

Investor Presentation

Montréal – March 3, 2020



DISCLAIMER

FORWARD-LOOKING STATEMENT

Certain statements in this presentation, including statements regarding future results and performance, are forward-looking statements within the meaning of securities legislation based on current expectations. The accuracy of such statements is subject to a number of risks, uncertainties and assumptions that may cause actual results to differ materially from those projected, including, but not limited to, the effect of general economic conditions, decreases in demand for Cascades Inc.'s ("Cascades," "CAS," the "Company," the "Corporation," "us" or "we") products, the prices and availability of raw materials, changes in the relative values of certain currencies, fluctuations in selling prices and adverse changes in general market and industry conditions. This presentation may also include price indices as well as variance and sensitivity analyses that are intended to provide the reader with a better understanding of the trends related to our business activities. These items are based on the best estimates available to the Corporation.

SUPPLEMENTAL INFORMATION ON NON-IFRS MEASURES – SPECIFIC ITEMS

The Corporation incurs some specific items that adversely or positively affected its operating results. We believe it is useful for readers to be aware of these items, as they provide additional information to measure the performance, compare the Corporation's results between periods and to assess operating results and liquidity, notwithstanding these specific items. Management believes these specific items are not necessarily reflective of the Corporation underlying business operations in measuring and comparing its performance and analyzing future trends. Our definition of specific items may differ from those of other corporations and some of them may arise in the future and may reduce the cash available to us.

They include, but are not limited to, charges for (reversals of) impairment of assets, restructuring gains or costs, loss on refinancing and repurchase of long-term debt, some deferred tax assets provisions or reversals, premiums paid on long-term debt refinancing, gains or losses on the acquisition or sale of a business unit, gains or losses on the share of results of associates and joint ventures, unrealized gains or losses on derivative financial instruments that do not qualify for hedge accounting, unrealized gains or losses on interest rate swaps, foreign exchange gains or losses on long-term debt, specific items of discontinued operations and other significant items of an unusual, non-cash or non-recurring nature.

RECONCILIATION OF NON-IFRS MEASURES

To provide more information for evaluating the Corporation's performance, the financial information included in this analysis contains certain data that are not performance measures under IFRS ("non-IFRS measures") which are also calculated on an adjusted basis to exclude specific items. We believe that providing certain key performance measures and non-IFRS measures is useful to both management and investors as they provide additional information to measure the performance and financial position of the Corporation. It also increases the transparency and clarity of the financial information. The following non-IFRS measures are used in our financial disclosures:

- Operating income before depreciation and amortization (OIBD): Used to assess operating performance and contribution of each segment when excluding depreciation & amortization. OIBD is widely used by investors as a measure of a corporation ability to incur and service debt and as an evaluation metric.
- Adjusted OIBD: Used to assess operating performance and contribution of each segment on a comparable basis.
- Adjusted operating income: Used to assess operating performance of each segment on a comparable basis.
- Adjusted net earnings: Used to assess the Corporation's consolidated financial performance on a comparable basis.
- Adjusted free cash flow: Used to assess the Corporation's capacity to generate cash flows to meet financial obligation and/or discretionary items such as share repurchase, dividend increase and strategic investments.
- Net debt to adjusted OIBD ratio: Used to measure the Corporation's credit performance and evaluate the financial leverage.
- Net debt to adjusted OIBD ratio on a pro forma basis: Used to measure the Corporation's credit performance and evaluate the financial leverage on a comparable basis including significant business acquisitions and excluding significant business disposals, if any.

Non-IFRS measures are mainly derived from the consolidated financial statements but do not have meanings prescribed by IFRS. These measures have limitations as an analytical tool, and should not be considered on their own or as a substitute for an analysis of our results as reported under IFRS. In addition, our definitions of non-IFRS measures may differ from those of other corporations. Any such modification or reformulation may be significant.

All amounts in this presentation are in Canadian dollars unless otherwise indicated Please click [here](#) for supplemental information on non-IFRS measures.

WE CARE, WE INNOVATE, WE CREATE VALUE



Focused investments and acquisitions generating sustainable **growth & returns**



Raising profile of our **sustainability leadership** to generate opportunities



Leveraging our **diversification** to innovate, cross-sell, support customer growth



Balanced capital allocation: strategic growth + debt repayment + shareholders



Larger-scale investments **targeting** modernization, optimization & profitability



Applying our 55+ years of **innovation**, R&D expertise to create value for customers

2019 FINANCIAL PERFORMANCE

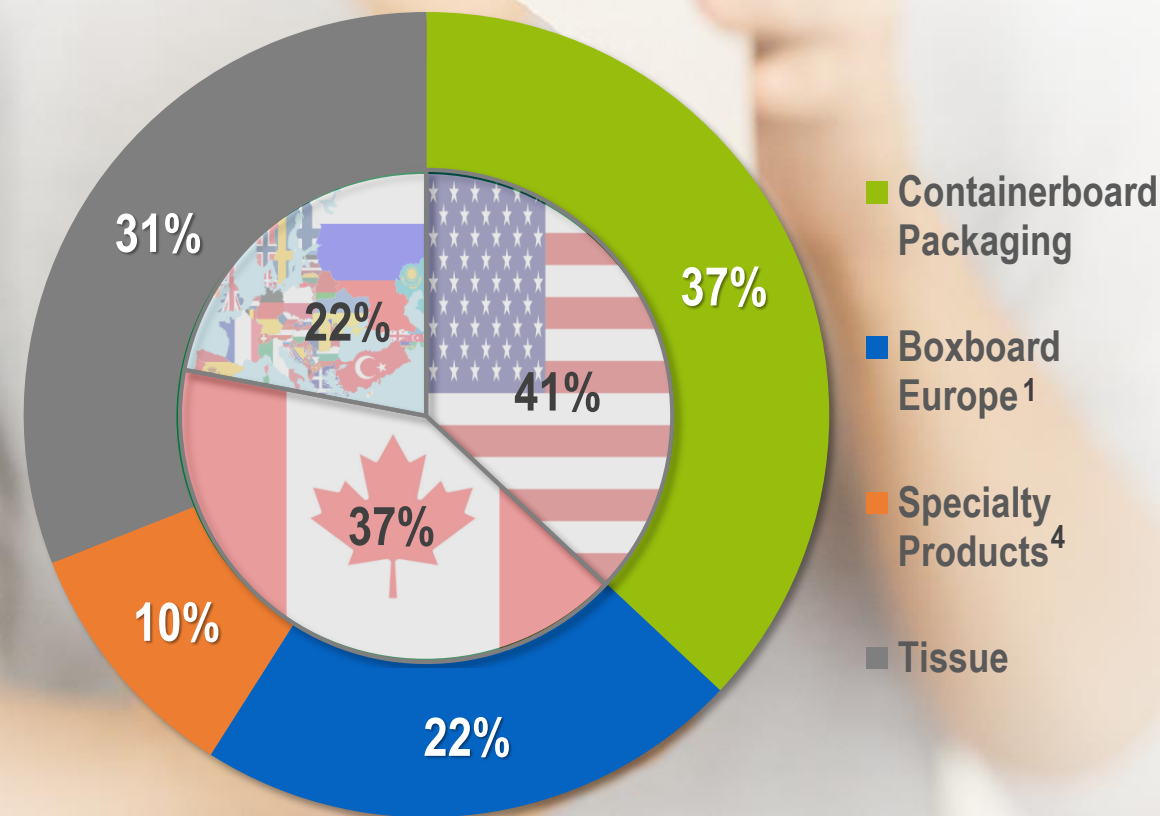
ADJ. EBITDA²

\$604M

(12.1% margin)

CF from operations: \$460 million
 WC (% of LTM sales): 10.1%
 ROCE: 5.4%
 Net debt: \$1.96 billion
 Net debt/Adj. EBITDA²: 3.25x

Annual shipments³: 3.37 million s.t.
 Capacity utilization rate: 92%



SALES

\$5.0 B

Sales % before inter-segment sales. ¹ Via our equity ownership in Reno de Medici S.p.A. (RdM)
² Please click [here](#) for supplemental information on non-IFRS measures. ³ Excluding shipments from our Specialty Products segment. ⁴ Recovery activities sales, OIBD and adjusted OIBD figures were reclassified from the Specialty Products segment to Corporate Activities as of Q4 2019. Quarterly and prior year figures were adjusted to reflect the new presentation.

2019 - WHAT MOVED THE DIAL

CONTAINERBOARD

- + Solid operational performance
- + Low raw material prices
- Minor softness in end market pricing
- Softer demand, largely due to lower export

TISSUE

- + Improved market dynamics & end pricing
- + Good integration of Orchids
- + Lower raw material prices
- Lower manufacturing volumes & higher outsourcing

EUROPEAN BOXBOARD

- + Business acquisition (Barcelona Cartonboard)
- + Favourable raw material costs
- Less favourable geographical sales mix
- Lower average selling price of recycled boxboard

SPECIALTY PACKAGING

- + US moulded pulp expansion
- + Higher selling prices in almost all sub-segments
- Sale of European activities
- + Higher Industrial Packaging volumes

NEAR-TERM OUTLOOK



- **Raw materials:** prices for OCC, virgin pulp and SOP white recycled fiber grades remain favourable
- **Tissue:** contribution from Orchids, price increases, stable raw material costs
- **Boxboard Europe:** sequential volume benefit, lower energy cost sequentially & year-over-year; Barcelona synergies
- **Specialty Products:** impact from recent asset sales offset by acquisitions in Q4 2018



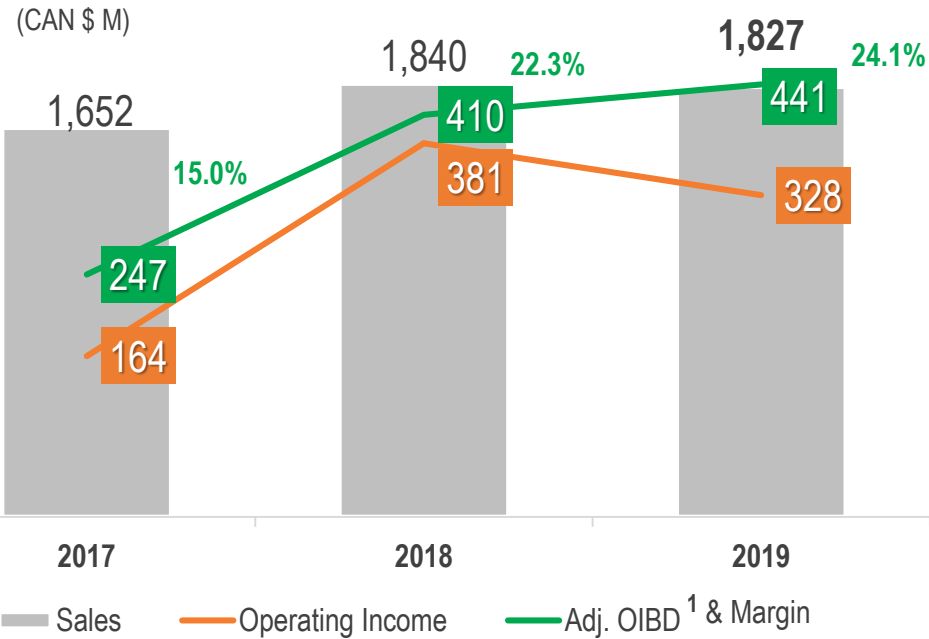
- **Raw material:** slight increases in OCC, SOP and virgin pulp prices
- **Tissue:** lower Q1 seasonal volumes
- **Containerboard:** selling price, OCC cost headwinds
- **Specialty Products:** negative impact related to lower average selling price of packaging products
- **Boxboard Europe:** lower selling price expected sequentially and year-over-year

Q1 2020	Containerboard Packaging		Boxboard Europe ¹		Specialty Products		Tissue Papers	
OIBD ² Trend	YoY ↔	QoQ ↓	YoY ↔	QoQ ↑	YoY ↔	QoQ ↑	YoY ↑	QoQ ↓
REFLECTING:								
VOLUME	↗	↗	↔	↗	↗	↗	↗	↘
SELLING PRICE	↘	↘	↘	↘	↘	↘	↗	↗
RAW MATERIAL COST ³	↘	↘	↘	↔	↘	↔	↘	↔
EXCHANGE RATE	↘	↔	↘	↔	↘	↔	↘	↔
ENERGY COST	↘	↔	↘	↘	↘	↔	↘	↔

(1) Via our equity ownership in Reno de Medici S.p.A. (RdM). (2) Please click [here](#) for supplemental information on non-IFRS measures. (3) For Specialty Products Segment, raw material cost trend excludes recycled fibre pricing impact on Recovery & Recycling activities.

CONTAINERBOARD - OUR BUSINESS

6th largest containerboard producer in NA

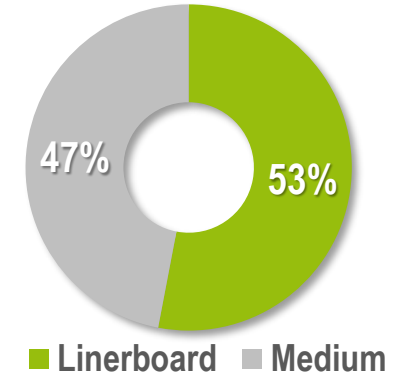
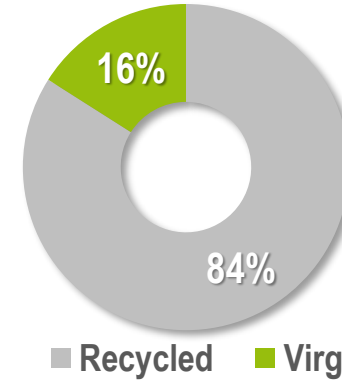


Q4 2019 adjusted OIBD¹ margin: **23.5%**

¹ Please click [here](#) for supplemental information on non-IFRS measures.

² Including associates, JVs and Greenpac.

ANNUAL CAPACITY: 1,568 K S.T.



MANUFACTURING



11% of 2019 sales



25% of 2019 sales



CONVERTING



48% of 2019 sales



16% of 2019 sales

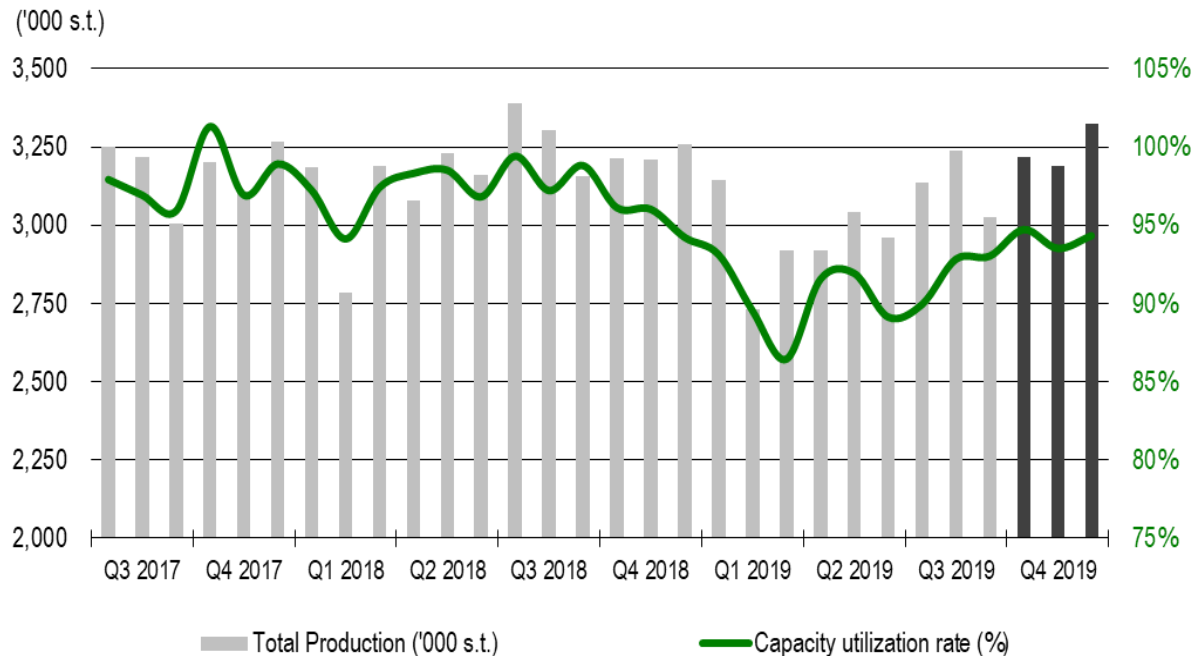


2019 INTEGRATION RATE²: 71%

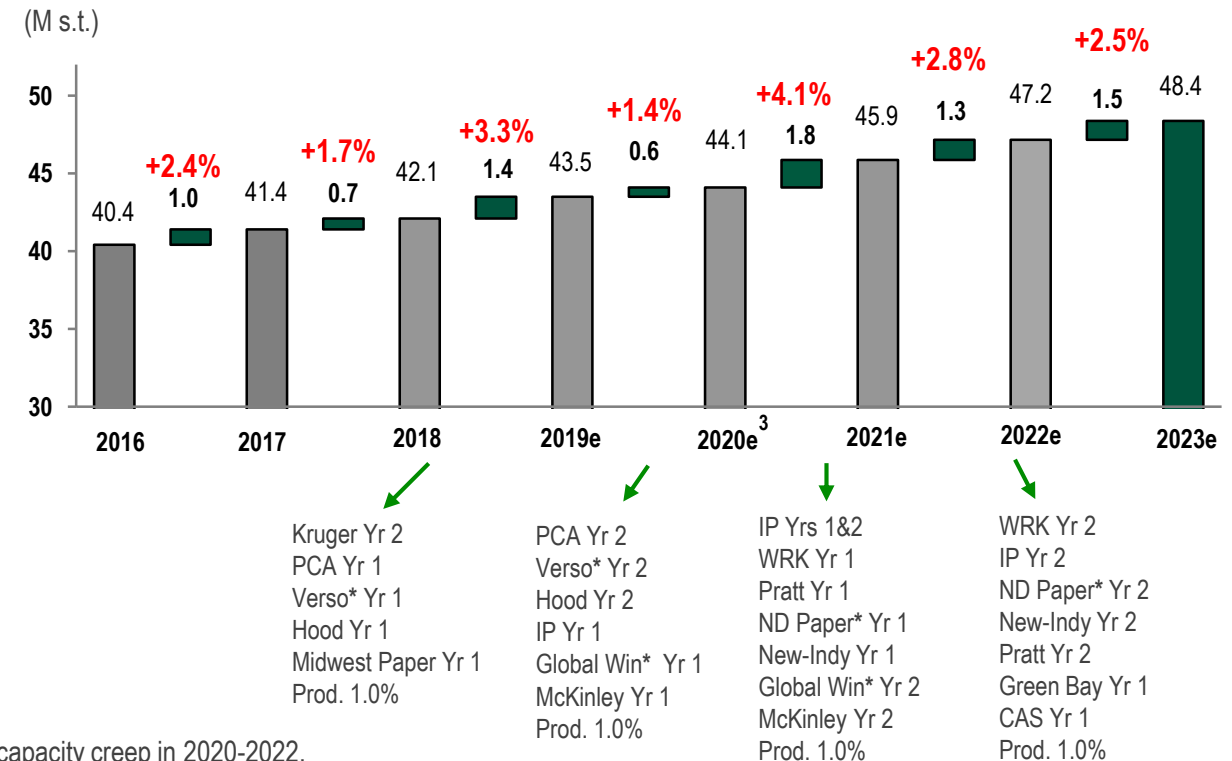
CONTAINERBOARD - MARKET

- NA demand CAGR 2016 – 2023e: ~ 1.4% (impacted by negative demand in 2019 in US, due largely to drop in exports)
- 2016 – 2023e CAGR capacity growth: ~ 3%

North American Production¹



North American Capacity Additions¹



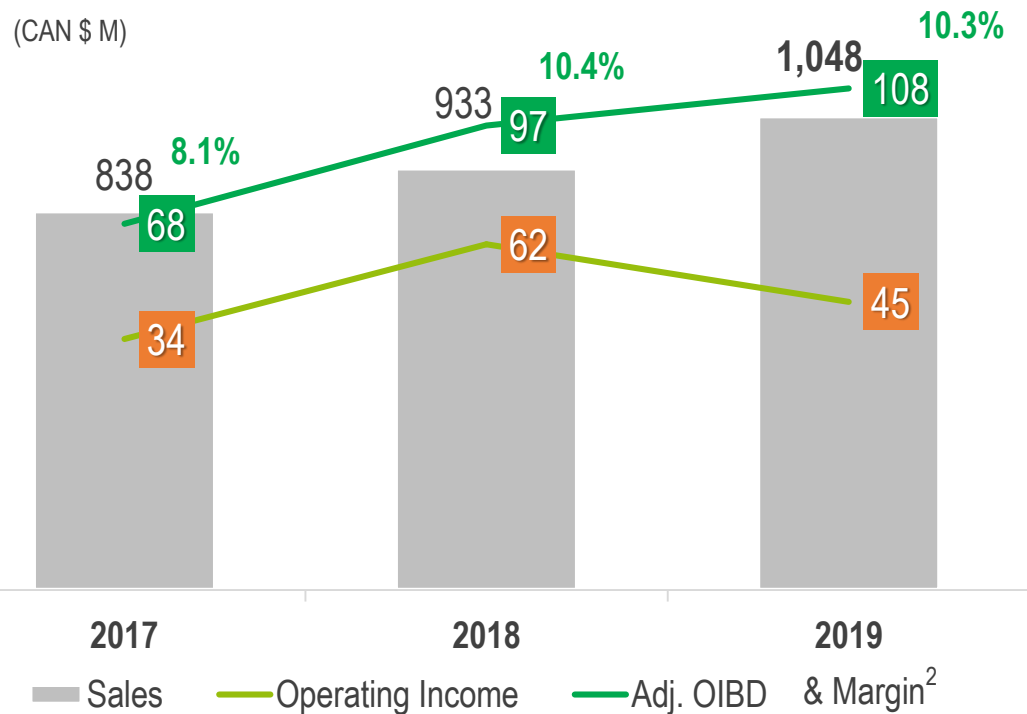
¹ Source: RISI, RBC, BMO, Company reports and estimates. New capacity, net of capacity shutdowns. Assumes +1% capacity creep in 2020-2022.

² Based on capacity. ³ Includes planned closure of 288K st by WRK as of Jan/2020, no other closures included. * Export focused and/or lower grade.

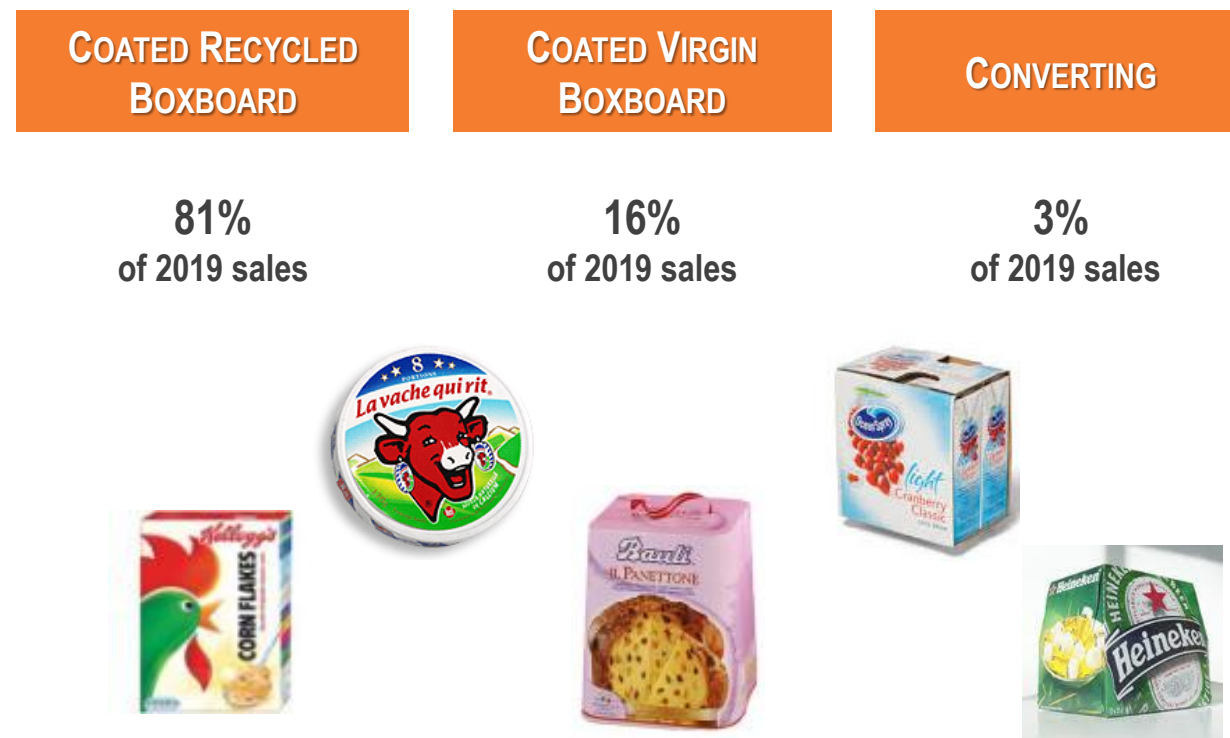
BOXBOARD EUROPE¹- OUR BUSINESS

2nd largest coated recycled boxboard producer in Europe

- 6 recycled mills (1,095K m.t.) & 1 virgin boxboard mill (165K m.t.)



Q4 2019 adjusted OIBD² margin: **9.9%**

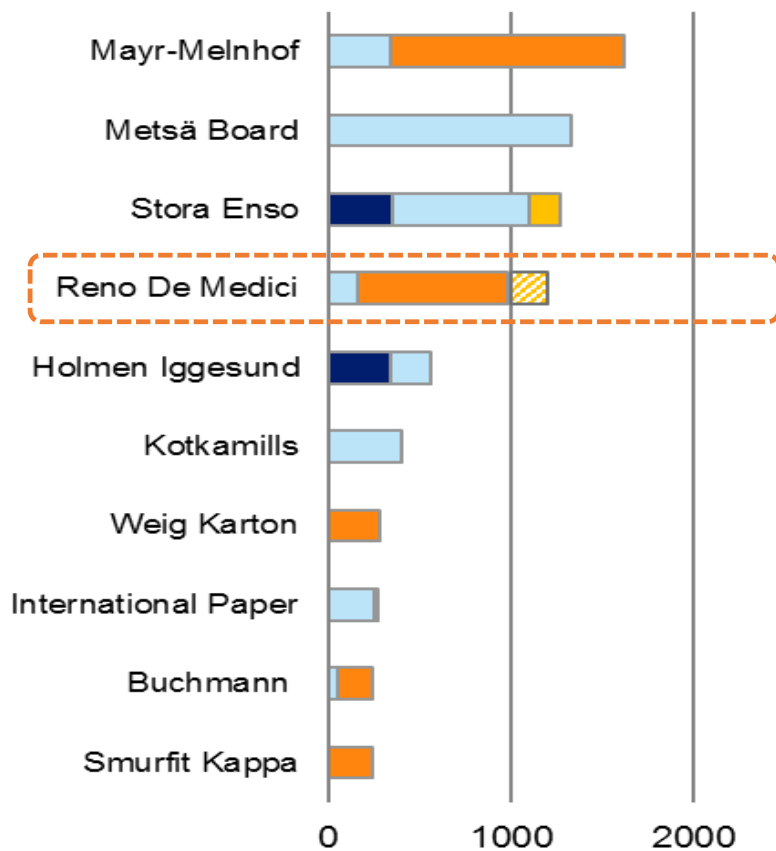


¹ Via our equity ownership in Reno de Medici, a public Italian company

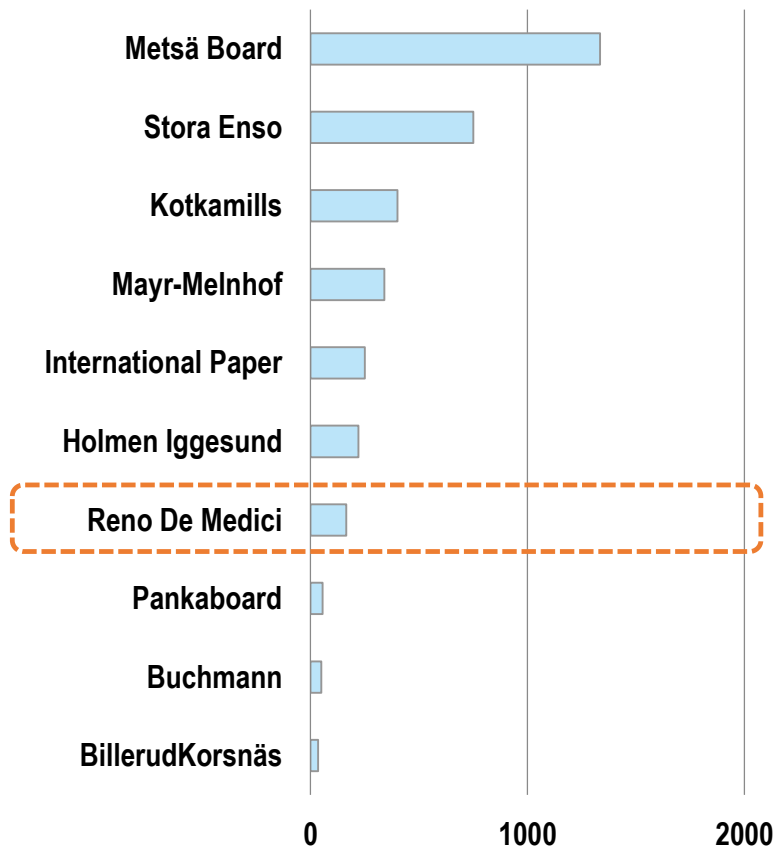
² Please click [here](#) for supplemental information on non-IFRS measures.

BOXBOARD EUROPE¹- MARKET

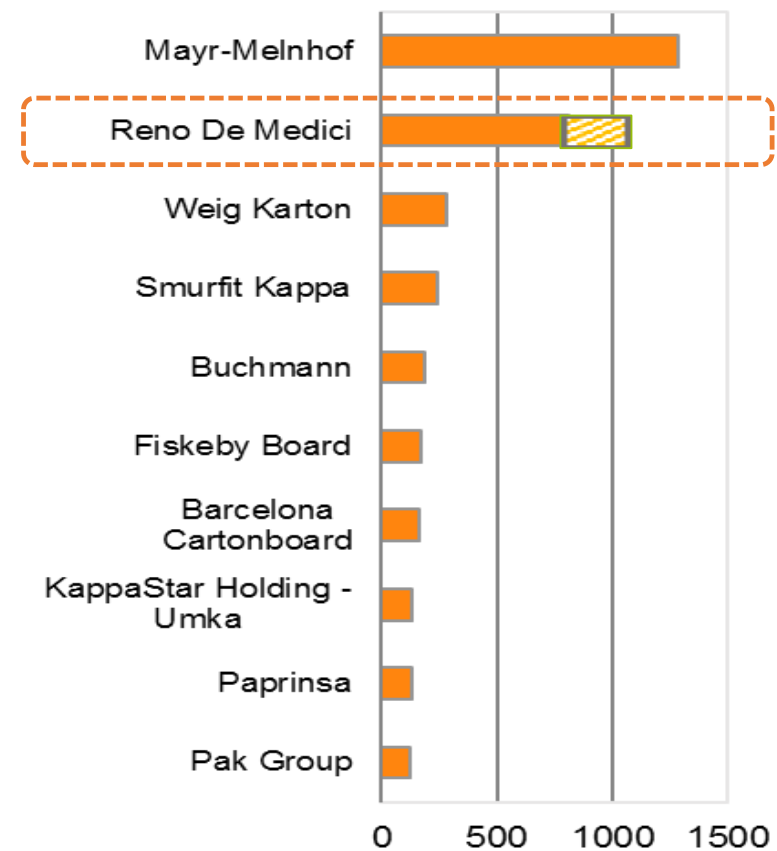
Top Cartonboard Producers¹
(Total Market)



Top FBB Producers¹
(Virgin)



Top WLC Producers¹
(Recycled)



■ SBS ■ FBB ■ CUK ■ WLC

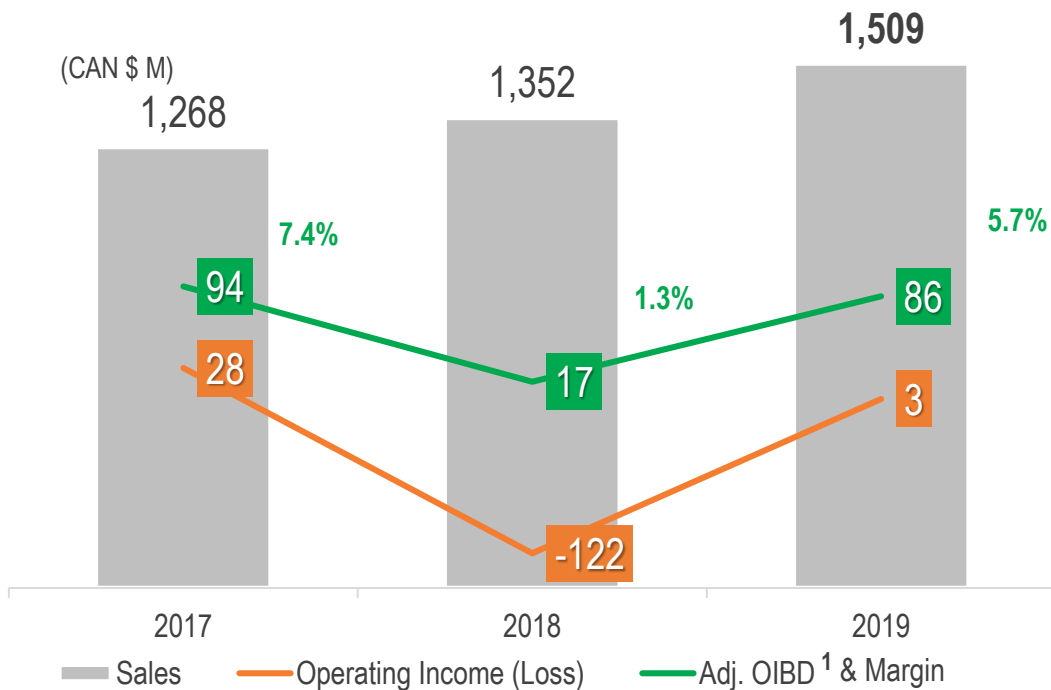
▨ Barcelona Cartonboard, acquired October 31, 2018

¹ Source: PÖYRY, Reno de Medici. Capacity in 1,000 t/a. SBS = Solid Bleached Sulphate (virgin); FBB = Folding Boxboard (virgin); CUK = Coated Unbleached Kraft (virgin); WLC = White Lined Chipboard (recycled).

TISSUE PAPERS - OUR BUSINESS

4th largest tissue producer in NA

- Acquired Orchids Paper for US\$235 million, expect US\$45 million EBITDA run-rate beginning 2021



Q4 2019 adjusted OIBD¹ margin: 8.8%
 (Adj. OIBD margin of 9.6% in 2015, 11.5% in 2016)

2019 ANNUAL SALES: 29% 71%

RETAIL TISSUE AWAY-FROM-HOME PARENT ROLLS

40%
of 2019 sales



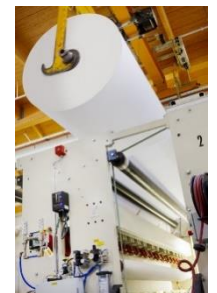
- Branded: 2%
- Private label: 38%

39%
of 2019 sales



- Branded: 20%
- Private label: 19%

21%
of 2019 sales



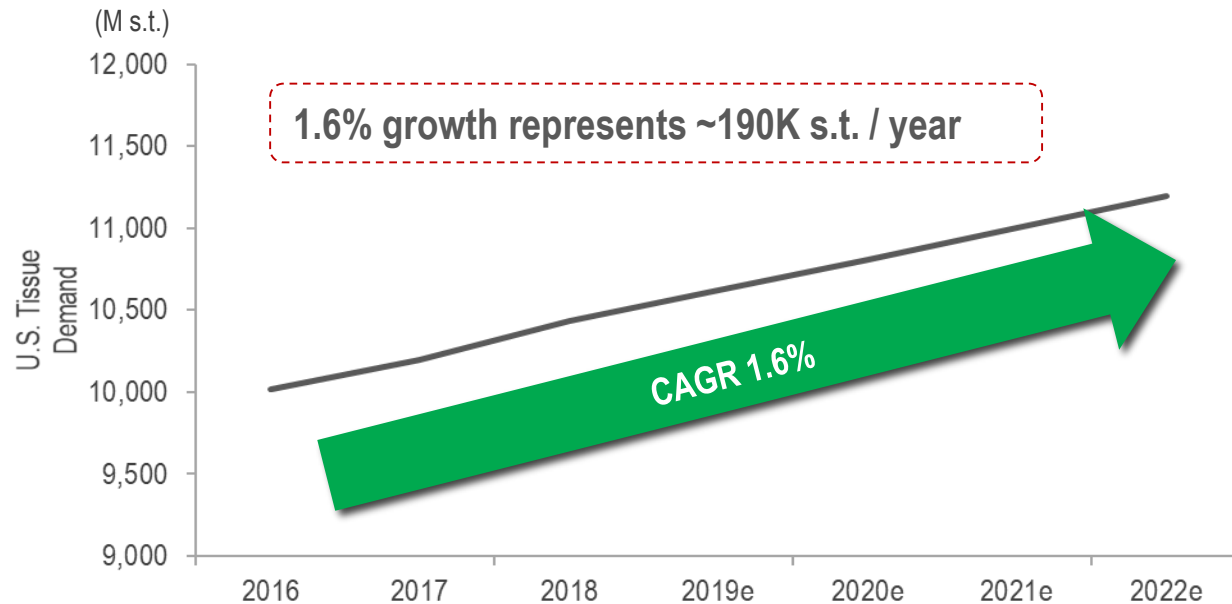
2019 INTEGRATION RATE: 76%

¹ Please click [here](#) for supplemental information on non-IFRS measures.

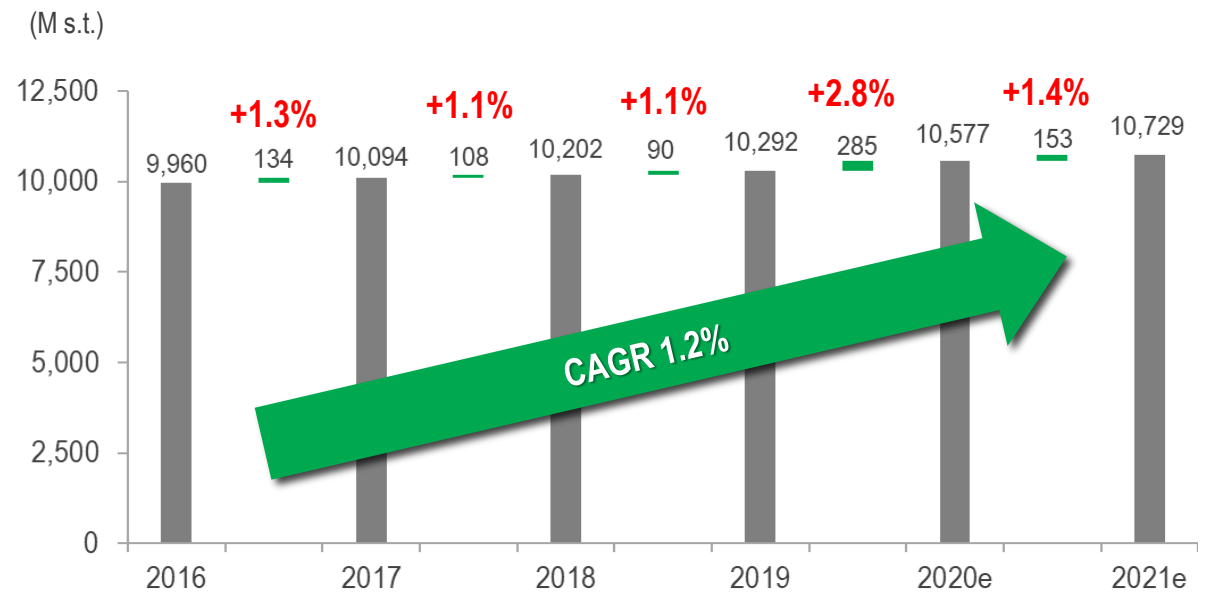
TISSUE PAPERS - MARKET

- Market fundamentals reflect capacity additions; Raw material cost reductions & price increases in some categories
- Capital investments focused on reducing fixed cost base, modernizing equipment, aligning product offering & geographic footprint with customer requirements
- Optimization of distribution network and supply chain following acquisition and integration of Orchids

Tissue Market Demand¹



North American Tissue Capacity Additions¹

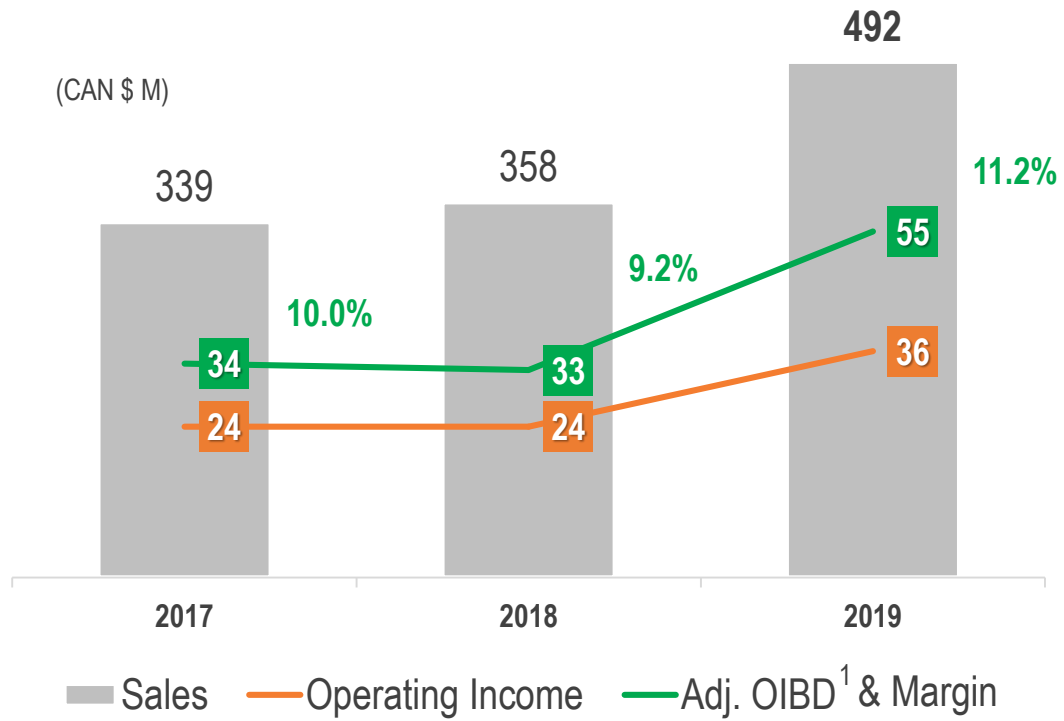


MARKET IN BALANCE

¹ Source: RISI, company estimates

SPECIALTY PRODUCTS³

Diversified Packaging Player – Focused on Growth Sectors



Q4 2019 adjusted OIBD¹ margin: **8.6%**

CONSUMER PRODUCTS PACKAGING²

65%
of 2019 sales



INDUSTRIAL PACKAGING

35%
of 2019 sales



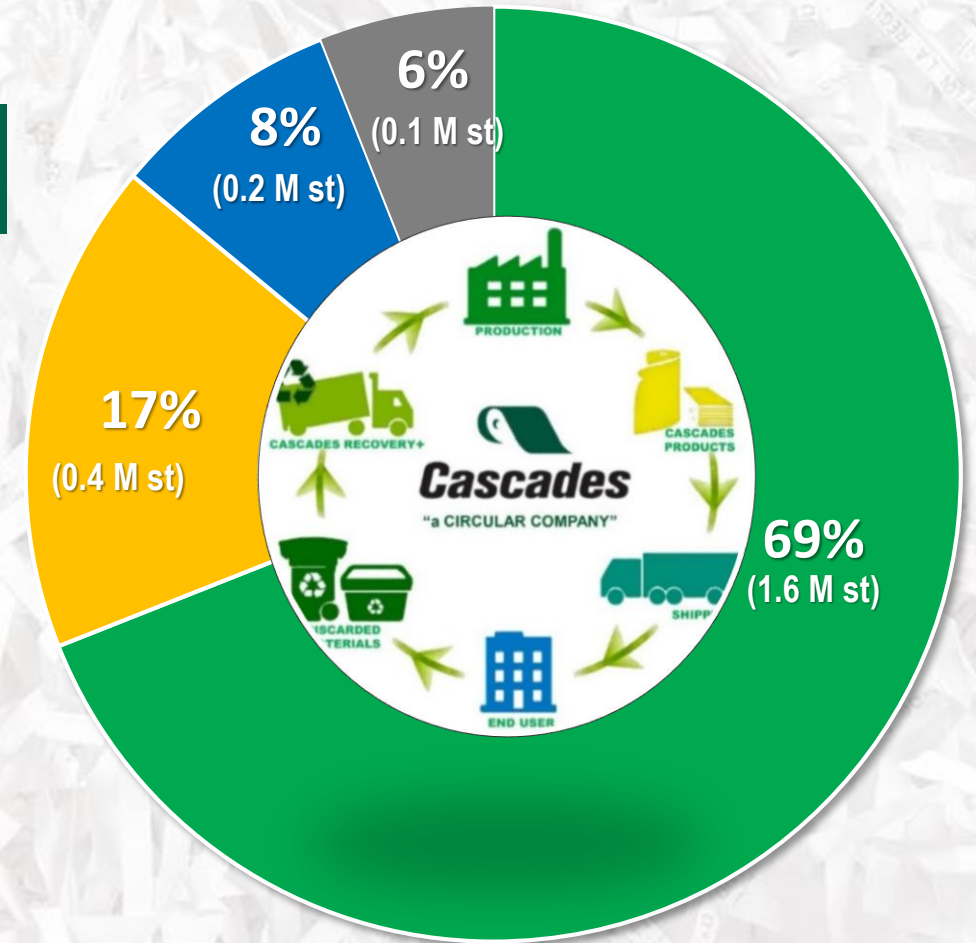
¹ Please click [here](#) for supplemental information on non-IFRS measures. ² Includes distribution activities. ³ Recovery activities sales, OIBD and adjusted OIBD figures were reclassified from the Specialty Products segment to Corporate Activities as of Q4 2019. Quarterly and prior year figures were adjusted to reflect the current presentation.

RECOVERY ACTIVITIES

FIBRE¹ USED IN 2019: 2.3 M S.T.

A leading paper collector in Canada

- ✓ 18 facilities in Canada & the U.S.²
- ✓ In 2019, we collected & purchased **3.1 MILLION S.T.** of fibre
 - **75% (2.3 million s.t.)** used internally
 - **25% (0.8 million s.t.)** sold to external customers



■ Brown recycled fibre

■ Pulp

■ White recycled fibre

■ Groundwood recycled fibre

¹ North America only. 2019 figures. In Europe, Reno de Medici uses approximately 1.3 M s.t. of additional recycled and virgin fibre annually in the production of boxboard. ² Albany, NY facility sold in January 2020.

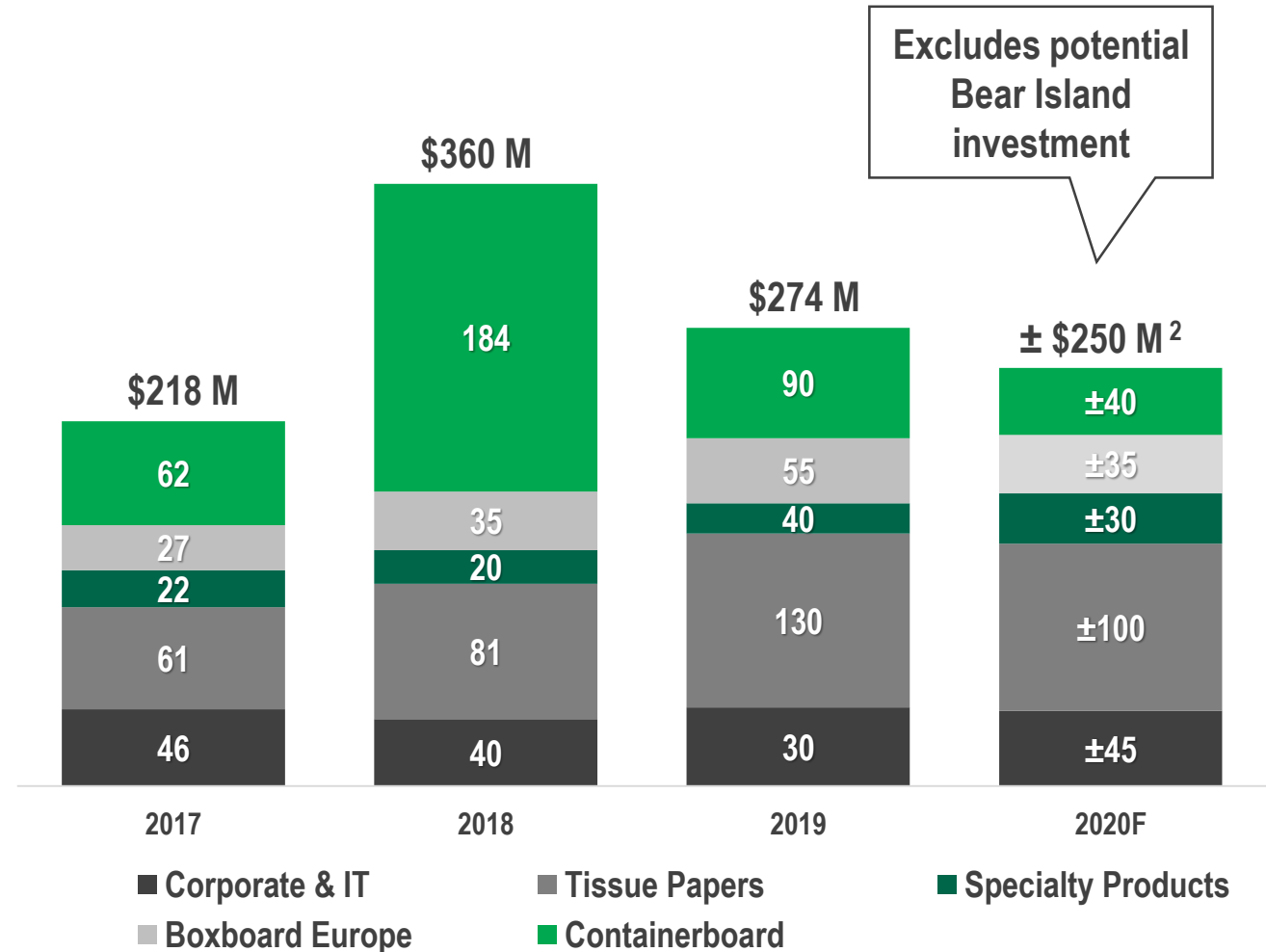
STRATEGIC PLAN



MODERNIZE

- Replace older assets with **MODERN** equipment
- Invest in **ORGANIC** growth
- **OPTIMIZE** geographic footprint
- Increase **INTEGRATION** rate

Capital Investments¹



¹ In millions of CAN\$, including capitalization of IT projects, but excluding value of capital leases.

² Amount is subject to change depending on business and/or economic conditions.

SUSTAINABLE VALUE

SHAREHOLDERS

- Opportunistic share buy-back (NCIB at 2%)
- Increased quarterly dividend from \$0.04 to \$0.08 as of Q2 2019

INVESTMENT

- Fund CAPEX with cash flow
- Modernize, reduce fixed cost base, optimize geographic footprint
- IRR target: 15%¹

BALANCE SHEET

- Leverage target: 2.5 x
- Disciplined capital allocation
- Allocate \$100M of FCF towards debt

¹ Cascades uses a WACC of 9%. Actual IRR may vary by project. A limited number of projects with returns below IRR target may be undertaken for strategic purposes.

INNOVATION & CUSTOMER FOCUS

275 employees provide **engineering, R&D and consulting services** to customers & external clients



37 employees dedicated to developing **innovative solutions** for our customers

EXAMPLES OF OUR INNOVATIONS



- Made of 60% recycled content
- Extends and optimizes the shelf life of fresh proteins
- Barrier tray and customizable absorbent pad ensure freshness and quality



- Maintains temperature at 4°C (39°F)
- Fully recyclable and made from FSC® certified recycled materials
- Customizable according to transport conditions, delivery times and weather



RECOGNITIONS



Cascades was named amongst the **100 Most Sustainable Corporations in the World** according to Corporate Knights, ranking **49th**. We are proud to be the only Containers & Packaging company to have made the list, and one of only 12 Canadian businesses.

Cascades was awarded the bronze Parity Certification by **Women in Governance** organization, recognizing our policies and programs aimed at encouraging women's professional growth & leadership.



Cascades ranked **4th** in the Reputation Institute's 2019 ranking of **Top 50 Leaders in Canada**

According to **Forbes Magazine** Cascades ranked amongst Canada's **300 Best Employers 2020**.

SUSTAINABILITY IS IN OUR DNA



6.0 x
less water

2.6 x
less electricity



3.6 x
less water

1.3 x
less electricity

Our plants recover **77%** of their manufacturing waste every year, and the recycled fibre that we collect & recycle annually represents **46 million trees**...the equivalent to **183x the trees found in Central Park**

APPENDIX



CASCADES – MARKET POSITION

North American Tissue Manufacturers

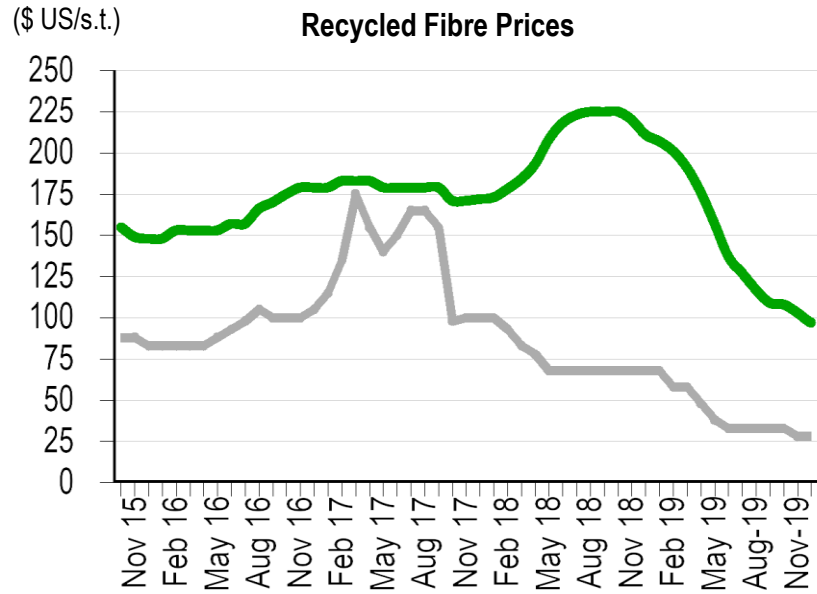
	CAPACITY (‘000 S.T.)	MARKET SHARE	RETAIL CAPACITY ²	AFH CAPACITY ²
① Georgia Pacific	2,570	29%	67%	33%
② Proctor & Gamble	1,335	15%	100%	-
③ Kimberly-Clark	1,330	15%	67%	33%
④ Cascades ¹	734	8%	56%	44%
⑤ Essity	654	8%	-	100%
⑥ KP Tissue	377	4%	90%	10%
⑦ Clearwater Paper	366	4%	77%	23%
⑧ First Quality Tissue	325	3%	100%	-
⑨ Irving Tissue	256	3%	100%	-
⑩ ST Paper & Tissue	177	2%	-	100%
Others	1,070	10%		
TOTAL	9,124			
TOP 5	6,843	75%		

North American Containerboard Producers

	MARKET SHARE
① International Paper	31%
② WestRock	23%
③ PCA	10%
④ Georgia Pacific	10%
⑤ Pratt Paper*	4%
⑥ Cascades	4%
Others	18%
TOP 4	74%

* Includes Pratt Paper's ±425k/year Wapakoneta, Ohio paper mill, opened end of 2019.

RAW MATERIAL - INDEX PRICES



Current (Feb-20)

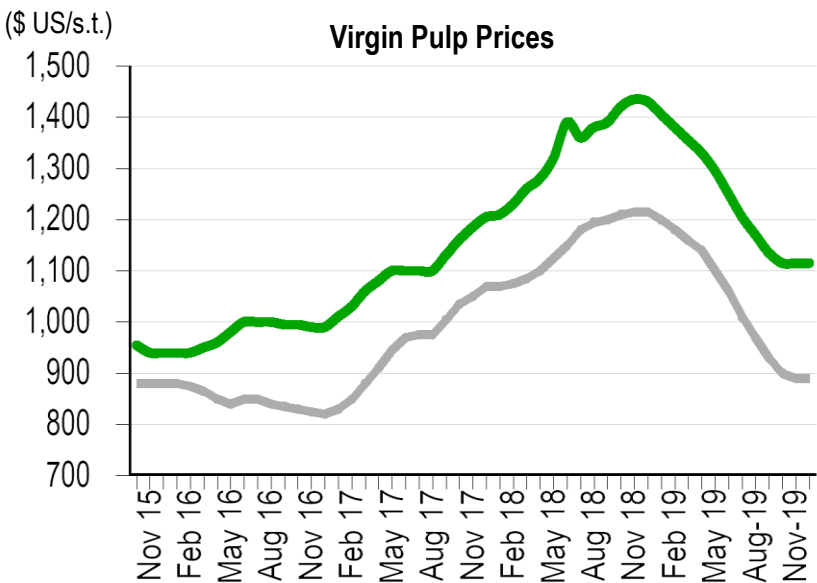
101

33

RECOVERED PAPER PRICES

- WHITE GRADES** - Basket of products (Northeast avg)¹
- BROWN GRADES** - OCC No. 11 (Northeast average)

	Q4 2019	Q4 vs Q4 2018	Q4 vs Q3 2019
WHITE GRADES	103	(53)%	(13)%
BROWN GRADES	30	(56)%	(9)%



Current (Feb-20)

1,130

890

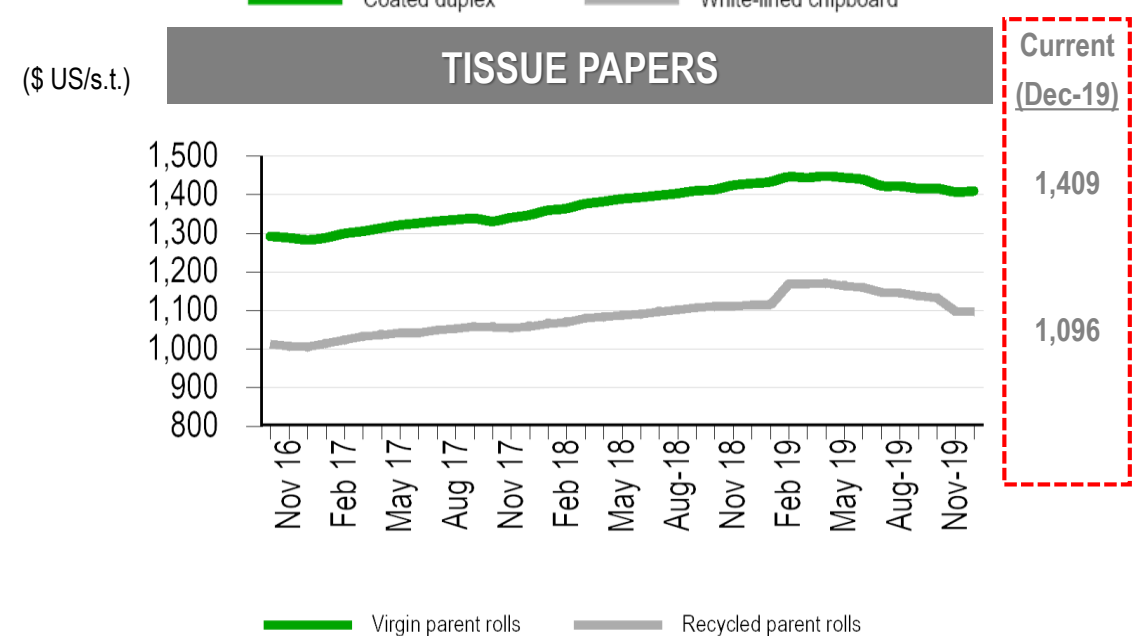
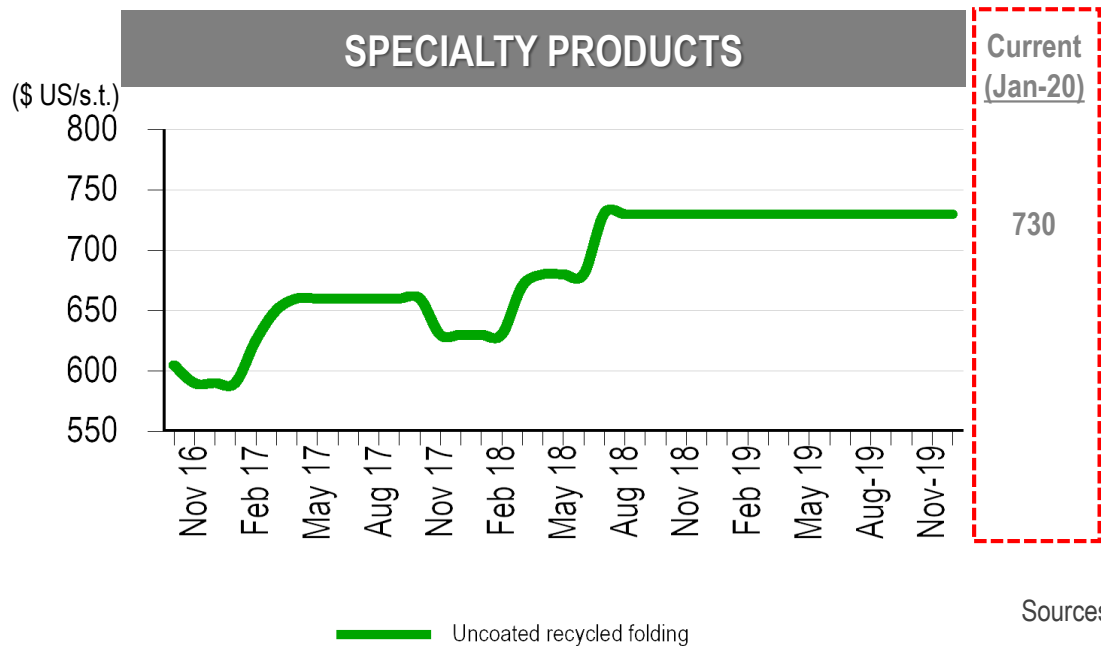
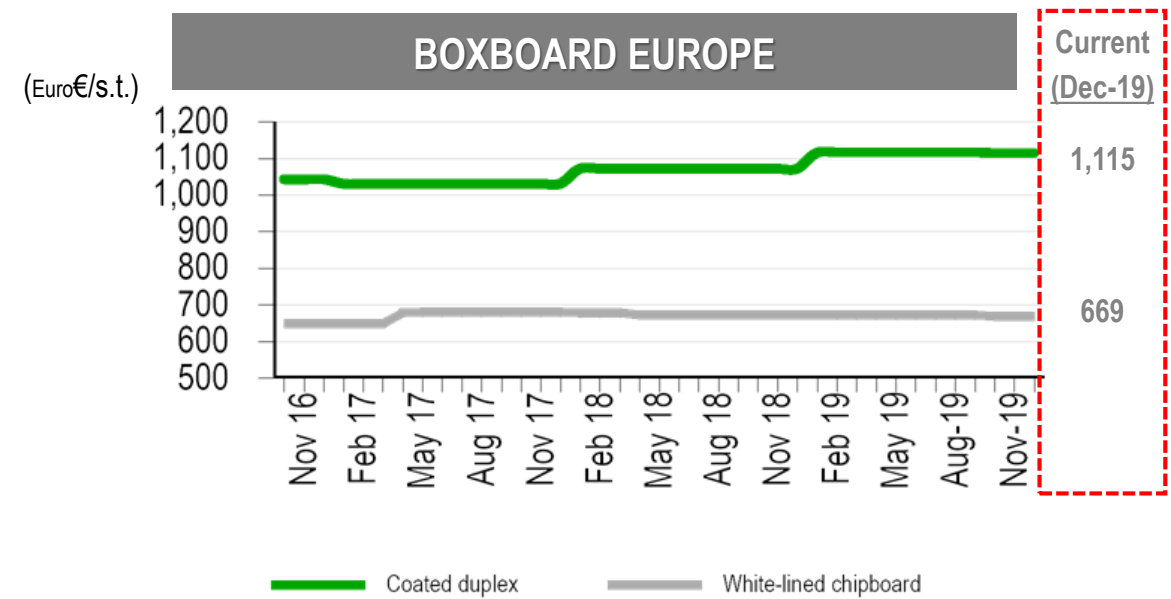
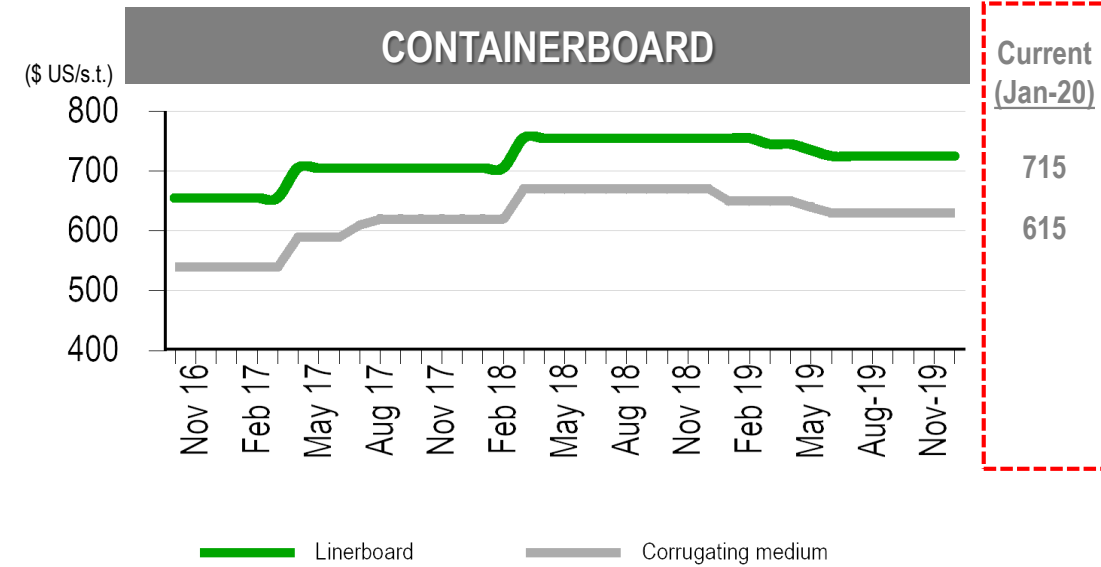
VIRGIN PULP PRICES

- NBSK** (Canadian sources delivered to Eastern US)
- NBHK** (Canada/US sources delivered to Eastern US)

	Q4 2019	Q4 vs Q4 2018	Q4 vs Q3 2019
NBSK	1,115	(22)%	(5)%
NBHK	893	(26)%	(8)%

Source: RISI. (1) Basket of white recycled paper, including grades such as SOP, Hard White Envelope and Coated Book Stock; Northeast average. Weighted average based on Cascades' consumption of each grade.

SELLING PRICES - INDEX PRICES



Sources: RISI, CEPI

REFERENCE PRICES AND FIBRE COSTS

	2017				2018				2019				Q4 2019 vs Q4 2018		Q4 2019 vs Q3 2019	
	Year	Q1	Q2	Q3	Q4	Year	Q1	Q2	Q3	Q4	Year	(units)	(%)	(units)	(%)	
These indexes should only be used as an indicator of trends and they may be different than our actual selling prices or purchasing costs.																
Selling prices (average)																
PACKAGING PRODUCTS																
Containerboard (US\$/short ton)																
Linerboard 42-lb. unbleached kraft, Eastern US (open market)	693	722	755	755	755	747	752	735	725	725	734	(30)	(4)%	—	—	
Corrugating medium 26-lb. semichemical, Eastern US (open market)	592	637	670	670	670	662	650	640	630	630	638	(40)	(6)%	—	—	
Boxboard Europe (euro/metric ton)																
Recycled white-lined chipboard (WLC) index ¹	672	678	673	673	673	674	672	672	672	669	671	(4)	(1)%	(3)	—	
Virgin coated duplex boxboard (FBB) index ²	1,031	1,072	1,072	1,072	1,072	1,072	1,117	1,117	1,117	1,115	1,117	43	4%	(2)	—	
Specialty Products (US\$/short ton)																
Uncoated recycled boxboard - 20-pt. bending chip (series B)	645	643	680	730	730	696	730	730	730	730	730	—	—	—	—	
TISSUE PAPERS (US\$/short ton)																
Parent rolls, recycled fibres (transaction)	1,043	1,072	1,087	1,102	1,112	1,093	1,151	1,164	1,143	1,109	1,142	(3)	—	(34)	(3)%	
Parent rolls, virgin fibres (transaction)	1,323	1,366	1,388	1,404	1,422	1,395	1,441	1,444	1,420	1,411	1,429	(11)	(1)%	(9)	(1)%	
Raw material (average)																
RECYCLED PAPER																
North America (US\$/short ton)																
Sorted residential papers, No. 56 (SRP - Northeast average)	79	59	31	28	28	36	24	16	10	8	15	(20)	(71)%	(2)	(20)%	
Old corrugated containers, No. 11 (OCC - Northeast average)	138	92	71	68	68	74	61	40	33	30	41	(38)	(56)%	(3)	(9)%	
Sorted office papers, No. 37 (SOP - Northeast average)	169	165	193	210	203	193	183	140	101	88	128	(115)	(57)%	(13)	(13)%	
Europe (euro/metric ton)																
Recovered paper index ³	142	111	99	103	107	105	96	87	71	49	76	(58)	(54)%	(22)	(31)%	
VIRGIN PULP (US\$/metric ton)																
Northern bleached softwood kraft, Canada	1,105	1,233	1,310	1,377	1,428	1,342	1,380	1,292	1,170	1,115	1,239	(313)	(22)%	(55)	(5)%	
Bleached hardwood kraft, mixed, Canada/US	958	1,077	1,125	1,192	1,213	1,152	1,180	1,100	970	893	1,036	(320)	(26)%	(77)	(8)%	

Sources: RISI, Cascades and Reno de Medici. (1) The index is based on publication prices and represents an approximation of Cascades' recycled grades selling prices in Europe. It is weighted by country. (2) The index is based on publication prices and represents an approximation of Cascades' virgin grades selling prices in Europe. It is weighted by country. (3) The recovered paper index is based on publication prices and represents an approximation of Cascades' recovered paper purchase prices in Europe. It is weighted by country.

HISTORICAL FINANCIAL PERFORMANCE

(In millions of Canadian dollars, except per share data)

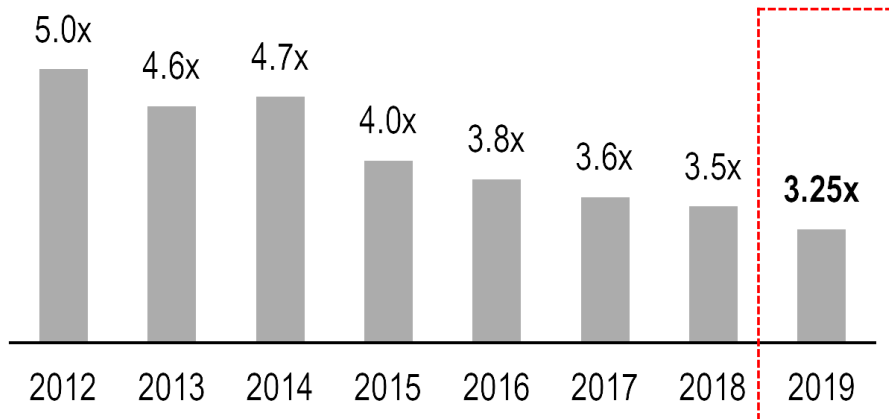
	2019	Q4-19	Q3-19	Q2-19	Q1-19	2018	Q4-18	Q3-18	Q2-18	Q1-18	2017
Sales											
Containerboard	1,827	451	473	462	441	1,840	472	472	475	421	1,652
Boxboard Europe ²	1,048	243	256	270	279	933	245	210	232	246	838
Specialty Products	492	105	123	135	129	358	97	89	88	84	339
Tissue Papers	1,509	397	387	377	348	1,352	340	364	343	305	1,268
Inter-segment sales & corporate activities	120	31	25	31	33	166	42	40	42	42	224
TOTAL SALES	4,996	1,227	1,264	1,275	1,229	4,649	1,196	1,175	1,180	1,098	4,321
Adjusted OIBD¹											
Containerboard	441	106	118	113	104	410	111	117	105	77	247
Boxboard Europe ²	108	24	25	30	29	97	20	19	30	28	68
Specialty Products	55	9	16	16	14	33	8	10	9	8	34
Tissue Papers	86	35	24	18	9	17	(8)	5	7	13	94
Corporate activities	(86)	(22)	(22)	(21)	(21)	(68)	(18)	(14)	(15)	(21)	(50)
TOTAL ADJUSTED OIBD	604	152	161	156	135	489	113	137	136	105	393
<i>Adjusted OIBD¹ Margin</i>	12.1%	12.4%	12.7%	12.2%	11.0%	10.5%	9.4%	11.7%	11.5%	9.6%	9.1%
Net earnings (loss)	69	(26)	40	31	24	57	(67)	36	27	61	507
per share	\$0.74	(\$0.27)	\$0.42	\$0.33	\$0.26	\$0.60	(\$0.71)	\$0.38	\$0.28	\$0.65	\$5.35
Adjusted¹ Net earnings	96	29	28	26	13	79	-	38	31	12	68
per share	\$1.02	\$0.30	\$0.30	\$0.28	\$0.14	\$0.83	-	\$0.40	\$0.30	\$0.13	\$0.72

¹ Please click [here](#) for supplemental information on non-IFRS measures.

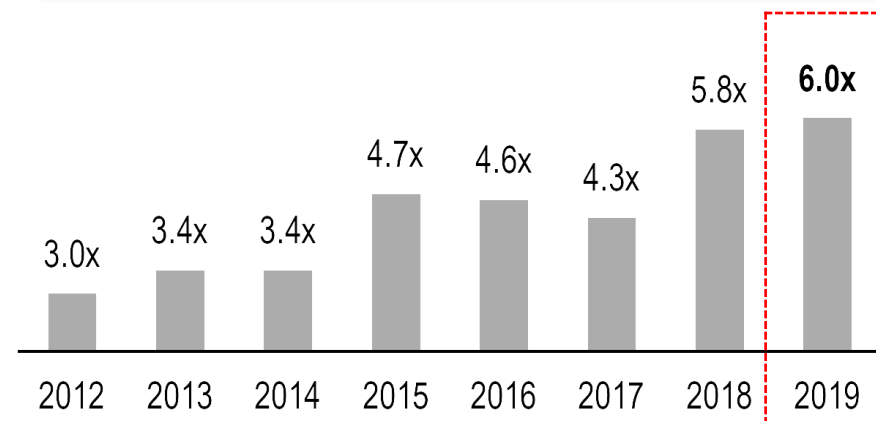
² Via our equity ownership in Reno de Medici S.p.A. (RDM), a public Italian company.

FINANCIAL RATIOS & DEBT MATURITIES

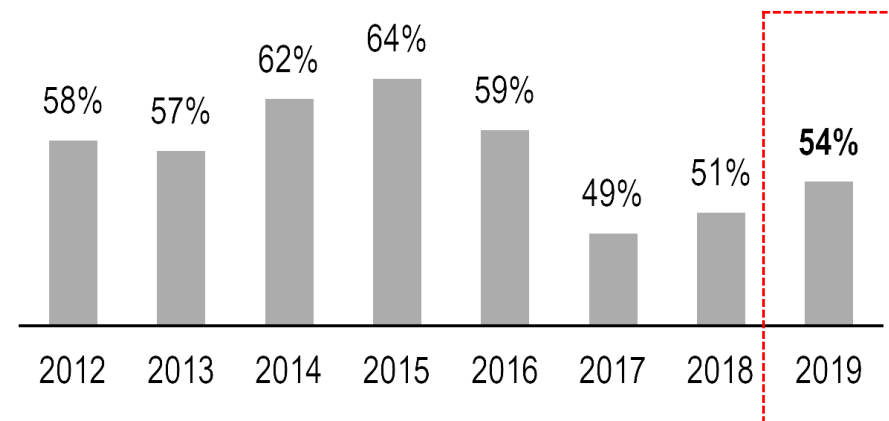
Net Debt / LTM Adjusted OIBD^{1,3}



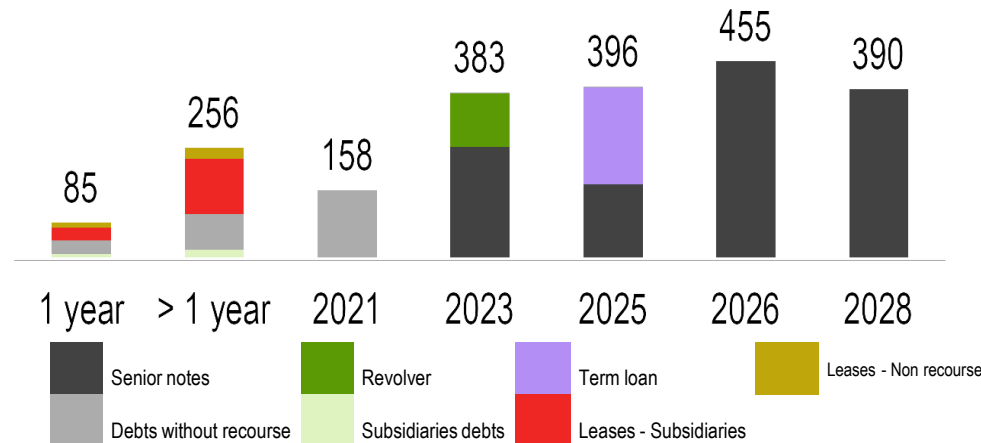
Interest Coverage Ratio²



Net Debt / Net Debt + Total Equity



Long-Term Debt Maturities (AS AT DECEMBER 31, 2019)



Bank debt financial covenant ratios: Net funded debt to capitalization < 65% (currently at 51.28%), interest coverage ratio > 2.25x (currently at 4.45x).

(1) Please click [here](#) for supplemental information on non-IFRS measures. (2) Last twelve months adjusted OIBD to financing expense. (3) Pro-forma up to 2018 to include business acquisitions on a LTM basis, if applicable.

SENSITIVITIES¹ – SELLING PRICE, RAW MATERIAL COSTS, FX

		SHIPMENTS/CONSUMPTION (^{'000} s.t, ^{'000} mmBtu for Natural Gas)	INCREASE	OIBD IMPACT (in CAN\$ M)
SELLING PRICE² (Manufacturing & Converting)				
North America	Linerboard, Eastern US	350	US\$25/s.t.	11
	Corrugated medium, Eastern US	350	US\$25/s.t.	11
	Converted products	740	US\$25/s.t.	24
	Tissue Papers	680	US\$25/s.t.	22
Europe	Boxboard	1,290	€25/s.t.	47
RAW MATERIALS² (Recycled Papers, Pulp, Gas)				
North America	Brown grades (OCC & others)	1,540	US\$15/s.t.	(30)
	Groundwood grades (SRP & others)	130	US\$15/s.t.	(3)
	White grades (SOP & others)	510	US\$15/s.t.	(10)
	Virgin pulp	160	US\$30/s.t.	(6)
	Natural gas	8,900	US\$1.00/mmBtu	(12)
Europe	Brown grades (OCC & others)	1,000	€15/s.t.	(22)
	Groundwood grades (SRP & others)	170	€15/s.t.	(4)
	White grades (SOP & others)	130	€15/s.t.	(3)
	Virgin pulp	80	€30/s.t.	(3)
	Natural gas	5,100	€1.00/mmBtu	(7)
EXCHANGE RATE³				
Sales less purchases in US\$ from Canadian operations			CAN\$/US\$ 0.01 change	-
Translation - U.S. subsidiaries			CAN\$/US\$ 0.01 change	2
Translation - European subsidiaries			CAN\$/€ 0.01 change	1

(1) Sensitivity calculated according to 2019 volumes or consumption with year-end closing exchange rate of CAN\$/US\$ 1.30 and CAN\$/€ 1.46, excluding hedging programs and the impact of related expenses such as discounts, commissions on sales and profit-sharing.

(2) Based on 2019 external manufacturing & converting shipments, and fibre and pulp consumption. Including purchases sourced internally from our recovery and recycling operations. Adjusted to reflect acquisitions, disposals and closures, if needed.

(3) As an example, based on CAN\$/US\$ 1.30 to CAN\$/US\$ 1.31, and from CAN\$/€ 1.46 to CAN\$/€ 1.47.

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investor@cascades.com