wood products

Paper

- Paper
- Recovered Paper
- Recycling

Packaging

- Packaging
- Tissue and hygiene

Biorefining

- Pulp
- Renewable Fuels
- Biochemicals
- Biomaterials
- Textile fibres

Waste

- Waste handling and recycling
- Waste to value

Recycling and circularity

AFRY

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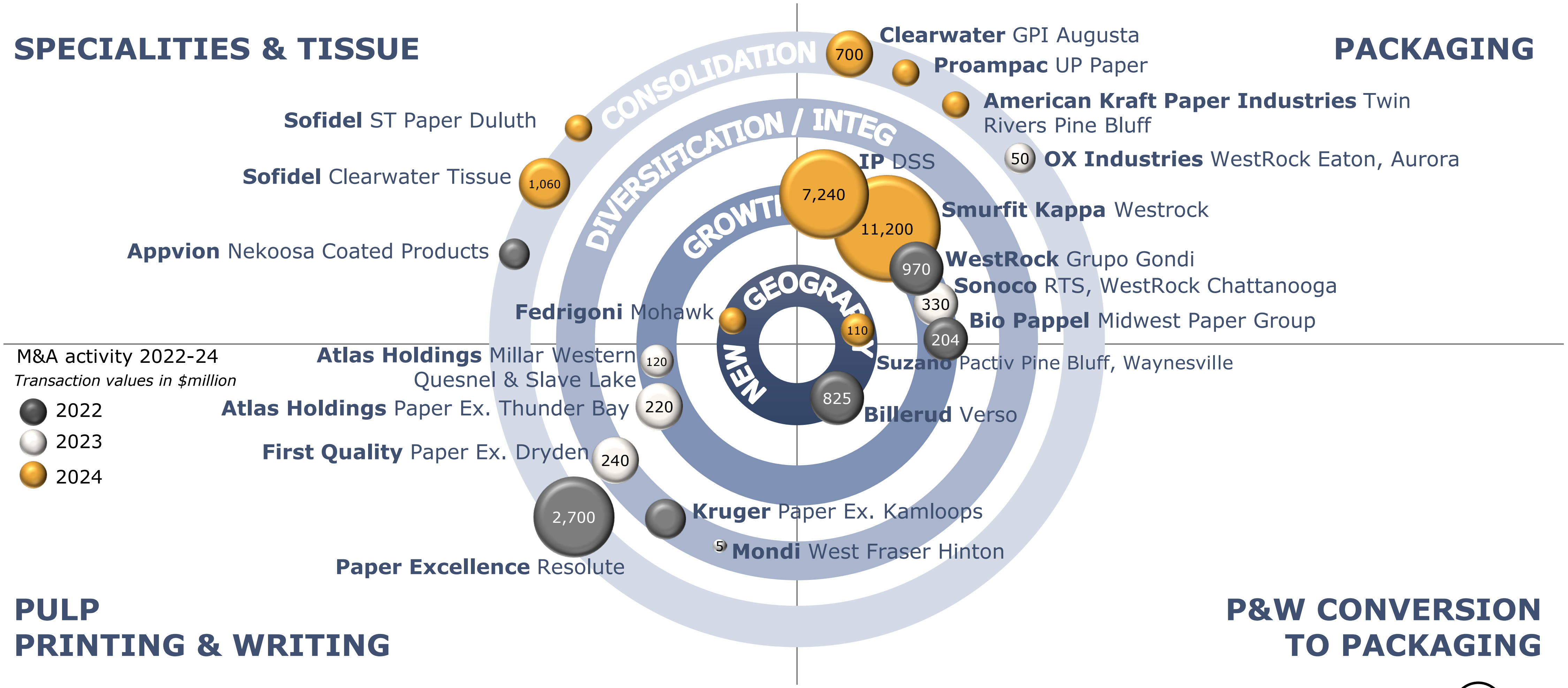
Improving market conditions in Q2/2024

Product	Market size (MM tons)	24Q2 v. 23Q2 (y-o-y%)	2023 v. 2022	Pre-pandemic (17-19 CAGR)	+ / –
Corrugated box	35	+1%	-5%	+1%	+ Operating rate back at >90%, up from mid-80s – Slow manufacturing output continued in early 2024…PMI <50% in Q2 – eCommerce boxes under scrutiny by brands, regulators
Folding cartons	7	+3%	-10%	0%	+ Non-durable consumer goods production trending up and at-home food inflation slowing to 1%
Foodservice board	2	-6%	-4%	+4%	+ Expected to be the biggest beneficiary from sustainable packaging trends and regulations… – Food away from home inflation >4%; Starbuck's revenues in decline – Mill M&A likely created production disruptions
Publication papers	4	+19%	-34%	-10%	+ Easy comparison to drastic market declines in 2023 + Prices have held relatively well, despite low op-rates – No reversal of underlying demand trends expected – move to electronic, rising costs of print mail
Uncoated freesheet	5	+7%	-21%	-4%	
Market Pulp	8	-7%	-2%	-3%	+ Tissue sector demand positive. P&W production rebounding – Pulp mill spring maintenance downtime impacted output and market balance
Tissue	10	+1%	+1%	+3%	+ Stable growth AfH demand + High operating rates at ~96%

Sources: FBA, AF&PA, PPPC; | Note: Publication papers inclusive of CM, UM, CFS. North American numbers.

M&A activity is back on high gear – 8 deals in 7 months

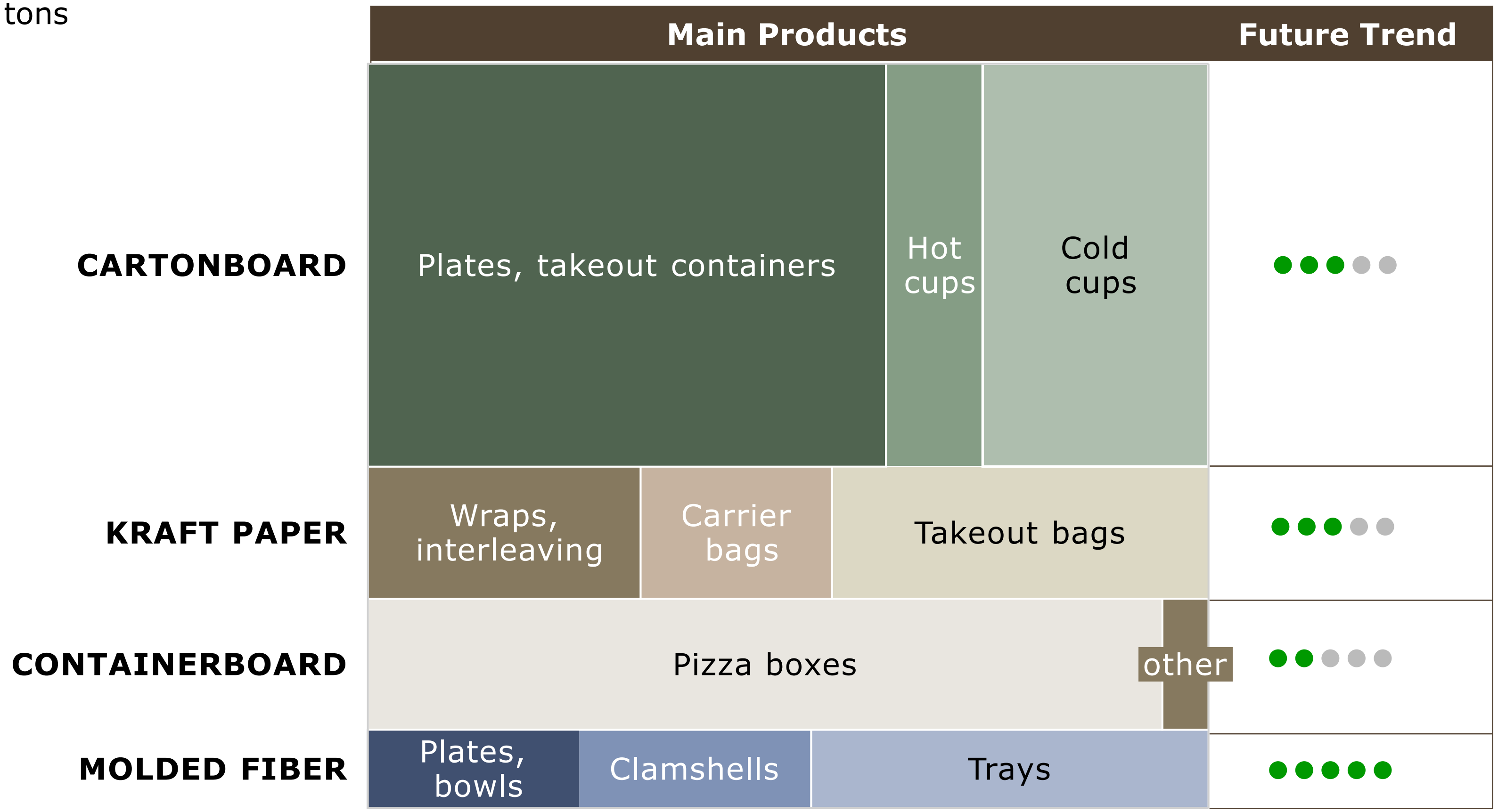


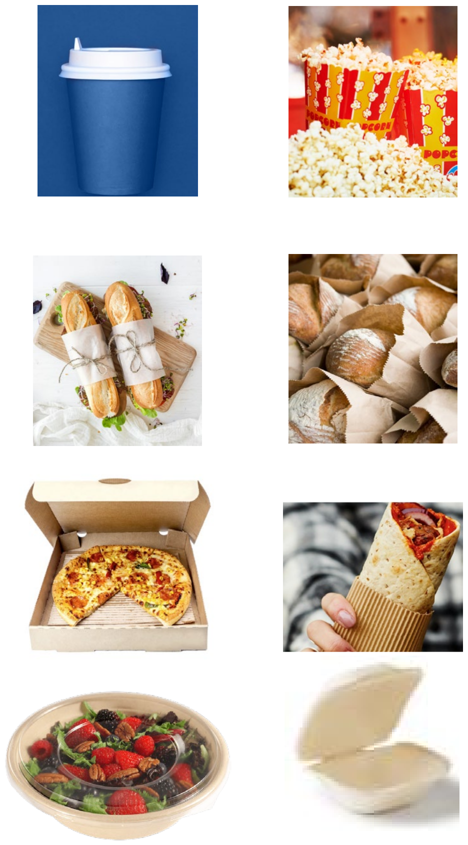
AFRY

Fiber-based foodservice packaging at 3.6 million tons - cartonboard the largest segment, molded fiber growing fast. Some overlap between grades/end uses

N.A. FOODSERVICE - FIBER-BASED PACKAGING DEMAND

tons





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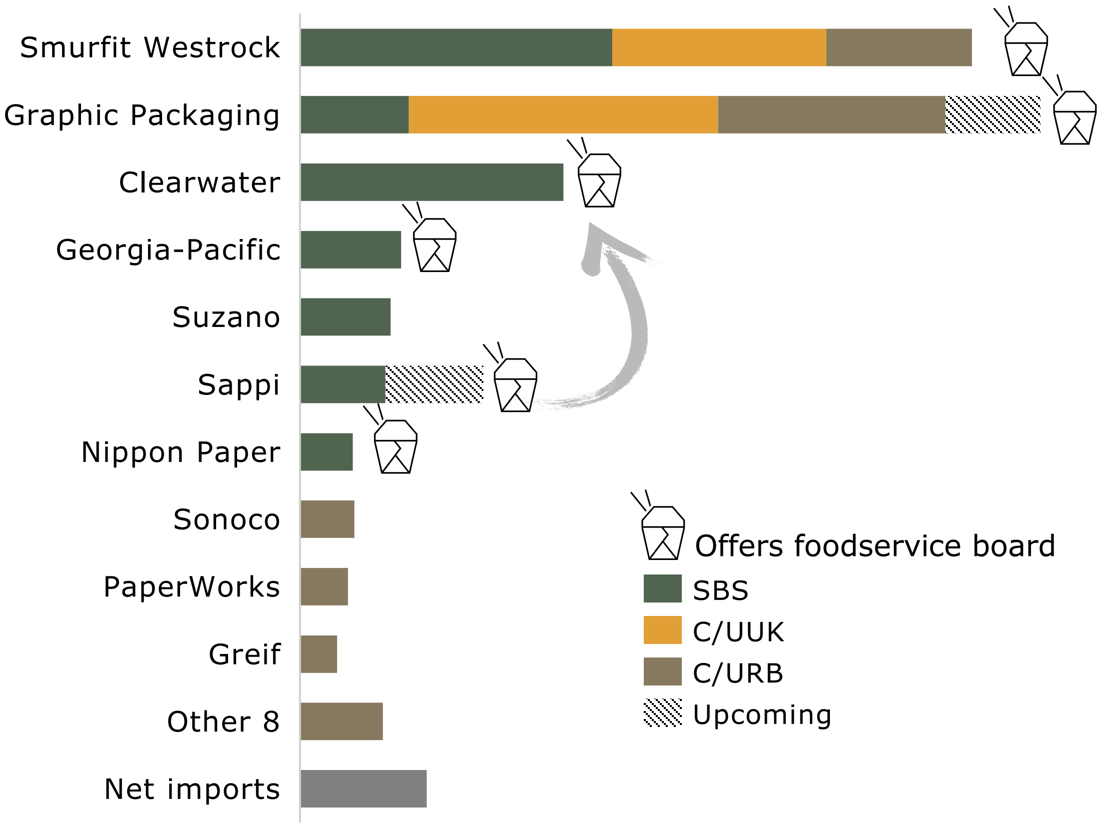
Inorganic and organic growth are changing cartonboard supply landscape

N.A. CARTONBOARD SUPPLY LANDSCAPE

tons



Note: URB capacity exclusive of tube and core board
[1] Start-up in 2026

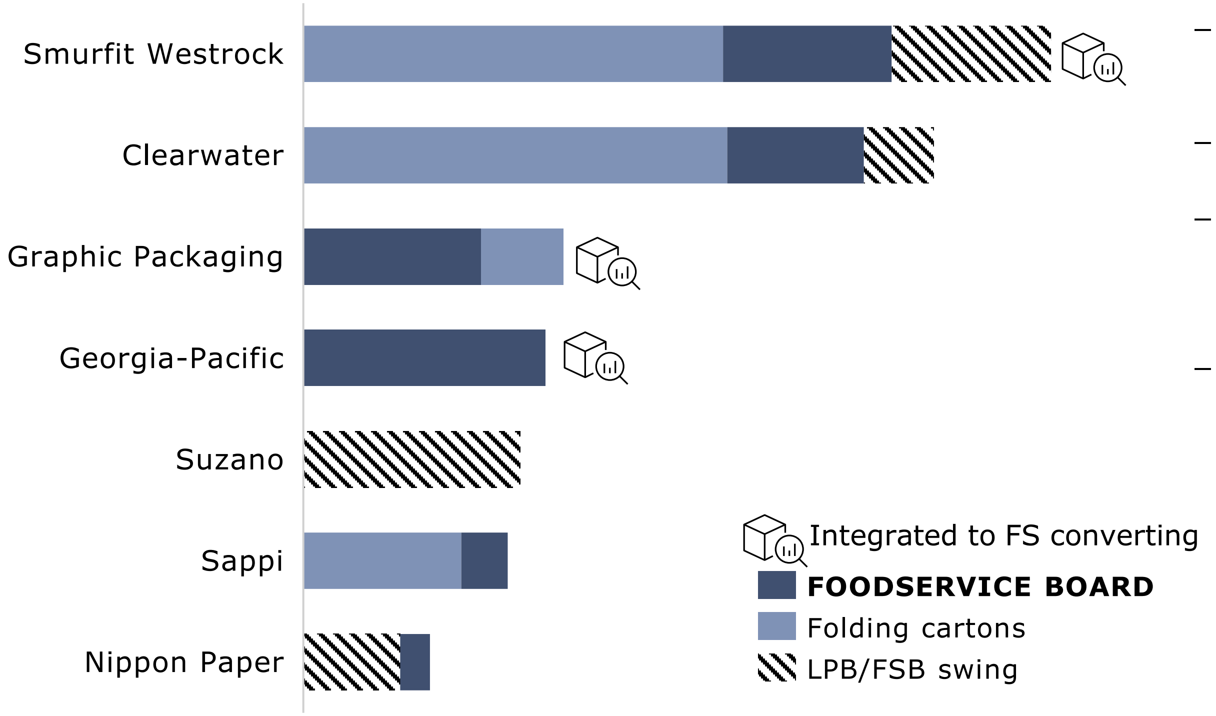
MOVERS & SHAKERS

- Recent **Smurfit and Westrock** merger – containerboard and cartonboard + converting
- **Graphic Packaging** invests to secure leadership in unbleached/recycled boards
  - Kalamazoo, MI and Waco, TX[1] "super mills"
- **Clearwater** solidified its position as the 3rd largest producer with the acquisition of the Augusta mill (from Graphic Packaging)
- **Georgia-Pacific** heavily invested in converting (Dixie line)
- **Suzano** recently entered the market with the acquisition of Pactiv's Pine Bluff mill (LPB) – growth aspirations for N.A.
- **Sappi** entered the market through a machine conversion in 2018 and plans to double the scale with another conversion by 2025
- Nordic countries the main source of bleached cartonboard, sizable new machines in Asia might add to imports

Capability to swing between board grades adds flexibility to adjust to market changes

N.A. SBS SUPPLY LANDSCAPE

tons



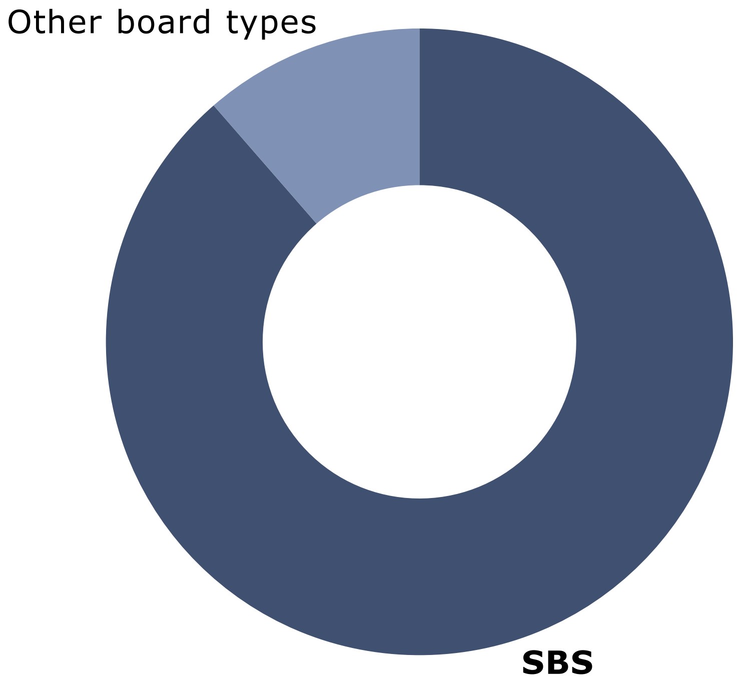
6 DOMESTIC PRODUCERS OF FOODSERVICE BOARD

- **Smurfit Westrock** supplies own converting lines as well as open market/independent converters
- **Clearwater** is focused on serving independent converters
- **Georgia-Pacific** leads foodservice board supply and is fully forward integrated (Dixie brand). Similarly **Graphic Packaging** caters to own converters.
- **Sappi** is currently a small participant in foodservice board, serving the independent market

Majority of foodservice board remains bleached, but CUK and CRB making inroads in takeout containers

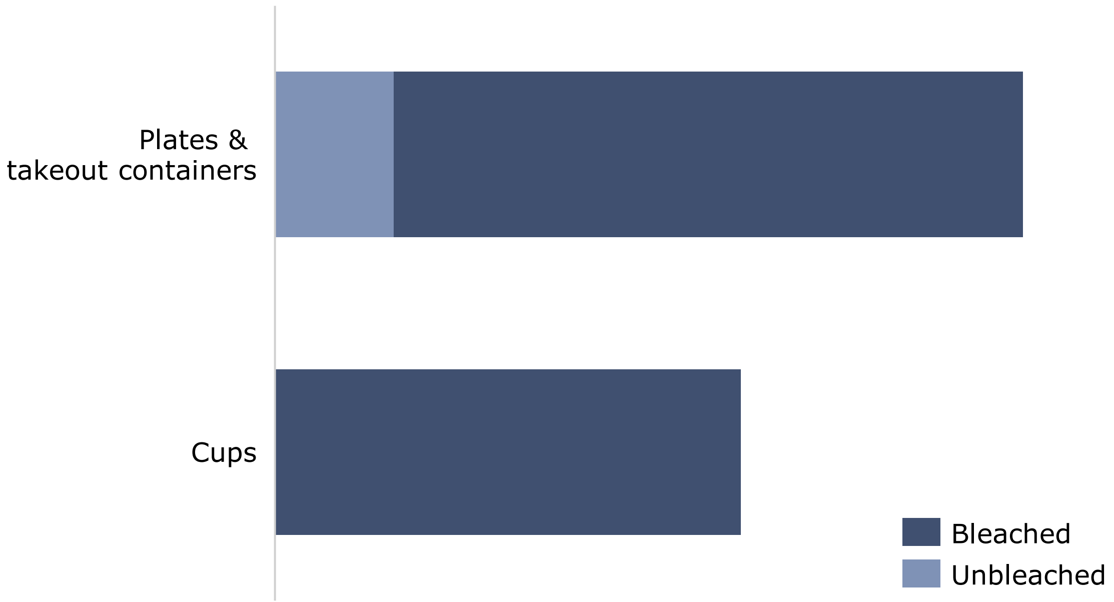
N.A. FOODSERVICE CARTONBOARD DEMAND

tons



BLEACHING STATUS

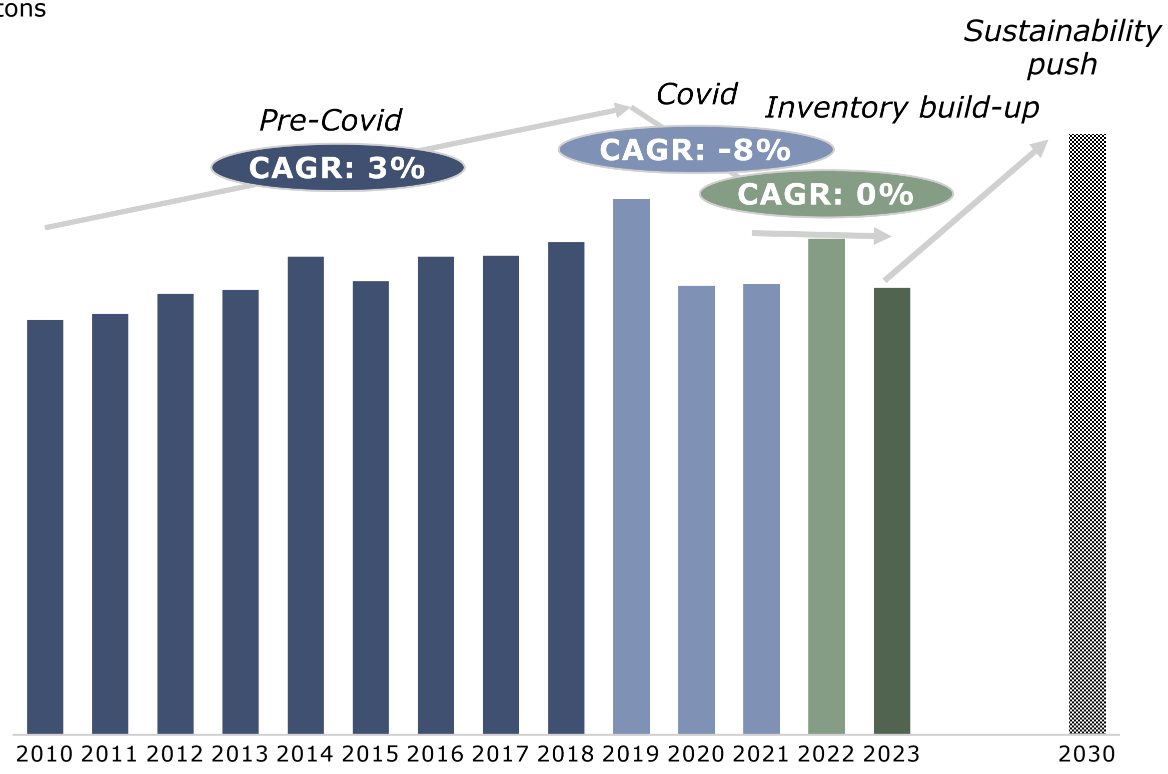
tons



Foodservice board market peaked pre-Covid, sustainability push will be needed for market rebound

N.A. FOODSERVICE CARTONBOARD DEMAND (SBS)

tons



DEMAND DRIVERS

- Higher GDP growth for 2025/2026, population growth
- Lower inflation expectations
- Plastic substitution
  - Regulations; share of North American population covered by EPS bans from current 30% to 50% of the population
  - Brands; opportunity to choose from a gamut of sustainable packaging substrates, not only SBS
- Product performance improvements needed
- Mills expanding product portfolios/swing, from bleached to unbleached
- FBB imports from Europe (and Asia) are growing

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Carrier and takeout bags, both bleached and unbleached, used in foodservice. Wraps, a smaller segment, are mainly bleached

PRODUCT MIX BY CHANNEL

	Grocery	Carrier	Takeout	Pharma
Department stores		✓		
Full-service restaurants		✓	✓	
Grocery stores	✓	✓		
Limited-service restaurants		✓	✓	
Other foodservice		✓	✓	
Other retail		✓		
Pharmacies		✓		✓
Superstores	✓			

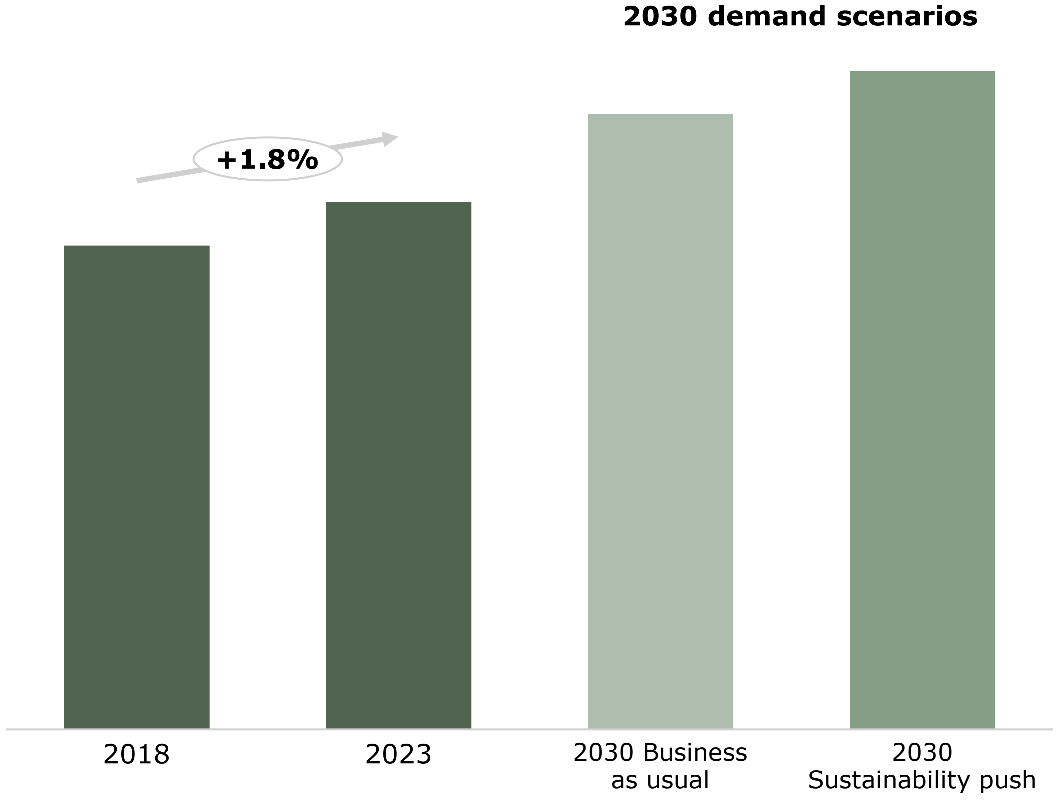
BLEACHING STATUS

tons

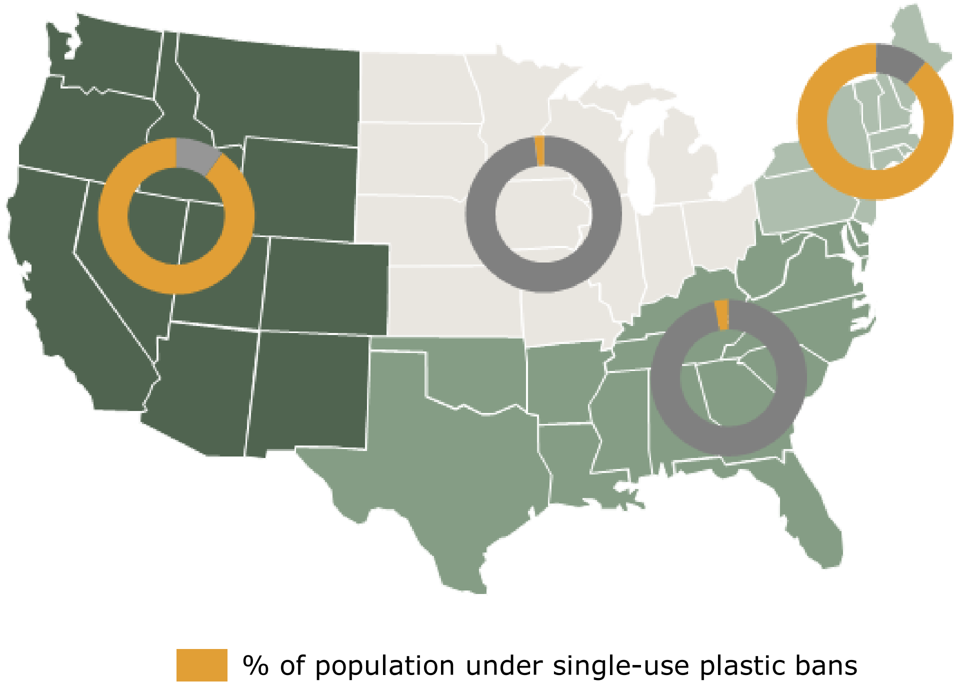
A third of the US population is currently under single-use plastic bag bans, further growth expected for paper bags as more states adopt bans

US SINGLE-USE PAPER BAGS DEMAND PROJECTIONS

tons



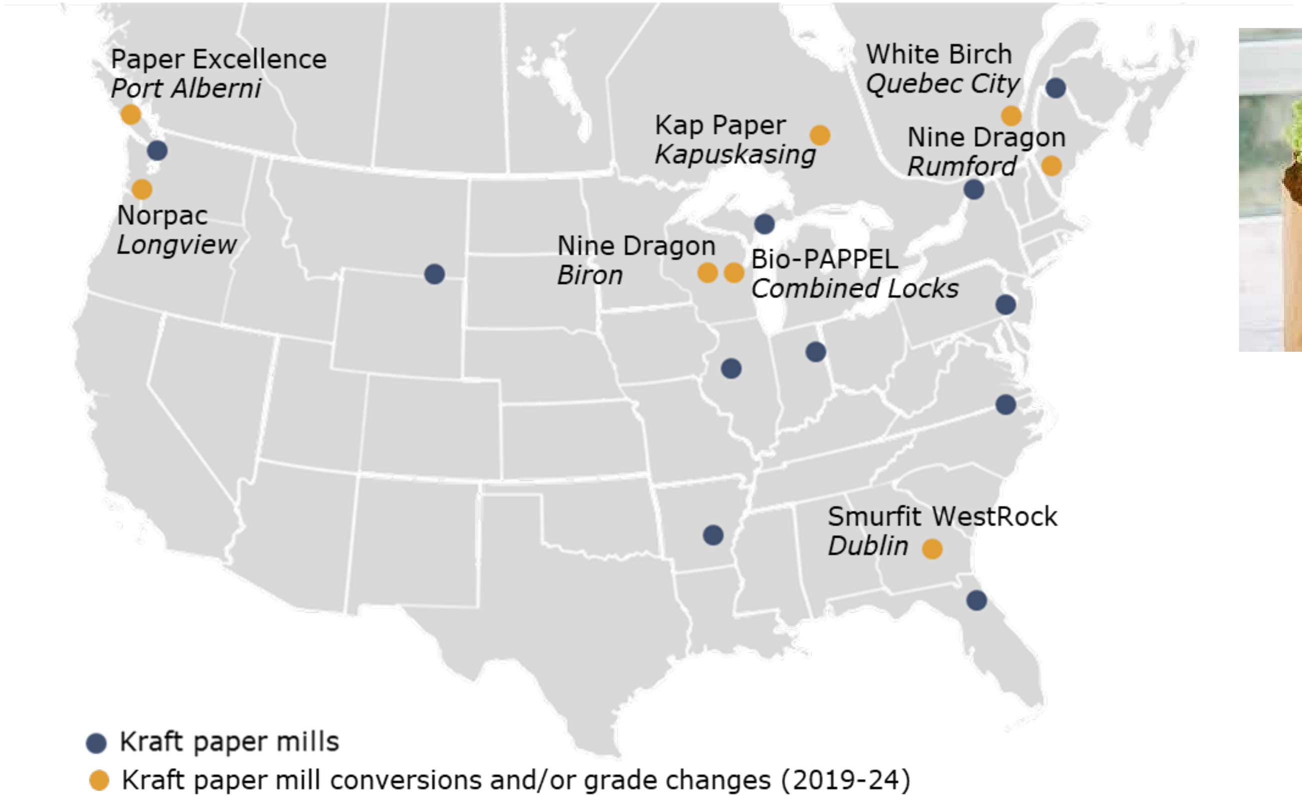
SHARE OF REGIONAL POPULATION UNDER PLASTIC BAG BANS



KRAFT PAPER - MILLS

Several mills have repositioned on kraft papers, while recent tariffs on imported carrier bags create opportunities for local converters and mills

KRAFT PAPER MILL LOCATIONS



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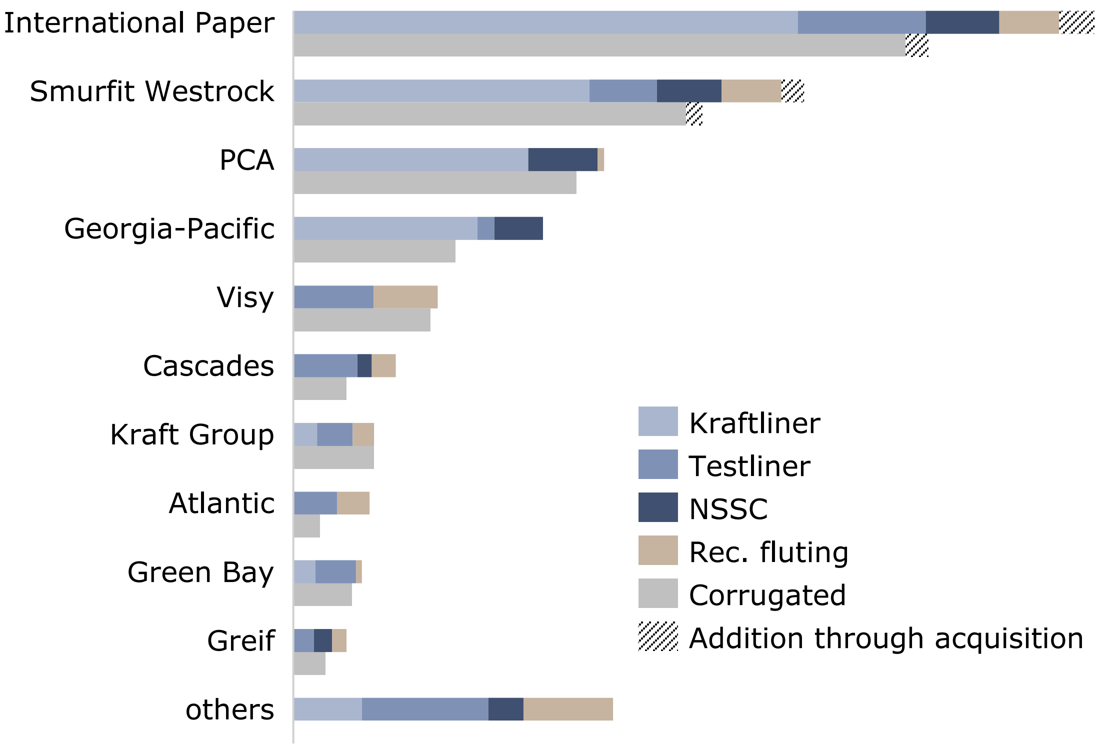
Regardless of scale, containerboard manufacturers continue to rely on high level of forward integration

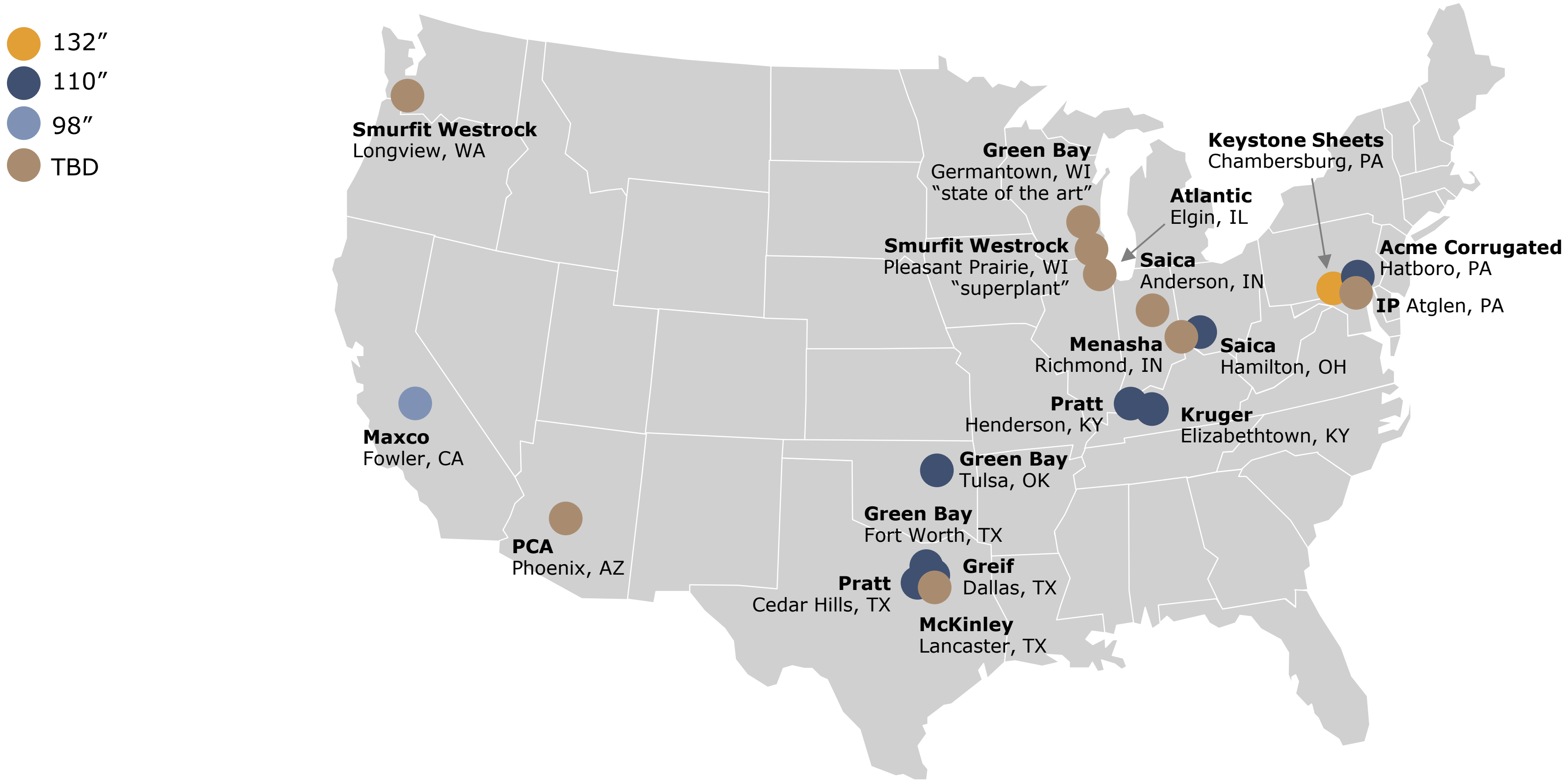
N.A. TOP CONTAINERBOARD & CORRUGATED PRODUCERS

tons



Corrugator landscape with ongoing asset renewal – the age of “super plants”

NEW CORRUGATOR INVESTMENTS (2021-2025--)



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Molded fiber packaging (MFP) is at the crossroad of multiple macro trends

REDUCE CARBON FOOTPRINT

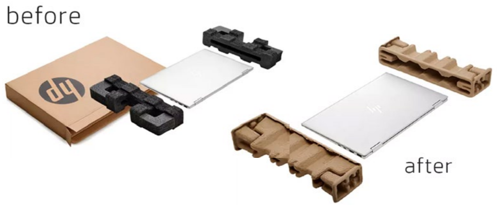
Most brand owners implementing carbon emission reduction targets. Some embracing Science Based Targets

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

RECYCLABLE AND BIODEGRADABLE

Brand owners acting on their goals to source packaging from recycled or renewable materials or reusable packaging by 2030



ZERO WASTE

Large sporting venues and QSRs commit to reducing waste

PROMOTE HEALTHY LIFESTYLE

Molded fiber appeals to the “green customer” and supports messaging from healthy and sustainability-oriented brands

AFRY

Vast majority of molded fiber foodservice products are Type III

Type I
Thick-wall

Type II
Transfer

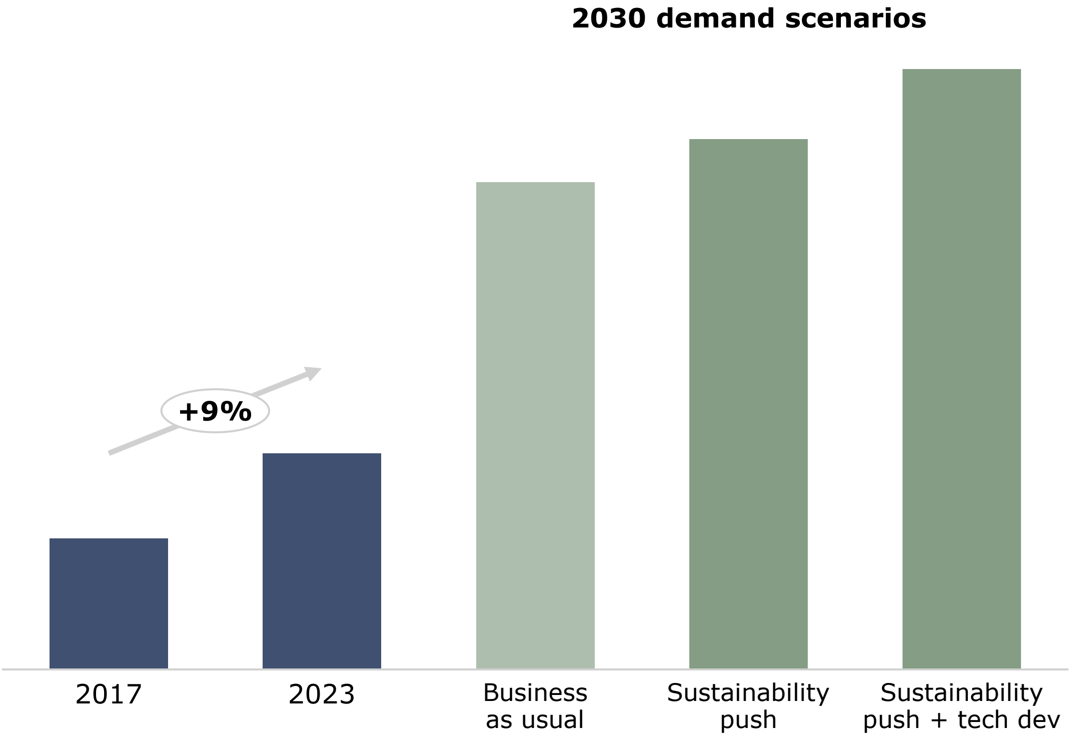
Type III
Thin-wall (Thermoformed)

Type IV
Thermoformed + Coating /
Other downstream processing

Type III molded fiber market growth mainly driven by bans on EPS as well as consumer preference for sustainable packaging

N.A. TYPE III MOLDED FIBER DEMAND

tons



MARKET DEVELOPMENTS

Demand

- Forecast scenarios point to continued strong growth
- Regulatory and consumer pressures to replace single-use plastics
- Technology developments boost further growth

Supply

- Incumbents planning sizable investments (e.g. Genera)
- Fiber-based packaging companies making moves
  - Metsa developing Muoto in Finland; Stora Enso/Pulpac in Sweden; Smurfit Westrock in Mexico
- Plastic thermo-formers already in
  - Pactiv, Novolex (Eco-Products), Sabert, DART etc.

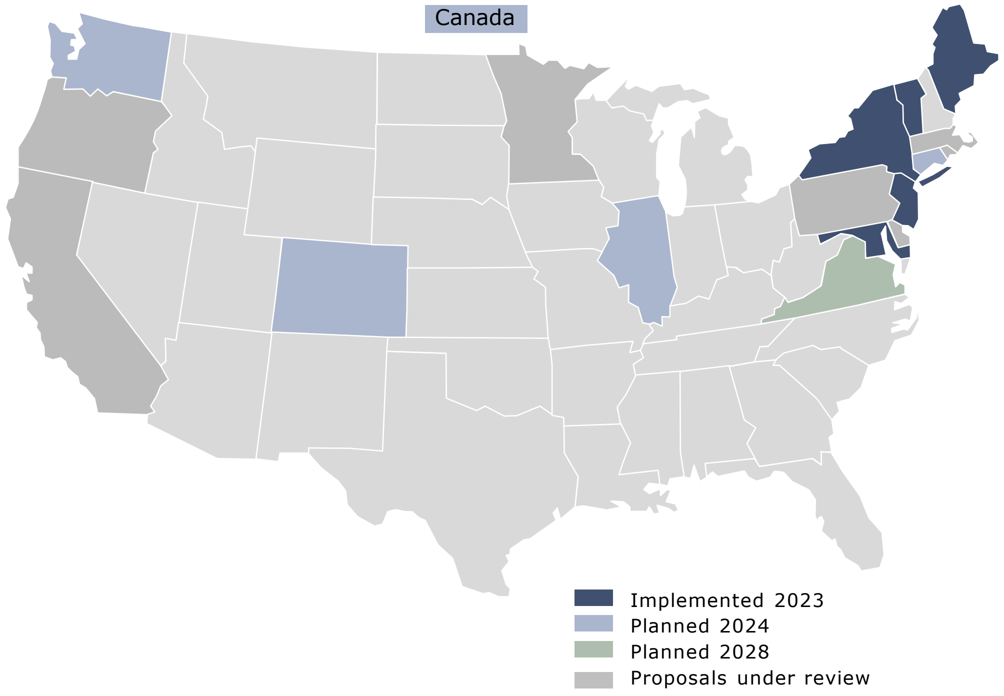
Imports

- Domestic producers commonly supplementing supply with imports, mainly from China
- Changes in tariffs are expected to level the playing field

Note: volumes in short tons

Push from regulations: bans targeting EPS and plastics in the foodservice sector cover an increasing share of the U.S. population

EPS BANS IN NORTH AMERICA



OTHER RELEVANT REGULATIONS

- In addition to plastics and EPS bans, regulations limiting the use of Per- and polyfluoroalkyl substances (PFAS) are also shaping the industry
  - PFAS are a commonly used substance for imparting resistance to grease, oil and water needed in food packaging
- Finding a solution which is recyclable and biodegradable is currently a key focus area for the industry

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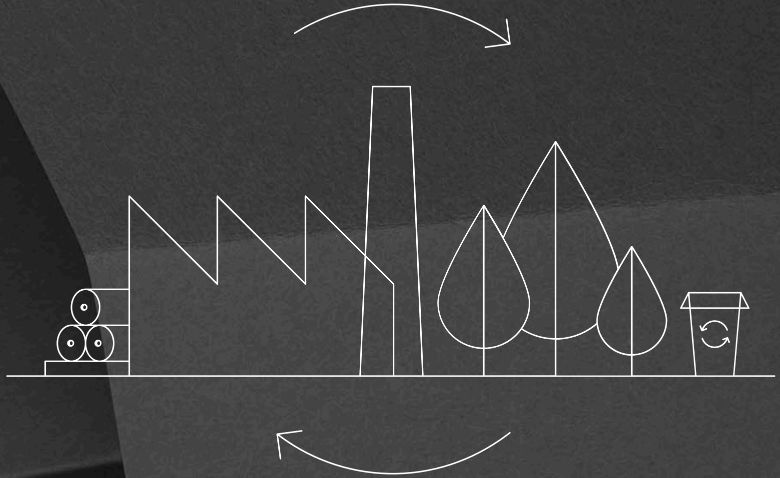
Wrap up

- Market conditions improving in most pulp & paper segments. Recent foodservice board demand development dismal, but long-term improvement expected
- Cartonboard. Supply landscape is changing & future foodservice demand growth will be met with increased supply, from local producers and imports
- Kraft paper & bags. Positive outlook for carrier and takeout bags, boosted by plastic bag bans. Additional paper supply from new entrants. Import tariffs opening opportunities for local bag manufacturing
- Corrugated boxes. Large scale integrated industry, with recent mega mergers and converting asset renewal. Foodservice/pizza boxes are a small but solid end use for converters
- Molded fiber products. Gaining share in foodservice, driven by replacement of plastics. Industry structure is changing, while gaining interest from fiber integrated players

CONTACT INFORMATION

Thank you!



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