

UPM – THE BIOFORE COMPANY

AIMING HIGHER WITH BIOFORE

Investor presentation
February 2018

UPM today



UPM BIOREFINING

Pulp
Biofuels
Timber



UPM ENERGY

Electricity
generation and
trading



UPM RAFLATAC

Label
materials for
product and
information
labelling



UPM SPECIALTY PAPERS

Label papers,
release liners,
office papers
and flexible
packaging



UPM PAPER ENA

Magazine
papers,
newsprint and
fine papers



UPM PLYWOOD

Plywood and
veneer
products



UPM BIOCHEMICALS

UPM
BIOCOMPOSITES

WOOD SOURCING
AND FORESTRY

Global businesses – local presence

UPM's sales by market 2017

EUR 10,010 million



54
production plants
in **12** countries



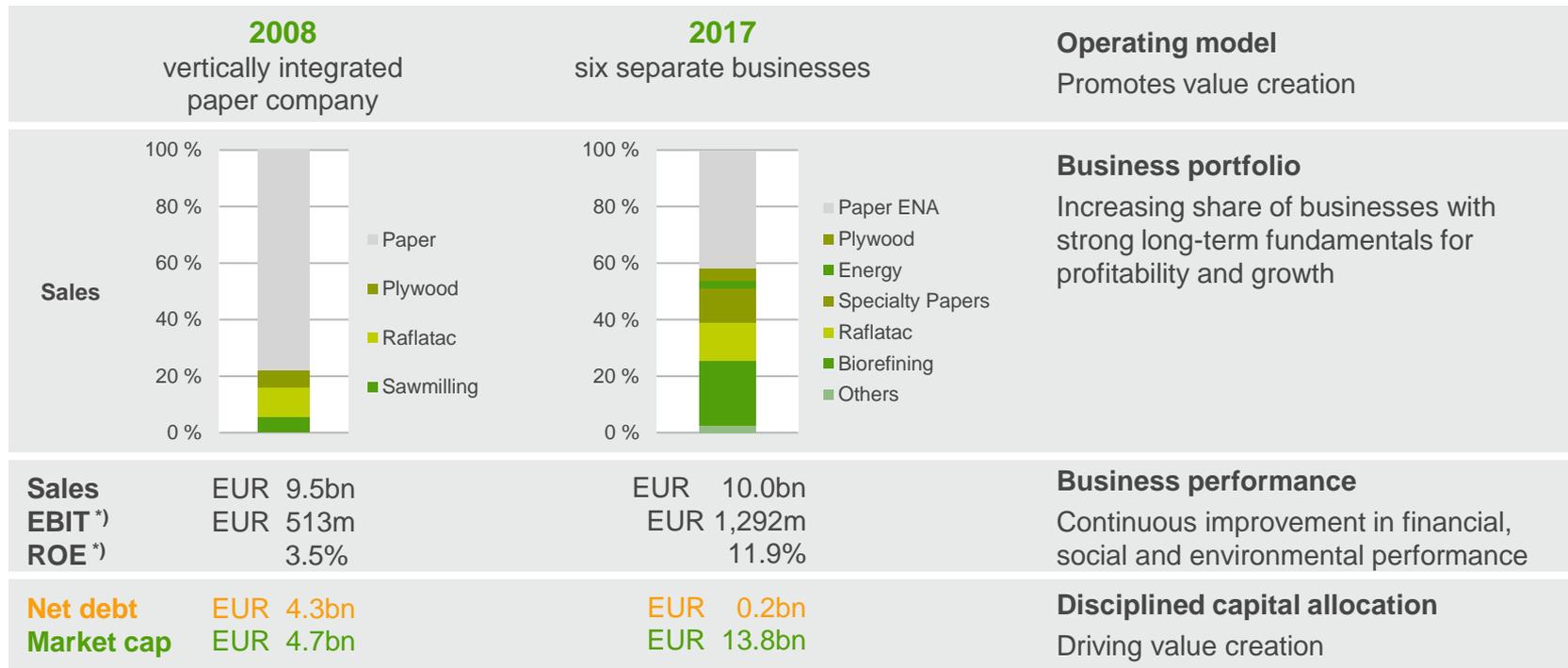
19,100
employees
in **45** countries

12,000
customers
in **120** countries

89,000
shareholders
in **35** countries

25,000
b-to-b suppliers
in **75** countries

UPM in transformation

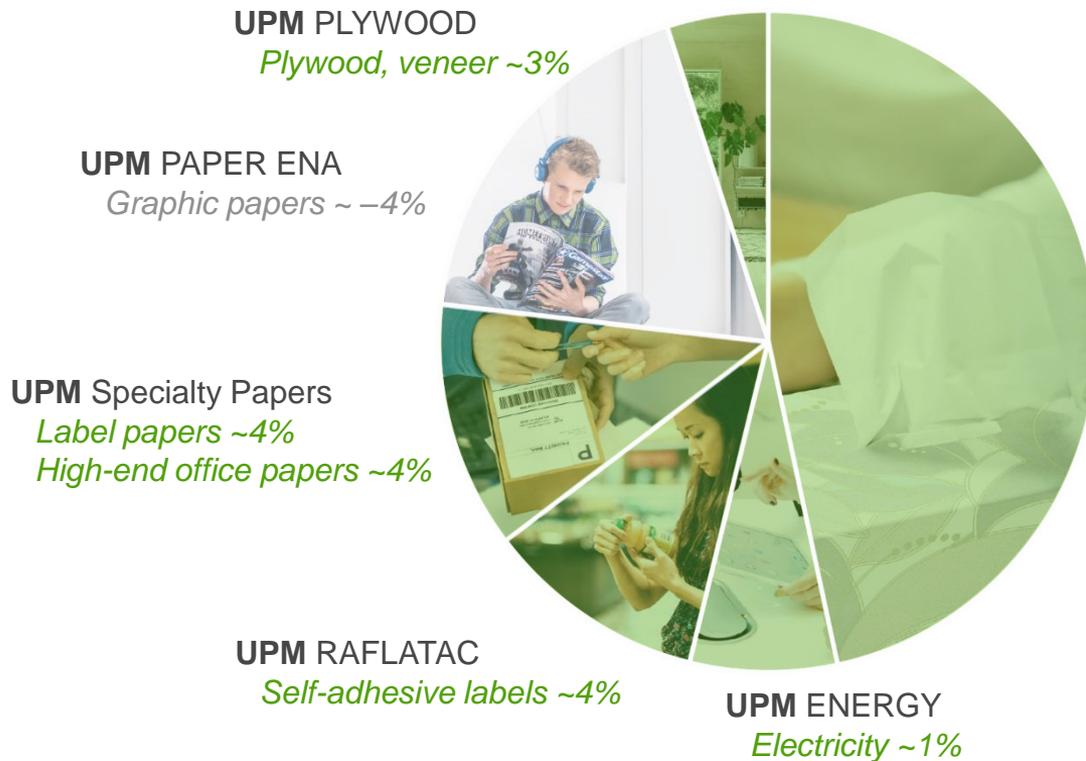


*) excluding special items for 2008, comparable figures for 2017

UPM business portfolio today ^{*)}

Competitive businesses with strong market positions

Operating on healthily growing markets



Growth drivers:

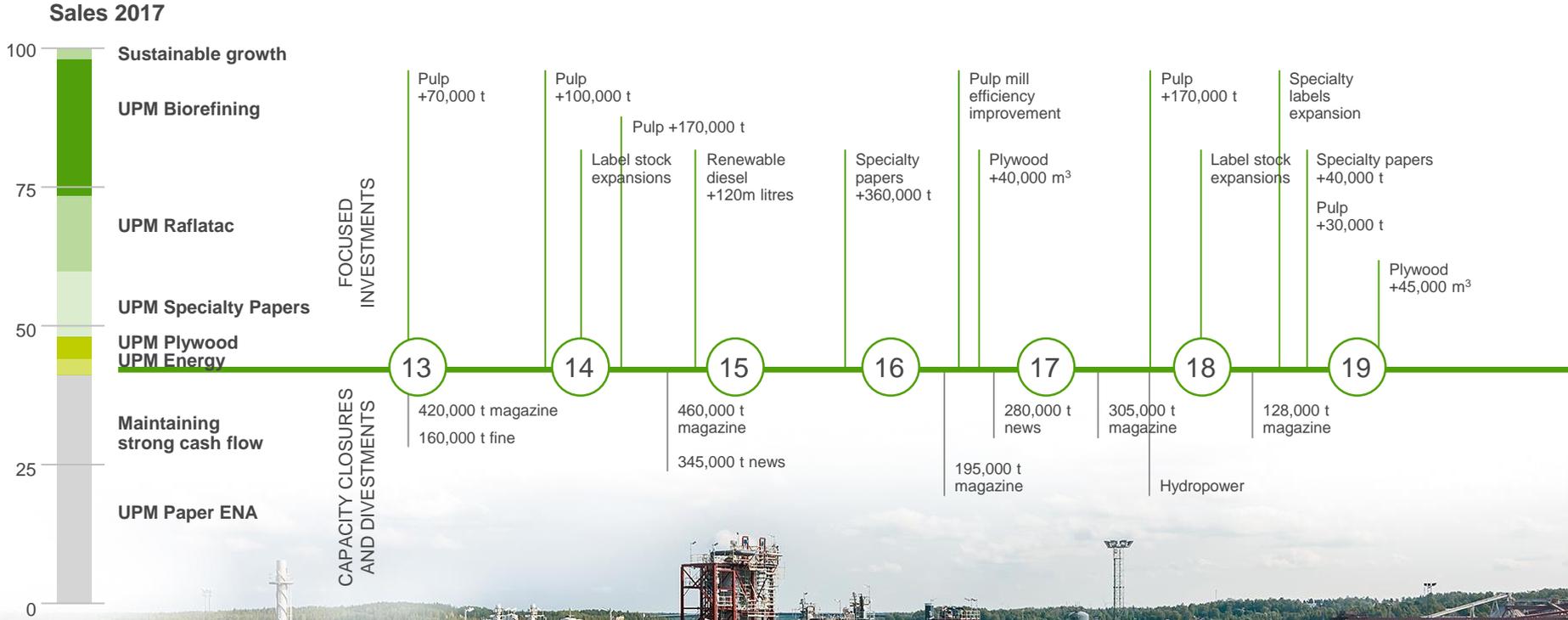
Private consumption
Sustainability
Population growth
Urbanisation
E-commerce
Construction
Transportation

UPM BIOREFINING

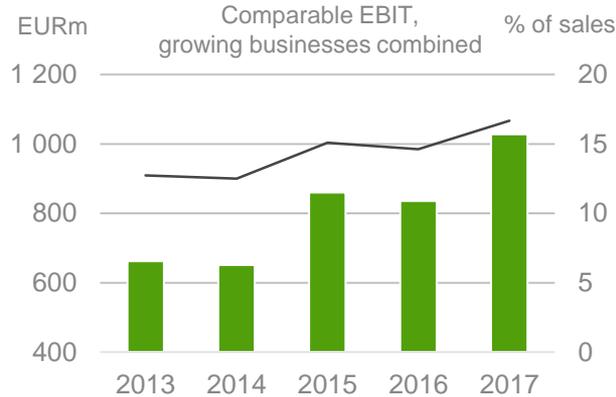
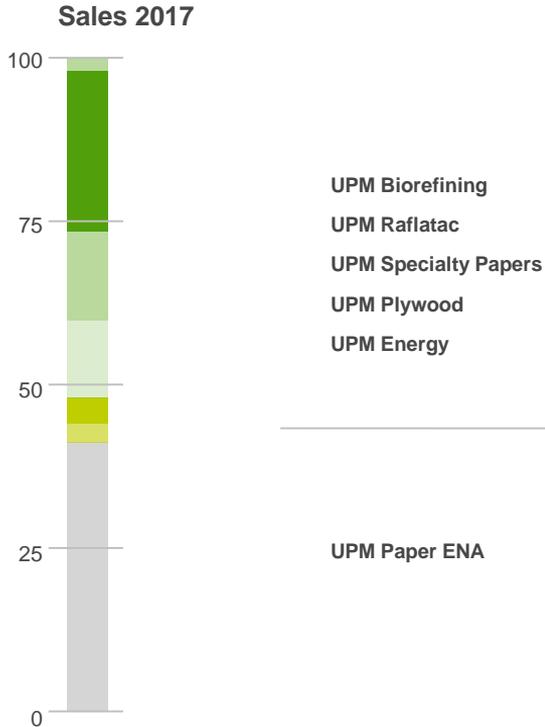
Pulp ~3%
Biofuels strong
Timber ~2%

^{*)} by comparable EBIT 2017
Demand trend growth, % pa

Increasing share of businesses with strong long-term fundamentals for profitability and growth



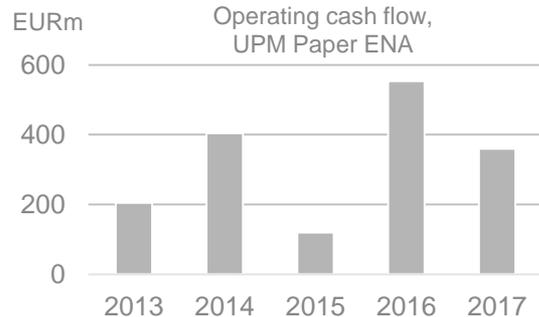
Value creation through sustainable growth and cash generation



Sustainable growth

- Commercial success
- Cost competitiveness
- Attractive growth investments
- Product mix development

UPM Paper ENA



Strong cash flow

- Commercial success
- Cost competitiveness
- Efficient use of assets

UPM current investment portfolio for earnings growth

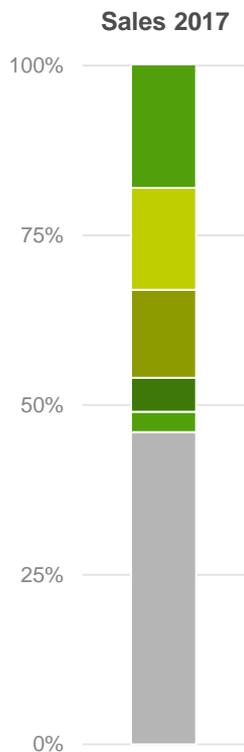
Focused growth projects

- Completed in Q4/17
 - Kymi pulp mill expansion, Finland
 - Raflatac expansion, Poland
- Construction stage
 - Kaukas pulp mill expansion, Finland
 - Raflatac expansion, Finland
 - Jämsänkoski label papers expansion, Finland
 - Chudovo plywood mill expansion, Russia
- Feasibility study
 - Nordland PM2 conversion from fine papers to label papers, Germany

Transformative prospects

- Possible new pulp mill, Uruguay
 - UPM and the Government of Uruguay signed an agreement on local prerequisites for a possible new pulp mill. Infrastructure projects and the pre-engineering of the mill in progress.
- Biomolecules businesses
 - Basic engineering study started regarding a potential industrial-scale biochemicals refinery, Germany
 - Exploring next steps in biofuels

Focused investments are delivering growth

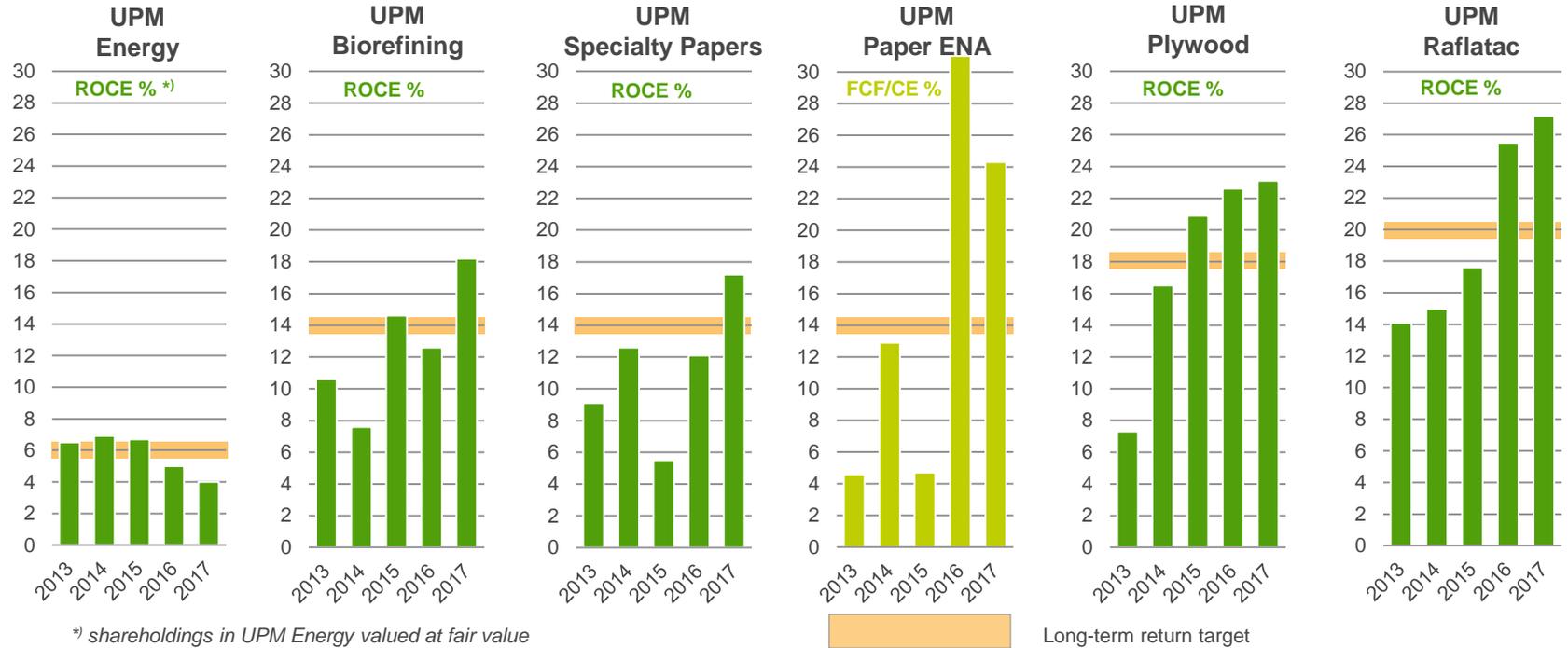


Average delivery growth 2013 –2017

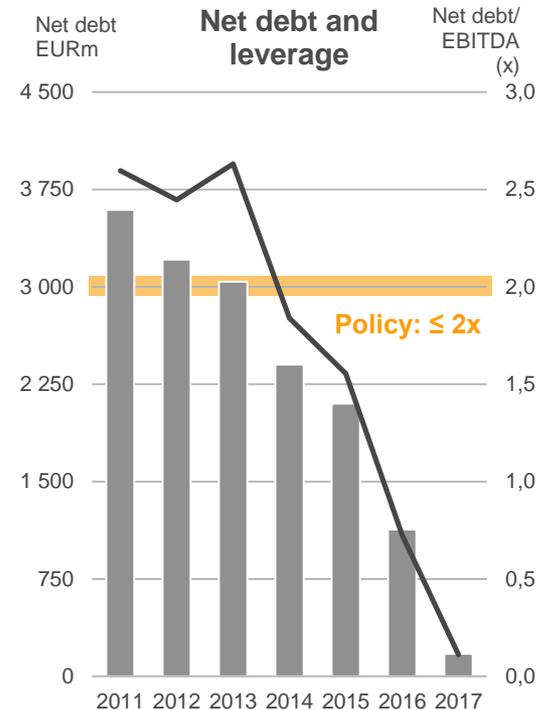
UPM Biorefining	Pulp Biofuels	CAGR +3% New business
UPM Raflatac	Standard paper labels Films and specials	CAGR +5% CAGR +7%
UPM Specialty Papers	Label materials Cut-size	CAGR +15% CAGR +6%
UPM Plywood	Plywood	CAGR +2%



Business area long-term targets compared with realised returns

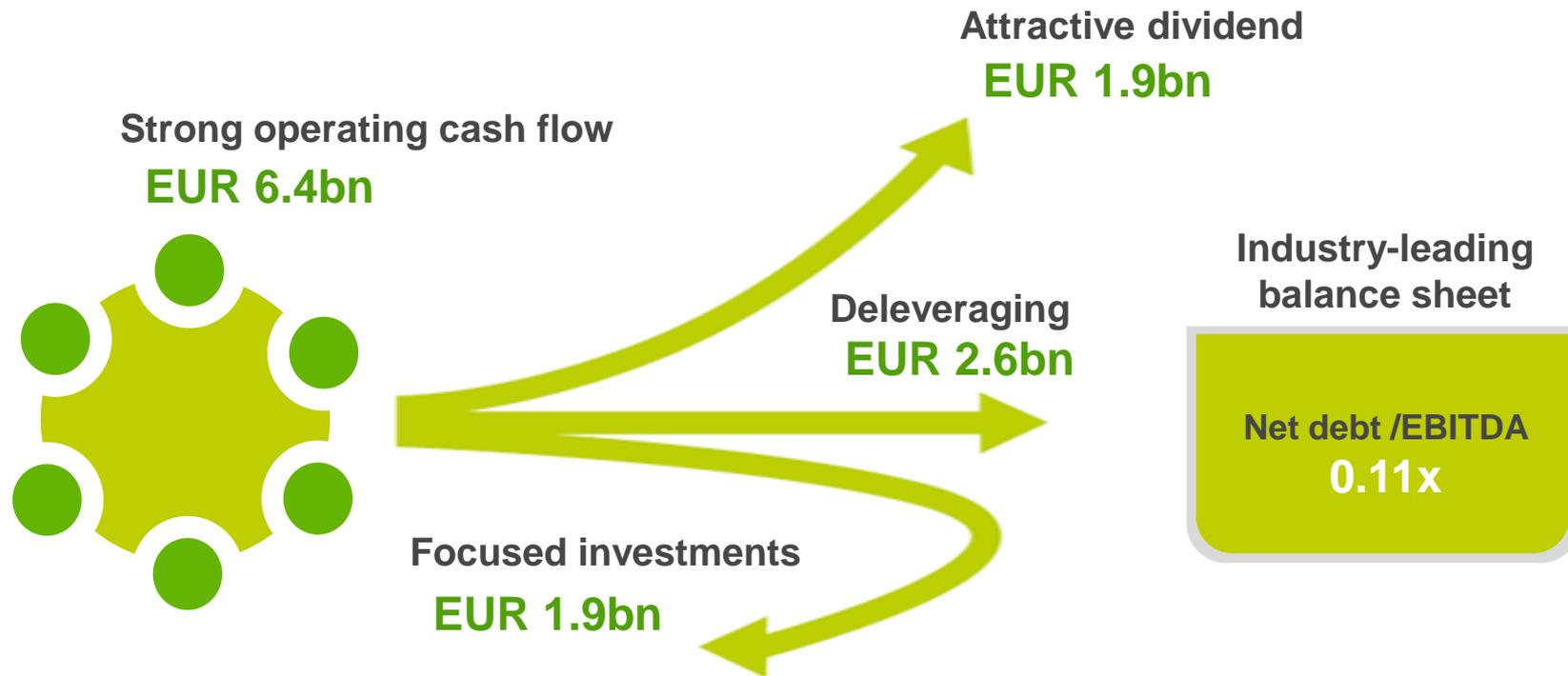


Group financial performance



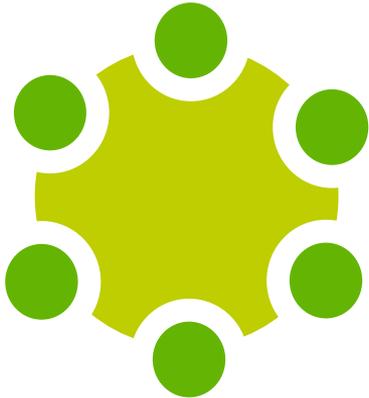
Comparable figures for 2014 – 2017,
excluding special items for earlier years

5-year cumulative cash flow (2013-2017) – disciplined capital allocation in action



Illustrative capital allocation^(*) for next 5 years, assuming the Uruguay pulp mill investment

Performance focus
Strong cash flow



Attractive dividend
EUR ~3-4bn



High return investments
EUR ~3-4bn

Industry-leading balance sheet

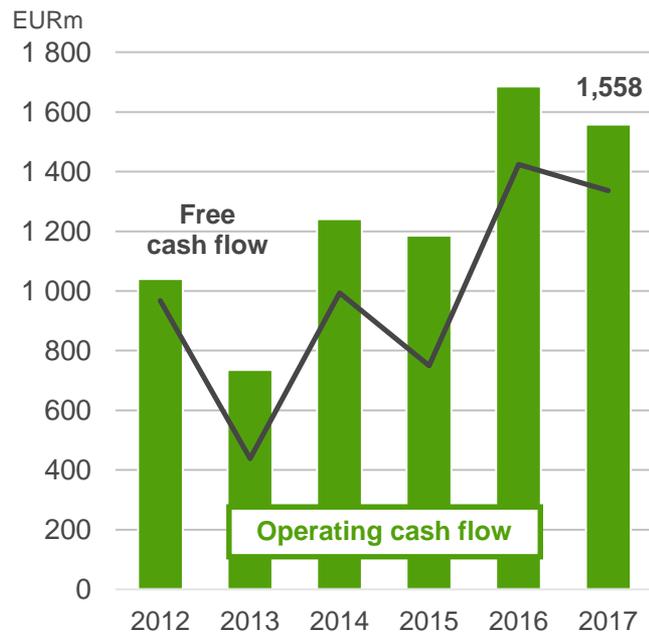


Maintain headroom

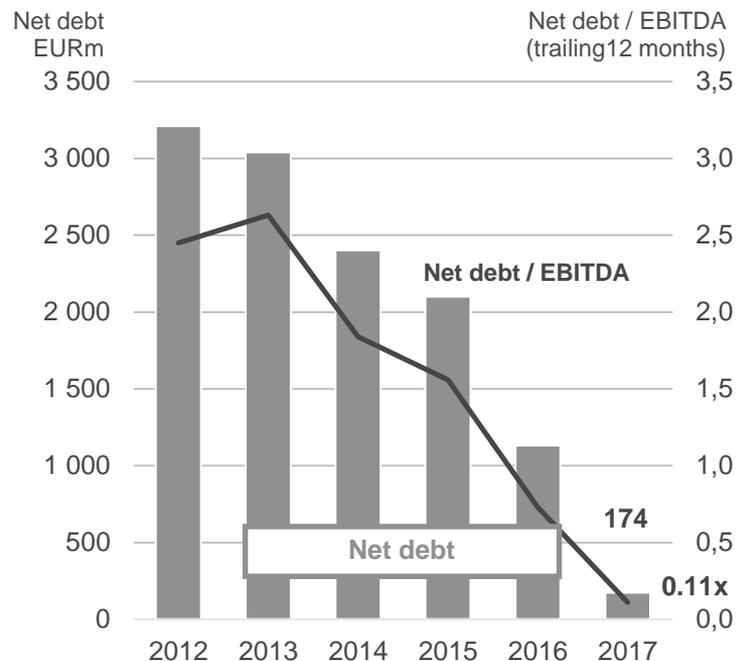
^(*) This is not a forecast

Strong cash flow and balance sheet

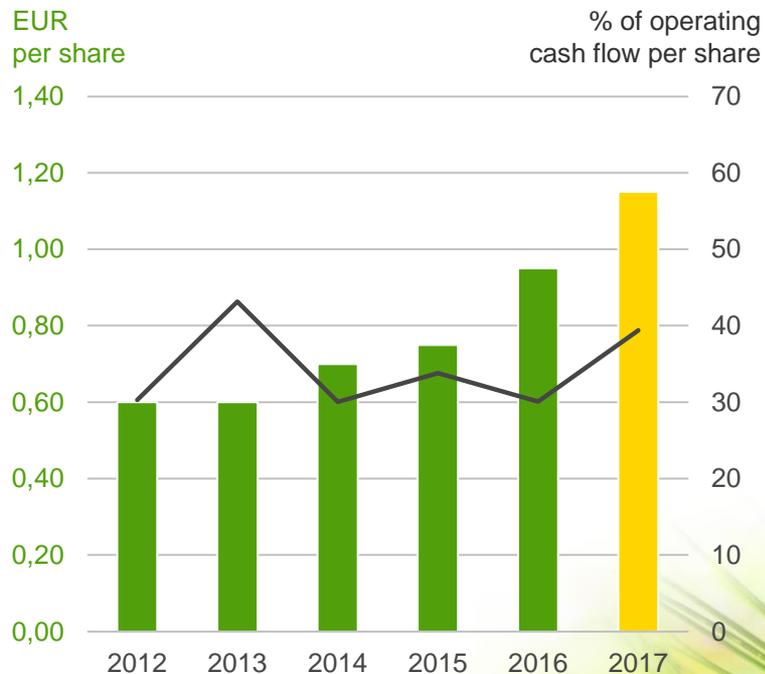
Operating cash flow



Net debt



Dividend proposal: 21% increase



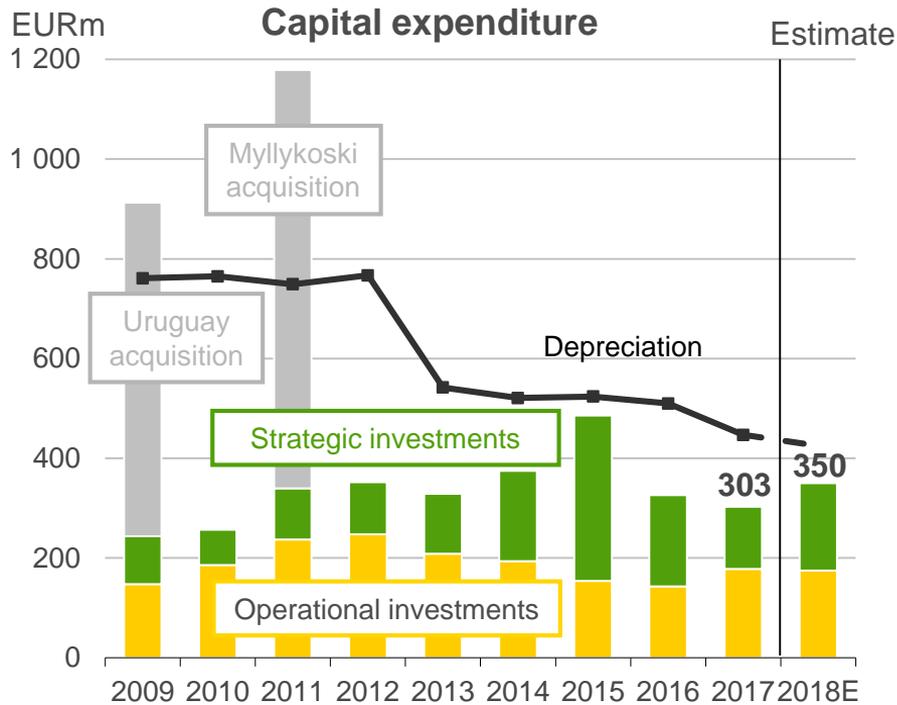
Dividend policy

- UPM aims to pay an attractive dividend, 30–40% of operating cash flow per share

Dividend proposal for 2017

- EUR 1.15 (0.95) per share, totalling EUR 613m
- 39% of 2017 operating cash flow

Low investment needs in existing assets allow growth projects with modest total capex



Focused growth investments

- ✓ Good returns and fast payback
- ✓ Low implementation risk
- ✓ Financed from operating cash flow

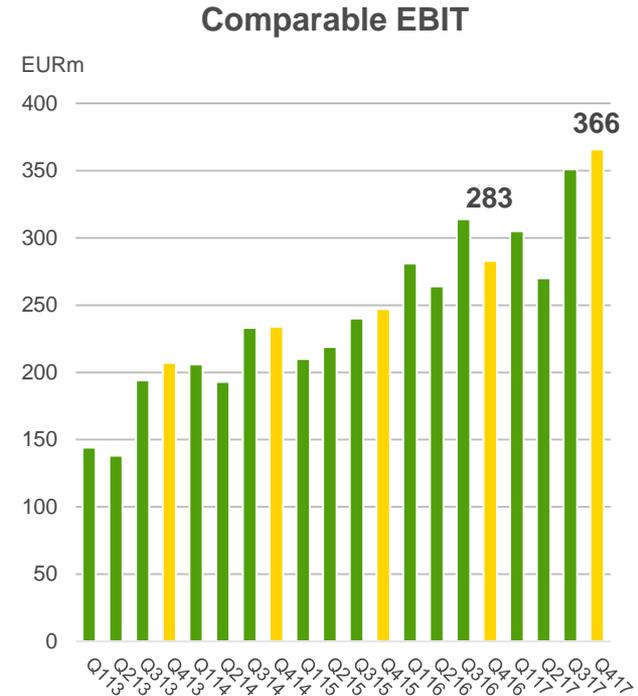
Low replacement investments

- ✓ Asset quality in all businesses, e.g. large competitive pulp mills
- ✓ UPM Paper ENA

► **Modest total capex and attractive returns**

Q4 2017 – Excellent finish to the record-strong year 2017

- Comparable EBIT increased by 29% to EUR 366m (283m)
- Operating cash flow was EUR 407m (405m)
- Net debt decreased to EUR 174m (1,131m)
- Agreement with the Government of Uruguay on local prerequisites for a possible pulp mill
- Started basic engineering study of a possible biochemicals refinery
- Announced focused growth projects in Plywood and Specialty Papers
- Kymi pulp mill expansion and the Raflatac expansion in Poland were completed



Q4 2017 – Strong market environment

UPM BIOREFINING

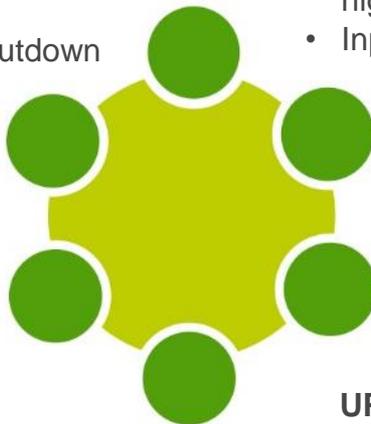
- Good demand, pulp deliveries +6%, strong growth in biofuels
- Pulp prices higher
- UPM Kymi pulp mill investment shutdown

UPM SPECIALTY PAPERS

- Good demand, deliveries flat
- Significant progress in product mix, higher release liner deliveries
- Input cost increases mitigated

UPM PAPER ENA

- Graphic paper deliveries -4%
- Newsprint contract manufacturing at the Schwedt mill ended
- Fibre costs higher



UPM RAFLATAC

- Good demand globally, deliveries +6% driven in particular by developing markets
- Input cost increases impacted sales margins

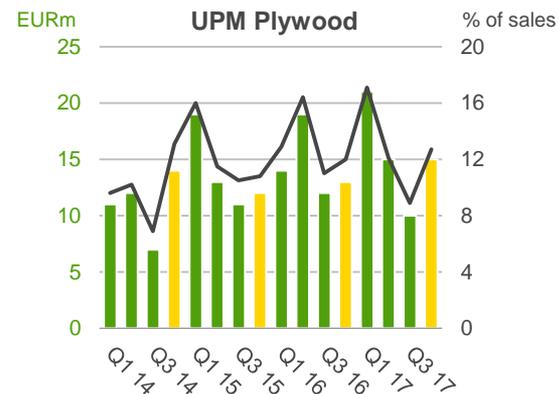
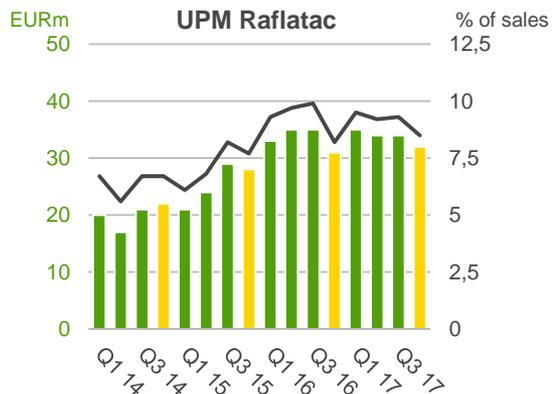
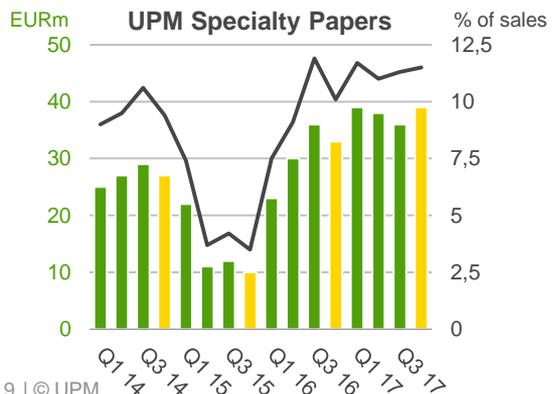
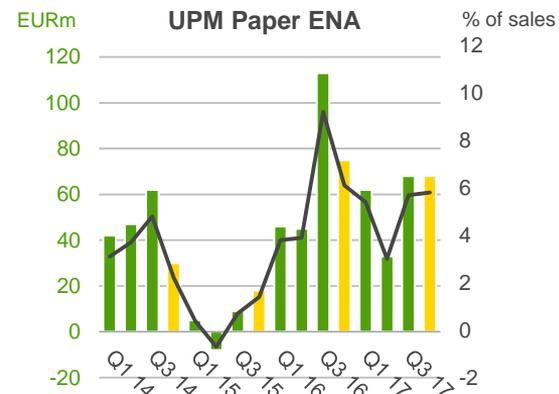
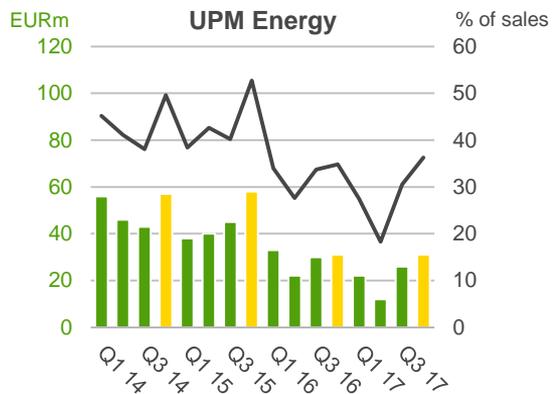
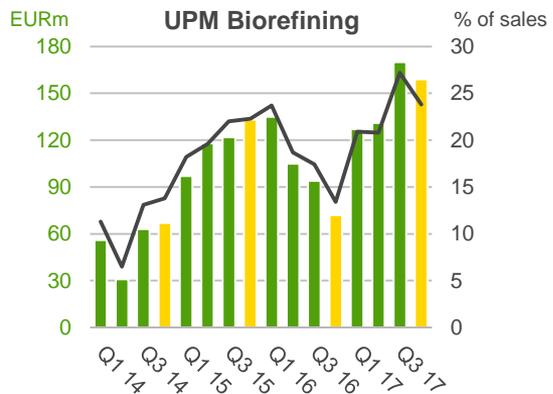
UPM ENERGY

- Electricity deliveries +4%
- Hydropower generation increased above normal level

UPM PLYWOOD

- Good demand, deliveries +11%
- Modest input cost increases impacted sales margins

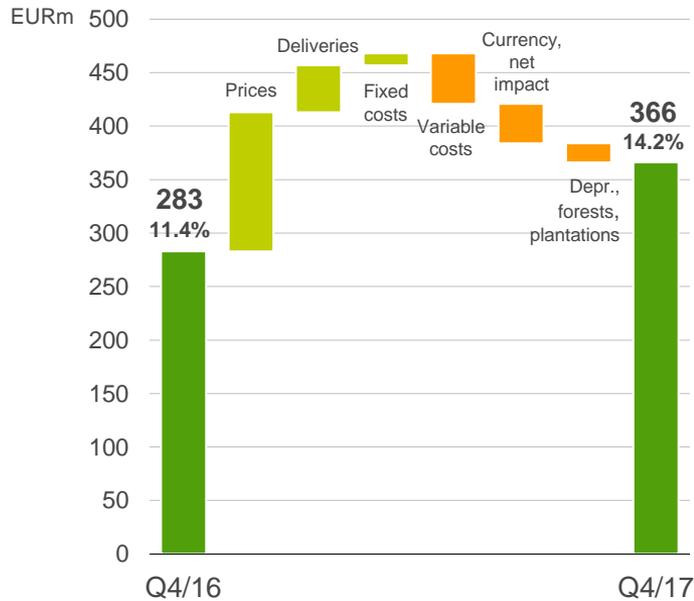
Comparable EBIT by business area



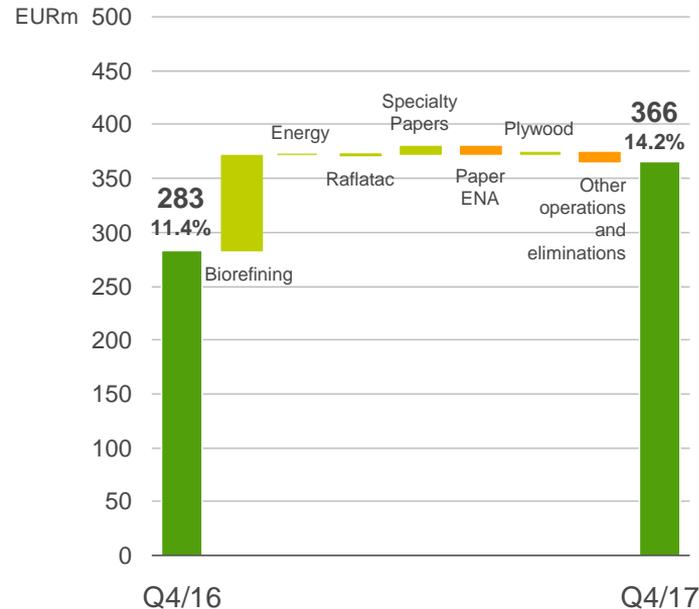


Comparable EBIT in Q4 2017 vs. Q4 2016

Prices increased more than variable costs.
Growth in deliveries. Less maintenance.
Currencies had a negative impact.



Pulp prices and deliveries increased in Biorefining. Good deliveries and successfully offset input cost increases in other businesses.



Outlook for 2018

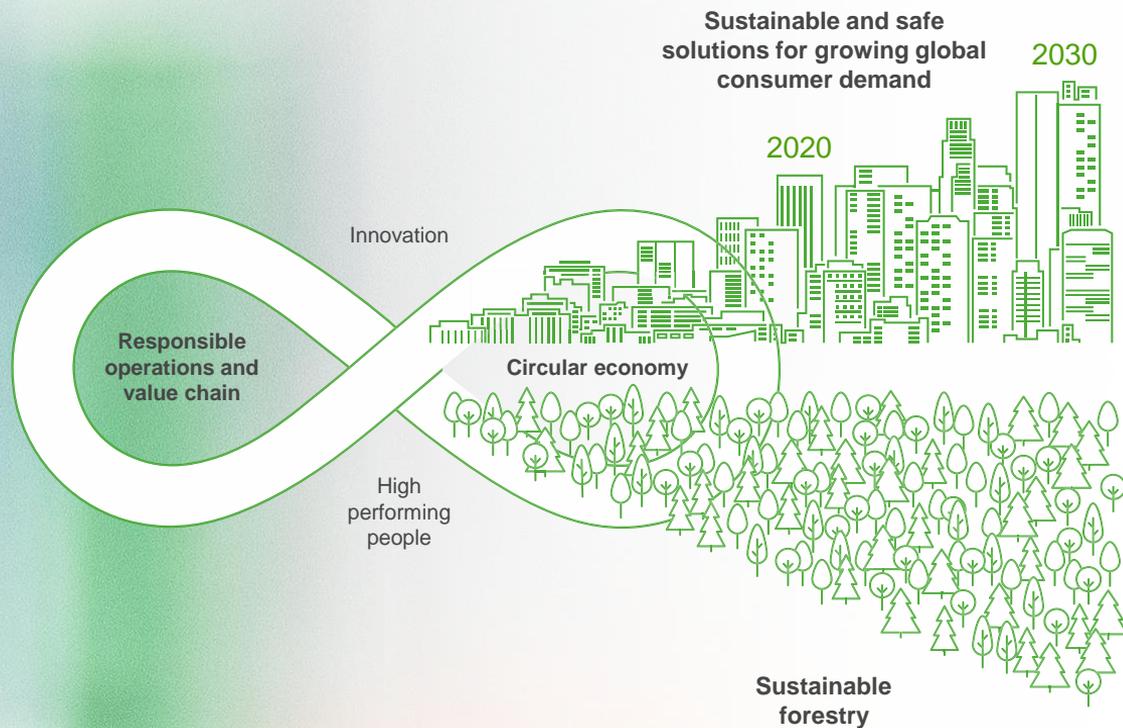
- UPM reached record earnings in 2017. Fundamentals for UPM businesses in 2018 continue to be favourable.
- Healthy demand growth is expected to continue for most of UPM's businesses in 2018, while modest demand decline is expected to continue for UPM Paper ENA. Sales prices are expected to increase in most of UPM's businesses, compared with 2017.
- Input costs are expected to continue increasing in 2018, compared with 2017. UPM will continue measures to reduce fixed and variable costs to mitigate this. 2018 starts with less favourable currencies than 2017.
- Q1 2018 results are expected to be impacted by temporary wood harvesting limitations in Northern Europe caused by unusually warm and wet weather in late 2017 and the beginning of 2018.



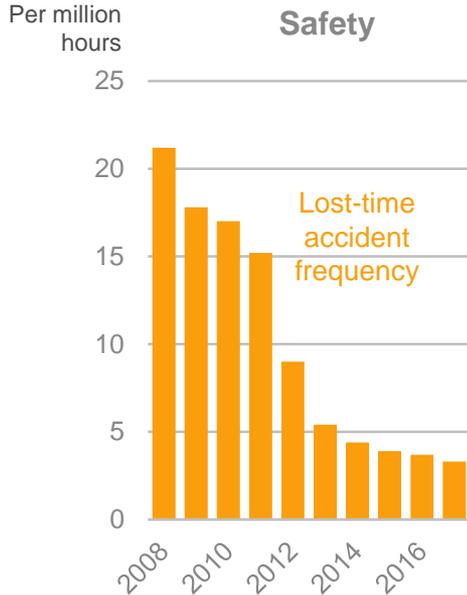
The Biofore Company

UPM

Limitless opportunities of bioeconomy



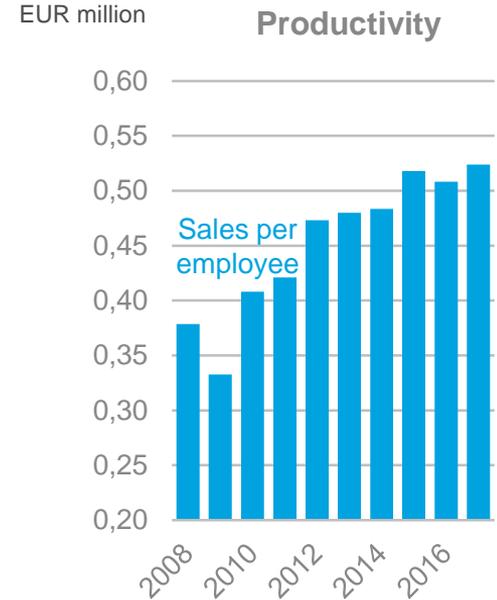
Creating competitive advantage and long-term value by engagement



5-year change:
-37%



5-year change:
+8



5-year CAGR:
+2% pa

Creating competitive advantage and long-term value by efficiency

Case: UPM Changshu mill in China



The Biofore Company UPM



Water

-60%

Per tonne of paper



Energy

-30%

Per tonne of paper



Waste to landfill

-60%

Per tonne of paper



Certified fibre

85%

In 2015

2015 compared to 2005



COD in effluent

-75%

Per tonne of paper



SO₂ emission

-90%

Per tonne of paper

water intake



water discharge



Source: UPM

Consistent long-term work receives external recognition

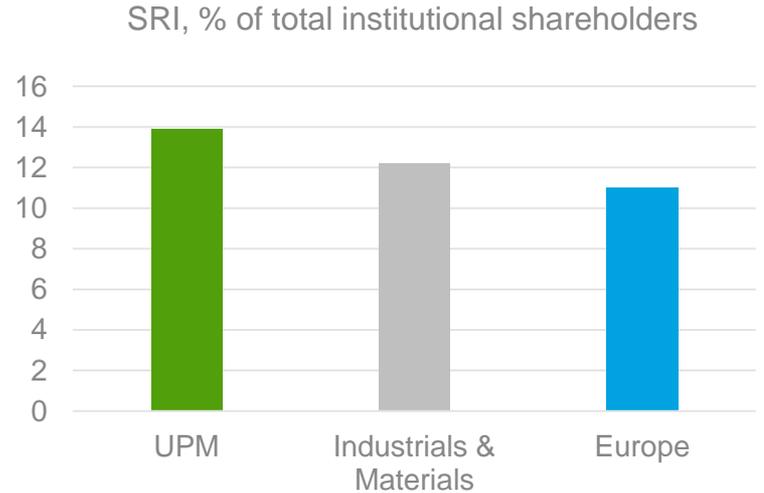


UPM in sustainability indices



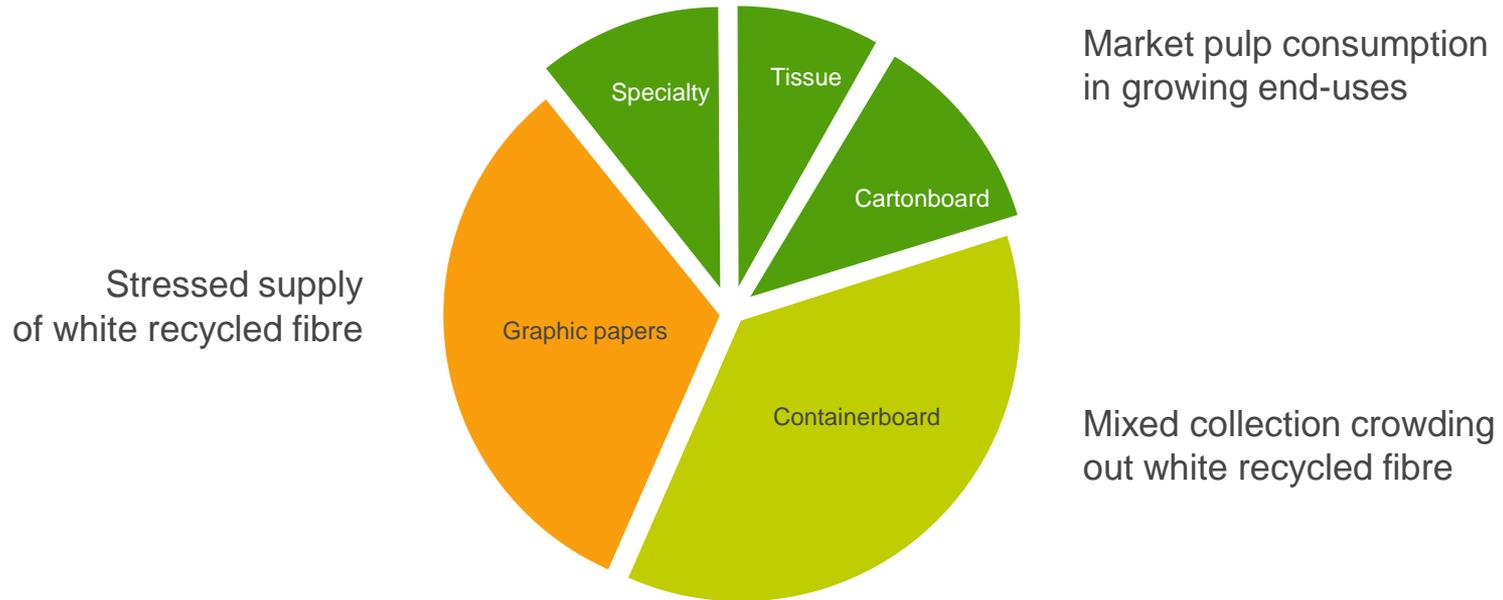
CDP's Climate Change Program: A- score

Sustainable and Responsible (SRI) investors form a significant part of UPM's shareholders

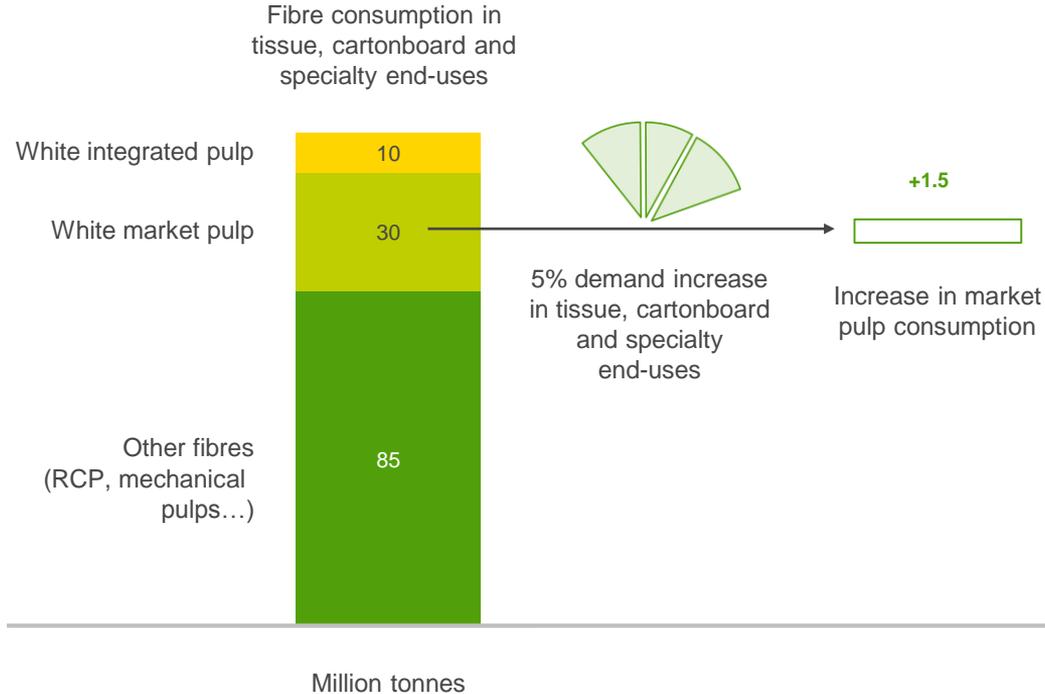


Market pulp consumed in growing end-uses – supply of alternative white fibres declines

Global paper and board production

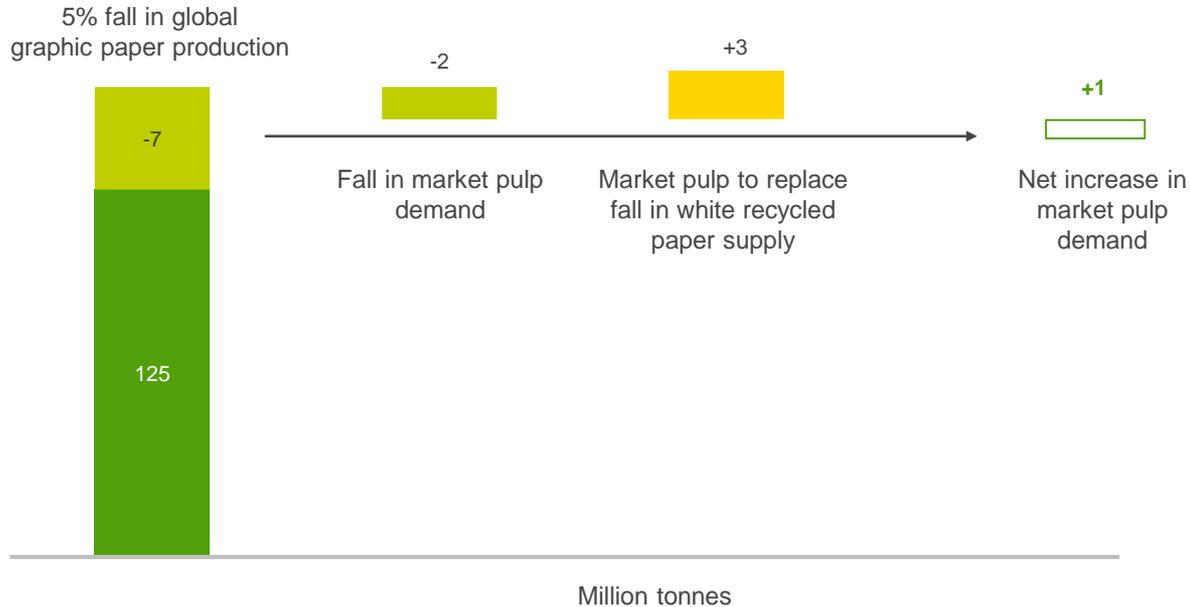


Case: Market pulp consumption in growing end-uses



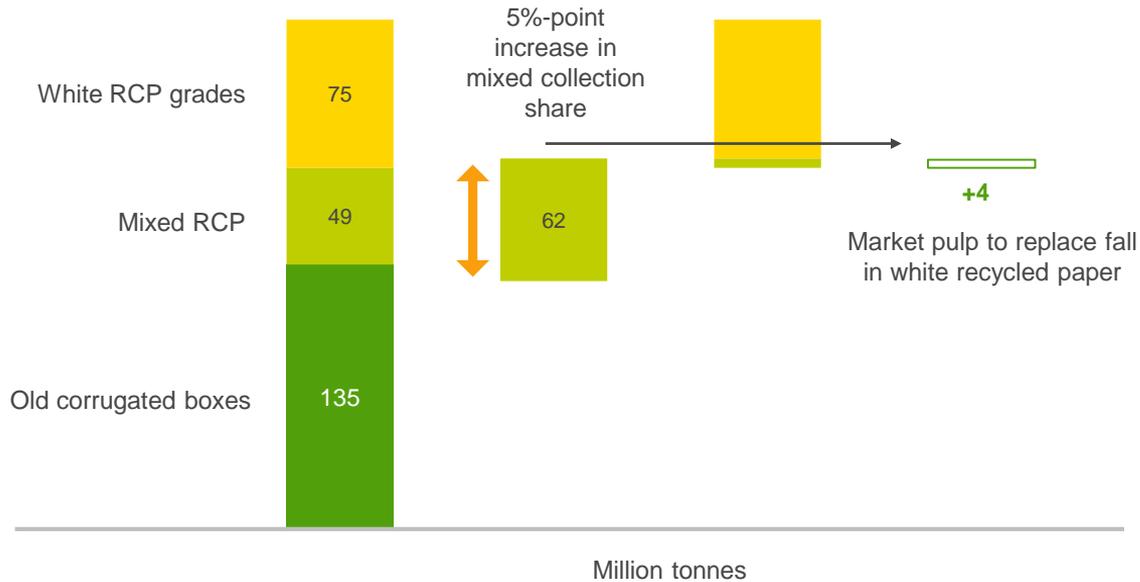
Source: Pöyry, Hawkins Wright, UPM

Case: Stressed supply of white recycled paper



Source: Pöyry, UPM

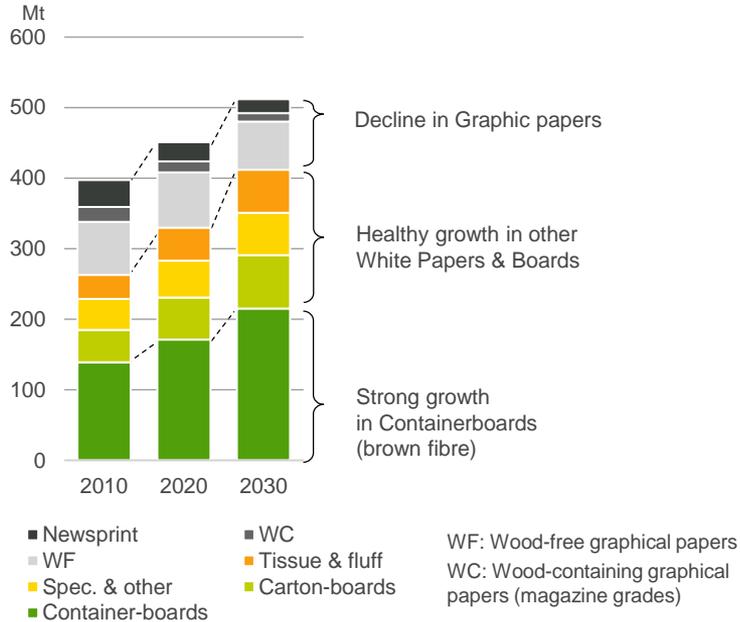
Case: Mixed collection crowding out white recycled fibre



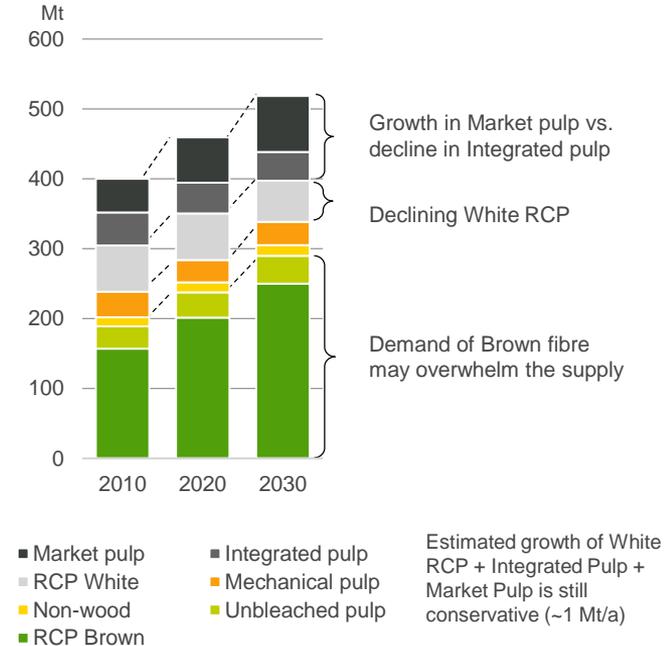
Source: Pöyry, UPM

Summary of pulp demand outlook

Increase in end use ...

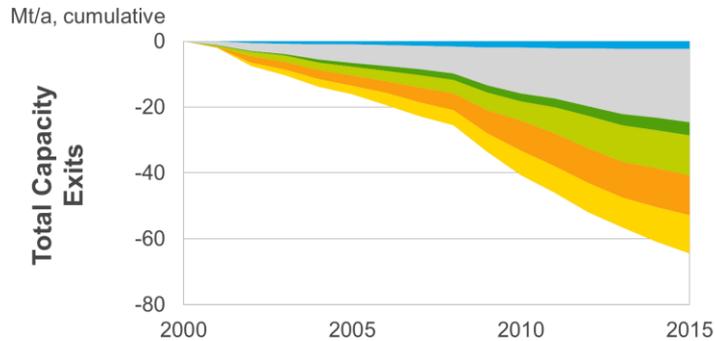
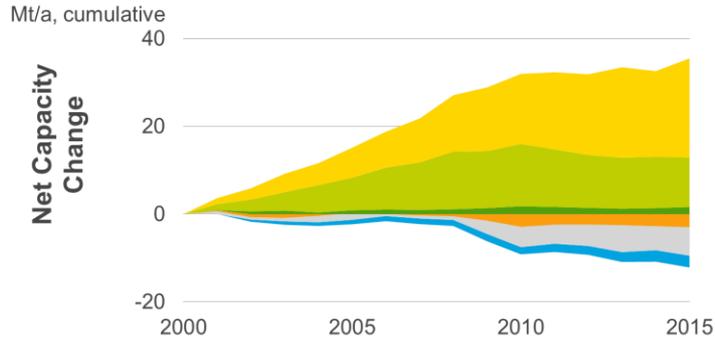


... will drive fibre demand in coming decades



Source: UPM, Pöyry, RISI

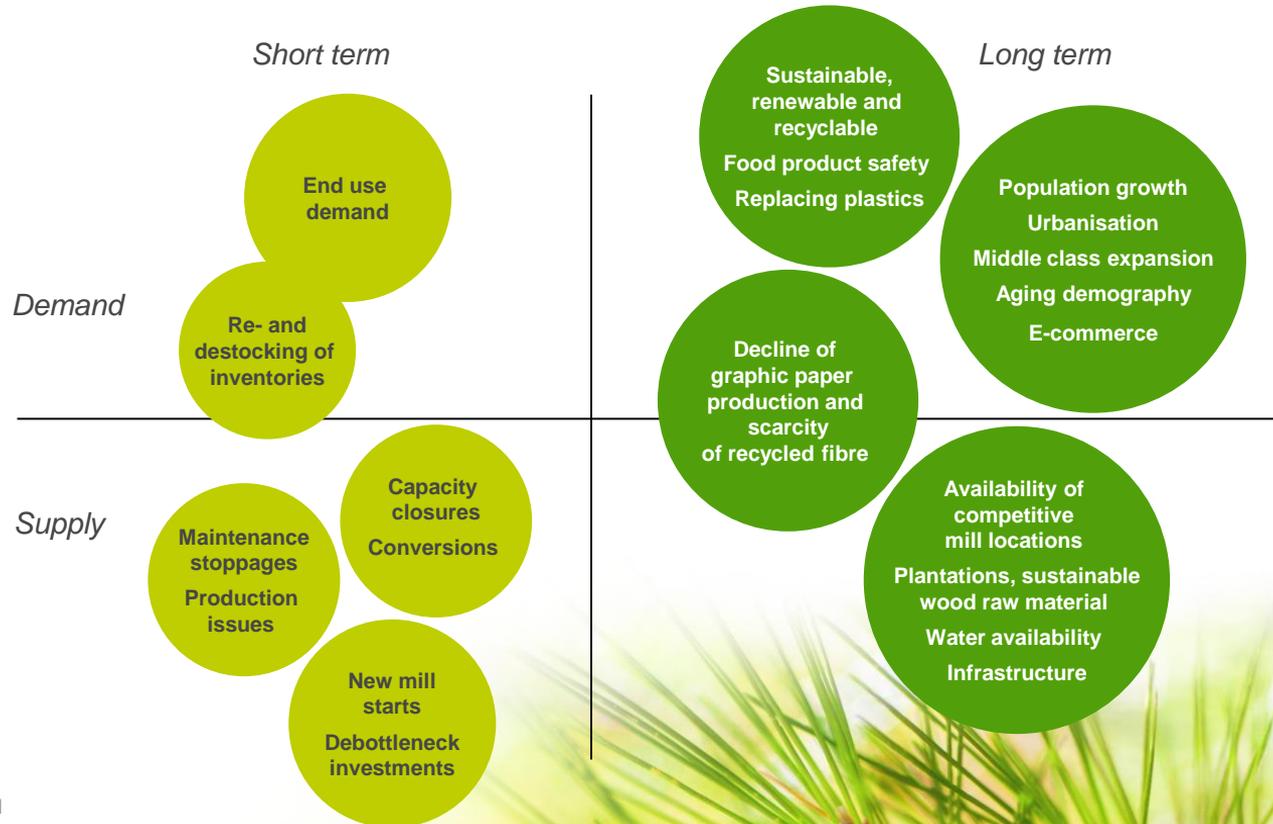
White fibres in different stages of life-cycle; 64 Mt capacity closed within 2000–2015



Note: Including both market and integrated pulp

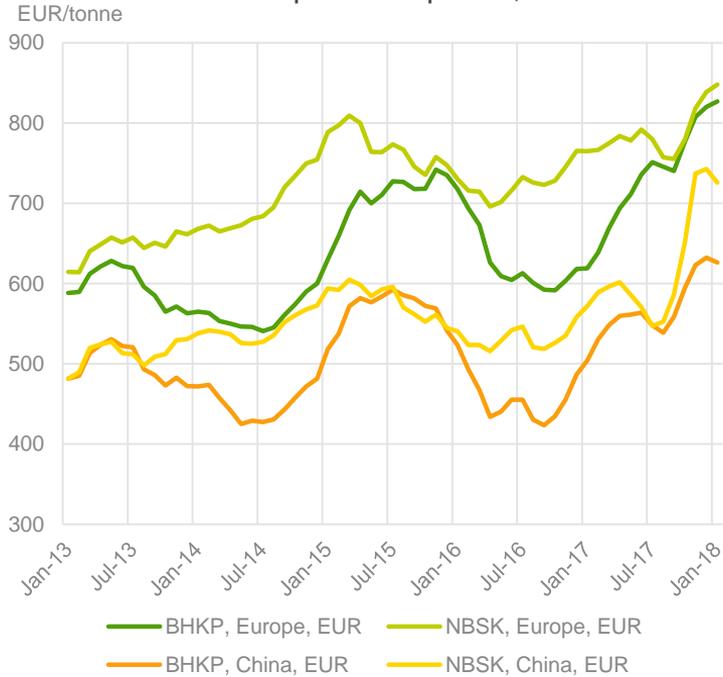
- **Hardwood pulp** capacity has experienced strong net growth after 2000 and is expected to continue growing.
- **Softwood** has faced closures as much as hardwood. New demand in China is turning decline into a slow growth.
- **White RCP** was the fastest-growing fibre in Europe and NA in early 1990's. After recession capacity has been in decline due to very high collection rates and diminishing supply of graphic paper.
- **Mechanical pulp** continues to decline along with graphic papers.
- **Non-wood pulps** consumed mostly in China are under pressure due to environmental reasons.
- **Sulphite** has been in decline for decades.

Demand-supply drivers of pulp market

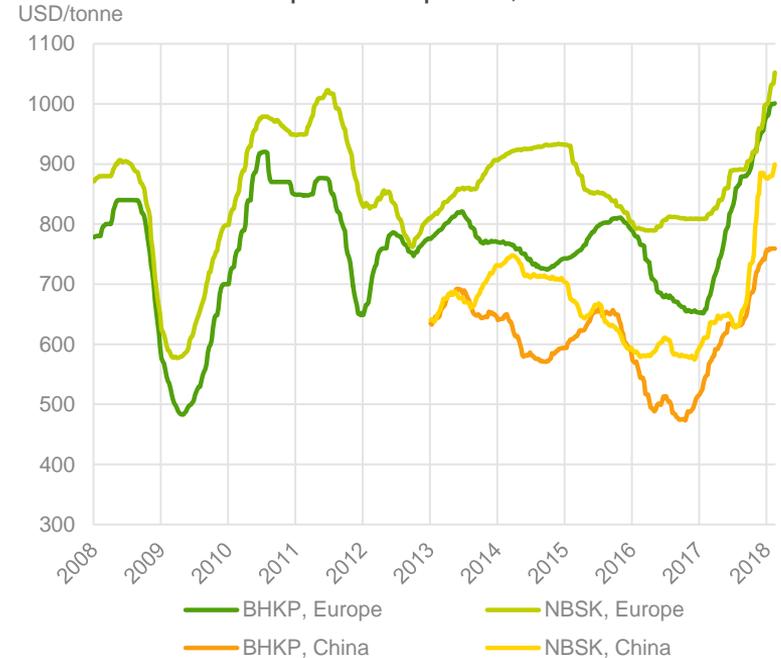


Chemical pulp market prices

Pulp market prices, EUR



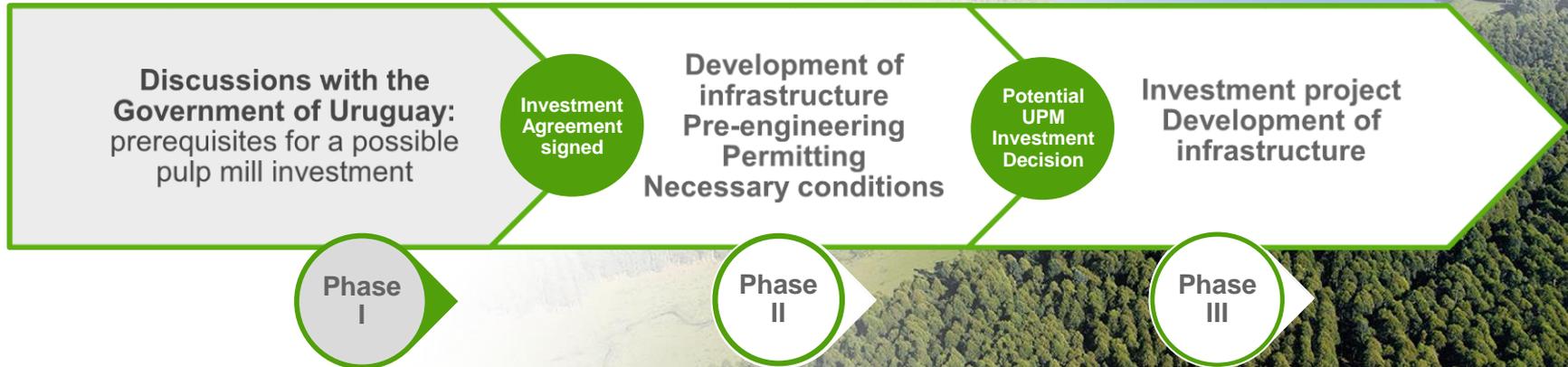
Pulp market prices, USD



Sources: FOEX Indexes Ltd, ECB

Potential pulp mill in Uruguay could be a competitive alternative – time schedule is several years

The ongoing second preparation phase is expected to take 1.5–2 years



Establishing a competitive operating platform in Uruguay

Current operations

Plantation base in West Uruguay



Fray Bentos pulp mill
1.3 million tonnes



~100 km of river barging
for outbound logistics



Sea port in Nueva Palmira
loading half vessels



Ocean vessels to pulp markets



Uruguay prospect

Plantation base in Central and North Eastern Uruguay



Potential new pulp mill
about 2 million tonnes, on-site
investment estimate EUR 2bn



Railway with high
technical standards



Deep sea port in Montevideo
loading full vessels



Ocean vessels to pulp markets



UPM Biofuels in existing and future end-use



Fuel retail



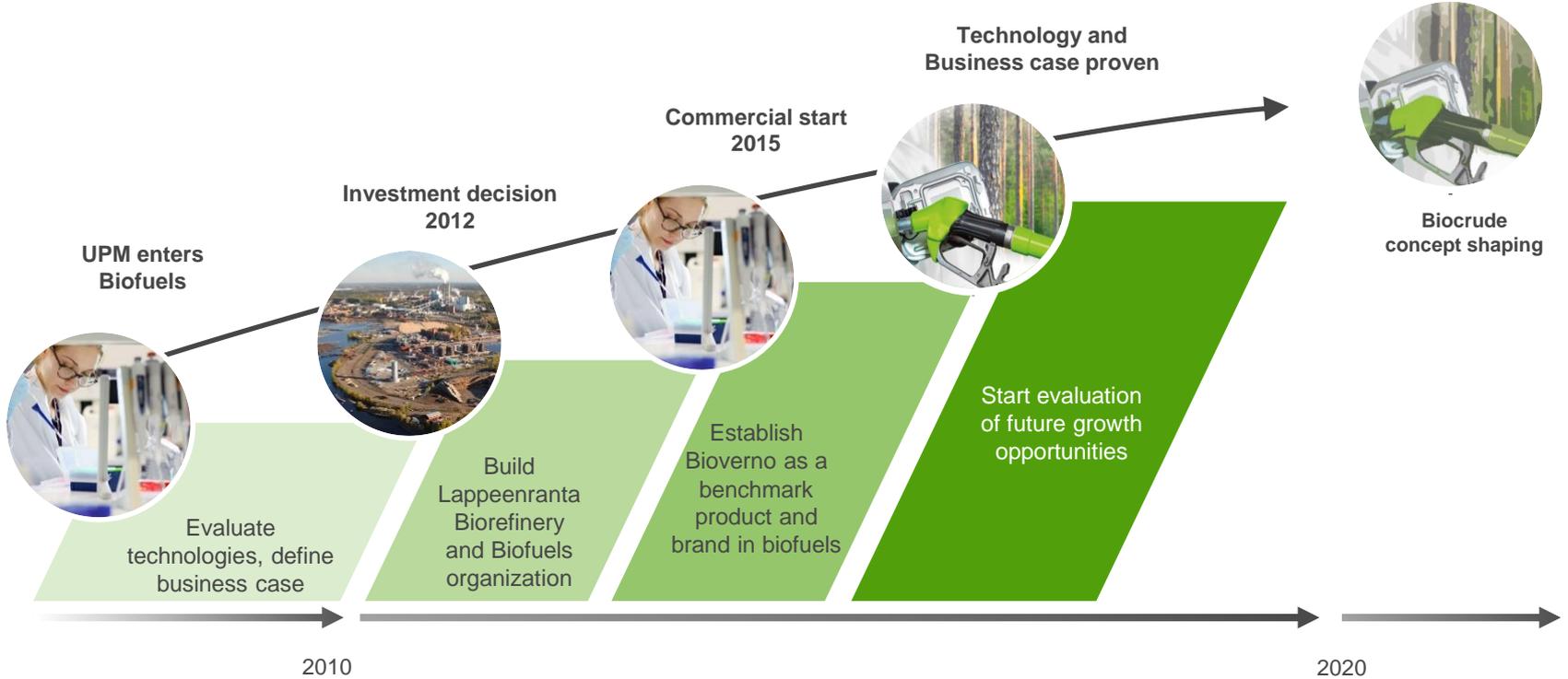
Dedicated green fleets



Marine/Aviation

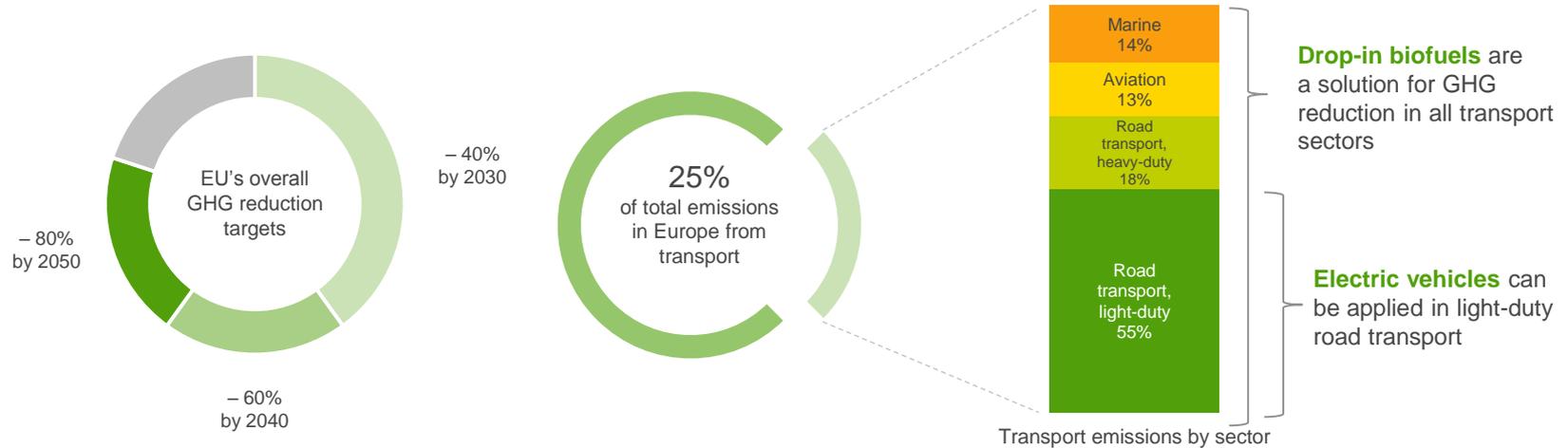


UPM Biofuels business evolving



Significant emission cuts needed in transportation sector

EU's greenhouse gas reduction targets cannot be met without significant emission cuts in transport – actions needed in all sectors

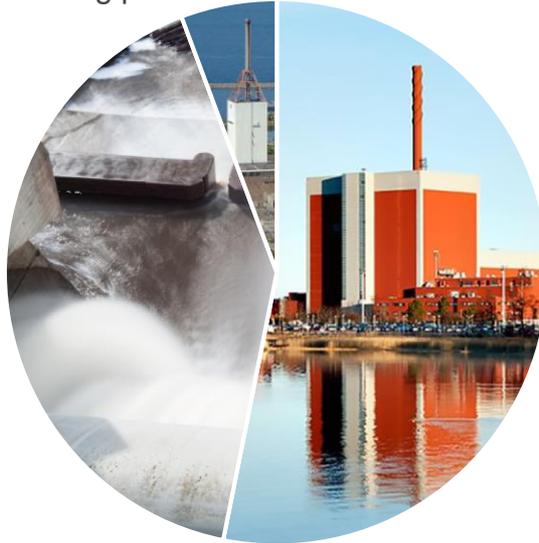


Cost competitive and flexible asset base

Power generation breakdown

Condensing power

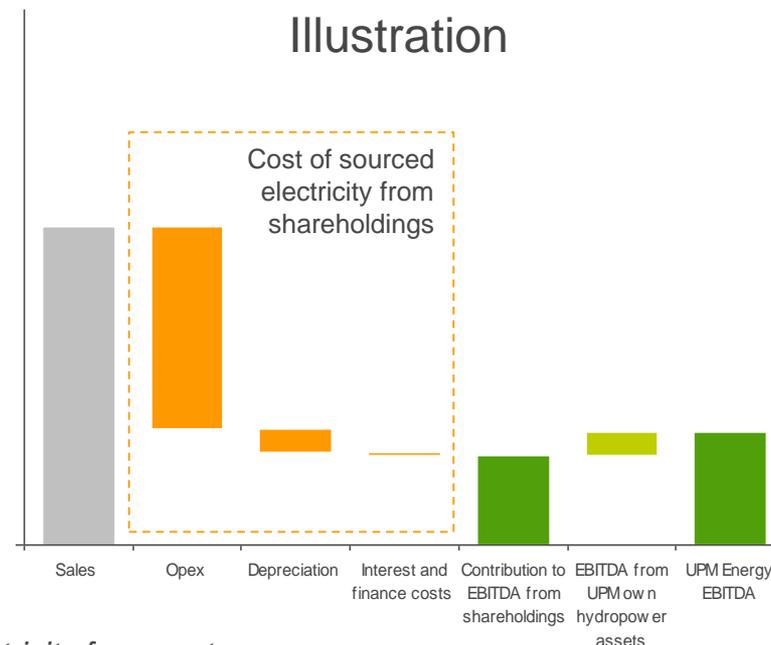
Flexible hydro
production with
optimisation
opportunities



Nuclear as
reliable base
load with world-
class
availability
performance

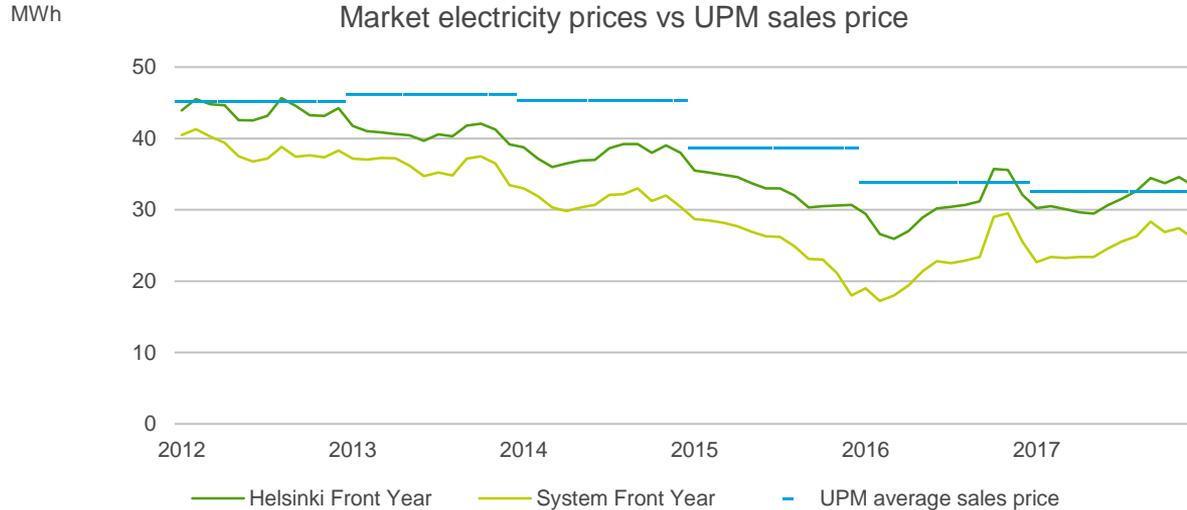
UPM Energy power generation assets

UPM Energy's power generation	MW	EURm
Hydropower holdings	565	723
Nuclear power OL1 and OL2	580	1,031
Nuclear power OL3 under construction	(500)	178
Condensing power	190	8
UPM Energy's shareholdings in total, valued at fair value	1,335	1,940
UPM own hydropower assets	160	
UPM Energy's in total (excl. OL3)	1,495	
UPM Energy capital employed		2,267



In addition to its own power generation, UPM Energy sources electricity from part owned energy companies at full cost (cost-price principle)

Cost efficient generation enables robust profitability in challenging market environment



UPM Energy profitability	2012	2013	2014	2015	2016	2017
Comparable EBIT, EURm	217	186	202	181	116	91
% of sales	45.0	39.9	43.5	43.6	32.7	28.8

UPM Raflatac

Self-adhesive labels in end-use



PHARMACEUTICALS



WINE, SPIRITS & CRAFT BEVERAGE



FOOD



HOME & PERSONAL CARE



DURABLES



TRANSPORT & LOGISTICS



RETAIL, OIL & INDUSTRIAL



A4 & CUT-SIZE



SECURITY & BRAND PROTECTION



TYRE

Leading position in a growing market

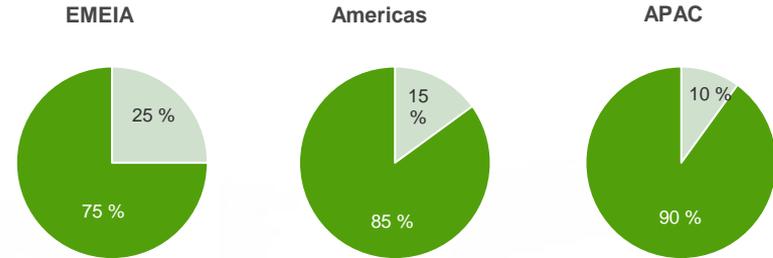
The self adhesive labelstock market

- > EUR 8bn global market
- ~ 4% p.a. growth
- Private consumption driven

UPM Raflatac

- #2 globally
- Business in 120 countries
- > 8,000 customers
- 3,000 people in six continents

UPM Raflatac market shares



Continuing growth

1. Capturing the market growth in the current markets and product areas
2. Increased distribution coverage and customer reach
3. Wider product portfolio
4. M&A when opportunities emerge

Enabled by scalable operating platform & efficient investments

Tailored marketing
Productivity Population growth
Single households Consumerism
Reliability Packaged food Ease of use
Private consumption
Label demand
Urbanisation E-commerce
Sustainability Differentiation
Retailing changes Regulation
Higher standard of living Shelf-appeal
Product safety

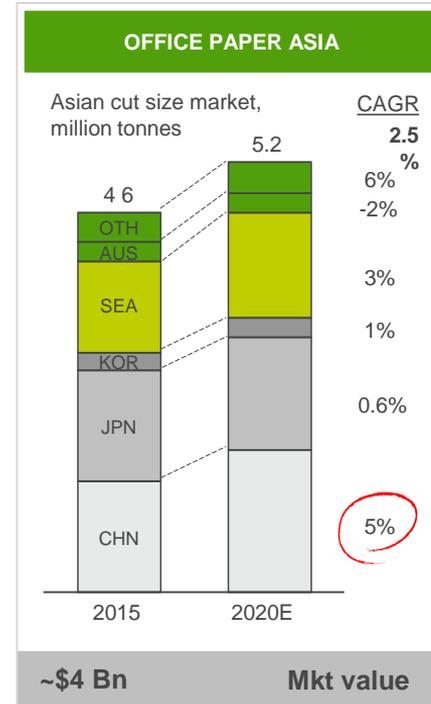
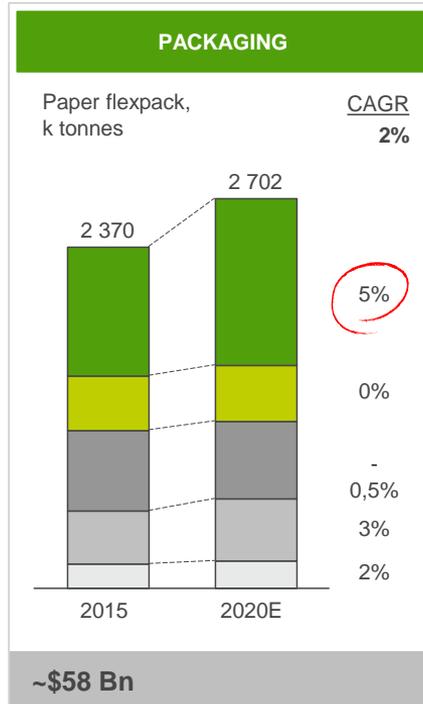
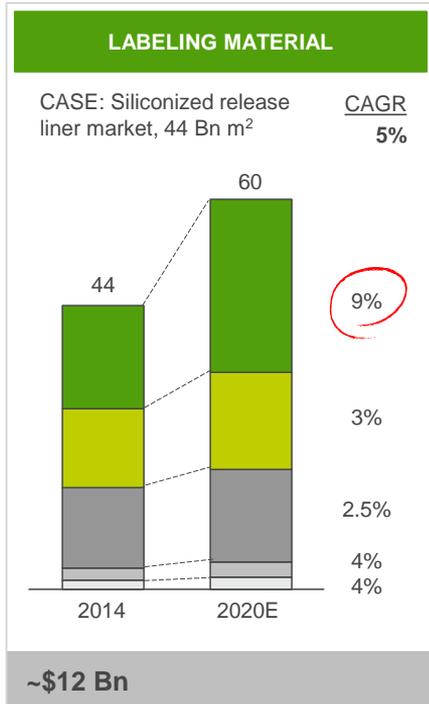


UPM Specialty Papers

Focus on global Labelling materials, Packaging in Europe and Office paper in APAC

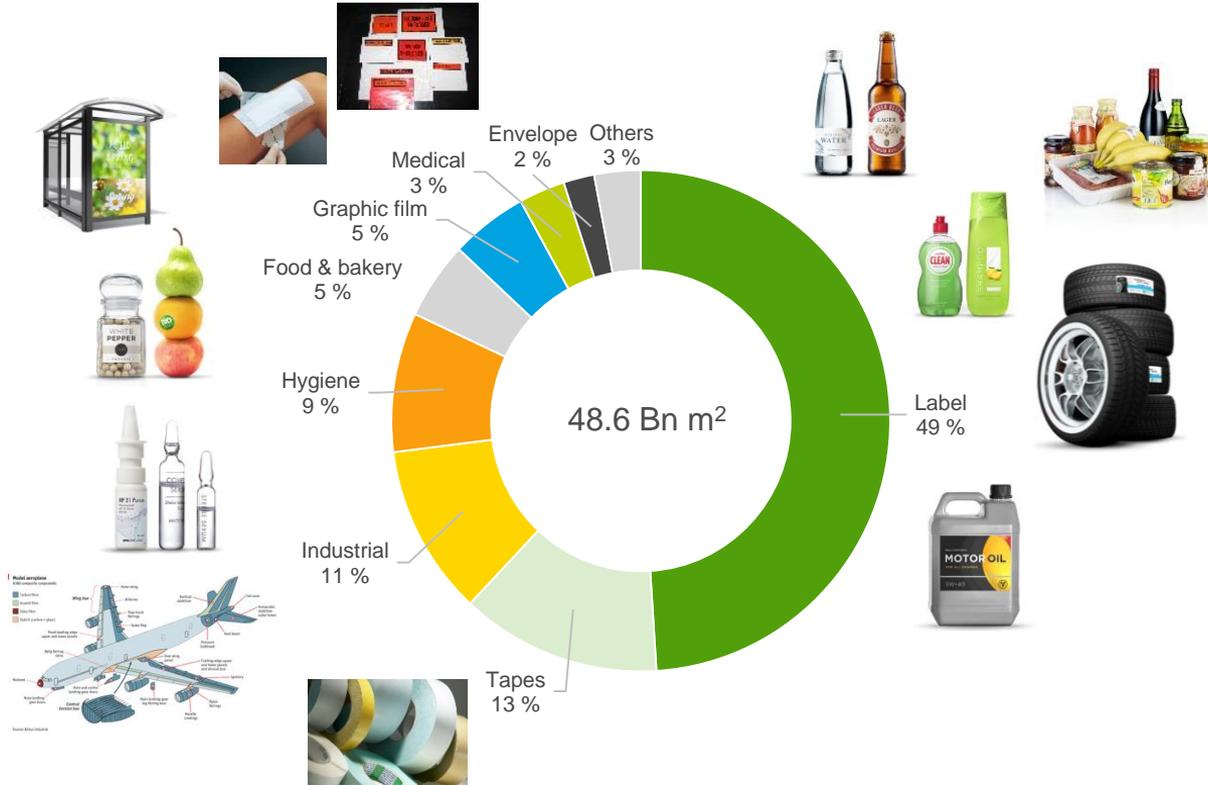


Our end use markets are growing



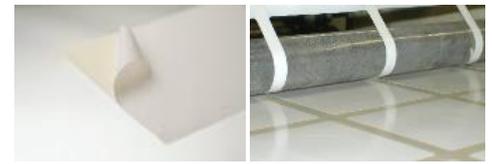
■ Asia
 ■ North America
 ■ Europe
 ■ South America
 ■ MEA

Global release liner market: Applications

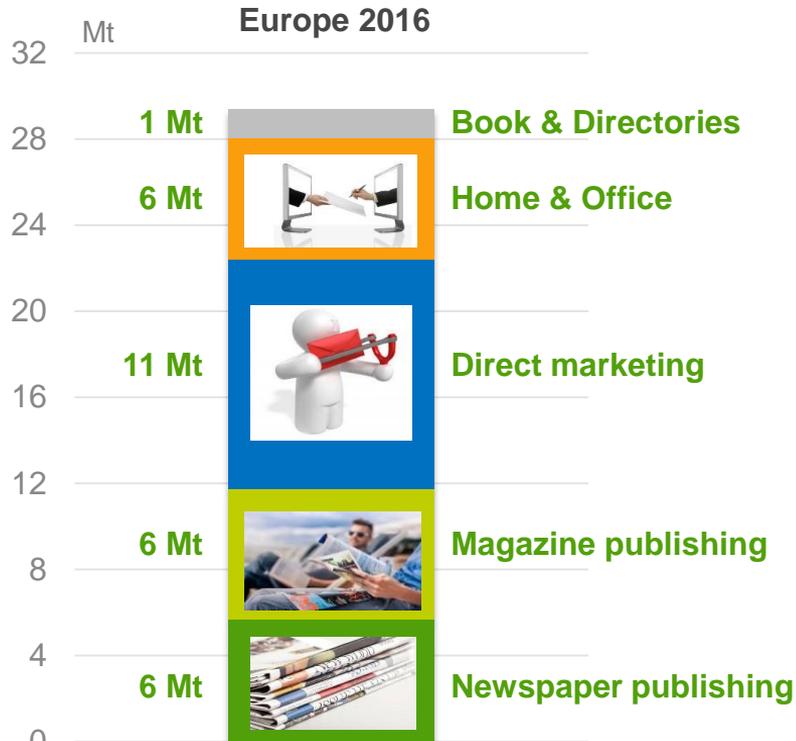


Product functions:

- Release liner carries the adhesive and face material
- Prevents the adhesive from sticking permanently
 - Important and often critical feature of a layered construction

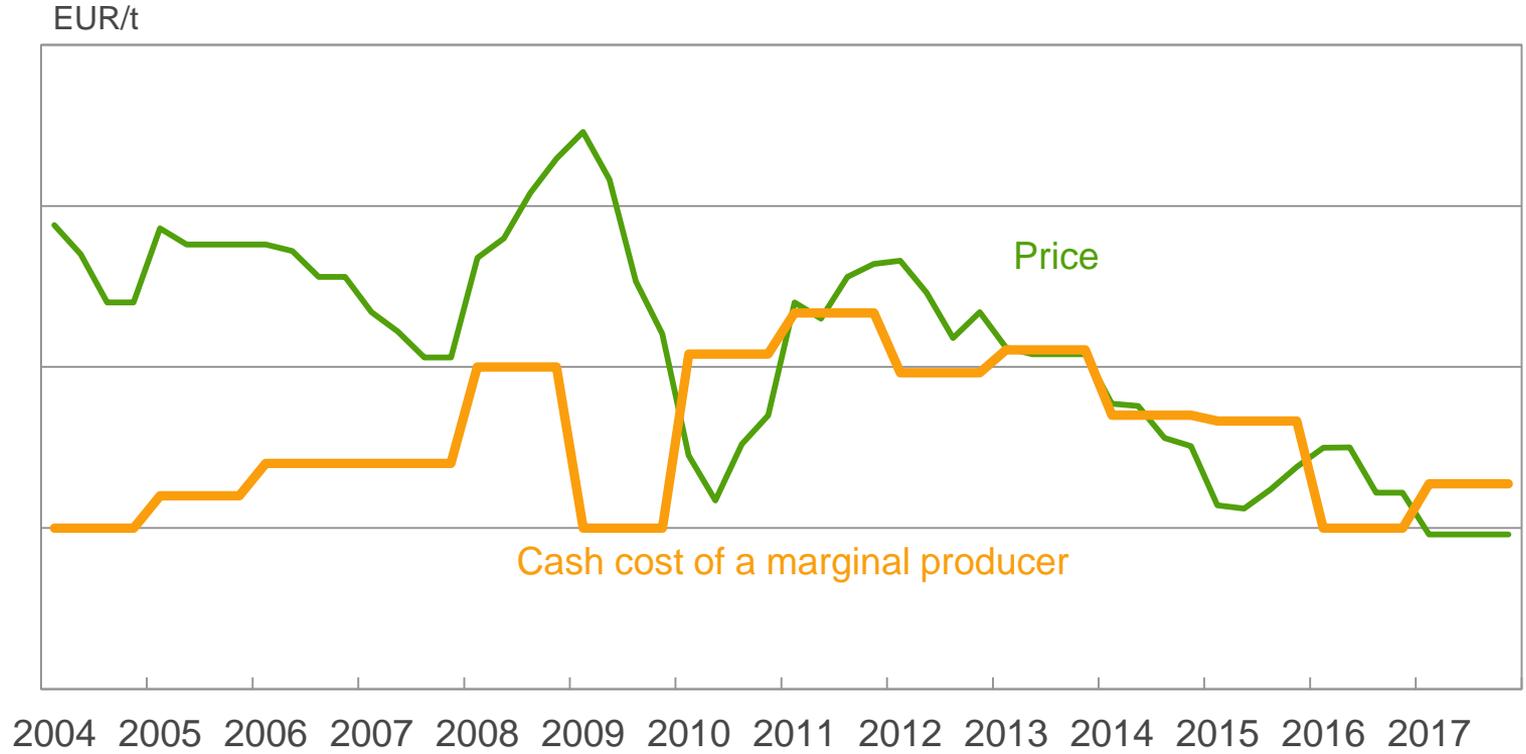


Paper demand by end use – different trends



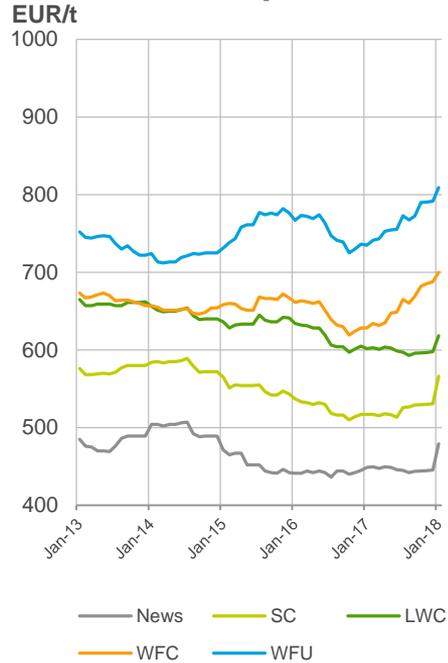
- Historically Home & Office end use has been the **most resilient** to structural changes.
- Despite the digital alternatives personal preferences (way of working and learning), regulation (archiving) and lack of common standards have mitigated the change.
- So far only a **moderate decline** has taken place in Direct marketing end use.
- **Paper based marketing still forming a big part of retailers advertising budget.**
- **Steady decline** in Magazine Publishing end use in the recent history.
- Publishers still **rely heavily on the revenues** from print.
- Digital revenues accelerating, but mostly from digital advertising. **Monetizing digital circulation has been challenging.**
- Newspaper publishing being historically the **most vulnerable** to structural changes but remarkable differences between countries.
- **Digital revenues** continue to grow, but still represent a **small part of overall newspaper revenue.**

Paper price vs. cash cost of marginal cost producer



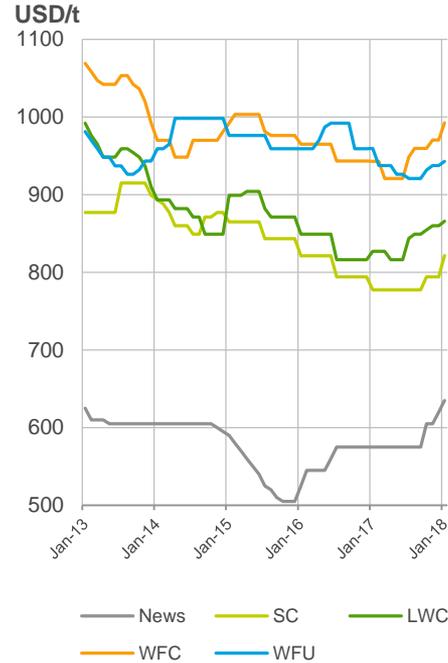
Graphic paper prices

Europe

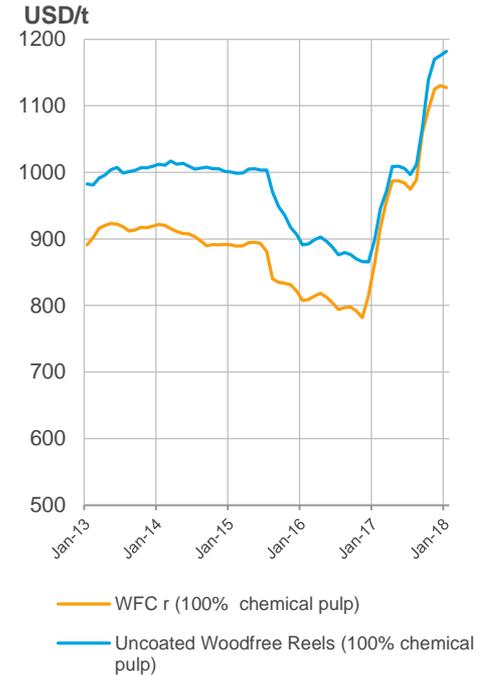


Sources: PPI, RISI

North America



China

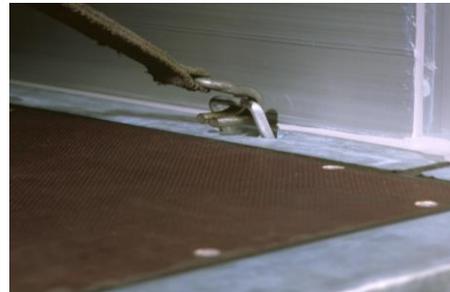


UPM Plywood in end-use

Construction



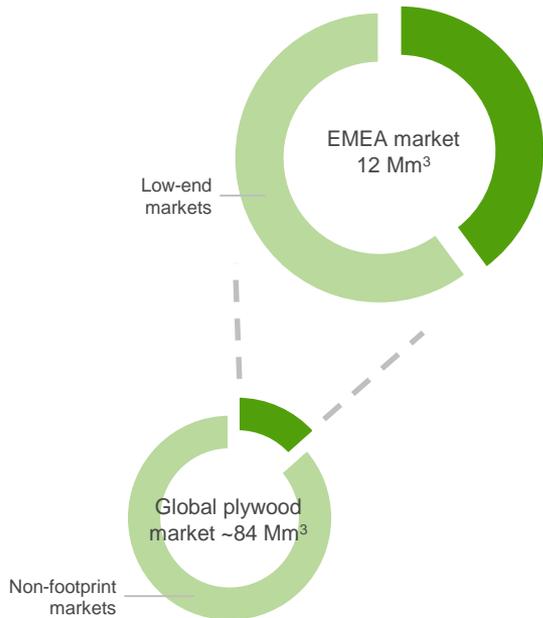
Vehicle flooring



LNG shipbuilding



Relevant high-end market offers meaningful growth potential



Relevant market ~5 million m³

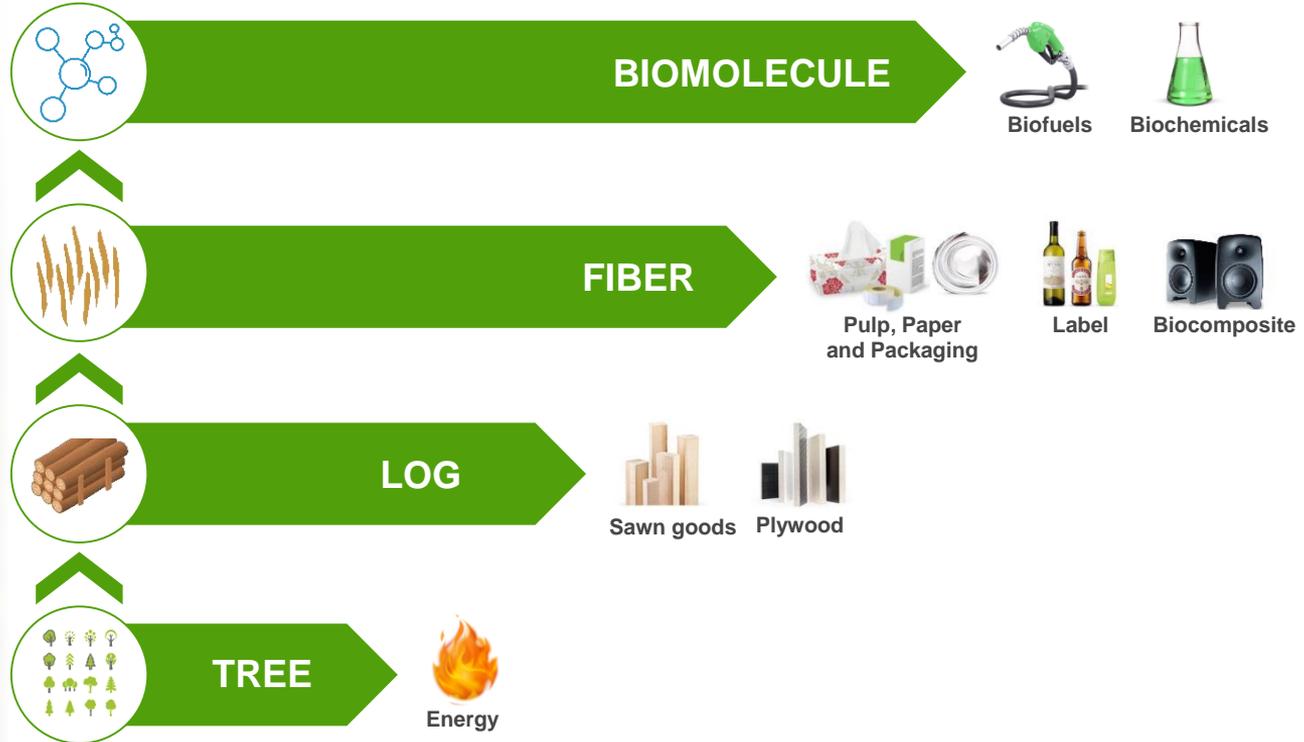
- High-end demanding applications & customers
- Medium range standard products
- EMEA region
- Global LNG business

- Europe is net importer of plywood
- Imports focus mainly on standard products in mid-low ranges

Source: FEIC; FAOSTAT; UPM

Biofuels and biochemicals are natural evolutionary steps in wood based value creation

EVOLUTION OF WOOD USAGE



Biochemicals biorefinery targeting to produce bio-MEG, bio-MPG and lignin from hardwood

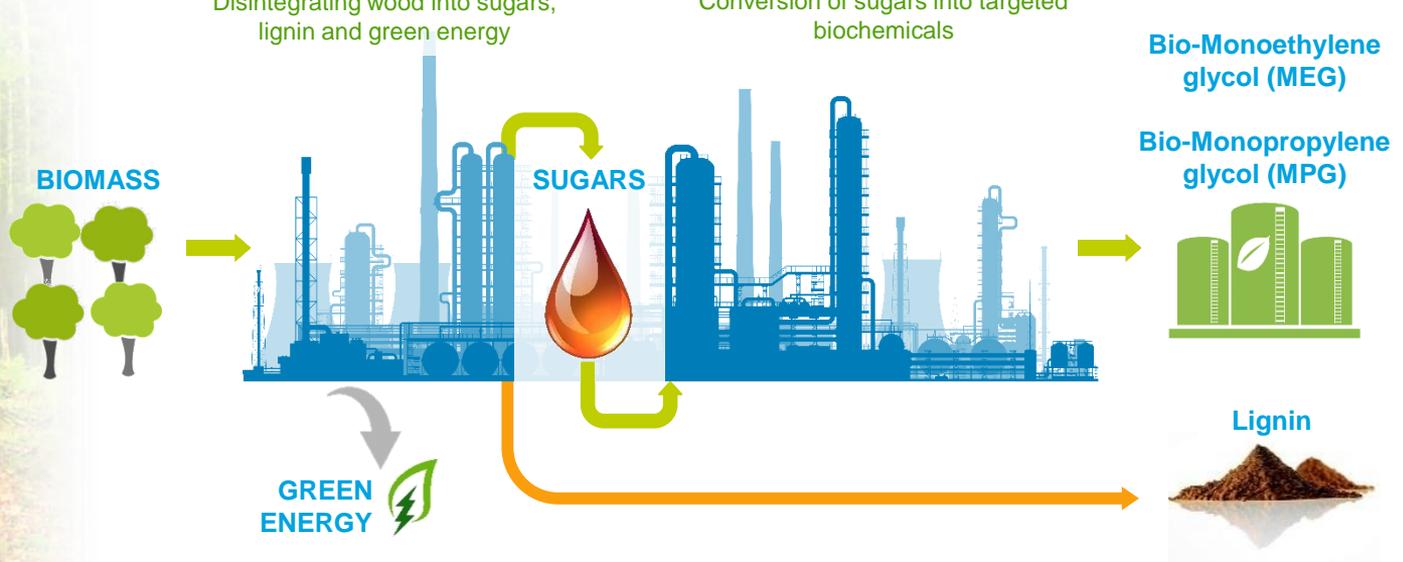
BIOREFINERY PROCESS

STEP 1: SUGAR PULPING

Disintegrating wood into sugars, lignin and green energy

STEP 2: CHEMICAL CONVERSION

Conversion of sugars into targeted biochemicals



40%
Cellulose

30%
Hemi-cellulose

25%
Lignin

Biochemicals products are sustainable and competitive drop-in alternatives for brand owners



Mono Ethylene Glycol

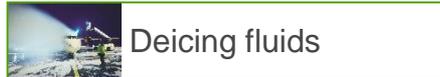
- Existing fossil-based market
- Market demand > 26 mio tons
- CAGR >3%
- Application examples:



Textiles



Bottles & Packaging

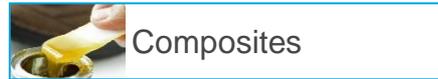


Deicing fluids

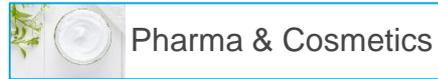


Mono Propylene Glycol

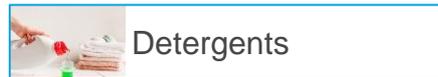
- Existing fossil-based market
- Market demand >2 mio tons
- CAGR >5%
- Application examples:



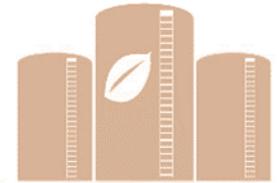
Composites



Pharma & Cosmetics

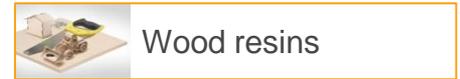


Detergents



Lignin

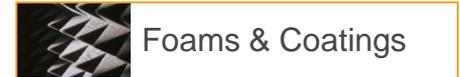
- Performance chemical
- Application driven
- Strong IP position
- Application examples:



Wood resins



Plastics



Foams & Coatings



UPM

The Biofore
Company