# **Investor Presentation**

London - September 30, 2019





# **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 <u>here</u> 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 50+ years of innovation, R&D expertise to create value for customers



# **2018 FINANCIAL PERFORMANCE**

ADJ. EBITDA<sup>2</sup>

\$489M

(10.5% margin)

Adj. CF from operations: \$361 million

WC (% of LTM sales): 10.6%

**ROCE:** 4.6%

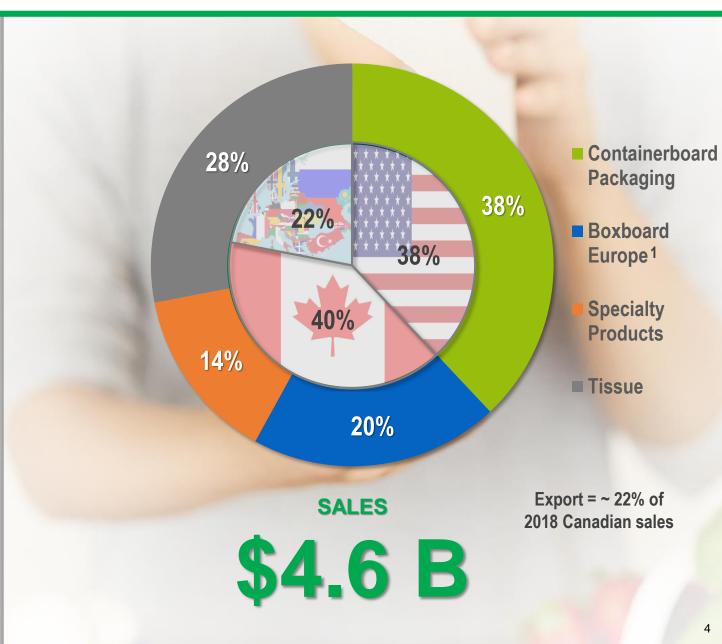
Net debt: \$1.77 billion

Net debt/Adj. EBITDA<sup>2</sup>: 3.5x

Annual shipments<sup>3</sup>: 3.23 million s.t.

Capacity utilization rate: 93%

Sales % before inter-segment sales. <sup>1</sup> Via our equity ownership in Reno de Medici S.p.A. (RdM) (57.95% at Dec. 31, 2018). <sup>2</sup> Pro-forma for the 2017 and 2018 business acquisitions on a LTM basis. Please click here for supplemental information on non-IFRS measures for 2018. <sup>3</sup> Excluding shipments from our Specialty Products segment



# 2018 - WHAT MOVED THE DIAL

#### **CONTAINERBOARD**

- + Strong market fundamentals
- + Solid operational performance
- + Low raw material prices
- + Favourable end market pricing

#### **EUROPEAN BOXBOARD**

- + Steady market dynamics
- + Business acquisitions
- + Favourable raw material costs & end-market pricing
- Higher energy costs

#### TISSUE

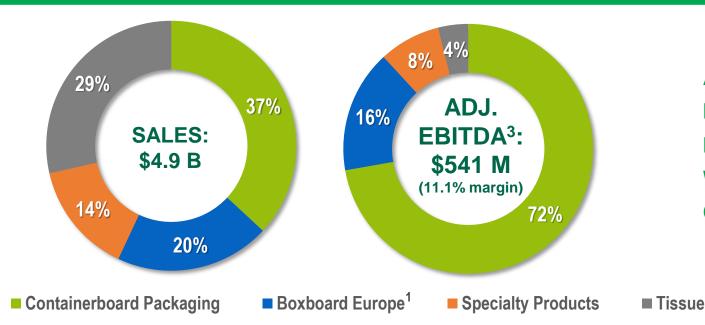
- Difficult market dynamics
- Operational/logistics challenges
- Very high raw material prices
- Little movement in end pricing

#### SPECIALTY PACKAGING

- Recovery segment impacted by lower OCC pricing
- Lower volumes in Packaging
- + Higher pricing in Ind. Packaging
- + End of year business acquisitions



# LTM Q2 2019 FINANCIAL PERFORMANCE



Adj. CF from operations: \$391 M

Net debt: \$1.86 B

Net debt/Adj. EBITDA<sup>2</sup>: 3.3x

WC (% of LTM sales): 10.3%

Capacity utilization rate: 91%

#### WHAT MOVED THE DIAL

- + Containerboard: lower raw material costs
- + Tissue: price increases & lower raw material costs
- + Favourable seasonal volumes in all segments

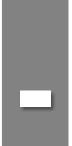
- Containerboard: lower liner & medium selling prices
- Europe: lower selling prices for recycled products
- Specialty Products: recovery results impacted by lower raw material prices



# **NEAR-TERM OUTLOOK**



- Raw materials: lower OCC price, positive trends in virgin pulp and SOP white recycled fibre grade
- **Tissue:** price increases announced in various products and sub-segments
- Boxboard Europe: year-over-year volume benefit related to acquisition of Barcelona Cartonboard
- Specialty Products: year-over-year contribution from U.S. acquisition in Q4 2018



- Tissue: ongoing market-related challenges
- Containerboard: potential for pricing & volume headwinds
- Specialty Products: negative impact of lower recycled fibre prices on Recovery performance
- Boxboard Europe: seasonal third quarter softness and holiday-related closures; lower pricing

Q3 2019				board ope <sup>1</sup>		cialty ducts	Tissue Papers		
OIBD <sup>2</sup> Trend	YoY ↑	QoQ ↑	YoY ↑	<b>QoQ</b> ↓	YoY ↔	QoQ ↔	YoY ↑	QoQ ↔	
REFLECTING:									
VOLUME	$\leftrightarrow$	7	7	7	7	$\leftrightarrow$	7	7	
SELLING PRICE	7	7	7	7	$\leftrightarrow$	$\leftrightarrow$	7	7	
RAW MATERIAL COST <sup>3</sup>	7	$\leftrightarrow$	7	7	7	7	7	7	
EXCHANGE RATE	$\leftrightarrow$	$\leftrightarrow$	7	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	
ENERGY COST	$\leftrightarrow$	$\leftrightarrow$	7	7	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	

- (1) Including the contribution of Barcelona Cartonboard as of November 1, 2018
- (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.

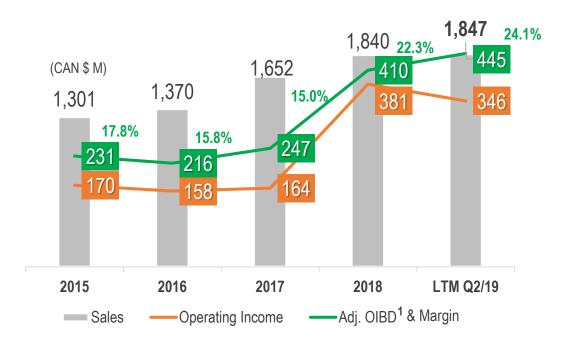


# **INVESTMENT THESIS**

- ✓ **STRATEGIC M&A:** Orchids Paper assets, U.S. moulded pulp assets, Barcelona Cartonboard
- ✓ FOCUSED INVESTMENTS: State-of-the-art equipment & facilities; Capex targeting cost reduction, optimization and productivity gains
- ✓ MARKETS: Stable fundamental demand growth in our tissue & packaging business sectors
- ✓ **ATTRACTIVE PRICING:** Favourable end pricing trends in tissue, stable pricing in containerboard
- ✓ ACCESSIBLE LOW COST FIBRE: OCC accounts for ~ 68% of our raw material
- ✓ VALUE-ADDED SOLUTIONS: Innovative products & circular business approach provides compelling differentiation, drives important value for our customers
- ✓ WELL ESTABLISHED PROFILE: 55 year history of sustainable production & product expertise

# **CONTAINERBOARD - OUR BUSINESS**

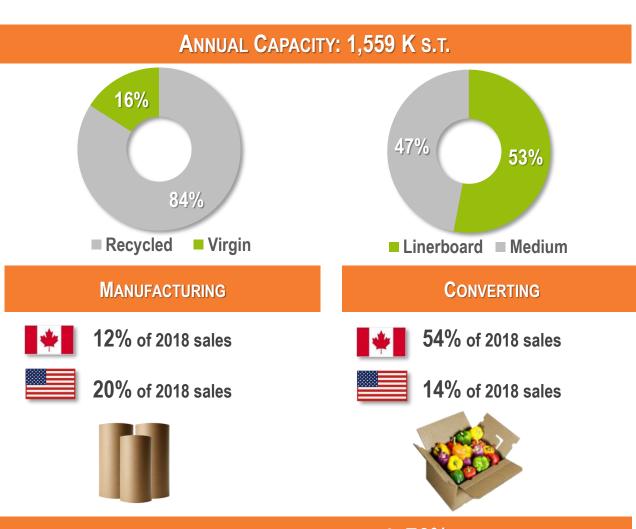
5<sup>th</sup> largest containerboard producer in NA



Q2 2019 adjusted OIBD¹ margin: 24.5%

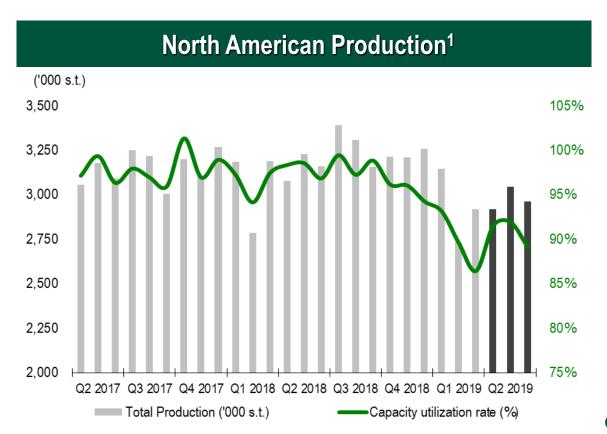


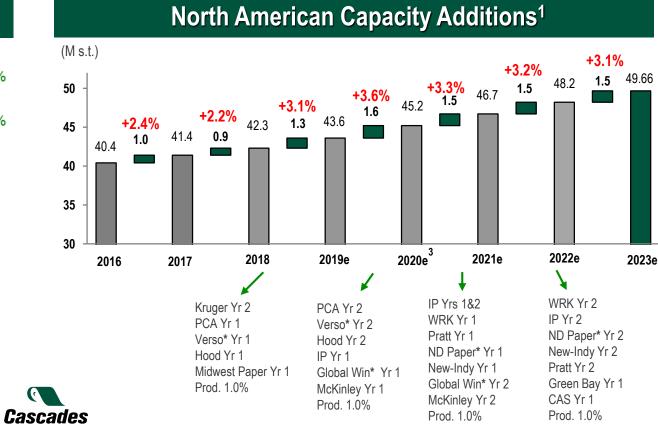
<sup>&</sup>lt;sup>2</sup> Including associates, JVs and Greenpac.



# **CONTAINERBOARD - MARKET**

- NA demand CAGR 2016 2023e: ~ 2%
- 2016 2023e CAGR capacity growth: ~ 3% annually





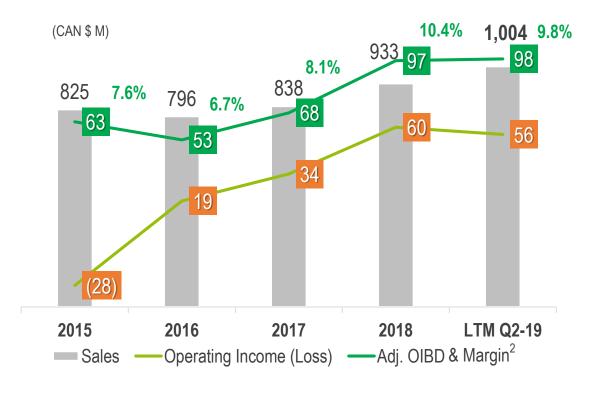
<sup>&</sup>lt;sup>1</sup> Source: RISI, RBC, BMO, Company reports and estimates. New capacity, net of capacity shutdowns. <sup>2</sup> Based on capacity. <sup>3</sup> Includes planned closure of 288K st by WRK as of Jan/2020. \* Export focused and/or lower grade.

# BOXBOARD EUROPE¹- OUR BUSINESS

Cascades

# 2<sup>nd</sup> largest coated recycled boxboard producer in Europe

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



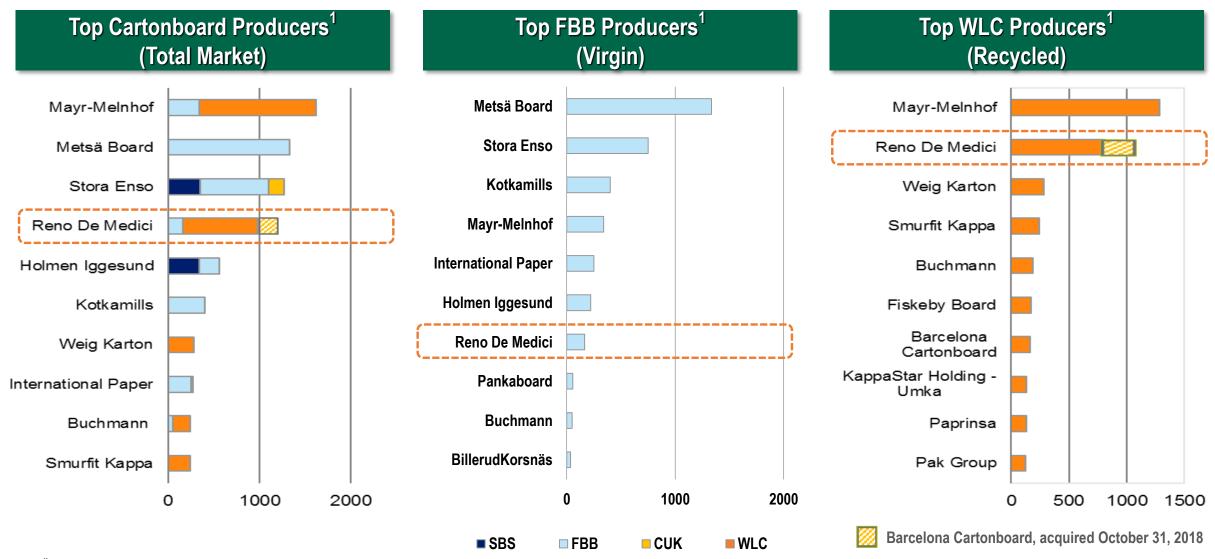
Q2 2019 adjusted OIBD<sup>2</sup> margin: 11.1%

**COATED RECYCLED COATED VIRGIN** CONVERTING **BOXBOARD** BOXBOARD 77% 19% 4% of 2018 sales of 2018 sales of 2018 sales Burn

<sup>&</sup>lt;sup>1</sup> Via our equity ownership in Reno de Medici, a public Italian company

<sup>&</sup>lt;sup>2</sup> Please click <u>here</u> for supplemental information on non-IFRS measures.

# **BOXBOARD EUROPE¹- MARKET**

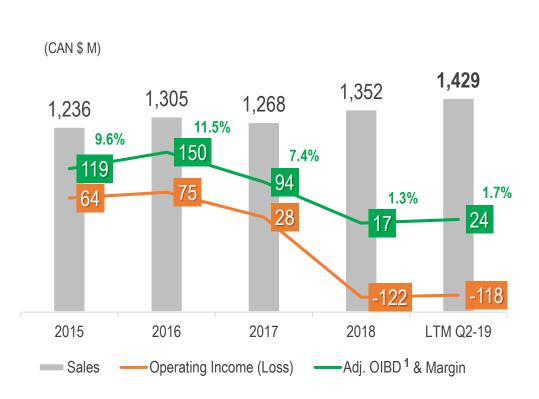


<sup>&</sup>lt;sup>1</sup> Source: PÖYRY, Reno de Medici. Capacity in 1,000 t/a. **SBS** = Solid Bleached Sulphate (virgin); **FBB** = Folding Boxboard (virgin); **CUK** = Coated Unbleached Kraft (virgin); **WLC** = White Lined Chipboard (recycled).

# **TISSUE PAPERS - OUR BUSINESS**

# 4<sup>th</sup> largest tissue producer in NA

Acquired Orchids Paper for US\$207 million, expect US\$45 million EBITDA run-rate beginning 2021



Q2 2019 adjusted OIBD¹ margin: 4.8%

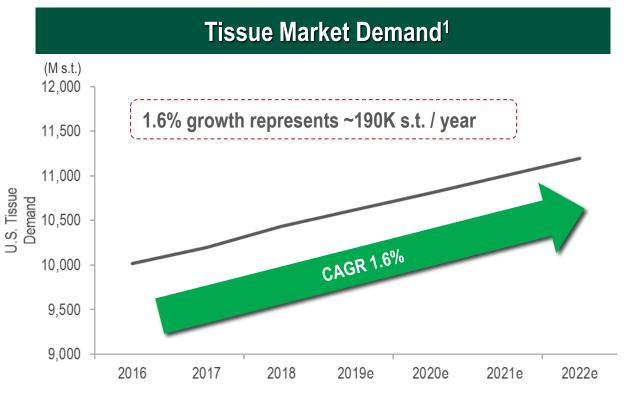


2018 INTEGRATION RATE: 70%

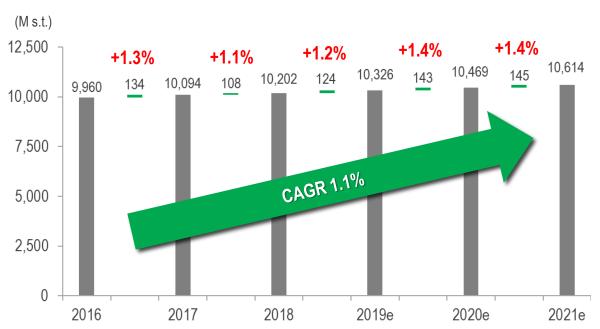
<sup>&</sup>lt;sup>1</sup> Please click <u>here</u> for supplemental information on non-IFRS measures.

# **TISSUE PAPERS - MARKET**

- Market fundamentals reflect capacity additions, higher raw material & transport costs
- Cascades capital investments focused on reducing fixed cost base, modernizing equipment, aligning product offering and geographic footprint with customer requirements

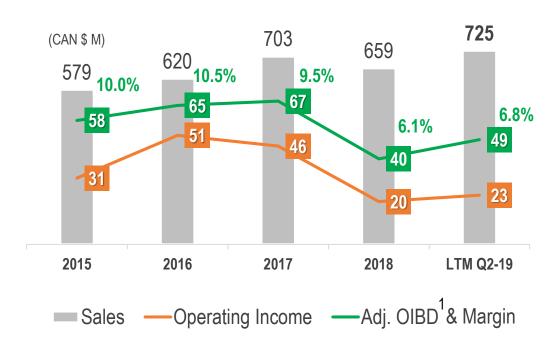


#### North American Tissue Capacity Additions<sup>1</sup>



<sup>&</sup>lt;sup>1</sup> Source: RISI, company estimates **Cas** 

# **SPECIALTY PRODUCTS**



Q2 2019 adjusted OIBD¹ margin: 6.7% (11% excl. Recovery)³

#### **Diversified Packaging Player – Focused on Growth Sectors**

CONSUMER PRODUCTS
PACKAGING

INDUSTRIAL PACKAGING

RECOVERY & RECYCLING

22% of 2018 sales

**32**% of 2018 sales

46% of 2018 sales











Largest paper collector in Canada (19 facilities²)



<sup>&</sup>lt;sup>1</sup> Please click <u>here</u> for supplemental information on non-IFRS measures.

<sup>&</sup>lt;sup>2</sup> Cascades' 19 facilities: 16 are located in Canada and 3 are located in the US.

<sup>&</sup>lt;sup>3</sup> Adjusted OIBD margin was 9% in 2018 and 10% in 2017 when excluding the Recovery operations.

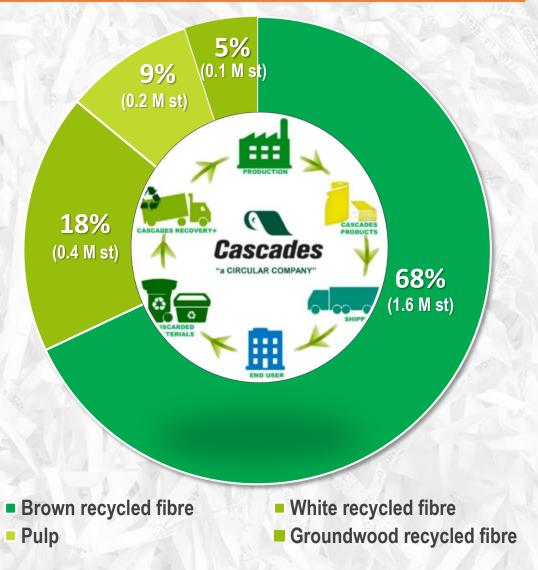
# SPECIALTY PRODUCTS RECOVERY

# Largest paper collector in Canada

In 2018, we collected & purchased 3.2 MILLION S.T. of fibre

- 71% (2.3 million s.t.) used internally
- 29% (0.9 million s.t.) sold to external customers

#### FIBRE<sup>1</sup> USED IN 2018: 2.3 M S.T.



<sup>&</sup>lt;sup>1</sup> North America only. 2018 figures. In Europe, we use approximately 1.3 M s.t. of additional recycled and virgin fibre annually in our production of boxboard.

# STRATEGIC PLAN



# MODERNIZE

our platforms

Generate
SUSTAINABLE
Value





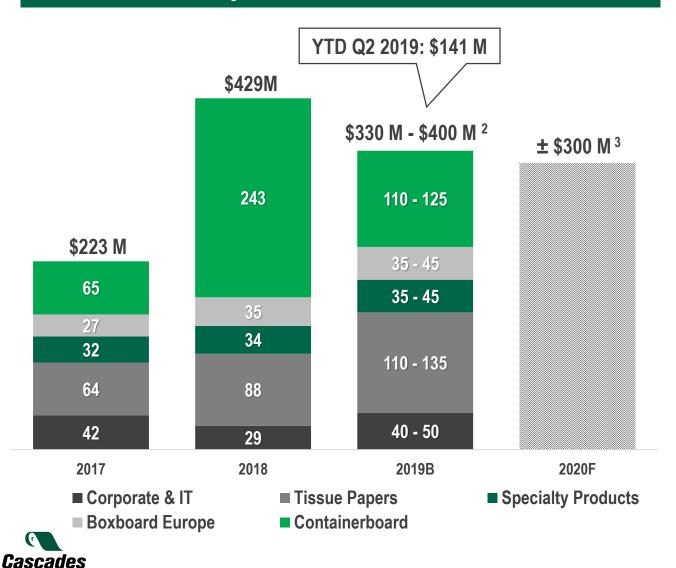
INNOVATION and CUSTOMER focus



# **MODERNIZE**

- Replace older assets with MODERN equipment
- Invest in ORGANIC growth
- OPTIMIZE geographic footprint
- Increase INTEGRATION rate to 85%

## Capital Investments<sup>1</sup>



<sup>&</sup>lt;sup>1</sup> In millions of CAN\$, including capitalization of IT projects and value of capital leases.

<sup>&</sup>lt;sup>2</sup> Amount is subject to change depending on business and/or economic conditions.

<sup>&</sup>lt;sup>3</sup> Amount is under review, to be confirmed.

# SUSTAINABLE VALUE

# SHAREHOLDERS

- Opportunistic share buyback (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



<sup>&</sup>lt;sup>1</sup> 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 & consulting services** internally,
to major customers & external clients

- ✓ Major Projects
- ✓ Technical Services
- ✓ Operational Efficiency

37 employees

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

- ✓ Food & Beverage
- ✓ Hygiene Solutions
- Productivity
- ✓ Sustainability
- ✓ E-commerce





# **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





# Sustainability is in our DNA



6.5 x less water

2.7 x less electricity



4.0 x less water

1.3 x less electricity

Our plants recover 76% of their manufacturing waste every year, and the recycled fibre that we collect & recycle annually could fill saves 45 million trees...the equivalent to 180x the trees found in Central Park

# APPENDIX



















# **CASCADES – MARKET POSITION**

#### **North American Tissue Manufacturers**

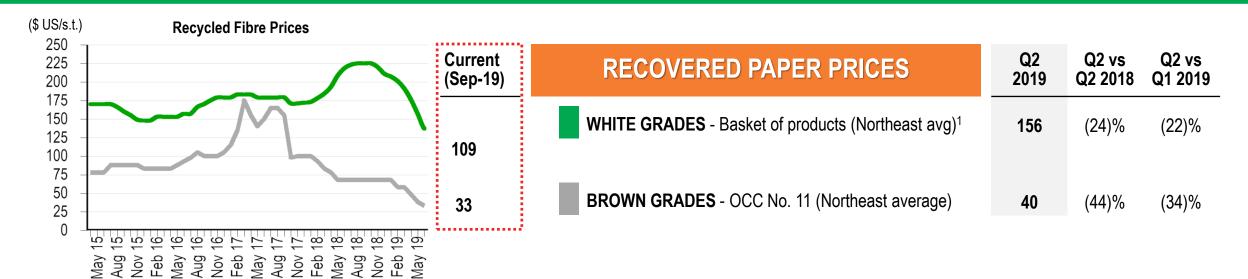
		CAPACITY ('000 S.T.)	Market Share	RETAIL CAPACITY <sup>2</sup>	AFH CAPACITY <sup>2</sup>
0	Georgia Pacific	2,570	29%	67%	33%
2	Proctor & Gamble	1,335	15%	100%	-
3	Kimberly-Clark	1,330	15%	67%	33%
4	Cascades <sup>1</sup>	734	8%	56%	44%
6	Essity	654	8%	-	100%
6	KP Tissue	377	4%	90%	10%
7	Clearwater Paper	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%	)	

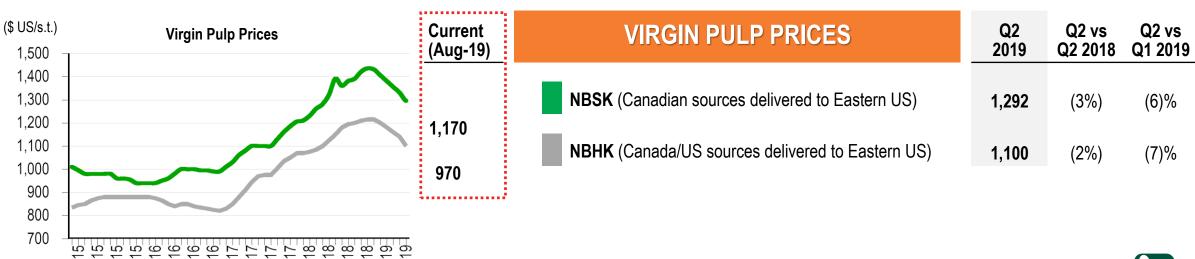
#### **North American Containerboard Producers**

	MARKET SHARE
International Paper	31%
WestRock	23%
<b>3</b> PCA	10%
Georgia Pacific	10%
<b>5</b> Cascades	4%
6 Pratt Paper	4%
Others	18%
TOP 4	74%
<del></del>	



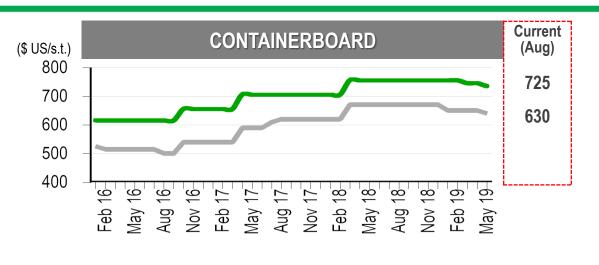
# **RAW MATERIAL - INDEX PRICES**





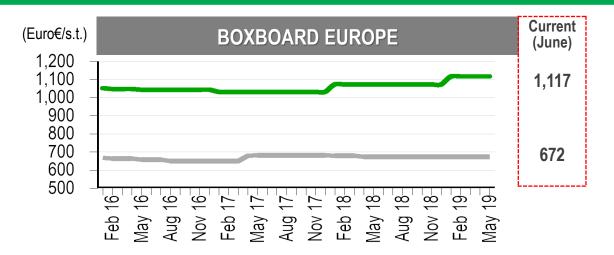


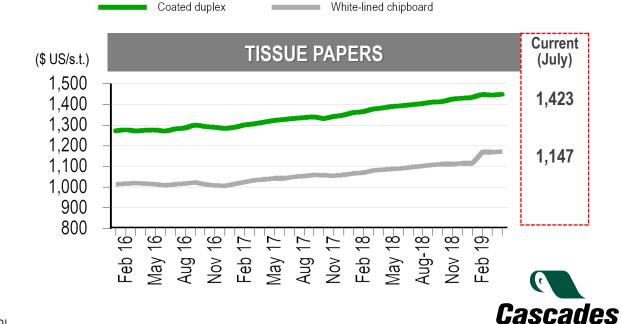
# **SELLING PRICES - INDEX PRICES**





Uncoated recycled folding





Sources: RISI, CEPI

Virgin parent rolls Recycled parent rolls

# REFERENCE PRICES AND FIBRE COSTS

					2017					2018		2019		)19 vs 2018		019 vs 2019
These indexes should only be used as an indicator of trends and they may be different than our actual selling prices or purchasing costs.	Q1	Q2	Q3	Q4	Year	Q1	Q2	Q3	Q4	Year	Q1	Q2	(units)	(%)	(units)	(%)
Selling prices (average)																
PACKAGING PRODUCTS																
Containerboard (US\$/short ton)																
Linerboard 42-lb. unbleached kraft, Eastern US (open market)	655	705	705	705	693	722	755	755	755	747	752	735	(20)	(3)%	(17)	(2)%
Corrugating medium 26-lb. semichemical, Eastern US (open market)	540	590	617	620	592	637	670	670	670	662	650	640	(30)	(4)%	(10)	(2)%
Boxboard Europe (euro/metric ton)																
Recycled white-lined chipboard (WLC) index1	649	680	680	680	672	678	673	673	673	674	672	672	(1)	_	_	_
Virgin coated duplex boxboard (FBB) index2	1,031	1,031	1,031	1,031	1,031	1,072	1,072	1,072	1,072	1,072	1,117	1,117	45	4%	_	–
Specialty Products (US\$/short ton)																
Uncoated recycled boxboard - 20-pt. bending chip (series B)	622	660	660	640	645	643	680	730	730	696	730	730	50	7%	_	_
TISSUE PAPERS (US\$/short ton)																
Parent rolls, recycled fibres (transaction)	1,023	1,040	1,053	1,057	1,043	1,072	1,087	1,102	1,112	1,093	1,151	1,164	77	7%	13	1%
Parent rolls, virgin fibres (transaction)	1,297	1,320	1,334	1,339	1,323	1,366	1,388	1,404	1,422	1,395	1,441	1,444	56	4%	3	
Raw material (average)																
RECYCLED PAPER																
North America (US\$/short ton)																
Sorted residential papers, No. 56 (SRP - Northeast average)	92	76	86	63	79	59	31	28	28	36	24	16	(15)	(48)%	(8)	(33)%
Old corrugated containers, No. 11 (OCC - Northeast average)	142	148	162	99	138	92	71	68	68	74	61	40	(31)	(44)%	(21)	(34)%
Sorted office papers, No. 37 (SOP - Northeast average)	173	172	170	160	169	165	193	210	203	193	183	140	(53)	(27)%	(43)	(23)%
Europe (euro/metric ton)																
Recovered paper index <sup>3</sup>	147	138	147	135	142	111	99	103	106	105	98	86	(13)	(13)%	(12)	(12)%
VIRGIN PULP (US\$/metric ton)																
Northern bleached softwood kraft, Canada	1,033	1,093	1,110	1,183	1,105	1,233	1,310	1,377	1,428	1,342	1,380	1,292	(18)	(1)%	(88)	(6)%
Bleached hardwood kraft, mixed, Canada/US	853	942	985	1,052	958	1,077	1,125	1,192	1,213	1,152	1,180	1,100	(25)	(2)%	(80)	(7)%

Sources: RISI, Cascades and Reno de Medici.



<sup>(1)</sup> The index is based on publication prices and represents an approximation of Cascades' recycled grades selling prices in Europe. It is weighted by country.

<sup>(2)</sup> The index is based on publication prices and represents an approximation of Cascades' virgin grades selling prices in Europe. It is weighted by country.

<sup>(3)</sup> 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.

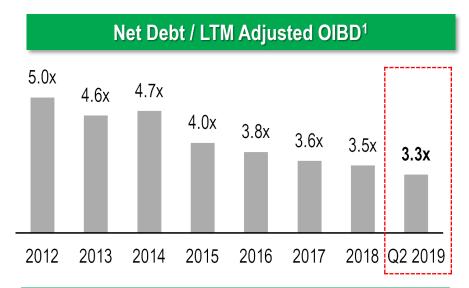
# HISTORICAL FINANCIAL PERFORMANCE

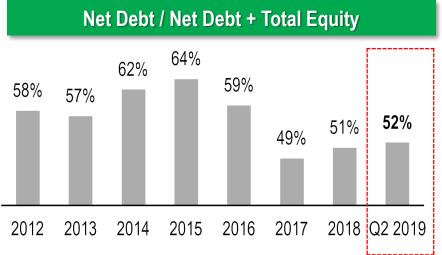
(In millions of Canadian dollars, except per share data)	Q2-19	Q1-19	2018	Q4-18	Q3-18	Q2-18	Q1-18	2017	Q4-17	Q3-17	Q2-17	Q1-17
Sales												
Containerboard	462	441	1,840	472	472	475	421	1,652	440	438	428	346
Boxboard Europe <sup>2</sup>	270	279	933	245	210	232	246	838	212	202	213	211
Specialty Products	193	196	659	172	164	164	159	703	161	181	188	173
Tissue Papers	377	348	1,352	340	364	343	305	1,268	301	323	338	306
Inter-segment sales and corporate activities	(27)	(34)	(135)	(33)	(35)	(34)	(33)	(140)	(32)	(41)	(37)	(30)
Total	1,275	1,230	4,649	1,196	1,175	1,180	1,098	4,321	1,082	1,103	1,130	1,006
Adjusted OIBD <sup>1</sup>												
Containerboard	113	104	410	111	117	105	77	247	74	72	56	45
Boxboard Europe <sup>2</sup>	30	29	97	20	19	30	28	68	19	14	21	14
Specialty Products	13	12	40	10	14	9	7	67	14	15	20	18
Tissue Papers	18	9	17	(8)	5	7	13	94	12	24	35	23
Corporate activities	(18)	(19)	(75)	(20)	(18)	(17)	(20)	(83)	(14)	(19)	(25)	(25)
Total	156	135	489	113	137	134	105	393	105	106	107	75
Adjusted OIBD <sup>1</sup> Margin	12.2%	11.0%	10.5%	9.4%	11.7%	11.4%	9.6%	9.1%	9.7%	9.6%	9.5%	7.5%
Net earnings (loss)	31	24	56	(68)	36	27	61	507	57	33	256	161
per share	\$0.33	\$0.26	\$0.59	(\$0.72)	\$0.38	\$0.28	\$0.65	\$5.35	\$0.60	\$0.35	\$2.70	\$1.70
Adjusted Net earnings	26	13	79	-	38	29	12	68	13	19	24	12
per share	\$0.28	\$0.14	\$0.83	-	\$0.40	\$0.30	\$0.13	\$0.72	\$0.14	\$0.20	\$0.25	\$0.13
Adjusted Free Cash Flow / Share			\$0.57					\$0.56				

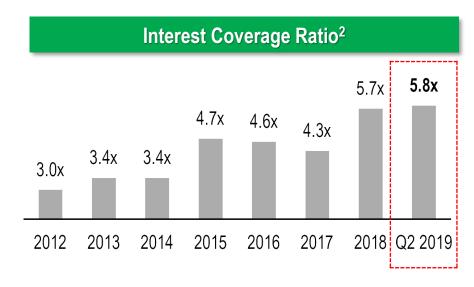
<sup>&</sup>lt;sup>1</sup> Please click <u>here</u> for supplemental information on non-IFRS measures.

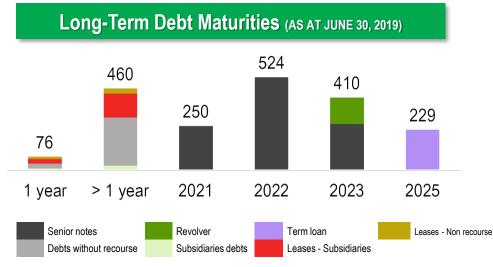
<sup>&</sup>lt;sup>2</sup> Via our equity ownership in Reno de Medici, a public Italian company

# FINANCIAL RATIOS & DEBT MATURITIES











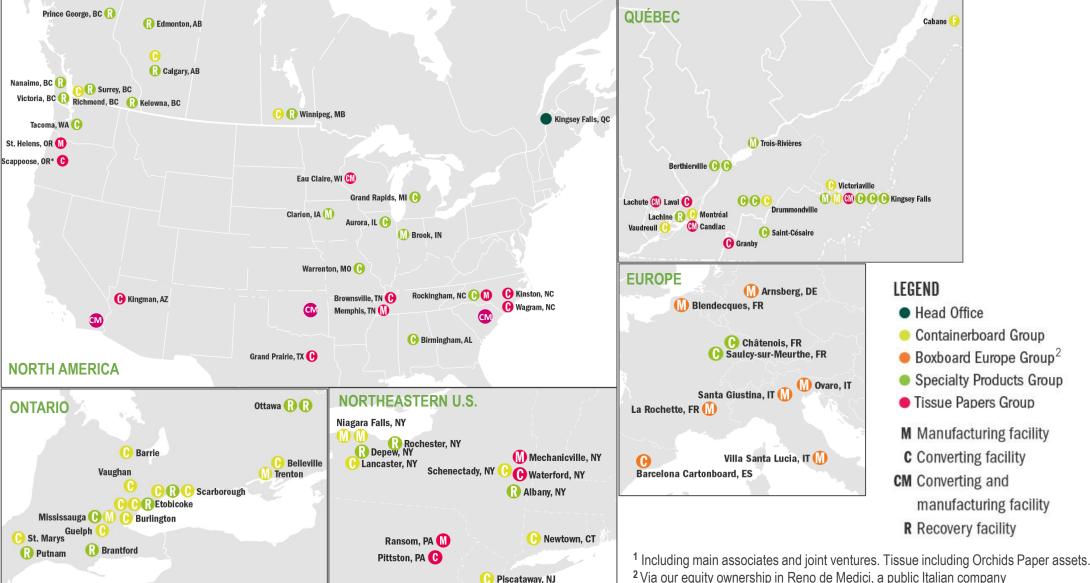
# **SENSITIVITIES**<sup>1</sup> – SELLING PRICE, RAW MATERIAL COSTS, FX

		SHIPMENTS/CONSUMPTION ('000 s.t, '000 mmBtu for Natural Gas)	INCREASE	OIBD IMPACT (in CAN\$ M)
SELLING PRICE <sup>2</sup> (	Manufacturing & Converting)			
North America	Linerboard, Eastern US Corrugated medium, Eastern US Converted products Tissue Papers	370 370 740 630	US\$25/s.t. US\$25/s.t. US\$25/s.t. US\$25/s.t.	13 13 25 21
Europe	Boxboard	1,370	€25/s.t.	54
RAW MATERIALS <sup>2</sup>	(Recycled Papers, Pulp, Gas)			
	Brown grades (OCC & others)	1,570	US\$15/s.t.	(32)
	Groundwood grades (SRP & others)	120	US\$15/s.t.	(2)
North America	White grades (SOP & others)	470	US\$15/s.t.	(10)
	Virgin pulp	160	US\$30/s.t.	(7)
	Natural gas	8,600	US\$1.00/mmBtu	(12)
	Brown grades (OCC & others)	970	€15/s.t.	(23)
	Groundwood grades (SRP & others)	170	€15/s.t.	(4)
Europe	White grades (SOP & others)	130	€15/s.t.	(3)
	Virgin pulp	80	€30/s.t.	(4)
	Natural gas	5,400	€1.00/mmBtu	(8)
EXCHANGE RATE <sup>3</sup>				
Sales less purchases	in US\$ from Canadian operations		CAN\$/US\$ 0.01 change	1
Translation - U.S. sub	sidiaries		CAN\$/US\$ 0.01 change	2
Translation - European	n subsidiaries		CAN\$/€ 0.01 change	1

(1) Sensitivity calculated according to 2018 volumes or consumption with year-end closing exchange rate of CAN\$/US\$ 1.36 and CAN\$/€ 1.56, excluding hedging programs and the impact of related expenses such as discounts, commissions on sales and profit-sharing. (2) Based on 2018 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\$ 1.36 to CAN\$/US\$ 1.37, and from CAN\$/€ 1.56 to CAN\$/€ 1.57.



# **CASCADES WORLDWIDE**<sup>1</sup>



<sup>&</sup>lt;sup>2</sup> Via our equity ownership in Reno de Medici, a public Italian company

# CASCADES RECOVERY + PAPER + PACKAGING



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