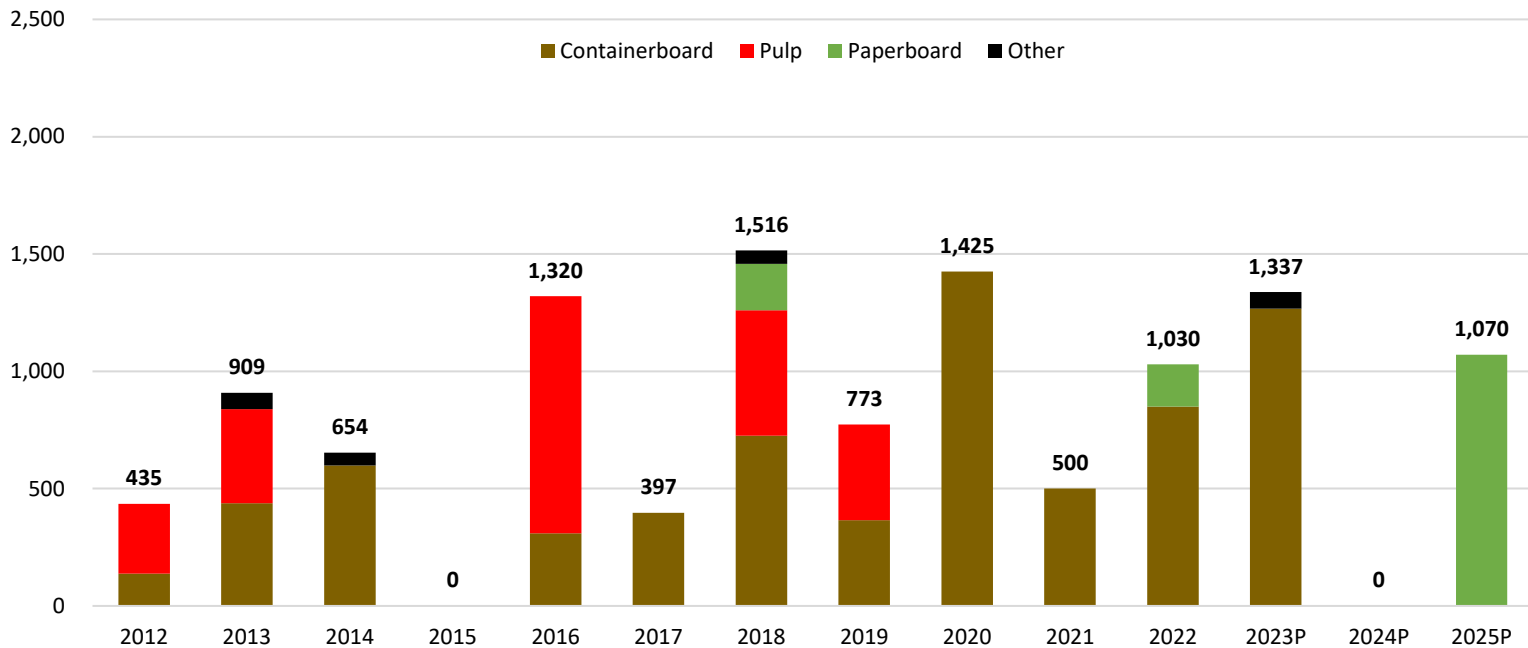


# North American Mill Conversions by Year and Type, 2012-2025P

Conversions have historically targeted the containerboard market with pulp production being the second most common project type. Two significant paperboard conversion projects are targeted for 2025 startup

Tons of Annual Capacity in Mill Conversion Projects by New Grade, 2012-2025P (000 short tons)



Note: Gradual conversion of SP Fiber Technologies to containerboard production (550,000 tons) is spread evenly from 2011-2014; sum of all years in chart above will be less than the sum of totals on pages 5 and 7 (converted to short tons) due to the 137,500 tons attributed to 2011. Packaging Corp. Jackson, AL J-3 machine conversion reflects reported 435,000 ton initial capacity in 2020, additional 125,000 tons in 2022 and 140,000 tons in 2023

Source: RISI, Rivermill analysis

# North American Mill Conversions – Paper & Packaging Grades, 2012 – 2025P (1 of 4)

Since 2012, North American producers have undertaken at least 30 projects converting capacity to new paper or paper packaging grades

Company / Location	Timing <sup>(1)</sup>	Cost (\$MM)	New Grade	New Capacity (000 tons)	Description
Billerud - Escanaba, MI	2025	\$1,000	Folding boxboard and other packaging grades	550	Conversion of one of two operating coated paper machines
Sappi - Skowhegan, ME	Early 2025	\$418	Bleached board	520	Conversion of operating 250,000 ton coated freesheet machine
Paper Excellence - Crofton, BC	2023	51	Packaging grades	176	Full conversion of PM 2 which previously made newsprint, other publication papers and some packaging
Cascades - Ashland, VA	1Q/2023	300	Containerboard (recycled)	450	Conversion of shut single machine newsprint mill
ND Paper - Biron, WI	1Q/2023	ND	Recycled containerboard and kraft papers	500	Conversion of 260,000 ton coated groundwood machine
ST Paper - Duluth, MN	Jan-23	ND	Tissue	71	As of mill acquisition, ST Paper was thought to be converting existing machine and installing a new machine. Jan. 2023 startup appears to reflect operation of new machine only
Domtar - Kingsport, TN	Dec-22	350	Containerboard (recycled)	600	Conversion from a shut single machine 426,000 ton uncoated freesheet mill
NorPac - Longview, WA	Oct-22	50	Recycled kraft papers	125	Installation of new drum pulper in Aug. 22 enabled conversion of 250,000 ton PM 3 to swing between recycled kraft papers and high bright groundwood papers
Sonoco - Hartsville, SC	Sep-22	115	Uncoated recycled board	180	Conversion of PM 10 from corrugating medium
Packaging Corp. of America - Jackson, AL	3Q/2021	100	Corrugating medium (kraft)	100	Converted operating J-1 uncoated freesheet machine from 90,000 tons of uncoated freesheet

(1) Timing of first production on new grade  
Source: RISI, Rivermill analysis

# North American Mill Conversions – Paper & Packaging Grades, 2012 – 2025P (2 of 4)

Since 2012, North American producers have undertaken at least 30 projects converting capacity to new paper or paper packaging grades

Company / Location	Timing <sup>(1)</sup>	Cost (\$MM)	New Grade	New Capacity (000 tons)	Description
New Indy - Catawba, SC	1Q/2021	240	Ultra l/w kraft linerboard	400	Conversion of operating lightweight coated paper machine
ND Paper - Rumford, ME	4Q/2020	~200	Containerboard (virgin and recycled WT liner & specialty)	300	Conversion of PM 15 to lightweight, kraft linerboard and partial conversion of PM 12 to unbleached virgin and recycled kraft papers
Packaging Corp. of America - Jackson, AL	4Q/2020	450	Kraft linerboard	700	Converted operating J-3 uncoated freesheet machine with two phases of additional investment slated to reach 700,000 tons of capacity by 2023
McKinley - Port Angeles, WA	1Q/2020, 2H/2020	ND	Recycled containerboard and kraft papers	240	Shut two machine groundwood papers mill. Larger machine will make recycled containerboard (180,000 tons), smaller machine making kraft papers as of 1Q/2020 (60,000 tons)
International Paper - Selma, AL	3Q/2020	300	Kraft Linerboard/ Containerboard	450	Conversion from operating UFS machine
NorPac - Longview, WA	2019	ND	Recycled containerboard, kraft papers and unbleached pulp	110	Conversion of PM 1 from an operating newsprint machine
ND Paper - Biron, WI	3Q/2019	189	Containerboard (recycled)	255	Conversion of operating coated groundwood machine
Midwest Paper Group - Combined Locks, WI	2018	30	Recycled containerboard and kraft papers (recycled brown and virgin bleached)	325	Gradual conversion, with swing capacity, of shut three paper machine mill (455,000 tons total) from coated and uncoated papers

(1) Timing of first production on new grade  
Source: RISI, Rivermill analysis

# North American Mill Conversions – Paper & Packaging Grades, 2012 – 2025P (3 of 4)

Since 2012, North American producers have undertaken at least 30 projects converting capacity to new paper or paper packaging grades

Company / Location	Timing <sup>(1)</sup>	Cost (\$MM)	New Grade	New Capacity (000 tons)	Description
Packaging Corp. of America - Wallula, WA	4Q/2018	150	Kraft Linerboard	400	Conversion from UFS
Sappi - Skowhegan, ME	2Q/18	165	Consumer packaging (primarily bleached board)	198	Rebuild of PM 1 to produce "consumer packaging grades" in addition to coated free-sheet
ST Paper - Franklin, VA	1Q/2018	35	Tissue (dry crepe)	58	Conversion of second machine at mill to produce bleached and unbleached away from home towel and napkin grades
Kruger - Trois Rivieres, QC	May-17	187.5	Linerboard (l/w recycled)	397	Operating newsprint machine
UP Paper - Manistique, MI	Jun-16	ND	Recycled kraft papers	120	Converted from uncoated publication papers partially in 2011-2015 while operating, and remainder in 2016 restart after 2015 shut
Corrugated Supplies - Alsip, IL	Jan-16	50 - 60	Corrugating medium (recycled)	190	Recycled coated papers machine shut in 2014
Packaging Corp. of America - DeRidder, LA	Oct-14	115	Containerboard (virgin and recycled)	355	Operating newsprint machine
Cascades - St. Helens, WA	Oct-14	35	Tissue (wet crepe)	55	Former Boise Inc. uncoated freesheet machine shut in late 2012
Newark Group - Fitchburg, MA	Early 2014	ND	Linerboard (recycled)	106	Operating uncoated recycled board machine
Atlantic Packaging - Whitby, ON	May-13	ND	Linerboard (l/w recycled)	300	Newsprint machine shut in 2010

(1) Timing of first production on new grade

Source: RISI, Rivermill analysis

# North American Mill Conversions – Paper & Packaging Grades, 2012 – 2025P (4 of 4)

Since 2012, North American producers have undertaken at least 30 projects converting capacity to new paper or paper packaging grades

Company / Location	Timing <sup>(1)</sup>	Cost (\$MM)	New Grade	New Capacity (000 tons)	Description
ST Paper - Franklin, VA	Feb-13	70	Tissue (wet crepe)	70	Shut uncoated freesheet machine at complex where International Paper converted remainder to fluff pulp
SP Fiber Technologies - Dublin, GA <sup>(2)</sup>	2011-2014	ND	Containerboard and kraft papers (recycled)	550	Two operating newsprint machines
<b>Total</b>				<b>8,851</b>	

(1) Timing of first production on new grade

(2) Total includes 2011 although it precedes analysis period of 2012-2025P

Source: RISI, Rivermill analysis

# North American Mill Conversions – Paper & Packaging Grades, Mills Subsequently Shut

## Three mills where companies invested in conversions subsequently shut down

Company / Location	Timing <sup>(1)</sup>	Cost (\$MM)	New Grade	New Capacity (000 tons)	Description
Kruger - Brompton, QC	2H/2018	82	Specialty papers (supercalendered kraft and C1S papers)	220	Gradual conversion of Brompton mill from newsprint to lightweight packaging, labeling and food packaging papers. Mill shut in April 2020
Verso - Jay, ME	Aug-18	19	Linerboard (virgin)	200	Conversion of #3 coated paper and pulp line. Mill experienced explosion in its digester in April 2020 and the linerboard operations never restarted. Mill slated to be shut in early 2023
Neenah Paper - Appleton,	1Q/2017	ND	Transportation filtration media	22	Operating premium papers machine converted to filter media. Mill closed in July 2021
<b>Total</b>				<b>442</b>	

(1) Timing of first production on new grade

Source: RISI, Rivermill analysis

# North American Mill Conversions – Pulp Grades, 2012 – 2025P

Since 2012, North American producers have undertaken seven projects converting capacity to new pulp grades

Company / Location	Timing <sup>(1)</sup>	Cost (\$MM)	New Grade	New Capacity (000 metric tons)	Description
Domtar - Ashdown, AR	Oct-19	ND	Fluff and SBSK	70	Ceased production of uncoated freesheet on Machine #63 and shifted to pulp
Shanying International - Wickliffe, KY	May-19	ND	SBHK	300	Primarily paper mill restarted by subsidiary of Shanying International with initial focus on BHK pulp. Subsequently also restarted uncoated freesheet paper production
Georgia-Pacific - Perry, FL	May-18	79	Dissolving	485	Converted line from fluff to dissolving pulp
Domtar - Ashdown, AR	Aug-16	160	Fluff and baled SBSK	516	330,000 ton operating uncoated freesheet machine to approximately 50-50 targeted split of fluff and SBSK
International Paper - Riegelwood, NC	Apr-16	135	Fluff and roll SBSK	400	Converted from an operating two machine paperboard / bristols mill
Sappi - Cloquet, MN	Oct-13	170	Dissolving	364	Converted from an operating hardwood kraft pulp mill, previously used primarily internally for coated paper production
International Paper - Franklin, VA	Jul-12	90	Fluff	270	Converted from an uncoated freesheet mill that had been shut in 2010
<b>Total</b>				<b>2,405</b>	

Note: No identified conversion projects since 2019 excluding bleached to unbleached kraft pulp, discussed separately on next page. Excludes Rayonier Advanced Materials' 2013 conversion of a line from fluff pulp to specialty dissolving pulp as line was shifted back to fluff and viscose pulp production in 2015

(1) Timing of first production on new grade

Source: RISI, Rivermill analysis

# North American Mill Conversions – Unbleached Kraft Pulp

Since 2019, producers have shifted three mills from bleached to unbleached kraft pulp (UKP) production. We exclude these low capital investment, reversible shifts from our overall conversion totals

Company / Location	Timing <sup>(1)</sup>	New Capacity (000 metric tons)	Description
West Fraser - Hinton, AB	Oct-22	250	Capacity reduction and conversion from NBSK. One of two lines will shut, reducing capacity from 375,000 metric tons and remaining line will shift to UKP
Paper Excellence - Howe Sound, BC	Dec-21	437	Paper Excellence announced it was converting production at the site to UKP
ND Paper - Old Town, ME <sup>(2)</sup>	Aug-19	150	NBHK mill, acquired and restarted on UKP by ND Paper after shutting in late 2016. Capacity reflects initial target production rate, subsequently ramped
<b>Total</b>		<b>837</b>	

(1) Timing of first production on new grade

(2) Project is classified as a restart in website charts

Source: RISI, Rivermill analysis